

CITY OF KANAB

RECREATION IMPACT FEE FACILITIES PLAN

2024



KANAB
— UTAH —



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— UTAH —

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1. EXECUTIVE SUMMARY

1.1 Introduction

The primary objective of this study is to establish plans to guide the development of future recreation facility improvements through analyzing existing conditions, creating a 10-year action plan, and a longer term 20-year action plan. The outcome of the study will be recommended improvements, estimated project costs, a maximum allowable impact fee, an impact fee schedule, and projected cash flow for Kanab's recreation services.

1.2 User Analysis

Table 1 shows historic annual growth rates of 0.6%-5.4%, with an average of 3%. Projected annual growth rates for this study are shown in Table 3 as 3% for 10 years (2023-2032) then 2% after that (2033-2043). For this study, it is assumed that residential and commercial (or non-residential) growth will occur at the same rate.

- 2023 population – 5,285
- 2033 estimated population – 7,034
- 2043 estimated population – 8,574

1.3 Existing Facilities Inventory

Kanab City currently operates and maintains five existing parks and two recreational facilities. Kanab has one paved trail that connects to the Kane County Water Conservancy District's (KCWCD) trails around Jackson Flat Reservoir.

- 2 Community Parks – Jacob Hamblin Park, Kanab Creek Ranchos Park
- 3 Special Use Parks – Kanab Creek Ranchos Entrance Park, Levi Stewart Memorial Park, Cemetery
- 2 Recreation Facilities – City Pool, Kanab Center (partnered with Kane County)
- Level of Service
 - Existing LOS for Parks is 5.95 ac/1,000 people
 - Existing LOS for Undeveloped Parks is 3.44 ac/1,000 people
 - Existing LOS for Paved Trails is 0.22 mi/1,000 people
 - Existing LOS for Recreation Facilities is 4,828.5 sq-ft/1,000 people

1.4 System Analysis

The LOS demands (in acres/1,000 people and sf/1,000 people) for the 10-year planning horizon are shown in the table below. It shows the eligible developed and undeveloped park area, paved trails, recreation facility area, and impact fee facilities plan updates, as well as estimated costs for each.

Level of Service	Developed [ac]	Undeveloped [ac]	Paved Trails [mi]	Recreation Facility [sf]	IFFPA Update (every 5 years)	Total Costs
LOS [units/1000 ppl] =	5.95	3.44	0.22	4,828.5	2 (at \$28,900 each)	
10-yr Pop. increase =	1,749					
10-yr Demand Increase =	10.40	6.02	0.38	8,443.2		
Est. 10-yr Cost (at 3% for 5 yr) =	\$ 4,744,076.76	\$ 593,378.84	\$ 304,084.08	\$ 2,936,408.25	\$ 72,342.20	\$ 8,650,290.13

1.5 Summary of Recommended Improvements

The facilities plan provides further analysis of the LOS and provides an action plan and recommended improvements to guide the development of park, trails, and recreation facilities in Kanab.

- Recommended Projects
 - 17 parks identified – 82.8 acres
 - 25 trails identified – 29.8 miles
 - Expansion of the city pool facility or new recreation building
- Total impact fee eligible cost of all improvements not to exceed \$7,211,281.94

1.6 Financial Viability

Kanab City does not currently charge monthly user rates for recreation facility use. Funds supporting recreation facilities are drawn from reservation and usage rates, but mostly from the general fund and property taxes. Analysis of the reservation and usage rates were not part of the scope of this study.

The impact fee eligible funds are shared by the residential and non-residential buildings, and are split based on equal equivalent residential connection (ERC) growth. It is assumed that 1 non-residential ERC is equivalent to 2,000 square-feet.

Commercial buildings less than 2,000 sq-ft will have the same maximum allowable impact fee as residential connections of **\$6,950.64**. Commercial buildings greater than 2,000 sq-ft will have a maximum allowable impact fee of **\$3.48** per square feet of total building area.

Parks, Trails & Recreation	
Total 10-year Cost	\$ 8,650,290.13
Residential	Non-Residential
63.1%	36.9%
\$ 5,457,579.80	\$ 3,192,710.33
785 ERC	918,681 sq-ft
\$6,950.64 /ERC	\$3.48 /sq-ft

*Assumed 2,000 sq-ft per ERC for non-residential ERCs. Analysis is based on a 10-year period. Percentage split based on Residential vs. Non-Residential projected growth.

2. INTRODUCTION

2.1 Purpose and Scope

The primary objective of this study is to update plans to guide the development of future Kanab City recreation improvements. This study includes an existing condition plan, a 10-year action plan, as well as a longer term 20-year action plan. The analysis supporting these action plans show the level of service of the recreation network now (existing conditions) and shows how many improvements can be allowed while continuing to provide the current level of service to all residents.

Kanab City operates on the premise that it seeks to provide recreational opportunities to residents and enterprises within its service area. The study area incorporates updated zoning conditions consistent with recent City planning. Given the purpose and need described above, the following were key elements contemplated in the scope of work for this project:

- Perform a user analysis, establishing an anticipated growth rate within the City's service area boundary, identify focused or pending development areas, establish population projections based on anticipated growth rate, and review and determine existing and future demographics of the City;
- Conduct a public open house/town hall meeting, provide technical documents as required and present draft impact fee facilities plans to the City Council;
- Update the system inventory to establish what the City has:
 - Gather and analyze existing parks, trails, and recreation data.
 - Inventory the existing park facilities based on classification, ownership, status, and area.
 - Inventory the existing trail facilities based on classification, ownership, status, and length.
 - Field collect critical elements of the parks and trails system (amenities, classifications, ownership, status, etc.).
 - Convert elements into GIS and attribute.
- Update analysis scenarios based on NRPA to establish the City's needs:
 - Review and establish level of service standards based on recommendations provided by the NRPA.
 - Determine existing level of service for parks, trails, and recreation facilities.
 - Establish, with input from the City, the desired level of service at buildout for parks, trails, and recreation facilities.
 - Establish general classification system with the City.
- Perform a system analysis to determine how to get what the City needs:
 - Complete analysis against the NRPA & URPA standards.
 - Identify and provide recommendations for proposed improvements for parks and trails based on desired levels of service at buildout.
 - Consider visions and goals for each facility.
 - Complete the analysis under existing, 10-year, and 20-year development conditions.
 - Develop a plan for all improvement recommendations to the parks and trails.
 - Ensure that recommendations for the future parks and trails system integrate well with the existing system.
- Perform a system financial analysis to calculate the cost of improvements:
 - Prepare project descriptions and average park, trail, and recreation facility costs for recommended improvements.

- Prepare an impact fee facilities plan for the 10-year planning horizon with considerations for the 20-year planning horizon.
- Identify a phasing plan for recommended improvements.
- Identify facilities eligible to be funded with impact fees (full or partial).
- Perform a financial viability analysis of the operations and management of the system based upon recent audits.
- Prepare an impact fee analysis, calculate the maximum allowable impact fee, and issue an impact fee certification.
- Prepare a written IFFPA with results, summaries, and relevant appendix materials.
 - Prepare a recreation impact fee facilities plan draft for City Staff, Department Heads, and the City Council.
 - Publish a final written recreation impact fee facilities plan & analysis for the community.

2.2 Background Information

Kanab is the commercial center of a large farming, ranching and recreational area located in south central Utah. The City is the County seat of Kane County and has a long history as a film making and tourism hub. Nearby tourism destinations include multiple national parks and recreational areas such as Lake Powell. Kanab is located 7 miles north of the Arizona border on US 89A. For many years the community was one of the most isolated in the nation, being cut off from the east by the Colorado River. Today it is a tourist town inviting tens of thousands of visitors annually to enjoy the beauty of the area as well as its rich history.

The City's largest park, Jacob Hamblin Park, features amenities such as baseball and softball fields, mature trees, grass area, playground, restroom building, a public swimming pool and changing rooms, a skate park and tennis courts. Kanab also has a memorial park garden and the Kanab Creek Ranchos Park, which features a large grass area and a playground. Jackson Flat Reservoir is owned and operated by the Kane County Water Conservancy District (KCWCD) but provides non-motorized aquatic recreation such as fishing, kayaking, paddle boarding, and swimming. During the past several years, The City has completed multiple projects as recommended in the 2018 IFFPA, helping to fulfill the City's goals in providing recreation opportunities for the residents of Kanab. These projects include the Sherry Belle Connector Trail and improvements to the existing Jacob Hamlin Park and Ranchos Park.

This update will include the continued growth seen by the community these past 5 years, as well as a study of future developments and issues that may arise therein.

Governing documents/codes for this study include the existing Kanab City General Plan, all current Kanab zoning and development criteria, and the Utah Impact Fees Act.

2.3 Miscellaneous Resources

Resources used include Kanab parcel data, Kanab City Staff, federal and state census information, the Impact Fees Act established under Utah State Code, and Kanab City Financial Statements.

3. USER ANALYSIS

3.1 Planning Horizon

This analysis reflects three distinct planning horizons: existing conditions, 10 years, and 20 years. The 10-year and 20-year planning horizons will project the future growth of Kanab City, as well as evaluate the system for potential deficiencies. Plans will be laid out to improve the system to compensate for those deficiencies.

3.2 Historic Growth Rates

To properly analyze the 10-year and 20-year planning horizons, projections must be made regarding population. Future estimated growth rates are based on average historical growth rates. Table 1 analyzes past census data provided for Kanab. It shows the historic 10-, 20-, 30-, and 40-year average annual growth rates.

From this table we see that annual growth rates since 1980 have fluctuated from 0.6%-5.4%. The average annual growth rate over that time sits at 3.0%. It is worth noting that the 40-year average has gone up slightly, from 2.9% to 3.0%, since the last iteration of this report. This shows that while the growth rate was down in the 2010's, it has been on the rise in the few years since then.

Description	Year Period	Population	Growth
10-year Historic	1980	2148	-
10-year Historic	1990	3318	5.4%
10-year Historic	2000	3510	0.6%
10-year Historic	2010	4312	2.3%
10-year Historic	2020	4683	0.9%
20-year Historic	1980-2000	-	3.2%
20-year Historic	1990-2010	-	1.5%
20-year Historic	2000-2020	-	1.7%
30-year Historic	1980-2010	-	3.4%
30-year Historic	1990-2020	-	1.4%
40-year Historic	1980-2020	-	3.0%

Table 1: Historic Population and Growth Rates

3.3 Projected Growth Rate

The historical growth rates shown in the previous section allow for the forward projection of population growth. Based on analysis of years past, it is projected that Kanab City will continue to grow at a rate of 2-3% over the next 20 years. For that reason, a 3% growth rate is used to show growth over the next 10 years (2023-2032) and a 2% growth rate for the 10 years after that (2033-2043). A variety of factors affect growth rate, many of which will change with time. Any projection past 20 years would prove unreliable.

3.4 Equivalent Residential Connection

Calculating an ERC provides a way to compare residential to non-residential users. ERC values are based on water use and are shown in this plan as building area. See the Kanab Water Impact Fee Facilities Plan and Analysis for more information on how this is calculated. It is assumed that 1 ERC equals 2,000 square-feet (sq-ft) of building area. This means that a 4,000 sq-ft commercial building is equivalent to 2 residences. Annual population, ERC, and growth rate projections for the 20-year planning horizon are available in Table 2. Commercial and non-residential will be used interchangeably for this report.

Year	Source	Population	Residential Connections	Non-Residential Connections	ERCs	Growth
2015	Census Est.	4,410	1,848	225	3,152	0.1%
2016	Census Est.	4,436	1,876	227	3,502	0.6%
2017	Census Est.	4,448	1,910	226	3,024	0.3%
2018	Census Est.	4,529	1,983	224	3,204	1.8%
2019	Census Est.	4,636	2,133	215	3,279	2.4%
2020	Census	4,683	2,201	263	3,551	1.0%
2021	Census Est.	5,000	2,236	271	3,973	6.8%
2022	Census Est.	5,131	2,304	271	3,652	2.6%
2023	Estimate	5,285	2,373	279	3,761	3.0%
2024	Estimate	5,443	2,444	288	3,874	3.0%
2025	Estimate	5,607	2,518	296	3,990	3.0%
2026	Estimate	5,775	2,593	305	4,110	3.0%
2027	Estimate	5,948	2,671	314	4,233	3.0%
2028	Estimate	6,127	2,751	324	4,360	3.0%
2029	Estimate	6,310	2,834	333	4,491	3.0%
2030	Estimate	6,500	2,919	343	4,626	3.0%
2031	Estimate	6,695	3,006	354	4,765	3.0%
2032	Estimate	6,896	3,096	364	4,908	3.0%
2033	Estimate	7,034	3,158	371	5,006	2.0%
2034	Estimate	7,174	3,221	379	5,106	2.0%
2035	Estimate	7,318	3,286	386	5,208	2.0%
2036	Estimate	7,464	3,352	394	5,312	2.0%
2037	Estimate	7,613	3,419	402	5,419	2.0%
2038	Estimate	7,766	3,487	410	5,527	2.0%
2039	Estimate	7,921	3,557	418	5,637	2.0%
2040	Estimate	8,079	3,628	427	5,750	2.0%
2041	Estimate	8,241	3,700	435	5,865	2.0%
2042	Estimate	8,406	3,774	444	5,983	2.0%
2043	Estimate	8,574	3,850	453	6,102	2.0%

Table 2: Growth Projections

4. INVENTORY

4.2 Park & Trail Classification

Neighborhood Park

Description: The neighborhood park remains the basic unit of the park system and serves as the recreational and social focus of the neighborhood. This type of park provides activities for all age groups and addresses the specific recreational needs of the nearby neighborhood it serves. Facilities may include play structures, picnic areas, shaded seating, soft and hard surface courts, restrooms, trails, and large informal open areas for unprogrammed play activities. Typically, parks in this classification have no lighted athletic fields for formal team competitions, and no schedule for organized programs. These parks are intended for use by local neighborhood residents and are not intended to draw large numbers of residents to the area, unlike parks that have sports fields, splash pads, or large sports court amenities.

Location: Centrally located within its service area and uninterrupted by non-residential roads and other physical barriers.

Access: By way of interconnecting trails, sidewalks, or low volume residential streets.

Desirable Size: 3 – 10 acres

Area Served: 0.5 mile radius

Examples: No current parks.

Application of LOS: Yes

Required Elements for New Neighborhood Parks:

- Restroom
- Picnic Shelter
- Playground Structure
- Open Grass Areas
- Shaded Areas
- 8-10 Parking Spaces
- Park Furniture
- At least one of the following:
 - Basketball standard
 - Tennis court
 - Volleyball court
 - Sport court (multi-use)
 - Paved walking trail
 - Climbing wall
 - Other neighborhood-desired facility



Ranchos Park Concept

Community Park

Description: Community parks are larger in size and serve a broader purpose than neighborhood parks. Their focus is on meeting a wide range of recreational activities for several neighborhoods or sections of the community. They allow for group activities and offer other recreational opportunities not feasible – nor perhaps desirable – at the neighborhood level. Community parks can accommodate special events and gatherings and can provide for a broad variety of activities and recreation opportunities. Community parks may be highly developed with amenities such as playgrounds, lighted athletic fields, programmed sports which accommodate specific needs of user groups and athletic associations based on demand and program offering, or they may include large open spaces with sensitive environments such as wildlife habitat, river corridors, and flood plains, greenways, and other protected open space and sensitive lands.

Location: Community parks should be viewed as a strategically located community-wide facility rather than serving a defined neighborhood or area. They should not be adjacent to residential areas unless buffering (topographic breaks, vegetation, walls, etc.) is used, but more importantly the quality of the natural resource base should play a significant role in site selection. Identifying the location of these facilities is critical to avoid long term conflicts and negative impacts to the community.

Access: Community parks should be serviced by a collector level street and not through a residential road. Given that a community park will likely be used for league sports and tournaments, access routes from outside the community should also be considered. Multiple access points in and out of parking areas should be provided to facilitate vehicular movements during events. The site should be easily accessible by way of interconnecting trails, as well.

Desirable Size: 10 – 40+ acres

Area Served: 2-mile radius

Examples: Jacob Hamblin Park, Ranchos Park

Application of LOS: Yes

Required Elements for New Community Parks:

- Restrooms
- Picnic Shelters
- Shaded Areas
- Appropriate Number of Parking Spaces (off-street parking to handle events)
- Sports Fields/Courts
- Walking Paths
- Playground



Jacob Hamblin Park

Special Use Park

Description: Special use parks are usually implemented to serve specific needs, such as access to trails or for a historical marker. Improved trailheads, linear parks, and small picnic areas are included in the special use park classification. They are sometimes located within public easements.

Location: Dependent on use, often adjacent to trails

Access: By way of interconnecting trails, sidewalks, and streets.

Desirable Size: Varies, usually <1 acre

Area Served: Variable

Examples: Levi Stewart Memorial Park

Application of LOS: Yes

Paved Trail

Description: Paved trails or trail systems are generally transportation corridors for non-motorized modes of transportation such as walking, jogging, running, and cycling and provide valuable recreation and transportation opportunities for residents and visitors. They are used to interconnect parks, neighborhoods, downtown, and bordering cities and sites.

Location: Generally located in natural corridors such as along streams and riverbanks and along washes. Paved trails are also often located in utility corridors. Care should be taken to ensure preservation and enhancement of these natural corridors and habitat to maintain the fragile ecosystem in which they are placed.

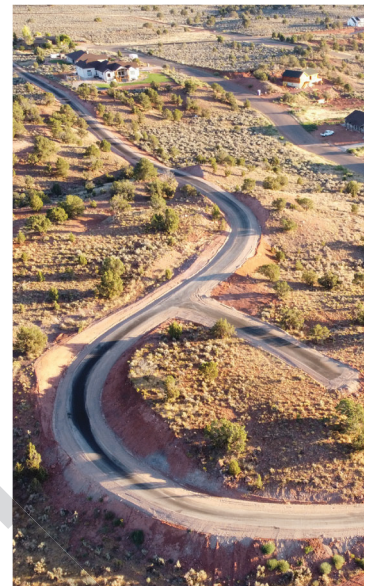
Access: These trails should be serviced mainly by other park classifications to capitalize on existing facilities or features. Some trails may require controlled access to preserve environmental features. All trails should interconnect and have access points to parks, residential roads, local connectors, and main thoroughfares.

Desirable Size: 10 feet in width, length varies.

Area Served: Kanab City and surrounding region

Examples: Sherry Belle Connector Trail

Application of LOS: Yes, if owned by Kanab City



Sherry Belle Trail

Unimproved Trail

Description: Unimproved trails emphasize a relationship with the natural environment. These are most often located within natural resource areas and greenways. Since regional and state parks often develop and maintain these types of trails, the need for them at the local level is often limited. They can provide a different opportunity for interconnectivity between other parts of the park system more oriented on the natural environment rather than parks.

Location: Generally located in natural corridors or in large natural recreation areas. Care should be taken to ensure preservation and enhancement of these natural corridors and habitat to maintain the fragile ecosystem in which they are placed.

Access: These trails should be serviced mainly by other park classifications to capitalize on existing facilities or features. Some trails may require controlled access to preserve environmental features. Trails could interconnect and have access points to parks and residential roads.

Desirable Size: Width varies from 3' wide single-track trails to larger 10' wide trails. The width of the trail should match the environment and the intended use (mountain bike, hiking, etc.). The length of unimproved trails varies.

Area Served: Kanab City and surrounding region

Examples: K-Hill Trail, Squaw Trail, Pugh Canyon Trail, Cottonwood Trail

Application of LOS: No

Recreation Facility

Description: Recreation facilities provide additional recreational opportunities to the community not available in parks or trails. Amenities available in a recreation center can be as follows: aquatic facilities including swimming pools, lap pools, water features, splash pads, slides, etc., health and fitness areas including weight rooms, aerobics rooms, tracks, court facilities including tennis, racquetball, basketball, gymnastics, pickleball, rock climbing, etc.

Location: Centrally located within the community and should be identified prior to development to avoid conflicts.

Access: The site should be serviced by a collector level street and not through a residential road. It should be easily accessible from throughout its service area by way of interconnecting trails and sidewalks.

Desirable Size: Variable, large scale

Area Served: 3+ mile radius

Examples: Kanab Public Swimming Pool, Kanab Center

Application of LOS: Yes

Private Park/Facility

Description: The private park/facility is the smallest park classification and is used to address limited or isolated recreational needs for private communities. They are generally developed within a residential area for the exclusive use of residents and are maintained through a neighborhood association. Even though all parks within this classification are private they still serve the recreational needs of the local neighborhoods, however, they are not a complete substitute for public recreation space.

Location: Central to a neighborhood or servicing a specific recreational need or taking advantage of a unique opportunity. Often the location of these private parks/facilities will be determined by the developer with the city negotiating the final location.

Access: By way of interconnecting trails, sidewalks, or low-volume residential streets.

Desirable Size: 0.25 – 1 acre

Area Served: 0.15-mile radius

Examples: Private parks, private clubhouses

Application of LOS: No

Bike Route

Description: Bikeways are paved segments of roadways that serve to safely separate bicyclists from traffic. Bike routes are essentially paved shoulders of segments of the roadway that serve this purpose. Bikeways serve commuters, fitness enthusiasts, and competitive athletes.

Location: Generally located along major arterial roads and major thoroughfare roads.

Access: Bikeways should be planned as stand-alone systems that connect to the off-street trail system.

Desirable Size: Width and length vary (design standards should coincide with local, state and federal standards).

Area Served: Kanab City and surrounding region

Examples: a designated bike route or bike lane

Application of LOS: No

School – Park

Description: The school-park combines the resources of two public agencies and provides a range of recreational services and facilities to several neighborhoods that are served by a school. Depending on circumstances, school-park sites often complement open space and could possibly serve in several capacities, such as a neighborhood park or youth athletic field. Even though all parks within this classification are determined by the school district and location of schools, it is important to understand these schools serve the recreational needs of surrounding neighborhoods. This classification also includes private and charter schools. Some communities have agreements with local school districts for shared use of fields and courts and supporting amenities.

Location: Adjacent to a school facility.

Access: By way of interconnecting trails, sidewalks, and streets. Should have direct access from a collector level (larger) street.

Desirable Size: Dependent upon school district

Area Served: 1 mile or boundary of school

Examples: Elementary, Middle, and High Schools

Application of LOS: No

Regional Park

Description: Regional parks are large recreation areas that serve an entire city or region. The classification of regional parks includes special use facilities such as golf courses, lakes, nature centers, campgrounds, state parks, national parks and other broad expanses of natural scenery or open space. Regional parks are designed to accommodate large numbers of people for a variety of day use activities.

Location: Often developed around a unique or significant resource or to emphasize a regional recreational interest. They also serve as a buffer and separation between communities or other areas.

Access: Typically, regional parks are serviced by a main arterial

Desirable Size: Variable, large scale

Area Served: Kanab City, Kane County, and Southern Utah

Examples: Kanaplex, Jackson Flat Reservoir, Bryce Canyon National Park, Zion National Park

Application of LOS: No



Bryce Canyon National Park



Zion National Park

CLASSIFICATION	DESCRIPTION	TYPICAL SIZE	AREA SERVED	APPLICATION OF LOS
Private Park/Facility	Used to address limited or isolated recreational needs for private communities.	0.25 - 1 acre	0.15 mile radius	No
Special Use	Covers a broad range of parks and recreation facilities oriented toward single-purpose use.	0.1 - 1 acre	Variable (Usually 0.5 miles)	Yes
Neighborhood Park	Remains the basic unit of the park system and serves as the recreational and social focus of the neighborhood.	3 - 10 acres	0.5 mile radius	Yes
School Park	Often complement open space and could possibly serve in number of capacities such as a neighborhood park or youth athletic field.	Dependent upon school district	1 mile radius or boundary of school	No
Community Park	Serves broader purpose than neighborhood park. Focus is on meeting a wide range of recreational activities (passive, active, programmed sports, league play, tournaments, etc.) for the several neighborhoods or the entire community.	10 - 40+ acres	2 mile radius	Yes
Regional Park	Large recreation area that serves an entire city or region. Often includes multiple special use facilities and accommodates large numbers of people for a variety of day use activities.	Variable, large scale	Kanab City, Kane County, Southern Utah	No
Trail	Serves as paved transportation corridors for non-motorized modes of transportation. Used to interconnect parks, neighborhoods, downtown, and bordering cities and sites.	10 width, length varies	Kanab City and surrounding region	Yes
Unimproved Trail	Nature trails for pedestrians, which may use either hard or soft surfaces.	Width varies, length varies	Kanab City and surrounding region	No
Bike Route	Designated portions of the roadway for the preferential or exclusive use of bicyclists.	Width varies, length varies	Kanab City and surrounding region	No
Recreational facility	Represents that contribution of a public community center to the park and recreation system and the recreational opportunities. Characteristics often included aquatic, health, fitness, and court type programs and facilities.	Variable, large scale	Kanab City, Kane County (Usu. 3 miles)	Yes

Table 3: Park & Trail Classification

4.3 Existing Facilities

Currently, there are four existing parks, two recreation facilities, a cemetery, and several acres of undeveloped park land under the jurisdiction of Kanab City. Maps of these facilities are found in Appendix A. These maps also show trails in the area that are not applied to the LOS.

Park Name	Class	Total Area [ac]	Developed [ac]
Jacob Hamblin Park	Community Park	21.13	13.91
Kanab Creek Ranchos Park	Community Park	12.26	8.62
Levi Stewart Memorial Park	Special Use	0.76	0.76
Ranchos Entrance Park	Special Use	0.35	0
Cliffs Cove Park	Undeveloped Park	6.46	0
Sherry Belle Parking	Undeveloped Park	0.15	0
Cemetery	Special Use	8.51	8.13

Table 4: Existing Parks

Trail Name	Total Length
Sherry Belle Trail Connector	1.14

Table 5: Existing Trails

Recreation Facility	Class	Total Area [sf]
City Swimming Pool	Rec Facility	12,886
Kanab Center	Rec Facility	12,632

Table 6: Existing Recreation Facilities

5. LEVEL OF SERVICE ANALYSIS

5.1 Existing Level of Service

Establishing an existing LOS is a fundamental part of an impact fee facilities plan and analysis. Specific terms used in this plan to characterize a level of service are defined as follows:

Existing LOS: the current level of service of parks, trails, and recreational facilities.

Target LOS: the level of service the city desires to attain.

The existing LOS calculations only count developed park acreage and do not include undeveloped city-owned property. Impact fees may be used to fund future development of any undeveloped acreage. For example, if the city owns a parcel of land and half of that parcel is developed as a park, only the developed half will be counted towards the current level of service and impact fees may be used to expand the park and develop the other half of the parcel.

The existing LOS for parks will be based upon acreage per thousand people (acres/1,000 people) and then converted to dollars per thousand people (\$/1,000 people) based on average costs calculated in Appendix C and summarized in the impact fee summary table in the financial section of this report.

Park Name	Class	Total Area [ac]	Developed [ac]	Undeveloped [ac]
Jacob Hamblin Park	Community Park	21.13	13.91	7.22
Kanab Creek Ranchos Park	Community Park	12.26	8.62	3.64
Levi Stewart Memorial Park	Special Use	0.76	0.76	0
Ranchos Entrance Park	Special Use	0.35	0	0.35
Cliffs Cove Park	Undeveloped Park	6.46	0	6.46
Sherry Belle Parking	Undeveloped Park	0.15	0	0.15
Cemetery	Special Use	8.51	8.13	0.38
Total Park Acreage for LOS =			31.42	18.20
2023 population =			5,285	5,285
LOS [ac/1000 ppl] =			5.95	3.44
LOS [\$/1000 ppl] =			\$ 2,340,295.67	\$ 292,719.11

Table 7: Park LOS Calculations

The existing LOS for paved trails will be based upon miles of trail per thousand people (mi/1,000 people) and then converted to dollars per thousand people (\$/1,000 people)

Trail Name	Total Length [mi]
Sherry Belle Trail Connector	1.14
Total Trail Miles for LOS =	1.14
2023 population =	5,285
LOS [mi/1000 ppl] =	0.2
LOS [\$/1000 ppl] =	\$ 150,007.41

Table 8: Trail LOS Calculations

The existing LOS for recreation facilities will be based upon square-footage per thousand people (sf/1,000 people) and then converted to dollars per thousand people (\$/1,000 people).

Recreation Facility	Class	Total Area [sf]
City Swimming Pool	Rec Facility	12,886
Kanab Center	Rec Facility	12,632
Total Rec. Facility Area for LOS =		25,518
2023 population =		5,285
LOS [sf/1000 ppl] =		4,828.5
LOS [\$/1000 ppl] =		\$ 1,448,556.56

Table 9: Recreation Facilities LOS Calculation

5.2 Target Level of Service

After presenting the existing LOS data to Kanab City Staff, they made the decision to make the target LOS equal to the existing LOS for parks and recreation facilities. However, public sentiment and city staff decision is to increase the target LOS for trail miles to 0.75 miles per thousand people (0.75 mi/1000 ppl). This represents an increase of approximately 340% in trail miles. This increase in trail miles would be the paved trail level of service for Kanab within an average range for other southern Utah cities such as St. George, Washington, and Moab. Bear in mind, the City will need to take into account that any increase from the existing LOS to a higher target LOS will require funding from other fees besides impact fees (i.e. user fees, grants, general fund).



Sherry Belle Trail

6. IMPACT FEE FACILITIES PLAN

6.1 Growth Demands

The impact that development has on recreation facilities is two-fold: space and access. To achieve the target access to all areas of the City, parks and trails should be regularly spaced throughout the City and be incorporated into neighborhoods. Buffer maps in Appendix A show current spacing and accessibility of the recreation facilities.

6.2 Parks, Trails, and Recreation Facilities Plan

This recreation impact fee facilities plan provides Hurricane City with direction in terms of park, trail, and recreation facility development to meet future demands and satisfy the recreational needs of the community.

These recommendations reflect the current needs of the City and projected needs in the near future. It may be necessary to revise these priorities to accommodate new development or unforeseen issues or demands. However, all parks, trails, and recreation facilities built should contribute to Hurricane’s long-range planning goals and to the overall proposed systems outlined in this document.

To meet future demand, locations for a total of approximately 17 new parks have been identified. A map of all proposed parks is shown in Appendix A. The table below shows the full list of parks at buildout of the current city limits.

Name	Type	Area
East Canal Park	Community Park	10.0
Jacob Hamblin Park Expansion	Community Park	6.1
Kanab Creek Ranchos Park Expansion	Community Park	3.6
Jacob Hamblin Park Expansion	Community Park	6.5
West Ranchos Park	Neighborhood Park	5.0
Kanab Creek View Park	Neighborhood Park	5.0
Powell Drive Park	Neighborhood Park	5.0
Ventana Park	Neighborhood Park	5.0
1200 South Park	Neighborhood Park	5.0
400 South Park	Neighborhood Park	5.0
Hidden Canyon Park	Neighborhood Park	5.0
Sherry Belle Park	Neighborhood Park	1.2
Southwest Park	Neighborhood Park	5.0
Southeast Park	Neighborhood Park	5.0
Golf Course Park	Neighborhood Park	5.0
650 South Park	Neighborhood Park	5.0
Ranchos Entrance Park	Special Use	0.4
TOTAL ACRES		82.8

Table 10: Proposed Parks

In certain instances, neighborhood parks are the responsibility of new development, to match the demand created by the development. These parks are sometimes built by the developer and then turned over to the City. When this is the case, the City may require a minimum park acreage be built. In exchange for the park built to City standards, the City may give an impact fee credit for the facility to the developer. This process benefits both parties given that the new development is more appealing with a neighborhood park and the City acquires the park acreage required to be constructed by this plan and new development.

In the case of community parks, the City will generally be responsible for the development and construction of these types of facilities, since they typically serve multiple neighborhoods and often require a great deal of planning in order to be strategically located to serve the entire community.

The trail facilities plan provides Kanab City with direction in terms of trail development to meet future demands and emphasizes safe travel for pedestrians to and from parks and around the community. The focus is as much on transportation as it is on recreation. The following 25 trails and approximate mileage are shown in the table below.

A total of approximately 29.8 miles of new trails, trail extensions, and trail systems have been identified. A map showing a proposed location for each of these trails is in Appendix A.

In many instances, these trails will come with the arrival of new development. These trails are sometimes built by the developer and then turned over to the City. When this is the case, the City will require the trail material to be **asphalt**, which complies with their standard specifications, and the trail must be **ten feet in width** at a minimum. In exchange for a length of trail constructed to City standards, the City may give an impact fee credit for the trail length to the developer. This process benefits both parties given that the new development is more appealing with a network of trails and ties into the City trail system and the City obtains the constructed trail mileage needed by this plan and new development.

Kanab City officials have shown interest in expanding the offering of the recreation facilities by either building a recreation building near the city pool or near the City's offices. Either location would match the vision and purpose of a recreation building

It is recommended that Kanab City maintain the existing LOS in regard to all recreation facilities. In the 10-year planning horizon this means spending **\$8,650,290** on recreation facilities including parks, trails, trailheads, and recreation facilities. That total calculates to **\$21,852,336** for the 20-year planning horizon.

It is recommended that the City prioritize park expansion projects at Jacob Hamblin Park and Kanab Creek Ranchos Park and construct a Town Wash Trail and the Powell Drive. We have provided a recommended improvements map in Appendix A showing locations for all future parks, trails, and recreation facilities. The City may choose to follow the specific recommendations above or choose to build other improvements identified in the impact fee facilities plan in order to best address the City's recreation needs.

Name	Length [mi]
1100 South Trail	0.86
200 North Downtown Trail	0.18
2300 South Connector Trail	0.18
300 North Downtown Trail	0.36
300 North Downtown Trail	0.23
300 South Downtown Trail	0.39
800 South Connector Trail	0.53
Cedar Heights Park Spur Trail	0.33
East Canal Trail	1.46
East Connector Trail	1.21
Future Pond Park Spur Trail	0.09
Highway 89 Downtown Trail	2.70
Kanab Creek Drive Trail	2.15
Kanab Creek Trail	4.64
Kanab Southwest Trail	1.76
Main Street Downtown Trail	0.82
Powell Drive Trail	1.73
Savage Point Basin and K Hill Connection	0.51
Savage Point Basin and K Hill Connection	0.11
Sherry Belle Trail Connector via 900 E	0.85
Southern Connector Trail	2.06
Southwest Connector Trail	3.23
Southwest Connector Trail	1.22
Tom's Canyon Trail	1.00
Town Wash Trail	1.19
TOTAL MILES	29.78

Table 11: Proposed Trails

6.3 Key Considerations

Constructing facilities larger than the calculated LOS means that they would be partially impact fee eligible and not have all costs covered by impact fees. All parts of the community will have different levels of service. For example, commercial and industrial areas might reasonably be expected to have lower levels of service for parks and trails opportunities than residential areas.

It is important to recognize that adopting the full maximum allowable impact fee is necessary to maintain the current level of service using impact fees. If a lower than maximum allowable impact fee is adopted, this will mean that either the level of service will drop as the population grows, or other funding will need to be used to maintain the level of service.

Level of Service	Developed [ac]	Undeveloped [ac]	Paved Trails [mi]	Recreation Facility [sf]	IFFPA Update (every 5 years)	Total Costs
<i>LOS [units/1000 ppl] =</i>	5.95	3.44	0.22	4,828.5	2 (at \$28,900 each)	
10-yr Pop. increase =	1,749					
10-yr Demand Increase =	10.40	6.02	0.38	8,443.2		
Est. 10-yr Cost (at 3% for 5 yr) =	\$ 4,744,076.76	\$ 593,378.84	\$ 304,084.08	\$ 2,936,408.25	\$ 72,342.20	\$ 8,650,290.13
20-yr Pop. increase =	3,289				4 (at \$28,900 each)	
20-yr Demand Increase =	19.55	11.33	0.71	15,880.6		
Est. 20-yr Cost (at 3% for 15 yr) =	\$ 11,991,765.09	\$ 1,499,903.98	\$ 768,643.73	\$ 7,422,459.56		

Table 12: 10-year & 20-year Level of Service Summaries



Coral Pink Sand Dunes State Park

7. FINANCIAL VIABILITY

7.1 Cost Analysis

The costs of recommended improvements are based on park area, recreation facility area, trail length, and impact fee facilities plan updates and are presented in table of costs of improvements.

Average Costs	Level of Service	Developed [ac]	Undeveloped [ac]	Paved Trails [mi]	Recreation Facility [sf]	IFFPA Update (every 5 years)	Total Costs
Per Acre of Park \$ 393,644	LOS [units/1000 ppl] =	5.95	3.44	0.22	4,828.5	2 (at \$28,900 each)	
Per Acre of Land \$ 85,000	10-yr Pop. increase =			1,749			
Per Mile of Trail \$ 695,420	10-yr Demand Increase =	10.40	6.02	0.38	8,443.2	4 (at \$28,900 each)	
Per SF of Rec Facility \$ 300	Est. 10-yr Cost (at 3% for 5 yr) =	\$ 4,744,076.76	\$ 593,378.84	\$ 304,084.08	\$ 2,936,408.25		
2023 population = 5,285	20-yr Pop. increase =			3,289		4 (at \$28,900 each)	
2033 population = 7,034	20-yr Demand Increase =	19.55	11.33	0.71	15,880.6		
2043 population = 8,574	Est. 20-yr Cost (at 3% for 15 yr) =	\$ 11,991,765.09	\$ 1,499,903.98	\$ 768,643.73	\$ 7,422,459.56	\$ 169,564.08	\$ 21,852,336.44
						New ERCs 1,245	
						Maximum Allowable Impact Fee	\$ 6,950.64

Table 13: Impact Fee Calculations

These costs capture anticipated construction costs including mobilization, construction layout, demolition, material and labor costs, surface restoration, professional services, incidentals, engineering, and contingency. Average cost analyses for parks and trails is presented in Appendix B. Costs for park projects and developed acreage were collected for several parks and then averaged. The final cost per acre was increase by inflation over the average duration since the projects. A similar analysis was performed for average trail costs.

7.2 Project Phasing

It is assumed that Kanab City will construct improvements as impact fee funds are collected. This assumes that parks and trails and recreation facilities will be constructed at a pace that best suits Kanab City staff and the recreation needs of the City. It should be noted that growth in the study area may occur at a rate faster or slower than that predicted in the cash flow analysis. If growth occurs at a faster rate, more funds will be available to construct projects at an expedited schedule. On the other hand, if growth slows more than expected, implementation of the projects should be delayed until the population base can fund the improvements.

7.3 Impact Fee Analysis

Impact fees for Kanab City were reestablished in 2018, with the understanding that they would be reevaluated every 5 to 6 years. The purpose of this report is to revisit the City's recreation system and adjustment the impact fees based on changes in situation and future projections.

The proposed recreation impact fee was calculated based on the estimated costs, existing LOS, inflation, and impact fee eligibility. Project impact fee eligibility is based on whether the project is exceeds or maintains the established LOS. For the purpose of this study, all proposed project costs are impact fee eligible because they maintain the existing LOS.

An impact fee schedule is established for residential and commercial buildings based on equivalent residential values and use of the existing recreation facilities. Because residential and non-residential ERC are assumed to use recreation facilities at the same rate, 63.9% of future ERCs are calculated to be residential and the rest as non-residential. This splits the total impact fee eligible cost into residential and non-residential amounts.

The residential amount is divided by the number of projected additional residential ERCs in the 10-year planning horizon to achieve the residential impact fee per ERC. The non-residential amount is divided by the number of projected additional commercial ERCs in the 10-year planning horizon multiplied by the assumed area of 2,000 sq-ft per commercial ERC to achieve the commercial impact fee per square-foot of building space.

Parks, Trails & Recreation	
Total 10-year Cost	\$ 8,650,290.13
Residential	Non-Residential
63.1%	36.9%
\$ 5,457,579.80	\$ 3,192,710.33
785 ERC	918,681 sq-ft
\$6,950.64 /ERC	\$3.48 /sq-ft

*Assumed 2,000 sq-ft per ERC for non-residential ERCs. Analysis is based on a 10-year period. Percentage split based on Residential vs. Non-Residential projected growth.

Table 14: Impact Fee Schedule

The maximum allowable impact fee for residential connections is **\$6,950.64**. Commercial building less than the 2,000 sq-ft will have the same maximum allowable impact fee as residential connections of **\$6,950.64**. Commercial building greater than the 2,000 sq-ft will have a maximum allowable impact fee of **\$3.48** per square feet of total building area.

As required by the Utah Impact Fees Act, an Impact Fee Certification is included in Appendix C. It states that this analysis was done in accordance with the Impact Fees Act and its requirements.

Rules regarding the use of impact fees are covered by the Impact Fees Act. Generally, impact fees may only be used for facility improvements that are required to service new development within the existing level of service or expected service requirements and are included in this Impact Fee Facilities Plan. Impact fees must be used within six years of payment or they must be paid back. Alternative sources of revenue such as grants or shared construction costs should be investigated to reduce the financial burden of the City and its new residents. At the time of this study, Kanab is not applying for, or holding, any grant funds related to recreation projects.

7.5 Other Financing Options

Within the state of Utah, there are a variety of funding sources available to communities developing their parks, trails, and recreational facilities. There are specific requirements that apply to each of these that should be considered when using them as funding sources. Some of the grants require matching funds and others require substantial commitments related to tracking, monitoring, and reporting that involve staff oversight and involvement. The following list is a summary of potential funding sources in addition to Park Impact Funds (PIF).

- Capital Improvement Funds (CIF)
- Receptions, Arts, Parks Taxes (RAP Tax)
- Park and Recreational Infrastructure Bonding
- Community Development Block Grants (CDBG)
- Alternative Transportation Grants
 - UDOT
 - TIGER
 - RAISE
- Federal Highways
- Safe Schools (last mile program)

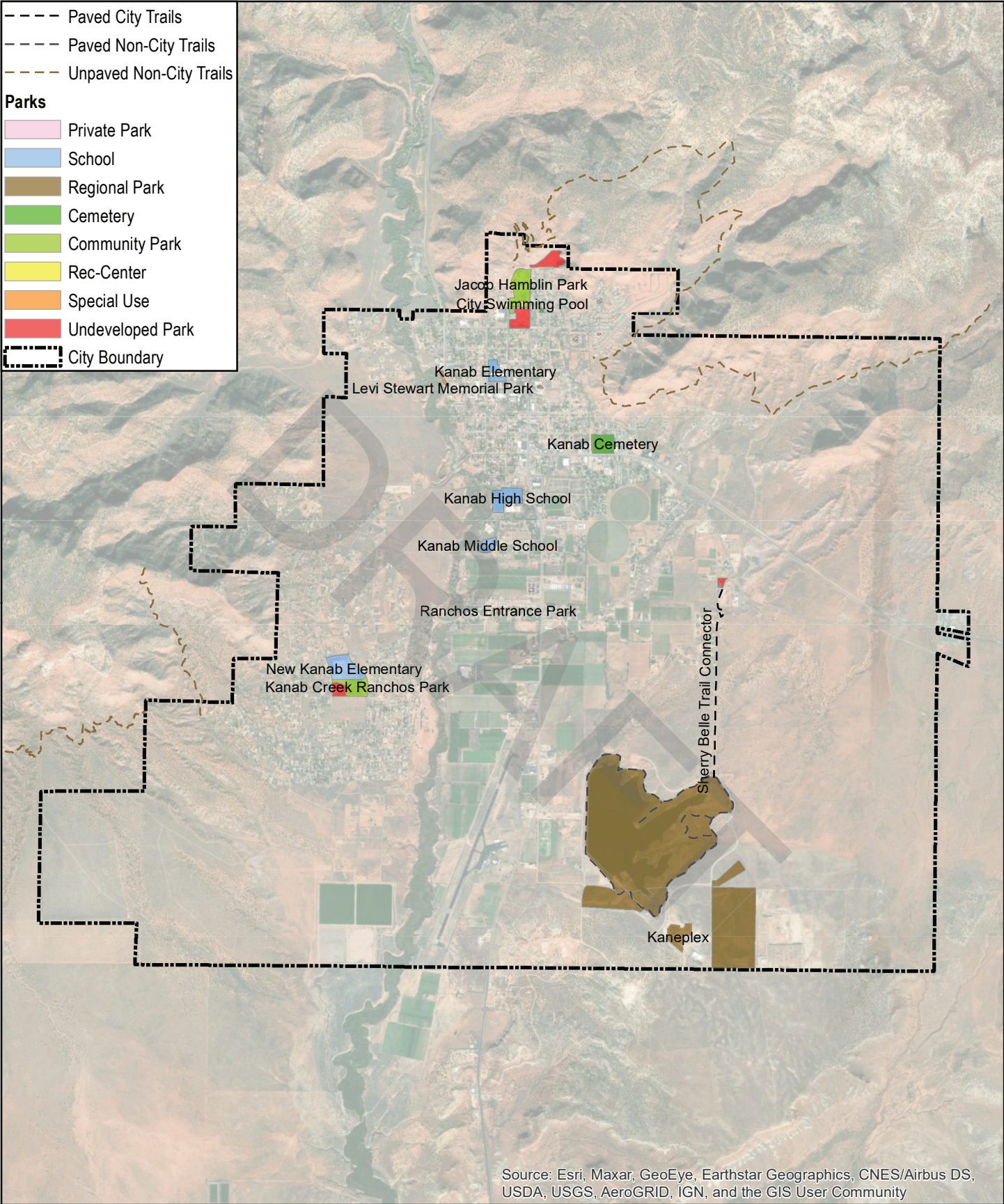
Working with developers as they provide required infrastructure based on development agreements is also another key consideration when developing parks, trails, and recreational infrastructure. Agreements can include development of infrastructure, land acquisitions and donations, and easements for trails and amenity connections between residential zones and park facilities. Often, a 10' wide paved shared use trail can be installed in place of a 5' wide sidewalk for the similar cost where the masterplan indicates that the trail is required. These park, trails, and recreational amenities are considered an added benefit to those living in these newly developed communities and a positive by developers when attracting prospective home buyers to their residential and commercial developments projects.

APPENDIX A

MAPS

DRAFT

- Paved City Trails
 - Paved Non-City Trails
 - Unpaved Non-City Trails
- Parks**
- Private Park
 - School
 - Regional Park
 - Cemetery
 - Community Park
 - Rec-Center
 - Special Use
 - Undeveloped Park
- City Boundary



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Feet

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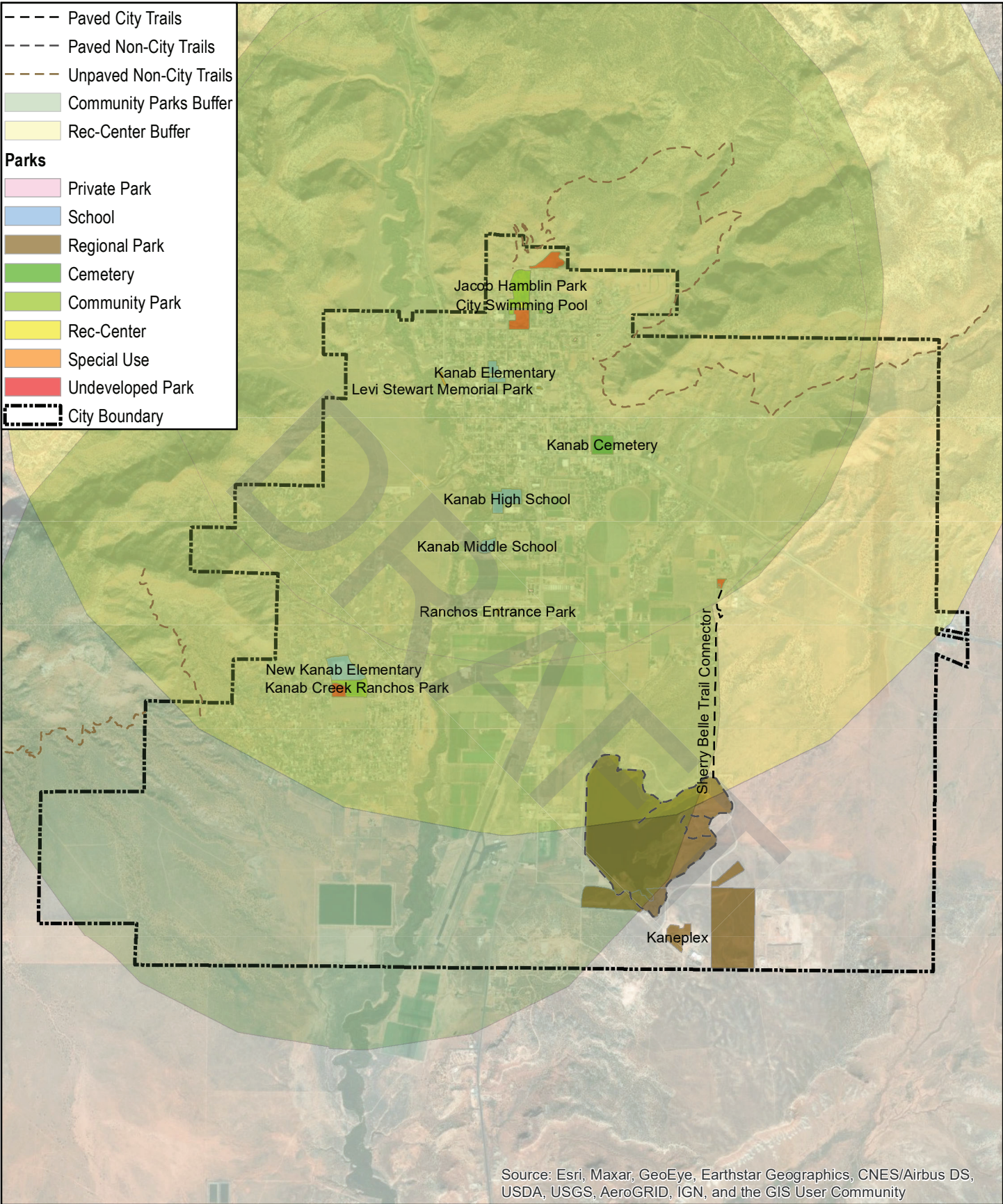
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**KANAB CITY RECREATION
IFFPA UPDATE 2024**

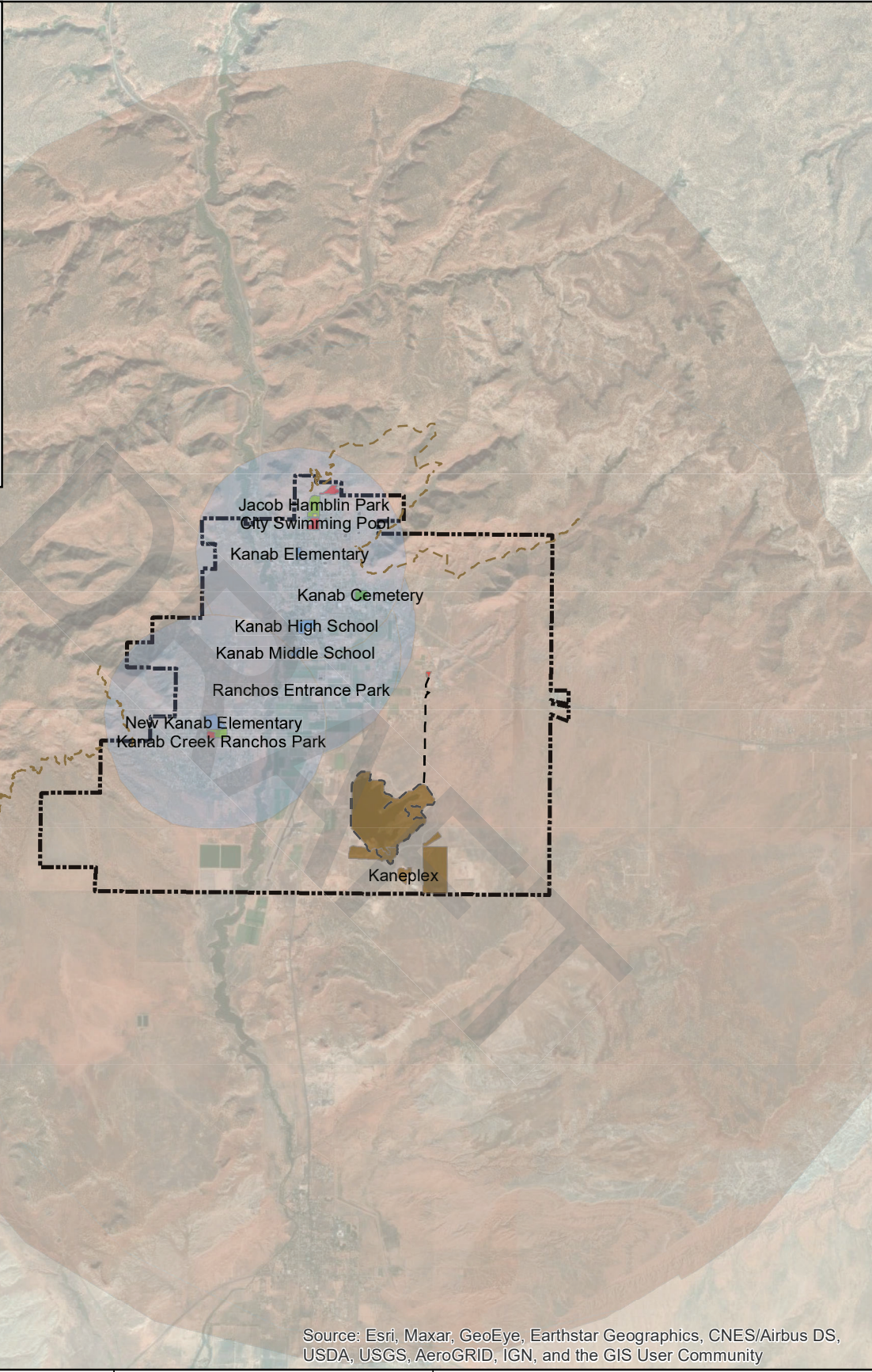
Existing Parks & Trail System

Map 2

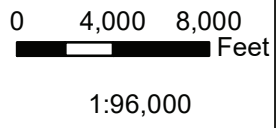


**KANAB CITY RECREATION
 IFFPA UPDATE 2024**
 Existing Parks Buffer
 Map 3

- Paved City Trails
- Paved Non-City Trails
- Unpaved Non-City Trails
- Light Blue Box School Buffer
- Light Brown Box Regional Parks Buffer
- Parks**
- Pink Box Private Park
- Blue Box School
- Brown Box Regional Park
- Green Box Cemetery
- Light Green Box Community Park
- Yellow Box Rec-Center
- Orange Box Special Use
- Red Box Undeveloped Park
- Dashed Black Box City Boundary



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

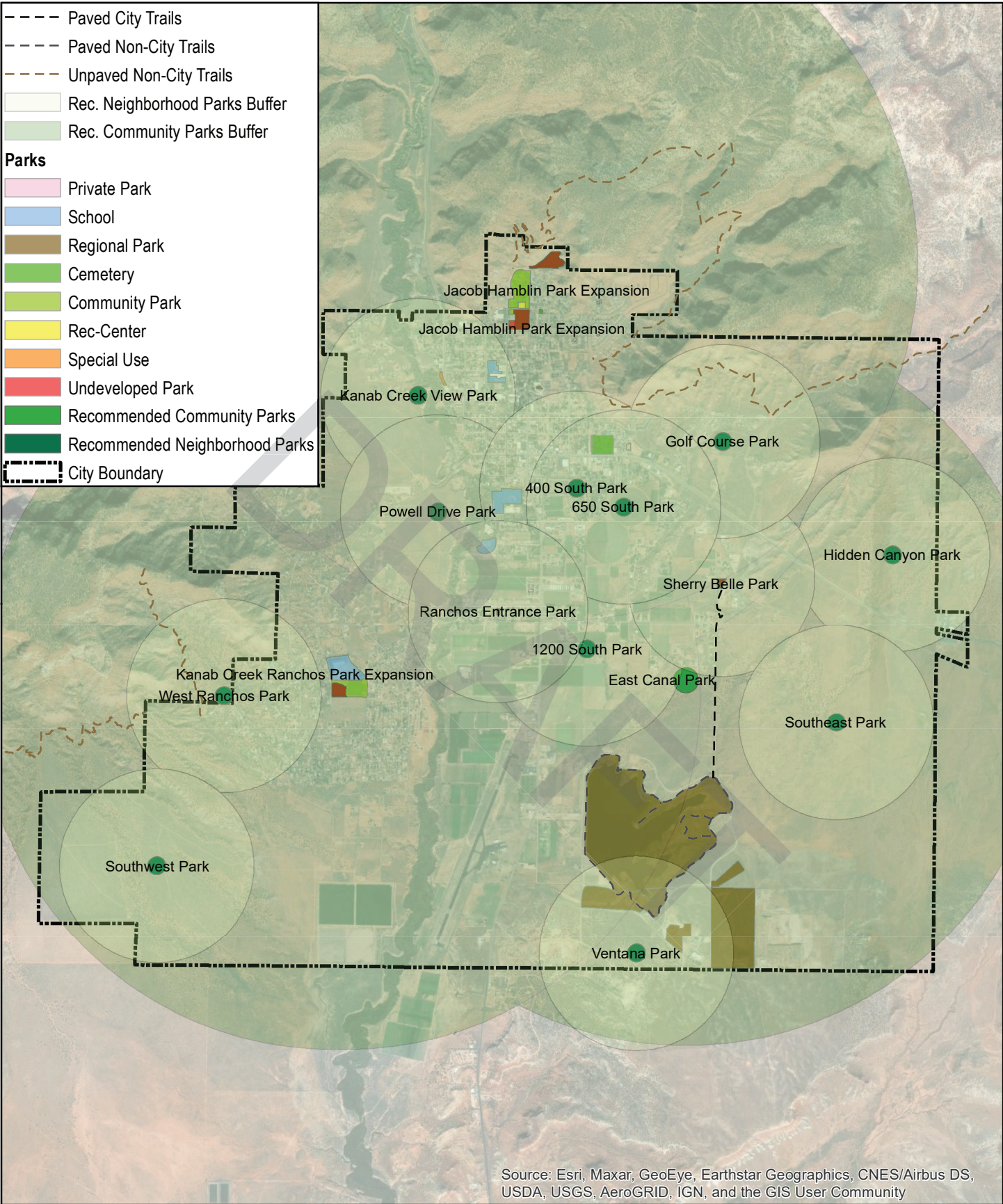


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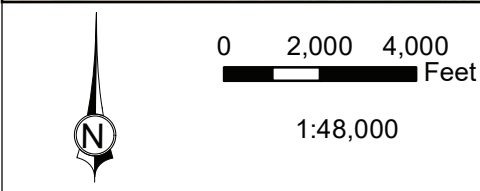
Other Parks Buffer

Map 4

- Paved City Trails
 - Paved Non-City Trails
 - Unpaved Non-City Trails
 - Rec. Neighborhood Parks Buffer
 - Rec. Community Parks Buffer
- Parks**
- Private Park
 - School
 - Regional Park
 - Cemetery
 - Community Park
 - Rec-Center
 - Special Use
 - Undeveloped Park
 - Recommended Community Parks
 - Recommended Neighborhood Parks
 - City Boundary



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

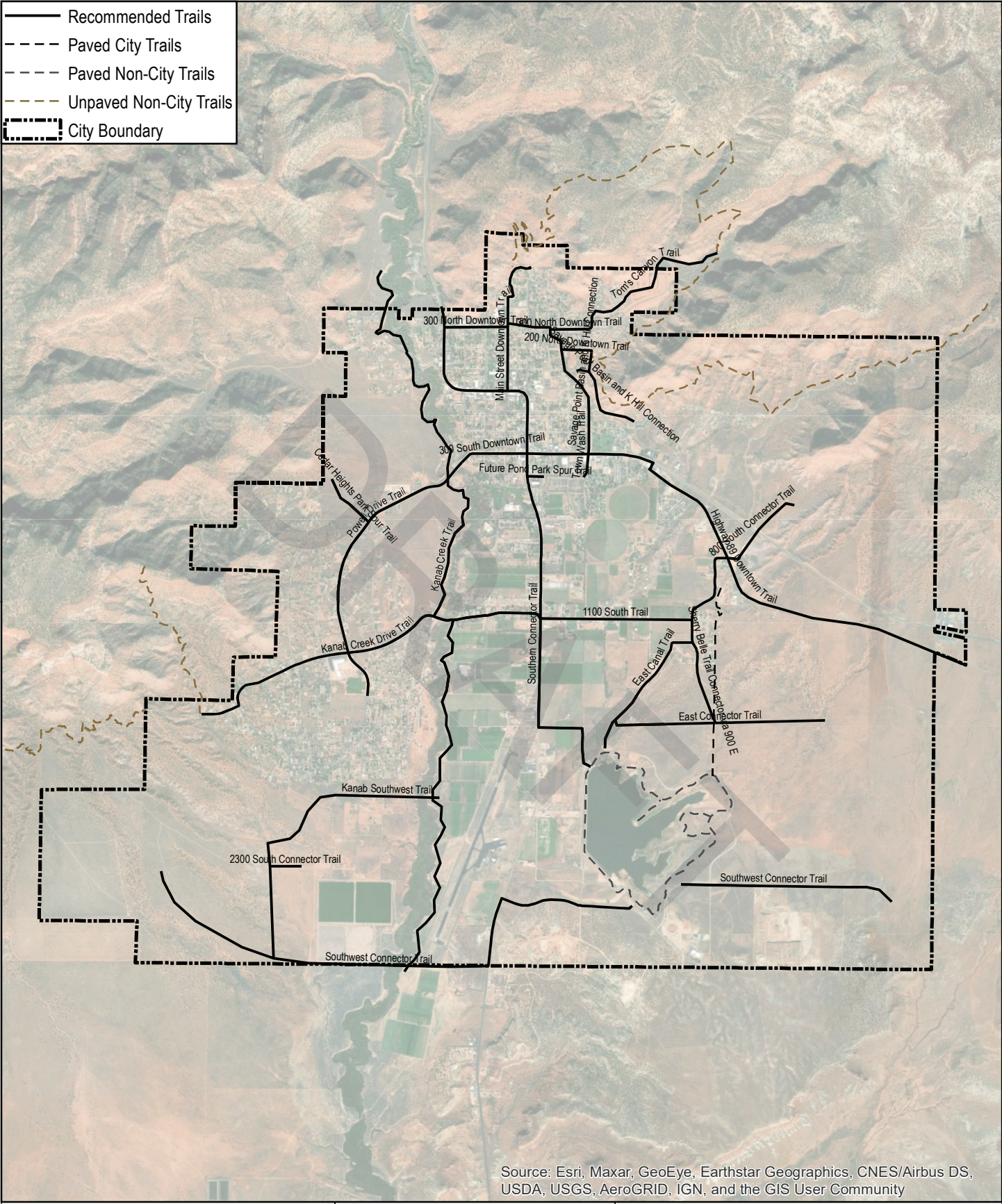


**KANAB CITY RECREATION
IFFPA UPDATE 2024**


Proposed Parks Buffer

Map 5

- Recommended Trails
- Paved City Trails
- Paved Non-City Trails
- Unpaved Non-City Trails
- City Boundary



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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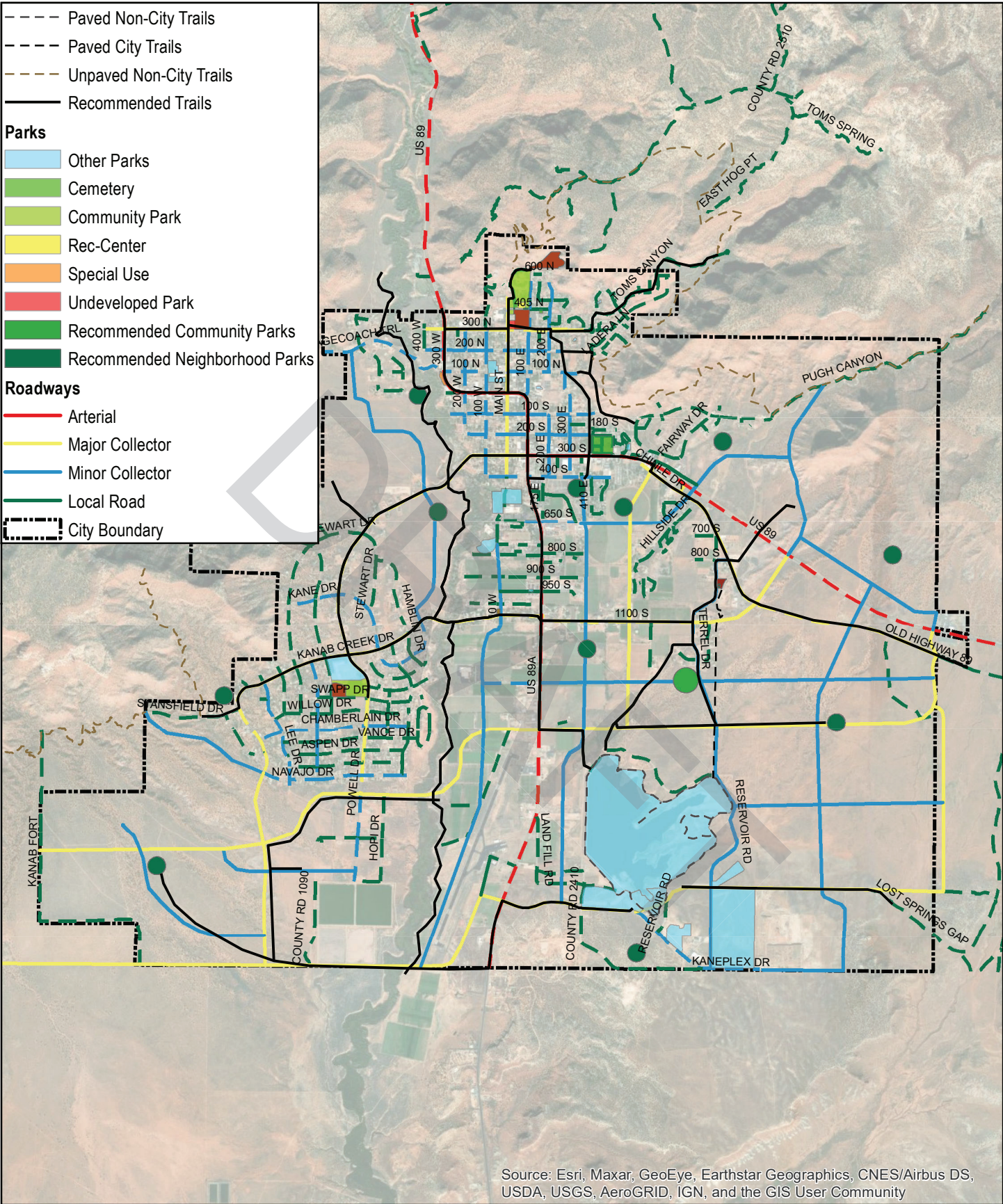



KANAB CITY RECREATION
IFFPA UPDATE 2024

Proposed Trail System

Map 6

- Paved Non-City Trails
 - Paved City Trails
 - Unpaved Non-City Trails
 - Recommended Trails
- Parks**
- Other Parks
 - Cemetery
 - Community Park
 - Rec-Center
 - Special Use
 - Undeveloped Park
 - Recommended Community Parks
 - Recommended Neighborhood Parks
- Roadways**
- Arterial
 - Major Collector
 - Minor Collector
 - Local Road
 - City Boundary



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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KANAB CITY RECREATION
IFFPA UPDATE 2024
Parks & Trails at Buildout
Map 7

APPENDIX B

FINANCIAL ANALYSIS

DRAFT

PARKS									
Park Name	Year	Owner	Project Type	Construction Cost	Incidentals	Project Total Cost	Acres	Cost per Acre	
Green Springs Park	2007	Washington City	New Facility	\$ 834,300.00	\$ 146,256.46	\$ 980,556.46	8.6	\$ 114,018.19	
Dixon Park	2008	City of Caliente	New Facility	\$ 2,180,900.00	\$ 287,000.00	\$ 2,467,900.00	5.3	\$ 465,641.51	
Super Park	2008	City of Caliente	New Facility	\$ 784,900.00	\$ 181,000.00	\$ 965,900.00	3	\$ 321,966.67	
Rose Park	2008	City of Caliente	Upgrade	\$ 394,900.00	\$ 85,000.00	\$ 479,900.00	1.3	\$ 369,153.85	
Sullivan Virgin River Phase I	2011	Washington City	New Facility	\$ 1,497,200.00	\$ 262,465.74	\$ 1,759,665.74	10.6	\$ 166,006.20	
Rachel Park	2011	Lincoln County	Upgrade	\$ 239,600.00	\$ 52,600.00	\$ 292,200.00	1.5	\$ 194,800.00	
Little Valley Pickleball	2012	St. George City	New Facility	\$ 813,800.00	\$ 90,500.00	\$ 904,300.00	2.5	\$ 361,720.00	
Pioche Park Phase II	2012	Lincoln County	Upgrade	\$ 758,000.00	\$ 167,500.00	\$ 925,500.00	2.7	\$ 342,777.78	
Sky Ridge Park	2012	Hurricane City	New Facility	\$ 274,043.15	\$ 41,106.47	\$ 315,149.62	1.3	\$ 250,118.75	
White Pine County	2013	White Pine County	New Facility	\$ 155,400.00	\$ 36,500.00	\$ 191,900.00	0.7	\$ 274,142.86	
North Ely Park	2013	White Pine County	New Facility	\$ 162,400.00	\$ 44,100.00	\$ 206,500.00	1.0	\$ 206,500.00	
Bianchi Park	2013	White Pine County	Upgrade	\$ 153,600.00	\$ 22,100.00	\$ 175,700.00	0.6	\$ 292,833.33	
McGill Park	2013	White Pine County	Upgrade	\$ 255,100.00	\$ 36,800.00	\$ 291,900.00	1.3	\$ 224,538.46	
Stoptoe Park	2013	White Pine County	Upgrade	\$ 103,200.00	\$ 14,900.00	\$ 118,100.00	0.4	\$ 295,250.00	
Courthouse Park	2013	White Pine County	Upgrade	\$ 229,500.00	\$ 48,100.00	\$ 277,600.00	1.3	\$ 213,538.46	
Pioneer Park Phase I & II	2014	Lincoln County	Upgrade	\$ 749,700.00	\$ 749,700.00	\$ 1,499,400.00	3.2	\$ 468,562.50	
Royal Oaks Park	2014	St. George City	New Facility	\$ 412,000.00	\$ 72,225.41	\$ 484,225.41	1.0	\$ 484,225.41	
Silkwood Park	2014	St. George City	New Facility	\$ 385,300.00	\$ 67,544.78	\$ 452,844.78	1.5	\$ 301,896.52	
Sunset Park	2014	St. George City	Upgrade	\$ 560,900.00	\$ 98,328.24	\$ 659,228.24	2.4	\$ 274,678.43	
Grandpa's Pond Park	2015	Hurricane City	New Facility	\$ 1,465,661.60	\$ 219,849.24	\$ 1,685,510.84	15.3	\$ 110,164.11	
Crimson Ridge Park	2018	St George City	New Facility	\$ 1,145,893.70	\$ 171,884.06	\$ 1,317,777.76	4.3	\$ 306,459.94	
Snake Hollow Bicycle Skills Park Phase	2018	St George City	New Facility	\$ 2,337,520.60	\$ 350,628.09	\$ 2,688,148.69	10.4	\$ 259,223.60	
Atkinville Wash Park	2019	St George City	New Facility	\$ 1,224,001.00	\$ 183,600.15	\$ 1,407,601.15	2.9	\$ 485,379.71	
Boilers Park	2020	Washington City	New Facility	\$ 1,523,000.00	\$ 228,450.00	\$ 1,751,450.00	2.7	\$ 643,915.44	
Fish Rock Park	2021	St George City	New Facility	\$ 1,522,311.70	\$ 228,346.76	\$ 1,750,658.46	2.8	\$ 625,235.16	
Hurricane Equestrian Park	2021	Hurricane City	New Facility	\$ 1,804,900.00	\$ 123,900.00	\$ 1,928,800.00	6.8	\$ 283,647.06	
Fossil Falls Park	2022	St George City	New Facility	\$ 2,585,362.55	\$ 387,804.38	\$ 2,973,166.93	4.5	\$ 660,703.76	
Washington City Dog Park Exp	2023	Washington City	Upgrade	\$ 873,182.00	\$ 130,977.30	\$ 1,004,159.30	1.6	\$ 643,691.86	
			Subtotal	\$ 25,426,576.30	\$ 4,529,167.08	\$ 29,955,743.38	101.41		
			Cost / Acre			\$ 295,392.40			
			Avg. Construction Year	2014					
			Cost / Acre Including Inflation	3.0%		\$ 393,644.14			

Trail Name	Year	Owner	Project Type	Construction Cost	Incidentals	Total Project Cost	Miles	Cost Per Mile
Three Rivers Trail Connection	2014	Washington City	New Facility	\$ 1,200,000.00	\$ 210,365.28	\$ 1,410,365.28	2.32	\$ 607,916.07
Three Rivers Trail Reconstruction	2011	Washington City	New Facility	\$ 220,800.00	\$ 38,707.21	\$ 259,507.21	0.38	\$ 685,099.04
Mill Creek Trail	2011	Washington City	New Facility	\$ 38,560.00	\$ 6,759.74	\$ 45,319.74	0.10	\$ 453,197.38
Virgin River Trail	2010	Washington City	New Facility	\$ 101,200.00	\$ 17,740.81	\$ 118,940.81	0.50	\$ 237,881.61
Virgin River Trail, South C	2013	St. George City	New Facility	\$ 121,500.00	\$ 21,299.48	\$ 142,799.48	0.50	\$ 285,598.97
Virgin River Gap Trail	2019	St. George City	New Facility	\$ 835,713.40	\$ 125,357.01	\$ 961,070.41	1.07	\$ 898,196.64
600 N Trail	2023	Hurricane City	New Facility	\$ 484,179.00	\$ 72,626.85	\$ 556,805.85	1.80	\$ 309,336.58
			Subtotal	\$ 3,001,952.40	\$ 492,856.38	\$ 3,494,808.78		6.67

Cost / Mile Including Inflation

Avg. Construction Year 3.0% 2014

Cost / Mile \$ 695,419.87

Subtotal \$ 3,494,808.78

Cost / Mile \$ 524,054.57

APPENDIX C

IMPACT FEE CERTIFICATION

DRAFT

Certification of Impact Fee Analysis

In accordance with Utah Code Title 11-36a-306 Kelvin C. Smith, P.E., on behalf of Civil Science, Inc., make the following certification:

I certify that the attached impact fee facilities plan and impact fee analysis:

1. includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; or
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement;
3. offsets costs with grants or other alternate sources of payment; and
4. complies in each and every relevant respect with the Impact Fees Act.

This Certification is made with the following assumptions:

1. All data provided to Civil Science, Inc. is assumed to be correct, complete, and accurate.
2. Any changes to the impact fee facilities plan and impact fee analysis after the issuance of this certification will void same certification.
3. Recommendations will be followed in their entirety by Kanab City and City officials.
4. The undersigned is trained and licensed as a professional engineer and has not been trained or licensed as a lawyer. Nothing in the foregoing certification shall be deemed an opinion of law or an

opinion of compliance with law which under applicable professional licensing laws or regulations or other laws or regulations must be rendered by a lawyer licensed in the State of Utah.

5. This certification expresses professional opinion base on the undersigned best knowledge and understanding, and shall not be taken as a guarantee, warranty, or fact.

Civil Science, Inc.

By: _____

Dated: _____

DRAFT

CITY OF KANAB

TRANSPORTATION IMPACT FEE FACILITIES PLAN

2024



KANAB
— UTAH —



PREPARED BY



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APPENDICES

- Appendix A – Maps**
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1. EXECUTIVE SUMMARY

1.1 Introduction

The primary objective of this study is to establish plans to guide the development of future transportation system improvements through modeling the system existing conditions, creating a 10-year action plan, and a longer term 20-year action plan. The outcome of the study will be recommended improvements, estimated project costs, a maximum allowable impact fee, an impact fee schedule, and projected cash flow for Kanab's transportation needs.

1.2 User Analysis

Table 1 shows historic annual growth rates of 0.6%-5.4%, with an average of 3%. Projected annual growth rates for this study are shown in Table 3 as 3% for 10 years (2023-2032) then 2% for the next 10 years (2033-2043). For this study, it is assumed that residential and commercial (or non-residential) growth will occur at the same rate. An additional 1% growth was added to the traffic count numbers to account for growth of tourism and pass through traffic.

- 2023 population – 5,285
- 2033 estimated population – 7,034
- 2043 estimated population – 8,574

1.3 Existing Facilities Inventory

Kanab City maintains approximately 51.6 miles of roadway. UDOT also has approximately 11.1 miles of state roads within city limits. Kane County also owns and maintains Kaneplex Drive within city limits. The table below has a breakdown of the classification of roads and the total miles of those roads within the city limits.

Roads Maintained by Kanab City*	
Classification	Length [mi]
Arterial†	11.12
Major Collector	14.13
Minor Collector	11.90
Local Road	25.60

*Excludes US-89, US89A, & Kaneplex Dr.

†All Arterial roads are maintained by UDOT

1.4 System Analysis

Civil Science collected traffic counts for strategic intersections throughout Kanab to use as the basis for our traffic model. These counts were compared to the 2018 master plan counts and further evaluated and compared to UDOT's counting efforts. The traffic model was developed with the measured and calculated traffic demands and with the projected roadway network.

The model results show a Level of Service (LOS) of "A" through "D", LOS A being in great functioning condition, and LOS D being a failed condition in terms of delays and safety. LOS D roads and intersections require recommended projects to increase the LOS to acceptable level (LOS A or LOS B). Maps showing the level of service of the roadway network under existing conditions, 10-year projected conditions, and 20-year projected conditions in Appendix A.

1.5 Summary of Recommended Improvements

The table below shows the recommended projects and the projected year they are to be completed.

Project Name	Projected Year	Inflation		Impact Fee Eligible %	Impact Fee Eligible Cost
		2023 Cost	3% Inflated Cost		
Rocky Road East Connection to US-89	2025	\$288,940	\$297,608	100%	\$297,608
Salt and Snowplow Storage	2026	\$516,547	\$548,004	100%	\$548,004
1100 South Major Collector Widening	2027	\$1,046,952	\$1,144,033	100%	\$1,144,033
Powell Dr to Hopi Dr Connector Road	2028	\$196,350	\$220,994	100%	\$220,994
IFFPA (5yr)	2028	\$58,900	\$66,292	100%	\$66,292
Powell Dr Culvert Replacement	2029	\$4,578,920	\$5,308,223	9.9%	\$524,591
Stagecoach Dr Culvert Replacement	2029	\$3,634,500	\$4,213,382	9.9%	\$416,392
600 East Extension	2030	\$1,666,884	\$1,990,347	100%	\$1,990,347
1100 South & US-89A Future Intersection Control	2031	\$465,200	\$572,137	0%	\$0
700 East and US-89 Intersection Control	2033	\$465,200	\$606,980	0%	\$0
IFFPA (10yr)	2033	\$58,900	\$76,851	100%	\$76,851
Total		\$12,977,293	\$15,044,852		\$5,285,112
Increase in ERCs					1,245
Maximum Allowable Impact Fee					\$4,246.67

1.6 Financial Viability

Kanab City does not currently charge a user rate for transportation services. A recommended impact fee schedule presented below. Commercial building less than the 2,000 sq-ft will have the same maximum allowable impact fee as an equivalent residential connection (ERC) of \$4,246.67. Commercial building greater than the 2,000 sq-ft will have a maximum allowable impact fee of \$2.13 times the building area in square feet.

Transportation	
Total 10-year Cost	\$5,285,112
Residential	Non-Residential
63.1%	36.9%
\$ 3,334,905.71	\$ 1,950,206.35
785 ERC	919,062 sq-ft
\$4,246.67 /ERC	\$2.13 /sq-ft

*Assumed 2,000 sq-ft per ERC for non-residential ERCs. Analysis is based on a 10-year period. Percentage split based on Residential vs. Non-Residential projected growth.

The cash flow in Appendix C illustrates that if these fees are established as presented, all recommended improvements can be constructed if financing is available and paid for with impact fees and grants (especially in the cases for the Powell Dr and Stagecoach Trl culvert replacement projects).

1.7 Guidelines & Policies

Planning for and maintaining the roadway assets of a City is of critical importance for Kanab Public Works. Guidelines and policies regarding typical roadway sections, access management, maintenance, and corridor preservation provide the City with tools to best maintain the roadways and develop best practices that allow for superior roadway design and management. Some of the topics in the guidelines sections of this report readdress topics found in the Kanab City Construction & Design Standards (KCCDS) and in those cases, the KCCDS governs.

2. INTRODUCTION

2.1 Purpose and Scope

The primary objective of this study is to establish updated plans to guide the development of future transportation improvements. This study includes an existing condition plan, a 10-year action plan, as well as a longer term 20-year action plan. The analysis supporting these action plans show the state of the transportation system as it is now (existing capacity), and how much growth can be allowed while still meeting State requirements, and still provide an adequate level of service to existing customers. It also evaluates future development projects for financial viability.

The scope of the study focuses on roadway needs and opportunities. Multi-modal facilities such as bikeways and trails will be addressed in a separate study. Providing a functional and efficient transportation network that promotes a diversified economy and well-planned development is the goal. Given the purpose and need described above, the following were key elements contemplated in the scope of work for this project:

- Perform a user analysis, establish an anticipated growth rate within the City's service area boundary, identify focused or pending development areas, establish population projections based on anticipated growth rate, and review and determine existing and future demographics of the City.
- Conduct a public open house/town hall meeting, provide technical documents as required and present draft impact fee facilities plans to the City Council.
- Update the system inventory to establish what the City has:
 - Gather and analyze existing transportation data and projected future demands.
 - Gather transportation system mapping data and verify system attributes (locations, widths, materials, etc.).
 - Field collect critical elements of the transportation system (locations, elevations, traffic counts, etc.)
 - Convert elements into GIS and attribute.
- Update modeling scenarios based on traffic demands to establish the City needs:
 - Review and establish level of service standards based on recommendations from Local, State, and Federal entities.
 - Determine existing level of service for transportation.
 - Establish, with input from the City, the desired level of service for transportation.
 - Establish, with input from the City, the desired level of service for active transportation. Coordinate analysis and improvements with the Recreation IFFPA.
 - Establish general street classification system with the City.
- Perform a system analysis to determine how to get what the City needs:
 - Complete analysis against the Local, State, and Federal codes (UDOT, AASHTO, etc.).
 - Complete the analysis under existing, 10-year, and 20-year development conditions.
 - Evaluate existing conditions and make improvement recommendations.
 - Evaluate 10-year conditions and make improvement recommendations.
 - Evaluate 20-year conditions and make improvement recommendations.
 - Evaluate the existing and future capacity of the transportation facilities and make improvement recommendations.
 - Develop infrastructure plan for recommendations to the existing system.

- Develop infrastructure plan for recommendations to the 10-year system (major roadways only).
- Develop infrastructure plan for recommendations to the 20-year system (major roadways only).
- Ensure that recommendations for the future system integrate well with the existing system.
- Evaluate roadway cross section widths, right-of-way widths and roadway networking and recommend general guidance for the City.
- Perform a system financial analysis to calculate the cost of improvements:
 - Prepare project descriptions and opinions of probable cost for recommended improvements.
 - Prepare an impact fee facilities plan for the 10-year planning horizon with considerations for the 20-year planning horizon.
 - Identify a phasing plan for recommended improvements.
 - Identify facilities eligible to be funded with impact fees (full or partial).
 - Perform a financial viability analysis of the operations and management of the system based upon recent audits.
 - Prepare an impact fee analysis, calculate the maximum allowable impact fee, and issue an impact fee certification.
- Prepare a written IFFPA with results, summaries, and relevant appendix materials:
 - Prepare a transportation system impact fee facilities plan draft for City Staff, Department Heads and the City Council.
 - Address questions, concerns, and comments from City Staff, Department Heads and the City Council
 - Publish a final written transportation system impact fee facilities plan & analysis for the community.

2.2 Background Information

Kanab is the commercial center of a large farming, ranching and recreational area located in south central Utah. The City is the County seat of Kane County and has a long history as a film making and tourism hub. Nearby tourism destinations include multiple national parks and recreational areas such as Lake Powell. Kanab is located 7 miles north of the Arizona border on US-89A. For many years the community was one of the most isolated in the nation, being cut off from the east by the Colorado River. Today it is a tourist town inviting tens of thousands of visitors annually to enjoy the beauty of the area as well as its rich history.

During the past several years, the City has completed multiple projects as recommended in the 2018 IFFPA, helping to fulfill the City's goals in transportation. These projects include the 600 E Roadway as well as the 1100 S and Kanab Creek Dr Realignment.

Now that many of the recommendations from the 2018 plan have been completed, the time has come for an updated IFFPA. This update will include the continued growth seen by the community these past 6 years, as well as a study of future developments and issues that may arise therein.

Governing documents/codes for this study include the existing Kanab City General plan, all current zoning and development criteria, Kanab City Construction & Design Standards, and the Utah Impact Fees Act.

2.3 Miscellaneous Resources

Resources used include traffic information published by the Utah Department of Transportation as well as published Transportation Improvement Plans (STIP) involving US 89 and US 89A.

3. USER ANALYSIS

3.1 Planning Horizon

This analysis considers three planning horizons: existing conditions, 10-year, and 20-year scenarios. The existing condition scenario evaluates the transportation network based on current traffic volumes. The 10-year and 20-year planning horizons evaluate potential deficiencies/needs and plan for related improvements.

3.2 Historic Growth Rates

Projecting the City's population and growth rate are essential to the development of a facilities plan. This study used Census figures and historical traffic data to evaluate growth trends and provide a projection of how/where growth occurs. Census data and annual growth rates from 1980 to 2020 are included in Table 1. Table 1 also shows the historic 10-year, 20-year, 30-year, and 40-year average annual growth rates for the dates specified. These historic rates serve as a comparison with projected growth rates.

From this table we see that annual growth rates since 1980 have fluctuated from 0.6%-5.4%. The average annual growth rate over that time sits at 3.0%. It is worth noting that the 40-year average is up slightly, from 2.9% to 3.0%, since the last iteration of this report. This shows that while the growth rate was down in the 2010's, it has been on the rise in the few years since then.

Description	Year Period	Population	Growth
10-year Historic	1980	2148	-
10-year Historic	1990	3318	5.4%
10-year Historic	2000	3510	0.6%
10-year Historic	2010	4312	2.3%
10-year Historic	2020	4683	0.9%
20-year Historic	1980-2000	-	3.2%
20-year Historic	1990-2010	-	1.5%
20-year Historic	2000-2020	-	1.7%
30-year Historic	1980-2010	-	3.4%
30-year Historic	1990-2020	-	1.4%
40-year Historic	1980-2020	-	3.0%

Table 1: Historic Growth Rates

3.3 Projected Growth Rate

It is projected that both residential and commercial development will continue to grow at a moderate rate for the duration of the 10-year and 20-year planning horizons. For this study it is projected that 2%- 3% growth will occur for the next 20 years; 3% annually for 10 years, then 2% annually for the next 10 years. An additional 1% growth in cut-through traffic on the UDOT roads is also projected. If actual growth occurs at rates that are substantively different than these projected rates then future improvements to support growth may need to be considered either earlier or later, as necessary. Impact fee revenue is directly related to the assumed growth rates. This report assumes that the residential household size remains the same and that residential and commercial growth occur at the same/very similar rates.

4. EXISTING CONDITIONS

4.1 Land Use

The existing Kanab transportation network services predominantly residential related trips as the area within the city limits is largely designated for residential use. The valley provides plenty of space for the projected growth. Additionally, with many natural attractions near Kanab the city receives substantial pass-through traffic, principally on US 89 and US 89A. This has resulted in growth and development of commercial properties and interests along these major routes. Land currently designated for commercial/industrial expansion is somewhat constrained within the existing city area, necessitating additional commercial growth planned to extend out from the current City center along US 89 and US 89A.

4.2 Roadway Classification

Figure 1 shows the existing classifications for the Kanab City roadway network. Appendix A shows maps for the proposed roadway network overlaid on existing roads.

Functional classification is a method of classifying roads according to the major function a roadway serves. This method looks at the roadway network as a whole and then groups the roads together into classifications that are defined by many factors. These major factors include flow capacity, access type and frequency, traffic volumes, etc. Four roadway classifications were used to characterize the roads in Kanab City: Arterial, Major Collector, Minor Collector, and Local Road.

Functional classifications also establish the foundation for roadway design elements. For example, an Arterial would include features that promote easier flow such as wider shoulders and would avoid elements that disrupt traffic flow such as on-street parking. The result is that Arterials provide increased capacity for traffic flow while Local Roads provide the most access to homes, etc. These factors have been taken into consideration for standard roadway classification sizing and configuration, which will be covered in more detail later in the report.

4.2.1 Arterial

Arterials provide the primary links between major traffic generators such as cities and major attractions. Arterials are primarily focused on traffic conveyance. Subsequently there are usually policies in place to limit property access along Arterials. In the City of Kanab US 89 and US 89A are the only Arterials as they convey the major traffic flows between Kanab and nearby cities such as Orderville, Springdale, and Fredonia. These roads also serve as popular routes to Lake Powell from points west of Kanab. This major attraction generates high volumes of pass-through traffic, primarily in the summer months.

4.2.2 Major Collector

Major Collectors connect Arterials to traffic generators such as neighborhoods, commercial centers, and industrial parks. Major Collectors focus on traffic conveyance and increase the level of accessibility to adjacent properties from that of an Arterial. Powell Drive and Kanab Creek Drive are examples of Major Collectors

4.2.3 Minor Collector

Minor Collectors provide greater property access than Major Collectors, but are still focused on gathering traffic from neighborhoods, commercial centers, etc. and conveying it towards Arterial routes. Minor Collectors are usually found within the heart of a neighborhood and therefore provide good access to Local Roads that directly service homes. Minor Collectors are also configured to

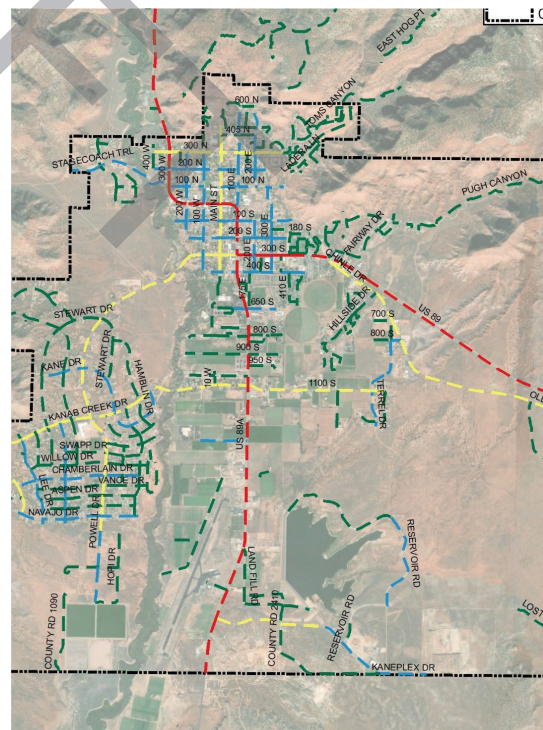


Figure 1: Kanab Roadway System

provide good property access, on-street parking, etc. while still allowing for uninterrupted flows.

4.2.4 Local Road

Local Roads focus on providing direct access to primarily residential properties. The increased accessibility limits the ability of Local Roads to provide free flow. This usually results in lower speeds on Local Roads. Table 3 shows the road-centerline miles of the different classifications of roadway.

4.3 Traffic Counts

Existing traffic conditions were observed and counted in the field over the course of multiple days in the summer and early fall of 2023. Traffic cameras were used to collect intersection turning movement counts. Cameras were placed at various intersections for a duration of 24 hours. The video footage was reviewed, and turning movement counts were recorded by hand for the peak hour and daily conditions. Seasonal adjustments to the traffic counts were considered to ensure that the collected data wasn't obtained during a time with lower-than-average traffic volumes. To accomplish this, monthly traffic volume data were obtained from a nearby UDOT automatic traffic recorder (ATR) on U.S. 89A (ATR #412). In recent years, traffic volumes in Summer and early fall months have ranged between 111% - 119% of average traffic volumes. Since it was determined that summer and early fall months tend to experience higher traffic volumes than average in Kanab, the observed traffic volumes were not adjusted to allow for analysis based upon peak periods of the year.

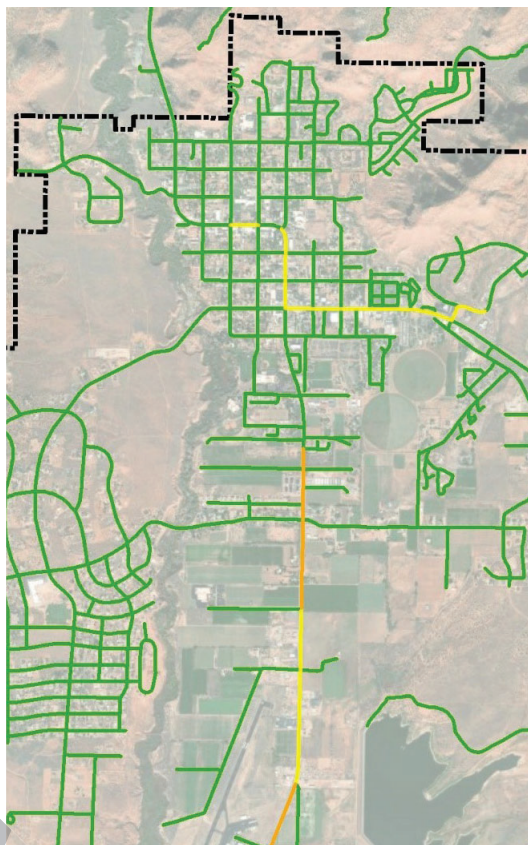


Figure 2: Existing Traffic LOS

4.4 Traffic Accidents

Traffic accidents in Kanab primarily occur on or near UDOT roads. It is anticipated that any crash patterns on these roads will be addressed by UDOT.

4.5 Traffic Signal

Several existing intersections service relatively high traffic volumes and therefore merit consideration of control improvements. Evaluation of whether these locations meet applicable signal warrants will be completed by UDOT as needs arise.

4.6 Model Results

Intersection and roadway functionality is assessed using level of service (LOS). Calculating a planning-level LOS for a roadway segment is completed based on volume-to-capacity (v/c) ratios. Roadway capacity is based on the total number of lanes on the road segment. Letter values from A to F are used for level of service scoring with A being the best and F being the worst. It is standard engineering practice to assume that a facility with LOS A to LOS D is within an acceptable range for most users. LOS E may also be acceptable, but usually only in urban areas. Using these guidelines, the results of the existing model show that in general the current roadway system is adequate to convey the existing traffic volumes in the city of Kanab within an acceptable level of service. There are some localized deficiencies involving roadway geometry/configuration as well as connectivity within the network. These locations are addressed within Section 6 of this study. Additionally, the proposed roadway improvements are detailed in Appendix A.

5. SYSTEM TRAFFIC MODEL

5.1 Future Land Use

Due to the high volume of traffic that passes through the city of Kanab via US 89 and US 89A it is anticipated that commercial and industrial facilities will expand along the US 89 and US 89A corridors. This commercial and industrial growth is anticipated to occur at a moderate pace over the next 20 years. The city center is mostly built out. It is anticipated that residential growth will occur more on the outer edges of the city limits. This will likely include the transition of portions of the current rural agricultural lands to residential uses.

5.2 Travel Demands

The majority of the residential growth is anticipated to occur on the outer edges of the city limits. This will increase the traffic volumes on the collectors and arterials. Therefore, the anticipated commercial growth along US 89 and US 89A is not anticipated to add additional pressure to local roads. There are three major developments that are planned to be built in Kanab within the next 10 years: Catori Canyon, Hidden Canyon, and Ventana. Anticipated traffic volumes from these developments make up a significant percentage of the projected growth.

It is anticipated that with the projected growth, improvements will be needed on some road segments to provide adequate levels of service. As discussed in greater detail in Section 5.4, there is also benefit in expanding the roadway network to provide necessary connectivity. Currently there is only one route for traffic south of the city to travel north, US 89A. Additionally all traffic south and southwest of the city must travel on US 89A and then onto US 89 to get east of the city as this is the only existing route for this movement. There are also only three existing roads that cross Kanab Creek which could potentially limit accessibility during a flood event. The increased traffic volumes are likely to degrade the functionality of some of the existing intersections. This was analyzed using projected volumes and the existing roadway capacities as part of the modelling of the future roadway network. The results of the model and intersection needs are discussed in greater detail in Section 5.4.

5.3 Projected Roadway Network

The Kanab City area was analyzed for traffic needs and potential roadways that would provide necessary accessibility and provide for future growth. The future roadway network is shown in Appendix A.

Currently, residents in the Cedar Heights neighborhood have only one route across Kanab Creek. However, there is a development being planned on the northwest side of town which would add a new road connection between Stagecoach Trail and Powell Drive. This connection will serve the Cedar Heights neighborhood by providing an alternate route to cross Kanab Creek. It is also recommended that this road be extended south to also provide a direct connection to Kanab Creek Drive. It is anticipated that the additional traffic from this project will require Powell Drive to be widened to 3 lanes from 100 East to the project access.

It is recommended that US 89A be widened to 5 lanes from Plum Tree Drive to Landfill Road. This is due in part to an increase in traffic volumes from another development which is being planned to be built on the south end of Kanab.

Proposed extensions of 650 South, 1100 South as well as 600 East would provide alternate routes to east of town relieving the pressure on US 89 in the heart of the city. Many of the proposed roadways are aligned to provide access/connectivity to areas of anticipated growth.

5.4 Model Output

The existing roadway network was modeled for the anticipated 2043 traffic volumes to evaluate the impacts of the projected population growth on the current roadway network. This no-build scenario result is detailed in Figure 3. The projected 2033 no-build traffic volumes were calculated by adding the anticipated trips from the three major developments in the city to the existing traffic volumes. It is anticipated that the three major developments will be fully built by 2033. The growth from these developments will account for approximately 2.1% annual growth per year for the next 10 years. Therefore, an additional 0.9% growth rate was applied to get the anticipated annual growth rate of 3% for the next 10 years. The projected 2043 no build traffic volumes were calculated by applying the anticipated growth rate to the 2033 volumes (2% annually for the 10 years after 2033).

An additional 1% annual growth rate was also applied to UDOT roads to account for increases in pass through traffic on US 89 and US 89A.

Evaluating the existing network with these project traffic volumes resulted in the majority of the network operating at an acceptable level of service. There were two roadway segments that are anticipated to operate at a poor level of service under a no-build scenario: on Powell Drive and 300 South between the northwest project access on Powell Drive and the 300 South / US 89 intersection, and on US 89A between Plum Tree Drive and Kaneplex Drive. These two segments are included in the proposed roadway improvements detailed in Figure 3 and in Appendix A. It is anticipated that the proposed improvements will increase the future functionality of these two segments and surrounding areas.

The majority of the growth is anticipated to take place in new subdivisions that will necessitate providing related network connectivity that will drive the construction of many of the proposed roadways. A 2043 full-build traffic model was developed incorporating the anticipated roadway improvements. The anticipated growth/buildout of the Kanab area was utilized to distribute the projected traffic volumes over the expanded roadway network. The expanded roadway network introduces a number of new intersections with US 89 and US 89A. It is recommended that each intersection be studied in greater detail in the future when they are designed and constructed for potential traffic signal locations. With the proposed improvements, it is anticipated that the roadways will be adequate to convey the projected traffic volumes.

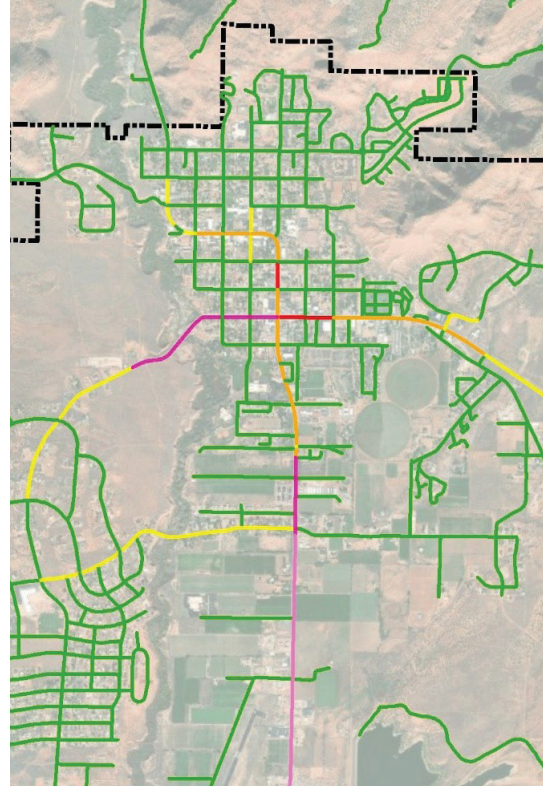


Figure 3: Future 2043 Daily Volumes and LOS – No Build Scenario

6. SUMMARY OF RECOMMENDED IMPROVEMENTS

6.1 Key Considerations

The full build roadway network was analyzed to determine which proposed roadways provide the most benefits. These were discussed with the city of Kanab and the following projects were projected to give the most benefit to the traveling public over the next 10 years. These proposed improvements shown in the following table and in Appendix A are anticipated to occur in the timeframes provided. Many of these projects will be implemented as needed to facilitate private development and will be constructed by developers.

Year	Project Names	Project Description
2025	Rocky Road East Connection to US-89	New 51' ROW extending Rocky Road across US-89
2026	Enclosed Salt and Snow Plow Storage	New enclosed storage shed built at the city owned lot on Chinle Dr.
2027	1100 S Widening	Extend the widening of 1100 S from the end of the last project, moving East for 4200' to S Terrell Dr.
2028	Powell Dr to Hopi Dr Connector Road	Pave the existing right-of-way between Powell Dr. and Hopi Dr on the south end of the Ranchos.
2029	Powell Dr Culvert Replacement	Replace the low water crossing of Kanab Creek at Powell Dr. Raise the road above the FEMA 100-year flood depth and install a new culvert with capacity for the 100-year flood.
2029	Stagecoach Dr Culvert Replacement	Replace the low water crossing of Kanab Creek at Stagecoach Trl. Raise the road above the FEMA 100-year flood depth and install a new culvert with capacity for the 100-year flood.
2030	600 E Extension	New 51' ROW that extends the existing elbow on S Hillside Dr. It moves directly North before bending to intersect 700 E at US-89.
2031	1100 S & US-89A Intersection Control	New intersection control at the intersection of 700 E & US-89A, near Wendy's. This will be either a light or a roundabout.
2033	700 E & US-89 Intersection Control	New intersection control at the intersection of 700 E & US-89, near Wendy's. This will be either a light or a roundabout.

Table 2: Summary of Recommended Improvements

7. FINANCIAL VIABILITY

7.1 Cost Estimates

Civil Science has prepared cost estimates for each of the projects identified in Table 3. While only for planning, each cost estimate captures anticipated construction costs including mobilization and demobilization, project record documents, traffic and temporary controls, materials and sampling, construction layout & staking, professional services, materials, labor, and contingencies. The projects were organized in a manner where costs are not shared between two different projects. This allows for better understanding of a singular project's costs versus showing all the projects in an abbreviated cost estimate format. Table 3 shows project costs in 2023 dollars, plus inflation.

7.2 Project Phasing

Recommended improvements were given a time frame in which the projects are expected to be implemented based on growth projections, localized growth, and available impact fee funds as shown in the cash flow. Table 3 shows the recommended improvements within a 10-year period with their projected year of construction and costs in 2023 dollars.

Project Name	Projected Year	Inflated Cost
Rocky Road East Connection to US-89	2025	\$297,608
Salt and Snowplow Storage	2026	\$548,004
1100 South Major Collector Widening	2027	\$1,144,033
Powell Dr to Hopi Dr Connector Road	2028	\$220,994
IFFPA (5yr)	2028	\$66,292
Powell Dr Culvert Replacement	2029	\$5,308,223
Stagecoach Dr Culvert Replacement	2029	\$4,213,382
600 East Extension	2030	\$1,990,347
1100 South & US-89A Future Intersection Control	2031	\$572,137
700 East and US-89 Intersection Control	2033	\$606,980
IFFPA (10yr)	2033	\$76,851
Total		\$15,044,852

Table 3: Cost Estimate Summary

The improvements are planned to support continuing growth within the next ten years and are planned for implementation at times when the growing population base can theoretically generate enough revenue to fund the projects. It should be noted that growth in the study area may occur at a rate faster or slower than that predicted in the cash flow analysis. If growth occurs at a faster rate, more funds will be available to construct the projects at an earlier schedule than that specified by the phasing projections. On the other hand, if growth slows more than expected, implementation of the projects should be delayed until the population base can fund the improvements.

7.3 Impact Fee Analysis

Impact fees for Kanab City were reestablished in 2018, with the understanding that they would be reevaluated every 5 years. The purpose of this report is to revisit the City's transportation system and adjust the impact fees based on changes in conditions and future projections.

The new proposed impact fee was calculated based on estimated costs, projected construction year, inflation, and impact fee

Project Name	Projected Year	Inflation		Impact Fee Eligible %	Impact Fee Eligible Cost
		2023 Cost	3% Inflated Cost		
Rocky Road East Connection to US-89	2025	\$288,940	\$297,608	100%	\$297,608
Salt and Snowplow Storage	2026	\$516,547	\$548,004	100%	\$548,004
1100 South Major Collector Widening	2027	\$1,046,952	\$1,144,033	100%	\$1,144,033
Powell Dr to Hopi Dr Connector Road	2028	\$196,350	\$220,994	100%	\$220,994
IFFPA (5yr)	2028	\$58,900	\$66,292	100%	\$66,292
Powell Dr Culvert Replacement	2029	\$4,578,920	\$5,308,223	9.9%	\$524,591
Stagecoach Dr Culvert Replacement	2029	\$3,634,500	\$4,213,382	9.9%	\$416,392
600 East Extension	2030	\$1,666,884	\$1,990,347	100%	\$1,990,347
1100 South & US-89A Future Intersection Control	2031	\$465,200	\$572,137	0%	\$0
700 East and US-89 Intersection Control	2033	\$465,200	\$606,980	0%	\$0
IFFPA (10yr)	2033	\$58,900	\$76,851	100%	\$76,851
Total		\$12,977,293	\$15,044,852		\$5,285,112
Increase in ERCs					1,245
Maximum Allowable Impact Fee					\$4,246.67

Table 4: Impact Fee Calculations

eligibility. This is based on whether the project is needed to address an existing issue or if the project is needed to serve new growth and development. The proposed impact fee calculations are presented in the calculation table. Impact fee eligible costs are based on inflated costs and impact fee eligibility.

Because residential and non-residential ERC are assumed to use transportation infrastructure at the same rate, 63.1% of future ERCs are calculated to be residential and the rest as non-residential. These percentages are calculated in the Water Impact Fee Facilities Plan. This splits the total impact fee eligible cost into residential and non-residential amounts. The residential amount is divided by the number of projected additional residential ERCs in the 10-year planning horizon to achieve the residential impact fee per ERC. The non-residential amount is divided by the number of projected additional commercial ERCs in the 10-year planning horizon multiplied by the assumed area of 2,000 sq-ft per commercial ERC to achieve the commercial impact fee per square-foot of building space.

The maximum allowable impact fee for residential connections is **\$4,246.67**. Commercial building less than the 2,000 sq-ft will have the same maximum allowable impact fee as residential connections of **\$4,246.67**. Commercial building greater than the 2,000 sq-ft will have a maximum allowable impact fee of **\$2.13** per square feet of total building area. The recommended impact fee schedule is shown in Table 5.

As required by the Utah Impact Fees Act, an Impact Fee Certification is included in Appendix D. It states that this analysis was done in accordance with the Impact Fees Act and its requirements.

Rules regarding the use of impact fees are covered by the Impact Fees Act. Generally, impact fees may only be used for system improvements that are required to service new development within the existing level of service or expected service requirements (road capacity, safety, etc.) and are included in this Impact Fee Facilities Plan. Impact fees must be used within six years of payment or they must be paid back. Alternative sources of revenue such as grants or shared construction costs should be investigated to reduce the financial burden of the City and its new residents. At the time of this study, Kanab is in the process of applying for a RAISE Grant for the Powell Drive and Stagecoach Trail culvert replacement projects.

Transportation	
Total 10-year Cost	\$5,285,112
Residential	Non-Residential
63.1%	36.9%
\$ 3,334,905.71	\$ 1,950,206.35
785 ERC	919,062 sq-ft
\$4,246.67 /ERC	\$2.13 /sq-ft

*Assumed 2,000 sq-ft per ERC for non-residential ERCs. Analysis is based on a 10-year period. Percentage split based on Residential vs. Non-Residential projected growth.

Table 5: Impact Fee Summary

7.4 User Rate Analysis

Kanab City does not have a user rate for transportation related uses, nor does it plan to start charging a user rate. No user rate analysis was needed for this study.

7.5 Cash Flow Analysis

A cash flow analysis for a 20-year planning horizon was completed to show how the 10-year planning horizon improvement projects could be implemented, to show possible trends in impact fee and cash fund balances. Initial data for the cash flow analysis was taken from Kanab City audits for fiscal years 2020-2022. Values projected through the analysis are based on growth, interest, and inflation trends determined during the process of the study. It should be noted that the analysis is a general forecast only and will vary with the speed and pattern of development in the City. The entire cash flow analysis is included in Appendix C.

The upper section of the cash flow printout, entitled "Revenue", contains the basic data upon which many of the values in the cash flow spreadsheet are generated. Of note are the projected growth trends, the assumed inflation rates, impact fees, and the projected ERC quantities for the coming fiscal years. Most of the revenue in later parts of the cash flow spreadsheet are generated from the impact fees, and general fund transfers.

The following section is the expenses section which attempts to quantify all the expenses incurred by the transportation system. Included in the expenses section are the operation and maintenance costs, existing debt service costs and new debt service costs. The difference between the total revenues and total expenses is the net cash flow for the system.

Total revenues and total expenses are broken down into impact fee and cash fund categories. This was done to help show that adequate funds would be available over the course of the projection period.

A system improvement implementation schedule for the next twenty years was included at the end of the cash flow analysis, this shows how the impact fee facilities plan improvement projects were incorporated into the cash flow analysis.

7.6 Other Financing Options

Where possible, Kanab should seek alternative financing for projects in order to reduce the financial burden of consumers in the form of lower user rates or lower impact fees. Kanab's transportation network is in good financial health and is currently able to maintain a positive cash flow for the duration of the analysis. Grant or loan options available to Kanab City are included below:

- Permanent Community Impact Fund Board (CIB)
- Utah Community Development Block Grant (CDBG)
- USDA Rural Development (RD)
- Interfund loans
- RAISE Grant program
- UDOT related funds

8. GUIDELINES & POLICIES

8.1 Typical Sections

The requirements for roadway typical cross sections are based on traffic capacity, design speed, projected traffic volumes, system continuity and overall safety. These requirements are shown in Kanab City Construction & Design Standards (KCCDS) section 2.7 and provide an example of the City's typical sections. The KCCDS are the governing document for typical sections of all roadway classifications. An analysis of the typical roadway sections is provided in Appendix B. All new developments shall use typical sections with 50 feet or more of right-of-way. Access to commercial or multi-family developments shall use typical sections with 60 feet or more of right-of-way. Typical sections for US 89 and US 89A are governed by UDOT standards. Alternate typical sections incorporating a planting strip may be permitted if applicable safety and traffic standards are met and approved by the City Traffic Engineer.

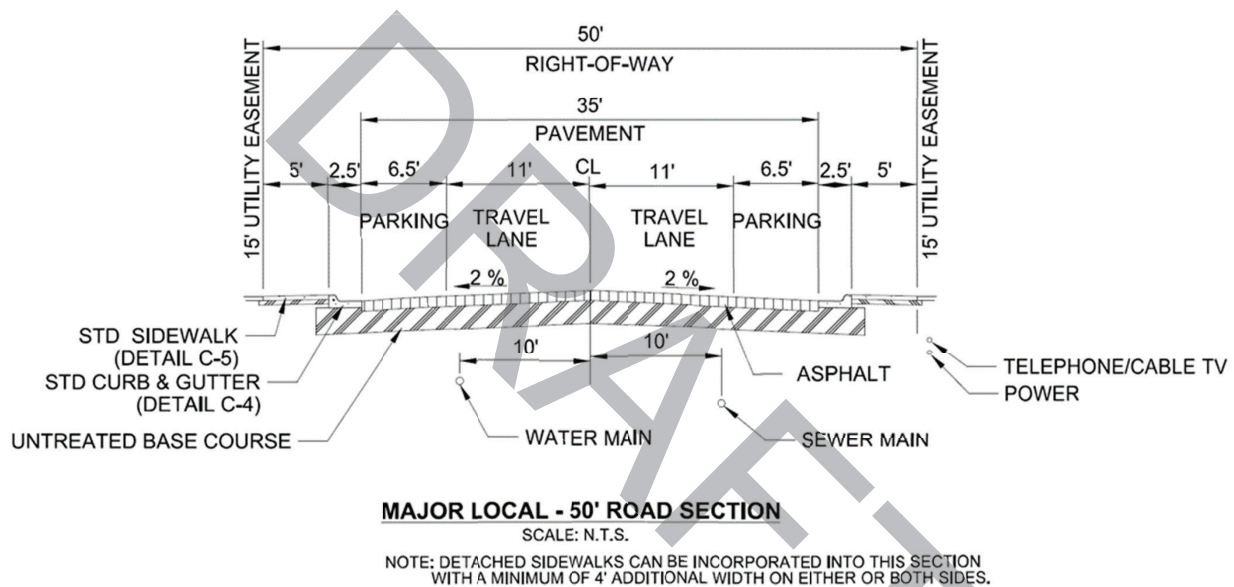


Figure 4: Major Road Typical Section

8.2 Access Management

The KCCDS are the governing document for access management. Refer to KCCDS section 2.8.A for details regarding the design and implementation of access management.

8.2.1 Benefits of Access Management

A good access management program can accomplish the following:

- Improve overall roadway safety.
- Decrease interruptions in traffic flow.
- Minimize traffic delays and congestion.
- Maintain roadway capacity.
- Extend the useful life of roads.
- Improve air quality.
- Enhance pedestrian and bicycle facilities.

These benefits can be realized with the following management approach:

- Limit the number of conflict points at driveway locations.
- Separate conflict areas.
- Reduce the interference of through traffic.
- Provide sufficient spacing for signalized intersections.
- Provide adequate onsite circulation and storage.

8.2.2 Where to Use Access Management

Access Management should be applied on roadways within Kanab City. Roadway access management strategies extend the useful life of roads at little or no cost to taxpayers. Access management can be used to improve performance on a major roadway that is increasing in volume. Access management should be used on new roadways and roadways that are to be improved to prolong the usefulness of the roadway. Managing access is achieved by controlling the location, design, and operation of driveways, median openings, and street connections. In addition, auxiliary lanes (turn lanes or by-pass lanes) are also used to divert traffic out of the through traffic stream to improve the traffic flow and improve safety.

8.2.3 General Access Management Principles

Conflicts at intersections and driveways should be separated and the number reduced as much as possible.

Signal cycles should be as short as possible but consistent with capacity, pedestrian clearance, and coordination requirements. A cycle length range of 60 to 120 seconds is appropriate. Cycle lengths should not exceed 150 seconds.

Un-signalized access should be located so as not to interfere with queues or maneuvering areas of signalized intersections and positioned to take advantage of gaps in, or less dense, traffic flows.

Adequate on-site storage and driveway dimensions should be designed to accommodate the traffic demand entering and exiting the site. Fewer, properly placed, and adequately designed driveways are preferable to a larger number of inadequately designed driveways, especially when spaced at least 500 feet apart. In all cases, the integrity of mainline traffic operations should not be compromised.

8.2.4 Access Management Techniques

There are many techniques that can be used in access management. The most common techniques are signal spacing, street spacing, and access spacing. There are various distances for each spacing depending upon the roadway type being accessed and the accessing roadway.

8.2.5 Number of Access Points

Controlling the number of access points or driveways from a site to a roadway reduces potential conflicts between vehicles, pedestrians, and bicycles. Each parcel should normally be allowed one access point, and shared access is preferred where possible.

8.2.6 Signalized Intersections

Uniform or near uniform spacing of signals is essential for efficient traffic flow. In general, signals should be spaced at one-quarter mile (1,320 feet) apart.

8.2.7 Un-Signalized Driveways

Un-signalized driveways are much more common than signalized driveways. Sound traffic engineering criteria indicates that 500 feet or more should be provided between full movement un-signalized accesses.

8.2.8 Right-In/Right-Out Accesses

Restricted access movement can provide for additional access to promote economic development with minimal impact to the facility. This type of access should be spaced to allow for a minimum of traffic conflicts and provide distance for deceleration and acceleration of traffic in and out of the access.

8.2.9 Residential Lots

The number of accesses on residential lots shall be based on the following:

- Number of Driveways: residential lots shall not have more than two (2) driveways, unless approved by the City Engineer.
- Width: No driveway shall be more than 32 feet in width, unless approved by the City Engineer. In no event shall the combined width of such driveways exceed 46 feet or 50% of the entire lot frontage, whichever is less.

- Corner Lots: access to corner lots should be from the lesser-classified road at the greatest distance possible from the intersection and should not be less than distances consistent with Kanab City Standards.

8.2.10 Commercial Lots

Commercial lots or developments are not limited to one access per lot and should be addressed on a case-by-case basis. Additional accesses (beyond 1) must be approved by the City upon completion of a Traffic Impact Study provided to the City indicating that more than one access is required to adequately handle the developments traffic volumes and further indicating that the additional access will not be detrimental to traffic flow on the adjacent street network.

Access spacing shall be measured from center of access to center of access. Major collectors and arterial roadways will have limited access. Where multiple parcels are consolidated, access shall also be consolidated according to City design and spacing standards. Temporary access may be granted to undeveloped property prior to completion of a final development plan if access is needed for construction or preliminary site access. Temporary accesses are subject to removal, relocation, or redesign after final development plan approval.

8.2.11 Offset Distance

Offset distance is the distance from the center of an access to the center of the next access on the opposite side of the road. On undivided roadways, access on opposite sides of the road should be aligned. Where alignment is not possible, driveways should be offset at 150 feet for collectors and 500 feet for arterial roadways.

8.2.12 Corner Spacing

Providing adequate corner spacing improves traffic flow and roadway safety by ensuring that the traffic turning into the driveway does not interfere with the function of the intersection. Access to corner lots should be from the lesser-classified road at the greatest distance possible from the intersection and should not be less than 100 feet for collectors and 200 feet for arterials. This distance is measured from the PC (point of curve) of the corner curve. A 25-foot radius is considered the minimum where the existing radius is less than 25 feet.

8.2.13 Medians

Medians are used to control and manage left turns and crossing movements as well as separating traffic moving in opposite directions. Restricting left turning movements reduces the conflicts between through and turning traffic, resulting in improved safety. Studies have shown that the installation of a non-traversable median will reduce crashes by 30% over that of a two way left turn lane (TWLTL).

The need for a median can be identified through an engineering review (a traffic study assessing the impact of a proposed project) and should be considered on any roadway that has a speed limit greater than 40 mph. Medians can improve pedestrian safety by providing a refuge area for the pedestrian.

Medians can also add to the overall aesthetics of a roadway corridor or a development by incorporating landscaping or other items of visual interest. However, care should be taken to maintain sight distance around the intersection/access locations. Ground cover plantings should be planted within 350 feet of an intersection/access opening. Care should be taken to select landscape materials that will not intrude into the roadway and to locate materials such that they will not cause a safety problem. Trees should be selected that will not be larger than 4 inches in diameter when mature.

Two ways left turn lanes should only be used to retrofit areas of existing development and should be limited to roadways with less than 15,000 ADT. In areas with greater than 15,000 ADT, consideration should be given to a raised median with appropriately spaced median openings.

8.2.14 Width of Access Points

In addition to limiting the number of access points, the width of the access point should be restricted based on the use of the site. Residential lot driveways should be limited to a maximum throat width of 32 feet at the back of the drive approach. The maximum width for a commercial or industrial site entrance with two-way traffic should be limited to 44 feet. The width includes 12 feet for right out, 12 feet for left out, 16 feet for an ingress lane, and two 2-foot shoulders. The width of the entrance should be determined based on the type of use for the site, the type of traffic (cars vs. 18-wheel trucks), and the projected volume of traffic.

8.2.15 Turning Radius

The turning radius of a driveway or access road affects both the flow and safety of through traffic as well as vehicles entering and exiting the roadway. The size of the turning radius affects the speed at which vehicles can exit the flow of traffic and enter a driveway. The larger the turning radius, the greater the speed at which a vehicle can turn into a site.

The speed of the roadway, the anticipated type and volume of the traffic, pedestrian safety, and the type of use proposed for the site should be considered when evaluating the turning radius and should be determined on a case-by-case basis as part of development planning.

8.2.16 Shared Access

Access points can be shared between adjacent parcels to minimize the potential for conflict between turning and through traffic. Interconnections between sites can eliminate the need for additional curb cuts, thereby preserving the capacity of the roadway. This is particularly important for commercial/industrial sites and should be used to encourage the development of interconnectivity between parcels. Future roadway rights-of-way should also be preserved to promote interconnected access to vacant parcels.

8.2.17 Alignment of Access Points

Accesses represent points of conflict for vehicles, bicycles, and pedestrians. To minimize the potential Conflicts and improve safety, intersections and driveways shall be aligned opposite each other wherever possible and roadways intersect at a 90-degree angle.

8.2.18 Sight Distance

Sight distance is the length of the road that is visible to the driver. A minimum safe sight distance should be required for access points based on the roadway classification. It is essential to provide sufficient intersection sight distance at the driveway point for vehicles using a driveway to see oncoming traffic and judge the gap to safely make their movement. Intersection sight distance varies depending on the design speed of the roadway to be entered and assumes a passenger car can turn right or left into a two-lane highway and attain 85 percent of the design speed without being overtaken by an approaching vehicle that reduces speed to 85 percent of the design speed. Sight distance values should be determined based upon actual conditions and relevant standards published in the latest edition of the AASHTO Policy on Geometric Design.

8.2.19 Turning Lanes

Turning lanes remove the turning traffic from the through travel lanes. Left turning lanes are used to separate the left turning traffic from the through traffic. Right turn lanes reduce traffic delays caused by the slowing of turning vehicles. These lanes are generally used in high traffic areas on arterial and collector roadways. A traffic impact study will determine the need for turning lanes. The provision for left turn lanes is important from both capacity and safety perspective, where left turns would otherwise share the use of a through lane. Shared use of a through lane will dramatically reduce capacity, especially when opposing traffic is heavy. Left turn lanes shall be provided at signalized intersections.

Right turn lanes remove the speed differences in the main travel lanes. This helps to reduce the number and severity of rear-end collisions. Right turn lanes also increase capacity of signalized intersections and may allow more efficient traffic signal phasing and should be installed where feasible.

8.2.20 Pedestrian and Bicycle Access

All new development and redevelopment of existing sites should address pedestrian and bicycle access to and within the site, consistent with associated City plans.

8.2.21 Roundabouts

Development of a roundabout should occur because of an intersection study by a qualified Traffic Engineer and when the minimum capacity and design criteria can be met.

8.3 Maintenance

Street maintenance is a regular function of the Kanab City Public Works Department. These activities include updating/upgrading pavement surfaces, cleaning of surfaces and related storm drain collection features, and general upkeep. It is recommended that a heightened focus on asset management be provided to ensure that maintenance funding and capital expenditure are focused on the areas of the highest long-term benefit. This focus will include two areas of specific emphasis:

1. Pavement Management and Preservation Program Development: This program will focus on an analytical approach to evaluating the condition of existing pavement conditions and recommending various rehabilitative techniques that focus on long term life cycle costs and benefits. The most substantial cost in constructing and improving street improvements is in the surface materials and this program would assist the City in preserving and maintaining existing streets/roads to a higher level for a longer period of time.

2. Street Asset Preservation Program Development: This program will focus on developing an assessment and maintenance/improvement program for street related features including signs, lighting, signals, and related infrastructure.

Both suggested programs when implemented will provide for enhanced understanding of the remaining life of transportation related facilities and provide the City with a tool set to appropriately prioritize and fund necessary maintenance and improvements.

8.4 Corridor Preservation

8.4.1 Objectives

The objectives of corridor preservation are as follows:

- Prevent inconsistent development.
- Minimize or avoid environmental, social, and economic impacts.
- Reduce displacement.
- Prevent the foreclosure of desirable location options.
- Permit orderly project development.
- Reduce costs.

8.4.2 Corridor Preservation Techniques

Techniques for corridor (right-of-way) preservation fall into the following three major categories: (1) acquisition, (2) exercise of governmental powers, and (3) voluntary agreements and governmental inducements. The purpose of this Section is to provide a “toolbox” of techniques available, a summary of each is provided below.

8.4.3 Acquisition

This technique involves the purchase of fee simple or lesser interests in property to bank or preserve it for the corridor location. This could be accomplished using federal funds or by using state funds where a project would be implemented without federal participation. The use of state funds could generally be accomplished with more flexibility and fewer requirements. If federal funds are used or expected to be used for future elements of the project, certain federally required procedures must be followed. Acquisition can be accomplished as outlined in the following paragraphs.

8.4.4 Advance Purchase and Eminent Domain

Undeveloped property is acquired, either by direct purchase or eminent domain, and “banked” until needed for construction. Such a method may systematically acquire the entire right-of-way, or it may strategically acquire only selected parcels. Before property may be taken for a corridor the acquiring agency must identify the corridor location, general route, and termini.

8.4.5 Hardship Acquisition

Property is acquired to alleviate a particular hardship for a property owner. The hardship must occur because of an inability to sell the property due to public awareness of the pending project.

8.4.6 Purchase Options

A conditional contract or option is executed that gives the public agency the right but not the obligation to buy the property at a future date. A related concept involves the use of the rights of first refusal under which the government entity obtains the first right to purchase the property when a landowner determines to sell its property.

8.4.7 Development Easements

The government agency purchases development rights or a development easement. The agreement would specify the uses that would be allowed on the land. The public agency would purchase the property owner’s right to develop the land, leaving the owner with all other rights of ownership. Thus, intensification of and use or development would be precluded.

8.4.8 Public Land Exchanges

Surplus government land is exchanged as compensation for private property needed for right-of-way.

8.4.9 Private Land Trusts

Private land trusts play an increasingly important role in land conservation where public objectives are aligned with private trust objectives. Where government budgets are insufficient to acquire critical tracts in any given time frame, private land trusts may acquire the tracts and hold them for future acquisition by the government.

8.4.10 Exercise of Police Powers

Regulatory controls under the police power can be used to control the development of private property to preserve the transportation corridor. These measures impose requirements with no compensation to the landowner.

8.4.11 Impact Fees and Exactions

This method involves a mandatory property or monetary contribution by a developer to the local jurisdiction as a condition of a land use approval or permit. Impact fees and exactions can be assessed when a jurisdiction makes an individualized determination that the required dedication is “roughly proportional” in both nature and extent to the impact of the proposed development. The effected jurisdiction charges developers for a pro rata share of capital funding for the improvements based on relative contributions to the impacts of the development by newly developed property and existing developments.

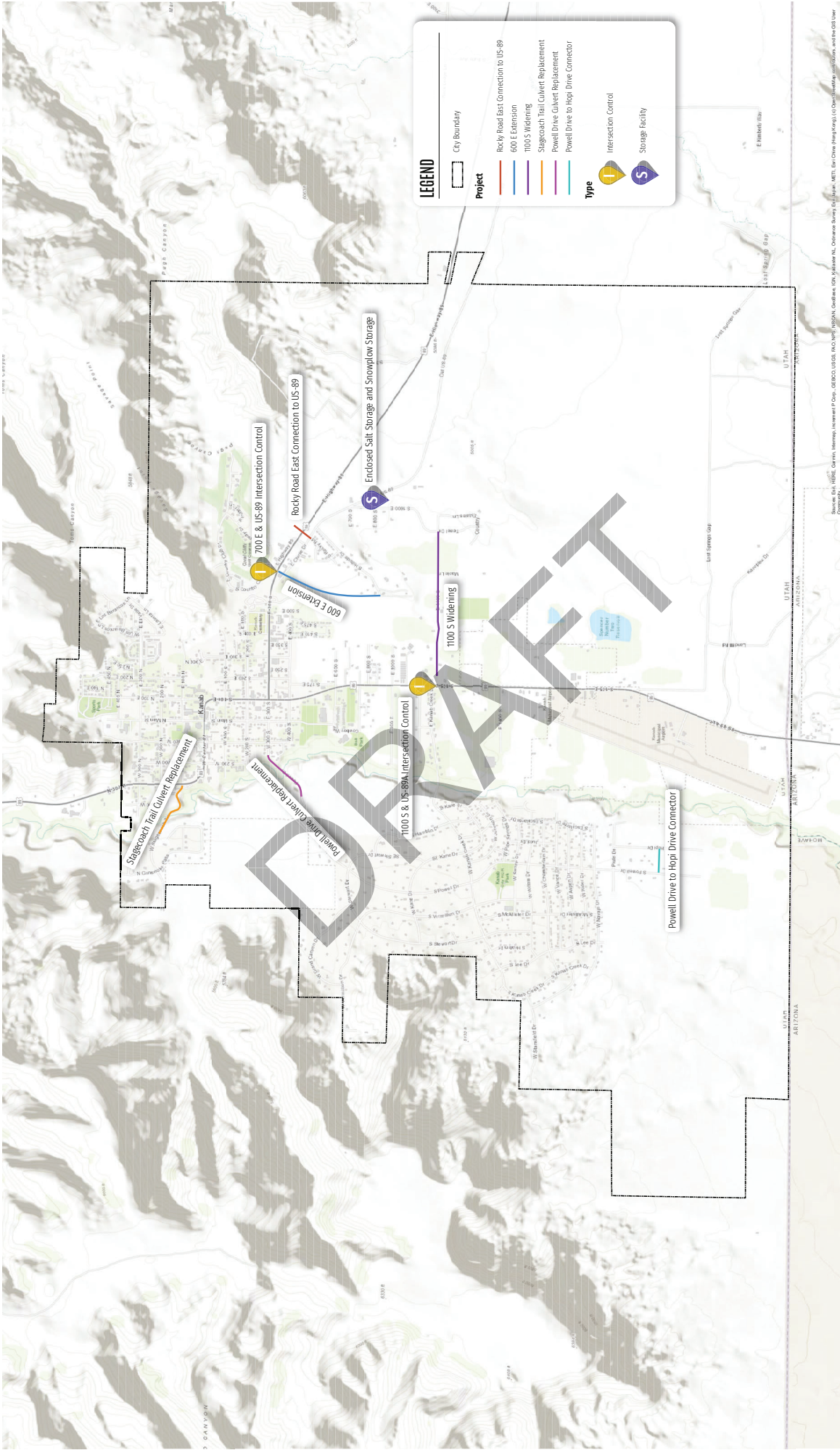


Kanab Downtown

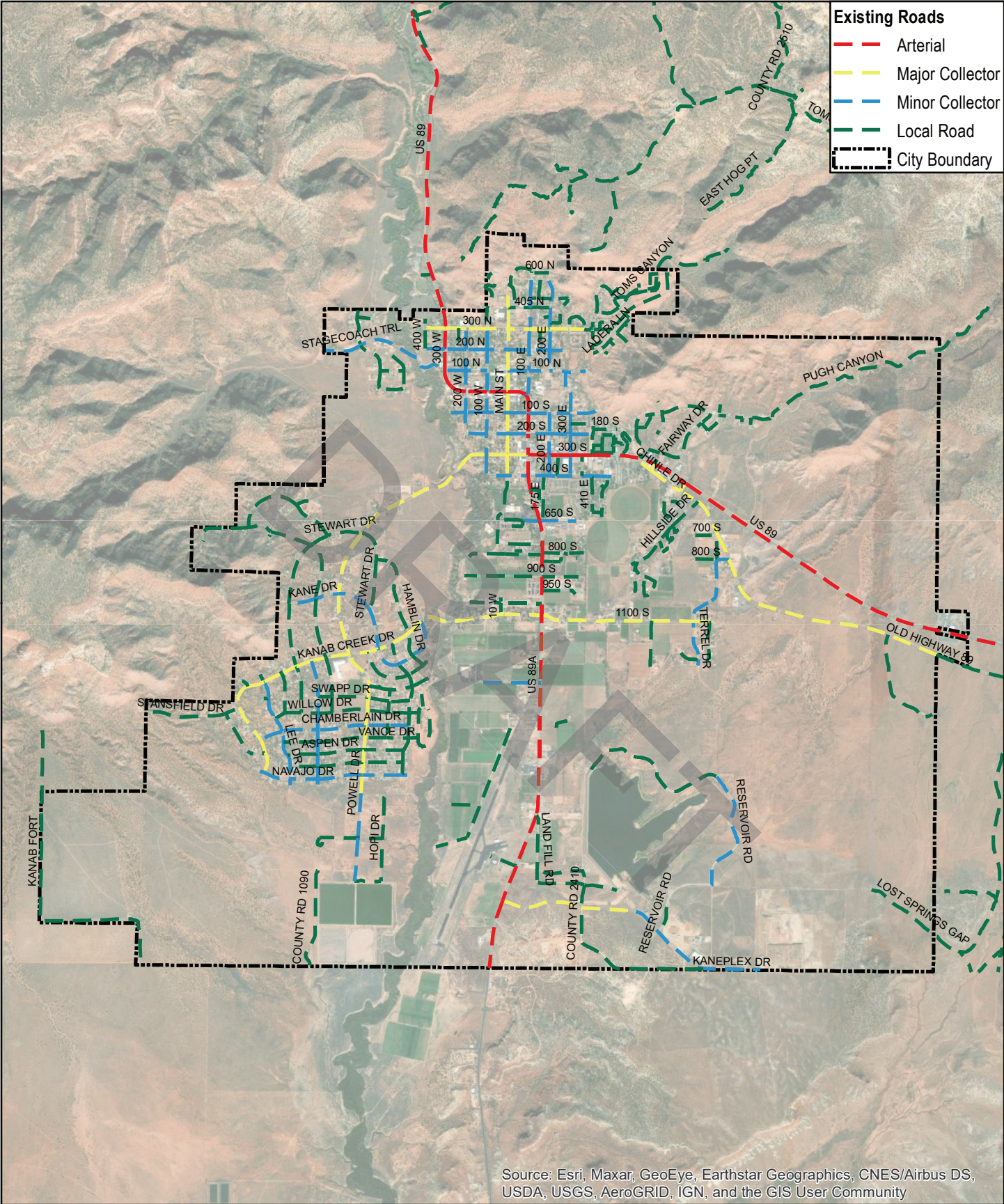
APPENDIX A

MAPS

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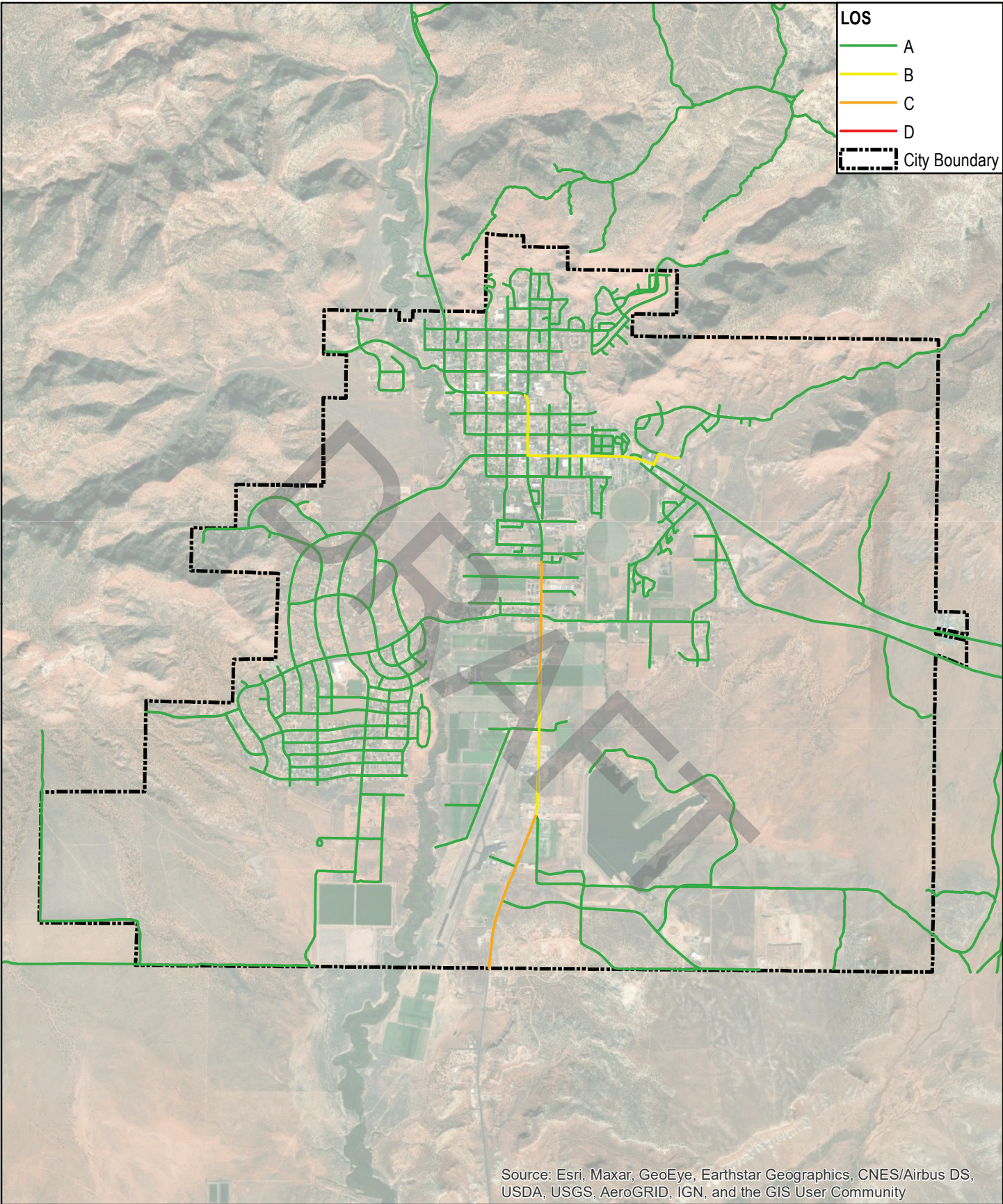
PROPOSED TRANSPORTATION PROJECTS MAP



**KANAB CITY TRANSPORTATION
IFFPA UPDATE 2024**

Existing Roadways

Map 2



LOS

- A
- B
- C
- D
- City Boundary

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



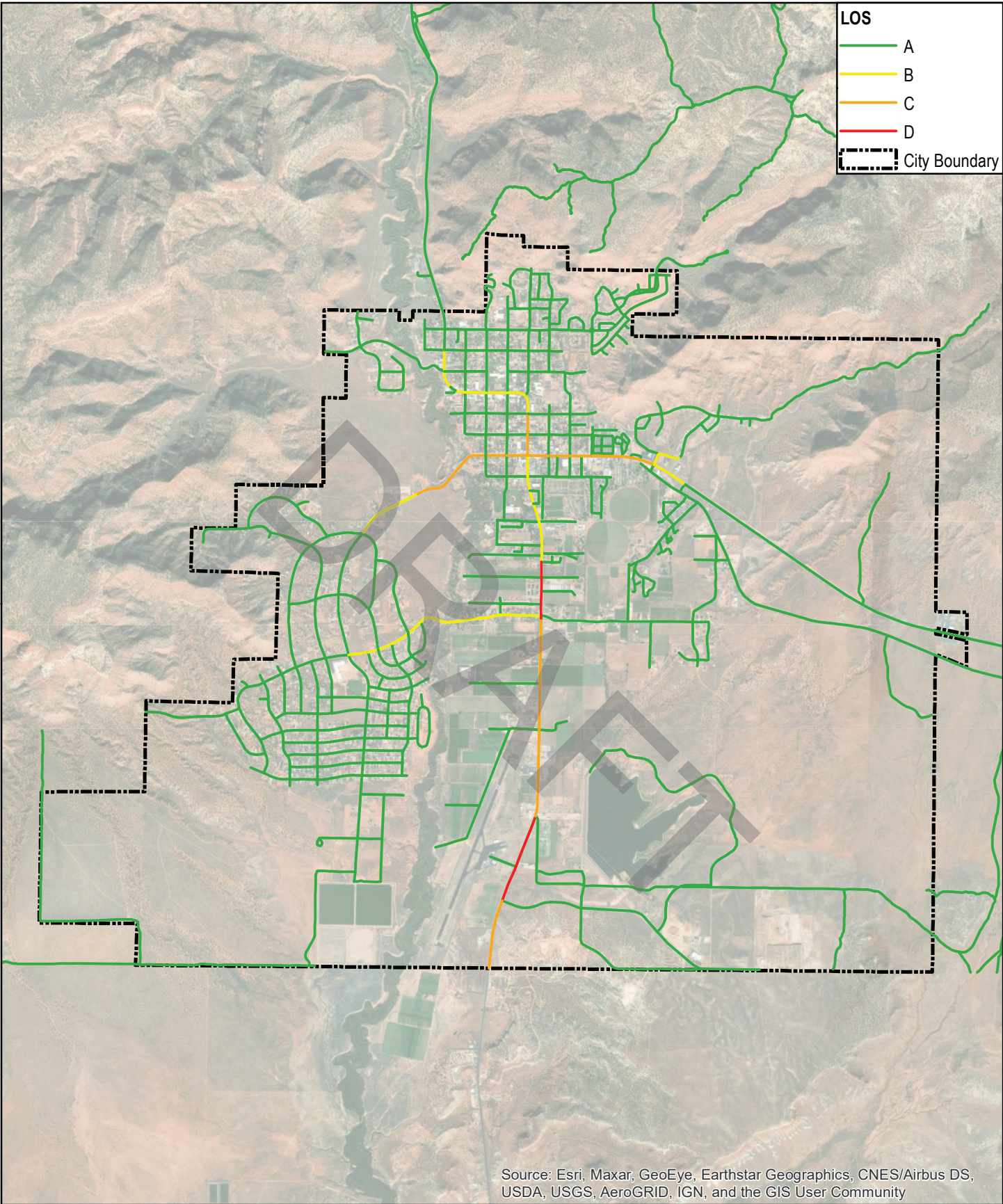
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**KANAB CITY TRANSPORTATION
IFFPA UPDATE 2024**

Existing Level of Service

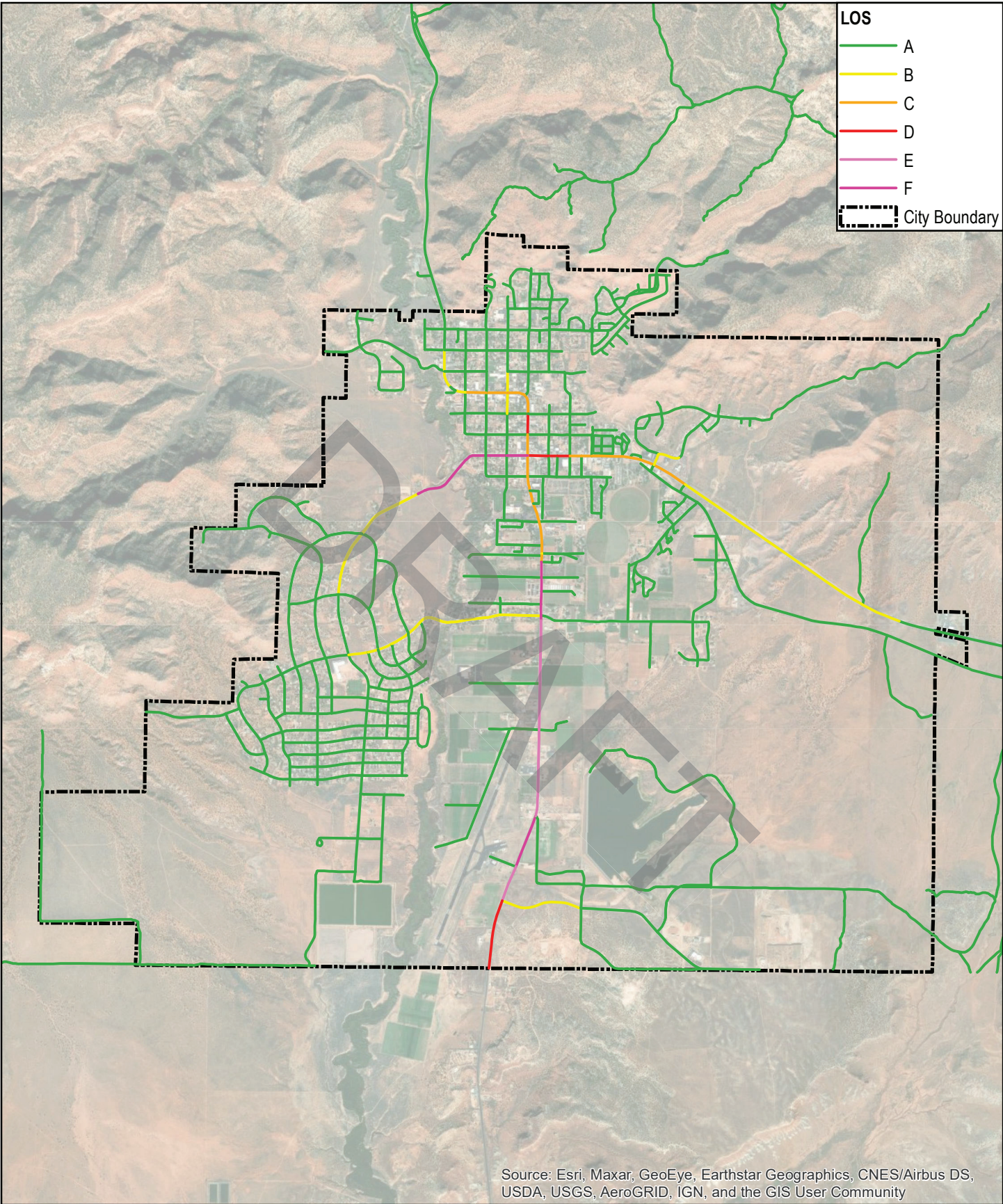
Map 3



**KANAB CITY TRANSPORTATION
IFFPA UPDATE 2024**

10-Year Level of Service with No Build

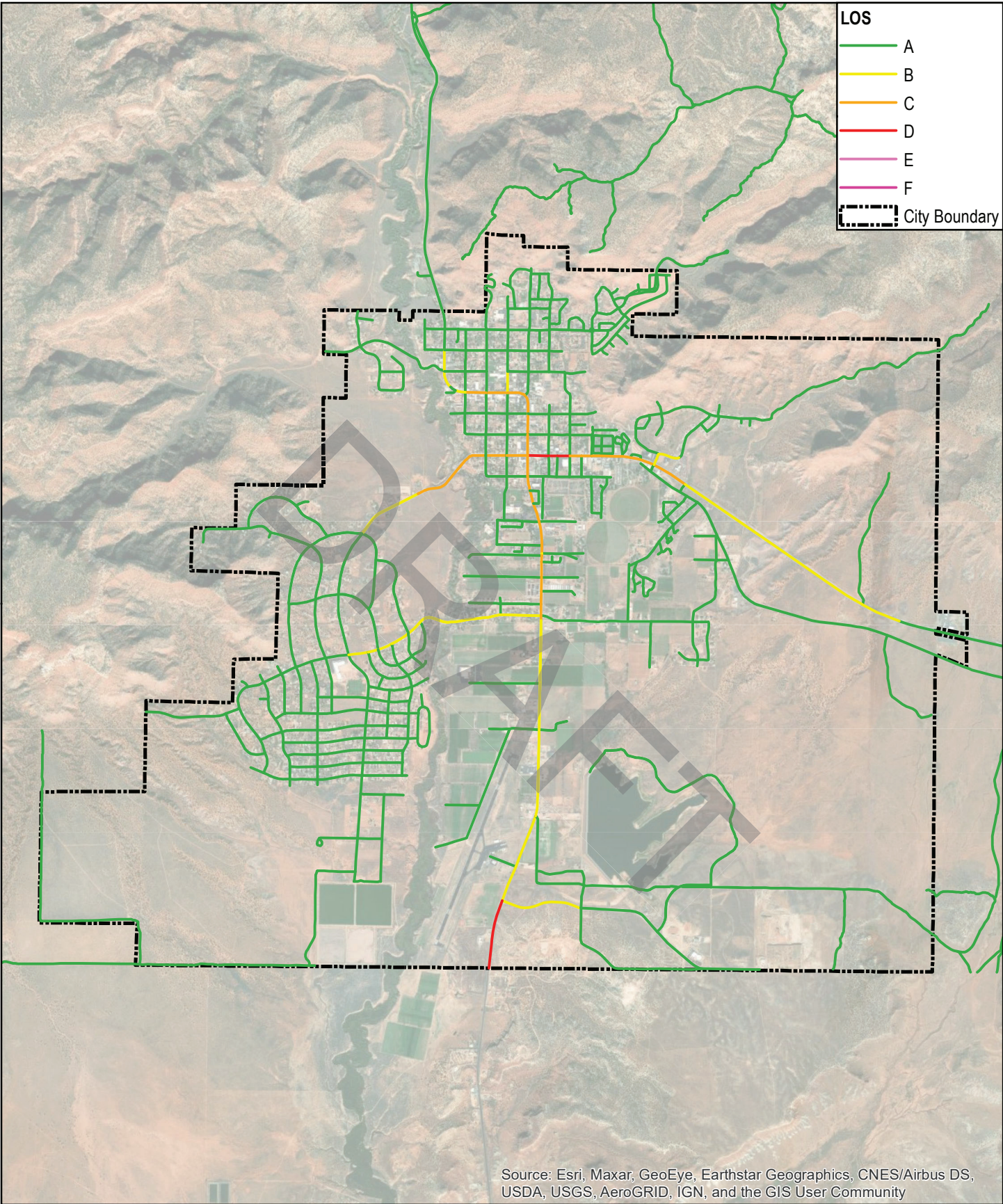
Map 4



**KANAB CITY TRANSPORTATION
IFFPA UPDATE 2024**

20-Year Level of Service with No Build

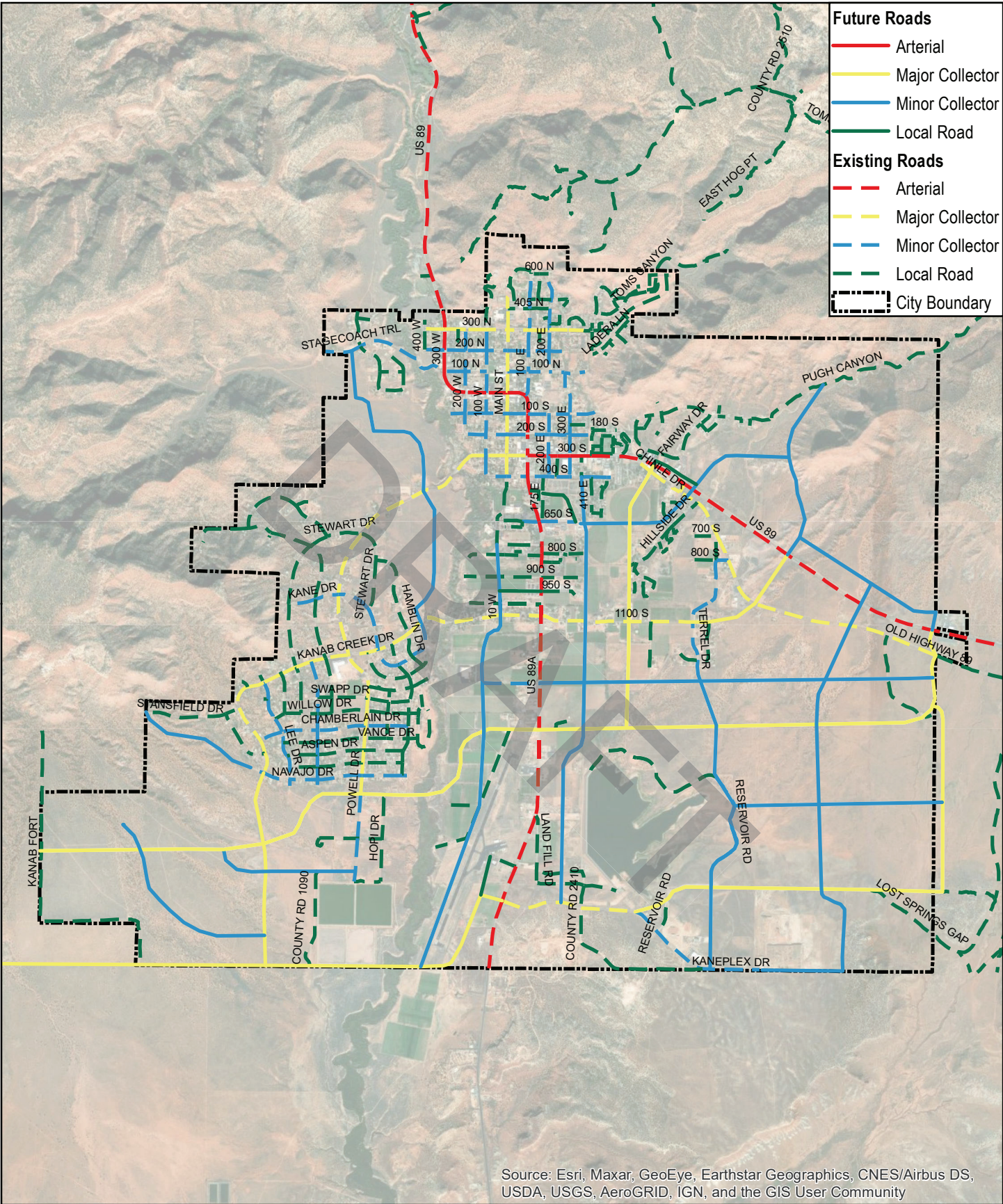
Map 5



**KANAB CITY TRANSPORTATION
IFFPA UPDATE 2024**

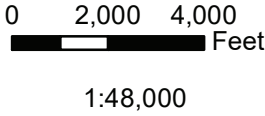
20-Year Level of Service with Full Build

Map 6



Future Roads	
	Arterial
	Major Collector
	Minor Collector
	Local Road
Existing Roads	
	Arterial
	Major Collector
	Minor Collector
	Local Road
	City Boundary

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**KANAB CITY TRANSPORTATION
IFFPA UPDATE 2024**

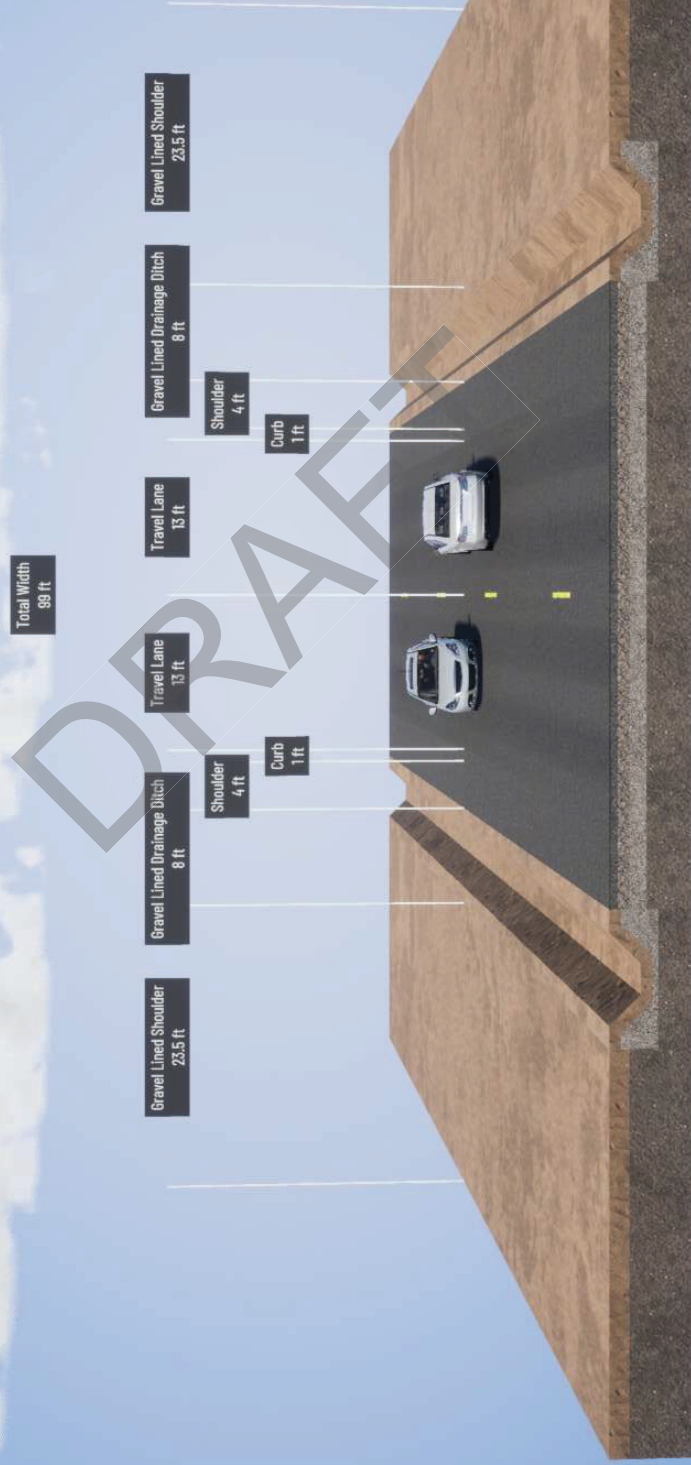
Buildout Roadway Classifications

APPENDIX B

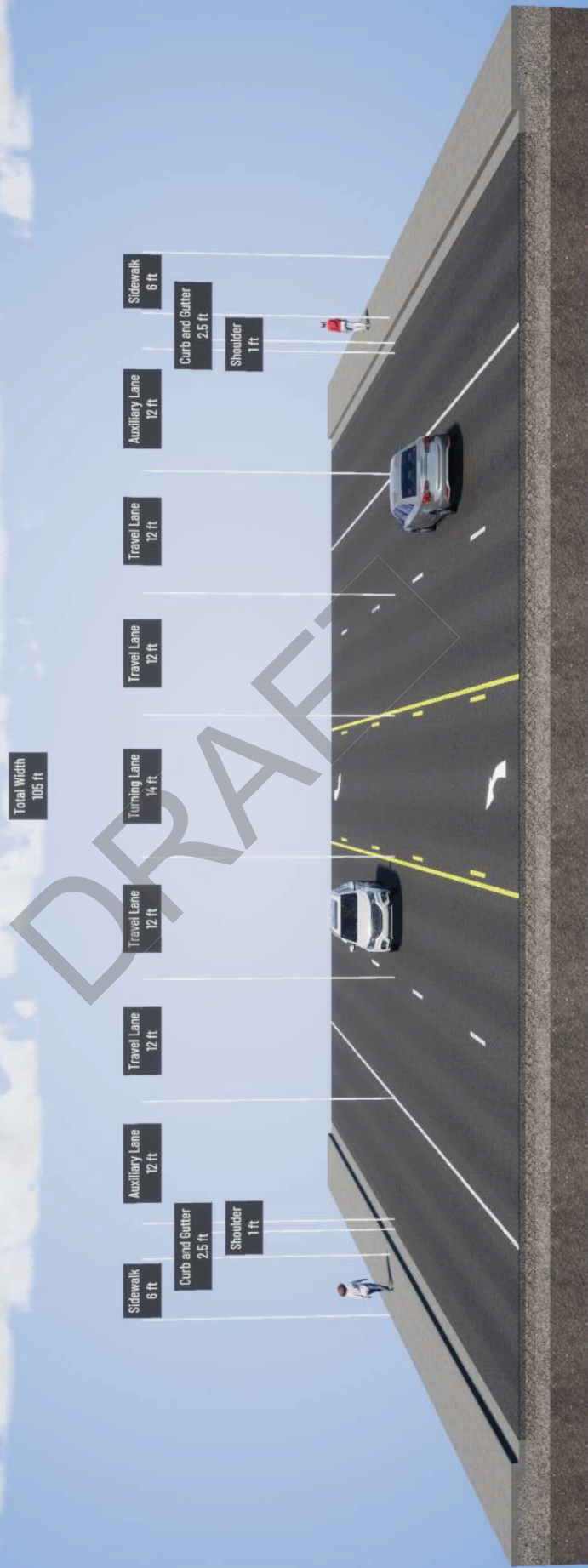
TABLES & FIGURES

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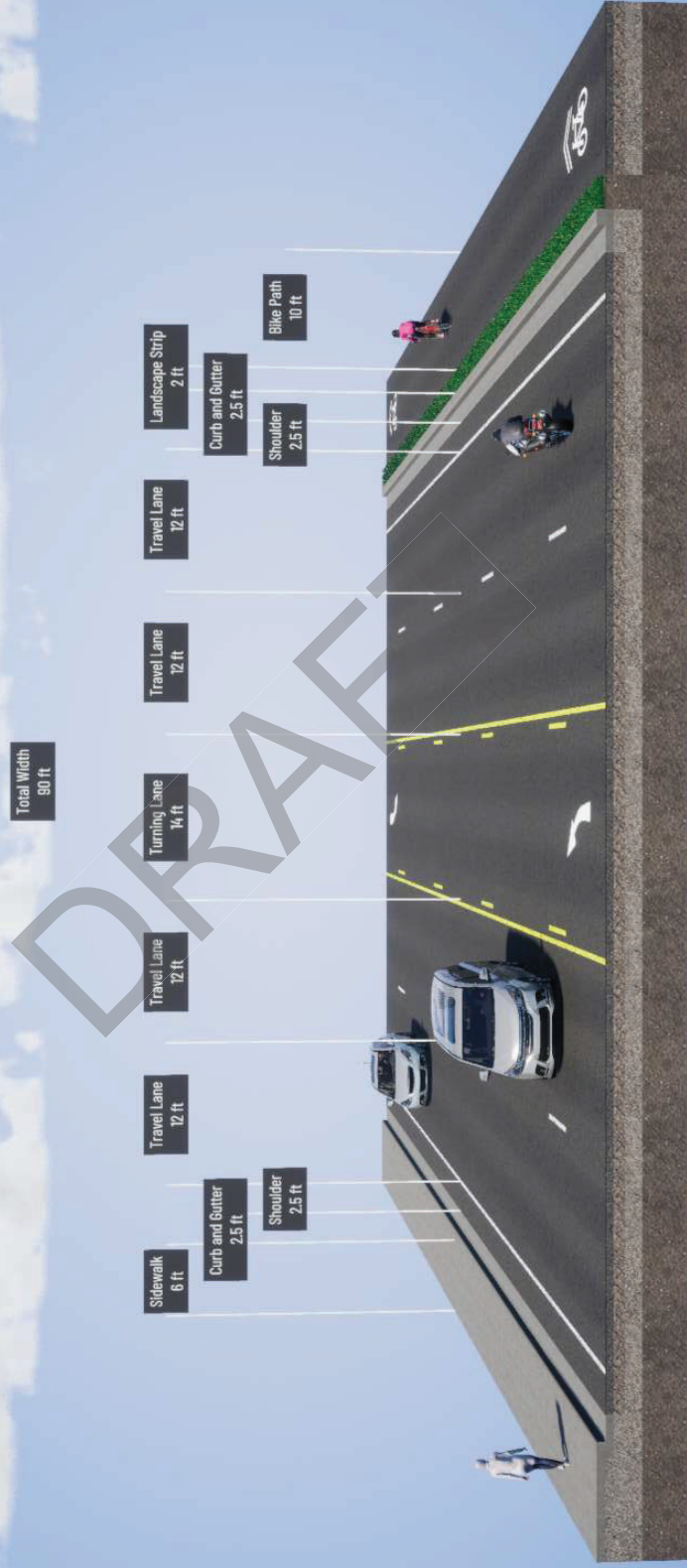
Existing 99' Right Of Way - City Streets



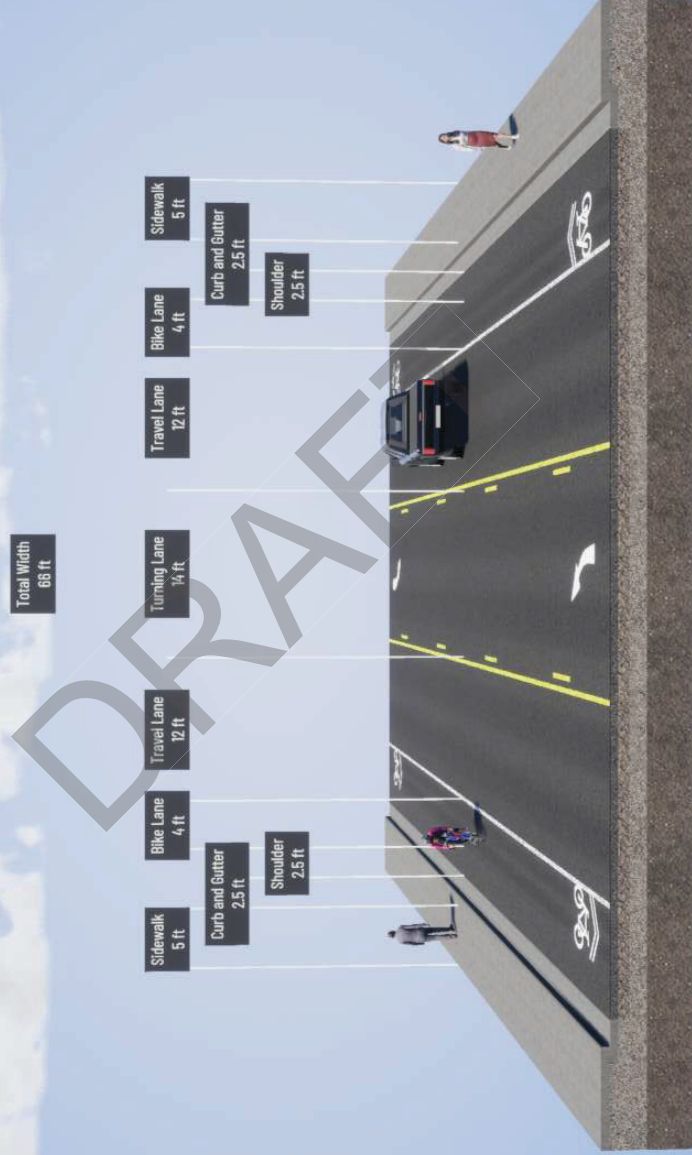
UDOT Arterial, US 89A, SR 11, - 105' Road Section



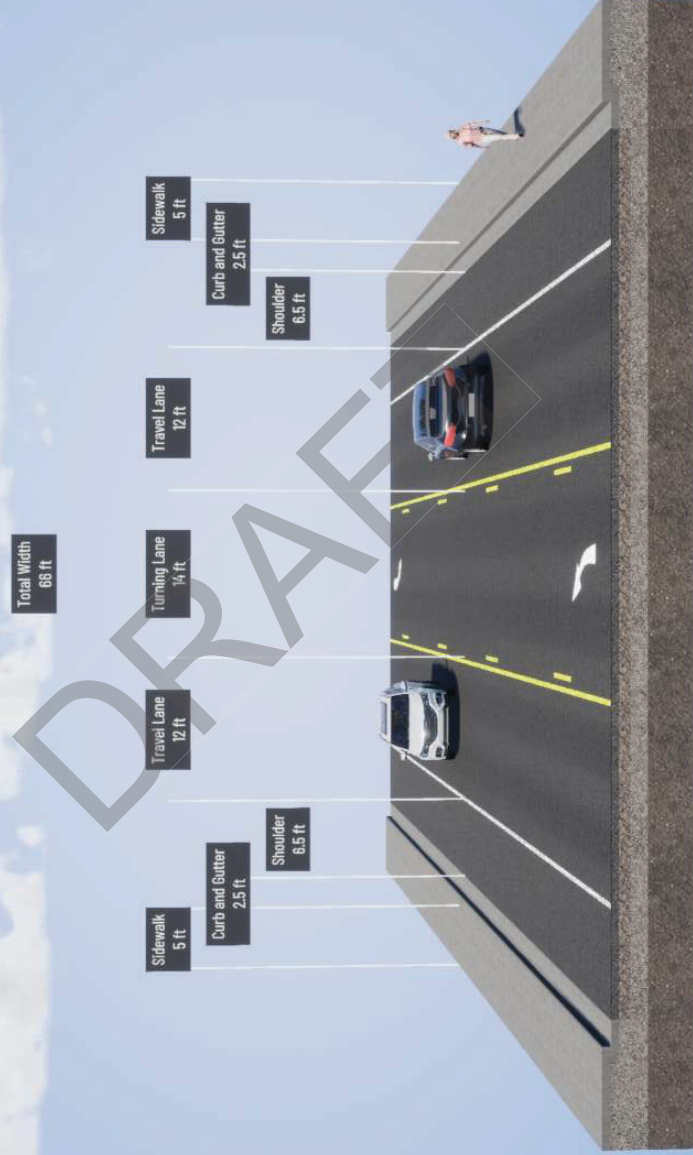
Arterial Road With Bike Path - 90' Road Section



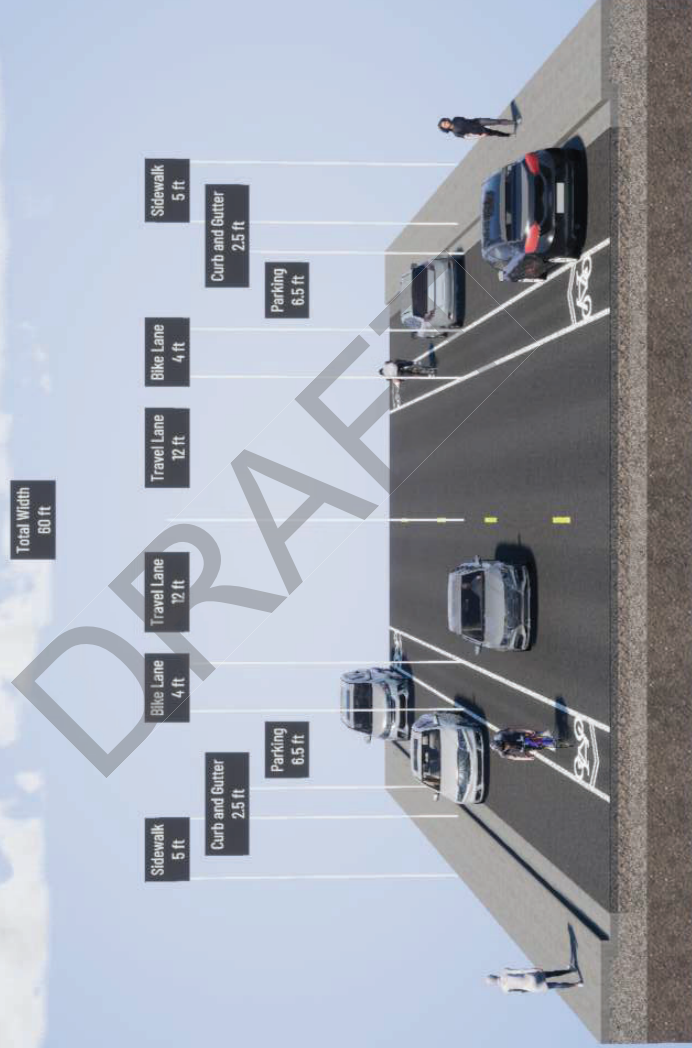
Major Collector With Bike Lane - 66' Road Section



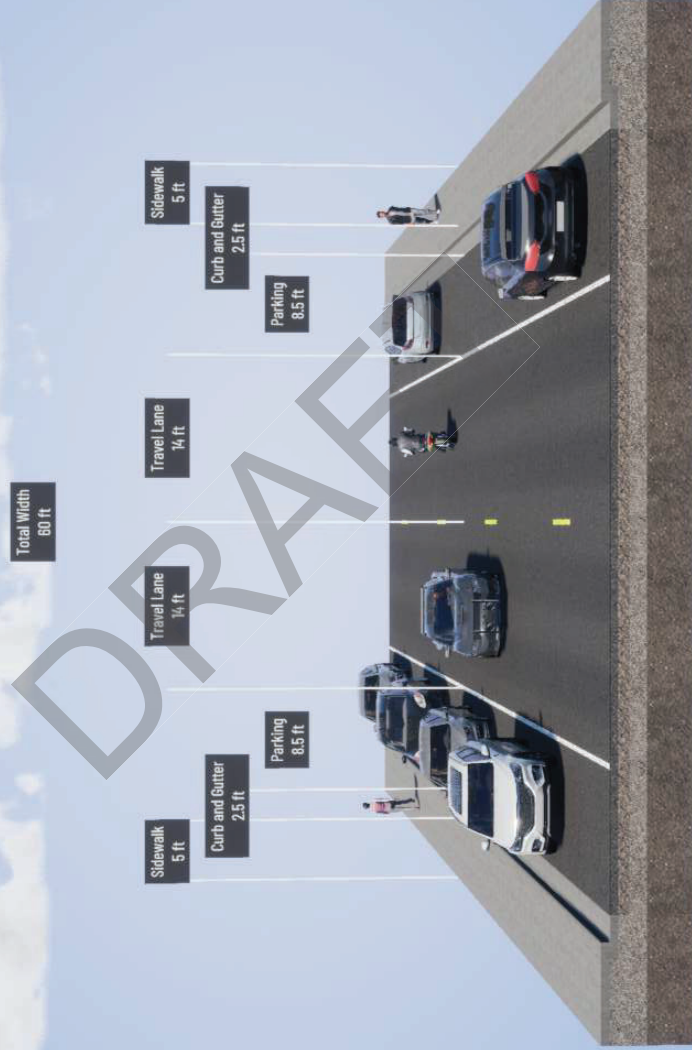
Major Collector Without Bike Lane - 66' Road Section



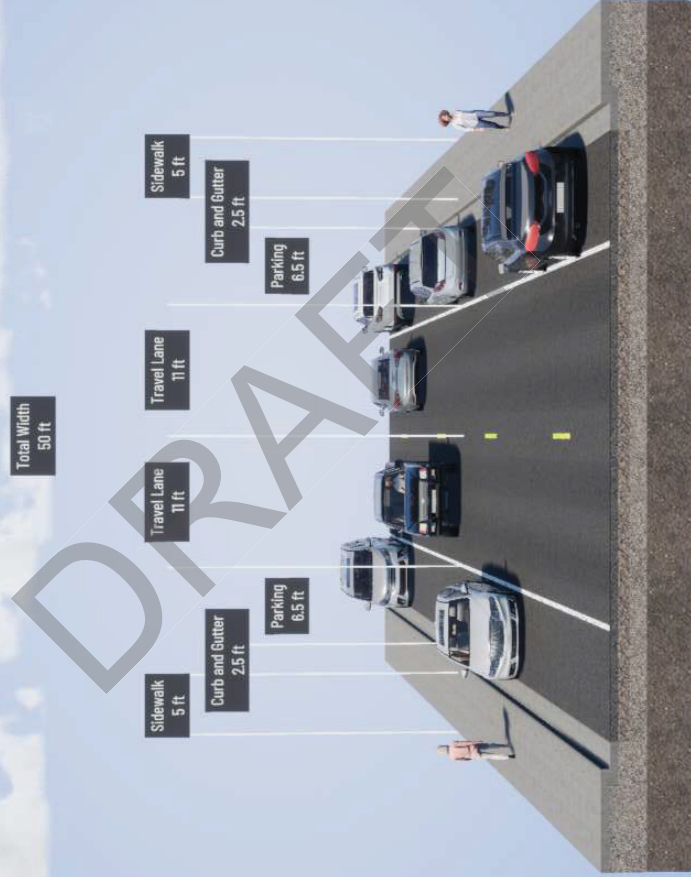
Minor Collector With Bike Lane - 60' Road Section



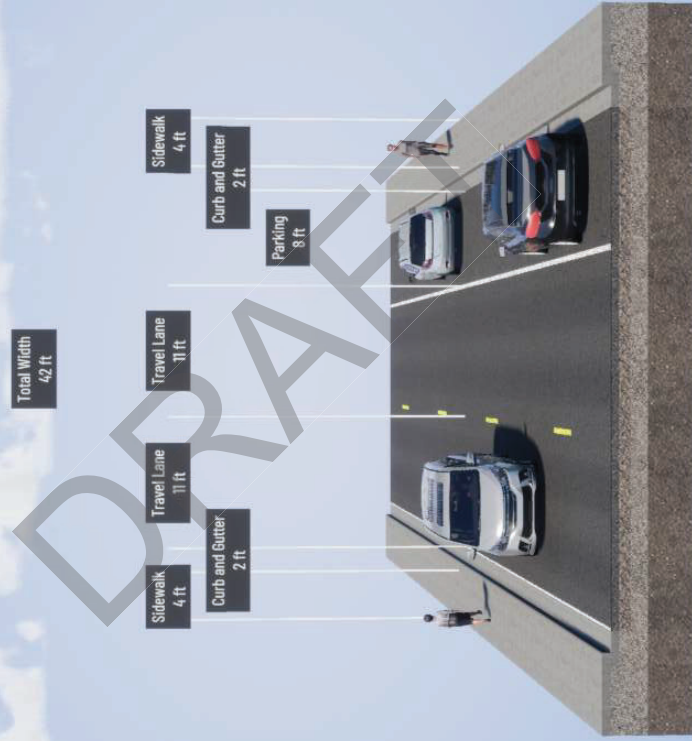
Minor Collector Without Bike Lane - 60' Road Section



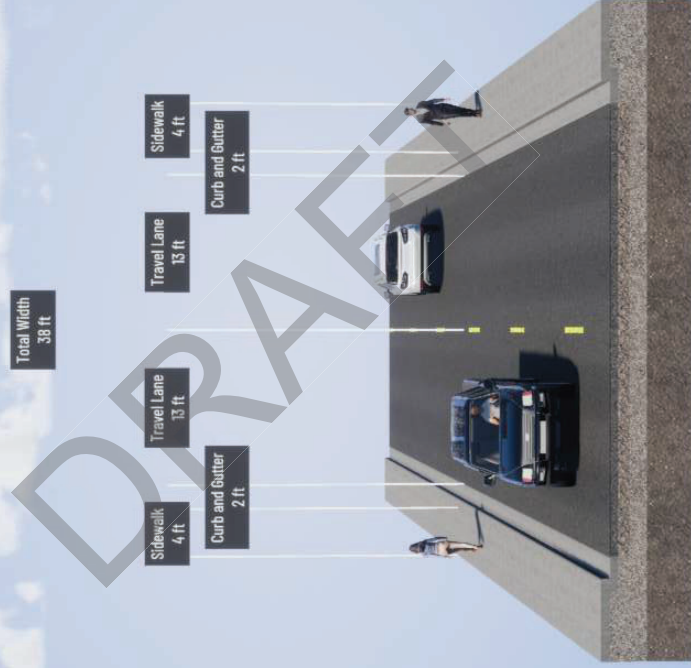
Minor Local - 50' Road Section



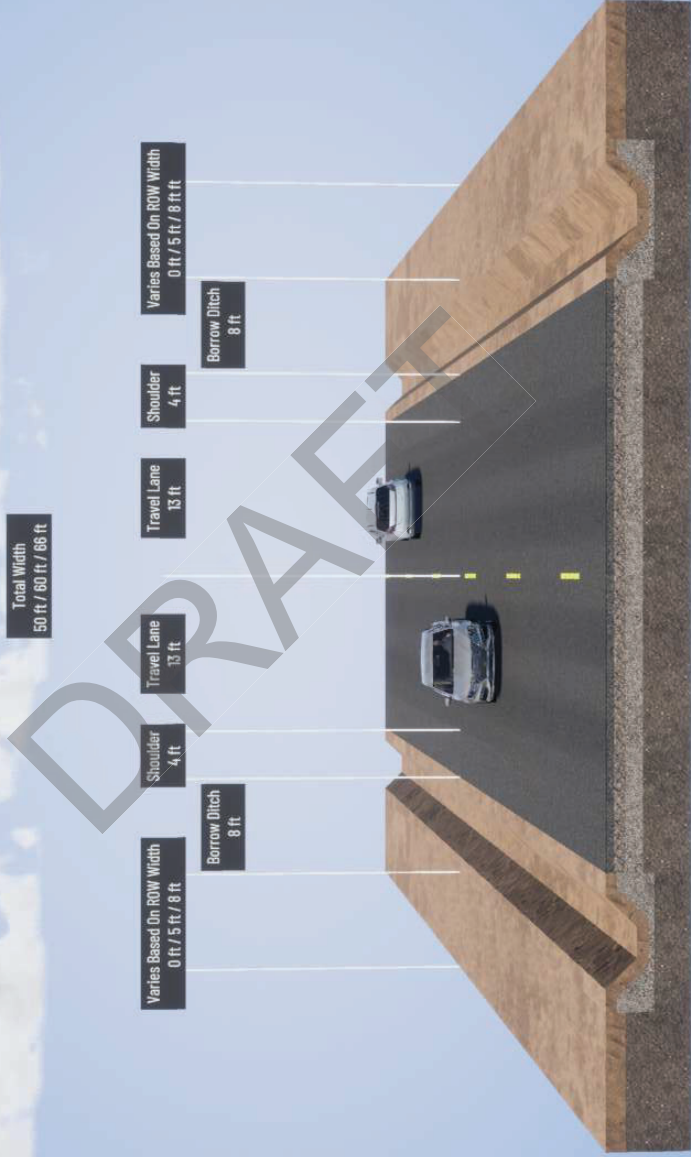
Private Minor Local - 42' Road Section



Private Residential Access - 38' Road Section



Rural Residential Street - 50' / 60' / 66'



UDOT Average Crash Rates 2009-2013

Crash Rates by Area Type, Functional Classification, and AADT

Area Type	Roadway Information		Crash Rates		Severe Crash Rates		Severity		Group Summary	
	Functional Class	AADT	Average Crash Rate	Tolerance	Average Severe Crash Rate	Tolerance	Average Severity		# of Segments	Total Centerline Miles
Urban & Small Urban	Interstate/Expressway/ Freeway ¹	0 - 75K 75 - 250K	0.86 1.12	+/- 0.09 +/- 0.07	2.4 1.4	+/- 0.5 +/- 0.2	1.39 1.34		79 71	168 111
	Principal Arterial	0 - 20K	2.74	+/- 0.24	6.8	+/- 0.9	1.49		215	298
	Minor Arterial	20 - 60K 0 - 10K 10 - 30K	3.92 2.69 3.40	+/- 0.28 +/- 0.41 +/- 0.50	8.4 5.8 8.6	+/- 0.8 +/- 1.9 +/- 1.8	1.54 1.47 1.56		261 88 65	279 122 59
	Collector	0 - 25K	2.68	+/- 0.45	7.6	+/- 3.2	1.52		59	72

Area Type	Roadway Information		Crash Rates		Severe Crash Rates		Severity		Group Summary	
	Functional Class	AADT	Average Crash Rate	Tolerance	Average Severe Crash Rate	Tolerance	Average Severity		# of Segments	Total Centerline Miles
Rural	Interstate ¹	0 - 50K	0.75	+/- 0.07	3.5	+/- 0.5	1.54		135	692
	Principal Arterial	0 - 20K	1.35	+/- 0.12	5.1	+/- 0.8	1.47		227	1,157
	Minor Arterial	0 - 10K	1.71	+/- 0.22	9.5	+/- 1.6	1.53		250	1,259
	Collector	0 - 10K	1.86	+/- 0.16	10.4	+/- 2.7	1.47		351	1,587

1. Excludes ramp crashes

Definitions:

Crash Rates are expressed as crashes per year per million-vehicle miles

Severe Crash Rates are expressed as severe crashes (fatal and incapacitating injury crashes) per year per hundred million vehicle-miles

Tolerance is the plus/minus range of the true average based on a 95% confidence level

Average Severity is the weighted average of all crashes by their 1-5 severity class

CONFIDENTIAL: This data, as well as all UDOT safety program information, are protected under 23 USC 409

Print Date: 3/18/2015

APPENDIX C

FINANCIAL ANALYSIS

DRAFT

OWNER Kanab City
PROJECT Rocky Road East Connection to US-89



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 17,200.00	\$ 17,200.00	
2	Project Record Documents	1%	LS	\$ 1,700.00	\$ 1,700.00	
3	Traffic and Temporary Controls	4%	LS	\$ 6,900.00	\$ 6,900.00	
4	Materials and Sampling	3%	LS	\$ 5,200.00	\$ 5,200.00	
5	Construction Layout & Staking	2%	LS	\$ 3,400.00	\$ 3,400.00	
Transportation						
1	3" Asphalt Pavement	24990	SF	\$ 6.00	\$ 149,940.00	
Earthwork						
1	Restore Surface Improvements	1	LS	\$ 20,000.00	\$ 20,000.00	
Subtotal					\$ 206,340.00	
				Professional Services & Incidentals	15%	\$ 31,000.00
				Contingency	25%	\$ 51,600.00
Subtotal					\$ 82,600.00	
PROJECT TOTAL					\$ 288,940.00	

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OWNER Kanab City
PROJECT Salt and Snowplow Storage



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 30,700.00	\$ 30,700.00
2	Project Record Documents	1%	LS	\$ 3,100.00	\$ 3,100.00
3	Traffic and Temporary Controls	4%	LS	\$ 12,300.00	\$ 12,300.00
4	Materials and Sampling	3%	LS	\$ 9,200.00	\$ 9,200.00
5	Construction Layout & Staking	2%	LS	\$ 6,100.00	\$ 6,100.00
6	Excavation Export (Plan Qty)	440	CY	\$ 23.60	\$ 10,384.00
7	Building Foundation and Slab Concrete (Plan Qty)	95	CY	\$ 932.00	\$ 88,540.00
8	Premanufactured Metal Building	1	LS	\$ 62,652.75	\$ 62,652.75
9	Structure Erection	1	LS	\$ 88,500.00	\$ 88,500.00
10	Power Connection & Lighting	1	LS	\$ 31,164.00	\$ 31,164.00
Subtotal					\$ 368,846.75
				Professional Services & Incidentals 15%	\$ 55,400.00
				Contingency 25%	\$ 92,300.00
Subtotal					\$ 147,700.00
PROJECT TOTAL					\$ 516,546.75

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OWNER Kanab City
PROJECT 1100 S Major Collector Widening



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 68,000.00	\$ 68,000.00
2	Project Record Documents	1%	LS	\$ 6,800.00	\$ 6,800.00
3	Traffic and Temporary Controls	4%	LS	\$ 27,200.00	\$ 27,200.00
4	Materials and Sampling	3%	LS	\$ 20,400.00	\$ 20,400.00
5	Construction Layout & Staking	2%	LS	\$ 13,600.00	\$ 13,600.00
Transportation					
1	3" Asphalt Pavement	113292	SF	\$ 6.00	\$ 679,752.00
Subtotal					\$ 747,752.00
Professional Services & Incidentals				15%	\$ 112,200.00
Contingency				25%	\$ 187,000.00
Subtotal					\$ 299,200.00
PROJECT TOTAL					\$ 1,046,952.00

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OWNER Kanab City
PROJECT Powell Dr to Hopi Dr Connector Road



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 12,700.00	\$ 12,700.00	
2	Project Record Documents	1%	LS	\$ 1,300.00	\$ 1,300.00	
3	Traffic and Temporary Controls	4%	LS	\$ 5,100.00	\$ 5,100.00	
4	Materials and Sampling	3%	LS	\$ 3,800.00	\$ 3,800.00	
5	Construction Layout & Staking	2%	LS	\$ 2,500.00	\$ 2,500.00	
Transportation						
1	3" Asphalt Pavement	19,575	SF	\$ 6.00	\$ 117,450.00	
Earthwork						
1	Restore Surface Improvements	1	LS	\$ 10,000.00	\$ 10,000.00	
Subtotal					\$ 140,150.00	
				Professional Services & Incidentals	15%	\$ 21,100.00
				Contingency	25%	\$ 35,100.00
Subtotal					\$ 56,200.00	
PROJECT TOTAL					\$ 196,350.00	

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ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 251,800.00	\$ 251,800.00
2	Project Record Documents	1%	LS	\$ 25,200.00	\$ 25,200.00
3	Traffic and Temporary Controls	4%	LS	\$ 100,700.00	\$ 100,700.00
4	Materials and Sampling	3%	LS	\$ 75,500.00	\$ 75,500.00
5	Construction Layout & Staking	2%	LS	\$ 50,400.00	\$ 50,400.00
Water					
1	8" PVC Water	1,760	LF	\$ 35.00	\$ 61,600.00
2	14" PVC Water	1,760	LF	\$ 55.00	\$ 96,800.00
3	14" Gate Valve	1	EA	\$ 4,000.00	\$ 4,000.00
Wastewater					
1	4" PVC Sewer Force Main	1,760	LF	\$ 40.00	\$ 70,400.00
Storm					
1	10'x10' Concrete Box Culvert	750	LF	\$ 1,500.00	\$ 1,125,000.00
2	Concrete Headwall & Apron	1	LS	\$ 100,000.00	\$ 100,000.00
3	Single Storm Inlet	4	EA	\$ 4,000.00	\$ 16,000.00
4	Double Storm Inlet	2	EA	\$ 6,000.00	\$ 12,000.00
5	24" HDPE Storm Drain	300	LF	\$ 115.00	\$ 34,500.00
6	18" HDPE Storm Drain	300	LF	\$ 95.00	\$ 28,500.00
Transportation					
1	3" Asphalt Pavement	47,520	SF	\$ 6.00	\$ 285,120.00
2	Sidewalk with Base	17,600	SF	\$ 7.00	\$ 123,200.00
3	Curb and Gutter	3,520	SF	\$ 40.00	\$ 140,800.00
Earthwork					
1	Excavation	32,000	CY	\$ 10.00	\$ 320,000.00
2	Restore Surface Improvements	1	LS	\$ 100,000.00	\$ 100,000.00
Subtotal					\$ 3,021,520.00
				CLOMR/LOMR & Hydrologic Modeling	7.5% \$ 197,500.00
				Professional Services & Incidentals	15% \$ 453,300.00
				Items Not Estimated	15% \$ 453,300.00
				Contingency	15% \$ 453,300.00
Subtotal					\$ 1,557,400.00
PROJECT TOTAL					\$ 4,578,920.00

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OWNER Kanab City
PROJECT Stagecoach Trail Culvert Replacement with Utilities



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 199,300.00	\$ 199,300.00	
2	Project Record Documents	1%	LS	\$ 19,900.00	\$ 19,900.00	
3	Traffic and Temporary Controls	4%	LS	\$ 79,700.00	\$ 79,700.00	
4	Materials and Sampling	3%	LS	\$ 59,800.00	\$ 59,800.00	
5	Construction Layout & Staking	2%	LS	\$ 39,900.00	\$ 39,900.00	
Water						
1	8" PVC Water	1,500	LF	\$ 35.00	\$ 52,500.00	
2	8" Gate Valve	2	EA	\$ 2,500.00	\$ 5,000.00	
Storm						
1	10'x10' Concrete Box Culvert	600	LF	\$ 1,500.00	\$ 900,000.00	
2	Concrete Headwall & Apron	1	LS	\$ 100,000.00	\$ 100,000.00	
3	Single Storm Inlet	4	EA	\$ 4,000.00	\$ 16,000.00	
4	Double Storm Inlet	2	EA	\$ 6,000.00	\$ 12,000.00	
5	18" HDPE Storm Drain	600	LF	\$ 95.00	\$ 57,000.00	
Transportation						
1	3" Asphalt Pavement	45,900	SF	\$ 6.00	\$ 275,400.00	
2	Sidewalk with Base	17,000	SF	\$ 7.00	\$ 119,000.00	
3	Curb and Gutter	3,400	SF	\$ 40.00	\$ 136,000.00	
Earthwork						
1	Excavation	22,000	CY	\$ 10.00	\$ 220,000.00	
2	Restore Surface Improvements	1	LS	\$ 100,000.00	\$ 100,000.00	
Subtotal					\$ 2,391,500.00	
				CLOMR/LOMR & Hydrologic Modeling	7.5%	\$ 166,600.00
				Professional Services & Incidentals	15%	\$ 358,800.00
				Items Not Estimated	15%	\$ 358,800.00
				Contingency	15%	\$ 358,800.00
Subtotal					\$ 1,243,000.00	
PROJECT TOTAL					\$ 3,634,500.00	

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OWNER Kanab City
PROJECT 600 E Extension



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 99,200.00	\$ 99,200.00
2	Project Record Documents	1%	LS	\$ 9,900.00	\$ 9,900.00
3	Traffic and Temporary Controls	4%	LS	\$ 39,700.00	\$ 39,700.00
4	Materials and Sampling	3%	LS	\$ 29,800.00	\$ 29,800.00
5	Construction Layout & Staking	2%	LS	\$ 19,800.00	\$ 19,800.00
Transportation					
1	3" Asphalt Pavement	150144	SF	\$ 6.00	\$ 900,864.00
Subtotal					\$ 1,190,584.00
Professional Services & Incidentals				15%	\$ 178,600.00
Contingency				25%	\$ 297,700.00
Subtotal					\$ 476,300.00
PROJECT TOTAL					\$ 1,666,884.00

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OWNER Kanab City
PROJECT 1100 South & 89A Future Intersection Control



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 30,200.00	\$ 30,200.00	
2	Project Record Documents	1%	LS	\$ 3,000.00	\$ 3,000.00	
3	Traffic and Temporary Controls	4%	LS	\$ 12,100.00	\$ 12,100.00	
4	Materials and Sampling	3%	LS	\$ 9,100.00	\$ 9,100.00	
5	Construction Layout & Staking	2%	LS	\$ 6,000.00	\$ 6,000.00	
Transportation						
1	Traffic Signal	1	LS	\$ 300,000.00	\$ 300,000.00	
Subtotal					\$ 332,200.00	
				Professional Services & Incidentals	15%	\$ 49,900.00
				Contingency	25%	\$ 83,100.00
Subtotal					\$ 133,000.00	
PROJECT TOTAL					\$ 465,200.00	

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OWNER Kanab City
PROJECT 700 E & US-89 Intersection Control



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 30,200.00	\$ 30,200.00	
2	Project Record Documents	1%	LS	\$ 3,000.00	\$ 3,000.00	
3	Traffic and Temporary Controls	4%	LS	\$ 12,100.00	\$ 12,100.00	
4	Materials and Sampling	3%	LS	\$ 9,100.00	\$ 9,100.00	
5	Construction Layout & Staking	2%	LS	\$ 6,000.00	\$ 6,000.00	
Transportation						
1	Traffic Light	1	LS	\$ 300,000.00	\$ 300,000.00	
Subtotal					\$ 332,200.00	
				Professional Services & Incidentals	15%	\$ 49,900.00
				Contingency	25%	\$ 83,100.00
Subtotal					\$ 133,000.00	
PROJECT TOTAL					\$ 465,200.00	

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Cashflow - Kanab Transportation Impact Fee Analysis

Proposed Impact Fee = \$ 4,246.67 Interest Rate 3%

Title	2020	2021	2022	2023	2024
Revenue					
Total ERCs	3,551	3,973	3,652	3,761	3,874
New ERCs	-	422	(321)	110	113
Average User Rate	\$ -	\$ -	\$ -	\$ -	\$ -
Charges for Services	\$ -	\$ -	\$ -	\$ -	\$ -
Class C Road Revenue	\$ 222,969	\$ 264,377	\$ 264,400	\$ 272,332	\$ 280,502
Grant Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ -	\$ -	\$ -	\$ 124,348	\$ 479,874
Total Operating Revenue	\$ 222,969	\$ 264,377	\$ 264,400	\$ 272,332	\$ 280,502
Expenses					
General	\$ 423,887	\$ 398,234	\$ 410,181	\$ 422,486	\$ 435,161
Other Government Funds	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
Total Operating Expenses	\$ 423,887	\$ 398,234	\$ 410,181	\$ 422,486	\$ 435,161
Accounts					
Net Cash	\$ (200,918)	\$ (133,857)	\$ (145,781)	\$ (150,154)	\$ (154,659)
Operating Account Balance	\$ -	\$ (133,857)	\$ (279,638)	\$ (429,792)	\$ (584,452)
Grant Account	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Balance	\$ -	\$ -	\$ 124,741	\$ 249,090	\$ 728,964
Project Costs					
Project Cost		\$ -	\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Project Name(s)					

Title	2025	2026	2027	2028	2029
Revenue					
Total ERCs	3,990	4,110	4,233	4,360	4,491
New ERCs	116	120	123	127	131
Average User Rate	\$ -	\$ -	\$ -	\$ -	\$ -
Charges for Services	\$ -	\$ -	\$ -	\$ -	\$ -
Class C Road Revenue	\$ 288,917	\$ 297,585	\$ 306,512	\$ 315,707	\$ 325,179
Grant Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 492,614	\$ 509,600	\$ 522,340	\$ 539,327	\$ 556,314
Total Operating Revenue	\$ 288,917	\$ 297,585	\$ 306,512	\$ 315,707	\$ 325,179
Expenses					
General	\$ 448,216	\$ 461,662	\$ 475,512	\$ 489,778	\$ 504,471
Other Government Funds	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
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	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
Total Operating Expenses	\$ 448,216	\$ 461,662	\$ 475,512	\$ 489,778	\$ 504,471
Accounts					
Net Cash	\$ (159,299)	\$ (164,078)	\$ (169,000)	\$ (174,070)	\$ (179,292)
Operating Account Balance	\$ (743,750)	\$ (907,828)	\$ (1,076,828)	\$ (1,250,899)	\$ (1,430,191)
Grant Account	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Balance	\$ 923,969	\$ 885,565	\$ 263,873	\$ 736,907	\$ 352,238
Project Costs					
Project Cost	\$ 297,608	\$ 548,004	\$ 1,144,033	\$ 66,292	\$ 940,983
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ 297,608	\$ 548,004	\$ 1,144,033	\$ 66,292	\$ 940,983
Project Name(s)	Rocky Road East Connection to US-89	Salt and Snowplow Storage	1100 South Major Collector Widening	IFFPA (5 yr)	Powell Culvert, Stagecoach Culvert

Title	2030	2031	2032	2033	2034
Revenue					
Total ERCs	4,626	4,765	4,908	5,006	5,106
New ERCs	135	139	143	98	100
Average User Rate	\$ -	\$ -	\$ -	\$ -	\$ -
Charges for Services	\$ -	\$ -	\$ -	\$ -	\$ -
Class C Road Revenue	\$ 334,934	\$ 344,982	\$ 355,331	\$ 365,991	\$ 376,971
Grant Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 573,300	\$ 590,287	\$ 607,274	\$ 416,174	\$ 424,667
Total Operating Revenue	\$ 334,934	\$ 344,982	\$ 355,331	\$ 365,991	\$ 376,971
Expenses					
General	\$ 519,605	\$ 535,193	\$ 551,249	\$ 567,786	\$ 584,820
Other Government Funds	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
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	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
Total Operating Expenses	\$ 519,605	\$ 535,193	\$ 551,249	\$ 567,786	\$ 584,820
Accounts					
Net Cash	\$ (184,671)	\$ (190,211)	\$ (195,918)	\$ (201,795)	\$ (207,849)
Operating Account Balance	\$ (1,614,862)	\$ (2,377,210)	\$ (2,573,128)	\$ (3,381,903)	\$ (3,589,752)
Grant Account	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Balance	\$ (1,064,808)	\$ (474,521)	\$ 132,753	\$ 472,076	\$ 896,743
Project Costs					
Project Cost	\$ 1,990,347	\$ 572,137	\$ -	\$ 683,832	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ 572,137	\$ -	\$ 606,980	\$ -
Impact Fee Eligible Cost	\$ 1,990,347	\$ -	\$ -	\$ 76,851	\$ -
Project Name(s)	600 East Extension	1100 South & US-89A Future Intersection Control		700 East and US-89 Intersection Control, IFFPA (10 yr)	

Title	2035	2036	2037	2038	2039
Revenue					
Total ERCs	5,208	5,312	5,419	5,527	5,637
New ERCs	102	104	106	108	111
Average User Rate	\$ -	\$ -	\$ -	\$ -	\$ -
Charges for Services	\$ -	\$ -	\$ -	\$ -	\$ -
Class C Road Revenue	\$ 388,280	\$ 399,929	\$ 411,927	\$ 424,284	\$ 437,013
Grant Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 433,160	\$ 441,654	\$ 450,147	\$ 458,640	\$ 471,380
Total Operating Revenue	\$ 388,280	\$ 399,929	\$ 411,927	\$ 424,284	\$ 437,013
Expenses					
General	\$ 602,365	\$ 620,436	\$ 639,049	\$ 658,220	\$ 677,967
Other Government Funds	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
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	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
Total Operating Expenses	\$ 602,365	\$ 620,436	\$ 639,049	\$ 658,220	\$ 677,967
Accounts					
Net Cash	\$ (214,084)	\$ (220,507)	\$ (227,122)	\$ (233,936)	\$ (240,954)
Operating Account Balance	\$ (3,803,837)	\$ (4,024,343)	\$ (4,251,466)	\$ (4,485,401)	\$ (4,726,355)
Grant Account	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Balance	\$ 1,329,903	\$ 1,771,557	\$ 2,221,704	\$ 2,680,344	\$ 3,151,724
Project Costs					
Project Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Project Name(s)					

Title	2040	2041	2042
Revenue			
Total ERCs	5,750	5,865	5,983
New ERCs	113	115	117
Average User Rate	\$ -	\$ -	\$ -
Charges for Services	\$ -	\$ -	\$ -
Class C Road Revenue	\$ 450,123	\$ 463,627	\$ 477,536
Grant Funds	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 479,874	\$ 488,367	\$ 496,860
Total Operating Revenue	\$ 450,123	\$ 463,627	\$ 477,536
Expenses			
General	\$ 698,306	\$ 719,255	\$ 740,833
Other Government Funds	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -
Total Operating Expenses	\$ 698,306	\$ 719,255	\$ 740,833
Accounts			
Net Cash	\$ (248,182)	\$ (255,628)	\$ (263,297)
Operating Account Balance	\$ (4,974,538)	\$ (5,230,165)	\$ (5,493,462)
Grant Account	\$ -	\$ -	\$ -
Impact Fee Balance	\$ 3,631,598	\$ 4,119,965	\$ 4,616,826
Project Costs			
Project Cost	\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -
Project Name(s)			

APPENDIX D

IMPACT FEE CERTIFICATION

DRAFT

Certification of Impact Fee Analysis

In accordance with Utah Code Title 11-36a-306 Kelvin C. Smith, P.E., on behalf of Civil Science, Inc., make the following certification:

I certify that the attached impact fee facilities plan and impact fee analysis:

1. includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; or
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement;
3. offsets costs with grants or other alternate sources of payment; and
4. complies in each and every relevant respect with the Impact Fees Act.

This Certification is made with the following assumptions:

1. All data provided to Civil Science, Inc. is assumed to be correct, complete, and accurate.
2. Any changes to the impact fee facilities plan and impact fee analysis after the issuance of this certification will void same certification.
3. Recommendations will be followed in their entirety by Kanab City and City officials.
4. The undersigned is trained and licensed as a professional engineer and has not been trained or licensed as a lawyer. Nothing in the foregoing certification shall be deemed an opinion of law or an

opinion of compliance with law which under applicable professional licensing laws or regulations or other laws or regulations must be rendered by a lawyer licensed in the State of Utah.

5. This certification expresses professional opinion base on the undersigned best knowledge and understanding, and shall not be taken as a guarantee, warranty, or fact.

Civil Science, Inc.

By: _____

Dated: _____

DRAFT

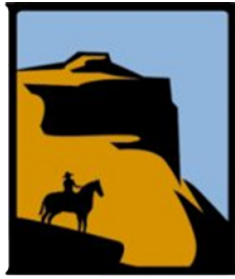
CITY OF KANAB

PUBLIC SAFETY IMPACT FEE FACILITIES PLAN

2024



KANAB
— UTAH —



KANAB
— UTAH —

PREPARED BY



City Council

Arlon Chamberlain
Scott Colson
Chris Heaton
Boyd Corry
Peter Banks

Mayor: Colten Johnson

City Manager: Kyler Ludwig

Public Works Director: Jake Dutton

Treasurer: Danielle Ramsay

Kelvin C. Smith, P.E.
Project Engineer

Ryker Jensen
Project Analyst

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APPENDICES

Appendix A – Maps

Appendix B – Financial Analysis

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1. EXECUTIVE SUMMARY

1.1 Introduction

The primary objective of this study is to establish updated plans to guide the development of future public safety system improvements through modeling the system existing conditions, creating a 10-year action plan, and a longer term 20-year action plan. The outcome of the study will be recommended improvements, new facilities, estimated project costs, a maximum allowable impact fee, an impact fee schedule, recommended user rate schedule, and projected cash flow for Kanab's public safety services.

1.2 User Analysis

Table 1 shows historic annual growth rates of 0.6%-5.4%, with an average of 3%. Projected annual growth rates for this study are shown in Table 2 as 3% for 10 years (2023-2032) then 2% for the next 10 years (2033-2043). For this study, it is assumed that residential and commercial (or non-residential) growth will occur at the same rate.

- 2023 population – 5,314
- 2033 estimated population – 7,142
- 2043 estimated population – 8,706

1.3 Existing Facilities Inventory

Kanab City currently has one police station housed in a rented building, one main fire station, and one fire substation. These facilities provide public safety services for the City and support services outside The City on an emergency basis.

1.4 System Analysis

Civil Science has collected data about the location and size of each station and performed a spatial analysis as well as a travel time analysis for the service area of each station. In addition, data was collected and analyzed regarding the fire truck tank and pump capacities. An analysis of the existing level of service for both fire and police as well as truck capacities are shown below:

Description	Size [sf]	Description	Size [sf]
Police Station	3,300	Police Station	3,300
Total Area	3,300	Total Area	3,300
Population (2023)	5,285	Population (2023)	5,285
LOS (sf/1000)	624.4	LOS (sf/1000)	624.4

Name	Type	Pump Capacity (GPM)	Tank Capacity (Gal)
E21	2008 American LaFrance Type 1	1500	1000
E22	1998 American LaFrance Type 1	1050	900
E23	2020 BME Type 3	1000	500
E24	2007 BME Type 3	200	300
L21	1982 Truck Cab Ladder 75'	1500	500
Total		5,250	3,200
Population (2023)		5,285	5,285
LOS/1000 Citizens		993.39	605.50

1.5 Summary of Recommended Improvements

The level of service demands shown below maintain the existing level of service with respect to square-foot of station space per 1,000 residents. As development growth occurs, additions will be needed for the public safety system to maintain its current level of service.

Police Station Demand	
Population (2033)	7,034
10-yr Pop. Increase	1,749
10-yr Demand Increase [sf]	1,091.9
Population (2043)	8,574
20-yr Pop. Increase	3,289
20-yr Demand Increase [sf]	2,053.7

Fire Station Demand	
Population (2033)	7,034
10-yr Pop. Increase	1,749
10-yr Demand Increase [sf]	3,970.4
Population (2043)	8,574
20-yr Pop. Increase	3,289
20-yr Demand Increase [sf]	7,467.9

Fire Truck Pump Demand	
Population (2033)	5,285
10-yr Pop. Increase	1,749
10-yr Demand Increase [GPM]	1737.0604
Population (2043)	5062.29031
20-yr Pop. Increase	3,289
20-yr Demand Increase [GPM]	3267.1876

Fire Truck Tank Demand	
Population (2033)	5,285
10-yr Pop. Increase	1,749
10-yr Demand Increase [Gal]	1058.7797
Population (2043)	8,574
20-yr Pop. Increase	3,289
20-yr Demand Increase [Gal]	1991.4287

Project Name	Projected Year	Inflation 3%		Impact Fee Eligible %	Impact Fee Eligible Cost
		2023 Cost	Inflated Cost		
New Police Station	2026	\$7,005,405	\$7,654,995	34%	\$2,602,491
Ladder Truck	2028	\$1,500,000	\$1,738,911	100%	\$1,738,911
Offsite Police Storage Facility	2028	\$529,463	\$613,793	100%	\$613,793
IFFPA 5 Yr	2028	\$20,500	\$23,765	100%	\$23,765
Ranchos Fire Station Remodel	2032	\$600,000	\$782,864	0%	\$0
IFFPA 10 Yr	2033	\$20,500	\$27,550	100%	\$27,550
Total		\$9,675,868	\$10,841,879		\$5,006,510

1.6 Financial Viability

Kanab City does not currently charge monthly user rates for fire and police protection, but it reestablished impact fees in 2018 to help support future growth in the public safety system. The impact fee eligible funds are shared by the residential and non-residential buildings but are split based on emergency calls as reported by Kanab City. The only exception to this rule is the new ladder truck, which must be completely funded by non-residential development per current Utah Impact Fee Act. It is assumed that one non-residential equivalent residential connection (ERC) is equivalent to 2,000 square-feet of building area.

The maximum allowable impact fee for residential buildings is \$2,626.57. Commercial buildings should be charged the greater of the maximum allowable impact fee of \$3.21 per square feet of total building area. The cash flow in Appendix C illustrates that if these fees are established by the City as presented, all recommended improvements can be constructed.

Public Safety Impact Fee Cost Share	
Total 10-year Cost	\$2,404,019
Residential	Non-Residential
Ladder Truck Costs	
\$ -	\$ 2,602,490.67
63.1%	36.9%
\$ 1,516,936.29	\$ 3,489,573.86
785 ERC	919,062 sq-ft
\$1,932.40 /ERC	\$3.80 /sq-ft

*Assumed 2,000 sq-ft per ERC for non-residential ERCs. Analysis is based on a 10-year period. Percentage split based on Residential vs. Non-Residential projected growth.



Kanab Fire Station

2. INTRODUCTION

2.1 Purpose and Scope

The primary objective of this study is to update the plans established in 2018 to guide the development of future Kanab City public safety facility improvements. This study includes an evaluation of existing conditions, as well as a 10-year and 20-year action plan. The analysis supporting these action plans details the state of the facilities as they are now (existing capacity) and shows how much growth can be allowed while providing an adequate level of service to existing customers.

Kanab City operates on the premise that it seeks to provide superior police and fire service to residents and enterprises within its service area. The study area incorporates updated zoning conditions consistent with recent City planning. Given the purpose and need described above, the following were key elements contemplated in the scope of work for this project:

- Perform a user analysis, establish an anticipated growth rate within the City's service area boundary, identify focused or pending development areas, establish population projections based on anticipated growth rate, and review and determine existing and future demographics of the City.
- Conduct a public open house/town hall meeting, provide technical documents as required and present draft impact fee facilities plans to the City Council.
- Update the system inventory to establish what the City has:
 - Gather and analyze existing public safety facilities data.
 - Inventory the existing public safety facilities based on classification, ownership, status, and area
- Review and establish the level of service standards for public safety facilities.
- Determine existing level of service for public safety facilities.
- Establish, with input from the City, the desired level of service for public safety facilities.
- Perform a system analysis to determine how to get what the City needs:
 - Complete a facility analysis against the industry standards.
 - Identify and provide recommendations for proposed improvements for public safety facilities based on desired levels of service.
 - Consider visions and goals for each facility.
 - Complete the analysis under existing, 10-year, and 20-year development conditions.
 - Develop a plan for improvement recommendations to the public safety facilities.
 - Ensure that recommendations for the public safety facilities integrate well with the existing system.
- Perform a system financial analysis to calculate the cost of improvements:
 - Prepare project descriptions and opinions of probable cost for recommended improvements.
 - Prepare an impact fee facility plan for the 10-year planning horizon with considerations for the 20-year planning horizon.
 - Identify facilities eligible to be funded with impact fees (full or partial).
 - Perform a financial viability analysis of the operations and management of the system based upon recent audits.
 - Prepare an impact fee analysis, calculate the maximum allowable impact fee, and issue an impact fee certification.

- Prepare a written IFFPA with results, summaries, and relevant appendix materials:
 - Prepare a public safety impact fee facilities plan draft for City Staff, Department Heads, and the City Council.
 - Publish a final written public safety impact fee facilities plan & analysis for the community.

2.2 Background Information

Kanab is the commercial center of a large farming, ranching and recreational area located in south central Utah. The City is the County seat of Kane County and has a long history as a film making and tourism hub. Nearby tourism destinations include multiple national parks and recreational areas such as Lake Powell. Kanab is located 7 miles north of the Arizona border on US 89A. For many years the community was one of the most isolated in the nation, being cut off from the east by the Colorado River. Today it is a tourist town inviting tens of thousands of visitors annually to enjoy the beauty of the area as well as its rich history.

During the past several years, the City has completed projects as recommended in the 2018 IFFPA, helping to fulfill the City's goals in Public Safety. The main one was the addition to the Kanab Fire Station.

Now that many recommendations from the 2018 plan have been completed, the time has come for an updated IFFPA. This update will include the continued growth seen by the community these past 5 years, as well as a study of future developments and issues that may arise therein.

Governing documents/codes for this study include the existing Kanab City General Plan and all current Kanab zoning and development criteria.

2.3 Miscellaneous Resources

Resources used include Kanab parcel data, Kanab road network data, Kanab City Staff, Federal and State census information, the Impact Fees Act established under Utah State Code, and Kanab City Financial Statements.



Kanab Police Station

3. USER ANALYSIS

3.1 Planning Horizon

This analysis considers three planning horizons: existing conditions, 10-year, and 20-year scenarios. The existing condition scenario evaluates the facilities based on the number of Equivalent Residential Connections (ERC) the City currently serves. The 10-year and 20-year planning horizons evaluate potential deficiencies and plan for improvements needed to resolve any of those deficiencies. The goal of this plan is to identify the projects necessary to maintain the current level of service for public safety as the City continues to grow.

3.2 Historic Growth Rates

To properly analyze the 10-year and 20-year planning horizons, projections must be made regarding population. To estimate future growth rates, historical growth rates are examined. Table 1 analyzes past census data provided for The City. It shows the historic 10-, 20-, 30-, and 40-year average annual growth rates.

From this table we see that annual growth rates since 1980 have fluctuated from 0.6%-5.4%. The average annual growth rate over that time sits at 3.0%. It is worth noting that the 40-year average is up slightly, from 2.9% to 3.0%, since the last iteration of this report. This shows that while the growth rate was down in the 2010's, it has been on the rise in the few years since then.

Description	Year Period	Population	Growth
10-year Historic	1980	2148	-
10-year Historic	1990	3318	5.4%
10-year Historic	2000	3510	0.6%
10-year Historic	2010	4312	2.3%
10-year Historic	2020	4683	0.9%
20-year Historic	1980-2000	-	3.2%
20-year Historic	1990-2010	-	1.5%
20-year Historic	2000-2020	-	1.7%
30-year Historic	1980-2010	-	3.4%
30-year Historic	1990-2020	-	1.4%
40-year Historic	1980-2020	-	3.0%

Table 1: Historic Population and Growth Rates

3.3 Projected Growth Rate

The historical growth rates shown in the previous section allow for the forward projection of population growth. Based on analysis of years past, it is projected that Kanab City will continue to grow at a rate of 2-3% over the next 20 years. For that reason, a 3% growth rate is used to show growth over the next 10 years (2023-2032) and a 2% growth rate for the 10 years after that (2033-2043). A variety of factors affect growth rate, many of which will change with time.

3.4 Equivalent Residential Connection

Calculating an ERC provides a way to compare residential to non-residential users. ERC values are based on water use and are shown in this plan as building area. See the Kanab Water Impact Fee Facilities Plan and Analysis for more information on how this is calculated. It is assumed that one ERC equals 2,000 square-feet (sq-ft) of building area. This means that a 4,000 sq-ft commercial building is equivalent to two residences. Annual population, ERC, and growth rate projections for the 20-year planning horizon are available in Table 2. Commercial and non-residential will be used interchangeably for this report.

Year	Source	Population	Residential Connections	Non-Residential Connections	ERCs	Growth
2015	Census Est.	4,410	1,848	225	3,152	0.1%
2016	Census Est.	4,436	1,876	227	3,502	0.6%
2017	Census Est.	4,448	1,910	226	3,024	0.3%
2018	Census Est.	4,529	1,983	224	3,204	1.8%
2019	Census Est.	4,636	2,133	215	3,279	2.4%
2020	Census	4,683	2,201	263	3,551	1.0%
2021	Census Est.	5,000	2,236	271	3,973	6.8%
2022	Census Est.	5,131	2,304	271	3,652	2.6%
2023	Estimate	5,285	2,373	279	3,761	3.0%
2024	Estimate	5,443	2,444	288	3,874	3.0%
2025	Estimate	5,607	2,518	296	3,990	3.0%
2026	Estimate	5,775	2,593	305	4,110	3.0%
2027	Estimate	5,948	2,671	314	4,233	3.0%
2028	Estimate	6,127	2,751	324	4,360	3.0%
2029	Estimate	6,310	2,834	333	4,491	3.0%
2030	Estimate	6,500	2,919	343	4,626	3.0%
2031	Estimate	6,695	3,006	354	4,765	3.0%
2032	Estimate	6,896	3,096	364	4,908	3.0%
2033	Estimate	7,034	3,158	371	5,006	2.0%
2034	Estimate	7,174	3,221	379	5,106	2.0%
2035	Estimate	7,318	3,286	386	5,208	2.0%
2036	Estimate	7,464	3,352	394	5,312	2.0%
2037	Estimate	7,613	3,419	402	5,419	2.0%
2038	Estimate	7,766	3,487	410	5,527	2.0%
2039	Estimate	7,921	3,557	418	5,637	2.0%
2040	Estimate	8,079	3,628	427	5,750	2.0%
2041	Estimate	8,241	3,700	435	5,865	2.0%
2042	Estimate	8,406	3,774	444	5,983	2.0%
2043	Estimate	8,574	3,850	453	6,102	2.0%

Table 2: Growth Rates

4. INVENTORY

4.1 Guidelines and Policies

Public safety station locations are typically based on travel time from the facility to the call location. Kanab has decided that travel times of 5-6 minutes are adequate for response times in the City. Stations also need sufficient space for employee offices, conference room, possible sleeping areas, and possible workout areas. Each station should best fit the needs of the department and the citizens of the City.

Recently, many cities have constructed new fire or police stations as multi-use or even inter-agency stations capable of housing a fire station and a police sub-station. This arrangement has been seen as an efficient use of space and construction costs, allowing public safety officers to be located at the best location to minimize travel time to the service area and possibly sharing construction costs between the different agencies.

4.2 Classification

Because of the size and simplicity of the public safety facilities in Kanab, the classifications should not be complicated. This study recommends a two-tiered approach of having a main station and then substations as needed. The main stations are where administrative and leadership staff are based, and the substations should reduce travel times to the service area. This approach may be applied to both the police and fire departments even though there is currently only one police station.

4.3 Existing Facilities

Kanab currently has one police station and two fire stations. Their names and building sizes are shown in Table 3 and Table 4.

Description	Size (sf)
Fire Station 1	9,900
Fire Station 2	1,833

Table 3: Existing Fire Stations

Description	Size (sf)
Police Station	3,300

Table 4: Existing Police Station

5. LEVEL OF SERVICE ANALYSIS

5.1 Existing Level of Service

It is standard practice to measure the level of service (LOS) of a public building facility in terms of building area per 1,000 citizens. Table 5 and Table 6 show the level of service of both the fire and police stations, respectively.

Description	Size [sf]
Police Station	3,300
Total Area	3,300
Population (2023)	5,285
LOS (sf/1000)	624.4

Table 5: Fire Level of Service

Description	Size [sf]
Police Station	3,300
Total Area	3,300
Population (2023)	5,285
LOS (sf/1000)	624.4

Table 6: Police Level of Service

For this plan update, the fire department's truck inventory was analyzed as well. With the expansion of the City and the aging of the existing trucks, the fire department has been considering adding to their fleet. Trucks were analyzed for both pump flow and tank capacity, with a LOS being found for the current population. The results of this analysis are shown in Table 7 below. In accordance with the Utah Impact Fee's Act, only funds collected from non-residential entities are eligible for use on ladder trucks. This is reflected later in the financial section, where cost analyses for residential and non-residential ERCs are split.

Name	Type	Pump Capacity (GPM)	Tank Capacity (Gal)
E21	2008 American LaFrance Type 1	1500	1000
E22	1998 American LaFrance Type 1	1050	900
E23	2020 BME Type 3	1000	500
E24	2007 BME Type 3	200	300
L21	1982 Truck Cab Ladder 75'	1500	500
Total		5,250	3,200
Population (2023)		5,285	5,285
LOS/1000 Citizens		993.39	605.50

Table 7: Fire Department Truck Capacities

The LOS is calculated by dividing the total building area by the number of citizens then multiplying that by a factor of 1,000 because the LOS is conventionally not lower than 1. The police department has a current LOS of 624 sq-ft of building space per 1,000 citizens. The fire department has a current LOS of 2,271 sq-ft of building space per 1,000 citizens. The goal for Kanab City is to maintain the current LOS as it continues to grow and expand. The current LOS is the target LOS moving forward.

5.2 Projected Level of Service

The projected LOS may also be seen as a demand for the planning horizons established in Section 3. Using the target LOS established previously, a future demand is calculated based on the population growth of the City for a given planning horizon and a calculated population increase.

The building area demands for the 10-year and 20-year planning horizons for the police department are shown in Table 8. This means that an increase of 1,092 sq-ft of police department space is impact fee eligible over the 10-year planning horizon to

serve the additional 1,749 citizens. Similarly, an increase of 2,053 sq-ft of police department space is impact fee eligible over the 20-year planning horizon.

The building area demands for the 10-year and 20-year planning horizons for the fire department are shown in Table 9. This means that an increase of 3,970 sq-ft of fire department space is impact fee eligible over the 10-year planning horizon to provide service for the additional 1,749 citizens. Similarly, an increase of 7,468 sq-ft of fire department space is impact fee eligible over the 20-year planning horizon.

Police Station Demand	
Population (2033)	7,034
10-yr Pop. Increase	1,749
10-yr Demand Increase [sf]	1,091.9
Population (2043)	8,574
20-yr Pop. Increase	3,289
20-yr Demand Increase [sf]	2,053.7

Table 8: Police Department Level of Service

Fire Station Demand	
Population (2033)	7,034
10-yr Pop. Increase	1,749
10-yr Demand Increase [sf]	3,970.4
Population (2043)	8,574
20-yr Pop. Increase	3,289
20-yr Demand Increase [sf]	7,467.9

Table 9: Fire Department Level of Service

The pump capacity demands for the 10-year and 20-year planning horizons for the fire department trucks are shown in Table 10. This means that an increase of 1,737 GPM in truck pump capacity is impact fee eligible over the 10-year planning horizon to provide service for the additional 1,749 citizens. Similarly, an increase of 3,267 GPM in truck pump capacity is impact fee eligible over the 20-year planning horizon.

The tank capacity demands for the 10-year and 20-year planning horizons for the fire department trucks are shown in Table 11. This means that an increase of 1,059 gallons in truck tank capacity is impact fee eligible over the 10-year planning horizon to provide service for the additional 1,749 citizens. Similarly, an increase of 1,991 gallons in truck tank capacity is impact fee eligible over the 20-year planning horizon.

Fire Truck Pump Demand	
Population (2033)	5,285
10-yr Pop. Increase	1,749
10-yr Demand Increase [GPM]	1737.0604
Population (2043)	5062.29031
20-yr Pop. Increase	3,289
20-yr Demand Increase [GPM]	3267.1876

Table 10: Fire Truck Pump Capacity LOS

Fire Truck Tank Demand	
Population (2033)	5,285
10-yr Pop. Increase	1,749
10-yr Demand Increase [Gal]	1058.7797
Population (2043)	8,574
20-yr Pop. Increase	3,289
20-yr Demand Increase [Gal]	1991.4287

Table 11: Fire Truck Tank Capacity LOS

Per the Utah Impact Fees Act, 11-36a-102-18, a fire suppression vehicle costing over \$500,000 can be defined as a “public safety facility.” Further, in section 11-36a-202-2(a), residential components of development may not pay for a fire suppression vehicle. The costs for the proposed ladder truck are entirely within the non-residential cost share of the impact fee eligible costs.

6. IMPACT FEE FACILITIES PLAN

6.1 Growth Impact

The impact that development has on public safety facilities is three-fold: space, location, and capacity. The demands for the target LOS address the space needed and were calculated in Section 5. To achieve the target travel time to call locations, stations should be regularly spaced throughout the City and be incorporated into neighborhoods along major roads. Travel time maps and buffer maps in Appendix A show current spacing and accessibility of the public safety facilities.

6.2 Facilities Plan

Year	Project Names	Project Descriptions
2026	Future Police Station	Future Police Station to be built at the intersection of 300 N and Main St.
2028	New Ladder Truck	New Ladder Truck to be bought for the fire station on US-89A
2028	Offsite Police Storage Facility	New police storage facility to be built at the city property off Chinle Dr.
2032	Ranchos Fire Station Remodel	Remodel the smaller fire station off S Powell Dr.
2043	New Multimodal Facility	New facility off HWY 89 west of town, capable of housing police, fire, and EMS services.

Table 12: 20-Year Horizon Project Descriptions

Kanab plans to build a new police station on existing city property within the next 10 years. The fire department also plans to purchase a taller ladder truck to access and service the increasing number of multi-story hotels and apartments within Kanab. Future plans also include remodeling the Ranchos Fire Station and a new multimodal facility near the east city boundary to possibly house fire, police, and sheriff.

6.3 Key Considerations

Constructing facilities larger than the LOS demands calculated means that they would be partially impact fee eligible and not have all construction costs covered by impact fees. For that reason, impact fee eligible percentage has been calculated. The percentages are based on planned square footage for each facility, divided by the total calculated square footage needed to maintain levels of service. The impact fees will be used to pay fully for the offsite police storage facility, with whatever remains being used for the new police station. The new multimodal facility is not included in the calculations as it is projected beyond the 10-year timeframe.

The other important consideration is the new ladder truck. As previously stated, it is only eligible for funds received from non-residential impact fees. For that reason, calculated impact fees will be higher for non-residential.

7. FINANCIAL VIABILITY

7.1 Cost Analysis

Civil Science has prepared cost estimates for each of the projects identified in Table 12. While only for planning, each cost estimate captures anticipated construction costs including mobilization and demobilization, project record documents, traffic and temporary controls, materials and sampling, construction layout & staking, professional services, materials, labor, and contingencies. The projects were organized in a manner where costs are not shared between two different projects. This allows for better understanding of a singular project's costs versus showing all the projects in an abbreviated cost estimate format. Table 14 shows project costs in future dollars.

7.2 Project Phasing

Recommended improvements were assigned a time frame in which the projects are expected to be needed based on growth projections, localized growth, and available impact fee funds as shown in the cash flow. Table 13 shows the recommended improvement within a 10-year period along with the projected year of construction and costs in 2023 dollars plus inflation.

Project Name	Projected Year	Inflated Cost
New Police Station	2026	\$7,654,995
Ladder Truck	2028	\$1,738,911
Offsite Police Storage Facility	2028	\$613,793
IFFPA 5 Yr	2028	\$23,765
Ranchos Fire Station Remodel	2032	\$782,864
IFFPA 10 Yr	2033	\$27,550
Total		\$10,841,879

Table 13: Cost Estimate Summary

In all cases, the improvements are planned to support continuing growth within the next ten years and are planned for implementation at times when the growing population base can theoretically generate enough revenue to fund the projects or pay off the loans associated with impact fee eligible projects. It should be noted that growth in the study area may occur at a rate faster or slower than that predicted in the cash flow analysis. If growth occurs at a faster rate, more funds will be available to construct the projects at an earlier schedule than that specified by the phasing projections. On the other hand, if growth slows more than expected, implementation of the projects should be delayed until the population base can fund the improvements.

7.3 Impact Fee Analysis

Impact fees for Kanab City were reestablished in 2018, with the understanding that they would be reevaluated every 5 years. The purpose of this report is to revisit the City's public safety system and establish adjustments to the impact fees based on changes in situation and future projections.

The proposed public safety impact fee was calculated based on the estimated costs, projected construction year, inflation, and impact fee eligibility. Project impact fee eligibility is based on whether the project exceeds or maintains the established LOS. The impact fee eligible costs are presented in Table 13. Impact fee eligible costs are based on inflated costs and impact fee eligibility.

Project Name	Projected Year	Inflation		Impact Fee Eligible %	Impact Fee Eligible Cost
		2023 Cost	3% Inflated Cost		
New Police Station	2026	\$7,005,405	\$7,654,995	34%	\$2,602,491
Ladder Truck	2028	\$1,500,000	\$1,738,911	100%	\$1,738,911
Offsite Police Storage Facility	2028	\$529,463	\$613,793	100%	\$613,793
IFFPA 5 Yr	2028	\$20,500	\$23,765	100%	\$23,765
Ranchos Fire Station Remodel	2032	\$600,000	\$782,864	0%	\$0
IFFPA 10 Yr	2033	\$20,500	\$27,550	100%	\$27,550
Total		\$9,675,868	\$10,841,879		\$5,006,510

Table 14: Impact Fee Calculations

An impact fee schedule is established for residential and non-residential developments based on ERCs, with a caveat made for the ladder truck. As can be seen in Table 15, the total cost of the projects is \$2,404,019 not including the new ladder truck. Of this, 63% will be paid for by residential impact fees and 37% by non-residential impact fees. The ladder truck was added entirely to the non-residential calculation. A 2,000 sq-ft area per ERC was assumed for the non-residential calculations.

Public Safety Impact Fee Cost Share	
Total 10-year Cost	\$2,404,019
Residential	Non-Residential
Ladder Truck Costs	
\$ -	\$ 2,602,490.67
63.1%	36.9%
\$ 1,516,936.29	\$ 3,489,573.86
785 ERC	919,062 sq-ft
\$1,932.40 /ERC	\$3.80 /sq-ft

*Assumed 2,000 sq-ft per ERC for non-residential ERCs. Analysis is based on a 10-year period. Percentage split based on Residential vs. Non-Residential projected growth.

Table 15: Impact Fee Schedule

The maximum allowable impact fee for residential buildings is \$1,932.40. Commercial buildings should be charged the greater of the maximum allowable impact fee of \$3.80 per square feet of total building area or the residential maximum allowable impact fee of \$1,932.40, whichever is greater. This is presented in Table 15.

As required by the Utah Impact Fees Act, an Impact Fee Certification is included in Appendix D. It states that this analysis was done in accordance with the Impact Fees Act and its requirements.

Rules regarding the use of impact fees are covered by the Impact Fees Act. Generally, impact fees may only be used for facility improvements that are required to service new development within the existing level of service, to meet expected service requirements, and are included in this Impact Fee Facilities Plan. Impact fees must be used within six years of payment or they must be paid back. Alternative sources of revenue such as grants or shared construction costs should be investigated to reduce the financial burden of the City and its new residents.

7.4 Cash Flow Analysis

Kanab City does not have a user rate for public safety related uses, nor does it plan to start charging a user rate. No user rate analysis was needed for this study.

A cash flow analysis for a 20-year planning horizon was completed to show how the 10-year planning horizon improvement

projects could be implemented, to show possible trends in impact fee and cash fund balances. Initial data for the cash flow analysis was taken from Kanab City audits for fiscal years 2020-2022. Values projected through the analysis are based on growth, interest, and inflation trends determined during the process of the study. It should be noted that the analysis is a general forecast only and will vary with the speed and pattern of development in The City. The entire cash flow analysis is included in Appendix C.

The following section is the expenses section which attempts to quantify all the expenses incurred by the public safety facilities. Included in the expenses section are the operation and maintenance costs, existing debt service costs and new debt service costs. The difference between the total revenues and total expenses is the net cash flow.

Total revenues and total expenses are broken down into impact fee and cash fund categories. This was done to help show that adequate funds would be available over the course of the projection period.

A system improvement implementation schedule for the next twenty years was included at the end of the cash flow analysis, this shows how the impact fee facilities plan improvement projects were incorporated into the cash flow analysis.

Other Financing Options

Where possible, Kanab should seek alternative financing for projects in order to reduce the financial burden of consumers in the form of lower user rates or lower impact fees. Kanab's public safety services is in good financial health and is currently able to maintain a positive cash flow for the duration of the analysis. Grant or loan options available to Kanab City are included below:

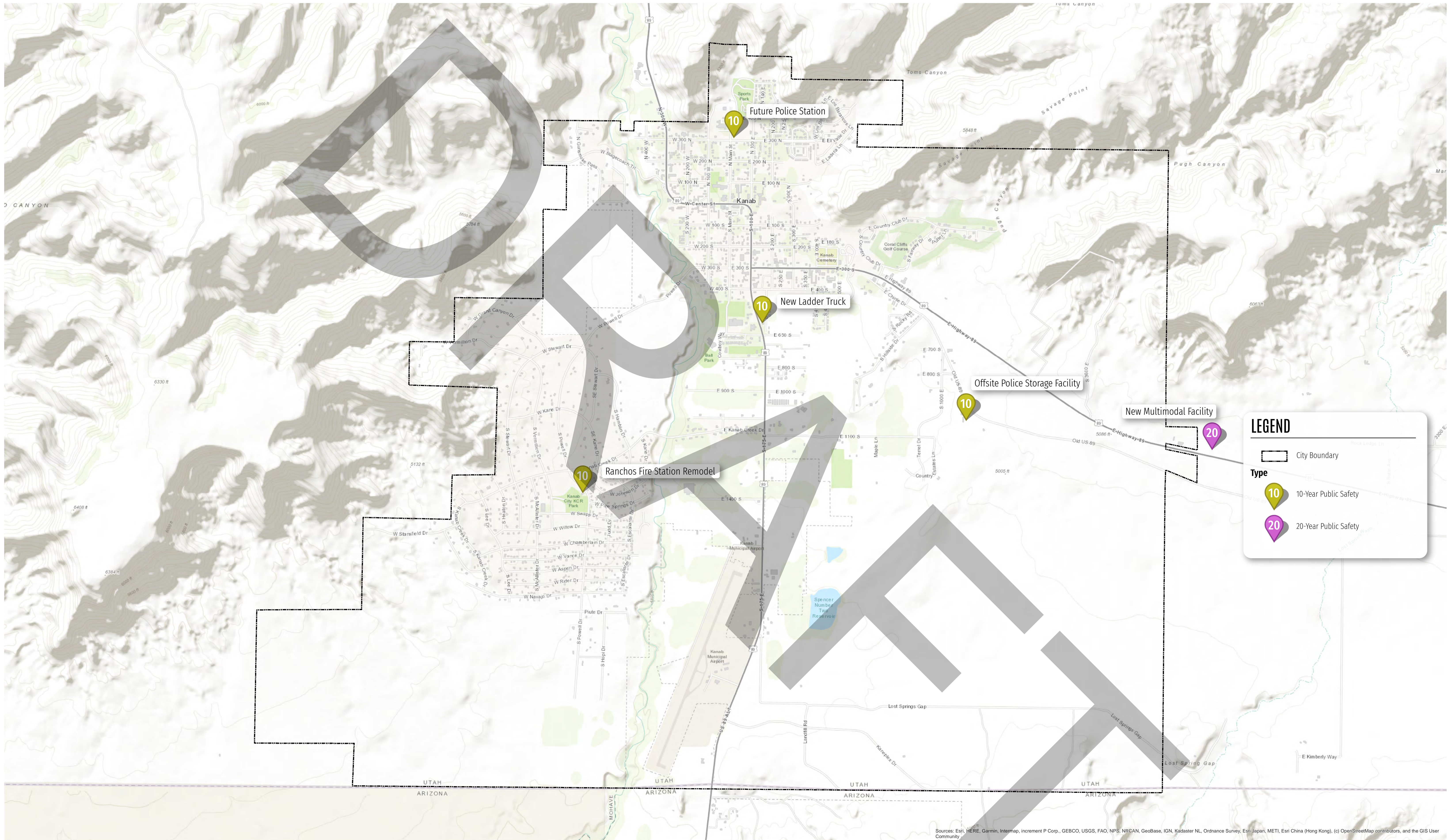
- Permanent Community Impact Fund Board (CIB)
- Utah Community Development Block Grant (CDBG)
- USDA Rural Development (RD)
- Interfund loans



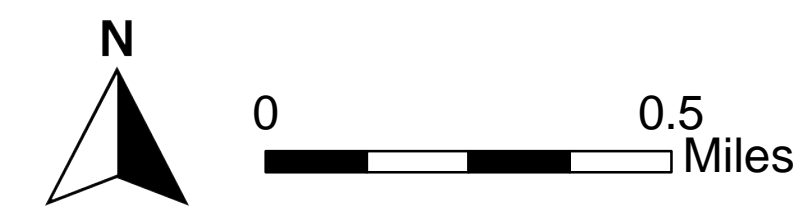
APPENDIX A

MAPS

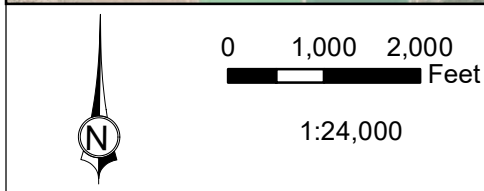
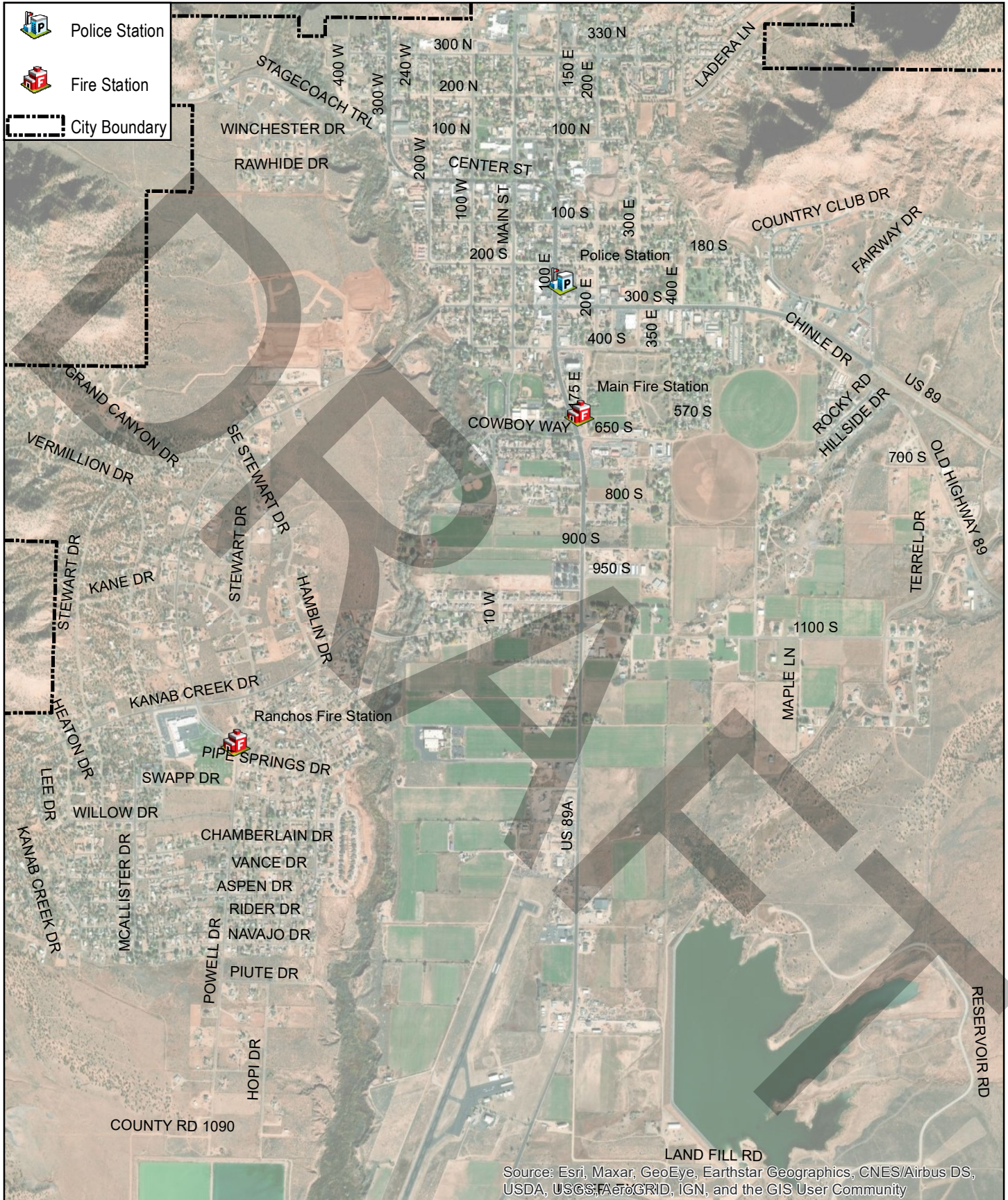
DRAFT



PROPOSED PUBLIC SAFETY PROJECTS MAP



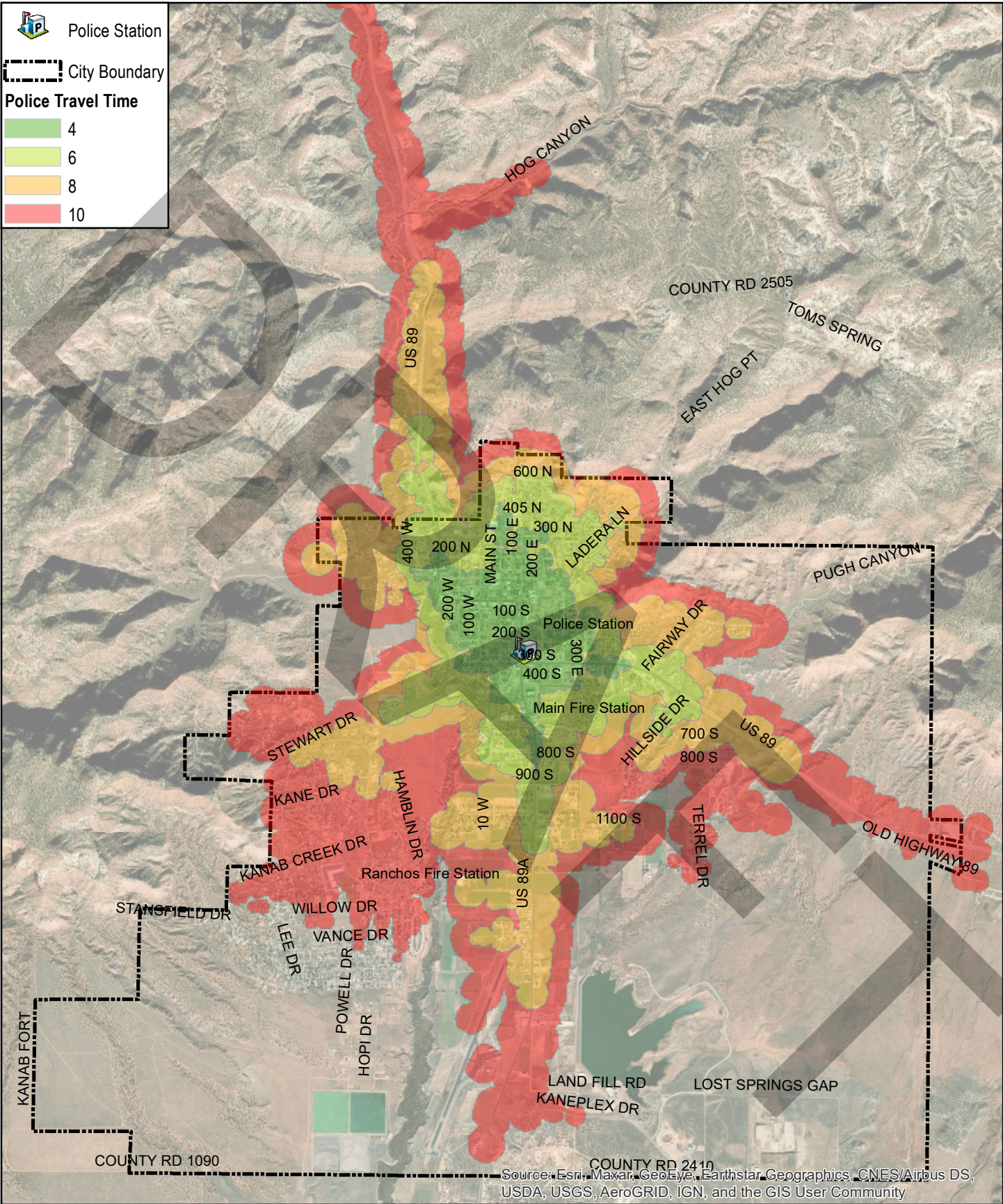
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



KANAB CITY PUBLIC SAFETY
IFFPA UPDATE 2024

Existing Facilities

Map 2



Police Station

City Boundary

Police Travel Time

- 4
- 6
- 8
- 10

Source: Esri, Maxar, GeoEye, Earthstar, Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


0 2,000 4,000 Feet


1:48,000

KANAB CITY PUBLIC SAFETY
IFFPA UPDATE 2024





Police Travel Time

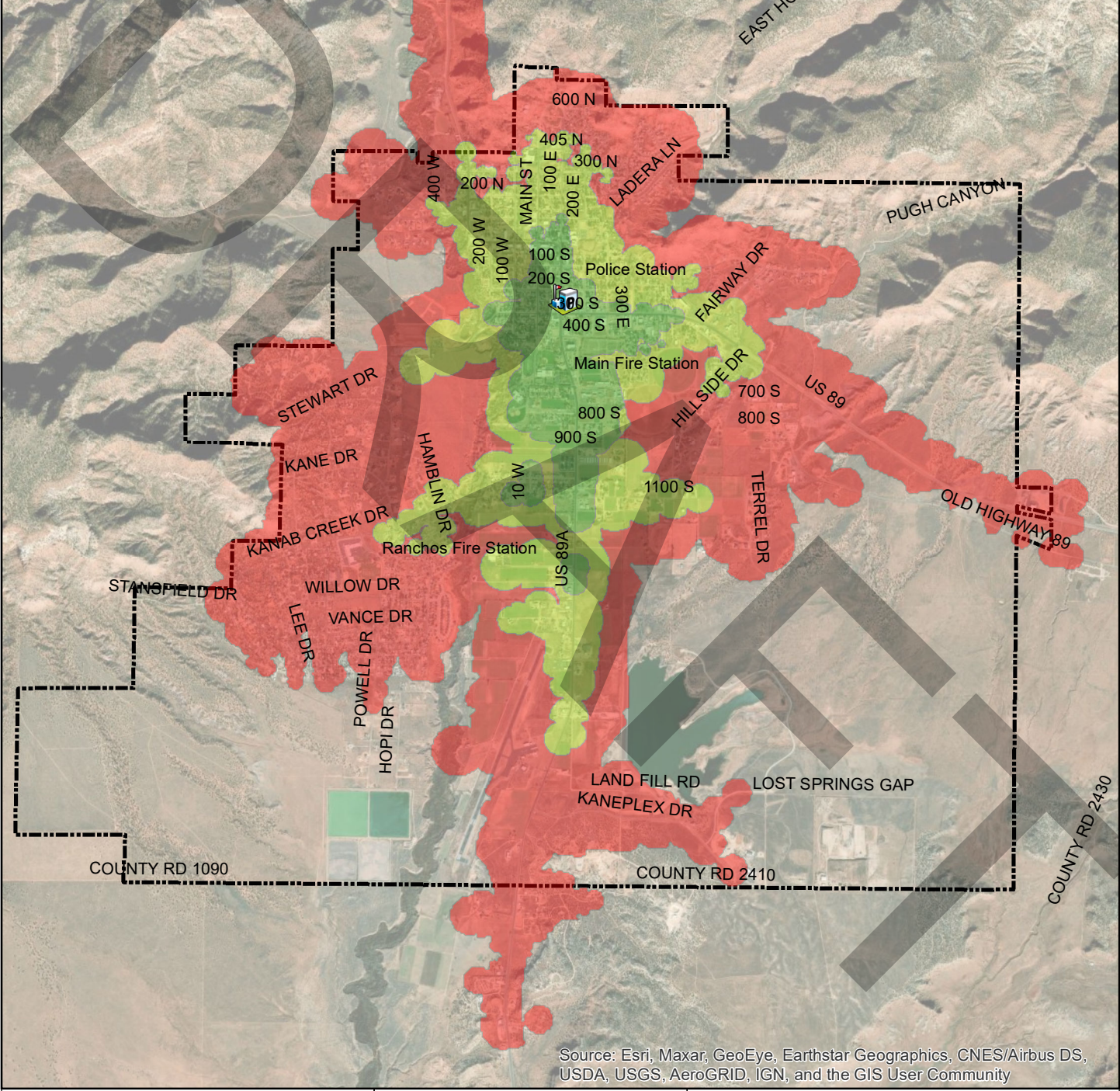
Map 3

 Police Station


 City Boundary

Fire Travel Time

-  4
-  6
-  8
-  10



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



0 2,000 4,000 Feet

1:48,000





KANAB CITY PUBLIC SAFETY
IFFPA UPDATE 2024

Fire Travel Time

Map 4

APPENDIX B

FINANCIAL ANALYSIS

DRAFT

OWNER Kanab City
PROJECT Offsite Police Storage Facility



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 31,500.00	\$ 31,500.00
2	Project Record Documents	1%	LS	\$ 3,200.00	\$ 3,200.00
3	Traffic and Temporary Controls	4%	LS	\$ 12,600.00	\$ 12,600.00
4	Materials and Sampling	3%	LS	\$ 9,500.00	\$ 9,500.00
5	Construction Layout & Staking	2%	LS	\$ 6,300.00	\$ 6,300.00
6	EXCAVATION EXPORT (PLAN QTY)	440	CY	\$ 23.60	\$ 10,384.00
BUILDING FOUNDATION AND SLAB CONCRETE					
7	(PLAN QTY)	95	CY	\$ 1,000.00	\$ 95,000.00
8	PREMANUFACTURED METAL BUILDING	1	LS	\$ 63,000.00	\$ 63,000.00
9	STRUCTURE ERECTION	1	LS	\$ 88,500.00	\$ 88,500.00
10	POWER CONNECTION & LIGHTING	1	LS	\$ 32,000.00	\$ 32,000.00
Subtotal					\$ 378,188.00
Professional Services & Incidentals				15%	\$ 56,728.20
Contingency				25%	\$ 94,547.00
Subtotal					\$ 151,275.20
PROJECT TOTAL					\$ 529,463.20

Disclaimer:

This Engineer's Opinion of Cost (EOC) is made on the basis of Engineer's experience, qualifications, general familiarity with the construction industry and represents the Engineer's best judgement as an experienced and qualified professional. However, because Engineer has no control over the cost of labor, materials, equipment, or services furnished by others, or over contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from opinions of probable construction cost prepared by Engineer.

Notes:

- 1 - Quantities shown in the EOC are purely estimates based off a concept design. Quantities may be refined as design progresses.
- 2 - Unit costs are our best estimates based on similar projects. These costs are not guarantees. A number of factors may affect these costs when ultimately priced by a contractor.
- 3 - The EOC does not include fees that may be charged by the Owner such as impact fees, building permit fees, review fees, etc.
- 4 - LS = Lump Sum; EA = Each; SF = Square Feet; SY = Square Yard; AC = Acre; LF = Linear Feet; CY = Cubic Yard; TON = Ton; GAL = Gallon; DAY = Day; HR = Hour; EST = Estimate

Cashflow - Kanab Public Safety Impact Fee Analysis

Proposed Residential Impact Fee = \$ 1,932.40

Title	2020	2021	2022	2023
Revenue				
Total ERCs	3,551	3,973	3,652	3,761
New ERCs	-	422	(321)	110
General Revenue	\$ -	\$ -	\$ -	\$ -
Grant Funds	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ -	\$ -	\$ -	\$ 86,673
Total Operating Revenue	\$ -	\$ -	\$ -	\$ -
Expenses				
General	\$ -	\$ -	\$ -	\$ -
Other Government Funds	\$ -	\$ -	\$ -	\$ -
Total Operating Expenses	\$ -	\$ -	\$ -	\$ -
Accounts				
Net Cash	\$ -	\$ -	\$ -	\$ -
Operating Account Balance	\$ -	\$ -	\$ -	\$ -
Grant Account	\$ -	\$ -	\$ -	\$ -
Impact Fee Balance	\$ -	\$ -	\$ 211,531	\$ 298,205
Project Costs				
Project Cost		\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Project Name(s)				

S
Interest Rate 3%

Title	2024	2025	2026	2027	2028
Revenue					
Total ERCs	3,874	3,990	4,110	4,233	4,360
New ERCs	113	116	120	123	127
General Revenue	\$ -	\$ -	\$ -	\$ -	\$ -
Grant Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 454,406	\$ 466,470	\$ 482,555	\$ 494,619	\$ 510,704
Total Operating Revenue	\$ -	\$ -	\$ -	\$ -	\$ -
Expenses					
General	\$ -	\$ -	\$ -	\$ -	\$ -
Other Government Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Total Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Accounts					
Net Cash	\$ -	\$ -	\$ -	\$ -	\$ -
Operating Account Balance	\$ -	\$ -	\$ (5,052,505)	\$ (5,052,505)	\$ (5,052,505)
Grant Account	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Balance	\$ 752,611	\$ 1,219,081	\$ (900,855)	\$ (406,236)	\$ (2,272,001)
Project Costs					
Project Cost	\$ -	\$ -	\$ 7,654,995	\$ -	\$ 2,376,469
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ 5,052,505	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ 2,602,491	\$ -	\$ 2,376,469
Project Name(s)			New Police Station		Ladder Truck, Offsite Police Storage Facility, IFFPA 5 Yr

Title	2029	2030	2031	2032	2033
Revenue					
Total ERCs	4,491	4,626	4,765	4,908	5,006
New ERCs	131	135	139	143	98
General Revenue	\$ -	\$ -	\$ -	\$ -	\$ -
Grant Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 526,789	\$ 542,875	\$ 558,960	\$ 575,045	\$ 394,087
Total Operating Revenue	\$ -	\$ -	\$ -	\$ -	\$ -
Expenses					
General	\$ -	\$ -	\$ -	\$ -	\$ -
Other Government Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Total Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Accounts					
Net Cash	\$ -	\$ -	\$ -	\$ -	\$ -
Operating Account Balance	\$ (5,052,505)	\$ (5,052,505)	\$ (5,052,505)	\$ (5,835,368)	\$ (5,835,368)
Grant Account	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Balance	\$ (1,745,211)	\$ (1,202,337)	\$ (643,377)	\$ (68,332)	\$ 298,205
Project Costs					
Project Cost	\$ -	\$ -	\$ -	\$ 782,864	\$ 27,550
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ 782,864	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ 27,550
Project Name(s)				Ranchos Fire Station Remodel	IFFPA 10 Yr

Title	2034	2035	2036	2037	2038
Revenue					
Total ERCs	5,106	5,208	5,312	5,419	5,527
New ERCs	100	102	104	106	108
General Revenue	\$ -	\$ -	\$ -	\$ -	\$ -
Grant Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 402,129	\$ 410,172	\$ 418,215	\$ 426,257	\$ 434,300
Total Operating Revenue	\$ -	\$ -	\$ -	\$ -	\$ -
Expenses					
General	\$ -	\$ -	\$ -	\$ -	\$ -
Other Government Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Total Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Accounts					
Net Cash	\$ -	\$ -	\$ -	\$ -	\$ -
Operating Account Balance	\$ (5,835,368)	\$ (5,835,368)	\$ (5,835,368)	\$ (5,835,368)	\$ (5,835,368)
Grant Account	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Balance	\$ 700,334	\$ 1,110,506	\$ 1,528,720	\$ 1,954,977	\$ 2,389,277
Project Costs					
Project Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Project Name(s)					

Title	2039	2040	2041	2042	2043
Revenue					
Total ERCs	5,637	5,750	5,865	5,983	6,102
New ERCs	111	113	115	232	237
General Revenue	\$ -	\$ -	\$ -	\$ -	\$ -
Grant Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 446,364	\$ 454,406	\$ 462,449	\$ 932,940	\$ 953,047
Total Operating Revenue	\$ -	\$ -	\$ -	\$ -	\$ -
Expenses					
General	\$ -	\$ -	\$ -	\$ -	\$ -
Other Government Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Total Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -
Accounts					
Net Cash	\$ -	\$ -	\$ -	\$ -	\$ -
Operating Account Balance	\$ (5,835,368)	\$ (5,835,368)	\$ (5,835,368)	\$ (5,835,368)	\$ (5,835,368)
Grant Account	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Balance	\$ 2,835,641	\$ 3,290,047	\$ 3,752,495	\$ 4,222,987	\$ 4,705,542
Project Costs					
Project Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Project Name(s)					

APPENDIX C

IMPACT FEE CERTIFICATION



Certification of Impact Fee Analysis

In accordance with Utah Code Title 11-36a-306 Kelvin C. Smith, P.E., on behalf of Civil Science, Inc., make the following certification:

I certify that the attached impact fee facilities plan and impact fee analysis:

1. includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; or
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement;
3. offsets costs with grants or other alternate sources of payment; and
4. complies in each and every relevant respect with the Impact Fees Act.

This Certification is made with the following assumptions:

1. All data provided to Civil Science, Inc. is assumed to be correct, complete, and accurate.
2. Any changes to the impact fee facilities plan and impact fee analysis after the issuance of this certification will void same certification.
3. Recommendations will be followed in their entirety by Kanab City and City officials.
4. The undersigned is trained and licensed as a professional engineer and has not been trained or licensed as a lawyer. Nothing in the foregoing certification shall be deemed an opinion of law or an

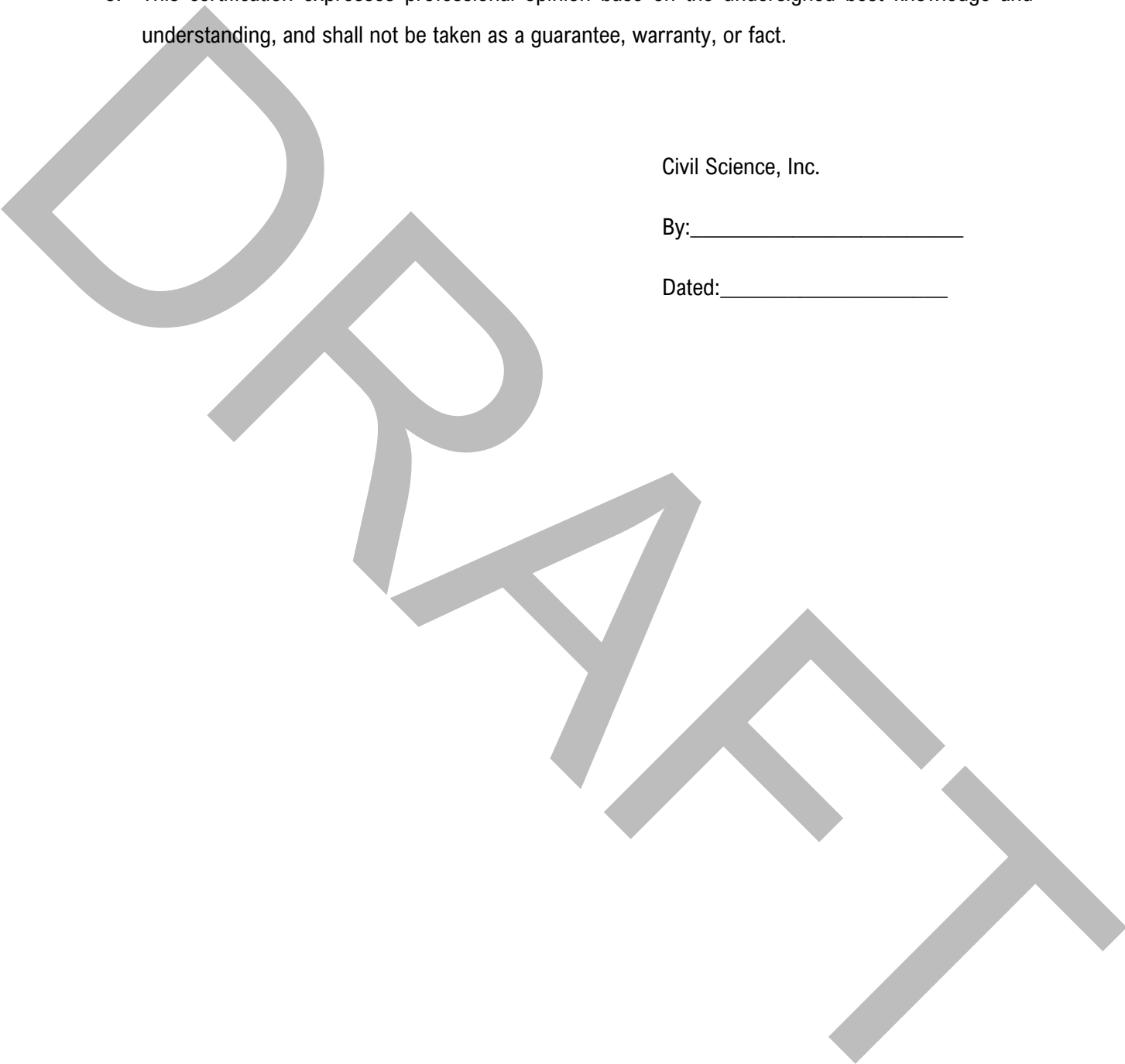
opinion of compliance with law which under applicable professional licensing laws or regulations or other laws or regulations must be rendered by a lawyer licensed in the State of Utah.

5. This certification expresses professional opinion base on the undersigned best knowledge and understanding, and shall not be taken as a guarantee, warranty, or fact.

Civil Science, Inc.

By: _____

Dated: _____



CITY OF KANAB

WASTEWATER IMPACT FEE FACILITIES PLAN

2024



KANAB
— UTAH —



KANAB
— UTAH —

PREPARED BY



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APPENDICES

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1. EXECUTIVE SUMMARY

1.1 Introduction

The primary objective of this study is to establish plans to guide the development of future wastewater system improvements through modeling the system existing conditions, creating a 10-year action plan, and a longer term 20-year action plan. The outcome of the study will be recommended improvements, estimated project costs, a maximum allowable impact fee, an impact fee schedule, recommended user rate schedule, and projected cash flow for Kanab's wastewater utility.

1.2 User Analysis

Table 1 shows historic annual growth rates of 0.6%-5.4%, with an average of 3%. Projected annual growth rates for this study are shown in Table 3 as 3% for 10 years (2023-2032) then 2% for the next 10 years (2033-2043). For this study, it is assumed that residential and commercial (or non-residential) growth will occur at the same rate.

- 2023 population – 5,285
- 2033 estimated population – 7,034
- 2043 estimated population – 8,574

1.3 Existing Facilities Inventory

Kanab City maintains a gravity wastewater system that has approximately 32.42 miles of pipes and 481 manholes. Kanab has one lift station that provides service to areas along the southern border. All wastewater is conveyed to the Kanab City Wastewater Treatment Plant, which is a zero discharge lagoon treatment facility. Virtually all the area west of Kanab Creek is served by individual septic systems, and there are some rural areas inside of City limits also utilizing individual septic systems.

1.4 System Analysis

In 2018 a wastewater model was created using field measurements for each manhole and pipe. These parameters were included in the GIS data to create a wastewater network. The field collected data was critical for the creation and accurate function of the model. For this report, the model was updated with information from projects completed over the last 5 years and current sewer flow meter data.

Demands for the model were calculated by dividing the peak flow projection for a planning horizon by the number of manholes in the model. The modeling software used to model the system is InfoSWMM by Innovyze.

1.5 Summary of Recommended Improvements

The table below shows the recommended projects and the projected year they are to be completed.

Project Name	Projected Year	Inflation	3%	Impact Fee Eligible %	Impact Fee Eligible Cost
		2023 Cost	Inflated Cost		
Lagoon Aeration	2025	\$299,532	\$308,518	100%	\$308,518
Sewer Rake	2025	\$420,000	\$432,600	100.0%	\$432,600
Ranchos Parallel Outfall Pipe	2026	\$206,100	\$218,651	100%	\$218,651
Kanab Ranchos Sewer Phase 1	2026	\$7,479,360	\$7,934,853	20.6%	\$1,631,406
200 W North	2027	\$1,363,446	\$1,489,874	12.5%	\$186,234
IFFPA 5 Yr	2028	\$32,700	\$36,804	100%	\$36,804
Kanab Ranchos Sewer Phase 2	2031	\$3,185,900	\$3,918,255	25%	\$983,482
Lagoon Outfall Pipe Expansion	2032	\$144,660	\$183,251	100%	\$183,251
1100 S Sewer Line Extension	2033	\$1,060,700	\$1,383,973	100%	\$1,383,973
South Force Main	2033	\$206,100	\$268,914	100%	\$268,914
IFFPA 10 Yr	2033	\$32,700	\$42,666	100%	\$42,666
Total		\$14,431,198	\$16,218,360		\$5,676,500
Increase in ERCs					1,852
Maximum Allowable Impact Fee					\$3,065.84

1.6 Financial Viability

The financials of the wastewater utility show that the utility is good health if the full impact fee is established, and user rates continue to reflect utility expenses. A recommended impact fee schedule is based on the installed water meter size, similar to water impact fees. Large water users are typically large sewer users as well. The maximum allowable impact fee for residential connections with a 5/8" water meter is \$3,065.84. It is also recommended that user rates increase from \$17.76 for a residential connection to \$24.17. This may be done as an incremental increase over several years.

The cash flow in Appendix C illustrates that if these rates and fees are established as presented, all recommended improvements can be constructed; with the exception of the Kanab Ranchos Phase 1 project. Additional funds from grants, loans, or special improvement district status may be needed to construct that project as presented.

Wastewater Impact Fees Based on Water Meter Size			
Meter Size [in]	Area [sq-in]	Factor	Impact Fee
0.625	0.31	1.00	\$ 3,065.84
1	0.79	2.56	\$ 7,848.55
1.5	1.77	5.76	\$ 17,659.24
2	3.14	10.24	\$ 31,394.20
2.5	4.91	16.00	\$ 49,053.44
3	7.07	23.04	\$ 70,636.95
4	12.57	40.96	\$ 125,576.81
6	28.27	92.16	\$ 282,547.81

*Factors based on 5/8" meter size. 3/4" is assumed to be equal to 5/8" for factors and impact fee costs.

1.7 Purpose and Scope

The primary objective of this study is to establish updated plans to guide the development of future wastewater system improvements. This study includes an evaluation of existing conditions, a 10-year action plan, as well as a longer term 20-year action plan. The analysis supporting these action plans detail the state of the system as it is now (existing capacity) and shows how much growth can be allowed while still meeting State requirements and providing an adequate level of service to existing customers.

Kanab City operates on the premise that it seeks to sustainably provide wastewater collection and treatment for residents and enterprises within its service area. These services are provided in the near term and through build-out. The study area incorporates updated zoning conditions consistent with recent City planning. Given the purpose and need described above, the following were key elements contemplated in the scope of work for this project:

- Perform a user analysis, establish an anticipated growth rate within the City's service area boundary, identify focused or pending development areas, establish population projections based on anticipated growth rate, and review and determine existing and future demographics of the City.
- Conduct a public open house/town hall meeting, provide technical documents as required and present draft impact fee facilities plans to the City Council.
- Update the system inventory to establish what the City has:
 - Gather and analyze existing wastewater flow data and projected future demands.
 - Field verify new critical elements of the wastewater system (locations, elevations, etc.).
 - Convert elements into GIS and attribute.
 - Update wastewater system GIS data and verify system attributes (locations, sizes, materials, etc.).
- Update modeling scenarios based on flow design demands to establish what the City needs:
 - Update defined wastewater flow basins and sub-basins and quantify flow rates.
 - Review the existing model in its current condition and make additions or improvements as needed with consideration for developments under review.
 - Calibrate the model based on known meter usage data.
 - Operate the model under existing, 10-year, and 20-year development conditions.
 - Operate the model based on maximum hourly flow.
- Perform a system analysis to determine how to get what the City needs:
 - Complete analysis in accordance with the Utah State Administrative Code for public wastewater systems.
 - Complete the analysis under existing, 10-year and 20-year development conditions, with considerations for the full tributary area of the wastewater sub-basins.
 - Evaluate existing conditions, 10-year, and 20-year conditions and make improvement recommendations.
 - Evaluate the existing and future hydraulic capacity of the wastewater treatment facilities and make improvement recommendations.
 - Develop infrastructure plan for recommendations to the existing system.
 - Develop infrastructure plan for recommendations to the 10-year system (major conveyance facilities only).
 - Ensure that recommendations for the future system integrate well with the existing system.
- Perform a system financial analysis to calculate the cost of improvements:
 - Prepare project descriptions and opinions of probable cost for recommended improvements.
 - Prepare an impact fee facilities plan for the 10-year planning horizon with considerations for the

20-year planning horizon. Identify a phasing plan for recommended improvements.

- Identify facilities eligible to be funded with impact fees (full or partial).
- Perform a financial viability analysis of the operations and management of the system based upon recent audits.
- Prepare a user rate analysis using recent audit costs for the operations and management of the water utility.
- Prepare an impact fee analysis, calculate the maximum allowable impact fee, and issue an impact fee certification.
- Prepare a written IFFPA with results, summaries, and relevant appendix materials:
 - Prepare a wastewater system impact fee facilities plan draft for City Staff, Department Heads, and the City Council.
 - Address questions, concerns, and comments from City Staff, Department Heads, and the City Council.
 - Publish a final written wastewater system impact fee facilities plan & analysis for the community

1.8 Background Information

Kanab is the commercial center of a large farming, ranching and recreational area located in south central Utah. The City is the County seat of Kane County and has a long history as a film making and tourism hub. Nearby tourism destinations include multiple national parks and recreational areas such as Lake Powell. Kanab is located 7 miles north of the Arizona border on US 89A. For many years the community was one of the most isolated in the nation, being cut off from the east by the Colorado River. Today it is a tourist town inviting tens of thousands of visitors annually to enjoy the beauty of the area as well as its rich history.

During the past several years, The City has completed multiple projects as recommended in the 2018 IFFPA, helping to fulfill the City's goals in wastewater collection and treatment. These projects include extending the Kanab Creek Drive sewer line to 1100 S, adding sewer mains for new developments, performing a preliminary engineering report to address sewers in the Ranchos, and others.

Since several of the recommendations from the 2018 plan have been completed, the time has come for an updated IFFPA. This update will include the continued growth seen by the community these past 5 years, as well as a study of future developments and issues that may arise therein.

Governing documents/codes for this study include the existing Kanab City General Plan, the existing Kanab City Wastewater IFFPA, Utah Administrative Code R317-3, as well as all current Kanab zoning and development criteria.

1.9 Miscellaneous Resources

Resources used include monthly master sewer meter data, Kanab City Staff, federal and state census information, Utah Administrative Code minimum sizing requirements, the Impact Fees Act established under Utah State Code, and Kanab City Financial Statements.

2. USER ANALYSIS

2.1 Planning Horizon

This analysis reflects three distinct planning horizons: existing conditions, 10 years, and 20 years. The existing conditions scenario evaluates the current state of the system based on the current number of residential, commercial, industrial, and institutional connections. Moving forward in this report commercial, industrial, and institutional connections will be referred to in aggregate as non-residential connections. The 10-year and 20-year planning horizons will project the future growth of Kanab City, as well as evaluate the system for potential deficiencies. Projects will be planned to allow the system to compensate for those deficiencies.

2.2 Historic Growth Rates

To properly analyze the 10-year and 20-year planning horizons, projections must be made regarding population. To estimate future growth rates, historical growth rates are examined. Table 1 analyzes past census data provided for the City. It shows the historic 10-, 20-, 30-, and 40-year average annual growth rates.

From this table we see that annual growth rates since 1980 have fluctuated from 0.6%-5.4%. The average annual growth rate over that time sits at 3.0%. It is worth noting that the 40-year average is up slightly, from 2.9% to 3.0%, since the last iteration of this report. This shows that while the growth rate was down in the 2010's, it has been on the rise in the few years since then.

Description	Year Period	Population	Growth
10-year Historic	1980	2148	-
10-year Historic	1990	3318	5.4%
10-year Historic	2000	3510	0.6%
10-year Historic	2010	4312	2.3%
10-year Historic	2020	4683	0.9%
20-year Historic	1980-2000	-	3.2%
20-year Historic	1990-2010	-	1.5%
20-year Historic	2000-2020	-	1.7%
30-year Historic	1980-2010	-	3.4%
30-year Historic	1990-2020	-	1.4%
40-year Historic	1980-2020	-	3.0%

Table 1: Historic Population and Growth Rates

2.3 Projected Growth Rates

The historical growth rates shown in the previous section allow for the forward projection of population growth. Based on analysis of years past, it is projected that Kanab City will continue to grow at a rate of 2-3% over the next 20 years. For that reason, a 3% growth rate is used to show growth over the next 10 years (2023-2032) and a 2% growth rate for the 10 years after that (2033-2043). A variety of factors affect growth rate, many of which will change with time. Any projection past 20 years would prove unreliable.

2.4 Equivalent Residential Connection

Calculating an Equivalent Residential Connection (ERC) provides a way to compare residential to non-residential connections. This means that a residential connection equals 1 ERC. If non-residential connections on average use 5 times more water than residential connections, then each non-residential connection equals 5 ERC's. Non-residential connections generally use more wastewater than residential connections. Establishing an ERC value for commercial connections allows wastewater usage to be evaluated fairly. Table 2 shows an ERC value of 4.8 for non-residential connections in Kanab. This is calculated based on water usage, which translates to wastewater usage. For more information about the ERC calculation, see the current Water Impact Fee Facilities Plan. Annual population, ERC, and growth rate projections for the 20-year planning horizon are available in Table 3.

Connection Type	ERC (2022)
Residential	1
Non-Residential	4.8

Table 2: ERC Values

Year	Source	Population	Residential	Nonresidential	Total	ERCs	Growth
2015	Census Estimate	4,410	1,848	225	2,073	3,152	0.0%
2016	Census Estimate	4,436	1,876	227	2,103	3,502	1.4%
2017	Census Estimate	4,448	1,910	226	2,136	3,024	1.6%
2018	Census Estimate	4,529	1,983	224	2,207	3,204	3.3%
2019	Census Estimate	4,636	2,133	215	2,348	3,279	6.4%
2020	Census	4,683	2,201	263	2,464	3,551	4.9%
2021	Census Estimate	5,000	2,236	271	2,507	3,973	1.7%
2022	Census Estimate	5,131	2,304	271	2,575	3,652	2.7%
2023	Estimate	5,285	2,373	279	2,652	3,761	3.0%
2024	Estimate	5,443	2,444	288	2,732	3,874	3.0%
2025	Estimate	5,607	2,518	296	2,814	3,990	3.0%
2026	Estimate	5,775	2,593	305	2,898	4,110	3.0%
2027	Estimate	5,948	2,671	314	2,985	4,233	3.0%
2028	Estimate	6,127	2,751	324	3,075	4,360	3.0%
2029	Estimate	6,310	2,834	333	3,167	4,491	3.0%
2030	Estimate	6,500	2,919	343	3,262	4,626	3.0%
2031	Estimate	6,695	3,006	354	3,360	4,765	3.0%
2032	Estimate	6,896	3,096	364	3,461	4,908	3.0%
2033	Estimate	7,034	3,158	371	3,530	5,006	2.0%
2034	Estimate	7,174	3,221	379	3,600	5,106	2.0%
2035	Estimate	7,318	3,286	386	3,672	5,208	2.0%
2036	Estimate	7,464	3,352	394	3,746	5,312	2.0%
2037	Estimate	7,613	3,419	402	3,821	5,419	2.0%
2038	Estimate	7,766	3,487	410	3,897	5,527	2.0%
2039	Estimate	7,921	3,557	418	3,975	5,637	2.0%
2040	Estimate	8,079	3,628	427	4,055	5,750	2.0%
2041	Estimate	8,241	3,700	435	4,136	5,865	2.0%
2042	Estimate	8,406	3,774	444	4,218	5,983	2.0%
2043	Estimate	8,574	3,850	453	4,303	6,102	2.0%

Table 3: Growth Projections

3. WASTEWATER FLOW PROJECTIONS

3.1 Historic Flows & Connections

Wastewater flow data from July 2020 through June 2023 was provided by Kanab City to analyze recent demands. The flow was collected by a meter in the outfall line near the treatment lagoons. Wastewater flows over that time period were fairly consistent, although slightly elevated during summer months when tourism is more prominent. On average, Kanab City has been treating 7,960,000 gallons per month excluding the outlier in January 2021. Figure 1 shows the meter readings for the time frame previously given. It is assumed that there is minimal storm water inflow and ground water infiltration.



Figure 1: Sewer Lagoon Master Meter Readings

Per Kanab City as of 2022, there are 2,552 wastewater connections to the connection system. There are still significant sections of The City, including the Ranchos area and other more rural areas, are still serviced by septic systems. This explains the discrepancy between water and wastewater connections.

Average annual demands were calculated in Table 4 using the monthly meter data in Figure 1. For context, the treatment design criteria for the sewer lagoons calculated an average daily flow of 0.705 MGD resulting in an excess capacity of nearly 0.425 MGD in reference to 2016 average daily flow values.

Year	Total Mgal	Avg Flow [MGD]	Avg Flow [gpm]	Avg Flow [cfs]	% Change
*2020	46.52	0.26	178.48	0.40	-
2021	100.67	0.26	179.63	0.40	1%
2022	96.28	0.26	183.18	0.41	2%
*2023	57.61	0.31	217.44	0.48	19%
*6 months data		NOTE: 2021 average does not include January outlier			

Table 4: Average Annual Flow

3.2 Projected Flows

Utah Code has a design rule that new sewer systems need to be based on an annual average daily rate of flow of 100 gallons per capita per day (R317-3-2) and that designed flows for laterals and collector sewers need to be four times that rate. Kanab produces significantly less wastewater flow than the State sewer design flow requirements. However, the peaking factor of 4 is still valid to calculate the peak daily flows from the average daily flows. Table 5 shows the calculated peak flows from the projected serviced ERCs. Average daily flows are based on wastewater flow per ERC for the latest available data.

Because large areas of the City are not serviced by the City wastewater system, the number of serviced ERCs is 1,100 less than the number of ERCs in the City. In planning for future flows, the Kanab Ranchos sewer collection project phases 1 and 2 are projected to add 607 ERCs to the system. The remaining 493 ERCs are projected to be added to the system by future Kanab Ranchos sewer project phases. This is shown in Figure 2 by the steep increases in flow in 2027 and 2034.

Year	Serviced ERCs	Average Daily Flow [gpm]	Peak Daily Flow [gpm]	Peak Daily Flow [MGD]
2023	2,661	217.4	811	0.292
2033	4,513	343.7	1,375	0.495
2043	6,102	464.7	1,859	0.669

Table 5: Peak Flow Calculations

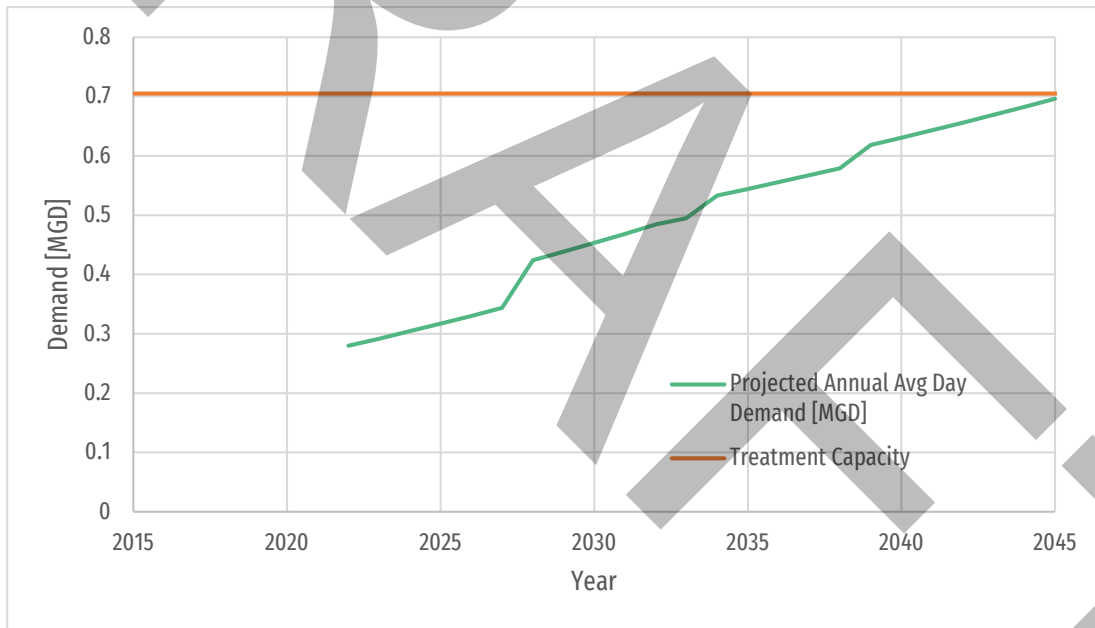


Figure 2: Projected Average Annual Wastewater Demand

4. EXISTING FACILITIES

4.1 Gravity Network

Wastewater collection systems are generally made up of a network of discharge and flow lines, drains, inlets, valve works and connections for transporting domestic and industrial wastewater flows to regional treatment facilities. The most obvious component of any wastewater system is the gravity collection pipe network. Flow through gradually sloping gravity wastewater pipes is the most cost effective and desirable means of moving wastewater effluent since pumping energy is not required. Figure 3 shows a clip of the existing Kanab City wastewater system.

Kanab's existing system contains 481 manholes and a total of 32.42 miles of main collection pipes. The breakdown of pipe length by pipe diameter is shown in Table 6.

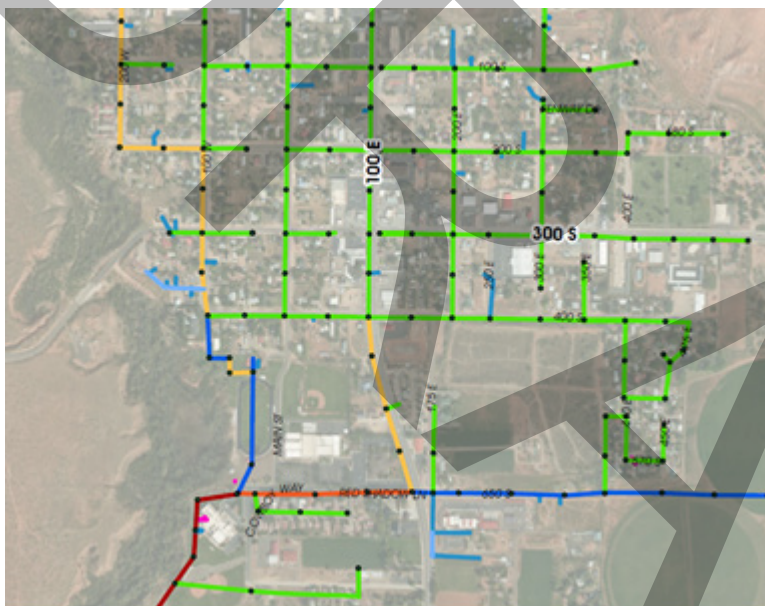


Figure 3: Clip of Existing Sewer Model

Size (in.)	Length (mi)
2	0.01
3	0.02
4	2.77
6	1.41
8	22.27
9	0.00
10	1.45
12	1.09
15	0.93
18	2.46

Table 6: Existing Pipe Lengths

4.2 Collection Basins

Wastewater collection basins are developed by future planning and evaluation of the established system network. These collection areas are best established in the planning stages to better anticipate system improvement needs and to evaluate system health. While the collection basin delineation did not have any effect on the model system demands, they do factor into proposed recommendations. Development will need to keep improvements within the collection basins or planned improvements may not be valid. Flows enter the collection system in a collection basins would render the wastewater model and the proposed plan inaccurate. Establishing collection basins allows for more accurate sewer model results through calibration if meters are strategically placed at basin outlets. Appendix A shows the collection basins and the outlets of the basins are shown as proposed locations for local sewer meters.

4.3 Force Mains & Lift Stations

In locations where topography, density of existing utilities, lack of adequate rights-of-way or other circumstances limit the continuation of a gravity wastewater system, it becomes necessary to construct pressurized force mains to route wastewater over or around the existing obstacles. Force mains are associated with wastewater lift stations; the two are normally designed in conjunction with one another. Because of the perpetual pumping energy required to operate lift stations, these facilities are used only as needed.

Kanab City has one lift station and one force main currently in use. These are located to the south of the City along Kaneplex Drive and services the Kane County Water Conservancy District office and county jail. The collection basin for the force main is defined as the area that cannot be serviced by gravity collections systems conveying flow to the north of Jackson Flat Reservoir. One other sewer lift station is under construction that will service the Catori Canyon Subdivision. There are also several low pressure sewer systems that have a pump for each residence and convey sewer flows to the nearest gravity main. These are owned and operated by the homeowners; the City bears no responsibility for the operation and maintenance of the existing low pressure systems.

4.4 Treatment

Kanab owns and operates a lagoon sewer treatment facility near the southern border of the City. The treatment facility operates under a general permit for non-discharging wastewater lagoons from the Utah State Division of Water Quality, Department of Environmental Quality. Water is evaporated from the lagoons as there is no outflow to any water body. City staff have reported that the facility is operating well with effective maintenance and has sufficient capacity for future demands. The treatment facility is currently operating three of the four available lagoon cells during high flow seasons.

Even though the lagoon treatment is effective and efficient, there have been reports of excessive odors coming from the lagoons. In consultation with manufacturers and engineers, the City has received several aeration system quotes. Adding an aeration system to the lagoons is designed to speed up the treatment of the wastewater and reduce or possibly eliminate odors.



Kanab Sewer Lagoons

5. SYSTEM MODEL

5.1 Model Update

In 2018 a wastewater model was created using field measurements for each manhole and pipe. These parameters were included in the GIS data to create a wastewater network. The field collected data was critical for the creation and accurate function of the model. For this report, the model was updated with information from projects completed over the last 5 years and demand flows updated according to current meter data.

5.2 Demand Calculations

The demands for the model were based on the peak daily flows calculated in Table 5. Demands per manhole were calculated by dividing the total demand by the number of manholes contributing to wastewater flow. For the year 2023, the calculation is shown below:

$$810.75 \text{ gpm} \div 481 \text{ manholes} = 1.686 \frac{\text{gpm}}{\text{MH}}$$

Future demands in areas where no collection system currently exists were modeled by extending the collection system to one future manhole and estimating the total number of contributing manholes to be constructed in the planning horizon. The Kanab West/Ranchos area was modeled with a proposed system and manholes typical of a gravity sewer system. This was based on the modeling performed for the Preliminary Engineering Report (PER) to evaluate alternatives for sewer solutions. Table 7 gives a summary of the model demands.

Year	Total Demand [gpm]	Flow per Manhole [gpm]	Kanab West Demand [gpm]
2023	811	2.16	0.0
2033	1,375	3.61	184.9
2043	1,859	4.69	335.1

Table 7: Model Demands Summary

5.3 Basin Delineation

Wastewater collection basins are determined or delineated by the network. The area that is serviced by a particular pipe can be regarded as a collection basin. Kanab was separated into 38 basins based on the connectivity and flow of wastewater through the gravity system. The basins range in size to best show which direction flow is conveyed at overflow diversions. Future developments must follow the drawn collection basins to convey wastewater with exceptions only granted by city staff or city council. This will ensure the plans and projects for future wastewater conveyance will remain accurate. These basins may be used to determine ideal locations for proposed wastewater flow meters.

5.4 Computer Model

The modeling software used to model the system is InfoSWMM by Innowat, which runs as an add-on to Esri's ArcMap software. The wastewater model is a numerical model with a spatially representative viewer for data input and output. GIS data was provided by Kanab with Civil Science verifying flow depths and manhole elevations to import into the model. Elevations, lengths, connecting nodes or manholes, and any other information required of the model were calculated as attributes to pipe and manhole objects in GIS.

Design criteria entered into the computer model assumes that the pipe system will flow at 2/3 full capacity and the Manning's roughness was set at 0.012. Figure 4 shows the modeling interface of InfoSWMM with ArcMap.

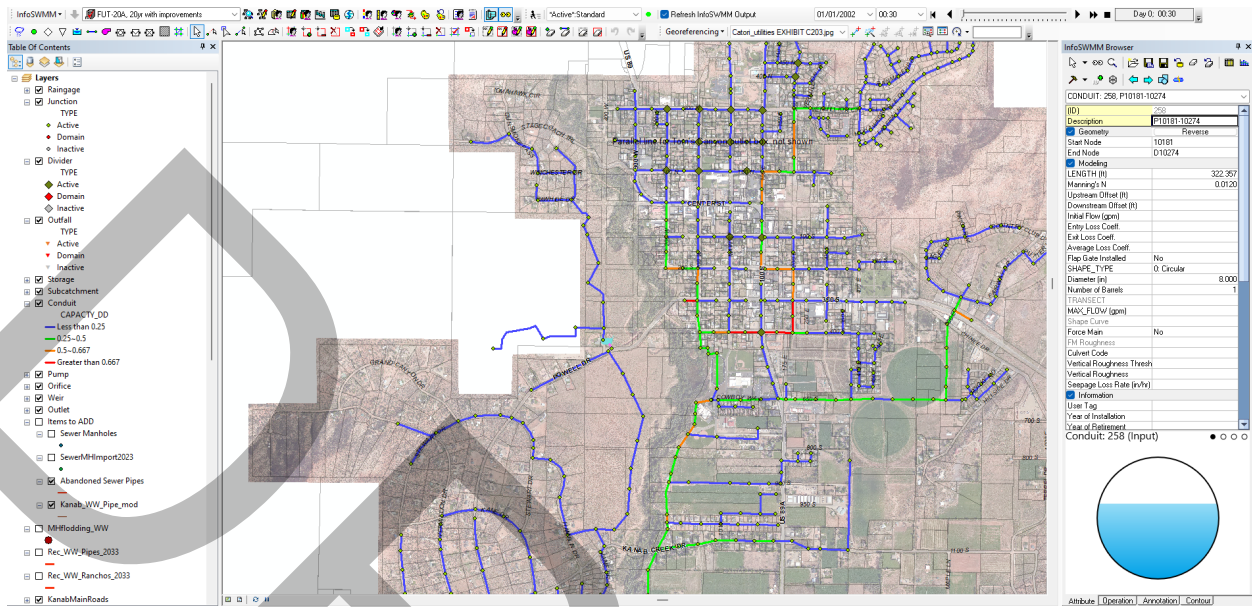


Figure 4: InfoSWMM Model Interface with Kanab Sewer Model

6. SUMMARY OF RECOMMENDED IMPROVEMENTS

The following recommended improvements assume that a pipe has reached its capacity when it is flowing two-thirds (66.7%) full by depth. This is equivalent to 80% of the flow capacity by calculating the area of a cross-section of circular pipe. Recommendations are based on replacing pipe segments that are modeled as being overcapacity. For modeling purposes, the Kanab Ranchos Phases 1 & 2 projects were initially modeled as being connected to the existing outfall line. We determined that the best course of action would be to create a parallel outfall line to the lagoons for a parallel network and not connect to the existing collection network. This decision is reflected in the recommended improvements. The summary of recommended improvements is presented in Table 8, these recommendations are based on sound engineering judgment, practices, and through the hydraulic modeling effort and results. In general, Kanab should require all new developments to be connected to their current wastewater collection system and stop allowing individual septic systems

Year	Project Name	Project Description
2025	Lagoon Aeration	Add aeration system to sewer lagoons.
2025	Sewer Rake	Install a sewer rake at the lagoon outfall to catch trash and debris, keeping it out of the lagoons
-	Catori Canyon Force Main	A lift station and force main are required to sewer the proposed Catori Canyon Subdivision. This will be installed by the developer.
-	Hidden Canyon Force Main	A lift station and force main are required to sewer the proposed Hidden Canyon Subdivision. This will be installed by the developer.
2026	Kanab Ranchos Sewer Phase 1	Replace the existing septic system in much of the south and east sides of Ranchos with a sewer system, connecting it to the Ranchos Parallel
2026	Ranchos Parallel Outfall Pipe	Install 15" sewer pipes, starting from the east end of W Navajo Dr. and moving south, connecting Ranchos to the sewer ponds.
2027	200 W North	Relocate sewer along 200 N in coordination with the Tom's Canyon Sewer Project. At N 200 W the sewer line changes from 8" to 12" and turns south, following the road for 2550' where it ends at 200 S and 200 W.
2028	IFFPA 5 Yr	5-year update for Master Plans and Impact Fees.
2031	Kanab Ranchos Sewer Phase 2	Replace the existing septic system in the remainder of Ranchos with a sewer system, connecting it to Ranchos Sewer Phase 1.
2032	Lagoon Outfall Pipe Expansion	Increase the size of the lagoon outfall pipe beneath Paiute Dr. to 21", from Hopi Dr. and moving east for 366'
2033	1100 S Sewer Line Extension	Extend existing 10" sewer line along 1100 S for 3800', ending at Terrel Dr.
2033	South Force Main	Extend the existing south force main to the sewer rake outfall. This will allow all influent flow to pass through the sewer rake.
2033	IFFPA 10 Yr	10-year update for Master Plans and Impact Fees.

Table 8: Recommendations Summary

7. FINANCIAL VIABILITY

7.1 Cost Estimates

Civil Science has prepared cost estimates for each of the projects identified in Table 8. These estimates were created for planning purposes. Each cost estimate captures anticipated construction costs including: mobilization and demobilization, project record documents, traffic and temporary controls, materials and sampling, construction layout & staking, professional services, materials, labor, and contingencies. The projects were organized in a manner so that costs are not shared between projects. This allows for better understanding of a singular project costs versus showing all the projects in an abbreviated cost estimate format. Table 9 shows project costs including inflation.

7.2 Project Phasing

Recommended improvements were assigned a time frame in which the projects are expected to be needed based on growth projections, localized growth, and available impact fee funds as shown in the cash flow. Table 9 shows the recommended improvement within a 10-year period along with the projected year of construction and costs in 2023 dollars plus inflation until the project year. The Catori Canyon and Hidden Canyon force main projects are not included in the impact fee calculations tables because both projects are sized just for their developments and will be paid by the developers.

In all cases, the improvements are planned to support continuing growth within the next ten years and beyond, and are planned for implementation at times when the growing population base can theoretically generate enough revenue to fund the projects. It should be noted that growth in the study area may occur at a rate faster or slower than that predicted in the cash flow analysis. If growth occurs at a faster rate, more funds will be available to construct the projects at an earlier schedule than that specified by the phasing projections. On the other hand, if growth slows more than expected implementation of the projects should be delayed until the population base can fund the improvements.

Project Name	Projected Year	Inflated Cost
Lagoon Aeration	2025	\$308,518
Sewer Rake	2025	\$432,600
Ranchos Parallel Outfall Pipe	2026	\$218,651
Kanab Ranchos Sewer Phase 1	2026	\$7,934,853
200 W North	2027	\$1,489,874
IFFPA 5 Yr	2028	\$36,804
Kanab Ranchos Sewer Phase 2	2031	\$3,918,255
Lagoon Outfall Pipe Expansion	2032	\$183,251
1100 S Sewer Line Extension	2033	\$1,383,973
South Force Main	2033	\$268,914
IFFPA 10 Yr	2033	\$42,666
Total		\$16,218,360

Table 9: Cost Estimate Summary

7.3 Impact Fee Analysis

Impact fees for Kanab City were reestablished for some time in 2018, with the understanding that they would be reevaluated every 5 years. The purpose of this report is to revisit The City’s public wastewater system and establish adjustments to the impact fees based on changes in situation and future projections.

The new proposed impact fee was calculated based on estimated costs, projected construction year, inflation, and impact fee eligibility. This is based on whether the project is needed to address an existing issue or if the project is needed to serve new growth and development. The proposed impact fee calculation is presented in Table 10. Impact fee eligible costs are based on inflated costs and impact fee eligibility.

Project Name	Projected Year	Inflation	3%	Impact Fee Eligible %	Impact Fee Eligible Cost
		2023 Cost	Inflated Cost		
Lagoon Aeration	2025	\$299,532	\$308,518	100%	\$308,518
Sewer Rake	2025	\$420,000	\$432,600	100.0%	\$432,600
Ranchos Parallel Outfall Pipe	2026	\$206,100	\$218,651	100%	\$218,651
Kanab Ranchos Sewer Phase 1	2026	\$7,479,360	\$7,934,853	20.6%	\$1,631,406
200 W North	2027	\$1,363,446	\$1,489,874	12.5%	\$186,234
IFFPA 5 Yr	2028	\$32,700	\$36,804	100%	\$36,804
Kanab Ranchos Sewer Phase 2	2031	\$3,185,900	\$3,918,255	25%	\$983,482
Lagoon Outfall Pipe Expansion	2032	\$144,660	\$183,251	100%	\$183,251
1100 S Sewer Line Extension	2033	\$1,060,700	\$1,383,973	100%	\$1,383,973
South Force Main	2033	\$206,100	\$268,914	100%	\$268,914
IFFPA 10 Yr	2033	\$32,700	\$42,666	100%	\$42,666
Total		\$14,431,198	\$16,218,360		\$5,676,500
Increase in ERCs					1,852
Maximum Allowable Impact Fee					\$3,065.84

Table 10: Impact Fee Calculations

The maximum allowable impact fee for the water system is \$3,065.84. This was calculated by dividing the total impact fee eligible costs by the increase in ERCs in the 10-year planning horizon. In consultation with Kanab City, it was decided that the impact fee should be charged based on water meter size. Table 11 presents the proposed impact fee based on water meter sizes and factors based on cross-sectional area.

As required by the Utah Impact Fees Act, an Impact Fee Certification is included in Appendix D. It states that this analysis was done in accordance with the Impact Fees Act and its requirements.

Rules regarding the use of impact fees are covered by the Impact Fees Act. Generally, impact fees may only be used for system improvements that are required to service new development within the existing level of service or expected service requirements (sewer collection, treatment, etc.) and are included in this Impact Fee Facilities Plan. Impact fees must be used within six years of payment or they must be paid back. Alternative sources of revenue such as grants or shared construction costs should be investigated to reduce the financial burden of the City and its new residents. At the time of this study, Kanab is not applying for, or holding, any grant funds related to wastewater system projects.

Wastewater Impact Fees Based on Water Meter Size			
Meter Size [in]	Area [sq-in]	Factor	Impact Fee
0.625	0.31	1.00	\$ 3,065.84
1	0.79	2.56	\$ 7,848.55
1.5	1.77	5.76	\$ 17,659.24
2	3.14	10.24	\$ 31,394.20
2.5	4.91	16.00	\$ 49,053.44
3	7.07	23.04	\$ 70,636.95
4	12.57	40.96	\$ 125,576.81
6	28.27	92.16	\$ 282,547.81

*Factors based on 5/8" meter size. 3/4" is assumed to be equal to 5/8" for factors and impact fee costs.

Table 11: Wastewater Impact Fees

7.4 User Rate Analysis

The existing monthly user rate for wastewater services in Kanab varies based on the types of connections and the demands for the collection system. The residential rate is currently \$17.76 per month. Residents currently served by a septic system are not charged a wastewater user fee. A new user rate for Kanab was calculated by adding annual operating expenses of the system and existing debt service then dividing by a water meter replacement factor to achieve a monthly base rate for wastewater users based on water meter size. See the Water IFFPA for more details. Values from the 2022 City audit, 2023 budget, and engineering judgment were used to achieve final values for salaries, materials, and capital expenses shown in the user rate analysis in Table 12.

The total estimated amount for wastewater operations is \$772,072.77. Dividing that value by the number of serviced connections and again dividing it by 12 to yield a monthly rate result in a rate of \$24.17.

In consultation with Kanab City, it was decided that any proposed user rate should match the existing rate structure which is based on connection types. The rate of \$24.17 is applied to residential connections and rates for all other connection types are calculated by multiplying the residential rate by the calculated factor. The proposed rate structure is shown in Table 13.

We recommend that the wastewater utility fund be separated from the water utility fund.

Budget Category	Costs
Rent	\$ 4,747.24
Salaries & Wages	\$ 96,800.48
Employee Benefits	\$ 40,205.56
Office Expense	\$ 16,101.17
Insurance	\$ 6,429.69
Utilities	\$ 17,472.07
Travel & Training	\$ 875.35
System Repairs & Maintenance	\$ 63,568.28
Professional Services	\$ 6,674.19
Miscellaneous	\$ 3,934.45
Interest & Fiscal Charges	\$ 15,417.42
Liabilities	\$ 557,000.00
Totals	\$ 829,225.91
Meters Times Cost Factors	2,675
Monthly Rate	\$ 25.84

Table 12: User Rate Analysis

Type of Connection	Existing Sewer Rate	Factor
Residential	\$ 17.76	1.00
Small Commercial	\$ 46.14	2.60
Large Commercial	\$ 154.73	8.71
Schools	\$ 231.64	13.04
Apart. Per Room	\$ 17.76	1.00
Hotel/Motel/RV Per Room	\$ 6.15	0.35

Table 13: Existing Wastewater Rate Structure

Water Meter Size [in]	Proposed Monthly Rate
0.625	\$ 25.84
1	\$ 28.40
1.5	\$ 52.34
2	\$ 68.43
2.5	\$ 123.60
3	\$ 151.30
4	\$ 179.54
6	\$ 271.42

Table 14: Proposed Wastewater Rate Structure

7.5 Cash Flow Analysis

A wastewater utility cash flow analysis for a 20-year planning horizon was completed to show how the 10-year planning horizon improvement projects could be implemented, to analyze the continued viability of proposed user rates, and to show possible trends in impact fee and cash fund balances. Initial data for the cash flow analysis was taken from Kanab City audits for fiscal years 2020-2022. Values projected through the analysis are based on growth, interest, and inflation trends determined during the process of the study. It should be noted that the analysis is a general forecast only and will vary with the speed and pattern of development in the City. The entire cash flow analysis is included in Appendix C.

The upper section of the cash flow printout, entitled “Revenue”, contains the basic data upon which many of the values in the cash flow spreadsheet are generated. Of note are the projected growth trends, the assumed inflation rates, user rates, impact fees and inspection fees, and the projected ERC quantities for the coming fiscal years. Most of the revenue in later parts of the cash flow spreadsheet is generated from the impact fees, and user rates.

The following section is the utility expenses section which attempts to quantify all the expenses incurred by the wastewater utility. Included in the expenses section are operation and maintenance costs, existing debt service costs and new debt service costs. The difference between the total revenues and total expenses is the net cash flow for the utility.

Total revenues and total expenses are broken down into impact fee and cash fund categories. This was done to help show that adequate funds would be available over the course of the projection period.

A system improvement implementation schedule for the next twenty years was included at the end of the cash flow analysis, this shows how the impact fee facilities plan improvement projects were incorporated into the cash flow analysis.

Other Funding Options

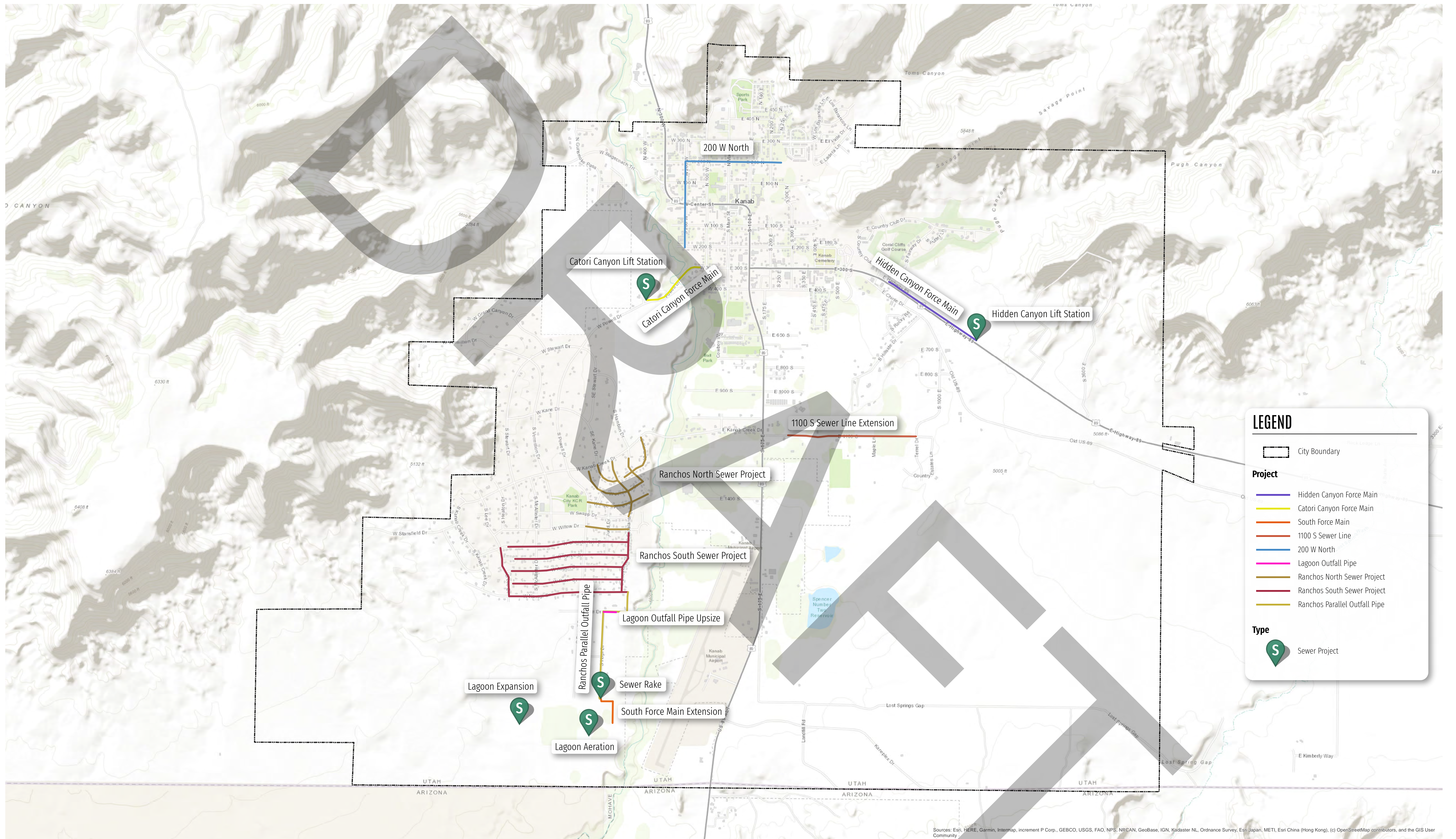
Where possible, Kanab should seek alternative financing for projects in order to reduce the financial burden of consumers in the form of lower user rates or lower impact fees. Kanab’s wastewater utility fund is in good financial health and is currently able to maintain a positive cash flow for the duration of the analysis with the exception of the cost of the Kanab West Phase 1 project. Grant or loan options available to Kanab City are included below:

- Permanent Community Impact Fund Board (CIB)
- Utah Community Development Block Grant (CDBG)
- USDA Rural Development (RD)
- Interfund loans

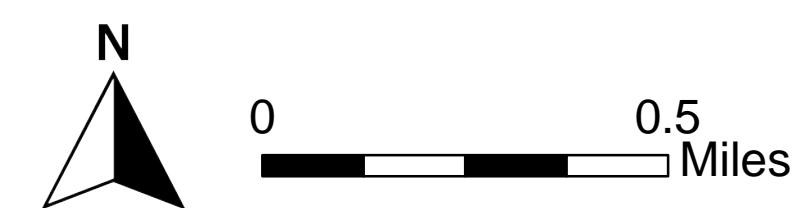
APPENDIX A

MAPS

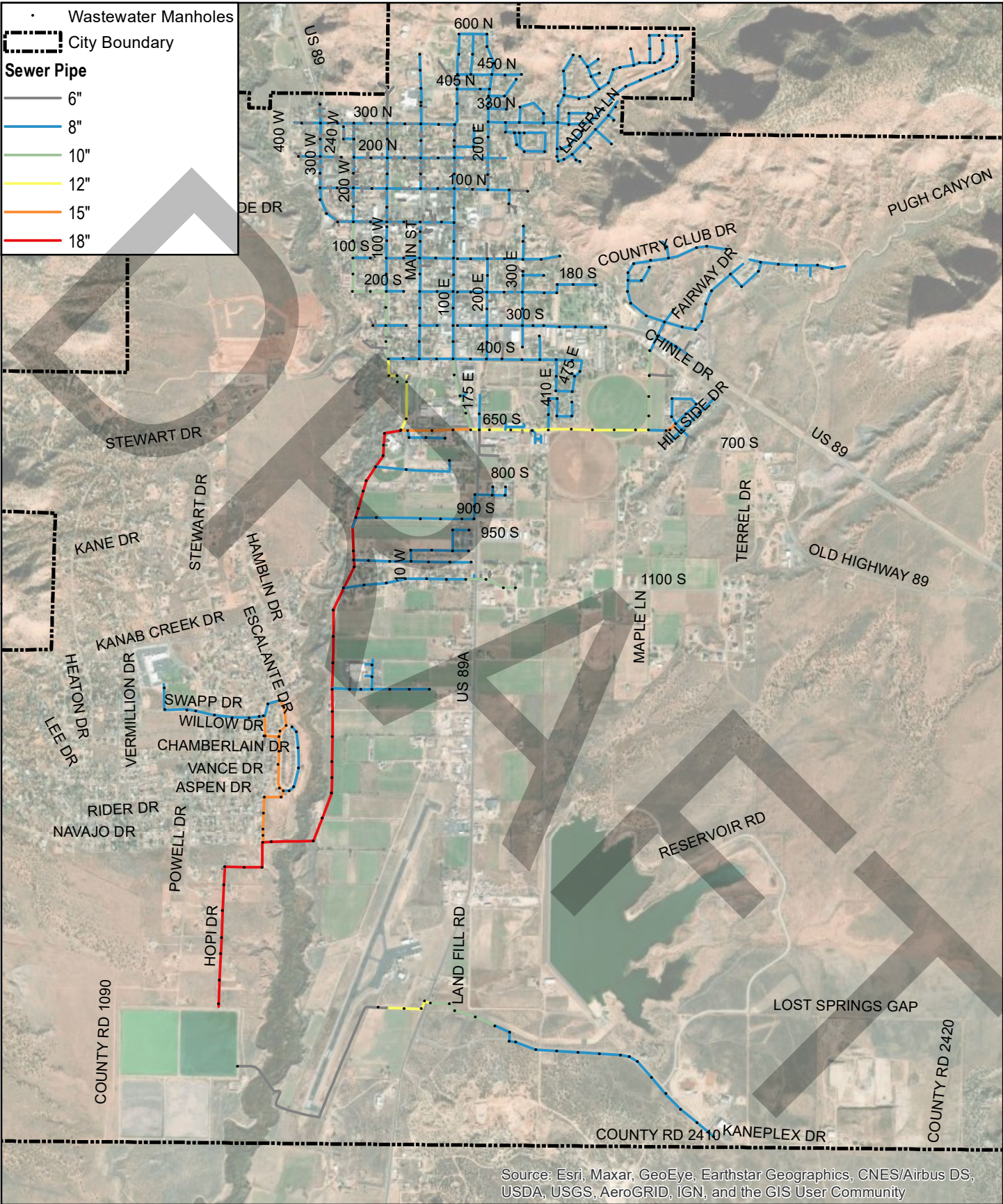
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PROPOSED SEWER PROJECTS MAP



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



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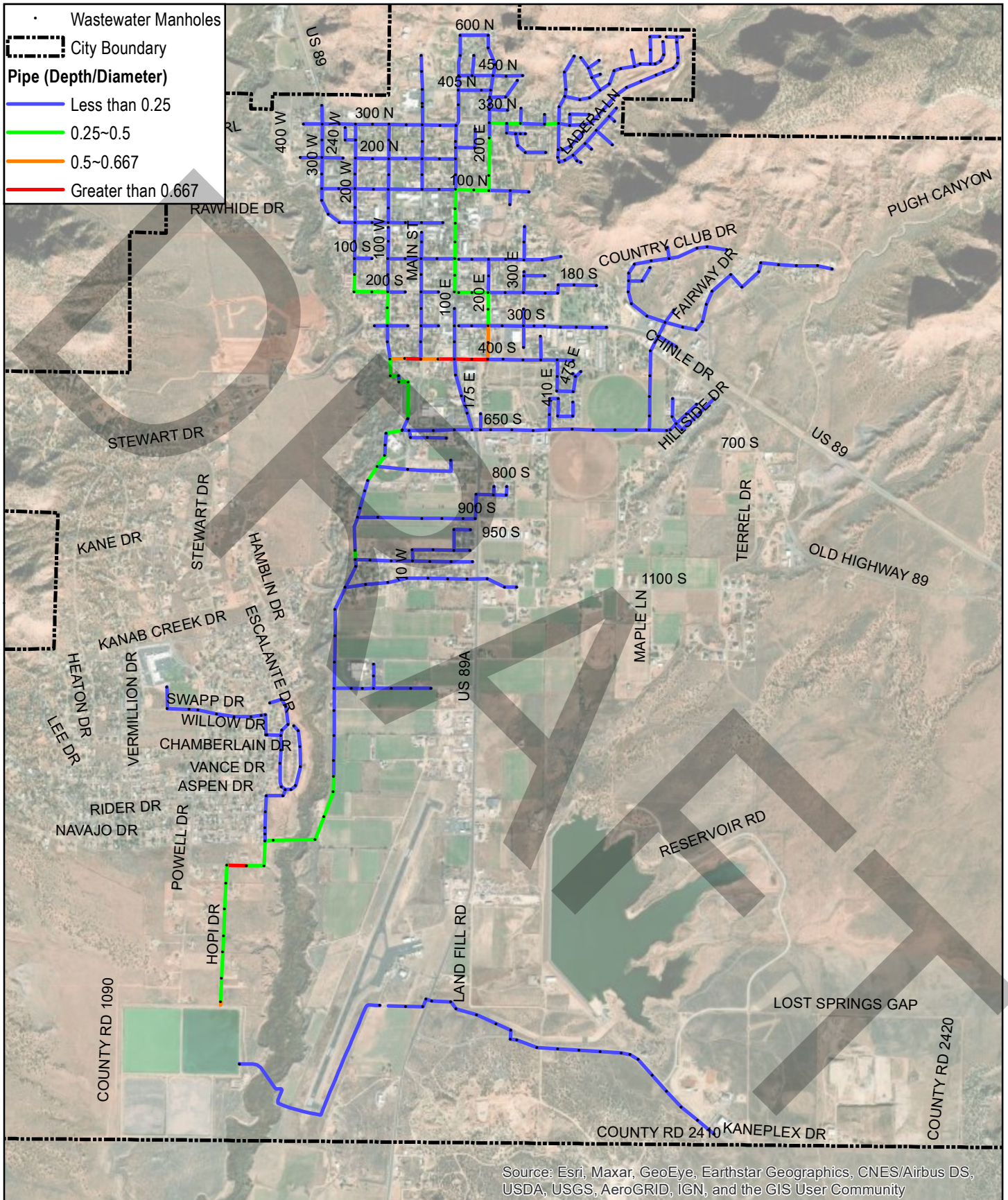
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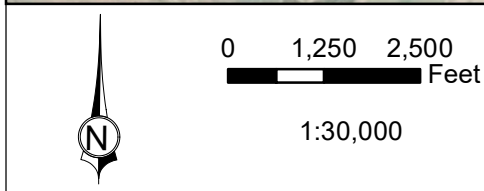
**KANAB CITY WASTEWATER
IFFPA UPDATE 2024**

Existing Facilities

Map 2



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



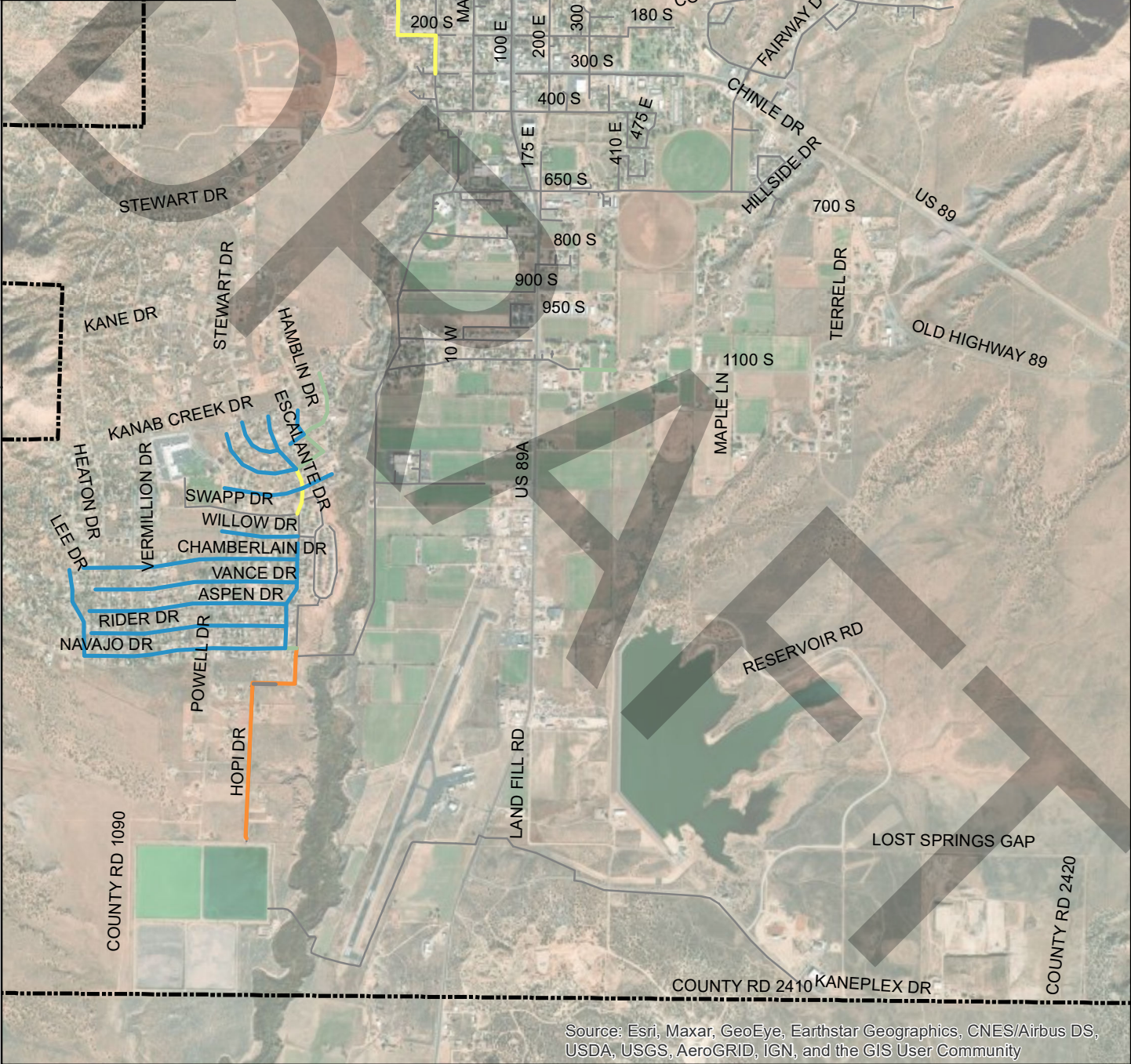
**KANAB CITY WASTEWATER
IFFPA UPDATE 2024**
Existing Conditions Analysis
Map 3

City Boundary

Existing Sewer Pipe

Recommended Pipes

- 6"
- 8"
- 10"
- 12"
- 15"
- 18"



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community







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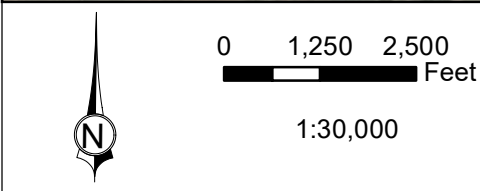
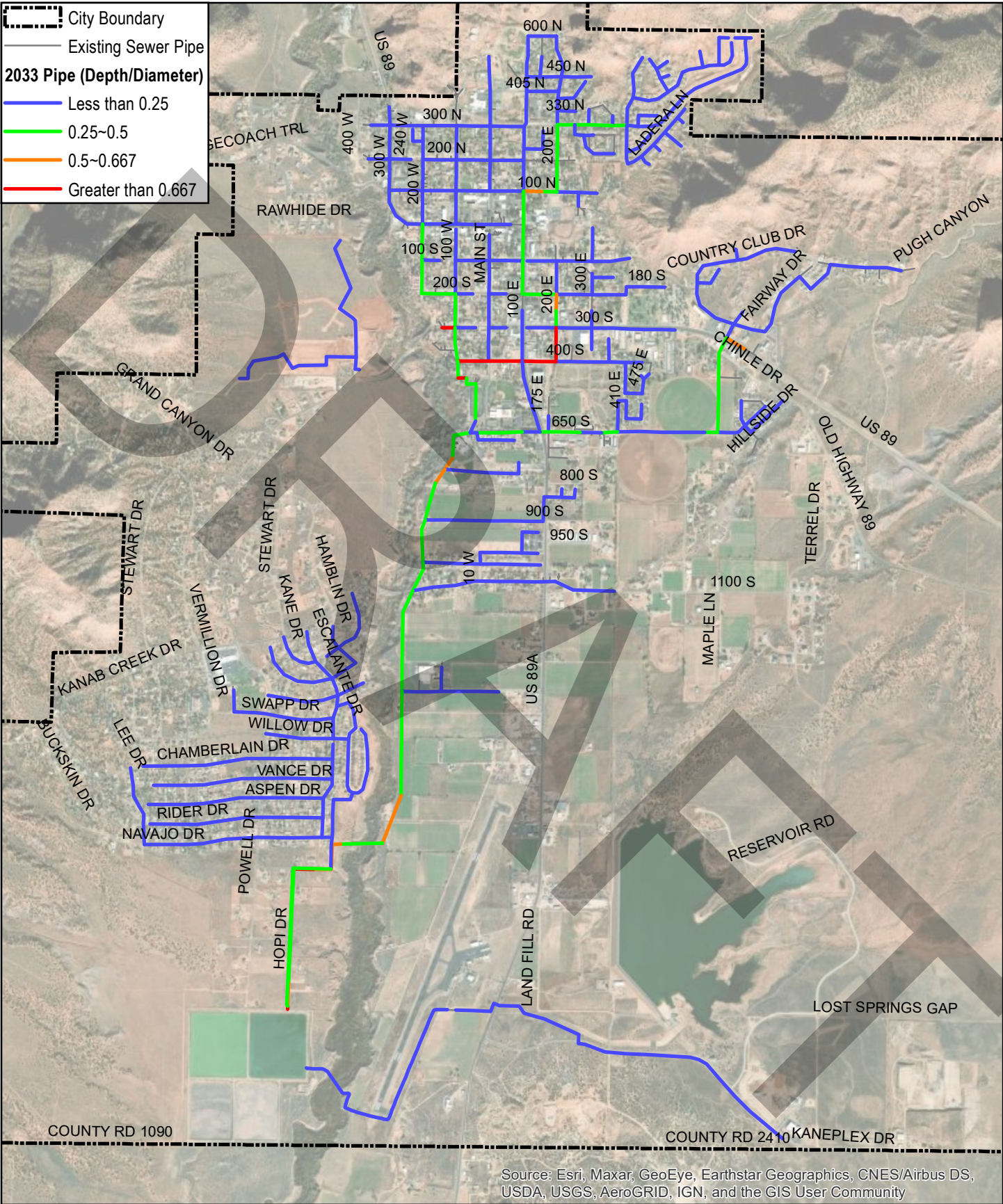
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**KANAB CITY WASTEWATER
IFFPA UPDATE 2024**

Proposed Improvements (2033)

Map 4

-  City Boundary
-  Existing Sewer Pipe
- 2033 Pipe (Depth/Diameter)**
-  Less than 0.25
-  0.25~0.5
-  0.5~0.667
-  Greater than 0.667



**KANAB CITY WASTEWATER
IFFPA UPDATE 2024**

Proposed Conditions Analysis (2033)

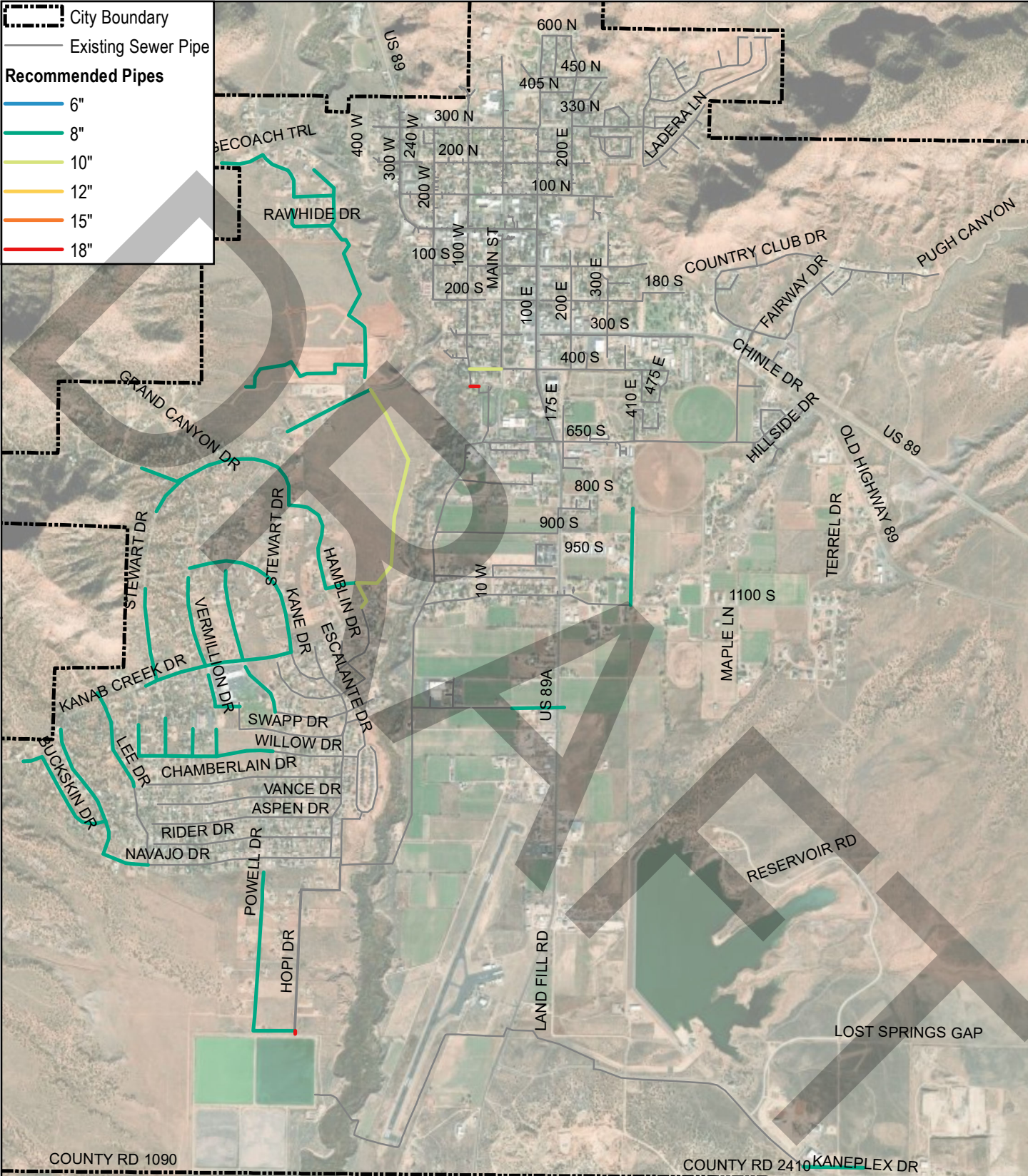
Map 5

City Boundary

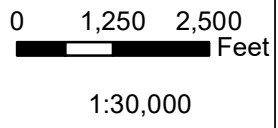
Existing Sewer Pipe

Recommended Pipes

- 6"
- 8"
- 10"
- 12"
- 15"
- 18"









Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

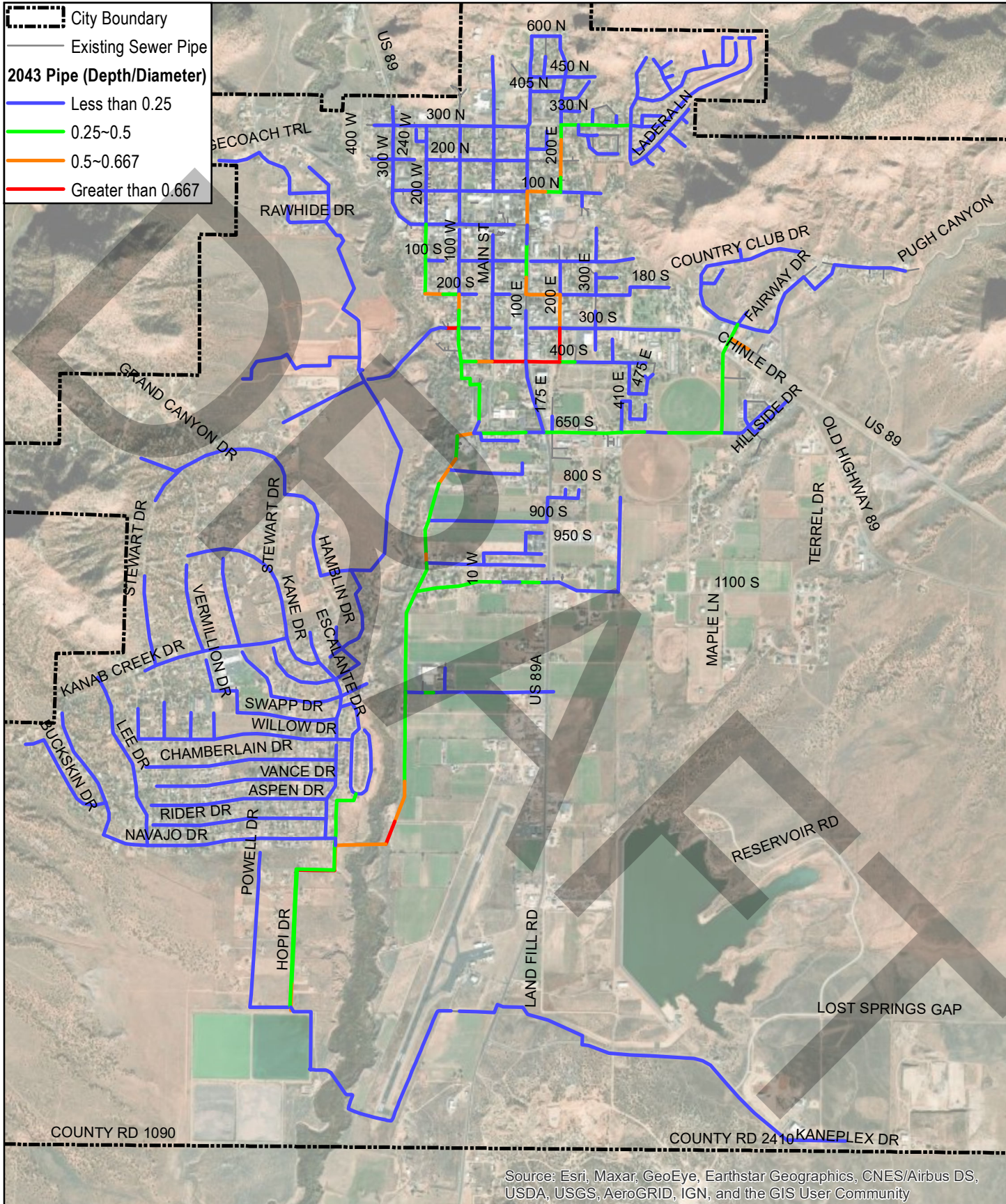


**KANAB CITY WASTEWATER
IFFPA UPDATE 2024**

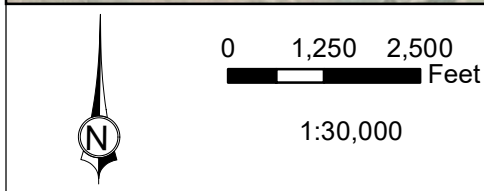
Proposed Conditions Analysis (2043)

Map 6

-  City Boundary
-  Existing Sewer Pipe
- 2043 Pipe (Depth/Diameter)**
-  Less than 0.25
-  0.25~0.5
-  0.5~0.667
-  Greater than 0.667






Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

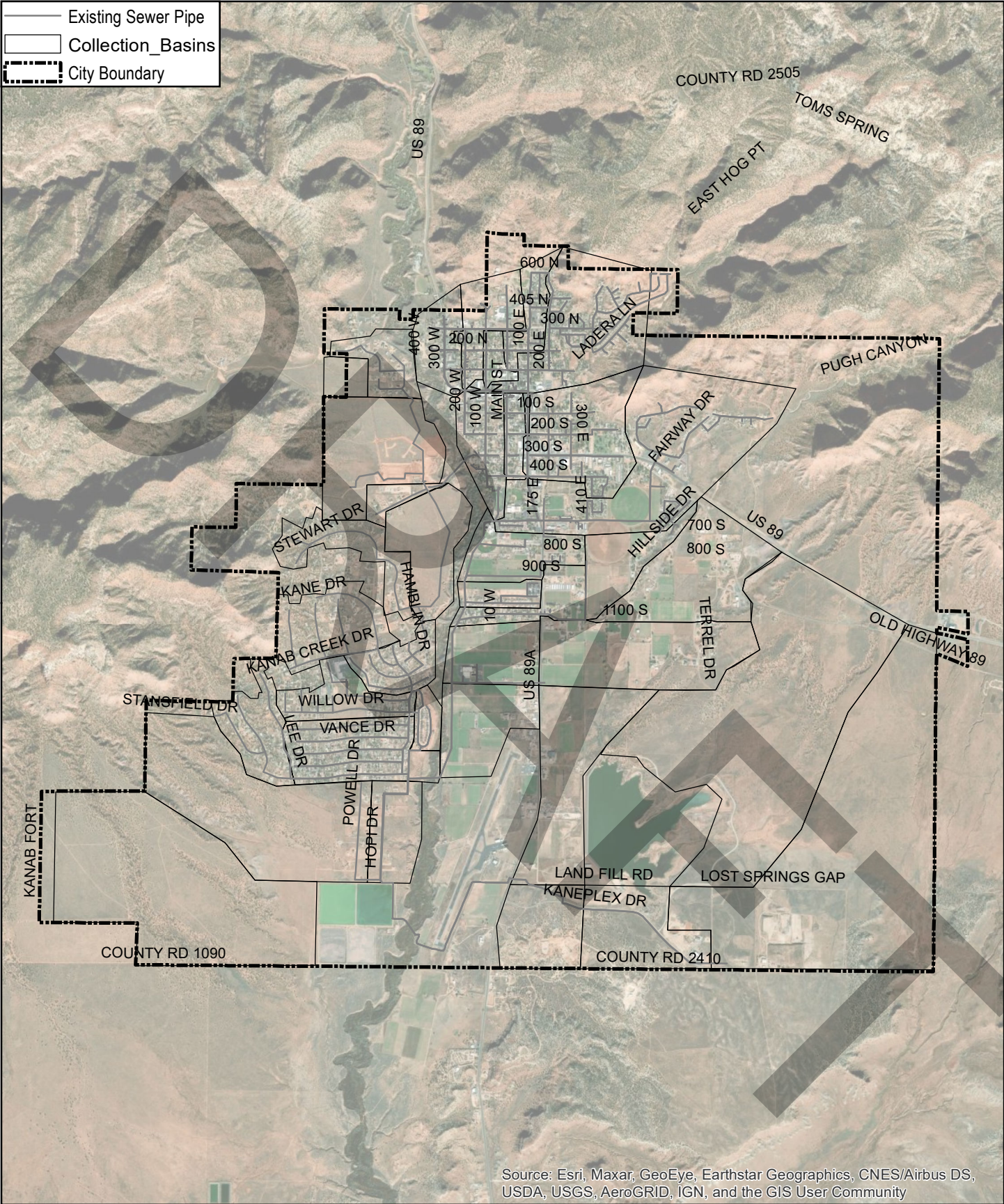


**KANAB CITY WASTEWATER
IFFPA UPDATE 2024**

Proposed Conditions Analysis (2043)

Map 7

-  Existing Sewer Pipe
-  Collection_Basins
-  City Boundary



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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KANAB CITY WASTEWATER
IFFPA UPDATE 2024
 Collection Basins
 Map 8

APPENDIX B

TABLES & FIGURES

DRAFT

Wastewater Demands Tables

Year	Serviced ERCs	Average Daily Flow [gpm]	Peak Daily Flow [gpm]	Peak Daily Flow [MGD]
2023	2,661	202.7	810.75	0.292
2033	4,513	343.7	1,375	0.495
2043	6,102	464.7	1,859	0.669

Wastewater Model Demands

Year	Total Demand [gpm]	Flow per Manhole [gpm]	Kanab West Demand [gpm]
2023	811	2.16	0.0
2033	1,375	3.61	184.9
2043	1,859	4.69	335.1

Wastewater Influent Meter Readings

Date	Meter Reading	Treated	X200	Pond level 1	Pond level 2	Pond Level 3	Pond Level 4
July-20	6956740	37760	7.552	67	46	20	0
August-20	6996000	39260	7.852	68	37	11	0
September-20	7035140	39140	7.828	72	26	3	0
October-20	7078940	43800	8.76	73	25	0	0
November-20	7113290	34350	6.87	72	32	0	0
December-21	7151580	38290	7.658	72	43	0	0
January-21	7222950	71370	14.274	72	47	0	0
February-21	7259010	36060	7.212	72	49	0	0
March-21	7297910	38900	7.78	73	55	0	0
April-21	7340360	42450	8.49	72	50	0	0
May-21	7378780	38420	7.684	72	49	0	0
June-21	7419920	41140	8.228	72	39	0	0
July-21	7458210	38290	7.658	72	38	0	0
August-21	7496980	38770	7.754	72	37	0	0
September-21	7534930	37950	7.59	72	31	0	0
October-21	7576050	41120	8.224	73	34	0	0
November-21	7612650	36600	7.32	73	44	0	0
December-22	7654930	42280	8.456	73	54	0	0
January-22	7689940	35010	7.002	73	62	0	0
February-22	7725520	35580	7.116	73	65	0	0
March-22	7764150	38630	7.726	73	69	0	0
April-22	7806150	42000	8.4	73	63	0	0
May-22	7846430	40280	8.056	73	47	0	0
June-22	7887460	41030	8.206	72	52	0	0
July-22	7929840	42380	8.476	73	45	0	0

August-22	7971730	41890	8.378	73	48	0	0
September-22	8009720	37990	7.598	73	49	0	0
October-22	8053230	43510	8.702	73	53	0	0
November-22	8091740	38510	7.702	73	60	0	0
December-23	8136320	44580	8.916	73	72	13	0
January-23	8173230	36910	7.382	73	73	13	0
February-23	8211580	38350	7.67	73	73	20	0
March-23	8251830	40250	8.05	73	73	38	0
April-23	8295440	43610	8.722	73	71	33	0
May-23	8338410	42970	8.594	73	68	23	0
June-23	8383640	45230	9.046	73	67	13	0
July-23	8424390	40750	8.15	73	60	0	0

South Lift Station Meter Readings

Date	Lift Station Meter	1,000 gallons
March-22	766722	
April-22	767377	655
May-22	767977	600
June-22	768554	577
July-22	769211	657
August-22	769863	652
September-22	770462	599
October-22	771094	632
November-22	771592	498
December-23	772131	539
January-23	772548	417
February-23	772995	447
March-23	773448	453
April-23	773931	483
May-23	774430	499
June-23	774937	507
July-23	775426	489

APPENDIX C

FINANCIAL ANALYSIS

DRAFT

OWNER Kanab City
PROJECT Lagoon Aeration



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 17,800.00	\$ 17,800.00
2	Project Record Documents	1%	LS	\$ 1,800.00	\$ 1,800.00
3	Traffic and Temporary Controls	4%	LS	\$ 7,100.00	\$ 7,100.00
4	Materials and Sampling	3%	LS	\$ 5,300.00	\$ 5,300.00
5	Construction Layout & Staking	2%	LS	\$ 3,600.00	\$ 3,600.00
Wastewater					
1	Lagoon Aeration	1	EA	\$ 178,332.29	\$ 178,332.29
Subtotal					\$ 213,932.29
				Professional Services & Incidentals 15%	\$ 32,100.00
				Contingency 25%	\$ 53,500.00
Subtotal					\$ 85,600.00
PROJECT TOTAL					\$ 299,532.29

Disclaimer:

This Engineer's Opinion of Cost (EOC) is made on the basis of Engineer's experience, qualifications, general familiarity with the construction industry and represents the Engineer's best judgement as an experienced and qualified professional . However, because Engineer has no control over the cost of labor, materials, equipment, or services furnished by others, or over contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from opinions of probable construction cost prepared by Engineer.

Notes:

- 1 - Quantities shown in the EOC are purely estimates based off a concept design. Quantities may be refined as design progresses.
- 2 - Unit costs are our best estimates based on similar projects. These costs are not guarantees. A number of factors may affect these costs when ultimately priced by a contractor.
- 3 - The EOC does not include fees that may be charged by the Owner such as impact fees, building permit fees, review fees, etc.
- 4 - LS = Lump Sum; EA = Each; SF = Square Feet; SY = Square Yard; AC = Acre; LF = Linear Feet; CY = Cubic Yard; TON = Ton; GAL = Gallon; DAY = Day; HR = Hour; EST = Estimate

OWNER Kanab City
PROJECT Sewer Rake



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 25,000.00	\$ 25,000.00	
2	Project Record Documents	1%	LS	\$ 2,500.00	\$ 2,500.00	
3	Traffic and Temporary Controls	4%	LS	\$ 10,000.00	\$ 10,000.00	
4	Materials and Sampling	3%	LS	\$ 7,500.00	\$ 7,500.00	
5	Construction Layout & Staking	2%	LS	\$ 5,000.00	\$ 5,000.00	
Wastewater						
1	Sewer Rake	1	EA	\$ 250,000.00	\$ 250,000.00	
Subtotal					\$ 300,000.00	
				Professional Services & Incidentals	15%	\$ 45,000.00
				Contingency	25%	\$ 75,000.00
Subtotal					\$ 120,000.00	
PROJECT TOTAL					\$ 420,000.00	

Disclaimer:

This Engineer's Opinion of Cost (EOC) is made on the basis of Engineer's experience, qualifications, general familiarity with the construction industry and represents the Engineer's best judgement as an experienced and qualified professional . However, because Engineer has no control over the cost of labor, materials, equipment, or services furnished by others, or over contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from opinions of probable construction cost prepared by Engineer.

Notes:

- 1 - Quantities shown in the EOC are purely estimates based off a concept design. Quantities may be refined as design progresses.
- 2 - Unit costs are our best estimates based on similar projects. These costs are not guarantees. A number of factors may affect these costs when ultimately priced by a contractor.
- 3 - The EOC does not include fees that may be charged by the Owner such as impact fees, building permit fees, review fees, etc.
- 4 - LS = Lump Sum; EA = Each; SF = Square Feet; SY = Square Yard; AC = Acre; LF = Linear Feet; CY = Cubic Yard; TON = Ton; GAL = Gallon; DAY = Day; HR = Hour; EST = Estimate

OWNER Kanab City
PROJECT Ranchos Parallel Outfall Pipe



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 82,400.00	\$ 82,400.00	
2	Project Record Documents	1%	LS	\$ 8,200.00	\$ 8,200.00	
3	Traffic and Temporary Controls	4%	LS	\$ 33,000.00	\$ 33,000.00	
4	Materials and Sampling	3%	LS	\$ 24,700.00	\$ 24,700.00	
5	Construction Layout & Staking	2%	LS	\$ 16,500.00	\$ 16,500.00	
Wastewater						
1	15" PVC Sewer	3880	EA	\$ 145.00	\$ 562,600.00	
2	Ultrasonic Sewer Meter	1	EA	\$ 50,000.00	\$ 50,000.00	
Transportation						
2	Pavement Asphalt T Patch	31040	SF	\$ 6.00	\$ 186,240.00	
Earthwork						
2	Restore Surface Improvements	1	LS	\$ 25,000.00	\$ 25,000.00	
Subtotal					\$ 988,640.00	
				Professional Services & Incidentals	15%	\$ 148,300.00
				Contingency	25%	\$ 247,200.00
Subtotal					\$ 395,460.00	
PROJECT TOTAL					\$ 1,384,100.00	

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**ALTERNATIVE 1, PHASE 1
ENGINEER'S OPINION OF COST**

This alternative features gravity sewer without any pressurized sewer mains. There are no sewer easements required for the scope of this alternative.

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	9%	LS	\$ 435,100.00	\$ 435,100.00
2	Traffic Control	1	LS	\$ 33,000.00	\$ 33,000.00
3	Temporary Controls & Permitting	1	LS	\$ 38,000.00	\$ 38,000.00
4	Selective Site Demolition	1	LS	\$ 42,000.00	\$ 42,000.00
5	Restore Surface Improvements	1	LS	\$ 9,000.00	\$ 9,000.00
6	4" PVC SDR35 Sewer Lateral	401	EA	\$ 1,100.00	\$ 441,100.00
7	8" PVC SDR35 Sewer Main	20,249	LF	\$ 90.00	\$ 1,822,410.00
8	10" PVC SDR35 Sewer Main	0	LF	\$ 110.00	\$ -
9	12" PVC SDR35 Sewer Main	0	LF	\$ 130.00	\$ -
10	15" PVC SDR35 Sewer Main	3,870	LF	\$ 160.00	\$ 619,200.00
11	48" Sewer Manhole w/ Concrete Collar	64	EA	\$ 6,500.00	\$ 416,000.00
12	60" Sewer Manhole w/ Concrete Collar	13	EA	\$ 7,500.00	\$ 97,500.00
13	Connect to Existing Manhole	1	EA	\$ 5,000.00	\$ 5,000.00
14	Pavement T-Patch with Base	241,190	SF	\$ 5.00	\$ 1,205,950.00
15	Sewer Rake	1	LS	\$ 250,000.00	\$ 250,000.00
16	Chemical Injection Treatment	1	LS	\$ 75,000.00	\$ 75,000.00
17	Lagoon Aeration	1	LS	\$ 250,000.00	\$ 250,000.00
	Subtotal				\$ 5,739,260.00
	Contingency			15%	\$ 860,900.00
	Construction Total				\$ 6,600,160.00
PROFESSIONAL SERVICES & INCIDENTALS					
1	Design Survey	1.0%	LS	\$ 66,100.00	\$ 66,100.00
2	Engineering Design	6.3%	LS	\$ 415,900.00	\$ 415,900.00
3	Right-of-Way & Easement Documents	0.5%	LS	\$ 33,100.00	\$ 33,100.00
4	Funding Administration	0.6%	HR	\$ 39,700.00	\$ 39,700.00
5	Bid Phase Services	0.2%	HR	\$ 13,300.00	\$ 13,300.00
6	Construction Phase Services	8.5%	HR	\$ 561,100.00	\$ 561,100.00
	Subtotal			17.1%	\$ 1,129,200.00
	PROJECT TOTAL				\$ 7,729,360.00

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OWNER Kanab City
PROJECT 200 W North



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 81,200.00	\$ 81,200.00
2	Project Record Documents	1%	LS	\$ 8,100.00	\$ 8,100.00
3	Traffic and Temporary Controls	4%	LS	\$ 32,500.00	\$ 32,500.00
4	Materials and Sampling	3%	LS	\$ 24,300.00	\$ 24,300.00
5	Construction Layout & Staking	2%	LS	\$ 16,200.00	\$ 16,200.00
Wastewater					
1	8" PVC Sewer	2870	LF	\$ 90.00	\$ 258,300.00
2	12" PVC Sewer	2507	LF	\$ 130.00	\$ 325,910.00
3	60" Sewer Manhole	14	EA	\$ 5,500.00	\$ 77,000.00
Transportation					
1	Pavement Asphalt T Patch	20056	SF	\$ 6.00	\$ 120,336.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 30,000.00	\$ 30,000.00
Subtotal					\$ 973,846.00
				Professional Services & Incidentals	15% \$ 146,100.00
				Contingency	25% \$ 243,500.00
Subtotal					\$ 389,600.00
PROJECT TOTAL					\$ 1,363,446.00

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**ALTERNATIVE 1, PHASE 2
ENGINEER'S OPINION OF COST**

This alternative features gravity sewer without any pressurized sewer mains. There are no sewer easements required for the scope of this alternative.

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	9%	LS	\$ 200,100.00	\$ 200,100.00
2	Traffic Control	1	LS	\$ 11,000.00	\$ 11,000.00
3	Temporary Controls & Permitting	1	LS	\$ 13,000.00	\$ 13,000.00
4	Selective Site Demolition	1	LS	\$ 22,000.00	\$ 22,000.00
5	Restore Surface Improvements	1	LS	\$ 4,000.00	\$ 4,000.00
6	4" PVC SDR35 Sewer Lateral	206	EA	\$ 1,100.00	\$ 226,600.00
7	8" PVC SDR35 Sewer Main	7,274	LF	\$ 90.00	\$ 654,660.00
8	10" PVC SDR35 Sewer Main	2,198	LF	\$ 110.00	\$ 241,780.00
9	12" PVC SDR35 Sewer Main	787	LF	\$ 130.00	\$ 102,310.00
10	15" PVC SDR35 Sewer Main	0	LF	\$ 160.00	\$ -
11	48" Sewer Manhole w/ Concrete Collar	23	EA	\$ 6,500.00	\$ 149,500.00
12	60" Sewer Manhole w/ Concrete Collar	29	EA	\$ 7,500.00	\$ 217,500.00
13	Connect to Existing Manhole	2	EA	\$ 5,000.00	\$ 10,000.00
14	Pavement T-Patch with Base	102,590	SF	\$ 5.00	\$ 512,950.00
	Subtotal				\$ 2,365,400.00
	Contingency	15%			\$ 354,900.00
	Construction Total				\$ 2,720,300.00
PROFESSIONAL SERVICES & INCIDENTALS					
1	Design Survey	1.0%	LS	\$ 27,300.00	\$ 27,300.00
2	Engineering Design	6.3%	LS	\$ 171,400.00	\$ 171,400.00
3	Right-of-Way & Easement Documents	0.5%	LS	\$ 13,700.00	\$ 13,700.00
4	Funding Administration	0.6%	HR	\$ 16,400.00	\$ 16,400.00
5	Bid Phase Services	0.2%	HR	\$ 5,500.00	\$ 5,500.00
6	Construction Phase Services	8.5%	HR	\$ 231,300.00	\$ 231,300.00
	Subtotal	17.1%			\$ 465,600.00
	PROJECT TOTAL				\$ 3,185,900.00

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OWNER Kanab City
PROJECT Ranchos Parallel Outfall Pipe



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 8,600.00	\$ 8,600.00
2	Project Record Documents	1%	LS	\$ 900.00	\$ 900.00
3	Traffic and Temporary Controls	4%	LS	\$ 3,400.00	\$ 3,400.00
4	Materials and Sampling	3%	LS	\$ 2,600.00	\$ 2,600.00
5	Construction Layout & Staking	2%	LS	\$ 1,700.00	\$ 1,700.00
Wastewater					
1	18" PVC Sewer	366	EA	\$ 160.00	\$ 58,560.00
Transportation					
1	Pavement Asphalt T Patch	2928	SF	\$ 6.00	\$ 17,568.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 10,000.00	\$ 10,000.00
Subtotal					\$ 103,328.00
				Professional Services & Incidentals	15% \$ 15,500.00
				Contingency	25% \$ 25,900.00
Subtotal					\$ 41,332.00
PROJECT TOTAL					\$ 144,660.00

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OWNER Kanab City
PROJECT 1100 S Sewer Line Extension



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 63,100.00	\$ 63,100.00	
2	Project Record Documents	1%	LS	\$ 6,300.00	\$ 6,300.00	
3	Traffic and Temporary Controls	4%	LS	\$ 25,300.00	\$ 25,300.00	
4	Materials and Sampling	3%	LS	\$ 18,900.00	\$ 18,900.00	
5	Construction Layout & Staking	2%	LS	\$ 12,600.00	\$ 12,600.00	
Wastewater						
1	10" PVC Sewer	3800	LF	\$ 110.00	\$ 418,000.00	
2	60" Sewer Manhole	2	EA	\$ 5,500.00	\$ 11,000.00	
Transportation						
1	Pavement Asphalt T Patch	30400	SF	\$ 6.00	\$ 182,400.00	
Earthwork						
1	Restore Surface Improvements	1	LS	\$ 20,000.00	\$ 20,000.00	
Subtotal					\$ 757,600.00	
				Professional Services & Incidentals	15%	\$ 113,700.00
				Contingency	25%	\$ 189,400.00
Subtotal					\$ 303,100.00	
PROJECT TOTAL					\$ 1,060,700.00	

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OWNER Kanab City
PROJECT South Force Main Extension



ENGINEER'S OPINION OF COST

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CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 12,300.00	\$ 12,300.00	
2	Project Record Documents	1%	LS	\$ 1,200.00	\$ 1,200.00	
3	Traffic and Temporary Controls	4%	LS	\$ 4,900.00	\$ 4,900.00	
4	Materials and Sampling	3%	LS	\$ 3,700.00	\$ 3,700.00	
5	Construction Layout & Staking	2%	LS	\$ 2,500.00	\$ 2,500.00	
Wastewater						
1	6" PVC Sewer	1070	LF	\$ 80.00	\$ 85,600.00	
2	2" Combination Air Vac	1	EA	\$ 12,000.00	\$ 12,000.00	
Earthwork						
1	Restore Surface Improvements	1	LS	\$ 25,000.00	\$ 25,000.00	
Subtotal					\$ 147,200.00	
				Professional Services & Incidentals	15%	\$ 22,100.00
				Contingency	25%	\$ 36,800.00
Subtotal					\$ 58,900.00	
PROJECT TOTAL					\$ 206,100.00	

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Cashflow - Kanab Wastewater Impact Fee Analysis

Proposed Impact Fee = \$ 3,065.84 Interest Rate

Title	2020	2021	2022	2023
Revenue				
Total ERCs	2,451	2,873	2,552	2,661
New ERCs	-	422	(321)	110
Average User Rate	\$ 9.26	\$ 9.26	\$ 17.76	\$ 17.76
Charges for Services	\$ 216,255	\$ 319,255	\$ 321,234	\$ 567,199
Connection Fees	\$ -	\$ -	\$ -	\$ -
Other Revenues	\$ 6,695	\$ 7,930	\$ 8,168	\$ 8,413
Impact Fees Collected*	\$ 12,763	\$ 68,075	\$ 60,815	\$ 337,242
Total Operating Revenue	\$ 235,713	\$ 327,185	\$ 329,401	\$ 575,611
Expenses				
Rent	\$ 1,792	\$ 477	\$ 11,155	\$ 4,609
Salaries & Wages	\$ 84,065	\$ 96,758	\$ 92,908	\$ 93,981
Employee Benefits	\$ 53,344	\$ 41,064	\$ 34,732	\$ 39,035
Office Expense	\$ 13,845	\$ 10,618	\$ 19,735	\$ 15,632
Insurance	\$ 5,112	\$ 5,001	\$ 8,068	\$ 6,242
Utilities	\$ 15,196	\$ 14,954	\$ 17,984	\$ 16,963
Travel & Training	\$ 457	\$ 800	\$ 851	\$ 850
System Repairs & Maintenance	\$ 47,257	\$ 70,304	\$ 62,197	\$ 61,717
Professional Services	\$ 10,084	\$ 5,433	\$ 3,357	\$ 6,480
Miscellaneous	\$ 2,645	\$ 2,370	\$ 6,111	\$ 3,820
Interest & Fiscal Charges	\$ 107	\$ 29,009	\$ 14,481	\$ 14,968
Liabilities	\$ 205,258	\$ 148,061	\$ 60,141	\$ 141,955
Total Operating Expenses	\$ 439,162	\$ 424,850	\$ 331,719	\$ 406,252
Accounts				
Net Cash	\$ (203,448)	\$ (97,665)	\$ (2,318)	\$ 169,359
Operating Account Balance	\$ 555,573	\$ 526,291	\$ 523,973	\$ 693,332
Impact Fee Balance	\$ 26,577	\$ 94,652	\$ 155,467	\$ 139,051
Project Costs				
Project Cost	\$ -	\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Project Name(s)				

is
3%

Title	2024	2025	2026	2027
Revenue				
Total ERCs	2,774	2,890	3,411	3,534
New ERCs	113	116	521	123
Average User Rate	\$ 17.76	\$ 25.84	\$ 25.84	\$ 25.84
Charges for Services	\$ 591,248	\$ 896,181	\$ 1,057,626	\$ 1,095,857
Connection Fees	\$ -	\$ -	\$ -	\$ -
Other Revenues	\$ 8,665	\$ 8,925	\$ 9,193	\$ 9,468
Impact Fees Collected*	\$ 346,440	\$ 355,637	\$ 1,597,303	\$ 377,098
Total Operating Revenue	\$ 599,913	\$ 905,106	\$ 1,066,819	\$ 1,105,325
Expenses				
Rent	\$ 4,747	\$ 4,890	\$ 5,036	\$ 5,187
Salaries & Wages	\$ 96,800	\$ 99,704	\$ 102,696	\$ 105,776
Employee Benefits	\$ 40,206	\$ 41,412	\$ 42,654	\$ 43,934
Office Expense	\$ 16,101	\$ 16,584	\$ 17,082	\$ 17,594
Insurance	\$ 6,430	\$ 6,623	\$ 6,821	\$ 7,026
Utilities	\$ 17,472	\$ 17,996	\$ 18,536	\$ 19,092
Travel & Training	\$ 875	\$ 902	\$ 929	\$ 957
System Repairs & Maintenance	\$ 63,568	\$ 65,475	\$ 67,440	\$ 69,463
Professional Services	\$ 6,674	\$ 6,874	\$ 7,081	\$ 7,293
Miscellaneous	\$ 3,934	\$ 4,052	\$ 4,174	\$ 4,299
Interest & Fiscal Charges	\$ 15,417	\$ 15,880	\$ 16,356	\$ 16,847
Liabilities	\$ 146,214	\$ 150,600	\$ 155,118	\$ 159,771
Total Operating Expenses	\$ 418,439	\$ 430,993	\$ 443,922	\$ 457,240
Accounts				
Net Cash	\$ 181,473	\$ 474,113	\$ 622,897	\$ 648,085
Operating Account Balance	\$ 874,806	\$ 1,348,919	\$ (4,331,632)	\$ (4,987,186)
Impact Fee Balance	\$ 485,491	\$ 100,010	\$ (152,745)	\$ 38,119
Project Costs				
Project Cost	\$ -	\$ 741,118	\$ 8,153,505	\$ 1,489,874
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ 6,303,447	\$ 1,303,640
Impact Fee Eligible Cost	\$ -	\$ 741,118	\$ 1,850,057	\$ 186,234
Project Name(s)		Lagoon Aeration, Sewer Rake	Ranchos Parallel Outfall Pipe, Kanab Ranchos Sewer Phase 1	N 200 W

Title	2028	2029	2030	2031
Revenue				
Total ERCs	3,661	3,792	3,927	4,272
New ERCs	127	131	135	345
Average User Rate	\$ 25.84	\$ 25.84	\$ 25.84	\$ 25.84
Charges for Services	\$ 1,135,234	\$ 1,175,793	\$ 1,217,569	\$ 1,324,467
Connection Fees	\$ -	\$ -	\$ -	\$ -
Other Revenues	\$ 9,753	\$ 10,045	\$ 10,346	\$ 10,657
Impact Fees Collected*	\$ 389,362	\$ 401,625	\$ 413,888	\$ 1,057,715
Total Operating Revenue	\$ 1,144,987	\$ 1,185,838	\$ 1,227,915	\$ 1,335,124
Expenses				
Rent	\$ 5,343	\$ 5,503	\$ 5,668	\$ 5,839
Salaries & Wages	\$ 108,950	\$ 112,218	\$ 115,585	\$ 119,052
Employee Benefits	\$ 45,252	\$ 46,609	\$ 48,008	\$ 49,448
Office Expense	\$ 18,122	\$ 18,666	\$ 19,226	\$ 19,802
Insurance	\$ 7,237	\$ 7,454	\$ 7,677	\$ 7,908
Utilities	\$ 19,665	\$ 20,255	\$ 20,863	\$ 21,488
Travel & Training	\$ 985	\$ 1,015	\$ 1,045	\$ 1,077
System Repairs & Maintenance	\$ 71,547	\$ 73,693	\$ 75,904	\$ 78,181
Professional Services	\$ 7,512	\$ 7,737	\$ 7,969	\$ 8,208
Miscellaneous	\$ 4,428	\$ 4,561	\$ 4,698	\$ 4,839
Interest & Fiscal Charges	\$ 17,352	\$ 17,873	\$ 18,409	\$ 18,961
Liabilities	\$ 164,565	\$ 169,502	\$ 174,587	\$ 179,824
Total Operating Expenses	\$ 470,957	\$ 485,086	\$ 499,639	\$ 514,628
Accounts				
Net Cash	\$ 674,030	\$ 700,752	\$ 728,276	\$ 820,496
Operating Account Balance	\$ (4,313,157)	\$ (3,612,404)	\$ (2,884,128)	\$ (4,998,405)
Impact Fee Balance	\$ 390,677	\$ 792,302	\$ 1,206,190	\$ 1,280,423
Project Costs				
Project Cost	\$ 36,804	\$ -	\$ -	\$ 3,918,255
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ 2,934,773
Impact Fee Eligible Cost	\$ 36,804	\$ -	\$ -	\$ 983,482
Project Name(s)	IFFPA 5yr			Kanab Ranchos Phase 2

Title	2032	2033	2034	2035
Revenue				
Total ERCs	4,415	4,513	4,613	4,715
New ERCs	143	98	100	102
Average User Rate	\$ 25.84	\$ 25.84	\$ 25.84	\$ 25.84
Charges for Services	\$ 1,368,786	\$ 1,399,219	\$ 1,430,261	\$ 1,461,923
Connection Fees	\$ -	\$ -	\$ -	\$ -
Other Revenues	\$ 10,977	\$ 11,306	\$ 11,645	\$ 11,994
Impact Fees Collected*	\$ 438,415	\$ 300,452	\$ 306,584	\$ 312,716
Total Operating Revenue	\$ 1,379,763	\$ 1,410,525	\$ 1,441,906	\$ 1,473,917
Expenses				
Rent	\$ 6,014	\$ 6,194	\$ 6,380	\$ 6,571
Salaries & Wages	\$ 122,624	\$ 126,303	\$ 130,092	\$ 133,994
Employee Benefits	\$ 50,931	\$ 52,459	\$ 54,033	\$ 55,654
Office Expense	\$ 20,396	\$ 21,008	\$ 21,639	\$ 22,288
Insurance	\$ 8,145	\$ 8,389	\$ 8,641	\$ 8,900
Utilities	\$ 22,133	\$ 22,797	\$ 23,481	\$ 24,185
Travel & Training	\$ 1,109	\$ 1,142	\$ 1,176	\$ 1,212
System Repairs & Maintenance	\$ 80,526	\$ 82,942	\$ 85,430	\$ 87,993
Professional Services	\$ 8,455	\$ 8,708	\$ 8,970	\$ 9,239
Miscellaneous	\$ 4,984	\$ 5,134	\$ 5,288	\$ 5,446
Interest & Fiscal Charges	\$ 19,530	\$ 20,116	\$ 20,720	\$ 21,341
Liabilities	\$ 185,219	\$ 190,775	\$ 196,499	\$ 202,394
Total Operating Expenses	\$ 530,067	\$ 545,969	\$ 562,348	\$ 579,218
Accounts				
Net Cash	\$ 849,696	\$ 864,556	\$ 879,558	\$ 894,699
Operating Account Balance	\$ (4,148,709)	\$ (3,284,152)	\$ (2,404,594)	\$ (1,509,895)
Impact Fee Balance	\$ 1,535,587	\$ 140,487	\$ 447,071	\$ 759,786
Project Costs				
Project Cost	\$ 183,251	\$ 1,695,553	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ 183,251	\$ 1,695,553	\$ -	\$ -
Project Name(s)	Lagoon Outfall 1100 S Sewer Pipe Expansion Line Extension, South Force Main, IFFPA 10yr			

Title	2036	2037	2038	2039
Revenue				
Total ERCs	4,819	4,926	5,034	5,144
New ERCs	104	106	108	111
Average User Rate	\$ 25.84	\$ 25.84	\$ 25.84	\$ 25.84
Charges for Services	\$ 1,494,218	\$ 1,527,160	\$ 1,560,760	\$ 1,595,032
Connection Fees	\$ -	\$ -	\$ -	\$ -
Other Revenues	\$ 12,354	\$ 12,725	\$ 13,107	\$ 13,500
Impact Fees Collected*	\$ 318,847	\$ 324,979	\$ 331,111	\$ 340,308
Total Operating Revenue	\$ 1,506,573	\$ 1,539,885	\$ 1,573,867	\$ 1,608,532
Expenses				
Rent	\$ 6,768	\$ 6,971	\$ 7,181	\$ 7,396
Salaries & Wages	\$ 138,014	\$ 142,155	\$ 146,419	\$ 150,812
Employee Benefits	\$ 57,324	\$ 59,043	\$ 60,815	\$ 62,639
Office Expense	\$ 22,956	\$ 23,645	\$ 24,354	\$ 25,085
Insurance	\$ 9,167	\$ 9,442	\$ 9,725	\$ 10,017
Utilities	\$ 24,911	\$ 25,658	\$ 26,428	\$ 27,221
Travel & Training	\$ 1,248	\$ 1,285	\$ 1,324	\$ 1,364
System Repairs & Maintenance	\$ 90,633	\$ 93,352	\$ 96,153	\$ 99,037
Professional Services	\$ 9,516	\$ 9,801	\$ 10,095	\$ 10,398
Miscellaneous	\$ 5,610	\$ 5,778	\$ 5,951	\$ 6,130
Interest & Fiscal Charges	\$ 21,982	\$ 22,641	\$ 23,320	\$ 24,020
Liabilities	\$ 208,466	\$ 214,719	\$ 221,161	\$ 227,796
Total Operating Expenses	\$ 596,595	\$ 614,492	\$ 632,927	\$ 651,915
Accounts				
Net Cash	\$ 909,978	\$ 925,392	\$ 940,939	\$ 956,617
Operating Account Balance	\$ (599,917)	\$ 325,475	\$ 1,266,414	\$ 2,223,032
Impact Fee Balance	\$ 1,078,634	\$ 1,403,613	\$ 1,734,723	\$ 2,075,032
Project Costs				
Project Cost	\$ -	\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Project Name(s)				

Title	2040	2041	2042	2043
Revenue				
Total ERCs	5,257	5,372	5,490	5,609
New ERCs	113	115	117	120
Average User Rate	\$ 25.84	\$ 25.84	\$ 25.84	\$ 25.84
Charges for Services	\$ 1,629,990	\$ 1,665,647	\$ 1,702,017	\$ 1,739,114
Connection Fees	\$ -	\$ -	\$ -	\$ -
Other Revenues	\$ 13,905	\$ 14,322	\$ 14,752	\$ 15,194
Impact Fees Collected*	\$ 346,440	\$ 352,572	\$ 358,703	\$ 367,901
Total Operating Revenue	\$ 1,643,895	\$ 1,679,969	\$ 1,716,768	\$ 1,754,308
Expenses				
Rent	\$ 7,618	\$ 7,846	\$ 8,082	\$ 8,324
Salaries & Wages	\$ 155,336	\$ 159,996	\$ 164,796	\$ 169,740
Employee Benefits	\$ 64,518	\$ 66,454	\$ 68,447	\$ 70,501
Office Expense	\$ 25,838	\$ 26,613	\$ 27,411	\$ 28,234
Insurance	\$ 10,318	\$ 10,627	\$ 10,946	\$ 11,275
Utilities	\$ 28,038	\$ 28,879	\$ 29,745	\$ 30,637
Travel & Training	\$ 1,405	\$ 1,447	\$ 1,490	\$ 1,535
System Repairs & Maintenance	\$ 102,008	\$ 105,069	\$ 108,221	\$ 111,467
Professional Services	\$ 10,710	\$ 11,031	\$ 11,362	\$ 11,703
Miscellaneous	\$ 6,314	\$ 6,503	\$ 6,698	\$ 6,899
Interest & Fiscal Charges	\$ 24,740	\$ 25,483	\$ 26,247	\$ 27,035
Liabilities	\$ 234,630	\$ 241,669	\$ 248,919	\$ 256,386
Total Operating Expenses	\$ 671,472	\$ 691,617	\$ 712,365	\$ 733,736
Accounts				
Net Cash	\$ 972,422	\$ 988,352	\$ 1,004,403	\$ 1,020,572
Operating Account Balance	\$ 3,195,454	\$ 4,183,806	\$ 5,188,209	\$ 6,208,782
Impact Fee Balance	\$ 2,421,472	\$ 2,774,043	\$ 3,132,746	\$ 3,500,647
Project Costs				
Project Cost	\$ -	\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Project Name(s)				

APPENDIX D

IMPACT FEE CERTIFICATION

DRAFT

Certification of Impact Fee Analysis

In accordance with Utah Code Title 11-36a-306 Kelvin C. Smith, P.E., on behalf of Civil Science, Inc., make the following certification:

I certify that the attached impact fee facilities plan and impact fee analysis:

1. includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; or
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement;
3. offsets costs with grants or other alternate sources of payment; and
4. complies in each and every relevant respect with the Impact Fees Act.

This Certification is made with the following assumptions:

1. All data provided to Civil Science, Inc. is assumed to be correct, complete, and accurate.
2. Any changes to the impact fee facilities plan and impact fee analysis after the issuance of this certification will void same certification.
3. Recommendations will be followed in their entirety by Kanab City and City officials.
4. The undersigned is trained and licensed as a professional engineer and has not been trained or licensed as a lawyer. Nothing in the foregoing certification shall be deemed an opinion of law or an

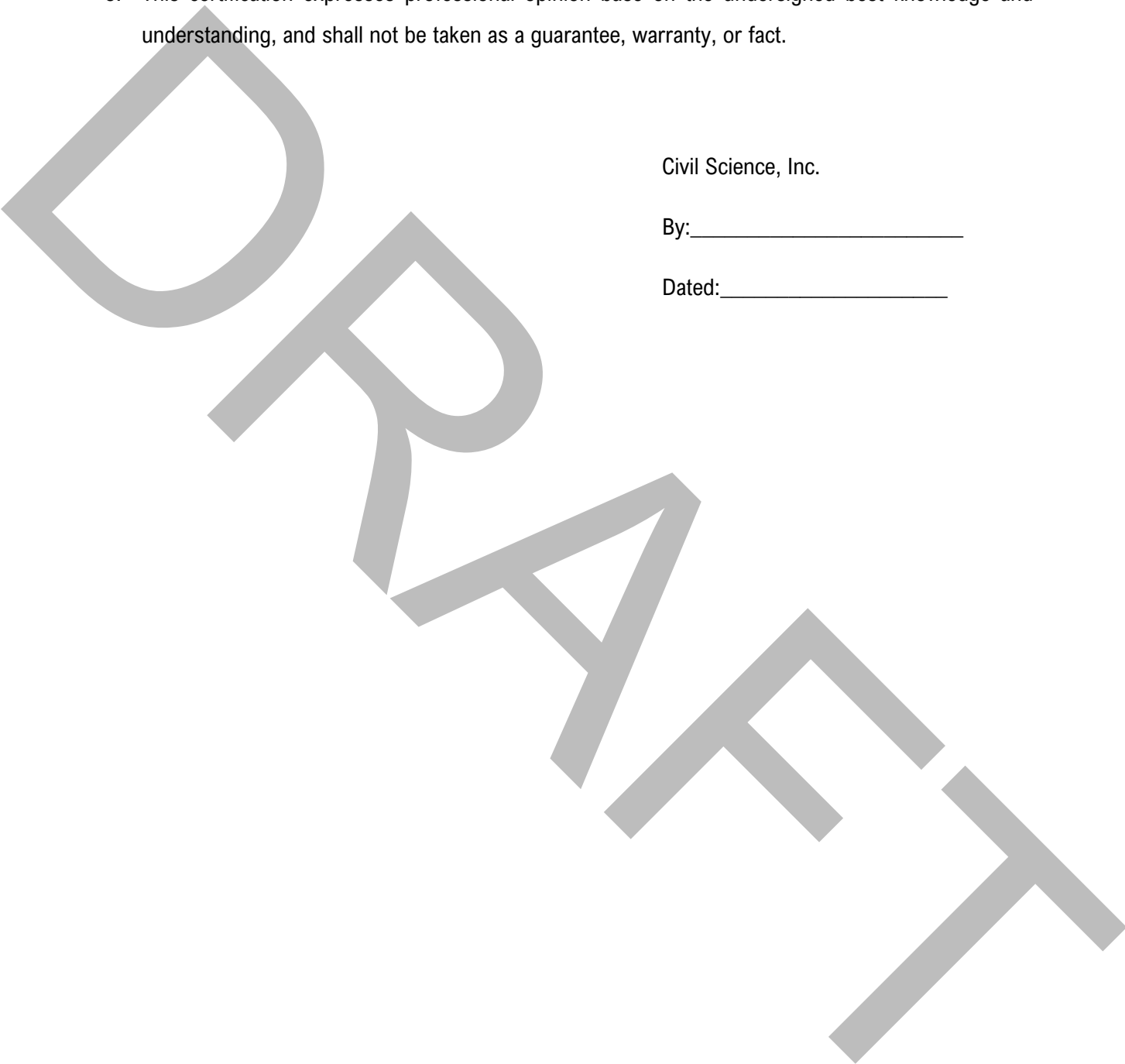
opinion of compliance with law which under applicable professional licensing laws or regulations or other laws or regulations must be rendered by a lawyer licensed in the State of Utah.

5. This certification expresses professional opinion base on the undersigned best knowledge and understanding, and shall not be taken as a guarantee, warranty, or fact.

Civil Science, Inc.

By: _____

Dated: _____



CITY OF KANAB

STORMWATER IMPACT FEE FACILITIES PLAN

2024



KANAB
— UTAH —



PREPARED BY



City Council

Arlon Chamberlain
Scott Colson
Chris Heaton
Boyd Corry
Peter Banks

Mayor: Colten Johnson

City Manager: Kyler Ludwig

Public Works Director: Jake Dutton

Treasurer: Danielle Ramsay

Kelvin C. Smith, P.E.
Project Engineer

Ryker Jensen
Project Analyst

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1. EXECUTIVE SUMMARY

1.1 Introduction

The primary objective of this study is to establish plans to guide the development of future stormwater system improvements through modeling the system existing conditions, creating a 10-year action plan, and a longer term 20-year action plan. The outcome of the study will be recommended improvements, estimated project costs, a maximum allowable impact fee, an impact fee schedule, recommended user rate schedule, and projected cash flow for Kanab's stormwater utility.

1.2 User Analysis

Table 1 shows historic annual growth rates of 0.6%-5.4%, with an average of 3%. Projected annual growth rates for this study are shown in Table 3 as 3% for 10 years (2023-2032) then 2% for the next 10 years (2033-2043). For this study, it is assumed that residential and commercial (or non-residential) growth will occur at the same rate.

- 2023 population – 5,285
- 2033 estimated population – 7,034
- 2043 estimated population – 8,574

1.3 Existing Facilities Inventory

Kanab City currently maintains a gravity stormwater system that has approximately 9.7 miles of pipes, numerous inlets, five detention basins, and several open channels. Stormwater is generally conveyed to Kanab Creek, which bisects the City into east and west sections. Because of low infiltration, steep slopes, and concentrated microburst rain events, Kanab has experienced some serious stormwater runoff events. The City has taken major steps to combat the possible flooding from these storm events including constructing large detention basins, intense maintenance of detention basins and storm drain network facilities, and preservation of natural channels.

1.4 System Analysis

Civil Science spot checked field data for the stormwater system to provide the required data for the system model. This data collection represents a significant investment for the previous plan. Watershed basins were delineated by hand, run through a computer algorithm, and then the data was combined to create a watershed map of the City. Certain attributes of each watershed were calculated and imported into InfoSWMM, the computer modeling software used for this plan. Storm drain network data such as flow elevation, pipe size, and inlet locations were also imported into the model.

Rainfall data was collected from the NOAA Atlas database and combined with rainfall distribution created runoff hydrographs that were created showing the demands for the stormwater infrastructure in the model.

1.5 Summary of Recommended Improvements

The table below shows recommended projects and the projected year they are to be completed.

Project Name	Projected Year
Country Club Protection Channel	2025
Escalante Dr Pipe Reroute	2026
Savage Point Extension and Improvements	2026
EA Pugh Canyon	2027
EA Tom's Canyon Outfall Extension	2027
Kanab Creek Detention Basin Outfall Extension	2028
US-89A Culvert at Airport Road	2028
IFFPA 5 Yr	2028
S Hamblin Roadside Ditch	2029
EA Ranchos West	2030
McAllister Dr Ditch	2032
900 S Extention	2033
Escalante Dr North Ditch	2033
Escalante Dr South Ditch	2033
Kanab Creek Dr	2033
Powell Stewart Connection Update	2033
S Powell Dr Extension	2033
W Vance Dr Road	2033
IFFPA 10 Yr	2033

1.6 Financial Viability

Kanab currently charges a residential user fee for the storm water utility of \$16.13 and a previous maximum allowable impact fee of \$6,169.11 per ERC. City staff directed Civil Science to calculate the new impact fee based developable acres, with the intention that this impact fee is more equitable between different development types. A map showing the probable 10-year developable acreage is provided in Appendix A. The new maximum allowable impact fee is calculated to be \$3,445.65 per acre.

The cash flow in Appendix C illustrates that if these rates and fees are established as presented, all recommended improvements can be constructed if financing is available and paid for with user rates.

2. INTRODUCTION

2.1 Purpose and Scope

The primary objective of this study is to establish updated plans to guide the development of future stormwater system improvements. This study includes an existing condition plan, a 10-year action plan, as well as a longer term 20-year action plan. The analysis supporting these action plans shows the state of the system as it is now (existing capacity), and how much growth can be allowed while still meeting City standards, and still providing an adequate level of service to existing customers. It also evaluates future development projects for financial viability.

Kanab City operates on the premise that it seeks to sustainably provide stormwater collection and conveyance for residents and enterprises within its service area in the near term and through build-out. The study area incorporates updated zoning conditions consistent with recent City planning. Stormwater runoff from basins north of the City boundary were not considered within the scope of this plan. Given the purpose and need described above, the following are key elements completed in the scope of work for this project:

- Perform a user analysis, establish an anticipated growth rate within the City's service area boundary, identify focused or pending development areas, establish population projections based on anticipated growth rate, and review and determine existing and future demographics of the City.
- Conduct a public open house/town hall meeting, provide technical documents as required and present draft impact fee facilities plans to the City Council.
- Update the system inventory to establish what the City has:
 - Gather and analyze existing stormwater flow data and project future flows. Use Kanab Creek Water EA analysis as necessary for modeling input data and calibration.
 - Gather stormwater system mapping data and verify system attributes (locations, sizes, materials, etc.)
 - Field verify new critical elements of the stormwater system (locations, elevations, etc.)
- Update modeling scenarios based on hydrologic and hydraulic demands to establish what the City needs:
 - Update defined stormwater flow basins and sub-basins.
 - Hydrological & Hydraulic model - Operate the model based on publicly available precipitation data, and quantify existing and post-development flow rates for planning horizon for each basin.
 - Operate model under existing and 10-year development conditions and 20-year development conditions.
 - Consider routing of flows from major stormwater basins.
- Perform a system analysis to determine how to get what the City needs:
 - Complete analysis following generally accepted engineering practices.
 - Complete the analysis under existing, 10-year, and 20-year development conditions.
 - Evaluate existing, 10-year, and 20-year conditions and make improvement recommendations.
 - Evaluate the existing and future hydraulic capacity of the stormwater conveyance facilities and make improvement recommendations.
 - Develop infrastructure plan for recommendations to the existing system, 10-year major conveyance facilities, and 20-year major conveyance facilities.
 - Ensure that recommendations for the future system integrate well with the existing system.
- Perform a system financial analysis to calculate the cost of improvements:
 - Prepare project descriptions and opinions of probable cost for recommended improvements.

- Prepare an impact fee facilities plan for the 10-year planning horizon with considerations for the 20-year planning horizon.
- Identify facilities eligible to be funded with impact fees (full or partial).
- Perform a financial viability analysis of the operations and management of the system based upon recent audits.
- Prepare a user rate analysis using recent audit costs for the operations and management of the water utility.
- Prepare an impact fee analysis, calculate the maximum allowable impact fee, and issue an impact fee certification.
- Prepare a written IFFPA with results, summaries, and relevant appendix materials:
 - Prepare a stormwater system impact fee facilities plan draft for City Staff, Department Heads, and the City Council.
 - Publish a final written stormwater system impact fee facilities plan & analysis for the community.

2.2 Background Information

Kanab is the commercial center of a large farming, ranching and recreational area located in south central Utah. The City is the County seat of Kane County and has a long history as a film making and tourism hub. Nearby tourism destinations include multiple national parks and recreational areas such as Lake Powell. Kanab is located 7 miles north of the Arizona border on US 89A. For many years the community was one of the most isolated in the nation, being cut off from the east by the Colorado River. Today it is a tourist town inviting tens of thousands of visitors annually to enjoy the beauty of the area as well as its rich history.

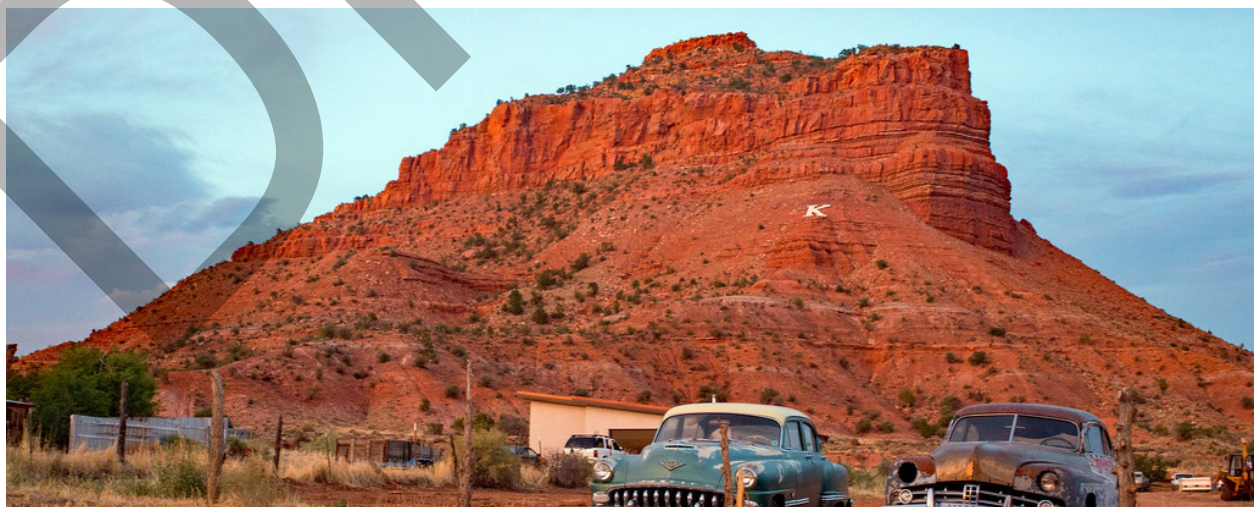
During the past several years, the City has completed multiple projects as recommended in the 2018 IFFPA, helping to fulfill the City's goals in stormwater protection and conveyance. These projects include Tom's Canyon Basin Outlet Improvements, Cedar Heights Outfall Improvements, Hamblin Dr Improvements, and others.

The time has come for an updated IFFPA with a strong focus on routing runoff safely through the City. This update will include the continued growth seen by the community these past 5 years, as well as a study of future developments and issues that may arise therein.

Governing documents/codes for this study include the existing Kanab City General Plan, Kanab City Construction and Design Standards, as well as all current zoning and development criteria.

2.3 Miscellaneous Resources

Resources used include previous construction documents, Kanab City Staff, federal and state census information, Kanab City Standards, the Impact Fees Act established under Utah State Code, and Kanab City Financial Statements.



3. USER ANALYSIS

3.1 Planning Horizon

This analysis reflects three distinct planning horizons: existing conditions, 10 years, and 20 years. The existing conditions scenario evaluates the current state of the system based on the current number of residential, commercial, industrial, and institutional connections. Moving forward in this report commercial, industrial, and institutional connections will be referred to in aggregate as non-residential connections. The 10-year and 20-year planning horizons will project the future growth of Kanab City, as well as evaluate the system for potential deficiencies. Plans will be laid out to allow the system to compensate for those deficiencies.

3.2 Historic Growth Rates

To properly analyze the 10-year and 20-year planning horizons, projections must be made regarding population. To estimate future growth rates, historical growth rates are examined. Table 1 analyzes past census data provided for The City. It shows the historic 10-, 20-, 30-, and 40-year average annual growth rates.

From this table we see that annual growth rates since 1980 have fluctuated from 0.6%-5.4%. The average annual growth rate over that time sits at 3.0%. It is worth noting that the 40-year average is up slightly, from 2.9% to 3.0%, since the last iteration of this report. This shows that while the growth rate was down in the 2010's, it has been on the rise in the few years since then.

Description	Year Period	Population	Growth
10-year Historic	1980	2148	-
10-year Historic	1990	3318	5.4%
10-year Historic	2000	3510	0.6%
10-year Historic	2010	4312	2.3%
10-year Historic	2020	4683	0.9%
20-year Historic	1980-2000	-	3.2%
20-year Historic	1990-2010	-	1.5%
20-year Historic	2000-2020	-	1.7%
30-year Historic	1980-2010	-	3.4%
30-year Historic	1990-2020	-	1.4%
40-year Historic	1980-2020	-	3.0%

Table 1: Historic Population & Growth Rates

3.3 Projected Growth Rates

The historical growth rates shown in the previous section allow for the forward projection of population growth. Based on analysis of years past, it is projected that Kanab City will continue to grow at a rate of 2-3% over the next 20 years. For that reason, a 3% growth rate is used to show growth over the next 10 years (2024-2033) and a 2% growth rate for the 10 years after that (2034-2043). A variety of factors affect growth rate, many of which will change with time. Any projection past 20 years would prove unreliable at best.

3.4 Equivalent Residential Connection

Calculating an Equivalent Residential Connection (ERC) provides a way to compare residential to non-residential connections. This means that a residential connection equals 1 ERC. If non-residential connections on average use 5 times more water than residential connections, then each non-residential connection equals 5 ERC's. Non-residential connections generally use more water than residential connections. Establishing an ERC value for commercial connections allows water usage to be evaluated fairly. Table 2 shows an ERC value of 4.8 for non-residential connections in Kanab. Annual population, ERC, and growth rate projections for the 20-year planning horizon are available in Table 3.

Connection Type	ERC (2022)
Residential	1.0
Non-Residential	4.8

Table 2: ERC Values

Year	Source	Population	ERCs	Growth
2015	Census Estimate	4,410	3,152	0.0%
2016	Census Estimate	4,436	3,502	1.4%
2017	Census Estimate	4,448	3,024	1.6%
2018	Census Estimate	4,529	3,204	3.3%
2019	Census Estimate	4,636	3,279	6.4%
2020	Census	4,683	3,551	4.9%
2021	Census Estimate	5,000	3,973	1.7%
2022	Census Estimate	5,131	3,652	2.7%
2023	Estimate	5,285	3,761	3.0%
2024	Estimate	5,443	3,874	3.0%
2025	Estimate	5,607	3,990	3.0%
2026	Estimate	5,775	4,110	3.0%
2027	Estimate	5,948	4,233	3.0%
2028	Estimate	6,127	4,360	3.0%
2029	Estimate	6,310	4,491	3.0%
2030	Estimate	6,500	4,626	3.0%
2031	Estimate	6,695	4,765	3.0%
2032	Estimate	6,896	4,908	3.0%
2033	Estimate	7,034	5,006	2.0%
2034	Estimate	7,174	5,106	2.0%
2035	Estimate	7,318	5,208	2.0%
2036	Estimate	7,464	5,312	2.0%
2037	Estimate	7,613	5,419	2.0%
2038	Estimate	7,766	5,527	2.0%
2039	Estimate	7,921	5,637	2.0%
2040	Estimate	8,079	5,750	2.0%
2041	Estimate	8,241	5,865	2.0%
2042	Estimate	8,406	5,983	2.0%
2043	Estimate	8,574	6,102	2.0%

Table 3: Growth Projections

4. HYDROLOGIC ANALYSIS

4.1 Basin Delineation & Flow Patterns

A drainage basin is a portion of a greater watershed area that has specific, well-defined boundaries and produces runoff at a downstream point location. A subbasin is an area within a drainage basin that is characterized by similar drainage features and homogeneous land use. Dividing larger watershed areas into individual drainage basins and subbasins allows more detailed and accurate analyses of the individual areas. These individual analyses are then combined to generate data for the large basins and the watershed.

Basins contributing runoff through and within the service area were identified along with the flow paths these basins use to discharge stormwater runoff. These defined flow paths allow for conveyance facilities to be near each basin to properly detain, route, and convey runoff downstream. In several cases, existing natural flow path drainages are incorporated into the future drainage system infrastructure. Subbasin delineation maps with the FEMA flood plain are presented in Appendix A.

4.2 Soil Type

The soil type within a watershed area has a significant impact on how much excess stormwater is available for runoff because the soil type determines the precipitation infiltration rate. This infiltration rate is defined as the rate at which water moves from the ground surface into subsurface soil layers. If the infiltration rate is very high, stormwater runoff generated by precipitation events is lower because a greater volume of moisture is absorbed by the soil. Conversely, if the infiltration rate is low, higher volumes of runoff are generated because minimal absorption occurs in the subsurface soil layers. The Soil Conservation Service (SCS) has studied soil types throughout the United States and has grouped soils according to their type and infiltration rates. These groups are described below:

- Group A: Soils have a high infiltration rate. They are chiefly deep, well drained sands or gravel, deep loess, or aggregated silts. They have low runoff potential.
- Group B: Soils have a moderate infiltration rate when thoroughly wet. They are moderately deep and well drained and of moderately fine to moderately coarse texture. Examples are shallow loess and sandy loam.
- Group C: Soils have a slow infiltration rate when wet. They are soils with a layer that impedes downward movement of water and typically have moderately fine to fine texture. Examples are clay loams or shallow sandy loams. These soils are typically low in organic content and high in clay content.
- Group D: Soils have a very slow infiltration rate. They are chiefly clay soils with high swelling potential. A high-water table is often permanent. Clay pan is often found at or near the surface. A shallow layer of soil may cover a nearly impervious material. Examples include heavy plastic clays and certain saline soils. They have high runoff potential.

The SCS has performed a study of the soils in Kanab City and the surrounding area. This study reveals that all four soil groups exist in the study area. A soil type map is given in Appendix A (Map 3).

4.3 Land Use



Figure 1: Kanab City

The type of land use in each watershed area is a factor that significantly affects the magnitude of stormwater flow and runoff volume generated by precipitation events over the watershed area. Land uses that have relatively higher percentages of impervious surfaces (such as parking lots, shopping areas, storage yards, and high density residential housing tracts) generate more stormwater runoff than areas with lower percentages of impervious surfaces (such as parks and grasslands). Examination of current aerial photographs and field investigations allowed identification of land use trends within the City for the purposes of this study. The City has a variety of land uses that include:

- Agricultural Residential - Includes agricultural areas with residences.
- Commercial and Services: Includes shops, restaurants, and other businesses.
- Desert Shrubs - Includes natural land with native shrubs.
- Developed Park - Constructed park areas.
- Industrial and Commercial Complexes: Includes planned developments of industrial and commercial areas.
- Low Density Residential - Includes rural residential areas.
- Mixed Barren Lands - Includes areas where little vegetation exists.
- Mixed Density Residential - Includes urban residential areas.
- Residential: Includes suburban and urban residential areas.
- Riverbed - Includes areas in a wash or river channel.
- Sagebrush with understory - Includes natural land with sagebrush.
- Undeveloped Grassy Land - Includes areas that grow wild grasses.
- Undeveloped Park - Includes native land designated for park use.

4.4 Curve Numbers

After the land use characteristics for the area were determined, SCS Runoff Curve Numbers (CN) were determined. The SCS, based on experiments and experience, relates soil groups and other drainage characteristics to CN values. This relationship between land use, soil type, and CN figures is presented in Appendix A. The calculations of composite curve numbers are shown in Appendix B.

4.5 Design Storm & Precipitation

The design storm is specified by the frequency of the storm event (years), the duration of the event (hours), and the temporal distribution of the event. Since this IFFPA is for major conveyance facilities, the 100-year frequency was used. A graph showing the Farmer-Fletcher storm distribution is in Figure 3. The duration that was used was 3 hours because of typical severe storm durations in the area. The storm distribution for 24-hour storms is the SCS Type II rainfall distribution. An illustration of that distribution is available in Appendix B.

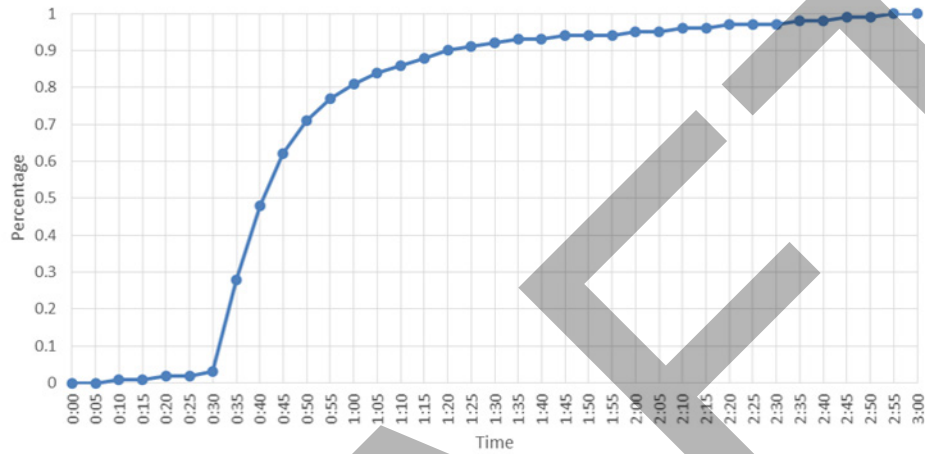


Figure 2: Farmer Fletcher Rainfall Distribution

Rainfall data needed for input into the computer model was taken from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 precipitation frequency data server. Precipitation frequency is used to measure the intensity of a rainfall event over a certain time. Precipitation data presented in Table 4 provides rainfall depth for storm durations and storm recurrence periods for certain storm events. This depth is used to create a temporal distribution, or the relationship between percentages of rainfall over time.

Frequency [yr]	Duration [hr]	Depth [in]
10	3	1.23
10	24	2.16
100	3	2.17
100	24	3.26

Table 4: Rainfall Data Summary

4.6 Stormwater Flow Results

The modeling software used to model the system is InfoSWMM by Innovyze, which runs as an add-on to Esri's ArcMap software. This software is able to seamlessly model both the hydrologic and hydraulic aspects of stormwater in one model. Hydrologic model results include soil infiltration and watershed runoff hydrographs that are then routed through the storm drain network. Critical model results are presented in Appendix B.

5. EXISTING FACILITIES

5.1 Roadway Conveyance

Roadway conveyance is the ability to carry stormwater within the street right-of-way. Typically curb and gutter can increase the volume of stormwater a roadway can convey. In areas lacking curb and gutter, flooding can occur from relatively minor storm events.

Kanab has curb and gutters along most major streets, especially in the downtown area. Most of the City uses natural road-side swales instead of curb and gutter to route stormwater flows.

5.2 Storm Drain System

Storm drain pipes are an underground pipe network that collects stormwater through surface catch basins and conveys the stormwater underground. While storm drain systems can be efficient in conveying stormwater, it is necessary to properly maintain the system. For example, during or after a storm event, it may be necessary to clear debris and sediment from catch basins and pipes to maximize the efficiency of the storm drain system.

Kanab maintains a critical storm drain network that typically routes flows from urbanized areas to Kanab Creek. Table 5 shows the breakdown of storm drain pipe by diameter. See existing facilities maps in Appendix A for more information about the location, diameter, and collection area.

Diameter [in]	Length [ft]
12	3,487
18	6,152
24	15,987
30	2,321
36	6,055
42	234
48	13,705
52	275
54	98
72	2,872
120	85

Table 5: Existing Storm Drain Pipe

5.3 Detention Basins

Detention and retention facilities are used to decrease or eliminate the downstream flow to the stormwater conveyance facilities, thus reducing or eliminating the burden of stormwater runoff. Kanab operates and maintains four main detention basins and one smaller detention basin located at the bottom of watersheds that have a history of high stormwater runoff flows.

Each detention basin has unique storage and discharge characteristics. These are called stage-storage curves and stage-discharge curves. Both curves are available for the four main detention basins in Appendix B. Local developments should construct and maintain detention basins per Kanab City Standards. Maps showing the location of the basins are available in Appendix A.

5.4 Drainage Channels

A drainage channel is a natural or man-made waterway. For major drainages, these natural channels are the flow line of the basin. Not only do natural open channels typically provide greater capacity for conveying stormwater, but they provide pleasing aesthetics, and provide opportunities for alternate uses. These alternate uses can include linear parks, trails, etc. Additional benefits of natural drainage channels also include slow flow characteristics, which means they are wide and shallow, and they function and appear natural.

Kanab has roadside swales or shallow ditches to convey stormwater in areas of The City where there is no curb and gutter. There are also several open channels that have been built up to protect development (as in the Country Estates channel) or have been preserved as natural drainages channels (Town Wash).

5.5 Drainage Crossings

A drainage crossing is a structure that conveys stormwater under, through and otherwise across a barrier, usually a roadway. Examples of drainage crossings are a culvert and a cross gutter.

Kanab has numerous culvert crossings for both minor and major drainage channels. A comprehensive survey of all the culverts has not been conducted as part of this study. There are several major concrete culverts under US 89 that are owned and maintained by UDOT. Other major culverts are in Kanab Creek Wash under the three roads that cross the Creek. Culverts must be properly maintained and cleared of brush or debris blocking the inlet or outlet to function as intended.

6. HYDRAULIC MODEL

6.1 Model Update

In 2018, field measurements were collected from each manhole and pipe in order to provide an accurate hydraulic model for the city's stormwater system. For the purposes of this report, the model was updated based on new construction done in the years since. Certain sites were also visited to verify sizes for specific pipes and structures, as well as to inspect locations of concern during significant stormwater events.

6.2 Hydrologic Demands

InfoSWMM is an integrated modeling software that can perform a hydrologic analysis and use the results from that portion of the model as demands for the hydraulic portion of the model. The stormwater demands for the storm drain system are runoff hydrographs that dictate the amount of water entering the storm drain system for a given time for the duration of the modeling period. See Section 4 of this study for more information about how these demands were calculated.

6.3 City Basin Delineation

Watershed basin boundaries within the urbanized areas of the City were drawn manually with input from City staff and based on high accuracy contour data. These city basins were incorporated into the basin network for the larger study area. These watershed basins will allow Kanab City to make storm drain decisions aided by reliable catchment area maps.

6.4 Model Output

Four different storm scenarios were evaluated for this study as shown previously in Table 5:

- 1) 10-year – 3-hour storm
- 2) 10-year – 24-hour storm
- 3) 100-year – 3-hour storm
- 4) 100-year – 24-hour storm

Local underground storm drainpipes should be designed for the 10-year, 3-hour storm runoff. This storm scenario produces higher runoff flows for a shorter period versus the 10-year, 24-hour storm event. The 100-year, 24-hour storm scenario should be used to design detention basins for developments and for the City's detention requirements.

See Appendix A for model result maps showing if pipe segments can convey the anticipated demands. Selected model output data is available in Appendix B.

7. SUMMARY OF RECOMMENDED IMPROVEMENTS

Recommended improvements are made based on the assumptions a pipe has reached its capacity when it is flowing two-thirds (66.7%) full by depth for the design storm event. This represents 80% of the flow capacity by area of a cross-section of circular pipe. Recommendations are based on replacing pipe segments that are modeled as being overcapacity. Flow divisions were modeled in specific locations to best represent known flow splits between basins. Also, every effort was made to establish the best outlet location for each watershed basin based on topography and observed flow paths.

Based on sound engineering judgment, practices, and through the hydrologic and hydraulic modeling effort and results, a summary of recommended improvements is presented in Table 6. Maps showing the locations of the recommended improvements are available in Appendix A.

Project Name	Projected Year
Country Club Protection Channel	2025
Escalante Dr Pipe Reroute	2026
Savage Point Extension and Improvements	2026
EA Pugh Canyon	2027
EA Tom's Canyon Outfall Extension	2027
Kanab Creek Detention Basin Outfall Extension	2028
US-89A Culvert at Airport Road	2028
IFFPA 5 Yr	2028
S Hamblin Roadside Ditch	2029
EA Ranchos West	2030
McAllister Dr Ditch	2032
900 S Extension	2033
Escalante Dr North Ditch	2033
Escalante Dr South Ditch	2033
Kanab Creek Dr	2033
Powell Stewart Connection Update	2033
S Powell Dr Extension	2033
W Vance Dr Road	2033
IFFPA 10 Yr	2033

Table 6: Recommendations Summary

7.1 Key Considerations

Stormwater facilities include a wide assortment of construction practices designed to manage and control the stormwater runoff from a certain area of land. The best stormwater management facility design cannot preclude the need for long term maintenance and repair of these facilities to keep the facility functioning as originally designed. The lack of proper operation and maintenance is often cited as the number one reason for failure of stormwater facilities or damage to property from flooding events.

Routine maintenance addresses the expected activities required to keep the stormwater facilities in proper condition. Routine maintenance may include mowing, vegetation maintenance, and removal of accumulated debris and sediment.

The party responsible for the stormwater facilities needs to keep accurate and complete records. Typical records include a log of all inspections, repairs and maintenance performed at the site, copies of inspection reports, invoices for work performed, photographs of the facilities, etc. These records, along with establishing an ongoing operation maintenance program is the key to successful stormwater maintenance.

It is also recommended that Kanab require that a Storm Water Management Plan (SWMP) be prepared for each project that includes construction activities within a drainage basin. It is recommended that the developer be required to manage stormwater in accordance with this plan. This does not relieve the developer from obtaining other required County, State, and Federal permits.

Project Name	Project Details
900 S Extension	Install a 36" storm drain starting at 900 S and US-89 and running to the east for 1,313'
Country Club Protection Channel	Repair and/or reconstruct the protection channel in place north of Country Club Dr.
EA Pugh Canyon	Install a dam across Pugh Canyon that will act as a sedimentation and detention basin. Also reconstruct Potter's Pond berm and overflow spillway.
EA Tom's Canyon Outfall Extension	Using 7'x6' box culvert, extend the Tom's Canyon Outfall beneath 200 N to connect to Kanab Creek. This will also require moving the sewer lines and redoing the road as well.
Escalante Dr North Ditch	Install a roadside ditch on the west side of Escalante Dr, starting at Swapp Dr. and running north for 883'. This also includes installing 24" culverts beneath roads and driveway crossings.
Escalante Dr Pipe Reroute	Reroute the existing storm drain pipe from backyards to stay within the right-of-way in Escalante Drive.
Escalante Dr South Ditch	Install roadside ditches along the south side of W Navajo Dr., starting from S Powell Dr. and running east for 1,100', and along the west side of Escalante Dr from Aspen Dr. to Navajo Dr. They meet at the intersection of Navajo and Escalante and continue south to connect to the EA Channel. These also include 24" culverts beneath road and driveway crossings.
Kanab Creek Detention Basin Outfall Extension	Install a 24" pipe starting from the Kanab Creek Detention Basin and running through empty lots and along property lines to connect to the existing storm system at the new elementary school.
Kanab Creek Dr	Install a 24" pipe for 2,295' along Kanab Creek Dr, starting just west of US-89A and emptying into Kanab Creek.
McAllister Dr Ditch	Install a roadside ditch along the west side of McAllister Dr, starting from W Chamberlain Dr and running south until it connects to the EA Channel. This includes 18" culverts beneath roads and driveways.
Powell Dr Culvert Replacement	Replace the existing Kane Creek Culverts beneath Powell Dr. in order to match the flow achieved by the Kane Creek Boulevard culvert.

Table 7: Project Details Summary (continued on next page)

Powell Stewart Connection Update	Replace the culverts beneath Powell Dr and Stewart Dr with new 24" culverts and regrade the ditch that connects them.
Ranchos West	Install storm drain channel along the south side of the Ranchos area. This channel begins at the intersection of Navajo Dr. and Lee Dr. and moves west, eventually running along Paiute Dr. and finally emptying into the creek. Most storm water for Ranchos will eventually end up in this channel.
S Hamblin Roadside Ditch	Install roadside ditch along S Hamblin Dr for the entire length of the road, 4035', and empties into Kanab Creek.
S Powell Dr Extension	Extend 18" storm pipe along S Powell Dr from Kanab Creek Dr to W Swapp Dr.
Savage Point Extension and Improvements	Install a 48" pipe along the north side of Country Club Dr. with 14 inlets spaced along it. The pipe starts from the North Country Club detention basin and connects it to the Savage Point detention basin.
US-89A Culvert at Airport Road	Increase culvert beneath US-89A to 48".
W Vance Dr Road	Install roadside ditch along the north side of W Vance Dr from Escalante Dr. extending west for 2,100'. This also includes 18" culverts beneath roads and driveways as needed.
IFFPA 5 Yr	5 year update for Master Plans and Impact Fees.
IFFPA 10 Yr	10 year update for Master Plans and Impact Fees.

Table 7: Project Details Summary (continued from previous page)



Tom's Canyon Trail

8. FINANCIAL VIABILITY

8.1 Cost Estimate

Civil Science has prepared cost estimates for each project identified in Table 6. While only for planning, each cost estimate captures anticipated construction costs including mobilization and demobilization, project record documents, traffic and temporary controls, materials and sampling, construction layout & staking, professional services, materials, labor, and contingencies. The projects are organized in a manner so that costs are not shared between projects. This allows for better understanding of a singular project's cost versus showing all the projects in an abbreviated cost estimate format. Table 7 shows project costs in 2023 dollars plus inflation.

8.2 Project Phasing

Recommended improvements were given a time frame in which the projects are expected based on growth projections, localized growth, and available impact fee funds as shown in the cash flow. Table 7 shows the recommended improvement within a 10-year period with their projected year of construction and costs in 2023 dollars plus inflation.

In all cases, the improvements are planned to support continuing growth within the next ten years and are planned for implementation at times when the growing population base can theoretically generate enough revenue to fund the impact fee eligible portions of the projects. It should be noted that growth in the study area may occur at a rate faster or slower than that predicted in the cash flow analysis. If growth occurs at a faster rate, more funds will be available to construct the projects at an earlier schedule than that specified by the phasing projections. On the other hand, if growth slows more than expected, implementation of the projects may be delayed until the population base can fund the improvements.

Project Name	Projected Year	Inflated Cost
Country Club Protection Channel	2025	\$28,277
Escalante Dr Pipe Reroute	2026	\$192,910
Savage Point Extension and Improvements	2026	\$1,335,487
EA Pugh Canyon	2027	\$5,984,101
EA Tom's Canyon Outfall Extension	2027	\$9,806,460
Kanab Creek Detention Basin Outfall Extension	2028	\$617,280
US-89A Culvert at Airport Road	2028	\$116,562
IFFPA 5 Yr	2028	\$46,596
S Hamblin Roadside Ditch	2029	\$133,755
EA Ranchos West	2030	\$3,795,892
McAllister Dr Ditch	2032	\$146,878
900 S Extention	2033	\$505,619
Escalante Dr North Ditch	2033	\$93,108
Escalante Dr South Ditch	2033	\$230,587
Kanab Creek Dr	2033	\$800,720
Powell Stewart Connection Update	2033	\$46,217
S Powell Dr Extension	2033	\$583,638
W Vance Dr Road	2033	\$250,555
IFFPA 10 Yr	2033	\$54,018
Total		\$24,768,660

Table 8: Cost Estimate Summary

8.3 Impact Fee Analysis

Kanab City does not currently charge impact fees. It is a core goal of this report to establish a stormwater impact fee for the City to sustain and grow the stormwater system according to new development.

The proposed impact fee was calculated based on the estimated costs, projected construction year, inflation, and impact fee eligibility. Project impact fee eligibility is based on whether the project is needed to address an existing issue or what portion of the project is needed to serve new growth and development to the stormwater system. The impact fee calculations are presented in Table 8. Impact fee eligible costs are based on inflated costs and impact fee eligibility.

Impact fee eligibility was calculated for each project according to needs of proposed development and existing infrastructure additional capacity. Several projects were recommended in the 2018 report. Those projects and their impact fee eligibility were copied from the previous report. Impact fee eligibility percentages are shown in Table 9.

Project Name	Projected Year	Inflation 3%		Impact Fee Eligible %	Impact Fee Eligible Cost
		2023 Cost	Inflated Cost		
Country Club Protection Channel	2025	\$27,453	\$28,277	0%	\$0
Escalante Dr Pipe Reroute	2026	\$181,836	\$192,910	0%	\$0
Savage Point Extension and Improvements	2026	\$1,258,825	\$1,335,487	32%	\$427,356
EA Pugh Canyon	2027	\$5,476,300	\$5,984,101	4%	\$209,444
EA Tom's Canyon Outfall Extension	2027	\$8,974,300	\$9,806,460	7%	\$686,452
Kanab Creek Detention Basin Outfall Extension	2028	\$548,445	\$617,280	40%	\$246,912
US-89A Culvert at Airport Road	2028	\$103,564	\$116,562	100%	\$116,562
IFFPA 5 Yr	2028	\$41,400	\$46,596	100%	\$46,596
S Hamblin Roadside Ditch	2029	\$115,379	\$133,755	100%	\$133,755
EA Ranchos West	2030	\$3,179,000	\$3,795,892	50%	\$1,897,946
McAllister Dr Ditch	2032	\$115,946	\$146,878	0%	\$0
900 S Extention	2033	\$387,515	\$505,619	100%	\$505,619
Escalante Dr North Ditch	2033	\$71,359	\$93,108	0%	\$0
Escalante Dr South Ditch	2033	\$176,726	\$230,587	25%	\$57,647
Kanab Creek Dr	2033	\$613,685	\$800,720	100%	\$800,720
Powell Stewart Connection Update	2033	\$35,422	\$46,217	66%	\$30,504
S Powell Dr Extension	2033	\$447,310	\$583,638	20%	\$116,728
W Vance Dr Road	2033	\$192,029	\$250,555	18%	\$43,847
IFFPA 10 Yr	2033	\$41,400	\$54,018	100%	\$54,018
Total		\$21,987,895	\$24,768,660		\$5,374,105
Developable Acres within 10-Years					1,560
Maximum Allowable Impact Fee (per acre)					\$3,445.65

Table 9: Impact Fee Calculations

Kanab currently charges a residential user fee for the storm water utility of \$16.13 and a previous maximum allowable impact fee of \$6,169.11 per ERC. City staff directed Civil Science to calculate the new impact fee based developable acres, with the intention that this impact fee is more equitable between different development types. A map showing the probable 10-year developable acreage is provided in Appendix A. The new maximum allowable impact fee is calculated to be \$3,445.65 per acre.

As required by the Utah Impact Fees Act, an Impact Fee Certification is included in Appendix D. It states that this analysis was done according to the Impact Fees Act and its requirements.

Rules regarding the use of impact fees are covered by the Impact Fees Act. Generally, impact fees may only be used for system improvements that are required to service new development within the existing level of service or expected service requirements (storm sewer collection, conveyance, etc.) and are included in this Impact Fee Facilities Plan. Impact fees must be used within six years of payment, or they must be paid back. Alternative sources of revenue such as grants, or shared construction costs, should be investigated to reduce the financial burden on the City and its consumers. At the time of this study, Kanab is not applying for, or holding, any grant funds related to stormwater system projects.

8.4 User Rate Analysis

The existing monthly user rate for stormwater services in Kanab varies based on the types of connections. The residential rate is currently \$16.13 per month. A new user rate for Kanab was calculated by adding non-impact fee eligible project costs of the system and existing debt service then dividing the total expenses amount by the number of ERCs currently served by the system. Values from the 2022 City audit, 2023 budget, and engineering judgment were used to achieve final values shown in the user rate analysis in Table 10.

The total estimated amount for wastewater operations is \$656,268.70. Dividing that value by the number of serviced connections and again dividing by 12 to yield a monthly rate result in a rate of **\$14.54**.

In consultation with Kanab City, it was decided that any proposed user rate should match the existing rate structure which is based on connection types. The rate of **\$14.54** is applied to residential connections and rates for all other connection types are calculated by multiplying the residential rate by the calculated factor. The proposed rate structure is shown in Table 11.

8.5 Cash Flow Analysis

A stormwater utility cash flow analysis for a 20-year planning horizon was completed to show how the 10-year planning horizon improvement projects could be implemented, to analyze the continued viability of proposed user rates, and to show possible trends in impact fee and cash fund balances. Data for the cash flow analysis was estimated from Kanab City audits during fiscal years 2020-2022 in conjunction with City Staff confirmation. Values projected through the analysis are based on growth, interest, and inflation trends determined during the process of the study. It should be noted that the analysis is a general forecast only and will vary with the speed and pattern of development in the City. The entire cash flow analysis is given in Appendix C.

User Rate Analysis		Costs
Non-Impact Fee Eligible Project Costs	\$	449,988.97
Grant Funds	\$	-
Annual Cost of Future Bonds	\$	-
Current Liabilities	\$	278,000.00
Totals		\$ 727,988.97
Serviced ERCs		3,761
Monthly Rates		\$16.13

Table 10: User Rate Analysis

Type	Current	Factor	Proposed
Residential	\$ 16.13	1	\$ 16.13
Small Commercial (<9,999 Sq ft Property)	\$ 36.30	2.25	\$ 36.30
Large Commercial (>10,000 Sq ft Property)	\$ 72.61	4.50	\$ 72.60

Table 11: Proposed Stormwater Rate Structure

The upper section of the cash flow printout, entitled "Revenue", contains the basic data upon which many of the values in the cash flow spreadsheet were generated. We highlight the projected growth trends, the assumed inflation rates, user rates, impact fees and inspection fees, and the projected ERC quantities for the coming fiscal years. Most of the revenue in later parts of the cash flow spreadsheet is generated from the impact fees, and user rates.

The following section is the utility expenses section which seeks to quantify all the expenses incurred by the stormwater utility. Included in the expenses section are the operation and maintenance costs, existing debt service costs and new debt service costs. The difference between the total revenues and total expenses is the net cash flow for the utility.

Total revenues and total expenses were broken down into impact fee and cash fund categories. This shows that adequate funds would be available over the course of the projection period.

Included at the end of the cash flow analysis is a system improvement implementation schedule for the next twenty years which shows how the impact fee facilities plan improvement projects were incorporated into the cash flow analysis.

Other Financing Options

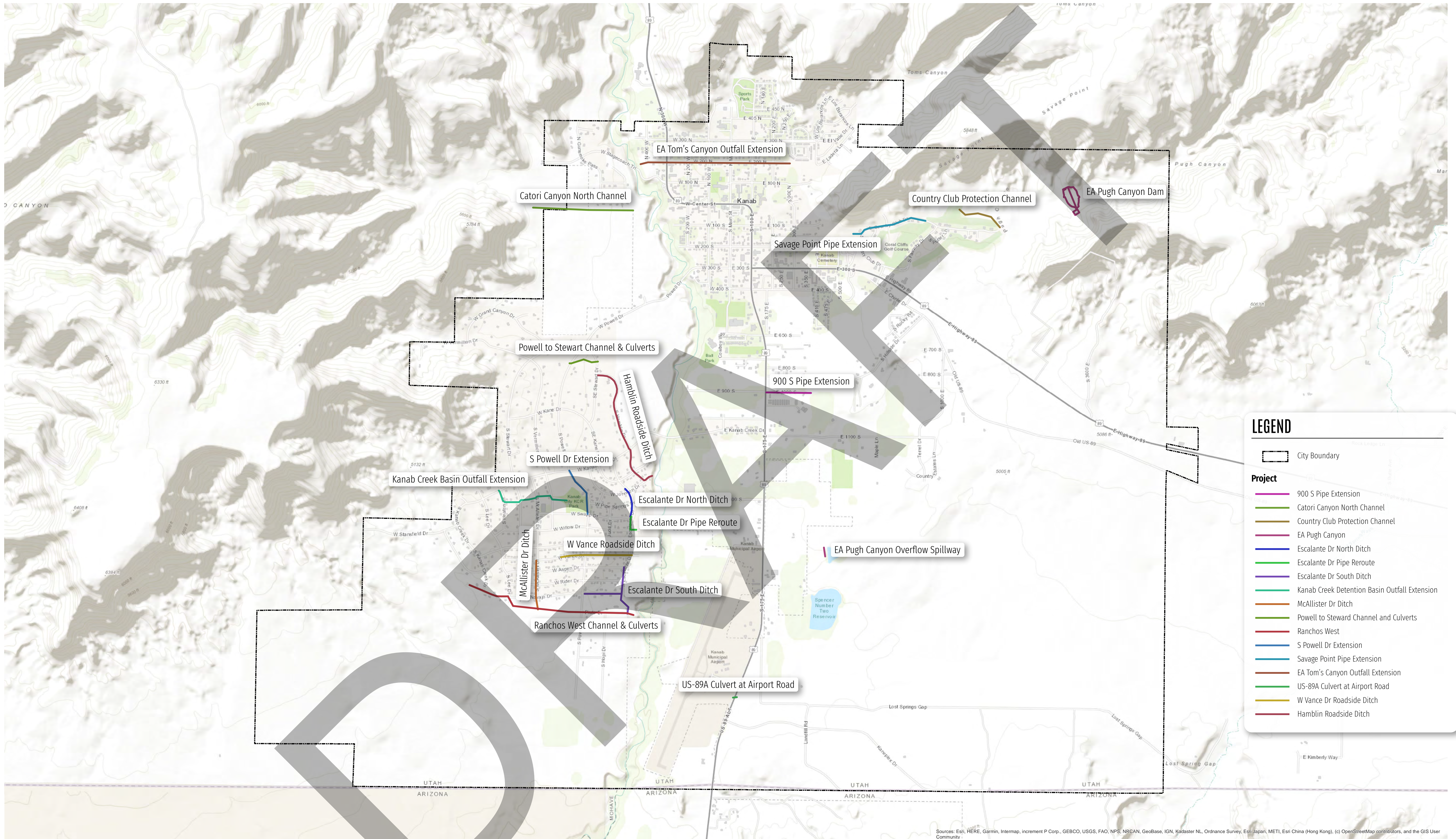
Where possible, Kanab should seek alternative financing for projects to reduce the financial burden of the consumers in the form of lower user rates or lower impact fees. Grant or loan options available to Kanab City are included below:

- Permanent Community Impact Fund Board (CIB)
- Utah Community Development Block Grant (CDBG)
- USDA Rural Development (RD)
- Interfund loans

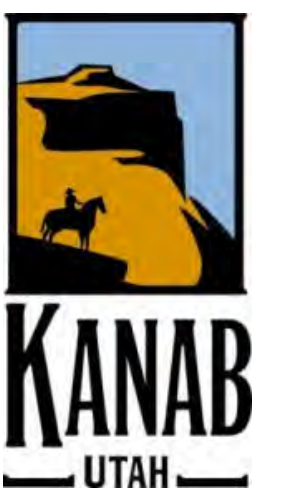
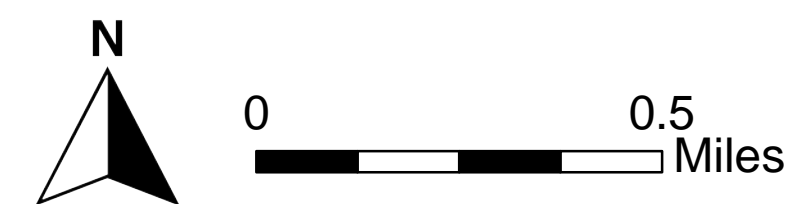
APPENDIX A

MAPS

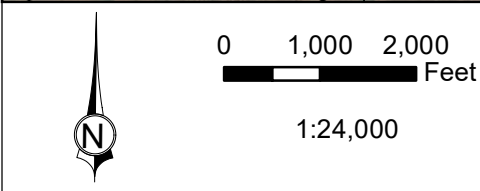
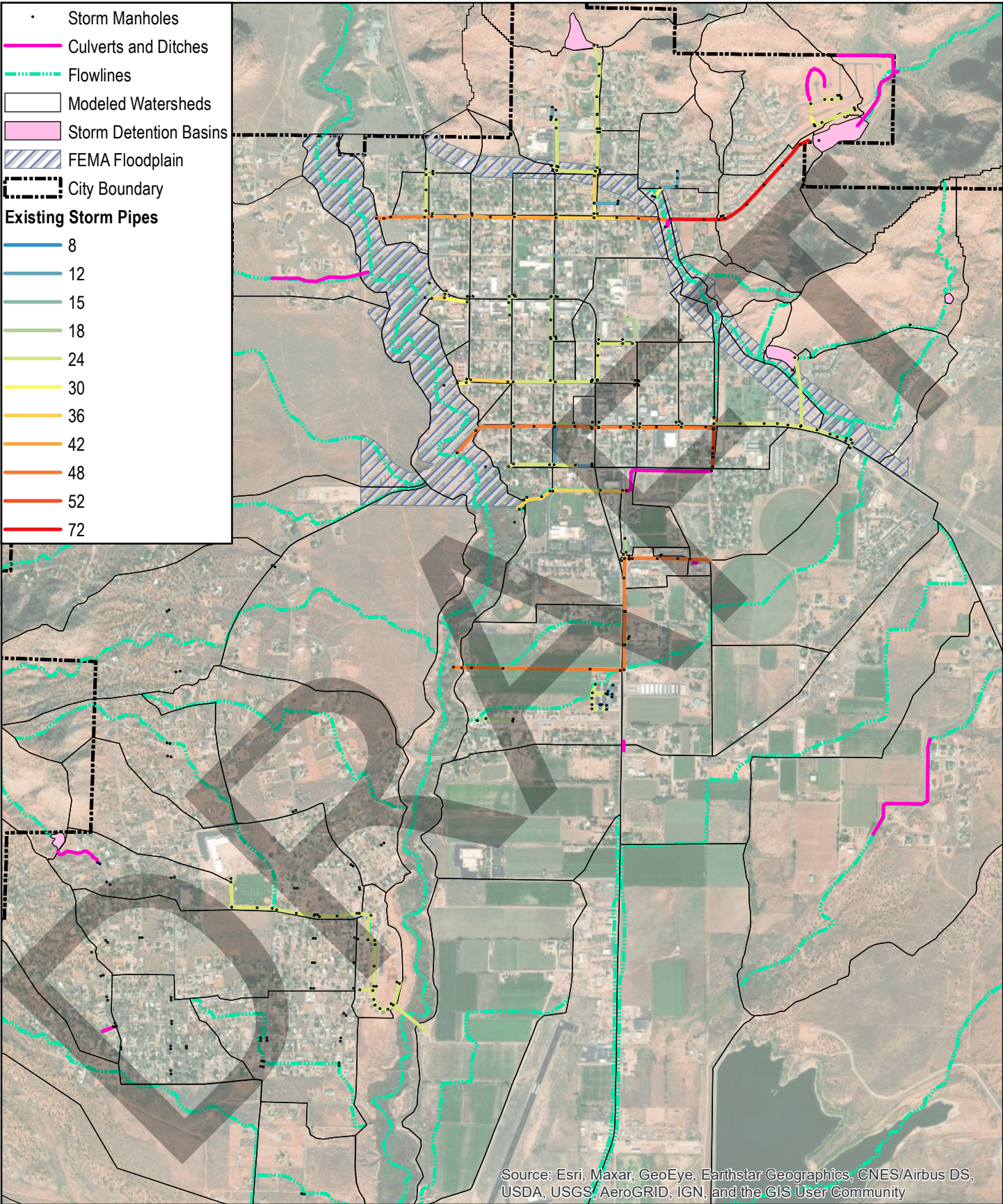
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PROPOSED STORM PROJECTS MAP






Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

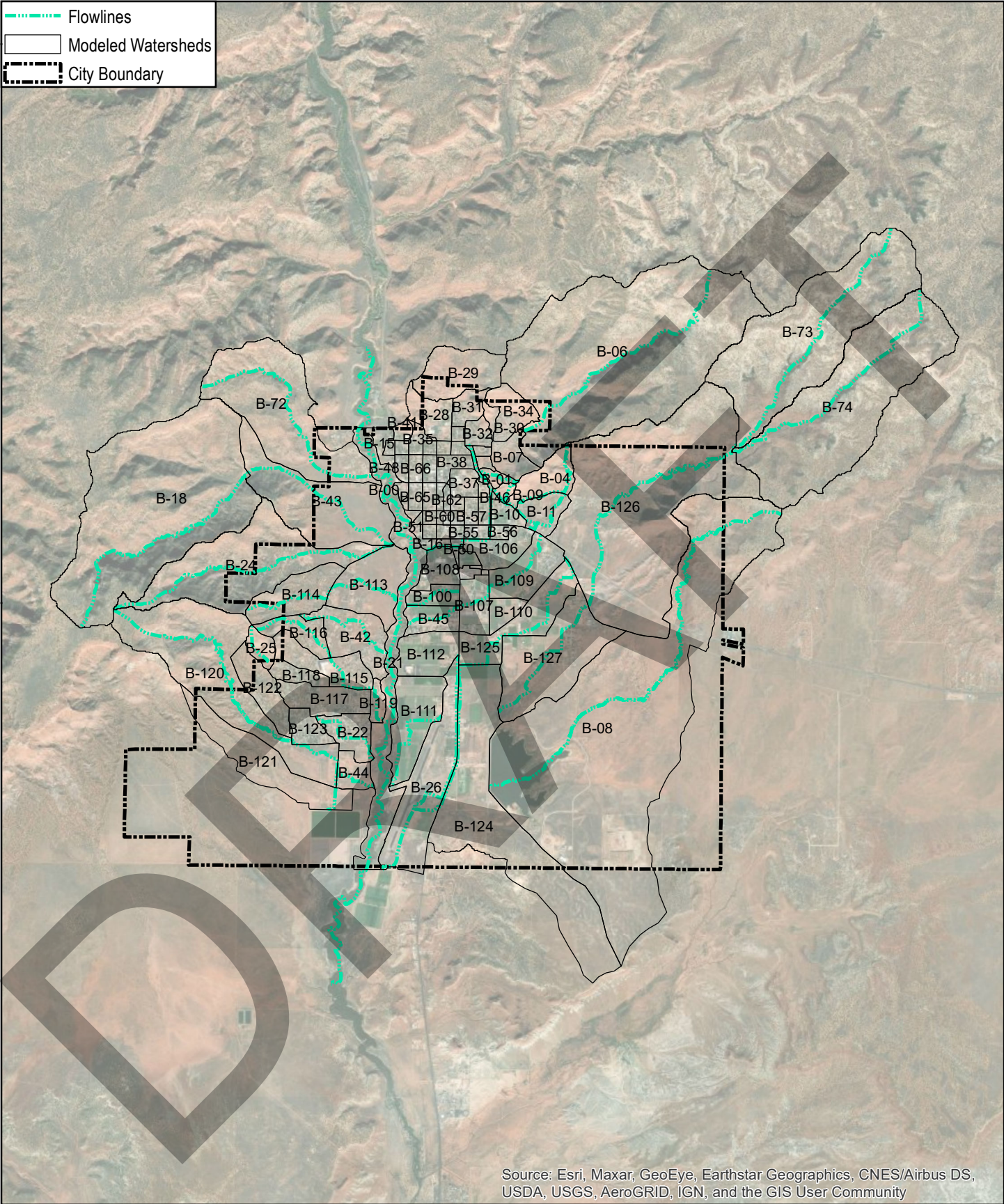


**KANAB CITY STORMWATER
IFFPA UPDATE 2024**

Existing Facilities

Map 2

 Flowlines
 Modeled Watersheds
 City Boundary



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



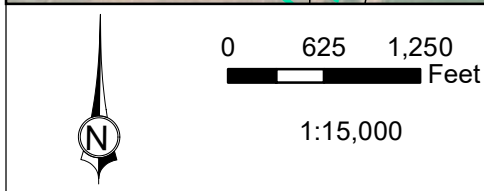
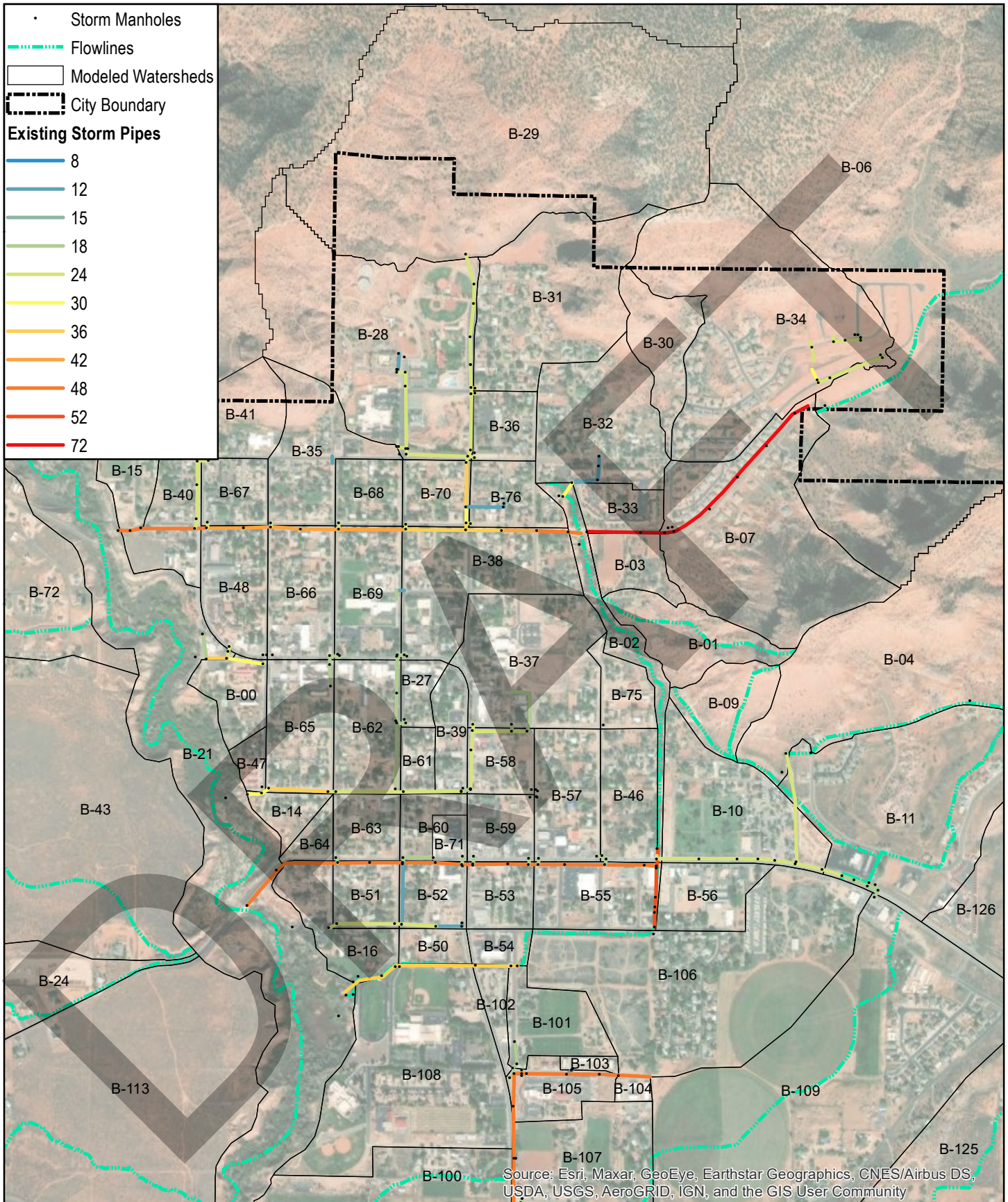
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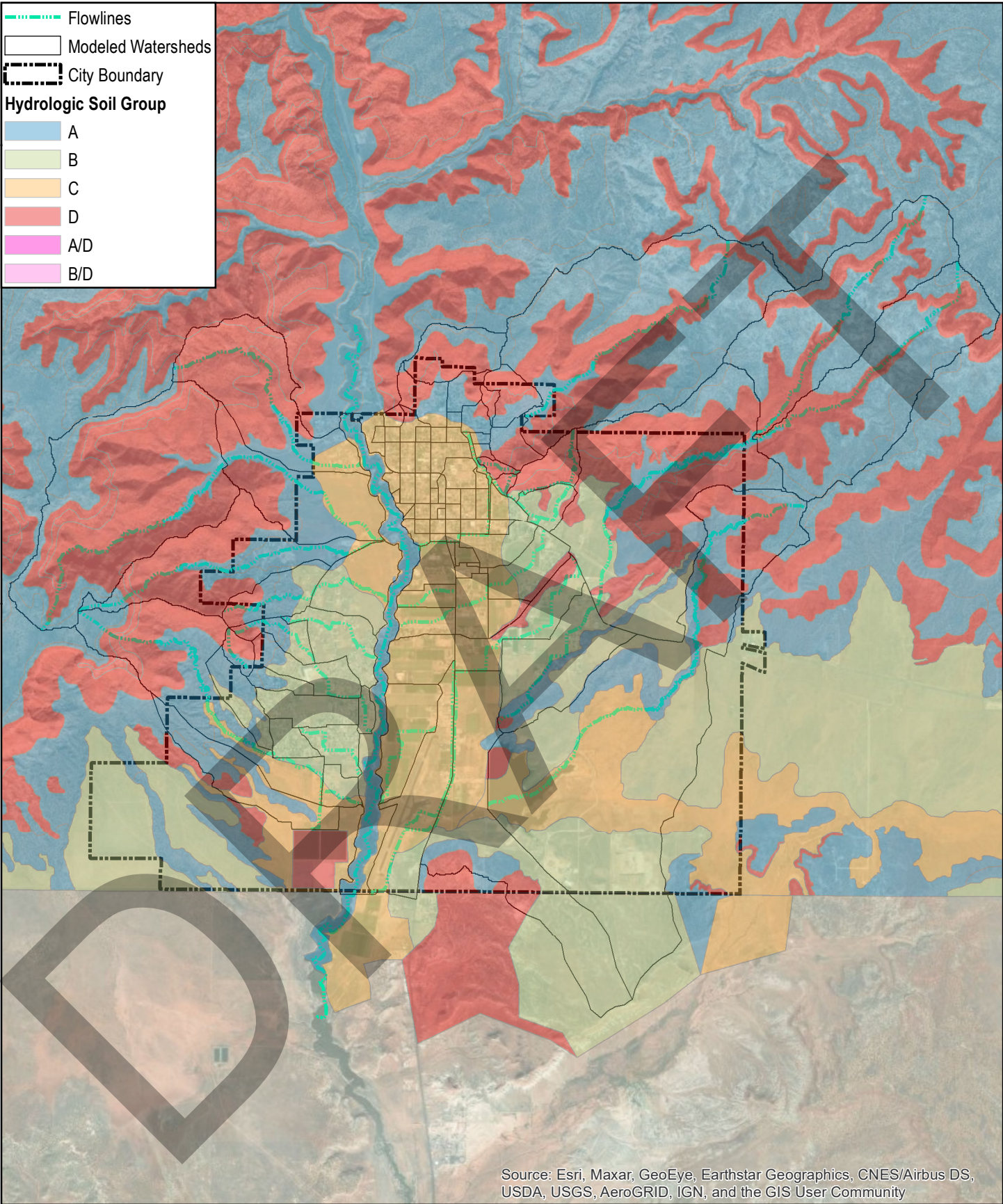
KANAB CITY STORMWATER
IFFPA UPDATE 2024
 Watersheds & Flowlines Overview
 Map 3



**KANAB CITY STORMWATER
IFFPA UPDATE 2024**

Watersheds & Flowlines Detail


















Map 4

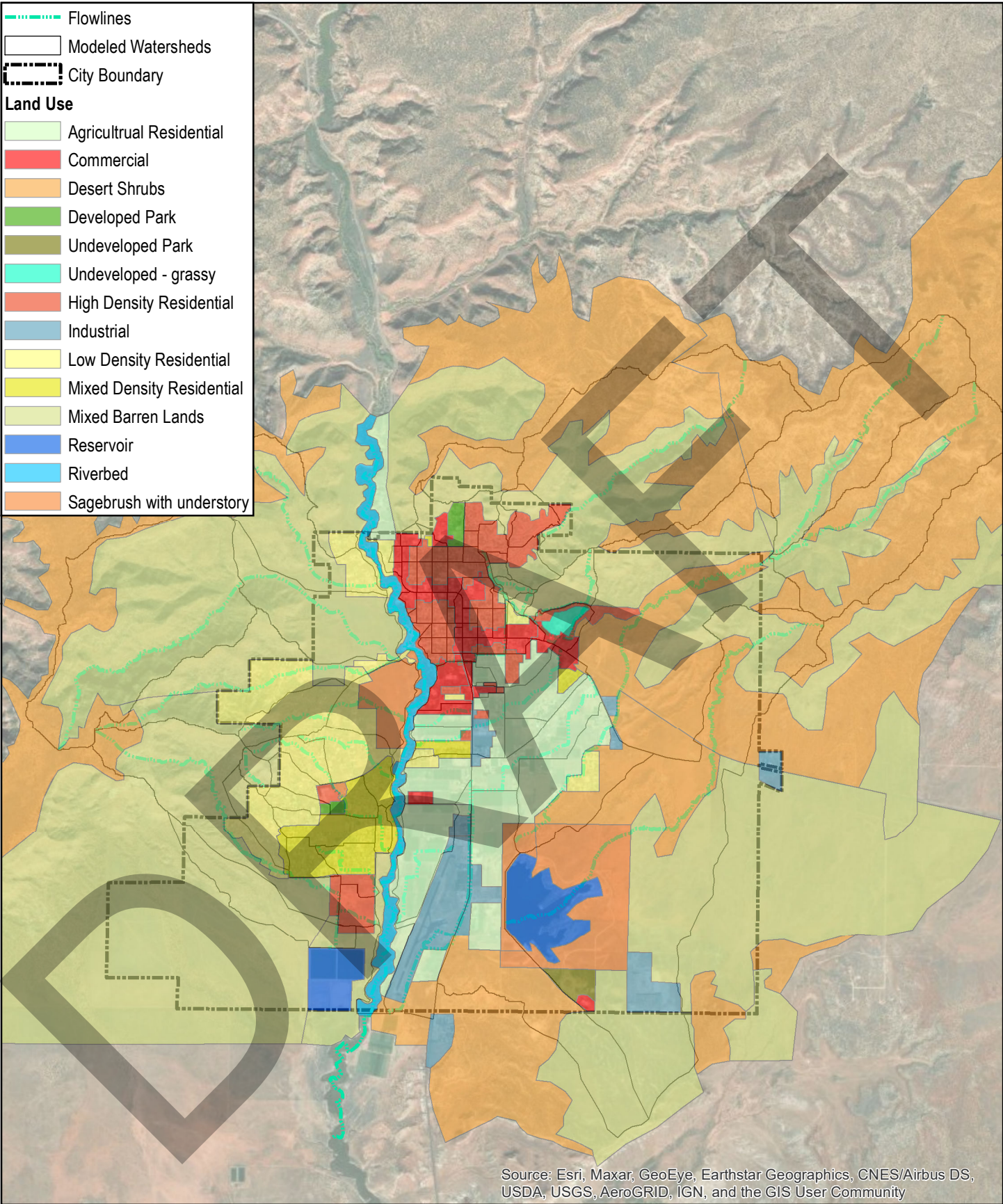


**KANAB CITY STORMWATER
 IFFPA UPDATE 2024**

Soil Type

Map 5

-  Flowlines
-  Modeled Watersheds
-  City Boundary
- Land Use**
-  Agricultural Residential
-  Commercial
-  Desert Shrubs
-  Developed Park
-  Undeveloped Park
-  Undeveloped - grassy
-  High Density Residential
-  Industrial
-  Low Density Residential
-  Mixed Density Residential
-  Mixed Barren Lands
-  Reservoir
-  Riverbed
-  Sagebrush with understory



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

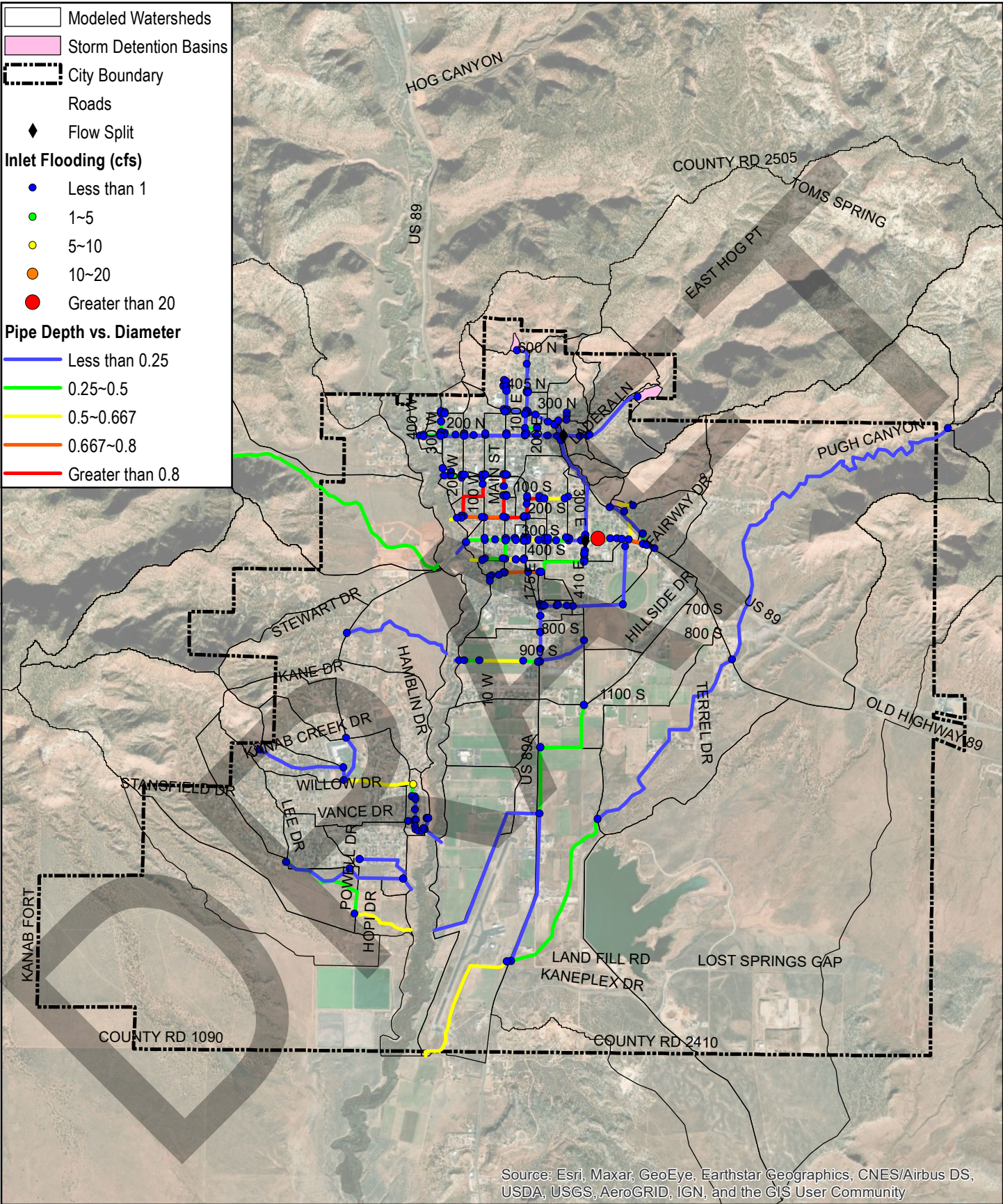
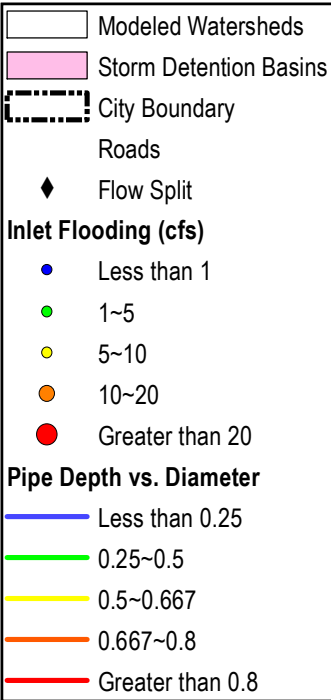


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**KANAB CITY STORMWATER
 IFFPA UPDATE 2024**

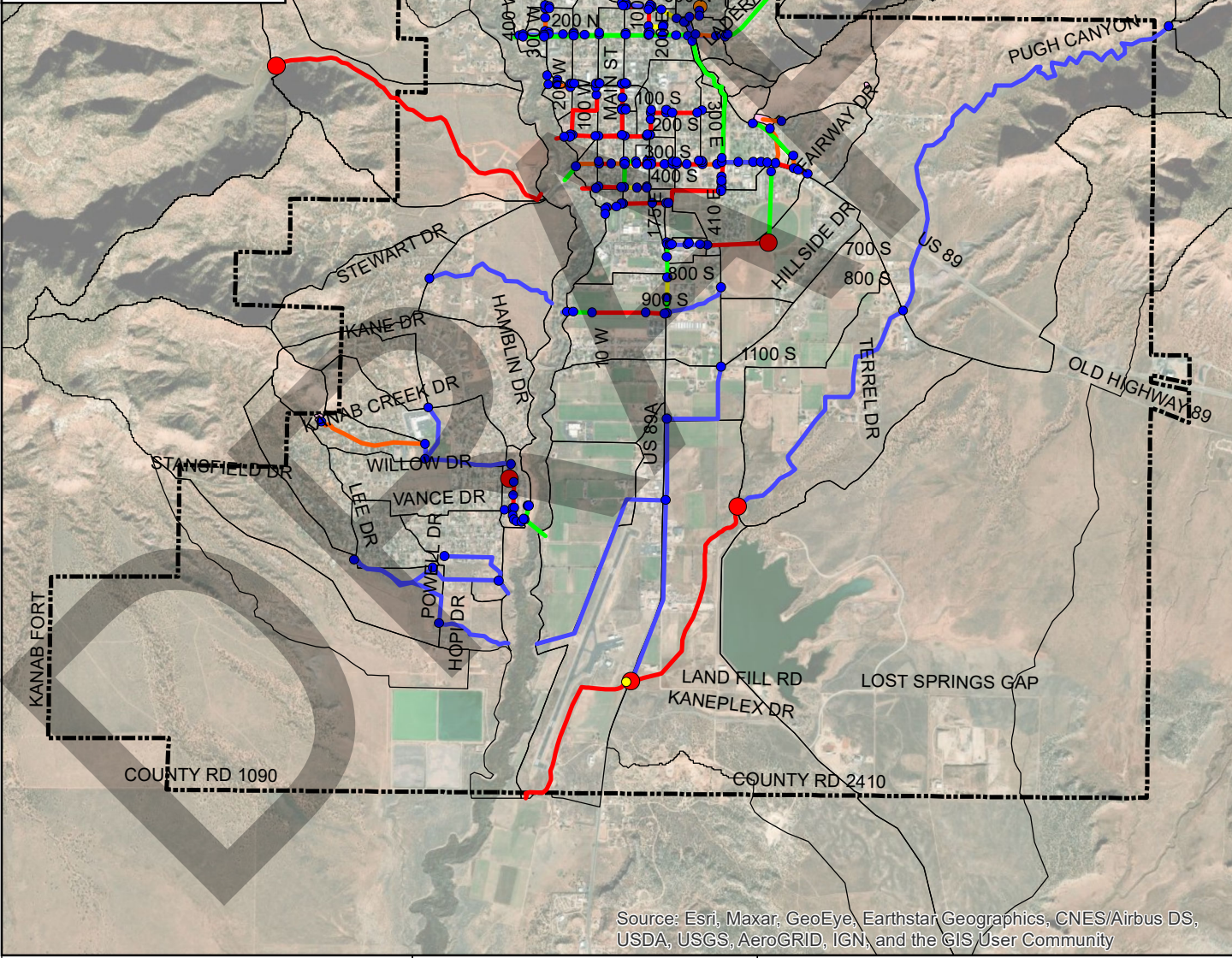
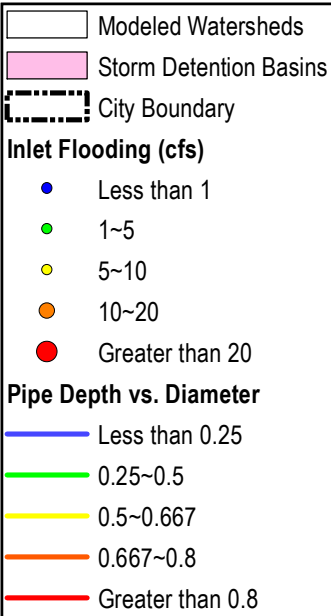
Land Use
 Map 6



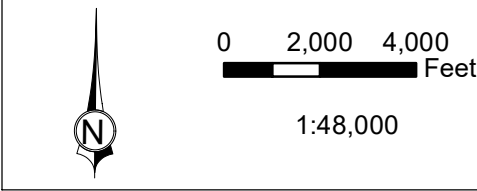
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**KANAB CITY STORMWATER
IFFPA UPDATE 2024**
Existing Conditions 100-yr, 3-hr Results
Map 7



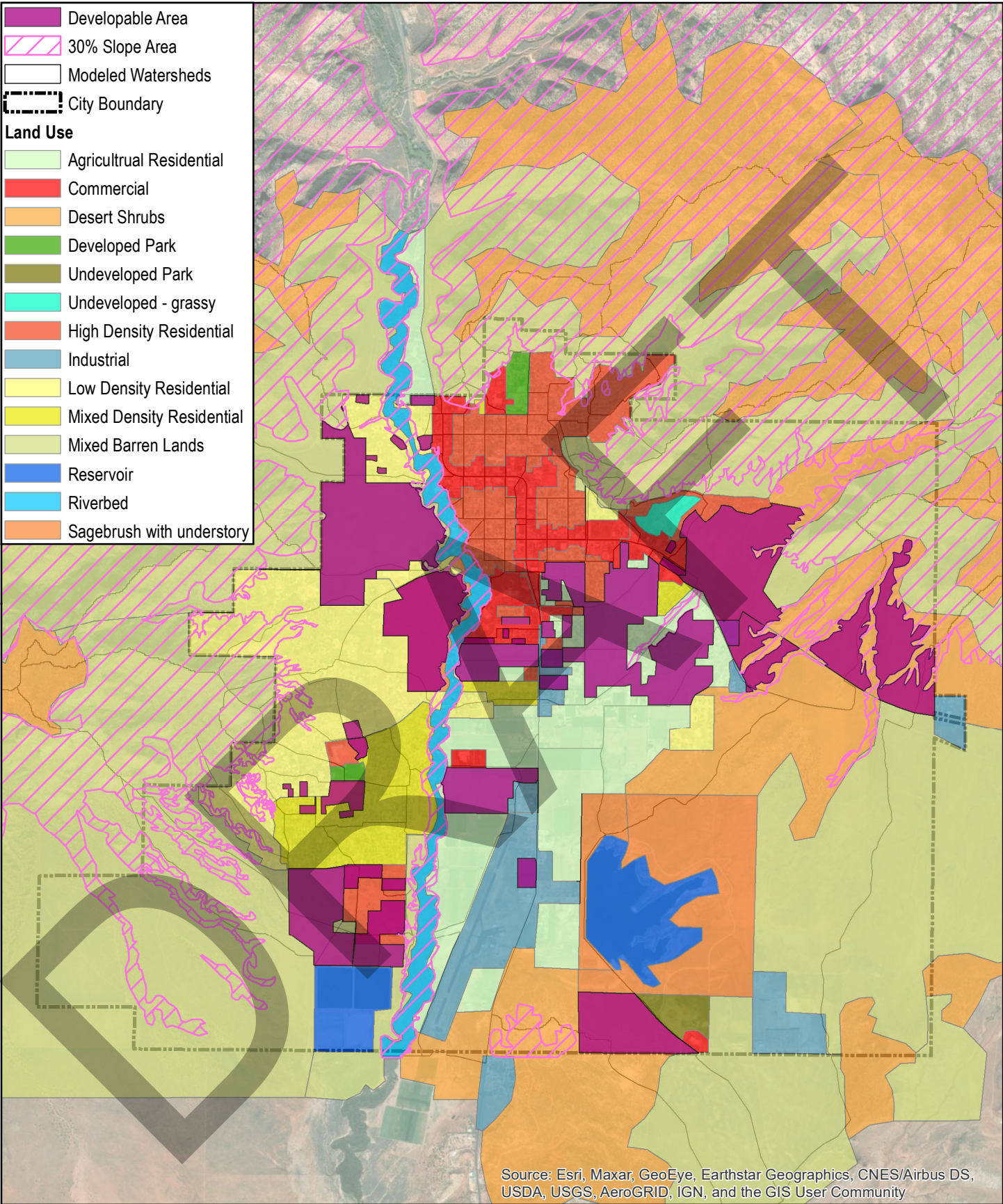
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**KANAB CITY STORMWATER
IFFPA UPDATE 2024**

Future Conditions 100-yr, 3-hr Results

Map 8



**KANAB CITY STORMWATER
IFFPA UPDATE 2024**

Developable Areas

Map 9



KEY TO MAP

100-Year Flood Boundary	ZONE B
100-Year Flood Boundary	ZONE A
Zone Designation	ZONE A
100-Year Flood Boundary	ZONE B
100-Year Flood Boundary	ZONE B
Base Flood Elevation Line With Elevation in Feet**	FEET
Base Flood Elevation in Feet When Uniform Within Zone**	66.987'
Elevation Reference Mark	RM 7c
Zone D Boundary	
Knee-Mile	1/4 MI

**Referenced to the National Geodetic Vertical Datum of 1929

EXPLANATION OF ZONE DESIGNATIONS

- ZONE A** Areas of 100-year flood, base flood elevation and flood hazard factors not determined.
- A0** Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
- A1** Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
- A1-0.5** Areas of 100-year flood, base flood elevations and flood hazard factors determined.
- A0.5** Areas of 100-year flood to be protected by flood protection systems under construction; base flood elevations and flood hazard factors not determined.
- B** Areas between limits of the 100-year flood and 100-year flood on various areas subject to 100-year floods and with average depths less than one (1) foot or where the contributing drainage area is less than one square mile, or areas provided by Annex from the base flood (Minimum flooding).
- C** Areas of moderate flooding (10-15 ft deep).
- D** Areas of undetermined, but possible, flood hazard.
- V** Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
- V1-V30** Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures. This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all pertinent features outside flood hazard areas.

INITIAL IDENTIFICATION: OCTOBER 19, 1979

FLOOD HAZARD BOUNDARY MAP REVISIONS:

FLOOD INSURANCE RATE MAP EFFECTIVE: AUGUST 19, 1985

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine what actual rate applies to structures in the areas where elevation or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program at (800) 638-6323.



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
KANAB,
UTAH
KANE COUNTY

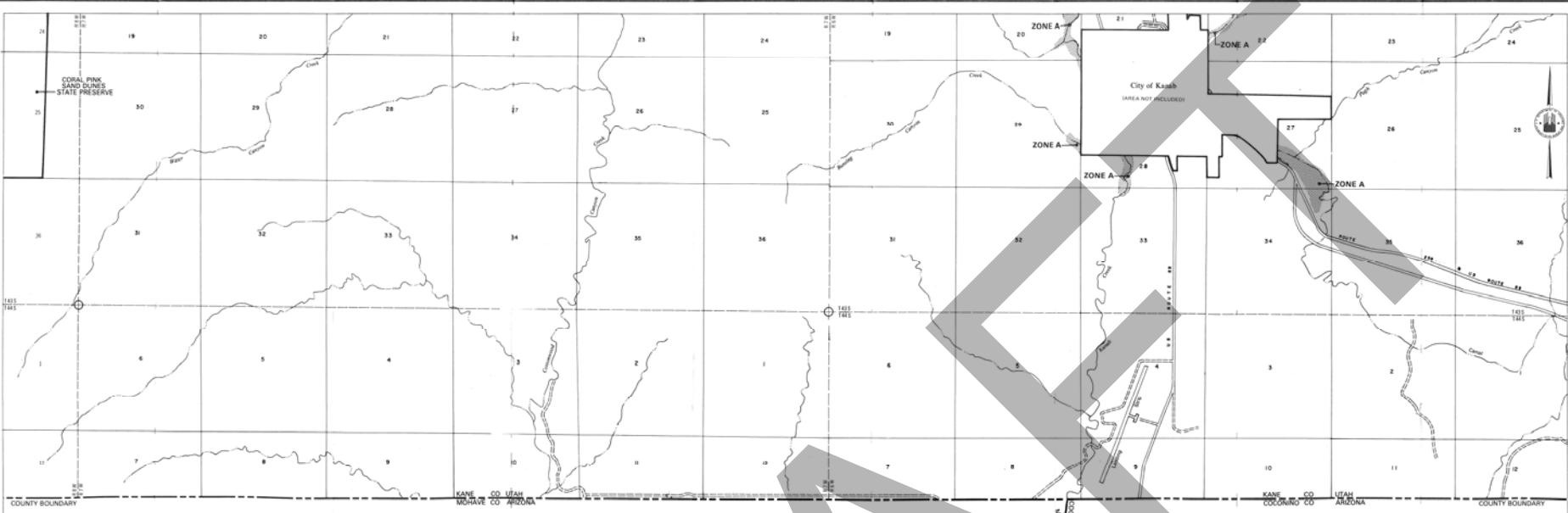
ONLY PANEL PRINTED

COMMUNITY-PANEL NUMBER
49085 0005 A

EFFECTIVE DATE:
AUGUST 19, 1985



Federal Emergency Management Agency



LEGEND

SPECIAL FLOOD HAZARD AREA
ZONE A

Note: These maps may not include all Special Flood Hazard Areas in the community. After a more detailed study, the Special Flood Hazard Areas shown on these maps may be modified, and other areas added.

CONSULT WITH SERVING COMPANY OR LOCAL INSURANCE AGENT OR BROKER TO DETERMINE IF PROPERTIES IN THIS COMMUNITY ARE ELIGIBLE FOR FLOOD INSURANCE.



FLOOD HAZARD BOUNDARY MAP

**KANE COUNTY,
 UTAH**
 UNINCORPORATED AREA
 PAGE 39 OF 44
 (SEE MAP INDEX FOR PAGES NOT PRINTED)

EFFECTIVE DATE:
 JANUARY 10, 1978

CONVERTED BY LETTER
 EFFECTIVE 7/1/86

COMMUNITY-PANEL NO.
 490083 0039 A



**U.S. DEPARTMENT OF HOUSING
 AND URBAN DEVELOPMENT**
 FEDERAL HOUSING ADMINISTRATION

APPENDIX B

TABLES & FIGURES

DRAFT

Time of Concentration and CN Summary

Basin Name	Length ft	Slope avg	Up elev	Down elev	Tc NRCS lag equation	OLD Tc	CN	OLD CN
B-00	-	-	-	-	11.84	11.84	92.81	91.29
B-01	-	-	-	-	10.00	10.00	83.87	85.90
B-02	-	-	-	-	10.00	10.00	82.96	84.71
B-03	-	-	-	-	10.00	10.00	78.62	84.67
B-04	-	-	-	-	13.76	13.76	83.62	84.84
B-06	-	-	-	-	70.66	45.29	64.51	65.41
B-07	-	-	-	-	26.00	26.00	79.68	73.30
B-08	-	-	-	-	71.78	71.78	72.67	72.79
B-09	-	-	-	-	10.00	10.00	83.41	88.19
B-10	-	-	-	-	26.47	26.47	87.81	86.76
B-11	-	-	-	-	26.70	26.70	84.16	79.43
B-14	-	-	-	-	10.00	10.00	84.50	84.38
B-15	-	-	-	-	19.99	19.99	74.09	73.97
B-16	-	-	-	-	15.74	15.74	85.47	85.66
B-18	-	-	-	-	64.36	52.02	77.48	78.31
B-21	-	-	-	-	10.00	10.00	45.96	45.04
B-22	-	-	-	-	42.29	42.29	75.07	79.10
B-24	-	-	-	-	45.99	45.99	77.53	73.85
B-25	-	-	-	-	10.24	10.24	77.71	79.08
B-26	-	-	-	-	153.49	153.49	84.08	84.05
B-27	-	-	-	-	10.25	10.25	92.84	92.84
B-28	-	-	-	-	17.08	17.08	74.54	74.77
B-29	-	-	-	-	19.24	19.24	72.12	72.64
B-30	-	-	-	-	10.16	10.16	85.34	84.37
B-31	-	-	-	-	13.38	13.38	76.88	72.67
B-32	-	-	-	-	11.56	11.56	77.13	71.87
B-33	-	-	-	-	10.00	10.00	76.32	63.26
B-34	-	-	-	-	10.18	10.18	79.95	76.75
B-35	-	-	-	-	15.20	15.20	86.40	86.98
B-36	-	-	-	-	13.91	13.91	76.69	79.69
B-37	-	-	-	-	20.38	20.38	89.58	89.07
B-38	-	-	-	-	28.46	28.46	87.63	94.00
B-39	-	-	-	-	11.04	11.04	94.00	79.00
B-40	-	-	-	-	10.00	10.00	89.14	94.05
B-41	-	-	-	-	10.00	10.00	90.47	91.03
B-42	-	-	-	-	38.00	38.00	71.74	70.45
B-43	-	-	-	-	33.31	33.31	76.33	75.80

B-44	-	-	-	-	23.58	23.58	80.46	77.28
B-45	-	-	-	-	41.27	41.27	76.31	78.51
B-46	-	-	-	-	14.76	14.76	87.78	87.79
B-47	-	-	-	-	10.00	10.00	84.54	84.22
B-48	-	-	-	-	22.94	22.94	89.97	89.83
B-50	-	-	-	-	10.02	10.02	89.79	85.55
B-51	-	-	-	-	13.61	13.61	85.00	94.00
B-52	-	-	-	-	14.36	14.36	90.03	90.03
B-53	-	-	-	-	15.29	15.29	92.48	91.94
B-54	-	-	-	-	13.44	13.44	93.12	87.57
B-55	-	-	-	-	21.42	21.42	88.93	93.69
B-56	-	-	-	-	13.57	13.57	92.54	88.71
B-57	-	-	-	-	17.41	17.41	87.85	89.97
B-58	-	-	-	-	17.27	17.27	89.40	91.65
B-59	-	-	-	-	16.90	16.90	92.48	90.64
B-60	-	-	-	-	10.00	10.00	89.57	89.63
B-61	-	-	-	-	10.00	10.00	85.44	85.15
B-62	-	-	-	-	18.18	18.18	87.35	88.09
B-63	-	-	-	-	12.82	12.82	85.00	63.00
B-64	-	-	-	-	10.00	10.00	84.70	85.00
B-65	-	-	-	-	15.59	15.59	87.62	87.91
B-66	-	-	-	-	17.94	17.94	88.51	90.47
B-67	-	-	-	-	13.94	13.94	89.48	94.00
B-68	-	-	-	-	10.43	10.43	85.03	85.01
B-69	-	-	-	-	19.27	19.27	87.25	94.00
B-70	-	-	-	-	11.46	11.46	85.00	85.00
B-71	-	-	-	-	10.00	10.00	93.97	69.15
B-72	-	-	-	-	21.52	30.00	81.49	80.19
B-73	-	-	-	-	36.63	36.63	62.29	63.48
B-74	-	-	-	-	42.88	42.88	63.27	62.38
B-75	-	-	-	-	10.00	10.00	83.81	84.87
B-76	-	-	-	-	10.63	10.63	85.00	85.00
B-100	2884	0.007	4919	4900	89.24	#N/A	80.80	#N/A
B-101	935	0.019	4940	4922	26.40	#N/A	73.44	#N/A
B-102	1018	0.008	4930	4922	21.45	#N/A	93.96	#N/A
B-103	550	0.018	4935	4925	12.78	#N/A	84.15	#N/A
B-104	380	0.013	4936	4931	10.94	#N/A	84.77	#N/A
B-105	1154	0.011	4933	4920	25.26	#N/A	88.30	#N/A
B-106	3000	0.020	4993	4933	67.51	#N/A	72.53	#N/A
B-107	2849	0.009	4930	4905	78.74	#N/A	79.92	#N/A
B-108	3222	0.008	4930	4905	60.18	#N/A	91.71	#N/A

B-109	4180	0.016	4995	4930	107.59	#N/A	69.80	#N/A
B-110	2224	0.008	4945	4928	83.83	#N/A	73.42	#N/A
B-111	2917	0.007	4880	4860	111.76	#N/A	72.84	#N/A
B-112	3484	0.009	4905	4875	107.41	#N/A	75.24	#N/A
B-113	3790	0.018	4960	4890	99.86	#N/A	66.41	#N/A
B-114	2584	0.045	5080	4965	39.73	#N/A	72.92	#N/A
B-115	4985	0.036	5060	4883	78.31	#N/A	71.48	#N/A
B-116	2992	0.051	5095	4943	42.46	#N/A	72.37	#N/A
B-117	4721	0.032	5025	4872	74.15	#N/A	73.51	#N/A
B-118	2858	0.033	5025	4930	55.89	#N/A	68.71	#N/A
B-119	1476	0.136	5060	4860	14.10	#N/A	74.02	#N/A
B-120	6920	0.022	5015	4865	28.06	#N/A	74.78	#N/A
B-121	7626	0.036	5110	4833	30.00	#N/A	73.67	#N/A
B-122	3034	0.043	5055	4925	20.00	#N/A	69.84	#N/A
B-123	2632	0.030	4965	4885	47.27	#N/A	74.04	#N/A
B-124	7459	0.008	4899	4840	90.00	#N/A	71.83	#N/A
B-125	7146	0.014	4988	4887	100.00	#N/A	67.10	#N/A
B-126	11720	0.016	5160	4970	120.00	#N/A	73.74	#N/A
B-127	7336	0.012	4970	4885	120.00	#N/A	60.10	#N/A

Curve Number Calculations

Basin Name	Land Use	Soil Group	A	B	C	D	CN	Area [ac]	CN x Area	CCN
B-00	Riverbed	C	30	55	70	80	70	0.00	0.00	92.81
B-00	High Density Residential	A	72	78	85	92	72	0.01	0.43	92.81
B-00	High Density Residential	C	72	78	85	92	85	1.25	106.62	92.81
B-00	Commercial	C	89	92	94	95	94	8.30	779.97	92.81
B-00	Commercial	C	89	92	94	95	94	0.00	0.00	92.81
B-01	Mixed Barren Lands	D	67	76	81	84	84	2.73	229.30	83.87
B-01	Mixed Barren Lands	D	67	76	81	84	84	13.89	1167.15	83.87
B-01	Mixed Barren Lands	C	67	76	81	84	81	0.73	59.31	83.87
B-02	High Density Residential	C	72	78	85	92	85	4.43	376.82	82.96
B-02	Commercial	C	89	92	94	95	94	0.64	60.56	82.96
B-02	Low Density Residential	C	68	72	78	87	78	1.55	121.02	82.96
B-02	Mixed Barren Lands	D	67	76	81	84	84	0.28	23.45	82.96
B-02	Mixed Barren Lands	C	67	76	81	84	81	4.63	375.09	82.96
B-02	Mixed Barren Lands	C	67	76	81	84	81	0.01	0.66	82.96
B-02	High Density Residential	C	72	78	85	92	85	0.01	0.65	82.96
B-02	Mixed Barren Lands	C	67	76	81	84	81	0.00	0.01	82.96
B-02	Commercial	C	89	92	94	95	94	0.05	4.44	82.96
B-02	Low Density Residential	C	68	72	78	87	78	0.05	3.69	82.96
B-03	High Density Residential	C	72	78	85	92	85	0.00	0.00	78.62
B-03	High Density Residential	A	72	78	85	92	72	0.03	1.94	78.62
B-03	Mixed Barren Lands	D	67	76	81	84	84	3.41	286.54	78.62
B-03	Mixed Barren Lands	C	67	76	81	84	81	3.36	272.10	78.62
B-03	Mixed Barren Lands	A	67	76	81	84	67	2.25	150.76	78.62
B-03	Mixed Barren Lands	C	67	76	81	84	81	0.01	0.66	78.62
B-04	Commercial	B	89	92	94	95	92	0.25	22.88	83.62
B-04	Low Density Residential	B	68	72	78	87	72	0.17	12.44	83.62
B-04	High Density Residential	B	72	78	85	92	78	1.32	102.79	83.62
B-04	High Density Residential	D	72	78	85	92	92	0.24	21.90	83.62
B-04	High Density Residential	B	72	78	85	92	78	0.67	52.44	83.62
B-04	High Density Residential	D	72	78	85	92	92	0.24	21.77	83.62
B-04	Mixed Barren Lands	D	67	76	81	84	84	42.33	3555.44	83.62
B-04	Mixed Barren Lands	B	67	76	81	84	76	3.48	264.46	83.62
B-04	Mixed Barren Lands	D	67	76	81	84	84	45.89	3854.46	83.62
B-06	High Density Residential	A	72	78	85	92	72	9.73	700.36	64.51
B-06	High Density Residential	D	72	78	85	92	92	0.41	37.51	64.51
B-06	Desert Shrubs	A	50	68	80	86	50	29.25	1462.33	64.51
B-06	Desert Shrubs	A	50	68	80	86	50	8.89	444.41	64.51
B-06	Desert Shrubs	A	50	68	80	86	50	124.71	6235.69	64.51

B-06	Desert Shrubs	A	50	68	80	86	50	29.73	1486.66	64.51
B-06	Desert Shrubs	D	50	68	80	86	86	57.53	4947.24	64.51
B-06	Desert Shrubs	D	50	68	80	86	86	10.97	943.30	64.51
B-06	Desert Shrubs	A	50	68	80	86	50	55.42	2770.88	64.51
B-06	Desert Shrubs	A	50	68	80	86	50	168.26	8412.92	64.51
B-06	Desert Shrubs	D	50	68	80	86	86	10.23	879.38	64.51
B-06	Desert Shrubs	A	50	68	80	86	50	133.33	6666.51	64.51
B-06	Desert Shrubs	A	50	68	80	86	50	120.05	6002.66	64.51
B-06	Desert Shrubs	A	50	68	80	86	50	134.15	6707.26	64.51
B-06	Desert Shrubs	D	50	68	80	86	86	12.15	1044.64	64.51
B-06	Mixed Barren Lands	D	67	76	81	84	84	450.66	37855.62	64.51
B-06	Mixed Barren Lands	A	67	76	81	84	67	1.44	96.23	64.51
B-06	Mixed Barren Lands	A	67	76	81	84	67	2.37	158.81	64.51
B-06	Mixed Barren Lands	A	67	76	81	84	67	20.69	1386.40	64.51
B-06	Mixed Barren Lands	D	67	76	81	84	84	34.91	2932.85	64.51
B-06	Mixed Barren Lands	A	67	76	81	84	67	40.84	2736.14	64.51
B-06	Mixed Barren Lands	D	67	76	81	84	84	0.13	10.83	64.51
B-06	Desert Shrubs	A	50	68	80	86	50	0.00	0.02	64.51
B-06	Desert Shrubs	A	50	68	80	86	50	0.00	0.02	64.51
B-07	High Density Residential	D	72	78	85	92	92	2.85	262.42	79.68
B-07	High Density Residential	A	72	78	85	92	72	19.51	1404.42	79.68
B-07	Mixed Barren Lands	D	67	76	81	84	84	18.51	1554.51	79.68
B-07	Mixed Barren Lands	D	67	76	81	84	84	18.24	1532.06	79.68
B-07	Mixed Barren Lands	A	67	76	81	84	67	3.46	231.89	79.68
B-08	Reservoir	B	##	##	##	##	100	20.23	2022.63	72.67
B-08	Reservoir	D	##	##	##	##	100	21.39	2139.33	72.67
B-08	Reservoir	B	##	##	##	##	100	12.78	1278.35	72.67
B-08	Reservoir	C	##	##	##	##	100	161.69	16168.69	72.67
B-08	Reservoir	A	##	##	##	##	100	11.01	1101.11	72.67
B-08	Sagebrush with understory	B	45	51	68	80	51	99.93	5096.44	72.67
B-08	Sagebrush with understory	A	45	51	68	80	45	4.24	190.92	72.67
B-08	Sagebrush with understory	B	45	51	68	80	51	84.37	4302.66	72.67
B-08	Sagebrush with understory	C	45	51	68	80	68	184.92	12574.40	72.67
B-08	Sagebrush with understory	A	45	51	68	80	45	5.85	263.25	72.67
B-08	Sagebrush with understory	B	45	51	68	80	51	1.58	80.59	72.67
B-08	Sagebrush with understory	D	45	51	68	80	80	1.89	151.44	72.67
B-08	Sagebrush with understory	B	45	51	68	80	51	1.14	58.15	72.67
B-08	Sagebrush with understory	C	45	51	68	80	68	2.12	144.03	72.67
B-08	Sagebrush with understory	A	45	51	68	80	45	2.38	107.16	72.67
B-08	Commercial	B	89	92	94	95	92	8.72	802.29	72.67
B-08	Undeveloped Park	B	52	61	78	88	61	43.86	2675.30	72.67

B-08	Industrial	B	81	88	91	93	88	88.54	7791.57	72.67
B-08	Industrial	C	81	88	91	93	91	0.02	2.16	72.67
B-08	Desert Shrubs	B	50	68	80	86	68	0.28	18.73	72.67
B-08	Mixed Barren Lands	B	67	76	81	84	76	55.28	4201.59	72.67
B-08	Mixed Barren Lands	B	67	76	81	84	76	222.06	16876.61	72.67
B-08	Desert Shrubs	B	50	68	80	86	68	1.09	74.43	72.67
B-08	Mixed Barren Lands	B	67	76	81	84	76	265.28	20160.99	72.67
B-08	Mixed Barren Lands	A	67	76	81	84	67	8.27	554.41	72.67
B-08	Mixed Barren Lands	D	67	76	81	84	84	5.19	436.23	72.67
B-08	Mixed Barren Lands	B	67	76	81	84	76	36.16	2748.17	72.67
B-08	Mixed Barren Lands	C	67	76	81	84	81	162.62	13172.56	72.67
B-08	Mixed Barren Lands	A	67	76	81	84	67	0.00	0.04	72.67
B-08	Desert Shrubs	B	50	68	80	86	68	61.35	4172.11	72.67
B-08	Desert Shrubs	B	50	68	80	86	68	6.20	421.45	72.67
B-08	Desert Shrubs	A	50	68	80	86	50	149.05	7452.30	72.67
B-08	Desert Shrubs	D	50	68	80	86	86	1.96	168.22	72.67
B-08	Desert Shrubs	C	50	68	80	86	80	28.93	2314.25	72.67
B-08	Desert Shrubs	A	50	68	80	86	50	54.02	2700.87	72.67
B-08	Desert Shrubs	B	50	68	80	86	68	3.46	235.40	72.67
B-08	Desert Shrubs	D	50	68	80	86	86	0.14	12.12	72.67
B-08	Desert Shrubs	B	50	68	80	86	68	0.09	5.85	72.67
B-08	Desert Shrubs	D	50	68	80	86	86	50.88	4376.10	72.67
B-08	Desert Shrubs	A	50	68	80	86	50	65.97	3298.36	72.67
B-08	Desert Shrubs	D	50	68	80	86	86	17.03	1464.96	72.67
B-08	Desert Shrubs	D	50	68	80	86	86	5.86	504.37	72.67
B-08	Desert Shrubs	A	50	68	80	86	50	42.95	2147.52	72.67
B-08	Desert Shrubs	A	50	68	80	86	50	28.67	1433.30	72.67
B-08	Mixed Barren Lands	A	67	76	81	84	67	25.44	1704.73	72.67
B-08	Mixed Barren Lands	D	67	76	81	84	84	152.70	12827.01	72.67
B-08	Mixed Barren Lands	A	67	76	81	84	67	2.69	180.29	72.67
B-08	Mixed Barren Lands	B	67	76	81	84	76	1.06	80.91	72.67
B-08	Mixed Barren Lands	B	67	76	81	84	76	1.06	80.91	72.67
B-08	Reservoir	B	##	##	##	##	100	0.24	24.18	72.67
B-08	Sagebrush with understory	B	45	51	68	80	51	0.24	12.33	72.67
B-08	Reservoir	C	##	##	##	##	100	0.05	5.34	72.67
B-08	Sagebrush with understory	C	45	51	68	80	68	0.05	3.63	72.67
B-08	Sagebrush with understory	B	45	51	68	80	51	0.01	0.27	72.67
B-08	Undeveloped Park	B	52	61	78	88	61	0.01	0.32	72.67
B-08	Sagebrush with understory	B	45	51	68	80	51	0.00	0.00	72.67
B-08	Desert Shrubs	B	50	68	80	86	68	0.00	0.00	72.67
B-08	Sagebrush with understory	B	45	51	68	80	51	0.00	0.07	72.67

B-08	Mixed Barren Lands	B	67	76	81	84	76	0.00	0.10	72.67
B-08	Industrial	B	81	88	91	93	88	0.00	0.00	72.67
B-08	Mixed Barren Lands	B	67	76	81	84	76	0.00	0.00	72.67
B-09	Low Density Residential	B	68	72	78	87	72	0.00	0.08	83.41
B-09	Low Density Residential	C	68	72	78	87	78	0.43	33.55	83.41
B-09	Mixed Barren Lands	D	67	76	81	84	84	3.70	310.89	83.41
B-09	Mixed Barren Lands	B	67	76	81	84	76	0.01	0.94	83.41
B-09	Mixed Barren Lands	D	67	76	81	84	84	7.49	629.36	83.41
B-09	Mixed Barren Lands	C	67	76	81	84	81	1.72	139.40	83.41
B-10	Commercial	B	89	92	94	95	92	7.29	670.97	87.81
B-10	Commercial	C	89	92	94	95	94	10.92	1026.30	87.81
B-10	Low Density Residential	B	68	72	78	87	72	1.25	90.24	87.81
B-10	Low Density Residential	C	68	72	78	87	78	9.06	706.38	87.81
B-10	Commercial	B	89	92	94	95	92	3.26	300.16	87.81
B-10	Mixed Barren Lands	C	67	76	81	84	81	0.45	36.44	87.81
B-10	Commercial	B	89	92	94	95	92	0.00	0.02	87.81
B-10	Commercial	C	89	92	94	95	94	0.00	0.00	87.81
B-10	Commercial	B	89	92	94	95	92	0.00	0.00	87.81
B-10	Commercial	B	89	92	94	95	92	0.00	0.07	87.81
B-10	Commercial	C	89	92	94	95	94	0.02	1.60	87.81
B-10	Low Density Residential	C	68	72	78	87	78	0.02	1.33	87.81
B-100	Riverbed	C	30	55	70	80	70	0.11	7.54	80.80
B-100	Commercial	A	89	92	94	95	89	0.01	0.52	80.80
B-100	Commercial	C	89	92	94	95	94	17.37	1632.43	80.80
B-100	Industrial	C	81	88	91	93	91	0.78	70.87	80.80
B-100	Agricultural Residential	C	42	58	72	81	72	26.80	1929.95	80.80
B-100	Commercial	C	89	92	94	95	94	0.00	0.00	80.80
B-100	Agricultural Residential	C	42	58	72	81	72	0.00	0.00	80.80
B-101	Commercial	C	89	92	94	95	94	0.90	84.95	73.44
B-101	Agricultural Residential	C	42	58	72	81	72	13.01	936.92	73.44
B-101	Commercial	C	89	92	94	95	94	0.01	0.57	73.44
B-101	Agricultural Residential	C	42	58	72	81	72	0.00	0.02	73.44
B-101	Commercial	C	89	92	94	95	94	0.00	0.00	73.44
B-101	Agricultural Residential	C	42	58	72	81	72	0.00	0.00	73.44
B-102	Commercial	C	89	92	94	95	94	4.39	412.95	93.96
B-102	Agricultural Residential	C	42	58	72	81	72	0.01	0.51	93.96
B-102	Commercial	C	89	92	94	95	94	0.01	0.57	93.96
B-102	Commercial	C	89	92	94	95	94	0.00	0.02	93.96
B-102	Agricultural Residential	C	42	58	72	81	72	0.00	0.01	93.96
B-103	Agricultural Residential	C	42	58	72	81	72	0.11	8.04	84.15
B-103	High Density Residential	C	72	78	85	92	85	1.60	136.39	84.15

B-104	Commercial	C	89	92	94	95	94	0.05	4.51	84.77
B-104	Agricultural Residential	C	42	58	72	81	72	0.07	4.78	84.77
B-104	High Density Residential	C	72	78	85	92	85	1.74	148.30	84.77
B-105	Commercial	C	89	92	94	95	94	0.45	42.48	88.30
B-105	Commercial	C	89	92	94	95	94	7.09	666.35	88.30
B-105	Agricultural Residential	C	42	58	72	81	72	2.57	184.78	88.30
B-105	High Density Residential	C	72	78	85	92	85	0.34	29.09	88.30
B-105	Commercial	C	89	92	94	95	94	0.01	0.55	88.30
B-105	Agricultural Residential	C	42	58	72	81	72	0.00	0.02	88.30
B-105	Commercial	C	89	92	94	95	94	0.00	0.02	88.30
B-105	Agricultural Residential	C	42	58	72	81	72	0.00	0.01	88.30
B-106	Commercial	C	89	92	94	95	94	0.00	0.00	72.53
B-106	High Density Residential	B	72	78	85	92	78	1.28	99.65	72.53
B-106	High Density Residential	C	72	78	85	92	85	17.41	1479.57	72.53
B-106	Commercial	B	89	92	94	95	92	3.11	286.25	72.53
B-106	Commercial	C	89	92	94	95	94	0.02	1.84	72.53
B-106	Commercial	B	89	92	94	95	92	6.76	622.34	72.53
B-106	Agricultural Residential	B	42	58	72	81	58	27.86	1616.08	72.53
B-106	Agricultural Residential	C	42	58	72	81	72	24.18	1741.05	72.53
B-106	High Density Residential	C	72	78	85	92	85	0.05	3.95	72.53
B-106	Commercial	B	89	92	94	95	92	0.00	0.07	72.53
B-106	Commercial	B	89	92	94	95	92	0.00	0.01	72.53
B-106	High Density Residential	C	72	78	85	92	85	0.01	0.49	72.53
B-106	High Density Residential	C	72	78	85	92	85	0.00	0.34	72.53
B-106	Commercial	B	89	92	94	95	92	0.00	0.01	72.53
B-106	Commercial	C	89	92	94	95	94	0.00	0.02	72.53
B-106	Commercial	C	89	92	94	95	94	0.00	0.00	72.53
B-106	Agricultural Residential	C	42	58	72	81	72	0.00	0.00	72.53
B-106	Commercial	B	89	92	94	95	92	0.01	0.79	72.53
B-106	Agricultural Residential	B	42	58	72	81	58	0.01	0.50	72.53
B-107	High Density Residential	C	72	78	85	92	85	4.38	372.20	79.92
B-107	Commercial	C	89	92	94	95	94	0.11	10.02	79.92
B-107	Commercial	C	89	92	94	95	94	0.11	9.94	79.92
B-107	Industrial	C	81	88	91	93	91	29.35	2671.26	79.92
B-107	Agricultural Residential	C	42	58	72	81	72	44.43	3198.63	79.92
B-107	High Density Residential	C	72	78	85	92	85	0.05	4.20	79.92
B-107	Industrial	C	81	88	91	93	91	0.05	4.49	79.92
B-107	High Density Residential	C	72	78	85	92	85	0.04	3.00	79.92
B-107	Industrial	C	81	88	91	93	91	0.04	3.21	79.92
B-107	Industrial	C	81	88	91	93	91	0.01	0.56	79.92
B-107	Agricultural Residential	C	42	58	72	81	72	0.01	0.44	79.92

B-108	Riverbed	A	30	55	70	80	30	0.14	4.33	91.71
B-108	Riverbed	C	30	55	70	80	70	0.01	0.90	91.71
B-108	High Density Residential	C	72	78	85	92	85	5.71	485.26	91.71
B-108	Low Density Residential	C	68	72	78	87	78	4.60	359.12	91.71
B-108	Commercial	A	89	92	94	95	89	0.30	26.77	91.71
B-108	Commercial	C	89	92	94	95	94	43.67	4105.06	91.71
B-108	Commercial	C	89	92	94	95	94	7.02	660.15	91.71
B-108	High Density Residential	C	72	78	85	92	85	0.54	46.20	91.71
B-108	High Density Residential	C	72	78	85	92	85	0.13	11.10	91.71
B-108	Industrial	C	81	88	91	93	91	0.12	10.76	91.71
B-108	Commercial	C	89	92	94	95	94	0.01	0.55	91.71
B-108	Commercial	C	89	92	94	95	94	0.00	0.43	91.71
B-108	High Density Residential	C	72	78	85	92	85	0.00	0.39	91.71
B-109	Commercial	B	89	92	94	95	92	13.00	1195.67	69.80
B-109	Mixed Density Residential	B	69	74	79	88	74	14.90	1102.50	69.80
B-109	Mixed Density Residential	D	69	74	79	88	88	0.72	63.59	69.80
B-109	Agricultural Residential	B	42	58	72	81	58	50.45	2926.24	69.80
B-109	Agricultural Residential	C	42	58	72	81	72	33.65	2422.97	69.80
B-109	Agricultural Residential	D	42	58	72	81	81	14.10	1142.27	69.80
B-109	Desert Shrubs	B	50	68	80	86	68	3.15	214.05	69.80
B-109	Desert Shrubs	D	50	68	80	86	86	0.24	20.58	69.80
B-109	High Density Residential	C	72	78	85	92	85	0.00	0.01	69.80
B-109	Mixed Density Residential	D	69	74	79	88	88	0.01	0.88	69.80
B-109	Agricultural Residential	D	42	58	72	81	81	0.01	0.81	69.80
B-11	Commercial	B	89	92	94	95	92	0.27	24.41	84.16
B-11	High Density Residential	B	72	78	85	92	78	5.99	467.29	84.16
B-11	High Density Residential	D	72	78	85	92	92	0.63	58.07	84.16
B-11	High Density Residential	B	72	78	85	92	78	8.23	641.85	84.16
B-11	High Density Residential	D	72	78	85	92	92	2.53	232.39	84.16
B-11	Commercial	B	89	92	94	95	92	16.19	1489.21	84.16
B-11	Commercial	D	89	92	94	95	95	0.04	4.15	84.16
B-11	Undeveloped - grassy	B	70	80	87	90	80	23.46	1876.90	84.16
B-11	Undeveloped - grassy	D	70	80	87	90	90	6.49	583.82	84.16
B-11	Desert Shrubs	B	50	68	80	86	68	0.71	48.52	84.16
B-11	Desert Shrubs	D	50	68	80	86	86	3.89	334.41	84.16
B-11	Mixed Barren Lands	B	67	76	81	84	76	0.32	23.99	84.16
B-11	Commercial	B	89	92	94	95	92	0.00	0.01	84.16
B-11	High Density Residential	B	72	78	85	92	78	0.00	0.12	84.16
B-11	Commercial	B	89	92	94	95	92	0.00	0.14	84.16
B-110	Agricultural Residential	B	42	58	72	81	58	0.28	16.38	73.42
B-110	Agricultural Residential	C	42	58	72	81	72	33.10	2383.41	73.42

B-110	Agricultural Residential	D	42	58	72	81	81	6.80	550.59	73.42
B-111	Riverbed	A	30	55	70	80	30	0.09	2.58	72.84
B-111	Riverbed	C	30	55	70	80	70	0.09	6.55	72.84
B-111	Agricultural Residential	C	42	58	72	81	72	1.04	74.96	72.84
B-111	Commercial	C	89	92	94	95	94	1.23	115.51	72.84
B-111	Industrial	C	81	88	91	93	91	3.08	280.53	72.84
B-111	Agricultural Residential	A	42	58	72	81	42	0.09	3.89	72.84
B-111	Agricultural Residential	C	42	58	72	81	72	170.92	12306.39	72.84
B-111	Industrial	C	81	88	91	93	91	3.80	345.38	72.84
B-111	Industrial	C	81	88	91	93	91	0.05	5.00	72.84
B-111	Agricultural Residential	C	42	58	72	81	72	0.05	3.95	72.84
B-111	Agricultural Residential	C	42	58	72	81	72	0.01	0.43	72.84
B-111	Industrial	C	81	88	91	93	91	0.01	0.54	72.84
B-112	Riverbed	A	30	55	70	80	30	0.01	0.18	75.24
B-112	Riverbed	C	30	55	70	80	70	0.14	10.10	75.24
B-112	Low Density Residential	A	68	72	78	87	68	0.05	3.72	75.24
B-112	Low Density Residential	C	68	72	78	87	78	12.92	1007.64	75.24
B-112	Mixed Density Residential	C	69	74	79	88	79	5.54	437.96	75.24
B-112	Industrial	C	81	88	91	93	91	0.47	43.08	75.24
B-112	Agricultural Residential	A	42	58	72	81	42	0.19	8.19	75.24
B-112	Agricultural Residential	C	42	58	72	81	72	84.89	6112.03	75.24
B-112	Commercial	C	89	92	94	95	94	11.67	1097.19	75.24
B-112	Low Density Residential	C	68	72	78	87	78	0.00	0.08	75.24
B-112	Mixed Density Residential	C	69	74	79	88	79	0.00	0.08	75.24
B-113	Low Density Residential	A	68	72	78	87	68	3.32	225.74	66.41
B-113	Low Density Residential	C	68	72	78	87	78	3.13	244.45	66.41
B-113	Low Density Residential	B	68	72	78	87	72	60.65	4366.95	66.41
B-113	Sagebrush with understory	A	45	51	68	80	45	0.50	22.29	66.41
B-113	Sagebrush with understory	C	45	51	68	80	68	88.13	5992.56	66.41
B-113	Sagebrush with understory	B	45	51	68	80	51	33.78	1722.80	66.41
B-113	Low Density Residential	C	68	72	78	87	78	0.92	71.77	66.41
B-114	Low Density Residential	A	68	72	78	87	68	45.04	3062.83	72.92
B-114	Low Density Residential	A	68	72	78	87	68	1.36	92.71	72.92
B-114	Low Density Residential	B	68	72	78	87	72	33.82	2435.27	72.92
B-114	Low Density Residential	A	68	72	78	87	68	14.02	953.35	72.92
B-114	Low Density Residential	D	68	72	78	87	87	15.43	1342.25	72.92
B-114	Mixed Barren Lands	A	67	76	81	84	67	0.26	17.38	72.92
B-114	Mixed Barren Lands	A	67	76	81	84	67	11.04	739.73	72.92
B-114	Mixed Barren Lands	D	67	76	81	84	84	18.24	1532.11	72.92
B-114	Mixed Barren Lands	A	67	76	81	84	67	4.47	299.30	72.92
B-114	Mixed Barren Lands	B	67	76	81	84	76	0.81	61.21	72.92

B-114	Mixed Barren Lands	D	67	76	81	84	84	0.03	2.21	72.92
B-115	Low Density Residential	A	68	72	78	87	68	1.77	120.26	71.48
B-115	Low Density Residential	A	68	72	78	87	68	8.33	566.71	71.48
B-115	Low Density Residential	B	68	72	78	87	72	18.82	1355.37	71.48
B-115	Low Density Residential	A	68	72	78	87	68	11.66	793.04	71.48
B-115	Low Density Residential	D	68	72	78	87	87	0.21	18.63	71.48
B-115	Developed Park	B	48	58	74	85	58	7.11	412.41	71.48
B-115	Sagebrush with understory	B	45	51	68	80	51	5.72	291.76	71.48
B-115	Mixed Density Residential	B	69	74	79	88	74	41.42	3065.34	71.48
B-115	Mixed Barren Lands	A	67	76	81	84	67	2.60	174.18	71.48
B-115	Mixed Barren Lands	D	67	76	81	84	84	7.85	659.62	71.48
B-115	High Density Residential	B	72	78	85	92	78	12.92	1007.76	71.48
B-115	Sagebrush with understory	B	45	51	68	80	51	0.00	0.16	71.48
B-115	High Density Residential	B	72	78	85	92	78	0.00	0.25	71.48
B-116	Low Density Residential	A	68	72	78	87	68	12.76	867.84	72.37
B-116	Low Density Residential	A	68	72	78	87	68	4.35	295.76	72.37
B-116	Low Density Residential	B	68	72	78	87	72	32.46	2336.97	72.37
B-116	Low Density Residential	A	68	72	78	87	68	7.12	484.12	72.37
B-116	Mixed Barren Lands	A	67	76	81	84	67	0.00	0.15	72.37
B-116	Mixed Barren Lands	A	67	76	81	84	67	5.19	347.77	72.37
B-116	Mixed Barren Lands	D	67	76	81	84	84	12.50	1050.29	72.37
B-116	Mixed Barren Lands	D	67	76	81	84	84	0.00	0.00	72.37
B-117	Low Density Residential	A	68	72	78	87	68	0.06	3.89	73.51
B-117	Low Density Residential	B	68	72	78	87	72	26.05	1875.55	73.51
B-117	Low Density Residential	A	68	72	78	87	68	0.24	16.63	73.51
B-117	Mixed Density Residential	B	69	74	79	88	74	84.96	6287.19	73.51
B-117	Low Density Residential	B	68	72	78	87	72	0.05	3.58	73.51
B-117	Low Density Residential	A	68	72	78	87	68	0.00	0.27	73.51
B-117	Mixed Density Residential	B	69	74	79	88	74	0.03	2.04	73.51
B-118	Low Density Residential	A	68	72	78	87	68	14.03	953.73	68.71
B-118	Low Density Residential	B	68	72	78	87	72	14.93	1075.01	68.71
B-118	Low Density Residential	A	68	72	78	87	68	7.55	513.18	68.71
B-118	Developed Park	B	48	58	74	85	58	3.91	226.87	68.71
B-118	Mixed Density Residential	B	69	74	79	88	74	0.41	30.56	68.71
B-118	Mixed Barren Lands	A	67	76	81	84	67	0.39	25.99	68.71
B-118	High Density Residential	B	72	78	85	92	78	0.72	56.09	68.71
B-118	Low Density Residential	B	68	72	78	87	72	0.00	0.03	68.71
B-118	Low Density Residential	A	68	72	78	87	68	0.03	1.91	68.71
B-119	Mixed Density Residential	B	69	74	79	88	74	25.58	1893.23	74.02
B-119	Mixed Barren Lands	B	67	76	81	84	76	0.31	23.49	74.02
B-120	Low Density Residential	C	68	72	78	87	78	8.06	628.68	74.78

B-120	Low Density Residential	A	68	72	78	87	68	0.66	44.68	74.78
B-120	Low Density Residential	B	68	72	78	87	72	5.25	377.79	74.78
B-120	Low Density Residential	B	68	72	78	87	72	2.56	184.29	74.78
B-120	Low Density Residential	A	68	72	78	87	68	24.43	1661.50	74.78
B-120	Mixed Density Residential	C	69	74	79	88	79	0.06	4.95	74.78
B-120	Mixed Density Residential	B	69	74	79	88	74	1.19	87.72	74.78
B-120	High Density Residential	C	72	78	85	92	85	8.05	684.18	74.78
B-120	High Density Residential	B	72	78	85	92	78	7.61	593.38	74.78
B-120	Desert Shrubs	A	50	68	80	86	50	42.29	2114.45	74.78
B-120	Desert Shrubs	D	50	68	80	86	86	0.54	46.63	74.78
B-120	Desert Shrubs	A	50	68	80	86	50	6.14	307.18	74.78
B-120	Mixed Barren Lands	C	67	76	81	84	81	2.99	242.45	74.78
B-120	Mixed Barren Lands	D	67	76	81	84	84	8.47	711.33	74.78
B-120	Mixed Barren Lands	C	67	76	81	84	81	73.27	5935.05	74.78
B-120	Mixed Barren Lands	A	67	76	81	84	67	18.41	1233.17	74.78
B-120	Mixed Barren Lands	D	67	76	81	84	84	18.96	1592.70	74.78
B-120	Mixed Barren Lands	B	67	76	81	84	76	1.71	129.69	74.78
B-120	Mixed Barren Lands	B	67	76	81	84	76	8.65	657.65	74.78
B-120	Mixed Barren Lands	A	67	76	81	84	67	146.30	9802.01	74.78
B-120	Mixed Barren Lands	D	67	76	81	84	84	196.71	16523.43	74.78
B-120	Mixed Barren Lands	A	67	76	81	84	67	2.78	186.54	74.78
B-120	Desert Shrubs	A	50	68	80	86	50	0.00	0.01	74.78
B-120	High Density Residential	B	72	78	85	92	78	0.02	1.63	74.78
B-120	Desert Shrubs	A	50	68	80	86	50	0.02	0.92	74.78
B-120	Desert Shrubs	A	50	68	80	86	50	0.00	0.01	74.78
B-120	Mixed Barren Lands	D	67	76	81	84	84	0.00	0.06	74.78
B-120	Mixed Barren Lands	D	67	76	81	84	84	0.06	4.89	74.78
B-120	Mixed Barren Lands	A	67	76	81	84	67	0.00	0.03	74.78
B-120	Mixed Barren Lands	D	67	76	81	84	84	0.04	3.45	74.78
B-120	Mixed Barren Lands	A	67	76	81	84	67	0.00	0.08	74.78
B-120	Mixed Barren Lands	D	67	76	81	84	84	0.00	0.01	74.78
B-120	Mixed Density Residential	C	69	74	79	88	79	0.00	0.08	74.78
B-120	Mixed Density Residential	B	69	74	79	88	74	0.01	0.85	74.78
B-120	Mixed Barren Lands	D	67	76	81	84	84	0.00	0.00	74.78
B-120	Mixed Barren Lands	D	67	76	81	84	84	0.03	2.21	74.78
B-120	Mixed Barren Lands	D	67	76	81	84	84	0.00	0.00	74.78
B-121	High Density Residential	C	72	78	85	92	85	5.02	426.31	73.67
B-121	Mixed Barren Lands	C	67	76	81	84	81	27.46	2224.18	73.67
B-121	Mixed Barren Lands	A	67	76	81	84	67	4.80	321.92	73.67
B-121	Mixed Barren Lands	C	67	76	81	84	81	51.81	4196.82	73.67
B-121	Mixed Barren Lands	A	67	76	81	84	67	84.63	5670.03	73.67

B-121	Mixed Barren Lands	D	67	76	81	84	84	0.37	30.83	73.67
B-121	Mixed Barren Lands	D	67	76	81	84	84	22.34	1876.42	73.67
B-121	Mixed Barren Lands	A	67	76	81	84	67	42.31	2834.66	73.67
B-121	Mixed Barren Lands	D	67	76	81	84	84	0.61	51.13	73.67
B-122	Low Density Residential	B	68	72	78	87	72	17.41	1253.79	69.84
B-122	Low Density Residential	B	68	72	78	87	72	9.29	668.63	69.84
B-122	Low Density Residential	A	68	72	78	87	68	35.06	2383.98	69.84
B-122	Mixed Density Residential	B	69	74	79	88	74	9.34	691.34	69.84
B-122	Mixed Density Residential	A	69	74	79	88	69	0.95	65.65	69.84
B-122	Mixed Barren Lands	B	67	76	81	84	76	6.75	512.92	69.84
B-122	Mixed Barren Lands	A	67	76	81	84	67	25.95	1738.39	69.84
B-122	Mixed Barren Lands	D	67	76	81	84	84	0.07	6.11	69.84
B-122	Mixed Barren Lands	A	67	76	81	84	67	0.00	0.08	69.84
B-122	Mixed Barren Lands	D	67	76	81	84	84	0.00	0.01	69.84
B-122	Low Density Residential	A	68	72	78	87	68	0.03	1.92	69.84
B-122	Mixed Barren Lands	A	67	76	81	84	67	0.05	3.53	69.84
B-122	Mixed Barren Lands	D	67	76	81	84	84	0.01	0.50	69.84
B-122	Mixed Density Residential	B	69	74	79	88	74	0.07	5.30	69.84
B-122	Low Density Residential	B	68	72	78	87	72	0.05	3.58	69.84
B-122	Low Density Residential	A	68	72	78	87	68	0.00	0.27	69.84
B-122	Mixed Density Residential	B	69	74	79	88	74	0.03	2.04	69.84
B-122	Low Density Residential	B	68	72	78	87	72	0.00	0.03	69.84
B-122	Low Density Residential	A	68	72	78	87	68	0.03	1.91	69.84
B-122	Mixed Barren Lands	D	67	76	81	84	84	0.00	0.00	69.84
B-123	Mixed Density Residential	C	69	74	79	88	79	0.01	1.06	74.04
B-123	Mixed Density Residential	B	69	74	79	88	74	52.14	3858.47	74.04
B-123	High Density Residential	B	72	78	85	92	78	0.34	26.71	74.04
B-123	Mixed Barren Lands	B	67	76	81	84	76	0.35	26.84	74.04
B-123	Mixed Density Residential	C	69	74	79	88	79	0.00	0.08	74.04
B-123	Mixed Density Residential	B	69	74	79	88	74	0.01	0.85	74.04
B-123	Mixed Density Residential	B	69	74	79	88	74	0.00	0.08	74.04
B-123	Mixed Density Residential	B	69	74	79	88	74	0.07	5.30	74.04
B-123	Mixed Density Residential	B	69	74	79	88	74	0.00	0.03	74.04
B-123	High Density Residential	B	72	78	85	92	78	0.00	0.03	74.04
B-124	Sagebrush with understory	B	45	51	68	80	51	20.72	1056.83	71.83
B-124	Sagebrush with understory	D	45	51	68	80	80	1.09	87.58	71.83
B-124	Sagebrush with understory	B	45	51	68	80	51	0.27	13.52	71.83
B-124	Sagebrush with understory	D	45	51	68	80	80	1.59	127.52	71.83
B-124	Sagebrush with understory	B	45	51	68	80	51	9.61	490.25	71.83
B-124	Sagebrush with understory	C	45	51	68	80	68	16.75	1139.29	71.83
B-124	Sagebrush with understory	C	45	51	68	80	68	6.57	446.89	71.83

B-124	Sagebrush with understory	A	45	51	68	80	45	7.04	316.70	71.83
B-124	Agricultural Residential	B	42	58	72	81	58	1.97	114.09	71.83
B-124	Agricultural Residential	C	42	58	72	81	72	124.49	8963.00	71.83
B-124	Agricultural Residential	A	42	58	72	81	42	1.46	61.25	71.83
B-124	Industrial	C	81	88	91	93	91	0.30	27.09	71.83
B-124	Agricultural Residential	C	42	58	72	81	72	0.02	1.47	71.83
B-124	Industrial	C	81	88	91	93	91	42.55	3871.98	71.83
B-124	Agricultural Residential	B	42	58	72	81	58	9.89	573.79	71.83
B-124	Agricultural Residential	C	42	58	72	81	72	36.53	2630.04	71.83
B-124	Agricultural Residential	C	42	58	72	81	72	11.36	817.91	71.83
B-124	Commercial	B	89	92	94	95	92	0.00	0.19	71.83
B-124	Undeveloped Park	B	52	61	78	88	61	0.97	59.27	71.83
B-124	Desert Shrubs	D	50	68	80	86	86	24.01	2064.47	71.83
B-124	Desert Shrubs	D	50	68	80	86	86	32.85	2825.06	71.83
B-124	Desert Shrubs	B	50	68	80	86	68	71.92	4890.31	71.83
B-124	Desert Shrubs	C	50	68	80	86	80	7.77	621.28	71.83
B-124	Desert Shrubs	A	50	68	80	86	50	65.45	3272.63	71.83
B-124	Desert Shrubs	D	50	68	80	86	86	17.51	1506.10	71.83
B-124	Desert Shrubs	B	50	68	80	86	68	10.95	744.53	71.83
B-124	Mixed Barren Lands	B	67	76	81	84	76	0.63	47.56	71.83
B-124	Mixed Barren Lands	B	67	76	81	84	76	210.40	15990.58	71.83
B-124	Desert Shrubs	D	50	68	80	86	86	0.28	23.66	71.83
B-124	Desert Shrubs	D	50	68	80	86	86	0.28	23.66	71.83
B-124	Sagebrush with understory	B	45	51	68	80	51	0.00	0.11	71.83
B-124	Desert Shrubs	B	50	68	80	86	68	0.00	0.14	71.83
B-124	Sagebrush with understory	C	45	51	68	80	68	0.00	0.00	71.83
B-124	Industrial	C	81	88	91	93	91	0.00	0.00	71.83
B-124	Sagebrush with understory	C	45	51	68	80	68	0.00	0.00	71.83
B-124	Agricultural Residential	C	42	58	72	81	72	0.00	0.00	71.83
B-124	Sagebrush with understory	C	45	51	68	80	68	0.00	0.01	71.83
B-124	Agricultural Residential	C	42	58	72	81	72	0.00	0.01	71.83
B-125	Industrial	C	81	88	91	93	91	4.53	412.29	67.10
B-125	Agricultural Residential	B	42	58	72	81	58	91.31	5296.22	67.10
B-125	Agricultural Residential	C	42	58	72	81	72	52.82	3802.71	67.10
B-125	Agricultural Residential	D	42	58	72	81	81	33.25	2693.43	67.10
B-125	Desert Shrubs	D	50	68	80	86	86	0.05	4.00	67.10
B-126	High Density Residential	B	72	78	85	92	78	11.87	925.67	73.74
B-126	High Density Residential	D	72	78	85	92	92	7.17	659.63	73.74
B-126	High Density Residential	A	72	78	85	92	72	1.61	115.76	73.74
B-126	Commercial	B	89	92	94	95	92	5.05	464.31	73.74
B-126	Commercial	D	89	92	94	95	95	0.02	2.03	73.74

B-126	Industrial	B	81	88	91	93	88	6.34	557.50	73.74
B-126	Industrial	D	81	88	91	93	93	2.84	263.96	73.74
B-126	Agricultural Residential	B	42	58	72	81	58	1.21	70.19	73.74
B-126	Agricultural Residential	D	42	58	72	81	81	0.08	6.87	73.74
B-126	Agricultural Residential	D	42	58	72	81	81	0.19	15.17	73.74
B-126	Industrial	B	81	88	91	93	88	0.79	69.19	73.74
B-126	Industrial	D	81	88	91	93	93	0.35	32.44	73.74
B-126	Desert Shrubs	B	50	68	80	86	68	61.75	4199.20	73.74
B-126	Desert Shrubs	B	50	68	80	86	68	26.30	1788.61	73.74
B-126	Desert Shrubs	A	50	68	80	86	50	10.97	548.43	73.74
B-126	Desert Shrubs	D	50	68	80	86	86	25.60	2201.56	73.74
B-126	Desert Shrubs	A	50	68	80	86	50	18.98	948.87	73.74
B-126	Desert Shrubs	B	50	68	80	86	68	37.03	2517.97	73.74
B-126	Desert Shrubs	D	50	68	80	86	86	53.63	4612.48	73.74
B-126	Desert Shrubs	D	50	68	80	86	86	52.07	4477.61	73.74
B-126	Desert Shrubs	A	50	68	80	86	50	0.67	33.38	73.74
B-126	Desert Shrubs	B	50	68	80	86	68	127.16	8646.59	73.74
B-126	Desert Shrubs	D	50	68	80	86	86	9.81	843.72	73.74
B-126	Desert Shrubs	D	50	68	80	86	86	17.28	1486.11	73.74
B-126	Desert Shrubs	A	50	68	80	86	50	18.51	925.29	73.74
B-126	Desert Shrubs	A	50	68	80	86	50	15.31	765.60	73.74
B-126	Desert Shrubs	D	50	68	80	86	86	58.11	4997.47	73.74
B-126	Desert Shrubs	D	50	68	80	86	86	0.61	52.63	73.74
B-126	Desert Shrubs	A	50	68	80	86	50	79.93	3996.64	73.74
B-126	Desert Shrubs	D	50	68	80	86	86	5.73	492.56	73.74
B-126	Desert Shrubs	A	50	68	80	86	50	20.08	1004.04	73.74
B-126	Desert Shrubs	A	50	68	80	86	50	17.61	880.47	73.74
B-126	Desert Shrubs	D	50	68	80	86	86	13.24	1138.92	73.74
B-126	Desert Shrubs	A	50	68	80	86	50	34.45	1722.36	73.74
B-126	Desert Shrubs	A	50	68	80	86	50	46.28	2313.81	73.74
B-126	Mixed Barren Lands	D	67	76	81	84	84	211.59	17773.56	73.74
B-126	Mixed Barren Lands	A	67	76	81	84	67	0.31	20.47	73.74
B-126	Mixed Barren Lands	B	67	76	81	84	76	10.32	784.39	73.74
B-126	Mixed Barren Lands	A	67	76	81	84	67	0.19	12.59	73.74
B-126	Mixed Barren Lands	D	67	76	81	84	84	2.39	201.14	73.74
B-126	Mixed Barren Lands	D	67	76	81	84	84	59.28	4979.81	73.74
B-126	Mixed Barren Lands	A	67	76	81	84	67	7.50	502.17	73.74
B-126	Mixed Barren Lands	A	67	76	81	84	67	2.84	190.21	73.74
B-126	Mixed Barren Lands	D	67	76	81	84	84	165.33	13887.72	73.74
B-126	Mixed Barren Lands	D	67	76	81	84	84	14.28	1199.34	73.74
B-126	Mixed Barren Lands	A	67	76	81	84	67	0.66	44.22	73.74

B-126	Mixed Barren Lands	A	67	76	81	84	67	32.64	2186.60	73.74
B-126	Mixed Barren Lands	D	67	76	81	84	84	1.66	139.68	73.74
B-126	Mixed Barren Lands	A	67	76	81	84	67	3.08	206.12	73.74
B-126	Desert Shrubs	A	50	68	80	86	50	0.00	0.01	73.74
B-126	Desert Shrubs	A	50	68	80	86	50	0.00	0.01	73.74
B-127	Sagebrush with understory	B	45	51	68	80	51	7.43	379.10	60.10
B-127	Sagebrush with understory	A	45	51	68	80	45	0.00	0.02	60.10
B-127	Sagebrush with understory	A	45	51	68	80	45	13.26	596.84	60.10
B-127	Sagebrush with understory	B	45	51	68	80	51	0.26	13.48	60.10
B-127	Sagebrush with understory	D	45	51	68	80	80	6.23	498.30	60.10
B-127	Sagebrush with understory	B	45	51	68	80	51	0.83	42.45	60.10
B-127	Sagebrush with understory	C	45	51	68	80	68	0.03	1.99	60.10
B-127	Sagebrush with understory	A	45	51	68	80	45	14.12	635.52	60.10
B-127	Agricultural Residential	B	42	58	72	81	58	146.30	8485.41	60.10
B-127	Agricultural Residential	A	42	58	72	81	42	2.91	122.15	60.10
B-127	Agricultural Residential	D	42	58	72	81	81	0.00	0.12	60.10
B-127	Low Density Residential	B	68	72	78	87	72	11.08	798.00	60.10
B-127	Low Density Residential	B	68	72	78	87	72	13.61	980.25	60.10
B-127	Low Density Residential	A	68	72	78	87	68	11.08	753.46	60.10
B-127	Industrial	B	81	88	91	93	88	7.25	637.80	60.10
B-127	Industrial	A	81	88	91	93	81	0.00	0.30	60.10
B-127	Industrial	D	81	88	91	93	93	0.02	2.20	60.10
B-127	Desert Shrubs	B	50	68	80	86	68	73.04	4966.73	60.10
B-127	Desert Shrubs	A	50	68	80	86	50	2.72	136.12	60.10
B-127	Desert Shrubs	B	50	68	80	86	68	5.88	399.72	60.10
B-127	Desert Shrubs	A	50	68	80	86	50	44.84	2241.75	60.10
B-127	Agricultural Residential	B	42	58	72	81	58	0.09	5.17	60.10
B-127	Low Density Residential	B	68	72	78	87	72	0.09	6.42	60.10
B-127	Agricultural Residential	A	42	58	72	81	42	0.00	0.02	60.10
B-127	Low Density Residential	A	68	72	78	87	68	0.00	0.04	60.10
B-14	Riverbed	A	30	55	70	80	30	0.01	0.22	84.50
B-14	Riverbed	C	30	55	70	80	70	0.06	4.52	84.50
B-14	High Density Residential	A	72	78	85	92	72	0.10	7.11	84.50
B-14	High Density Residential	C	72	78	85	92	85	5.08	431.77	84.50
B-15	Riverbed	A	30	55	70	80	30	0.00	0.06	74.09
B-15	Riverbed	A	30	55	70	80	30	0.03	0.76	74.09
B-15	Low Density Residential	A	68	72	78	87	68	0.09	5.99	74.09
B-15	Low Density Residential	A	68	72	78	87	68	0.63	42.59	74.09
B-15	Low Density Residential	C	68	72	78	87	78	13.13	1024.25	74.09
B-15	Commercial	C	89	92	94	95	94	6.42	603.70	74.09
B-15	Agricultural Residential	A	42	58	72	81	42	5.28	221.91	74.09

B-15	Agricultural Residential	C	42	58	72	81	72	2.34	168.82	74.09
B-15	Mixed Barren Lands	C	67	76	81	84	81	0.10	8.42	74.09
B-15	Low Density Residential	C	68	72	78	87	78	0.00	0.04	74.09
B-15	Commercial	C	89	92	94	95	94	0.00	0.05	74.09
B-16	Riverbed	A	30	55	70	80	30	0.11	3.23	85.47
B-16	Riverbed	C	30	55	70	80	70	0.01	0.50	85.47
B-16	Commercial	A	89	92	94	95	89	0.00	0.10	85.47
B-16	Commercial	C	89	92	94	95	94	1.72	162.08	85.47
B-16	High Density Residential	A	72	78	85	92	72	0.30	21.85	85.47
B-16	High Density Residential	C	72	78	85	92	85	11.69	993.30	85.47
B-16	Commercial	C	89	92	94	95	94	0.12	11.31	85.47
B-16	High Density Residential	C	72	78	85	92	85	0.12	10.22	85.47
B-18	Desert Shrubs	D	50	68	80	86	86	1.39	119.67	77.48
B-18	Desert Shrubs	A	50	68	80	86	50	45.22	2260.82	77.48
B-18	Desert Shrubs	A	50	68	80	86	50	40.42	2020.80	77.48
B-18	Desert Shrubs	D	50	68	80	86	86	29.45	2532.34	77.48
B-18	Desert Shrubs	A	50	68	80	86	50	114.71	5735.28	77.48
B-18	Mixed Barren Lands	D	67	76	81	84	84	4.09	343.44	77.48
B-18	Mixed Barren Lands	A	67	76	81	84	67	0.68	45.76	77.48
B-18	Mixed Barren Lands	D	67	76	81	84	84	40.23	3379.18	77.48
B-18	Mixed Barren Lands	D	67	76	81	84	84	35.66	2995.06	77.48
B-18	Mixed Barren Lands	D	67	76	81	84	84	33.60	2822.29	77.48
B-18	Mixed Barren Lands	D	67	76	81	84	84	15.89	1334.52	77.48
B-18	Mixed Barren Lands	D	67	76	81	84	84	2.70	227.03	77.48
B-18	Mixed Barren Lands	A	67	76	81	84	67	0.51	33.98	77.48
B-18	Mixed Barren Lands	A	67	76	81	84	67	0.10	6.56	77.48
B-18	Mixed Barren Lands	A	67	76	81	84	67	47.34	3172.04	77.48
B-18	Mixed Barren Lands	D	67	76	81	84	84	782.38	65719.54	77.48
B-18	Mixed Barren Lands	A	67	76	81	84	67	20.13	1348.52	77.48
B-18	Desert Shrubs	A	50	68	80	86	50	0.00	0.01	77.48
B-21	Low Density Residential	A	68	72	78	87	68	3.55	241.09	45.96
B-21	Low Density Residential	B	68	72	78	87	72	0.59	42.17	45.96
B-21	Riverbed	A	30	55	70	80	30	212.15	6364.58	45.96
B-21	Riverbed	C	30	55	70	80	70	0.04	2.79	45.96
B-21	Riverbed	A	30	55	70	80	30	0.04	1.33	45.96
B-21	Riverbed	C	30	55	70	80	70	1.48	103.84	45.96
B-21	Riverbed	C	30	55	70	80	70	0.30	20.88	45.96
B-21	Riverbed	B	30	55	70	80	55	0.32	17.82	45.96
B-21	Riverbed	A	30	55	70	80	30	1.35	40.51	45.96
B-21	Low Density Residential	A	68	72	78	87	68	0.22	14.81	45.96
B-21	Low Density Residential	C	68	72	78	87	78	0.13	9.77	45.96

B-21	Mixed Density Residential	A	69	74	79	88	69	3.40	234.50	45.96
B-21	Mixed Density Residential	B	69	74	79	88	74	8.32	615.62	45.96
B-21	Sagebrush with understory	A	45	51	68	80	45	7.55	339.83	45.96
B-21	Sagebrush with understory	C	45	51	68	80	68	4.54	308.93	45.96
B-21	Sagebrush with understory	B	45	51	68	80	51	1.30	66.48	45.96
B-21	Low Density Residential	A	68	72	78	87	68	2.91	197.66	45.96
B-21	Low Density Residential	C	68	72	78	87	78	0.53	41.27	45.96
B-21	Mixed Density Residential	A	69	74	79	88	69	0.09	6.01	45.96
B-21	Mixed Density Residential	C	69	74	79	88	79	0.05	4.11	45.96
B-21	Commercial	A	89	92	94	95	89	0.16	14.67	45.96
B-21	Commercial	C	89	92	94	95	94	0.49	46.07	45.96
B-21	High Density Residential	A	72	78	85	92	72	2.61	188.06	45.96
B-21	High Density Residential	C	72	78	85	92	85	0.88	74.39	45.96
B-21	Low Density Residential	A	68	72	78	87	68	4.04	275.04	45.96
B-21	Low Density Residential	A	68	72	78	87	68	0.54	36.44	45.96
B-21	Low Density Residential	C	68	72	78	87	78	1.23	96.08	45.96
B-21	Commercial	A	89	92	94	95	89	0.80	70.96	45.96
B-21	Commercial	C	89	92	94	95	94	3.38	318.08	45.96
B-21	Low Density Residential	A	68	72	78	87	68	4.79	325.41	45.96
B-21	Low Density Residential	A	68	72	78	87	68	1.74	118.65	45.96
B-21	Low Density Residential	C	68	72	78	87	78	4.46	347.98	45.96
B-21	Agricultural Residential	A	42	58	72	81	42	0.57	24.10	45.96
B-21	Agricultural Residential	C	42	58	72	81	72	0.34	24.20	45.96
B-21	Agricultural Residential	A	42	58	72	81	42	0.97	40.90	45.96
B-21	Agricultural Residential	C	42	58	72	81	72	0.42	30.36	45.96
B-21	Agricultural Residential	A	42	58	72	81	42	8.88	372.98	45.96
B-21	Agricultural Residential	C	42	58	72	81	72	24.44	1759.69	45.96
B-21	Industrial	C	81	88	91	93	91	1.01	92.33	45.96
B-21	High Density Residential	B	72	78	85	92	78	0.00	0.10	45.96
B-21	Desert Shrubs	A	50	68	80	86	50	0.43	21.65	45.96
B-21	Desert Shrubs	C	50	68	80	86	80	3.38	270.41	45.96
B-21	Desert Shrubs	A	50	68	80	86	50	0.11	5.34	45.96
B-21	Desert Shrubs	C	50	68	80	86	80	1.12	89.48	45.96
B-21	Mixed Barren Lands	A	67	76	81	84	67	5.78	387.59	45.96
B-21	Mixed Barren Lands	C	67	76	81	84	81	6.38	516.61	45.96
B-21	Mixed Barren Lands	B	67	76	81	84	76	20.42	1551.95	45.96
B-21	Mixed Barren Lands	A	67	76	81	84	67	0.02	1.58	45.96
B-21	Mixed Barren Lands	A	67	76	81	84	67	2.22	149.04	45.96
B-21	Mixed Barren Lands	A	67	76	81	84	67	0.00	0.02	45.96
B-21	Mixed Barren Lands	C	67	76	81	84	81	5.17	418.51	45.96
B-21	Agricultural Residential	A	42	58	72	81	42	0.06	2.61	45.96

B-21	Agricultural Residential	A	42	58	72	81	42	0.28	11.69	45.96
B-21	Mixed Barren Lands	C	67	76	81	84	81	0.03	2.36	45.96
B-21	Mixed Barren Lands	B	67	76	81	84	76	0.05	3.45	45.96
B-21	Commercial	C	89	92	94	95	94	0.00	0.00	45.96
B-21	Riverbed	A	30	55	70	80	30	0.01	0.22	45.96
B-21	Low Density Residential	A	68	72	78	87	68	0.01	0.49	45.96
B-21	Riverbed	C	30	55	70	80	70	0.00	0.12	45.96
B-21	Low Density Residential	C	68	72	78	87	78	0.00	0.13	45.96
B-21	Riverbed	A	30	55	70	80	30	0.00	0.01	45.96
B-21	Commercial	A	89	92	94	95	89	0.00	0.04	45.96
B-21	Riverbed	C	30	55	70	80	70	0.00	0.21	45.96
B-21	Commercial	C	89	92	94	95	94	0.00	0.29	45.96
B-21	Riverbed	A	30	55	70	80	30	0.00	0.10	45.96
B-21	High Density Residential	A	72	78	85	92	72	0.00	0.24	45.96
B-21	Riverbed	A	30	55	70	80	30	0.10	2.97	45.96
B-21	Low Density Residential	A	68	72	78	87	68	0.10	6.73	45.96
B-21	High Density Residential	B	72	78	85	92	78	0.00	0.16	45.96
B-21	Mixed Barren Lands	B	67	76	81	84	76	0.00	0.16	45.96
B-22	Mixed Density Residential	B	69	74	79	88	74	58.67	4341.56	75.07
B-22	High Density Residential	B	72	78	85	92	78	20.71	1615.05	75.07
B-22	Mixed Barren Lands	B	67	76	81	84	76	1.77	134.61	75.07
B-22	High Density Residential	B	72	78	85	92	78	0.02	1.63	75.07
B-22	High Density Residential	B	72	78	85	92	78	0.03	2.60	75.07
B-22	Mixed Density Residential	B	69	74	79	88	74	0.00	0.08	75.07
B-22	Mixed Density Residential	B	69	74	79	88	74	0.00	0.01	75.07
B-22	High Density Residential	B	72	78	85	92	78	0.00	0.01	75.07
B-22	High Density Residential	B	72	78	85	92	78	0.05	3.95	75.07
B-22	Mixed Barren Lands	B	67	76	81	84	76	0.05	3.85	75.07
B-24	Low Density Residential	A	68	72	78	87	68	2.32	157.63	77.53
B-24	Low Density Residential	A	68	72	78	87	68	61.35	4171.56	77.53
B-24	Low Density Residential	C	68	72	78	87	78	0.28	22.16	77.53
B-24	Low Density Residential	B	68	72	78	87	72	0.41	29.62	77.53
B-24	Low Density Residential	A	68	72	78	87	68	37.47	2547.83	77.53
B-24	Low Density Residential	D	68	72	78	87	87	48.08	4182.75	77.53
B-24	Sagebrush with understory	C	45	51	68	80	68	0.01	0.71	77.53
B-24	Low Density Residential	A	68	72	78	87	68	4.30	292.45	77.53
B-24	Low Density Residential	C	68	72	78	87	78	6.53	509.48	77.53
B-24	Desert Shrubs	A	50	68	80	86	50	18.01	900.37	77.53
B-24	Desert Shrubs	A	50	68	80	86	50	2.95	147.37	77.53
B-24	Mixed Barren Lands	D	67	76	81	84	84	6.31	530.17	77.53
B-24	Mixed Barren Lands	D	67	76	81	84	84	93.22	7830.68	77.53

B-24	Mixed Barren Lands	A	67	76	81	84	67	2.10	140.45	77.53
B-24	Mixed Barren Lands	D	67	76	81	84	84	3.39	284.77	77.53
B-24	Mixed Barren Lands	A	67	76	81	84	67	32.08	2149.64	77.53
B-24	Mixed Barren Lands	C	67	76	81	84	81	0.13	10.76	77.53
B-24	Mixed Barren Lands	B	67	76	81	84	76	0.06	4.89	77.53
B-24	Mixed Barren Lands	A	67	76	81	84	67	28.92	1937.51	77.53
B-24	Mixed Barren Lands	D	67	76	81	84	84	173.97	14613.08	77.53
B-24	Desert Shrubs	A	50	68	80	86	50	0.02	0.92	77.53
B-24	Desert Shrubs	A	50	68	80	86	50	0.00	0.01	77.53
B-24	Mixed Barren Lands	D	67	76	81	84	84	0.00	0.06	77.53
B-24	Mixed Barren Lands	D	67	76	81	84	84	0.06	4.89	77.53
B-24	Mixed Barren Lands	A	67	76	81	84	67	0.00	0.03	77.53
B-25	Low Density Residential	A	68	72	78	87	68	3.83	260.68	77.71
B-25	Mixed Barren Lands	A	67	76	81	84	67	10.10	676.71	77.71
B-25	Mixed Barren Lands	D	67	76	81	84	84	23.22	1950.45	77.71
B-25	Mixed Barren Lands	D	67	76	81	84	84	0.04	3.45	77.71
B-25	Low Density Residential	A	68	72	78	87	68	0.03	1.92	77.71
B-25	Mixed Barren Lands	A	67	76	81	84	67	0.05	3.53	77.71
B-25	Mixed Barren Lands	D	67	76	81	84	84	0.01	0.50	77.71
B-25	Mixed Barren Lands	D	67	76	81	84	84	0.00	0.00	77.71
B-26	Agricultural Residential	C	42	58	72	81	72	8.58	618.02	84.08
B-26	Industrial	C	81	88	91	93	91	13.41	1220.70	84.08
B-26	Agricultural Residential	C	42	58	72	81	72	13.31	958.12	84.08
B-26	Industrial	B	81	88	91	93	88	2.53	222.46	84.08
B-26	Industrial	C	81	88	91	93	91	198.10	18026.73	84.08
B-26	Agricultural Residential	B	42	58	72	81	58	13.80	800.11	84.08
B-26	Agricultural Residential	C	42	58	72	81	72	15.36	1106.03	84.08
B-26	Industrial	B	81	88	91	93	88	0.55	48.24	84.08
B-26	Desert Shrubs	B	50	68	80	86	68	34.87	2371.19	84.08
B-26	Desert Shrubs	C	50	68	80	86	80	10.28	822.22	84.08
B-26	Desert Shrubs	A	50	68	80	86	50	0.00	0.12	84.08
B-26	Desert Shrubs	C	50	68	80	86	80	0.62	49.98	84.08
B-26	Desert Shrubs	B	50	68	80	86	68	3.76	255.76	84.08
B-26	Industrial	C	81	88	91	93	91	0.00	0.33	84.08
B-26	Agricultural Residential	C	42	58	72	81	72	0.00	0.26	84.08
B-27	High Density Residential	C	72	78	85	92	85	0.62	52.49	92.84
B-27	Commercial	C	89	92	94	95	94	4.16	390.92	92.84
B-28	High Density Residential	C	72	78	85	92	85	0.11	9.09	74.54
B-28	High Density Residential	A	72	78	85	92	72	0.07	4.70	74.54
B-28	Commercial	C	89	92	94	95	94	5.03	472.55	74.54
B-28	Commercial	A	89	92	94	95	89	7.95	707.87	74.54

B-28	Commercial	D	89	92	94	95	95	2.17	206.61	74.54
B-28	Developed Park	C	48	58	74	85	74	7.19	531.95	74.54
B-28	Developed Park	A	48	58	74	85	48	19.04	914.13	74.54
B-28	Developed Park	D	48	58	74	85	85	0.00	0.14	74.54
B-28	Desert Shrubs	D	50	68	80	86	86	0.42	35.93	74.54
B-28	Desert Shrubs	A	50	68	80	86	50	1.66	83.08	74.54
B-28	Mixed Barren Lands	D	67	76	81	84	84	18.53	1556.35	74.54
B-28	Mixed Barren Lands	A	67	76	81	84	67	0.00	0.15	74.54
B-28	Mixed Barren Lands	A	67	76	81	84	67	1.24	82.78	74.54
B-28	Mixed Barren Lands	D	67	76	81	84	84	12.81	1075.90	74.54
B-28	High Density Residential	C	72	78	85	92	85	0.00	0.03	74.54
B-29	Developed Park	A	48	58	74	85	48	0.00	0.03	72.12
B-29	Desert Shrubs	D	50	68	80	86	86	11.98	1029.87	72.12
B-29	Desert Shrubs	A	50	68	80	86	50	20.94	1047.21	72.12
B-29	Desert Shrubs	A	50	68	80	86	50	35.65	1782.29	72.12
B-29	Mixed Barren Lands	D	67	76	81	84	84	81.05	6807.87	72.12
B-29	Mixed Barren Lands	A	67	76	81	84	67	0.59	39.78	72.12
B-29	Mixed Barren Lands	A	67	76	81	84	67	2.71	181.44	72.12
B-29	Mixed Barren Lands	D	67	76	81	84	84	11.80	991.59	72.12
B-30	High Density Residential	A	72	78	85	92	72	1.15	82.46	85.34
B-30	High Density Residential	D	72	78	85	92	92	4.17	383.84	85.34
B-30	Mixed Barren Lands	D	67	76	81	84	84	5.90	495.78	85.34
B-30	Mixed Barren Lands	D	67	76	81	84	84	3.40	285.37	85.34
B-31	High Density Residential	D	72	78	85	92	92	1.04	95.30	76.88
B-31	High Density Residential	A	72	78	85	92	72	20.47	1473.49	76.88
B-31	Developed Park	A	48	58	74	85	48	0.57	27.13	76.88
B-31	Desert Shrubs	D	50	68	80	86	86	0.23	19.92	76.88
B-31	Mixed Barren Lands	D	67	76	81	84	84	19.20	1612.66	76.88
B-31	Mixed Barren Lands	A	67	76	81	84	67	3.89	260.78	76.88
B-32	High Density Residential	D	72	78	85	92	92	0.21	19.56	77.13
B-32	High Density Residential	C	72	78	85	92	85	3.14	267.29	77.13
B-32	High Density Residential	A	72	78	85	92	72	20.82	1498.86	77.13
B-32	High Density Residential	D	72	78	85	92	92	3.69	339.07	77.13
B-32	Mixed Barren Lands	D	67	76	81	84	84	0.40	33.32	77.13
B-32	Mixed Barren Lands	D	67	76	81	84	84	3.09	259.58	77.13
B-33	High Density Residential	C	72	78	85	92	85	2.64	224.21	76.32
B-33	High Density Residential	A	72	78	85	92	72	5.32	382.80	76.32
B-33	Mixed Barren Lands	C	67	76	81	84	81	0.01	0.76	76.32
B-33	High Density Residential	C	72	78	85	92	85	0.01	0.65	76.32
B-33	Mixed Barren Lands	C	67	76	81	84	81	0.00	0.01	76.32
B-34	High Density Residential	D	72	78	85	92	92	0.26	24.31	79.95

B-34	High Density Residential	A	72	78	85	92	72	27.92	2010.54	79.95
B-34	High Density Residential	D	72	78	85	92	92	14.35	1320.09	79.95
B-34	Desert Shrubs	D	50	68	80	86	86	0.04	3.79	79.95
B-34	Desert Shrubs	A	50	68	80	86	50	0.74	36.85	79.95
B-34	Desert Shrubs	A	50	68	80	86	50	2.33	116.70	79.95
B-34	Mixed Barren Lands	D	67	76	81	84	84	30.09	2527.70	79.95
B-34	Mixed Barren Lands	A	67	76	81	84	67	0.07	4.39	79.95
B-34	Mixed Barren Lands	A	67	76	81	84	67	0.02	1.50	79.95
B-34	Mixed Barren Lands	A	67	76	81	84	67	0.17	11.28	79.95
B-34	Mixed Barren Lands	D	67	76	81	84	84	4.63	389.14	79.95
B-35	High Density Residential	C	72	78	85	92	85	10.09	857.70	86.40
B-35	High Density Residential	D	72	78	85	92	92	0.56	51.96	86.40
B-35	Commercial	C	89	92	94	95	94	2.97	279.35	86.40
B-35	Commercial	A	89	92	94	95	89	0.39	35.01	86.40
B-35	Mixed Density Residential	C	69	74	79	88	79	1.04	82.14	86.40
B-35	Mixed Density Residential	A	69	74	79	88	69	0.05	3.41	86.40
B-35	Mixed Density Residential	D	69	74	79	88	88	0.98	86.13	86.40
B-35	Commercial	C	89	92	94	95	94	0.66	61.66	86.40
B-35	Commercial	D	89	92	94	95	95	0.24	23.18	86.40
B-35	Developed Park	C	48	58	74	85	74	0.00	0.04	86.40
B-35	Mixed Barren Lands	D	67	76	81	84	84	2.77	232.52	86.40
B-35	Mixed Barren Lands	A	67	76	81	84	67	0.10	6.44	86.40
B-35	Mixed Barren Lands	D	67	76	81	84	84	1.73	144.92	86.40
B-35	High Density Residential	C	72	78	85	92	85	0.00	0.34	86.40
B-36	High Density Residential	C	72	78	85	92	85	3.38	287.16	76.69
B-36	High Density Residential	A	72	78	85	92	72	5.45	392.57	76.69
B-36	Developed Park	C	48	58	74	85	74	0.00	0.09	76.69
B-36	Developed Park	A	48	58	74	85	48	0.09	4.25	76.69
B-36	High Density Residential	C	72	78	85	92	85	0.00	0.03	76.69
B-37	High Density Residential	C	72	78	85	92	85	17.81	1514.20	89.58
B-37	Commercial	C	89	92	94	95	94	18.49	1737.95	89.58
B-38	High Density Residential	C	72	78	85	92	85	22.45	1908.20	87.63
B-38	Commercial	C	89	92	94	95	94	9.27	870.97	87.63
B-39	Commercial	C	89	92	94	95	94	8.23	773.19	94.00
B-40	Low Density Residential	C	68	72	78	87	78	2.12	165.35	89.14
B-40	Commercial	C	89	92	94	95	94	4.86	456.78	89.14
B-41	Commercial	D	89	92	94	95	95	0.24	23.21	90.47
B-41	Commercial	C	89	92	94	95	94	5.92	556.08	90.47
B-41	Commercial	D	89	92	94	95	95	3.08	292.83	90.47
B-41	Mixed Barren Lands	D	67	76	81	84	84	3.25	272.93	90.47
B-41	Mixed Barren Lands	C	67	76	81	84	81	0.12	9.77	90.47

B-41	Mixed Barren Lands	D	67	76	81	84	84	2.14	179.41	90.47
B-42	Low Density Residential	A	68	72	78	87	68	0.05	3.22	71.74
B-42	Low Density Residential	A	68	72	78	87	68	1.97	133.68	71.74
B-42	Low Density Residential	B	68	72	78	87	72	103.07	7420.83	71.74
B-42	Riverbed	A	30	55	70	80	30	0.02	0.66	71.74
B-42	Riverbed	B	30	55	70	80	55	0.04	2.00	71.74
B-42	Mixed Density Residential	A	69	74	79	88	69	0.02	1.23	71.74
B-42	Mixed Density Residential	B	69	74	79	88	74	38.57	2854.12	71.74
B-42	Sagebrush with understory	B	45	51	68	80	51	5.04	256.88	71.74
B-43	Low Density Residential	A	68	72	78	87	68	0.07	4.70	76.33
B-43	Low Density Residential	C	68	72	78	87	78	3.06	239.06	76.33
B-43	Low Density Residential	C	68	72	78	87	78	7.18	560.02	76.33
B-43	Mixed Barren Lands	D	67	76	81	84	84	1.38	115.72	76.33
B-43	Mixed Barren Lands	A	67	76	81	84	67	127.51	8543.44	76.33
B-43	Mixed Barren Lands	C	67	76	81	84	81	112.76	9133.83	76.33
B-43	Mixed Barren Lands	A	67	76	81	84	67	30.29	2029.71	76.33
B-43	Mixed Barren Lands	D	67	76	81	84	84	119.57	10043.85	76.33
B-44	High Density Residential	C	72	78	85	92	85	17.32	1472.23	80.46
B-44	High Density Residential	B	72	78	85	92	78	31.18	2431.80	80.46
B-44	Mixed Barren Lands	C	67	76	81	84	81	1.56	126.21	80.46
B-44	Mixed Barren Lands	B	67	76	81	84	76	0.57	43.45	80.46
B-44	Mixed Barren Lands	C	67	76	81	84	81	0.03	2.36	80.46
B-44	Mixed Barren Lands	B	67	76	81	84	76	0.05	3.45	80.46
B-44	High Density Residential	B	72	78	85	92	78	0.03	2.60	80.46
B-44	High Density Residential	C	72	78	85	92	85	0.02	2.10	80.46
B-44	Mixed Barren Lands	C	67	76	81	84	81	0.02	2.00	80.46
B-44	High Density Residential	B	72	78	85	92	78	0.04	3.50	80.46
B-44	Mixed Barren Lands	B	67	76	81	84	76	0.04	3.41	80.46
B-45	Riverbed	A	30	55	70	80	30	0.00	0.07	76.31
B-45	Riverbed	C	30	55	70	80	70	0.04	2.78	76.31
B-45	Low Density Residential	A	68	72	78	87	68	0.09	6.40	76.31
B-45	Low Density Residential	C	68	72	78	87	78	6.29	490.94	76.31
B-45	Mixed Density Residential	A	69	74	79	88	69	0.03	1.88	76.31
B-45	Mixed Density Residential	C	69	74	79	88	79	24.50	1935.29	76.31
B-45	Industrial	C	81	88	91	93	91	1.00	91.17	76.31
B-45	Agricultural Residential	C	42	58	72	81	72	29.62	2132.77	76.31
B-45	High Density Residential	C	72	78	85	92	85	4.24	360.36	76.31
B-45	Industrial	C	81	88	91	93	91	0.05	4.49	76.31
B-45	Low Density Residential	C	68	72	78	87	78	0.05	3.64	76.31
B-45	Mixed Density Residential	C	69	74	79	88	79	0.05	3.69	76.31
B-45	Mixed Density Residential	C	69	74	79	88	79	0.01	0.44	76.31

B-45	Agricultural Residential	C	42	58	72	81	72	0.01	0.40	76.31
B-46	High Density Residential	C	72	78	85	92	85	10.23	869.37	87.78
B-46	Commercial	C	89	92	94	95	94	4.92	462.64	87.78
B-46	Low Density Residential	C	68	72	78	87	78	0.22	16.82	87.78
B-46	Commercial	C	89	92	94	95	94	0.02	1.84	87.78
B-46	Low Density Residential	C	68	72	78	87	78	0.02	1.52	87.78
B-47	Riverbed	C	30	55	70	80	70	0.00	0.14	84.54
B-47	High Density Residential	A	72	78	85	92	72	0.11	8.19	84.54
B-47	High Density Residential	C	72	78	85	92	85	3.08	261.69	84.54
B-47	Commercial	C	89	92	94	95	94	0.00	0.35	84.54
B-48	High Density Residential	C	72	78	85	92	85	7.35	624.56	89.97
B-48	Commercial	C	89	92	94	95	94	9.06	851.40	89.97
B-48	Commercial	C	89	92	94	95	94	0.00	0.00	89.97
B-48	Commercial	C	89	92	94	95	94	0.00	0.00	89.97
B-50	Commercial	C	89	92	94	95	94	1.94	181.95	89.79
B-50	Commercial	C	89	92	94	95	94	0.74	69.55	89.79
B-50	High Density Residential	C	72	78	85	92	85	2.35	200.09	89.79
B-50	Commercial	C	89	92	94	95	94	0.00	0.11	89.79
B-50	High Density Residential	C	72	78	85	92	85	0.00	0.10	89.79
B-51	High Density Residential	C	72	78	85	92	85	9.04	768.74	85.00
B-52	Commercial	C	89	92	94	95	94	0.45	42.24	90.03
B-52	High Density Residential	C	72	78	85	92	85	4.04	343.28	90.03
B-52	Commercial	C	89	92	94	95	94	4.65	437.12	90.03
B-52	Commercial	C	89	92	94	95	94	0.01	1.28	90.03
B-53	Commercial	C	89	92	94	95	94	0.46	43.00	92.48
B-53	High Density Residential	C	72	78	85	92	85	1.53	129.63	92.48
B-53	Commercial	C	89	92	94	95	94	7.06	663.86	92.48
B-54	Commercial	C	89	92	94	95	94	4.22	396.28	93.12
B-54	High Density Residential	C	72	78	85	92	85	0.06	5.36	93.12
B-54	Agricultural Residential	C	42	58	72	81	72	0.15	10.94	93.12
B-54	Commercial	C	89	92	94	95	94	0.00	0.03	93.12
B-54	Agricultural Residential	C	42	58	72	81	72	0.00	0.03	93.12
B-55	High Density Residential	C	72	78	85	92	85	9.61	816.98	88.93
B-55	Commercial	C	89	92	94	95	94	7.46	701.38	88.93
B-55	High Density Residential	C	72	78	85	92	85	0.01	0.49	88.93
B-56	High Density Residential	C	72	78	85	92	85	1.73	146.88	92.54
B-56	Commercial	B	89	92	94	95	92	1.39	127.45	92.54
B-56	Commercial	C	89	92	94	95	94	9.74	915.27	92.54
B-56	Commercial	B	89	92	94	95	92	0.06	5.51	92.54
B-56	Agricultural Residential	B	42	58	72	81	58	0.01	0.69	92.54
B-56	Commercial	B	89	92	94	95	92	0.00	0.02	92.54

B-56	Commercial	C	89	92	94	95	94	0.00	0.00	92.54
B-56	Commercial	B	89	92	94	95	92	0.00	0.00	92.54
B-56	High Density Residential	C	72	78	85	92	85	0.00	0.34	92.54
B-56	Commercial	B	89	92	94	95	92	0.00	0.01	92.54
B-56	Commercial	C	89	92	94	95	94	0.00	0.02	92.54
B-56	Commercial	B	89	92	94	95	92	0.00	0.03	92.54
B-56	Agricultural Residential	B	42	58	72	81	58	0.00	0.02	92.54
B-57	High Density Residential	C	72	78	85	92	85	12.14	1031.58	87.85
B-57	Commercial	C	89	92	94	95	94	5.63	529.44	87.85
B-58	High Density Residential	C	72	78	85	92	85	4.58	389.07	89.40
B-58	Commercial	C	89	92	94	95	94	4.38	411.45	89.40
B-59	High Density Residential	C	72	78	85	92	85	1.54	131.23	92.48
B-59	Commercial	C	89	92	94	95	94	7.58	712.74	92.48
B-59	High Density Residential	C	72	78	85	92	85	0.00	0.00	92.48
B-59	Commercial	C	89	92	94	95	94	0.00	0.00	92.48
B-60	High Density Residential	C	72	78	85	92	85	4.52	383.80	89.57
B-60	Commercial	C	89	92	94	95	94	1.44	135.80	89.57
B-60	High Density Residential	C	72	78	85	92	85	0.01	0.78	89.57
B-60	Commercial	C	89	92	94	95	94	3.21	302.09	89.57
B-61	High Density Residential	C	72	78	85	92	85	4.40	373.64	85.44
B-61	Commercial	C	89	92	94	95	94	0.23	21.38	85.44
B-62	High Density Residential	C	72	78	85	92	85	13.40	1139.24	87.35
B-62	Commercial	C	89	92	94	95	94	4.72	443.98	87.35
B-63	High Density Residential	C	72	78	85	92	85	9.03	767.20	85.00
B-64	High Density Residential	A	72	78	85	92	72	0.09	6.31	84.70
B-64	High Density Residential	C	72	78	85	92	85	3.71	315.45	84.70
B-65	High Density Residential	C	72	78	85	92	85	12.95	1100.57	87.62
B-65	Commercial	C	89	92	94	95	94	5.31	499.11	87.62
B-66	High Density Residential	C	72	78	85	92	85	11.09	942.88	88.51
B-66	Commercial	C	89	92	94	95	94	7.07	665.00	88.51
B-66	High Density Residential	C	72	78	85	92	85	0.00	0.34	88.51
B-66	High Density Residential	C	72	78	85	92	85	0.04	3.11	88.51
B-66	Commercial	C	89	92	94	95	94	0.04	3.44	88.51
B-67	High Density Residential	C	72	78	85	92	85	4.55	386.45	89.48
B-67	Commercial	C	89	92	94	95	94	4.51	423.81	89.48
B-68	High Density Residential	C	72	78	85	92	85	9.07	770.85	85.03
B-68	Commercial	C	89	92	94	95	94	0.03	2.80	85.03
B-69	High Density Residential	C	72	78	85	92	85	13.52	1149.41	87.25
B-69	Commercial	C	89	92	94	95	94	4.51	424.33	87.25
B-70	High Density Residential	C	72	78	85	92	85	9.08	771.45	85.00
B-70	Commercial	C	89	92	94	95	94	0.00	0.00	85.00

B-70	Developed Park	C	48	58	74	85	74	0.00	0.07	85.00
B-71	Commercial	C	89	92	94	95	94	0.01	1.28	93.97
B-71	High Density Residential	C	72	78	85	92	85	0.01	0.78	93.97
B-71	Commercial	C	89	92	94	95	94	3.21	302.09	93.97
B-72	Low Density Residential	A	68	72	78	87	68	0.02	1.48	81.49
B-72	Low Density Residential	A	68	72	78	87	68	12.12	824.18	81.49
B-72	Low Density Residential	C	68	72	78	87	78	35.49	2768.43	81.49
B-72	Desert Shrubs	D	50	68	80	86	86	159.55	13721.72	81.49
B-72	Desert Shrubs	D	50	68	80	86	86	5.07	435.97	81.49
B-72	Desert Shrubs	D	50	68	80	86	86	26.35	2266.50	81.49
B-72	Desert Shrubs	A	50	68	80	86	50	0.70	35.21	81.49
B-72	Desert Shrubs	D	50	68	80	86	86	0.21	18.31	81.49
B-72	Desert Shrubs	A	50	68	80	86	50	1.93	96.59	81.49
B-72	Mixed Barren Lands	D	67	76	81	84	84	62.79	5274.12	81.49
B-72	Mixed Barren Lands	D	67	76	81	84	84	1.24	104.53	81.49
B-72	Mixed Barren Lands	A	67	76	81	84	67	69.61	4663.79	81.49
B-72	Mixed Barren Lands	C	67	76	81	84	81	12.22	989.89	81.49
B-72	Mixed Barren Lands	D	67	76	81	84	84	146.83	12333.65	81.49
B-72	Mixed Barren Lands	A	67	76	81	84	67	0.33	21.97	81.49
B-73	Desert Shrubs	A	50	68	80	86	50	3.26	162.85	62.29
B-73	Desert Shrubs	A	50	68	80	86	50	3.57	178.69	62.29
B-73	Desert Shrubs	D	50	68	80	86	86	5.21	448.34	62.29
B-73	Desert Shrubs	A	50	68	80	86	50	360.41	18020.51	62.29
B-73	Desert Shrubs	A	50	68	80	86	50	140.49	7024.66	62.29
B-73	Desert Shrubs	D	50	68	80	86	86	149.86	12888.01	62.29
B-73	Desert Shrubs	A	50	68	80	86	50	16.79	839.62	62.29
B-73	Desert Shrubs	A	50	68	80	86	50	2.50	125.22	62.29
B-73	Desert Shrubs	A	50	68	80	86	50	1.37	68.28	62.29
B-73	Mixed Barren Lands	D	67	76	81	84	84	124.96	10496.36	62.29
B-73	Mixed Barren Lands	A	67	76	81	84	67	20.57	1377.95	62.29
B-73	Mixed Barren Lands	A	67	76	81	84	67	1.54	103.46	62.29
B-73	Desert Shrubs	A	50	68	80	86	50	0.00	0.02	62.29
B-73	Desert Shrubs	A	50	68	80	86	50	0.00	0.02	62.29
B-74	Desert Shrubs	D	50	68	80	86	86	36.86	3169.77	63.27
B-74	Desert Shrubs	D	50	68	80	86	86	2.13	183.12	63.27
B-74	Desert Shrubs	A	50	68	80	86	50	368.76	18438.07	63.27
B-74	Desert Shrubs	A	50	68	80	86	50	28.13	1406.59	63.27
B-74	Desert Shrubs	D	50	68	80	86	86	94.50	8127.29	63.27
B-74	Desert Shrubs	A	50	68	80	86	50	64.65	3232.65	63.27
B-74	Desert Shrubs	A	50	68	80	86	50	21.27	1063.51	63.27
B-74	Desert Shrubs	A	50	68	80	86	50	41.58	2079.11	63.27

B-74	Mixed Barren Lands	D	67	76	81	84	84	176.47	14823.55	63.27
B-74	Mixed Barren Lands	D	67	76	81	84	84	4.45	374.19	63.27
B-74	Mixed Barren Lands	A	67	76	81	84	67	41.62	2788.78	63.27
B-74	Mixed Barren Lands	A	67	76	81	84	67	4.05	271.19	63.27
B-75	High Density Residential	C	72	78	85	92	85	5.45	463.64	83.81
B-75	Low Density Residential	C	68	72	78	87	78	0.01	0.76	83.81
B-75	Mixed Barren Lands	C	67	76	81	84	81	2.28	184.90	83.81
B-76	High Density Residential	C	72	78	85	92	85	10.74	912.66	85.00

DRAFT

APPENDIX C

FINANCIAL ANALYSIS

DRAFT

OWNER Kanab City
PROJECT Country Club Protection Channel



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 1,600.00	\$ 1,600.00
2	Project Record Documents	1%	LS	\$ 200.00	\$ 200.00
3	Traffic and Temporary Controls	4%	LS	\$ 700.00	\$ 700.00
4	Materials and Sampling	3%	LS	\$ 500.00	\$ 500.00
5	Construction Layout & Staking	2%	LS	\$ 300.00	\$ 300.00
Earthwork					
1	Excavation	625.33333	CY	\$ 10.00	\$ 6,253.33
2	Restore Surface Improvements	1	LS	\$ 10,000.00	\$ 10,000.00
Subtotal					\$ 19,553.33
				Professional Services & Incidentals	15% \$ 3,000.00
				Contingency	25% \$ 4,900.00
Subtotal					\$ 7,900.00
PROJECT TOTAL					\$ 27,453.33

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OWNER Kanab City
PROJECT Escalante Dr Reroute



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 10,800.00	\$ 10,800.00
2	Project Record Documents	1%	LS	\$ 1,100.00	\$ 1,100.00
3	Traffic and Temporary Controls	4%	LS	\$ 4,300.00	\$ 4,300.00
4	Materials and Sampling	3%	LS	\$ 3,200.00	\$ 3,200.00
5	Construction Layout & Staking	2%	LS	\$ 2,200.00	\$ 2,200.00
Storm					
1	24" HDPE Storm Drain	572	LF	\$ 115.00	\$ 65,780.00
Transportation					
1	Pavement Asphalt T Patch	4576	SF	\$ 6.00	\$ 27,456.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 15,000.00	\$ 15,000.00
Subtotal					\$ 129,836.00
				Professional Services & Incidentals	15% \$ 19,500.00
				Contingency	25% \$ 32,500.00
Subtotal					\$ 52,000.00
PROJECT TOTAL					\$ 181,836.00

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OWNER Kanab City
PROJECT EA Pugh Canyon



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 345,600.00	\$ 345,600.00
3	Traffic and Temporary Controls	1	LS	\$ 10,000.00	\$ 10,000.00
Storm					
1	Site Clearing & Demolition	15	AC	\$ 3,000.00	\$ 45,000.00
2	Potter's Pond Basin Fill (Plan Qty)	3000	CY	\$ 12.00	\$ 36,000.00
3	Basin Excavation (Plan Qty)	55300	CY	\$ 10.00	\$ 553,000.00
4	Auxiliary Spillway Excavation (Plan Qty)	62000	CY	\$ 10.00	\$ 620,000.00
5	Import Fill (Plan Qty)	82700	CY	\$ 15.00	\$ 1,240,500.00
6	30" RCP Storm Drain	1000	LF	\$ 120.00	\$ 120,000.00
7	Principal Spillway Structure	1	EA	\$ 160,000.00	\$ 160,000.00
8	Auxiliary Spillway Concrete	250	CY	\$ 900.00	\$ 225,000.00
9	Restoration and Reseeding	1	LS	\$ 50,000.00	\$ 50,000.00
Earthwork					
1	Riprap	3300	CY	\$ 120.00	\$ 396,000.00
Subtotal					\$ 3,801,100.00
				Professional Services & Incidentals	23% \$ 915,000.00
				Contingency	20% \$ 760,200.00
Subtotal					\$ 1,675,200.00
PROJECT TOTAL					\$ 5,476,300.00

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OWNER Kanab City
PROJECT EA Tom's Canyon



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 591,200.00	\$ 591,200.00
2	Project Record Documents	1	LS	\$ -	\$ -
3	Traffic and Temporary Controls	1	LS	\$ 120,000.00	\$ 120,000.00
4	Materials and Sampling	1	LS	\$ -	\$ -
5	Construction Layout & Staking	1	LS	\$ -	\$ -
Storm					
1	Site Clearing and Demolition	1	LS	\$ 75,000.00	\$ 75,000.00
2	6'x7' Concrete Box Pipe	4400	LF	\$ 1,000.00	\$ 4,400,000.00
3	36" HDPE Storm Drain Pipe	350	LF	\$ 70.00	\$ 24,500.00
4	4'x4' Catch Basin	2	EA	\$ 6,000.00	\$ 12,000.00
5	Loop Waterline	7	EA	\$ 7,500.00	\$ 52,500.00
Transportation					
1	Pavement Asphalt T Patch	60000	SF	\$ 6.50	\$ 390,000.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 50,000.00	\$ 50,000.00
2	Riprap	2400	CY	\$ 120.00	\$ 288,000.00
Subtotal					\$ 6,003,200.00
				Professional Services & Incidentals	29% \$ 1,770,400.00
				Contingency	20% \$ 1,200,700.00
Subtotal					\$ 2,971,100.00
PROJECT TOTAL					\$ 8,974,300.00

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OWNER Kanab City
PROJECT Kanab Creek Detention Basin Outfall



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 32,600.00	\$ 32,600.00	
2	Project Record Documents	1%	LS	\$ 3,300.00	\$ 3,300.00	
3	Traffic and Temporary Controls	4%	LS	\$ 13,100.00	\$ 13,100.00	
4	Materials and Sampling	3%	LS	\$ 9,800.00	\$ 9,800.00	
5	Construction Layout & Staking	2%	LS	\$ 6,500.00	\$ 6,500.00	
Storm						
1	24" HDPE Storm Drain	2331	LF	\$ 115.00	\$ 268,065.00	
2	60" Storm Manhole	4	EA	\$ 5,500.00	\$ 22,000.00	
Transportation						
1	Pavement Asphalt T Patch	1880	SF	\$ 6.00	\$ 11,280.00	
Earthwork						
1	Restore Surface Improvements	1	LS	\$ 25,000.00	\$ 25,000.00	
Subtotal					\$ 391,645.00	
				Professional Services & Incidentals	15%	\$ 58,800.00
				Contingency	25%	\$ 98,000.00
Subtotal					\$ 156,800.00	
PROJECT TOTAL					\$ 548,445.00	

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OWNER Kanab City
PROJECT Savage Point Extension and Improvements



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 74,900.00	\$ 74,900.00
2	Project Record Documents	1%	LS	\$ 7,500.00	\$ 7,500.00
3	Traffic and Temporary Controls	4%	LS	\$ 30,000.00	\$ 30,000.00
4	Materials and Sampling	3%	LS	\$ 22,500.00	\$ 22,500.00
5	Construction Layout & Staking	2%	LS	\$ 15,000.00	\$ 15,000.00
Storm					
1	48" HDPE Storm Drain	850	LF	\$ 195.00	\$ 165,750.00
2	42" HDPE Storm Drain	1135	LF	\$ 175.00	\$ 198,625.00
3	3"x3" Catch Basin	14	EA	\$ 5,000.00	\$ 70,000.00
Transportation					
1	Pavement Asphalt T Patch	19850	SF	\$ 6.00	\$ 119,100.00
2	Sidewalk with Base	9050	SF	\$ 7.00	\$ 63,350.00
3	Curb and Gutter	1810	LF	\$ 40.00	\$ 72,400.00
Earthwork					
1	Excavation	3500	CY	\$ 10.00	\$ 35,000.00
2	Restore Surface Improvements	1	LS	\$ 25,000.00	\$ 25,000.00
Subtotal					\$ 899,125.00
				Professional Services & Incidentals	15% \$ 134,900.00
				Contingency	25% \$ 224,800.00
Subtotal					\$ 359,700.00
PROJECT TOTAL					\$ 1,258,825.00

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OWNER Kanab City
PROJECT US-89A Culvert at Airport Road



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 6,200.00	\$ 6,200.00
2	Project Record Documents	1%	LS	\$ 600.00	\$ 600.00
3	Traffic and Temporary Controls	4%	LS	\$ 2,500.00	\$ 2,500.00
4	Materials and Sampling	3%	LS	\$ 1,800.00	\$ 1,800.00
5	Construction Layout & Staking	2%	LS	\$ 1,200.00	\$ 1,200.00
Storm					
1	48" HDPE Storm Drain	48	LF	\$ 195.00	\$ 9,360.00
Transportation					
1	Pavement Asphalt T Patch	384	SF	\$ 6.00	\$ 2,304.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 50,000.00	\$ 50,000.00
Subtotal					\$ 73,964.00
				Professional Services & Incidentals	15% \$ 11,100.00
				Contingency	25% \$ 18,500.00
Subtotal					\$ 29,600.00
PROJECT TOTAL					\$ 103,564.00

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OWNER Kanab City
PROJECT South Hamblin Roadside Ditch



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 6,900.00	\$ 6,900.00	
2	Project Record Documents	1%	LS	\$ 700.00	\$ 700.00	
3	Traffic and Temporary Controls	4%	LS	\$ 2,700.00	\$ 2,700.00	
4	Materials and Sampling	3%	LS	\$ 2,100.00	\$ 2,100.00	
5	Construction Layout & Staking	2%	LS	\$ 1,400.00	\$ 1,400.00	
Storm						
1	12" HDPE Storm Drain	894	LF	\$ 40.00	\$ 35,760.00	
Transportation						
2	Pavement Asphalt T Patch	2000	SF	\$ 6.00	\$ 12,000.00	
Earthwork						
1	Excavation	581.85185	CY	\$ 10.00	\$ 5,818.52	
2	Restore Surface Improvements	1	LS	\$ 15,000.00	\$ 15,000.00	
Subtotal					\$ 82,378.52	
				Professional Services & Incidentals	15%	\$ 12,400.00
				Contingency	25%	\$ 20,600.00
Subtotal					\$ 33,000.00	
PROJECT TOTAL					\$ 115,378.52	

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OWNER Kanab City
PROJECT EA Ranchos W



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 184,800.00	\$ 184,800.00
2	Project Record Documents	1	LS	\$ -	\$ -
3	Traffic and Temporary Controls	1	LS	\$ 22,500.00	\$ 22,500.00
4	Materials and Sampling	1	LS	\$ -	\$ -
5	Construction Layout & Staking	1	LS	\$ -	\$ -
Storm					
1	Site Clearing & Demolition	20	AC	\$ 3,000.00	\$ 60,000.00
2	Channel Excavation (Plan Qty)	20000	CY	\$ 10.00	\$ 200,000.00
3	Basin Excavation (Plan Qty)	29030	CY	\$ 10.00	\$ 290,300.00
4	Auxiliary Spillway Excavation (Plan Qty)	26100	CY	\$ 10.00	\$ 261,000.00
6	30" RCP Storm Drain	350	LF	\$ 120.00	\$ 42,000.00
7	48" HDPE Storm Drain Pipe	1670	LF	\$ 80.00	\$ 133,600.00
8	Principal Spillway Structure	1	EA	\$ 105,000.00	\$ 105,000.00
9	Auxiliary Spillway Concrete	560	CY	\$ 900.00	\$ 504,000.00
10	60" Storm Manhole	4	EA	\$ 7,500.00	\$ 30,000.00
11	Restoration and Reseeding	1	LS	\$ 30,000.00	\$ 30,000.00
Transportation					
2	Pavement Asphalt T Patch	9500	SF	\$ 5.00	\$ 47,500.00
Earthwork					
3	Riprap	1020	CY	\$ 120.00	\$ 122,400.00
Subtotal					\$ 2,033,100.00
Professional Services & Incidentals				36%	\$ 739,300.00
Contingency				20%	\$ 406,600.00
Subtotal					\$ 1,145,900.00
PROJECT TOTAL					\$ 3,179,000.00

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**OWNER
PROJECT
2033**

McAllister Dr Ditch



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 6,900.00	\$ 6,900.00	
2	Project Record Documents	1%	LS	\$ 700.00	\$ 700.00	
3	Traffic and Temporary Controls	4%	LS	\$ 2,800.00	\$ 2,800.00	
4	Materials and Sampling	3%	LS	\$ 2,100.00	\$ 2,100.00	
5	Construction Layout & Staking	2%	LS	\$ 1,400.00	\$ 1,400.00	
Storm						
1	18" HDPE Storm Drain	375	LF	\$ 95.00	\$ 35,625.00	
Transportation						
1	Pavement Asphalt T Patch	1040	SF	\$ 6.00	\$ 6,240.00	
Earthwork						
1	Excavation	198.14815	CY	\$ 10.00	\$ 1,981.48	
2	Restore Surface Improvements	1	LS	\$ 25,000.00	\$ 25,000.00	
Subtotal					\$ 82,746.48	
				Professional Services & Incidentals	15%	\$ 12,500.00
				Contingency	25%	\$ 20,700.00
Subtotal					\$ 33,200.00	
PROJECT TOTAL					\$ 115,946.48	

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OWNER Kanab City
PROJECT 900 S Extension



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 23,100.00	\$ 23,100.00
2	Project Record Documents	1%	LS	\$ 2,300.00	\$ 2,300.00
3	Traffic and Temporary Controls	4%	LS	\$ 9,200.00	\$ 9,200.00
4	Materials and Sampling	3%	LS	\$ 6,900.00	\$ 6,900.00
5	Construction Layout & Staking	2%	LS	\$ 4,600.00	\$ 4,600.00
Storm					
1	36" HDPE Storm Drain	1313	LF	\$ 155.00	\$ 203,515.00
2	60" Storm Manhole	3	EA	\$ 5,500.00	\$ 16,500.00
Transportation					
1	Pavement Asphalt T Patch	100	SF	\$ 6.00	\$ 600.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 10,000.00	\$ 10,000.00
Subtotal					\$ 276,715.00
				Professional Services & Incidentals	15% \$ 41,600.00
				Contingency	25% \$ 69,200.00
Subtotal					\$ 110,800.00
PROJECT TOTAL					\$ 387,515.00

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OWNER Kanab City
PROJECT Escalante Dr North Ditch



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 4,200.00	\$ 4,200.00	
2	Project Record Documents	1%	LS	\$ 400.00	\$ 400.00	
3	Traffic and Temporary Controls	4%	LS	\$ 1,700.00	\$ 1,700.00	
4	Materials and Sampling	3%	LS	\$ 1,300.00	\$ 1,300.00	
5	Construction Layout & Staking	2%	LS	\$ 800.00	\$ 800.00	
Storm						
1	24" HDPE Storm Drain	230	LF	\$ 115.00	\$ 26,450.00	
Transportation						
1	Pavement Asphalt T Patch	800	SF	\$ 6.00	\$ 4,800.00	
Earthwork						
1	Excavation	120.92593	CY	\$ 10.00	\$ 1,209.26	
2	Restore Surface Improvements	1	LS	\$ 10,000.00	\$ 10,000.00	
Subtotal					\$ 50,859.26	
				Professional Services & Incidentals	15%	\$ 7,700.00
				Contingency	25%	\$ 12,800.00
Subtotal					\$ 20,500.00	
PROJECT TOTAL					\$ 71,359.26	

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OWNER Kanab City
PROJECT Escalante Dr South Ditch



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 10,500.00	\$ 10,500.00	
2	Project Record Documents	1%	LS	\$ 1,100.00	\$ 1,100.00	
3	Traffic and Temporary Controls	4%	LS	\$ 4,200.00	\$ 4,200.00	
4	Materials and Sampling	3%	LS	\$ 3,200.00	\$ 3,200.00	
5	Construction Layout & Staking	2%	LS	\$ 2,100.00	\$ 2,100.00	
Storm						
1	24" HDPE Storm Drain	690	LF	\$ 115.00	\$ 79,350.00	
Transportation						
1	Pavement Asphalt T Patch	1200	SF	\$ 6.00	\$ 7,200.00	
Earthwork						
1	Excavation	347.59259	CY	\$ 10.00	\$ 3,475.93	
2	Restore Surface Improvements	1	LS	\$ 15,000.00	\$ 15,000.00	
Subtotal					\$ 126,125.93	
				Professional Services & Incidentals	15%	\$ 19,000.00
				Contingency	25%	\$ 31,600.00
Subtotal					\$ 50,600.00	
PROJECT TOTAL					\$ 176,725.93	

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OWNER Kanab City
PROJECT Kanab Creek Dr



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 36,500.00	\$ 36,500.00
2	Project Record Documents	1%	LS	\$ 3,700.00	\$ 3,700.00
3	Traffic and Temporary Controls	4%	LS	\$ 14,600.00	\$ 14,600.00
4	Materials and Sampling	3%	LS	\$ 11,000.00	\$ 11,000.00
5	Construction Layout & Staking	2%	LS	\$ 7,300.00	\$ 7,300.00
Storm					
1	12" RCP Storm Drain	2295	LF	\$ 55.00	\$ 126,225.00
2	60" Storm Manhole	4	EA	\$ 5,500.00	\$ 22,000.00
Transportation					
1	Pavement Asphalt T Patch	18360	SF	\$ 6.00	\$ 110,160.00
2	Curb and Gutter	2295	LF	\$ 40.00	\$ 91,800.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 15,000.00	\$ 15,000.00
Subtotal					\$ 438,285.00
				Professional Services & Incidentals	15% \$ 65,800.00
				Contingency	25% \$ 109,600.00
Subtotal					\$ 175,400.00
PROJECT TOTAL					\$ 613,685.00

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OWNER Kanab City
PROJECT Powell Stewart Connection Update



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 2,100.00	\$ 2,100.00	
2	Project Record Documents	1%	LS	\$ 200.00	\$ 200.00	
3	Traffic and Temporary Controls	4%	LS	\$ 800.00	\$ 800.00	
4	Materials and Sampling	3%	LS	\$ 600.00	\$ 600.00	
5	Construction Layout & Staking	2%	LS	\$ 400.00	\$ 400.00	
Storm						
1	24" HDPE Storm Drain	90	LF	\$ 115.00	\$ 10,350.00	
Transportation						
1	Pavement Asphalt T Patch	720	SF	\$ 6.00	\$ 4,320.00	
Earthwork						
1	Excavation	145.18519	CY	\$ 10.00	\$ 1,451.85	
2	Restore Surface Improvements	1	LS	\$ 5,000.00	\$ 5,000.00	
Subtotal					\$ 25,221.85	
				Professional Services & Incidentals	15%	\$ 3,800.00
				Contingency	25%	\$ 6,400.00
Subtotal					\$ 10,200.00	
PROJECT TOTAL					\$ 35,421.85	

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OWNER Kanab City
PROJECT S Powell Dr Extension



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 26,600.00	\$ 26,600.00
2	Project Record Documents	1%	LS	\$ 2,700.00	\$ 2,700.00
3	Traffic and Temporary Controls	4%	LS	\$ 10,600.00	\$ 10,600.00
4	Materials and Sampling	3%	LS	\$ 8,000.00	\$ 8,000.00
5	Construction Layout & Staking	2%	LS	\$ 5,300.00	\$ 5,300.00
Storm					
1	18" HDPE Storm Drain	1470	LF	\$ 95.00	\$ 139,650.00
2	72" Storm Manhole	3	EA	\$ 6,500.00	\$ 19,500.00
3	60" Storm Manhole	3	EA	\$ 5,500.00	\$ 16,500.00
Transportation					
1	Pavement Asphalt T Patch	11760	SF	\$ 6.00	\$ 70,560.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 20,000.00	\$ 20,000.00
Subtotal					\$ 319,410.00
				Professional Services & Incidentals	15% \$ 48,000.00
				Contingency	25% \$ 79,900.00
Subtotal					\$ 127,900.00
PROJECT TOTAL					\$ 447,310.00

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OWNER Kanab City
PROJECT W Vance Dr Roadside Ditch



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 11,400.00	\$ 11,400.00	
2	Project Record Documents	1%	LS	\$ 1,100.00	\$ 1,100.00	
3	Traffic and Temporary Controls	4%	LS	\$ 4,600.00	\$ 4,600.00	
4	Materials and Sampling	3%	LS	\$ 3,400.00	\$ 3,400.00	
5	Construction Layout & Staking	2%	LS	\$ 2,300.00	\$ 2,300.00	
Storm						
1	18" HDPE Storm Drain	740	LF	\$ 95.00	\$ 70,300.00	
Transportation						
1	Pavement Asphalt T Patch	1920	SF	\$ 6.00	\$ 11,520.00	
Earthwork						
1	Excavation	250.92593	CY	\$ 10.00	\$ 2,509.26	
2	Restore Surface Improvements	1	LS	\$ 30,000.00	\$ 30,000.00	
Subtotal					\$ 137,129.26	
				Professional Services & Incidentals	15%	\$ 20,600.00
				Contingency	25%	\$ 34,300.00
Subtotal					\$ 54,900.00	
PROJECT TOTAL					\$ 192,029.26	

Disclaimer:

This Engineer's Opinion of Cost (EOC) is made on the basis of Engineer's experience, qualifications, general familiarity with the construction industry and represents the Engineer's best judgement as an experienced and qualified professional . However, because Engineer has no control over the cost of labor, materials, equipment, or services furnished by others, or over contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from opinions of probable construction cost prepared by Engineer.

Notes:

- 1 - Quantities shown in the EOC are purely estimates based off a concept design. Quantities may be refined as design progresses.
- 2 - Unit costs are our best estimates based on similar projects. These costs are not guarantees. A number of factors may affect these costs when ultimately priced by a contractor.
- 3 - The EOC does not include fees that may be charged by the Owner such as impact fees, building permit fees, review fees, etc.
- 4 - LS = Lump Sum; EA = Each; SF = Square Feet; SY = Square Yard; AC = Acre; LF = Linear Feet; CY = Cubic Yard; TON = Ton; GAL = Gallon; DAY = Day; HR = Hour; EST = Estimate

Cashflow - Kanab Stormwater Impact Fee Analysis

Proposed Impact Fee = \$ 3,445.65 Interest Rate 3%

Title	2020	2021	2022	2023	2024
Revenue					
Total ERCs	3,551	3,973	3,652	3,761	3,874
New Acres	-	-	-	-	156
Average User Rate	\$ 9.59	\$ 8.71	\$ 9.93	\$ 16.13	\$ 16.13
Charges for Services	\$ 408,813	\$ 415,414	\$ 435,182	\$ 728,058	\$ 749,829
CIB Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 108,323	\$ 331,880	\$ 189,687	\$ 189,687	\$ 537,521
Total Operating Revenue	\$ 408,813	\$ 415,414	\$ 435,182	\$ 728,058	\$ 749,829
Expenses					
Rent	\$ -	\$ -	\$ -	\$ -	\$ -
Salaries & Wages	\$ -	\$ -	\$ -	\$ -	\$ 60,000
Employee Benefits	\$ -	\$ -	\$ -	\$ -	\$ 20,000
Office Expense	\$ -	\$ -	\$ -	\$ -	\$ 2,000
Insurance	\$ -	\$ -	\$ -	\$ -	\$ 2,000
Utilities	\$ -	\$ -	\$ -	\$ -	\$ 300
Travel & Training	\$ 40,413	\$ -	\$ 17,894	\$ 18,431	\$ 18,984
System Repairs & Maintenance	\$ -	\$ -	\$ -	\$ -	\$ 20,000
Professional Services	\$ 71,920	\$ 22,410	\$ 266,519	\$ 274,515	\$ 104,150
Miscellaneous	\$ -	\$ -	\$ -	\$ -	\$ -
Interest & Fiscal Charges	\$ -	\$ -	\$ -	\$ -	\$ -
Current Liabilities	\$ 1,026,291	\$ 22,552	\$ 47,688	\$ 49,119	\$ 50,592
Total Operating Expenses	\$ 1,138,624	\$ 44,962	\$ 332,101	\$ 342,064	\$ 278,026
Accounts					
Net Cash	\$ (729,811)	\$ 370,452	\$ 103,081	\$ 385,994	\$ 471,803
Operating Account Balance	\$ 425,716	\$ 1,464,292	\$ 1,567,373	\$ 1,953,367	\$ 2,425,169
CIB Account	\$ 668,124	\$ 1,093,840			
Impact Fee Balance	\$ 108,323	\$ 440,203	\$ 245,887	\$ 435,574	\$ 973,095
Project Costs					
Project Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Project Name(s)					

Title	2025	2026	2027	2028	2029
Revenue					
Total ERCs	3,990	4,110	4,233	4,360	4,491
New Acres	156	156	156	156	156
Average User Rate	\$ 16.13	\$ 16.13	\$ 16.13	\$ 16.13	\$ 16.13
Charges for Services	\$ 772,324	\$ 795,493	\$ 819,358	\$ 843,939	\$ 869,257
CIB Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 537,521	\$ 537,521	\$ 537,521	\$ 537,521	\$ 537,521
Total Operating Revenue	\$ 772,324	\$ 795,493	\$ 819,358	\$ 843,939	\$ 869,257
Expenses					
Rent	\$ -	\$ -	\$ -	\$ -	\$ -
Salaries & Wages	\$ 61,800	\$ 63,654	\$ 65,564	\$ 67,531	\$ 69,556
Employee Benefits	\$ 20,600	\$ 21,218	\$ 21,855	\$ 22,510	\$ 23,185
Office Expense	\$ 2,060	\$ 2,122	\$ 2,185	\$ 2,251	\$ 2,319
Insurance	\$ 2,060	\$ 2,122	\$ 2,185	\$ 2,251	\$ 2,319
Utilities	\$ 309	\$ 318	\$ 328	\$ 338	\$ 348
Travel & Training	\$ 19,553	\$ 20,140	\$ 20,744	\$ 21,366	\$ 22,007
System Repairs & Maintenance	\$ 20,600	\$ 21,218	\$ 21,855	\$ 22,510	\$ 23,185
Professional Services	\$ 107,275	\$ 110,493	\$ 113,808	\$ 117,222	\$ 120,738
Miscellaneous	\$ -	\$ -	\$ -	\$ -	\$ -
Interest & Fiscal Charges	\$ -	\$ -	\$ -	\$ -	\$ -
Current Liabilities	\$ 52,110	\$ 53,673	\$ 55,283	\$ 56,942	\$ 58,650
Total Operating Expenses	\$ 286,367	\$ 294,958	\$ 303,806	\$ 312,921	\$ 322,308
Accounts					
Net Cash	\$ 485,957	\$ 500,535	\$ 515,552	\$ 531,018	\$ 546,949
Operating Account Balance	\$ 2,882,849	\$ 2,282,343	\$ 2,797,895	\$ 2,958,545	\$ 3,505,494
CIB Account					
Impact Fee Balance	\$ 1,510,616	\$ 1,620,782	\$ 1,262,408	\$ 1,389,859	\$ 1,793,625
Project Costs					
Project Cost	\$ 28,277	\$ 1,528,397	\$ 15,790,561	\$ 780,438	\$ 133,755
Non-Impact Fee Eligible Cost	\$ 28,277	\$ 1,101,041	\$ -	\$ 370,368	\$ -
Impact Fee Eligible Cost	\$ -	\$ 427,356	\$ 895,896	\$ 410,070	\$ 133,755
Project Name(s)	Country Club Protection Channel	Escalante Dr Pipe Reroute, Savage Point Extension and Improvements	EA Pugh Canyon, EA Tom's Canyon Outfall Extension	Kanab Creek Detention Basin Outfall Extension, Powell Dr Culvert Replacement, US-89A Culvert at Airport Road, IFFPA 5 Yr	S Hamblin Roadside Ditch

Title	2030	2031	2032	2033	2034
Revenue					
Total ERCs	4,626	4,765	4,908	5,006	5,106
New Acres	156	156	156	156	156
Average User Rate	\$ 16.13	\$ 16.13	\$ 16.13	\$ 16.13	\$ 16.13
Charges for Services	\$ 895,335	\$ 922,195	\$ 949,860	\$ 968,858	\$ 988,235
CIB Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 537,521	\$ 537,521	\$ 537,521	\$ 537,521	\$ 537,521
Total Operating Revenue	\$ 895,335	\$ 922,195	\$ 949,860	\$ 968,858	\$ 988,235
Expenses					
Rent	\$ -	\$ -	\$ -	\$ -	\$ -
Salaries & Wages	\$ 71,643	\$ 73,792	\$ 76,006	\$ 78,286	\$ 80,635
Employee Benefits	\$ 23,881	\$ 24,597	\$ 25,335	\$ 26,095	\$ 26,878
Office Expense	\$ 2,388	\$ 2,460	\$ 2,534	\$ 2,610	\$ 2,688
Insurance	\$ 2,388	\$ 2,460	\$ 2,534	\$ 2,610	\$ 2,688
Utilities	\$ 358	\$ 369	\$ 380	\$ 391	\$ 403
Travel & Training	\$ 22,668	\$ 23,348	\$ 24,048	\$ 24,769	\$ 25,513
System Repairs & Maintenance	\$ 23,881	\$ 24,597	\$ 25,335	\$ 26,095	\$ 26,878
Professional Services	\$ 124,361	\$ 128,091	\$ 131,934	\$ 135,892	\$ 139,969
Miscellaneous	\$ -	\$ -	\$ -	\$ -	\$ -
Interest & Fiscal Charges	\$ -	\$ -	\$ -	\$ -	\$ -
Current Liabilities	\$ 60,410	\$ 62,222	\$ 64,089	\$ 66,011	\$ 67,992
Total Operating Expenses	\$ 331,978	\$ 341,937	\$ 352,195	\$ 362,761	\$ 373,644
Accounts					
Net Cash	\$ 563,357	\$ 580,258	\$ 597,666	\$ 606,097	\$ 614,591
Operating Account Balance	\$ 2,170,905	\$ 2,751,163	\$ 3,201,951	\$ 2,852,667	\$ 3,467,259
CIB Account					
Impact Fee Balance	\$ 433,200	\$ 970,722	\$ 1,508,243	\$ 436,683	\$ 974,204
Project Costs					
Project Cost	\$ 3,795,892		\$ 146,878	\$ 2,564,462	
Non-Impact Fee Eligible Cost	\$ 1,897,946	\$ -	\$ 146,878	\$ 955,380	\$ -
Impact Fee Eligible Cost	\$ 1,897,946	\$ -	\$ -	\$ 1,609,082	
Project Name(s)	EA Ranchos W,		McAllister Dr Ditch	900 S Extension, Escalante Dr North Ditch, Escalante Dr South Ditch, Powell Stewart Connection Update, S Powell Dr Extension, W Vance Dr Road, IFFPA 10 Yr	

Title	2035	2036	2037	2038	2039
Revenue					
Total ERCs	5,208	5,312	5,419	5,527	5,637
New Acres	156	156	156	156	156
Average User Rate	\$ 16.13	\$ 16.13	\$ 16.13	\$ 16.13	\$ 16.13
Charges for Services	\$ 1,008,000	\$ 1,028,160	\$ 1,048,723	\$ 1,069,697	\$ 1,091,091
CIB Funds	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 537,521	\$ 537,521	\$ 537,521	\$ 537,521	\$ 537,521
Total Operating Revenue	\$ 1,008,000	\$ 1,028,160	\$ 1,048,723	\$ 1,069,697	\$ 1,091,091
Expenses					
Rent	\$ -	\$ -	\$ -	\$ -	\$ -
Salaries & Wages	\$ 83,054	\$ 85,546	\$ 88,112	\$ 90,755	\$ 93,478
Employee Benefits	\$ 27,685	\$ 28,515	\$ 29,371	\$ 30,252	\$ 31,159
Office Expense	\$ 2,768	\$ 2,852	\$ 2,937	\$ 3,025	\$ 3,116
Insurance	\$ 2,768	\$ 2,852	\$ 2,937	\$ 3,025	\$ 3,116
Utilities	\$ 415	\$ 428	\$ 441	\$ 454	\$ 467
Travel & Training	\$ 26,278	\$ 27,066	\$ 27,878	\$ 28,715	\$ 29,576
System Repairs & Maintenance	\$ 27,685	\$ 28,515	\$ 29,371	\$ 30,252	\$ 31,159
Professional Services	\$ 144,168	\$ 148,493	\$ 152,948	\$ 157,536	\$ 162,262
Miscellaneous	\$ -	\$ -	\$ -	\$ -	\$ -
Interest & Fiscal Charges	\$ -	\$ -	\$ -	\$ -	\$ -
Current Liabilities	\$ 70,031	\$ 72,132	\$ 74,296	\$ 76,525	\$ 78,821
Total Operating Expenses	\$ 384,853	\$ 396,399	\$ 408,290	\$ 420,539	\$ 433,155
Accounts					
Net Cash	\$ 623,147	\$ 631,761	\$ 640,432	\$ 649,158	\$ 657,936
Operating Account Balance	\$ 4,090,405	\$ 4,722,166	\$ 5,362,599	\$ 6,011,757	\$ 6,669,692
CIB Account					
Impact Fee Balance	\$ 1,511,726	\$ 2,049,247	\$ 2,586,768	\$ 3,124,290	\$ 3,661,811
Project Costs					
Project Cost					
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost					
Project Name(s)					

Title	2040	2041	2042	2043
Revenue				
Total ERCs	5,750	5,865	5,983	6,102
New Acres	156	156	156	156
Average User Rate	\$ 16.13	\$ 16.13	\$ 16.13	\$ 16.13
Charges for Services	\$ 1,112,913	\$ 1,135,171	\$ 1,157,875	\$ 1,181,032
CIB Funds	\$ -	\$ -	\$ -	\$ -
Impact Fees Collected	\$ 537,521	\$ 537,521	\$ 537,521	\$ 537,521
Total Operating Revenue	\$ 1,112,913	\$ 1,135,171	\$ 1,157,875	\$ 1,181,032
Expenses				
Rent	\$ -	\$ -	\$ -	\$ -
Salaries & Wages	\$ 96,282	\$ 99,171	\$ 102,146	\$ 105,210
Employee Benefits	\$ 32,094	\$ 33,057	\$ 34,049	\$ 35,070
Office Expense	\$ 3,209	\$ 3,306	\$ 3,405	\$ 3,507
Insurance	\$ 3,209	\$ 3,306	\$ 3,405	\$ 3,507
Utilities	\$ 481	\$ 496	\$ 511	\$ 526
Travel & Training	\$ 30,463	\$ 31,377	\$ 32,319	\$ 33,288
System Repairs & Maintenance	\$ 32,094	\$ 33,057	\$ 34,049	\$ 35,070
Professional Services	\$ 167,130	\$ 172,144	\$ 177,308	\$ 182,628
Miscellaneous	\$ -	\$ -	\$ -	\$ -
Interest & Fiscal Charges	\$ -	\$ -	\$ -	\$ -
Current Liabilities	\$ 81,186	\$ 83,621	\$ 86,130	\$ 88,714
Total Operating Expenses	\$ 446,150	\$ 459,535	\$ 473,321	\$ 487,520
Accounts				
Net Cash	\$ 666,763	\$ 675,637	\$ 684,554	\$ 693,512
Operating Account Balance	\$ 7,336,455	\$ 8,012,092	\$ 8,696,646	\$ 9,390,158
CIB Account				
Impact Fee Balance	\$ 4,199,333	\$ 4,736,854	\$ 5,274,375	\$ 5,811,897
Project Costs				
Project Cost				
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost				
Project Name(s)				

APPENDIX D

IMPACT FEE CERTIFICATION

DRAFT

Certification of Impact Fee Analysis

In accordance with Utah Code Title 11-36a-306 Kelvin C. Smith, P.E., on behalf of Civil Science, Inc., make the following certification:

I certify that the attached impact fee facilities plan and impact fee analysis:

1. includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; or
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement;
3. offsets costs with grants or other alternate sources of payment; and
4. complies in each and every relevant respect with the Impact Fees Act.

This Certification is made with the following assumptions:

1. All data provided to Civil Science, Inc. is assumed to be correct, complete, and accurate.
2. Any changes to the impact fee facilities plan and impact fee analysis after the issuance of this certification will void same certification.
3. Recommendations will be followed in their entirety by Kanab City and City officials.
4. The undersigned is trained and licensed as a professional engineer and has not been trained or licensed as a lawyer. Nothing in the foregoing certification shall be deemed an opinion of law or an

opinion of compliance with law which under applicable professional licensing laws or regulations or other laws or regulations must be rendered by a lawyer licensed in the State of Utah.

5. This certification expresses professional opinion base on the undersigned best knowledge and understanding, and shall not be taken as a guarantee, warranty, or fact.

Civil Science, Inc.

By: _____

Dated: _____

DRAFT

CITY OF KANAB

WATER IMPACT FEE FACILITIES PLAN

2024



KANAB
— UTAH —



PREPARED BY



City Council

Arlon Chamberlain
Scott Colson
Chris Heaton
Boyd Corry
Peter Banks

Mayor: Colten Johnson

City Manager: Kyler Ludwig

Public Works Director: Jake Dutton

Treasurer: Danielle Ramsay

Kelvin C. Smith, P.E.
Project Engineer

Ryker Jensen
Project Analyst

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- Appendix A – Maps**
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1. EXECUTIVE SUMMARY

1.1 Introduction

The primary objective of this study is to establish plans to guide the development of future water system improvements through modeling the system existing conditions, creating a 10-year action plan, and a longer term 20-year action plan. The outcome of the study will be recommended improvements, estimated project costs, a maximum allowable impact fee, an impact fee schedule, recommended user rate schedule, and projected cash flow for Kanab's water utility.

1.2 User Analysis

Table 1 shows historic annual growth rates of 0.6%-5.4%, with an average of 3%. Projected annual growth rates for this study are shown in Table 3 as 3% for 10 years (2023-2032) then 2% for the next 10 years (2033-2042). For this study, it is assumed that residential and commercial (or non-residential) growth will occur at the same rate.

- 2023 population – 5,285
- 2033 estimated population – 7,034
- 2043 estimated population – 8,574

1.3 Water Usage

Seasonal shifts in water use are typical for desert climates. Summer months produce the highest demands on a water system, especially if it is also used for irrigation water, as is the case for most of Kanab.

A copy of Table 6 is shown above, presenting the scenario demands for the system analysis. The annual average day demand was calculated to be 318 gpd for a residential connection. The peak day demand for the highest monthly use was calculated to be 757 gpd for a residential connection. Commercial connections were calculated to be equivalent to 4.8 residential connections (ERC).

Demand Scenario	Per ERC	System Wide
Average Day Demand (gpd)	317.6	1,159,663
Peak Day Demand (gpd)	556.7	1,476,478
Peak Instantaneous (gpm)	1.1	3,977
Fire Flow (gpm)		1,500

1.4 System Analysis

The following are some system statistics for the Kanab water utility:

- 1 Chlorine Treatment Facility with a sand trap
- 6,010,000 gallons of Storage in five tanks
- 18 active Wells
- 9,850 acre-feet of Water Rights annually
- 436 Fire Hydrants
- 13 Pressure Reducing Valves
- 84.8 miles of water mains

1.5 Summary of Recommended Improvements

The table below shows recommended projects and the projected year they are to be completed.

Project Name	Project Description
24" to 12" Interconnection	Install a short 12" line, 53' long, to connect to the existing 24" line at the intersection of 300 S and 100 W.
700 E 12" Pipe Extension	Extend 12" pipeline by 1,452' beneath HWY 89 from the cemetery to 700 East.
Catori Canyon	Catori Canyon is a new subdivision just north of Powell Dr, just west of Kanab Creek. The developer will be responsible for installing culinary water.
Cave Lakes Springs	A series of springs in Cave Lakes Canyon will be developed to provide an alternate water supply for the city.
Country Club Lane	A 10" line will be added beneath Country Club Lane, beginning at the Putter Ln Intersection and moving east to the end of Country Club lane. This is line is approx.
Kanab East Hidden Canyon	A new water tank will be installed in Hidden Canyon. This will be connected to an existing pipeline near 700 E and U.S. 89. It will also be connected to an existing line with a PRV valve approximately 1.4 miles east of 100 E. The project also includes a booster pump to get water up to the tank.
Kane Dr. to 400 W Connection	Install a 1,261' 8" pipeline that connects Powell Dr. to Kane Creek Dr.
UDOT Shed Loop	Extend 8" pipeline installed for Chinle Dr project by 2,732', then turn north to run underneath HWY 89.
Ventana Resort	Ventana Resort is a new resort south of the reservoir. The developer will be responsible for installing culinary water.
Vermillion Dr. Interconnection	A 10" line will follow the corner of Vermillion Dr. Interconnection, approximately 3' long. It will be connected via 8" line to existing pipes at the east end. This increases pressure to a fire hydrant in the area that's not up to code.
Water Fill Station	A water fill station will be installed at the city yard off Chinle Dr.
West Chinle Dr.	Install a 8" water line beneath Chinle Dr. The line is 2,066' long and runs east, and includes a PRV valve. It then turns north and runs beneath U.S. 89 to connect to the Hidden Canyon system.
IFFPA 5 Yr	5 year update for Master Plans and Impact Fees.
IFFPA 10 Yr	10 year update for Master Plans and Impact Fees.

1.6 Financial Viability

The financials of the water utility show that it is in good health. However, future growth will require some improvements that must be funded by adjusting utility rates and/or impact fees. The maximum allowable impact fee was calculated above for an equivalent residential connection based on eligible projects above. A recommended impact fee schedule based on water meter size is presented below. The cash flow in Appendix C illustrates that if these rates and fees are established as presented, all recommended improvements can be constructed.

Impact Fees Based on Water Meter Size			
Meter Size [in]	Area [sq-in]	Factor	Impact Fee
5/8	0.31	1.00	\$6,594.14
1	0.79	2.56	\$16,881.00
1.5	1.77	5.76	\$37,982.25
2	3.14	10.24	\$67,523.99
2.5	4.91	16.00	\$105,506.24
3	7.07	23.04	\$151,928.99
4	12.57	40.96	\$270,095.97
6	28.27	92.16	\$607,715.94

2. INTRODUCTION

2.1 Purpose and Scope

The primary objective of this study is to update plans to guide the development of future water system improvements. This study includes an existing condition plan, a 10-year action plan, as well as a longer term 20-year action plan. The analysis supporting these action plans show the state of the system as it is now (existing capacity), and how much growth can be allowed while still meeting Utah State requirements, and still provide an adequate level of service to existing customers. It also evaluates future development projects for financial viability.

Kanab City operates with the purpose of sustainably provide water in sufficient quantity and quality to residents and enterprises within its service area in the near term and as future developments are undertaken. The study area incorporates updated zoning conditions consistent with recent City planning. Given the purpose and need described above, the following were key elements contemplated in the scope of work for this project:

- Perform a user analysis, establishing an anticipated growth rate within the City's service area boundary, identify focused or pending development areas, establish population projections based on anticipated growth rate, and review and determine existing and future demographics of the City;
- Conduct a public open house/town hall meeting, provide technical documents as required and present draft impact fee facilities plans to the City Council;
- Update the system inventory to establish what the City has:
 - Gather and analyze existing water use data and projected future demands.
 - Field verify new critical elements of the water system (locations, elevations, etc.).
 - Convert elements into GIS and attribute.
 - Update water system GIS data and verify system attributes;
- Update modeling scenarios based on State Code to establish the City's needs:
 - Review the existing model in its current condition and make additions or improvements as needed.
 - Review the calibration of the model based on known meter usage and fire flow data.
 - Operate the model under existing, 10-year and 20-year development conditions.
 - Operate the model based on peak day demand conditions.
 - Operate the model based on peak day demand plus fire flow conditions.
 - Operate the model based on peak instantaneous demand conditions;
- Perform a system financial analysis to calculate the cost of improvements:
 - Prepare project descriptions and opinions of probable cost for recommended improvements.
 - Prepare an impact fee facilities plan for the 10-year planning horizon with considerations for the 20-year planning horizon.
 - Identify a phasing plan for recommended improvements.
 - Identify facilities eligible to be funded with impact fees (full or partial).
 - Perform a financial viability analysis of the operations and management of the system based upon recent audits.
 - Prepare a user rate analysis using recent audit costs for the operations and management of the water utility.

- Prepare an impact fee analysis, calculate the maximum allowable impact fee, and issue an impact fee certification;
- Prepare a written IFFPA with results, summaries, and relevant appendix materials.
 - Prepare a water system impact fee facilities plan draft for City Staff, Department Heads, and the City Council.
 - Publish a final written water system impact fee facilities plan & analysis (IFFPA) for the community.

2.2 Background Information

Kanab is the commercial center of a large farming, ranching and recreational area located in south central Utah. The City is the County seat of Kane County and has a long history as a film making and tourism hub. Nearby tourism destinations include multiple national parks and recreational areas such as Lake Powell. Kanab is located 7 miles north of the Arizona border on US 89A. For many years the community was one of the most isolated in the nation, being cut off from the east by the Colorado River. Today it is a tourist town inviting tens of thousands of visitors annually to enjoy the beauty of the area as well as its rich history.

During the past several years, The City has completed multiple projects as recommended in the 2018 IFFPA, helping to fulfill the City's goals in water source protection and distribution. These projects include replacing the North and South Water Tanks for increased capacity, as well as updating the distribution system throughout much of the city.

Now that many of the recommendations from the 2018 plan have been completed, the time has come for an updated IFFPA. This update will include the continued growth seen by the community these past 5 years, as well as a study of future developments and issues that may arise therein.

Governing documents and codes for this study include the existing Kanab City General Plan, Utah Administrative Code R309 and R317, as well as all current zoning and development standards.

2.3 Miscellaneous Resources

Resources for this plan include monthly City water meter data, Kanab City Staff, federal and state census information, Utah Division of Water Rights information, Utah Administrative Code minimum sizing requirements, the Impact Fees Act established under Utah State Code, and Kanab City Financial Statements.



Kanab Downtown

3. USER ANALYSIS

3.1 Planning Horizon

This analysis reflects three distinct planning horizons: existing conditions, 10-years, and 20-years. The existing conditions scenario evaluates the current state of the system based on the current number of residential, commercial, industrial, and institutional connections. Moving forward in this report commercial, industrial, and institutional connections will be referred to in aggregate as non-residential connections. The 10-year and 20-year planning horizons will project the future growth of Kanab City, as well as evaluate the system for potential deficiencies. Plans will be laid out to improve the system to compensate for those deficiencies.



Figure 1: North and South Water Tanks, completed in 2022

3.2 Historic Growth Rates

To properly analyze the 10-year and 20-year planning horizons, projections must be made regarding population. Future estimated growth rates are based on average historical growth rates. Table 1 analyzes past census data provided for Kanab. It shows the historic 10-, 20-, 30-, and 40-year average annual growth rates.

From this table we see that annual growth rates since 1980 have fluctuated from 0.6%-5.4%. The average annual growth rate over that time sits at 3.0%. It is worth noting that the 40-year average has gone up slightly, from 2.9% to 3.0%, since the last iteration of this report. This shows that while the growth rate was down in the 2010's, it has been on the rise in the few years since then.

Description	Year Period	Population	Growth
10-year Historic	1980	2148	-
10-year Historic	1990	3318	5.4%
10-year Historic	2000	3510	0.6%
10-year Historic	2010	4312	2.3%
10-year Historic	2020	4683	0.9%
20-year Historic	1980-2000	-	3.2%
20-year Historic	1990-2010	-	1.5%
20-year Historic	2000-2020	-	1.7%
30-year Historic	1980-2010	-	3.4%
30-year Historic	1990-2020	-	1.4%
40-year Historic	1980-2020	-	3.0%

Table 1: Historic Population and Growth Rates

3.3 Projected Growth Rates

The historical growth rates shown in the previous section allow for the forward projection of population growth. Based on analysis of years past, it is projected that Kanab City will continue to grow at a rate of 2-3% over the next 20 years. For that reason, a 3% growth rate is used to show growth over the next 10 years (2023-2032) and a 2% growth rate for the 10 years after that (2033-2043). A variety of factors affect growth rate, many of which will change with time. Any projection past 20 years would prove unreliable.

3.4 Equivalent Residential Connection

Calculating an Equivalent Residential Connection (ERC) provides a way to compare residential to non-residential connections. This means that a residential connection equals 1 ERC. If non-residential connections on average use 5 times more water than residential connections, then each non-residential connection equals 5 ERC's. Non-residential connections generally use more water than residential connections. Establishing an ERC value for commercial connections allows water usage to be evaluated fairly. Table 2 shows an ERC value of 4.8 for non-residential connections in Kanab. Annual population, ERC, and growth rate projections for the 20-year planning horizon are available in Table 3. ERC calculation tables and water usage data are available in Appendix B.

Connection Type	ERC (2022)
Residential	1.0
Non-Residential	4.8

Table 2: ERC Values

Year	Source	Population	Residential Connections	Non-Residential Connections	ERCs	Growth
2015	Census Est.	4,410	1,848	225	3,152	0.1%
2016	Census Est.	4,436	1,876	227	3,502	0.6%
2017	Census Est.	4,448	1,910	226	3,024	0.3%
2018	Census Est.	4,529	1,983	224	3,204	1.8%
2019	Census Est.	4,636	2,133	215	3,279	2.4%
2020	Census	4,683	2,201	263	3,551	1.0%
2021	Census Est.	5,000	2,236	271	3,973	6.8%
2022	Census Est.	5,131	2,304	271	3,652	2.6%
2023	Estimate	5,285	2,373	279	3,761	3.0%
2024	Estimate	5,443	2,444	288	3,874	3.0%
2025	Estimate	5,607	2,518	296	3,990	3.0%
2026	Estimate	5,775	2,593	305	4,110	3.0%
2027	Estimate	5,948	2,671	314	4,233	3.0%
2028	Estimate	6,127	2,751	324	4,360	3.0%
2029	Estimate	6,310	2,834	333	4,491	3.0%
2030	Estimate	6,500	2,919	343	4,626	3.0%
2031	Estimate	6,695	3,006	354	4,765	3.0%
2032	Estimate	6,896	3,096	364	4,908	3.0%
2033	Estimate	7,034	3,158	371	5,006	2.0%
2034	Estimate	7,174	3,221	379	5,106	2.0%
2035	Estimate	7,318	3,286	386	5,208	2.0%
2036	Estimate	7,464	3,352	394	5,312	2.0%
2037	Estimate	7,613	3,419	402	5,419	2.0%
2038	Estimate	7,766	3,487	410	5,527	2.0%
2039	Estimate	7,921	3,557	418	5,637	2.0%
2040	Estimate	8,079	3,628	427	5,750	2.0%
2041	Estimate	8,241	3,700	435	5,865	2.0%
2042	Estimate	8,406	3,774	444	5,983	2.0%
2043	Estimate	8,574	3,850	453	6,102	2.0%

Table 3: Growth Projections

4. WATER USAGE

4.1 Historic Usage & Connections

Monthly water usage data from July 2020 to June 2023 was provided by Kanab City to analyze recent water demands. When broken down these show the expected trend seen in Figure 2 below, where water usage increases significantly during the warm summer months of May-September, while tapering off significantly during the cold winter months of November-March. Table 4 shows similar data, broken down by month to show percentage of the yearly average usage. Water demands for January for example were found to be 4% of the annual usage. Table 4 breaks this down further, showing that during the month of January water consumption was 48% of the average monthly usage. The lowest monthly demand occurs in December, when only 2% of the annual consumption was used. The peak monthly usage occurs in July, when 15% of the annual usage occurs representing 175% of the monthly average.

Month	% of Total	% of Average
January	4%	48%
February	3%	39%
March	4%	51%
April	8%	92%
May	12%	145%
June	13%	162%
July	15%	175%
August	13%	161%
September	12%	141%
October	8%	100%
November	5%	57%
December	2%	30%

Table 4: Monthly Water Usage

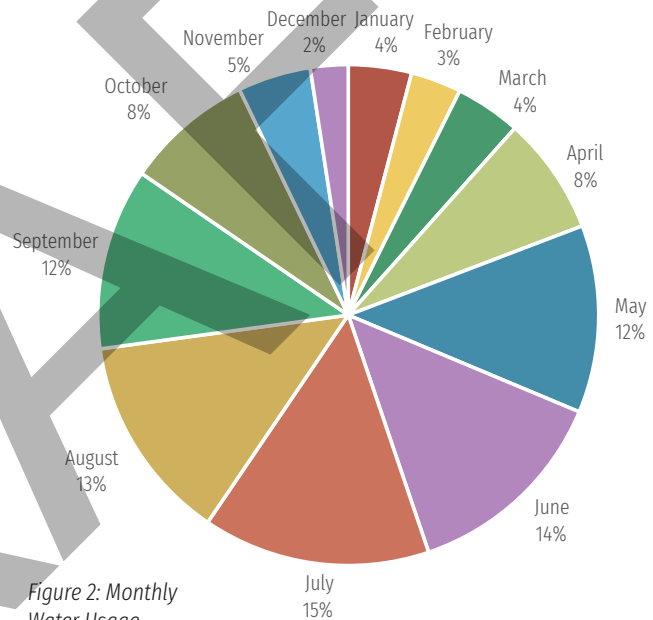


Figure 2: Monthly Water Usage

4.2 Equivalent Residential Connections

As stated earlier, establishing an ERC value for non-residential connections allows water usage to be evaluated fairly between residential and commercial connections. ERC values are calculated for different connection types in Kanab City. For this report, those connection types were simplified to residential and non-residential.

Type	Annual (1000 gal)	Connections	Daily Use per Connection	ERC (2022)
Residential	267,051	2304	317.6	1.0
Non-Residential	150,115	271	1517.6	4.8

Table 5: ERC Calculations

ERC values are calculated by evaluating daily use per connection for each connection type. The residential connection is defined as 1 ERC. The non-residential daily use per connection is then divided by the defined ERC daily use to achieve an ERC value. This analysis is shown in Table 5 for residential and non-residential connection types.

4.3 Water System Demands

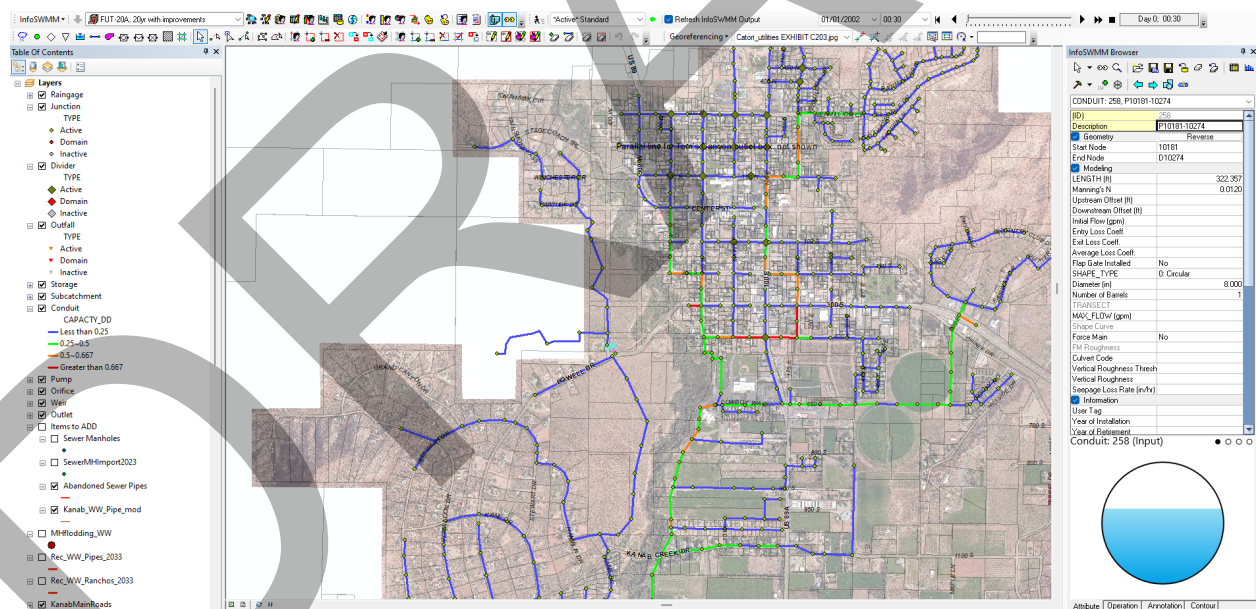
Utah Administrative Rules for Public Drinking Water Systems gives minimum sizing requirements for all areas of a water system typically based on one of several demand scenarios:

- Average Day Demand – based on annual average water demands.
- Peak Day Demand – based on meter data provided to the state for the highest water usage during a single day. Must maintain 40 psi at all points in the system.
- Peak Instantaneous Demand – based on highest demand seen annually. Must maintain 30 psi at all points in the system.
- Peak Day Demand with Fire Flow – peak day demand scenario plus fire flow demands. Must maintain 20 psi at all hydrant points in the system with the locally required flow of 1,500 gpm.

Table 6 shows the demands for the different scenarios. Typically, a water distribution system is designed for the peak day demand with fire flow scenario because that is the governing scenario. However, each facet of a water distribution network is designed according to Utah State Rules governing minimum sizes and will be stated for each facet in the system analysis section of the report.

Demand Scenario	Per ERC	System Wide
Average Day Demand (gpd)	317.6	1,159,663
Peak Day Demand (gpd)	556.7	1,476,478
Peak Instantaneous (gpm)	1.1	3,977
Fire Flow (gpm)		1,500

Table 6: Water Demands



Screen Clip of Water Model

5. SYSTEM ANALYSIS

5.1 Water Rights

Existing Water Rights

An investigation into the water right holdings of Kanab City through records held by the Utah Division of Water Rights revealed that Kanab City or the City's Corporation owns enough water rights according to the calculated demands. The existing water rights owned by Kanab are listed in Table 8 below. The water rights are listed according to number and show the source and flow.

Water Right No.	Status	Source	Flow		
			cfs	gpm	ac-ft
85-772	CERT	Underground Water Well	3.48	1562.03	2519.44
85-946	APP	Underground Water Wells (17)	3.02	1355.56	2186.41
85-59	CERT	Underground Water Well	1.81	812.44	1310.40
85-956	CERT	Underground Water Well	1.5	673.29	1085.97
85-55	CERT	Underground Water Well	1	448.86	723.98
85-736	CERT	Underground Water Well	0.93	417.44	673.30
85-39	CERT	Underground Water Well	0.885	397.24	640.72
85-112	DIL	Cave Lakes Canyon Springs (23)	0.5	224.43	361.99
85-28	CERT	Underground Water Well	0.448	201.09	324.34
85-703	DIL	City Chicken Spring	0.033	14.81	23.89
TOTAL			13.61	6107.19	9850.44

Table 7: Water Rights

Kanab has access to 9,850.4 acre-feet (ac-ft) of culinary water rights available annually. Utah Administrative Code requires that there be sufficient water rights to fulfill source capacity requirements. This means that the peak day demand of 556.7 gpd/ERC (converted to 2,332 ac-ft/yr.) is required.

Protected Water Rights

Projected water rights follow the same code requirements as above meeting the peak day demand of 556.7 gpd/ERC. In 2033 it is projected that 3,122 ac-ft/yr. of water rights will be required and that in 2043 a projected 3,805 ac-ft/yr. of water rights will be required. Figure 4 shows the amount of projected required water rights per year in relation to the existing water rights available to Kanab.

Recommended Water Right Improvements

It is recommended that all water rights have their status be updated to "Approved" or "Certified" with the State of Utah. This may require the City to prove reasonable use of the water rights. This will help the City with maintaining control of all its water rights for the foreseeable future.

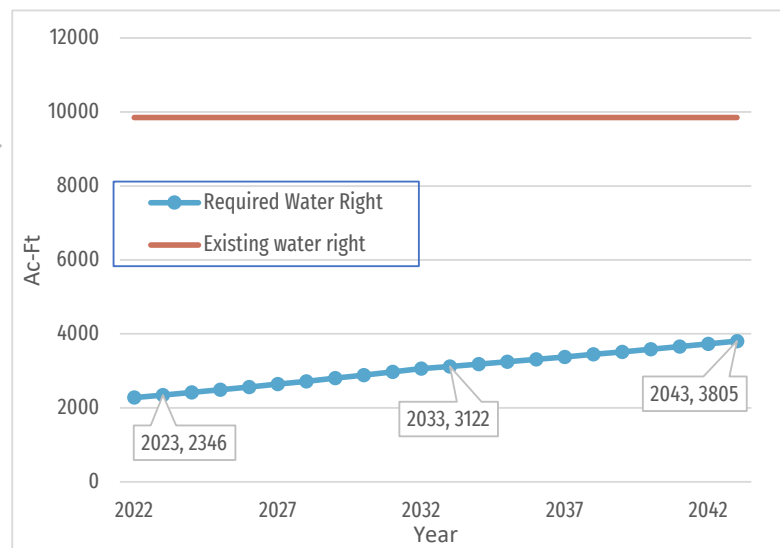


Figure 3: Projected Water Rights

5.2 Source Capacity

Existing Source Capacity

Utah Administrative Code R309-510-7 requires that “[culinary water] source capacity meet anticipated water demand on the day of the highest consumption (peak day demand) and provide one year’s supply of water.” The City is able to meet this requirement through the City’s wells to the north near Highway 89. Table 8 shows that 1,412 gpm is the minimum required source capacity under existing conditions and that the City has a total pumping capacity of 4,045 gpm.

Existing Conditions (2023)	
3,761 ERUs x $\frac{557 \text{ gpd}}{\text{ERU}}$ x $\frac{1 \text{ day}}{1440 \text{ min}}$	= 1,454 gpm
Total Existing Pump Capacity = 4,045 gpm	

Table 8: Existing Capacity

Projected Source Capacity

Using the same calculations and being governed by the same codes, projected source capacities for every year within the 20-year planning horizon were calculated and are shown in Figure 4. Kanab has adequate source capacity for the outlook of this study with 1,935 gpm and 2,359 gpm being calculated for the 10-year and 20-year planning horizons, respectively.

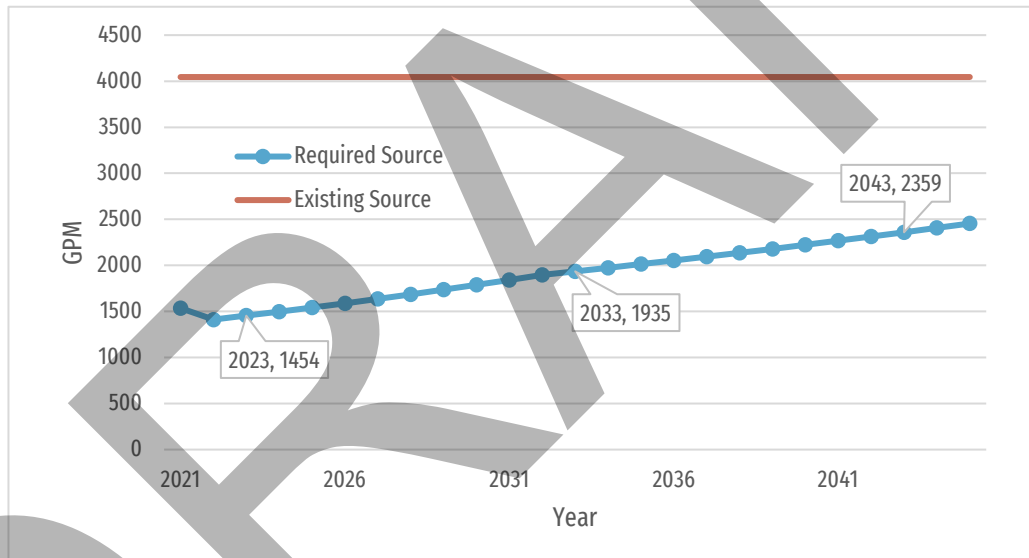


Figure 4: Projected Source Capacity

Recommended Source Capacity Improvements

Kanab City Staff has reported that the Standsfield Water Tank overflows at times because the well source pumps must be operated manually. Operation of the well pumps can be done automatically through a SCADA system interface once installed. Wells are currently in the process of integrating a SCADA system interface and controls, which should address this issue.

Another key consideration is the redevelopment of the Cave Lakes Springs System. These would provide a secondary water source, aside from the wells. This diversification would be a great improvement to the city’s water source. The springs do not need power, providing an excellent alternative for emergency situations.

5.3 Storage Capacity

Existing Storage Capacity

Kanab City maintains an existing storage capacity of 6,010,000 gallons. The existing storage tanks and their respective volumes are included in Table 9. The Sand Trap Tank is located north of Kanab on the side of Highway 89. This tank filters out any sand from the wells, then feeds the other tanks in or near the city boundary. North Tank and South Tank sit next to each other and are hydraulically connected acting as one tank. The other two tanks are located on the western border of the City near the base of the high plateaus.

Utah Administrative Code breaks down storage requirements into three general areas: equalization storage for everyday day demands including irrigation needs, fire flow storage according to the local or state fire code, and emergency storage based on experience, risk, and dependability. A breakdown of these minimum storage requirements is included below in Table 10.

Name	Gallons
North Tank	2,000,000
South Tank	2,000,000
Vermillion Tank	1,000,000
Stansfield Tank	1,000,000
Sand Trap Tank	10,000
TOTAL	6,010,000

Table 9: Existing Storage Capacity

Existing Conditions (2023)			
Storage Provided for Residential Indoor and Irrigation Use			
2,373	ERCs x	$\frac{318 \text{ gal}}{\text{ERC}}$	= 754,652 gal
Storage Provided for Commercial Indoor and Irrigation Use			
1,388	ERCs x	$\frac{318 \text{ gal}}{\text{ERC}}$	= 441,475 gal
Fire Flow Storage			
1,500	gpm x	120 min	= 180,000 gal
Emergency Storage & Peaking Buffer			
200%	of calculated storage		= 2,752,254 gal
			4,128,381 gal

Table 10: Storage Capacity Requirements

The storage capacity required for indoor and irrigation uses is calculated by multiplying the average day demand as shown in Table 5 by the number of ERCs for residential and commercial use. Residential and commercial uses were separated for comparison purposes. The local fire authority has required 1,500 gpm of fire flow for two hours to achieve the fire flow storage requirement. Emergency storage and peaking capacity was calculated by multiplying the previously calculated volume by a factor of 200% because of previously experienced high water use in the summer months. The total required storage was calculated to be over 4 million gallons (MGAL).

To further visualize Kanab’s storage capacity, Figure 5 shows the data presented in Table 10 in terms of the total existing storage volume. The additional storage volume shown is the extra storage volume in the system after the required storage is counted.

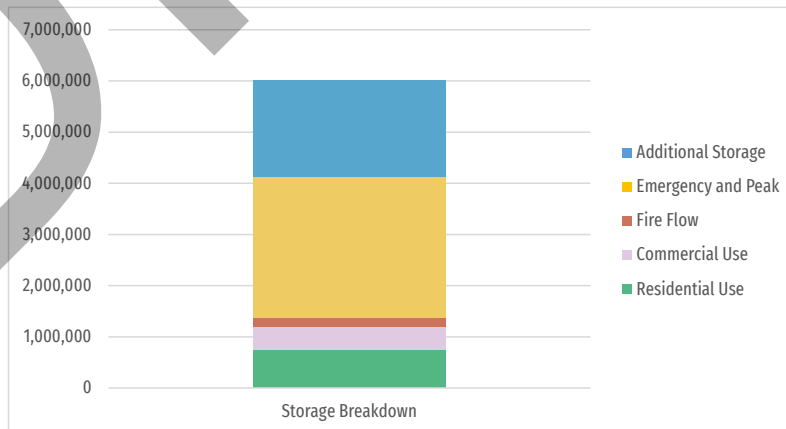


Figure 5: Storage Requirements Breakdown

Projected Storage Capacity

Following the same storage requirement calculations as shown previously, the projected required storage volumes were calculated. Table 11 below shows the projected storage requirements for 2043, the 20-year planning horizon.

The projected growth for Kanab in the 20-year planning horizon shows that over 6.4 million gallons will be required to service the City’s water demands. However, when the additional capacity from the existing conditions is factored into future storage demands, Kanab should have over 8 million gallons of storage capacity in 20 years. The additional storage capacity is calculated as 49.4% of the calculated required storage. The level of service for storage capacity is approximately 1,639 gal/ERC.

Future Conditions (2043)				
Storage Provided for Residential Indoor and Irrigation Use				
3,774	ERCs x	$\frac{318 \text{ gal}}{\text{ERC}}$	=	1,200,283 gal
Storage Provided for Commercial Indoor and Irrigation Use				
2,208	ERCs x	$\frac{318 \text{ gal}}{\text{ERC}}$	=	702,171 gal
Fire Flow Storage				
1,500	gpm x	120	min =	180,000 gal
Emergency Storage				
200%	of calculated storage		=	4,164,907 gal
				6,247,361 gal

Table 11: Projected Storage Capacity Requirements

Recommended Storage Capacity Improvements

Kanab City can maintain the level of service of approximately 1,639 gal/ERC through impact fees generated by growth. It is recommended that when the storage level of service total gallons exceeds 1 million gallons (MG) above what the City currently has for storage capacity, that a new 1-million-gallon tank be constructed. It is projected that the first new 1 MG tank should be constructed in 2026 and 2032. The 2026 tank will be located near the east City boundary with a 12-inch pipeline connected to the nearest 12-inch water main. Probable locations for these tanks are included in Appendix A (Map 4 & 5).

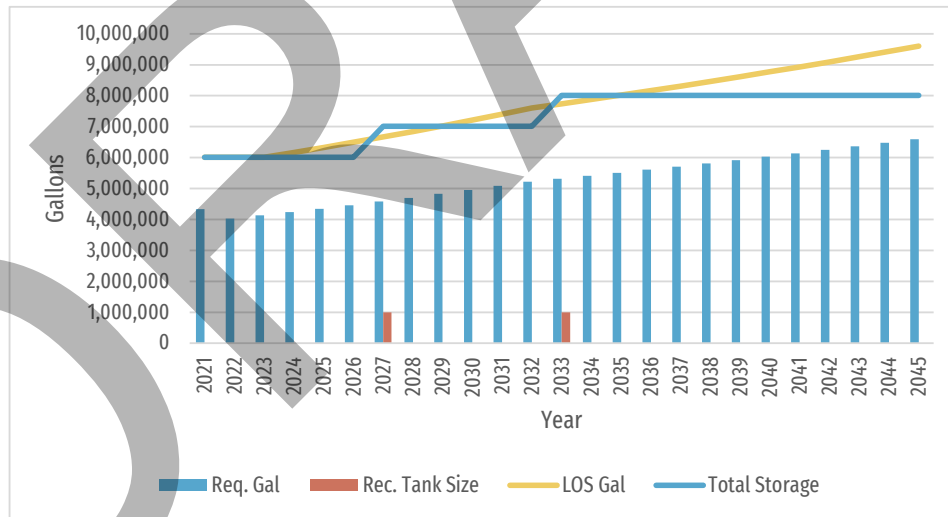


Figure 6: Storage Capacity Recommendations

Kanab Public Works staff has also reported that the Stansfield Tank over fills due to its lower base elevation and not being able to turn off the well’s pumps automatically. As of writing this report, Public Works staff must travel to the pump vaults and manually turn off applicable well pumps. It is recommended that a full SCADA solution connecting the tanks, wells, master meters, and treatment systems is installed, so losses in time, materials, and treated culinary water are minimized. This project is currently underway.

Existing water tanks should be monitored and maintained to provide as long a design life as possible. Periodic maintenance may require investigations of the exterior and interior of the tanks.

5.4 Treatment Capacity

Existing Treatment Capacity

Utah Administrative Code R309 has rules for the protection of public health and optional rules to help the water provider avoid consumer complaints. Kanab City's water sources deliver high quality water that is treated through gas chlorination at the Sand Trap Tank. All sources of water must be treated, but it only needs to be treated as fast as the tanks deliver culinary water. Required treatment capacity follows the required storage capacity of the system.

The existing capacity (loading) of the existing chlorination system is 10 lb/day. Currently the City is using about 8lb/day to treat 3.5 million gallons per day (MGD). Assuming the same concentration of chlorine, the max treatment capacity of the existing system is 4.375 MGD.

Projected Treatment Capacity

The projected treatment capacity of the system matches the required storage capacity of the culinary water system. The projected treatment capacity of the system is shown in Figure 7, with the existing maximum treatment capacity shown as a horizontal line. It is projected that 5.31 MGD will be the required treatment capacity in 2033, and 6.36 MGD of treatment capacity in 2043. The existing treatment capacity is exceeded in 2026.

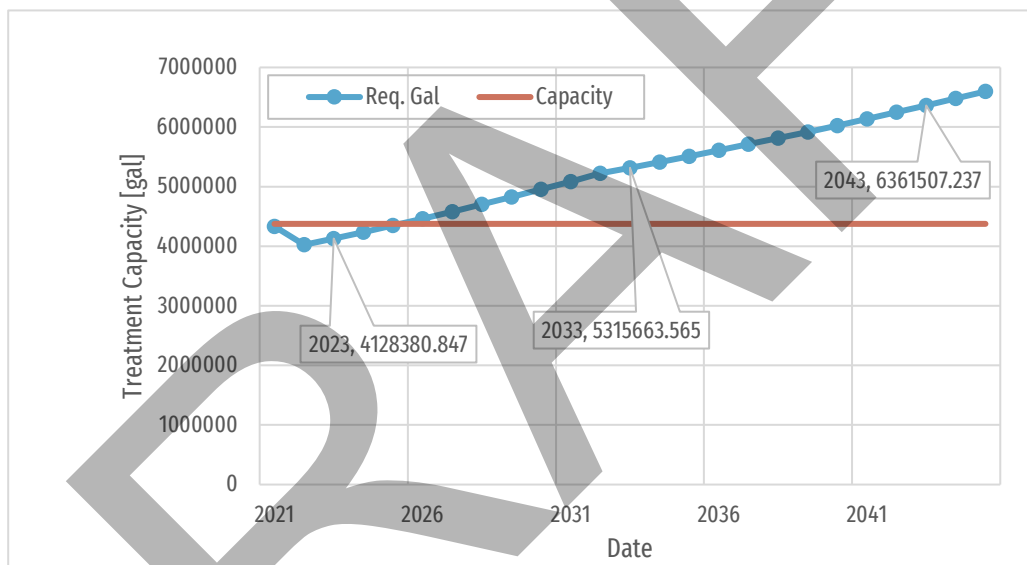


Figure 7: Projected Treatment Capacity

Recommended Treatment Capacity Improvements

It is recommended that the existing chlorine gas chlorination system be expanded to include more capacity. This may involve a parallel chlorine delivery system, or a new larger delivery system. It does not seem needful to add another chlorination location as a recommended improvement, but only to remodel or expand the existing system.

5.5 Distribution System

Network Hydraulic Model

Utah Administrative Code R309 requires that distribution systems be designed for three demands and pressure scenarios:

1. Peak day demand while maintaining 40 psi
2. Peak instantaneous demand while maintaining 30 psi
3. Peak day demand plus fire flow while maintaining 20 psi

Peak day demand is calculated by multiplying the total number of serviced ERCs by the peak day demand value in Table 7. Peak instantaneous indoor demand for a single pipeline is calculated using an equation in the State Code as follows:

$$Q = 10.8 \times N^{0.64}$$

Where Q is in GPM, N is the number of ERCs serviced by the system.

State Code also gives guidelines about calculating the peak instantaneous outdoor demand based on irrigated acres. Kanab resides in map zone 4 which yields a given value of 7.92 GPM/irrigated acre. Several assumptions were also made to calculate the total irrigated acreage in Kanab. While an irrigation company operates in the downtown portion of the City, their existence was not included into the reduction of water required in exchange for only counting the residential ERCs for The City. It was also assumed that each ERC had 0.1 irrigated acres. Table 12 shows the calculations for peak instantaneous demand under existing conditions. Projected demand calculations follow the same equations with ERCs according to growth.

Existing Conditions (2023)	
Peak Instantaneous Indoor Demand	
$10.8 \times (3,761 \text{ ERCs})^{0.64}$	2097.2 gpm
Peak Instantaneous Outdoor Demand	
$0.100 \text{ irr ac} \times 63.1\% \frac{\text{Res ERC}}{\text{ERC}} \times 7.92 \frac{\text{gpm}}{\text{irr ac}} \times 3,761 \text{ ERCs}$	= 1,879.5 gpm
Total Peak Instantaneous Demand	3,976.8 gpm

Table 12: Peak Instantaneous Demand Calculations

An understanding of the distribution system is not complete without an understanding of the pressure zones within the system. Kanab’s culinary water system has 2 pressure zones separated by 13 pressure reducing valves (PRVs). Locations for these valves can be found in Appendix A (Map 1). More information on the existing PRVs including settings can be found in Appendix B.

A hydraulic model was set up in InfoWater, an industry leading modeling system that is an add-on for ArcMap from Innowyze. The model was set up with GIS data for existing system network components such as pipes, valves, tanks, etc. and demands were placed on the system model.

The results from the model show that system design capacities and pressures are being met in almost all areas of the City. There is one isolated location that because of elevation, pipe size, and dead end lengths of pipe, does not meet pressure requirements under the design scenarios. In all cases, the fire flow scenario governed the recommendations to remedy system deficiencies.

Existing Distribution System

The distribution system provides good service to a vast majority of the service connections and fire hydrants. There is one hydrant location at the west end of Vermillion Drive that cannot meet state and local fire flow requirements. The existing pipe is an old 6” pipe. This pipe was installed before the current Utah State minimum water main sizing requirements were adopted. Appendix A contains maps showing the results of the model run under existing conditions in terms of fire flows at junctions and existing pipe network locations and diameters.

In addition to the hydraulic model, a hydrant inventory was done to analyze the appropriate spacing of fire hydrants in Kanab. Using the fire authority’s guidance in accordance with Utah State fire suppression rules, fire hydrants are to be spaced in 500-foot intervals. A 250-foot radius buffer was created around each existing fire hydrant to show areas that are and are not within 250 feet of a fire hydrant. Much of the City has fire hydrants spaced 600-700 feet apart, particularly in the downtown and Ranchos neighborhoods. It is recommended that as development increases, or as needed, fire hydrants be added to the system to meet the 500-foot spacing requirement.

6. SUMMARY OF RECOMMENDED IMPROVEMENTS

Based on sound engineering judgment, practices, and through the hydraulic modeling results, a summary of recommended improvements is presented in Table 13. Kanab City can maintain its high-quality culinary water system through preventative maintenance to protect water quality and quantity, infrastructure, and service to the citizens of Kanab.

Project Name	Project Description
24" to 12" Interconnection	Install a short 12" line, 53' long, to connect to the existing 24" line at the intersection of 300 S and 100 W.
700 E 12" Pipe Extension	Extend 12" pipeline by 1,452' beneath HWY 89 from the cemetery to 700 East.
Catori Canyon	Catori Canyon is a new subdivision just north of Powell Dr, just west of Kanab Creek. The developer will be responsible for installing culinary water.
Cave Lakes Springs	A series of springs in Cave Lakes Canyon will be developed to provide an alternate water supply for the city.
Country Club Lane	A 10" line will be added beneath Country Club Lane, beginning at the Putter Ln Intersection and moving east to the end of Country Club lane. This line is approx.
Kanab East Hidden Canyon	A new water tank will be installed in Hidden Canyon. This will be connected to an existing pipeline near 700 E and U.S. 89. It will also be connected to an existing line with a PRV valve approximately 1.4 miles east of 100 E. The project also includes a booster pump to get water up to the tank.
Kane Dr. to 400 W Connection	Install a 1,261' 8" pipeline that connects Powell Dr. to Kane Creek Dr.
UDOT Shed Loop	Extend 8" pipeline installed for Chinle Dr project by 2,732', then turn north to run underneath HWY 89.
Ventana Resort	Ventana Resort is a new resort south of the reservoir. The developer will be responsible for installing culinary water.
Vermillion Dr. Interconnection	A 10" line will follow the corner of Vermillion Dr. Interconnection, approximately 3' long. It will be connected via 8" line to existing pipes at the east end. This increases pressure to a fire hydrant in the area that's not up to code.
Water Fill Station	A water fill station will be installed at the city yard off Chinle Dr.
West Chinle Dr.	Install a 8" water line beneath Chinle Dr. The line is 2,066' long and runs east, and includes a PRV valve. It then turns north and runs beneath U.S. 89 to connect to the Hidden Canyon system.
IFFPA 5 Yr	5 year update for Master Plans and Impact Fees.
IFFPA 10 Yr	10 year update for Master Plans and Impact Fees.

Table 13: Summary of Recommended Improvements

7. FINANCIAL VIABILITY

7.1 Cost Estimates

Civil Science has prepared cost estimates for each of the projects identified in Table 13. While only for planning, each cost estimate captures anticipated construction costs including mobilization and demobilization, project record documents, traffic and temporary controls, materials and sampling, construction layout & staking, professional services, materials, labor, and contingencies. The projects were organized in a manner where costs are not shared between two different projects. This allows for better understanding of a singular project's costs versus showing all the projects in an abbreviated cost estimate format. Table 14 shows project costs in 2023 dollars.

7.2 Project Phasing

Recommended improvements were given a time frame in which the projects are expected to be implemented based on growth projections, localized growth, and available impact fee funds as shown in the cash flow. Table 14 shows the recommended improvements within a 10-year period with their projected year of construction and costs in 2023 dollars plus 3% inflation per year.

Project Name	Projected Year	Inflated Cost
Catori Canyon	2024	\$256,140
Cave Lakes Springs	2024	\$2,150,260
West Fork Well #5	2024	\$702,260
Vermillion Dr. Interconnection	2025	\$85,230
Water Fill Station	2025	\$159,238
24" to 12" Interconnection	2026	\$36,064
Kanab East Hidden Canyon	2027	\$5,044,793
IFFPA 5 Yr	2028	\$39,618
Country Club Lane	2029	\$363,511
West Chinle Dr.	2030	\$555,366
Ventana Resort	2031	\$380,880
700 E 12" Pipe Extension	2032	\$419,042
Kane Dr. to 400 W Connection	2033	\$240,359
UDOT Shed Loop	2033	\$651,251
IFFPA 10 Yr	2033	\$45,928
Total		\$11,129,941

Table 14: Cost Estimate Summary

In all cases, the improvements are planned to support continuing growth within the next ten years and are planned for implementation at times when the growing population base can theoretically generate enough revenue to fund the projects. It should be noted that growth in the study area may occur at a rate faster or slower than that predicted in the cash flow analysis. If growth occurs at a faster rate, more funds will be available to construct the projects at an earlier schedule than specified by the phasing projections. On the other hand, if growth is slower than expected, implementation of the projects should be delayed until the population base can fund the improvements.

7.3 Impact Fee Analysis

Impact fees for Kanab City were reestablished in 2018, with the understanding that they would be reevaluated every 5 years. The purpose of this report is to revisit the City's public water system and establish adjustments to the impact fees based on changes in situation and future projections.

The new proposed impact fee was calculated based on estimated costs, projected construction year, inflation, and impact fee eligibility. This is based on whether the project is needed to address an existing issue or if the project is needed to serve new growth and development. The proposed impact fee calculations are presented in Table 15. Impact fee eligible costs are based on inflated costs and impact fee eligibility.

Project Name	Projected Year	Inflation		Impact Fee Eligible %	Impact Fee Eligible Cost
		2023 Cost	3% Inflated Cost		
Catori Canyon	2024	\$256,140	\$256,140	96%	\$246,140
Cave Lakes Springs	2024	\$2,150,260	\$2,150,260	20%	\$430,052
West Fork Well #5	2024	\$702,260	\$702,260	100%	\$702,260
Vermillion Dr. Interconnection	2025	\$82,748	\$85,230	90%	\$76,707
Water Fill Station	2025	\$154,600	\$159,238	100%	\$159,238
24" to 12" Interconnection	2026	\$33,994	\$36,064	100%	\$36,064
Kanab East Hidden Canyon	2027	\$4,616,700	\$5,044,793	84%	\$4,241,081
IFFPA 5 Yr	2028	\$35,200	\$39,618	100%	\$39,618
Country Club Lane	2029	\$313,568	\$363,511	100%	\$363,511
West Chinle Dr.	2030	\$465,110	\$555,366	100%	\$555,366
Ventana Resort	2031	\$309,690	\$380,880	0%	\$0
700 E 12" Pipe Extension	2032	\$330,796	\$419,042	100%	\$419,042
Kane Dr. to 400 W Connection	2033	\$184,215	\$240,359	100%	\$240,359
UDOT Shed Loop	2033	\$499,130	\$651,251	100%	\$651,251
IFFPA 10 Yr	2033	\$35,200	\$45,928	100%	\$45,928
Total		\$10,169,611	\$11,129,941	-	\$8,206,618
Increase in ERCs					1,245
Maximum Allowable Impact Fee					\$6,594.14

Table 15: Impact Fee Calculations

The maximum allowable impact fee for the water system is **\$6,594.14**. This was calculated by dividing the total impact fee eligible costs by the increase in ERCs in the 10-year planning horizon. In consultation with Kanab City, it was decided that the impact fee should be charged based on water meter size. Table 16 presents the proposed impact fee based on meter sizes and factors based on cross-sectional area.

As required by the Utah Impact Fees Act, an Impact Fee Certification is included in Appendix D. It states that this analysis was done according to the Impact Fees Act and its requirements.

Rules regarding the use of impact fees are covered by the Impact Fees Act. Generally, impact fees may only be used for system improvements that are required to service new development within the existing level of service or expected service requirements (adequate pressure, flow, etc.) and are included in this Impact Fee Facilities Plan. Impact fees must be used within six years of payment, or they must be paid back. Alternative sources of revenue, such as grants or shared construction costs, should be investigated to reduce the financial burden of the City and its residents. At the time of this study Kanab had applied for grant funds in relation to the Cave Lakes Springs project but has not heard back.

Impact Fees Based on Water Meter Size			
Meter Size [in]	Area [sq-in]	Factor	Impact Fee
5/8	0.31	1.00	\$6,594.14
1	0.79	2.56	\$16,881.00
1.5	1.77	5.76	\$37,982.25
2	3.14	10.24	\$67,523.99
2.5	4.91	16.00	\$105,506.24
3	7.07	23.04	\$151,928.99
4	12.57	40.96	\$270,095.97
6	28.27	92.16	\$607,715.94

*Factors based on 5/8" meter size. 3/4" is assumed to be equal to 5/8" for factors and impact fee costs.

Table 16: Proposed Impact Fee Schedule

7.4 User Rate Analysis

Kanab currently has a tiered water rate structure with a base rate. Base rates are charged to all connections in the system to fund fixed costs associated with operating the water system. Overage rates, or variable rates, are usually set to encourage water conservation and should cover variable costs associated with operating the water system. Table 17 shows the breakdown of the existing rate structure with possible water utility bills for selected usages.

The scope of this study also included an analysis of the user rate to determine an average rate for the water system. Table 18 shows this analysis based on the estimated 2023 costs established in the cash flow and the latest value for the number of billed connections. Each expense category is assigned a percentage to fixed costs or variable costs-based engineering judgement and experience. Totals for fixed and variable costs are then divided by the meter replacement factor to achieve a monthly base rate and average overage rate. The meter replacement factor was calculated by determining Kanab's cost to procure and install each size of water meter. These factors were multiplied by the quantity of meters of each size to figure the proportional amount of the base rate a typical 5/8" water meter should pay. Table 19 shows a summary of the number of meters per size the calculations for the replacement factors. The calculated base rate is **\$28.94** with an average overage rate of **\$16.48**, which totals to an average monthly rate of **\$45.42**. This analysis does not consider new debt the City may choose to accept to fund projects. Kanab received \$1,967,967 in total water service billings for the fiscal year 2022.

Existing Water Rate		
	Base	\$ 40.00
Low Gal	High Gal	\$/1,000gal
0	7,000	\$ -
7,001	10,000	\$ 1.20
10,001	15,000	\$ 1.30
15,001	20,000	\$ 1.55
20,001	25,000	\$ 1.60
25,001	30,000	\$ 1.65
30,001	35,000	\$ 1.70
35,001	40,000	\$ 1.75
40,001	45,000	\$ 1.80
45,001	50,000	\$ 1.85
50,001	55,000	\$ 2.00
55,001	60,000	\$ 2.05
60,001	Up	\$ 2.25
Bill for Select Usages		
	Gallons	Bill
	9,659	\$ 43.60
	12,500	\$ 46.85
	20,000	\$ 57.85
	30,000	\$ 74.10
	50,000	\$ 109.60
	75,000	\$ 163.60

Table 17: Existing Water Rate Structure

User Rate Analysis	Fixed %	Variable %	Fixed	Variable
Rent	100%	0%	\$ 47,338.21	\$ -
Salaries & Wages	80%	20%	\$ 315,410.15	\$ 78,852.54
Employee Benefits	80%	20%	\$ 117,909.61	\$ 29,477.40
Office Expense	80%	20%	\$ 66,999.31	\$ 16,749.83
Insurance	100%	0%	\$ 34,239.06	\$ -
Utilities	50%	50%	\$ 38,158.45	\$ 38,158.45
Travel & Training	100%	0%	\$ 3,609.61	\$ -
System Repairs & Maintenance	25%	75%	\$ 65,984.37	\$ 197,953.12
Professional Services	80%	20%	\$ 11,395.93	\$ 2,848.98
Miscellaneous	100%	0%	\$ 25,931.79	\$ -
Interest & Fiscal Charges	80%	20%	\$ 49,160.58	\$ 12,290.14
Payment to KCWCD	50%	50%	\$ 25,000.00	\$ 25,000.00
Current Liabilities	50%	50%	\$ 127,607.60	\$ 127,607.60
Totals			\$ 928,744.68	\$ 528,938.07
Meters times Cost Factors			2,675	
Monthly Rates			\$ 28.94	\$ 16.48
Total Average Monthly Rate			\$45.42	

Table 18: User Rate Analysis

Several proposed user rate structures are given below in Table 20 and 21. All proposed rate structures were requested to have a key change in the base rate so meters can be replaced and paid for within 10 years by each user. So, users with larger meters will need to pay more to cover the meter replacement costs. Meter replacement costs were estimated with input from City Staff, meter replacement quote from a supplier, and manpower to replacement each meter size. Table 19 summarizes the quantities for each meter, replacements costs and replacement factors. For example, a 2" water meter will cost 2.65 times more than a 5/8" meter to replace and will therefore need to pay 2.65 times more in their base rate. Another key change to proposed rates is that no water will be included in the base rate. This results in residential low water users will have lower water utility bills.

Proposed Rate Structure 1 shows increases in the cost per thousand gallons for every 5,000 gallons up to 100,000 gallons. This proposed rate structure will result in lower water utility bills for low residential water users and high water utility bills for high water users with larger sized meters.

Proposed Rate Structure 2 and 3 reduce the number of tiers in the rate structure and adjust the overage rates, bringing the average bill closer to, but still below, the calculated average. Neither of these proposed rate structures include any water use in the base rate.

Several proposed user rate structures are given below in Table 19 and Table 20. Proposed Rate Structure 1 closely matches the existing rate structure but increases each of the tiered overage rates by \$0.15. This brings the average rate closer to the target rate of 56.63.

Proposed Rate Structure 2 and 3 reduce the number of tiers in the rate structure and adjust the overage rates, bringing the average bill closer to the calculated average. Neither of these proposed rate structures include any water use in the base rate.

Proposed Rate Structure 1			
0 Base		\$ 36.00	
Low Gal	High Gal	\$/1,000gal	
0	5,000	\$	1.25
5,001	10,000	\$	1.35
10,001	15,000	\$	1.45
15,001	20,000	\$	1.70
20,001	25,000	\$	1.75
25,001	30,000	\$	1.80
30,001	35,000	\$	1.85
35,001	40,000	\$	1.90
40,001	45,000	\$	1.95
45,001	50,000	\$	2.00
50,001	55,000	\$	2.15
55,001	60,000	\$	2.20
60,001	70,000	\$	2.40
70001			
80001	90000		2.75
90001	100,000	\$	2.95
100001	Up	\$	3.10
Bill for Select Useages		0	\$ -
	0 Gallons	Bill	
	0 9,659	\$	48.46
	0 12,500	\$	52.63

Table 19: Proposed Rate Structure

Proposed Rate Structure 2			Proposed Rate Structure 3				
0 Base		\$ 30.00	0 Base		\$ 32.00		
Low Gal	High Gal	\$/1,000gal	Low Gal	High Gal	\$/1,000gal		
0	10,000	\$ 1.25	0	10,000	\$ 1.00		
10,001	20,000	\$ 1.50	10,001	20,000	\$ 1.25		
20,001	30,000	\$ 1.75	20,001	30,000	\$ 1.45		
30,001	40,000	\$ 2.00	30,001	40,000	\$ 1.65		
40,001	50,000	\$ 2.25	40,001	50,000	\$ 1.85		
50,001	60,000	\$ 2.50	50,001	60,000	\$ 2.05		
60,001	70,000	\$ 2.40	60,001	70,000	\$ 2.40		
70001			70001				
80001	90000	2.75	80001	90000	2.75		
90001	100,000	\$ 2.95	90001	100,000	\$ 2.95		
100001	Up	\$ 3.10	100001	Up	\$ 3.10		
Bill for Select Useages		0	\$ -	Bill for Select Useages		0	\$ -
	0 Gallons	Bill		0 Gallons	Bill		
	0 9,659	\$	42.00		0 9,659	\$	41.60
	0 12,500	\$	46.50		0 12,500	\$	45.75

Table 20: Proposed Alternate Rate Structure

7.5 Cash Flow Analysis

A water utility cash flow analysis for a 20-year planning horizon was completed to show how the 10-year planning horizon improvement projects could be implemented, to analyze the continued viability of proposed user rates, and to show possible trends in impact fee and cash fund balances. Initial data for the cash flow analysis was taken from fiscal years 2020-2022 Kanab City audits. Values projected through the analysis are based on growth, interest, and inflation trends determined during the process of the study. It should be noted that the analysis is a general forecast only and will vary with the speed and pattern of development in the City. The entire cash flow analysis printout is given in Appendix C.

The upper section of the cash flow printout, entitled "Revenue", contains the basic data upon which many of the values in the cash flow spreadsheet are generated. Of note are the projected growth trends, the assumed inflation rates, user rates, impact fees and inspection fees, and the projected ERC quantities for the coming fiscal years. Most of the revenue in later parts of the cash flow spreadsheet is generated from the impact fees, and user rates.

The following section is the utility expenses section which seeks to quantify all the expenses incurred by the wastewater utility. Included in the expenses section are the operation and maintenance costs, existing debt service costs and new debt service costs. The difference between the total revenues and total expenses is the net cash flow for the utility.

Total revenues and total expenses are then broken down into impact fee and cash fund categories. This was done to help show adequate funds would be available over the course of the projection period.

Included at the end of the cash flow analysis is a system improvement implementation schedule for the next twenty years which shows how the impact fee facilities plan improvement projects were incorporated into the cash flow analysis.

Other Financing Options

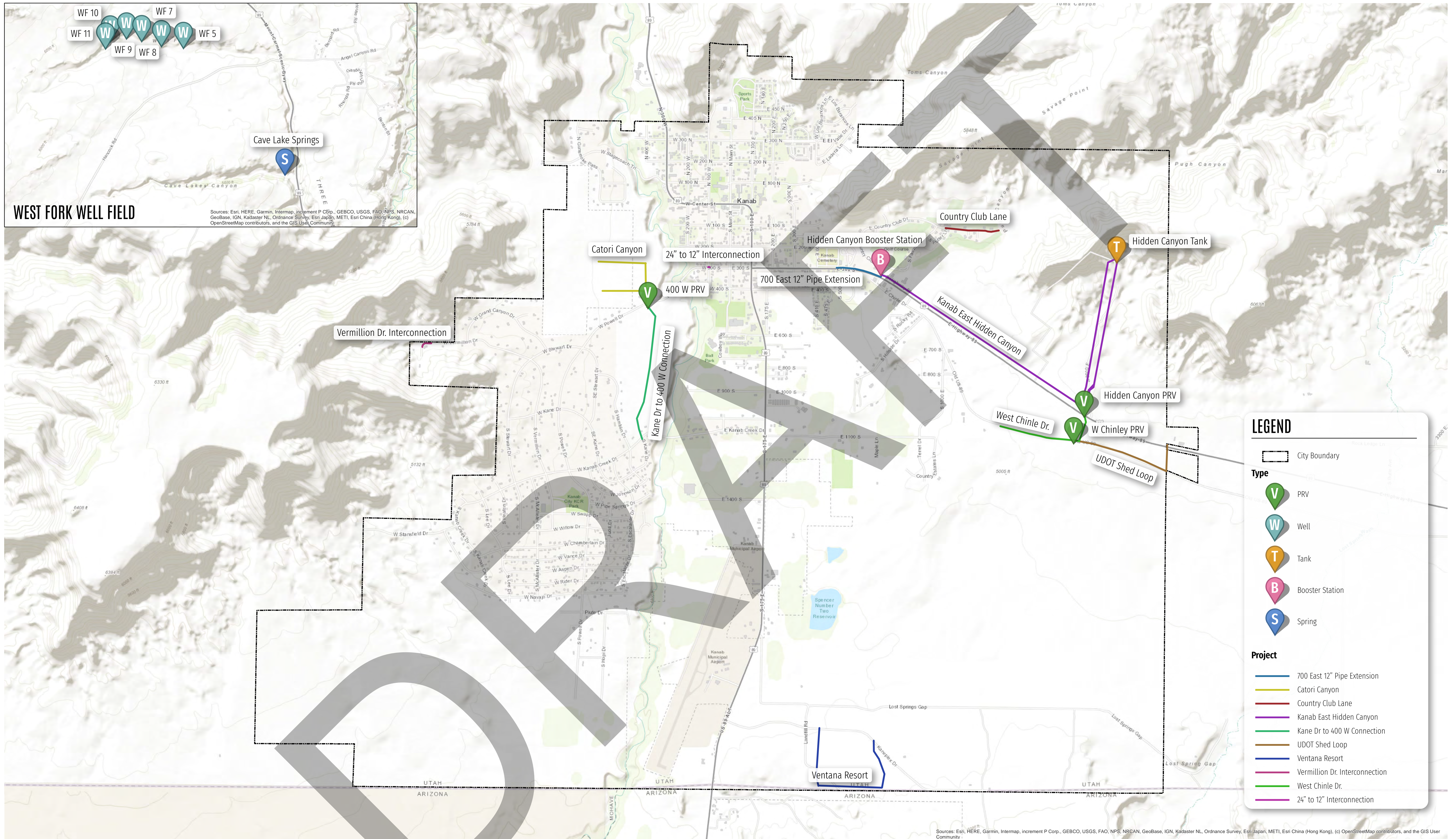
Grant or loan options available to Kanab City are included below:

- Permanent Community Impact Fund Board (CIB)
- Utah Community Development Block Grant (CDBG)
- USDA Rural Development (RD)
- Interfund loans

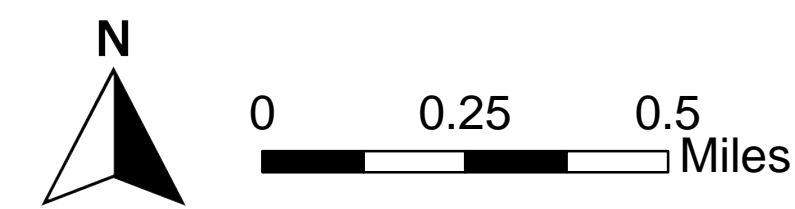
APPENDIX A

MAPS

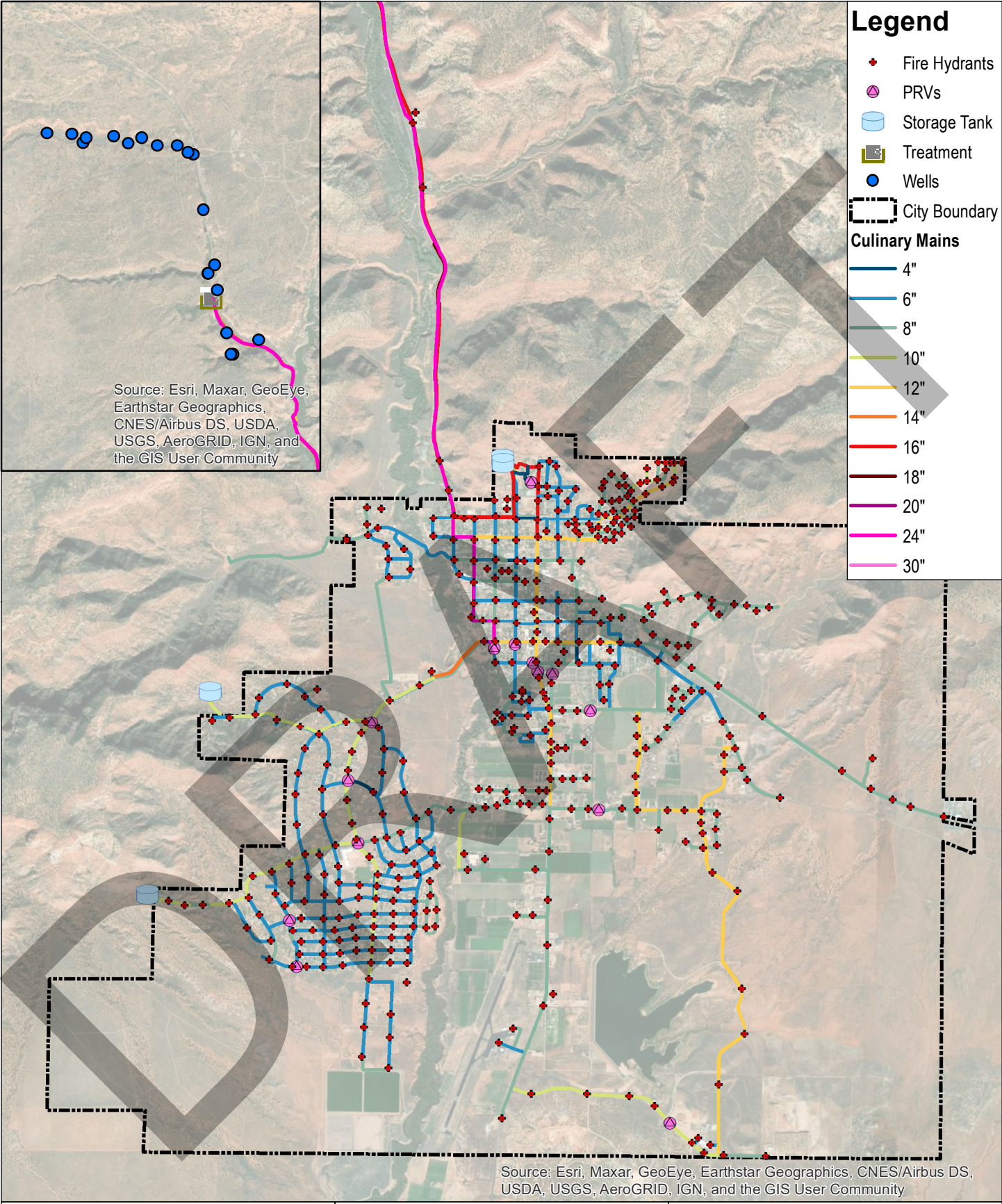
DRAFT



PROPOSED WATER PROJECTS MAP



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Legend

- ◆ Fire Hydrants
- △ PRVs
- ⊕ Storage Tank
- ⊞ Treatment
- Wells
- ⬜ City Boundary

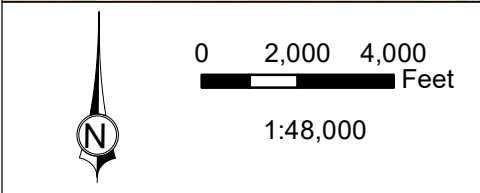
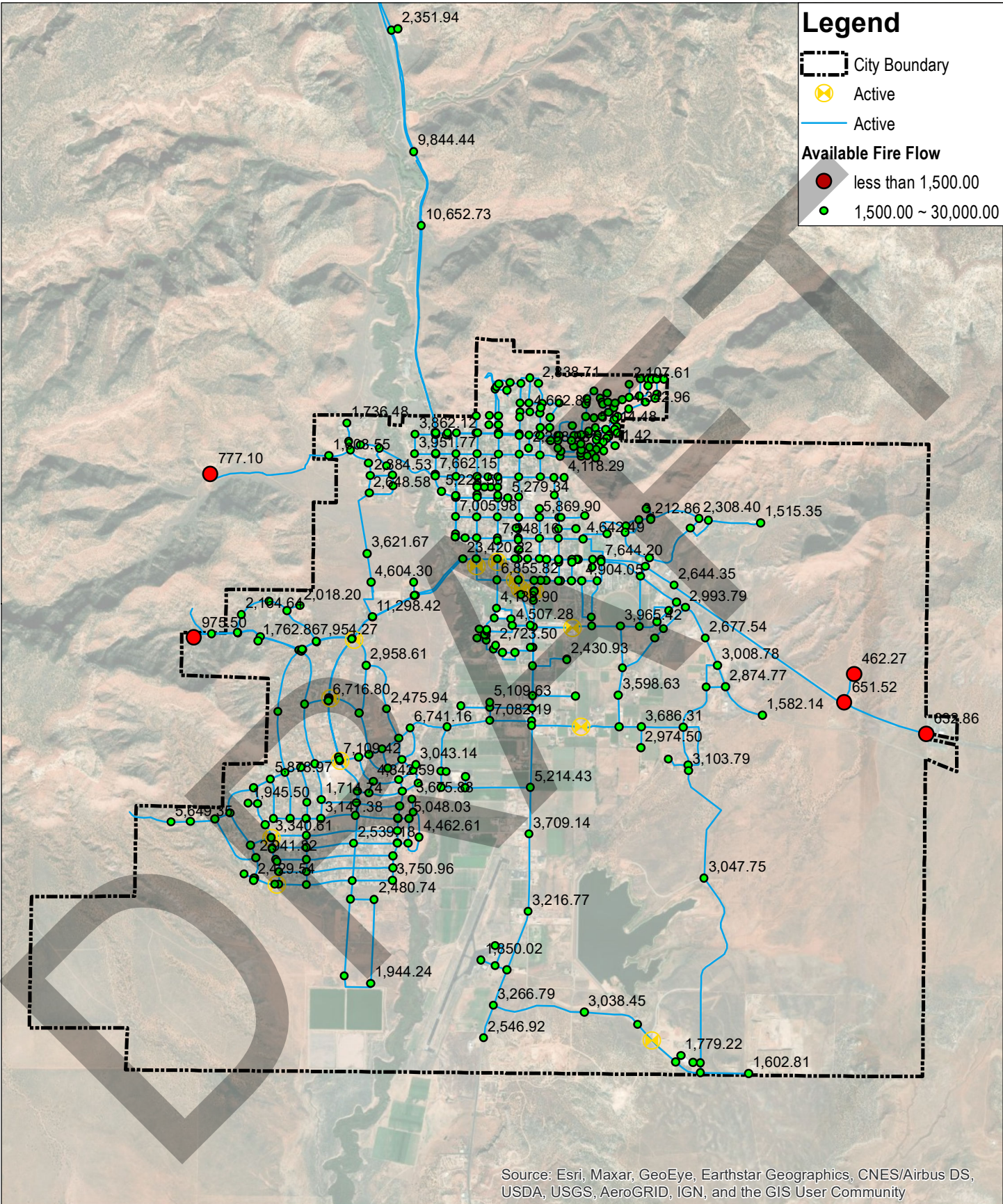
Culinary Mains

- 4"
- 6"
- 8"
- 10"
- 12"
- 14"
- 16"
- 18"
- 20"
- 24"
- 30"

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

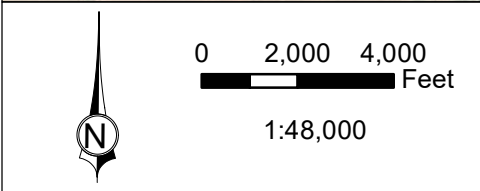
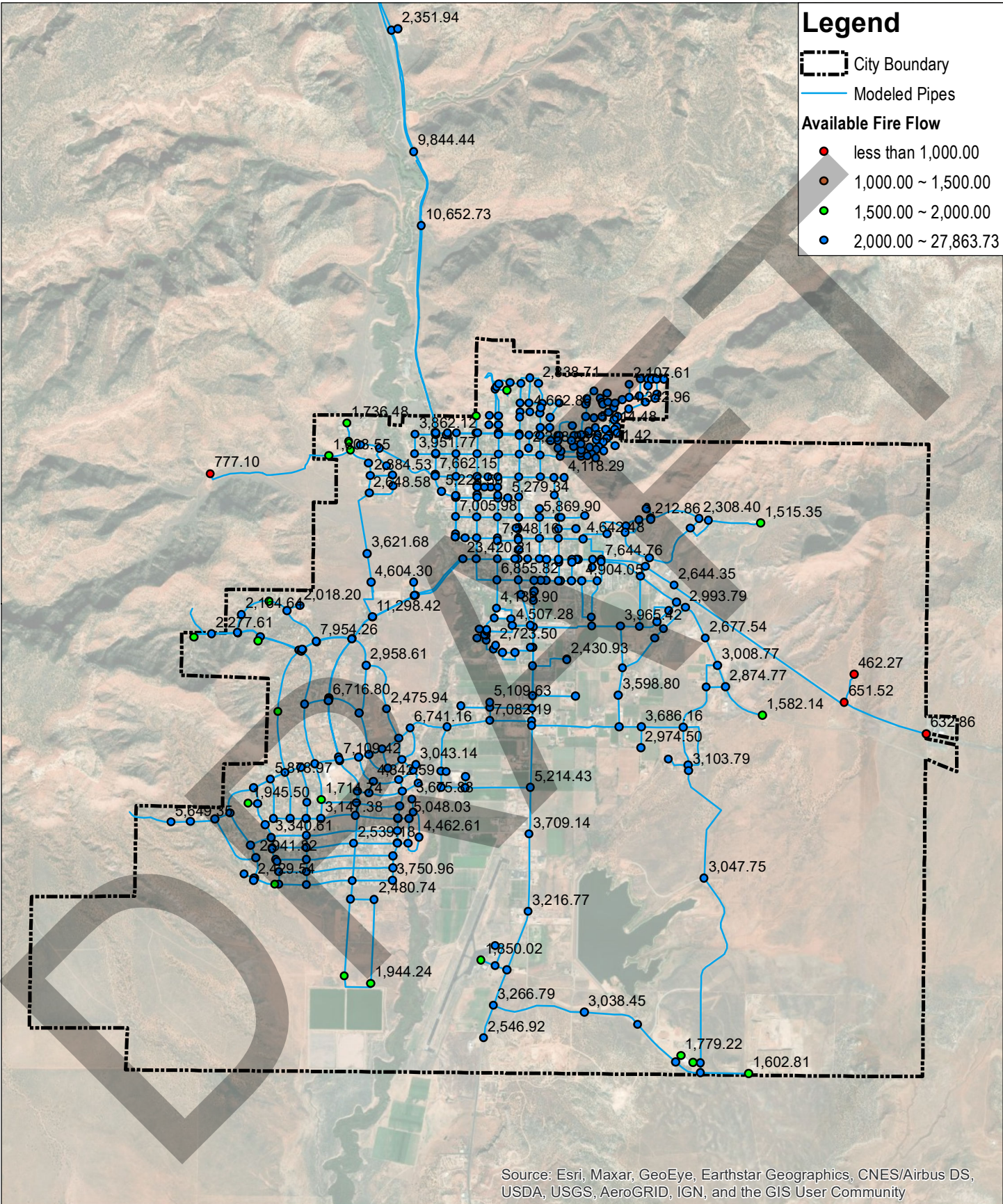
KANAB CITY WATER
IFFPA UPDATE 2024
 Existing Culinary Water System
 Map 2



**KANAB CITY WATER
IFFPA UPDATE 2024**

Existing Available Fire Flow at 20 psi

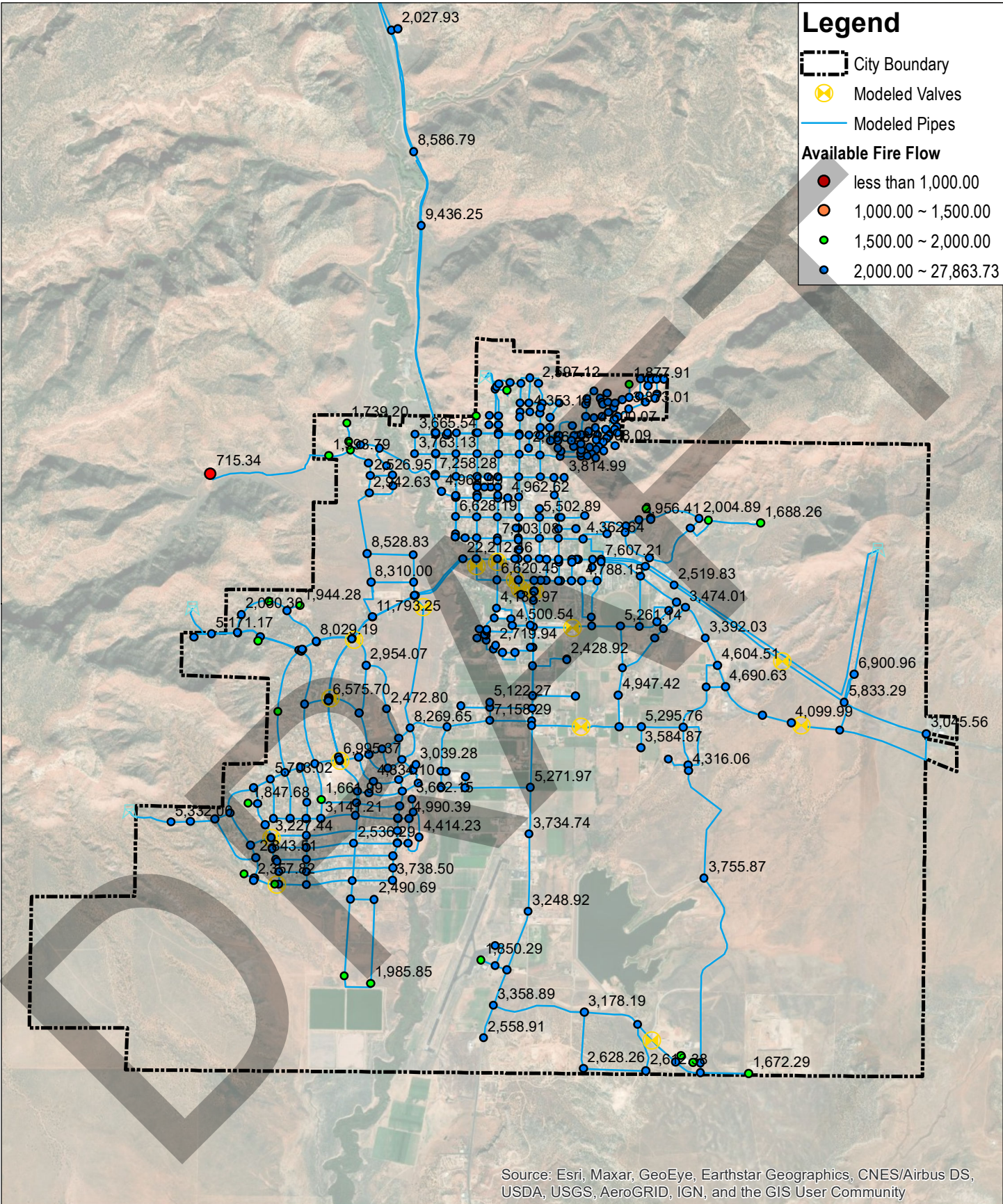
Map 3



**KANAB CITY WATER
IFFPA UPDATE 2024**

2024 Available Fire Flow at 20 psi

Map 4



0 2,000 4,000 Feet

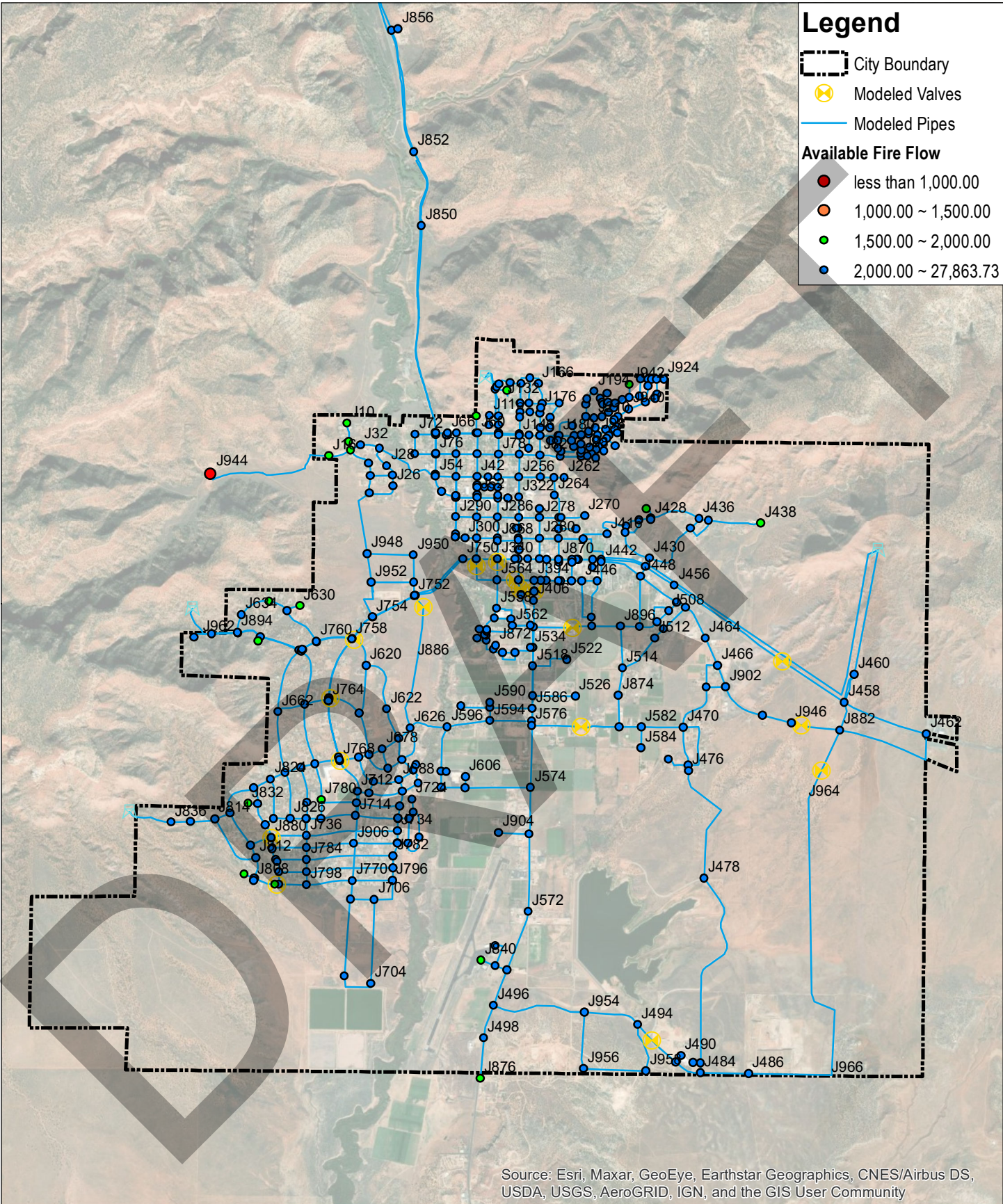
1:48,000



**KANAB CITY WATER
IFFPA UPDATE 2024**

2023 Available Fire Flow at 20 psi

Map 5



Legend

- City Boundary
- Modeled Valves
- Modeled Pipes

Available Fire Flow

- less than 1,000.00
- 1,000.00 ~ 1,500.00
- 1,500.00 ~ 2,000.00
- 2,000.00 ~ 27,863.73

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

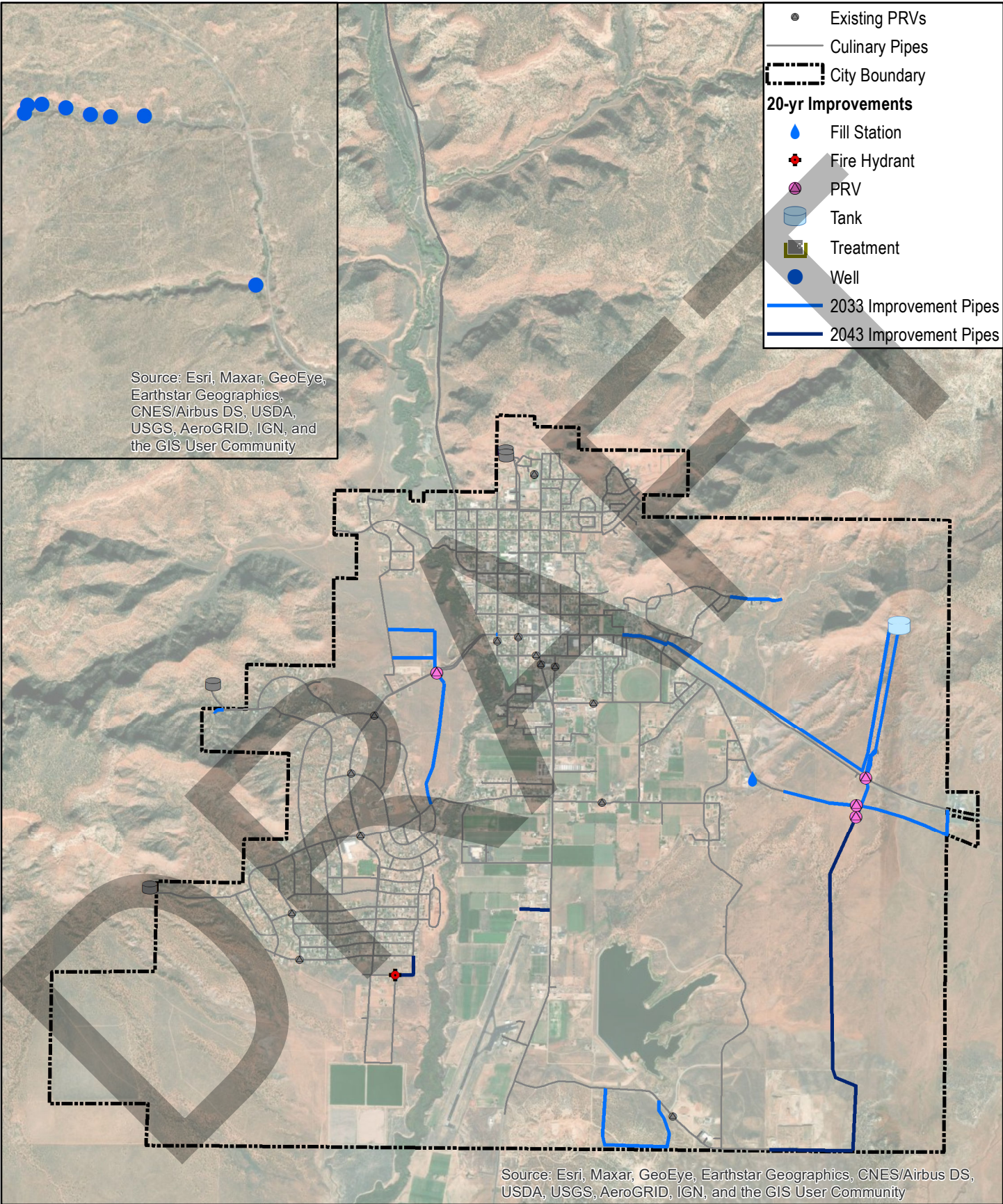
0 2,000 4,000 Feet

1:48,000

KANAB CITY WATER
IFFPA UPDATE 2024

2043 Available Fire Flow at 20 psi

Map 6



- Existing PRVs
- Culinary Pipes
- City Boundary
- 20-yr Improvements**
- Fill Station
- ✚ Fire Hydrant
- △ PRV
- Tank
- ▭ Treatment
- Well
- 2033 Improvement Pipes
- 2043 Improvement Pipes



0 2,000 4,000 Feet
1:48,000



KANAB CITY WATER
IFFPA UPDATE 2024
Overall Improvements
Map 7

APPENDIX B

TABLES & FIGURES

DRAFT

Model Calibration Check at Selected Locations

*Data was collected when Ranchos Tanks were 19' full and Downtown Tanks at 28'.

*Data collected on January 21, 2018.

*No fire flow was discharged during data collection

*Model values are based on peak day demand (summer demand)

Hydrant Location	Measured Pressure [psi]	Simulated Pressure [psi]
800E Fairway	90 <i>STATIC: 80</i>	83.1
650S 100 E	85 <i>" " : 75</i>	83.8
Airport - new terminal	115 <i>" " : 110</i>	115.2
Navajo & Powell	100 <i>" " : 92</i>	98.4
Stewart & Powell	105 <i>" " : 95</i>	102.2
405N Main	90 <i>" " : 75</i>	77.3
270N Gunsmoke	95 <i>" " : 94</i>	89.2

Ranchos 18'

Down town 26'

West Sewer Lagoons 100 static; 70 residual
 Landfill hydrant 90 static; 60 residual

Residential Water Meter Data

	MULTIPLE UNITS	RANCHOS	RESIDENTIAL	Total
Jul-2020	541	8746	29083	38370
Aug-2020	450	10185	32410	43045
Sep-2020	439	9176	28175	37790
Oct-2020	396	6651	21703	28750
Nov-2020	284	2750	12035	15069
Dec-2020	227	2362	7849	10438
Jan-2021	216	1842	6538	8596
Feb-2021	168	1778	6330	8276
Mar-2021	205	2733	8926	11864
Apr-2021	234	5792	17751	23777
May-2021	316	7764	25094	33174
Jun-2021	348	9179	29392	38919
Jul-2021	472	9192	30840	40504
Aug-2021	398	7786	27223	35407
Sep-2021	358	7379	24185	31922
Oct-2021	263	3602	14386	18251
Nov-2021	191	2738	10028	12957
Dec-2021	205	1732	6551	8488
Jan-2022	232	2095	7253	9580
Feb-2022	207	1941	6926	9074
Mar-2022	228	2146	8023	10397
Apr-2022	235	4347	15328	19910
May-2022	313	7586	24479	32378
Jun-2022	359	8718	29463	38540
Jul-2022	436	8786	30128	39350

Aug-2022	490	7094	24746	32330
Sep-2022	372	5951	20499	26822
Oct-2022	342	4511	15510	20363
Nov-2022	235	2126	9169	11530
Dec-2022	46	289	1371	1706
Jan-2023	238	1676	7071	8985
Feb-2023	390	1878	6398	8666
Mar-2023	404	1699	6916	9019
Apr-2023	411	3112	11306	14829
May-2023	601	6398	23545	30544
Jun-2023	710	6488	24335	31533

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Commercial Water Meter Data

DATE	CITY OWNED	GOVERNMENT	CHURCHES	FIREMAN	FARMS	INDUSTRIAL	SCHOOLS	LARGE COMMERCIAL	SMALL COMMERCIAL	TOTAL
Jul-2020	6648	1537	711	266	71	10	5883	184	7596	22906
Aug-2020	5562	1388	774	295	75	23	5991	213	6681	21002
Sep-2020	5427	1469	702	182	55	9	5295	338	6475	19952
Oct-2020	3166	1302	415	155	57	12	3890	208	6591	15796
Nov-2020	55	1614	72	102	50	20	162	161	5253	7489
Dec-2020	22	816	22	51	52	39	95	122	3118	4337
Jan-2021	22	904	5	47	51	25	52	103	2861	4070
Feb-2021	21	773	6	39	48	11	57	116	2642	3713
Mar-2021	3754	856	25	62	51	14	682	197	3934	9575
Apr-2021	2359	1355	484	122	84	16	2660	240	6426	13746
May-2021	3580	1495	627	153	59	15	4616	209	6468	17222
Jun-2021	4861	1488	707	208	113	22	4136	257	8090	19882
Jul-2021	4135	1752	749	211	83	25	5084	214	7662	19915
Aug-2021	3341	1580	623	155	81	20	4605	174	6338	16917
Sep-2021	3004	1394	477	160	66	19	3881	192	6413	15606
Oct-2021	1252	1174	104	85	52	19	955	184	5456	9281
Nov-2021	45	1168	19	93	51	20	237	163	4521	6317
Dec-2021	26	877	9	32	26	16	91	120	2826	4023
Jan-2022	29	872	28	40	43	12	138	100	3055	4317
Feb-2022	1028	806	14	45	37	12	453	108	3300	5803
Mar-2022	1204	859	22	55	59	18	736	179	4223	7355
Apr-2022	3361	1074	261	97	35	16	3528	200	5699	14271
May-2022	4798	1474	521	197	69	18	4868	212	7458	19615

Jun-2022	4585	1480	756	286	45	21	5264	202	8268	20907
Jul-2022	5093	1583	851	248	97	19	5616	212	8064	21783
Aug-2022	3605	1508	740	221	77	21	5177	185	7200	18734
Sep-2022	2934	1287	709	178	66	17	3252	183	6623	15249
Oct-2022	1844	1084	421	129	46	16	2338	171	5807	11856
Nov-2022	204	890	65	54	24	12	329	160	4072	5810
Dec-2022	854	1	6	16	6	0	56	0	1317	2256
Jan-2023	10234	516	36	39	34	9	127	78	3244	14317
Feb-2023	427	520	71	36	63	11	76	106	3646	4956
Mar-2023	36	556	30	38	40	11	176	169	4174	5230
Apr-2023	1601	814	331	78	42	13	721	212	5632	9444
May-2023	3069	1333	979	194	33	16	3802	214	8297	17937
Jun-2023	3630	1332	845	189	59	14	4647	227	7813	18756

Annual Meter Data Summary

	Residential	Non-Residential	Total
July 2020-June 2021	298068	159690	457758
July 2021-June 2022	267408	144327	411735
July 2022-June 2023	235677	146328	382005

APPENDIX C

FINANCIAL ANALYSIS

DRAFT

OWNER Kenny Seng
PROJECT Catori Canyon



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 15,200.00	\$ 15,200.00	
2	Project Record Documents	1%	LS	\$ 1,500.00	\$ 1,500.00	
3	Traffic and Temporary Controls	4%	LS	\$ 6,100.00	\$ 6,100.00	
4	Materials and Sampling	3%	LS	\$ 4,600.00	\$ 4,600.00	
5	Construction Layout & Staking	2%	LS	\$ 3,000.00	\$ 3,000.00	
Water						
1	12" PVC Water	2042	LF	\$ 50.00	\$ 102,100.00	
2	8" Gate Valve	4	EA	\$ 2,500.00	\$ 10,000.00	
3	12" Gate Valve	7	EA	\$ 3,500.00	\$ 24,500.00	
Transportation						
1	Pavement Asphalt T Patch	640	SF	\$ 6.00	\$ 3,840.00	
Earthwork						
2	Restore Surface Improvements	1	SF	\$ 12,000.00	\$ 12,000.00	
Subtotal					\$ 182,840.00	
				Professional Services & Incidentals	15%	\$ 27,500.00
				Contingency	25%	\$ 45,800.00
Subtotal					\$ 73,300.00	
PROJECT TOTAL					\$ 256,140.00	

Disclaimer:

This Engineer's Opinion of Cost (EOC) is made on the basis of Engineer's experience, qualifications, general familiarity with the construction industry and represents the Engineer's best judgement as an experienced and qualified professional. However, because Engineer has no control over the cost of labor, materials, equipment, or services furnished by others, or over contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from opinions of probable construction cost prepared by Engineer.

Notes:

- 1 - Quantities shown in the EOC are purely estimates based off a concept design. Quantities may be refined as design progresses.
- 2 - Unit costs are our best estimates based on similar projects. These costs are not guarantees. A number of factors may affect these costs when ultimately priced by a contractor.
- 3 - The EOC does not include fees that may be charged by the Owner such as impact fees, building permit fees, review fees, etc.
- 4 - LS = Lump Sum; EA = Each; SF = Square Feet; SY = Square Yard; AC = Acre; LF = Linear Feet; CY = Cubic Yard; TON = Ton; GAL = Gallon; DAY = Day; HR = Hour; EST = Estimate



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	5%	LS	\$ 65,400.00	\$ 65,400.00
2	Project Sign & Record Documents	1	LS	\$ 5,000.00	\$ 5,000.00
3	Traffic Control & Site Security	1	LS	\$ 7,500.00	\$ 7,500.00
4	Temporary Controls	1	LS	\$ 10,000.00	\$ 10,000.00
5	Environmental Controls	1	LS	\$ 10,000.00	\$ 10,000.00
6	4" PVC Waterline	620	LF	\$ 45.00	\$ 27,900.00
7	6" PVC Waterline	10000	LF	\$ 55.00	\$ 550,000.00
8	6" Gate Valve	6	EA	\$ 3,000.00	\$ 18,000.00
10	Big Spring	1	LS	\$ 69,615.56	\$ 69,615.56
11	Cave Spring	1	LS	\$ 157,324.81	\$ 157,324.81
13	Boiling Spring	1	LS	\$ 71,100.93	\$ 71,100.93
14	Spring 1	1	LS	\$ 71,311.48	\$ 71,311.48
15	Spring 2	1	LS	\$ 78,282.59	\$ 78,282.59
17	Head Spring	1	LS	\$ 152,395.37	\$ 152,395.37
18	New Spring	1	LS	\$ 79,484.26	\$ 79,484.26
19	Twin Springs	1	LS	\$ 127,760.93	\$ 127,760.93
20	Slab Spring	1	LS	\$ 70,141.11	\$ 70,141.11
19	48" Manhole Box	1	LS	\$ 8,000.00	\$ 8,000.00
	Subtotal				\$ 1,579,217.04
	Contingency			20%	\$ 315,843.41
	Project Total				\$ 1,895,060.44
PROFESSIONAL SERVICES & INCIDENTALS					
	Subtotal				\$ 255,200.00
	PROJECT TOTAL				\$ 2,150,260.44

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**Kanab West Fork Well #5
Well Equipping**



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 49,400.00	\$ 49,400.00
2	Temporary Controls	1	LS	\$ 5,000.00	\$ 5,000.00
3	Quality Control & Testing	1	LS	\$ 5,000.00	\$ 5,000.00
4	Selective Site Demolition	1	LS	\$ 5,000.00	\$ 5,000.00
5	Earthwork & Import Base Course	1	LS	\$ 3,000.00	\$ 3,000.00
6	8" Base Course Roadway	35	CY	\$ 60.00	\$ 2,100.00
7	4" Concrete Flatwork w/ Base	68	SF	\$ 40.00	\$ 2,720.00
8	CMU Well House Building (20'-8"x11'-4")	1	LS	\$ 275,000.00	\$ 275,000.00
9	4" Ductile Iron Pipe	10	LF	\$ 140.00	\$ 1,400.00
10	4" PVC DR18 C900 Water Main	65	LF	\$ 80.00	\$ 5,200.00
11	4" PVC DR18 C900 Waste Line	71	LF	\$ 80.00	\$ 5,680.00
12	Water Main Connection and Tie-in	1	LS	\$ 5,000.00	\$ 5,000.00
13	4" Sch. 40 PVC Drain Pipe	62	LF	\$ 40.00	\$ 2,480.00
14	4" Rotork Quarter Turn Actuator 3-Way Assembly	1	EA	\$ 15,000.00	\$ 15,000.00
15	3" Check Valve	1	EA	\$ 5,000.00	\$ 5,000.00
16	3" Flow Meter	1	EA	\$ 7,000.00	\$ 7,000.00
17	Misc. Well Piping	1	LS	\$ 25,000.00	\$ 25,000.00
18	Submersible Pump	1	EA	\$ 8,000.00	\$ 8,000.00
19	Pitless Adapter	1	EA	\$ 3,000.00	\$ 3,000.00
20	Column Piping	274	LF	\$ 80.00	\$ 21,920.00
21	18" HDPE Storm Drain Pipe	40	LF	\$ 70.00	\$ 2,800.00
22	12" Thick Rip-Rap (D50 = 6")	20	CY	\$ 80.00	\$ 1,600.00
23	Scada Improvements (RTU, VFD, Conn.)	1	LS	\$ 80,000.00	\$ 80,000.00
24	Electrical Improvements	1	LS	\$ 7,500.00	\$ 7,500.00
Subtotal					\$ 543,800.00
Contingency				20%	\$ 108,760.00
Construction Total					\$ 652,560.00
PROFESSIONAL SERVICES & INCIDENTALS					
1	Land Surveying Services		EST	\$ 3,300.00	\$ 3,300.00
2	Engineering Design	3.4%	EST	\$ 23,900.00	\$ 23,900.00
3	Bid Phase Services		EST	\$ 10,000.00	\$ 10,000.00
4	Construction Phase Services		EST	\$ 10,000.00	\$ 10,000.00
5	Construction Staking		EST	\$ 2,500.00	\$ 2,500.00
Subtotal					\$ 49,700.00
PROJECT TOTAL					\$ 702,260.00

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DRAFT

OWNER Kanab City
PROJECT Vermillion Dr. Interconnection



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 4,900.00	\$ 4,900.00
2	Project Record Documents	1%	LS	\$ 500.00	\$ 500.00
3	Traffic and Temporary Controls	4%	LS	\$ 2,000.00	\$ 2,000.00
4	Materials and Sampling	3%	LS	\$ 1,500.00	\$ 1,500.00
5	Construction Layout & Staking	2%	LS	\$ 1,000.00	\$ 1,000.00
Water					
1	8" PVC Water	10	LF	\$ 35.00	\$ 350.00
2	10" PVC Water	326	LF	\$ 45.00	\$ 14,670.00
3	8" Gate Valve	2	EA	\$ 2,500.00	\$ 5,000.00
4	10" Gate Valve	1	EA	\$ 3,000.00	\$ 3,000.00
Transportation					
1	Pavement Asphalt T Patch	2688	SF	\$ 6.00	\$ 16,128.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 10,000.00	\$ 10,000.00
Subtotal					\$ 59,048.00
				Professional Services & Incidentals	15% \$ 8,900.00
				Contingency	25% \$ 14,800.00
Subtotal					\$ 23,700.00
PROJECT TOTAL					\$ 82,748.00

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OWNER Kanab City
PROJECT Water Fill Station



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 9,200.00	\$ 9,200.00
2	Project Record Documents	1%	LS	\$ 900.00	\$ 900.00
3	Traffic and Temporary Controls	4%	LS	\$ 3,700.00	\$ 3,700.00
4	Materials and Sampling	3%	LS	\$ 2,800.00	\$ 2,800.00
5	Construction Layout & Staking	2%	LS	\$ 1,800.00	\$ 1,800.00
Water					
13	Water Fill Station	1	LS	\$ 92,000.00	\$ 92,000.00
Subtotal					\$ 110,400.00
Professional Services & Incidentals				15%	\$ 16,600.00
Contingency				25%	\$ 27,600.00
Subtotal					\$ 44,200.00
PROJECT TOTAL					\$ 154,600.00

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OWNER Kanab City
PROJECT 24" to 12" Interconnection



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 2,000.00	\$ 2,000.00
2	Project Record Documents	1%	LS	\$ 200.00	\$ 200.00
3	Traffic and Temporary Controls	4%	LS	\$ 800.00	\$ 800.00
4	Materials and Sampling	3%	LS	\$ 600.00	\$ 600.00
5	Construction Layout & Staking	2%	LS	\$ 400.00	\$ 400.00
Water					
1	12" PVC Water	53	LF	\$ 50.00	\$ 2,650.00
Transportation					
1	Pavement Asphalt T Patch	424	SF	\$ 6.00	\$ 2,544.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 15,000.00	\$ 15,000.00
Subtotal					\$ 24,194.00
				Professional Services & Incidentals 15%	\$ 3,700.00
				Contingency 25%	\$ 6,100.00
Subtotal					\$ 9,800.00
PROJECT TOTAL					\$ 33,994.00

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OWNER Kanab City
PROJECT Kanab East Hidden Canyon



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 274,800.00	\$ 274,800.00	
2	Project Record Documents	1%	LS	\$ 27,500.00	\$ 27,500.00	
3	Traffic and Temporary Controls	4%	LS	\$ 109,900.00	\$ 109,900.00	
4	Materials and Sampling	3%	LS	\$ 82,400.00	\$ 82,400.00	
5	Construction Layout & Staking	2%	LS	\$ 55,000.00	\$ 55,000.00	
Water						
1	8" PVC Water	0	LF	\$ 35.00	\$ -	
1	12" PVC Water	16354	LF	\$ 50.00	\$ 817,700.00	
2	8" Gate Valve	6	EA	\$ 2,500.00	\$ 15,000.00	
3	12" Gate Valve	55	EA	\$ 3,500.00	\$ 192,500.00	
4	PRV Valve	1	EA	\$ 40,000.00	\$ 40,000.00	
5	Water Tank	1	EA	\$ 1,600,000.00	\$ 1,600,000.00	
Transportation						
1	Pavement Asphalt T Patch	8800	SF	\$ 6.00	\$ 52,800.00	
Earthwork						
1	Restore Surface Improvements	1	SF	\$ 30,000.00	\$ 30,000.00	
Subtotal					\$ 3,297,600.00	
				Professional Services & Incidentals	15%	\$ 494,700.00
				Contingency	25%	\$ 824,400.00
Subtotal					\$ 1,319,100.00	
PROJECT TOTAL					\$ 4,616,700.00	

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OWNER Kanab City
PROJECT Country Club Lane



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 18,700.00	\$ 18,700.00
2	Project Record Documents	1%	LS	\$ 1,900.00	\$ 1,900.00
3	Traffic and Temporary Controls	4%	LS	\$ 7,500.00	\$ 7,500.00
4	Materials and Sampling	3%	LS	\$ 5,600.00	\$ 5,600.00
5	Construction Layout & Staking	2%	LS	\$ 3,700.00	\$ 3,700.00
Water					
1	10" PVC Water	1576	LF	\$ 45.00	\$ 70,920.00
2	10" Gate Valve	5	EA	\$ 3,000.00	\$ 15,000.00
Transportation					
1	Pavement Asphalt T Patch	12608	SF	\$ 6.00	\$ 75,648.00
Earthwork					
1	Restore Surface Improvements	1	SF	\$ 25,000.00	\$ 25,000.00
Subtotal					\$ 223,968.00
				Professional Services & Incidentals 15%	\$ 33,600.00
				Contingency 25%	\$ 56,000.00
Subtotal					\$ 89,600.00
PROJECT TOTAL					\$ 313,568.00

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OWNER Kanab City
PROJECT West Chinle Dr.



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 27,700.00	\$ 27,700.00
2	Project Record Documents	1%	LS	\$ 2,800.00	\$ 2,800.00
3	Traffic and Temporary Controls	4%	LS	\$ 11,100.00	\$ 11,100.00
4	Materials and Sampling	3%	LS	\$ 8,300.00	\$ 8,300.00
5	Construction Layout & Staking	2%	LS	\$ 5,500.00	\$ 5,500.00
Water					
1	8" PVC Water	2370	LF	\$ 35.00	\$ 82,950.00
2	8" Gate Valve	8	EA	\$ 2,500.00	\$ 20,000.00
3	PRV Valve	1	EA	\$ 40,000.00	\$ 40,000.00
Transportation					
2	Pavement Asphalt T Patch	18960	SF	\$ 6.00	\$ 113,760.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 20,000.00	\$ 20,000.00
Subtotal					\$ 332,110.00
				Professional Services & Incidentals	15% \$ 49,900.00
				Contingency	25% \$ 83,100.00
Subtotal					\$ 133,000.00
PROJECT TOTAL					\$ 465,110.00

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OWNER Kenny Seng
PROJECT Ventana Resort



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 18,400.00	\$ 18,400.00	
2	Project Record Documents	1%	LS	\$ 1,800.00	\$ 1,800.00	
3	Traffic and Temporary Controls	4%	LS	\$ 7,400.00	\$ 7,400.00	
4	Materials and Sampling	3%	LS	\$ 5,500.00	\$ 5,500.00	
5	Construction Layout & Staking	2%	LS	\$ 3,700.00	\$ 3,700.00	
Water						
1	8" PVC Water	5054	LF	\$ 35.00	\$ 176,890.00	
2	6" Gate Valve	5	EA	\$ 1,500.00	\$ 7,500.00	
Subtotal					\$ 221,190.00	
				Professional Services & Incidentals	15%	\$ 33,200.00
				Contingency	25%	\$ 55,300.00
Subtotal					\$ 88,500.00	
PROJECT TOTAL					\$ 309,690.00	

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OWNER Kanab City
PROJECT 700 E 12" Pipe Extension



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 19,700.00	\$ 19,700.00
2	Project Record Documents	1%	LS	\$ 2,000.00	\$ 2,000.00
3	Traffic and Temporary Controls	4%	LS	\$ 7,900.00	\$ 7,900.00
4	Materials and Sampling	3%	LS	\$ 5,900.00	\$ 5,900.00
5	Construction Layout & Staking	2%	LS	\$ 3,900.00	\$ 3,900.00
Water					
1	12" PVC Water	1452	LF	\$ 50.00	\$ 72,600.00
2	12" Gate Valve	5	EA	\$ 3,500.00	\$ 17,500.00
Transportation					
1	Pavement Asphalt T Patch	11616	SF	\$ 6.00	\$ 69,696.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 35,000.00	\$ 35,000.00
Subtotal					\$ 236,196.00
				Professional Services & Incidentals 15%	\$ 35,500.00
				Contingency 25%	\$ 59,100.00
Subtotal					\$ 94,600.00
PROJECT TOTAL					\$ 330,796.00

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OWNER Kanab City
PROJECT Kane Dr to 400 W Interconnection



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT	
CONSTRUCTION						
1	Mobilization & Demobilization	10%	LS	\$ 11,000.00	\$ 11,000.00	
2	Project Record Documents	1%	LS	\$ 1,100.00	\$ 1,100.00	
3	Traffic and Temporary Controls	4%	LS	\$ 4,400.00	\$ 4,400.00	
4	Materials and Sampling	3%	LS	\$ 3,300.00	\$ 3,300.00	
5	Construction Layout & Staking	2%	LS	\$ 2,200.00	\$ 2,200.00	
Water						
1	8" PVC Water	1261	LF	\$ 35.00	\$ 44,135.00	
2	8" Gate Valve	5	EA	\$ 2,500.00	\$ 12,500.00	
3	PRV Valve	1	EA	\$ 40,000.00	\$ 40,000.00	
Transportation						
1	3" Asphalt Pavement	480	SF	\$ 6.00	\$ 2,880.00	
Earthwork						
1	Restore Surface Improvements	1	LS	\$ 10,000.00	\$ 10,000.00	
Subtotal					\$ 131,515.00	
				Professional Services & Incidentals	15%	\$ 19,800.00
				Contingency	25%	\$ 32,900.00
Subtotal					\$ 52,700.00	
PROJECT TOTAL					\$ 184,215.00	

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OWNER Kanab City
PROJECT UDOT Shed Loop



ENGINEER'S OPINION OF COST

ITEM NO.	ITEM DESCRIPTION	EST QTY	UNIT	UNIT COST	AMOUNT
CONSTRUCTION					
1	Mobilization & Demobilization	10%	LS	\$ 29,700.00	\$ 29,700.00
2	Project Record Documents	1%	LS	\$ 3,000.00	\$ 3,000.00
3	Traffic and Temporary Controls	4%	LS	\$ 11,900.00	\$ 11,900.00
4	Materials and Sampling	3%	LS	\$ 8,900.00	\$ 8,900.00
5	Construction Layout & Staking	2%	LS	\$ 5,900.00	\$ 5,900.00
Water					
1	8" PVC Water	3498	LF	\$ 35.00	\$ 122,430.00
2	8" Gate Valve	12	EA	\$ 2,500.00	\$ 30,000.00
Transportation					
1	Pavement Asphalt T Patch	21600	SF	\$ 6.00	\$ 129,600.00
Earthwork					
1	Restore Surface Improvements	1	LS	\$ 15,000.00	\$ 15,000.00
Subtotal					\$ 356,430.00
				Professional Services & Incidentals 15%	\$ 53,500.00
				Contingency 25%	\$ 89,200.00
Subtotal					\$ 142,700.00
PROJECT TOTAL					\$ 499,130.00

Disclaimer:

This Engineer's Opinion of Cost (EOC) is made on the basis of Engineer's experience, qualifications, general familiarity with the construction industry and represents the Engineer's best judgement as an experienced and qualified professional . However, because Engineer has no control over the cost of labor, materials, equipment, or services furnished by others, or over contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from opinions of probable construction cost prepared by Engineer.

Notes:

- 1 - Quantities shown in the EOC are purely estimates based off a concept design. Quantities may be refined as design progresses.
- 2 - Unit costs are our best estimates based on similar projects. These costs are not guarantees. A number of factors may affect these costs when ultimately priced by a contractor.
- 3 - The EOC does not include fees that may be charged by the Owner such as impact fees, building permit fees, review fees, etc.
- 4 - LS = Lump Sum; EA = Each; SF = Square Feet; SY = Square Yard; AC = Acre; LF = Linear Feet; CY = Cubic Yard; TON = Ton; GAL = Gallon; DAY = Day; HR = Hour; EST = Estimate

Cashflow - Kanab Water Impact Fee Analysis

Proposed Impact Fee = \$ 6,594.14 Interest Rate

Title	2020	2021	2022	2023
Revenue				
Total ERCs	3550.82	3973.14	3651.85	3761.41
New ERCs	-	422	(321)	110
Average User Rate (Per ERC)	\$ 32.22	\$ 26.78	\$ 29.32	\$ 43.60
Charges for Services	\$ 1,372,716	\$ 1,277,020	\$ 1,284,934	\$ 1,967,967
Connection Fees	\$ 60,199	\$ 59,484	\$ 46,568	\$ 47,965
Other Revenues	\$ 22,930	\$ 34,820	\$ 32,670	\$ 33,651
Impact Fees Collected	\$ 51,051	\$ 272,302	\$ 243,262	\$ 725,355
Total Operating Revenue	\$ 1,455,846	\$ 1,371,324	\$ 1,364,173	\$ 2,049,583
Expenses				
Rent	\$ 7,166	\$ 1,910	\$ 44,621	\$ 45,959
Salaries & Wages	\$ 336,262	\$ 387,033	\$ 371,630	\$ 382,779
Employee Benefits	\$ 213,375	\$ 164,254	\$ 138,926	\$ 143,094
Office Expense	\$ 55,381	\$ 42,474	\$ 78,942	\$ 81,310
Insurance	\$ 20,450	\$ 20,004	\$ 32,274	\$ 33,242
Utilities	\$ 60,783	\$ 59,817	\$ 71,936	\$ 74,094
Travel & Training	\$ 1,828	\$ 3,198	\$ 3,402	\$ 3,504
System Repairs & Maintenance	\$ 189,027	\$ 281,217	\$ 248,786	\$ 256,250
Professional Services	\$ 40,334	\$ 21,731	\$ 13,427	\$ 13,830
Miscellaneous	\$ 10,579	\$ 9,481	\$ 24,443	\$ 25,176
Interest & Fiscal Charges	\$ 428	\$ 116,038	\$ 57,923	\$ 59,661
Payment to KCWCD	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
Current Liabilities	\$ 821,033	\$ 5,592,246	\$ 240,565	\$ 247,782
Total Operating Expenses	\$ 1,806,646	\$ 6,749,402	\$ 1,376,876	\$ 1,416,682
Accounts				
Net Cash	\$ (350,801)	\$ (5,378,078)	\$ (12,703)	\$ 632,901
Operating Account Balance	\$ 2,885,726	\$ (2,492,352)	\$ (2,505,055)	\$ (1,872,154)
Impact Fee Balance	\$ 51,051	\$ 323,353	\$ 711,061	\$ 711,410
Project Costs				
Project Cost	\$ -	\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ 191,543
Project Name(s)				

3%

Title	2024	2025	2026	2027
Revenue				
Total ERCs	3874.25	3990.48	4110.19	4233.50
New ERCs	113	116	120	123
Average User Rate (Per ERC)	\$ 43.60	\$ 43.60	\$ 43.60	\$ 43.60
Charges for Services	\$ 2,027,006	\$ 2,087,817	\$ 2,150,451	\$ 2,214,965
Connection Fees	\$ 49,404	\$ 50,886	\$ 52,413	\$ 53,985
Other Revenues	\$ 34,660	\$ 35,700	\$ 36,771	\$ 37,874
Impact Fees Collected	\$ 745,138	\$ 764,920	\$ 791,297	\$ 811,079
Total Operating Revenue	\$ 2,111,070	\$ 2,174,403	\$ 2,239,635	\$ 2,306,824
Expenses				
Rent	\$ 47,338	\$ 48,758	\$ 50,221	\$ 51,728
Salaries & Wages	\$ 394,263	\$ 406,091	\$ 418,273	\$ 430,821
Employee Benefits	\$ 147,387	\$ 151,809	\$ 156,363	\$ 161,054
Office Expense	\$ 83,749	\$ 86,262	\$ 88,849	\$ 91,515
Insurance	\$ 34,239	\$ 35,266	\$ 36,324	\$ 37,414
Utilities	\$ 76,317	\$ 78,606	\$ 80,965	\$ 83,394
Travel & Training	\$ 3,610	\$ 3,718	\$ 3,829	\$ 3,944
System Repairs & Maintenance	\$ 263,937	\$ 271,856	\$ 280,011	\$ 288,412
Professional Services	\$ 14,245	\$ 14,672	\$ 15,112	\$ 15,566
Miscellaneous	\$ 25,932	\$ 26,710	\$ 27,511	\$ 28,336
Interest & Fiscal Charges	\$ 61,451	\$ 63,294	\$ 65,193	\$ 67,149
Payment to KCWCD	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
Current Liabilities	\$ 255,215	\$ 262,872	\$ 270,758	\$ 278,881
Total Operating Expenses	\$ 1,457,683	\$ 1,499,913	\$ 1,543,411	\$ 1,588,213
Accounts				
Net Cash	\$ 653,388	\$ 674,489	\$ 696,224	\$ 718,611
Operating Account Balance	\$ (2,948,975)	\$ (2,283,009)	\$ (1,586,785)	\$ (1,671,886)
Impact Fee Balance	\$ 78,095	\$ 607,070	\$ 1,362,303	\$ (2,067,699)
Project Costs				
Project Cost	\$ 3,108,660	\$ 244,468	\$ 36,064	\$ 5,044,793
Non-Impact Fee Eligible Cost	\$ 1,730,208	\$ 8,523	\$ -	\$ 803,712
Impact Fee Eligible Cost	\$ 1,378,452	\$ 235,945	\$ 36,064	\$ 4,241,081
Project Name(s)	Catori Canyon, Cave Lakes Springs, WF Well #5	Vermillion Dr. Interconnection, Water Fill Station	24" to 12" Interconnection	Catori Canyon

Title	2028	2029	2030	2031
Revenue				
Total ERCs	4360.50	4491.31	4626.05	4764.84
New ERCs	127	131	135	139
Average User Rate (Per ERC)	\$ 43.60	\$ 43.60	\$ 43.60	\$ 43.60
Charges for Services	\$ 2,281,414	\$ 2,349,856	\$ 2,420,352	\$ 2,492,962
Connection Fees	\$ 55,605	\$ 57,273	\$ 58,991	\$ 60,761
Other Revenues	\$ 39,010	\$ 40,180	\$ 41,386	\$ 42,627
Impact Fees Collected	\$ 837,456	\$ 863,832	\$ 890,209	\$ 916,585
Total Operating Revenue	\$ 2,376,028	\$ 2,447,309	\$ 2,520,728	\$ 2,596,350
Expenses				
Rent	\$ 53,280	\$ 54,878	\$ 56,524	\$ 58,220
Salaries & Wages	\$ 443,746	\$ 457,059	\$ 470,770	\$ 484,893
Employee Benefits	\$ 165,885	\$ 170,862	\$ 175,988	\$ 181,267
Office Expense	\$ 94,260	\$ 97,088	\$ 100,001	\$ 103,001
Insurance	\$ 38,536	\$ 39,692	\$ 40,883	\$ 42,110
Utilities	\$ 85,895	\$ 88,472	\$ 91,126	\$ 93,860
Travel & Training	\$ 4,063	\$ 4,185	\$ 4,310	\$ 4,439
System Repairs & Maintenance	\$ 297,064	\$ 305,976	\$ 315,155	\$ 324,610
Professional Services	\$ 16,033	\$ 16,514	\$ 17,009	\$ 17,519
Miscellaneous	\$ 29,186	\$ 30,062	\$ 30,964	\$ 31,893
Interest & Fiscal Charges	\$ 69,163	\$ 71,238	\$ 73,375	\$ 75,577
Payment to KCWCD	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
Current Liabilities	\$ 287,247	\$ 295,864	\$ 304,740	\$ 313,883
Total Operating Expenses	\$ 1,634,359	\$ 1,681,890	\$ 1,730,847	\$ 1,781,272
Accounts				
Net Cash	\$ 741,669	\$ 765,419	\$ 789,882	\$ 815,078
Operating Account Balance	\$ (930,217)	\$ (164,798)	\$ 625,084	\$ 1,059,282
Impact Fee Balance	\$ (1,269,861)	\$ (769,540)	\$ (434,697)	\$ 481,888
Project Costs				
Project Cost	\$ 39,618	\$ 363,511	\$ 555,366	\$ 380,880
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ 380,880
Impact Fee Eligible Cost	\$ 39,618	\$ 363,511	\$ 555,366	\$ -
Project Name(s)	IFFPA 5 Yr	Country Club Lane	West Chinle Dr	Ventana Resort

Title	2032	2033	2034	2035
Revenue				
Total ERCs	4907.78	5005.94	5106.06	5208.18
New ERCs	143	98	100	102
Average User Rate (Per ERC)	\$ 43.60	\$ 43.60	\$ 43.60	\$ 43.60
Charges for Services	\$ 2,567,751	\$ 2,619,106	\$ 2,671,488	\$ 2,724,918
Connection Fees	\$ 62,583	\$ 64,461	\$ 66,395	\$ 68,387
Other Revenues	\$ 43,906	\$ 45,223	\$ 46,580	\$ 47,978
Impact Fees Collected	\$ 942,962	\$ 646,226	\$ 659,414	\$ 672,602
Total Operating Revenue	\$ 2,674,241	\$ 2,728,791	\$ 2,784,463	\$ 2,841,282
Expenses				
Rent	\$ 59,967	\$ 61,766	\$ 63,619	\$ 65,527
Salaries & Wages	\$ 499,440	\$ 514,423	\$ 529,856	\$ 545,752
Employee Benefits	\$ 186,705	\$ 192,307	\$ 198,076	\$ 204,018
Office Expense	\$ 106,091	\$ 109,274	\$ 112,552	\$ 115,928
Insurance	\$ 43,373	\$ 44,674	\$ 46,014	\$ 47,395
Utilities	\$ 96,676	\$ 99,576	\$ 102,564	\$ 105,640
Travel & Training	\$ 4,573	\$ 4,710	\$ 4,851	\$ 4,997
System Repairs & Maintenance	\$ 334,348	\$ 344,379	\$ 354,710	\$ 365,351
Professional Services	\$ 18,045	\$ 18,586	\$ 19,144	\$ 19,718
Miscellaneous	\$ 32,850	\$ 33,835	\$ 34,850	\$ 35,896
Interest & Fiscal Charges	\$ 77,844	\$ 80,179	\$ 82,585	\$ 85,062
Payment to KCWCD	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
Current Liabilities	\$ 323,299	\$ 332,998	\$ 342,988	\$ 353,278
Total Operating Expenses	\$ 1,833,210	\$ 1,886,707	\$ 1,941,808	\$ 1,998,562
Accounts				
Net Cash	\$ 841,030	\$ 842,084	\$ 842,655	\$ 842,720
Operating Account Balance	\$ 1,900,313	\$ 2,742,397	\$ 3,585,052	\$ 4,427,772
Impact Fee Balance	\$ 1,005,808	\$ 714,495	\$ 1,373,909	\$ 2,046,512
Project Costs				
Project Cost	\$ 419,042	\$ 937,538	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ 419,042	\$ 937,538	\$ -	\$ -
Project Name(s)	700 E 12" Pipe Extension	Kane Dr. to 400 W Connection, UDOT Shed Loop, IFFPA 10 Yr		

Title	2036	2037	2038	2039
Revenue				
Total ERCs	5312.34	5418.59	5526.96	5637.50
New ERCs	104	106	108	111
Average User Rate (Per ERC)	\$ 43.60	\$ 43.60	\$ 43.60	\$ 43.60
Charges for Services	\$ 2,779,416	\$ 2,835,005	\$ 2,891,705	\$ 2,949,539
Connection Fees	\$ 70,438	\$ 72,551	\$ 74,728	\$ 76,970
Other Revenues	\$ 49,417	\$ 50,899	\$ 52,426	\$ 53,999
Impact Fees Collected	\$ 685,791	\$ 698,979	\$ 712,167	\$ 731,950
Total Operating Revenue	\$ 2,899,271	\$ 2,958,455	\$ 3,018,859	\$ 3,080,508
Expenses				
Rent	\$ 67,493	\$ 69,518	\$ 71,603	\$ 73,751
Salaries & Wages	\$ 562,124	\$ 578,988	\$ 596,358	\$ 614,248
Employee Benefits	\$ 210,139	\$ 216,443	\$ 222,936	\$ 229,624
Office Expense	\$ 119,406	\$ 122,988	\$ 126,678	\$ 130,478
Insurance	\$ 48,817	\$ 50,281	\$ 51,790	\$ 53,343
Utilities	\$ 108,810	\$ 112,074	\$ 115,436	\$ 118,899
Travel & Training	\$ 5,146	\$ 5,301	\$ 5,460	\$ 5,624
System Repairs & Maintenance	\$ 376,312	\$ 387,601	\$ 399,229	\$ 411,206
Professional Services	\$ 20,310	\$ 20,919	\$ 21,547	\$ 22,193
Miscellaneous	\$ 36,973	\$ 38,082	\$ 39,224	\$ 40,401
Interest & Fiscal Charges	\$ 87,614	\$ 90,242	\$ 92,950	\$ 95,738
Payment to KCWCD	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
Current Liabilities	\$ 363,876	\$ 374,792	\$ 386,036	\$ 397,617
Total Operating Expenses	\$ 2,057,019	\$ 2,117,230	\$ 2,179,246	\$ 2,243,124
Accounts				
Net Cash	\$ 842,252	\$ 841,226	\$ 839,613	\$ 837,384
Operating Account Balance	\$ 5,270,025	\$ 6,111,250	\$ 6,950,863	\$ 7,788,247
Impact Fee Balance	\$ 2,732,302	\$ 3,431,281	\$ 4,143,448	\$ 4,875,398
Project Costs				
Project Cost	\$ -	\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Project Name(s)				

Title	2040	2041	2042	2043
Revenue				
Total ERCs	5750.25	5865.25	5982.56	6102.21
New ERCs	113	115	117	120
Average User Rate (Per ERC)	\$ 43.60	\$ 43.60	\$ 43.60	\$ 43.60
Charges for Services	\$ 3,008,530	\$ 3,068,700	\$ 3,130,074	\$ 3,192,676
Connection Fees	\$ 79,279	\$ 81,657	\$ 84,107	\$ 86,630
Other Revenues	\$ 55,619	\$ 57,288	\$ 59,006	\$ 60,777
Impact Fees Collected	\$ 745,138	\$ 758,326	\$ 771,514	\$ 791,297
Total Operating Revenue	\$ 3,143,428	\$ 3,207,645	\$ 3,273,188	\$ 3,340,082
Expenses				
Rent	\$ 75,964	\$ 78,243	\$ 80,590	\$ 83,008
Salaries & Wages	\$ 632,676	\$ 651,656	\$ 671,206	\$ 691,342
Employee Benefits	\$ 236,513	\$ 243,608	\$ 250,917	\$ 258,444
Office Expense	\$ 134,393	\$ 138,425	\$ 142,577	\$ 146,855
Insurance	\$ 54,944	\$ 56,592	\$ 58,290	\$ 60,038
Utilities	\$ 122,466	\$ 126,140	\$ 129,924	\$ 133,822
Travel & Training	\$ 5,792	\$ 5,966	\$ 6,145	\$ 6,329
System Repairs & Maintenance	\$ 423,542	\$ 436,248	\$ 449,336	\$ 462,816
Professional Services	\$ 22,859	\$ 23,545	\$ 24,251	\$ 24,979
Miscellaneous	\$ 41,613	\$ 42,861	\$ 44,147	\$ 45,472
Interest & Fiscal Charges	\$ 98,610	\$ 101,569	\$ 104,616	\$ 107,754
Payment to KCWCD	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
Current Liabilities	\$ 409,545	\$ 421,832	\$ 434,487	\$ 447,521
Total Operating Expenses	\$ 2,308,918	\$ 2,376,685	\$ 2,446,486	\$ 2,518,380
Accounts				
Net Cash	\$ 834,510	\$ 830,960	\$ 826,702	\$ 821,702
Operating Account Balance	\$ 8,622,757	\$ 9,453,717	\$ 10,280,419	\$ 11,102,121
Impact Fee Balance	\$ 5,620,536	\$ 6,378,862	\$ 7,150,376	\$ 7,941,673
Project Costs				
Project Cost	\$ -	\$ -	\$ -	\$ -
Non-Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Impact Fee Eligible Cost	\$ -	\$ -	\$ -	\$ -
Project Name(s)				

APPENDIX D

IMPACT FEE CERTIFICATION

DRAFT

Certification of Impact Fee Analysis

In accordance with Utah Code Title 11-36a-306 Kelvin C. Smith, P.E., on behalf of Civil Science, Inc., make the following certification:

I certify that the attached impact fee facilities plan and impact fee analysis:

1. includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; or
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement;
3. offsets costs with grants or other alternate sources of payment; and
4. complies in each and every relevant respect with the Impact Fees Act.

This Certification is made with the following assumptions:

1. All data provided to Civil Science, Inc. is assumed to be correct, complete, and accurate.
2. Any changes to the impact fee facilities plan and impact fee analysis after the issuance of this certification will void same certification.
3. Recommendations will be followed in their entirety by Kanab City and City officials.
4. The undersigned is trained and licensed as a professional engineer and has not been trained or licensed as a lawyer. Nothing in the foregoing certification shall be deemed an opinion of law or an

opinion of compliance with law which under applicable professional licensing laws or regulations or other laws or regulations must be rendered by a lawyer licensed in the State of Utah.

5. This certification expresses professional opinion base on the undersigned best knowledge and understanding, and shall not be taken as a guarantee, warranty, or fact.

Civil Science, Inc.

By: _____

Dated: _____

DRAFT