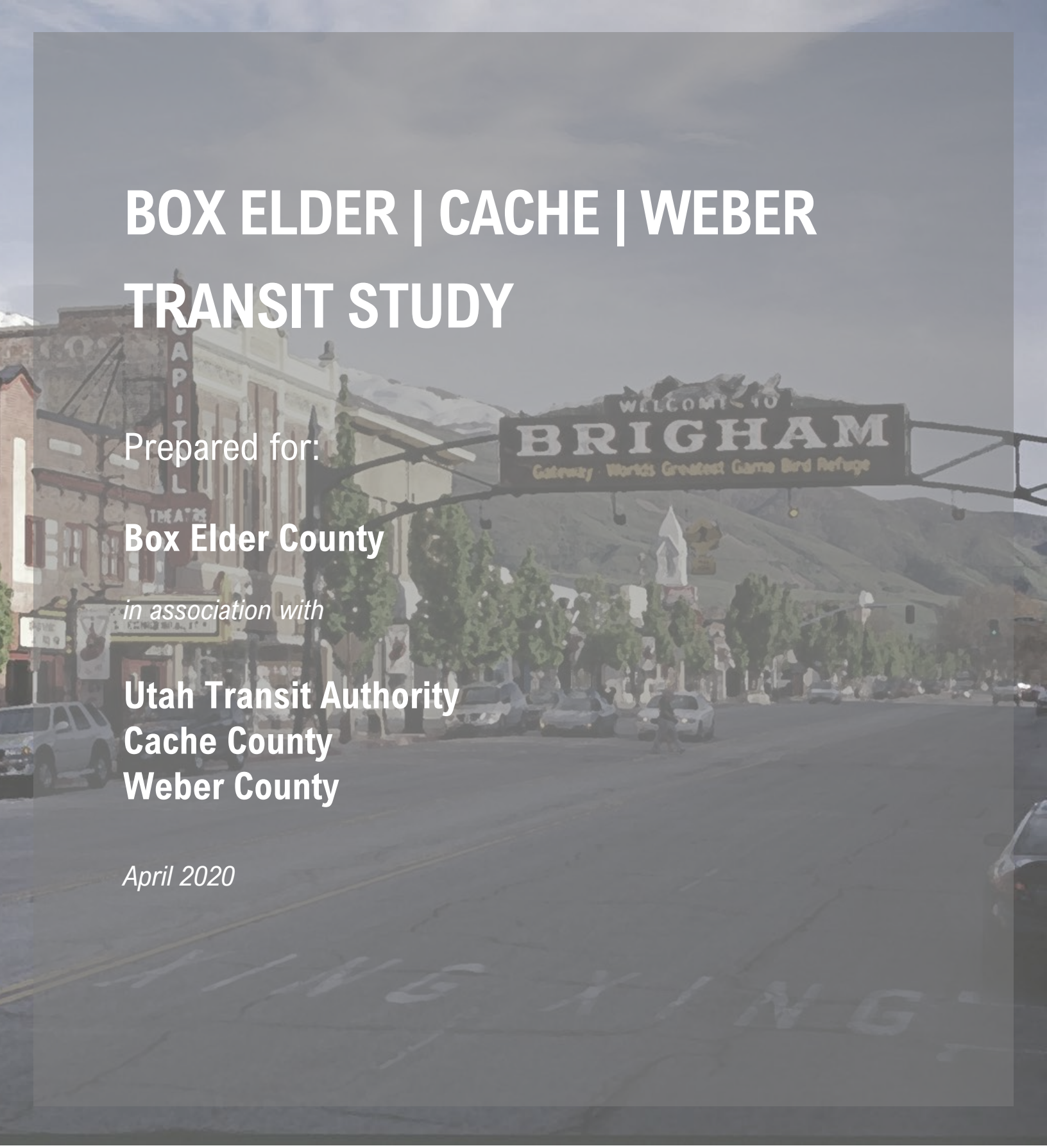

BOX ELDER | CACHE | WEBER TRANSIT STUDY

Prepared for:

Box Elder County

in association with

Utah Transit Authority
Cache County
Weber County

April 2020

Box Elder County

Cache County – 1857 –

Weber County

UTA

Fehr & Peers

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Executive Summary

The objective of the Box Elder | Cache | Weber Mobility Study is to find, evaluate, and recommend transit options to meet demands of the growing population of Box Elder while continuing to support community and economic development opportunities, and maintain regional mobility to Wasatch Front and Cache Valley.

STUDY GOALS

EXAMINE *feasibility of transit options between Box Elder, Cache Valley, & the Wasatch Front*

EVALUATE *service types & coverages based on geography & markets. Determine which service type would be appropriate for various needs.*

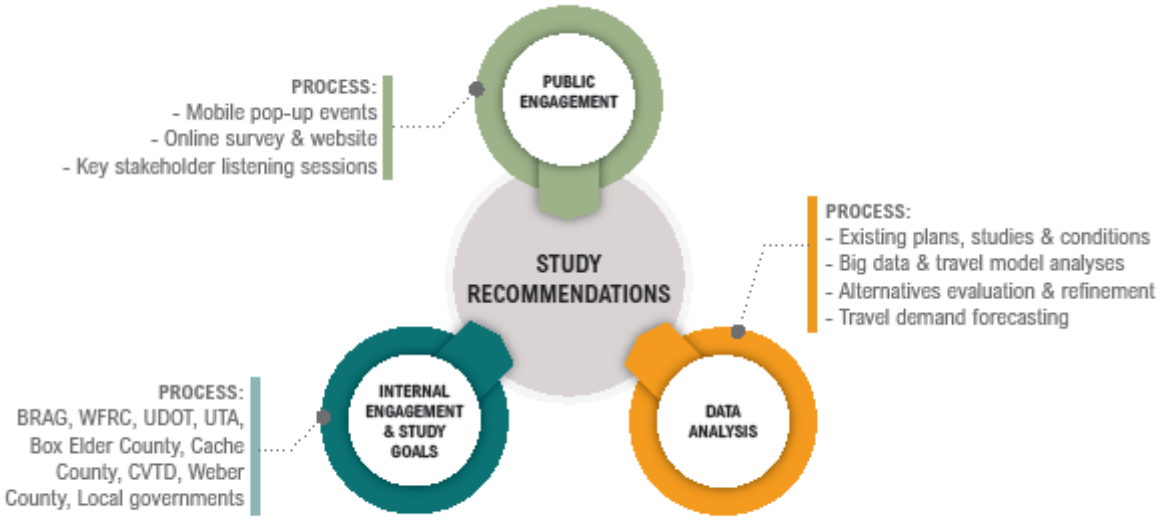
ASSESS *physical, political, economic constraints, & implications of potential land use changes, based on population projections, growth trends, & local plans.*

RECOMMEND *viable transit opportunities scaled to short-, medium-, & long-term needs.*

DETERMINE *if proposed high capacity transit is still valid for current & future demand.*

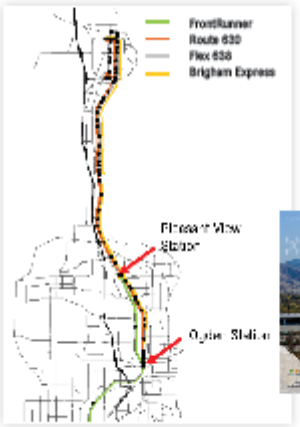
APPROACH

The recommendations outlined in this study were developed using a three-pronged approach:



RESULTS

Major transit investments connecting Box Elder to Cache Valley and the Wasatch Front were analyzed. Through our three-pronged approach, a series of transit alternatives were developed and refined to uncover the best transit opportunities. Of the identified alternatives, including rail, BRT, etc., none were found to perform substantially better than those in the 2050 Regional Transportation Plan. Under both today's conditions and likely future levels of development, major transit investments are not likely to be appropriate, cost-effective solutions for the study area. The recommendations are right-sized, and provide realistic transit choices that can be implemented cost-efficiently and in a reasonable timeframe.



◀ *The 2050 RTP model output, with enhancements to FrontRunner service to Pleasant View Station, route 630, Flex 638 route, & Brigham Express.*

▲ *The WFRC 2019-2050 Regional Transportation Plan. Source: WFRC*

RECOMMENDATIONS

SHORT TERM RECOMMENDATIONS

- **Continue corridor preservation**
- **Community enhancements along corridor**
- **Cache Valley Pilot Project**
- **Increase service on Route 630**
- **Enhance bus stops along Route 630**
- **Increase marketing of Vanpool program**

MEDIUM TERM RECOMMENDATIONS

- **Continue corridor preservation**
- **Community enhancements along corridor**
- **Increase marketing of Vanpool program**

LONG TERM RECOMMENDATIONS

- **Continue corridor preservation**
- **Transitway, Technology TBD.**
- **Implement Express Service between Brigham City and Ogden**

▲ *UTA Vanpool. Source: UTA*

▲ *Community gardens near multi-use trails in Madison, WI*

▲ *Aerial rendering of multiuse trail with adjacent community enhancements (gardens, playgrounds, etc.), in corridor ROW.*

1

INTRODUCTION

Box Elder County, Utah, is situated between Ogden, the northernmost major city of the Wasatch Front Region, the Cache Valley Region to the east, and Idaho to the north. While the County may not be growing as rapidly as the counties along the Wasatch Front, it is still experiencing significant growth and is looking to manage the transportation impacts of that growth, which include increased use of the existing roadway network, more regional trips to and from the County, and an influx of online retail and the subsequent increase in delivery services traveling throughout the Region. In coordination with Box Elder County, the Utah Transit Authority (UTA), has had plans to extend commuter rail service, FrontRunner, north from Ogden and connect to Brigham City, the county seat of Box Elder County. Box Elder County residents supported that proposal in a 2007 tax referendum that dedicated a quarter-cent sales tax increment to implementing a commuter rail service.

Since the 2007 ballot initiative, corridor preservation has continued using the proceeds of the sales tax increment. However, considerable uncertainty exists as to when the extension of commuter rail to Brigham City would become financially viable given technical constraints and existing and future transit ridership in the Region. Therefore, the purpose of this study is to explore and evaluate potential transit solutions, including the proposed FrontRunner, to improve mobility between Box Elder County, Cache County, Weber County, and the Wasatch Front as a whole, incorporating the cities of Logan, Tremonton, Brigham City, Perry, Willard, North Ogden, Farr West, Pleasant View, and Ogden (Figure 1). It aims to understand the potential value of both locally- and regionally-oriented transit and multi-modal services and evaluate specific alternatives with respect to cost-effectiveness, feasibility, and responsiveness to local needs.

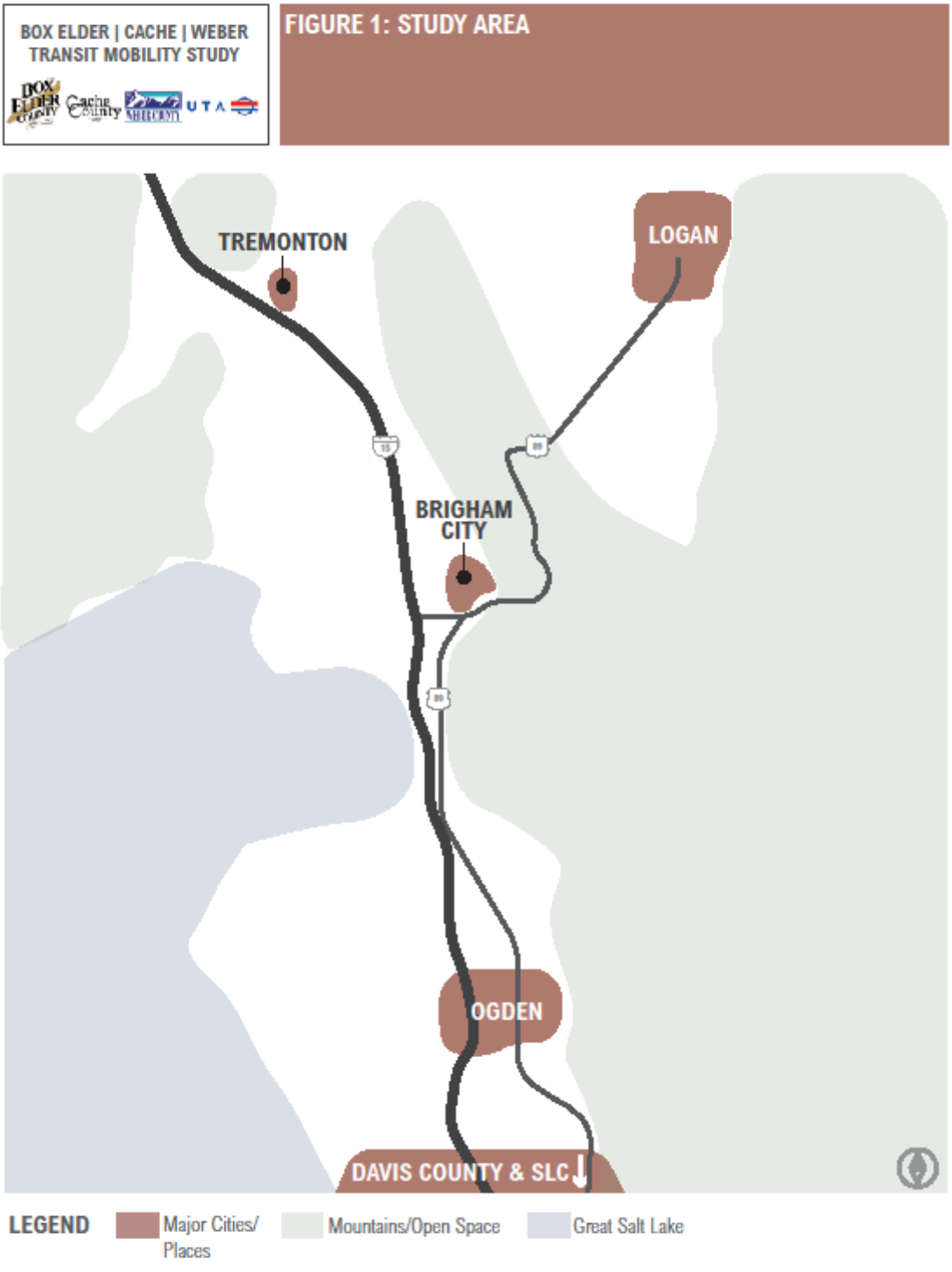


Figure 1: Project Study Area

PROJECT GOALS AND OBJECTIVES

The goal of the study is to evaluate and recommend transit services to meet demands of population growth, continue supporting community and economic development opportunities, and maintain regional mobility throughout the study area. Specific objectives of the study include:

- Examine the feasibility of transit options to and from Cache Valley and Brigham City to the Wasatch Front as well as possible connections from the Tremonton area to and from Cache Valley, eventually connecting to the Wasatch Front.
- Evaluate service types and coverages based on geography and disparate markets and determine which service type would be appropriate for the various needs.
- Assess the physical, economic, and political constraints, pedestrian accessibility, and include implications of potential land use changes, based upon population projections, growth trends, and local plans.
- Recommend viable transit opportunities in the study area that support short- medium- and long-term needs.

STUDY APPROACH

The approach to this study, as outlined in Figure 2, involved creating a purpose and need statement based on stakeholder input, examining relevant studies and existing data collection, a robust public engagement effort, development of transit and mobility alternatives to serve the identified needs, screening of those alternatives and consideration of next steps to move forward.

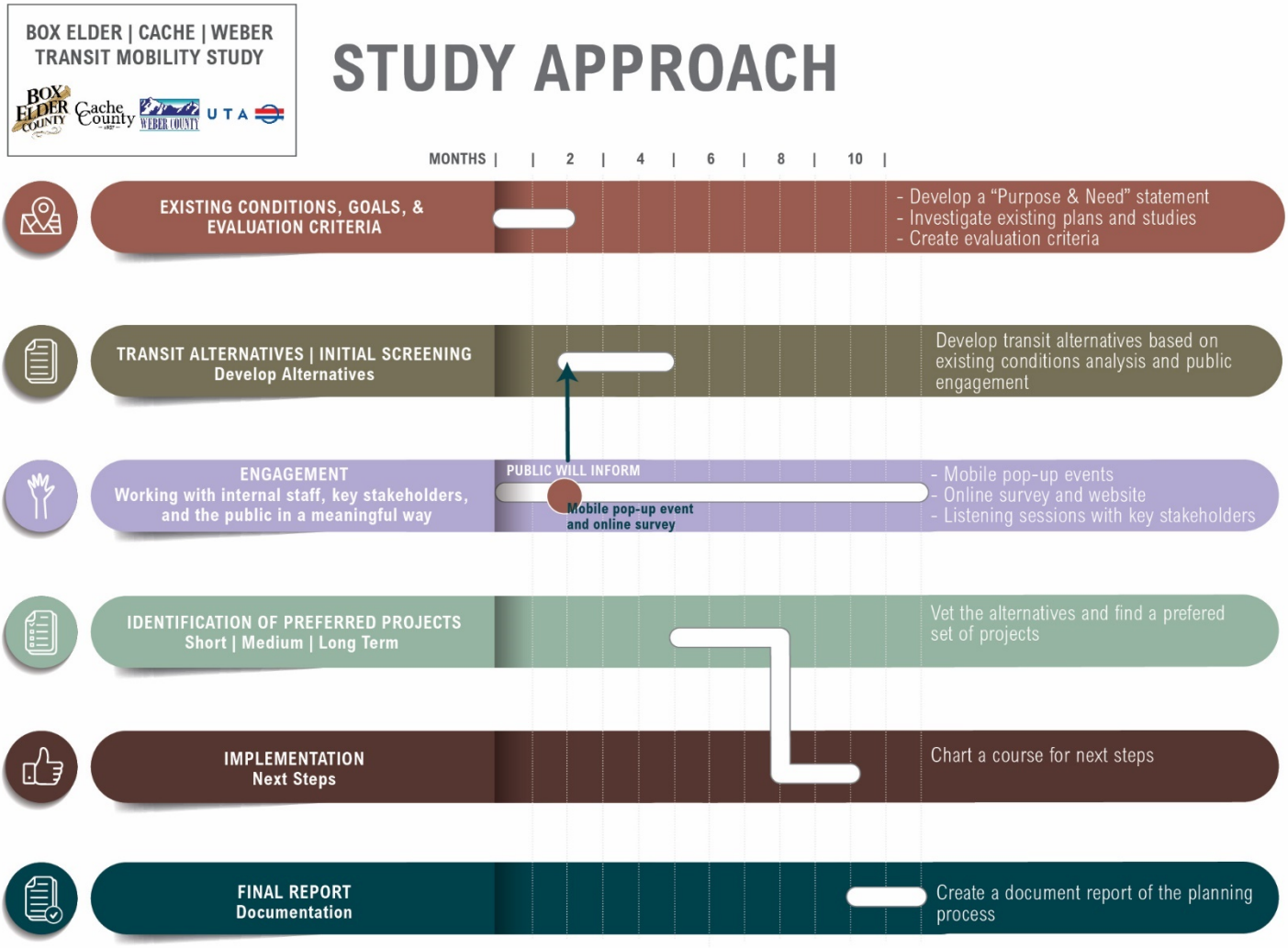


Figure 2: Study Approach and Schedule

2

EXISTING CONDITIONS

HISTORICAL CONTEXT, PRIOR PLANS AND STUDIES

Over the past two decades, there have been a number of studies and transit-related improvements made within the study area. The key take-aways and significant decisions from those studies are outlined here, in order to provide context by which to understand the alternatives and recommendations of this study. A timeline of major studies and actions is shown in Figure 3 below.

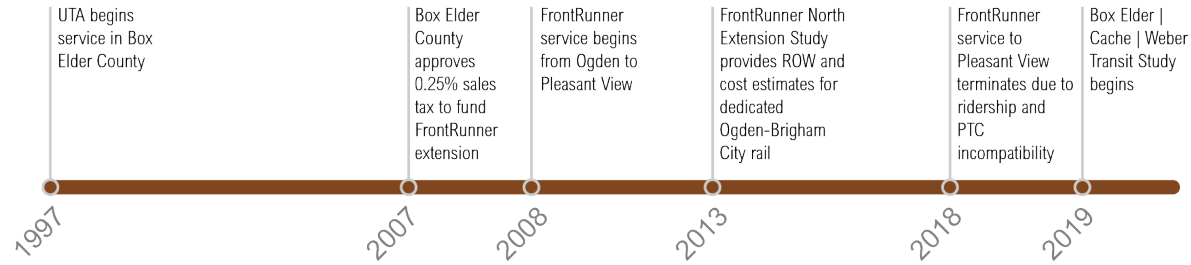


Figure 3: Timeline of Relevant Studies and Actions

2007 - Brigham City Transit Corridor Study

The *Brigham City Transit Corridor Study* was completed in 2007. This study examined transit mode and corridor alternatives between Pleasant View and Brigham City with the goals of:

- Reducing auto dependence and Vehicle Miles Traveled (VMT)
- Encouraging commuters to use transit

- Fostering economic development in Box Elder by creating connections with greater Wasatch Front and Salt Lake City International Airport (SLCIA)

The study did a modal analysis to determine which type of transit would best meet the stated goals. Four types of transit were evaluated within the corridor from Brigham City to Pleasant View, including a "Best Bus" service, Bus Rapid Transit (BRT) on US-89 and I-15, BRT on a separate guideway, and an extension of the FrontRunner commuter rail line. In conclusion, this study made the recommendation to extend the FrontRunner commuter rail to Brigham City with the following phasing recommendations:

- Near term: Implement peak-period commuter rail on shared Union Pacific Railroad (UPRR) track in ten years, during which bus service continues in off-peak period (if funding is available).
- Long term: Build dedicated commuter rail track and build Willard/Perry station at the 750 North interchange.

Next steps in that study included:

- Conduct capacity analysis with UPRR, in order to identify any cost saving potentials
- Seek voter approval for second quarter sales tax to fund the right-of-way acquisition needed to construct the dedicated rail line.
- Develop a financial plan for service.
- Create station area plans and coordinate right-of-way needs with private developments.

2007 - Commuter Rail Ballot Initiative

Subsequent to the completion of the Brigham City Transit Corridor Study, in 2007 Brigham City voters passed a ballot initiative to earmark the second quarter sales tax revenue for actions to build rail, including corridor preservation of transit right-of-way from Pleasant View to Brigham City. Figure 4 shows the ballot question that was used.

UTA was designated as the custodian for the fund, and since the ballot initiative was passed in 2007 UTA has deposited the revenue in a dedicated account and is currently using the funds to acquire right-of-way. As the wording of the ballot initiative indicates, the sales tax funds are earmarked solely for commuter rail-related expenses. Any deviation from that explicit use would require voter approval or legislative override.

OPINION QUESTION NUMBER 1 - TRANSPORTATION IMPROVEMENTS

Shall Brigham City, Perry City, and Willard City, Utah be authorized to impose a sales and use tax of 0.25% (.0025) beginning on or after January 1, 2008 with the revenues received from the imposition of said tax to be expended for the expansion, construction, improvement, maintenance, and operation by the Utah Transit Authority of a public **commuter rail** transit facility(ies) and related services, infrastructure, operations and transportation system expenses?

◯ **FOR** THE IMPOSITION OF A SALES AND USE TAX OF 0.0025

◯ **AGAINST** THE IMPOSITION OF A SALES AND USE TAX OF 0.0025

Figure 4: Brigham City transit ballot question

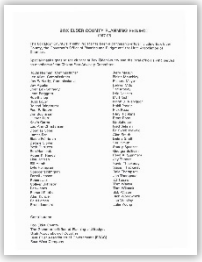
2013 - UTA FrontRunner North Extension Preliminary Engineering & ROW Assessment

Following the passing of the 2007 ballot initiative, a study was done in July 2013 that evaluated the preliminary engineering and right-of-way requirements of continuing the FrontRunner commuter rail line from its terminus in Pleasant View to Brigham City. The overarching goal of the study was to evaluate the following factors:

- An assessment of a potential alignment
- Right-of-way and adjacent property needs
- Utility and drainage constraints
- A track alignment layout/grading
- Rough property acquisition costs

The outcomes of this study included plan sheets of rough alignment potentials and underscored the need for future study within all the aforementioned factors in order to move forward in earnest. Recommendations included future coordination with UPRR, additional utility research, a study on the justification of the line, and potentially an Environmental Impact Study (EIS).

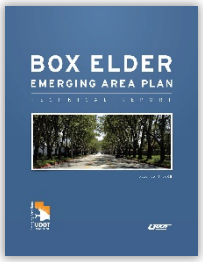
Since this study was completed, UTA has hired a surveyor to prepare for land acquisition and has started negotiations with landowners in the corridor as well as limited acquisitions.



1998 - Box Elder County General Plan

In 1998, Box Elder County adopted the Box Elder County General Plan. The Plan stated that future growth in the County would make traveling by private automobile inefficient and inconvenient for residents. Box Elder County supported, and encouraged, improving bus service throughout the area, as well as developing a commuter rail link to the Wasatch Front to provide better access for the County.

2008 - Box Elder Emerging Area Plan

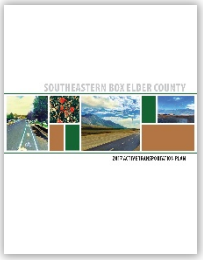


In 2008, the Box Elder Emerging Area Plan was completed, outlining three scenarios to help accommodate growth while maintaining the rural community feel and current quality of life. Scenario 1 involves concurrently improving roads and transit facilities for long-range travel, including FrontRunner extending to Brigham City, with BRT, commuter busses, and fixed guideway systems to Tremonton. Scenario 2 entails connecting local activity centers for efficient travel, incorporating additional bus services to connect Brigham City and Tremonton. Scenario 3 focuses on smaller roads and surface streets, including extending FrontRunner to Brigham City, with transit connecting to Tremonton.

This plan outlined the following transit recommendations:

- Work with UTA to extend FrontRunner to Brigham City
- Coordinate with Cache Valley Transit District (CVTD) to improve bus service between Box Elder and Cache Valley
- Integrate transit service throughout Box Elder County to connect residents to destinations and workers to employment centers
- Revisit recommendations made in the 2007 Box Elder Transit Study

2017 - Southeastern Box Elder County Active Transportation Plan



The 2017 Southeastern Box Elder County Active Transportation Plan encompasses Brigham City, Perry, Willard, and unincorporated South Willard. This plan assumes UTA FrontRunner commuter rail service planned along the Union Pacific rail corridor and proposes an adjacent rail trail within the preserved corridor for active transportation uses.

2017 - Brigham City General Plan

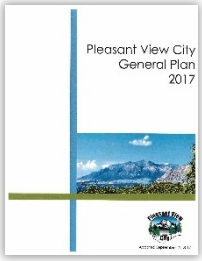
The 2017 Brigham City General Plan affirms resident's desire for improved regional connectivity and effective local transit options, including connections to the Wasatch Front and Utah State University's regional campus in the City. The plan's next steps list working with UTA to redesign and replace the current bus circulator with a local route that better serves residents. In addition, the plan recommends working with UTA, CVTD, Utah State University, and major employers to create an express bus to and from Ogden, and to and from Logan.

The plan also discusses the practicality of a FrontRunner station in the city at 200 South or 1100 South, and the positive impacts the station — and adjacent transit-

oriented developments — will have on the population, economic growth, and overall air quality. The strategies outlined in the plan to achieve this goal are to:

- Include the proposed station on future land use maps
- Designate 100+ acres for transit-oriented development and change existing zoning in those areas to better accommodate transit-oriented development
- Evaluate and implement pedestrian safety measures around Box Elder High School to decrease the risk of future auto-pedestrian crashes resulting from increased vehicular traffic caused by the FrontRunner station near the school
- Develop a train station area plan five to ten years prior to the actual construction of said station

During the public outreach phase of this General Plan, input was collected regarding transit options and the FrontRunner station. Residents listed a mixed-use FrontRunner station and improved public transportation as two of their top ten things they wanted to see in the city. Residents felt that the Utah State University campus needed to connect downtown Brigham City and the Logan Utah State University campus via transit. Furthermore, the steering committee for this plan stated that the potential for a FrontRunner station was one of the reasons that kept them in the city, and they hoped to see a FrontRunner extension within the next 20 years.

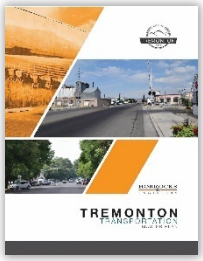


2017 - Pleasant View General Plan

The Pleasant View City General Plan emphasizes community connectivity and multimodal options for the city. There are two routes that currently serve residents, the Brigham City/Ogden bus (route 630) and the North Weber FrontRunner Shuttle (route 616). The plan emphasizes the current need for improved transit options, pointing out that FrontRunner operates on a limited schedule due to the lack of UTA-owned right-of-way. The plan acknowledged the importance of obtaining right-of-way for the expansion of UTA's FrontRunner rail system.

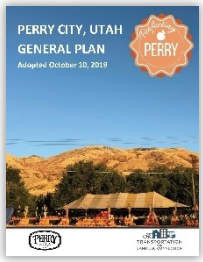
Contained in the Pleasant View City General Plan is the 2700 North Corridor Vision Specific Area Plan, adopted by the cities of Pleasant View and Farr West in 2015. The plan included a few transit recommendations including exploring opportunities for transit-oriented development in Pleasant View, and creating a transit-oriented, mixed-use district adjacent to the FrontRunner station and US-89.

2018 - Tremonton Transportation Master Plan



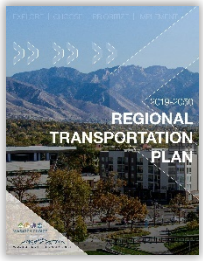
Tremonton's 2018 Transportation Master Plan outlines recommendations to the roadway network to accommodate growth over the next 50 years, connect the city to the Wasatch Front while prepreserving the city's rural character, and integrate transit service throughout the County. As part of this plan, Tremonton is planning for a FrontRunner station at 6400 West and 1600 South.

2019 - Perry City General Plan



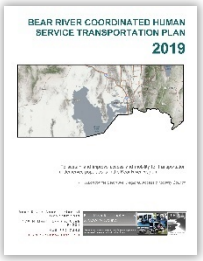
The transportation chapter in Perry City's 2019 General Plan is focused on roadway improvements, active transportation infrastructure, and transit. While private automobiles are the dominant mode of transportation for the city, residents made it clear that they wanted to see safe, multi-modal connections, and an improved transportation network in the future. There are currently two bus routes that service the city (UTA routes 630 and F638). As Perry's population increases, so does the need for high quality public transit. The plan outlined two strategies: (1) preserve FrontRunner corridor right-of-way and adjacent undeveloped lands, and (2) coordinate with UTA and regional partners to invest in innovative mobility solutions (rideshare, micro-transit, paratransit, etc.) to better connect residents to destinations and employments centers.

2019-2050 WFRC Regional Transportation Plan



The Wasatch Front Regional Council's Regional Transportation Plan sets forth a three-decade-long strategy for regional-scale investments for all modes of transportation. The plan lists three scenarios that all include connecting Box Elder via transit: Scenario 1, which is based on all currently adopted city/county general plans, outlines a FrontRunner extension into Box Elder County. Scenario 2 focuses on growth in large regional centers with expanded local street and regional rail networks. FrontRunner extended to Box Elder County and double-tracking and electrification of the rail line supported 15-minute commuter rail service. Scenario 3 involves small town centers with expanded local transit and regional road networks with a separated trail connecting Weber and Box Elder Counties. In terms of transit improvements, the plan outlines an express bus service from Box Elder County to the commuter rail and employment opportunities in Ogden.

2015 - Bear River Association of Governments (BRAG) Coordinated Human Service Transportation Plan



The Bear River Association of Governments conducted a Coordinate Human Service Transportation Plan to address growing needs for transportation services for disadvantaged populations by maintaining and filling gaps in existing voucher-based

programs to provide mobility to people in rural areas with no or limited existing public transit services. The Medical Voucher Program (MVP) has been highly successful in providing access to non-emergency medical services for populations with mobility challenges and remains a high priority for BRAG and its member communities.

2017 - Cache Valley Short-Range Transit Plan

The 2017 Cache Valley Short-Range Transit Plan is used to guide Cache Valley Transit District decisions over the next five to ten years. The study determined there may be sufficient demand for commuter service between Cache County and Box Elder County. Based on the analysis, an expansion of express service to Box Elder County with stops in Brigham City and Tremonton was recommended.

Changes Since Past Studies

The previous planning efforts that were reviewed as a part of this study demonstrate that a commuter rail extension from Pleasant View to Brigham City was favored by residents and stakeholders. However, in the ten plus years since the initial studies were done, some of the analytical justifications for commuter rail have not been realized in practice, and some of the assumptions made are either outdated or have not been actualized. For example, the 2007 Brigham City Transit Corridor Study anticipated the doubling of PM peak hour travel times by 2030 on I-15 from Brigham City to the Salt Lake City International Airport. This assumption has not been realized—current PM peak travel times remain at roughly 45 minutes, which is not trending upwards as the study would suggest it would. Additionally, the study assumed that I-15 would not be widened from Brigham City to Ogden. Widening of I-15 has since been completed.

UTA no longer provides FrontRunner service to the Pleasant View Station. This service was terminated in 2018; reasons for the discontinuation of service north of Ogden include technical and cost barriers to running FrontRunner service on Union Pacific shared track as well as low ridership and are discussed in greater detail in the following section. In addition, the operating and capital costs for FrontRunner service have been noted to be substantially higher than those developed in the 2007 Study. The limitations for running FrontRunner service on the existing Union Pacific rail are more stringent than previously estimated with significant costs related to upgrading the system (namely Positive Train Control (PTC)).

For the purposes of this study, the project team acknowledges that there have been enough changes to the transportation network and previous assumptions in the study area to warrant a critical evaluation of whether a commuter rail extension to Brigham City is justified, while meeting the needs of residents.

CURRENT AND PAST TRANSIT SERVICE

Existing Service

Currently, bus service is available along the US-89 corridor with the study area, connecting southern Box Elder County to Ogden (Routes 630, and F638 (flex route)). Cache Valley Transit District (CVTD) provides free-fare bus service within Cache Valley. Regional service spans from Preston, Idaho to Hyrum, Utah, and is accompanied with local community routes. Paratransit service is also available in both UTA's and CVTD's service areas. Vanpool services are available in the corridor, primarily servicing large employers, such as Hill Air Force Base and ATK.

Figure 5 and Figure 6 display the UTA F638 and 630 routes, and the UTA and CVTD routes, respectively.

Boarding and alighting data was available for UTA's F638 and 630 routes for the month of August 2018. Figure 7 displays the stops by bi-directional weekday boardings. The stops with the highest boardings were the Ogden Union Station stop (with 116 boardings) and the Brigham City 700 North and 75 East stop (with 37 boardings). Most stops are in the 1 – 5 boardings per day range. Both routes have acceptable productivity for the level of service that is provided (hourly service) and context in which they operate (relatively lower density). They are within UTA's standards to continue operating with this level of service but would not be candidates for service increases unless additional funding was dedicated to bus service in Box Elder County.

CVTD ridership data was not analyzed since there are currently no CVTD routes that travel outside of Cache County.

Specialized transportation services for seniors, persons with disabilities, and financially challenged individuals are provided by local senior centers, government organizations, and non-profit organizations within the study area, such as Cache Employment and Training Center (CETC), the Bear River Association of Governments (BRAG) and Options for Independence. BRAG provided the study team data associated with their Medical Voucher Program (MVP), which is a program that provides transportation reimbursement for disadvantaged populations in rural areas of the region. Table 1 demonstrates the breakdown of the MVP program's highest origin and destination pairs as a percentage of total trips from 2014 to present day.

Origins	Destinations	# Trips	% Trips
Lewiston	Logan	179	15.0%
Brigham City	Ogden	145	12.1%
Logan	Logan	121	10.1%
Logan	Salt Lake City	87	7.3%
Brigham City	Pleasant View	55	4.6%
Newton	Logan	54	4.5%
Fielding	Logan	53	4.4%
Clarkston	Logan	44	3.7%
Mendon	Logan	37	3.1%
Tremonton	Tremonton	37	3.1%
Fielding	Tremonton	34	2.8%
Brigham City	Garland	23	1.9%
Brigham City	Brigham City	20	1.7%
Trenton	Logan	20	1.7%
Deweyville	Ogden	19	1.6%
Mendon	Salt Lake City	19	1.6%
Tremonton	Logan	17	1.4%
Lewiston	Hyde Park	16	1.3%
Tremonton	Ogden	16	1.3%
Tremonton	Salt Lake City	14	1.2%
Logan	Ogden	12	1.0%

Table 1: Origin & Destination Pairs of BRAGs MVP program

As shown in the data, Brigham City to Ogden, Logan to Logan, Logan to Salt Lake City, and Brigham City to Pleasant View, are the second, third, fourth, and fifth most significant origin and destination pair, respectively.

There is also privately-operated service within the study area provided by *Salt Lake Express*, which runs from Logan, to Brigham City, Ogden and the SLC Airport, among other places. Ridership data on this service was not available. Prices fluctuate depending on day of the week, time of day, holiday service and origin and destination pairs, but are higher than typical public transportation service.

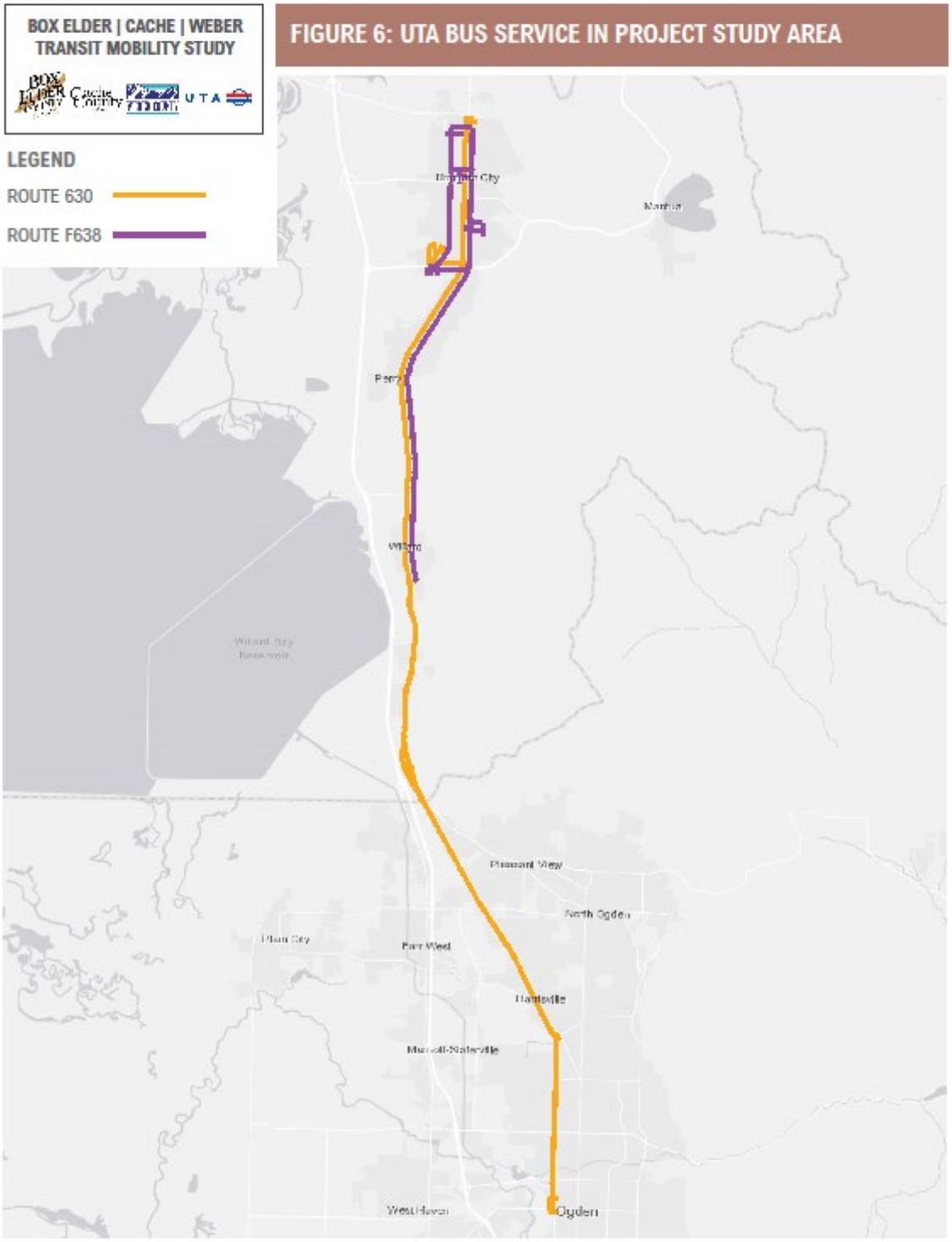


Figure 5: UTA Routes

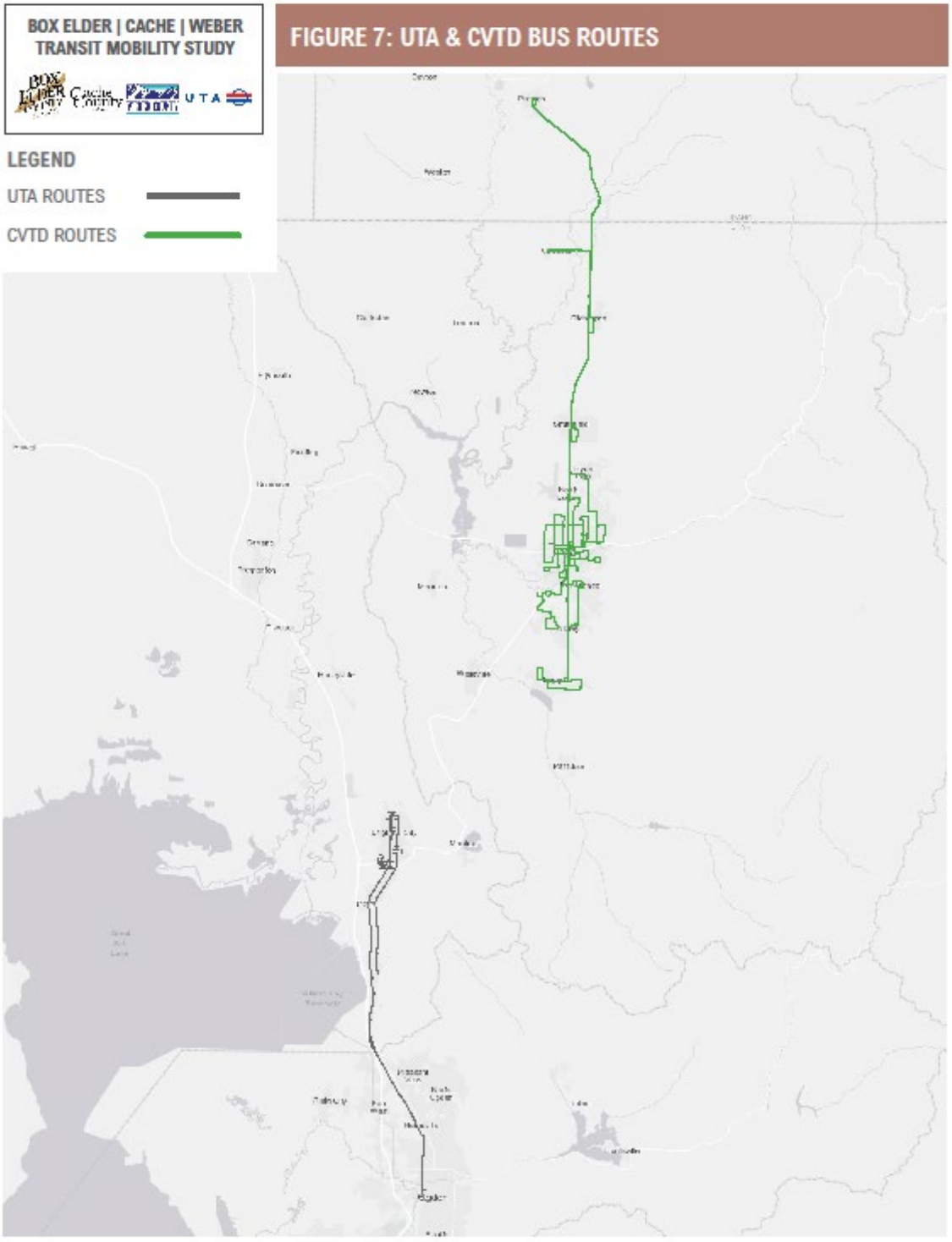


Figure 6: UTA and CVTD Routes

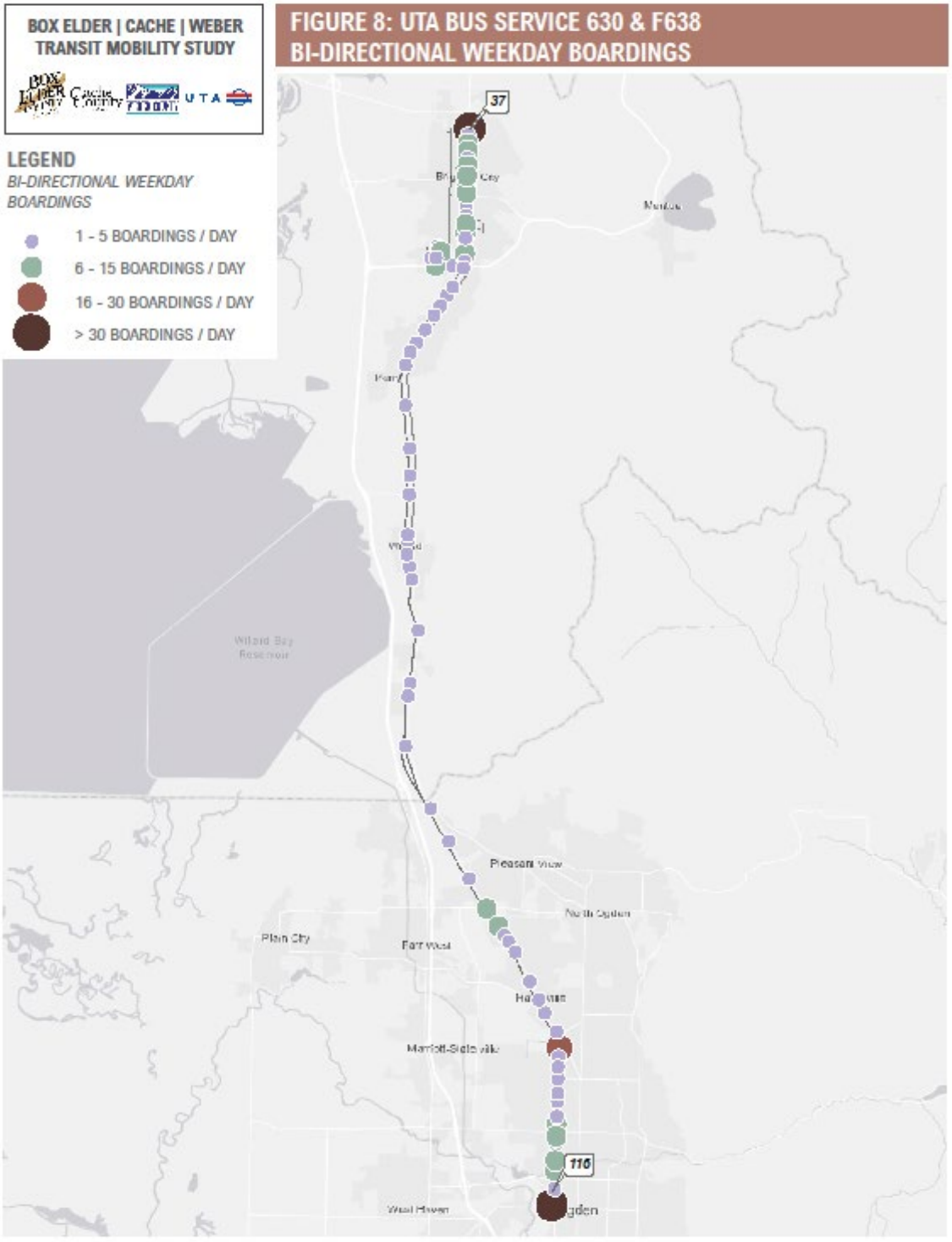


Figure 7: UTA Bi-Directional Weekday Boardings per Day by Stop

Past Service

Perhaps the most significant past service that once operated in the study area is the FrontRunner commuter rail service from Ogden to Pleasant View on UPRR track. This service began in December of 2008 and was terminated in August 2018. UTA cites low ridership (roughly 34 total boardings per day), operating limitations on the shared UPRR track, and implications of the federally required Positive Train Control (PTC), as the overarching reasons for discontinuing the service. Table 2 demonstrates that according to UTA data, the Pleasant View station had vastly lower boardings than any other station in the FrontRunner system (however, it should be noted that off-peak service was not provided to the Pleasant View Station).

According to UTA, the PTC systems used by UTA and UPRR are not compatible with each other and the cost of upgrading systems was estimated to be too high to justify the service.

FrontRunner Stations North to South	Average Boardings per Day (February 5-9, 2018)
Pleasant View	34
Ogden	1,244
Roy	481
Clearfield	877
Layton	760
Farmington	529
Woods Cross	621
North Temple	2,646
Salt Lake Central	1,880
Murray Central	1,842
South Jordan	861
Draper	836
Lehi	1,281
American Fork	894
Orem Central	1,535
Provo Central	1,818

Table 2: Average Boardings by Station (source: UTA)

Because of these factors, UTA discontinued the Ogden to Pleasant View service. In addition, within the study area, UTA formerly operated limited express bus service between Brigham City and Ogden. However, this service was discontinued due to low ridership.

TRAVEL MARKETS ANALYSIS

Origin-Destination Data

In order to understand potential demand for additional or different transit service to, from, and through Box Elder, Cache, and Weber Counties, the study process began with an examination of existing travel patterns in the area between regional destinations that could feasibly be served by fixed-route transit.

StreetLight Data is a data provider that collects samples of trips using mobile phone data (location-based services, or LBS) and aggregates it to provide estimates of travel between origin-destination pairs. In this study, relevant origins and destinations within the study area included Brigham City, Tremonton, Logan, and Ogden, as well as urbanized areas of Box Elder, Cache, and Weber Counties outside of those city boundaries. In addition, urbanized portions of Davis County and Salt

Lake County were included to understand commuting patterns to and from job centers in those areas of the Wasatch Front. Origin/destination geographies in these county areas were restricted to locations with existing transit service, as these areas reflect the potential market that users of new or enhanced transit service. Mapping of origin and destination geographies are shown in Figure 8 below. The origin-destination analysis was based on data collected for the full year of 2018.

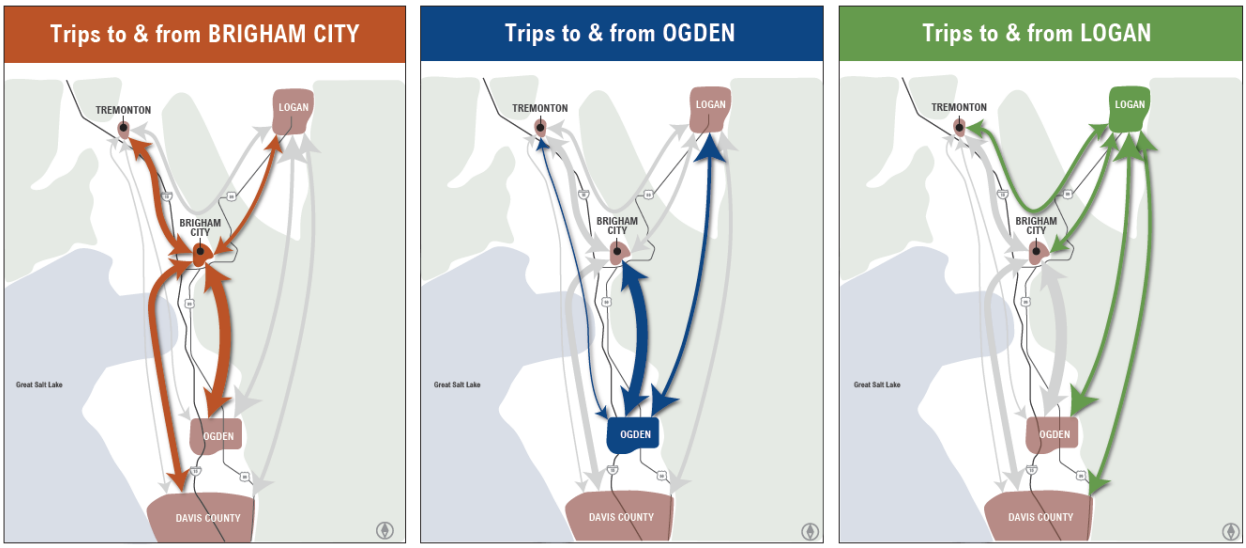


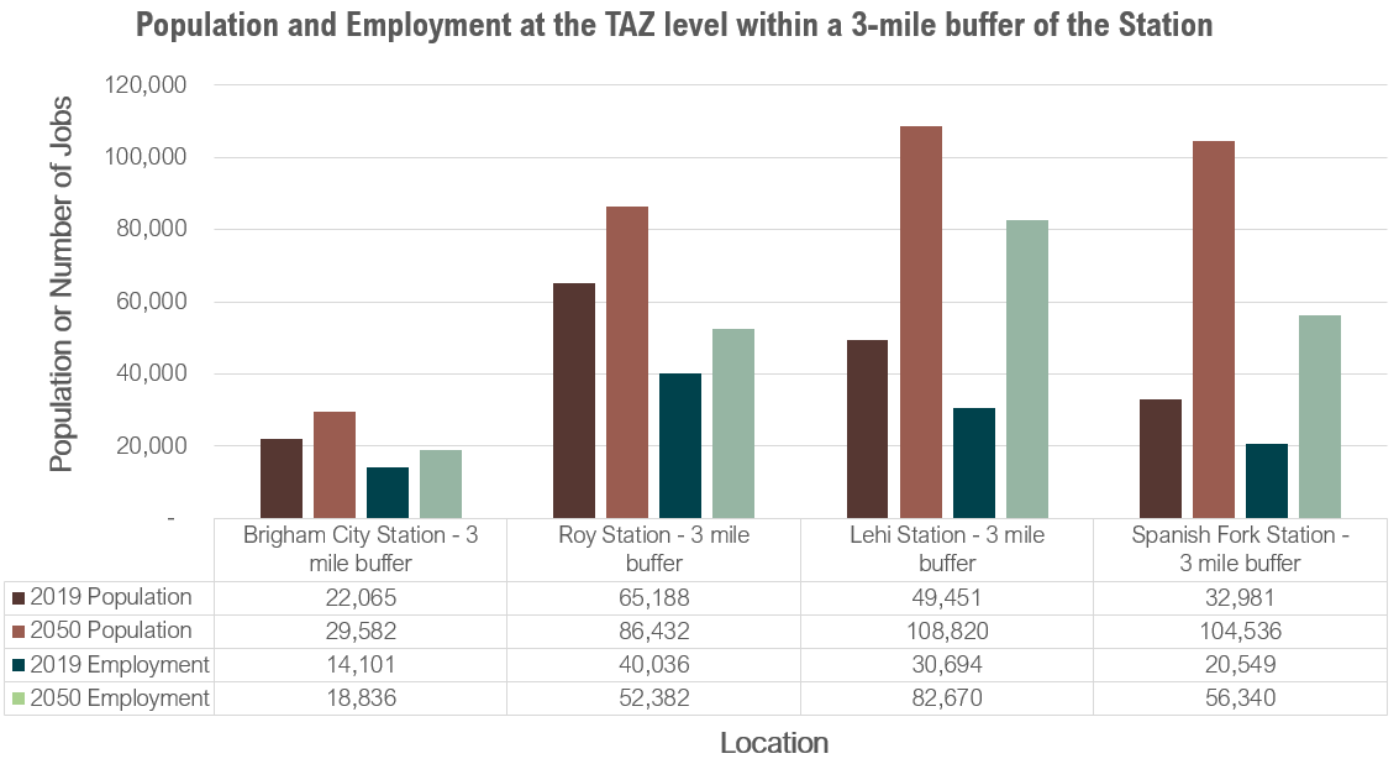
Figure 8: StreetLight Origins and Destinations Map

Analysis of the origin-destination data showed that the greatest share of relevant trips within the study area are from Brigham City to Ogden and vice versa, with smaller shares traveling between Brigham City and Tremonton, and Brigham City and Davis County. Significantly smaller numbers of trips occur between Tremonton and Ogden, and between Logan and all other destinations in the study area. This analysis shows that trips from Brigham City to and from Ogden and points south form the largest potential travel market within the study area. This data is also the basis of the majority of the study's analyses and recommendations.

Station Catchment Area Market Comparison

The study team conducted a comparison analysis to better understand population and employment projections surrounding the proposed Brigham City FrontRunner station versus the existing Lehi station, Roy station, and proposed Spanish Fork station. The project team used the 2019 WFRC and Mountain Land Association of Governments (MAG) travel demand model population and employment 2019 data and forecasted 2050 data at the Travel Analysis Zone (TAZ) level buffered within three miles of the Brigham City, Roy, Lehi and Spanish Fork stations. The results of this buffer comparison analysis indicate two important considerations for the purposes of this study:

1. The buffer zone at the Brigham City station has anywhere between 10,000 and 80,000 fewer jobs and population than the other three station area buffers, both according to 2019 figures and 2050 projections.
2. The rate of growth from 2019 to 2050 projections is substantially lower both for population and employment at the Brigham City station than it is at any of the other three stations.



	Brigham City Station - 3 mile buffer	Roy Station - 3 mile buffer	Lehi Station - 3 mile buffer	Spanish Fork Station - 3 mile buffer
2019 Population	22,065	65,188	49,451	32,981
2050 Population	29,582	86,432	108,820	104,536
2019 Employment	14,101	40,036	30,694	20,549
2050 Employment	18,836	52,382	82,670	56,340

Figure 9: Populations and Employment at the TAZ level within a three-mile buffer of the station

In other words, there simply isn't the quantity of development in the Brigham City area.

3

STAKEHOLDER AND COMMUNITY ENGAGEMENT

The project approach emphasized a meaningful outreach process both internally to the project team and externally to the public. This chapter will outline the stakeholder and community engagement strategy used throughout the plan.

COMMITTEES

At the onset of the project, the project team worked with local staff to create a Policy Committee and a Technical Advisory Committee (TAC). The TAC met four times throughout the planning process and was intimately involved in setting the tone and direction of the study through feedback on analysis and recommendations on engagement strategies. All meetings were held in the Box Elder County. Table 3 outlines TAC members involved in the study:

NAME	TITLE	AGENCY
Scott Lyons	*Planning Director and Project Manager*	*Box Elder County*
Marcus Wager	*County Planner*	*Box Elder County*
Brian Carver	*Community Development Director*	*BRAG*
Zac Covington	*Senior Planner*	*BRAG*
Levi Roberts	*Strategic Planner*	*UTA*

Hal Johnson	*Manager of Project Development*	*UTA*
Bryce Wheelwright	*City Planner*	*Willard City*
Julie Bjornstad	*Transportation Planner*	*WFRC*
Christie Dahlberg	*Community Development Admin*	*WFRC*
Andrea Olson	*Region Planning Manager*	*UDOT*
Richard Brockmyer	*UDOT Planning*	*UDOT*
Mark Bradley	*City Planner*	*Brigham City*
Robert Barnhill	*City Planner*	*Perry City*
Bill Cobabe	*City Administrator*	*Pleasant View*

Table 3: Technical Advisory Committee Membership

The Policy Committee was primarily made up of elected officials or others in higher positions of authority. They were engaged in the planning process at two strategic phases of the study to receive critical updates and provide insights on the political nature of the study, speaking on behalf of the agency or location they represent. Table 4 outlines Policy Committee members involved in the study:

NAME	TITLE	AGENCY
Stan Summers	*County Commissioner*	*Box Elder County*
Jeff Scott	*County Commissioner*	*Box Elder County*
Jeff Hadfield	*County Commissioner*	*Box Elder County*
Chrisee Bennett	*Commission Assistant*	*Box Elder County*
Jeff Gilbert	*Transportation Planner*	*CMPO*
Eddy Cumins	*Chief Operating Officer*	*UTA*
Andres Colman	*Regional General Manager – Mt. Ogden Business Unit*	*UTA*
Shule Bishop	*Government Relations Director*	*UTA*
Beth Holbrook	*UTA Board of Trustees*	*UTA*
James Ebert	*County Commissioner*	*Weber County*
Jim Harvey	*County Commissioner*	*Weber County*
Kerry Gibson	*County Commissioner*	*Weber County*
Laura Hanson	*Planning Director*	*UTA*
Karen Cronin	*Box Elder County Rep to UTA Advisory Council*	*BEC/UTA*
Todd Beutler	*General Manager/CEO*	*CVTD*
Jordy Guth	*Facilities Planning*	*Utah State University*
Kevin Jeppson	*Mayor*	*Perry City*

Table 4: Policy Committee Membership

ADDITIONAL STAKEHOLDER INTERVIEWS

The project team spent time with additional stakeholders, outside of the Stakeholder group to delve into topic specific discussions. The following list outlines the additional stakeholder engagement and key take-aways.

- UTA FrontRunner extension and ballot initiative discussion: Hal Johnson (UTA) & project team members
  - Discussed the implications of the 2008 transit ballot initiative, including its prescriptive language on "commuter rail"
  - Discussed the status of the corridor preservation fund and right-of-way acquisition
  - Discussed potential interim uses of the rail corridor, before it is built out for commuter rail
- UTA Travel Demand Model discussion:
  - Team met with planning staff at UTA to review modeling methodology and results.
- BRAG Medical Voucher Program (MVP) discussion: Zac Covington (BRAG) and project team members
  - Participants discussed the previously completed studies in the area on the topic of travel reimbursement programing:
    - The BRAG MVP program is at capacity, but there is still demand for services
    - There are two central challenges for the MVP program: advertising and a lack of on-going funding sources
    - Over 50% of program participants self-identified as "disabled" or physically unable to drive a vehicle
- BRAG Interagency Meeting: Project team members attended an interagency meeting with the following attendance:

NAME	ORGANIZATION
Deanna Crockett	*Options for Independence*
Sarah Yates	*Acts Six Soup Kitchen*
Michael McCullam	*Bear River Assn. of Governments*
Judy Kearns	*Dept of Workforce Services*
Shelly Mathis	*Boys & Girls Club NU*
Diane Jones	*Bear River Health Dept*
Becky Egli	*Utah State University Extension/Create Better Health*
Kate Hinchee	*Vocational Rehabilitation*
Jill Scharrenberg	*Family Support Center*
Jenny Schulze	*Boys & Girls Club*
Susanne Case	*Pregnancy Care Center*

Table 5: BRAG Interagency Meeting - attendees

- Participants of the interagency meeting indicated that:
  - There was consensus among the group that there is a gap in transit service to/from and within Tremonton. A participant mentioned that there seem to be two Uber drivers that operate in that area (both of which are also police officers, apparently), but that that is not enough. And this group emphasized that their constituents are low income, refugee, and at-risk populations that don't have access to a vehicle, so this lack of service is very apparent.
  - Service from Brigham City north to Logan is needed. This came from the Division of Workforce Services representative. She indicated that the job market in Logan is difficult for her clients to access.
  - The idea of vanpooling was brought up and the group agreed that this type of service would be more appropriate than, say, traditional fixed route bus lines, due to the nature of the area and types of trips.

PUBLIC OUTREACH

In addition to the committees and targeted stakeholder outreach, the project team delivered a robust public outreach program, aimed at reaching diverse audience throughout the three counties. The project team collected public feedback during the initial phases of the project though both an online survey and face-to-face interactions with members of the public at three separate "pop-up" events.

The online survey was open for public comment between May 15th, 2019 – July 1st, 2019 and was shared via the project's website, www.boxeldermobility.org, and through social media posts from WFRC, Willard City, Perry City, Box Elder, and Cache County. The survey had over 270 responses (96% of which were complete) during the time it was open to the public.

In addition to the online survey, the project team prepared materials for and attended three separate existing community events with a pop-up booth to gather public feedback. The events the project team attended were:

- The Ogden Heritage Festival, in Ogden, for four hours on Friday, May 10th
- The Brigham City Arts Festival, in Brigham City, for four hours on Saturday, June 8th
- The Summer Fest Arts Faire, in Logan, for four hours on Friday, June 14th

The project team advertised each of these events, as well as the online survey, through existing social media channels. Figure 10 is an image of the social media advertising graphic used on the various social media sites. Overall, the project team interacted with roughly 100 community members total at all three of the events.

Figure 10: Social media advertising graphic

Pop-Up Events

This round of public engagement was gathered during the early stages of the Box Elder Mobility study. Therefore, the public was asked to provide feedback and comments on higher level questions regarding transit prioritization, including:

- Where the critical origins and destinations are throughout the region?
- Where they would rather see transit investments (either in local service or regional service)?

The project team was also prepared to field questions in relation to the proposed future extension of FrontRunner from Ogden to Brigham City.

In the Appendix is a compilation of all the informational boards and activities we used to engage with the public at the three pop-up events. Major themes heard during public outreach events included the following:

- The northern communities of Brigham City and Tremonton are currently lacking a frequent and "express" type transit option to access the transit hub in Ogden.
- Cache Valley currently lacks an "affordable[1]" transit option extending from the Logan area to Ogden (that then provides access to FrontRunner and Salt Lake County).

[1] Many people who provided this type of comment were aware of the services the Salt Lake City Express offers. Many believed it is not affordable as a consistent commuting option.

- Better regional connections were deemed more important than enhancing the local routes (either by way of frequency, or coverage).

These themes, while anecdotal in nature, provide some valuable insights into what residents and visitors feel are the biggest gaps in the existing transit network. From these insights we can conclude that a regional connection is a higher priority than enhancing the local service for residents in the area.

Other types of comments that came up at the pop-up events included a desire for some type of commuter transit connections to some of the major employers in the area (ATK, Hill Air Force Base, etc.), direct connections from Logan City to the SLC International Airport, and better first/last mile connections to existing bus stops.

Figures 15 and 16 display the pop-up event set-ups.

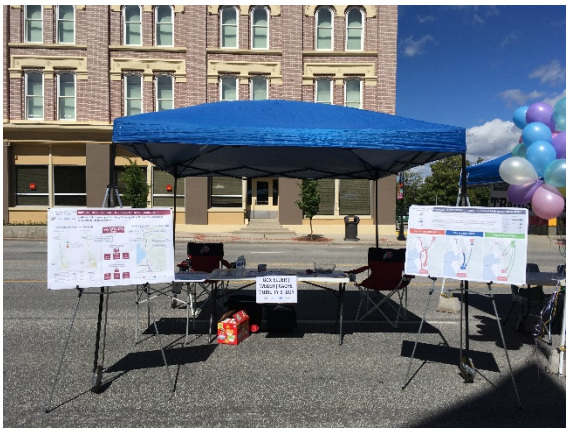


Figure 12: Booth set-up at the Brigham City Arts Festival

Figure 11: Booth set-up at the Logan SummerFest Arts Faire

Online Survey

The online survey was intended to provide an opportunity for those who were not able to attend one of the pop-up events to provide comments and feedback on the study and be easily accessible and quick to fill out to encourage more participation. There were over 270 respondents who took the survey, with a 96% completion rate. This section will outline some of the most important take-aways from the survey results.

When asked how often survey respondents utilize public transportation, 44% indicated that they "Occasionally" use the bus, FrontRunner, Vanpool, or other transit services. An additional 28% of respondents indicated that they take transit "Daily" or "Several times per week". Figure 13 outlines the breakdown of responses to this question.

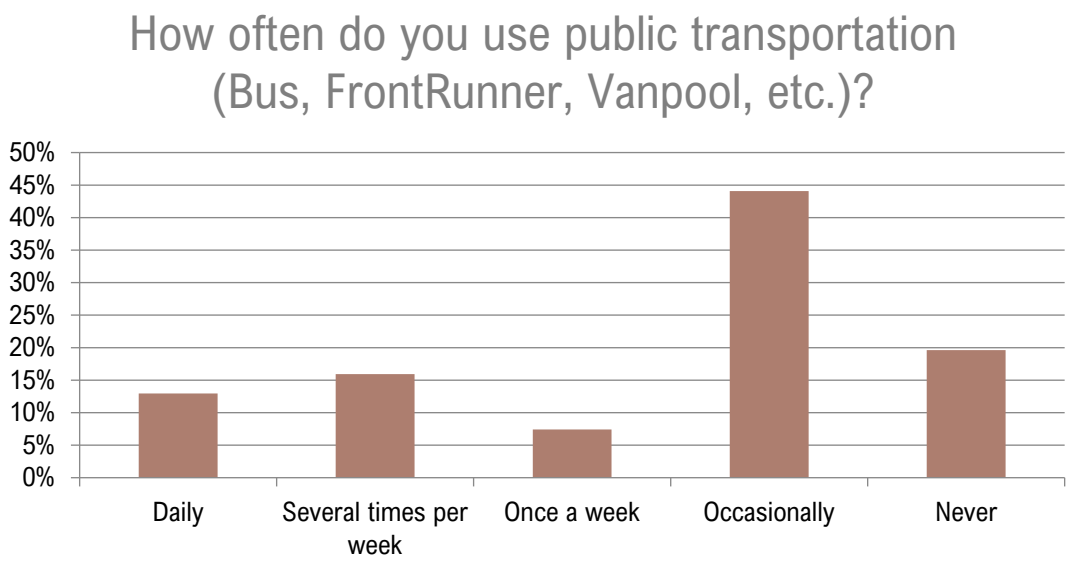


Figure 13: Frequency of Transit Use

When asked when survey respondents tend to take transit, the majority of respondents indicated that they take transit during the off-peak AM and PM times. Figures 18 and 19 show the break down for both the AM and PM times. The period after 7 PM experiences relatively high ridership, although there are only two to three directional routes in that timeframe.

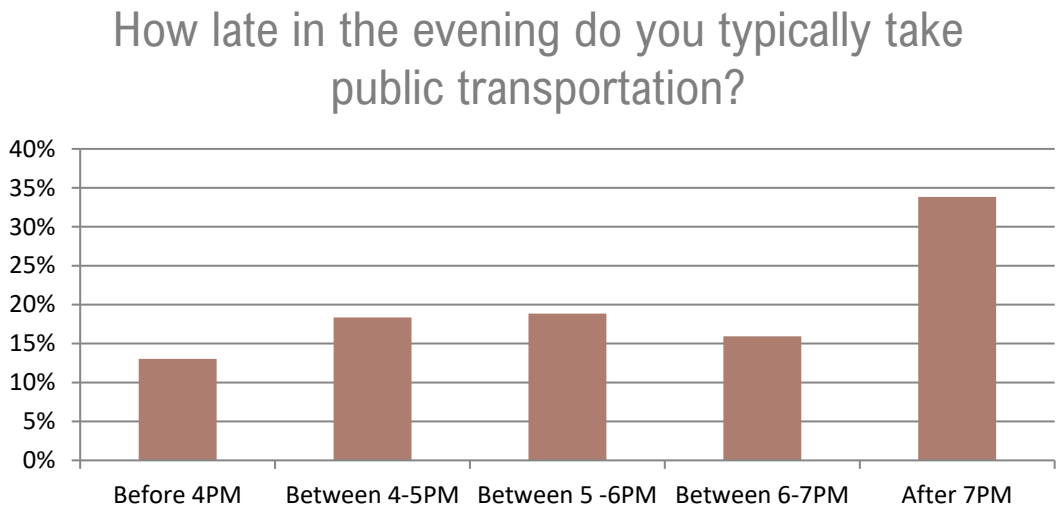


Figure 14: Time of Day of Typical PM Peak Hour Transit Trips

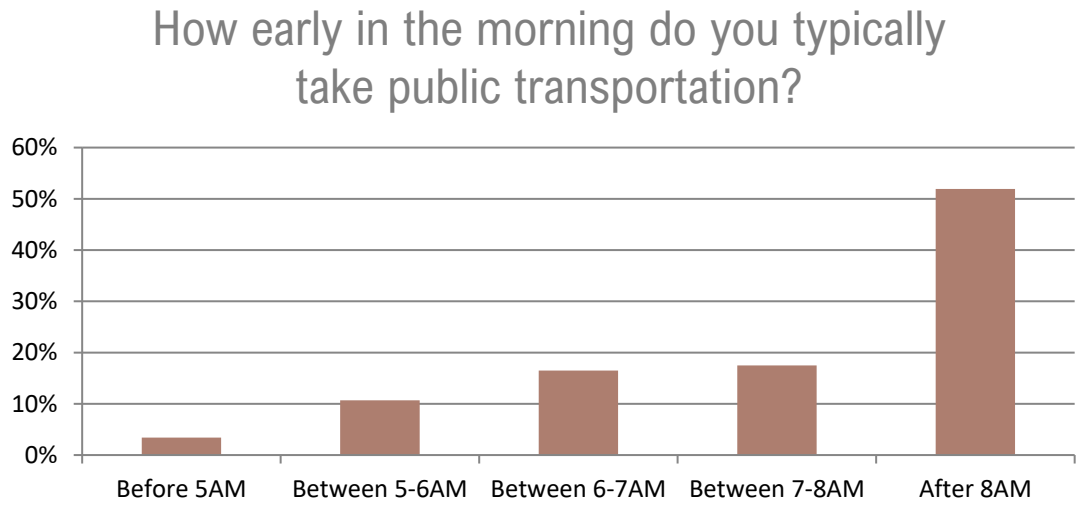


Figure 15: Time of Day of Typical AM Peak Hour Transit Trips

These responses indicate that most survey respondents are either using transit for non-commuting/non-work-related trips or are commuting during non-traditional time periods outside of typical peak hours.

The survey also asked respondents to indicate which type of transit they currently use most frequently. The highest responses were the FrontRunner and CVTD bus system, followed by TRAX Light Rail and UTA buses. Figure 16 breaks down all the responses. The responses to this question will help prioritize integration with existing transit services.

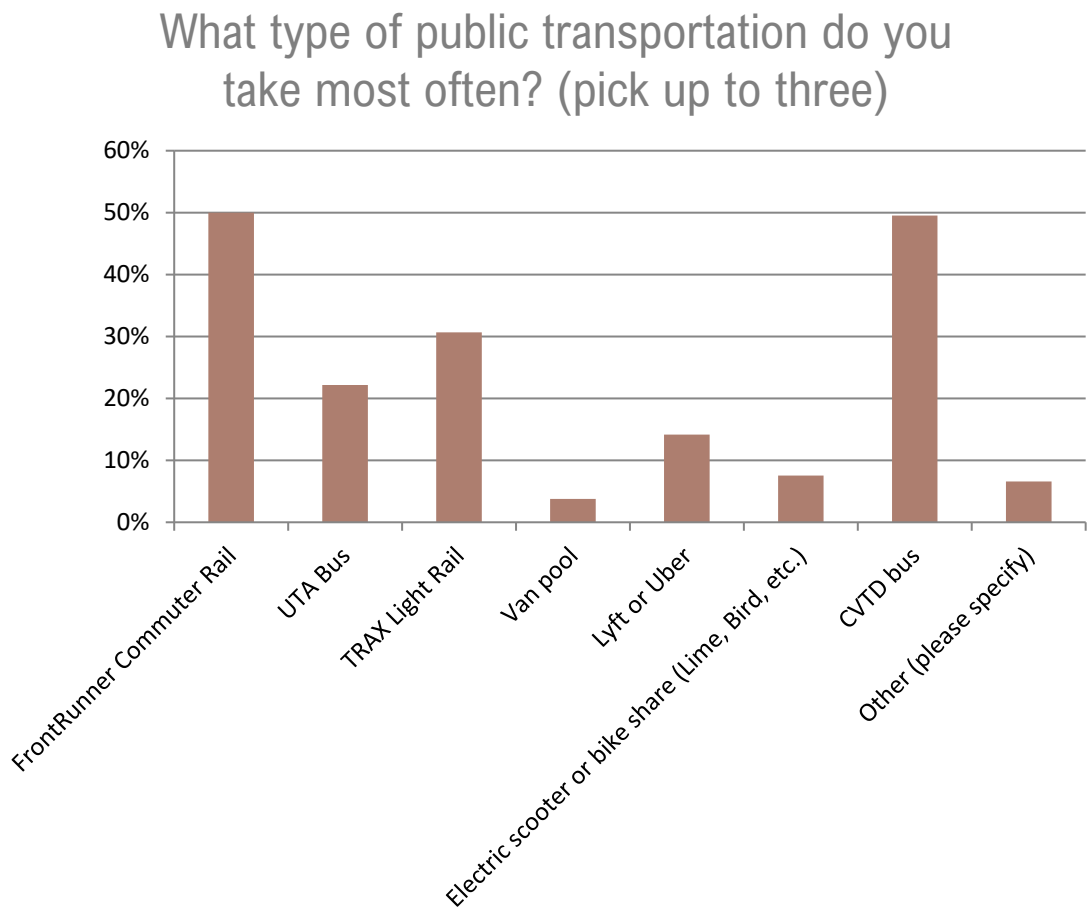


Figure 16: Most frequently used transit options

FrontRunner was the most frequently used service among survey respondents, indicating that connections to that system are a high priority, as it provides higher-speed service to more distant destinations across the Wasatch Front. The relatively high response rate associated with TRAX is somewhat surprising, due to the substantial distance between northern Utah and the nearest TRAX station. This may indicate that a sizeable number of FrontRunner users also transfer to TRAX to reach their ultimate destinations, but also may reflect mistaken answers (e.g. from infrequent users who may not distinguish accurately between TRAX and FrontRunner services).

The survey also asked respondents to indicate the top three barriers to using transit. This information was helpful for the project team in prioritizing barriers to address that can most effectively expand ridership. The top three responses were frequency of service, station/stop location being too far, and transit trip takes too long. Figure 17 breaks down responses to this question.

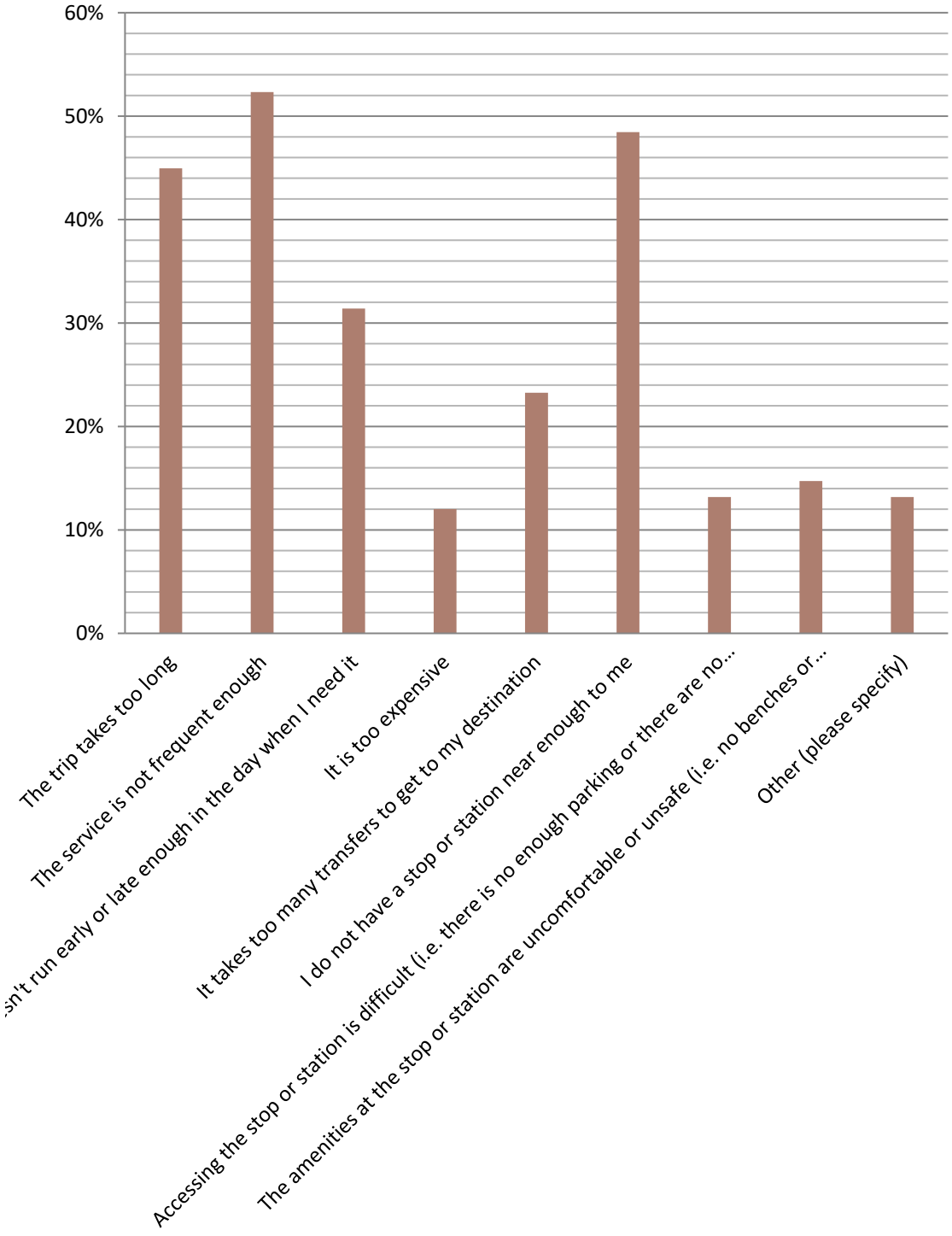


Figure 17: Barriers to Using Existing Transit Service

Finally, the survey asked respondents whether regionally oriented or locally oriented transit services should be prioritized for investment. Responses resoundingly indicated that regional connections are the highest priority, as illustrated in Figure 18 below.

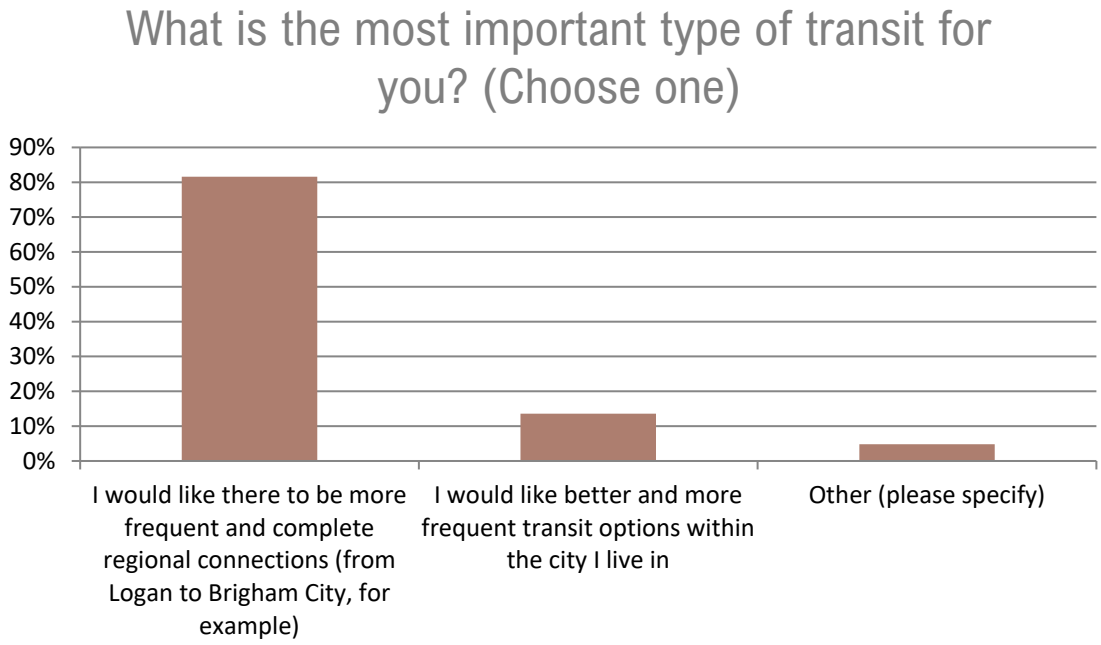


Figure 18: Transit Investment Priorities

Conclusions

Consistent throughout both the pop-up events and online survey was a prioritization of regional transit connections throughout the study area and to the Wasatch Front. Particularly, the connection from Cache Valley to Ogden and beyond. The information gleaned from the public outreach directly informs the recommended transit improvements.

4

ALTERNATIVES DEVELOPMENT

ALTERNATIVES DEVELOPMENT

The variety of alternatives evaluated as part of this study were developed based on several factors. The first is what was heard through the public engagement process: the desire to have more transit choices. The second factor was more based on the goals of the project, namely providing more short-term, realistic transit alternatives that can be implemented in a more reasonable timeframe without the extremely high cost of commuter rail. The last factor is the actual or perceived demand for something other than the private auto.

TRAVEL DEMAND FORECASTING

The Box Elder | Cache | Weber Transit Mobility Study used the Wasatch Front (WF) Travel Demand Model as the tool to analyze potential transit alternatives serving Box Elder and Weber Counties. Fehr & Peers used a draft version of the WF Travel Demand Model provided by the Wasatch Front Regional Council (WFRC) on January 30th, 2019. The existing base year 2019 and 2050 Regional Transportation Plan (RTP) scenarios were first used to establish a baseline.

2019 Existing Conditions

The purpose of the 2019 Existing Conditions is to evaluate current conditions and validate its results with other known datasets such as ridership data. In 2019, Box Elder County primarily has two transit routes:

- Bus Route 630: starts at 700 North in Brigham City and ends at the Ogden Station. It primarily runs through US-89 and it has a 60-minute headway.
- Flex Bus Route 638: flexible service where residents can use the fixed route, or they can call to schedule the bus to them up or drop them off up to ¾ mile from the fixed route. This route primarily services Brigham City, running through Main Street, Medical Center and 500 West. This route has a 60-minute headway.

Validation

The route-level boardings were compared with the data provided by UTA to validate the existing conditions. The dataset provided by UTA shows the following:

- Route 630: 429 weekday average daily boardings for August-December 2018
- Flex Route: 31 average daily boardings since August 2018
- FrontRunner: 1,380 weekday boardings at Ogden Station during August 2018 change day period (August-December)

Figure 19 shows the results from the WFRC model and UTA data.

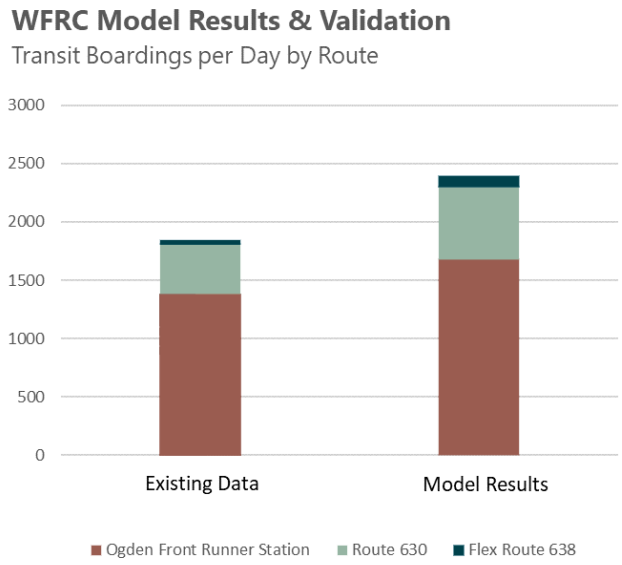


Figure 19. WF Model results and UTA data comparison.

The results of this comparison show that the WF Travel Demand Model reports a higher number of boardings than the datasets provided by UTA. It is important to note that data provided by UTA is for 2018 and boardings could be higher in 2019. Although the model and UTA data are not exactly the same, the WF Travel Demand Model was used as a tool as a tool to obtain high-level boarding estimates because:

- The number of boardings reported by the model are the same order of magnitude than the datasets used to validate the model; and,
- The tool is used to compare various alternatives, therefore the relative difference given by the model between different scenarios can still inform performance data.

2050 Baseline

WFRC developed a 2050 Regional Transportation Plan (RTP) scenario in the Travel Model. This scenario is used as the 2050 baseline to compare future alternatives in Box Elder. The 2050 RTP scenario has the same transit service as in 2019 with the following modifications:

- FrontRunner adds two stations in Weber: at Ogden BDO and Pleasant View.
- New Express Route from north Brigham City to Ogden Station with limited stops. This route is coded with a premium fare and has a 15-minute and 30-minute headway during the peak and off-peak periods, respectively.

Alternatives

The 2050 RTP scenario was modified to the 2050 RTP scenario to obtain high-level boarding estimates for several transit alternatives connecting Brigham City to other areas. The following alternatives were included in the model:

- Ogden-Brigham City Bus Rapid Transit (BRT): the express route with premium fare in the 2050 RTP was changed to BRT ("mode 5" in the model). All other attributes were kept the same (including headways).
- Pleasant View to Brigham City FrontRunner: FrontRunner service extended from Pleasant View to Brigham City. Route 630 connected to new Brigham City stations and Ogden-Brigham City Express removed. In addition to this scenario, three variations with different land use were tested:
    - Pleasant View to Brigham City FrontRunner + Increased Box Elder land use: Transit services modified as noted above. Perry and Willard have the current land use densities of Brigham City, and current Brigham City has the land use comparable to Ogden.
    - Pleasant View to Brigham City FrontRunner + Increased Box Elder/Ogden land use: Transit services modified as noted above. Perry and Willard have the current land use densities of Brigham City, Brigham City has the current land use of Ogden, and Ogden has the current land use of downtown Salt Lake City.
    - Pleasant View to Brigham City FrontRunner + Transit Oriented Developments: Transit services modified as noted above. Place representative TOD densities (based on Fireclay Avenue developments adjacent to Murray North Station) in 20

acres of TAZs by Ogden station, Pleasant View station, and two Brigham City stations.

- Pleasant View to Brigham City BRT on Preserved Corridor: new BRT route created along the preserved corridor (same corridor than the commuter rail alternative) from Pleasant View to Brigham City. FrontRunner ends at Pleasant View. Competing routes (Route 630 and Ogden-Brigham City Express) removed. BRT has a 15-minute headway during the peak and off-peak and new connections to the stations were created where appropriate in the WF Travel Demand Model.
- Ogden to Brigham City BRT on Preserved Corridor and I-15 + FrontRunner: new BRT route created from Ogden Station to Pleasant View station using I-15 and from Pleasant View station to Brigham City using the preserved corridor. FrontRunner also runs from Ogden station to Pleasant View station but Route 630 and Ogden-Brigham City Express were removed. BRT has 15-minute headways during the peak and off-peak periods and new connections to the stations were created where appropriate in the WF TDM.
- Ogden to Brigham City BRT on Preserved Corridor: new BRT route created from Ogden Station to Brigham City using the preserved corridor. FrontRunner stops at Ogden Station (does not go to Pleasant View) and Route 630 and Ogden-Brigham City Express were removed. BRT has 15-minute headways during the peak and off-peak periods and new connections to the stations were created where appropriate in the WF TDM.
- Ogden to Brigham City BRT on Preserved Corridor and US-89: new BRT route created from Ogden Station to Brigham City. New route along Wall Avenue and US-89 from Ogden Station to Pleasant View station and the preserved corridor from Pleasant View Station to Brigham City. FrontRunner stops at Ogden Station (does not go to Pleasant View) and Route 630 and Ogden-Brigham City Express were removed. BRT has 15-min headways during the peak and off-peak periods and new connections to the stations were created where appropriate in the WF TDM.
- Pleasant View to Brigham City BRT on I-15: new BRT route created from Pleasant View station to Brigham City along I-15 and FrontRunner extended to Pleasant View. Route 630 was included but the Ogden-Brigham City Express service was removed. BRT has 15-min headways during the peak and off-peak periods.
- Ogden to Brigham City BRT on I-15: new BRT route created from Ogden station to Brigham City along I-15 and FrontRunner extended to Pleasant View. BRT stops at Pleasant View Station. Route 630 included but Ogden-Brigham City Express removed. BRT has 15-min headways during the peak and off-peak periods.

The results of this high-level forecasting exercise showed that many alternatives were either too similar and/or ridership projections were too low to warrant detailed evaluation. However, five alternatives were selected for further evaluation:

- 2019 Existing Conditions
- 2050 RTP
- 2050 FrontRunner to Brigham City
- 2050 Ogden to Brigham City BRT (I-15)
- 2050 FrontRunner to Brigham City with Box Elder/Ogden Increased Land Use

The model results of these alternatives are shown in Figure 20. In general, these results indicate that if land use does not grow or change more rapidly than is currently projected, the overall ridership for Box Elder stays relatively the same (new routes get riders from other routes, keeping the overall ridership the same).

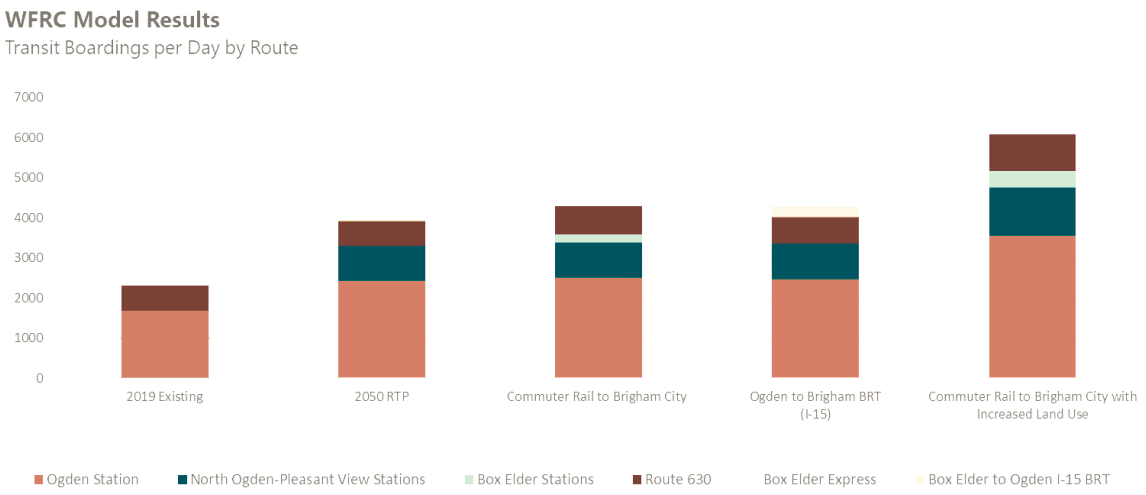


Figure 20. 2050 Ridership Forecasts by Scenario

Cache Valley Connection Alternatives

Two basic approaches were developed for concepts linking the Cache Valley to the Ogden Intermodal Center. The concepts are based on providing an express route between the Logan Transit Center and Ogden with limited stops. The first concept is based on the route being operated by Cache Valley Transit District and the second concept is to use a private transportation provider with a subsidized fare. In both concepts, the route begins at the Logan Transit Center and ends at the Ogden Intermodal Center. Stops would be included at the Wellsville park-and-ride lot in the Cache Valley and at the Utah State Campus in Brigham City.

Because the Cache Valley region is not included in the WF TDM, these service concepts were not evaluated using the forecasting techniques applied to the previously presented alternatives. Instead, off-model estimates of ridership were developed based on the size of existing travel markets.

CVTD/UTA Express Service

One option is for the express service to be operated by Cache Valley Transit District (CVTD) or UTA. The round-trip distance is 96 miles with an estimated run time of 2 hours and 30 minutes including stops and layover. The estimated cost for operation by CVTD is $4.25 per revenue-mile. Estimated operating costs are:

Two round trips, 255 days a year	$208,000
Two round trips, 365 days a year	$298,000
Each daily round trip	$400

The CVTD Short-Range Transit Plan looked at the potential for commuter service between Cache County and the Wasatch Front. Based on commute patterns and traffic counts, potential ridership for this service is about 250 one-way passenger-trips per day. Increasing travel between the two areas indicates that the demand has increased to about 300 one-way trips per day. However, with only two round trips, the demand for service is likely to be only 80 to 90 one-way trips on weekdays and 20 one-way trips on weekends.

The estimated cost per passenger-trip ranges from $10 to $13 for weekday only service and daily service.

Private Intercity Service

The second concept is to use an existing operator and subsidize passenger fares. Current fares for Salt Lake Express between Logan and Ogden range from $20 to $29. The current service does not stop at the Ogden Transit Center or connect to existing transit routes in Brigham City and would require contract negotiations to implement the service. This could be implemented with a subsidized fare and the subsidy could be set at any level. The fare is approximately twice the cost per passenger for operation by CVTD. Even with a subsidy equivalent to the cost of CVTD operation at $10, the one-way fare for passengers would still be $10 unless a discount is negotiated with the operator for a lower fare and subsidy. This is a higher cost option and unless a significant subsidy is provided, the fares are likely to be prohibitive for commuters with a much lower level of demand compared to the CVTD concept. In addition, the lack of ADA-accessible vehicles is another potentially limiting factor with this option.

This concept does have the advantage for a pilot project in that no equipment must be acquired. The cost to operate a new route between the CVTD transit center in Logan and the UTA transit center in Ogden 255 days a year is estimated to be about $230,000 and the cost to provide service 365 days a year is estimated to be about $320,000. These costs are slightly higher than operation by CVTD, but includes the vehicles needed to operate the service. Estimated demand would be the same as the concept for operation by CVTD, assuming the fare would be comparable.

5

ALTERNATIVES EVALUATION

EVALUATION CRITERIA

Once transit alternatives were developed, the next step was creating a set of criteria and metrics that would allow alternatives to be measured, evaluated, and compared against each other. The project team and the steering committee developed a set of criteria that captured the most important attributes of any new transit investment for all stakeholders, including the study area's counties and municipalities, UTA, and the public at large.

Discussions around criteria development emphasized that a complete evaluation of project alternatives must encompass both the direct benefits of potential transit services, such as convenience, ridership, travel time, and access to jobs, as well as indirect benefits, such as complementing existing services (e.g. Ogden FrontRunner station) and supporting local economic development initiatives. Another consideration that was raised was the question of whether alternatives could be scaled over time, starting with a smaller investment and expanding/enhancing service as transit-supportive land uses and associated ridership increase over time. Applying some of the criteria was inherently qualitative.

A full inventory of the criteria and metrics that were developed for evaluating all project alternatives is presented in the table below.

	Criteria	Metrics
1	Improved service to Ogden FrontRunner	Does the alternative enhance connections to FrontRunner?
2	Scalable	Can the alternative become enhanced or improved based on performance?
3	Improved Access to Jobs/Higher Education	Does the alternative improve access to jobs, including higher education?
4	Ridership/utilization	Does the alternative have good ridership? Is it well-used?
5	Convenient	Is the alternative well-connected to the community, like population and employment centers?
6	Equity	Howe well does the alternative serve Vulnerable Communities?
7	Supports Economic Development	Does the alternative support continued or new economic development?
8	Travel Time	How does this alternative compare from the perspective of travel time? How competitive to driving?

Table 6: Mobility alternative criteria and metrics

ALTERNATIVES EVALUATION

The five alternatives identified in Chapter 4 were evaluated against each of the eight evaluation criteria. Criteria 1, 4, and 8 were evaluated on proposed service operating characteristics and potential travel markets. Criteria 2 (Scalability) was rated based on likely startup costs of different service options and constraints to added service frequency. Criteria 3 (Improved Access to Jobs/Higher Education) was rated based on frequency and physical proximity of proposed service routes to major employment and educational centers, including Ogden and Weber State University (WSU). Criteria 5 (Convenience) and 7 (Supports Economic Development) were evaluated based on the proximity of proposed service stops to existing employment and housing, and potentially developable land, respectively. Criteria 6 (Equity) was based on the population of vulnerable communities (defined as low income, minority, and zero-car households) proximate to proposed service stops. Results of this evaluation criteria as applied to each alternative are shown in Table 7 below.

Criteria	2019 Existing	2050 RTP	2050 FrontRunner to Brigham City	2050 Ogden to Brigham City	2050 FrontRunner to Brigham City with Box Elder/Ogden Increased Land Use
Improved Service to Ogden Frontrunner	None	Medium	Good	Medium	Good
Scalable	Good	Good	Poor	Medium	Poor
Improved Access to Jobs/Higher Education	Poor	Medium	Medium	Medium	Medium
Ridership/Utilization	Poor	Medium	Medium	Medium	Medium
Convenient	Poor	Poor	Medium	Poor	Good
Equity	Poor	Poor	Medium	Medium	Medium
Supports Economic Development	Poor	Poor	Good	Poor	Good
Travel Time	Poor	Good	Good	Medium	Good

Table 7: Evaluation Criteria Results by Scenario

RECOMMENDED ALTERNATIVES

Based on the results of the evaluation process, the 2050 RTP projects that enhance connections between Brigham City and Ogden are recommended as appropriate courses of action. FrontRunner alternatives evaluated show that projected ridership is inadequate to justify the high level of investment required to provide an extension to Brigham City by 2050, even under aggressive assumptions with respect to future transit-oriented development patterns in Brigham City and Ogden. The BRT via I-15 option similarly fails to generate adequate ridership to justify investment in enhanced stops/stations and frequent service, while underperforming the FrontRunner options with respect to economic development potential, travel time, connections to FrontRunner stations south of Ogden, and convenience.

As a result of this analysis, it is recommended that the 2050 RTP's planned service maintaining existing bus service and implementing an express bus service between Brigham City and Ogden by 2050 remains an appropriate course of action.

In lieu of major investments in transit service/capacity, this study recommends implementing several additional projects or programs that are not major capital investments but will enhance mobility choices in the study area.

- Continued Corridor Preservation: continue the preservation efforts that are currently being conducted by UTA
- Community Enhancements along Corridor: consider "activating" the preserved corridor for community use until such time as a transit investment is warranted

- Cache Connection Pilot: implement a pilot project with service between Logan, Brigham City, and Ogden.
- Increased service on 630: increase headways
- Enhanced bus stops along 630: there are numerous stops for this route. Several should be upgraded based on UTA stop enhancement criteria
- Increased marketing of Vanpool Program: while there are several active vanpools currently in place, it is clear from the public engagement effort that more awareness of this opportunity exists.
- Land Use Study: conduct a more detailed land use study that focuses on transit supportive land uses.

Tremonton

Scheduled service to Tremonton is not warranted at this point. However, due to the nature of several large employers with shift schedules, it is recommended to increase marketing and awareness of UTA's Vanpool program due to the high number of shift workers. The schedule and nature of shift work creates a short window of peak ridership demand throughout the weekday, making busses an inefficient option. Vanpools have experienced great success in similar areas in similar situations - for example, in Clearfield and other municipaliities with a large number of employees at Hill Air Force Base.

PROJECT IMPLEMENTATION

This chapter discusses the recommended projects and ways to implement them.

CORRIDOR IMPROVEMENTS – INTERIM USE

A backdrop to this study is that rail corridor preservation is occurring between Ogden and Brigham City based on the transit ballot initiative passed in 2007 to implement Commuter Rail. However, this analysis has determined that Commuter Rail is not recommended. However, corridor preservation is recommended to continue, in part to fulfill the obligation of voters and allow for potential transit solutions in the future as technologies evolve and Box Elder County continues to grow. UTA will continue purchasing and preserving right-of-way. With that preservation comes opportunities to utilize that right-of-way for interim uses before it changes to longer-term uses.

While there are many potential interim uses for the right-of-way, one use that has already been evaluated and has support from the local community is creating a multi-use trail adjacent to the tracks. Called out in the "Southeastern Box Elder County 2017 Active Transportation Concept Plan" a multi-use trail has been proposed along the FrontRunner extension right-of-way from Willard to Brigham City. Figure 21 is an excerpt from that plan and displays the multi-use trail recommendation.

FRONTRUNNER TRAIL

Figure 3-7. The FrontRunner Trail provides connection to future development and FrontRunner stops.

CORRIDOR TYPES
- Proposed Shared-Use
- Other Proposed and Existing Corridors

EXISTING FACILITIES & FEATURES
- Municipal Parks
- Federal & State Public Lands
- Municipal Boundaries
- Water
- Roads
- Potential FrontRunner Stops

The FrontRunner Trail follows the Union Pacific railway from Willard to Reese Pioneer Park in Brigham City. The corridor connects western portions of Willard, Perry and Brigham City with few road crossings.

RECOMMENDED CORRIDOR TYPE: Paved shared-use path

RECOMMENDED CORRIDOR USES: Pedestrian, bicycle

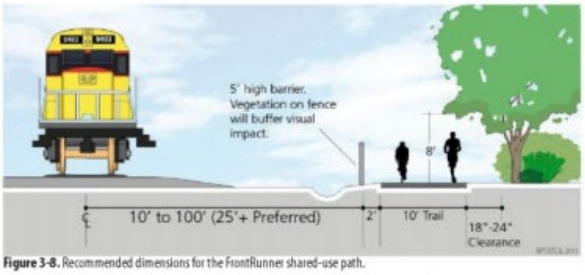


Figure 3-8. Recommended dimensions for the FrontRunner shared-use path.

LEVEL OF DIFFICULTY: Easy

CORRIDOR CONNECTIONS: FrontRunner stops, future development

APPROXIMATE CORRIDOR LENGTH:
- Willard: 4.0 miles
- Perry: 3.0 miles
- Brigham City: 2.0 miles
- TOTAL: 9.0 miles

RESPONSIBLE ENTITIES:
- Box Elder County
- Brigham City
- Perry City
- Utah Transit Authority (UTA)
- Union Pacific
- Willard City

PROPOSED TIMELINE: 2017-2040

Figure 3-9. The FrontRunner Trail would follow the current route of the Union Pacific railway between South Willard and Brigham City.

Figure 21: The "FrontRunner Trail" Plan from the Southeastern Box Elder County 2017 Active Transportation Concept Plan

Upon further evaluation, this study recommends extending the proposed multi-use trail to Pleasant View, creating a 15-mile route from Brigham City to Pleasant View. At this point the available right-of-way could be anywhere between 70' – 100' depending on the location. With this amount of space there are opportunities for additional amenities beyond a multi-use trail. As is called out in Figure 22 the right-of-way could encompass a trail in addition to parks and community gardens, depending on the location. The areas closer into community centers could have more programmed space, including parks and gardens, while the more remote areas could be dedicated to only a trail.

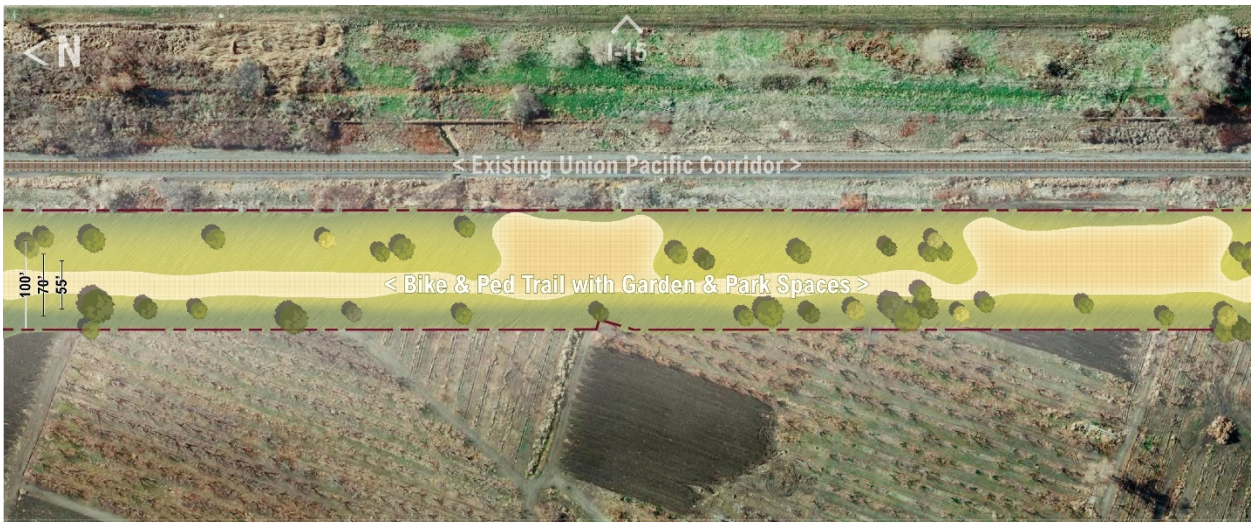


Figure 22: Oblique view of a multi-use trail rendering. Source: Fehr & Peers

As seen in Figure 23, a photo of a multi-use trail in Madison, WI, the large amount of available space opens the opportunity for creative uses.

Figure 23: Photo of Madison, WI, multi-use trail and adjacent community garden. Source: Fehr & Peers

Utilizing the right-of-way for a multi-use trail would be an asset to the communities both for recreation, active transportation and community health.

IMPLEMENTATION TIMING AND PHASING

Specific implementation steps have been identified for the recommendations on Route 630 and the Cache Valley Pilot Project. Proposed generalized phasing for implementation is shown in Figure 24. Implementation of the higher frequency service is recommended for late 2021 and implementation of the Cache Valley Pilot Project may be in early 2021. The implementation schedule is subject to change based primarily on availability of funding and vehicles.

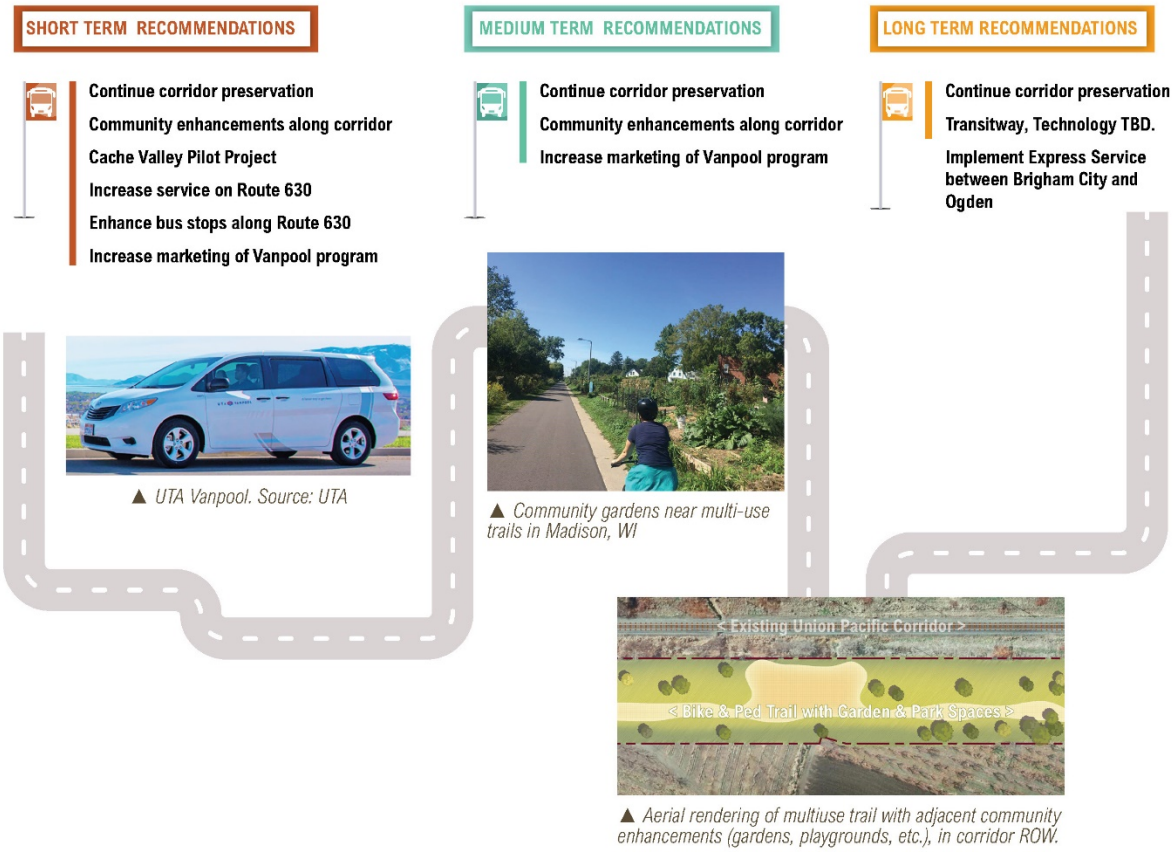


Figure 24: Generalized Timeline of Recommendations

Route 630

- Plan for and prioritize bus stop improvements – After stop improvement plans have been finalized, the stop improvements should be finalized so that the improvements may be incorporated in the overall program for UTA stop improvements. Prioritization should be based on existing passenger boarding counts and projected future boardings with the increased level of service.
- Program improvements in UTA bus stop improvement program – The stop improvements should be programmed in the overall stop improvement schedule for UTA. The stop improvements should be funded as part of the capital improvement program.

    - Complete bus stop improvements – The bus stop improvements will be completed based on the schedule for the system-wide stop improvements.
    - Finalize schedule – Finalize the operating schedule for increased service based on estimated passenger demand by time of day.
- Determine vehicle availability – Additional vehicles will be required to operate the increased service frequency. The number of vehicles required will be determined based on the final schedule. UTA must then determine if vehicles are available within the existing fleet. If vehicles are available, implementation plans may proceed. If additional vehicles must be acquired, the service implementation must be scheduled based on the timing to acquire the additional vehicles. An alternative would be to lease buses for the initial implementation.
- Refine capital and operating costs – The final schedule will be used to refine the operating costs. Capital costs will be determined based on the need for additional vehicles.
- Determine funding sources – Funding for the additional service must be obtained. This may include developing partnerships for funding of the enhanced service or use of other program funds as discussed in the section on potential funding sources.
- Marketing/publicity – The service changes must be publicized. UTA should prepare a marketing campaign to inform existing riders on Route 630 as well as a broader marketing campaign to reach potential riders who may be attracted by the increased frequency of service. A campaign of increasing publicity should begin approximately three months before service begins.
- Begin increased frequency service – This will require final development of schedules for drivers and integration of the additional trips on Route 630 into the UTA schedules for vehicles and drivers.

US-89 Bus Stop Enhancements

An outcome of this study was an evaluation of the existing transit service, specifically at the stop level to ensure that there are appropriate amenities at the stops for the 630 and F638. To determine which stops qualify for amenities, the project team evaluated the 2019 UTA Bus Stop Master Plan. According to that plan, there are average daily boarding thresholds stratified by frequency that need to be met in order to warrant levels of improvements. Table 8, from the Bus Stop Master Plan, was used to determine which stops on either the 630 or the F638 could be improved.

The project team used boarding data from August 2018 to determine average daily boardings at each stop. Then the team compared the amenities that currently exist at each stop and the average daily boardings to the criteria for stop improvements laid out in UTA's Bus Stop Master Plan to assess whether there are stops that warrant additional amenities. For example, stops that have more than 10 average daily boardings, but only had a pole and a sign, were flagged as needing improvement according to UTA's standards. Figure 25 is a map of the 17 stops that were identified as needing improvements, and Table 2 tabulates those same results.

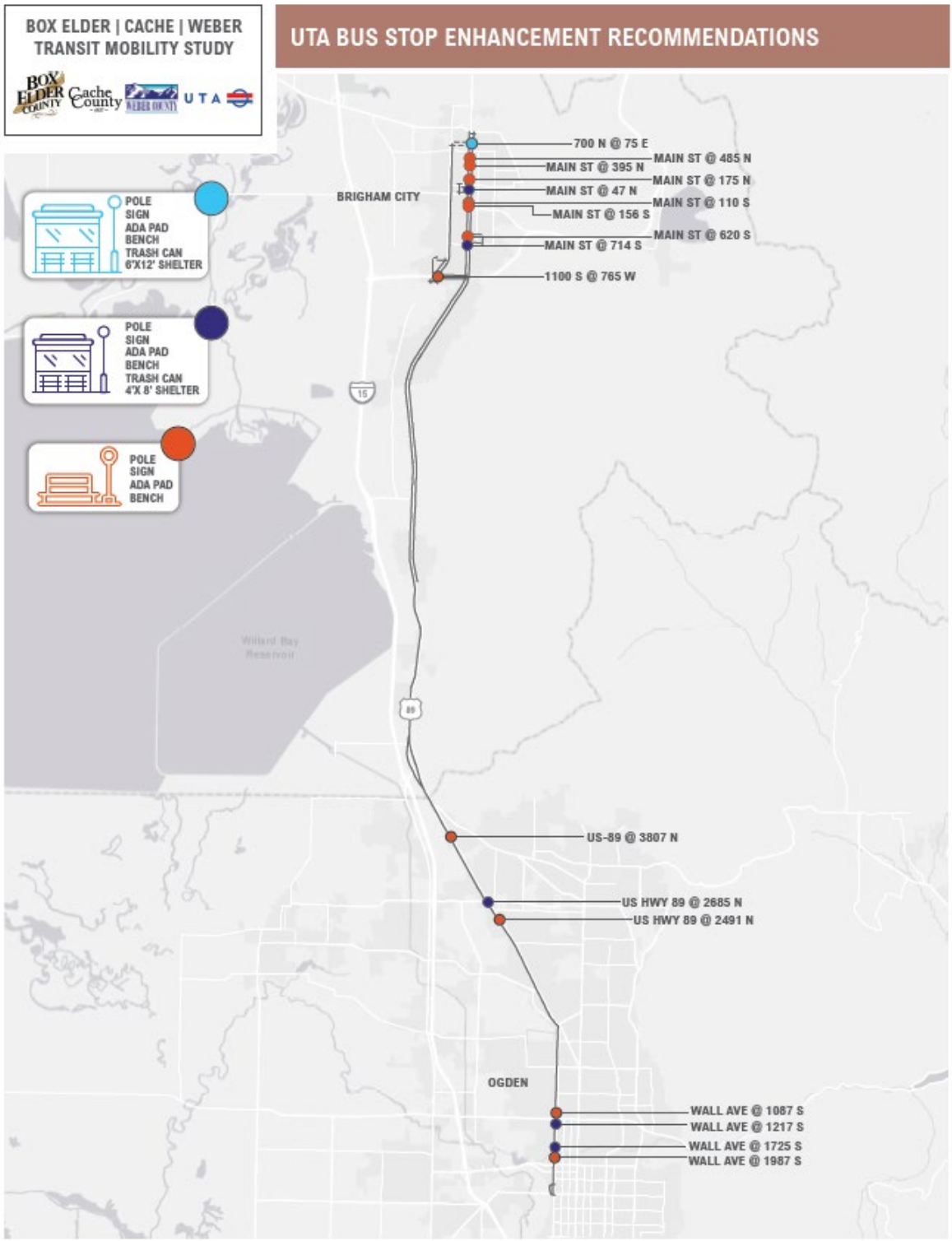


Figure 25: UTA Bus Stop Enhancement Recommendations

Stop	Stop Location	Existing Amenities	Recommended Amenities to Add	Stop Side	Average Weekday Boardings
603011	700 N @ 75 E (Brigham City)	Sign & pole	ADA Pad, Bench, Trash Can, 6'X12' Shelter	East & West	27.9
603013	Main St @ 485 N (Brigham City)	Sign & pole	ADA Pad, Bench	East & West	7.8
603014	Main St @ 395 N (Brigham City)	Sign & pole	ADA Pad, Bench	East & West	8.5
603016	Main St @ 175 N (Brigham City)	Sign & pole	ADA Pad, Bench	East	6
701024	Main St @ 47 N (Brigham City)	Sign & pole	ADA Pad, Bench, Trash Can, 4'X8' Shelter	West	11.2
605013	Main St @ 110 S (Brigham City)	Sign & pole	ADA Pad, Bench	East & West	6.9
605076	Main St @ 156 S (Brigham City)	Sign & pole	ADA Pad, Bench	East & West	9.7
605077	Main St @ 620 S (Brigham City)	Sign & pole	ADA Pad, Bench	East	8
605019	Main St @ 714 S (Brigham City)	Sign & pole	ADA Pad, Bench, Trash Can, 4'X8' Shelter	East	10.3
605006	1100 S @ 765 W (Brigham City)	Sign & pole	ADA Pad, Bench	South	5.9
636082	Us-89 @ 3807 N (Pleasant View)	Sign & pole	ADA Pad, Bench	East & West	5
601045	Us Hwy 89 @ 2685 N (Ogden)	Sign & pole	ADA Pad, Bench, Trash Can, 4'X8' Shelter	East & West	10.3
610046	Us Hwy 89 @ 2491 N (Ogden)	Sign & pole	ADA Pad, Bench	East & West	6.2
601153	Wall Ave @ 1087 S (Ogden)	Sign & pole	ADA Pad, Bench	East & West	5.8
636108	Wall Ave @ 1217 S (Ogden)	Sign & pole	ADA Pad, Bench, Trash Can, 4'X8' Shelter	East & West	12.6
623202	Wall Ave @ 1725 S (Ogden)	Sign & pole	ADA Pad, Bench, Trash Can, 4'X8' Shelter	East	13.6
601206	Wall Ave @ 1987 S (Ogden)	Sign & pole	ADA Pad, Bench	East	6.7

Table 8: UTA Bus Stop Master Plan Bus Stop Levels by total stop activity.

Cache Valley Pilot Project

The Cache Valley Pilot Project has two approaches for implementation. The first would be for either UTA or CVTD to operate the route. As discussed in the service description, this approach is likely to require acquisition of additional vehicles. For the pilot project, use of a contract operator could allow the pilot service to begin with use of a contractor supplied vehicle. This is a key decision point for implementation.

- Finalize service plan – The number of trips and the schedule should be finalized. UTA should work closely with CVTD to schedule the service to maximize the opportunities for connections and transfers at the Logan transit center and the Ogden transit center.
- Determine operator – A decision must be made whether to contract for the service as a pilot program or for one of the transit systems to operate the initial service.
- Determine funding sources – Funding partnerships should be established for starting the pilot program. Partners should understand that this will be a pilot program only and if a

decision is made to continue the service in the future, new funding partnerships will be developed. The funding commitments should be limited initially to the pilot program.

- Contract if provider operator to be used – If the decision is made to use a contract operator, a Request for Proposals with the scope of work for the service should be developed and the standard procurement processes followed to select a contractor.
- Marketing/publicity – A broad marketing campaign will be needed to make potential users aware of the service. This marketing and promotion must take place in the Cache Valley and Box Elder County. Publicity through the CVTD community outreach should be used. A publicity campaign through Utah State University should be used to inform students, faculty, and staff. Recommendations would include mass email, posters in prominent locations (including on CVTD and USU buses), social media, and traditional media outlets. Outside advertising on the bus should be considered for promoting the new service as it begins.
- Begin Cache Valley Service – If a contract operator is used, a start date will be established as part of the contract.

COST ESTIMATION AND FUNDING SOURCES

Federal Grants and Funding Sources

The following grant and funding programs are available for transit planning and implementation projects, as well as related surface transportation investments, and should be considered in obtaining funding to implement the recommendations contained in this plan.

FEDERAL PROGRAMS

Access and Mobility Partnership Grants

This program provides competitive funding to support innovative capital projects for the transportation disadvantaged that will improve the coordination of transportation services and non-emergency medical transportation services.

Better Utilizing Investments to Leverage Development (BUILD) Transportation Grants Program (formerly TIGER)

This program funds investments in transportation and transit infrastructure.

Capital Investment Grants (CIG) - 5309

Provides funding through a multi-year competitive process for transit capital investments, including heavy rail, commuter rail, light rail, streetcars, and bus rapid transit. Federal transit law requires transit agencies seeking CIG funding to complete a series of steps over several years to be eligible for funding.

Enhanced Mobility of Seniors & Individuals with Disabilities - Section 5310

Formula funding to states for the purpose of assisting private nonprofit groups in meeting transportation needs of the elderly and persons with disabilities. Funds can potentially be used for transit services that transport people either into, our out of, the urbanized area. These funds may be a potential funding source for a connector pilot between Cache and Box Elder Counties. It could also be used for funding other transportation services which get rural residents to the urban area for work, services, healthcare, etc.

Flexible Funding Programs - Congestion Mitigation and Air Quality Program - 23 USC 149

CMAQ provides funding to areas in nonattainment or maintenance for ozone, carbon monoxide, and/or particulate matter. States that have no nonattainment or maintenance areas still receive a minimum apportionment of CMAQ funding for either air quality projects or other elements of flexible spending. Funds may be used for any transit capital expenditures otherwise eligible for FTA funding as long as they have an air quality benefit.

Flexible Funding Programs - Surface Transportation Block Grant Program - 23 USC 133

Provides funding that may be used by states and localities for a wide range of projects to preserve and improve the conditions and performance of surface transportation, including highway, transit, intercity bus, bicycle and pedestrian projects.

Formula Grants for Rural Areas - 5311

Provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations less than 50,000, where many residents often rely on public transit to reach their destinations.

Grants for Buses and Bus Facilities Formula Program - 5339(a)

Provides funding to states and transit agencies through a statutory formula to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities. In addition to the formula allocation, this program includes two discretionary components: The Bus and Bus Facilities Discretionary Program and the Low or No Emissions Bus Discretionary Program.

Integrated Mobility Innovation

FTA's Integrated Mobility Innovation (IMI) Program funds projects that demonstrate innovative and effective practices, partnerships and technologies to enhance public transportation effectiveness, increase efficiency, expand quality, promote safety and improve the traveler experience.

Low or No Emission Vehicle Program - 5339(c)

Provides funding through a competitive process to states and transit agencies to purchase or lease low or no emission transit buses and related equipment, or to lease, construct, or rehabilitate facilities to support low or no emission transit buses. The program provides funding to support the wider deployment of advanced propulsion technologies within the nation’s transit fleet.

Metropolitan & Statewide Planning and Nonmetropolitan Transportation Planning - 5303, 5304, 5305

Provides funding and procedural requirements for multimodal transportation planning in metropolitan areas and states. Planning needs to be cooperative, continuous, and comprehensive, resulting in long-range plans and short-range programs reflecting transportation investment priorities.

Mobility for All Pilot Program Grants

This funding opportunity seeks to improve mobility options through employing innovative coordination of transportation strategies and building partnerships to enhance mobility and access to vital community services for older adults, individuals with disabilities, and people of low income.

Mobility on Demand (MOD) Sandbox Demonstration Program - 5312

Funds projects that promote innovative business models to deliver high quality, seamless and equitable mobility options for all travelers.

Pilot Program for Expedited Project Delivery - 3005(b)

The Pilot Program for Expedited Project Delivery allows FTA to select up to eight capital transit projects for expedited grant awards.

Pilot Program for Transit-Oriented Development Planning – Section 20005(b)

Provides funding to local communities to integrate land use and transportation planning with a transit capital investment that will seek funding through the Capital Investment Grant (CIG) Program.

Public Transportation Innovation - 5312

Provides funding to develop innovative products and services assisting transit agencies in better meeting the needs of their customers.

Rural Transportation Assistance Program - 5311(b)(3)

Provides funding to states for developing training, technical assistance, research, and related support services in rural areas. The program also includes a national program that provides information and materials for use by local operators and state administering agencies and supports research and technical assistance projects of national interest.

Safety Research and Demonstration Program

The Safety Research and Demonstration (SRD) Program is part of a larger safety research effort at the U.S. Department of Transportation that provides technical and financial support for transit agencies to pursue innovative approaches to eliminate or mitigate safety hazards. The SRD program focuses on demonstration of technologies and safer designs.

State of Good Repair Grants - 5337

Provides capital assistance for maintenance, replacement, and rehabilitation projects of existing high-intensity fixed guideway and high-intensity motorbus systems to maintain a state of good repair. Additionally, SGR grants are eligible for developing and implementing Transit Asset Management plans.

Technical Assistance & Standards Development - 5314(a)

Provides funding for technical assistance programs and activities that improve the management and delivery of public transportation and development of the transit industry workforce.

Transportation Infrastructure Finance and Innovation Act (TIFIA)

The Transportation Infrastructure Finance and Innovation Act (TIFIA) program provides credit assistance for qualified projects of regional and national significance. Many large-scale, surface transportation projects - highway, transit, railroad, intermodal freight, and port access - are eligible for assistance. Eligible applicants include state and local governments, transit agencies, railroad companies, special authorities, special districts, and private entities. The TIFIA credit program is designed to fill market gaps and leverage substantial private co-investment by providing supplemental and subordinate capital.

Urbanized Area Formula Grants - 5307

Provides funding to public transit systems in Urbanized Areas (UZA) for public transportation capital, planning, job access and reverse commute projects, as well as operating expenses in certain circumstances.

Other Resource Options

UTA has developed a Shared Vehicle Program with retired transit vehicles. The use of these vehicles for coordinated or sharing purposes between agencies offers an economical solution in the face of scarce resources.

State Options

The Utah Department of Transportation (UDOT) has a new Technical Planning Assistance (TPA) program that would be a good resource for some of the specific recommendations. Box Elder County applied for and won a grant to update their general plan, for example. The Wasatch Front Regional Council (WFRC) has their Transportation Land Use Connections program (TLC) which is similar to the TPA program. Those funds would be excellent for a detailed land use effort along the corridor for example.

SB150 - 2020

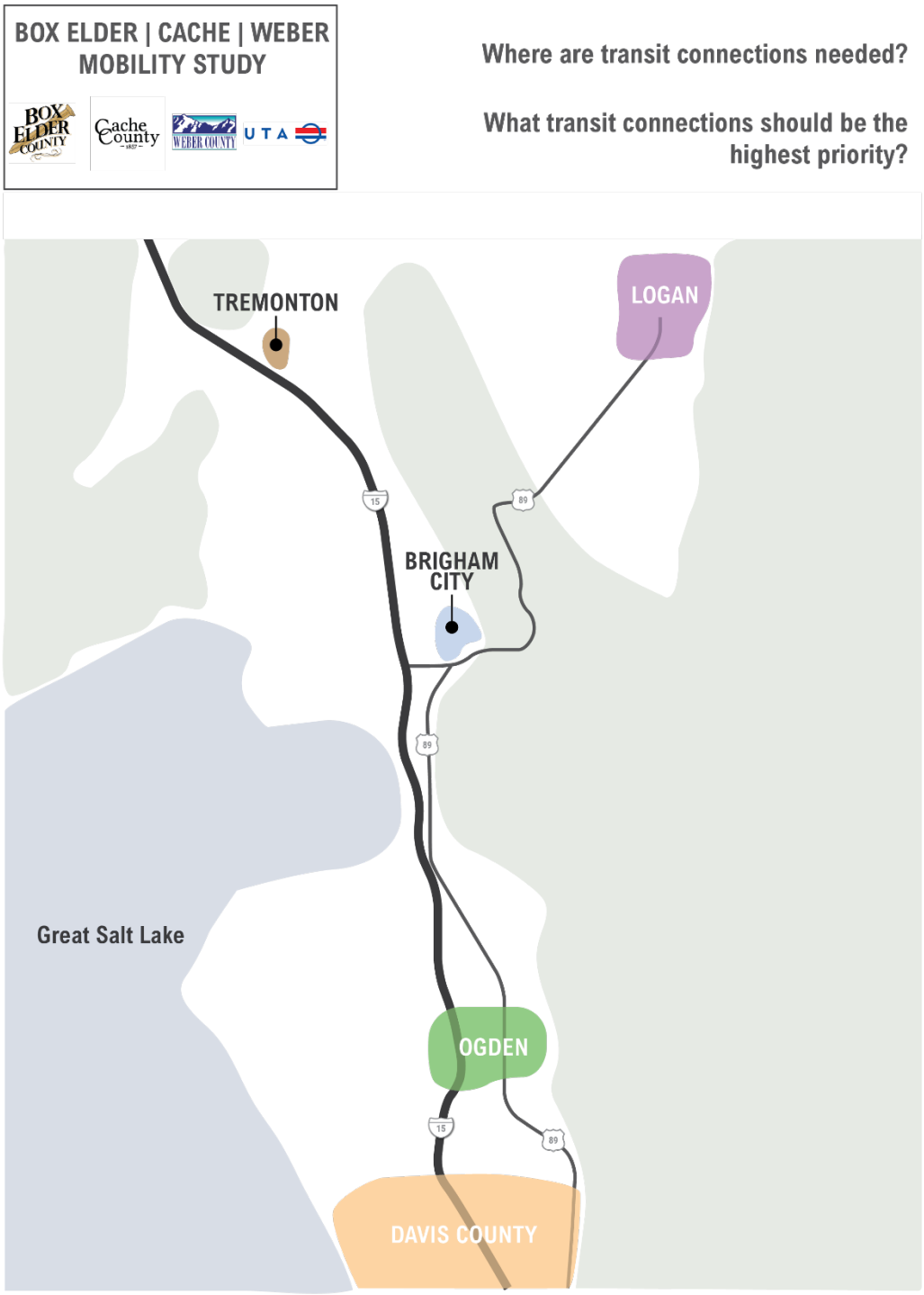
By far the most significant implementation opportunity that has occurred as a result of this study is the passage of SB 150 in the 2020 Utah Legislative session. There are specific provisions in this bill that deliver needed flexibility to the 2007 referendum that was prescriptive for commuter rail only. The language is here:

> *863 (4) (a) A county of the third class that has a portion of the county annexed into a large 864 public transit district and that has imposed a sales and use tax under this section as of January 865 1, 2020, may change the list of purposes for which the sales and use tax revenue may be 866 expended if:*
> *867 (i) the proposed uses of the sales and use tax revenue are allowed uses described in this 868 section; and*
> *869 (ii) in coordination with a relevant large public transit district, the county legislative 870 body passes an ordinance describing the allowed uses of the sales and use tax revenue.*
> *871 (b) Notwithstanding Section 59-12-2208, and regardless of whether the imposition of 872 the sales and use tax imposed under this section was submitted to the voters as described in 873 Section 59-12-2208, the county legislative body is not required to submit an opinion question 874 to the county's registered voters to change the allowed uses as described in Subsection (4)(a).*

This section of SB150 applies directly to Box Elder County. The positive consequences of this new flexibility as a result of this bill cannot be overstated. It will allow the potential implementation of nearly all the recommendations, over time. It should be noted that this study recommends that corridor preservation continue as it has in the past, but other projects can now be considered more easily than before.

APPENDIX

INFORMATIONAL BOARDS AND ACTIVITIES FROM POP-UP EVENTS



BOX ELDER | CACHE | WEBER MOBILITY STUDY

WHERE ARE PEOPLE CURRENTLY GOING TO / COMING FROM IN NORTHERN UTAH?

An important part of making transportation recommendations for the future is knowing where the existing trips are coming from and going to. As part of this study we are looking at anonymized cell phone and GPS data to understand where most trips are happening in Northern Utah.

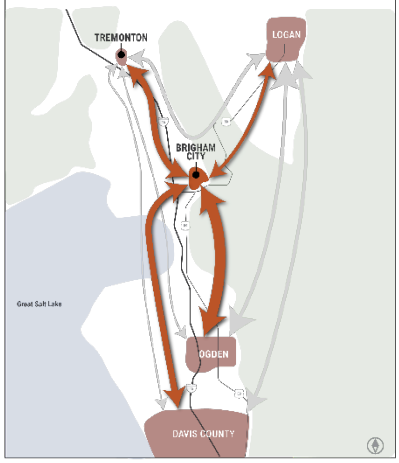
The images below show rough number of trips to and from Brigham City, Ogden, and Logan. The locations with the fattest arrows are where the largest amount of people are going from or to.

**Information about the data we are using:*
Travel volumes shown reflect average daily trip activity as measured from cellphone and GPS data sources. These volumes provide a basis for comparing trip activity between major destinations, but may be subject to under or over sampling compared to a precise traffic count.

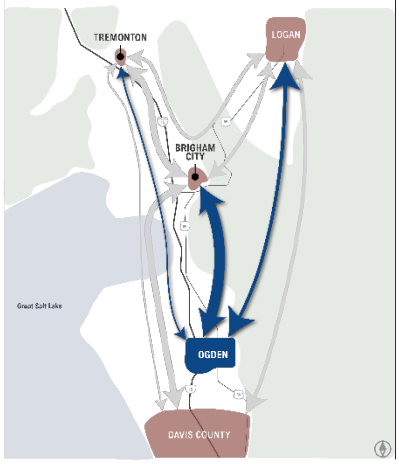
LEGEND

- 25,000 to 30,000 trips*
- 15,000 to 25,000 trips*
- 5,000 to 15,000 trips*
- 5,000 trips or less*

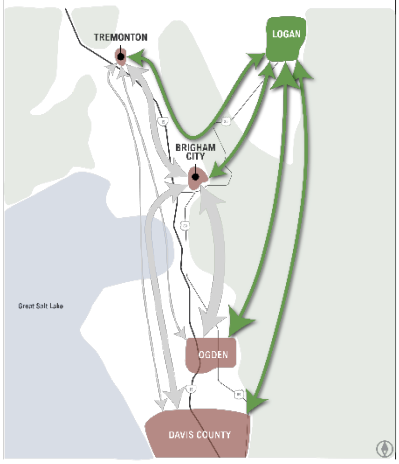
Trips to & from BRIGHAM CITY



Trips to & from OGDEN



Trips to & from LOGAN



BOX ELDER | CACHE | WEBER MOBILITY STUDY

HOW CAN TRANSIT SUPPORT FUTURE GROWTH IN NORTHERN UTAH?

Northern Utah is growing and evolving! Knowing where the growth is happening helps inform transit investments.

How is traffic congestion changing?

PM Peak Period 2019

PM Peak Period 2050

No congestion
Moderate congestion
Substantial congestion

+5 minutes to travel from Brigham City to Ogden

Traffic on I-15 is expected to grow by about 50% over the next 30 years, resulting in 20% longer travel times on I-15.

Source: WFRC Regional Travel Model

Daily Traffic	2019	2050	Change	% Change
I-15 south of Brigham City	53,000	81,000	28,000	**53%**
I-15 near 12th Street (Ogden)	81,000	125,000	44,000	**54%**

Population Projections % Growth from 2019 - 2050

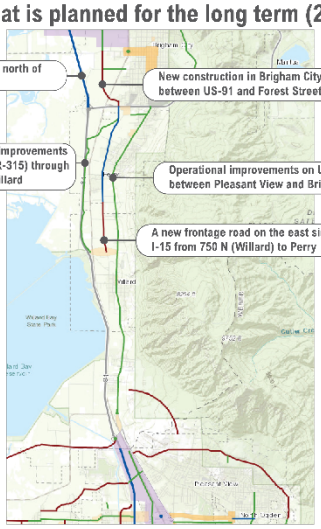
Logan	Brigham City	Ogden
49% Increase	41% Increase	34% Increase

Employment Projections % Growth from 2019 - 2050

Logan	Brigham City	Ogden
47% Increase	51% Increase	31% Increase

Source: Kem C. Gardner Institute

What is planned for the long term (2050)?



Legend

Phase 1 (2019 -30): Phase 2 (2031 - 40): Phase 3 (2041 -50):

Source: WFRC Regional Transportation Plan 2019 - 2050

BOX ELDER | CACHE | WEBER
MOBILITY STUDY

DO YOU EVER WISH THAT TRANSIT IN NORTHERN UTAH WAS BETTER?

Tell us your ideas for transit improvements that you'd like to see in the Brigham City, Ogden, and Logan area!

Take a sticky note, write your idea on it, and stick it to this board. There are no wrong answers, we want to hear it all.

Put your sticky notes here!

FEHR PEERS

BOX ELDER | CACHE | WEBER MOBILITY STUDY

SHOW US WHERE YOU WANT BETTER TRANSIT CONNECTIONS

INSTRUCTIONS: Use the string and tape to connect your starting location to where you MOST would like transit to go. OR put dots on the cities where you want better city-wide transit amenities.