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SPRING CREEK AREA SPECIFIC PLAN

(HAL Project No.: 412.16.100)

Adopted December 6, 2023

HANSEN ALLEN & LUCE inc
ENGINEERS

PAYSON CITY

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CHAPTER 1 INTRODUCTION

Payson City is a desirable community known for its family friendly neighborhoods, lively commercial centers and the preservation of its heritage. These unique qualities, coupled with unprecedented growth along the Wasatch Front, have greatly increased demand for development in the city and surrounding region. The Spring Creek Area in particular has experienced growth pressure and development interest in recent years.

Spring Creek is located in the West Mountain area of Payson. The study area includes incorporated and unincorporated properties that are generally located between 1700 West (4500 West, Utah County coordinate) and 2900 West (5600 West, Utah County coordinate), and between 400 North (10000 South, Utah County coordinate) and 1130 South (11200 South Utah County Coordinate). Figure 1-1 illustrates the context of the site in relation to the rest of Payson and the surrounding area, including West Mountain. The original planning area is demarcated by the dashed red lines, which is approximately 930 acres in extent. As the planning process unfolded, a slightly larger area was addressed, encompassing an area to the north of the original planning area as indicated which covers a larger planning area of 1,160 acres.

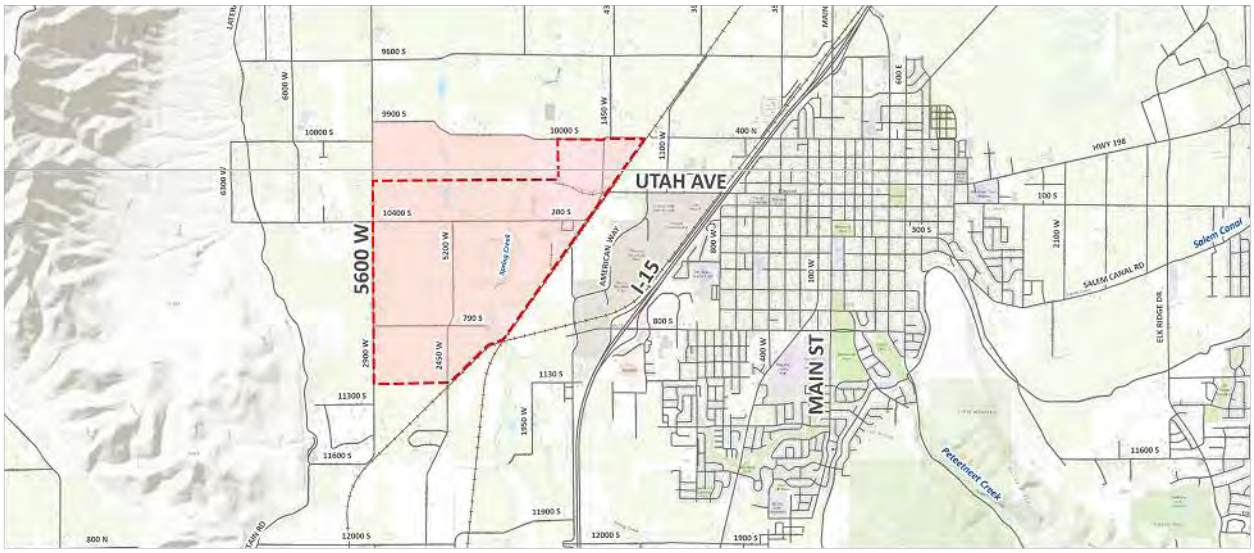


Figure 1-1: Spring Creek Area Site Context

This planning effort strives to strike a balance between the preservation of traditional land uses, open space and the agricultural history in the Spring Creek Area with development and growth pressure. It is also an attempt to address those needs while facilitating a different type of development than found in other parts of the city.

Some of the key issues and ideas that emerged and were addressed as part of the planning process include:

- Assessment of the existing rail corridor that currently presents significant transportation access challenges and rail routes that require complex utility crossings
- Assessment of road connections to the east that should provide improved linkages with I-15 and the rest of Payson
- The role of industrial areas, sensitive lands, open space and recreational areas
- Expansion of existing industrial uses and introduction of commercial uses
- The desire for special housing types that are compatible with the overall vision for the area
- Agricultural support/preservation and environmental conservation
- Phased development and land use transition strategies

In order to ensure the future Spring Creek Area develops as envisioned, a different kind of planning vision and strategy was developed that is financially sustainable and complements community needs and visions for the area.

PURPOSE OF THE SPRING CREEK AREA SPECIFIC PLAN

The *Spring Creek Area Specific Plan* represents an opportunity to introduce a variety of housing types, maintain large lot uses with animal rights and equestrian uses, support appropriate-scaled commercial and community services, expand established business park and industrial uses, and introduce public parks, open space and multi-use trails to the area.

The purpose of this study is to create an effective planning document that will help provide a clear vision for the Spring Creek Area in the future. The plan clarifies the vision, opportunities and needs of the area, including utility and infrastructure needs. The plan integrates existing and future land uses with transportation, economic development, utility and infrastructure needs, ensuring that the area changes in realistic manner that is aligned with the technical analyses and the Payson General Plan.

THE PLANNING PROCESS

The project began in 2021 with an analysis of existing and future land use, infrastructure, utility, transportation and economic/market needs. With more in-depth analysis of each being included in subsequent chapters. This was conducted in conjunction with discussions with a Steering Committee composed of city leaders, neighborhood representatives and city staff, which resulted in three plan concepts that were presented to the public for input and comment. Since no consensus was achieved at the time, additional meetings were conducted by city staff in 2022 with an expanded Steering Committee, resulting in several additional iterations of a potential plan for the area. Staff continued to engage with local residents and landowners directly, which ultimately resulted in the preferred Spring Creek Area Specific Plan that is presented here.

PUBLIC INPUT

Establishing a clear land use vision is essential for ensuring the Spring Creek Area retains the rural atmosphere that is so highly-coveted by the people who live there and have interest in the area. The *Spring Creek Area Specific Plan* was developed by listening to residents, landowners, city leaders and the public and translating the results into a plan.

What We Heard

Many residents, property owners and stakeholders are concerned that the old feeling and sense of solitude that has prevailed in the Spring Creek Area is disappearing, and the charm and special qualities that have defined this area since the earliest days of settlement could be lost. There is a strong desire to maintain the open feel and agricultural traditions that have defined the area, while acknowledging that change and growth is inevitable.

There is also concern that Payson is becoming a less affordable place to live, similar to other communities in the region. Stakeholders acknowledge that a wider variety of housing options could benefit the Spring Creek Area and the city as a whole, but only if the specific location, forms and layout of new homes and land uses are aligned with the established qualities and character of the area.

Many residents prefer that nothing changes, while others believe the introduction of smaller lots and slightly higher residential uses along major roadways can result in balanced change. There is also general support for locating commercial and industrial uses along major roadways, which could help ensure that larger lot residential uses with animal rights can be preserved on the north and south edges of the community.

Some residents feel that their properties and neighborhoods will be negatively impacted by such changes, making the application of physical and land use buffers an important part of the plan. There is also a general support for the establishment of two commercial centers – one on the east side of the 800 South/2900 West intersection, and another smaller commercial/civic center located in proximity to where Spring Creek crosses 200 South.

CHAPTER 2 EXISTING LAND USE

Existing land use patterns in the Spring Creek Area reflect the agricultural traditions and rural character of the area. The site includes a small established single-family subdivision in the northeast sector of the district, which is surrounded by industrial land and a rail line on all sides.

Examples of the existing rural/agricultural setting found in the Spring Creek Area

The Spring Creek Area is located at the base of West Mountain and has superlative views of the Wasatch Mountains to the east. Spring Creek extends through the site from south to north, where it is joined by a smaller drainage feature and a canal slightly to the west. Existing land uses reflect the dominance of established agricultural uses, including a variety of homes and farm buildings that dot the landscape. Figure 2-1 illustrates these patterns, providing a snapshot of past growth and development trends and an indication of future potentials.

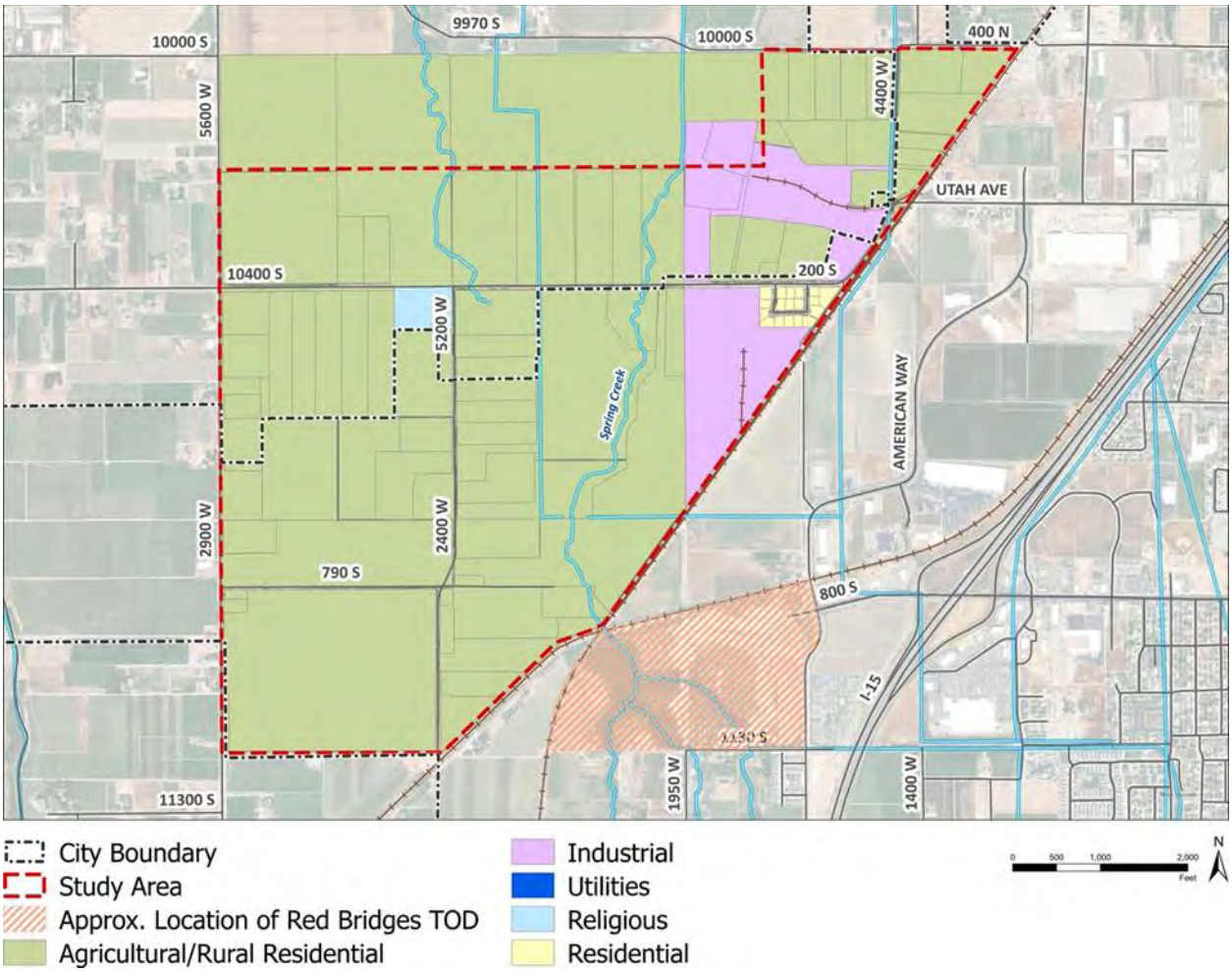
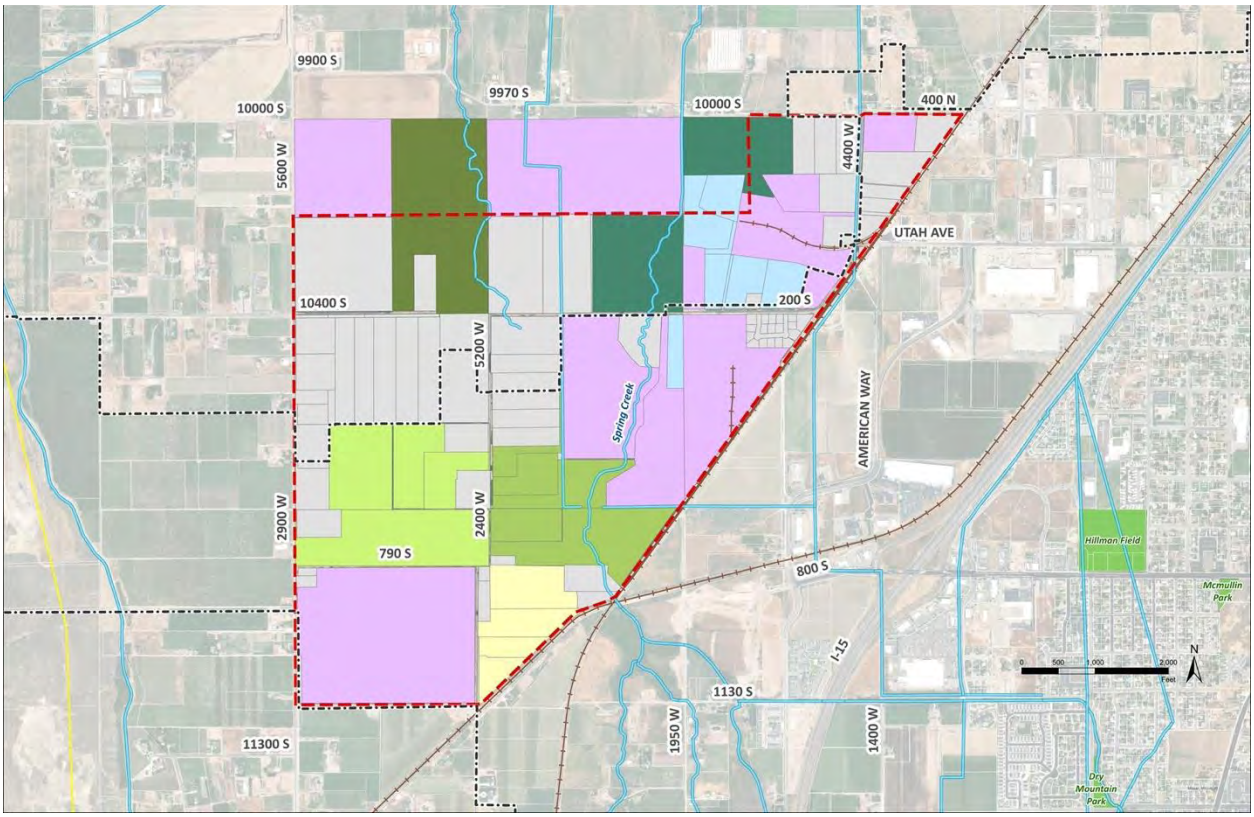


Figure 2-1: Spring Creek Area Existing Land Use

EXISTING PROPERTY OWNERSHIP

Understanding land ownership is essential for determining where future development and change is likely to occur. Nearly all of the land in the Spring Creek Area is privately owned. The colored areas in Figure 2-2 indicate larger private land holdings in comparison to the smaller holdings of individual property owners indicated in gray.



* Purple areas indicate land owned by corporations. Other colored areas indicate larger private holdings. Smaller private holdings are shown in gray.

Figure 2-2: Spring Creek Area Existing Property Ownership

CHAPTER 3 FUTURE LAND USE

Figure 3-1 presents *the Spring Creek Area Future Land Use Plan*, which is the consensus vision developed by staff in collaboration with local residents and property owners. Table 3-1 details the acreages and percentages of each land use.

Table 3-1: Future Land Use

Land Use	Acreage	Percentage of Road and OS	Developable Acreage	Residential Units per Acre	Non-residential FAR	Residential Units	Non-residential Floor Area	% of Total	ERCs
Existing Single-Family	8	0%	8	2.2		18	0	1%	18
Rural Residential	231	15%	196	1		196	0	20%	196
Large-Lot Residential	104	20%	83	2		166		9%	166
Low Density	343	25%	257	4		1,029	0	30%	1,028
Mixed Density	93	25%	70	8		558	0	8%	560
Neighborhood Commercial	28	25%	21	0	0.25	0	228,690	2%	105
Existing Church	8	0%	8	0		0	0	1%	8
Light Industrial	174	25%	131	0	0.25	0	1,421,145	15%	393
Expanded Business Park	93	25%	70	0	0.25	0	759,578	8%	210
Major Park & Open Space	78	100%	0	0		0	0	7%	78
Total	**1,160**	**27%**	**844**	**N/A**	**N/A**	**1,967**	**2,409,413**	**100%**	**2,762**

To summarize, the future land use plan is a balanced mix of large lot rural residential estates (up to one unit per acre), large lot residential uses (up to two units per acre), low density residential (up to four units per acre), and mixed density residential uses (up to eight units per acre). It also incorporates two neighborhood-scale commercial centers, one situated in the center of the community along 200 South, and the other along 2900 West on both sides of the 800 South intersection. General Design Standards to help direct the growth and development of the area are provided in Appendix A.

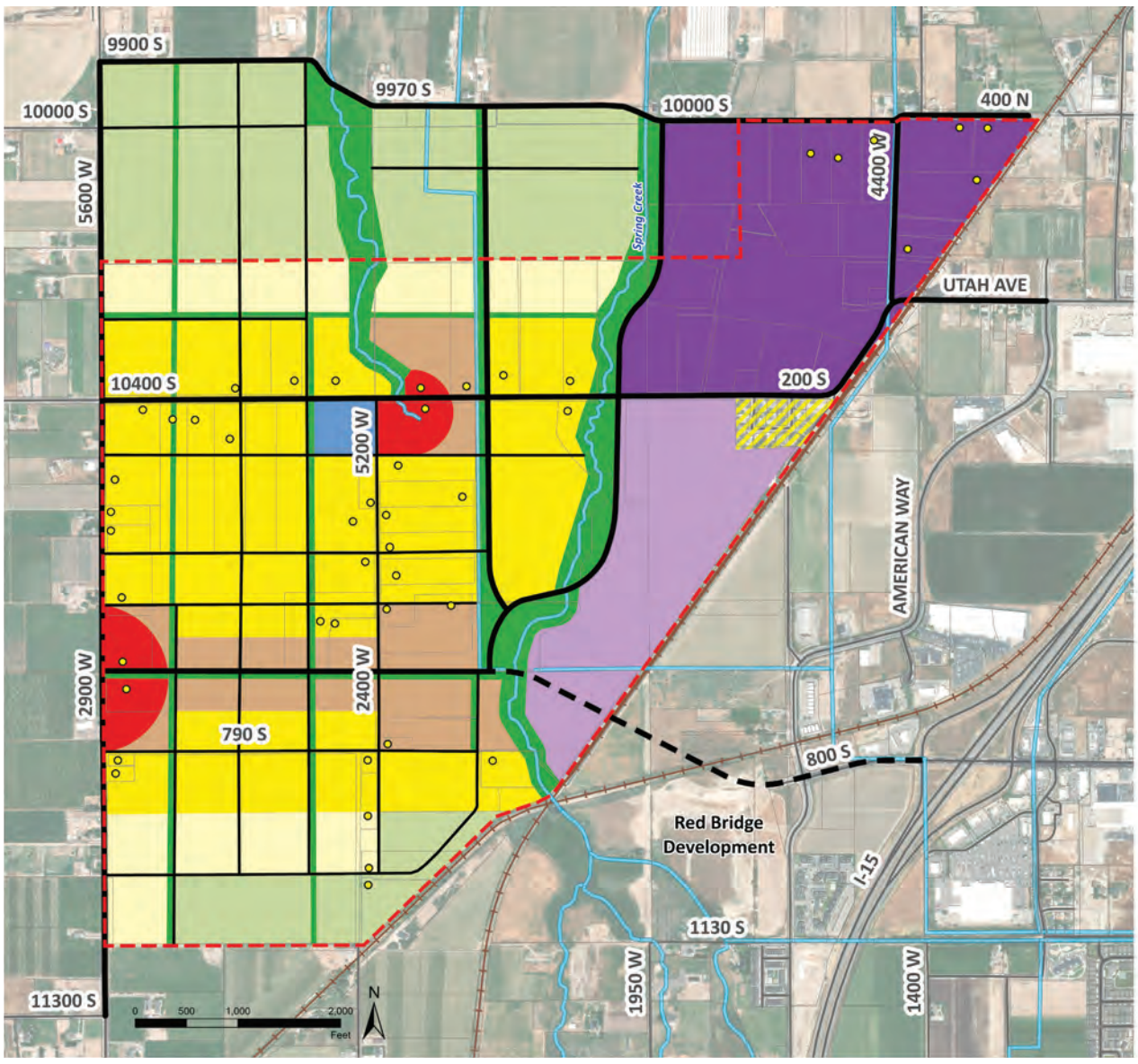
Mixed density and commercial uses are concentrated along major roads (200 South, 800 South and 2900 West), buffering lower density uses in the south and north ends of the area. Spring Creek continues to flow through the site, joining a new park associated with the smaller drainage to the west as the primary park, open space and trail system serving the area.

Existing industrial uses along the eastern reaches of 200 South just west of the railway are envisioned to be expanded over time, with the area to the south designated as an expanded business park. In order to ensure existing residential uses in the area are protected from an expanded industry and businesses profile in the area, land use and other buffers should be applied along the affected property edges.

200 South should be re-aligned and upgraded to provide improved crossings over the rail line, and 800 South should be re-aligned and bridged over the rail lines, providing a long-term connection to the Red Bridge development area immediately east of the area, and the freeway and Payson city core to the east. More information on the transportation plan is provided in Chapter 6.

Figure 3-1

Spring Creek Area Plan - Future Land Use



- Existing Single-Family Residential
- Rural Residential Estate (Up to 1 Unit Per Acre)
- Large-Lot Residential (Up to 2 Units Per Acre
- Low Density (Up to 4 Units Per Acre)
- Mixed Density (Up to 8 Units Per Acre)
- Neighborhood-Scale Commercial
- Existing Church
- Light Industrial
- Expanded Business Park
- Major Parks, Open Space & Trail System
- Study Area Boundary
- Major Roads
- Minor Roads
- Grade-Separated Road Extension (Long-Term)
- Streams/Canals/Drainages
- Railroads
- Existing Homes

Commercial:	228,690 SF
Expanded Business Park / Light Industrial:	2,180,723 SF
Residential Units:	1,967 Units

Note: These are high-level estimates to be used only for purposes of evaluating the feasibility of each scenario only. These figures will be refined as more detailed planning and analysis occurs.

Overview

This concept encompasses a balanced mix of large lot rural residential estates (up to one unit per acre), large lot residential uses up to two units per acre, low density residential up to four units per acre, and mixed density residential uses up to eight units per acre. It also includes two neighborhood-scale commercial centers, one located in the center of the community along 200 South, and the other on 2900 West on either side of the 800 South intersection.

Higher density and commercial uses are concentrated along major roads (200 South, 800 South and 2900 West), buffering the lower density uses on the south and north ends of the area. Spring Creek continues to flow through the site, joining a new park associated with a smaller drainage to the west as the primary park and open space features of the area.

Existing industrial uses on the north side of 200 South west of the railway are envisioned to be expanded over time, and the area to the south designated as an expanded business park. In order to ensure existing residential uses in the area are protected from the expansion of industries and businesses, land use and other types of buffers should be applied.

200 South will be re-aligned and upgraded to provide improved crossings over the rail line, and 800 South will be re-aligned and bridged over the rail lines, providing a long-term connections to the Red Bridge development areas immediately east of the area, and the freeway and the rest of Payson city to the east.

Spring Creek and the drainage to the west of it are transformed into the main park and open space “spine” for the area. Local parks, open spaces and neighborhoods are linked by an inter-connected green corridor and multi-purpose trail system, as illustrated.

Rural Residential Estate (Up to 1 Unit Per Acre)

Mixed Density Residential (Up to 8 Units Per Acre)

Large Lot Residential (Up to 2 Units Per Acre)

Neighborhood Scale Commercial

Low Density Residential (Up to 4 Units Per Acre)

Light Industrial

Business Park

PAYSON UTAH

HANSEN ALLEN & LUCE INC ENGINEERS

LANDMARK DESIGN

DETAILED FUTURE LAND USE DESCRIPTIONS

Rural Residential Estate

This land use category is located along the north and south edges of the area, permitting new residential uses up to one unit per-acre. A variety of large-lot and agriculture uses are envisioned that maintain traditional animal rights and similar traditions and help preserve the rural, open feel of the Spring Creek Area.

Large Lot Residential

These are transitional uses that permit up to two units per acre. The areas are strategically located between Rural Residential Estates and other uses as part of a “single-step” land use transition strategy to create a more unified relationship between different uses. Large Lot Residential uses are generally considered too small to accommodate traditional agriculture and associated animal uses, although they are sufficient for incorporating extensive gardens and urban animals. These transitional areas will also help to preserve the rural, open feel of the Spring Creek Area.

Low Density Residential

The Low Density Residential category permits up to four single-family residential parcels per acre, and are dominant in the central portion of the district. They serve as transitions between Large Lot residential and Mixed Density Residential uses.

Mixed Density Residential

These areas are located along 800 South and adjacent to the two Neighborhood-Scale Commercial Centers. They permit up to eight residences per acre in a variety of forms such as smaller-lot detached homes and townhomes. Mixed Use Residential uses are encouraged along higher traffic roadways and in proximity to the commercial centers as a transition to the progressively lower density uses and neighborhoods beyond.

Neighborhood-Scale Commercial

Neighborhood-Scale Commercial uses are proposed along 2900 West and 200 South. These commercial nodes are envisioned to become distinct shopping and service destinations to serve the Spring Creek Area and surroundings. Each center should be designed to reflect the functions and needs of the specific center. For example, higher-level commercial shopping and services are envisioned at the 2900 West locations, reflecting the location of the center on two corners of a major intersection. In contrast, the uses and services at the 200 South commercial center is envisioned to be smaller and more diverse. The intent is to establish this site as small-scale, low-

intensity neighborhood destination with local retail, dining, civic, park and trail uses as part of a more intimate, pedestrian-scaled destination.

Both commercial centers should merge seamlessly with adjacent residential uses at the edges, incorporating carefully designed and seamlessly integrated open space, plazas and parks. The total commercial acreage for the two sites reflects anticipated local market needs at build-out, and is aligned with the economic and market findings of this stud, which is discussed in Chapter 7.

Light Industrial

Existing industrial uses within the city boundaries are expanded northward, encompassing existing residential and agricultural properties. The expanded light industrial area is anticipated to encompass a range of light industrial and warehousing-type uses, building upon the existing industrial uses in the area and good road and rail connections. Since much of this area is currently located in Utah County and is zoned for heavy industrial uses, the light industrial designation in Spring Creek will serve as a transition to the more intense industrial uses to the north (See Light Industrial and Business Park Design Standards in Appendix A for additional details).

Expanded Business Park

Stretching south from 200 South between Spring Creek and the rail line, this area is envisioned to become a green, well-designed and coordinated business park. It is recommended that a master development plan is established for the business park, clarifying the specific uses and designs including height, massing and architectural details. Since a small residential neighborhood is located on the north end of this district, specific buffering and screening regulations should be established as part of the master development plan, addressing the qualities of required landscape buffers and screening techniques to be used for minimizing conflicts as part of a unified design. (See Light Industrial and Business Park Design Standards in Appendix B for additional details).

Major Parks, Open Space & Trails

Spring Creek and the drainage to the west of it are transformed into the main park and open space “spine” for the area. The park and open space system should highlight the natural open spaces, drainages, canals, streams and wooded areas in the area as a legacy for future generations. The major parks and opens spaces should be linked together and integrated with the adjacent neighborhoods along a system of trail corridors. The trails should be fully inter-connected and multi-purpose in order to meet the trail needs of the community.

CHAPTER 4 GOALS, POLICIES & IMPLEMENTATION MEASURES

GOAL 1:

Preserve and enhance the rural atmosphere and agriculture history of the Spring Creek Area through careful planning preservation of open space.

Policy 1.1: Encourage Conservation Subdivisions on vacant and undeveloped residential parcels identified in the Future Land Use Map

a. *Implementation Measure:* Encourage consolidation of smaller development lots to promote unified, high-quality and integrated development projects.

Policy 1.2: Adopt new tools to preserve the Spring Creek Area's open space and rural character

a. *Implementation Measure:* Develop streetscape and similar design improvements to maintain the rural feel and protect key views and viewsheds.
b. *Implementation Measure:* Apply land use and physical buffers to improve transitions between incompatible uses.

GOAL 2:

Continue the established focus on large lot, single-family residential uses as the primary means for preserving the Spring Creek Area's rural character.

Policy 2.1: Maintain and protect established residential districts and neighborhoods

a. *Implementation Measure:* Prohibit higher density land uses in areas earmarked for lower density uses. Higher density land uses are generally limited near major roads and transportation.

GOAL 3:

Ensure land uses are compatible and/or utilize adequate buffers to enhance compatibility.

Policy 3.1: Provide land use transitions and development buffers between incompatible land uses

a. *Implementation Measure:* Limit land use transitions to a single step in density when possible (Low Density Residential to Large Lot Residential - not Low Density Residential to Rural Residential Estates, Residential to mixed density, for example).
b. *Implementation Measure:* Buffer industrial, business and commercial uses from nearby and adjacent residential uses through the use of transitional land uses and/or physical barriers (tree rows, walls, fences, berms and similar).
c. *Implementation Measure:* Ensure that commercial uses permitted in residential zones are incidental to the main residential or agricultural use and do not negatively impact the quiet, rural atmosphere of the area.

GOAL 4:

Provide a range of housing options and price points to help ensure the Spring Creek Area is a diverse and affordable place to live.

Policy 4.1: Coordinate and align the Spring Creek Area Specific Plan with Payson Moderate-Income Housing Element and related adopted goals and policies

a. *Implementation Measure:* Allow and encourage new residential development models that meet the future needs of the community.
b. *Implementation Measure:* Modify existing ordinances and codes to facilitate the envisioned type of development and change.
c. *Implementation Measure:* Create detailed guidelines and educational information regarding the benefits of new residential types
d. *Implementation Measure:* Ensure land use standards reflect the Moderate-Income Housing Element of the General Plan.

GOAL 5:

Encourage a diverse and appropriate amount of commercial services to meet the long-term needs of the community.

Policy 5.1: Limit commercial development to the two centers identified in the plan

a. *Implementation Measure:* Ensure each commercial node is distinct in form and use, thereby providing a range of shopping and services and two distinct commercial/service destinations.
b. *Implementation Measure:* Limit commercial acreage to the amount required to meet local market needs.
c. *Implementation Measure:* Determine a program of streetscape and public right-of-way improvements for all roadways and corridors.
d. *Implementation Measure:* Develop a multi-purpose trail system within the identified open space corridors, including linkages to nearby commercial and civic destinations and centers.
e. *Implementation Measure:* Link the Spring Creek Area trail system with smaller east-west trails, sidewalks and bike lanes.

Policy 5.2: Ensure appropriate land use transitions are provided between industrial and commercial uses and adjacent residential uses

a. *Implementation Measure:* Ensure uses adjacent to commercial uses are compatible whenever possible.
b. *Implementation Measure:* Require physical buffers (trees, shrubs, walls, fences and berms, for example) between commercial uses and adjacent residential neighborhoods.
c. *Implementation Measure:* Adjust development codes to ensure adequate landscape buffers are provided between commercial uses and adjacent residential neighborhoods, and along abutting roadway frontages.

GOAL 6:

Ensure commercial, civic, school, park, open space, industrial, business park utility and other non-residential uses are provided in a manner that meets the land use vision.

Policy 6.1: Facilitate the development of two neighborhood-scale commercial centers to serve the needs of the Spring Creek Area and nearby areas

a. *Implementation Measure:* Encourage the development of low-intensity mixed use commercial uses that fit with the small-town ambience of the Spring Creek Area.
b. *Implementation Measure:* Provide grocery and major neighborhood services at the 2900 West/800 South commercial center, and smaller, more locally-scaled shopping, dining, commercial and civic services at the 200 South/Spring Creek center.
c. *Implementation Measure:* Incorporate engaging and unified streetscapes, trails, signage pathways, trees and vegetation that are aligned with the rural, agricultural setting and traditions of the Spring creek Area.

Policy 6.2: Ensure park, open space, trail and public facility needs are met

a. *Implementation Measure:* Implement the proposed open space and park system in coordination with future development to ensure it is implemented as a core feature to benefit the community.
b. *Implementation Measure:* Ensure essential roads, modes of transportation, trails and similar transportation considerations are integrated with the land use vision of the area.
c. *Implementation Measure:* Cooperate with Nebo School District officials and other public service providers to ensure appropriate sites for schools and other public services are reserved, as needed.
d. *Implementation Measure:* Adhere to the established level-of-service requirements contained in Payson City Parks Master Plan.
e. Implementation Measure: Utilize impact fees to acquire and develop future park space.

GOAL 7:

Protect and enhance view corridors and viewsheds.

Policy 7.1: Create a coordinated program of streetscape and right-of- way improvements.

a. *Implementation Measure:* Prepare a landscape master plan for each key corridor, identifying special enhancements to preserve the unique feeling of the area and to protect and enhance view corridors and viewsheds.

GOAL 8:

Protect and conserve sensitive sites and natural features within the Spring Creek Area.

Policy 8.1: Investigate new zoning ideas to help maintain sensitive lands and key open space areas.

a. *Implementation Measure:* Modify existing ordinances and codes to protect critical open space and view corridors in the City.
b. *Implementation Measure:* Modify existing ordinances and codes to ensure sensitive lands, drainage corridors and critical natural features in the area are preserved.

CHAPTER 5 INFRASTRUCTURE PLAN

Drinking water, pressurized irrigation water, sanitary sewer, and storm water infrastructure needs for the Spring Creek Area were analyzed in detail as a part of the planning effort. This chapter of the report summarizes key aspects and conclusions of these analyses. More detailed technical information is included in Appendix C.

DRINKING WATER

Drinking water service will be provided utilizing one or more groundwater wells, which will pump to an elevated storage tank located west of the planning area. Payson recently completed a well in the Red Bridge area that has good water quality and high production capacity, which indicates a good probability for constructing another successful well in the area at a future time when it is needed.

There were several concerns that were brought up during the planning process and public engagement meetings that were addressed in the conceptual design. A summary of these concerns and solutions are provided here:

1. Some residents were concerned that an additional municipal well would impact existing wells in the area.
    a. The City will drill deep wells with the intention of utilizing a different aquifer than most existing wells. The recent installation of the Red Bridge Well, which is a deep well located just east of the planning area, will provide information about potential for well interference in the area.
2. The area has limited existing infrastructure, and future infrastructure is likely to be expensive due to geographic isolation and the barriers of Spring Creek and the train tracks. Some residents were concerned about the cost of future infrastructure and how it would be paid for.
    a. Existing drinking water lines already crossing the train tracks will be utilized to minimize the need for additional crossings. Future infrastructure will be constructed using impact fees and developer contributions.

Conceptual drinking water infrastructure for the area is shown in Figure 5-1. A preliminary cost estimate of the main components of the infrastructure are included in Table 5-1.

Table 5-1: Drinking Water Infrastructure Conceptual Cost Estimate

Component	Cost
Well	$2,700,000
Tank	$4,860,000
Major Transmission Lines[1]	$4,720,000
Total	**$12,560,000**

1. Estimated costs include pipes larger than 8-inch diameter. It is assumed that 8-inch pipes will be installed within developments.

W

N

0 1,000 2,000 4,000 Feet

Legend

Tank

W Well

Pipelines

8-inch

12-inch

16-inch

Existing Pipelines

8-inch

10-inch

12-inch

Spring Creek Area

Date: 10/26/2023
Document Path: H:\Projects\412 - Payson City\16.100 - Spring Creek Area Specific Plan\GIS\Working\Figures for Report\Main Report Figures\Figure 5-1 - Drinking Water Infrastructure.mxd

HANSEN ALLEN & LUCE INC ENGINEERS

SPRING CREEK AREA SPECIFIC PLAN

RECOMMENDED DRINKING WATER INFRASTRUCTURE

FIGURE 5-1

PRESSURIZED IRRIGATION

Pressurized irrigation (PI) service will be provided utilizing water from the network of canals and pipelines operated by the Strawberry High Line Canal Company. Payson City owns capacity in Lateral 20, a pressurized pipe running through the east end of the planning area. Several turnouts will be constructed off Lateral 20 to provide source water to the area. A turnout will also be constructed on the west end of the planning area to be supplied from the western lateral. A storage facility will be constructed west of the planning area in the same general area as the drinking water storage tank.

There were several concerns that were brought up during the planning process and public engagement meetings that were addressed in the conceptual design. A summary of these concerns and solutions are provided here:

1. Some residents were interested in the possibility of utilizing ditch water for irrigation as a long-term solution, rather than a city-operated PI system.
    a. The planning team coordinated with the High Line Canal Company to solicit their input for a long-term vision. The Company reported that it generally does not provide service to parcels smaller than 5.25 acres.

Conceptual pressurized irrigation infrastructure is shown in Figure 5-2. A preliminary cost estimate of the main components of the infrastructure is included in Table 5-2.

Table 5-2: Pressure Irrigation Infrastructure Conceptual Cost Estimate

Component	Cost
Turnout	$1,800,000
Pond	$6,660,000
Transmission Lines	$12,840,000
Total	**$21,300,000**

1. Estimated costs include pipes larger than 6-inch diameter. It is assumed that 6-inch pipes will be installed within developments.

SANITARY SEWER

Sanitary sewer service will be provided by a system of gravity-flow sewer pipes ultimately terminating at a lift station on the north end of the planning area. The lift station will pump wastewater to the existing trunkline in 400 N and be conveyed to the existing water reclamation facility from there.

There were several items of concern and discussion raised during the planning process. A summary of these concerns and solutions are summarized below:

1. Some residents were interested in the viability of septic systems as a long-term solution for wastewater treatment.
    a. Septic systems are not viable at the densities proposed in the plan due to their effects on groundwater quality. A sewer collection system will be needed at development densities greater than 1 lot per 5.25 acres.
2. City personnel want a future system designed with minimal operating expenses and maintenance requirements.

T

N

0 1,000 2,000 4,000 Feet

Legend

- Lateral 20 Connection
- T Turnout
- Pond
- Lateral 20 Pipeline

Pipelines

- 6-inch
- 8-inch
- 12-inch
- 16-inch
- 24-inch

Existing Pipelines

- 6-inch
- 8-inch
- 10-inch
- 12-inch
- Spring Creek Area

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SPRING CREEK AREA SPECIFIC PLAN

RECOMMENDED PRESSURIZED IRRIGATION WATER INFRASTRUCTURE

FIGURE 5-2

Date: 10/26/2023
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   a. Sewer pumping is necessary due to the topography of the area relative to the water reclamation facility. To simplify long-term operation and maintenance for the City, the preliminary design includes one regional lift station (as opposed to multiple, smaller lift stations). Design of this lift station will require careful consideration of elevations for future gravity lines, a deep wet well, and a deep line connecting western and eastern areas.
3. City personnel were concerned about compatibility with the master plan and the integration of this area of the system with the existing wastewater collection system.
   a. Analysis was performed using the City's existing and future models. It was determined that master plan projects for the west trunkline contain sufficient capacity for the Spring Creek Area. Timing of these projects may need to be accelerated depending on the areas development ultimately occurs .

Conceptual sanitary sewer infrastructure is shown in Figure 5-3. A preliminary cost estimate of the main components of the infrastructure is included in Table 5-3.

Table 5-3: Sanitary Sewer Infrastructure Conceptual Cost Estimate

Component	Cost
Lift Station	$2,292,000
Force Main	$2,090,000
Gravity Lines	$12,480,000
Total	**$16,862,000**

1. Estimated costs include gravity pipes larger than 8-inch diameter. It is assumed that 8-inch pipes will be installed within developments.

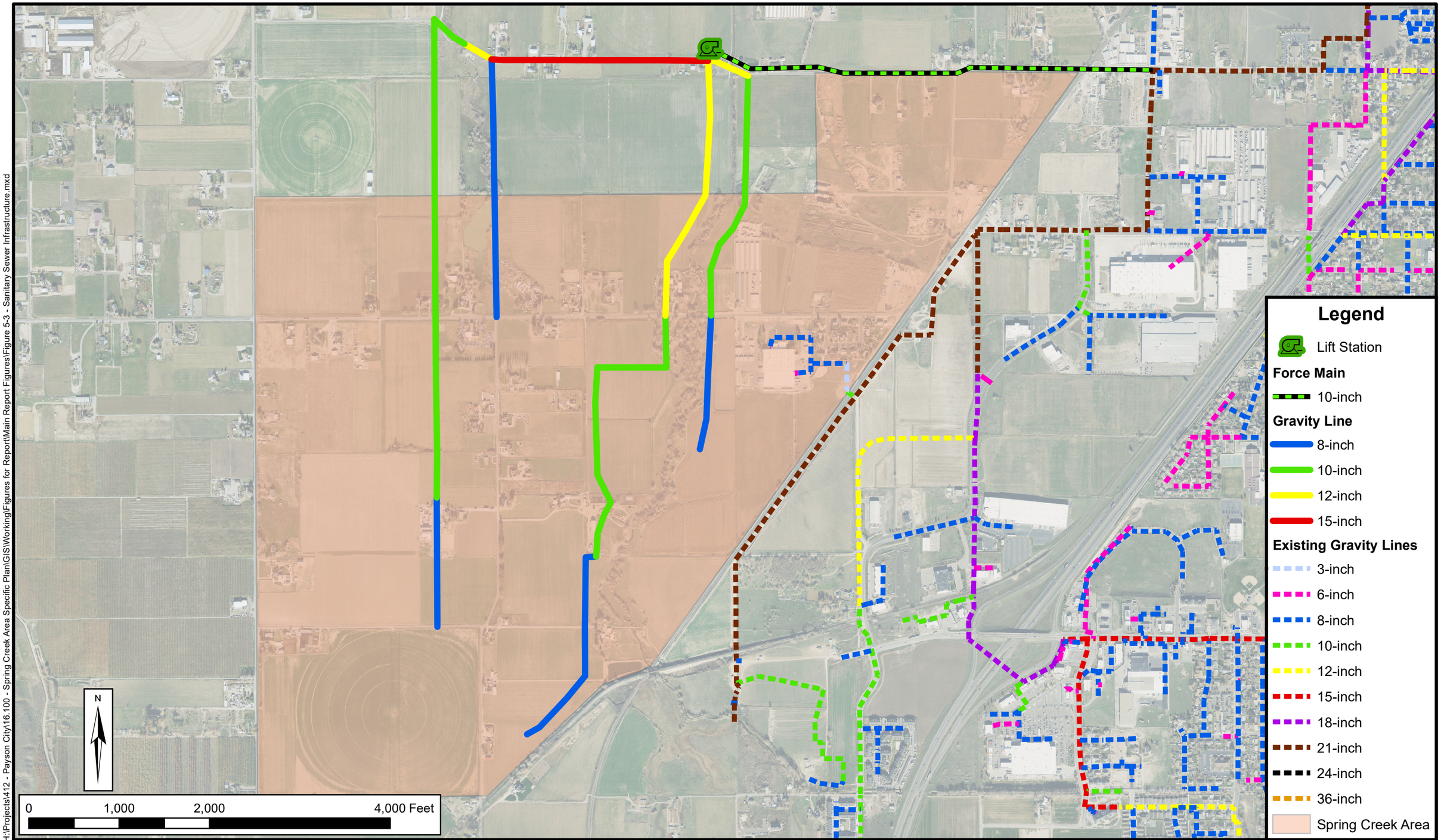
STORM DRAINAGE

Storm drainage will be provided to the area with a system of conveyance pipes and detention facilities that will be constructed near existing waterways. Water will be released from these detention facilities at a rate not exceeding the available capacity of the waterways.

There were several iterations of the design that were explored during the planning process. A summary of these concerns and solutions are summarized below:

1. High ground water and low-infiltration-type soils exist throughout the planning area, limiting the extent to which storm water can be infiltrated.
   a. The design includes regional detention facilities that account for these characteristics
2. Some residents were concerned about the impact that storm water and development would have on Spring Creek.
   a. The plan incorporates a buffer around Spring Creek to allow for it to retain its natural character as development occurs. Detention ponds will be designed to release storm water at controlled rates to eliminate artificial scour from storm events.

Conceptual storm drain infrastructure is shown in Figure 5-4. A preliminary cost estimate of the main components of the infrastructure is included in Table 5-4.



Date: 10/26/2023
Document Path: H:\Projects\412 - Payson City\16.100 - Spring Creek Area Specific Plan\GIS\Working\Figures for Report\Main Report Figures\Figure 5-3 - Sanitary Sewer Infrastructure.mxd

HANSEN ALLEN & LUCE inc
ENGINEERS

SPRING CREEK AREA SPECIFIC PLAN

RECOMMENDED SANITARY SEWER INFRASTRUCTURE

FIGURE 5-3

HANSEN ALLEN & LUCE INC ENGINEERS

PAYSON CITY
SPRING CREEK DRAINAGE AREA PLAN

RECOMMENDED STORM DRAIN INFRASTRUCTURE

FIGURE 5-4

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Table 5-4: Storm Drain Infrastructure Conceptual Cost Estimate

Component	Cost
Pipe Segments	$16,494,638
Detention Basins	$2,269,800
Total	**$18,764,438**

CHAPTER 6 TRANSPORTATION

A transportation analysis was conducted for the Spring Creek Area Specific Plan, with the full report included in Appendix D. The analysis addresses existing conditions, traffic modeling, roadway network development, active transportation, and transit integration.

The main concerns that derived from the community engagement and planning process are summarized below:

1. Residents were concerned about the barrier the train tracks present to transportation.
    a. A capacity analysis of the rail crossing was performed to better understand limitations. An additional planned crossing at 800 S was also integrated into the analysis.
2. Residents and City personnel were concerned about the expense of taking roads across the train tracks.
    a. The plan intends to minimize required future crossings by implementing the use of an arterial and major collector roads instead of more minor collector roads.
3. Residents were concerned about impacts and additional traffic congestion that the addition of the Spring Creek Area would add to the existing road network.
    a. The future road network was designed to maintain a level of service of D or better throughout the area through 2050.
4. Residents were concerned about pedestrian safety.
    a. Design standards in the document address streetscape design, including sidewalks and crosswalks.

CHAPTER 7 MARKET AND FINANCIAL FEASIBILITY

A market and financial feasibility analysis was conducted to support the planning effort. The full study is included as Appendix E of this report. The main concern that this study attempted to address was the proper balance between commercial uses and industrial and office uses for market profitability. The other major concern that was derived during the planning process was housing affordability to new residents.

The study found that the most benefit to the developer is the inclusion of multi-family residential units and light industrial/flex space. This is a favorable location for development given Payson's future population projections and the construction of this development would help provide housing to these future residents.

Key concerns raised during the planning process and addressed by this analysis are summarized below:

1. Many residents expressed a strong sentiment for large-lot housing and types of housing that don't currently exist in Payson.
    a. The study emphasized the very tight housing inventory in Utah. Most types of residential development are marketable.
2. The development community expressed a desire to construct housing types which are most marketable.
    a. The study concluded that multi-family development is in high demand and is most marketable. Incorporating this type of housing in strategic areas will help developers bring infrastructure to the area.
3. Some residents expressed concern about housing affordability in Payson and wanted to see more affordable options incorporated into the plan.
    a. The land use plan includes a variety of housing types, including more affordable options.
4. City personnel were concerned about incorporating a proper amount of industrial/office space into Payson City.
    a. The study concluded that flex office/industrial space is needed in Utah County and would be marketable if included in the Spring Creek Area.
5. City personnel were concerned about incorporating a proper amount of retail space into the planning area.
    a. The plan indicated a declining need for retail space due to changes in customer preferences following the COVID-19 pandemic. However, Payson is projected to see increases due to strong population growth. Demand for retail space is projected and the commercial nodes in the plan will provide space for appropriate neighborhood-scale services to the community.

APPENDIX A

General Design Standards

APPENDIX A:
General Design Standards

Site Design

Sites should be designed in a clear and legible manner that provide a sense of unity and compatibility for all uses and users. New development should provide convenient pedestrian connections, not only to the street frontage and sidewalks, but between buildings, within parking lots, plazas and parks and to pathways and corridors. Recognition of and response to fronting streets should be a primary consideration.

Corridors/Street Networks

As the area develops, efforts should be focused on the establishment of a "Complete Streets" system to ensure streets and roadways meet the needs of all users and transportation modes, including pedestrians, cyclists and vehicular users. The needs of pedestrians and bicycle riders should be robust and well-accommodated throughout the community – on par with the design and effort applied to roads for vehicles.

Maintaining Views and Viewsheds

First impressions often establish one's perception of a place. Special efforts should be made to maintain the extraordinary views that surround the area, particularly from roads, open spaces, trail corridors and neighborhood centers. Carefully controlled building heights, massing, form and setbacks should be coordinated in a manner that acknowledge and preserve key views and viewsheds

Under most circumstances the use of trees and vegetation should soften and buffer undesirable views and can also be used to strengthen long-distance views along continuous roadways and corridors. Since the Spring Creek setting is open and flat, the careful placement of regularly-spaced street trees can help define key view corridors.

Buffers and Transitions

In addition to the use of transitional land uses to mitigate the negative impact of abrupt land use changes, a range of physical mitigations can also be applied to help delineate different uses. Typical examples include landscaped buffers, tree rows, hedges, fences, walls and berms. Specific treatments

should be carefully designed and selected depending on the local context and the space available.

Street and Streetscape Design Principles

The manner in which streets are designed and installed should have significant impact on the establishment of a consistent and unified community function and appearance. The edges of the streets should include a unified system of street lights, furnishings, and hardscape treatments, and be carefully landscaped with appropriate trees and vegetation. In recognition of the differences that exist along the length of most roadways, minor variations in the design, materials, colors and plant species are encouraged to emphasize those distinctions.

Street trees and landscape materials should be selected that are well-suited to the hot summers, cold winters and arid climate. They should be unified with the landscape treatments of surrounding private properties and incorporate water- conserving design principles required in Payson City.

Additional design detailing is necessary to determine the final configuration of specific street edge treatments. Streets design should enhance the specific character of each neighborhood and district. The sidewalk and walkway system should be constructed of concrete or similar durable materials in accordance to specific design needs and functional requirements.

Trees and Vegetation

A variety of shade trees should be used to transform area into a shaded and inviting place aligned with the realities of the local climate. In general, shade and street trees that are large at maturity should be used to create a streetscape that is shady, pleasant, and unified in character. Trees and other vegetation should be selected to meet the specific design and environmental needs of the area, reflecting regionally-appropriate water-conservation and implementation concepts. The mature size of trees should vary depending on the space required for the canopy to reach mature dimensions. Selecting the correct tree is particularly important to ensure the size of the root zone matches the soil available for the tree to survive. The minimum caliper size at planting for all species should be no less than 2 inches for single stem deciduous trees, and 8-feet tall for multi-stem and evergreen trees.

Street Lighting

Street lights should complement the look and feel of the Spring Creek Area, with a distinct focus on the needs of pedestrians and cyclists. Specific light fixtures should be selected from a single model-line or style, utilizing poles, bollards and fixtures that complement the feel of each specific district and the community as a whole. All lighting and furnishing elements should be high quality, "Dark Sky" compliant and meet the requirements of Payson City codes and ordinances. Light poles and lighting housings should be constructed of powder-coated steel, aluminum and similar durable materials. The color of lighting should be 3,000 Kelvin or less in order to establish a warm and inviting night-time hue.

Street Furniture

In general, street furnishings be simple, reflecting the rural traditions and history of the area, and limited to a coordinated system of basic features such as lighting and signage. In the more highly-developed areas associated with the two neighborhood-scaled commercial a broader palette of furnishings should be used, including a range of benches and seating areas, bollards, bike racks, trash receptacles and similar elements that are appropriate for a more active rural setting.

Street Signage

Street signage is critical for orienting drivers, cyclists and pedestrians, particularly in the vicinity of the two centers. Businesses need visibility and ease of customer access, and the locations and design of signage should help establish a sense of place and reflect the unique character and visual characteristics of the surrounding setting.

Street level signage plays a critical role for pedestrians, helping to establish the personality of a particular area and encouraging people to linger and hopefully return another time. Pedestrian-focused signage should be scaled to reflect pedestrian travel speeds of approximately three miles per hour. The lighting of street signage should be "Dark Sky" compliant as regulated in applicable Payson City Zoning Ordinances.

Wayfinding

Wayfinding refers to the process of navigating one's way through a place. It begins with the establishment of a clear and logical layout of site elements and the creation of hierarchical messaging, which helps visitors form a mental image of a site or area.

Circulation paths are an important component of a clear signage and wayfinding system. They should be understandable, with key nodes or landmarks provided to assist navigation through an area. The establishment of landmarks and other vertical features that can be seen from afar can also assist with wayfinding.

The use of specific wayfinding signage is a more direct form of guiding people to and through Spring Creek. Signage may be project specific or associated with the community wayfinding system. Project signage should be developed as part of the overall theme for the specific

district or neighborhood where it is located. Specific types of wayfinding signage may include the following:

- Neighborhood Center Identification Signs
- Sub-District/Neighborhood Signs
- District/Neighborhood Directional Signs
- District/Neighborhood Parking Identification Signs
- Information Kiosks
- Interpretive Destination/District Information Signs
- Special Area Entry Signs

Wayfinding signs along state roadways should be designed and located according to UDOT/FHWA standards. In general, wayfinding signs should be located far enough apart from other vertical elements such as trees, light poles and other signage to be legible from the adjacent road. The signs should be located at a sufficient distance from the intersection so that drivers and bicyclists have adequate time to read the sign and make decisions.

Parking, Loading and Service Areas

Parking lots and service areas are essential features of a well-designed community, particularly at the two centers, the industrial and business park areas, and along major streets where development is concentrated. The design of these places should be treated with the same care as the adjacent streets, encompassing a well-conceived loading and unloading strategy that helps transform the streets, parking areas and service zones into clearly articulated, safe, comfortable and visually interesting spaces.

Wherever possible, parking lots and service areas should include rain gardens and be landscaped with a mix of shade trees with heavy canopies to help provide shade and filter dust and pollutants. The trees and vegetation used in parking areas should be water conserving and adaptive to the harsh desert environment. Species with root systems that are likely to heave paving or are otherwise difficult to maintain should be avoided. Parking lot vegetation should typically be planted in rows within barrier islands, although clustered groupings of trees may be preferable under certain conditions.

Lighting should be provided in all parking lots, utilizing poles and fixtures that complement the surroundings while being “Dark Sky” compliant. In areas where parking is visible from the street and adjacent pedestrian areas, barrier walls and fences should be provided that are aligned with the architecture of the associated buildings they serve. Trees and shrubs can also be used to help buffer the visual impact of the parking lots.

Trail Design Principles

The Spring Creek Area trail system has been designed to provide a robust and connected system of local and regional trails that facilitate pedestrian and bicycle travel and movements throughout the community and beyond. As described and illustrated below, the Spring Creek trail system is highlighted by a range of fully-separated multi-purpose paved trails that provide

easy connections between neighborhoods and destinations. The specific design requirements of these facilities should be aligned with local trail standards, but should in general meet the following minimum.

FULLY-SEPARATED, PAVED MULTI-USE TRAIL

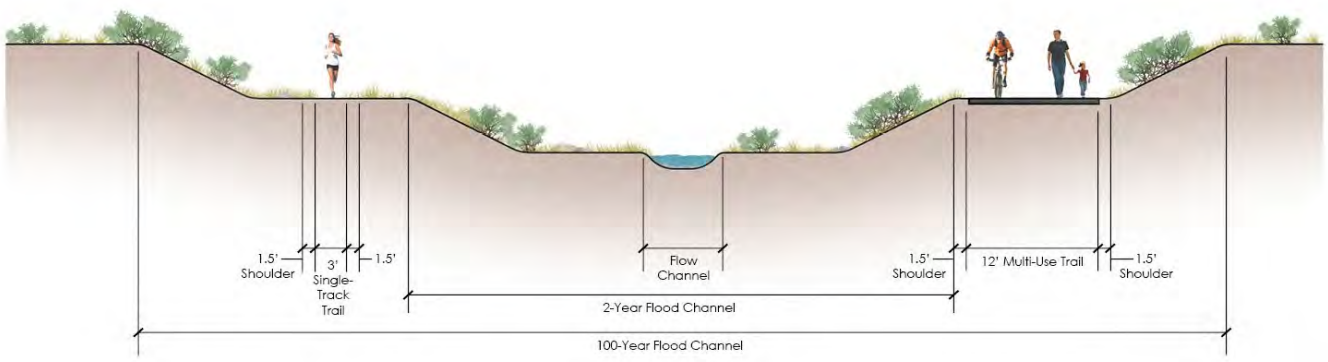
Minimum Trail Width: 12 feet. Minimum Right-of-Way Width: 15 feet. Cross-Slope: 0-20%. Preferred Materials: asphalt, concrete, natural, crushed stone.

FULLY-SEPARATED, UNPAVED SINGLE TRACK TRAIL

Minimum Trail Width: 3 feet. Minimum Right-of-Way Width: 6 feet. Cross-Slope: 0-20%. Preferred Materials: natural, crushed stone.

If included, equestrian trails should be designed as separate facilities that meet the specific needs and expectations of riders and ensure a safe and integrated trail experience by all users.

Figure 5: Typical Trail Layout Along Spring Creek Corridor



Architectural Design Principles

New development should address site layout form of the buildings, helping to establish a unified community structure. Successful architectural projects should be gauged by how they fit with the landscape, setting and adjacent buildings and sites.

Creative and high-quality architecture is expected, with the individual needs and desires of projects second to the needs of the Spring Creek Area. For example, buildings and walls that are visible from the street should be well-articulated through the use of offsets, recesses, changes in height, changes in vertical and horizontal planes and the use of window layouts and roof lines. Building elements such as windows, doors and soffits should be properly proportioned to the overall building facades, utilizing configurations that allow ample natural light to spill into interior building spaces while minimizing glare and heat gain.

Mixing of architectural styles should be avoided within a single project, although there should be a range of styles throughout the Spring Creek Area – all with a Modern Farm and Agriculture look and appearance. The massing and form of buildings should be appropriate to both pedestrian and vehicular scales, with public entrances well-defined through architectural forms and materials. Areas for walking and cycling should be specifically designed to accommodate such movement, incorporating pleasant scales and using high-quality materials and attractive site details.

Plumbing, maintenance and mechanical equipment should be located on the interior of buildings whenever possible. If it is necessary to locate such features outside of buildings or on roofs, they should be screened through the use of parapet walls, high-quality site walls, and other screening methods that match the quality and look of the building (see Appendix A for specific architectural Design Standards).

Architectural Materials/Colors

The use of appropriate materials should create a sense of permanence, with no more than four types of building materials utilized on a building exterior, excluding glass for windows and doors. The use of composites, stucco (EIFS), and concrete masonry unit (CMU) blocks should be avoided or used sparingly as accent details on the primary facades. The use of such materials for additions and on secondary facades and frontages may be appropriate, depending on the specific context and setting. The use of metal should be applied in a manner that avoids the appearance of monotonous facades and industrial appearances.

Ground-level architecture should utilize a strong base material that is durable and substantial, including but not limited to quarried stone, brick, natural and cultured stone and cement fiber siding (hardie board), with alternative materials considered on a case-by-case basis. Large expanses of a single material should be avoided. Window reflectivity should minimize the amount of glare reflected into surrounding buildings and vehicular corridors. Energy efficient glass that allows natural light into buildings is encouraged for windows and doors.

Building Orientation

Building siting should be aligned to the frontage street, with adjustments considered in deference to solar orientation, climatic conditions, wind patterns, shade and other environmental conditions. The exterior of buildings should include windows, openings and architectural features that are coordinated on all sides of the building in order to achieve harmony and continuity and to achieve high-level sustainability and resiliency targets.

Building Setbacks

Specific setbacks and build-to lines should be established for the various uses and sub-districts of the community. Front setbacks along public right-of-ways are particularly important, helping to establish a consistent and unified front yard appearance.

Creating a Sustainable and Resilient Spring Creek Area

With growing populations and increasing pressure on limited resources, sustainable and resilient development has become a critical function of new development. For the Spring Creek Area, sustainable development should be a central tenet. Implementing a sustainable and resilient development approach as part of new development is not only achievable, it is essential to ensure the community is positioned to meet future needs and changes in a responsive manner.

APPENDIX B

Spring Creek Area Light Industrial
and Business Park Design

APPENDIX B:
Spring Creek Light Industrial and Business Park Design Standards

Purpose and Intent

The Spring Creek Light Industrial and Business Park Design Standards have been created to provide consistent design principles to ensure the uses, operation and character of the Spring Creek light industrial and business park areas match the vision contained in the *Spring Creek Area Specific Plan.* Specifically, the design standards are intended to:

- Encourage high-quality development and creative design options;
- Provide clear and usable design direction to project applicants, developers, designers, and City planning staff;
- Protect and enhance property values and community economic viability;
- Ensure adequate land use transitions and buffers are provided between light industrial, industrial and adjacent uses in the area; and
- Align industrial and business park design with the overall vision and design qualities anticipated in the *Spring Creek Area Specific Plan.*

The standards are intended to be a supplement to established *Title 13.18 Commercial And Industrial Development* of the Payson Municipal Code. This document is organized into two parts – **Site Design Guidelines** and **Architectural Guidelines.**

Site Design Guidelines

This section focuses on site design elements such as building orientation, circulation, parking, and landscaping. This section provides direction for the site design of new industrial and business park development, and the renovation of existing structures. Site planning considers how the various components of a development (e.g., buildings, circulation, parking, open space, etc.) relate to adjacent streets and existing development, and how the various components relate to each other within the development site. Effective site planning techniques should result in unified industrial and business park environments that enhance the overall character of the area.

The major principles of industrial and business park site design are intended to:

- Create a distinctive character and sense of place;
- Enhance the vitality of the district;
- Create a comfortable and welcoming environment for customers and employees; and
- Provide good transitions and buffers with adjacent land uses in the Spring Creek Area.

1. Building Orientation

Building orientation and the positioning of other elements on a site (entrances, parking lots, and driveways, for example) should be designed to assure a viable, safe, and attractive project. Appropriate building location and site organization helps create a safe and interesting relationship between individual uses and a strong street relationship. Building orientation is also important for minimizing unintended impacts to residential and similar adjacent uses.

Building Orientation Design Guidelines

- Additional building setbacks should be provided adjacent to residential neighborhoods or use, to reduce the visual impact of large-scale buildings.
- Site features including buildings, parking areas, driveways and service yards should be designed to minimize the visual impacts. This can be achieved through the placement and design of buildings, screen walls and landscaping, for example.
- The orientation of multiple buildings and service/loading facilities as part of a single project should be located in close proximity to each other to reduce visual, noise and environmental impacts.
- Loading areas should be located and designed to minimize visual impact from adjacent uses and public roads and open spaces. They should be buffered with landscaping and utilize screening methods (solid fences and walls, for example) to reduce visual impacts.
- When adjacent to residential uses, uses or activities above the first floor should consider the privacy of residents when placing windows, balconies or other accessible spaces.

2. Site Circulation and Parking

Access roadways and parking areas should be designed to provide safe and effective vehicular movement and high-level pedestrian circulation, and enhance the character of the surrounding district and residential uses in particular. Planning for safe and efficient movement of vehicles and pedestrians should result in an aesthetically appealing site design.

Site Circulation and Parking Design Guidelines

- Primary access points for automobiles, especially visitors, should be enhanced through professional landscape design, including properly-scaled sand decorative screen walls and fences, monument signage, and special paving to emphasize site access and pedestrian circulation routes.

- Site access and internal circulation should promote safety, efficiency, convenience, and minimize conflict between vehicles and large trucks. Appropriate maneuvering and stacking areas for trucks should be a primary consideration in the overall design of the circulation system.

- Unobstructed sight lines at corners and mid-block are important to improve visibility for Public access and short-term visitor parking should be at the front of the building and visible from the adjacent access street.

- Parking areas should not be the dominant visual element at the front of the site. Large expansive paved areas located between the street and the building are prohibited.

- Parking and service areas should be located to the sides and/or rear of buildings, and set behind the front facade of the primary building or buildings

- Unobstructed sight lines at corners and mid-block are important to improve visibility for vehicles exiting and entering each site, reducing potential conflicts with other vehicles, bicycles, and pedestrians.

- Dead-end aisles are not acceptable and should be avoided because they restrict the flow of on-site traffic and may cause traffic congestion on the street.

3 Landscape Design

There is no one other single element that makes a greater contribution to the visual appeal of a site than landscaping. An attractive landscape can contribute to the pride, maintenance, and care of adjacent or nearby properties, while helping to ensure the use of water in the landscape meets local and state water conservation targets. Well-designed landscapes also hels reduce heat gain during the summer, provide cleaner air, and can help mitigate site-generate environmental impacts.

Landscaping shall be used in a variety of functions, including softening the edges of development, screening unattractive views, buffering incompatible uses, providing shade, and increasing the overall. Industrial and business park buildings should provide a high level of landscaping at the street frontage. When designing landscaping, consideration should be given to the compatibility with the adjacent street frontage and adjacent

All new and renovated light industrial and business park landscape shall be designed by professionally licensed landscape architects (PLA) to ensure the landscape design achieves the various needs and functions anticipated for each site. The resulting landscape design should provide transitions with adjacent uses, public roads and open spaces; screen visually unattractive portions of the site; provide buffers with residential uses and other incompatible uses; provide shade and buffer impacts of large parking and service areas; and increase the overall aesthetic appeal of a project.

Landscape Design Guidelines

- When light industrial and business park uses are located adjacent to residential and other less intense uses, higher-level landscape treatments should be required, including larger landscaped setbacks, and higher-level landscape buffers and screening, and appropriate decorative to mitigate potential adverse impacts.

- Front entrances and the publicly-accessible portions of buildings should be separated from parking areas by landscaping and pedestrian walkways.

- Landscaped areas should be planned and designed as an integral part of the project. The type, quantity and placement of plant material should be selected by professional landscape architects to ensure the structure, texture, color and compatibility with the building design and materials.

- Industrial and business park buildings should provide a high level of landscaping at the street frontage. When designing landscaping, consideration should be given to the compatibility with the adjacent street frontage and adjacent properties.

- Landscapes and should be designed to meet local and State of Utah water-conserving goals and targets.

4 Service Areas and Utilities

Service and utility areas, including loading docks, storage areas, mechanical systems, and trash bins, shall be screened from view and integrated into the design of a project. Unappealing views of service areas can mar an otherwise successful site plan and building design. Carefully sited and screened services and utilities can be both functional and unobtrusive.

Service Areas and Utility Design Guidelines

- Refuse, storage, and equipment areas should be screened from view from adjacent uses.

- All installed equipment, electrical rooms, and service rooms should be placed within the footprint of the structure. No equipment of any kind should be visible on the outside of the structure.

- All screening devices should be compatible with the architecture, materials and colors of the building.

- Trash enclosures that are visible from upper stories of adjacent structures should have an opaque or semi-opaque horizontal cover/screen to mitigate unsightly views. The covering structure should be compatible with the architectural theme of the site's buildings.

- Roof ladders should be located inside the building or be designed to be compatible with the architectural design of the building. Equipment used to retract and store roof ladders should not be mounted to the exterior of the structure.

- Refuse storage and loading areas should be located at the rear of the development and screened from public view.

5 Screening and Fencing

Screening and fencing are critical for ensuring light industrial and business park sites are safe and secure. Good screening and fencing also help define property boundaries, and help ensure large-scale industrial and business park uses match the overall design image for the Spring Creek Area.

Screening and Fencing Design Guidelines

- The design, colors, materials, installation and appearance of walls and fences should be compatible with the overall design, character, and style of the development. They should also be compatible with screening and fencing on adjacent sites and the Spring Creek Area in general.

- When security fencing is required adjacent to streets, it should consist of high-quality black-colored metal, vinyl coated chain-link, or similar material. The use of galvanized chain-link is strongly discouraged, and the use of wooden fencing should be considered if it contributes to the overall look and feel of the Spring Creek Area.

- Where fences or walls are visible from public streets and public open spaces, high-quality and professionally-designed landscapes should be established along the street-facing side to visually soften blank surfaces and deter graffiti and tagging.

6 Lighting

Every site must have provisions for lighting that is functional while also respecting the scale and character of adjacent development. Lighting must not intrude upon or create a nuisance for nearby occupants, especially abutting residential areas, yet should provide for adequate visibility and security for customers, and those passing by. Lighting fixtures shall be designed to complement and enhance the architectural style of the building and should be compatible with the character of the area.

Lighting Guidelines

- The design of the light fixtures and their structural support should be architecturally compatible with the theme of the development.

- All lighting visible from the site should be “dark sky” compliant and a color-range 3,000 Kelvin or less.

- A photometric lighting plan must be provided and approved, demonstrating site lighting meets health and safety standards, and that lighting is not allowed to extend beyond the boundaries of each project site.

- Exterior doorways and entries should be fully illuminated to a minimum of one foot-candle over the entire face and frame of the opening.

- Wall mounted lights should not extend above the height of the wall or parapet to which they are mounted.

- Parking lot lighting standards should be placed so that the illumination spread will not conflict with the growth of trees in required parking lot planters.

Architectural Design Guidelines

Architectural design guidelines address the appearance, form, height and other aspects of buildings as viewed and experienced from the exterior of the site and surroundings, and how they relate to the surrounding site and context. It is paramount that light industrial and business park architecture positively contributes to the establishment of the Spring Creek vision, community setting and character.

Architectural design in the Spring Creek Area should promote buildings that:

- Provide a positive and welcoming first impression from the street;
- Are constructed of high-quality materials that will contribute to the longevity of the building, and:
- Reinforce the Spring Creek Area vision and “sense of place”.

1 Building Height, Massing, and Scale

Architectural design should consider the range of variables necessary to establish a positive look and impression that is aligned with the overall vison of the Spring Creek Area. Variations in the form of a building can add visual interest and break up what would otherwise be a large box-like form, into more pleasing and visually harmonious elements. A variety of techniques can be used to ‘break up’ the mass of a building.

When designing buildings and structures that match the Spring Creek Area vision, it is essential that the full range of design aspects and impacts are conserved. This is particularly critical for light industrial and business park uses, most are assumed to be large-scale and large-format structures. It is therefore essential that all light industrial and business park buildings and structures are designed by architects licensed in the State of Utah, who shall ensure the

appropriate level of design quality and detail matches the vision for the area and minimizes the dominance of blank or unarticulated facades.

Building Height, Massing, and Scale Guidelines

- The mass and scale of large-scale and large-format buildings should be reduced by varying building heights and/or setbacks along the front and street side building façades in particular.

- Building heights, massing and setbacks should be varied to clarify and define the different functions such as offices and warehousing.

- Light industrial and business park developments should be similar in scale and massing to adjacent development, and establish a smooth transition between adjacent uses. If a different scale is required, larger setbacks, reduced heights and higher-level landscaping, buffering and screening should be provided between the affected adjacent uses.

- Vertical and horizontal offsets should be required for building facades to minimize building bulk.

- Design techniques that 'break up' the massing of a building should be applied. Examples include stepping down building height from the core to edges of a structure, furring out walls to create planar offsets, and adding battens and reveals to walls surfaces and insets or other variations in plan layouts.

2 Building Facades

Varied facades enhance the aesthetic appeal of the district, and help to retain the overall quality and value of new development. Building facades should be designed to create visually interesting buildings that offer variety in industrial and business park areas.

Building Facades Design Guidelines

- Long, blank facades should be avoided. Additional articulation, detailing, and fenestration should be provided on facades visible from major roadways and access routes.

- Facades of large buildings visible from a public street should include architectural features such as reveals, windows and openings, changes in parapet heights, color, texture, and material to add interest to the building elevation and reduce visual mass.

3 Building Entries

Highly visible building entries provide a visual cue for pedestrians seeking to access a building, and help ensure safety and security of employees and visitors. Entry features for light industrial and business park buildings should be clearly visible, accessible, and designed as a significant aspect of the building's overall composition.

Building Entry Design Guidelines

- Building entries should be clearly identifiable, and integrated within the overall building design. Projections, columns, overhangs, enhanced landscaping, vertical architectural features, distinctive materials, and colors should be used to articulate entrances.

- Primary building entries should be readily identifiable and well defined through the use of projections, recesses, columns, roof structures, or other design elements.

4 Windows and Doors

Windows and doors, when properly designed and located, can help to enhance publicly-visible facades, and encourage "eyes on the street" for safety and security. They also minimize views of unsightly loading, storage and service areas. The proper placement and design of windows and doors shall be used to create visual interest in buildings, and contribute to the stylistic coherence of development along the street.

Window and Door Design Guidelines

- Recessed windows, awnings, landscaping, and shading devices to reduce solar heat gain should be used where appropriate.

- Window type, material, shape, and proportion should complement the architectural style of the building entry.

- Glare-producing reflective glass is discouraged, but tinted glass may be used. The tinted glass should be as clear as possible while still being energy efficient.

- Building openings, such as windows and doors, should maintain the proportions and spacing of other openings on the block

- Roll-up doors should be oriented away from public street views and adjacent residential areas to avoid unsightly views and noise emissions beyond the property line.

5 Architectural Colors and Materials

Building color should compatible with the surrounding setting and overall vision of the Spring Creek Area. High-quality finish materials promote the longevity of a building and add to its character, particularly on the ground floor, where people are most likely to come in contact with the building and can easily see and touch the materials.

Color shall be used in a way that complements the surrounding structures and adds to the liveliness and character of industrial and business park areas. Buildings shall be constructed of high-quality materials that will promote the longevity of the structure, and provide a pleasing appearance as the materials age.

Color and Material Design Guidelines

- A comprehensive material and color scheme should be developed for each site. Material and color variations in multi-building complexes should be complementary and compatible among buildings**.**

- Large expanses of smooth material (e.g., concrete) should be broken up with expansion joints, reveals, or changes in texture, color, and material.

- Large expanses of highly reflective surface and mirror glass exterior walls should be avoided to reduce heat, and prevent glare impacts on adjacent public streets and properties.

- Materials and colors of wall and monument signs should be compatible with the main buildings on the site.

- Building walls that may be prone to graffiti should be treated with a graffiti resistant coating, materials that are not conducive to graffiti such as split face block, or extensive landscaping to cover blank walls.

- All exterior materials, textures and colors should be appropriate for the architectural style or theme of the building, and should contribute towards the quality of the streetscape.

- Compatible colors on a single façade, or composition, should add interest and variety while reducing building scale and breaking up plain walls. Light, neutral colors should be used on industrial buildings to help reduce their perceived size. Contrasting trim and color bands can help break up blank surfaces.

6 Roofs

Light industrial and business park buildings can often have very large roof expanses, which coupled with long wall elevations can result in a monotonous appearance and effect. The application of varied roof forms, the inclusion of parapet walls and similar treatments can enhance the overall appearance and scale of large buildings, while also helping to screen necessary mechanical equipment.

Roofs shall receive design consideration and treatment equal to that of the rest of the building. Roof treatments should be integrated within the architectural theme of industrial and business park buildings, and include variations to avoid long, continuous planes, while also demonstrating major function differences in the building facade.

Roof Design Guidelines

- Rooflines should include variations to avoid long, horizontal rooflines. Long, horizontal rooflines should be minimized through articulating a building's facade, alternating roof or parapet heights, providing variations in materials and colors, or other appropriate methods.

- Depending upon the architectural style of a structure, light industrial and business park buildings are encouraged to use decorative roof elements, such as cornices to enhance a building's roof edge.

- When sloped roofs are incorporated into a design, equipment wells should be used to continue the existing pitch and roofline.

7 Canopies and Awnings

Canopies and awnings can help shield building occupants from excessive heat gain and glare, add visual interest to building facades, and provide shelter for employees and visitors who are entering or exiting the building during inclement weather. When incorporated into a building, canopies and awnings shall be made of high-quality components that complement the overall design, colors, and materials of the building.

Canopy and Awning Design Guidelines

- Canopies, awnings, arcades, and overhangs are encouraged over windows and entries along public sidewalks on the ground floor.

- Canopies, awnings, and arcades should be designed with respect for the proportions of the building in terms of size, shape, and placement, unless a unique architectural style encourages something different.

- Canopies and awnings should fit within individual bays or structural divisions of the building facade rather than extending beyond a single bay, unless the building structure dictates an alternative placement.

- Use of a continuous awning for the windows on the upper floors is discouraged. Each window, or small grouping of windows, should be articulated with an individual canopy or awning, with awnings extending no more than halfway down the window. The color and style should complement ground-level awnings and canopies on the same building.

- Brightly colored awnings should be compatible with the colors used on the main building. Uncolored or light-colored canvas awnings may be appropriate for dark and north-facing facades.

- Canopies and awnings should only be internally illuminated where appropriate to the architectural style of the building.

- Materials should be of the highest, commercial-grade quality. If canvas material is used for awnings, it should be heavy duty and non-reflective matte finish. Plastic or vinyl canopies should not be used.

APPENDIX C

Spring Creek Area Infrastructure Plans

MEMORANDUM

DATE: November 2, 2023

TO: Travis Jockumsen
Payson City
439 W. Utah Ave
Payson, UT 84651

FROM: Ridley Griggs, M.Eng., P.E.
Hansen, Allen & Luce, Inc. (HAL)
859 West So. Jordan Pkwy – Suite 200
South Jordan, Utah 84095

SUBJECT: Payson Spring Creek Infrastructure Plan

PROJECT NO.: 412.16.100

BACKGROUND

The City of Payson (City) requested assistance from Hansen, Allen, & Luce, Inc. (HAL) related to the Spring Creek Area (the planning area). Previous master plans had assumed this area would remain agricultural; however, the area has seen significant development interest in recent years. Updated master planning solutions are needed in this area. This project's scope of work includes development of hydraulic models, evaluation of design flows and project alternatives to handle them, and coordination with the City to review the findings and solutions and select the preferred solution.

The study area is generally bounded on the north by 10000 South (County coordinates), on the east by the Union Pacific Railroads (west of American Way), on the West by 2900 West (Payson), and on the south by 11200 South (County coordinates). It is expected that this area will eventually develop from an agricultural region into a community including commercial, industrial, residential, and open space regions. The City has asked that HAL provide them with the master plan sizing recommendations for drinking water and pressurized irrigation (PI) water distribution and wastewater collection.

EQUIVALENT RESIDENTIAL CONNECTIONS

For purposes of infrastructure planning, unit water demands and wastewater flow rates are expressed in this report in terms of equivalent residential connections (ERCs). An ERC is defined as the design flow rate and/or volume of an average single-family residence in Payson City. ERCs are a way to characterize both residential and nonresidential flow rates with a standard unit of measurement.

ERCs were projected using a land-use approach consistent with the planned land uses for the planning area. Projected residential ERCs were determined as shown in Table 1.

TABLE 1. PROJECTED RESIDENTIAL ERCS

Planned Land Use	Planned Density	Developable Acreage	Planned Units (ERCs)
Existing Single Family	2.2	8	18
Rural Residential	1	196	196
Large lot residential	2	83	166
Low density	4	257	1,028
Mixed density	8	70	560
Totals	**-**	**614**	**1,968**

Nonresidential ERCs were projected using standard densities consistent with the City's utility master plans. These densities were determined during the master planning process based on analysis of existing nonresidential users, and include appropriate safety factors. Projected nonresidential ERCs were determined as shown in Table 2.

TABLE 2. PROJECTED NONRESIDENTIAL ERCS

Planned Land Use	Developable Acreage	ERCs/ac	ERCs
Neighborhood Commercial	21	5	105
Existing Church	8	1	8
Light Industrial	131	3	393
Expanded Business Park	70	3	210
Parks and Open Space	78	1	78
Totals	**308**	**-**	**794**

A summary of total ERCs to be used for infrastructure planning is shown in Table 3.

TABLE 3. SUMMARY OF PROJECTED ERCS

Land Use	ERCs
Residential	1,968
Nonresidential	794
Totals	**2,762**

These same ERC values were used for both the drinking water and sanitary sewer calculations. Sanitary sewer uses ERU (equivalent residential unit) which is equivalent to an ERC.

IRRIGATED ACREAGE

Future acreage to be irrigated from the PI system was projected based on planned land uses and a projected proportion of the land to be irrigated. See Table 4. Most values are consistent with those in the Payson City Pressurized Irrigation Master Plan. Several have

been modified or added to account for emerging trends in landscaping or to characterize planned land uses that weren't included in the master plan.

TABLE 4. PROJECTED IRRIGATED ACREAGE

Planned Land Use	Developable Acreage	Percent Irrigated	Irrigated Acreage
Existing Single Family	8	50%	4.0
Rural Residential	196	65%	127.4
Large lot residential	83	55%	45.7
Low density	257	35%	90.0
Mixed density	70	28%	19.6
Neighborhood Commercial	21	11%	2.3
Existing Church	8	65%	5.2
Light Industrial	131	11%	14.4
Expanded Business Park	70	17%	11.9
Parks and Open Space	78	85%	66.3
Totals	**922**	**-**	**387**

LEVEL OF SERVICE

The level of service parameters for the water, PI, and wastewater collection systems were defined in Payson City's prior master plans. Key level of service parameters are listed here for reference, in terms of equivalent residential connections (ERCs), equivalent residential units (ERUs), or irrigated acres (irr-ac). See Appendix A for more information on the master plans.

Drinking Water

- Peak day demand: 500 gpd/ERC
- Equalization storage: 250 gal/ERC
- Average yearly demand: 0.30 ac-ft/ERC

PI Water

- Peak day demand: 6.0 gpm/irr-ac
- Equalization storage: 6,480 gal/irr-ac
- Average yearly demand: 3.2 ac-ft/irr-ac

Wastewater Collection

- Collection and treatment (including infiltration and inflow): 220 gpd/ERU

PROJECTED DEMANDS AND FLOW RATES

Projected water demands and wastewater flow rates were developed based on the level of service parameters and ERC projections as defined previously. Key design flow rates are summarized in Table 5.

TABLE 5. DESIGN FLOW RATES

	Drinking Water	PI Water	Wastewater Collection
Level of Service	500 gpd/ERC	6.0 gpm/irr-ac	220 gpd/ERU
Units	2,762 ERCs	387 irr-ac	2,762 ERUs
Design Flow	**959 gpm**	**2,322 gpm**	**422 gpm**

HYDRAULIC MODELING

Hydraulic models were used to develop recommendations for the size and location of future infrastructure. Detailed discussion regarding the use and function of the hydraulic models is included in the City's master plans.

DRINKING WATER RECOMMENDATIONS

Recommended drinking water infrastructure for the planning area is summarized in this section.

Source

Groundwater is the recommended future source for the planning area. As shown in Table 5, a future well or wells to serve the area should have a peak day capacity of at least 959 gpm. Groundwater conditions in the area are generally good, and it is expected that the City would be able to drill a successful well at most locations throughout the area. In this plan, a representative conceptual well location has been shown; however, other areas are likely suitable.

Storage

A storage tank for the planning area must be able to provide both equalization and fire storage capacity. It is recommended that fire storage sufficient to supply a 1,500-gpm fire flow for 2 hours be incorporated into the tank. Required equalization volume is computed as per the level of service. Table 6 includes a summary of the required minimum size of the tank.

TABLE 6. REQUIRED MINIMUM DRINKING WATER STORAGE VOLUME

Storage Component	Level of Service	Service	Required Volume (gal)
Equalization	250 gal/ERC	2,762 ERCs	690,500
Fire	Provide fire protection as specified in previous Master Plan	180,000 gal	180,000
		Required Minimum Volume	**870,500**

To provide the minimum required volume and an additional buffer for system operation and service outside the plan study area, a tank with a volume of 1.25 million gallons (MG) is recommended.

The tank must be located at an elevation that matches the hydraulic grade of the existing Lower Zone, which is approximately 4,850 to 4,860 feet. The tank should have a floor elevation of approximately 4,840 feet, assuming a depth of 20 to 25 feet. A detailed hydraulic analysis should be conducted to determine an exact floor elevation during the tank design process. Compatibility with other planned tank sites should be considered.

A suitable site exists on land owned by Payson City corporation south of 10400 S, in the vicinity of the City's landfill. This is the recommended location for the tank due to its proximity to the plan area and the City's ownership of the land.

Distribution

The hydraulic model was used to develop a recommended water distribution network that satisfies all level of service constraints. The recommended drinking water network for the Spring Creek area is shown in Figure 1.

Estimated Costs

A summary of the estimated cost of the drinking water infrastructure shown on Figure 1 is included in Table 7. Detailed cost estimates are included in Appendix B.

TABLE 7. DRINKING WATER INFRASTRUCTURE CONCEPTUAL COST ESTIMATE

Component	Cost
Well	$2,700,000
Tank	$4,860,000
Major Transmission Lines[1]	$4,720,000
Total	**$12,560,000**

1. Estimated costs include pipes larger than 8-inch diameter. It is assumed that 8-inch pipes will be installed within developments.

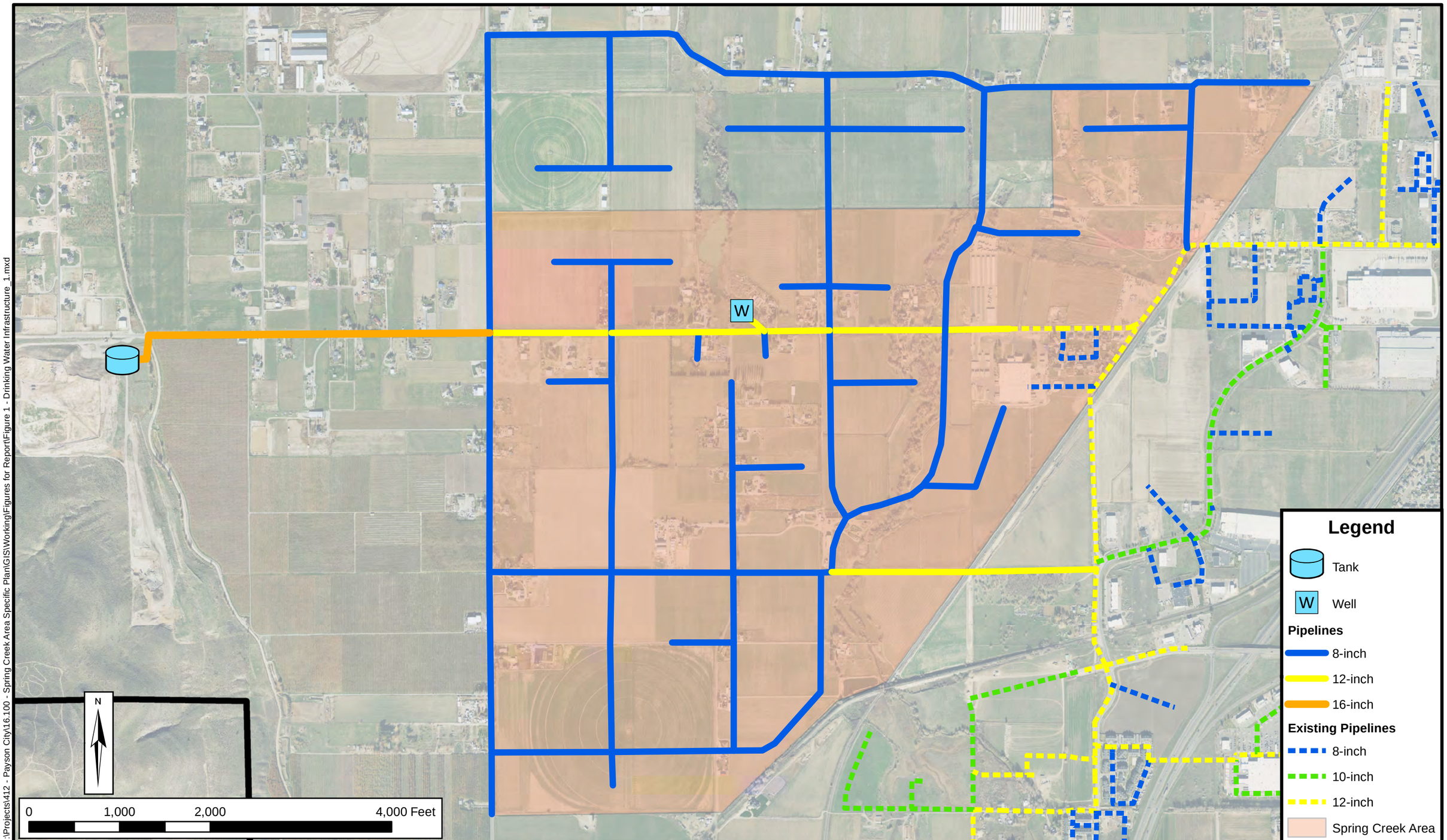
PRESSURIZED IRRIGATION WATER RECOMMENDATIONS

Recommended PI water infrastructure for the planning area is summarized in this section.

Source

As specified in the City's master plan, surface water from canals and the Spanish Fork River system is the recommended long-term source for irrigation water in Payson City. To the extent possible, groundwater should not be used for irrigation because it is needed for drinking water supply. PI sources for the planning area should have a total peak day capacity of at least 2,322 gpm (see Table 5).

Payson City has agreements with the Strawberry High Line Canal Company to utilize a portion of capacity in Lateral 20 of the High Line Canal system. This plan incorporates the



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HANSEN ALLEN & LUCE inc ENGINEERS

SPRING CREEK AREA SPECIFIC PLAN

RECOMMENDED DRINKING WATER INFRASTRUCTURE

FIGURE 1

possibility for a future Lateral 20 connection near American Way and 1700 West. It is recommended that several connections be added to provide source redundancy to the Spring Creek area. It is also recommended that a turnout near Lateral Canal Road be constructed to supply water to the system. The infrastructure was sized to provide source water from either the proposed turnout near Lateral Canal Road, or the two possible Lateral 20 connections.

Storage

A storage facility is needed to provide equalization storage for the Spring Creek area. The storage facility may be an open pond or open top tank depending on site constraints. Required equalization volume is computed as per the level of service. Table 8 includes a summary of the required minimum size of the storage facility.

TABLE 8. REQUIRED MINIMUM PI WATER STORAGE VOLUME

Storage Component	Level of Service	Service	Required Volume (ac-ft)
Equalization	6,480 gal/irr-ac	387 irr-ac	7.7
		Required Minimum Volume	**7.7**

To provide the minimum required volume and an additional operational buffer to accommodate constraints of canal operation, a storage facility with a capacity of 10 ac-ft is recommended for consideration.

The storage facility must be located at an elevation that matches the hydraulic grade of the existing Lower Zone and is compatible with the existing Lower Zone pond, which has a floor elevation of about 4,792 feet and a depth of approximately 20 feet. Elevations should be verified prior to design of the pond.

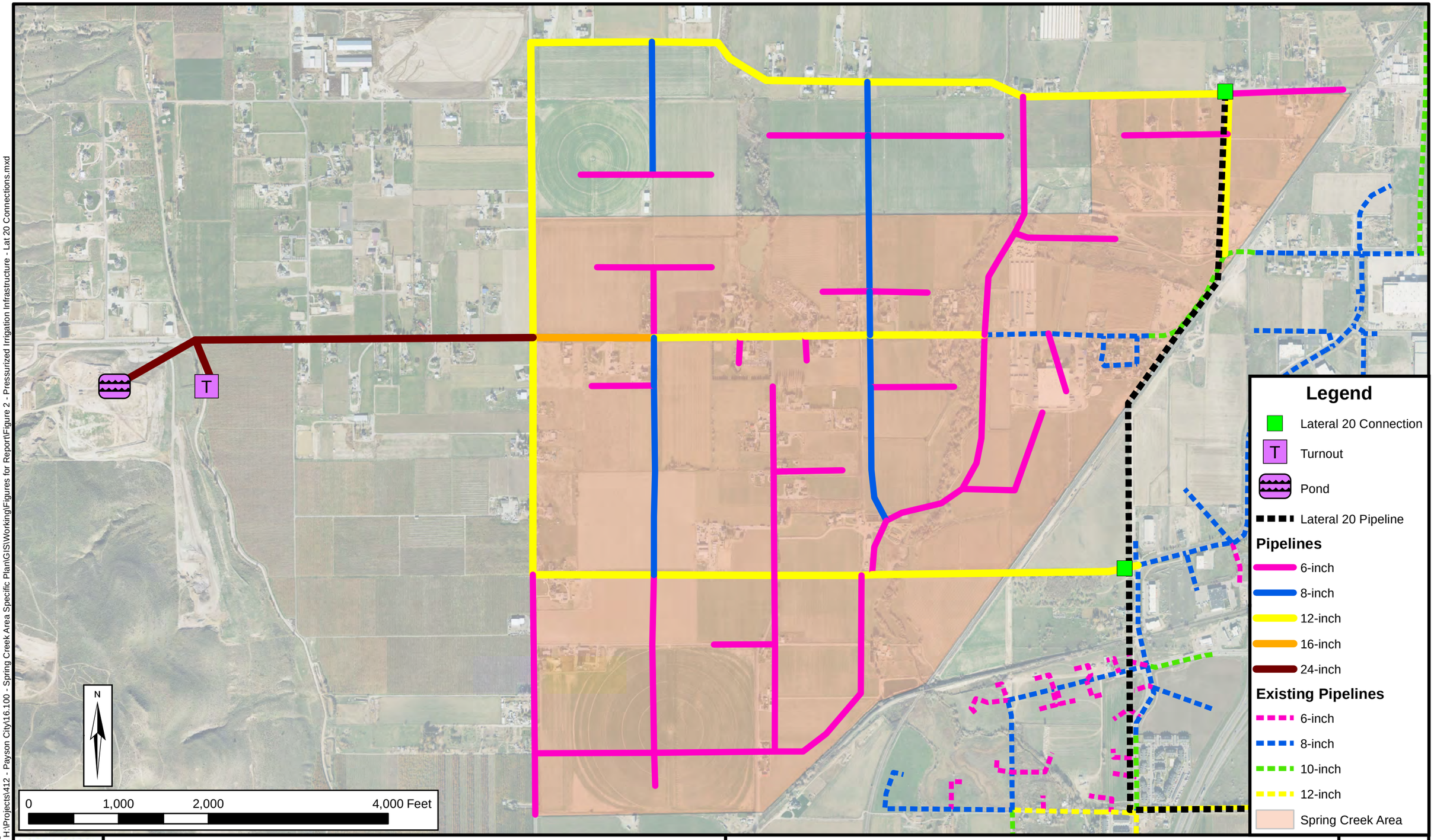
To maximize cost efficiency, locating the pond on the same site as the recommended drinking water tank is recommended.

Distribution

The hydraulic model was used to develop a recommended water distribution network that satisfies all level of service constraints. The recommended PI water infrastructure for the Spring Creek area is shown in Figure 2.

Estimated Costs

A summary of the estimated cost of the pressure irrigation infrastructure shown on Figure 2 is included in Table 9. Detailed cost estimates are included in Appendix B.



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Document Path: H:\Projects\412 - Payson City\16.100 - Spring Creek Area Specific Plan\GIS\Working\Figures for Report\Figure 2 - Pressurized Irrigation Infrastructure - Lat 20 Connections.mxd

HANSEN ALLEN & LUCE INC ENGINEERS

SPRING CREEK AREA SPECIFIC PLAN

RECOMMENDED PRESSURIZED IRRIGATION WATER INFRASTRUCTURE

FIGURE 2

TABLE 9. PRESSURE IRRIGATION INFRASTRUCTURE CONCEPTUAL COST ESTIMATE

Component	Cost
Turnout	$1,800,000
Pond	$6,660,000
Transmission Lines	$12,840,000
Total	**$21,300,000**

1. Estimated costs include pipes larger than 6-inch diameter. It is assumed that 6-inch pipes will be installed within developments.

WASTEWATER COLLECTION RECOMMENDATIONS

Recommended wastewater collection infrastructure for the Spring Creek plan area is summarized in this section.

Topography

The Spring Creek area is situated in a relatively low-lying and flat area of Payson City. Much of the land within the Spring Creek area is at a lower elevation than the City's wastewater treatment plant (WWTP). As such, a wastewater lift station will be necessary to pump wastewater from the area to the WWTP.

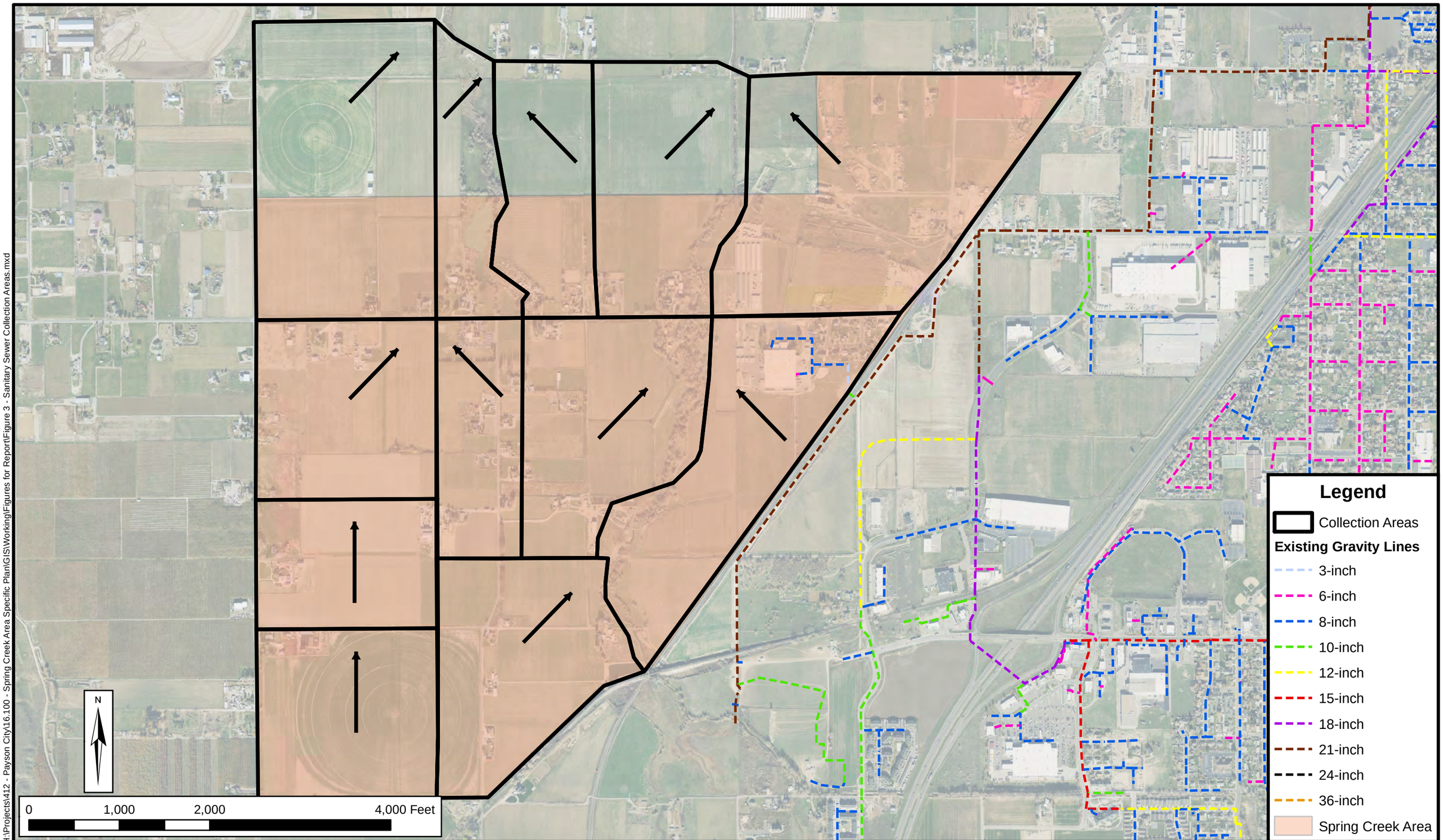
Land within the planning area can be characterized into several drainage basins as shown in Figure 3. These basins exist based on the topography of the land. Wastewater collection infrastructure must also work harmoniously with the land to collect and convey wastewater to a collection point where it is either treated or pumped. As such, it is proposed that wastewater collection infrastructure in the Spring Creek area be designed to generally convey water within existing drainage basins.

Lift Station Location

Because wastewater lift stations carry significant operating expenses and maintenance requirements, Payson City has expressed preference to construct a smaller number of regional lift stations, rather than many small lift stations serving individual developments. The City's Wastewater Collection System Master Plan describes this approach and contains recommendations for regional lift stations and service areas; however, alternatives for the Spring Creek Area were considered based on emerging growth patterns and additional information about the wastewater collection system that has been collected since the last master plan was constructed.

The City's existing and future models were used to evaluate the remaining capacity in existing sewer lines along the west side of Payson City, and to determine where wastewater pumped from the Spring Creek area could be discharged to them. It was determined that receiving capacity exists in the gravity main at 400 N 1100 W.

Considering existing topography and drainage basin, one lift station is recommended for the planning area. It would be located near where Spring Creek crosses 10000 S. This is



Date: 10/26/2023
Document Path: H:\Projects\412 - Payson City\16.100 - Spring Creek Area Specific Plan\GIS\Working\Figures for Report\Figure 3 - Sanitary Sewer Collection Areas.mxd

HANSEN ALLEN & LUCE inc ENGINEERS

SPRING CREEK AREA SPECIFIC PLAN

SANITARY SEWER COLLECTION AREAS

FIGURE 3

one of the lowest points of elevation in the planning area, making it well-suited for a wastewater collection point. It would require a lift station wet well approximately 25 ft deep to be able to provide sufficient slopes for gravity drainage from areas to the south and west. Design elevations will need to be considered and analyzed in detail during design of the lift station to make sure that it will function as a long-term solution for the planning area.

Gravity Collection Mains

The planning area has sufficient slope to convey wastewater by gravity to the proposed lift station, provided that the wet well is sufficiently deep. Alignments for gravity mains were selected considering planned future roads and the topography of the land. Hydraulic modeling was used to determine the required size of the pipes along the proposed alignments.

Lift Station Capacity

The recommended capacity of the lift station is summarized in Table 10.

TABLE 10. LIFT STATION CAPACITY REQUIREMENTS

Lift Station	Loading (ERUs)	Loading (MGD)	Safety Factors[1]	Peaking Factor[2]	Design Loading (MGD)[4]
Spring Creek	2,762	0.61	1.19	2.0	1.45

1. A safety factor of 1.19 was added to account for inflow and infiltration, flow variability, and unusual events.
2. A peaking factor was incorporated to represent the maximum peak day flow seen in the existing diurnal pattern for Payson City.

Force Mains

Force mains are used to convey pumped wastewater from a lift station to a point of discharge. A 10-inch diameter force main is recommended to convey wastewater from the Spring Creek lift station to the gravity main at 400 N 1100 W.

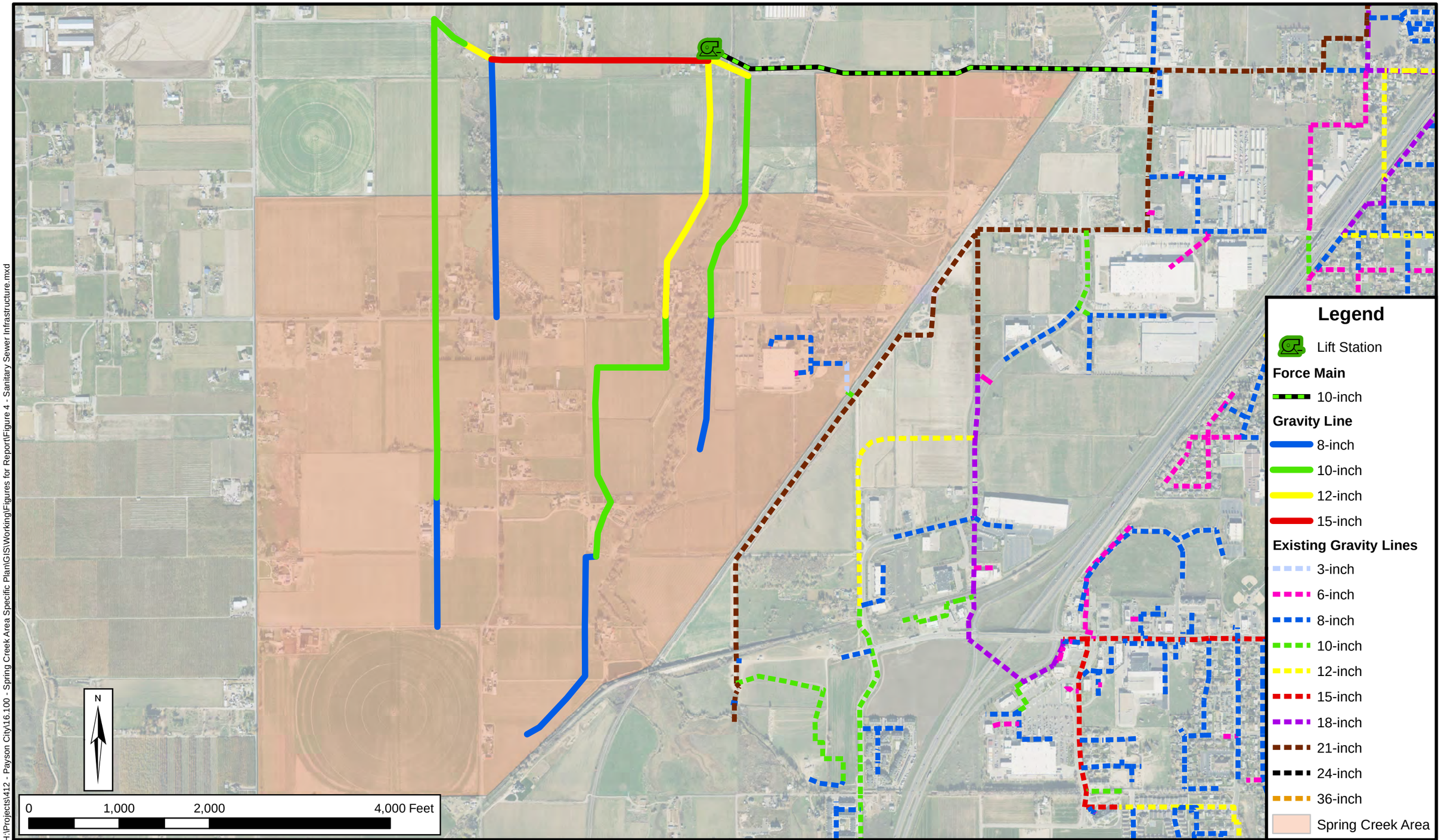
Estimated Costs

A summary of the estimated cost of the sanitary sewer infrastructure shown on Figure 4 is included in Table 11. Detailed cost estimates are included in Appendix B.

TABLE 11. SANITARY SEWER INFRASTRUCTURE CONCEPTUAL COST ESTIMATE

Component	Cost
Lift Station	$2,292,000
Force Main	$2,090,000
Gravity Lines	$12,480,000
Total	**$16,862,000**

1. Estimated costs include gravity pipes larger than 8-inch diameter. It is assumed that 8-inch pipes will be installed within developments.



Date: 10/26/2023
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HANSEN ALLEN & LUCE inc
ENGINEERS

SPRING CREEK AREA SPECIFIC PLAN

RECOMMENDED SANITARY SEWER INFRASTRUCTURE

FIGURE 4

APPENDIX A

Payson City Master Plans

The 2020 Drinking Water Master Plan for Payson City can be found on their website at the link listed below:

https://www.paysonutah.org/sites/default/files/fileattachments/public_works/page/2280/payson_drinking_water_master_plan_-_jul_2020.pdf

The 2020 Pressurized Irrigation Master Plan for Payson City can be found on their website at the link listed below:

https://www.paysonutah.org/sites/default/files/fileattachments/public_works/page/2280/payson_pi_water_master_plan_-_jul_2020.pdf

The 2020 Sanitary Sewer Master Plan for Payson City can be found on their website at the link listed below:

https://www.paysonutah.org/publicworks-sewerservices

APPENDIX B

Cost Estimates

Payson Spring Creek Infrastructure Plan
Drinking Water Recommended Improvements
Preliminary Engineers Cost Estimates

	Item	Unit	Unit Price	Quantity	Total Cost
1	***Spring Creek Well***				
	Well drilling and development (1,173 gpm)	LS	$ 1,250,000	1	$ 1,250,000
	Well equipment and well house	LS	$ 1,000,000	1	$ 1,000,000
				Engineering & Admin. (10%)	$ 225,000
				Contingency (10%)	$ 225,000
				Total to Spring Creek Well	**$ 2,700,000**
2	***Spring Creek Tank***				
	1.25 MG Storage Tank	GAL	$ 1.75	1250000	$ 2,187,500
	Land - Tank	AC	$ 200,000	1	$ 200,000
	16" Transmission Line	LF	$ 441	4290	$ 1,891,890
				Engineering & Admin. (10%)	$ 427,939
				Contingency (10%)	$ 427,939
				Total to Spring Creek Tank	**$ 5,140,000**
3	***Spring Creek Major Transmission Lines***				
	12" Transmission Line	LF	$ 387	9000	$ 3,486,960
	Bore under Railroad	LS	$ 450,000	1	$ 450,000
				Engineering & Admin. (10%)	$ 393,696
				Contingency (10%)	$ 393,696
				Total to Spring Creek Major Transmission Lines	**$ 4,720,000**

Total for Improvements $ 12,560,000

Payson Spring Creek Infrastructure Plan
Pressure Irrigation Water Recommended Improvements
Preliminary Engineers Cost Estimates

	Item	Unit	Unit Price	Quantity	Total Cost
1	***Spring Creek PI Turnout***				
	Pump Equipment (2,350 gpm) and Operating Pond	LS	$ 1,500,000	1	$ 1,500,000
				Engineering & Admin. (10%)	$ 150,000
				Contingency (10%)	$ 150,000
				Total to Spring Creek PI Turnout	**$ 1,800,000**
	Spring Creek Pond				
2	8.0 ac-ft Storage Pond	GAL	$ 0.75	2606808	$ 1,955,106
	Land - Pond	AC	$ 200,000	1	$ 200,000
	24" Transmission Line	LF	$ 628	5400	$ 3,392,064
				Engineering & Admin. (10%)	$ 554,717
				Contingency (10%)	$ 554,717
				Total to Spring Creek Pond	**$ 6,660,000**
	Spring Creek Major Transmission Lines				
3	16" Transmission Line	LF	$ 441	1350	$ 595,188
	12" Transmission Line	LF	$ 387	18900	$ 7,322,616
	8" Transmission Line	LF	$ 309	9000	$ 2,781,180
				Engineering & Admin. (10%)	$ 1,069,898
				Contingency (10%)	$ 1,069,898
				Total to Spring Creek Major Transmission Lines	**$ 12,840,000**

Total for Improvements $ 21,300,000

Payson Spring Creek Infrastructure Plan
Sanitary Sewer Recommended Improvements
Preliminary Engineers Cost Estimates

	Item	Unit	Unit Price	Quantity	Total Cost
1	***Spring Creek Lift Stations***				
	Lift Station (1.8 MGD)	LS	$ 1,910,000	1	$ 1,910,000
				Engineering & Admin. (10%)	$ 191,000
				Contingency (10%)	$ 191,000
				Total to Spring Creek Lift Stations	**$ 2,292,000**
	Spring Creek Force Mains				
2	10" Force Main	LF	$ 351	4975	$ 1,744,633
				Engineering & Admin. (10%)	$ 174,463
				Contingency (10%)	$ 174,463
				Total to Spring Creek Force Mains	**$ 2,090,000**
	Spring Creek Gravity Lines				
3	15" Gravity Line	LF	$ 617	2400	$ 1,480,608
	12" Gravity Line	LF	$ 582	3800	$ 2,210,688
	10" Gravity Line	LF	$ 559	12000	$ 6,706,320
				Engineering & Admin. (10%)	$ 1,039,762
				Contingency (10%)	$ 1,039,762
				Total to Spring Creek Gravity Lines	**$ 12,480,000**
				Total for Improvements	**$ 16,862,000**

MEMORANDUM

DATE: Original: October 10, 2022
Revised: March 2, 2023

TO: Travis Jockumsen
Payson City
439 W. Utah Ave
Payson, UT 84651

FROM: Daniel Jones, P.E., CFM
Kayson Shurtz, P.E.
Hansen, Allen & Luce, Inc. (HAL)
859 West So. Jordan Pkwy – Suite 200
South Jordan, Utah 84095

SUBJECT: Payson Spring Creek Storm Drain Area Plan

PROJECT NO.: 412.16.100

BACKGROUND

The City of Payson (City) requested assistance from Hansen, Allen, & Luce, Inc. (HAL) related to the Spring Creek development and surrounding areas (approximately 1164 acres). Previous master plans had assumed this area would remain agricultural; however, in recent years that has changed; updated master planning solutions are needed in this area. This project's scope of work includes development of a hydrologic model, evaluation of design flows and project alternatives to handle them, and coordination with the City to review the findings and solutions and select the preferred solution.

The study area is generally bounded on the north by 10000 South (County coordinates), on the east by the Union Pacific Railroads (west of American Way), on the West by 2900 West (Payson), and on the south by 11200 South (County coordinates). It is expected that this area will completely develop from an agricultural region into a community including commercial, industrial, residential, and open space regions The City has asked that HAL provide them with the master plan sizing recommendations for conveyance and detention. Per the most recent Master Plan, conveyance will be designed for the 10-year event and detention will be designed to release predevelopment 100-year flows.

EXISTING HYDROLOGY

The storm distribution selected for use in this study is the SCS Type II 24-hour distribution. This allows for sizing detention basins and conveyances using the same design storm distribution. The design events evaluated as part of this study included the 10-year and

100-year events. The SCS Type II distribution for the 10- and 100-year events can be seen below in **Figure 1**.

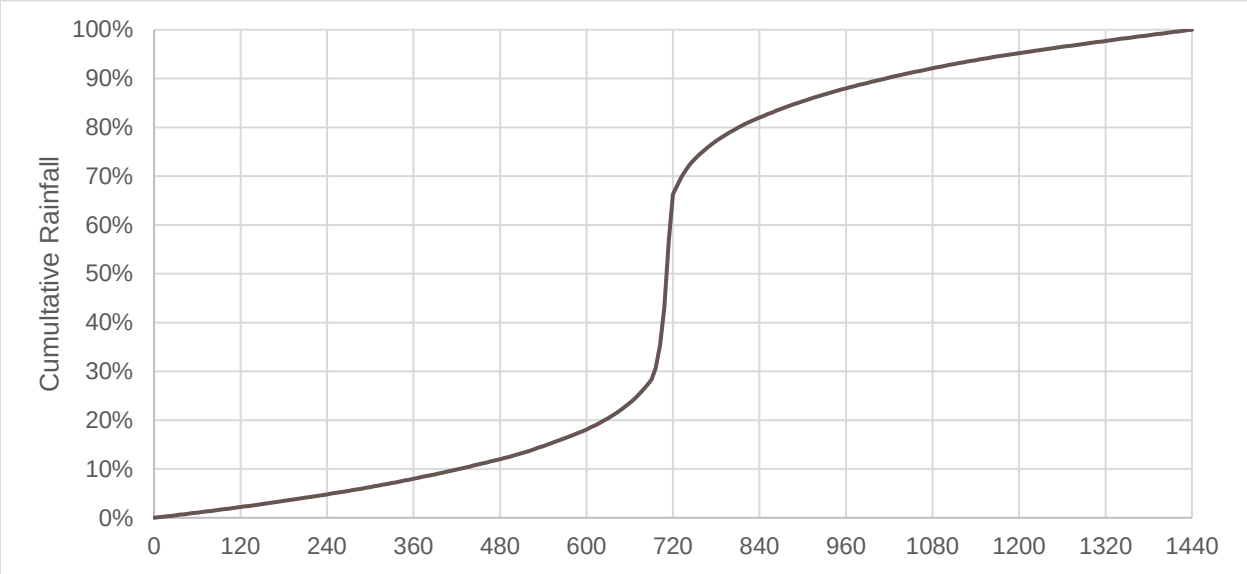

FIGURE 1. SCS TYPE II 24-HOUR UNITIZED DISTRIBUTION

The total rainfall depths as obtained from NOAA Atlas 14: Precipitation-Frequency Atlas of the United States (Bonnin et al. 2004; NOAA 2013) can be seen below in **Table 1**.

TABLE 1. DESIGN RAINFALL DEPTHS

Design Storm	10-year	100-year
24-hour duration	1.94	2.73

To estimate the magnitude of peak existing flows and total runoff volume, the area which contributes runoff must be delineated. The US Army Corps of Engineers hydrology software HEC-HMS version 4.10 was used to do this. The elevation data used to delineate existing basins was a five-meter auto-correlated DEM from NAIP 2006 orthophotography which is the most recent imagery source used to develop a five-meter resolution DEM. The elevation dataset was downloaded from UGRC Raster Data Discovery and was loaded into HMS. The terrain data was preprocessed to produce a hydrologically correct surface for the purposes of hydrologic modeling. Outlets at key locations for our study area were identified and established to delineate drainage basins. The existing basins which cover the study area can be seen in **Figure 2.**

Soils were downloaded from the NRCS's Web Soil Survey which covered both the existing basins and the study area. The predominant soil group for these areas is hydrologic soil group C, with the general trend of looser soils at higher elevations (groups A and mostly B) and tighter soils (group D) at lower elevations. A map of these soils by hydrologic soil group can be seen in **Figure 3**.

N

0 500 1,000 2,000 Feet

Legend

- Existing Subbasins
- Study Area

HANSEN ALLEN & LUCE INC ENGINEERS	**SPRING CREEK DRAINAGE AREA PLAN**	**EXISTING BASINS**	**FIGURE 2**

Date: 10/10/2022
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Legend

Study Area

Existing Subbasins

Soils by Hydrologic Group

A

B

C

D

N

0 500 1,000 2,000 Feet

HANSEN ALLEN & LUCE INC ENGINEERS

SPRING CREEK DRAINAGE AREA PLAN

EXISTING AND FUTURE SOILS

FIGURE 3

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In addition to soil data, land cover data is needed to determine how much of the precipitation runs off. The 2019 National Land Cover Dataset (NLCD) was used to as the data to develop Curve Numbers for the existing conditions. A map of the 2019 NLCD data can be seen in **Figure 4**.

Curve numbers were developed by intersecting soil data and land cover data and applying the assumptions found in **Table 2**.

TABLE 2. CURVE NUMBER ASSIGNMENT TABLE FOR EXISTING CONDITIONS

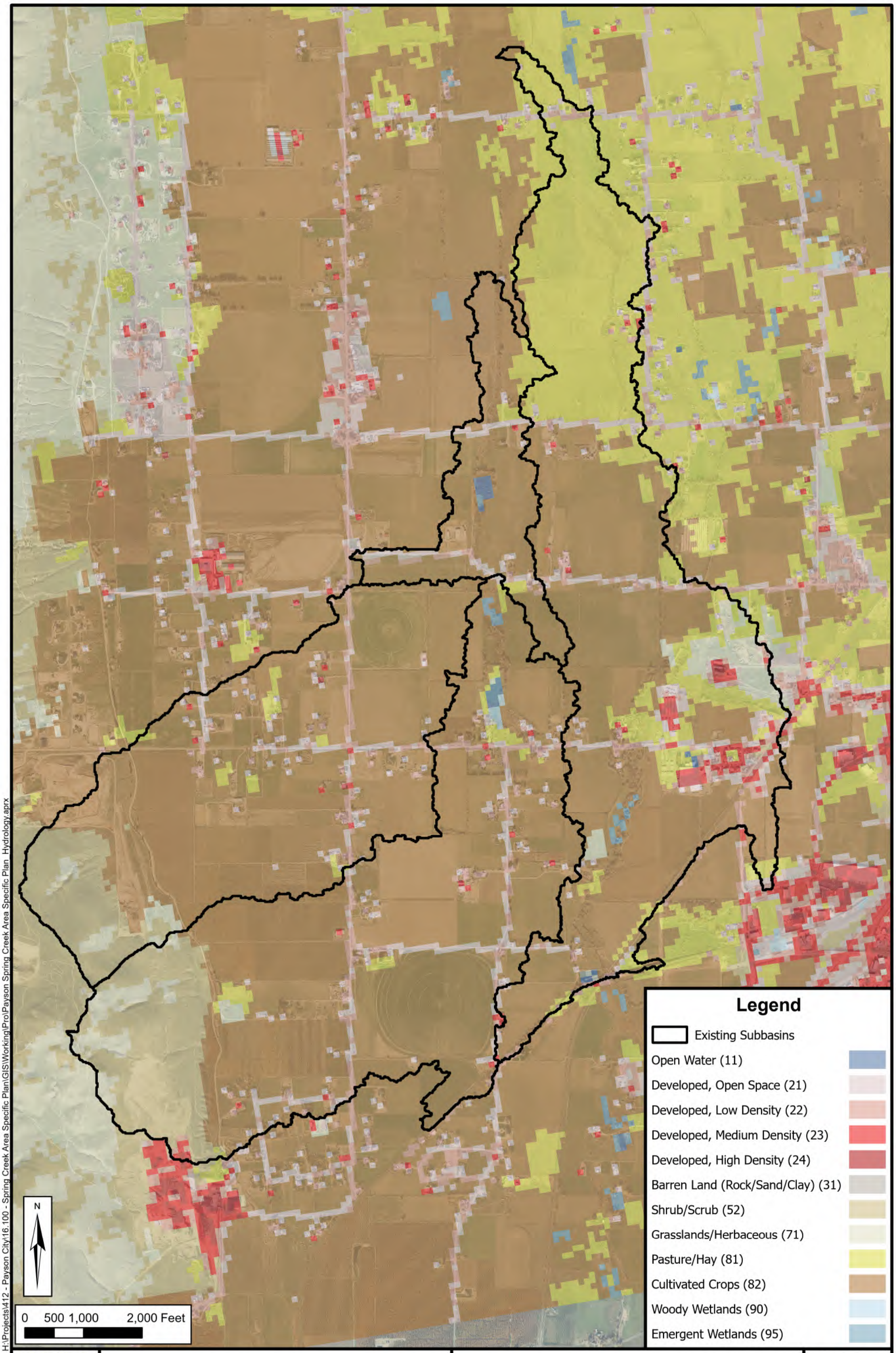
Grid Code	Description	Hydrologic Soil Group				Assumed TR-55 description
		A	B	C	D	
11	Open Water	98	98	98	98	Impervious
21	Developed, Open Space	39	61	74	80	Open space, good
22	Developed, Light	51	68	79	84	1 acre
23	Developed, Medium	61	75	83	87	1/4 acre
24	Developed, Heavy	81	88	91	93	Industrial
31	Bare Earth	77	86	91	94	Fallow, bare soil
42	Evergreen Forest	36	60	73	79	Woods, Fair
52	Shrub/Scrub	35	56	70	77	Brush, fair
71	Herbaceous	39	61	74	80	Open space, good cover
81	Pasture/Hay	30	58	71	78	Meadow
82	Cultivated Crops	30	58	71	78	Meadow
90	Wetlands, woody	85	85	85	85	Swamps
95	Wetlands, emerging	85	85	85	85	Swamps

The percent of existing directly connected impervious area (DCIA) was assumed to be 0% as the Curve Numbers above in **Table 2** already account for the amount of impervious each land cover typically has. Existing curve numbers for the three basins ranged from 67 to 71.

The percent of DCIA of the future case was assumed to be based on the future land use as shown in **Figure 5**. The curve number assignment for the future conditions was assumed to be exclusively based on hydrologic soil group, assuming a TR-55 description of Open Space, good cover (**see Table 2**).

TABLE 3. IMPERVIOUS COVER ASSUMPTIONS FOR FUTURE CONDITIONS

Future Land Cover	ERC/AC	DCIA	UCIA	Pervious
Civic	1	56%	19%	25%
Commercial	5	77%	9%	15%
Estate	2	10%	15%	75%
Higher Density	8	39%	26%	35%
Industrial	3	65%	7%	28%
Mixed Density	4	19%	19%	62%
Open Space	1	3%	3%	95%
Single Family	5	25%	25%	50%



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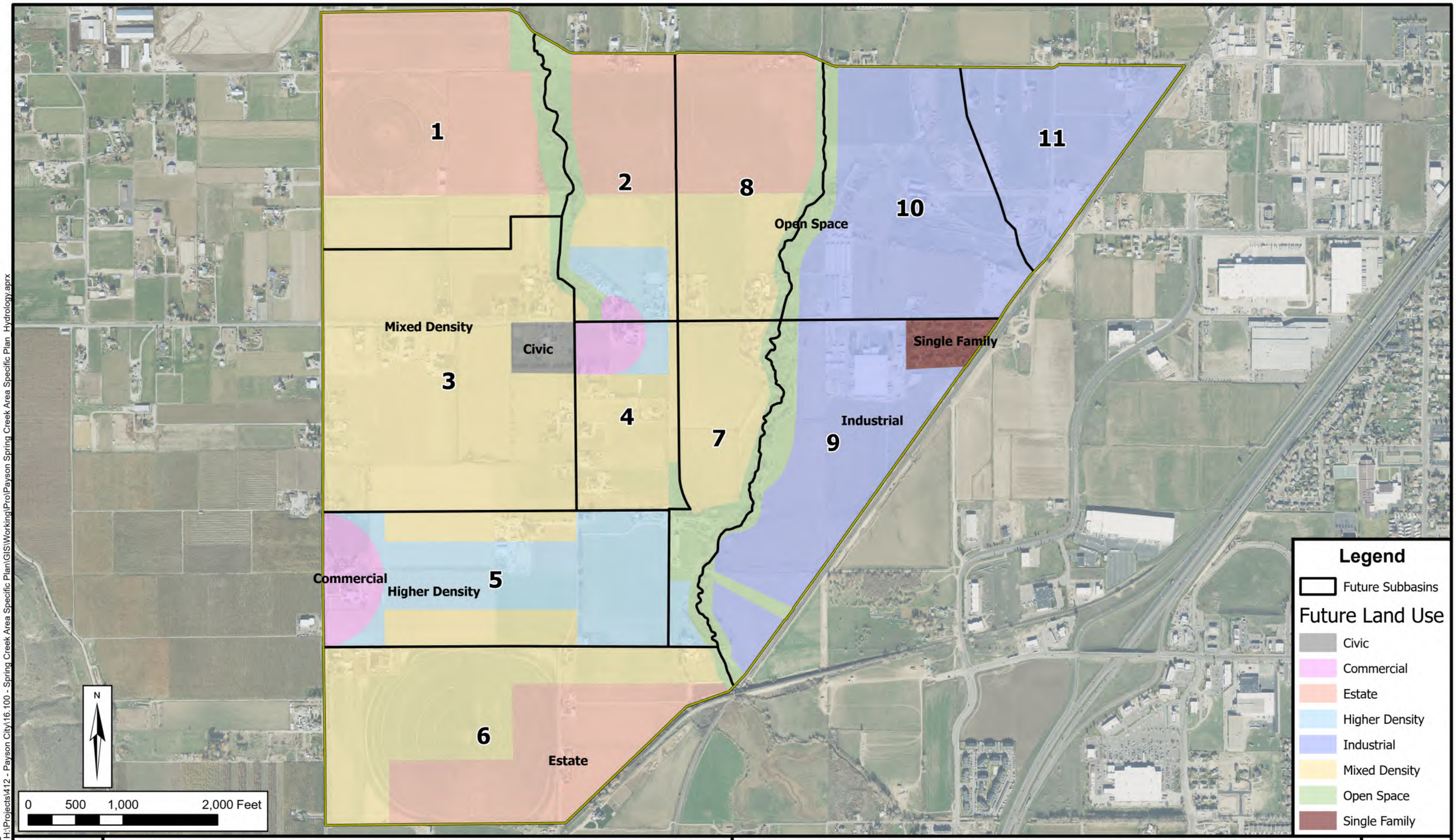
SPRING CREEK DRAINAGE AREA PLAN

EXISTING LAND COVER (NLCD 2019)

FIGURE 4



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SPRING CREEK DRAINAGE AREA PLAN

FUTURE LAND COVER AND BASINS

FIGURE 5

Basin characteristics including drainage area, Curve Number, hydraulic length, basin slope, longest flow path slope, and centroidal flow length were obtained and tabulated for each basin. After a variety of basin times were computed, the Colorado-Sabol method (Equation 1) was selected to compute existing time of concentration. An urban version of the Colorado-Sabol method (Equation 2) was selected for the future times of concentration. An assumption that lag time = 0.8 * Tc was used to estimate lag time to input to the HMS model with the transform method of lag.

$$T_c = 0.498\left[\frac{A^{0.1}(L_{ch}L_c)^{0.25}}{S_{ch}{}^{0.2}}\right] \qquad \textit{Equation 1}$$

$$T_c = 0.963\left[\frac{A^{0.1}(L_{ch}L_c)^{0.25}}{i_p{}^{0.36}S_{ch}{}^{0.14}}\right] \qquad \textit{Equation 2}$$

Where:
$T_c =$ the time of concentration (hr)
$A =$ the catchment area (km^2)
$i_p =$ percent impervious (%)
$L_c =$ centroid distance (km)
$L_{ch} =$ longest watercourse (km)
$S_{ch} =$ the slope of the longest watercourse (dimensionless)

Existing velocities were computed to be approximately two feet per second and future velocities were typically between four and five feet per second.

The existing and future models were created using the inputs described above and were run with a one minute time step. The existing peak flows per unit area were 0.033 cfs/acre for the 10-year and 0.11 cfs/acre for the 100-year storm. As a reminder, the design objectives of this project are to 1) define what future storage is adequate to not release greater than predevelopment conditions (0.11 cfs/acre) and to 2) estimate future flows to preliminarily size the future conveyances to these future storage facilities.

FUTURE SIZING

A summary of the inputs and results from the future model can be seen in **Table 4**. Design assumptions include a maximum pipe velocity of eight feet per second and a Manning's n of 0.013 (assuming RCP) were imposed for pipe sizing.

The future subbasin flows were converted to a unit flow per area based on the 10-year event (see **Table 4**). Unit basin runoff flows for the lower density areas fall in the 0.5 to 0.7 cfs/acre with higher density areas producing unit flows in the 1.0 to 1.6 range. These unit flows are similar to those from previous studies conducted by HAL. The City's standard is to detain these flows to the historic discharge per acre or 0.2 cfs/acre, whichever is lower.

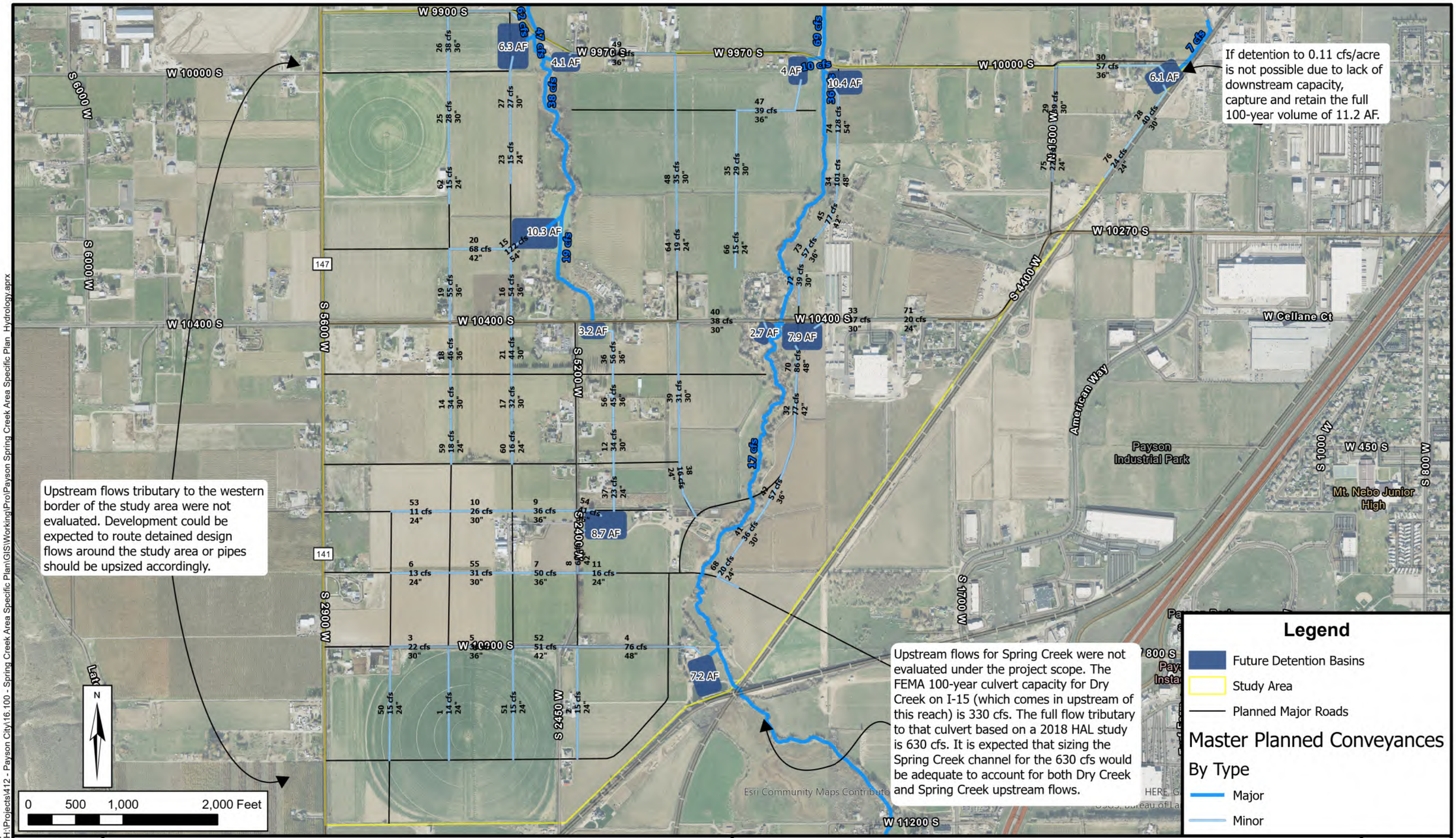
TABLE 4. FUTURE MODEL INPUTS AND RESULTS

Basin	Area	Comp. CN	Pct Imperv.	Pct DCIA	LFP	LFP Slope	Lag	Q_{10}	Unit Q_{10}	Detention for the 100-yr	Unit Storage	Assumed design slope
	ac				ft	ft/ft	min	cfs	cfs/ac	AF	cf/ac	ft/ft
1	137.1	79.3	26%	11%	4675	0.0059	24.6	66.6	0.49	6.2	1984	0.0050
2	80.7	79.5	32%	17%	3984	0.0072	18.1	53.6	0.66	4.1	2217	0.0070
3	172.7	81.5	39%	21%	5175	0.0078	20.5	125.9	0.73	10.3	2606	0.0075
4	50.4	79.7	47%	30%	2485	0.0095	10.7	51.9	1.03	3.2	2725	0.0090
5	120.1	80.7	60%	38%	4439	0.0058	15.2	124.4	1.04	8.7	3168	0.0050
6	151.8	79.0	32%	15%	5944	0.0055	25.5	76.6	0.50	7.2	2074	0.0040
7	57.9	78.2	31%	16%	3147	0.0077	15.8	37.1	0.64	2.7	2005	0.0075
8	90.7	78.3	29%	13%	4264	0.0062	21.3	46.6	0.51	4.0	1921	0.0060
9	118.8	68.6	60%	52%	3917	0.0077	12.4	124.8	1.05	7.9	2911	0.0075
10	120.9	76.1	66%	59%	5400	0.0093	13.5	152.8	1.26	10.4	3735	0.0090
11	63.7	79.3	72%	65%	2700	0.0113	8.4	103.0	1.62	6.1	4194	0.0105

Pipes were sized based on estimated contributing area multiplied by the unit runoff values in **Table 3**. These do not necessarily have to be pipes but could be open channel. For the purposes of this study, they were assumed to be pipes due to the fewer number of assumptions required to calculate hydraulic capacity and construction costs. Storage volumes were calculated for each basin assuming a regional basin would be constructed for the area. Because of the phasing of development, these basins may be more localized in which case there will be many more basins which are smaller. The advantage of smaller basins is the pipes can be sized smaller as they would carry detained flows, the disadvantage of this would be that the number of basins makes maintenance harder for the City staff and the risk of plugging (and resultant pond overtopping) becomes much greater. From a planning and maintenance perspective, it is recommended to construct fewer regional facilities. The planned conveyance and detention facilities can be seen on **Figure 6**. Conveyance lines were assumed to follow major roads actual alignment and sizing may vary based on development timing and contributing areas.

In **Figure 6**, minor flows represent undetained future 10-year flows. Major flows represent flows detained to the pre-development flowrates. 100-year volumes assume a typical detention pond geometry of 3H:1V, rectangular shape with 1.5L:1W side to side ratio, and the design release rate achieved at a head of three feet on the center of the outlet orifice.

It is also important to note that the flows, volumes, and sizing shown on **Figure 6** represent only the flows and volumes generated due to the development of the study area. Upstream flows will come through Spring Creek and are also likely to pass through 2900 W (the western edge of the study area) to the natural drainages. The FEMA 100-year culvert capacity for Dry Creek on I-15 (which comes in upstream of the study area to Spring Creek) is 330 cfs. The full flow tributary to that culvert based on a 2018 HAL study is 630 cfs. It is expected that sizing the Spring Creek channel for the 630 cfs would be adequate to account for both Dry Creek and Spring Creek upstream flows.



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SPRING CREEK DRAINAGE AREA PLAN

DESIGN FLOWS (10-YEAR) AND DETENTION VOLUMES (100-YEAR)

FIGURE 6

CONCEPTUAL COST ESTIMATES

Unit construction costs were estimated based on construction cost indices (ENR 2022), communication with material suppliers, heavy construction data references (RSMeans 2022), and HAL's experience with similar construction. Cost estimates for each pipe segment (labeled in **Figure 6**) are provided in **Table 5**. Additional details used to develop pipe cost estimates can be found in the Appendix.

TABLE 5. CONCEPTAL COSTS FOR PIPE SEGMENTS

ID	Length (ft)	Flow (cfs)	Diam (in)	Cost/ft	Cost
1	1,200	14	24	$197.39	$307,928
2	1,185	15	24	$197.39	$304,079
3	618	22	30	$259.21	$208,249
4	1,321	76	48	$485.49	$833,732
5	684	36	36	$339.23	$301,643
6	624	13	24	$197.39	$160,123
7	690	50	36	$339.23	$304,289
8	491	67	42	$406.04	$259,175
9	682	36	36	$339.23	$300,761
10	654	26	30	$259.21	$220,380
11	393	16	24	$197.39	$100,847
12	493	34	30	$259.21	$166,128
14	470	34	30	$259.21	$158,377
15	138	122	54	$524.99	$ 94,183
16	778	54	36	$339.23	$343,097
17	490	32	30	$259.21	$165,117
18	558	46	36	$339.23	$246,077
19	782	55	36	$339.23	$344,861
20	648	68	42	$406.04	$342,048
21	549	44	30	$259.21	$184,998
22	775	41	36	$339.23	$341,774
23	632	15	24	$197.39	$162,176
25	857	28	30	$259.21	$288,786
26	641	38	36	$339.23	$282,680
27	707	27	30	$259.21	$238,240
28	687	40	30	$259.21	$231,500
29	763	39	30	$259.21	$257,110
30	1,166	57	36	$339.23	$514,205
32	669	77	42	$406.04	$353,133
33	862	37	30	$259.21	$290,471
34	604	101	48	$485.49	$381,207
35	1,146	29	30	$259.21	$386,171
36	526	56	36	$339.23	$231,965
37	501	23	24	$197.39	$128,560
38	619	16	24	$197.39	$158,840
39	1,510	31	30	$259.21	$508,829
40	973	38	30	$259.21	$327,875
41	590	36	30	$259.21	$198,814
42	826	57	36	$339.23	$364,265
44	159	22	24	$197.39	$40,801
45	432	77	42	$406.04	$228,032
47	940	39	36	$339.23	$414,539
48	801	35	30	$259.21	$269,915
49	1978	54	36	$339.23	$872,296
50	1,200	15	24	$197.39	$307,928
51	1,197	15	24	$197.39	$307,159
52	681	51	42	$406.04	$359,467
53	629	11	24	$197.39	$161,406
54	278	41	36	$339.23	$122,598
55	667	31	30	$259.21	$224,761
56	452	45	36	$339.23	$199,332
59	463	18	24	$197.39	$118,809
60	458	16	24	$197.39	$117,526
62	535	15	24	$197.39	$137,285
64	630	19	24	$197.39	$161,662
66	519	15	24	$197.39	$133,179
68	544	20	24	$197.39	$139,594
70	287	86	48	$485.49	$181,136
71	462	20	24	$197.39	$118,552
72	306	39	30	$259.21	$103,114
73	301	57	36	$339.23	$132,741
74	595	128	54	$524.99	$406,080
75	450	22	24	$197.39	$115,473
76	501	24	24	$197.39	$128,560

Only during final design can a definitive and more accurate estimate be provided. Cost estimates are based on conceptual-level engineering and are and appropriate for use as a planning guide. Unit costs provided in **Table 5** assume a pipe type of reinforced concrete pipe (RCP), catch basins installed on average every 100 feet, average manhole spacing every 200 feet, and a 3 foot average depth to top of buried pipe. Engineering and contingency is assumed at 30% and is included in the project costs but not the unit costs.

A detailed cost estimate of each detention basin (labeled in **Figure 6**) is provided in **Table 6**. Costs assume that excavation costs are $20,000 per acre-foot, that the amount of excavation required is equal to the storage required for the 100-year detention, that construction costs other than excavation (mob./demob./vegetation) total $30,000 per pond, and that engineering and contingency is 30%. Costs do not include the opportunity cost of the land required to support the detention ponds. An estimation of the surface area is calculated by dividing the detention volume by 3 feet.

TABLE 6. CONCEPTAL COSTS FOR DETENTION BASINS

Basin	Detention for the 100-yr/ Excavation	Estimated Surface Area	Ex Cost	Cost
	AF	Ac	AF	$
1	6.2	2.1	$ 20,000	$ 200,200
2	4.1	1.4	$ 20,000	$ 145,600
3	10.3	3.4	$ 20,000	$ 306,800
4	3.2	1.1	$ 20,000	$ 122,200
5	8.7	2.9	$ 20,000	$ 265,200
6	7.2	2.4	$ 20,000	$ 226,200
7	2.7	0.9	$ 20,000	$ 109,200
8	4	1.3	$ 20,000	$ 143,000
9	7.9	2.6	$ 20,000	$ 244,400
10	10.4	3.5	$ 20,000	$ 309,400
11	6.1	2.0	$ 20,000	$ 197,600

For the plan presented, the total estimated cost of pipes larger than or equal to 24” is approximately $16.5 M. The total estimated cost of detention facilities is approximately $2.3 M. The total cost of these two elements is approximately $18.8 M.

REMINDER OF ASSUMPTIONS AND APPLICABILITY OF RESULTS

The plan presented above represents one out of many possible options which would satisfy the design constraints. Among the variables which could change prior to or during plan implementation include:

- Detention philosophy – regional or local.
    - Local detention serves to detain flows closer to the source and will have smaller flows than regional facilities. As regional facilities (shown in this

plan) are fewer, they are easier to maintain.

- Conveyance philosophy – piped or open channel.
    - Pipes (shown in this plan) require fewer assumptions to size and protect developable area. Open channels have easier access, preserve green space, and promote trail recreation and wildlife continuity.
- Conveyance alignment
    - The alignments depicted in **Figure 6** were selected to follow the planned major roads. Several roads in Basin 10 were not master planned and additional lines greater than 18" diameter may be required. Changes in road alignment or a case-by-case need to not follow major roads may require changes to the alignments shown in **Figure 6**.
- Zoning
    - The flowrates shown in **Figure 6** and **Table 4** are based on the assumed development types with their associated percent impervious. More impervious or less impervious development would impact these calculations. For an approximate value, the unit Q10 corresponding to a similar zoning as the plan (**Figure 5**) may be used to develop sizing for pipes not shown or those which precipitate out of a change from these planning level assumptions.

Please feel free to contact me should you have any questions.

Sincerely,

Kayson Shurtz

Kayson Shurtz

Enclosures
HMS 4.10 Model

APPENDIX D

Spring Creek Area Transportation Plan

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

4179 RIVERBOAT ROAD, SUITE 130 | SALT LAKE CITY, UT 84123 | P 801.307.3400

TECHNICAL MEMORANDUM

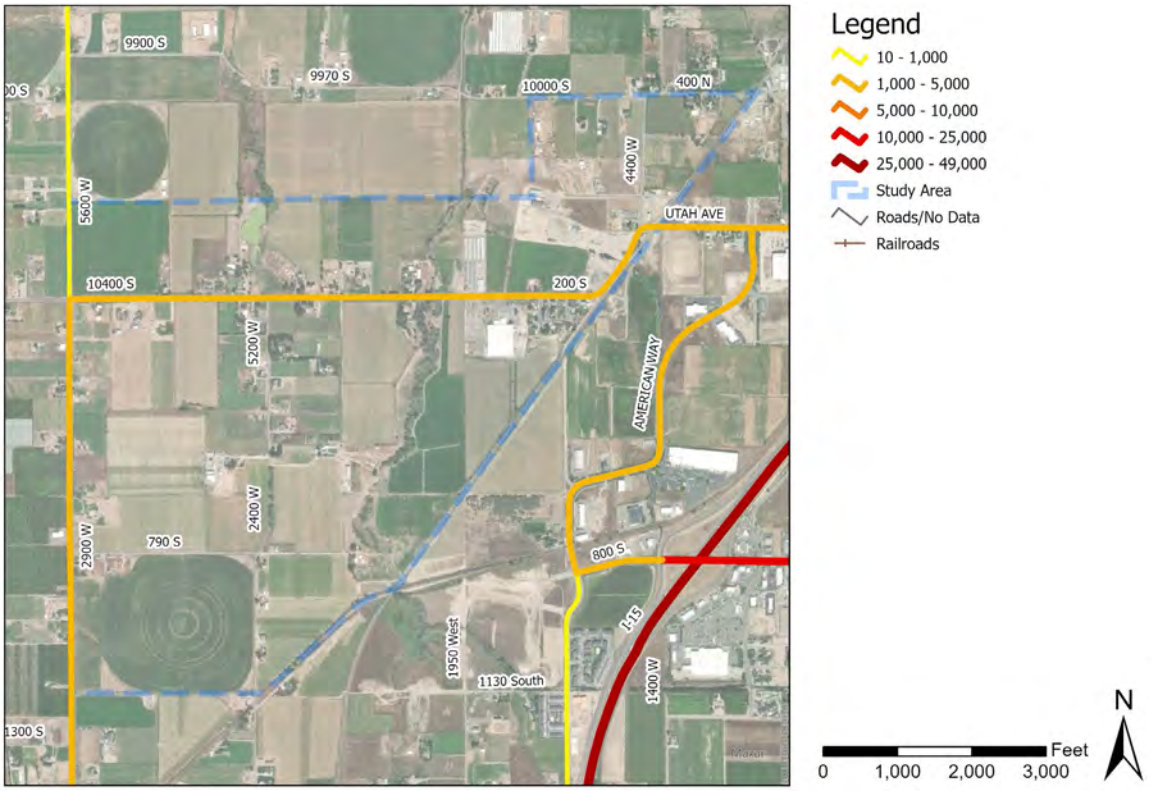
DATE:	June 12, 2023
TO:	Ridley Griggs
FROM:	Kai Tohinaka, AICP
SUBJECT:	Spring Creek Transportation
PROJECT NAME:	Spring Creek Area Plan

Parametrix contracted with Hansen, Allen & Luce in the spring of 2021 to assist in the transportation analysis for the Spring Creek Area Specific Plan with the City of Payson. The transportation analysis was produced in coordination with the land use planning and the utility and infrastructure analysis and consists of existing conditions, traffic modeling, roadway network development, active transportation, and transit integration.

EXISTING CONDITIONS

Existing transportation conditions were assessed to support the transportation analysis. Figure 1 below shows daily traffic conditions within and around the study area. Data available within the study area is limited to Utah Avenue and 5600 West. Daily volumes along Utah Avenue are relatively low, but highest in the area at around 3,500, and this condition continues east to American Way onto the interchange. 5600 West daily volumes are less than 2,000 south of 10400 South, and less than 1,000 to the north.

Figure 1: Average Annual Daily Traffic (2019)



Active transportation activity was assessed by looking at self-reported bicycle and pedestrian trips from the Strava Metro platform. This is self-reported activity information, which tends to be biased towards fitness and recreation activity types but provides a good view of travel patterns. Figure 2 shows annual recorded bicycle trips for 2019. The most bicycle activity occurs on 5600 West, with the highest segment between 10400 South and 790 South. Utah Avenue is also has relatively high usage for the area with between 500 – 1,000 annual trips.

Figure 2: Bicycle Trips (2019)

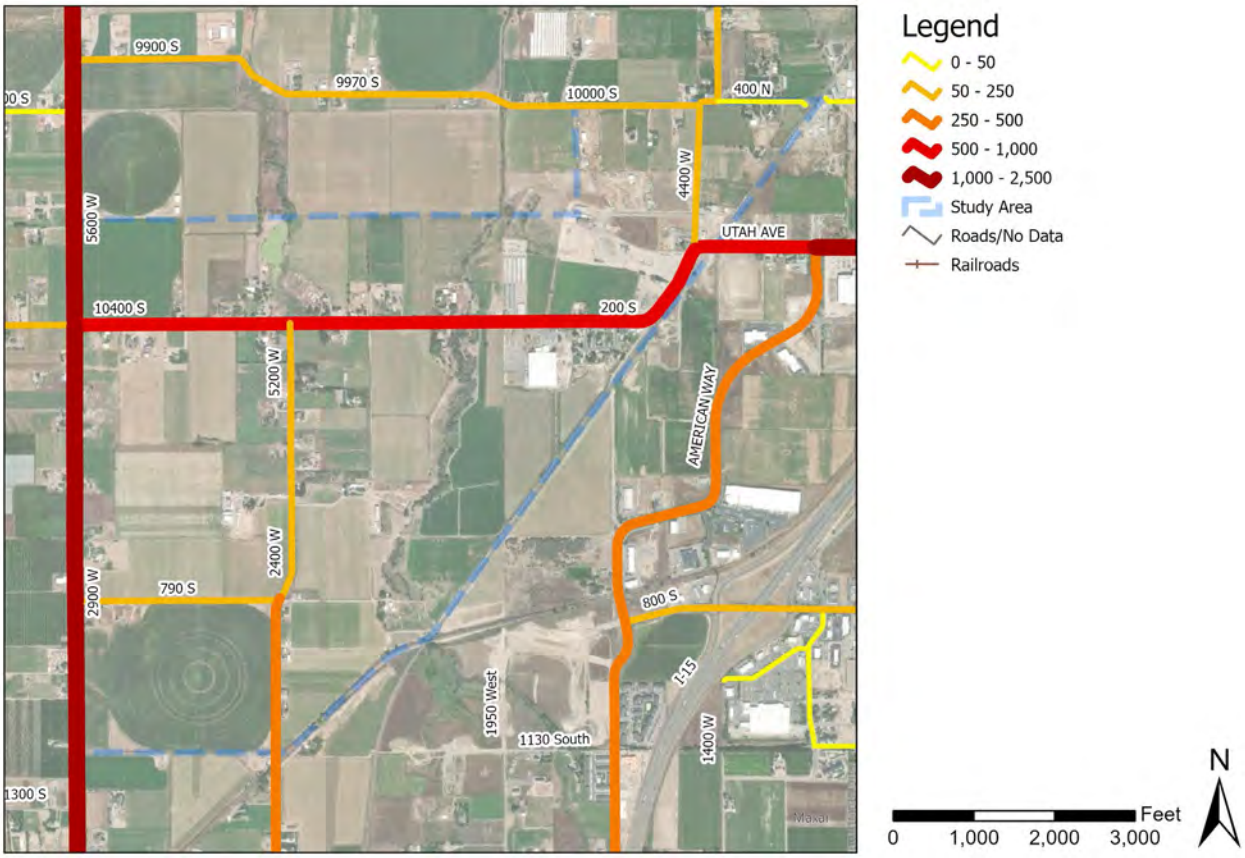
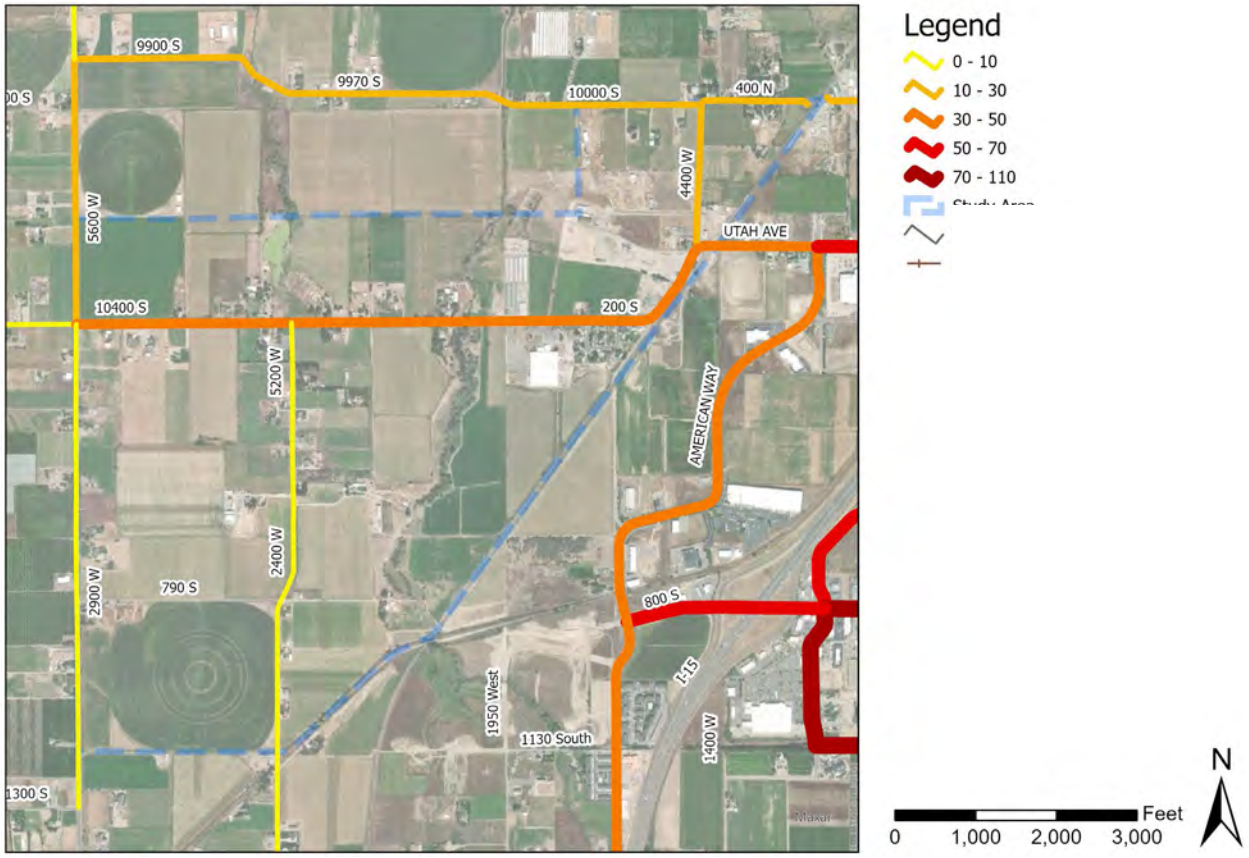


Figure 3 shows annual recorded pedestrian trips for 2019, where there is relatively low activity throughout the area. Utah Avenue has the highest recorded activity at approximately 50 annual trips. 5600 West north of 10400 South has between 20 and 30 annual trips, while to the south there is between 5 and 10.

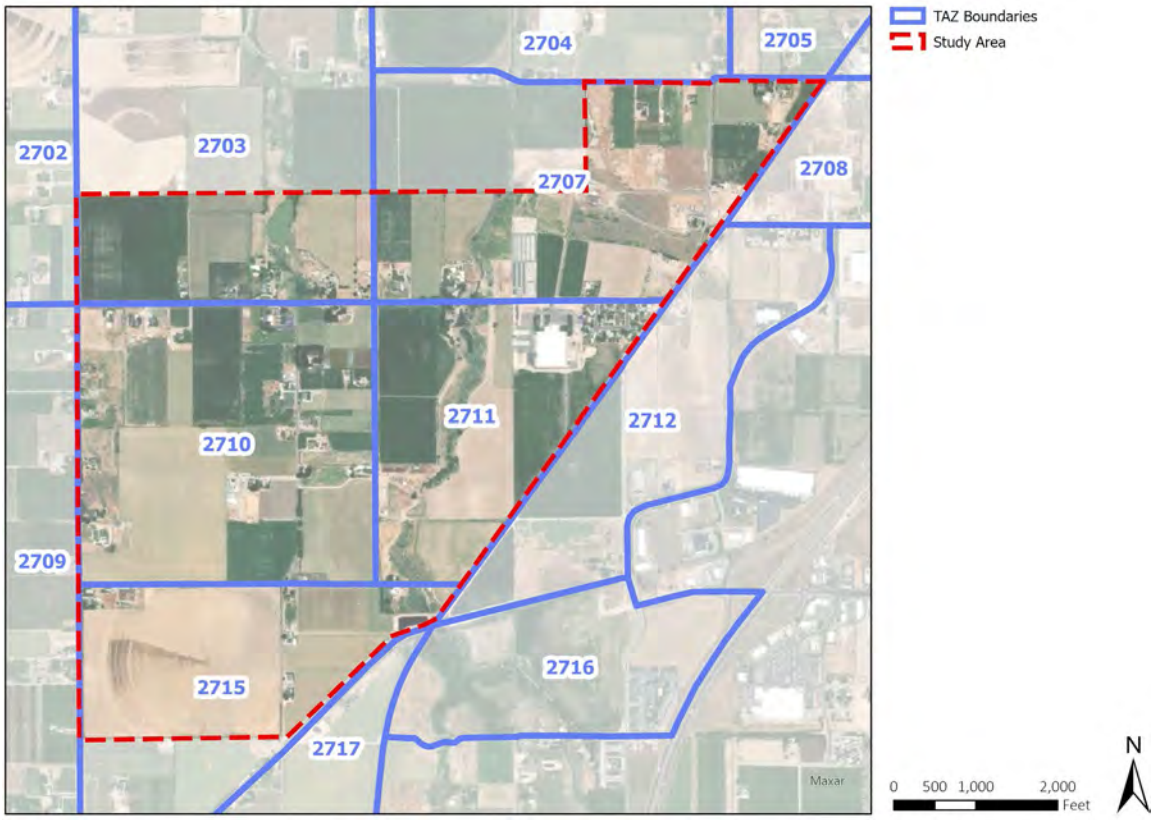
Figure 3: Pedestrian Trips (2019)



TRAFFIC MODELING AND ANALYSIS

For the purposes of modeling the preferred land use scenario the regional travel model was used with refined socioeconomic information within the study area. The Wasatch Front Travel Demand Model version 8.3.1 was utilized, which was the latest version of the model at the time of the project initiation. Figure 4 shows the traffic analysis zones (TAZ) within the model for the study area.

Figure 4: Area Traffic Analysis Zones



For each zone socioeconomic characteristics are used by the model to generate vehicle traffic which is loaded onto a representation of the roadway network. These socioeconomic characteristics include number of households, population, and employment by several different employment categories. The preferred land use alternative was converted into model socioeconomic inputs for the forecast years of 2030 and 2050. The 2030 scenario assumes 33% build out of the preferred alternative, while 2050 assumes 100%. Table 1 shows a high-level summary of the socioeconomic assumptions for existing (2019), 2030, and 2050. Table 2 shows a summary of employment categories by year.

Table 1: Socioeconomic Assumptions

TAZID	Households			Population			Employment		
	2019	2030	2050	2019	2030	2050	2019	2030	2050
2703	15	195	590	50	649	1,966	0	16	49
2707	15	97	295	36	237	719	5	547	1,651
2710	27	195	590	75	541	1,639	0	96	292
2711	21	32	98	66	104	314	8	776	2,347
2715	19	130	393	56	379	1,150	0	48	146

Table 2: Employment by Summary Category

TAZID	2019				2030				2050			
	Total	Retail	Industrial	Other	Total	Retail	Industrial	Other	Total	Retail	Industrial	Other
2703	0	0	0	0	16	16	0	0	49	49	0	0
2707	5	0	4	1	547	0	547	0	1,651	0	1,650	1
2710	0	0	0	0	96	96	0	0	292	292	0	0
2711	8	0	0	8	776	0	0	776	2,347	0	0	2,347
2715	0	0	0	0	48	48	0	0	146	146	0	0

Model results for the 2030 and 2050 land use scenarios are shown in the following figures. The figures depict segment volumes as well as level of service (LOS). LOS standards are defined in the American Association of State and Territorial Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 2018 (7th Edition) where LOS D is defined by traffic levels which are "approaching unstable flow."

Figure 5 shows forecasted 2030 traffic and LOS within the study area. This scenario assumed 33% build-out of the preferred land use alternative and a partial network where Utah Avenue provides the only direct access east across the rail corridor. At this level of development LOS D or better is maintained throughout the area. Utah Avenue on the eastside is nearing it's 2-lane capacity across the tracks.

Figure 6 shows forecasted 2050 traffic and LOS within the study area. This scenario assumes full build-out of the preferred land use alternative and a completed roadway network (more details in the following section). The planned roadway network is more than adequate to meet the needs of planned land uses with capacity below 75% utilization throughout the area. Highest volumes occur on the east side of Utah Avenue and the new 800 South, with 12,000 and 23,000 daily trips respectively.

Figure 5: 2030 Area Traffic

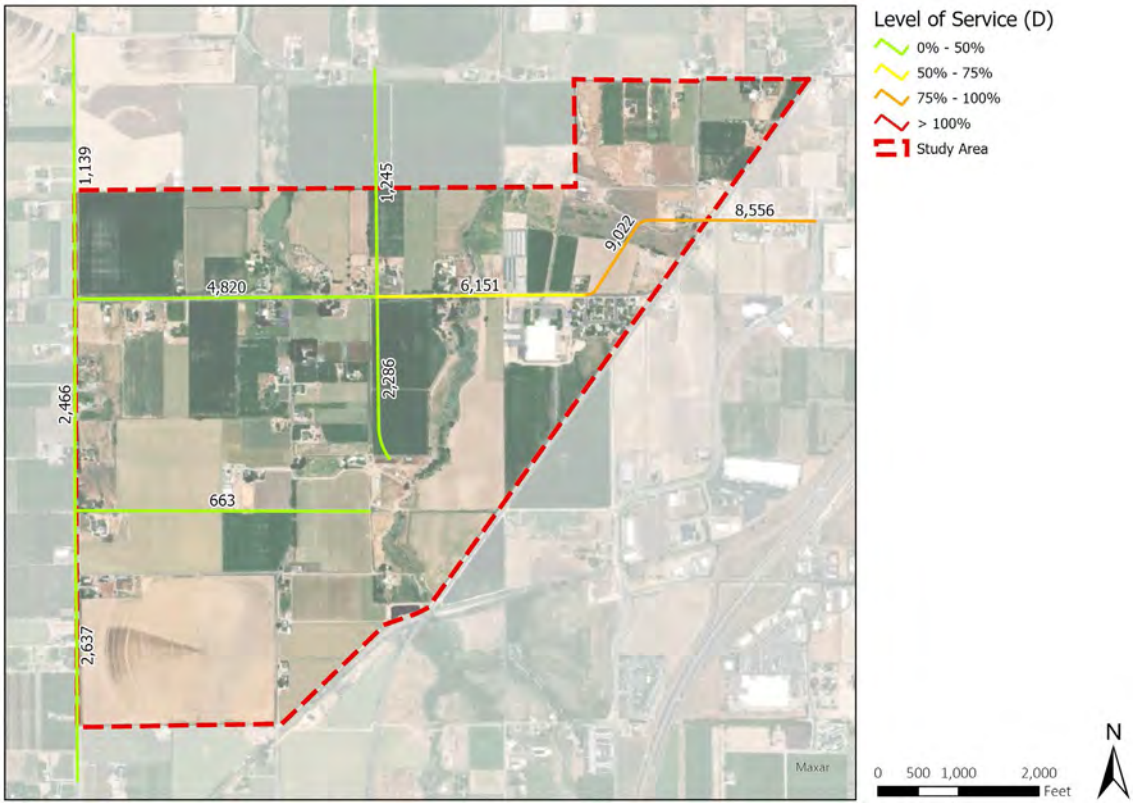
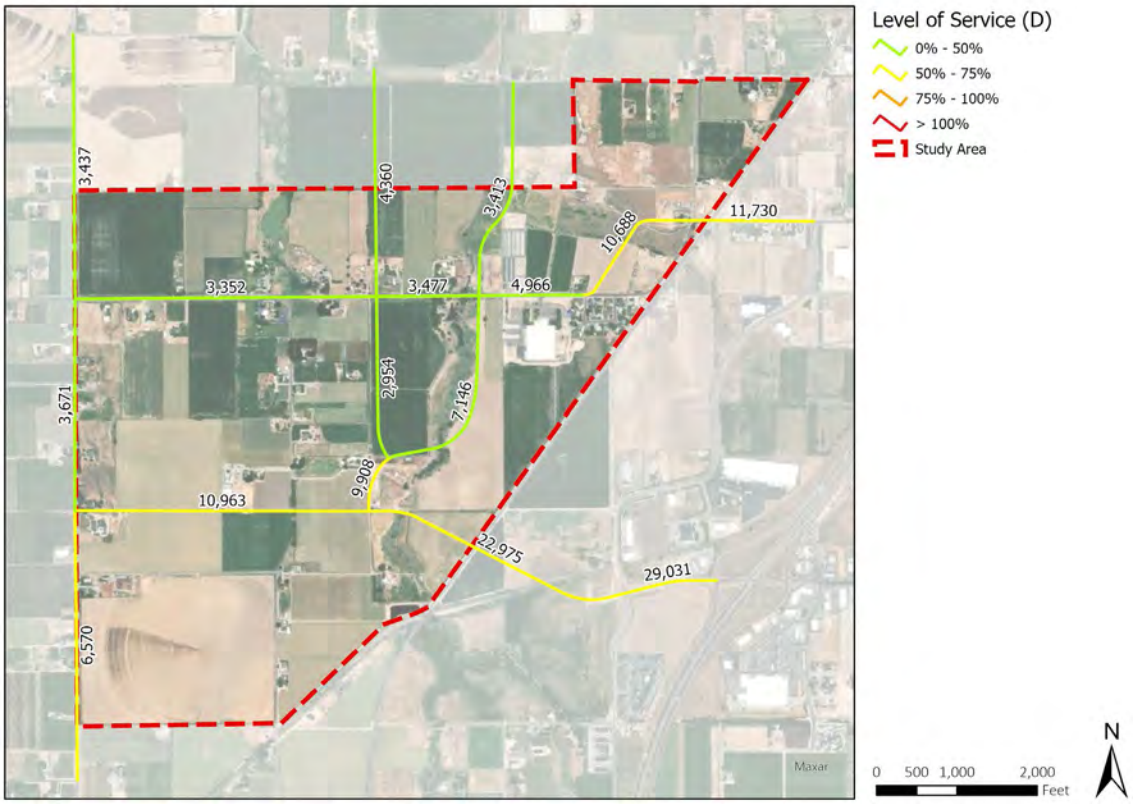


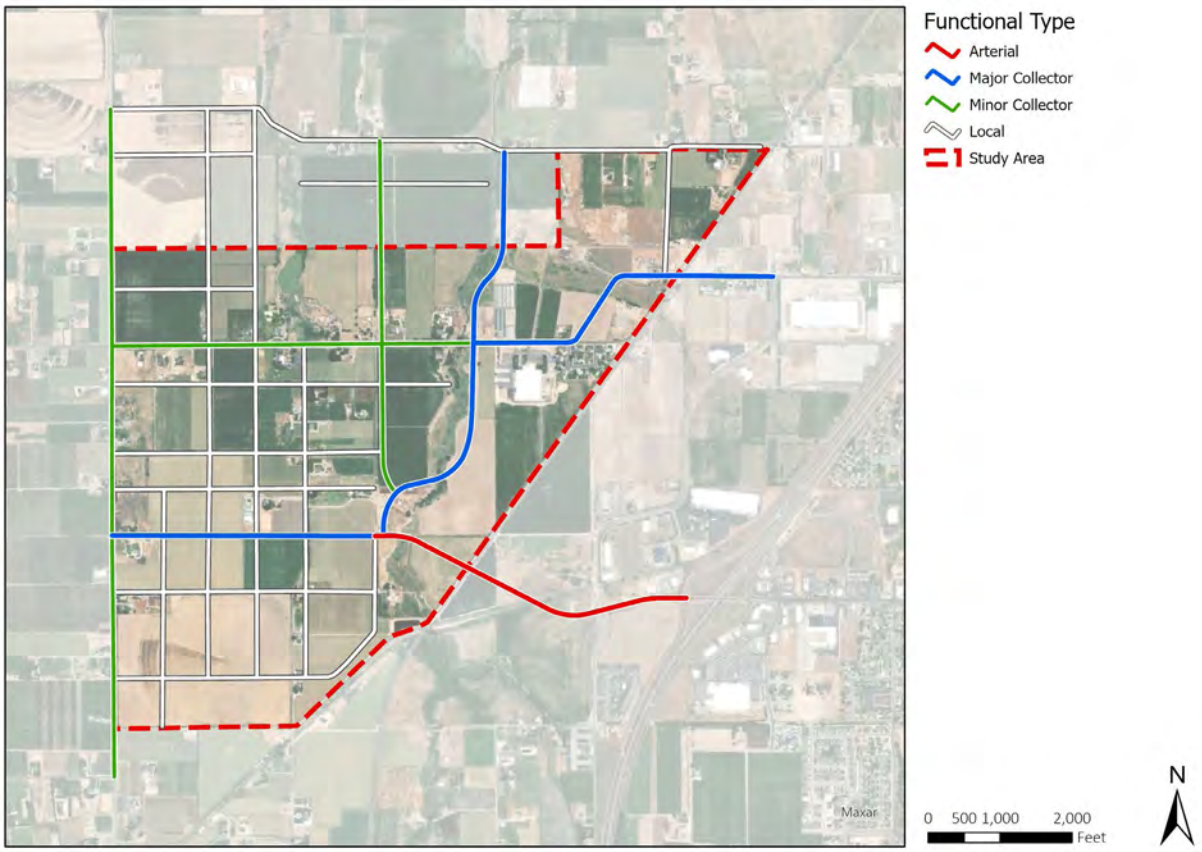
Figure 6: 2050 Area Traffic



ROADWAY NETWORK DEVELOPMENT

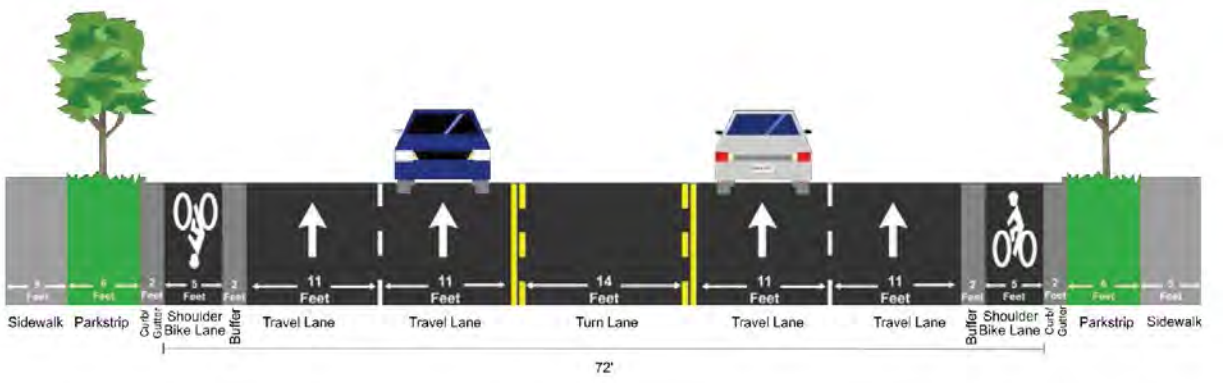
The roadway network was developed in conjunction with the land use concepts and was informed by the travel demand forecasts covered in the previous section. The resulting network is aimed at providing good connectivity within residential areas, ensuring adequate capacity throughout the network, and accommodating good access to the interstate and the city to the east. Figure 7 shows the proposed network by functional type.

Figure 7: Planned roadway network



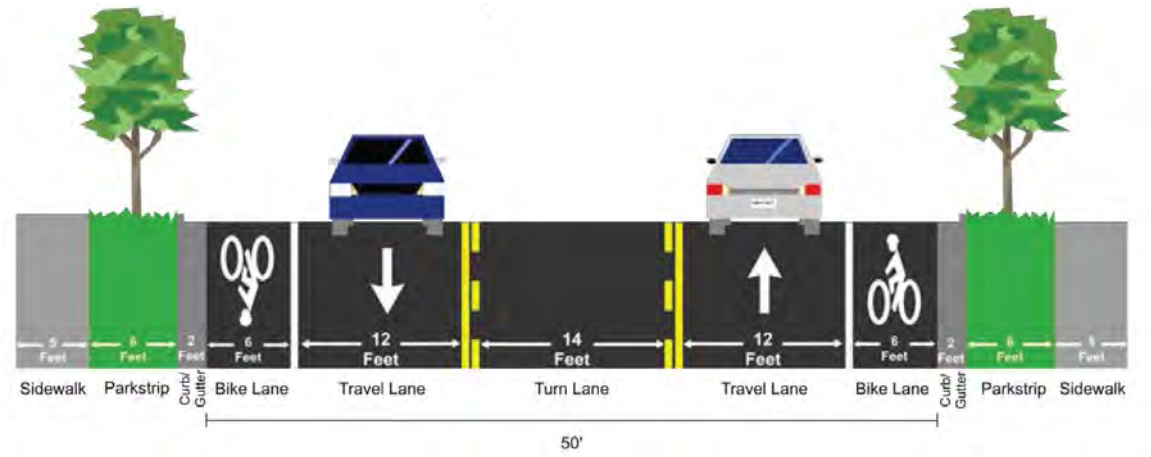
The following figures depict roadway sections for each road functional type. These road sections were developed for and are sourced from the 2020 Payson Transportation Master Plan.

Figure 8: Arterial Section



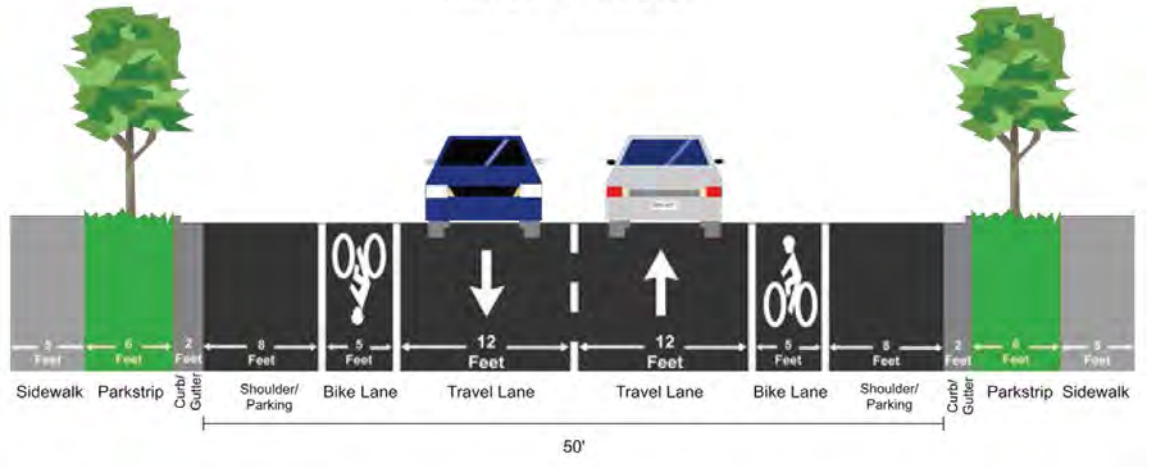
Source: Payson Transportation Master Plan, 2020

Figure 9: Major Collector Section



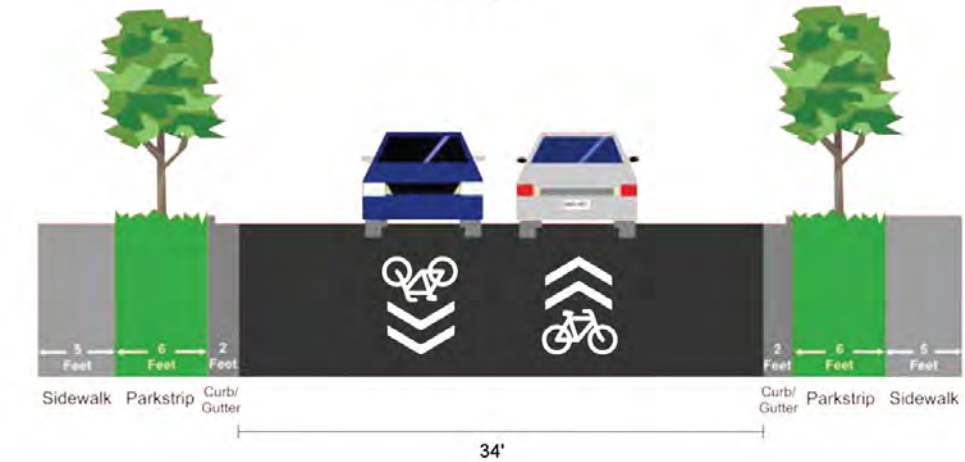
Source: Payson Transportation Master Plan, 2020

Figure 10: Minor Collector Section



Source: Payson Transportation Master Plan, 2020

Figure 11: Local Road Section

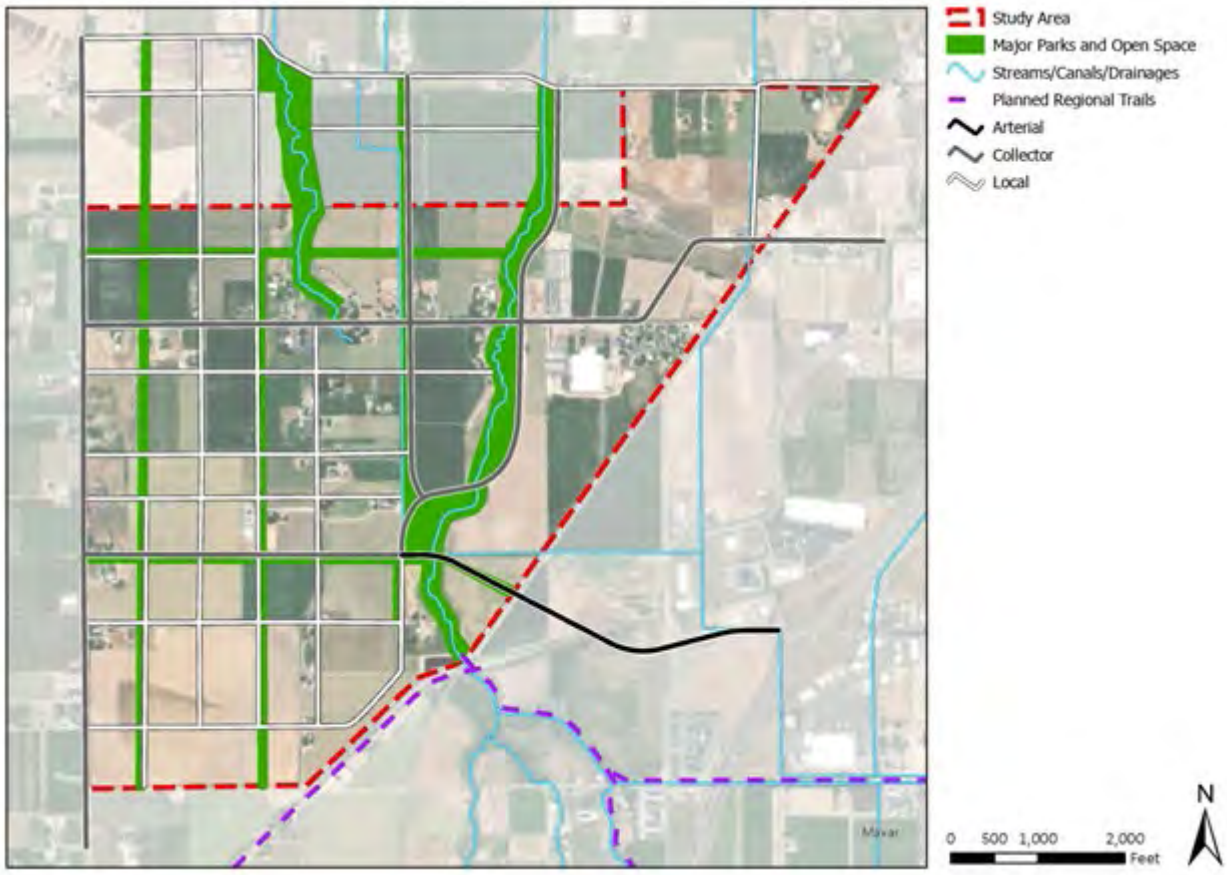


Source: Payson Transportation Master Plan, 2020

ACIVE TRANSPORTATION PLANNING

As shown in Figures 8-11 the planned roadway network provides sidewalks and on-street bike facilities for all functional types, including buffered bike lanes on arterials, standard bike lanes on collectors, and shared lanes for local streets. In addition to on-street facilities, the land use concept's system of linear parks provides a framework to develop a connected system of multi-use trails for all types of users. Figure 12 shows this network of parks. This network also provides connectivity to two planned regional trail systems also shown in figure 12. The planned Goshen Valley Rail Trail follows the Union Pacific Rail line southwest and to Santaquin, and the Payson Trial follows Spring Creek southeast forking at 1130 South, both heading east into town and south further along the creek alignment.

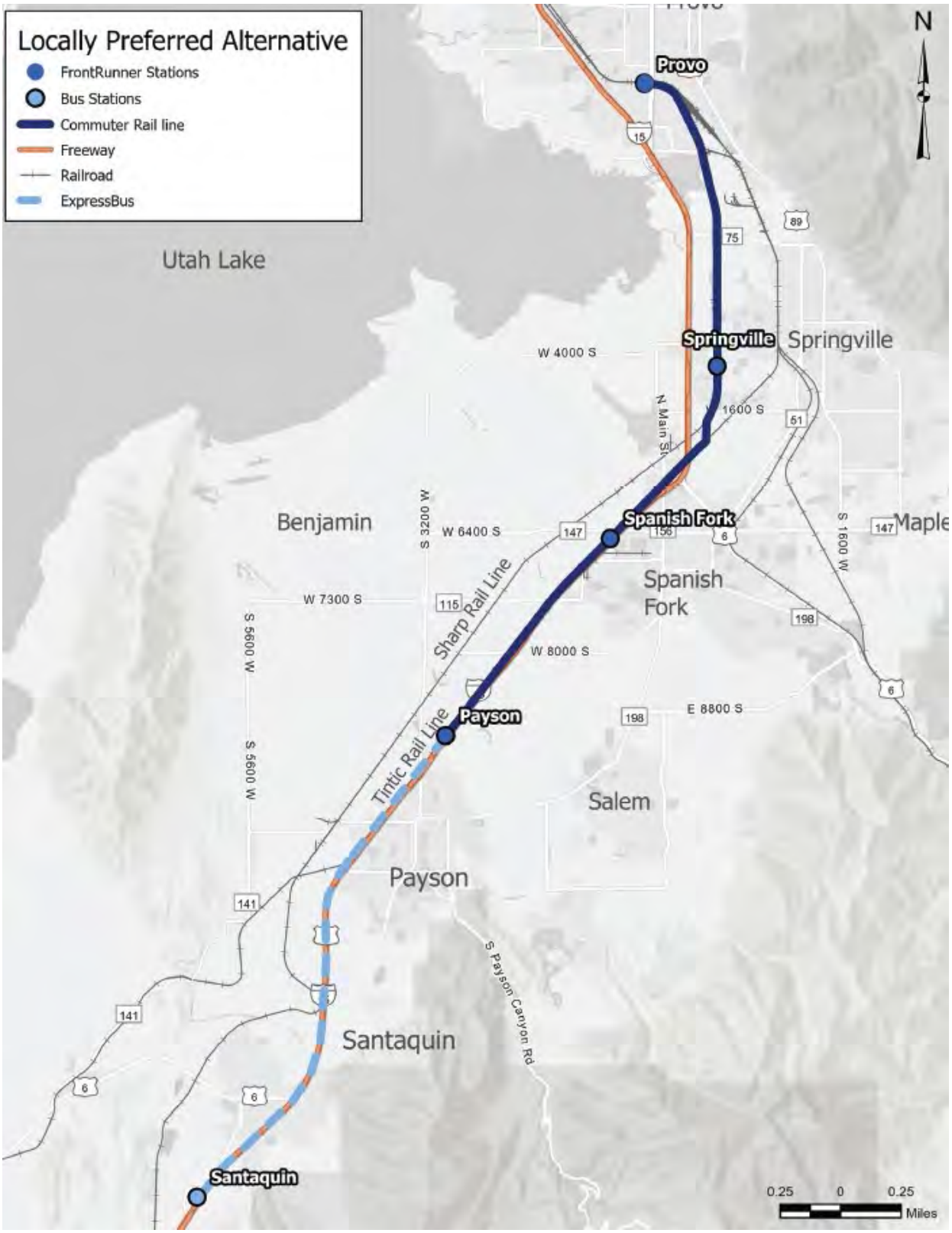
Figure 12: Planned Parks and Trails



TRANSIT PLANNING AND INTEGRATION

The South Valley Transit Study looked at future transit alternatives in southern Utah County. It's primary concern was the extension of FrontRunner from the current southern terminus in Provo. The local preferred alternative, Figure 13, shows the extension of FrontRunner to northern Payson approximately 3.5 miles northeast of the study area. From this terminus, an express bus is planned to continue limited-service south through Payson and into Santaquin. Due to the proximity of the planned high-capacity FrontRunner transit service to the study area, integration of this transit service into the transportation system is not a primary concern. However, the active transportation considerations described in the section above, will help provide safe options for those willing to make the relatively long journey to access the planned FrontRunner station.

Figure 13: South Valley Transit Study – Locally Preferred Alternative



Source: South Valley Transit Study, Utah Transit Authority, January 2022

APPENDIX E

Spring Creek Area Market and
Financial Feasibility Evaluation

Background and Overview

The final alternative considers the development of nearly 2,000 residential units, 229,000 square feet of commercial space and 2.2 million square feet of light industrial and business park space.

TABLE 1: DEVELOPMENT PROJECTIONS

	Units/SF
Residential	1,967
Commercial	228,690
Light Industrial/Business Park	2,180,723

Our analysis shows that the most favorable returns to a developer, given current market conditions, are for multi-family residential units and light industrial/flex space. Supporting commercial uses, of a neighborhood scale, are also feasible at the site. The site has many favorable characteristics, including its geographic location in the middle of one of the most rapidly growing counties in the nation. It is easily accessible from I-15, a major interstate highway, and from 800 South, and hosts natural amenities such as Spring Creek.

Payson is anticipated to grow by nearly 8,000 persons between 2020 and 2030, or by an average of 800 persons per year. With an average household size of 3.5 persons, this represents about 230 households per year. If Spring Creek were to capture 33 percent of this growth, it would result in about 76 new homes per year. With a total of 1,967 residential units proposed for Spring Creek, it would take roughly 25 years to reach residential buildout in the area. However, given the current housing shortage, if more homes are offered on the market in Spring Creek, it is likely they would be quickly absorbed by the market and that Payson could attract homebuyers from the larger regional area.

Utah County has about 43.1 million square feet of industrial/business park space with approximately 13.6 million square feet located in the south part of the County. The vacancy rate is extremely low at 1.23 percent. Payson is well situated along I-15 to capture a good portion of industrial/business park growth in Utah County. The nearly 2.2 million square feet of space planned for this area represents roughly five percent of existing industrial/business park space. Assuming absorption of 20 acres per year, or roughly 330,000 square feet, the business park could be built out in 6-7 years.

Demographics

Payson is located in rapidly growing southern Utah County. The population in southern Utah County is projected to grow by over 50,000 persons between 2020 and 2030; Payson's population is projected to grow by approximately 8,000 persons during the same time period, and by another 12,500 persons over the following decade. As vacant land becomes more limited on the east side of I-15, growth is shifting more to the west side of the Interstate.

TABLE 2: SOUTH UTAH COUNTY POPULATION GROWTH PROJECTIONS

Population Growth Projections	2020	2030	2040	2050
Elk Ridge	4,055	4,314	5,167	5,780
Mapleton	12,390	16,480	19,726	21,724
Payson	22,436	30,341	42,728	64,887
Salem	11,337	21,426	36,057	48,708
Santaquin	14,033	18,539	29,024	40,390

Population Growth Projections	2020	2030	2040	2050
Spanish Fork	44,793	58,643	79,575	93,509
Springville	37,758	48,562	58,174	61,969
Woodland Hills	1,694	1,824	2,018	2,200
TOTAL	**148,496**	**200,129**	**272,469**	**339,167**
Growth from Prior Period		**51,633**	**72,340**	**66,698**

Source: MAG

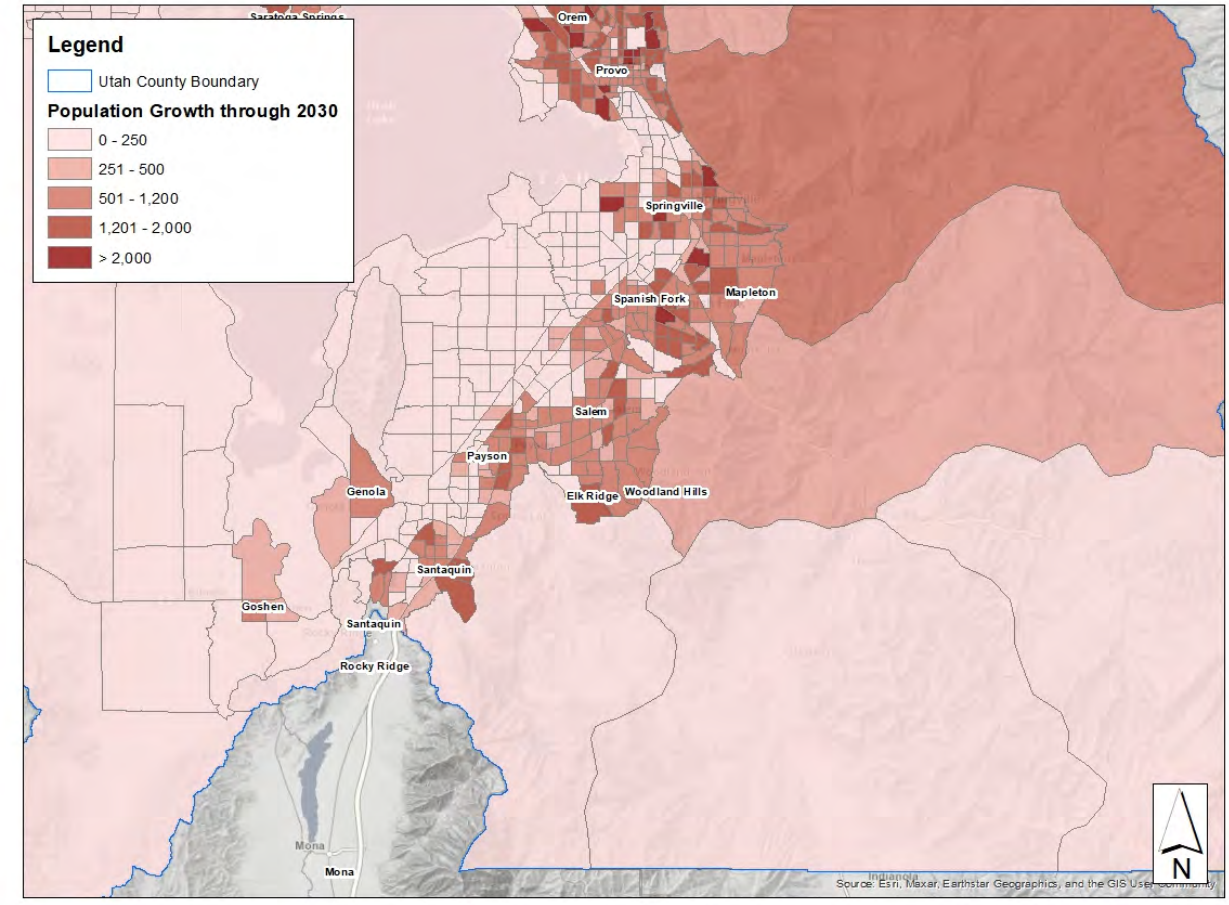


FIGURE 1: POPULATION GROWTH PROJECTIONS BY TRAFFIC AREA ZONE (TAZ); SOURCE: MAG

Significant employment growth is also projected for southern Utah County, with an increase of nearly 20,000 jobs by 2030.

TABLE 3: SOUTH UTAH COUNTY EMPLOYMENT GROWTH PROJECTIONS

Population Growth Projections	2020	2030	2040	2050
Elk Ridge	61	68	68	73
Mapleton	1,314	2,619	3,309	3,912
Payson	8,868	10,492	13,793	21,552
Salem	2,100	3,433	7,355	11,835
Santaquin	1,558	4,371	7,810	11,821

Population Growth Projections	2020	2030	2040	2050
Spanish Fork	21,777	27,389	34,137	41,673
Springville	17,664	24,942	30,700	36,947
Woodland Hills	-	-	-	-
TOTAL	53,342	73,314	97,172	127,813
Growth from Prior Period		19,972	23,858	30,641

Source: MAG

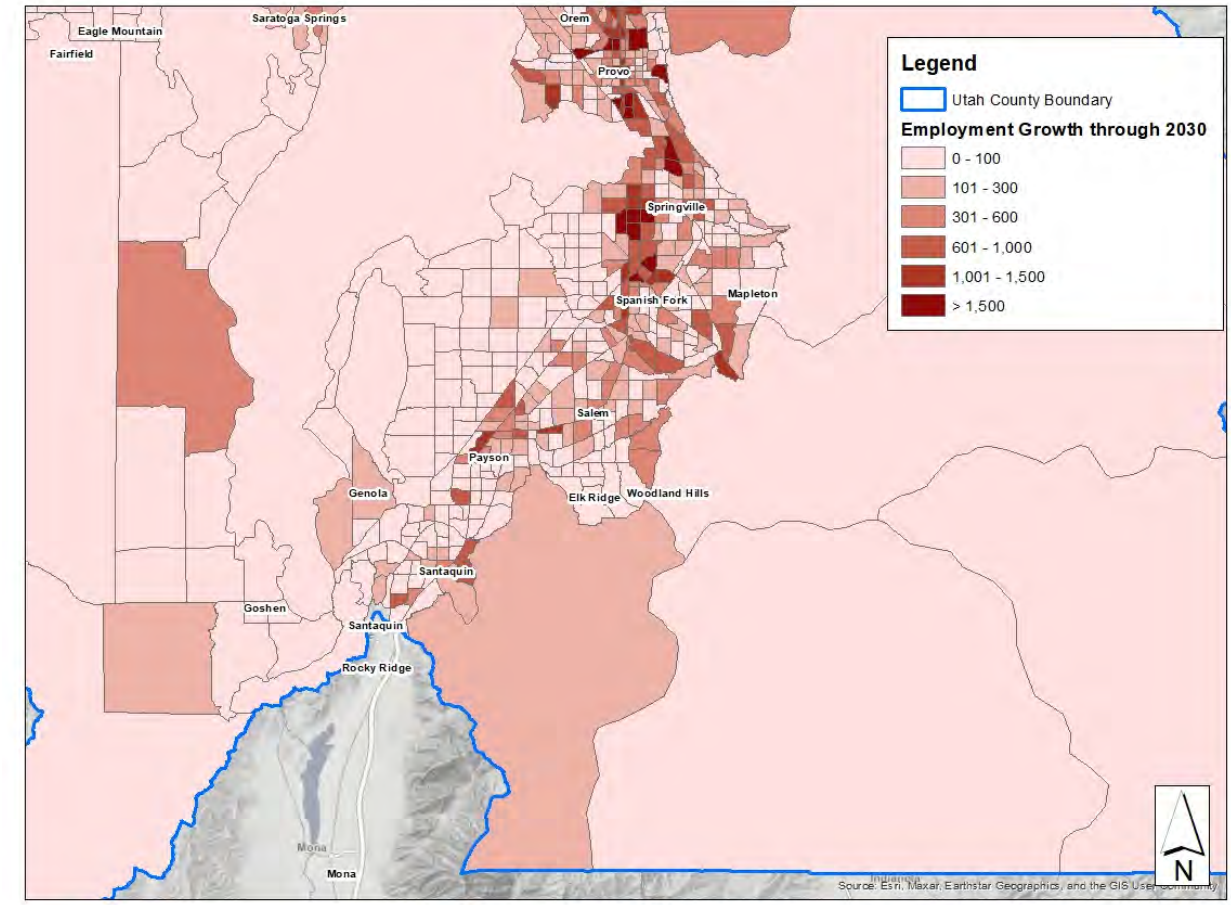


FIGURE 2: EMPLOYMENT GROWTH PROJECTIONS BY TRAFFIC AREA ZONE (TAZ); SOURCE: MAG

Market Conditions

Market conditions were evaluated for retail, office, industrial/business park and residential development.

Retail

The retail market in Utah County is strong, with a vacancy rate of only 2.73 percent and an even lower 1.5 percent in the south part of the County.[1] There are currently 3.13 million square feet of retail space in

[1] Colliers 2Q 2022 Retail Market Report

the south part of the County. With population growth, there will be increased demand for retail space. Research shows that, on average, 16 to 20 square feet of retail space are needed per capita.[2] Based on the population growth projected in the south part of the County, there will be demand for an *additional* 826,000 to 1 million square feet of space by 2030.

TABLE 4: RETAIL SF PROJECTIONS

	2020	2030	2040	2050
South County Population	148,496	200,129	272,469	339,167
Population Growth from Prior Period		51,633	72,340	66,698
Cumulative Growth		51,633	123,973	190,671
16 sf per capita		826,128	1,983,568	3,050,736
20 sf per capita		1,032,660	2,479,460	3,813,420

Demand will also come from existing sales leakage. While a detailed sales leakage analysis was not conducted as part of this study, the following table shows that taxable sales per capita are somewhat lower in Payson than in surrounding areas, thereby indicating that residents are making many of their purchases outside of the City.

TABLE 5: RETAIL SALES PER CAPITA COMPARISON

City	2020 Taxable Sales	2019 Population	Taxable Sales Per Capita
Payson	$368,627,390	19,842	$18,578
Utah County	$12,811,210,631	605,490	$21,158
All Utah	$74,730,705,784	3,096,848	$24,131

The preferred alternative for Spring Creek includes 228,690 square feet of commercial space, a large portion of which may be neighborhood-scale retail in nature. Some of the commercial space could also be office space for small professional offices.

Assuming that 80 percent is retail space, results in approximately 182,952 retail square feet. The proposed development will need to draw from a larger area in order to support this amount of retail square feet. The table below shows the total supportable square footage by the residential units planned for this area. Further, not all purchases made by these residents will be captured locally. However, employees and industrial businesses in the area will likely make many convenience purchases in the area, such as lunchtime eating and gasoline, assuming such goods and services are available. Therefore, they will add somewhat to the buying power of the area.

TABLE 6: SUPPORTABLE RETAIL SQUARE FEET

	HH Size	Number of Units	Population*	16 sf per capita	20 sf per capita
Single-family	3.72	1,409	5,243	83,885	104,856
Multi-family	3.02	558	1,685	26,963	33,703
Total SF				110,847	138,559

*Assumes an average household size of 3.02 persons per unit for multi-family and 3.72 persons per unit for single-family. Source: United States Census 2020

[2] Price Waterhouse Coopers

Office

The Utah County office market currently has a vacancy rate of over 9 percent, with vacancies highest in Class B space as many companies are finding an opportunity to move up to Class A space due to Class A space becoming more available as leases expire and companies downsize their office space needs. Many companies are shrinking their overall footprint as work patterns (remote and in-office work) are still playing out after COVID. Therefore, office markets are considered to be uncertain for the next few years. On the other hand, several major companies have recently announced plans to require employees to return to work for at least three days per week.

Utah County currently has approximately 18.3 million square feet of office space; however, 17.9 million of that office space is located in the central and northern part of the County. Only an estimated 343,500 sf are located in the southern part of the County. Spring Creek has very limited potential for office space which would likely be limited to small professional offices.

Industrial/Business Park

Industrial/business park properties are currently in high demand in Utah County and the inventory is limited. As of 2Q 2022, the vacancy rate countywide was 1.23 percent. Total countywide inventory is close to 43.1 million square feet. The South County had the highest YTD absorption in 2022.

TABLE 7: INDUSTRIAL ABSORPTION IN UTAH COUNTY

Utah Industrial Market	Inventory - SF	Available SF	YTD Absorption SF	Lease Rate
Central	13,709,367	211,117	(146,015)	$0.71
North	14,508,127	218,304	617,782	$0.84
South	13,623,296	116,076	949,373	$0.88
West	1,238,630	15,000	388,000	$0.54

Source: Colliers Industrial Market Report 2Q 2022

Highest-and-Best Use Analysis

From a developer's viewpoint, multi-family and traditional flex office provide the highest return in the current Utah County market.

In order to understand the highest-and-best use impacts associated with office, retail and multi-family development from the perspective of a developer, a detailed analysis of each development type is included in Appendix A of this report. The detailed analysis considers the construction costs (including land) incurred by a developer for various product types. It then calculates the net operating income from each development type (calculated through a detailed review of potential revenue streams and operating costs) and divides by current capitalization rates[3] in the market. The ratio of net operating income divided by an appropriate CAP rate computes the market value of the project. The market value of the project is then compared to the developer's all-in costs for the project to evaluate the developer's profit.

[3] A capitalization (CAP) rate is the ratio of the project's net operating income over the total market value of the completed project.

The table below estimates the varying profit margins by development types for the study area site in Payson and helps explain why developers prefer multi-family development. Detailed calculations for the profit percentages are shown in the Appendix.

TABLE 8: PROFITABILITY COMPARISON BETWEEN DEVELOPMENT TYPES

Type	Likely CAP Rates*	Profit Percentage
Office	6.5%	9%
	7.0%	1%
Multi-Family - 20 units per acre	4.0%	43%
	4.5%	27%
Retail	5.5%	16%
	6.0%	6%
Industrial/Flex Office	4.5%	39%
	5.0%	25%
	5.5%	14%

*Likely CAP rates were determined through a review of broker reports and properties for sale in the Davis-Weber market.

City Fiscal Impacts

From the City's perspective, the highest and best use of the property will not only consider community needs and desires, but also the fiscal impacts to the City. Fiscal impacts include revenues from property taxes, sales taxes, municipal energy taxes and class B/C road funds.

Fiscal impacts to the City from office development are anticipated to reach nearly $7,500 per acre per year.

TABLE 9: OFFICE DEVELOPMENT FISCAL IMPACTS

Description	Amount
Property	
Building cost per sf	$250.00
FAR	0.38
SF per acre	16,553
Property value per acre	$4,138,200
Payson property tax rate	0.001193
Property tax revenues	$4,936.87
Municipal Energy	
Utility/gas costs per sf	$2.50
Annual energy bill	$41,382
Tax rate	6.0%
Revenue	$2,482.92
TOTAL OFFICE	**$7,419.79**

Fiscal impacts to the City from retail development are anticipated to reach over $26,200 per acre annually.

TABLE 10: RETAIL DEVELOPMENT FISCAL IMPACTS

Description	Amount
Property	
Bldg cost per sf	$220.00
FAR	0.25
SF per acre	10,890
Property value per acre	$2,395,800
Payson property tax rate	0.001193
Property tax revenues	$2,858.19
Sales	
Sales per sf	$400
SF per acre	10,890
Gross annual sales	$4,356,000
Local point-of-sale revenues	$21,780
Municipal Energy	
Utility/gas costs per sf	$2.50
Annual energy bill	$27,225
Tax rate	6.0%
Revenue	$1,633.50
TOTAL RETAIL	**$26,271.69**

Fiscal impacts to the City from flex office development are anticipated to reach nearly $6,500 per year.

TABLE 11: FLEX OFFICE DEVELOPMENT FISCAL IMPACTS

FLEX OFFICE	
Cost per SF	$200.00
FAR	0.38
Bldg SF per Acre	16,553
Value per Acre	$3,310,560
Property	
Property Value per Acre	$3,310,560
Payson Property Tax Rate	0.001193
Total Property Tax per Acre	$3,949.50
Municipal Energy	
Utility Costs per SF per Year	$2.50

FLEX OFFICE	
Units	16,553
Annual ME tax revenues	$2,482.92
Total	**$6,432.42**

Fiscal impacts to the City from multi-family development (20 units per acre) are expected to reach nearly $13,000 per acre annually.

TABLE 12: MULTI-FAMILY DEVELOPMENT FISCAL IMPACTS – 20 UNITS PER ACRE

Description	Amount
Property	
Per Door Market Value	$250,000
Property Value per Acre	$5,000,000
Payson Property Tax Rate	0.001193
Total Property Tax per Acre	$3,280.75
Sales	
Units per Acre	20
Average HH Size	3.0
Population per Acre	60
Population Distribution per Capita	$100
Point of Sale per Capita	$2,300
Distribution from Point of Sale per Capita	$12
Total per Capita Distribution	$112
Annual Distribution per Acre	$6,690
Municipal Energy	
Utility - Energy and Gas per Unit - MF	$981.10
Units	20
Annual ME tax revenues	$1,177.32
Class B/C Road Funds	
Amount per Capita	$30.05
Population per Acre	60
Total Population Distribution per Year	$1,803.00
Total Multi-Family	**$12,951.07**

Revenues per acre are substantially less for 8 multi-family units per acre than for 20 units, but costs of some City services would also likely be less (less vehicle trips on the roads, fewer public safety calls for service, etc.).

TABLE 13: MULTI-FAMILY DEVELOPMENT FISCAL IMPACTS – 8 UNITS PER ACRE

Description	Amount
Property	
Per Door Market Value	$250,000
Property Value per Acre	$2,000,000
Payson Property Tax Rate	0.001193
Total Property Tax per Acre	$1,312.30
Sales	
Units per Acre	8
Average HH Size	3.0
Population per Acre	24
Population Distribution per Capita	$100
Point of Sale per Capita	$2,300
Distribution from Point of Sale per Capita	$12
Total per Capita Distribution	$112
Annual Distribution per Acre	$2,676
Municipal Energy	
Utility - Energy and Gas per Unit - MF	$981.10
Units	8
Annual ME tax revenues	$470.93
Class B/C Road Funds	
Amount per Capita	$30.05
Population per Acre	24
Total Population Distribution per Year	$721.20
Total Multi-Family	**$5,180.43**

Revenues per acre are less for single-family development, largely due to the decreased sales tax revenues (population distribution portion of formula) from the smaller population at the site.

TABLE 14: SINGLE-FAMILY DEVELOPMENT FISCAL IMPACTS – 4 UNITS PER ACRE

Description	Amount
Property	
Per Door Market Value	$550,000
Property Value per Acre	$2,200,000
Payson Property Tax Rate	0.001193
Total Property Tax per Acre	$1,443.53
Sales	

Description	Amount
Units per Acre	4
Average HH Size	3.5
Population per Acre	14
Population Distribution per Capita	$100
Point of Sale per Capita	$2,300
Distribution from Point of Sale per Capita	$12
Total per Capita Distribution	$112
Annual Distribution per Acre	$1,561
Municipal Energy	
Utility - Energy and Gas per Unit	$1,200
Units	4
Annual ME tax revenues	$288.00
Class B/C Road Funds	
Amount per Capita	$30.05
Population per Acre	14
Total Population Distribution per Year	$420.70
Total Single-Family	**$3,713.23**

Retail development brings the highest revenues per acre to the City, followed by higher-density multi-family development. However, both of those development types also have higher service costs on a per acre basis (i.e., calls for service, traffic generation and impact on roads, etc.). For these types of development, some of the costs can be mitigated through business licensing fees.

TABLE 15: SUMMARY OF FISCAL IMPACTS PER ACRE BY DEVELOPMENT TYPE

Summary Comparison	Office	Retail	Multi-Family - 20 units per acre	Multi-Family - 8 units per acre	Single-Family 4 units per acre	Flex Office
Property Taxes	$4,937	$2,858	$2,625	$1,312	$1,444	$3,949
Sales Taxes		$21,780	$6,690	$2,676	$1,561	
Municipal Energy	$2,483	$1,634	$1,177	$471	$288	$2,482.92
Class B/C Road Funds			$1,803	$721	$421	
Total Annual Revenue per Acre	**$7,420**	**$26,272**	**$12,295**	**$5,180**	**$3,713**	**$6,432**

Appendix A

Office Development

Office development is currently in an uncertain stage in Utah and has been described as a "wait-and-see" market. However, much of the uncertainty is offset by the rapid business and population growth occurring in Utah, as well as the relative stability of the office market in Utah County during the pandemic.

The following office market assumptions reflect the increased construction costs in today's market, which were used to calculate potential market values and developer profitability for office development and assumes an office campus where higher rents can be achieved.

TABLE A-1: OFFICE VALUATION ASSUMPTIONS

Description	Amount
Annual Rent Per Sq. Ft.	$20.00
Expense Reimbursements	$2.00
Stabilized Vacancy Rate	5%
Management Expense	3%
Reserve Expense	1%
Direct Costs - Sq. Ft.	$155.00
Indirect Costs - Sq. Ft.	$50.00
Land Per Sq. Ft.	$12.00
Parking Per Stall	$3,500
Parking Ratio	5.5
Floor-Area Ratio	0.38

Using the above assumptions, a value of $258 per square foot is calculated, assuming a capitalization rate of 7.0 percent. While buildings have been bought and sold in Utah recently for cap rates in the range of 6.0 – 6.5 percent, those buildings are generally fully leased and are found in prime locations such as along the I-15 tech corridor in Salt Lake and Utah counties. There is greater risk with construction of a new building, plus Payson is seen as a secondary office market in Utah County.

Value is calculated by dividing net operating income (NOI) by current capitalization rates achieved in the market. Net income is calculated in the table below. In the following table, net operating income is divided by a cap rate of 7.0 percent to arrive at a value of $258 per square foot. This analysis is based on a floor area ratio (FAR) of 0.38.

TABLE A-2: OFFICE VALUATION CALCULATIONS

Office	Building Size	Rent Per Year (Sq.Ft.)	Rent Type	Annual Income
Gross Revenue				
Rental Income	16,553	$20.00	NNN	$331,056
Expense Reimbursements				$33,106
Total Building Size	16,553			
Potential Gross Income				$364,162
		Stabilized Vacancy Rate		
Less Stabilized Vacancy		5%		($18,208)
Effective Gross Income				$345,954

Office	Building Size	Rent Per Year (Sq.Ft.)	Rent Type	Annual Income
Operating Expenses				
		% of EGI	$/SQ.FT.	
Management		3%		($10,379)
Reserves		1%		($3,460)
CAM Charges			$2.00	($33,106)
Total Operating Expenses				($46,944)
Net Operating Income				**$299,010**
Capitalization Rate			**Potential Value per Building**	**Value per SF**
6.0%			$4,983,496	$301.07
6.5%			$4,600,150	$277.91
7.0%			$4,271,568	$258.06
7.5%			$3,986,797	$240.85
8.0%			$3,737,622	$225.80

The average construction cost per square foot is $255.83 based on the assumptions shown in the table below. However, construction costs are rising rapidly and are fairly volatile in today's market. If construction costs rise 10 percent higher than those presented, then the cost per square foot increases to $276. Such increases have a dramatic effect on feasibility and profitability of projects.

TABLE A-3: OFFICE CONSTRUCTION COST CALCULATIONS

Construction Costs	Per Sq.Ft.	Total Building Size		Total Costs
Direct Costs	$155.00	16,553		$2,565,684
Indirect Costs	$50.00	16,553		$827,640
Indirects as % of Direct	*32%*			
	Per Stall	**Parking Ratio**	**Needed Spaces**	**Parking Costs**
Parking Costs	$3,500	5.5	91	$318,641
			Construction Costs	$3,711,965
	Per Sq. Ft.	**Total Land/Acres**	**Total Land/ Sq. Ft.**	**Land Costs**
Land	$12.00	1.00	43,560	$522,720
			Construction Costs + Land	$4,234,685
			Per Sq. Ft./Bldg.	**$255.83**

Generally speaking, investors require a return of 18-20 percent or higher on office development. With cap rates of 6.0 percent, office development is feasible and would likely be pursued. However, current cap rates have been higher in recent months due to uncertainty in the office market.

TABLE A-4: FEASIBILITY OF OFFICE DEVELOPMENT

Capitalization Rate	Potential Value per Building	Potential Costs	Spread	Profit % of Costs
6.0%	$4,983,496	$4,234,685	$748,811	18%
6.5%	$4,600,150	$4,234,685	$365,465	9%
7.0%	$4,271,568	$4,234,685	$36,883	1%
7.5%	$3,986,797	$4,234,685	($247,888)	(6%)
8.0%	$3,737,622	$4,234,685	($497,063)	(12%)

However, if construction costs increase by 10 percent, then development would not be feasible without higher rents. Cap rates are generally lower when a tenant is in place; higher for speculative space.

TABLE A-5: FEASIBILITY OF DEVELOPMENT WITH INCREASED 10% INCREASED CONSTRUCTION COSTS

Capitalization Rate	Potential Value per Building	Potential Costs	Spread	Profit % of Costs
6.0%	$4,983,496	$4,574,018	$409,479	9%
6.5%	$4,600,150	$4,574,018	$26,133	1%
7.0%	$4,271,568	$4,574,018	($302,450)	(7%)
7.5%	$3,986,797	$4,574,018	($587,221)	(13%)
8.0%	$3,737,622	$4,574,018	($836,396)	(18%)

Retail Development

The retail marketplace is undergoing significant change. Consumers are still purchasing, but there is a notable trend toward online purchases rather than in-store. This trend was occurring before COVID-19 and has been expedited since the onset of the pandemic. While there have been a significant number of bankruptcies over the past couple of years, those businesses that were able to quickly adapt to the new environment, have been rewarded. However, because of these changes, overall space needs are declining significantly – from 23 square feet per capita a few years ago to closer to 16 square feet per capita today. Lease rates vary greatly depending on the size of the space, with significantly higher rates on smaller spaces, such as restaurants, than for larger spaces, such as grocery stores.

However, Payson will still see strong demand for retail space due to steady population growth in the regional area.

TABLE A-6: RETAIL DEVELOPMENT ASSUMPTIONS

Description	Amount
Building Size	10,890
Annual Rent Per Sq. Ft.	$16.00
Expense Reimbursements	$2.50
Stabilized Vacancy	5%
Management Expense	3%
Reserve Expense	1%
Direct Costs - Sq. Ft.	$120.00
Indirect Costs - Sq. Ft.	$40.00
Parking Per Stall	$3,500
Parking Ratio	5.0
Land Per Sq. Ft.	$12.00
Floor-Area Ratio	0.25

Retail development is currently requiring cap rates in the range of 5.5 – 6.5 percent. With current trends in the market towards more online buying, retail development is not a top choice for most developers.

TABLE A-7: RETAIL – CALCULATION OF NET OPERATING COSTS (NOI)

Retail	Building Size	Rent Per Year (Sq.Ft.)	Rent Type	Annual Income
Gross Revenue				
Rental Income	10,890	$16.00	NNN	$174,240
Expense Reimbursements				$27,225
Total Building Size	10,890			
Potential Gross Income				$201,465

Retail	Building Size	Rent Per Year (Sq.Ft.)	Rent Type	Annual Income
		Stabilized Vacancy Rate		
Less Stabilized Vacancy		5%		($10,073)
Effective Gross Income				$191,392
		Operating Expenses		
		% of EGI	$/SQ.FT.	
	Management	3%		($5,742)
	Reserves	1%		($1,914)
	CAM Charges		$2.00	($27,225)
			Total Operating Expenses	($34,881)
Net Operating Income				**$156,511**
Capitalization Rate			**Potential Value**	**Per SF**
5.0%			**$3,130,222**	**$287.44**
5.5%			**$2,845,656**	**$261.31**
6.0%			**$2,608,518**	**$239.53**
6.5%			**$2,407,863**	**$221.11**
7.0%			**$2,235,873**	**$205.31**
7.5%			**$2,086,814**	**$191.63**
8.0%			**$1,956,389**	**$179.65**

The average construction cost is $225.50 per square foot based on the assumptions shown in the table below.

TABLE A-8: RETAIL – CALCULATION OF CONSTRUCTION COSTS

Construction Costs	Per Sq. Ft.	Total Size		Total Costs
Direct Costs	$120.00	10,890		$1,306,800
Indirect Costs	$40.00	10,890		$435,600
Indirects as % of Direct	*31%*			
	Per Stall	**Parking Ratio**	**Needed Spaces**	**Parking Costs**
Parking Costs	$3,500	5.0	54	$190,575
			Construction Costs	$1,932,975
	Per Sq.Ft.	**Total Land/Acres**	**Total Land/ Sq. Ft.**	**Land Costs**
Land	$12.00	1.0	43,560	$522,720
			Construction Costs + Land	**$2,455,695**
			Per Sq. Ft./Bldg.	**$225.50**

As stated previously, given current cap rates of 5.5 – 6.0 percent, speculative retail development will prove difficult for most developers in today's market.

TABLE A-9: RETAIL PROFITABILITY ANALYSIS

Capitalization Rate	Potential Value	Potential Costs	Spread	Profit % of Costs
5.0%	$3,130,222	$2,455,695	$674,527	27%
5.5%	$2,845,656	$2,455,695	$389,961	16%

Capitalization Rate	Potential Value	Potential Costs	Spread	Profit % of Costs
6.0%	$2,608,518	$2,455,695	$152,823	6%
6.5%	$2,407,863	$2,455,695	($47,832)	(2%)
7.0%	$2,235,873	$2,455,695	($219,822)	(9%)
7.5%	$2,086,814	$2,455,695	($368,881)	(15%))
8.0%	$1,956,389	$2,455,695	($499,307)	(20%)

Multi-Family Development

The housing market in Utah is extremely tight at the present time. This market has high profitability for developers. The following analysis compares the relative profitability to developers from a higher-density product (20 units per acre) v. a lower-density product (8 units per acre).

TABLE A-10: ASSUMPTIONS FOR MULTI-FAMILY DEVELOPMENT – SCENARIO 1 – 20 UNITS PER ACRE

Description	Amount
Total Units	20
Average Unit Size	1,300
Average Rent Per Month/SF	$1.30
Other Income Per Unit/Mo.	$20.00
Stabilized Vacancy	5%
Gross Building Size	29,900
Number of Building Stories	2
Required Parking Per Unit	1.5
Direct Construction Costs	$120
Indirect Construction Costs	$30
Cost per Parking Space	$3,500
Land Costs per SF	$12.00

TABLE A-11: NET INCOME CALCULATIONS – SCENARIO 1 – 20 UNITS PER ACRE

Multi-Family		Number of Units	Average Unit Size	Rent Per Unit/Month	Annual
Estimated Market Rent - Multi-Family		20	1,300	$1,690	$405,600
Other Income (storage, late fees, etc.)					$4,800
Potential Gross Income (PGI)		*Total Size*	*26,000*		**$410,400**
		% of PGI			
Less Stabilized Vacancy		5%			($20,520)
Effective Gross Income (EGI)					**$389,880**
Operating Expenses		**% of EGI**	**Per Unit/Year**		
	Management	3%			($11,696)
	Reserves	1%			($3,899)
	Utilities		$1,020		($20,400)
	Maintenance & Repair		$1,200		($24,000)

Multi-Family	Number of Units	Average Unit Size	Rent Per Unit/Month	Annual
Admin		$450		($9,000)
Property Taxes		$908		($18,150)
Insurance		$480		($9,600)
Total Expenses				($96,745)
		Per unit/Year	$4,837	
Net Operating Income (NOI)				**$293,135**

Construction costs are anticipated to reach $196.64 per square foot based on the assumptions shown in the table below.

TABLE A-12: MULTI-FAMILY CONSTRUCTION COST CALCULATIONS – 20 UNITS PER ACRE

	Per Sq. Ft.	Total
Direct Costs - Bldg	$120	$3,588,000
Indirect Costs - Bldg	$30	$897,000
% of Indirects to Direct - Bldg		25%
	Per Space	
Costs - Surface/Covered Parking	$3,500	$105,000
	Total Direct/Indirect	**$4,590,000**
Land Costs	$12.00	$522,720
	Costs + Land	$5,112,720
Total Costs		**$5,112,720**
	Per Unit	**$255,636**
	Per Sq. Ft.	**$196.64**

TABLE A-13: PROFITABILITY – SCENARIO 1 – 20 UNITS PER ACRE

Capitalization Rate	Value	Per Unit	Per Sq.Ft.	Value Spread with Costs/Per Unit	Value Spread with Costs/Sq.Ft.	Profit %
4.5%	$7,328,370	$5,112,720	$2,215,650	$366,419	$282	43.3%
5.0%	$6,514,107	$5,112,720	$1,401,387	$325,705	$251	27.4%
5.5%	$5,862,696	$5,112,720	$749,976	$293,135	$225	14.7%
6.0%	$5,329,724	$5,112,720	$217,004	$266,486	$205	4.2%
6.5%	$4,885,580	$5,112,720	($227,140)	$244,279	$188	(4.4%)

In comparison, calculations are also made for multi-family development at 8 units per acre.

TABLE A-14: ASSUMPTIONS FOR MULTI-FAMILY DEVELOPMENT – SCENARIO 2 – 8 UNITS PER ACRE

Description	Amount
Total Units	8
Average Unit Size	1300
Average Rent Per Month/Sq. Ft.	$1.30
Other Income Per Unit/Mo.	$20.00

Description	Amount
Stabilized Vacancy	5%
Gross Building Size	11,960
Number of Building Stories	2
Required Parking Per Unit	1.5
Direct Construction Costs	$120
Indirect Construction Costs	$30
Cost per Parking Space	$3,500
Land Costs per Sq. Ft.	$12.00

TABLE A-15: NET INCOME CALCULATIONS – SCENARIO 2 – 8 UNITS PER ACRE

Multi-Family		Number of Units	Average Unit Size	Rent Per Unit/Month	Annual
Estimated Market Rent - Multi-Family		8	1,300	$1,690	$162,240
Other Income (storage, late fees, etc.)					$1,920
Potential Gross Income (PGI)		*Total Size*	*10,400*		**$164,160**
		% of PGI			
Less Stabilized Vacancy		5%			($8,208)
Effective Gross Income (EGI)					**$155,952**
Operating Expenses		**% of EGI**	**Per Unit/Year**		
	Management	3%			($4,679)
	Reserves	1%			($1,560)
	Utilities		$1,020		($8,160)
	Maintenance & Repair		$1,200		($9,600)
	Admin		$450		($3,600)
	Property Taxes		$908		($7,260)
	Insurance		$480		($3,840)
	Total Expenses				($38,698)
			Per unit/Year	$4,837	
Net Operating Income (NOI)					**$117,254**

TABLE A-16: CONSTRUCTION COST CALCULATIONS – SCENARIO 2 – 8 UNITS PER ACRE

	Per Sq. Ft.	Total
Direct Costs - Bldg	$120	$1,435,200
Indirect Costs - Bldg	$30	$358,800
% of Indirects to Direct - Bldg		25%
	Per Space	
Costs - Surface/Covered Parking	$3,500	$42,000
	Total Direct/Indirect	**$1,836,000**

	Per Sq. Ft.	Total
Land Costs	$12.00	$522,720
	Costs + Land	$2,358,720
Total Costs		**$2,358,720**
	Per Unit	**$294,840**
	Per Sq.Ft.	**$226.80**

TABLE A-17: PROFITABILITY – SCENARIO 2 – 8 UNITS PER ACRE

Capitalization Rate	Value	Per Unit	Per Sq. Ft.	Value Spread with Costs/Per Unit	Value Spread with Costs/Sq. Ft.	Profit %
4.5%	$2,931,348	$366,419	$282	$71,579	$55	24.3%
5.0%	$2,605,643	$325,705	$251	$30,865	$24	10.5%
5.5%	$2,345,078	$293,135	$225	($1,705)	-$1	(0.6%)
6.0%	$2,131,889	$266,486	$205	($28,354)	-$22	(9.6%)
6.5%	$1,954,232	$244,279	$188	($50,561)	-$39	(17.1%)

Industrial/Flex Office

TABLE A-18: FLEX OFFICE VALUATION ASSUMPTIONS

Description	Amount
Annual Rent Per Sq. Ft.	$14.50
Expense Reimbursements	$2.00
Stabilized Vacancy	5%
Management Expense	3%
Reserve Expense	1%
Direct Costs - Sq. Ft.	$140.00
Indirect Costs - Sq. Ft.	$40.00
Land Per Sq. Ft.	$12.00
Parking Per Stall	$3,500
Parking Ratio	2.5
Floor-Area Ratio	0.25

Value is calculated by dividing net operating income (NOI) by current capitalization rates achieved in the market. Net income is calculated in the table below. In the following table, net operating income is divided by a cap rate of 5.0 percent to arrive at a value of $261 per square foot. This analysis is based on the size of a building that would fit on one acre of property, assuming a floor area ratio (FAR) of 0.25.

TABLE A-19: FLEX OFFICE VALUATION CALCULATIONS

Office	Building Size	Rent Per Year (Sq.Ft.)	Rent Type	Annual Income
Gross Revenue				
Rental Income	10,890	$14.50	NNN	$157,905
Expense Reimbursements				$21,780

Office	Building Size	Rent Per Year (Sq.Ft.)	Rent Type	Annual Income
Total Building Size	10,890			
Potential Gross Income				$179,685
			Stabilized Vacancy Rate	
Less Stabilized Vacancy			5%	($8,984)
Effective Gross Income				$170,701
Operating Expenses				
		% of EGI	$/SQ.FT.	
Management		3%		($5,121)
Reserves		1%		($1,707)
CAM Charges			$2.50	($21,780)
Total Operating Expenses				($28,608)
Net Operating Income				**$142,093**
Capitalization Rate			**Potential Value per Building**	**Value per SF**
4.0%			$3,552,318	$326.20
4.5%			$3,157,616	$289.96
5.0%			$2,841,854	$260.96
5.5%			$2,583,504	$237.24
6.0%			$2,368,212	$217.47
6.5%			$2,186,042	$200.74
7.0%			$2,029,896	$186.40
7.5%			$1,894,570	$173.97

The average construction cost per square foot is $208.75 based on the assumptions shown in the table below.

TABLE A-20: FLEX OFFICE CONSTRUCTION COST CALCULATIONS

Construction Costs	Per Sq.Ft.	Total Building Size		Total Costs
Direct Costs	$120.00	10,890		$1,306,800
Indirect Costs	$32.00	10,890		$348,480
Indirects as % of Direct	*27%*			
	Per Stall	**Parking Ratio**	**Needed Spaces**	**Parking Costs**
Parking Costs	$3,500	2.5	27	$95,288
			Construction Costs	$1,750,568
	Per Sq. Ft.	**Total Land/Acres**	**Total Land/ Sq. Ft.**	**Land Costs**
Land	$12.00	1.00	43,560	$522,720
			Construction Costs + Land	$2,273,288
			Per Sq. Ft./Bldg.	**$208.75**

Generally speaking, investors require a return of 20 percent or higher on flex office development. With cap rates of 4.5 – 5.0 percent, flex office development is highly feasible and would likely be pursued.

TABLE A-21: FLEX OFFICE FEASIBILITY OF DEVELOPMENT

Capitalization Rate	Potential Value per Building	Potential Costs	Spread	Profit % of Costs
4.5%	$3,157,616	$2,273,288	$884,329	39%
5.0%	$2,841,854	$2,273,288	$568,567	25%

Capitalization Rate	Potential Value per Building	Potential Costs	Spread	Profit % of Costs
5.5%	$2,583,504	$2,273,288	$310,217	14%
6.0%	$2,368,212	$2,273,288	$94,925	4%
6.5%	$2,186,042	$2,273,288	($87,246)	(4%)
7.0%	$2,029,896	$2,273,288	($243,392)	(11%)
7.5%	$1,894,570	$2,273,288	($378,718)	(17%)