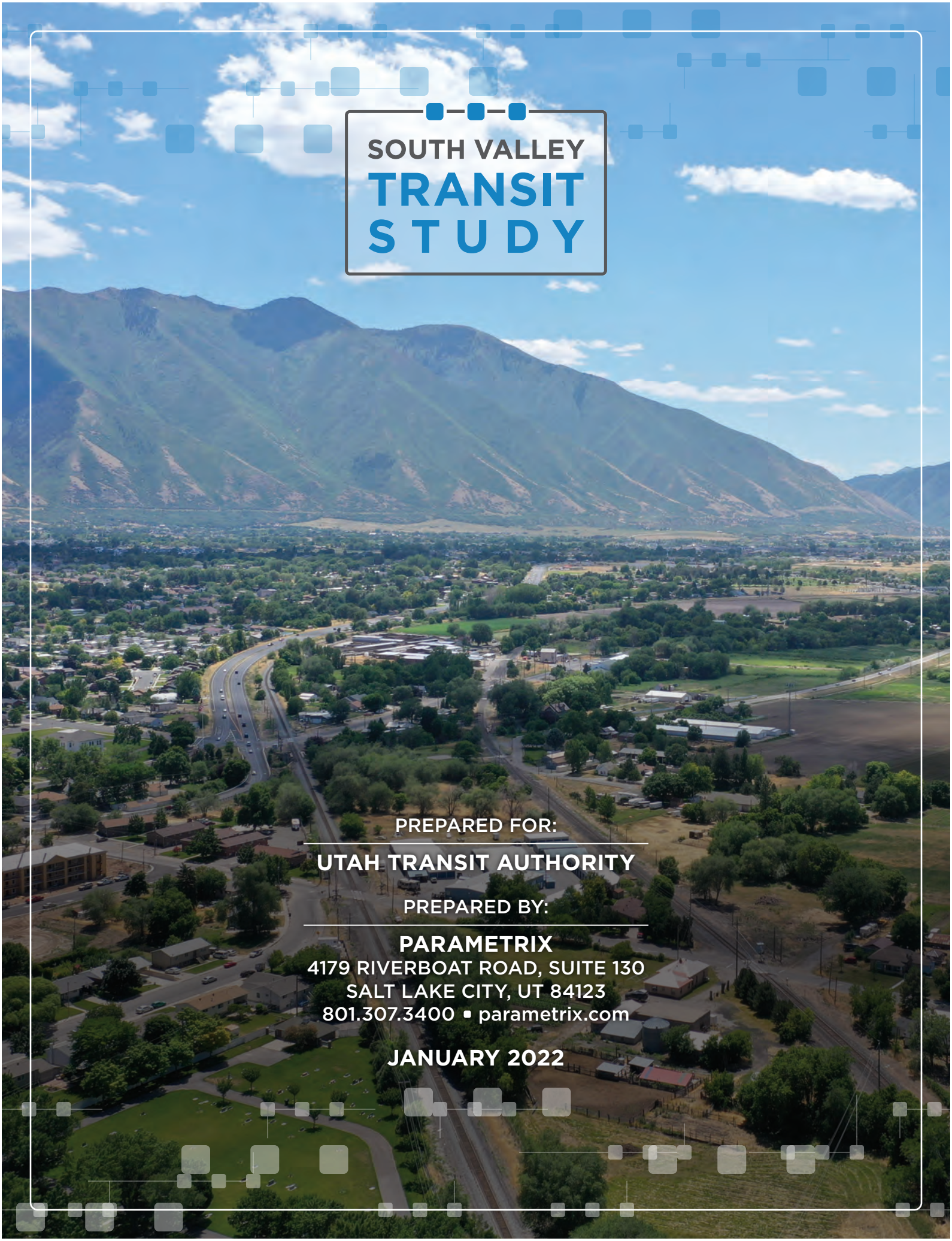

SOUTH VALLEY TRANSIT STUDY

PREPARED FOR:

UTAH TRANSIT AUTHORITY

PREPARED BY:

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JANUARY 2022

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TABLE OF CONTENTS

ACRONYMS

ADA	Americans with Disabilities Act
B	Billion
BRT	Bus Rapid Transit
CIG	Capital Investment Grants
CRA	Community Reinvestment Areas
CRT	Commuter Rail Transit
EIS	Environmental Impact Statement
EPD	Expedited Project Delivery
ESA	Endangered Species Act
FAST	Fixing America's Surface Transportation
FRF	FrontRunner Forward
FTA	Federal Transit Administration
GIS	Geographic Information Systems
HCT	High-Capacity Transit
HTRZ	Housing and Transit Reinvestment Zones
I-15	Interstate 15
K	Thousand
LRT	Light Rail Transit
M	Million
MAG	Mountainland Association of Governments
MPH	Miles per Hour
NEPA	National Environmental Policy Act
NTD	National Transit Database
PID	Public Infrastructure District
ROD	Record of Decision
ROI	Return on Investment
RTP	Regional Transportation Plan
SR	State Route
TAC	Technical Advisory Committee
TDM	Travel Demand Model
TOD	Transit-Oriented Development
TRZ	Transportation Reinvestment Zone
UDOT	Utah Department of Transportation
UPRR	Union Pacific Railroad
UTA	Utah Transit Authority
UVX	Utah Valley Express
WFRC	Wasatch Front Regional Council

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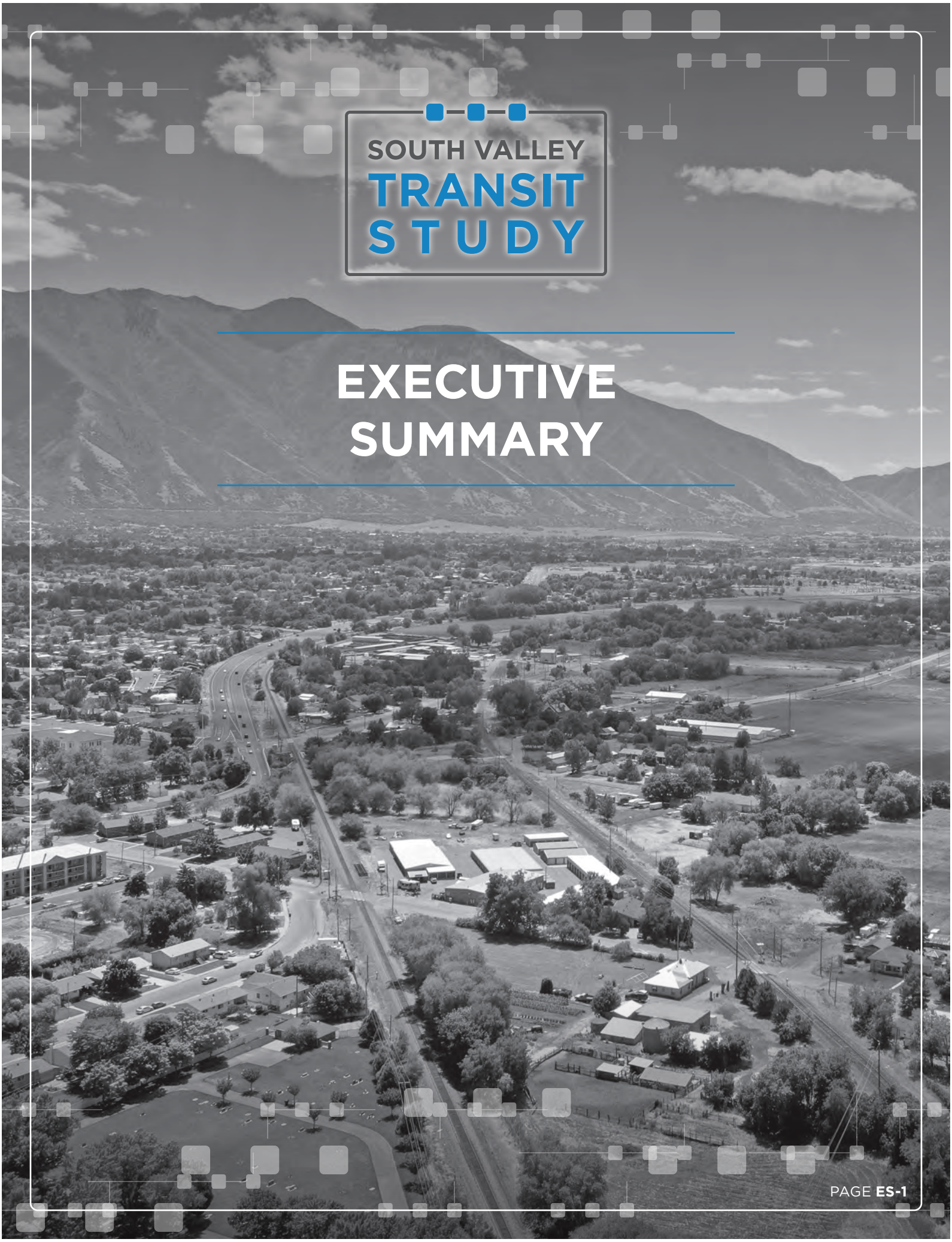
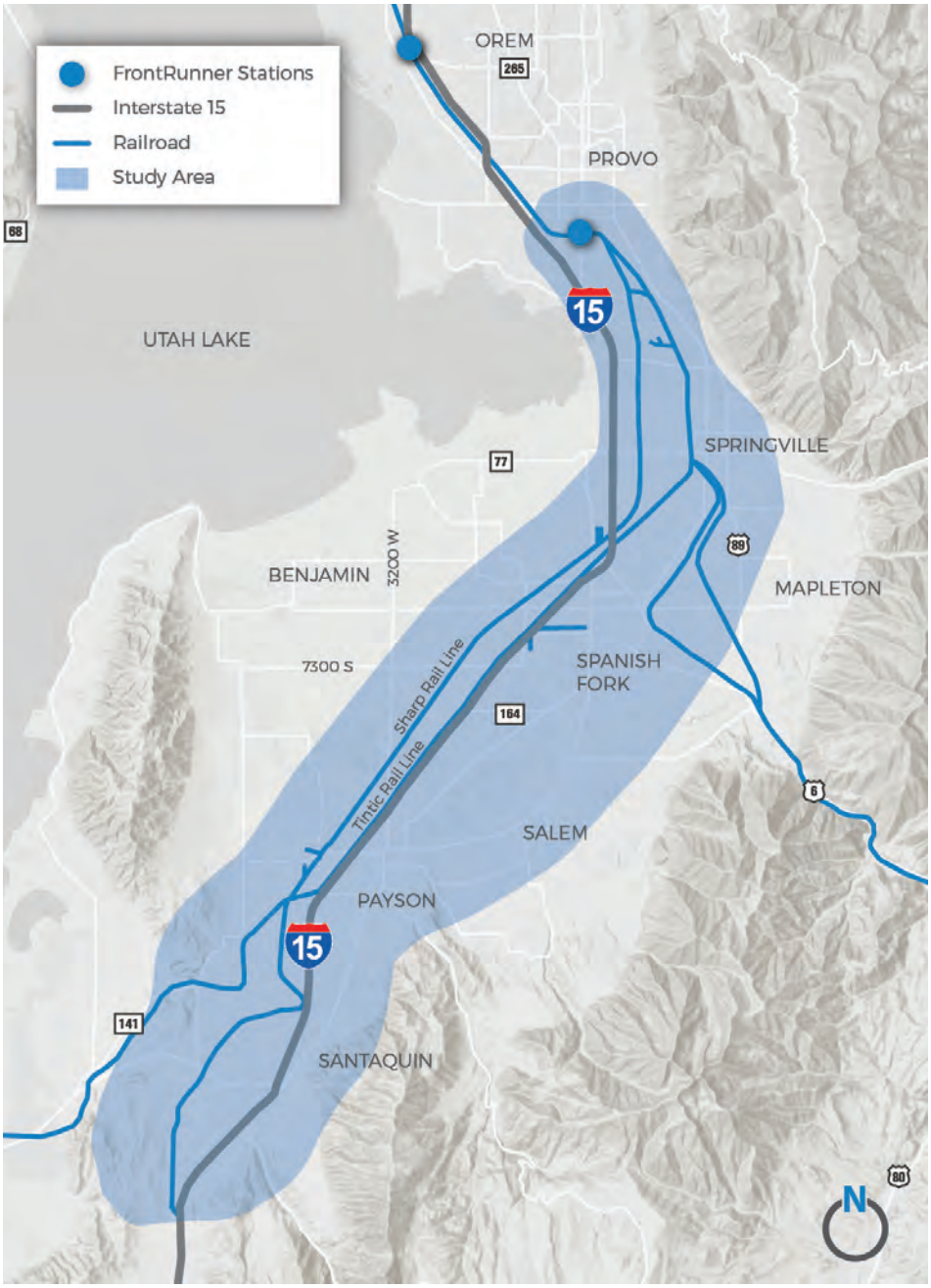

SOUTH VALLEY
TRANSIT
STUDY
EXECUTIVE
SUMMARY

WHY IS THIS PROJECT NEEDED?

- Population and employment are growing rapidly
- Roadway congestion is increasing and there are limited options for expanding roadways
- Current transit options are limited
- Communities are seeking transit-supportive land development to generate economic development and employment opportunities
- Partner cities are interested in alternatives to vehicle travel

WHAT IS THE SOUTH VALLEY TRANSIT STUDY?

The South Valley Transit Study evaluated options for providing high-quality transit service from Provo to Santaquin. The purpose of the study was to determine a Locally Preferred Alternative, which identifies the transit alignment (corridor and station areas) and the transit mode (type of transit technology, such as bus, bus rapid transit, commuter rail, light rail). The study brought together the cities of Provo, Springville, Mapleton, Spanish Fork, Salem, Payson and Santaquin, in collaboration with the Mountainland Association of Governments (MAG), Utah Department of Transportation (UDOT), and Utah Transit Authority (UTA).



WHAT IS THE LOCALLY PREFERRED ALTERNATIVE?

The Locally Preferred Alternative extends commuter rail from Provo to Payson and provides express bus service from Payson to Santaquin. The Locally Preferred Alternative:

- Creates a north-south high-capacity transit (HCT) spine in south Utah County with connections to key rapidly developing areas
- Supports south Utah County community transit-oriented development (TOD) opportunities
- Provides a reliable regional transit commuter option to residents
- Maximizes ridership and return on investment

KEY CHARACTERISTICS OF THE LOCALLY PREFERRED ALTERNATIVE

COMMUTER RAIL
PROVO TO PAYSON

14
MILES

3
NEW STATIONS

4K
RIDERS PER DAY IN 2050 (APPROXIMATELY)

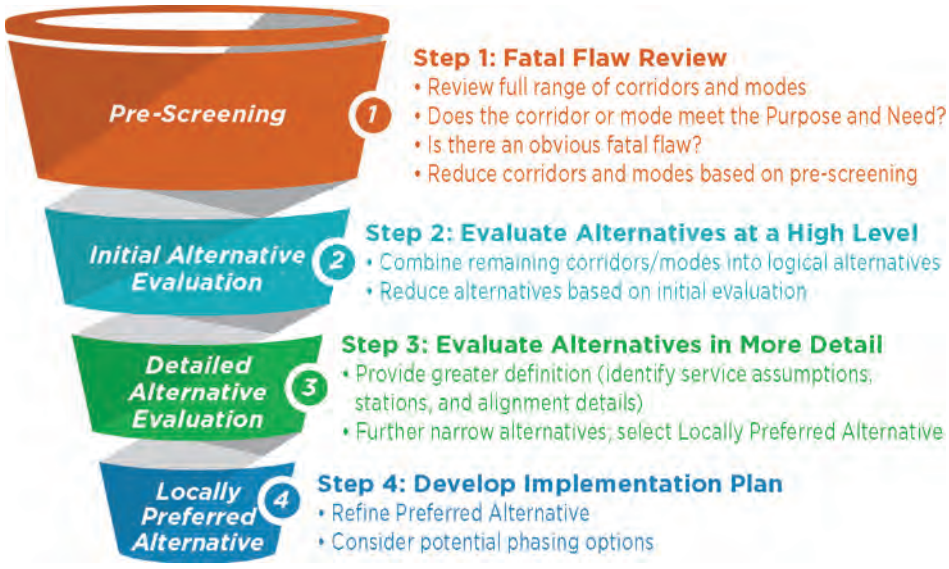
$550-750M
CAPITAL COSTS
This planning level estimate will continue to be refined as the project undergoes additional analysis and engineering.

$8M/YEAR
OPERATING COSTS
This planning level estimate will continue to be refined as the project undergoes additional analysis and engineering.

EXPRESS BUSS
PAYSON TO SANTAQUIN
Additional planning work will be performed in coordination with UTA, Santaquin, and Payson to identify operational details and station locations to be served.

LOCALLY PREFERRED ALTERNATIVE DEVELOPMENT PROCESS

The process to identify a proposed Locally Preferred Alternative used a multi-step alternatives evaluation process coupled with input from a Technical Advisory Committee (TAC) comprised of city and agency staff; an Executive Committee which included mayors, city managers, and key agency policy makers; and public feedback, as depicted in the figure to the right. The proposed Locally Preferred Alternative was presented to the Executive Committee for discussion and approval at the September 14, 2021, meeting.



HOW WERE THE PUBLIC AND STAKEHOLDERS INVOLVED?

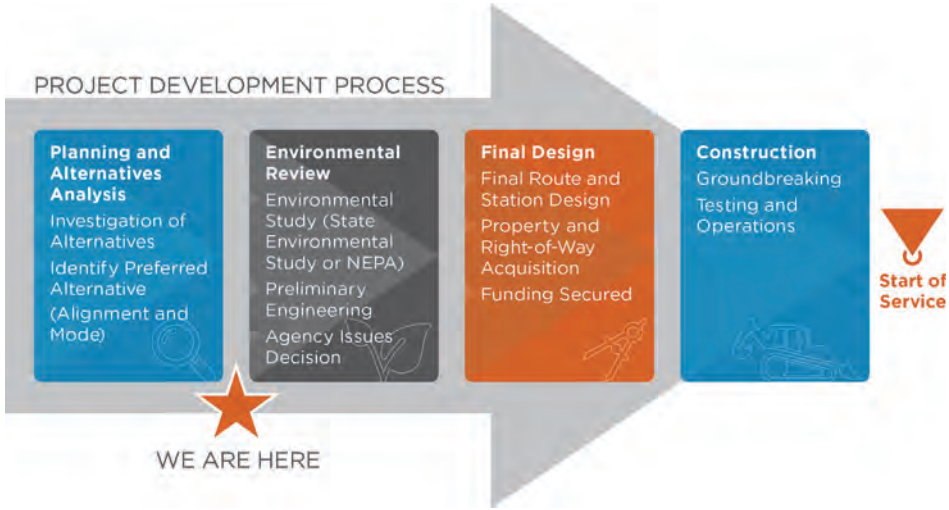
A robust public and stakeholder engagement program was utilized to provide input and coordination throughout the study. This effort included:

- Ongoing opportunities for education and input via a public website and three public outreach periods to solicit targeted feedback at key milestones.
- Coordination with a TAC that provided planning and engineering expertise throughout the process.
- Coordination with an Executive Committee that provided guidance and decisions at key milestones.

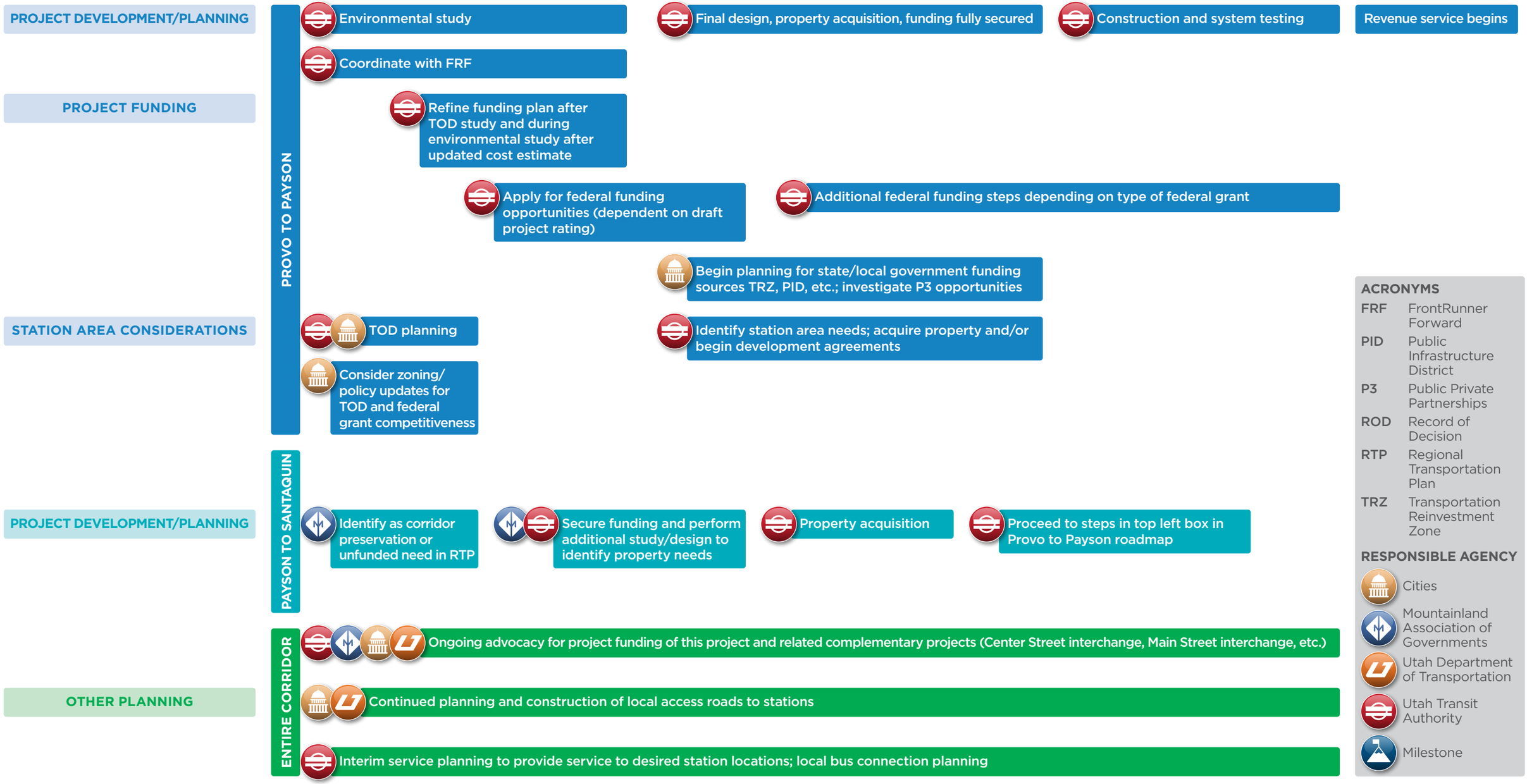
WHAT'S NEXT?

A series of next steps have been identified to advance work for both the Provo to Payson commuter rail and Payson to Santaquin express bus portions of the Locally Preferred Alternative. In addition, other ongoing actions have been identified. The implementation roadmap presented on the next page summarizes these recommendations.

Visit southvalleytransit.com



IMPLEMENTATION ROADMAP



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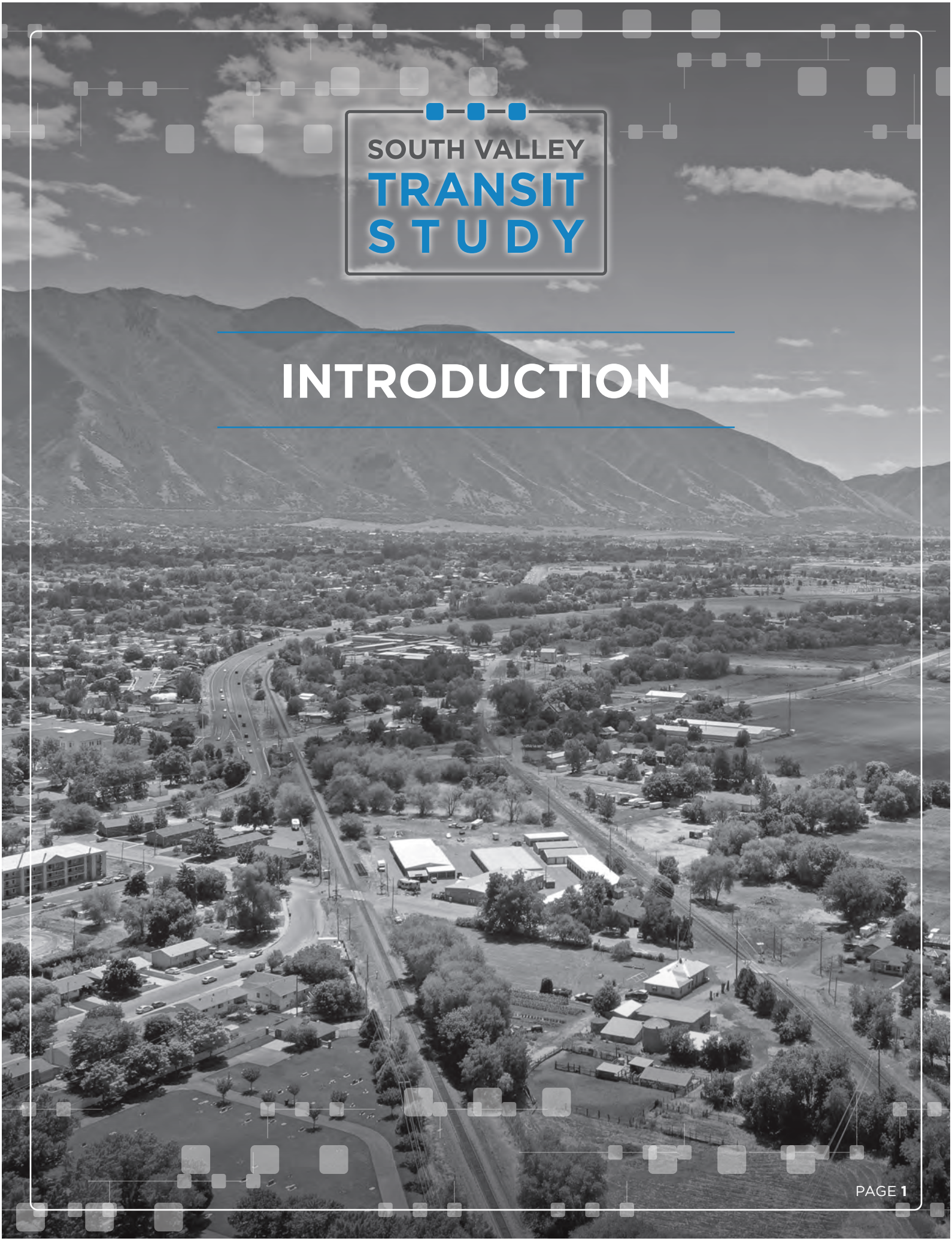
SOUTH VALLEY
TRANSIT
STUDY

INTRODUCTION



1. INTRODUCTION

1.1 OVERVIEW

The cities of Provo, Springville, Mapleton, Spanish Fork, Salem, Payson, and Santaquin, in collaboration with MAG, UTA, and UDOT have completed a transit study that evaluated options to provide expanded transit service in the southern portion of Utah County, from Provo to Santaquin.

The purpose of the study was to determine a Locally Preferred Alternative that can be advanced into the next phase of project development – environmental study and preliminary engineering. The Locally Preferred Alternative identifies the transit alignment (corridor and station locations to be served) and the transit mode (type of transit technology, e.g., commuter rail, bus rapid transit [BRT], etc.).

The study process consisted of several distinct steps, including establishing the project context, determining the Purpose and Need for the proposed improvement, identifying and evaluating alternatives, and recommending a Locally Preferred Alternative (Figure 1).

Coordination and involvement with affected jurisdictions, stakeholders, and the public was a critical component of the study and occurred throughout the process.

1.2 STUDY CONTENT

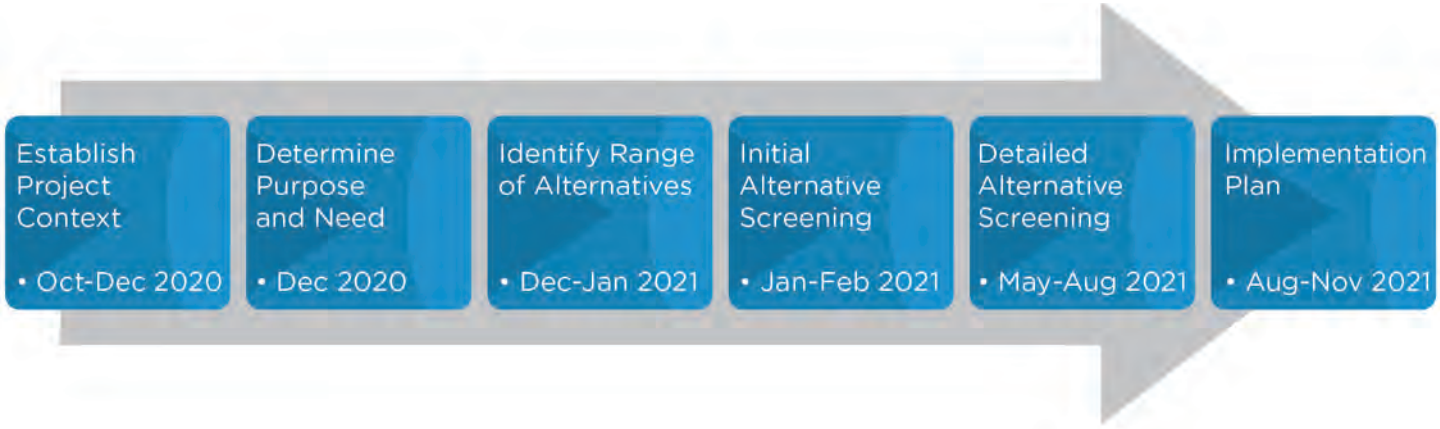
According to MAG's TransPlan50, by 2050 Utah County is expected to nearly double in population – adding over 660,000 more people and surpassing 1.3 million (M) people. This equates to nearly a 100 percent growth rate and more than doubles the population of any other Wasatch Front county. For comparison, Salt Lake County (which is focused more on infill than greenfield development) has a growth rate of only 36 percent. During this period, Utah County's growth will be larger than the other three Wasatch Front counties combined. This rapid growth is discussed in greater detail in Section 3.3.

Cities in south Utah County have begun planning for this growth and have developed plans for increased density around future HCT service. Maintaining reliable and efficient mobility, including offering transportation choices, is key to meeting current and future transportation demands and fostering a positive quality of life.

POPULATION GROWTH

The area identified by MAG in TransPlan50 as South Utah County, encompassing all the Cities participating in this study, will grow to a population of nearly 400,000 by 2050.

Figure 1. *Transit Study Process*



1.3 WHAT IS HIGH-CAPACITY TRANSIT?

A robust transit system serves different types of trips. HCT serves as the transit backbone, connecting major destinations regionally. This backbone is augmented by local bus service and "first mile/last mile" connections, which include appropriate and safe bicycle and pedestrian connections to transit facilities.

HCT carries larger numbers of passengers and provides more frequent and reliable service than a standard bus system, and often employs features to accommodate more passengers and competitive travel times. It can operate in exclusive right-of-way (out of traffic) or on existing streets.

Figure 2 compares the three primary types of HCT: BRT, light rail transit (LRT), and commuter rail transit (CRT). For additional context, Figure 2 also describes local and express bus service.

1.4 STUDY AREA

Figure 3 illustrates the general study area for this effort. It spans from Provo to Santaquin in a north-south manner, generally following Interstate 15 (I-15) and the rail corridors in proximity to I-15. This is a narrow area of study, located at the southern edge of Utah Lake and along the Wasatch Mountains, which form a natural area of constraint, particularly near Springville. These natural barriers limit transportation connectivity options in this region of Utah County, forcing trips onto a limited number of routes. The primary communities of focus in this report are Provo, Springville, Spanish Fork, Payson, and Santaquin. The communities of Mapleton and Salem are also discussed as adjacent communities that would be served by a future transit investment.

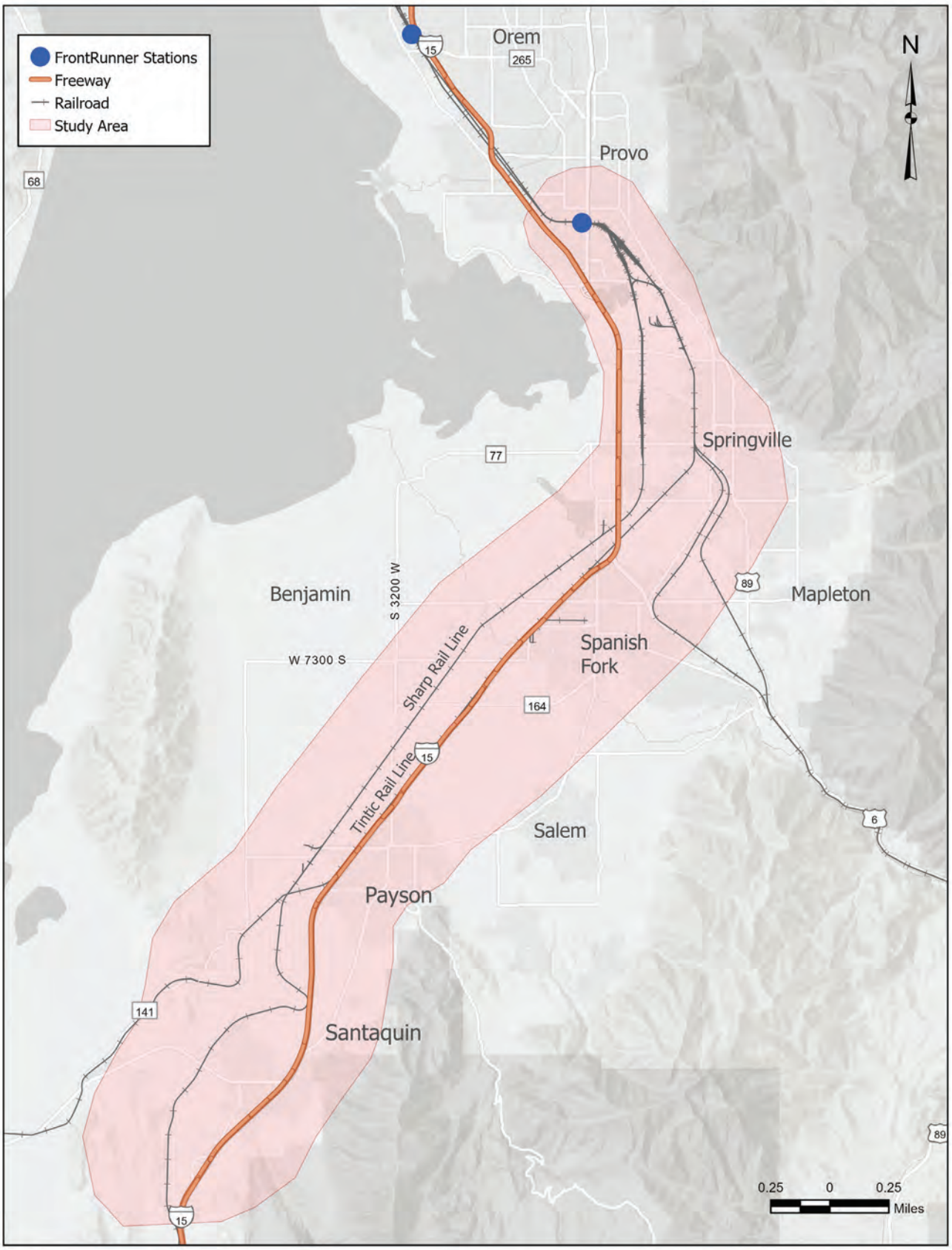
Figure 2. *Transit Mode Options*

	BUS RAPID TRANSIT	LIGHT RAIL TRANSIT	COMMUTER RAIL TRANSIT	EXPRESS BUS	LOCAL BUS
Trip Types	Local and regional	Local and regional	Regional	Regional	Local
Operating Environment	Exclusive right-of-way or mixed traffic along arterial streets or highways[a]	Exclusive right-of-way within arterial streets or in dedicated right-of-way separate from streets	Separate right-of-way	Utilizes existing travel lanes, often on interstates, mixes with general traffic	Utilizes existing local streets, mixes with general traffic
Typical Spacing of Stops	1/2 to 1 mile	1 mile	5 miles	Varies, but tends to have longer stop spacing (>1 mile)	1/4 to 1/2 mile
Typical Peak Frequencies	5-10 minutes	15 minutes	30 minutes	30 minutes during AM/PM peak, little or none outside of peak	15-30 minutes
Passenger Capacity per Vehicle	60-90 per bus	180-200 per car[b]	100-200 per car[b]	60-90 per bus	40-45 per bus
UTA Example	 UVX	 TRAX	 FrontRunner	 Route 805	 Route 822

a - BRT has the greatest flexibility in operating environment. In addition to functioning in a typical street environment, it can also operate along highways, including in high-occupancy vehicle lanes.

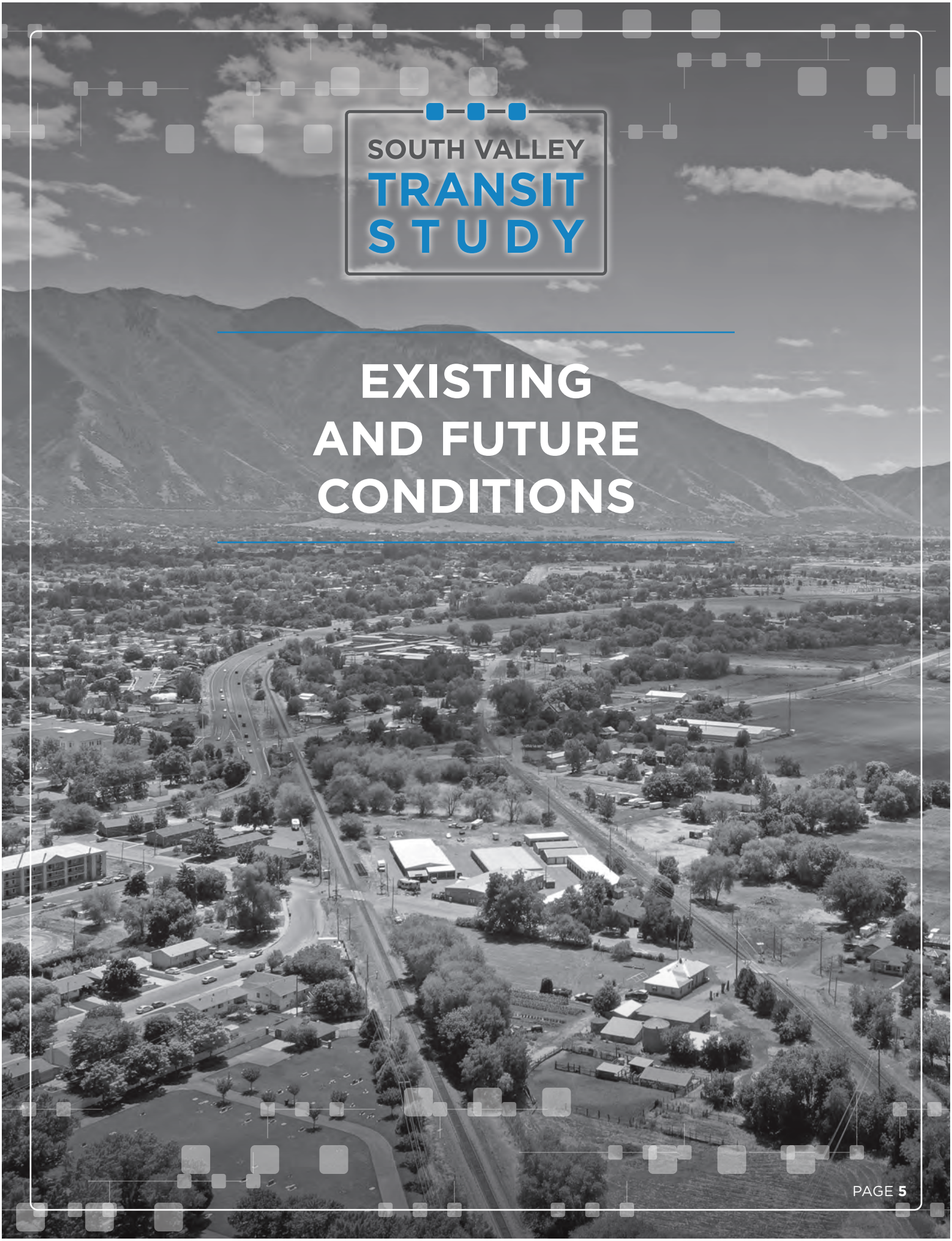
b - Multiple LRT and CRT vehicles can be linked to create a longer train, moving a higher capacity of passengers per trip.

Figure 3. *Study Area*



SOUTH VALLEY
TRANSIT
STUDY

EXISTING AND FUTURE CONDITIONS



2. EXISTING AND FUTURE CONDITIONS

2.1 OVERVIEW

This section includes a discussion of existing conditions and planned improvements in the South Valley study area, including transportation conditions, land use, socioeconomic information, environmental considerations, and related policies and plans. Additional information on existing and future conditions can be found in Appendix A.

2.2 TRANSPORTATION CONDITIONS

Transportation context review included analysis of forecasted travel demand, as well as existing conditions and planned improvements in the South Valley study area for roadway, transit, multimodal, and freight rail facilities.

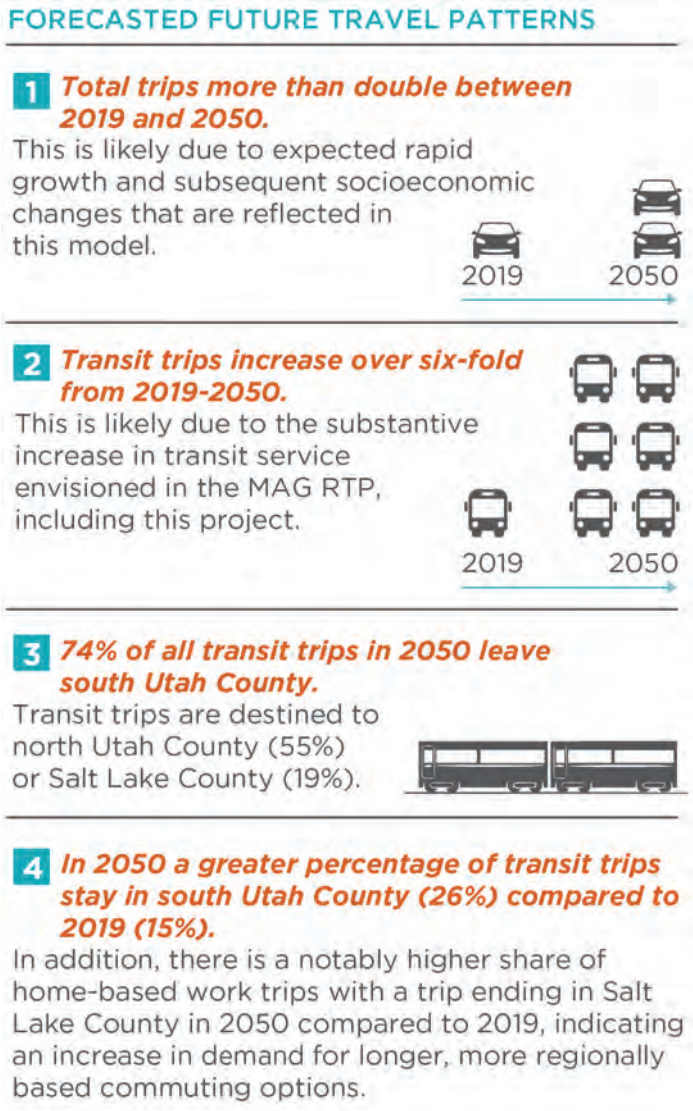
2.2.1 TRAVEL DEMAND

The Wasatch Front Regional Council (WFRC)/ MAG Travel Demand Model (TDM) base year 2019 and 2050 Regional Transportation Plan (RTP) models were used to produce a summary of travel patterns for trips originating in south Utah County.

Destination areas were aggregated based on county boundaries outside of Utah County and split by south, north, and west areas within Utah County. For purposes of making observations of travel in south Utah County, the geographic split between north and south Utah County was made at the southern boundary of Provo.

Figure 4 illustrates forecasted future travel patterns. Trip lengths from 2019 to 2050 are similar for all trips as a whole. Home-based work trips increase in length slightly as do transit trip lengths.

Figure 4. *Future Travel Patterns*



As the population grows, demand on existing transportation facilities will increase and contribute to congestion, increased travel times, and unreliable travel.

2.2.2 ROADWAY CONDITIONS

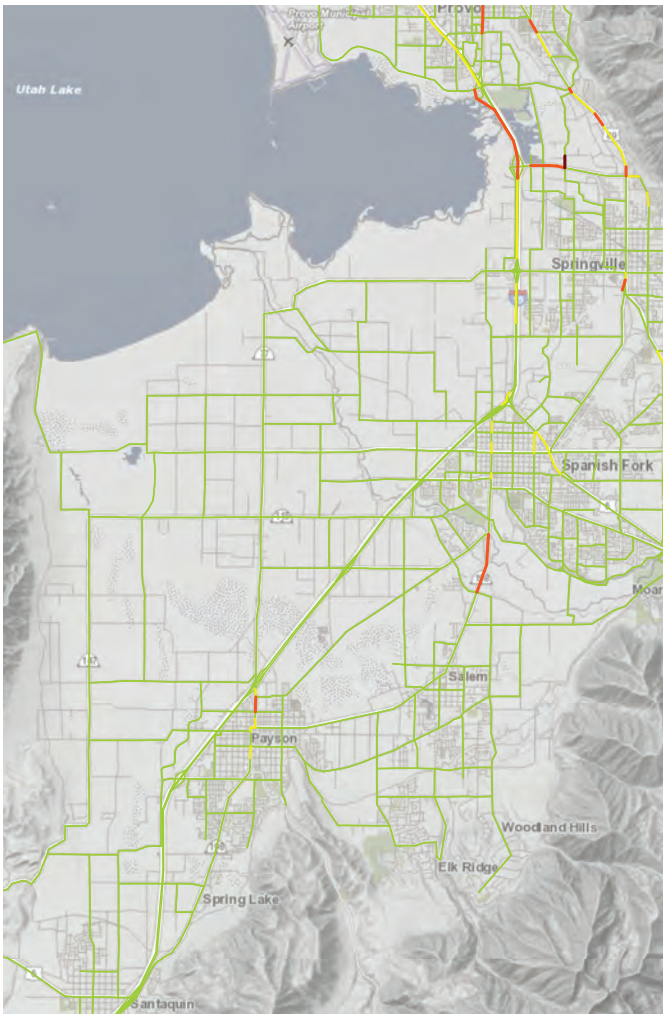
EXISTING ROADWAY CONDITIONS

This study area, unique due to its narrow geographic constraints, has one major north-south connection, I-15, that moves most traffic at a regional scale. That corridor is supplemented by US-89 (which also doubles as Springville's Main Street and Mapleton's 1600 West) from Provo through Springville to Mapleton. State Route (SR)-198 serves as a key arterial through Spanish Fork and Payson. No other major north-south facilities exist currently, solidifying the need for a parallel transit facility that complements the existing north-south roadway network.

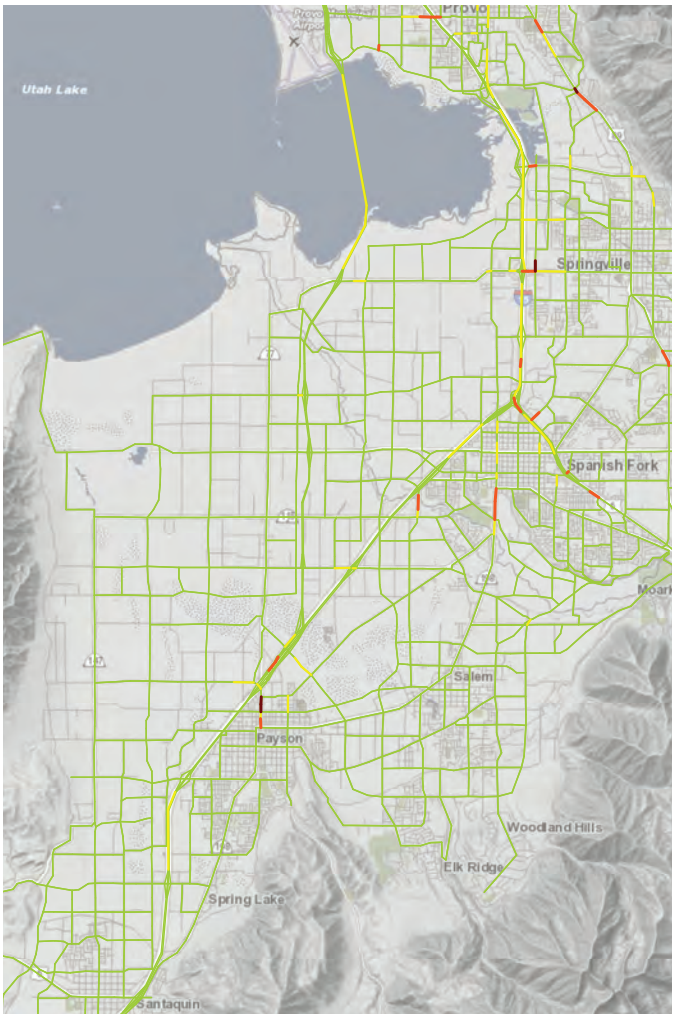
In the MAG RTP, travel demand modeling was conducted to understand level of service on roadways in the future both with and without implementation of planned projects. By 2050, with no additional roadway improvements in place, severe congestion will occur on I-15 and State Street/US-89. Arterial-to-arterial intersections will also be constrained. Even with buildout of the underlying arterial grid network and planned improvements, congestion is projected to remain on I-15, US-89, and Highway 6, as freeways reach capacity (Figure 5).

Thus, additional travel options are warranted. Modeling was conducted on new facilities (e.g., various interchange improvements, I-15 widening between Payson and Santaquin, a grade-separated Highway 6 at Spanish Fork), with the greatest need identified for additional north-south travel choices east and south of the lake.

Figure 5. *2019 Congestion (left); 2050 Congestion (right). Source: WFRC/MAG TDM 8.3.1 (May 2020)*



Free Flow (0.00- 0.89)
Constrained (0.90- 0.99)



Congested (1.00- 1.19)
Extreme Congestion (1.20 - 3.00)

PLANNED ROADWAY IMPROVEMENTS

Future planned and programmed roadway projects in the southern portion of Utah County are aimed to improve capacity and connectivity and are planned in a way that reinforces the projected travel demand and geographic constraints in this area. Some of the improvements intended to address the travel demand include:

- New interchanges, notably at I-15/1600 South/2700 North in Springville/Spanish Fork, I-15/Center Street in Spanish Fork, I-15/Main Street in Payson, and at 12400 South in Utah County between Payson and Santaquin
- Additional east-west connections like a grade-separated Highway 6 in Spanish Fork, and a new Nebo Belt Road in Payson
- Widening of I-15 in some areas
- Addition of lanes to existing east-west facilities
- Potential Provo Bay crossing

MAG's TransPlan50 RTP 2019-2050 interactive map depicts detailed information about planned roadway improvements.

2.2.3 TRANSIT SERVICES

EXISTING TRANSIT CONDITIONS

As of January 2022, transit options include: local bus (Routes 821 and 822), express bus (Route 805), Utah Valley Express (UVX) BRT, and FrontRunner (Figure 6).

INCREASED RIDERSHIP

"Implementation of the UVX BRT service increased ridership by six times what the existing bus Routes 830 and 838 were experiencing."

- UTA

Figure 6. *Existing Transit Conditions (Pre-COVID Frequencies and Boardings)*

FRONTRUNNER COMMUTER RAIL

FrontRunner commuter rail runs north-south paralleling the I-15 corridor and serves regional destinations between Ogden and Provo.

Daily Boardings
Approximately 20,000

Frequencies
30-minute
During the morning and afternoon peak travel periods

Frequencies
60-minute
During off-peak times

UVX BUS RAPID TRANSIT

UVX is the only BRT route partially within the study area and maintains frequent service between the FrontRunner Orem and the FrontRunner Provo stations.

Daily Boardings
Approximately 12,000

Frequencies
6-minute
Most of the day

Frequencies
10- to 30-minute
Early morning and late evening

LOCAL BUS

Three bus routes currently link the southern portion of Utah County with the Provo area and broader region. The 805 bus route links the cities adjacent to I-15, (Spanish Fork, Payson, and Santaquin) to Utah Valley University in Provo, with the option to transfer to Brigham Young University.

Daily Boardings

805 Bus Route
167

822 Bus Route
172

821 Bus Route
590

PLANNED TRANSIT IMPROVEMENTS

Proposed transit improvements programmed in the MAG TransPlan50 RTP within the study area include:

- **South Commuter Rail** – extension of FrontRunner from Provo to Payson.
- **Maple Core Bus Route** – bus service between Spanish Fork and Provo, creating a new connection serving those east of I-15.
- **Nebo Core Bus Route** – bus service between Payson and Provo.
- **Sharp – Tintic Railroad Realignment** – realignment and construction of rail track to accommodate a future FrontRunner extension through Springville.
- **Commuter Rail Electrification and Double Track** – this effort would electrify FrontRunner service, moving away from diesel-powered engines, and create double track from Provo to Salt Lake City to allow for more frequent headways.
- **South BRT** – new BRT connecting Payson to Spanish Fork, east of I-15.

MAG's TransPlan50 RTP 2019-2050 interactive map depicts detailed information about planned transit improvements.

2.2.4 NON-MOTORIZED TRAVEL

MAG has developed a South Utah County Active Transportation Plan that connects population and employment centers based on projected densities through 2050.

The goal of improving and adding to the active transportation network in Utah County is to help reduce short vehicle trips and mitigate traffic congestion.

Learn more via the online South Utah County Active Transportation Plan.

2.2.5 FREIGHT RAIL

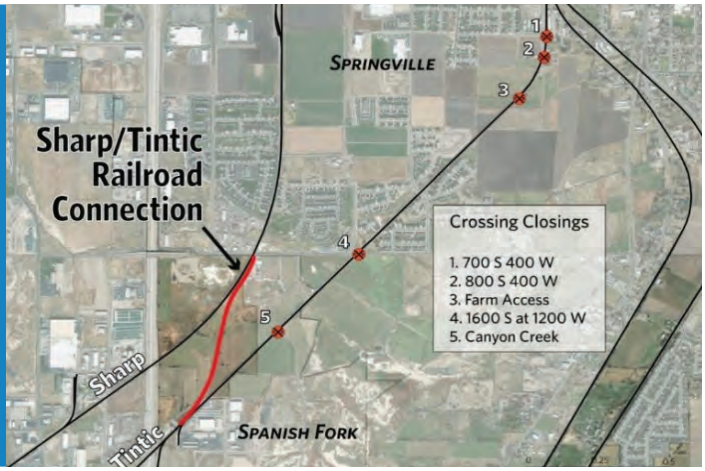
This study area is unique in that some locations along the existing Union Pacific Railroad (UPRR) corridor are still serviced by freight rail. While the frequencies are generally low, transit plans and schedules need to accommodate the movements of goods along this corridor.

As shown in Figure 3, two rail corridors of note in the study area include the Tintic Industrial Lead (hereafter referred to as the Tintic Line) and the Sharp Subdivision (hereafter referred to as the Sharp Line). UTA currently operates FrontRunner through Provo on the Sharp Line, with FrontRunner service terminating at the Provo Intermodal Hub. The Sharp Line continues further to the south. The Sharp Line services freight customers through Springville with higher freight volumes and daily service. The Tintic Line has active freight users through Spanish Fork with lower freight volumes and freight service up to two times a week.

SHARP-TINTIC RAILROAD CONNECTION

This project will build approximately 7,000 linear feet of new railroad track connecting the Sharp and Tintic Railroad corridors within the Cities of Springville and Spanish Fork. This connection will enable key public transit objectives while improving local community accessibility and safety.

Project partners include UTA, UDOT, and UPRR with support from Springville and Spanish Fork cities.



2.3 LAND USE AND ECONOMIC CONDITIONS

2.3.1 LAND USE AND GROWTH

EXISTING LAND USE

The existing land use throughout the study area varies between each community (Figure 7). Overall, the primary land uses within each community are low density, single-family residential development.

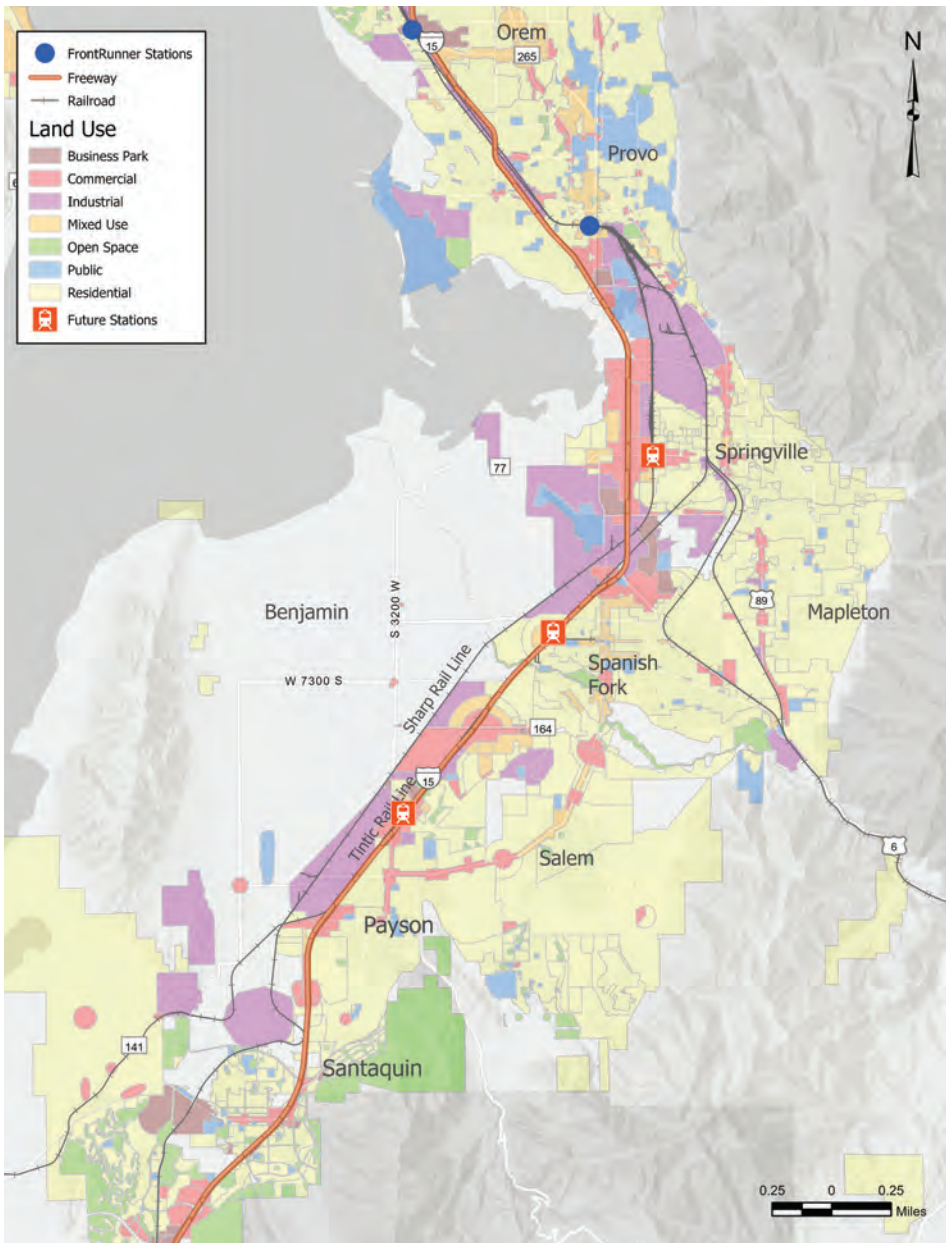
Many schools, churches, and parks are dispersed through each community, with commercial and industrial land uses focused along major arterial streets and along the I-15 corridor. This land use pattern is typical of suburban development patterns. Land use becomes more rural and agricultural in the south and east portions of Utah County.

At the north end of the study area, Provo has a higher density of both commercial and residential development, compared to cities farther south.

Moving south, almost half of all developed land in Springville City is for residential use. Spanish Fork, Payson, and Santaquin are similarly residential in character.

Many destinations for south Utah County residents exist in north and central Utah County, including Utah Valley University and Brigham Young University, as well as several large-scale hospitals, medical centers, and major employment centers.

Figure 7. *Existing Generalized Land Use*



TOD ZONING

Zoning categories in most study area communities are consistent, allowing for careful organization and development of land uses in a compatible manner. Planning ahead for potential transit implementation, most communities identify a TOD zoning district or overlay, allowing for more compact and pedestrian-friendly development along transit corridors and/or in planned station areas with the intent to create a cohesive mix of transit-supportive land uses.




PROVO

Provo has identified two districts for the highest intensity mixed-use development, in the Downtown Planning Area along University Avenue and Center Street, as well as a TOD area identified around the FrontRunner station.

The City looks to increase redevelopment and infill development to meet demand, as the City has limited open land for greenfield development.

- *Redevelopment/Infill*
- *TOD*
- *Mixed-use*

SPRINGVILLE

The Springville General Plan prioritizes redevelopment and infill growth in the City's downtown, which will continue to be a walkable, mixed-use district including:

- Employment
- Retail
- Mixed-use residential
- Civic uses

The Westfields Community Plan (2002) envisions transit-oriented uses and a transit center along the Tintic Rail Line, just west of the Village Center.

- *Redevelopment/Infill*
- *TOD*
- *Mixed-use*

MAPLETON

Mapleton's future land use continues the City's trend of low-density single-family residential growth.

The City plans to continue a focus on low-density residential growth, including conservation subdivisions.

Higher-density residential growth, which the City defines as lots up to one-third acre, is expected in areas west of US-89.

The City has no plans for TOD or transit districts currently.

SPANISH FORK

The Spanish Fork General Plan (2018) has broadly applied mixed-use development across the City's major east-west corridors and Main Street, the north-south central spine.

Additionally, the General Plan also identifies a priority to implement form-based zoning to more effectively integrate commercial uses near residential areas.

The City intends to create an area plan to promote the development of a TOD district surrounding the planned Center Street/I-15 interchange.

- *TOD*
- *Mixed-use*

SALEM

The Salem General Plan (2019), guides growth for the next 20 years and prioritizes new higher-density residential development and the need for local and regional commercial nodes.

The Plan identifies the "New Salem" area along the I-15 corridor as an area of substantial future growth, which is currently underdeveloped.

PAYSON

The Payson General Plan (2020) anticipates much of the City's growth will be single-family residential, expanding and annexing to the west of I-15.

The plan also identifies two major TOD nodes along the I-15 Corridor (in proximity to the Main Street and 800 South interchanges), as well as two major mixed-use development districts, one at the southern end of the I-15 corridor and one at the City's eastern edge along Highway 198.

- *TOD*
- *Mixed-use*

SANTAQUIN

Residential growth will be significant, and the City prioritizes infill and contiguous growth to make the best use of the existing infrastructure and avoid leap-frog developments.

Compact, mixed-use development is planned for the central downtown corridor and for a large area in the southwest portion of the City, with plans for a transit-served district near Summit Ridge Parkway.

- *TOD*
- *Mixed-use*

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2.3.2 SOCIOECONOMIC ANALYSIS

POPULATION AND EMPLOYMENT GROWTH

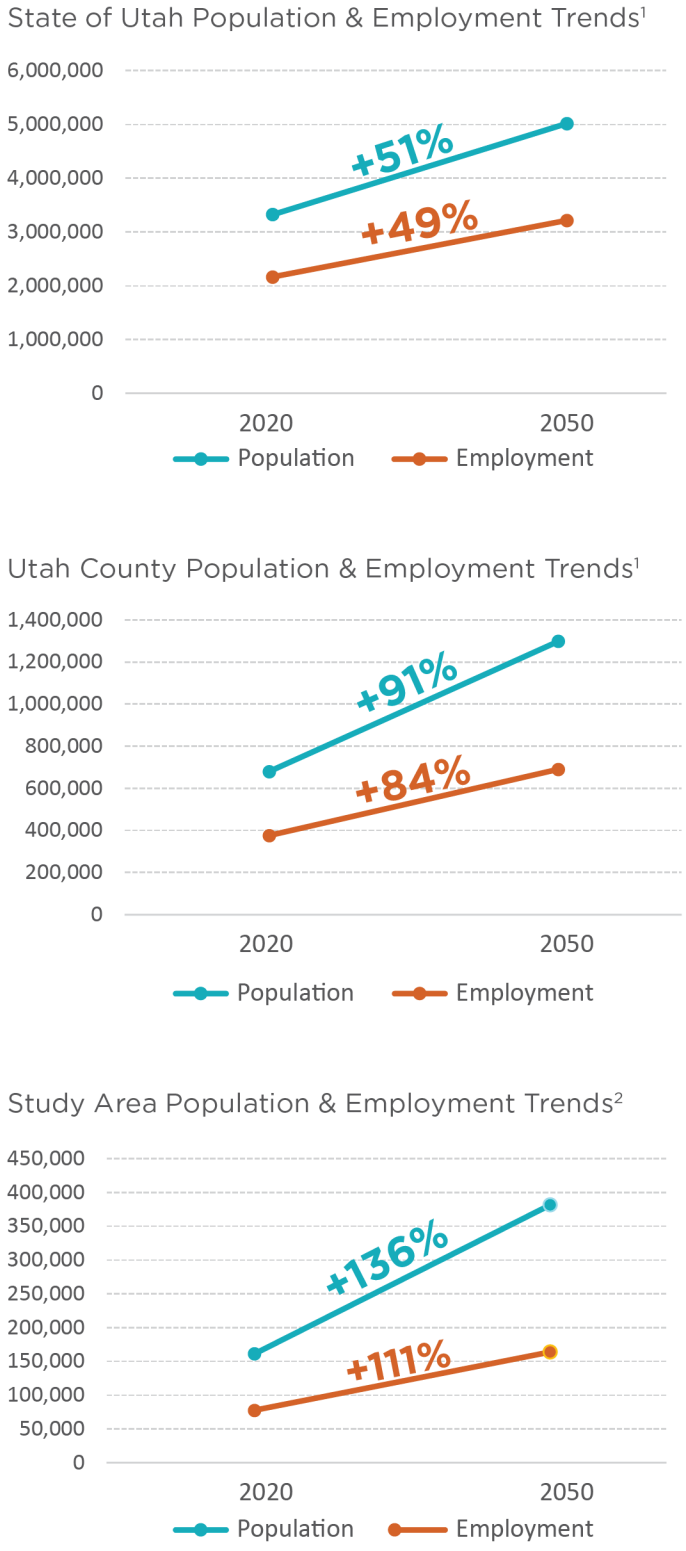
Population and employment are forecasted to grow significantly in Utah County over the next few decades, which will create additional transportation demand in this geographically constrained area.

Historically, population growth in Utah County has been steadily increasing, rising by 40 percent in each of the last two decades. By 2050, Utah County will double in population, rivaling the population of Salt Lake County. The southern portion of Utah County is the largest area geographically, with current densities mostly considered rural, but is forecasted to grow from 161,000 people to nearly 382,000 people in 2050. Current and projected population and employment are presented in Figure 8 for the state, Utah County, and within the study area.

Employment patterns generally mirror population trends, and that holds true for all counties along the Wasatch Front. Overall, Utah County's employment growth is expected to nearly double from 375,000 jobs to 690,000 jobs by 2050. Utah County's significance in the region will continue to grow, as job growth will continue to attract additional residents. The cities south of Provo will continue to densify with housing and suburban characteristics, spreading from the historic centers.

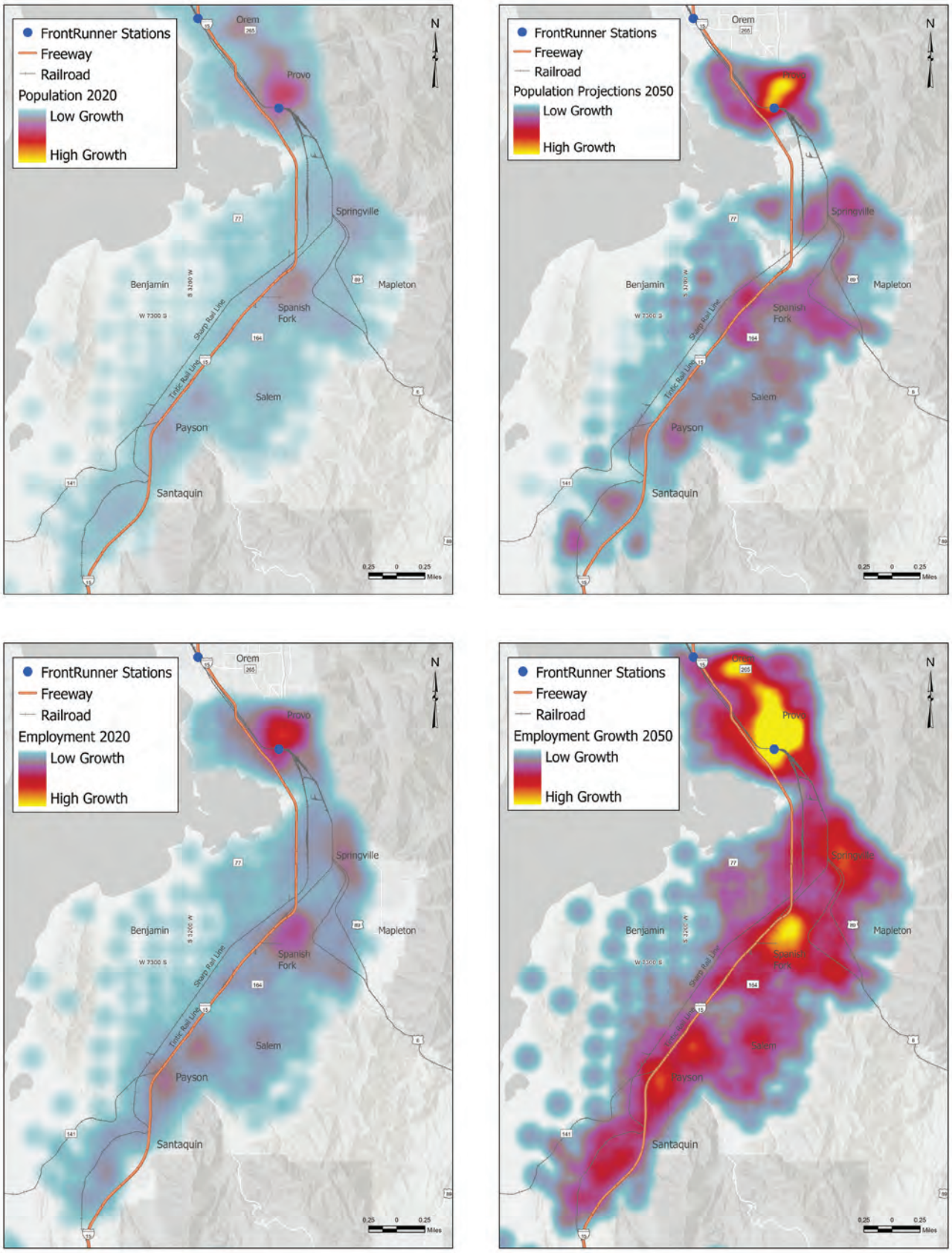
Figure 9 illustrates the geographic distribution of population and employment density for 2019 and 2050. In 2050, population densities in the study area (excluding the Provo area which shows the largest growth) are highest east of I-15 and clustered around the city centers of Springville, Spanish Fork, and Payson. Employment is more focused along the I-15 corridor; north of Spanish Fork, in Spanish Fork, and near the 800 South interchange in Payson.

Figure 8. *Population and Employment Trends in the State of Utah, Utah County, and Study Area*



[1] *Kem C. Gardner Policy Institute*
[2] *WFRC/MAG TDM*

Figure 9. *Existing and Future Population and Employment Densities*



UNDERSERVED POPULATIONS

Certain demographic statistics are helpful to gain an understanding of the potential transit-dependent populations in the study area and the potential impacts and benefits of expanded transit service.

Minority: Minority is defined as all populations other than Non-Hispanic White Alone. The population densities for minorities in Utah County tend to cluster in Orem and Provo. However, the southern portion of the County has above the county average of minority populations in Spanish Fork and Payson.

Low Income: The prevalence of low-income households is assessed by the percent of households living in poverty. The U.S. Census Bureau measures poverty by total number of people in each household, with an average poverty threshold for a family of four at $25,926. Much of the study area has a range of 30 to 40 percent residents below poverty. While most cluster in Provo and Orem, Spanish Fork and Payson see a higher than average low-income population compared to Utah County as a whole.

People with Disabilities: People with disabilities are identified as persons with mobility limitations. The region-wide average indicates a 7.7 percent population of disabled persons. Spanish Fork and Provo see the highest concentrations of disabled persons compared to the region's average.

Elderly: Persons aged 65 years and older are considered elderly. The elderly populations in the County are generally centered in Provo and Orem. However, pockets of elderly populations exist in Payson, Spanish Fork, and Springville as well.

2.4 ENVIRONMENTAL CONSIDERATIONS

This review uses only readily available data to understand major constraints or fatal flaws that may impact the feasibility of broad corridor alternatives. A more detailed and exhaustive inventory of potential environmental resource impacts will be undertaken during future phases of project development, including preparation of a National Environmental Policy Act (NEPA) document.

NATURAL AND WATER RESOURCES

Utah Lake is a large and constraining water feature to the north and west. The eastern edge of the study area contains large-scale mountain ranges – creating a valley and narrow strip of developable land in central Utah County. While the geographic constraints give way to the southern end of the County, additional geologic hazards including liquefaction in the event of a major earthquake exist in communities in the basin area. Because of the mountainous geography to the east, major drainage patterns form in a southwest nature, crossing the study area streets at diagonals. Many stream and wetland flows are funneled to a limited number of crossings beneath I-15 to manage drainage conditions on the freeway corridor.

AGRICULTURAL RESOURCES

Utah County has designated agricultural areas with legal protections. This study area includes a vast area of farmlands identified and mapped by the United States Department of Agriculture as unique, important, and prime farmland areas with significance beyond local boundaries – even into national and international markets.

AIR QUALITY

The project area lies within non-attainment areas for particulate matter (more specifically, PM10 and PM2.5) and is a maintenance area for carbon monoxide. Major sources of carbon monoxide and particulate matter include vehicular emissions, service stations, and resuspension of dust.

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SOUTH VALLEY
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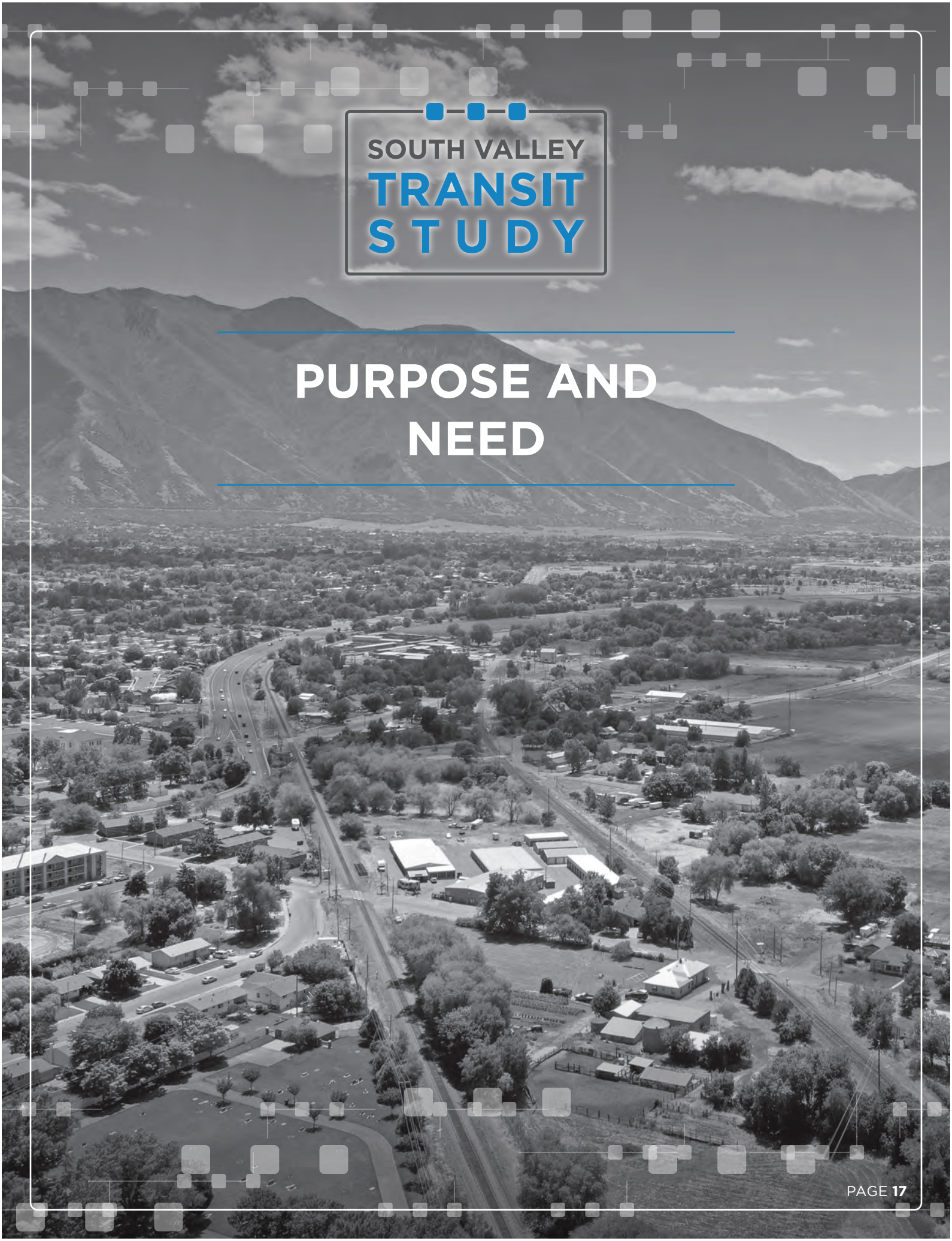
PURPOSE AND NEED



3. PURPOSE AND NEED

3.1 OVERVIEW

A project's **purpose statement** defines the objectives to be achieved. A project's **need** describes the underlying problems or conditions that the project should address. The Purpose and Need Memo can be found in Appendix B.

3.2 PURPOSE AND NEED DEVELOPMENT

The South Valley Transit Study Purpose and Need was developed through an iterative and collaborative process and informed by an understanding of the study area context (documented in Appendix A) and ongoing agency coordination.

3.3 PROJECT NEED

3.3.1 GROWTH

Project Need: Long-term population and employment growth in Utah County, and particularly south Utah County, is forecasted to be substantial (Figure 10), and as a result, will require additional and robust transit options to meet the forecasted travel demand.

Between now and 2050, the population of south Utah County is forecasted to more than double from approximately 160,000 to 380,000.

Employment is also projected to grow rapidly from 77,000 to 165,000.

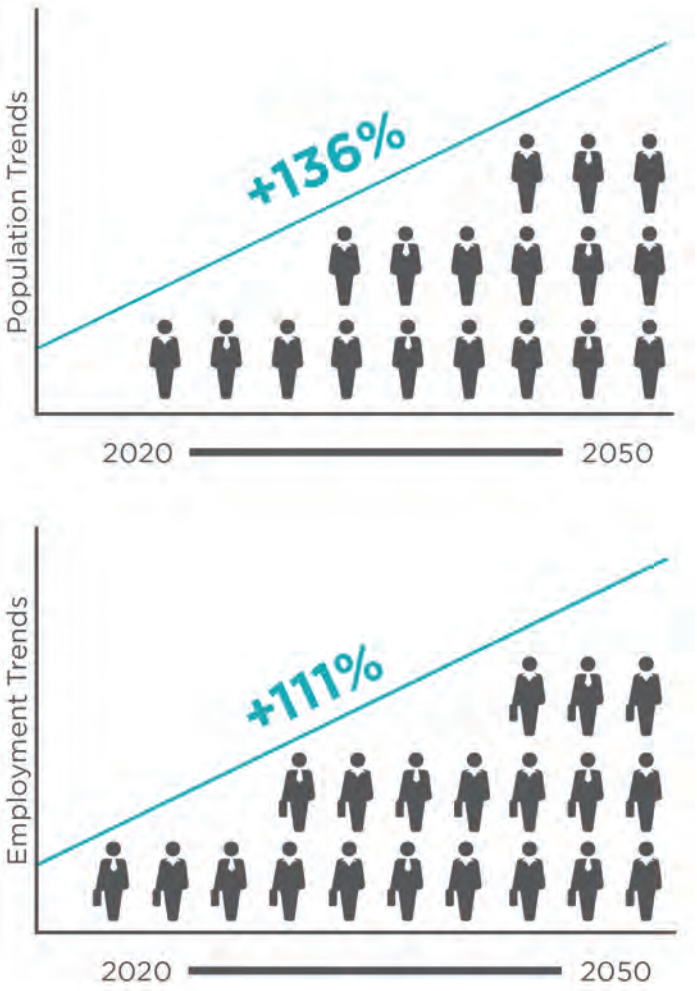
GROWTH

The percentage change in population and employment is larger than growth expected in Utah County as a whole, and substantially larger than other counties along the Wasatch Front.

PURPOSE AND NEED

A project's Purpose and Need statement is the framework for identifying and evaluating alternatives.

Figure 10. *Future Population and Employment Growth*



3.3.2 ROADWAY AND CONGESTION

Project Need: Roadway congestion is increasing on I-15 and major arterials in south Utah County, affecting reliability for vehicles.

Project Need: Major roadway facilities that connect communities along the study area to each other and the region are limited. Physical constraints and topography limit opportunities to expand the existing roadway infrastructure.

Traffic volumes in this area are forecasted to increase from 134,000 vehicles per day in 2015 to 318,000 vehicles per day in 2050. Of particular concern is the choke point in Springville. MAG's TransPlan50 notes that total north-south traffic through the choke point at Provo Bay are forecasted to increase from 134,000 vehicles per day in 2015 to 318,000 vehicles per day in 2050. Transportation solutions are limited in this area due to Provo Bay, wetlands, and the Wasatch Mountains. I-15 in this area is constrained and near capacity in 2050. Thus, additional travel options are warranted.

3.3.3 TRANSIT OPTIONS

Project Need: Limited regional north-south HCT options exist to meet existing and future transportation travel demands, particularly for home-based work travel in south Utah County.

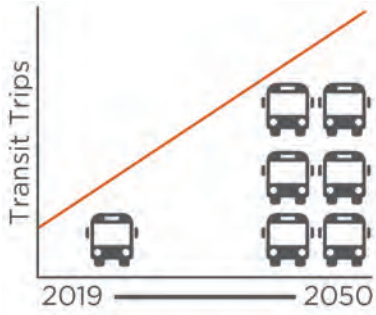
Compared to travel patterns in north Utah County[1], travel patterns in south Utah County, especially those for commuting purposes, are more regional in nature and cover longer distances.

Project Need: Transit trips, particularly for home-based work travel, now and forecasted for 2050, are longer than non-transit trips.

The average transit trip length for trips starting in south Utah County is approximately 20 miles, both now and also projected for 2050. Figures 11 and 12 show the future transit trips and pattern.

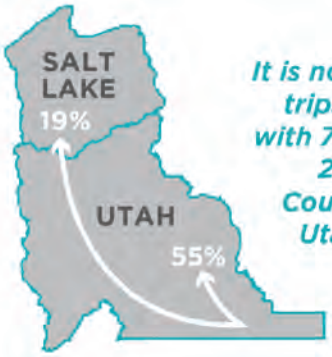
[1] For purposes of making observations of travel in south Utah County, the geographic split between north and south Utah County was made at the southern boundary of Provo.

Figure 11. *Future Transit Trips*



Transit trips increase over six-fold from 2019 to 2050. This is likely due to the substantive increase in transit service envisioned in the MAG RTP.

Figure 12. *Transit Trips Leaving South Utah County in 2050*



It is notable that these transit trips are regional in nature, with 74% of all transit trips in 2050 leaving south Utah County and ending in north Utah County (55%) or Salt Lake County (19%).

3.3.4 LOCAL AND REGIONAL PLANNING

Project Need: Local and regional plans call for increased residential, commercial, and employment center development located in nodes served by regional transit. Local and regional future land use plans would not be adequately served by the existing transit network.

The major communities in south Utah County – Provo, Springville, Spanish Fork, Payson and Santaquin – have been planning future growth around the presence of a regional transit corridor to support commuter travel choices to points north, understanding the limitations of I-15 and other surface transportation options to accommodate future travel demand.

Project Need: Local plans have anticipated future transit service based on regional planning and have developed land use plans around these future transit investments to catalyze economic development and employment opportunities. Transit-supportive zoning and/or overlays have been established in nearly all communities in the study area.

In addition to organizing a land use plan around future land uses, most communities have also introduced more specific land use or zoning categories around future anticipated regional transit service locations to catalyze new and infill development that is compatible with transit usage and may increase potential ridership.

3.3.5 PROJECT PARTNER INTERESTS

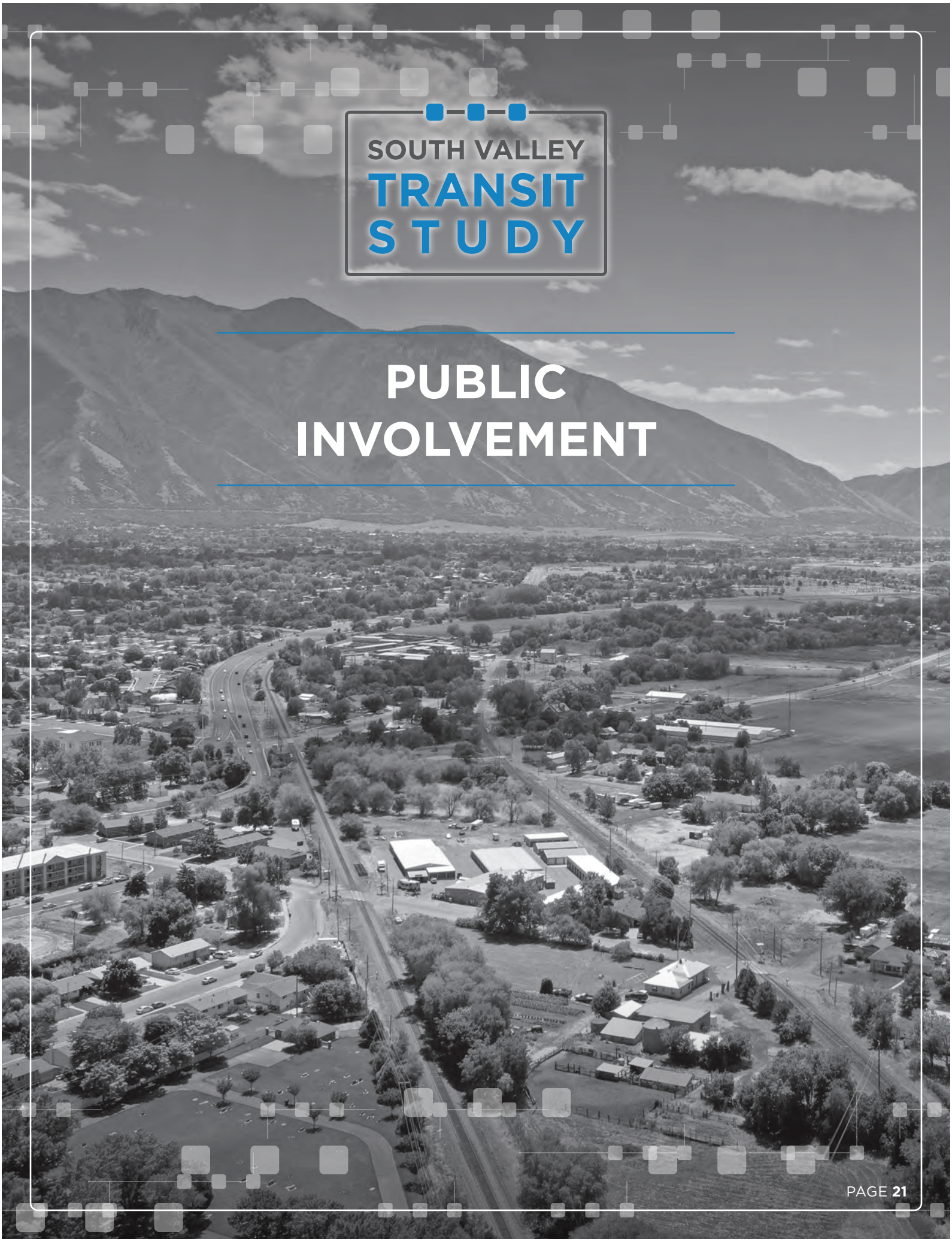
Project Need: Communities in the study area are experiencing substantial development pressure and have expressed a unified interest in providing alternatives to driving (particularly for commuting trips), reducing trips on I-15, and providing a transit investment that also spurs transit-oriented land uses and economic development.

3.4 PROJECT PURPOSE

Based on the identification of needs in the study area, the following purpose statements describe the objectives to be achieved by this project (Figure 13).

In addition, and while not fundamental to the purpose, project partners seek a project that is a fiscally responsible capital and operations investment.

Figure 13. *Project Purpose*



PUBLIC INVOLVEMENT

4 PUBLIC INVOLVEMENT

4.1 OVERVIEW

This section highlights all outreach and public engagement efforts from the beginning of the South Valley Transit Study through November 2021. Public comments, feedback, dialogue, and outreach data help provide context, drive strategic thinking, and center community needs in the planning process.

Public engagement occurred around three key study milestones: Purpose and Need, Alternatives Analysis, and draft Locally Preferred Alternative. A variety of engagement tools were utilized to ensure a representative and broad spectrum of stakeholder feedback.

A complete summary of all public involvement activities and feedback is available in Appendix C.

4.2 OBJECTIVES

The engagement objectives determined at the start of the study were:

- Inform the public about the study; provide education on transit and options
- Gather input to better understand the public's priorities for public transit
- Gather public recommendations for incorporation into the alternatives and implementation plan

4.3 STAKEHOLDER OUTREACH

4.3.1 COLLATERAL

The following collateral materials were created to support the study effort: event contact cards, study maps, giveaway signage, alternative boards, posters for UTA buses, and outdoor signage for key UTA bus stops.

4.3.2 ENGAGEMENT EVENTS

The public engagement team found the community events to be greatly successful. At each of the events the public was provided study information and asked to provide feedback on the current phase of the study.

Engagement activities included:

- Provo Bike to Work Day
- Springville Art City Days
- Provo Freedom Festival
- Spanish Fork Fiesta Days
- Utah County Fair
- Santaquin Orchard Days
- Provo Farmers Market
- Festival Latino Americano

Bike to Work Day at Provo Central Station – May 5, 2021

Utah County Fair – August 5, 2021

4.3.3 SOCIAL MEDIA

To advertise and drive stakeholder engagement and comments, social media packages were provided to study partners and participating cities. In total, 27 posts were shared via Facebook, Instagram, and Twitter from all seven participating cities, as well as from UTA.

UTA POSTS

- Total UTA Posts: 8
- Number of Comments: 39
- Number of Shares/Retweets: 59
- Number of Likes: 262

STAKEHOLDER POSTS

- Total Stakeholder Posts: 19
- Number of Comments: 102
- Number of Shares/Retweets: 103
- Number of Likes: 495

4.3.4 HOTLINE

A dedicated project hotline was created to allow stakeholders the opportunity to reach out to a member of the study team via phone with any questions or concerns. This hotline was included on all outreach materials, website, etc. Twenty-four inbound and outbound calls were documented.

4.3.5 EMAIL

The study team coordinated the creation of a UTA-based email account (southvalleytransit@rideuta.com). Forty-seven inbound and outbound messages were received. Most email comments were supportive of expanding FrontRunner to south Utah County. Many mentioned the growth happening in the area and the need to expand mobility options to meet that demand. A few comments mentioned dissatisfaction with only extending FrontRunner to Payson and not further to Santaquin.

4.3.6 PUBLIC MEETING

An online public meeting was held via Zoom on Thursday, October 21, 2021, from 6 to 7 p.m. The meeting was used to provide an overview of the study and enabled the public to ask questions and receive answers from the project team in "real time." Forty-seven people attended the online public meeting.

4.3.7 WEBSITE

A project website was built to create an online information source for the project. During the study, the website was used to:

- Describe the study and share findings as alternatives were identified and advanced
- Collect stakeholder comments through interactive comment maps and surveys
- Provide public access to study reports and presentations
- Advertise communication channels the public could use to connect with the study team

During the study, the website received 13,146 page views and averaged about 1,200 page views per month. The site received its highest number of views in October 2021. Other noteworthy website analytics include:

- 5,599 users
- 6,930 sessions
- 1.90 pages per session

4.4 STAKEHOLDER FEEDBACK

4.4.1 PURPOSE AND NEED SURVEY

There were 130 surveys completed related to the study Purpose and Need. The survey was available on the study website between February and June 2021. Notable findings from survey respondents are summarized below.

- 60 percent of respondents strongly agreed with the Purpose and Need statement.
- 28 percent of respondents agreed with the Purpose and Need statement.
- 53 percent of respondents strongly agreed with the initial range of transit options.
- 33 percent of respondents agreed with the initial range of transit options.
- 81 percent of respondents learned about the study via social media.
- Survey respondents were mostly white (84 percent), male (60 percent), and had an annual household income of $100,000 to $145,000 (27 percent).

4.4.2 DETAILED ALTERNATIVE SURVEY

There were 411 surveys completed related to the Detailed Alternatives presented. A link to the survey was provided on outreach materials distributed at public events and embedded on the study website. A breakdown of survey responses is provided below:

- Support for frequent, reliable (transit priority and exclusivity where possible), and affordable service.
- Desire for high quality development at station areas, including business and commercial opportunities, in addition to housing.
- Strong support for FrontRunner to serve the coming growth and commuting needs; support for all stations (Springville, Payson, Spanish Fork, and Santaquin).
- Need for more localized service (provide more frequent service to existing development on the east side of I-15) via local bus, express bus, or BRT to serve additional destinations and connect to future FrontRunner service.
- Opposition of transit in south Utah County was expressed (small percentage of overall comments).

4.4.3 GEOGRAPHIC INFORMATION SYSTEMS (GIS) COMMENT MAP

There were 464 comments received from March to November 2021 using a GIS-based comment map on the study website. The map and content were updated during each phase of the study and comments have been categorized as relating to Purpose and Need, initial evaluation, detailed evaluation, and Locally Preferred Alternative.

PURPOSE AND NEED

Comments received showed strong support for rail or BRT as the preferred modes. Many comments provided route and stop suggestions, including along Main Street in Springville, near Market Place Drive in Spanish Fork, at the School for the Deaf and Blind, and at 800 South in Payson. Preference was shown for transit operating in exclusive corridors. Suggestions were made for incorporating multimodal improvements at stop locations and rail crossings.

INITIAL EVALUATION

Many comments received voiced support for the expansion of transit to Santaquin. There were mentions made of a need to develop transit connections to Eagle Mountain, Saratoga Springs, and Vineyard. Comments also made requests for facilities and vehicles that are Americans with Disabilities Act (ADA) accessible.

DETAILED EVALUATION

Comments received during the detailed evaluation were strongly supportive of the expansion of FrontRunner to south Utah County and beyond. Several comments called out expanding FrontRunner further south than Santaquin. Concerns were raised regarding speed and frequency with suggestions to double track the expansion.

LOCALLY PREFERRED ALTERNATIVE

Station design and location were the focus of many comments received during the Locally Preferred Alternative phase. Many comments mentioned modeling the Springville Station in the style of the Springville Depot. There were several comments in support of a station at 800 South in Payson. Additional suggestions were provided to include capacity upgrades to nearby streets to address increased traffic demand in the area. Requests were made to consider how pedestrians and bicyclists would access stop locations that are far from city centers. There were several suggestions to tie stop locations to already established TODs.

4.5 ADVISORY GROUP

Project partners and cities in the study area were engaged throughout the study process through the formation of an Executive Committee and TAC. The TAC was composed of technical planning and/or engineering staff from each agency and the Executive Committee was comprised of mayors/policymakers and/or city managers who provided guidance throughout the process and made decisions at key milestones. The following agencies were engaged:

- UDOT
- UTA
- MAG
- Provo City
- Springville City
- Spanish Fork City
- Payson City
- Santaquin City
- Mapleton City
- Salem City

The following meetings were held throughout the study:

- Transit Study Kickoff (Meeting #1) – Combined Executive Committee and TAC meeting held November 17, 2020
- Purpose and Need and Evaluation Process (Meeting #2) – Combined Executive Committee and TAC meeting held January 12, 2021
- Initial Alternative Evaluation (Meeting #3) – TAC held meeting on March 3, 2021, and Executive Committee held meeting on March 11, 2021
- Detailed Alternative Evaluation and Locally Preferred Alternative Recommendation (Meeting #4) – Combined Executive Committee and TAC meeting held September 14, 2021
- Study Wrap Up and Implementation Next Steps (Meeting #5) – Combined Executive Committee and TAC meeting held November 9, 2021

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SOUTH VALLEY
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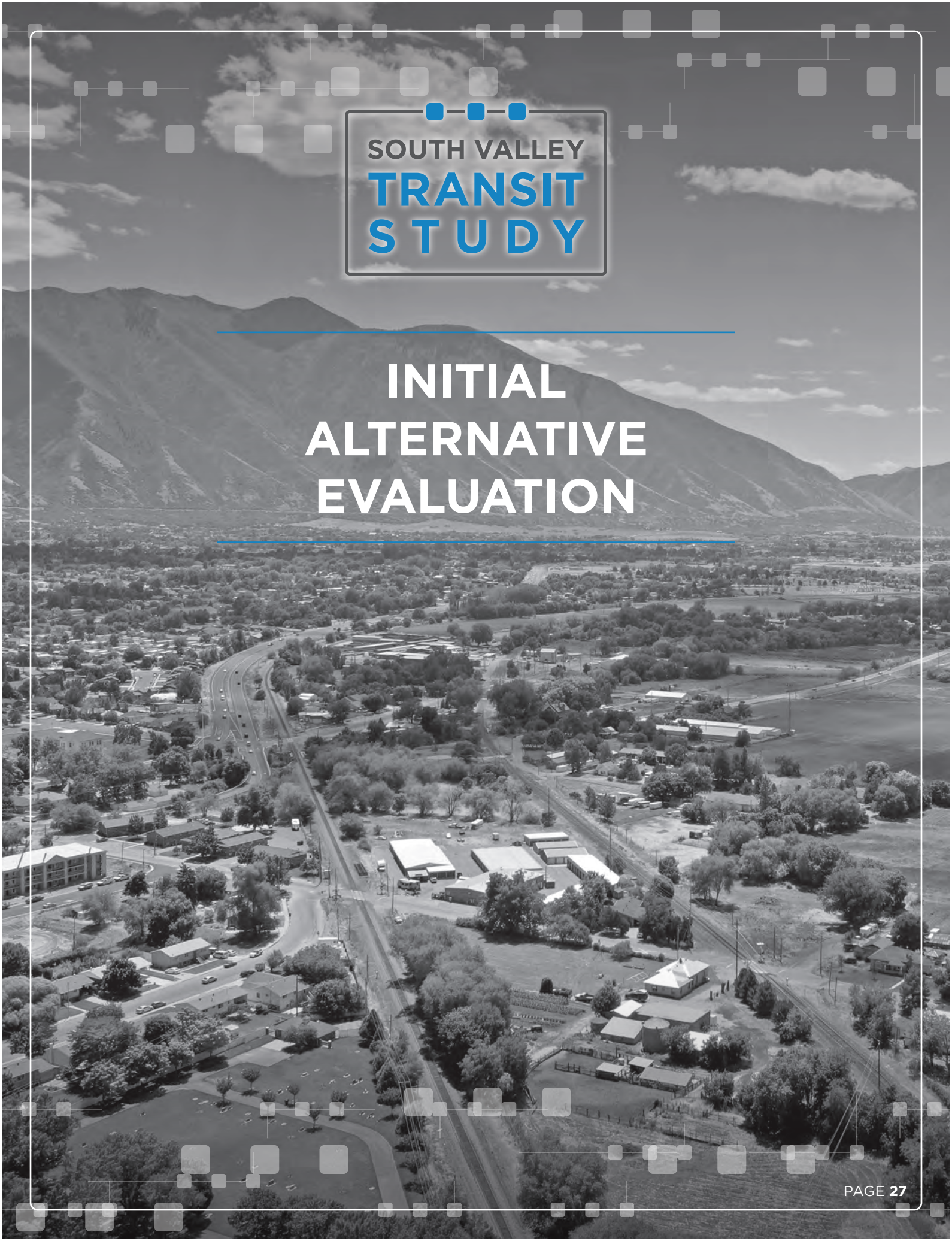
INITIAL ALTERNATIVE EVALUATION



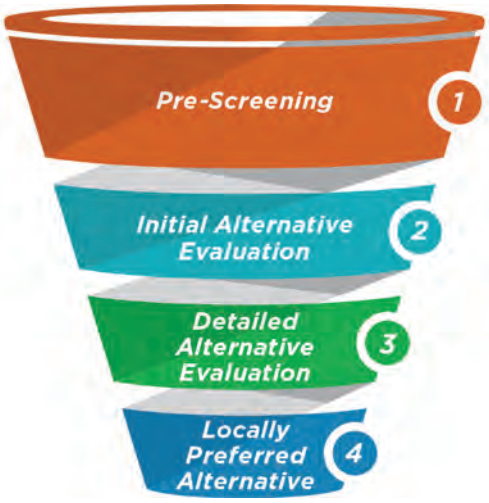
5 INITIAL ALTERNATIVE EVALUATION

5.1 OVERVIEW

The South Valley Transit Study has utilized a multi-step evaluation process to determine a Locally Preferred Alternative (Figure 14). An initial Pre-Screening step was used to ensure corridor and modal alternatives meet and address the project's Purpose and Need and remove alternatives with an obvious fatal flaw to implementation. The next step, Initial Alternative Evaluation, combined corridors and modes into logical alternatives and completed a high-level evaluation to further refine alternatives and identify those that are "best performing." This step was followed by a Detailed Alternative Evaluation which further defined each alternative and examined critical design and operational considerations, such as service assumptions, station locations, and alignment details. The final step of the process was to develop an implementation plan for the Locally Preferred Alternative, which outlines how this investment is built out, including potential interim phasing options.

This chapter describes the Pre-Screening and Initial Alternative Evaluation steps, Chapter 6 describes the Detailed Alternative Evaluation, and Chapter 7 provides information on the Locally Preferred Alternative.

Figure 14. *Evaluation Process*



5.2 PRE-SCREENING

A series of meetings were held with the Executive Committee, TAC, and other project stakeholders to generate the broad range of corridor and modal alternatives to be assessed during this study.

In addition, the study team referenced previous plans and recommendations to understand what had been proposed in the past, what communities are planning for, and how this corridor fits within the broader regional transportation system.

Three primary transit alignments were considered for initial evaluation, including the Rail Corridor, I-15, and Main/State Street (Figure 15).

Five transit modes were considered for initial evaluation:

- CRT (operates separate from traffic)
- LRT (operates separate from traffic)
- BRT (operates separate from traffic)
- Express bus (operates with traffic)
- Local bus (operates with traffic)

A pre-screening was conducted to ensure alternatives meet the project's Purpose and Need, eliminate alternatives that do not, and eliminate alternatives with fatal flaws that are likely to prevent successful implementation.

LOCAL BUS SERVICE ELIMINATED

Local bus service was eliminated in the pre-screening because it does not meet the regional transit component of the Purpose and Need.

Note that eliminating local bus service does not preclude the provision of local bus to serve shorter trips within the study area. This project represents one of many transportation elements required to create a regional transportation system that serves all users.

Figure 15. *Initial Range of Transit Corridors*

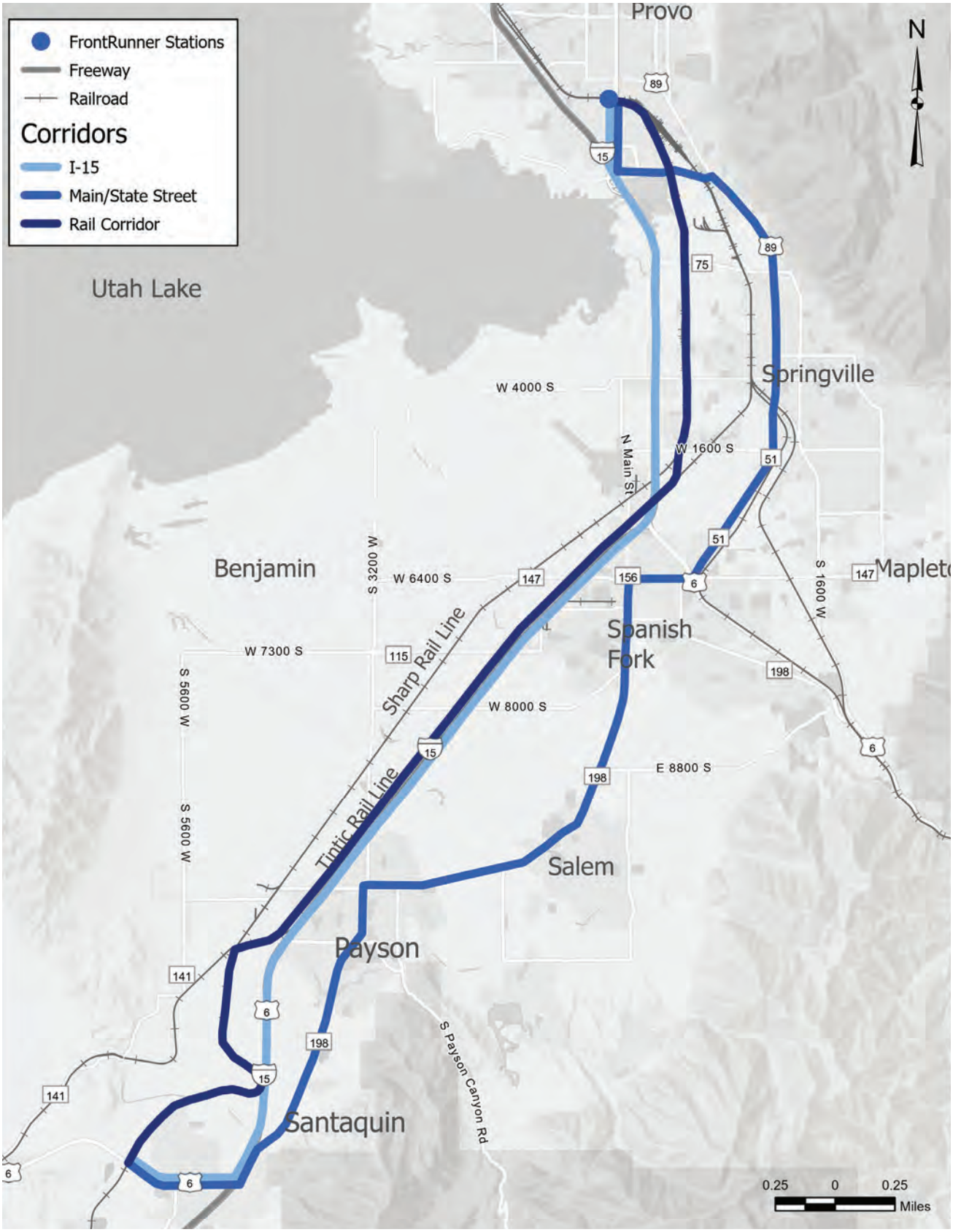


Table 1. *Initial Evaluation Alternatives – Advanced from Pre-Screening*

MODE	DEFINITION	RAIL CORRIDOR	I-15	STATE/ MAIN
Commuter Rail	• Operates in exclusive transit alignment • Regional service with longer stop spacing (4 stations)	YES	NO	NO
Light Rail	• Operates in exclusive transit alignment (shoulder-running/median on I-15 or State/Main; Rail Corridor right-of-way) • Regional service with longer stop spacing (4 stations)	YES	YES	YES
Bus Rapid Transit	• Operates in exclusive transit alignment on rail corridor; operates in about 50% exclusive alignment on I-15 and State/Main • Regional service with longer stop spacing (4 stations)	YES	YES	YES
Express Bus	• Operates in mixed-use flow traffic • Regional service with longer stop spacing (4 stations)	NO	YES	YES

Notes:

- Frequency of service would be the same for all alternatives.

- Regional stop spacing represents approximately 5 miles between stations.

- Alternatives represent the long-term investment anticipated at full buildout (2050) in the study area.

- Interim or phased improvements may be explored in the Implementation Plan.

5.3 INITIAL EVALUATION

A series of nine transit options (or alternatives) were created based on the identified transit corridors and transit modes which were evaluated as part of the Initial Evaluation. The high-level analysis looked at factors such as transit speed, travel time, potential ridership, cost, impacts, and other considerations to illustrate key differences between the transit options and identify which to advance forward into more detailed evaluation. Table 1 presents an overview of the mode and corridor pairing that describes each alternative, with a definition of how each mode could operate. The Initial Alternative Evaluation ratings are summarized in Table 2.

COMMUTER RAIL AND BRT ADVANCED

Based on the Initial Evaluation, both commuter rail and BRT on the Rail Corridor are recommended to advance into the second level of screening: Detailed Evaluation.

The Rail Corridor performs very well related to transit reliability, ridership, community compatibility, and economic development potential – which are all factors that support the project's Purpose and Need, specifically related to implementing a regional connection. Dependent on mode, moderate construction and operational challenges exist but can be worked through. This corridor provides the greatest opportunities for community development and implementing regional connections.

Generally speaking, alternatives on I-15 have the most variability of performance by mode and the most challenges to serve with fully exclusive transit. Because of the nature of I-15 as an access-controlled corridor, incorporating HCT can cause transportation system impacts and lower the ability for transit connections.

Table 2. *Summary of Initial Alternative Evaluation Ratings*

Initial Screening Criteria Measure	Rail Corridor Commuter Rail	Rail Corridor Light Rail	Rail Corridor Bus Rapid Transit	I-15 Light Rail	I-15 Bus Rapid Transit	I-15 Express Bus	State/Main Light Rail	State/Main Bus Rapid Transit	State/Main Express Bus
➢ Transit speed	🟢	🟡	🟢	🟡	🟢	🟢	🔴	🔴	🔴
➢ Transit reliability	🟢	🟢	🟢	🟢	🟡	🔴	🟢	🟡	🔴
➢ Transit connections	🟢	🟡	🟡	🟡	🟡	🔴	🟡	🟡	🔴
➢ Transit ridership potential	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
➢ Transportation system impacts	🟡	🟡	🟡	🔴	🟡	🔴	🔴	🔴	🔴
➢ Community compatibility	🟢	🟢	🟢	🔴	🔴	🔴	🔴	🔴	🔴
➢ Economic development potential	🟢	🟢	🟢	🔴	🟡	🔴	🟡	🟡	🔴
➢ Cost considerations	🟡	🟡	🟡	🔴	🟡	🟢	🔴	🟡	🟢
➢ Constructibility or operational considerations	🟡	🔴	🟡	🔴	🟡	🟢	🔴	🔴	🟢
➢ Natural and built environment considerations	🟡	🟡	🟡	🟡	🟢	🟢	🔴	🟡	🟢

Key:

- 🟢 *High performance and/or low impact*
- 🟡 *Moderate performance and/or moderate impact*
- 🔴 *Low performance and/or high impact*

Additionally, the I-15 options do not lend well toward community compatibility and economic development. Reliability and speeds vary, depending on how each mode could operate along the interstate.

The State/Main alternatives have the greatest overall length and highest number of signalized intersections, reducing transit performance and making these options more difficult to serve the primary purpose of regional need.

Construction of the State/Main alternatives would likely be more complex because of the adjacent development and right-of-way impacts. Because of the number of intersections, implementing HCT would impact the local roadway network, without reasonable benefits in transit speed and reliability.

Specific to the mode options, light rail, as a mode, offers many operational challenges in each corridor, with lower speeds than desired for a regional HCT route.

Express bus typically does not align well with the vision for the transportation system or community development pattern. It also has lower reliability and speed efficiencies.

Full information on Initial Evaluation scoring and methodology can be found in Appendix D.

OTHER KEY OBSERVATIONS FROM INITIAL EVALUATION

Transit alternatives along the State/Main corridor should continue to be explored in separate studies to provide more localized service.

Express Bus on I-15 could still be considered as a possible phasing element while the long-term project is being developed, funded, and constructed.

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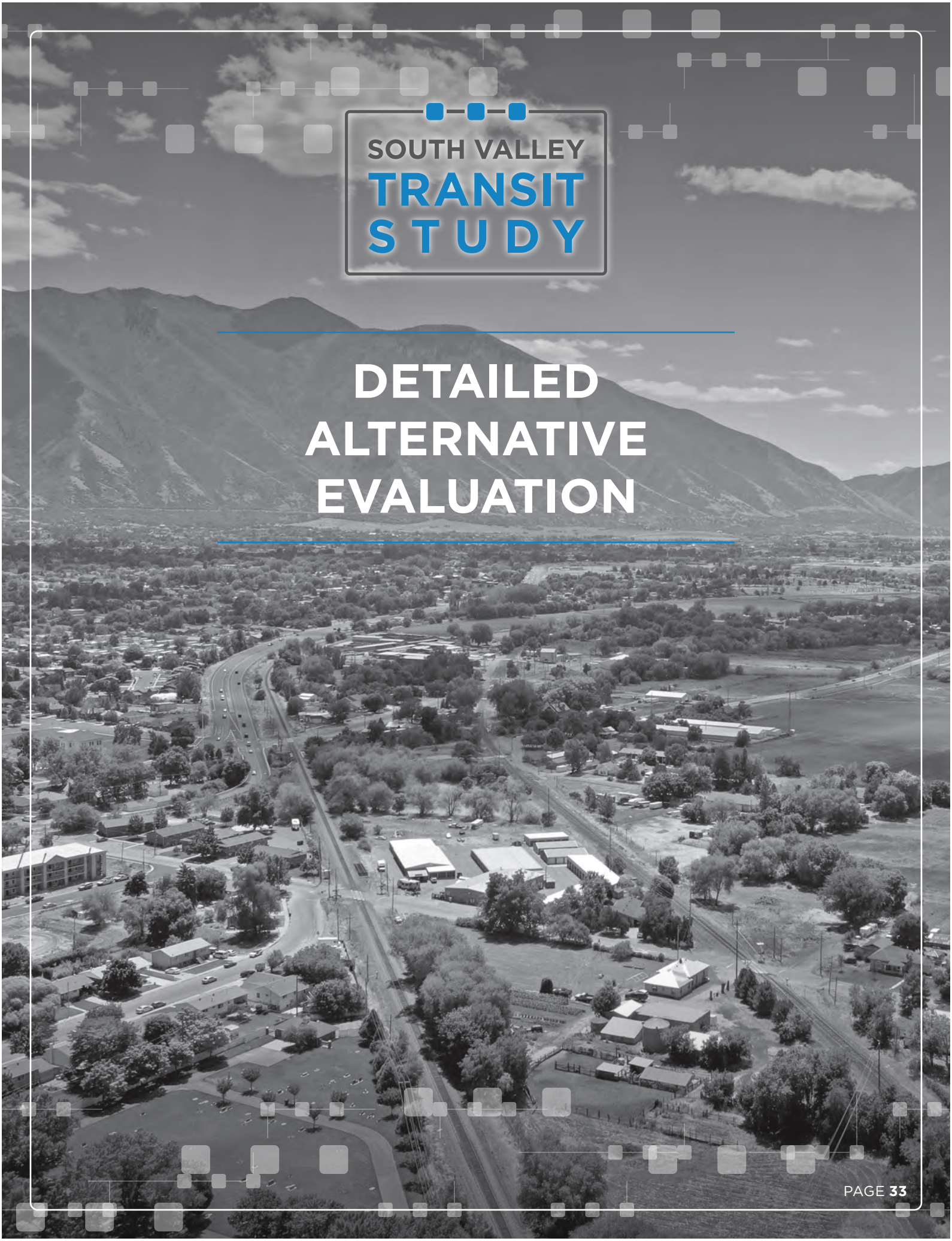
DETAILED ALTERNATIVE EVALUATION



6 DETAILED ALTERNATIVE EVALUATION

6.1 OVERVIEW

The Detailed Alternative Evaluation provides greater definition of the remaining alternatives, including identifying service assumptions, stations, and alignment details. This evaluation process uses more data-driven evaluation measures to further narrow the range of alternatives and select a Locally Preferred Alternative. Additional information on this evaluation step can be found in Appendix E.

6.2 DETAILED ALTERNATIVES

Three alternatives were considered in the detailed evaluation, as illustrated in Figure 16. These alternatives included:

- **Commuter Rail:** Starting at the FrontRunner Provo Station, the Commuter Rail Alternative runs along UTA's right-of-way which follows the Sharp Line south to Springville, and then deviates onto the Tintic Line and continues to Payson where UTA's right-of-way ends just south of the 800 South interchange. From Payson to Santaquin, the alignment continues on the Tintic Line before deviating and rejoining the Sharp Line until the terminus near Summit Ridge Parkway. Stations are located in Provo (existing), Springville, Spanish Fork, Payson, and Santaquin. In general, the alternative utilizes a single track, with portions of double track at stations and passing sidings.

STATIONS

Station locations are nearly the same for all alternatives:

- **Springville Station - south of 400 South**
- **Spanish Fork Station - north of the future Center Street interchange**
- **Payson Station - north of the Main Street interchange**
- **Santaquin Station - north of Summit Ridge Parkway**

- **BRT:** The BRT Alternative shares the same alignment and station locations as the Commuter Rail Alternative and operates exclusively in right-of-way. Similar to commuter rail, the BRT Alternative utilizes a single bus lane, with portions of two-lane sections at stations and passing sidings. Separation between freight and BRT would be required in select locations.
- **BRT Design Option:** From the FrontRunner Provo Station, the BRT Design Option utilizes existing streets in mixed-use flow to access I-15. Following I-15 to 400 South in Springville, the bus will continue to operate in mixed-use flow. After the Springville station, the bus will continue south on 1200 West before accessing the rail corridor, where the bus will operate in an exclusive transit corridor. The bus will continue along the rail corridor until 800 South (Payson) where the bus will continue in mixed-use flow on I-15 until accessing the Santaquin station via Summit Ridge Parkway.

Each of the three alternatives was paired with two operating scenarios to better understand the influence of service frequency on ridership and cost. These service options include:

- **Operational Scenario A: High Frequency** – All-day service, with frequencies ranging between 30 and 60 minutes to match current FrontRunner operations. Commuter rail would not transfer in Provo, while BRT would include a transfer because of the mode change.
- **Operational Scenario B: AM/PM Peak Hour Only** – Four hours of service in the morning, four hours of service in the afternoon; all operating at 60-minute frequencies and requiring a transfer in Provo.

6.3 DETAILED EVALUATION RESULTS

The detailed evaluation revealed several findings related to the different modes, operating scenarios, and phasing considerations.

Table 3 presents the summary of the detailed evaluation quantitative results. Table 4 with detailed accompanying data is located at the end of this chapter.

MODAL FINDINGS

From a modal perspective, the Commuter Rail Alternative and BRT Alternative both performed well with regard to:

- Transit reliability
- Transportation system impacts
- Land use compatibility
- TOD potential
- Natural/built environmental impacts

The Commuter Rail Alternative performed well notably for travel times and ridership. Capital costs were in between BRT and the BRT Design Option costs, and operating and maintenance costs were the highest of the three alternatives. However, because ridership was much higher, commuter rail had the best return on investment (cost/rider).

BRT performed well for transit reliability and reduces operations and maintenance costs compared to commuter rail. BRT did not perform as well as commuter rail in categories such as travel times, ridership, capital cost, return on investment, and construction complexity. Note that higher BRT costs are attributed to additional requirement of physical barriers along alignment where BRT operates adjacent to freight.

The BRT Design Option performed well from a cost and impact reduction perspective, but the degree of mixed-use flow operations reduced the travel times, reliability, ridership, and return on investment compared to the other alternatives.

Based on differentiating performance, namely ridership, regional travel times, and return on investment; commuter rail is the preferred mode.

OPERATIONAL SCENARIO FINDINGS

Operational Scenario A, mirroring current FrontRunner service, has better ridership estimates, travel times, and overall return on investment than Operational Scenario B. However, this scenario has higher annual operating and maintenance costs.

POTENTIAL PHASING

The detailed evaluation illustrated several key findings related to phasing and implementation as well, which will help inform the Locally Preferred Alternative and Implementation Plan.

Since UTA owns right-of-way, Provo to Payson is a key segment of the alignment. This segment, without the extension to Santaquin, reduces both capital and operating and maintenance costs, improves the return on investment, and reduces impacts to the natural and built environments. This segment from Provo to Payson has the potential to be a starter segment that can be extended as ridership warrants.

Because UTA does not own right-of-way from Payson (south of approximately 800 South) to Santaquin, this segment includes many implementation and construction complexities and will require more advance work, added project costs including right-of-way, and increased project impacts. For example, an evaluation of the degree and impact on prime agricultural lands should occur. A focus should be made on identifying the route in this segment and preserving right-of-way. Lastly, express bus service could be considered as an interim improvement to lay the foundation for ridership and connectivity to the larger project.

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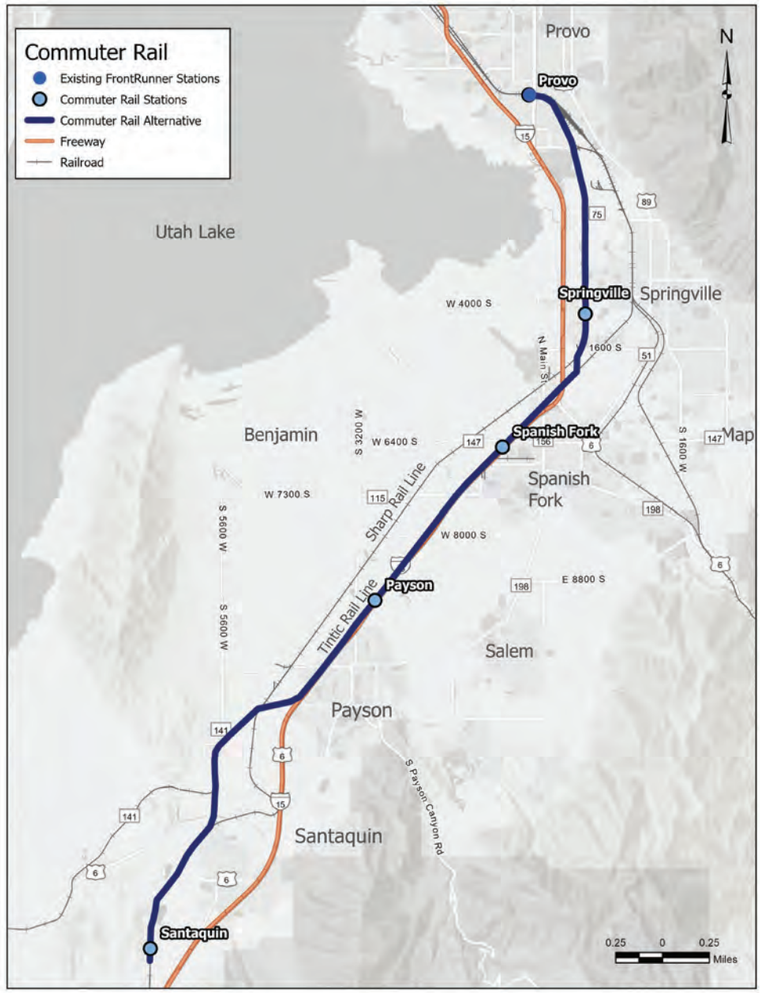
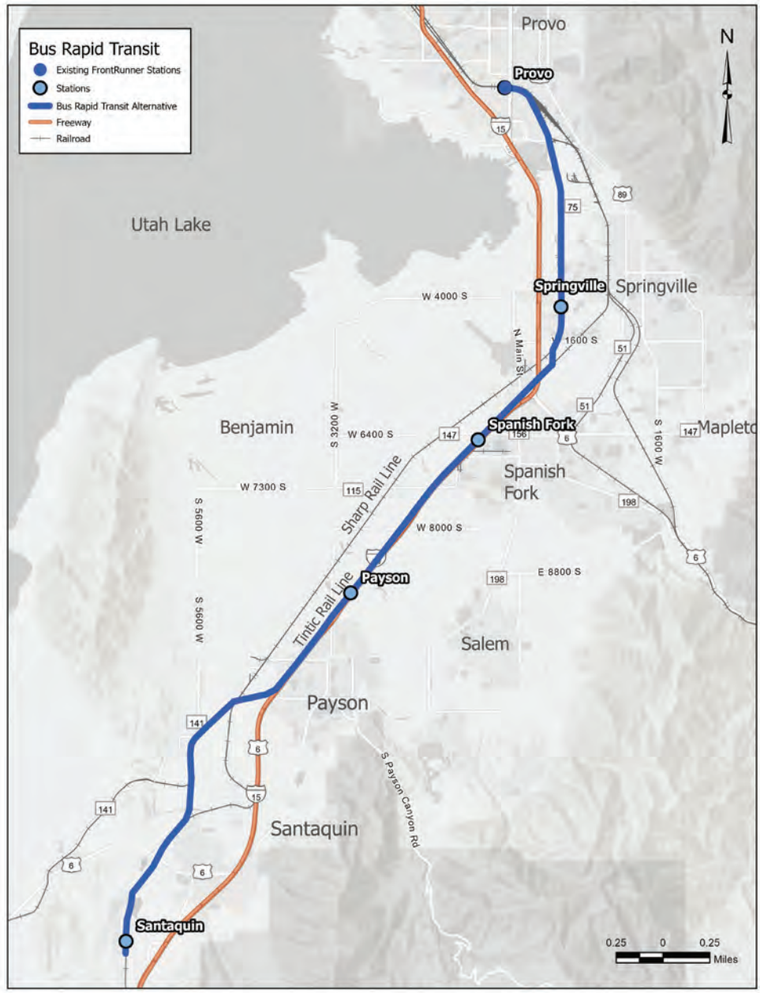
Figure 16. *Detailed Evaluation Alternatives*





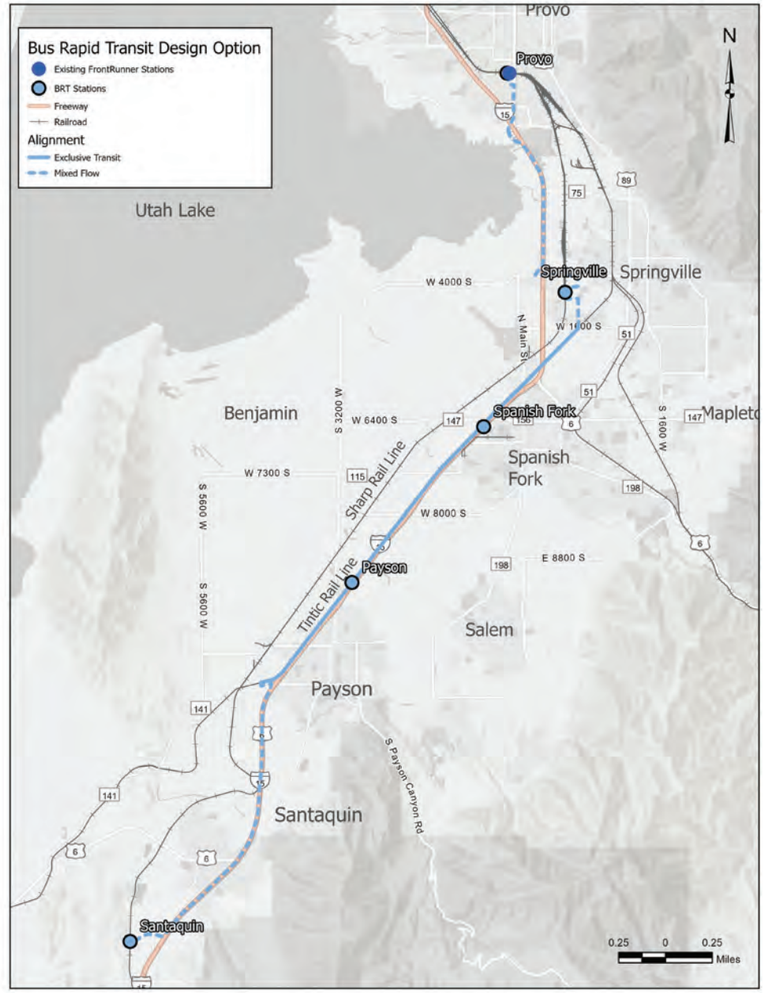


Table 3. *Summary Table of Quantitative Results*

Detailed Screening Measure	Commuter Rail – Operational Scenario A – High frequency	Commuter Rail – Operational Scenario B – AM/PM peak only	BRT – Operational Scenario A – High frequency	BRT – Operational Scenario B – AM/PM peak only	BRT Design Option – Operational Scenario A – High frequency	BRT Design Option – Operational Scenario B – AM/PM peak only
Regional transit travel times	Santaquin to FR Provo: 30 minutes Santaquin to FR Lehi: 58 minutes	Santaquin to FR Provo: 30 minutes Santaquin to FR Lehi: 73 minutes	Santaquin to FR Provo: 29 minutes Santaquin to FR Lehi: 73 minutes	Santaquin to FR Provo: 29 minutes Santaquin to FR Lehi: 73 minutes	Santaquin to FR Provo: 35 minutes Santaquin to FR Lehi: 78 minutes	Santaquin to FR Provo: 35 minutes Santaquin to FR Lehi: 78 minutes
Transit reliability	100% of transit operates in exclusive guideway	100% of transit operates in exclusive guideway	100% of transit operates in exclusive guideway	100% of transit operates in exclusive guideway	58% of transit operates in exclusive guideway	58% of transit operates in exclusive guideway
Transit ridership (2050)	Daily boardings (2050) » Provo – 6,039 » Springville – 1,969 » Spanish Fork – 1,394 » Payson – 723 » Santaquin – 658 » **Total w/o Provo – 4,744** » **Total with Provo – 10,783**	Daily boardings (2050) » Provo – 6,691 » Springville – 633 » Spanish Fork – 387 » Payson – 166 » Santaquin – 300 » **Total w/o Provo – 1,486** » **Total with Provo – 8,177**	Daily boardings (2050) » Provo – 6,428 » Springville – 420 » Spanish Fork – 293 » Payson – 143 » Santaquin – 233 » **Total w/o Provo – 1,089** » **Total with Provo – 7,517**	Daily boardings (2050) » Provo – 6,051 » Springville – 271 » Spanish Fork – 200 » Payson – 108 » Santaquin – 159 » **Total w/o Provo – 738** » **Total with Provo – 6,789**	Daily boardings (2050) » Provo – 5,750 » Springville – 124 » Spanish Fork – 187 » Payson – 100 » Santaquin – 132 » **Total w/o Provo – 543** » **Total with Provo – 6,292**	Daily boardings (2050) » Provo – 5,591 » Springville – 80 » Spanish Fork – 129 » Payson – 75 » Santaquin – 90 » **Total w/o Provo – 375** » **Total with Provo – 5,966**
Capital cost (2026 dollars) (Rough order of magnitude cost includes estimated construction, right-of-way, program, and vehicle fleet costs)	» $800M – 1.1B (Provo to Santaquin) » $550M – 750M (Provo to Payson	» $800M – 1.1B (Provo to Santaquin) » $500M – 750M (Provo to Payson	» $1.1B – 1.5B (Provo to Santaquin)* » $650M – 900M (Provo to Payson)*	» $1.1B – 1.5B (Provo to Santaquin)* » $650M – 900M (Provo to Payson)*	» $400M – 550M (Provo to Santaquin) » $300M – 400M (Provo to Payson)	» $350M – 500M (Provo to Santaquin) » $250M – 300M (Provo to Payson)
Annual operations and maintenance cost estimate (2026 dollars/year)	» $13.5M/year (Provo to Santaquin) » $8.1M/year (Provo to Payson)	» $3.5M/year (Provo to Santaquin) » $2.1M/year (Provo to Payson)	» $3.7M/year (Provo to Santaquin) » $2.2M/year (Provo to Payson)	» $1.2M/year (Provo to Santaquin) » $0.7M/year (Provo to Payson)	» $3.9M/year (Provo to Santaquin) » $2.4M/year (Provo to Payson)	» $1.2M/year (Provo to Santaquin) » $0.7M/year (Provo to Payson)
Return on investment (cost/rider)	» Lowest cost per rider of all alternatives (Provo to Santaquin) » Improves return on investment (ROI) performance by 30% (Provo to Payson)	» 2x higher than CRT Scenario A (Provo to Santaquin) » Improves ROI performance by 35% (Provo to Payson)	» 4x higher than CRT Scenario A (Provo to Santaquin) » Improves ROI performance by 40% (Provo to Payson)	» 5x higher than CRT Scenario A (Provo to Santaquin) » Improves ROI performance by 40% (Provo to Payson)	» 4x higher than CRT Scenario A (Provo to Santaquin) » Improves ROI performance by 20% (Provo to Payson)	» 3.5x higher than CRT Scenario A (Provo to Santaquin) » Improves ROI performance by 20% (Provo to Payson)

Key: *High performance and/or low impact* *Moderate performance and/or moderate impact* *Low performance and/or high impact*

**Note that higher BRT costs are attributed to physical barriers required along alignment where BRT operates adjacent to freight.*

Table 4. *Detailed Alternative Evaluation Results*

Detailed Screening Measure	Commuter Rail Operational Scenario A – High frequency	Commuter Rail Operational Scenario B – AM/PM peak only	BRT Operational Scenario A – High frequency	BRT Operational Scenario B – AM/PM peak only	BRT Design Option Operational Scenario A – High frequency	BRT Design Option Operational Scenario B – AM/PM peak only	No Build (Not scored – provided for comparative purposes)
Description of alternative *Rating changes from Provo to Santaquin, compared to Provo to Payson summarized in italics in this column.*	» Commuter Rail Transit (CRT) with portions of single tracking and double tracking at stations and passing sidings. Fully interlined with FrontRunner. » 23.6 miles, 4 new stations – Provo to Santaquin. » 14.0 miles, 3 new stations – Provo to Payson.	» CRT with portions of single tracking, and double tracking at stations and passing sidings. Shuttle service does not interline with FrontRunner, requiring transfer. » 23.6 miles, 4 new stations – Provo to Santaquin. » 14.0 miles, 3 new stations – Provo to Payson.	» Bus Rapid Transit (BRT) with portions of single lane and portions of two-way passing locations (similar to Commuter Rail – Scenario A). Separation between freight and BRT in select locations. » 23.4 miles, 4 new stations – Provo to Santaquin. » 14.0 miles, 3 new stations – Provo to Payson.	» BRT with portions of single lane and portions of two-way passing locations (similar to CRT – Scenario B). Separation between freight and BRT in select locations. » 23.4 miles, 4 new stations – Provo to Santaquin. » 14.0 miles, 3 new stations – Provo to Payson.	» From FrontRunner Provo station, utilizes existing streets in mixed-use flow to access I-15. Following I-15 to 400 S in Springville, the bus will operate in mixed-use flow. After the Springville station, the bus will continue south on 1200 W before accessing the rail corridor, where the bus will operate in an exclusive transit corridor. The bus will continue along the rail corridor until 800 S (Payson) where the bus will continue in mixed use flow on I-15 until accessing the Santaquin station via Summit Ridge Parkway. » 25.2 miles, 4 new stations – Provo to Santaquin. » 14.8 miles, 3 new stations – Provo to Payson.	» Same as BRT Design Option Scenario A. » 25.2 miles, 4 new stations – Provo to Santaquin. » 14.8 miles, 3 new stations – Provo to Payson.	» Express bus operating in mixed-use flow traffic on I-15 from FrontRunner Provo to Santaquin Station on Summit Ridge Parkway. » 22.9 miles, 4 stops – Provo to Santaquin.
Regional transit travel times – within south Utah County and regional trips. *Ratings do not change for Provo to Payson.*	**High performance** » Representative **south Utah County trip** travel time – Santaquin to FrontRunner Provo: 30 minutes. » Representative **regional trip** travel time – Santaquin to FrontRunner Lehi: Total Time: 58 minutes (no transfer penalty).	**Medium performance** » Representative **south Utah County trip** travel time – Santaquin to FrontRunner Provo: 30 minutes. » Representative **regional trip** travel time – Santaquin to FrontRunner Lehi: Total Time: 73 minutes (with 15-minute transfer penalty).	**Medium performance** » Representative **south Utah County trip** travel time – Santaquin to FrontRunner Provo: 29 minutes. » Representative **regional trip** travel time – Santaquin to FrontRunner Lehi: Total Time: 73 minutes (with 15-minute transfer penalty).	**Medium performance** » Same as BRT Scenario A.	**Low performance** » Representative **south Utah County trip** travel time – Santaquin to FrontRunner Provo: 35 minutes. » Representative **regional trip** travel time – Santaquin to FrontRunner Lehi: Total Time: 78 minutes (with 15-minute transfer penalty). » Portions operating in mixed-use flow traffic subject to congestion not captured here in travel times.	**Low performance** » Same as BRT Design Option Scenario A.	» Representative **south Utah County trip** travel time – Santaquin to FrontRunner Provo: TBD. » Representative **regional trip** travel time – Santaquin to FrontRunner Lehi: Total Time: TBD. » Operates completely in mixed-use flow traffic subject to congestion and not captured here in travel times.
Transit reliability – percentage of alignment operating in exclusive right-of-way. *Ratings do not change for Provo to Payson.*	**High performance** » CRT operates 100% exclusively on the rail corridor with high priority at gate crossings and speeds of nearly 80 miles per hour (mph). However, there are frequent speed restrictions.	**High performance** » Same as CRT Scenario A.	**High performance** » BRT operates 100% exclusively on the rail corridor with high priority at gate crossings and consistent speeds of 70 mph along the corridor.	**High performance** » Same as BRT Scenario A.	**Medium performance** » The BRT design option is 58% mixed use along the corridor and 42% exclusive transit operations. Speeds vary from 45 to 70 mph and yield to 9 traffic signals	**Medium performance** » Same as BRT Design Option Scenario A.	» 0% exclusive operations.

***Table 4.** Detailed Alternative Evaluation Results (Continued)*

Detailed Screening Measure	Commuter Rail Operational Scenario A – High frequency	Commuter Rail Operational Scenario B – AM/PM peak only	BRT Operational Scenario A – High frequency	BRT Operational Scenario B – AM/PM peak only	BRT Design Option Operational Scenario A – High frequency	BRT Design Option Operational Scenario B – AM/PM peak only	No Build (Not scored – provided for comparative purposes)
Transit reliability (continued) – percentage of alignment operating in exclusive right-of-way.	along curves and station sidings, and slower acceleration and deceleration speeds that increase travel times compared to BRT.				while operating outside the rail corridor.		
Transit ridership – daily forecasted transit ridership (2050), boardings by station, and by access mode (walk/drive). *Ratings do not change for Provo to Payson.*	**High performance** Daily boardings (2050) » Provo – 6,039 » Springville – 1,969 » Spanish Fork – 1,394 » Payson – 723 » Santaquin – 658 » **Total with Provo – 10,783** » **Total w/o Provo – 4,744**	**Medium performance** Daily boardings (2050) » Provo – 6,691 » Springville – 633 » Spanish Fork – 387 » Payson – 166 » Santaquin – 300 » **Total with Provo – 8,177** » **Total w/o Provo – 1,486**	**Medium performance** Daily boardings (2050) » Provo – 6,428 » Springville – 420 » Spanish Fork – 293 » Payson – 143 » Santaquin – 233 » **Total with Provo – 7,517** » **Total w/o Provo – 1,089**	**Low performance** Daily boardings (2050) » Provo – 6,051 » Springville – 271 » Spanish Fork – 200 » Payson – 108 » Santaquin – 159 » **Total with Provo – 6,789** » **Total w/o Provo – 738**	**Low performance** Daily boardings (2050) » Provo – 5,750 » Springville – 124 » Spanish Fork – 187 » Payson – 100 » Santaquin – 132 » **Total with Provo – 6,292** » **Total w/o Provo – 543**	**Low performance** Daily boardings (2050) » Provo – 5,591 » Springville – 80 » Spanish Fork – 129 » Payson – 75 » Santaquin – 90 » **Total with Provo – 5,966** » **Total w/o Provo – 375**	Daily boardings (2050) » **Total with Provo – 1,296** » **Total w/o Provo – 893**
Study area transit trips – effects on overall transit trips within study area compared to No Build. *Ratings not expected to change for Provo to Payson.*	**High performance** » Compared to No Build, an 80% increase in transit trips within the study area.	**Low performance** » Compared to No Build, a 20% increase in transit trips within the study area.	**Medium performance** » Compared to No Build, a 65% increase in transit trips within the study area.	**Low performance** » Compared to No Build, a 10% increase in transit trips within the study area.	**Low performance** » Provide similar transit trips compared to No Build.	**Low performance** » Compared to No Build, an 80% increase in transit trips within the study area.	» Not applicable.
Transportation system impacts – potential effects on existing and planned traffic operations, including freight (rail and truck, as applicable). *Ratings do not change for Provo to Payson.*	**High performance** » CRT operates exclusive to both freight and vehicular traffic. There are 12 gated crossings and several subdivisions along the corridor where vehicular traffic could also be impacted due to the gated crossings; stops would be limited in duration.	**High performance** » Same as CRT Scenario A, but with impacts to traffic limited to peak hours only.	**High performance** » Same as CRT, BRT will operate in exclusive right-of-way adjacent to the rail corridor with little impact on planned traffic operations. There are 12 gated crossings where vehicular traffic could be impacted due to the gate crossings; stops would be limited in duration.	**High performance** » Same as BRT Scenario A, but with impacts to traffic limited to peak hours only.	**High performance** » BRT operates 58% mixed-use and 42% exclusive. In the mixed use portions, this option would have limited impacts on existing traffic operations. In exclusive portions, would have impacts similar to CRT and BRT alternatives.	**High performance** » Same as BRT Design Option Scenario A, but with impacts to traffic limited to peak hours only.	» Lack of an alternative transit solution will ultimately result in more vehicles on the roadway, further limiting capacity of the existing transportation system.
Access to employment – Access to employment within 30/60 minutes.	» Not able to analyze as part of the detailed alternative evaluation. Ratings likely to resemble ridership and transit trips.	» Not able to analyze as part of the detailed alternative evaluation. Ratings likely to resemble ridership and transit trips.	» Not able to analyze as part of the detailed alternative evaluation. Ratings likely to resemble ridership and transit trips.	» Not able to analyze as part of the detailed alternative evaluation. Ratings likely to resemble ridership and transit trips.	» Not able to analyze as part of the detailed alternative evaluation. Ratings likely to resemble ridership and transit trips.	» Not able to analyze as part of the detailed alternative evaluation. Ratings likely to resemble ridership and transit trips.	» Not able to analyze as part of the detailed alternative evaluation. Ratings likely to resemble ridership and transit trips.
Land use compatibility – potential to complement and integrate with existing and planned land uses and densities in terms of capacity, stops, and alignment. *Ratings do not change for Provo to Payson.*	**High performance** » All alternatives serve the same station locations. » Station locations are located in areas identified as higher growth areas for future population and/or employment. » Surrounding land uses are/envisioned to be transit-supportive: mixed-use, TOD, commercial, and/or village core.	**High performance** » Same as CRT Scenario A.	**High performance** » Same as CRT Scenario A.	**High performance** » Same as CRT Scenario A.	**High performance** » Same as CRT Scenario A.	**High performance** » Same as CRT Scenario A.	» Without high-capacity transit service, planned land uses may not reach the same mix or densities as with implementation of fixed guideway/ permanent transit.

Table 4. *Detailed Alternative Evaluation Results (Continued)*

Detailed Screening Measure	Commuter Rail – Operational Scenario A – High frequency	Commuter Rail – Operational Scenario B – AM/PM peak only	BRT – Operational Scenario A – High frequency	BRT – Operational Scenario B – AM/PM peak only	BRT Design Option – Operational Scenario A – High frequency	BRT Design Option – Operational Scenario B – AM/PM peak only	No Build (Not scored – provided for comparative purposes)
TOD potential – development and/or redevelopment potential susceptibility. *Ratings do not change for Provo to Payson.*	**High performance** » All alternatives serve the same station locations. » The permanence of commuter rail stations and fixed guideway promote development certainty and encourage higher densities. » Station locations are in areas that have a greater likelihood to develop/ redevelop to support TOD (large vacant/underutilized parcels are present, or favorable zoning or policies are in place). » TOD readiness varies by station, with several ready for TOD and others lacking major infrastructure to serve development.	**High performance** » Same as CRT Scenario A.	**High performance** » Same as CRT Scenario A.	**High performance** » Same as CRT Scenario A.	**Medium performance** » Same as CRT Scenario A. However, the presence of both exclusive and non-exclusive transit BRT guideway may reduce development certainty compared to commuter rail and BRT.	**Medium performance** » Same as CRT Scenario A. However, the presence of both exclusive and non-exclusive transit BRT guideway may reduce development certainty compared to commuter rail and BRT.	» No Build would serve the same station locations. The lack of permanent guideway and station areas associated with this type of transit service would not promote development certainty compared to commuter rail and BRT. TOD potential would be more limited.
Capital cost estimate (2026 dollars) – rough order of magnitude capital cost of program (construction, right-of-way vehicles, etc.). *Capital costs are substantially reduced for Provo to Payson, ratings do not change.*	**Medium performance** » $800M – 1.1B (Provo to Santaquin). » $550M – 750M (Provo to Payson). » Rough order of magnitude capital cost range based on representative alignment, including an allowance for real estate/soft costs, vehicles, maintenance facilities, and station programming elements. Operations, maintenance, and state of good repair costs are not included.	**Medium performance** » Same as CRT Scenario A. Slight variations based on different fleet assumptions for operational scenario. » $800M – 1.1B (Provo to Santaquin). » $550M – 750M (Provo to Payson). » Could have minor cost differences due to different siding assumptions based on operational scenario but would be within estimated range.	**Low performance** » $1.1B – 1.5B (Provo to Santaquin)*. » $650M – 900M (Provo to Payson)*. » Rough order of magnitude capital cost range based on representative alignment, including an allowance for real estate/soft costs, vehicles, maintenance facilities, and station programming elements. Operations, maintenance, and state of good repair costs are not included.	**Low performance** » Same as BRT Scenario A. Slight variations based on different fleet assumptions for operational scenario. » $1.1B – 1.5B (Provo to Santaquin)*. » $650M – 900M (Provo to Payson)*. » Could have minor cost differences due to different siding assumptions based on operational scenario but would be within estimated range.	**High performance** » $400M – 550M (Provo to Santaquin). » $300M – 400M (Provo to Payson). » Rough order of magnitude capital cost range based on representative alignment, including an allowance for real estate/soft costs, vehicles, maintenance facilities, and station programming elements. Operations, maintenance, and state of good repair costs are not included.	**High performance** » Same as BRT Design Option Scenario A. Slight variations based on different fleet assumptions for operational scenario. » $350M – 500M (Provo to Santaquin). » $250M – 300M (Provo to Payson).	» No major capital cost outside of purchase of additional vehicles and bus stop amenities.
Annual operations and maintenance cost estimate (2026 dollars) – rough order of magnitude annual operations and maintenance cost. *Operations and maintenance costs are substantially reduced for Provo to Payson, ratings do not change.*	**Low performance** » $13.5M/year (Provo to Santaquin). » $8.1M/year (Provo to Payson). » Operations and maintenance costs based on UTA's cost model spreadsheet; estimates cost per corridor mile by mode/service type (commuter rail).	**Medium performance** » $3.5M/year (Provo to Santaquin). » $2.1M/year (Provo to Payson). » Operations and maintenance costs based on UTA's cost model spreadsheet; estimates cost per corridor mile by mode/service type (commuter rail).	**Medium performance** » $3.7M/year (Provo to Santaquin). » $2.2M/year (Provo to Payson). » Operations and maintenance costs based on UTA's cost model spreadsheet; estimates cost per corridor mile by mode/service type (fixed guideway BRT).	**High performance** » $1.2M/year (Provo to Santaquin). » $0.7M/year (Provo to Payson) » Operations and maintenance costs based on UTA's cost model spreadsheet; estimates cost per corridor mile by mode/service type (fixed guideway BRT).	**Medium performance** » $3.9M/year (Provo to Santaquin) » $2.4M/year (Provo to Payson) » Operations and maintenance costs based on UTA's cost model spreadsheet; estimates cost per corridor mile by mode/service type (fixed guideway BRT).	**High performance** » $1.2M/year (Provo to Santaquin). » $0.7M/year (Provo to Payson). » Operations and maintenance costs based on UTA's cost model spreadsheet; estimates cost per corridor mile by mode/service type (fixed guideway BRT).	» No Build would include operations and maintenance costs for Express Bus service; similar to BRT, Scenario B.

**Note that higher BRT costs are attributed to physical barriers required along alignment where BRT operates adjacent to freight.*

Table 4. *Detailed Alternative Evaluation Results (Continued)*

Detailed Screening Measure	Commuter Rail Operational Scenario A – High frequency	Commuter Rail Operational Scenario B – AM/PM peak only	BRT Operational Scenario A – High frequency	BRT Operational Scenario B – AM/PM peak only	BRT Design Option Operational Scenario A – High frequency	BRT Design Option Operational Scenario B – AM/PM peak only	No Build (Not scored – provided for comparative purposes)
Return on Investment – annualized investment per rider. *ROI is reduced for Provo to Payson, ratings do not change except for BRT (noted).*	**High performance** » Lowest cost per rider of all alternatives (Provo to Santaquin). » Improves ROI performance by 30% (Provo to Payson).	**Medium performance** » 2x higher than CRT Scenario A (Provo to Santaquin). » Improves ROI performance by 35% (Provo to Payson).	**Low performance** » 4x higher than CRT Scenario A (Provo to Santaquin). » Improves ROI performance by 40% (Provo to Payson) – rating would improve to medium for Provo to Payson.	**Low performance** » 5x higher than CRT Scenario A (Provo to Santaquin). » Improves ROI performance by 40% (Provo to Payson) – rating would improve to medium for Provo to Payson.	**Low performance** » 4x higher than CRT Scenario A (Provo to Santaquin). » Improves ROI performance by 20% (Provo to Payson)	**Low performance** » 3.5x higher than CRT Scenario A (Provo to Santaquin). » Improves ROI performance by 20% (Provo to Payson).	
Construction complexity – noted construction challenges and complexity. *Construction complexity is reduced for Provo to Payson, ratings do not change.*	**Medium performance** » The alignment follows existing rail for the majority of the corridor but requires several major infrastructure improvements including 9 bridges, including one major flyover crossing UPRR active tracks. The alignment crosses under 12 bridges which could require possible widening or other improvements.	**Medium performance** » Same as CRT Scenario A.	**Low performance** » Same as CRT Scenario A. » In addition, the widening required for BRT would likely impact power lines that run parallel to a long section of the corridor through Springville. Where adjacent to freight rail, a crash barrier is assumed for separation purposes.	**Low performance** » Same as BRT Scenario A.	**High performance** » The BRT design option utilizes existing roads and infrastructure throughout the mixed-use portion of the alignment. While along the rail corridor portion, the alignment crosses over 5 bridges that would potentially need improvements and under 4 bridges that would also require potential widening or other improvements.	**High performance** » Same as BRT Design Option Scenario A.	» No construction required.
Natural or built environment considerations – potential for adverse effects on natural environment resources. *Natural environment impacts are substantially reduced for Provo to Payson, ratings do not change.*	**Medium performance** » Portion of alignment between Payson and Santaquin (where alignment connects from Tintic to Sharp Lines) transects lands with agricultural protection. » Water resources and wetlands in proximity to the rail corridor from Provo to Springville. » Wetlands in proximity to proposed Spanish Fork Station and wetlands, as well as water resources to the north of the proposed Payson Station.	**Medium performance** » Same as CRT Scenario A.	**Medium performance** » Same as CRT Scenario A.	**Medium performance** » Same as CRT Scenario A.	**High performance** » Limited impacts to natural resources by utilizing existing roadways for sections from Provo to Springville (potential water resource impacts along rail corridor) and Payson to Santaquin (potential agricultural impacts along rail corridor).	**High performance** » Same as BRT Design Option Scenario A.	» No impacts to natural or built environment resources.
Estimated property impacts – Estimated square footage based on assumed project footprint. *Estimated property impacts are substantially reduced for Provo to Payson, ratings do not change.*	**Medium performance** » CRT utilizes an existing 20-foot-wide UTA easement from Provo to Springville. South of Springville, an existing rail corridor will be repurposed and used for transit. Available right-of-way terminates south of Payson and new right-of-way must be acquired to reestablish the corridor to Santaquin.	**Medium performance** » Same as CRT Scenario A.	**Medium performance** » BRT utilizes an existing UTA easement from Provo to Springville, although additional room would be required to install crash/separation barrier between freight and BRT. South of Springville, an existing rail corridor will be repurposed and used for transit.	**Medium performance** » Same as BRT Scenario A.	**High performance** » The BRT design option mainly utilizes existing roads from Provo to Springville. South of Springville; an existing rail corridor will be repurposed. South of Payson, the rail corridor changes ownership, and the BRT design option leaves the rail corridor and utilizes I-15 south to Santaquin.	**High performance** » Same as BRT Design Option Scenario A.	» No additional property impacts.

Table 4. *Detailed Alternative Evaluation Results (Continued)*

Detailed Screening Measure	Commuter Rail Operational Scenario A – High frequency	Commuter Rail Operational Scenario B – AM/PM peak only	BRT Operational Scenario A – High frequency	BRT Operational Scenario B – AM/PM peak only	BRT Design Option Operational Scenario A – High frequency	BRT Design Option Operational Scenario B – AM/PM peak only	No Build (Not scored – provided for comparative purposes)
Estimated property impacts (continued) – Estimated square footage based on assumed project footprint.	» Additional property will be required at sidings and at stations throughout the corridor. » Estimated 1M square feet (Provo to Santaquin). » Estimated 200K square feet (Provo to Payson).		» Available right-of-way terminates south of Payson and new right-of-way must be acquired to reestablish the corridor to Santaquin. Additional property will be required at sidings and at stations throughout the corridor. However, these features would require less property than CRT. » Estimated 900K square feet (Provo to Santaquin). » Estimated 200K square feet (Provo to Payson).		» This design option limits the purchase of right-of-way. » Estimated 50K square feet (Provo to Santaquin). » Estimated 50K square feet (Provo to Payson).		
Phasing and implementation considerations – notable factors related to phasing and implementation of full build out over time. Includes vehicle technology considerations. *Measure not scored; narrative provided for consideration.*	» Rail-based technologies such as CRT are not as flexible for implementation and would have to be implemented from Provo south in geographically continuous segments. » Implementation requires fully exclusive transit along the full corridor length. » Likely phasing of CRT could include regional express bus serving desired commuter rail stations, provided highway access is available. As funding becomes available and ridership established, express bus could be replaced by CRT. BRT is not recommended for phasing to CRT. The large capital investment required for BRT would reduce the likelihood of future conversion to CRT. » Operational scenarios can be scaled to meet demand. » Vehicle technology would be consistent with FrontRunner, which currently use diesel trains, although there is a desire to electrify the FrontRunner system in the future.	Similar to CRT Scenario A with additional considerations: » For the scenario that does not interline with FrontRunner, different vehicle technologies could be explored, including diesel, electro-diesel, or electric vehicles. » Service could be phased into a fully interlined FrontRunner service as demand warrants.	» BRT offers greater flexibility for phased implementation. Exclusive guideway for BRT can be implemented in non-contiguous areas based on demand and other factors. BRT can be operated in a variety of environments, from fully exclusive transit lanes to mixed-use flow if right-of-way and/or funding is limited or other constraints are present. » Likely phasing of BRT could include regional express bus serving desired BRT stations. As funding becomes available and ridership established, express bus could transition to dedicated facilities for BRT. » BRT would offer greater flexibility to add stations; however, adding stations may reduce the efficiency of the desired regional service. » Operational scenarios can be scaled to meet demand.	» Same as BRT Scenario A.	» Similar flexibility as BRT. » This design option could be considered a phasing option as the corridor moves towards a fully exclusive BRT system.	» Same as BRT Design Option Scenario A.	» The No Build could be a phasing option as project development continues and funding is secured for full build out of the selected alternative.
Project stakeholder input and public input *Measure not scored, narrative provided for consideration.*	» Support for frequent, reliable (transit priority and exclusivity where possible), and affordable service. » Desire for high quality development at station areas, including business and commercial opportunities, in addition to housing. Support for all FrontRunner stations expressed (Springville, Payson, Spanish Fork, and Santaquin). » Strong support for FrontRunner to serve the coming growth and commuting needs. » Need more localized service (providing more frequent service to existing development on the east side of I-15) via local bus, express bus, or BRT to serve additional destinations and also connecting into future FrontRunner service. » General support for BRT, though comment seems more supportive of more frequent and localized stops. » Support for BRT/express bus/local use to complement FrontRunner. » Opposition for transit in south Utah County was expressed. Primarily that it isn't needed, no one will use it, waste of money, and don't trust UTA.						

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SOUTH VALLEY
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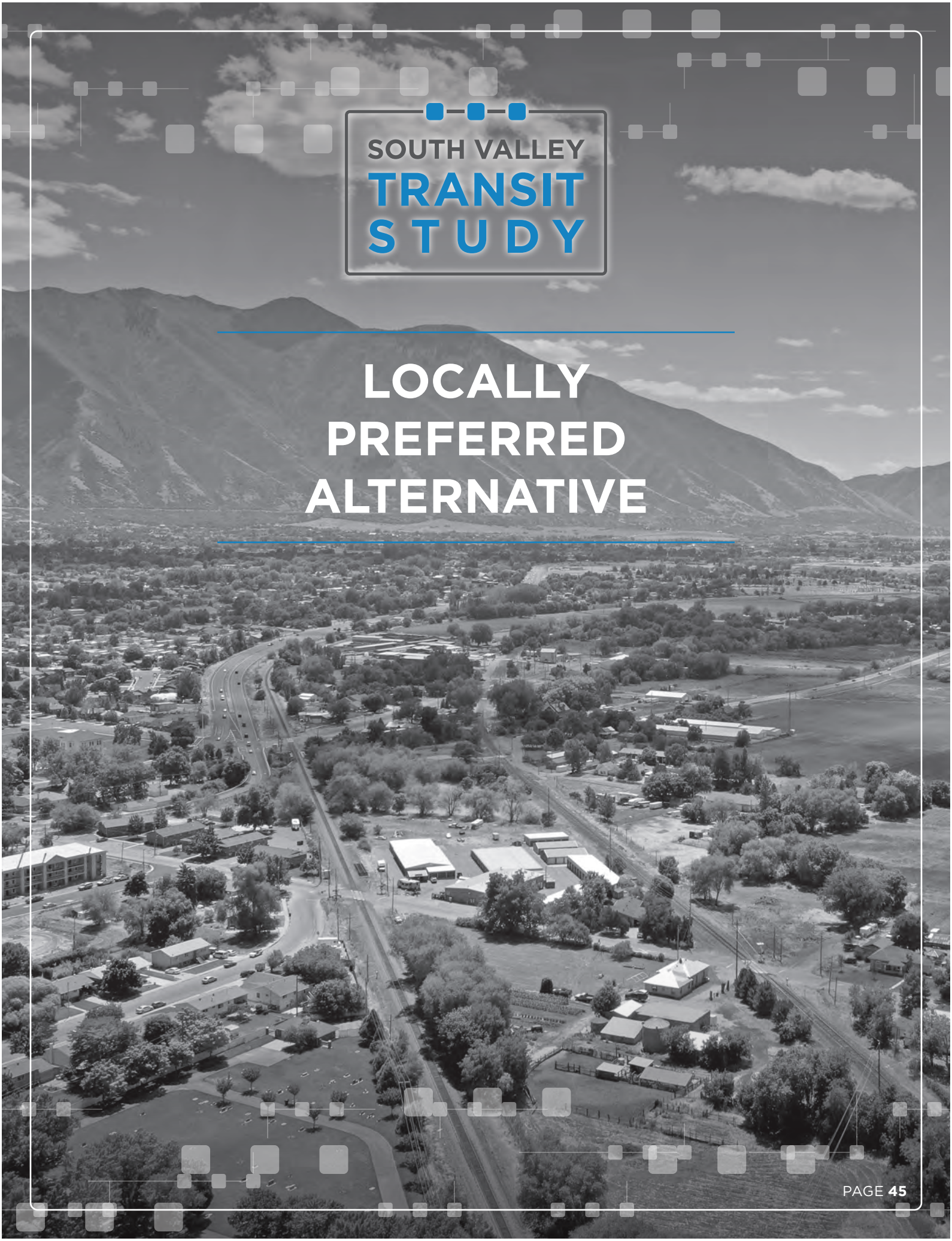
LOCALLY PREFERRED ALTERNATIVE



7 LOCALLY PREFERRED ALTERNATIVE

7.1 OVERVIEW

This chapter summarizes the proposed Locally Preferred Alternative based on the detailed alternative evaluation and feedback received from agency and local jurisdiction partners. It also describes the process and data-driven justification for identifying the Locally Preferred Alternative, including potential phasing considerations and next steps.

7.2 RECOMMENDATION

Based on the detailed evaluation results and coordination among stakeholders, the Locally Preferred Alternative was developed and approved by the Executive Committee and includes:

- Commuter Rail – Provo to Payson
- Express Bus Service – Payson to Santaquin

The preferred mode for a regional transit connection in south Utah County is commuter rail, preferably fully interlined with existing FrontRunner service. This is desired to be high-frequency, full-day service, similar to current FrontRunner operations as ridership warrants and operating and maintenance costs are available.

Express bus service is proposed between Payson and Santaquin, where UTA does not own right-of-way for exclusive transit corridor operations. In the near-term, express bus provides a more immediate transit solution that can build ridership in Payson and Santaquin, while right-of-way can be preserved to implement more exclusive transit operations in the future. The Locally Preferred Alternative alignment is illustrated in Figure 17.

AT A GLANCE: LOCALLY PREFERRED ALTERNATIVE

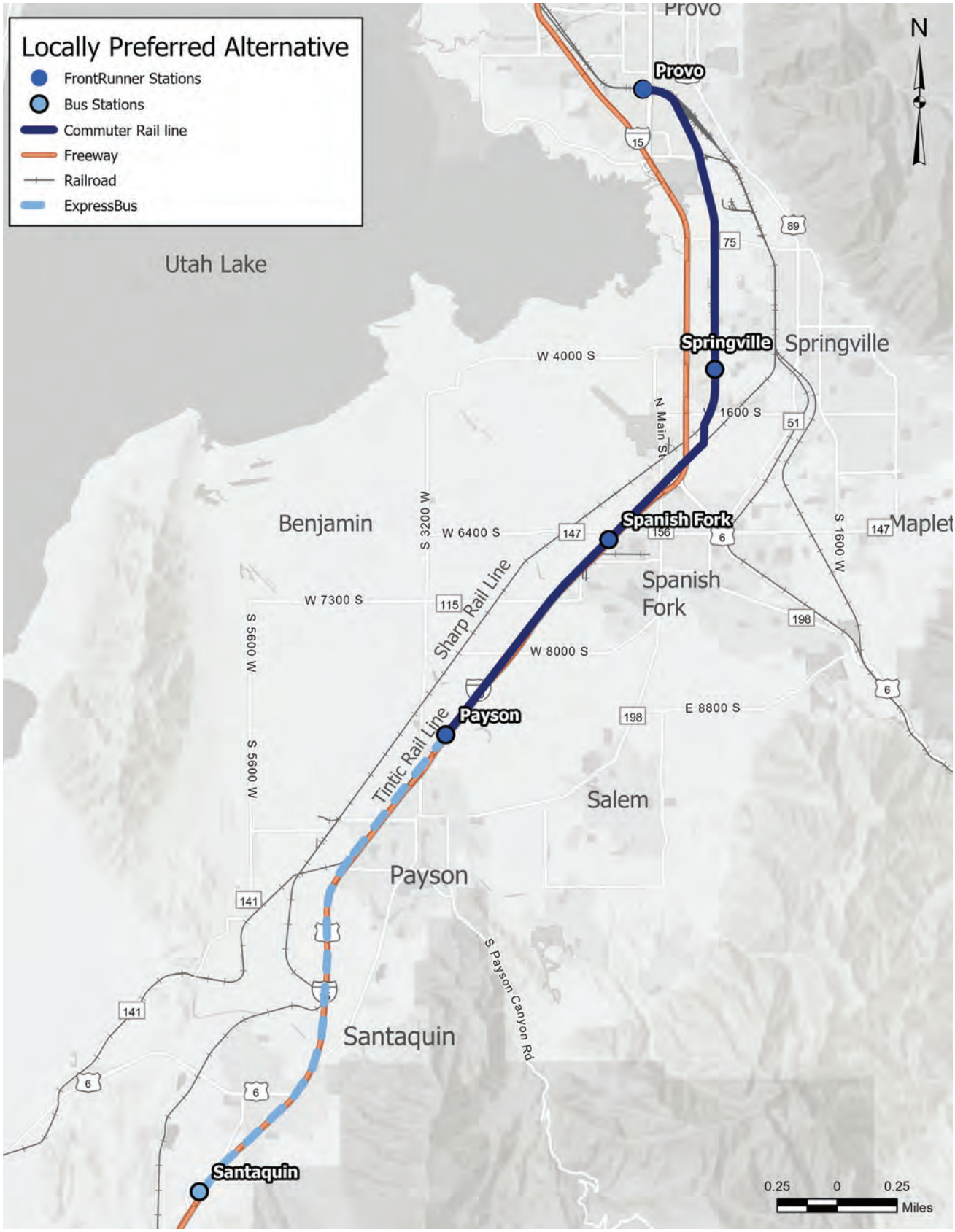
The following bullets provide a summary of key characteristics of the Locally Preferred Alternative, including operations from Provo to Payson, which will continue to advance through capital development:

- **Length:** 14 miles
- **New Stations:** 3
- **Exclusive Operations:** Fully exclusive
- **Projected Ridership:** Approximately 4,000 daily boardings (2050), not including boardings at existing FrontRunner Provo Station*
- **Capital Costs:** $550M to $750M
- **Operating Costs:** $8.1M/year*

The Payson to Santaquin segment requires additional planning work in coordination with UTA. Operational details will be refined as progress continues.

** Assumes no transfer at Provo and same service frequency as FrontRunner.*

Figure 17. *Locally Preferred Alternative*



Several overarching factors were considered in the development of the proposed Locally Preferred Alternative:

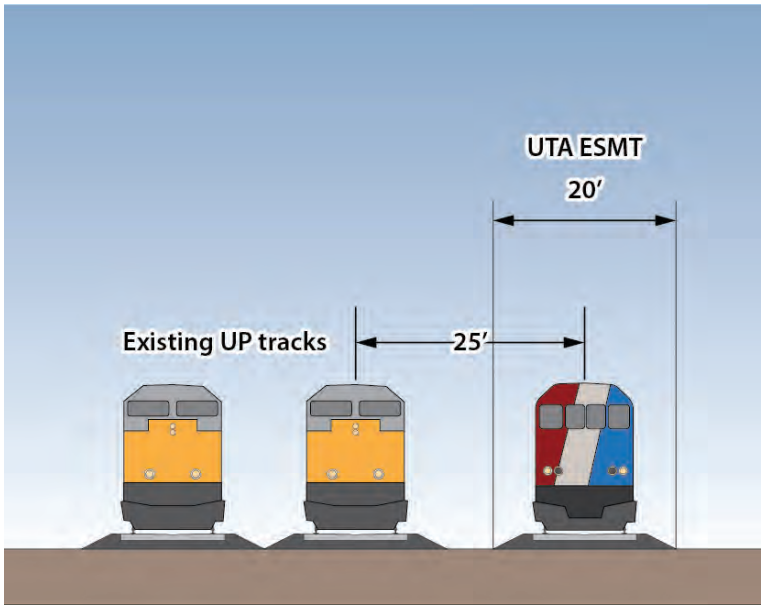
- **Creates a North-South HCT Spine in South Utah County with Connections to Key Rapidly Developing Areas** – natural constraints limit the opportunities for north-south travel options through south Utah County. The proposed Locally Preferred Alternative runs parallel to I-15, supporting additional high-capacity travel without compromising efficacy of either corridor. Study area communities are oriented toward I-15 as the only current regional connection, and the Locally Preferred Alternative alignment serves areas of high growth now and into the future.
- **Supports South Utah County Community TOD Opportunities** – south Utah County communities have planned for future HCT through orientation of land uses and development plans around potential station area locations. With TOD-related planning and policies to accommodate future growth and development, the Locally Preferred Alternative alignment connects these locations.
- **Provides a Reliable Regional Transit Commuter Option to Residents** – the Locally Preferred Alternative minimizes travel times along the corridor, especially for regional trips. The rail corridor alignment includes a fully exclusive guideway which aids in reliability of service, with limited stops and no congestion variability.
- **Maximizes Ridership and Return on Investment** – commuter rail, with the ability to link multiple train cars and retain a perception of permanence, attracts more daily boardings than BRT. In addition, commuter rail provides a seamless connection into FrontRunner and into the regional transit network. The Locally Preferred Alternative provides the greatest return on investment from all alternatives, by nearly 30 percent. This is a function of capital, operating and maintenance, and lifecycle costs contrasted against projected ridership, resulting in the lowest cost per rider of all alternatives considered.

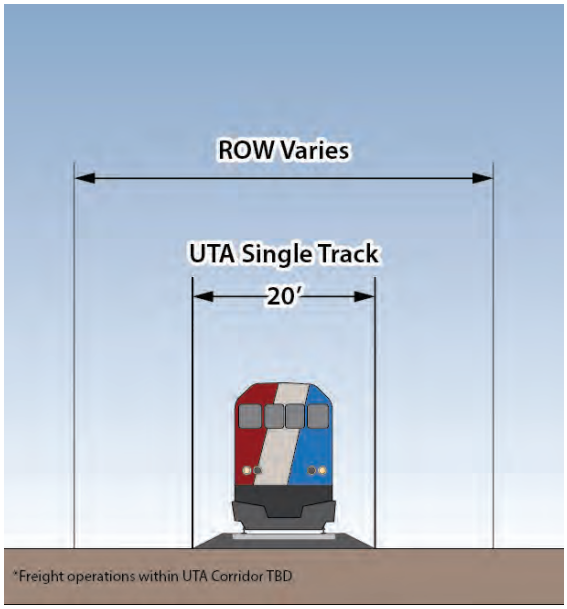
7.3 DEFINITION AND CHARACTERISTICS

7.3.1 ALIGNMENT AND MODE

From Provo to Springville, commuter rail would operate in the Sharp Line, adjacent to active and frequent UPRR operations, as shown in Figure 18. The commuter rail alignment would start on the west side of the UPRR tracks leaving Provo FrontRunner and continue south on a 20-foot-wide UTA easement on the west side of the tracks. The alignment would continue on a flyover structure to the east side of the UPRR tracks and within a 20-foot-wide easement to the proposed Springville Station.

Figure 18. *Locally Preferred Alternative Typical Sections; Sharp Line (left), Tintic Line (right)*





The flyover design is proposed to include double tracking to be forward compatible with increased frequencies in the future. However, this assumption requires additional easement rights.

From Springville to Spanish Fork, the alignment continues along the east side of the Sharp Line for approximately 1 mile, where it will then utilize track to be built as part of the Sharp-Tintic Realignment project, and then joins the Tintic Line to the Spanish Fork Station. UTA owns the property rights of the Tintic corridor, which is roughly 70 feet wide.

There are several active freight customers on the Tintic corridor in Spanish Fork. However, freight volumes are much lower than the Sharp Line. Dependent on further coordination to be completed in future phases of work, existing freight spur customers could be decommissioned, or remain in the rail corridor if operating under temporal separation from UTA service.

From Spanish Fork to Payson, the alignment continues south along the Tintic Line. Similar to Spanish Fork, UTA owns the property rights of the Tintic corridor, which is roughly 70 feet wide. There are no active freight customers served in Payson.

South of Payson, the Locally Preferred Alternative recommends express bus service along I-15 until further study can determine the best routing to connect to Santaquin, at which point additional review of the appropriate transit mode will be considered.

7.3.2 STATION LOCATIONS AND CONSIDERATIONS

PROVO STATION

If future commuter rail operates as a shuttle service instead of being fully interlined with FrontRunner, additional platform space will be needed at the FrontRunner Provo Station to accommodate another trainset. If commuter rail service is fully interlined and through running, no expansion to the platform is anticipated.

SPRINGVILLE STATION

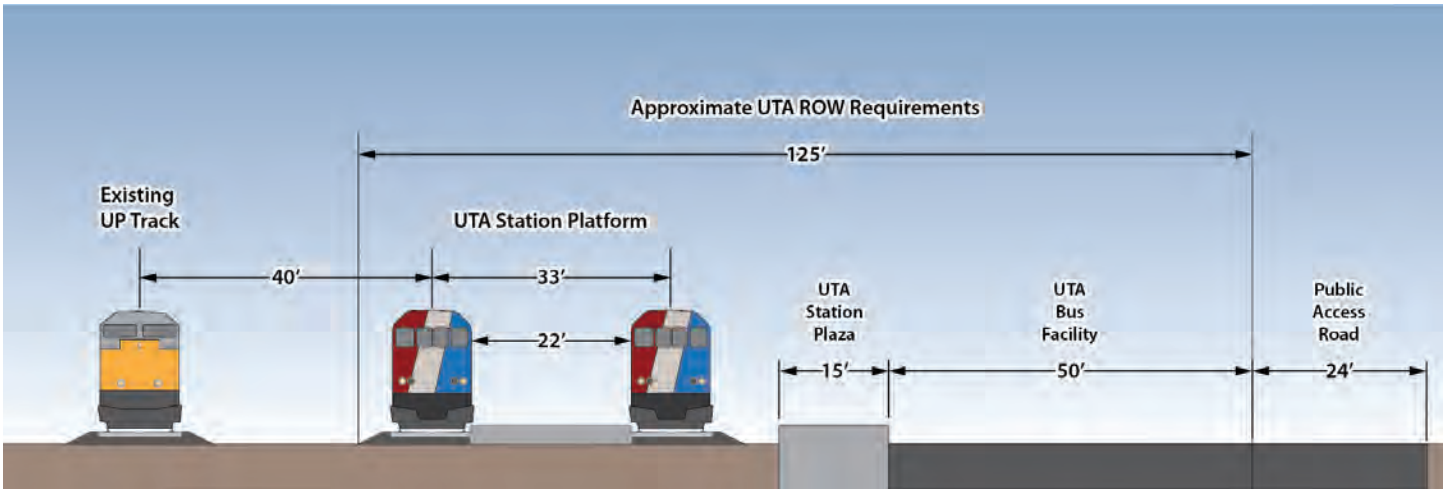
FLEXIBILITY OF STATION LOCATION

The 400 South overpass to the north and horizontal curves of the alignment to the south restrict how far the station can slide to the north and the south. The flexibility to move this station is limited.

ENGINEERING CONSIDERATIONS

A well-functioning commuter rail station would require approximately 125 feet of UTA right-of-way for a platform, double tracks, station plaza for riders, and bus facility (Figure 19). This does not take into account additional space for park-and-ride lot needs. In addition, a public access road is needed to connect the station to the local road network. UTA currently does not own additional space outside of their 20-foot easement that is adjacent to the east side of the UPRR corridor.

Figure 19. *Typical Section for Springville Station*



To allow for appropriate train passing movements, approximately 3,000 feet of double tracking is needed at the station. UTA will require additional right-of-way in this area.

Electrical transmission lines on the east side of this area will need to be relocated to accommodate the station programming elements shown in Figure 19.

Considerations to address these constraints need to be an integral component of the future UTA TOD planning effort at the Springville Station, as well as the City's roadway network planning to ensure adequate space is maintained for commuter rail (single track under 400 South overpass and double track at proposed station).

INTERIM TRANSIT RECOMMENDATIONS

This station area could be served by express bus in the interim. If development comes in before commuter rail investment has been constructed, this area could easily be served by express bus with a park-and-ride lot as part of the development and construction of local access roads. If there is a desire to serve this area before development occurs and before the commuter rail investment has been made, a park-and-ride lot for express bus could be provided in the proximity of 400 South/1750 West or 400 South/1200 West.

SPANISH FORK STATION

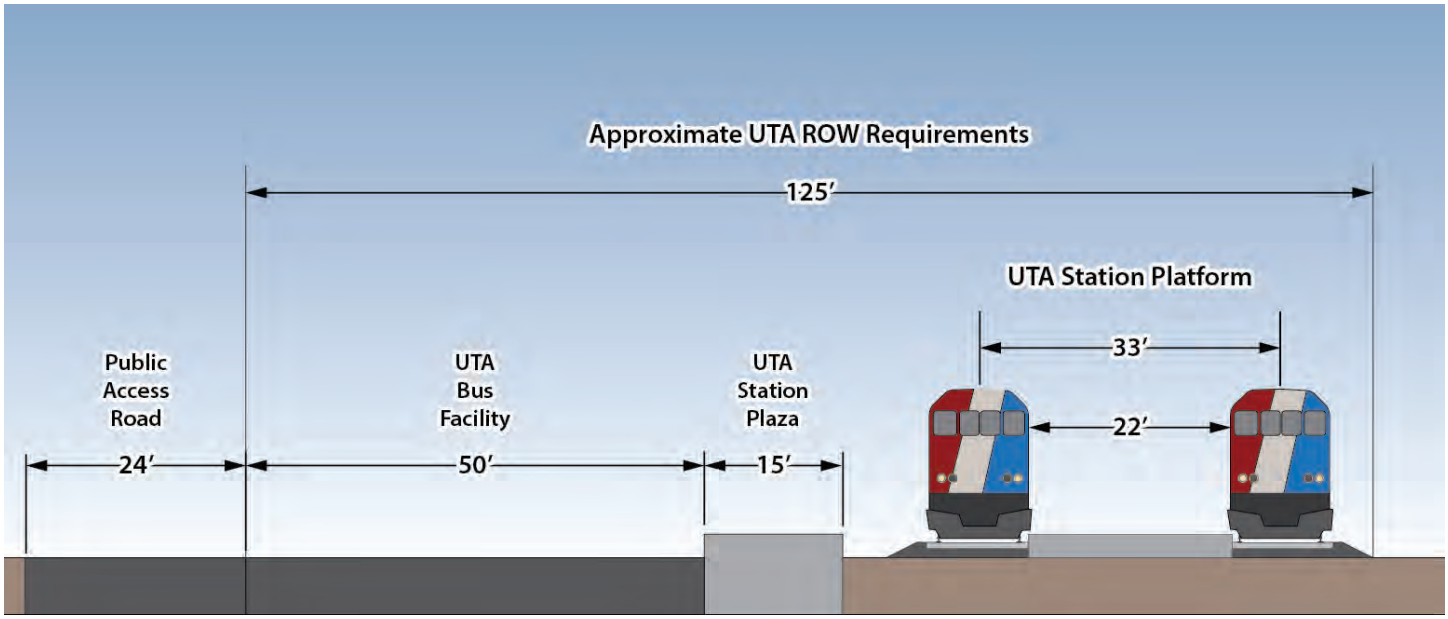
FLEXIBILITY OF STATION LOCATION

The Spanish Fork station location could slide to the north or south based on the Center Street interchange concept refinement and desired alignment with Spanish Fork future development. Previous engineering concepts showed the station south of the future Center Street interchange. However, locating the station north of the Center Street interchange would provide better connectively to 400 North which is shown as a major collector in the Spanish Fork Transportation Master Plan. Additional consideration to this station location should be an integral component of the future UTA TOD planning effort at the Spanish Fork Station.

ENGINEERING CONSIDERATIONS

A well-functioning commuter rail station would require approximately 125 feet of UTA right-of-way for a platform, rail double track, station plaza for riders, and bus facility (Figure 20). In addition, a public access road is needed to connect the station to the local road network. UTA owns the property rights of the Tintic corridor, which is roughly 70 feet wide. To allow for appropriate train passing movements, approximately 3,000 feet of double tracking is needed at the station. UTA will require additional right-of-way in this area. Considerations to these constraints need to be an integral component of the future UTA TOD planning effort at the Spanish Fork Station.

Figure 20. *Typical Section for Spanish Fork and Payson Stations*



INTERIM TRANSIT RECOMMENDATIONS
This area could be served by express bus in the interim. The desired station location could be served by future improvements to 400 North and a local access road to a park-and-ride lot and express bus stop if prior to the construction of the Center Street interchange and development has started on the west side of I-15. If development has not started on the west side of I-15, an interim express bus station along Main Street with a park-and-ride lot could be provided.

PAYSON STATION

FLEXIBILITY OF STATION LOCATION
The Payson station could slide to the north or south based on the I-15 interchange and Nebo Belt Route construction and desired alignment with Bamberger Ranch development. Additional consideration of this station location should be an integral component of the future UTA TOD planning effort at the Payson Station.

ENGINEERING CONSIDERATIONS
A well-functioning commuter rail station would require approximately 125 feet of UTA right-of-way for a platform, rail double track, station plaza for riders, and bus facility (Figure 20). In addition, a public access road is needed to connect the station to the local road network. UTA owns the property rights of the Tintic corridor, which is roughly 70 feet wide at this location. To allow for appropriate train passing movements, approximately 3,000 feet of double tracking is needed at the station. If the Payson station serves as the terminus station, additional storage track will be needed to accommodate train operations. These storage tracks would extend beyond the end of the station platform and the length varies depending on the layover capacity required by UTA based on the frequency. Considerations to these constraints need to be an integral component of the future UTA TOD planning effort at the Payson Station.

INTERIM TRANSIT RECOMMENDATIONS
It would be challenging to serve the desired station location with express bus in the interim due to lack of local roadway connections. An interim express bus station along Main Street with a park-and-ride lot could be served by express bus before interchange construction and Bamberger Ranch development.

SANTAQUIN STATION (FUTURE)

Note: *Commuter rail was evaluated from Payson to Santaquin, but based on additional costs required for UTA to purchase right-of-way, double tracking the corridor for an extensive section to allow for appropriate siding locations, and high potential for agricultural impacts, the return on investment for this segment did not justify including it as part of the Locally Preferred Alternative. UTA recommends serving the community with interim express bus service, with a future vision for extended commuter rail.*

FLEXIBILITY OF STATION LOCATION
The Santaquin Station should remain in proximity to the City-owned parcel on the east side of the existing UPRR line, north of Summit Ridge Parkway.

ENGINEERING CONSIDERATIONS
A well-functioning commuter rail station would require approximately 125 feet of UTA right-of-way for a platform, rail double track. A station plaza public access road is needed to connect the station to the local road network. UTA currently does not own any right-of-way in this location.

In addition, if the Santaquin Station serves as the terminus station, additional storage track will be needed to accommodate train operations. These storage tracks would extend beyond the end of the station platform and the length varies depending on the layover capacity required by UTA based on the frequency. UTA would need to purchase additional right-of-way in this area. Most notably, a future commuter rail alignment would require a flyover of UPRR or a pedestrian bridge at the station to ensure that riders are on the east side of the tracks where the desired TOD is anticipated. Considerations to these constraints need to be an integral component of the future planning efforts at the Payson Station.

INTERIM TRANSIT RECOMMENDATIONS
This location could be easily served in the interim by express bus with a park-and-ride lot in proximity to Summit Ridge Parkway.

Additional information on best practices for station area planning, including specific station area considerations for the communities in south Utah County can be found in Appendix F.

7.4 RIDERSHIP

Ridership forecasts for the Locally Preferred Alternative were completed using the WFRC/MAG regional TDM (v8.3.1) with no changes made to socioeconomic data. Local land uses and assumed density of population and employment in proximity to station areas is a driving factor in forecasted ridership. If these areas grow more quickly or at higher densities than planned for, this could have an upward influence on ridership forecasts. Likewise, if these areas grow slower or at lower densities than would typically support a large transit investment, it would negatively influence ridership forecasts.

The model run of the Locally Preferred Alternative resulted in approximately 4,000 new average weekday boardings at new project stations in forecast year 2050. Added boardings at the existing Provo FrontRunner Station are not included in this total.

To understand the potential impact of how operational changes would impact ridership, the detailed evaluation included model runs that considered these different operational scenarios. The recommended Locally Preferred Alternative operations mirrors existing all-day FrontRunner commuter rail service, which assumes 30-minute peak and 60-minute off-peak headways.

As the figure shows, ridership heightens more quickly in the communities further north, which are more "ready" for transit with near-term TOD surrounding the proposed station areas. Ridership increases in the more southern communities occur later, as surrounding development intensifies.

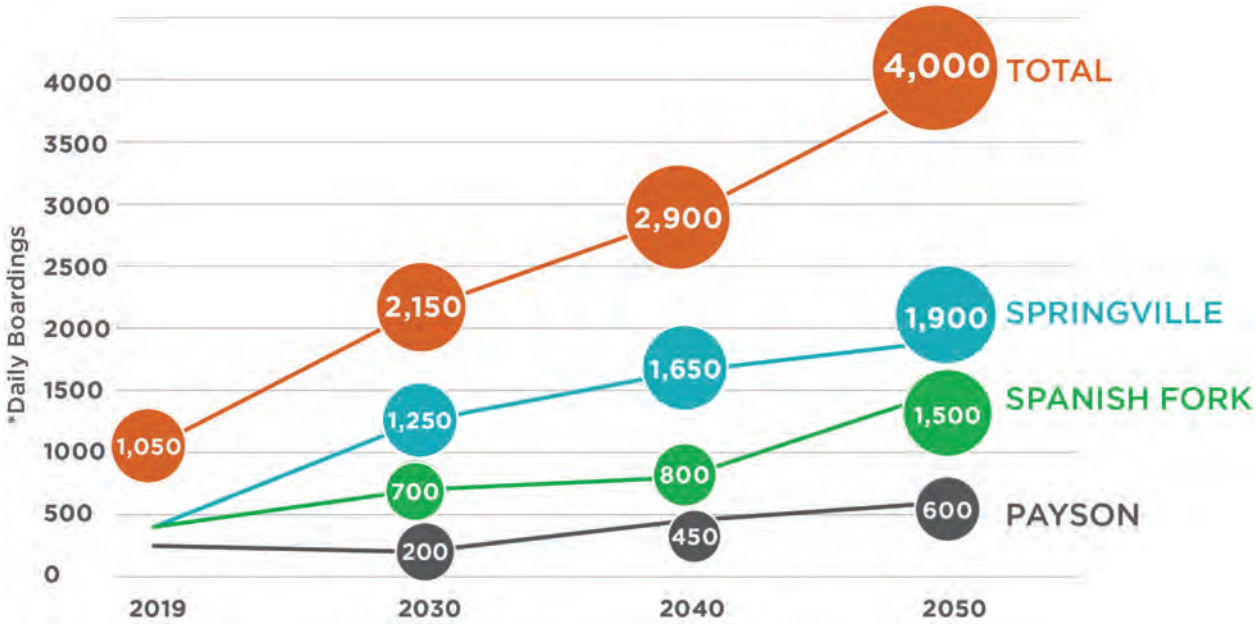
7.5 COSTS

7.5.1 CAPITAL COSTS

Capital costs for implementation of commuter rail between Provo and Payson range from $550M to $750M (2026 dollars).

At this early stage of project development, the cost estimate is presented as a range because of the potential variations in estimated costs due to localized design needs as well as other cost factors, including rights-of-way. The estimate utilizes past actual cost information from UTA commuter rail projects to develop unit costs using a route per foot. The quantities are based on the envisioned scope of work for the project, and consider such items as mode type, elevated structures, stations, gates, barriers, etc. Typical sections were used to determine potential widening and potential right-of-way acquisition. A design allowance of 30 percent was added to account for unknowns at this stage of project development.

Figure 21. *South Valley Locally Preferred Alternative Ridership Trends*



*Assumes system interlined with FrontRunner, operates to match FrontRunner frequency.

Right-of-way costs were developed based on GIS parcel information. A unit price for "over the fence" values of properties was developed using GIS to assess an average cost per square foot. This was applied based on areas requiring new right-of-way, including station areas where substantial widening and right-of-way acquisition is assumed to be required. The unit price was doubled to help account for right-of-way contingency, as well as relocation and acquisitions fees and real estate market adjustments.

The estimate includes vehicle costs (based on frequency and route length, including spares), a contribution to a new operations and maintenance base, and station programming. Station programming is an allowance for potential costs related to pedestrian/bike access, kiss-and-ride drop-offs, park-and-ride lots, or operator facilities that have yet to be identified at this stage of project development.

A program soft cost was applied based on UTA guidance, accounting for UTA administration of the project, environmental, engineering, construction management, and construction change order contingency.

Construction costs were provided in 2021 dollars. Escalation of 4 percent per year was added to the total program cost to generate a 2026 program estimate. The escalation rate was provided by UTA.

Lastly, a range of magnitude low- and high-cost range was created by adding an additional 40 percent to the total program low cost to produce a range to capture the variability of scope on planning level project.

7.5.2 OPERATING COSTS

Operating costs were estimated based on several key variables, such as corridor frequencies, hours of service, vehicle revenue miles, and corridor length. The commuter rail portion is anticipated to operate Monday through Saturday, at a high frequency service, which includes 18 hours a day, with 30-minute peak/60-minute off-peak headways. Reduced operating hours and longer frequencies can be expected on holidays.

Alternative operating schedules may be explored in future implementation studies. Additionally, the determination on maintenance facility needs to support an extension to the south needs to be better understood.

UTA developed an operating cost assumption tool that relies on National Transit Database (NTD) statistics for costs per vehicle mile for different modes. The tool uses 2019 dollars as a starting point, escalated to 2026 dollars for this planning study. An overview of expenses included in the "costs per vehicle mile" unit cost includes:

- All direct expenses to operate the service including labor, parts, and business unit administration
- Labor, equipment, and parts for the maintenance of way for the commuter rail corridor
- Any operational projects for the service that require investment in any given year
- An allocation of agency administration costs determined largely by the percent of vehicle miles relative to total costs for the agency

Based on an all-day operating scenario, commuter rail from Provo to Payson is estimated to cost approximately $8.1M per year (2026 dollars).

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SOUTH VALLEY
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IMPLEMENTATION PLAN

8 IMPLEMENTATION PLAN

8.1 OVERVIEW

As this project moves into the next phase of development, additional coordination and planning are important in maintaining the vision, momentum, and decisions made as part of this initial study to optimize success for the entire South Valley corridor. Figure 22 presents a "roadmap" to guide implementation of this transit investment, including actions for UTA, UDOT, and the local communities. It is a step-by-step guide that informs actions required for planning, project funding, station area development, and other related transportation initiatives.

The following subsections outline some of the next steps to be taken and key phasing considerations for commuter rail, including funding options.

8.2 KEY SEGMENTS

Readiness of the area for a commuter rail investment varies. Summary-level phasing considerations for different segments are discussed in Figure 23, with more information found in Appendix G.

8.3 NEXT STEPS

8.3.1 IMMEDIATE NEXT STEPS

BEGIN ENVIRONMENTAL REVIEW

Since this study will conclude the Alternatives Analysis phase, MAG has secured funds to begin Environmental Review of the project (Figure 24). This will include environmental study (likely a federal NEPA Environmental Impact Statement [EIS]) and design (exact level of design unknown at this time) to advance the project into the next phase of project development. UTA will manage the environmental study with close involvement from MAG, UDOT, and the cities. Delivering a federal NEPA document will ensure that the project partners are able to apply for federal funding opportunities.

COORDINATE WITH UTA FRONTRUNNER FORWARD (FRF) TEAM - PROVO TO SANTAQUIN

In parallel with the environmental study of the commuter rail extension, UTA should work collaboratively with the complementary FRF Program that is creating a system-wide vision for FrontRunner improvements.

UTA and project partners should work with the UTA FRF team to incorporate these transit study findings and recommendations into the FRF Business Plan. The FRF Program has been tasked with:

- Developing a short- and long-term vision
- Preparing a Strategic Business Plan and service vision
- Preparing an initial investment plan for the $300M appropriated to UTA from the Utah State Legislature to make improvements to the existing FrontRunner system
- Bringing environmental and design services on board to implement double tracking in key locations

The Business Plan will study and establish a future service vision for FrontRunner, which will include considerations for faster, more reliable, more frequent, and more variations of express service, as well as future extensions. The Plan will recommend infrastructure improvements to support the service vision, which may include signal system upgrades, grade crossing improvements, station improvements, new vehicles/equipment, strategic double tracking, railroad modernization, and corridor preservation for future extensions.

Figure 22. *Implementation Roadmap*

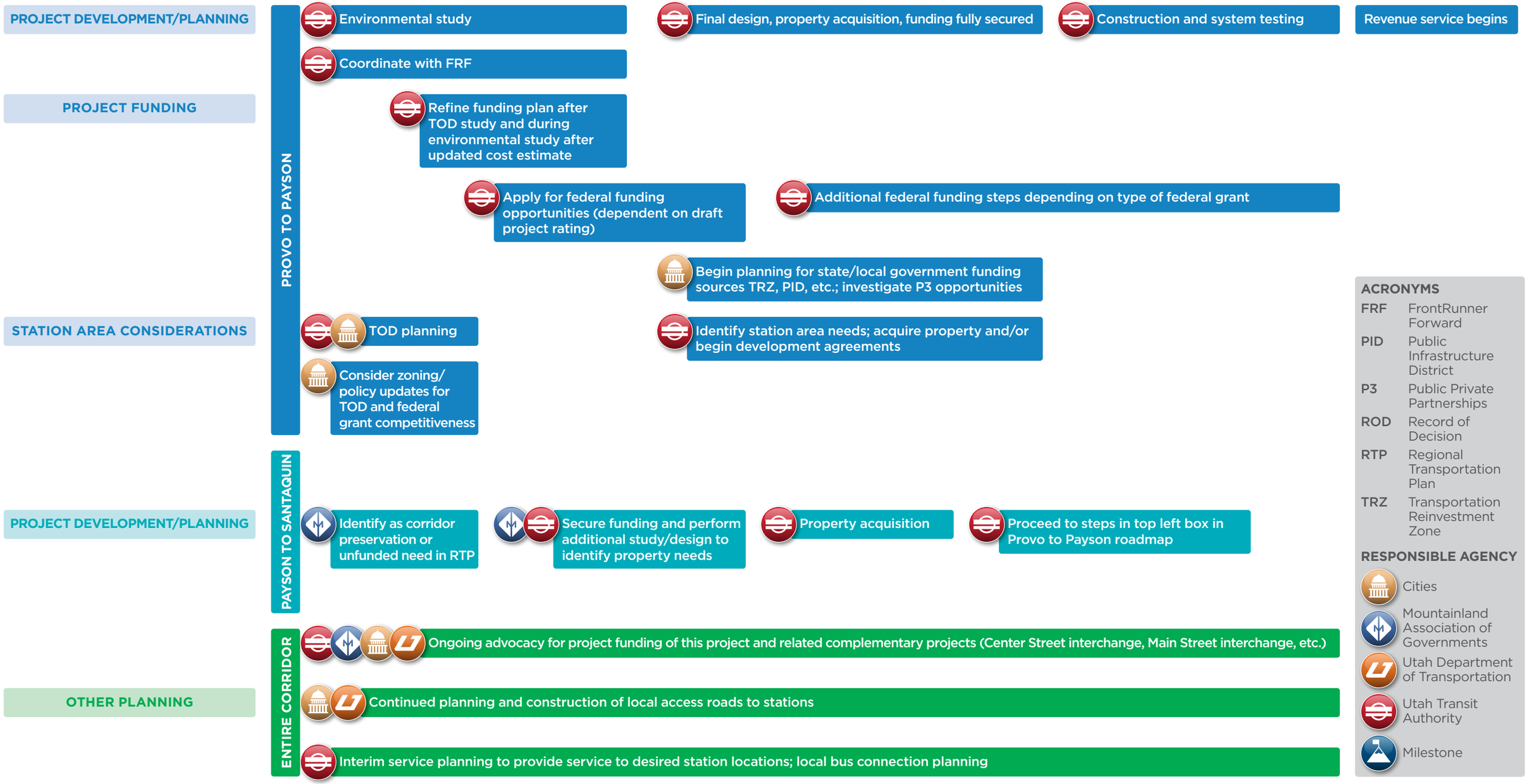


Figure 23. *Key Segments*

PROVO TO PAYSON - KEY SEGMENT

This is the key initial investment for the Locally Preferred Alternative. Supporting transportation investments are critical and should be advancing along a similar or advanced project timeline as the transit investment. These specifically include the Spanish Fork Center Street Interchange, Payson Main Street Interchange, and Nebo Belt Loop.

1

Recommended Timing/Readiness

Medium

2

Provo to Payson Capital Cost (2026 dollars)

$550-750M

3

Payson to Santaquin Annual Operations and Maintenance Cost (2026 dollars)

$8.1M/year

(Assumes system interlined with FrontRunner, operates to match FrontRunner frequency)

PROVO TO SPRINGVILLE - POTENTIAL INTERIM SEGMENT

This potential interim segment is the most ready for transit investment. It could be considered as a potential interim starter segment if funding cannot be secured to complete the initial investment from Provo to Payson as part of the Locally Preferred Alternative.

For this to occur, local access road construction is required as part of the station area development to serve the Springville Station. Additionally, close coordination should occur between Springville and UTA regarding land use decisions and TOD planning, as strong development pressure is occurring, and space should be preserved for a well functioning commuter rail station.

1

Recommended Timing/Readiness

High

2

Provo to Springville Capital Cost (2026 dollars)

$300-400M

3

Payson to Santaquin Annual Operations and Maintenance Cost (2026 dollars)

$2.2M/year

(Assumes system interlined with FrontRunner, operates to match FrontRunner frequency)

PAYSON TO SANTAQUIN - FUTURE COMMUTER RAIL SEGMENT

This segment is initially proposed to operate with a connecting express bus segment, while corridor preservation is underway for future commuter rail. Additional design efforts are needed to understand right-of-way requirements and potential impacts. Initiating express bus can begin to build ridership at stations until full commuter rail implementation is ready.

1

Recommended Timing/Readiness

Low

2

Payson to Santaquin Capital Cost (2026 dollars)

$250-400M

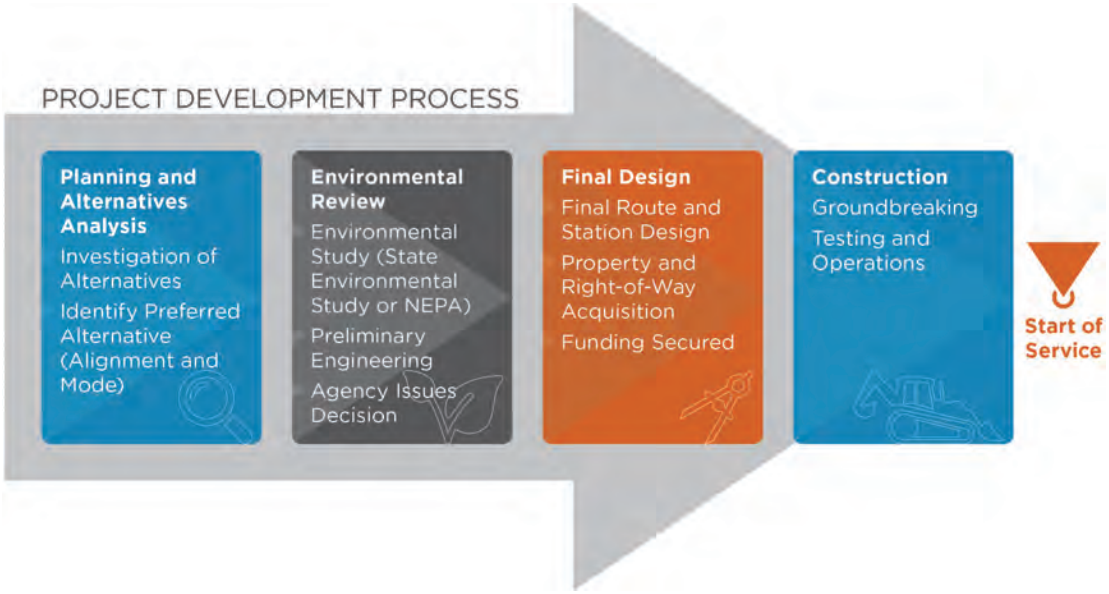
3

Payson to Santaquin Annual Operations and Maintenance Cost (2026 dollars)

$2.2M/year

(Assumes system interlined with FrontRunner, operates to match FrontRunner frequency)

Figure 24. *Transit Investment Project Development Process*



UTA TOD PLANNING - SPRINGVILLE, SPANISH FORK, AND PAYSON

UTA has secured funding to start TOD planning efforts at the Springville, Spanish Fork, and Payson stations. All stations are at varying degrees of readiness and each TOD planning study should be crafted to meet the unique needs of each community.

This work will be of particular importance in determining specific station needs at the Springville Station in advance of development and determining a more specific location for the Spanish Fork and Payson station locations.

8.3.2 NEAR-TERM NEXT STEPS

STATION AREA PRESERVATION - SPRINGVILLE, SPANISH FORK, AND PAYSON

As station locations and desired amenities become better understood, UTA should strive to acquire property prior to commercial or residential development to help reduce long-term costs and impacts.

Springville – The location of the proposed Springville Station is the most refined and this area is under intense development pressure. It should be a high priority for UTA to engage with property owners for potential land acquisition or development agreements to provide needed station area amenities.

Spanish Fork – The approximate station location has been identified but the specific location of the station footprint is still in flux and dependent on additional coordination and planning activities (TOD planning as well as the environmental study). Development activity is still years out, but given the complex nature of property ownership in the desired station location, early efforts should be made to begin property acquisition as soon as station location has been solidified.

Payson – The approximate station location has been identified but the specific location of the station footprint is still in flux and dependent on additional coordination and planning activities. Development activity is still years out. However, early efforts should be made to begin property acquisition as soon as station location has been solidified.

CORRIDOR PRESERVATION - PAYSON TO SANTAQUIN

An effort should be undertaken to identify and preserve the corridor from where UTA ownership ends in Payson to the proposed Santaquin Station. Acquiring property prior to development can reduce future costs and impacts for UTA. This process would include:

- Identify this corridor preservation need explicitly in the next update to MAG's Regional Transportation Plan.
- Identify funding to perform survey and additional design (up to 30 percent is recommended) to determine property needs.
- Identify funding to begin acquiring property for corridor and at station location.

It is anticipated that more specific and concrete steps for this effort would be incorporated in to the FRF Business Plan, as discussed earlier.

8.4 OTHER IMPLEMENTATION CONSIDERATIONS

8.4.1 DOUBLE TRACKING ENTIRE CORRIDOR

To enable more robust system reliability, which is a key characteristic of HCT – especially one used primarily for commuter purposes – rail double tracking is critical. Having two sets of rails allows side-by-side travel, which allows for greater flexibility in passing movements and can accommodate increases in schedule frequency.

To best plan for a commuter rail extension to south Utah County, both UTA and the local communities should work together to plan early for future double tracking. This would require the local municipalities and UTA to preserve land for transit investments, such as double tracking, which would then enable UTA to construct a robust transit system that serves the region. Corridor preservation activities can start in the near-term, laying the foundation for future rail construction, providing costs savings now and reducing the financial and potential built environment impacts in the long term.

Currently, UPRR runs multiple tracks from Provo to Springville for their freight customers and rail yards. UTA owns a 20-foot easement alongside this corridor for a future transit investment. The easement allows space for a single track. Double tracking would allow more efficient and reliable service.

UTA also has purchased right-of-way along the Tintic Line from Springville to Payson, which can accommodate a set of double tracks. From Payson to Santaquin, UTA does not own any right-of-way. Thus, corridor preservation for single or double tracking is needed. Additional right-of-way would also be needed at station locations, as discussed previously.

In the primary Locally Preferred Alternative alignment from Provo to Payson, the cost of implementing a single track commuter rail route (with portions of double tracking at stations and for passing sidings) ranges from $550M to $750M. Fully double tracking this alignment from Provo to Payson adds $100M to $200M to the cost, bringing the totals to a range of $650M to $950M.

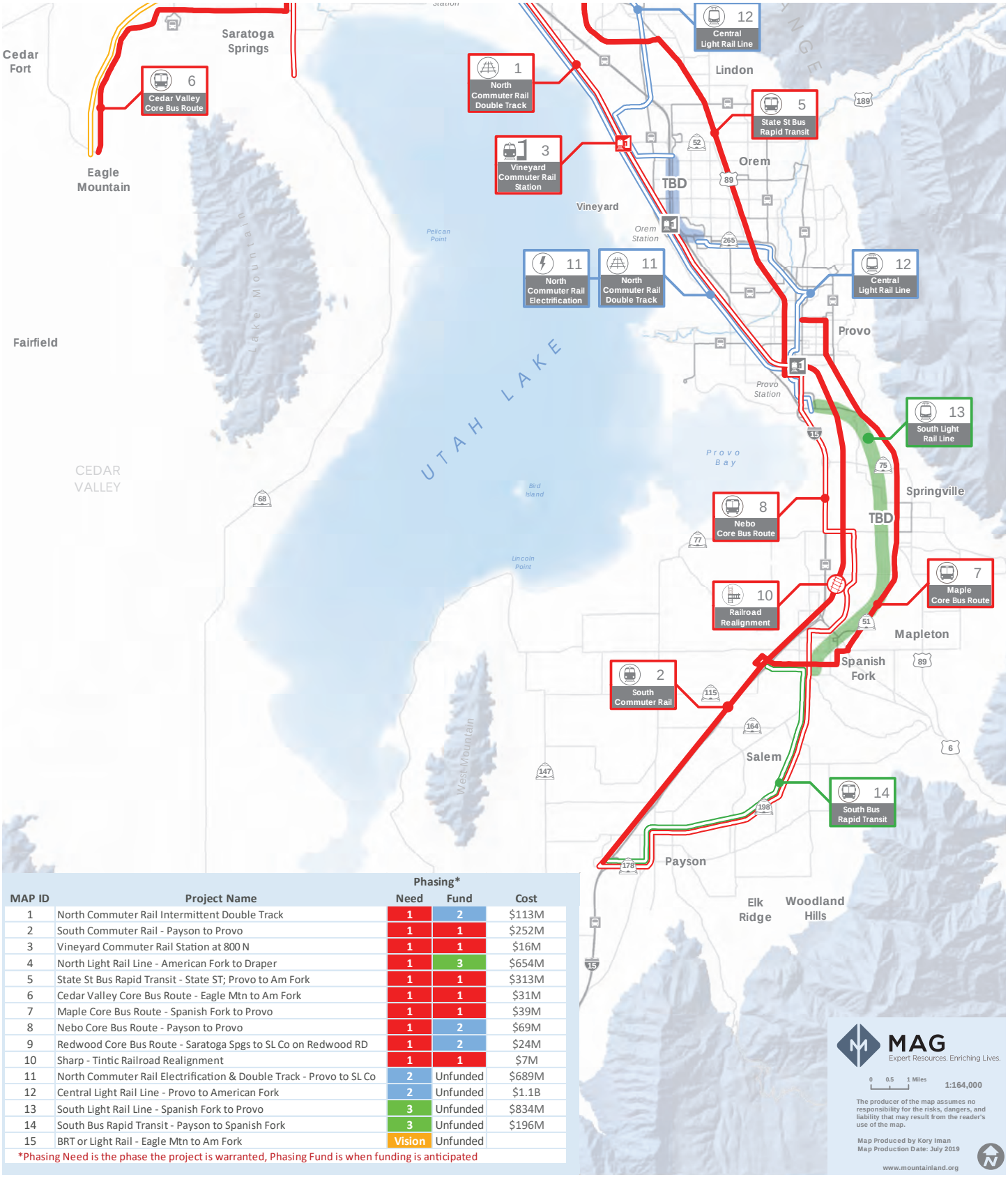
8.4.2 LOCAL CONNECTIONS

Providing local transit connections to a regional transit backbone allows a broader reach within the communities and enables those first-and-last-mile connections. Providing local transit connections from a future FrontRunner corridor has been a common theme vocalized throughout this study.

The two primary connections that should be considered, in tandem with the HCT investment, include (also presented on Figure 25):

- **Maple Core Bus Route** (connect to Mapleton)
  - Identified as a need in the RTP, funding Phase 1.
  - The route could connect from the Spanish Fork Station through Spanish Fork (400 N to 1600 South in Mapleton), north via SR 51 to Springville, and continue north to Provo on SR 89. The route would connect the rapidly growing southern portion of Mapleton to commuter rail in Spanish Fork.
  - This bus route would provide similar coverage as the current Routes 821 and 822, but in the future would connect to Spanish Fork FrontRunner.
  - The 1600 South area is a key area of future growth that can be served by this transit investment.
- **Nebo Core Bus Route** (connect to Salem):
  - Identified as a need in the RTP, funding Phase 2.
  - The route could connect Provo to Payson through Salem on SR 198, linking to both Payson and Spanish Fork commuter rail stations.
  - This bus route would provide similar coverage as the current Routes 821 and 822, but in the future would connect to Payson and Spanish Fork FrontRunner.
  - Additionally, SR 198 is included in the RTP as an unfunded Phase 3 need for BRT, that could connect the Spanish Fork and Payson commuter rail stations through Salem.

Figure 25. *Future Transit Connections (MAG TransPlan50)*



MAP ID	Project Name	Phasing* Need	Fund	Cost
1	North Commuter Rail Intermittent Double Track	1	2	$113M
2	South Commuter Rail - Payson to Provo	1	1	$252M
3	Vineyard Commuter Rail Station at 800 N	1	1	$16M
4	North Light Rail Line - American Fork to Draper	1	3	$654M
5	State St Bus Rapid Transit - State ST; Provo to Am Fork	1	1	$313M
6	Cedar Valley Core Bus Route - Eagle Mtn to Am Fork	1	1	$31M
7	Maple Core Bus Route - Spanish Fork to Provo	1	1	$39M
8	Nebo Core Bus Route - Payson to Provo	1	2	$69M
9	Redwood Core Bus Route - Saratoga Spgs to SL Co on Redwood RD	1	2	$24M
10	Sharp - Tintic Railroad Realignment	1	1	$7M
11	North Commuter Rail Electrification & Double Track - Provo to SL Co	2	Unfunded	$689M
12	Central Light Rail Line - Provo to American Fork	2	Unfunded	$1.1B
13	South Light Rail Line - Spanish Fork to Provo	3	Unfunded	$834M
14	South Bus Rapid Transit - Payson to Spanish Fork	3	Unfunded	$196M
15	BRT or Light Rail - Eagle Mtn to Am Fork	Vision	Unfunded	

*Phasing Need is the phase the project is warranted, Phasing Fund is when funding is anticipated

8.5 FUNDING CONSIDERATIONS

Constructing a regional transit investment is generally a costly investment and requires advance planning to implement in the most cost-effective manner. The following sections provide an overview of some potential funding options available for consideration for the South Valley Transit corridor.

Potential funding opportunities are described in greater detail in Appendix G.

8.5.1 FEDERAL FUNDING OPTIONS

FEDERAL TRANSIT ADMINISTRATION (FTA) CAPITAL INVESTMENTS GRANTS (CIG) FUNDING OVERVIEW

The FTA CIG is a discretionary program that funds transit capital investments, including heavy rail, commuter rail, light rail, streetcars, and BRT. Federal transit law requires transit agencies seeking CIG funding to complete a series of steps over several years. Projects are divided into groups based on their sizes and requirements.

- **New Starts** programs are those which request $150M or more or have an anticipated capital cost of $400M of more. For these projects, the law requires completion of three phases in advance of receipt of a construction grant agreement – Project Development, Engineering, and Construction.
- **Small Starts** projects are those that cost less than $400M and total funding sought is less than $150M. For these projects, the law requires completion of one phase in advance of receipt of a construction grant agreement – Project Development.

Federal law also requires projects to be rated by FTA at various points in the process according to statutory criteria evaluating project justification and local financial commitments. Due to the scope and cost of the South Valley Transit project, it is likely that New Starts funding would be sought. However, if the project were phased into smaller less costly segments, Small Starts could be a potential funding option.

The Fixing America's Surface Transportation (FAST) Act, enacted on December 4, 2015, is the law that authorizes the CIG Program. It specifies that eligible applicants for the CIG program are state or local governmental authorities. FAST builds upon the changes to the CIG program instituted by the Moving Ahead for Progress in the 21st Century Act that was enacted on July 6, 2012, and took effect on October 1, 2012. The laws outline a multi-year, multi-step process that proposed transit construction projects must go through to be eligible to receive discretionary CIG program funding from the FTA. The Infrastructure Investment and Jobs Act, passed on November 15, 2021, makes additional changes to the CIG program, including an increase in funding through the next five years through the various CIG programs (subject to appropriations).

FTA EXPEDITED PROJECT DELIVERY (EPD) PROGRAM

The EPD Pilot Program, authorized by the FAST Act, is aimed at expediting delivery of new fixed guideway capital projects, Small Starts projects, or core capacity improvement projects that have not entered into a full funding grant agreement with FTA. These projects must:

- Utilize public-private partnerships,
- Be operated and maintained by employees of an existing public transportation provider, and
- Have a federal share not exceeding 25 percent of the project cost.

The EPD Pilot Program streamlines project delivery of new transit infrastructure that meets program requirements. A summary of the range of EPD and CIG programs can be found in Table 5.

8.5.2 CONSIDERATIONS FOR PURSUING FEDERAL FUNDING OPPORTUNITIES

UTA / REGIONAL CONTEXT

Pursuing a federal CIG grant is a substantial effort that requires a lot of detailed analysis and justification back-up that is required over a series of points in time throughout the project development process. Federal grants are also very competitive processes, with a set amount of funding available year-to-year. Therefore, UTA typically advances a limited number of projects at one time, so that multiple projects to not compete with each other for funding opportunities.

Currently, UTA has multiple projects either in the CIG application process or positioned for a CIG funding opportunity. Thus, depending on what funding mechanism this project may pursue (e.g., Small Starts, New Starts, EPD), the timing of implementation could vary to align with UTA's overall program.

FEDERAL FUNDING RATING CRITERIA

To qualify and competitively pursue a federal grant, a project must meet a series of minimum criteria. While competitive thresholds differ across funding mechanisms, the categories are similar.

Table 5. *Federal Transit Grant Funding Opportunities*

Federal Program	Overview / Federal Match	Pros	Cons
CIG Small Starts	• Projects <$400M • Max federal match is $150M • State, local, private funds still needed for remaining match	• Streamlined process compared to New Starts	• Reduced federal match • UTA typically only has one Small Starts or New Starts project at a time • Would require a small segment of the full project to meet criteria
CIG New Starts	• Projects >$400M • Up to 60% New Starts program match (50% is more typical) --> $225M – 300M typical • Max 80% total federal funds can be used (e.g. Congestion Mitigation and Air Quality Improvement, Rebuilding American Infrastructure with Sustainability and Equity) • State, local, private funds still needed for remaining match	• Program allows for greatest federal (CIG) contribution • Most utilized federal program, more certainty with expectations and compliance	• Competitive program; based on cost and ridership, project competitive with other UTA projects and national projects • Longer timeline to comply with federal processes (~1-2 years)
Expedited Project Delivery	• Any size project • Up to 25% federal match (and max 25% total federal funds can be used) • Requires a Public Private Partnership • State, local, private funds still needed for remaining match	• Less competitive compared to New Starts • Possibly more streamlined process than New Starts • Bar for establishing a P3 is low	• Federal funding limited to 25% • Requirements to submit an application are onerous compared to New Starts (all agreements must be in place) • Less precedence/ certainty on timing, no time savings anticipated compared to New Starts

A key factor in computing a federal grant rating for several criteria (mobility improvements, environmental benefits, congestion relief, and cost effectiveness) is existing and future ridership generated by the project. Transit ridership forecasts take into account the expected density of population and employment around a station area and multimodal access to the station. Stations that serve appropriate densities and are well connected typically result in better access and connectivity which leads to higher ridership, which in turn supports more favorable ratings in the CIG process.

Other major factors and rating criteria include:

- **Economic Development Criteria:**
  - » Transit supportive plans and policies
  - » Demonstrated performance of plans and policies
  - » Policies and tools in place to preserve or increase the amount of affordable housing
- **Land Use Criteria:**
  - » Existing corridor and station area development and character
  - » Existing station area pedestrian facilities, including access for persons with disabilities
  - » Existing corridor and station area parking supply
  - » Proportions of affordable housing

The South Valley Transit Study "Best Practices for Transit-Oriented Communities Memo" (Appendix F) provides additional information about specific strategies to maximize the economic development and land use ratings in regard to transit-oriented potential land uses at station areas.

Having an understanding of where a project may rate in advance of pursuing a full application can aid in prioritizing which project(s) move forward each year. Actions and tools that may improve federal funding opportunities for this corridor include:

- **Compute a draft project rating for the transit investment** to understand where the project stands in the context of the CIG process given current and planned land use in and around the project area.
- **Identify action steps based on draft rating.** Use information developed in the draft project rating to determine areas of improvement related to land use.
- **Develop strategies for implementing policies** and/or plans that encourage transit-supportive land use and urban design as a means to enhance funding potential of the project.

8.5.3 STATE AND LOCAL FUNDING OPTIONS

There are two major types of funding mechanisms available for the Utah County South Valley Transit project: 1) new revenue streams and 2) existing revenue sources, many of which may need increases in order to cover additional projects. New revenue streams may be a more likely source of funding, as most existing revenue streams are already allocated to specific projects in the state's funding plan. Table 6 summarizes several types of new and existing revenue streams that could help fund this project.

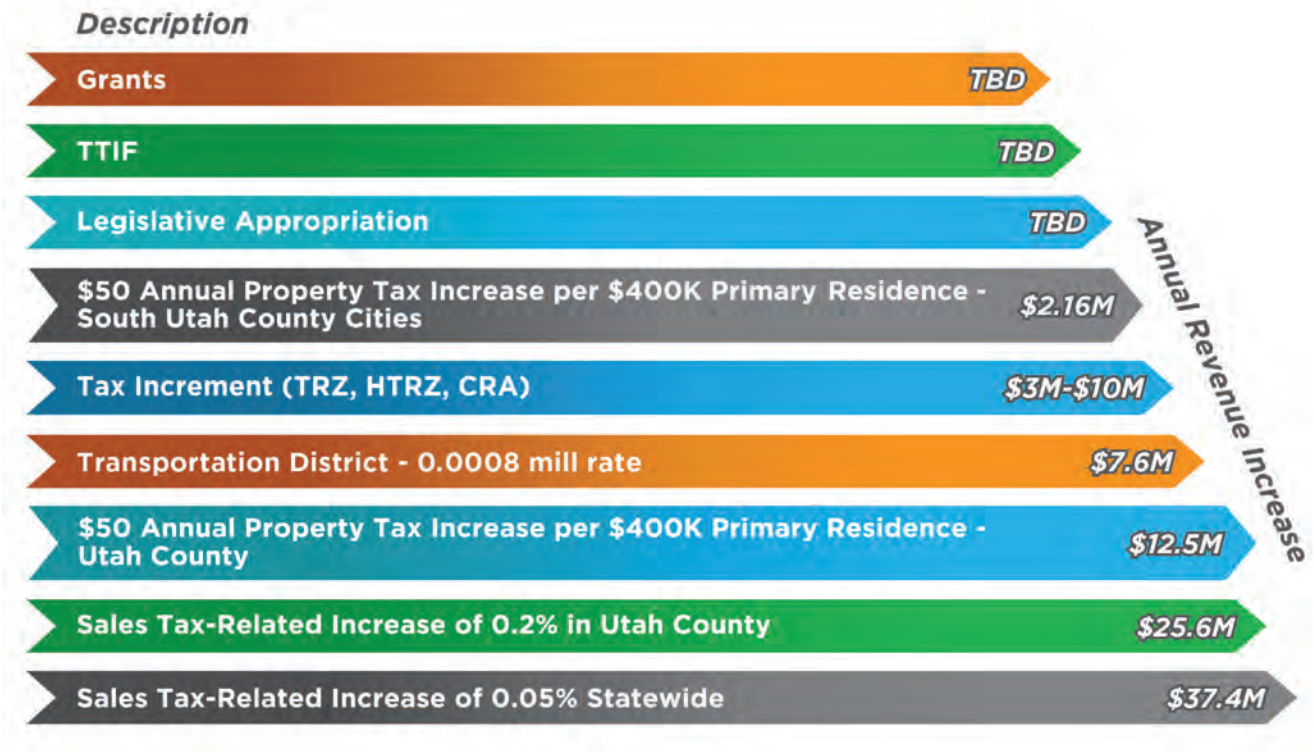
Economic development is a key component of generating new revenue streams, along with the potential funding mechanisms that such development could enable. Specifically, economic development opportunities associated with potential commuter rail or other HCT improvements have been evaluated to determine how they might translate into revenue streams available for funding for the transit improvements.

While construction plans are not finalized, it is currently estimated that costs will be in the range of $550M to $750M. Given a range of bonding scenarios, this would likely require a range of $28M to $38M in annual bond payments assuming a 30-year term on bonds. There are a variety of ways to raise these revenues (see Funding Options Memo for more information). Table 7 summarizes a range of potential revenue sources.

Table 6. *Primary Revenue Streams for Consideration*

New Revenue Streams	Existing Revenue Sources
Transportation Reinvestment Zones (TRZs)	Transportation Taxes
Housing & Transit Reinvestment Zones (HTRZs)	Sales Taxes
Community Reinvestment Areas (CRA)	Property Taxes
Public Infrastructure Districts	User Fee Increases
Legislative Appropriations	Transit Transportation Investment Fund
Grants	Gas Taxes
Transportation District	
Public Private Partnerships (P3s)	

Table 7. *Projected Revenue Amounts by Source*



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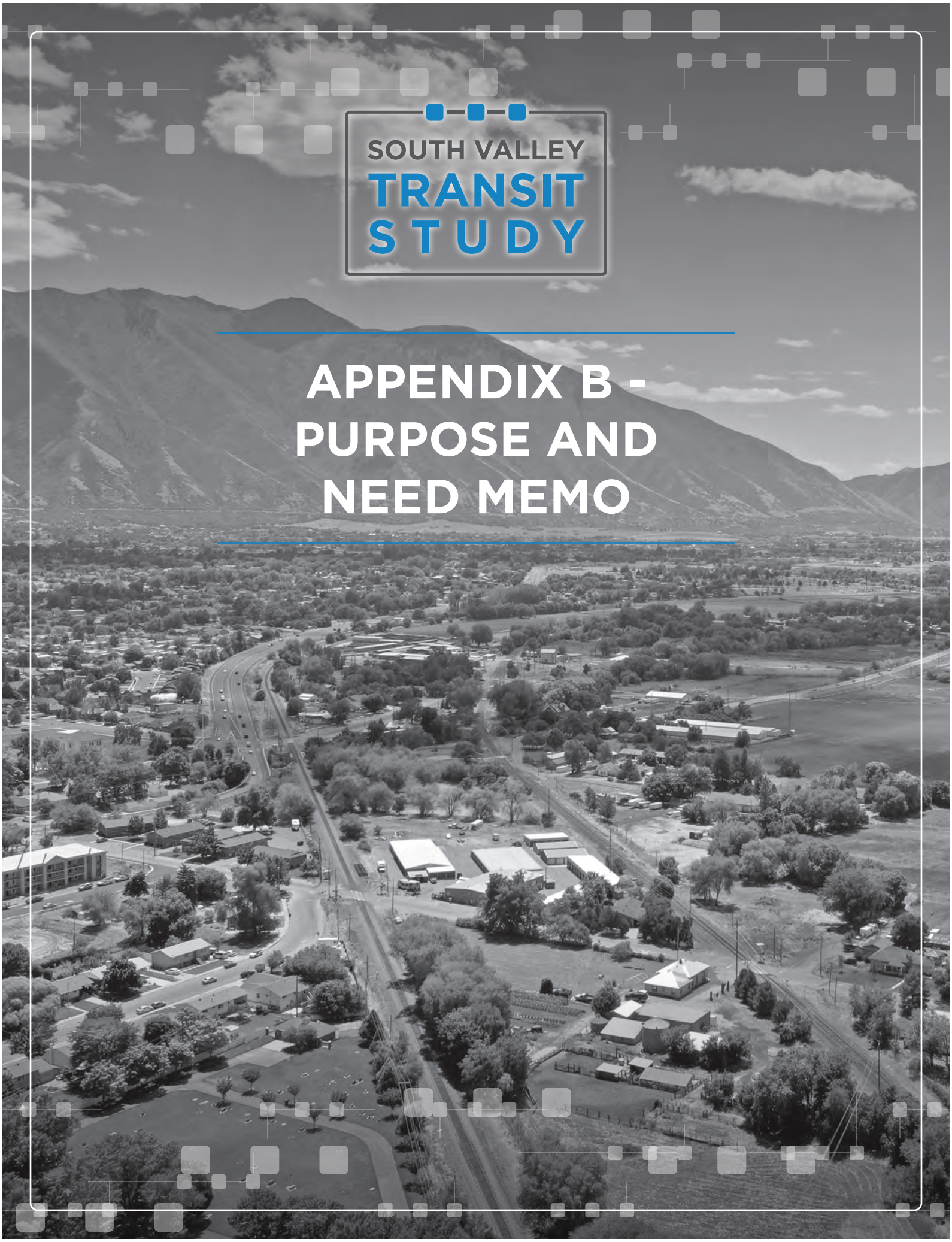
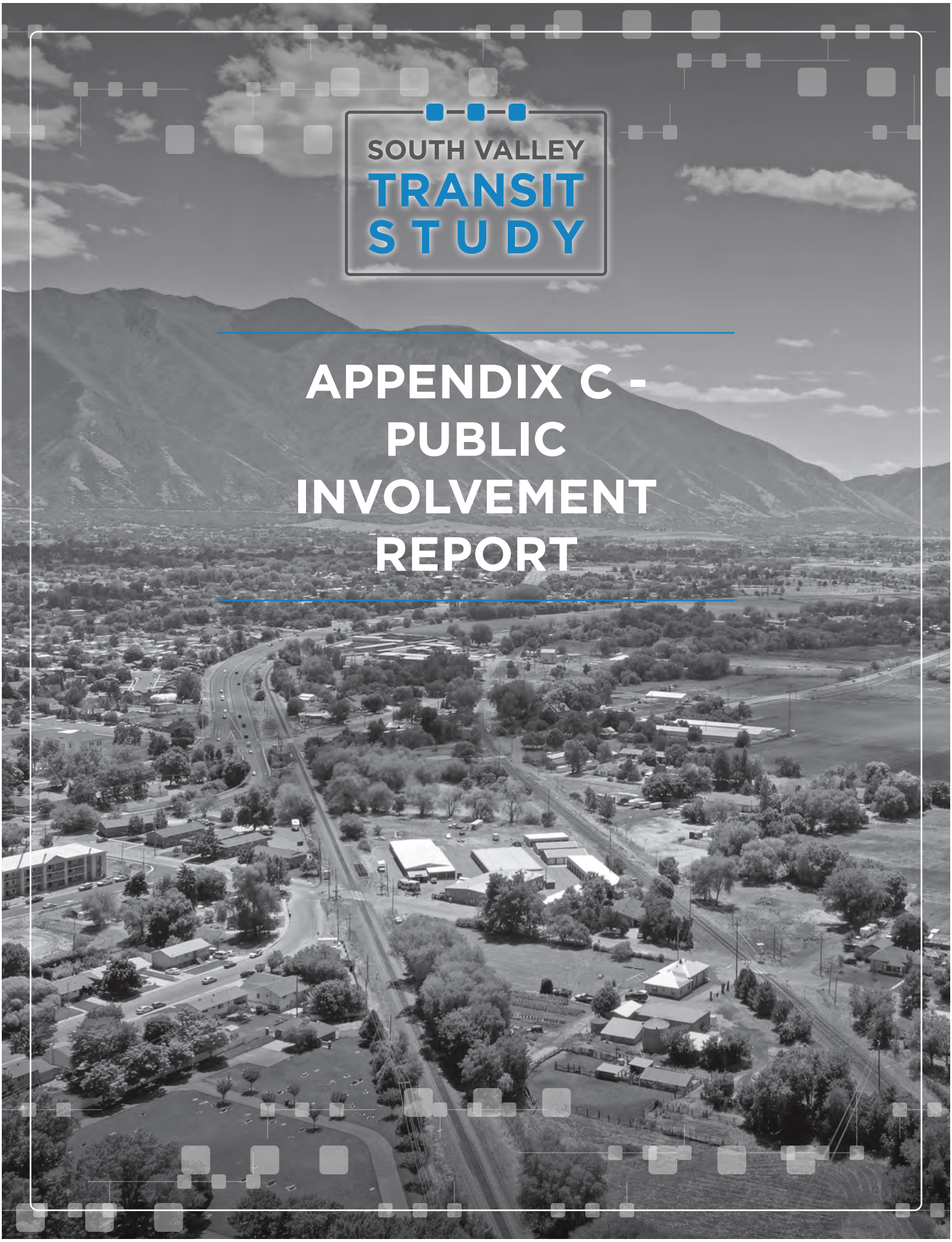
APPENDIX A - EXISTING AND FUTURE CONDITIONS MEMO



APPENDIX B - PURPOSE AND NEED MEMO



APPENDIX C - PUBLIC INVOLVEMENT REPORT

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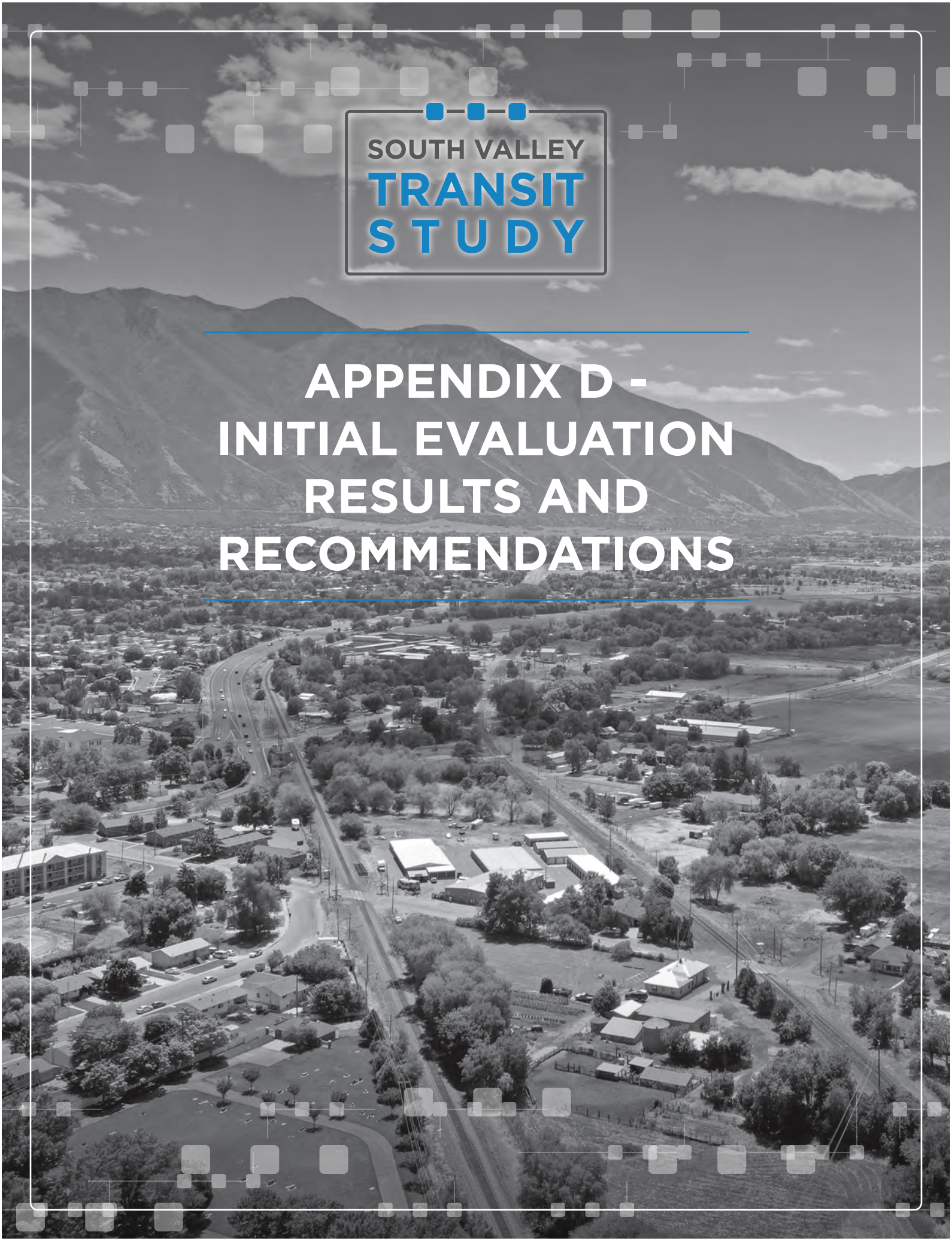
APPENDIX D - INITIAL EVALUATION RESULTS AND RECOMMENDATIONS



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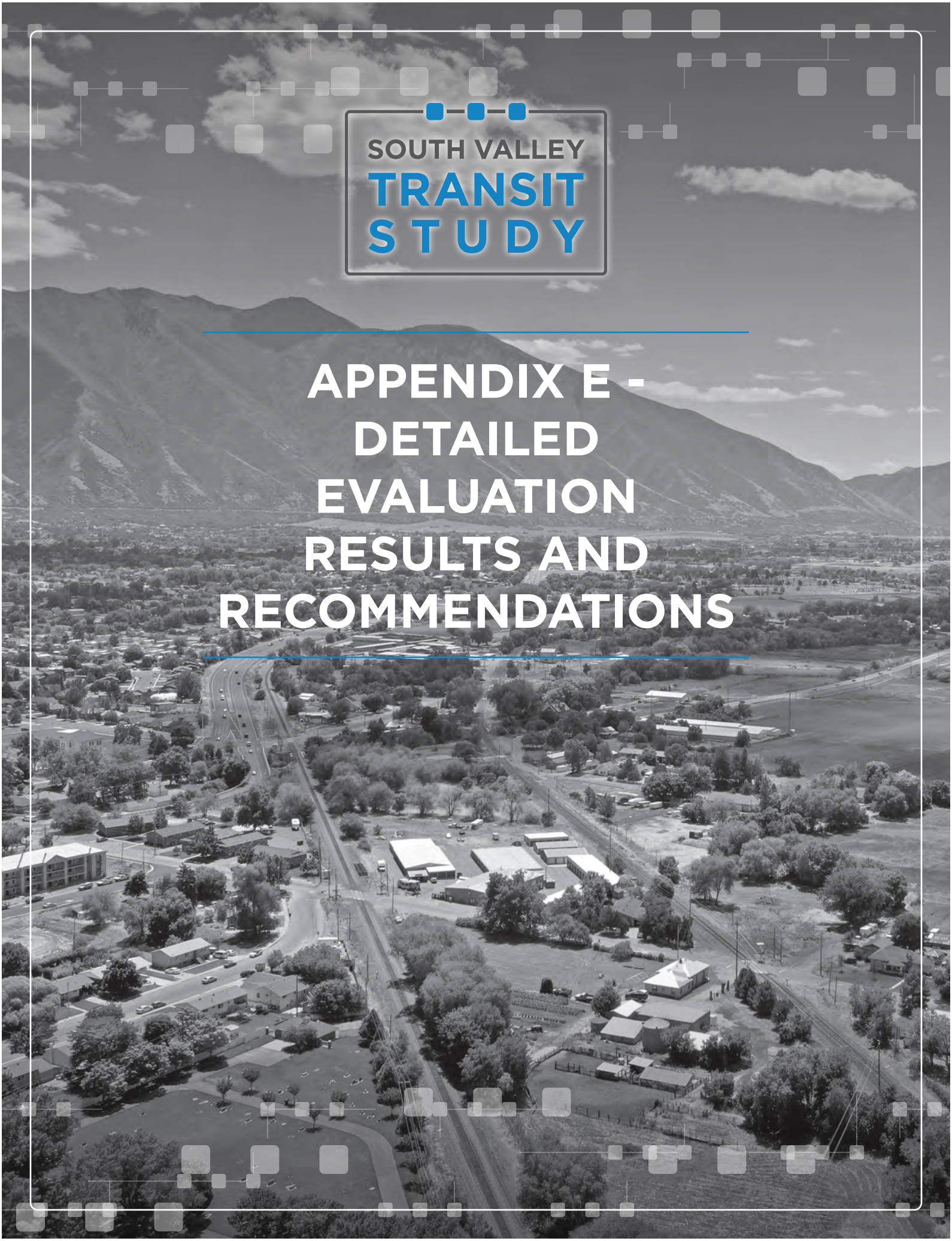
APPENDIX E - DETAILED EVALUATION RESULTS AND RECOMMENDATIONS



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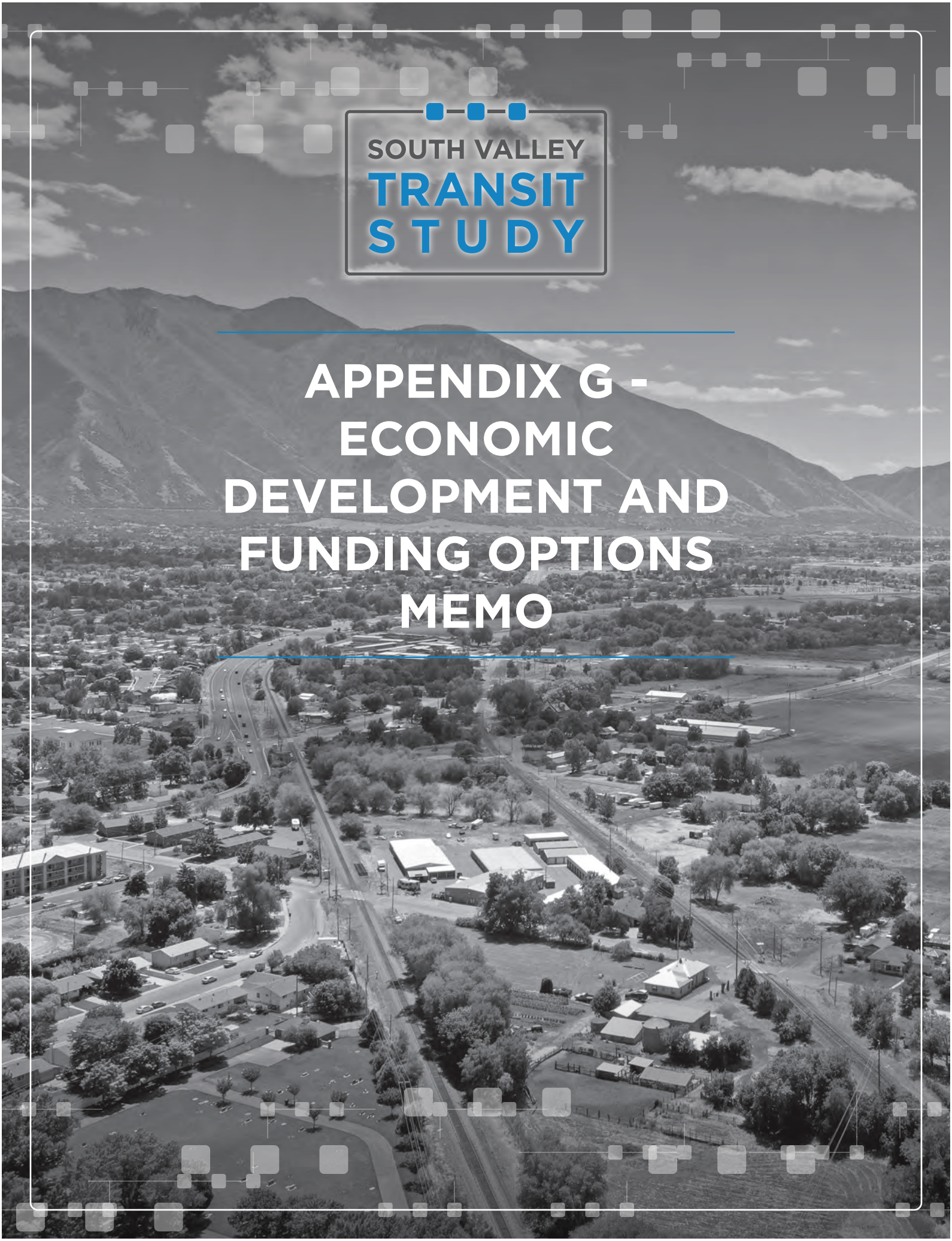
APPENDIX F - BEST PRACTICES FOR TRANSIT-ORIENTED COMMUNITIES



APPENDIX G - ECONOMIC DEVELOPMENT AND FUNDING OPTIONS MEMO

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