Heber Valley Corridor
ENVIRONMENTAL IMPACT STATEMENT

Draft Purpose and Need Technical Report

Heber Valley Corridor Environmental Impact Statement

Lead agency:
Utah Department of Transportation

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1.0 Introduction

The Utah Department of Transportation (UDOT) is planning to prepare an Environmental Impact Statement (EIS) to evaluate transportation solutions to improve mobility through the Heber Valley and the operation of U.S. 40. The EIS will be prepared according to the provisions of the National Environmental Policy Act (NEPA) and other laws, regulations, and guidelines of the Federal Highway Administration (FHWA). This document conforms to the requirements of UDOT, the project sponsor and lead agency.

Who is the lead agency for the Heber Valley Corridor EIS?

The Utah Department of Transportation is the project sponsor and lead agency.

FHWA has assigned its responsibilities under NEPA and other federal environmental laws to UDOT for highway projects in Utah, pursuant to 23 United States Code (USC) Section 327, in a Memorandum of Understanding (MOU) dated January 17, 2017. In accordance with the assignment MOU, UDOT is carrying out the environmental review process for the Heber Valley Corridor Project in lieu of FHWA and serves as the lead agency in the NEPA process. The assignment MOU does not change the roles and responsibilities of any other federal agency whose review or approval is required for the project.

1.1 Early Scoping Draft Purpose and Need

The Council on Environmental Quality (CEQ) oversees federal agencies' implementation of NEPA. In 2020, CEQ announced a final rule comprehensively updating and modernizing regulations to streamline the development of infrastructure projects. The new regulations establish a 2-year time limit for preparing EISs and require agencies to provide more information and solicit input from the public earlier in the process to ensure and facilitate informed decision-making. Early scoping allows agencies to develop a draft purpose and need statement before publishing the Notice of Intent in the Federal Register to prepare an EIS. Agencies are directed to publish the Notice of Intent as soon as practicable after determining that the proposed action is sufficiently developed to allow for meaningful public comment.

During early scoping, UDOT conducted a traffic and safety technical analysis and coordinated with agencies, stakeholders, and the public to identify transportation needs, preliminary alternatives, and potentially significant environmental issues. The draft purpose and need statement in this report is based on information gathered during early scoping as well previous studies conducted by UDOT, Heber City, and Wasatch County. UDOT anticipates publishing a Notice of Intent in early 2021. At this time, this draft purpose and need statement will be published for public and agency review and comment. UDOT will review and consider comments before finalizing the purpose of and need for the project.

1.2 Background of the Heber Valley Corridor Project

1.2.1 Corridor Planning

As communities grow, traffic and congestion increase in the center of town. Many Cities consider rerouting through traffic from the center of town to the periphery to improve mobility, safety, and quality of life in the downtown area. Heber City and Wasatch County have been considering a bypass road around Heber City for more than 20 years. A bypass has been identified in several previous planning documents including:

- *Heber City Highway Bypass Study* prepared for UDOT, Mountainland Association of Governments (MAG), Heber City, and Wasatch County (PEC 2008)
- *Wasatch County General Plan 2001–2016* (Wasatch County 2010)
- *Heber City General Plan,* Chapter 3, *Transportation Plan* (Heber City 2017)
- *Heber Valley Parkway Planning Study* prepared UDOT, MAG, Heber City, and Wasatch County (Avenue Consultants 2019)
- *Heber City Envision 2050 General Plan* (Heber City 2020)

These previous studies have focused on a western bypass generally running north-south near 1200 West/Southfield Road between U.S. 189 and State Route (S.R.) 113, connecting back to U.S. 40 near 850 North. The studies have shown various alignments through the North Fields (the undeveloped land north of Heber City and west of U.S. 40) where there are numerous wetlands. The 2019 study also showed a variation on the southern end with the bypass connecting to U.S. 189 farther to the west, skirting the west edge of the sewer farm at Edwards Lane.

Although UDOT is aware of these previous planning studies and corridor preservation efforts, this EIS does not assume that a bypass will be the selected alternative. Previous studies will inform the EIS regarding key issues and recommendations, but they will not direct any specific alternatives or outcomes. UDOT will develop transportation alternatives to address the project need, and these alternatives might include a variety of solutions including, but not limited to, improvements to U.S. 40 such as adding lanes and intersection improvements, improving existing roads other than U.S. 40, and constructing new roads.

1.2.2 Local Planning

Heber City created *Envision Heber 2050*, an initiative to address its community's need for a collaborative vision, and updated their general plan in 2019. This plan, *Heber City Envision 2050 General Plan*, contemplates the long-term goals and imagines the desired future for the city with respect to economic and commercial development, housing, culture, education, and transportation.

One of the plan's principles is related to Main Street:

> Downtown, Heber [City]'s historic center, will develop into an even stronger center and remain the heart of the community. Main Street, together with surrounding blocks, is a local and regional destination.
>
> 1. Heber [City] preserves, enhances, and improves access to its valued places and buildings on Main Street.
> 2. Heber [City] improves pedestrian and bike accessibility, parking, and traffic conditions along Main Street.

1.3 Description of the Needs Assessment Evaluation Area

The needs assessment evaluation area for the Heber Valley Corridor EIS is focused on U.S. 40 from its intersection with S.R. 32 to its junction with U.S. 189 in Heber City. It also includes U.S. 40 to the southeast and U.S. 189 to the southwest (Figure 1). UDOT developed the needs assessment evaluation area to include an area that would influence the transportation operations and to provide logical termini for the project.

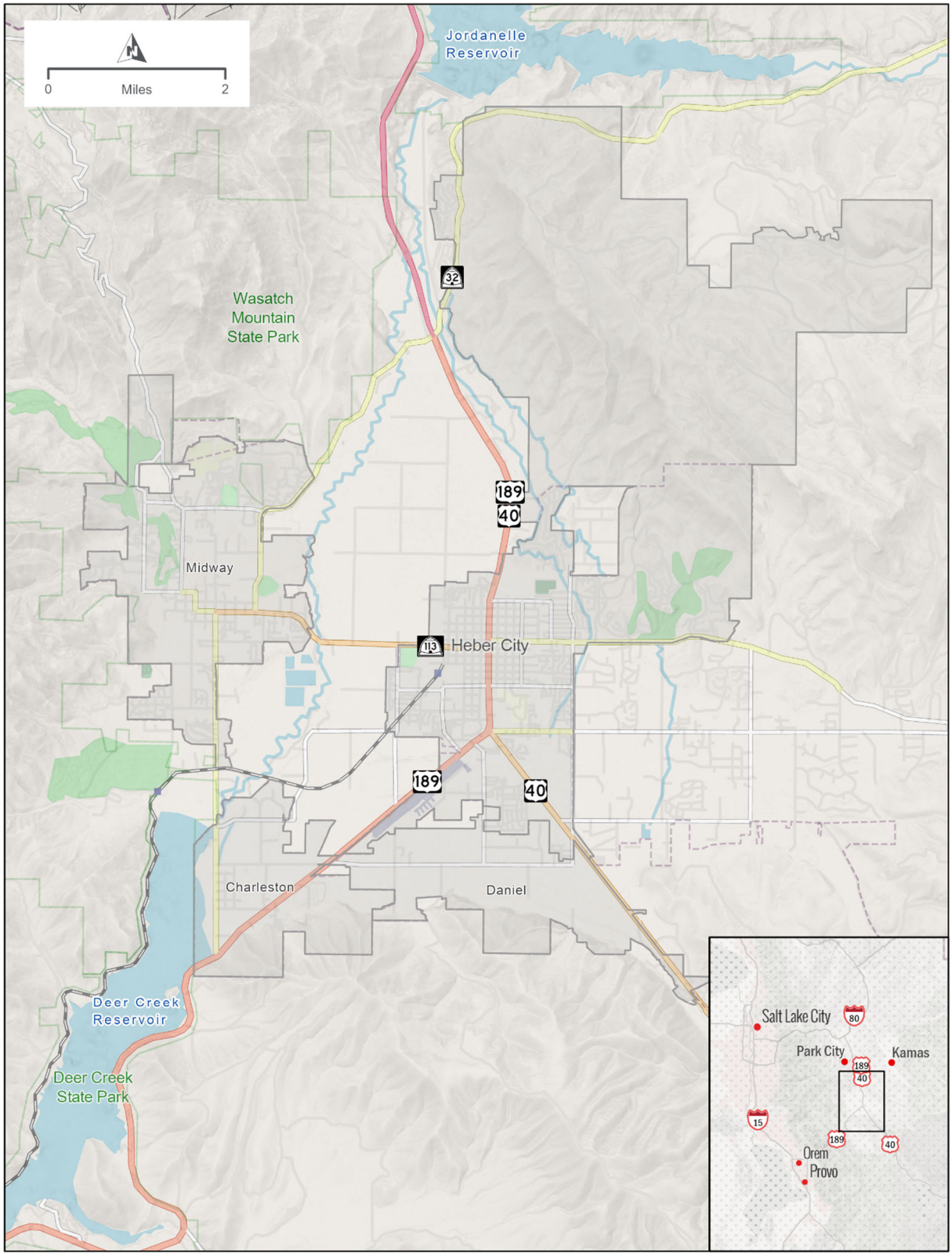
What are logical termini?

Logical termini are the rational end points for evaluation of transportation improvements. Generally they are the points of major traffic generation such as intersecting roads.

The intersection with S.R. 32 was selected as the northern logical terminus because it is a minor arterial and state route providing a connection to communities east of Heber City as well as Midway to the west. In addition, access to U.S. 40 changes at S.R. 32. North of S.R. 32, U.S. 40 is a freeway facility that vehicles can enter and exit only at interchanges. Between S.R. 32 and 750 North in Heber City, U.S. 40 is a limited-access facility that vehicles can enter and exit only at specific intersections. The junction with U.S. 89 was selected as the southern logical terminus because it is a principal arterial and U.S. highway providing a connection to the Wasatch Front via Provo Canyon. Access also changes at the junction of U.S. 40 and U.S. 189. South of the junction, more distance is required on U.S. 189 and on U.S. 40 between streets and driveways compared to north of the junction.

Logical termini are generally points of major traffic generation such as intersecting roads. Any vehicles passing through the logical termini are accounted for in the traffic analysis. It is possible that alternative solutions could require physical improvements extending beyond the logical termini. Different alternatives could begin and end at different points.

Figure 1. Needs Assessment Evaluation Area



2.0 Summary of Purpose and Need

2.1 Purpose of the Project

UDOT has identified a primary purpose as well as secondary objectives.

2.1.1 Primary Purpose

The purpose of the Heber Valley Corridor Project is to improve regional and local mobility on U.S. 40 from S.R. 32 to U.S. 189 through 2050 while allowing Heber City to meet their vision for the historic town center.

Criteria for the primary purpose will be used to screen or eliminate alternatives that that are not reasonable or practicable. If an alternative cannot meet the primary purpose, it will be eliminated from further consideration.

2.1.2 Secondary Objectives

The project will also evaluate the following secondary objectives:

- Provide opportunities for more active transportation.
- Develop alternative designs that blend with the natural and built environment.

The secondary objectives will not be used to screen or eliminate alternatives. Rather, they will be incorporated into all alternatives as the alternatives are developed and will be used to compare alternatives. Through the NEPA process and compliance with all applicable environmental requirements covered under this process, UDOT will analyze impacts that would be caused by the proposed alternatives and look at opportunities to avoid, minimize, rectify, or reduce the expected impacts to the human and natural environment from the transportation improvements through standard operating procedures and mitigation measures.

2.2 Need for the Project

The evaluation of transportation needs in the Heber Valley is focused on U.S. 40 because it is the only principal arterial in the valley. U.S. 40 presents the greatest challenges for mobility today and in the future. The transportation needs in the needs assessment evaluation area are related primarily to traffic during peak periods, which is expected to get worse with increasing population. The following deficiencies have been identified in the evaluation area:

- The character and function of U.S. 40 changes from a 65-miles-per-hour (mph) limited-access freeway north of town to a 35-mph Main Street in Heber City with signalized intersections. Throughput on U.S. 40 is traded for increased access within Heber's historic core, resulting in congestion and delay.
- U.S. 40 is currently operating at failing conditions (level of service F) from 100 North to 100 South during the PM peak hour, and these conditions will continue to get worse by 2050.
- All signalized intersections on U.S. 40 are currently operating at acceptable conditions, but they are expected to operate at failing conditions during the PM peak hour by 2050 if no improvements are made.
- Southbound travel time on U.S. 40 from S.R. 32 to U.S. 189 during the PM peak hour will double by 2050 if no improvements are made.
- Queue lengths (vehicles backed up waiting to get through an intersection) during the PM peak hour will increase and spill back to other intersections and onto U.S. 40 north of town where the posted speed is 55 mph, resulting in safety concerns.

What is the PM peak hour?

The PM peak hour is the 1-hour period afternoon (PM) during which there is the greatest number of vehicles on the road system.

In addition, the *Heber City Envision 2050 General Plan* identifies the following deficiencies:

- Increased traffic on Main Street has disrupted the traditional feel with increased noise and pedestrian safety concerns.

Section 3.0, Regional Transportation Planning, and Section 4.0, Need for the Project, present data that document the need for improvements in the evaluation area. UDOT determined the need for the project by reviewing previous planning studies and general plans, through public and agency input, and by quantifying the change in anticipated travel demand between existing (2019) and forecasted (2050) conditions.

What is travel demand?

Travel demand is the expected number of transportation trips in an area. Travel demand can be met by various modes of travel, such as automobile, bus, light rail, carpooling, walking, and cycling.

3.0 Regional Transportation Planning

In general, UDOT is responsible for transportation planning in rural areas that are not served by a metropolitan planning organization. The Mountainland Association of Governments (MAG) has entered into an MOU with UDOT to maintain the Wasatch Rural Planning Organization (RPO). The RPO serves as an intermediary between state and local governments and is responsible for the regional transportation plan in the Heber Valley area, the *Wasatch County Regional Transportation Plan 2019–2050* (MAG 2019).

What is a fiscally constrained LRP?

Fiscally constrained means that an LRP demonstrates that the listed projects can be implemented using committed, available, or reasonably available revenue sources, with reasonable assurance that the federally supported transportation system is being adequately operated and maintained.

This plan is incorporated into UDOT's *Statewide Rural Long-range Transportation Plan 2019–2050* (LRP; UDOT 2019). The LRP is a fiscally constrained 30-year plan of anticipated projects that would be needed to meet future travel demand. Transportation needs are based on projected and planned socioeconomic factors and land use within a region. UDOT updates the LRP every 4 years to ensure that it remains consistent with the planning in urban areas.

The 2019 to 2050 LRP identifies three timeframes, or phases, for construction:

- Phase 1: 2019 to 2030
- Phase 2: 2031 to 2040
- Phase 3: 2041 to 2050

The LRP provides a comprehensive overview of planned projects on state routes. State routes are major roads that are under UDOT's jurisdiction. Locally planned projects are also shown on the LRP in order to provide a better understanding of all planned improvements in an area. Fiscally constrained projects in the LRP are on state routes and can be constructed with anticipated funding available to UDOT through 2050. These projects are phased based on when they are needed. Local projects are not included in UDOT's list of fiscally constrained projects because they would likely be constructed using local or other funds.

Table 1 and Figure 2 show the planned highway projects in the LRP that influence the Heber Valley Corridor EIS. Projects that would not influence the travel demand model, such as drainage improvements, are not included. There are no planned transit projects in the needs assessment evaluation area. Recognizing the need for improvements, the *Wasatch County Regional Transportation Plan* states a need for a west bypass (identification numbers L2019059 and L2019037).

Table 1. Planned Transportation Improvements in the Needs Assessment Study Area

Figure 2 Label #	Facility	RTP Identification Number	Limits	Existing Number of Lanes	Future Number of Lanes	Improvement	Funding Phase[a]
1	West bypass	L2019059[b]	U.S. 189 to 700 N. Main Street	NA	4	New road construction	2
2	1300 South (part of bypass)	L2019037[b]	Industrial Parkway to South Field Road	NA	5	New road construction	2
27	U.S. 40	U2015072	MP 18.4 to MP 19.8 (Gateway Drive to Center Creek Road)	2	5	Add travel lane	1
3	U.S. 40/S.R. 32	S2015121	U.S. 40 at MP 13.24 (S.R. 32)	NA	NA	New interchange	3
4	U.S. 189	NA[c]	MP 22 to MP 28.87	2	4	Add travel lane	STIP 2023
18	S.R. 113	U2019092	MP 4.2 to MP 6.2 (300 East, Midway to South Field Road)	2	5	Add travel lane	2
5	S.R. 113	U2015130	S.R. 113 and Tate Lane	2	2	Add turn lane	3
20	S.R. 113	TBD	MP 6.2 to MP 7.1	2	3	Add turn lane	1
6	East bypass	L2019069[b]	U.S. 40 to Mill Road	NA	3+	New road construction	1
7	East bypass	L2019040[b]	1050 East to Lake Creek (Center Street)	NA	2–3	New road construction	1
8	400 East	L2019049[b]	Valley Hills Drive to Coyote Lane	NA	3	New road construction	1
9	North Village Connector	L2019035[b]	Coyote Lane to S.R. 32	NA	3	New road construction	2
10	Center Street	L2019038[b]	1490 East to 3600 East	2	5	Add travel lane	3
11	Sleeping Indian Road	L2019051[b]	1200 South to 2400 East	NA	3	New road construction	1
12	500 East	L2019065[b]	700 South to 600 South	NA	2	New road construction	1
13	500 East	L2019064[b]	U.S. 40 to 1200 South	NA	2	New road construction	1
14	Daniel Connector (South Bypass)	L2019055[b]	Daniel Road to U.S. 40	NA	5	New road construction	1
16	Cari/Burgi Lane	L2019041[b]	S.R. 222 to River Road	2	3	Add turn lane	1

(*continued on next page*)

Table 1. Planned Transportation Improvements in the Needs Assessment Study Area

Figure 2 Label #	Facility	RTP Identification Number	Limits	Existing Number of Lanes	Future Number of Lanes	Improvement	Funding Phase[a]
15	River Road	L2019033[b]	U.S. 40 to Midway's Main Street	2	3	Add turn lane	1
17	South Field Road	L2019056[b]	S.R. 113 to U.S. 189	2	3	Add turn lane	1
19	650 South	L2019054[b]	Industrial Parkway to South Field Road	2	3	Add turn lane	1
21	600 South	L2019048[b]	Mill Road to Industrial Parkway	2	3	Add turn lane	1
22	1200 South	L2019058[b]	Mill Road to Lake Creek	2	3	Add turn lane	1
23	Mill Road	L2019047[b]	1200 South to U.S. 40	2	3	Add turn lane	1
24	Duke Lane	L2019045[b]	2400 South (Center Cr. Road) to U.S. 40	2	3	Add turn lane	1
25	Center Creek	L2019057[b]	U.S. 40 to Sleeping Indian Road	2	3	Add turn lane	1
26	Lake Creek	L2019036[b]	3600 East to Lake Pines Drive	2	3	Add turn lane	2
28	1200 South	L2019043[b]	600 East to Mill Road	2	5	Add Turn Lane	1
29	Mitchie Lane	L2019052[b]	S.R. 113 to S.R. Fox Den Road	2	3	Add Turn Lane	3

Source: UDOT 2019

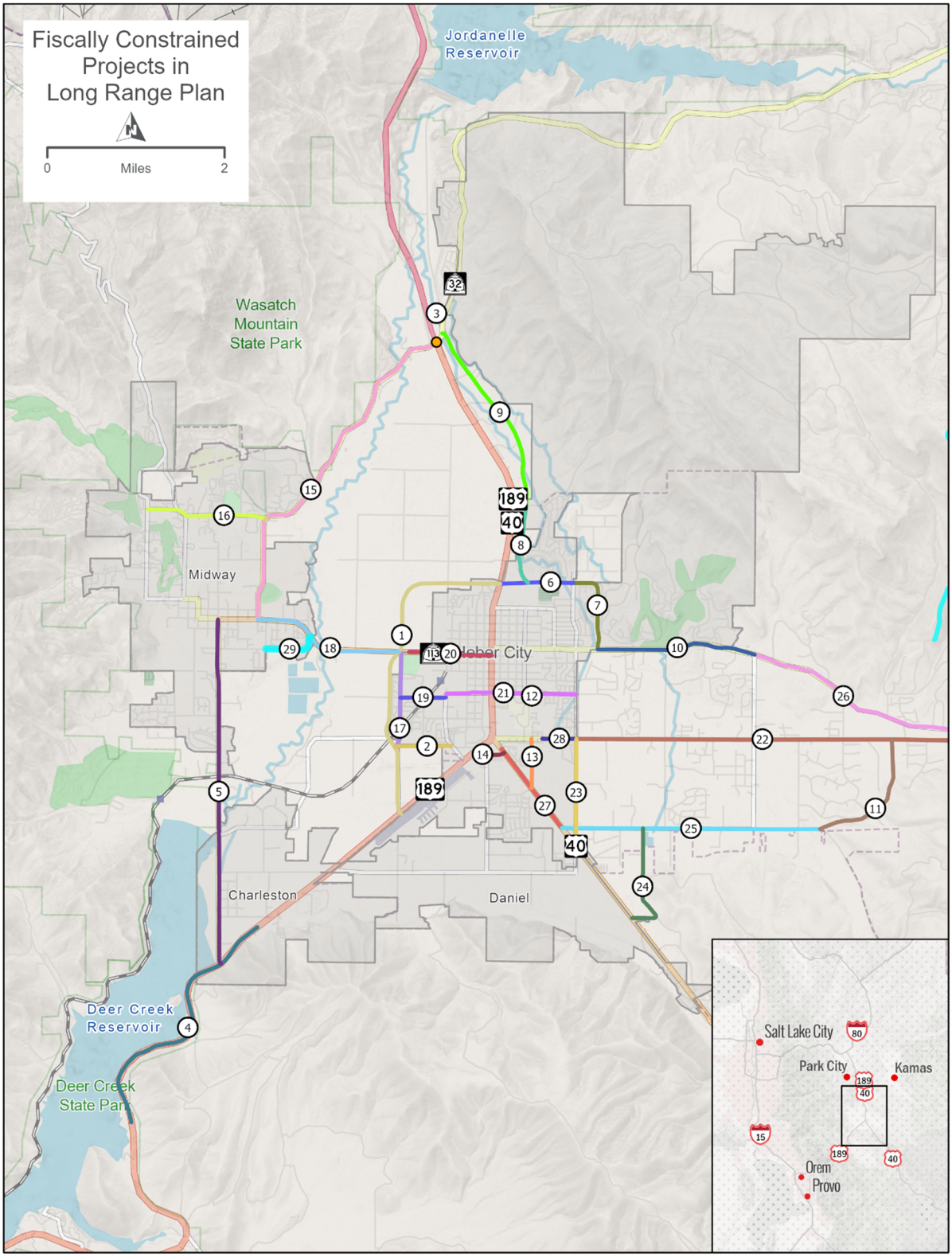
MP = milepost; NA = not applicable; LRP = *Statewide Rural Long-range Transportation Plan 2019–2050*; RTP = *Wasatch County Regional Transportation Plan 2019–2050;* S.R. = State Route; STIP = Statewide Transportation Improvement Program; TBD = to be determined

[a] Phase 1: 2019 to 2030; Phase 2: 2031 to 2040; Phase 3: 2041 to 2050. The funding phase is when money is allocated.

[b] Projects identified in the Wasatch Rural Planning Organization's *Regional Transportation Plan* (projects on local roads).

[c] Projects that are listed in the STIP are funded but might not show up in the LRP.

Figure 2. Planned Highway Projects in the Long-range Plan



4.0 Need for the Project

The LRP discussed in Section 3.0, Regional Transportation Planning, identifies a need for improvements (as indicated by a west bypass) in the needs assessment evaluation area. This section evaluates that need based on growth projections, travel demand data, and identified safety and operational issues in the evaluation area.

4.1 Planning for Future Conditions

UDOT considered the planning horizon of the LRP to establish a planning horizon for the Heber Valley Corridor EIS. The planning horizon is used to assess how well project alternatives would support future travel demand. A no-action condition (that is, the condition of transportation operations of the transportation system without the Heber Valley Corridor Project) is used to inform the needs assessment.

4.1.1 Planning Horizon

The planning horizon in UDOT's current LRP is 2019 to 2050. In developing the evaluation area, the purpose and need statement, and alternatives for the Heber Valley Corridor EIS, UDOT aligned the EIS's planning horizon to match the current LRP's planning horizon. This planning horizon also aligns with UDOT's timeline for preparing its 2019 to 2050 *Unified Transportation Plan* in partnership with the Utah Transit Authority and metropolitan planning agencies.

4.1.2 Projected Growth

The Kem C. Gardner Policy Institute produces long-term demographic and economic projections for the state of Utah and its counties. As shown in Table 2, Wasatch and Summit Counties are projected to have large increases in population, employment, and households by 2050. These projected increases are included in the 2019 to 2050 LRP and are expected to result in continued increased travel demand on the transportation network including U.S. 40.

Table 2. Projected Regional Population, Employment, and Household Growth in Wasatch and Summit Counties

	Population		Employment		Households	
County	2019	2050 Projection (Percent Change from 2019)	2019	2050 Projection (Percent Change from 2019)	2019	2050 Projection (Percent Change from 2019)
Wasatch	34,348	68,904 (101%)	15,919	25,439 (60%)	11,601	27,092 (134%)
Summit	42,135	63,097 (50%)	44,839	67,332 (50%)	16,692	27,253 (63%)

Source: Kem C. Gardner Policy Institute 2017

4.1.3 Travel Demand Model

A travel demand model predicts future travel demand based on projections of land use, socioeconomic patterns, and transportation system characteristics. The travel demand model used for the Heber Valley Corridor Project—the Summit Wasatch travel demand model—was developed through a multi-agency cooperative effort using resources from MAG, the Wasatch Front Regional Council (WFRC), UDOT, and Summit County.

What is a travel demand model?

A travel demand model predicts future travel demand based on projections of land use, socioeconomic patterns, and transportation system characteristics.

The model includes the socioeconomic forecast and LRP projects through 2050 and was used to generate forecasted traffic in 2050 under the no-action conditions for this project (that is, the conditions in the Heber Valley if the Heber Valley Corridor Project is not implemented). For this EIS, UDOT coordinated with MAG and WFRC regarding further refinements to the Summit Wasatch travel demand model to better reflect the current conditions in the Heber Valley.

4.1.4 2050 No-action Conditions

For the 2050 no-action conditions, UDOT used a socioeconomic forecast for 2050 (Kem C. Gardner Policy Institute 2017) and assumed that all funded roadway projects in the 2019 to 2050 LRP would be in place, except for the improvements that are being evaluated in this EIS. All projects listed in Table 1 and shown in Figure 2 are assumed to be built by 2050 with the exception of a west bypass. The west bypass is consistent with previous planning, as described in Section 1.2.1, Corridor Planning. It comprises two segments: (1) a west bypass connecting U.S. 40 North of Heber City to U.S. 189 (RTP identification number L2019059) and (2) extension of 1300 South to connect to first segment (RTP identification number L2019037).

What are the 2050 no-action conditions?

The no-action conditions are the conditions that would be present in the evaluation area in 2050 if the Heber Valley Corridor Project were not implemented.

4.2 Importance of Mobility through the Heber Valley

4.2.1 Regional North-south Mobility

Mobility refers to the ease with which people can move from place to place using a transportation system. Impediments to mobility can include traffic congestion, numerous accesses to properties, high accident rates, and other factors.

Typically, travelers will use a combination of arterial, collector, and local roads for their trips. Each type of road has a specific purpose or function. Arterials provide a high level of mobility for through traffic and limited access to adjacent properties, while local roads provide a high level of access to properties but a low level of mobility. Local roads are typically used for access to residential neighborhoods and have low speed limits. Collector roads provide a balance between mobility and property access. For a transportation system to operate efficiently, all three types of roads are needed. UDOT further classifies arterials and collectors as shown in Table 3.

Table 3. Highway Functional Classifications

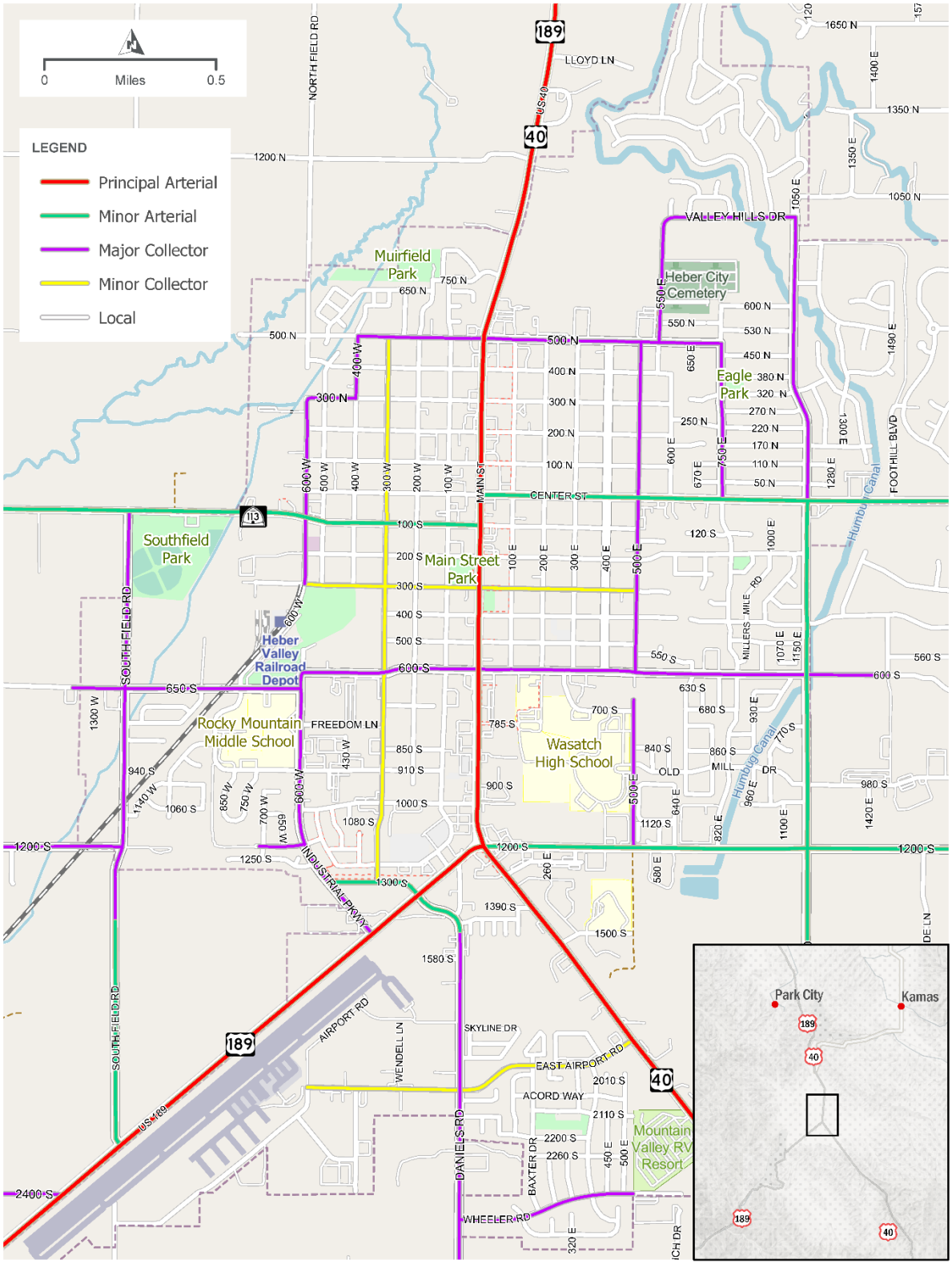
Functional Classification	Characteristics
Arterials	
Interstates	Highest classification designed and constructed with mobility and long-distance travel in mind.
Freeways and expressways	Similar to interstates, they are designed to maximize mobility. Directional travel lanes are typically separated by some type of physical barrier, and access is limited to on- and off-ramp locations.
Principal arterials	Serve major centers of metropolitan areas with a high degree of mobility. In rural areas, provide a high degree of mobility with trip length and travel density characteristics indicative of substantial statewide or interstate travel. Can provide access to at-grade intersections with other roads and driveways to specific parcels. Provide similar service in both urban and rural areas, the primary difference being that there are usually multiple arterial routes in an urban area.
Minor arterials	Provide service for trips of moderate length and offer connectivity to the higher arterial system. In rural settings, minor arterials are typically designed to provide relatively high overall travel speeds, with minimum interference to through movement.
Collectors	
Major collectors	Serve primarily intra-county travel (rather than statewide) and constitute those routes on which predominant travel distances are shorter than on arterial routes.
Minor collectors	Similar to major collectors but are usually shorter in length, have fewer travel lanes and driveways, and have lower posted speeds. Provide more access and less mobility compared to major collectors.
Local roads	
Local roads	Provide direct access to adjacent land and are not intended for use in long-distance travel, except at the origin or destination end of the trip. They are often designed to discourage through traffic.

Source: FHWA 2013

There are only two principal arterials in the Heber Valley: U.S. 40 and U.S. 189. To the southeast, U.S. 40 provides a connection to the Uinta Basin and continues as a major east-west highway to the East Coast. To the southwest, U.S. 189 provides a connection to Utah County and I-15 through Provo Canyon. U.S. 40 and U.S. 189 merge into a single north-south principal arterial at the south end of Heber City north to S.R. 32. North of S.R. 32, U.S. 40/U.S. 189 is classified as a freeway or expressway all the way to Interstate 80 (I-80).

U.S. 40 also serves as Main Street in Heber City. Through the downtown historic core, U.S. 40 has two travel lanes in each direction and a center turn lane. It is lined with small businesses, public facilities, and historic buildings. There are traffic signals at 500 North, Center Street, 100 South, 600 South, and the intersection with U.S. 189. In addition to the signalized intersections, two pedestrian-activated flashing beacons facilitate pedestrians crossing U.S. 40 at 100 North and 250 South. Figure 3 shows the road network and functional classification in Heber City.

Figure 3. Road Network and Functional Classification in Heber City



The character and function of U.S. 40 changes in Heber City. North of Heber City, from I-80 to S.R. 32, U.S. 40 is a freeway designed to maximize mobility with a posted speed limit of 65 mph. Access is limited to grade separated interchanges and a median separates northbound traffic from southbound traffic. Between S.R. 32 and 750 North, U.S. 40 has a posted speed limit of 55 mph with relatively few unsignalized at-grade intersections and limited access points. In Heber City's historic core, from 750 North to U.S. 189, U.S. 40 has a posted speed limit of 35 mph, several signalized intersections, and numerous driveways. South of Heber City, U.S. 40 transitions back to a 60-mph highway.

Throughput on U.S. 40 is traded for increased access in Heber City's historic core, resulting in congestion and delay. In addition to north-south through traffic, U.S. 40 is also a primary route for local trips. Heber City's roads are laid out in a grid system centered on Main Street. As Main Street becomes congested, drivers use parallel roads such as 600 West, 300 West, 100 West, and 100 East. UDOT classifies 600 West as a major collector and 300 West as a minor collector. 100 West and 100 East are not classified by UDOT and are considered local residential roads. With planned growth, congestion and delay on Main Street and the local road system will continue to get worse.

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4.2.2 Freight Routes

U.S. 40 and U.S. 189 converge into a single route for 18 miles from their junction at the south end of Heber City north to I-80. The *Utah Freight Plan* identifies U.S. 40 and U.S. 189 as secondary but important freight routes in Utah. Both U.S. 40 and U.S. 189 are included in the National Network of highways for large trucks. Aside from some light industry on the east side of Park City, on Heber City's southwest side, and in the Kamas area, little freight is generated in this area. Most freight traveling in the Heber Valley is passing through or providing deliveries to local supermarkets, home improvement centers, and local businesses.

What is the National Network?

The National Network, authorized by the Surface Transportation Assistance Act of 1982, is a network of approved state highways and interstates for commercial truck drivers in the United States.

U.S. 40 is a major regional freight corridor and the primary route for tanker trucks carrying crude oil from the Uinta Basin to refineries along the Wasatch Front. About 600 to 700 large combination vehicles known as supertankers pass through Heber City on Main Street each day (Parametrix 2020). Oil field support equipment and supplies also travel on this highway. U.S. 40 provides a connection to northwest Colorado, which contributes some regional truck traffic.

U.S. 189 is a secondary freight route that connects U.S. 40 with I-15 via Provo Canyon. U.S. 189 has restrictions and prohibits vehicles and loads over 10 feet wide. However, some trucks use the Provo Canyon route as an alternative to the steep grades on I-80 and U.S. 40 when going to and from Salt Lake City.

I-80 is a national freight corridor, and all segments of I-80 in Utah carry some of the highest volumes and percentages of freight trips in the state. In Utah, trucking is the mode that carries the highest percentage of freight trips by both value and weight. UDOT anticipates that the amount of freight moved by trucks will increase by 73% by value and 37% by weight by 2045 compared to 2015 (UDOT 2017).

4.2.3 Recreation and Tourism Access

A substantial amount of recreation traffic travels on U.S. 40 due to attractions such as the Heber Valley Historic Railroad and its proximity to multiple state parks (Jordanelle, Deer Creek, and Wasatch Mountain), Strawberry Reservoir, the Uinta-Wasatch-Cache National Forest, and year-round resorts (Park City and Deer Valley). About 65% of all travel and tourism jobs in Utah are part of the leisure and hospitality sector. In Wasatch County, about 21% of total private employment is in the leisure and hospitality sector, and this leisure and hospitality employment is growing at a rate of 27.1% (Kem C. Gardner Policy Institute 2019).

Although there are year-round recreation opportunities in the Heber Valley and surrounding area, recreation traffic is higher during the summer months. Traffic volumes are above the annual average for 5 months of the year (April through August) in downtown Heber City, which is likely related to the high amount of traffic in the area related to summer recreation. Vehicle classification data on Main Street show that longer recreation-based vehicles (RVs and campers, vehicles towing boats or off-highway vehicles, etc.) make up at least 2% of the traffic during the weekday peak hour. These longer vehicles affect traffic flow and operations (Parametrix 2020). Longer vehicles take up more space and require more time to accelerate and decelerate compared to shorter vehicles. In addition to the 2% recreation traffic identified based on vehicle classification, some private vehicles such as pickup trucks, vans, cars, and motorcycles are also considered recreation traffic.

4.2.4 Bicycle and Pedestrian Facilities

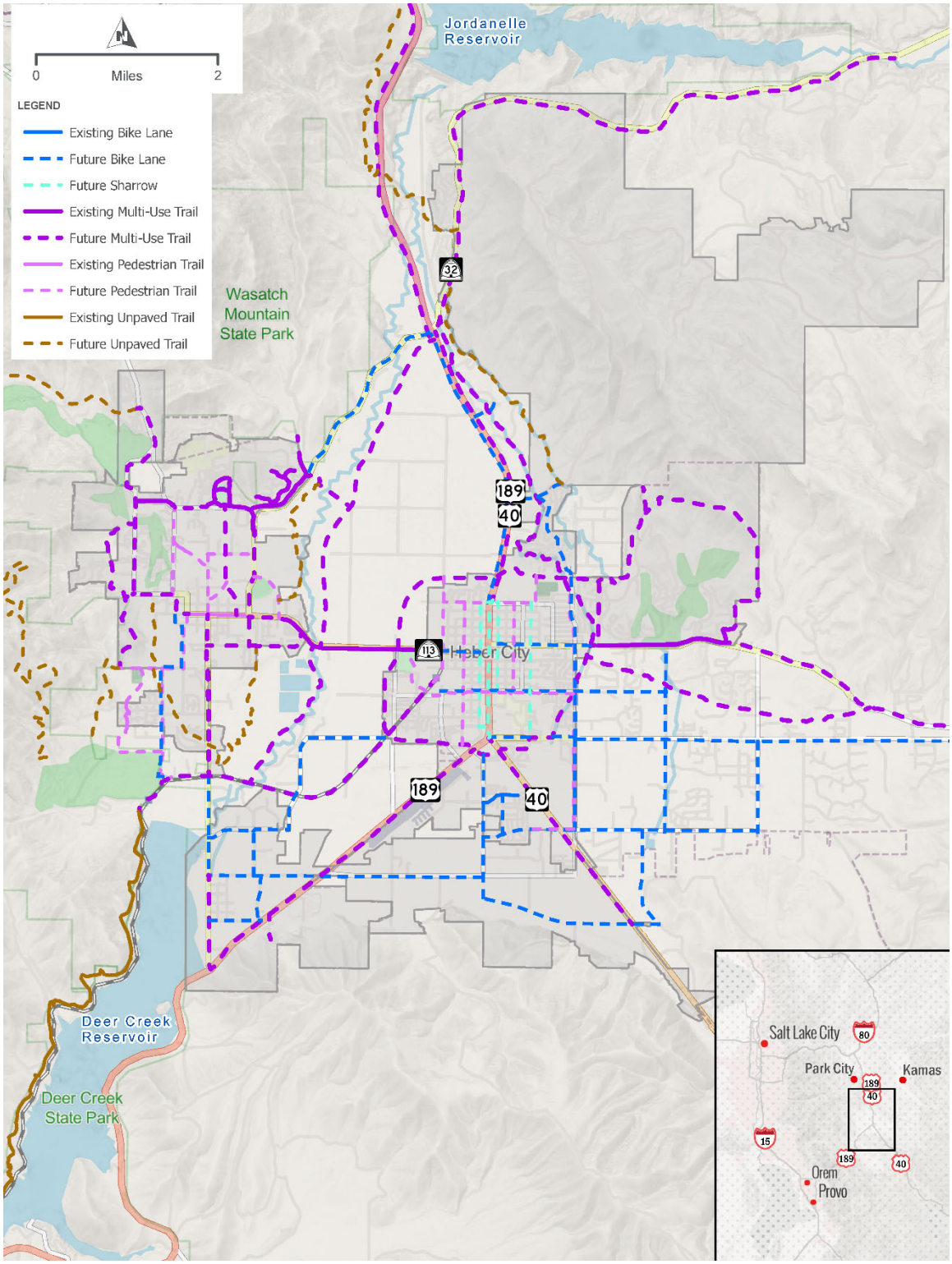
The mountains surrounding the Heber Valley provide many hiking and mountain biking opportunities. However, the existing active transportation (for example, bicycle and pedestrian) infrastructure in the valley is inconsistent and lacks connectivity. There are two existing paved multi-use trails running east-west outside Heber City's historic center. The Midway Lane multi-use trail is a combination of wide sidewalks and separated trails that runs along S.R. 113 between 600 West in Heber City and Midway. The Red Ledges multi-use trail runs along Center Street between the Red Ledges Trailhead and the Wasatch Canal (to almost 1200 East in Heber City). There are no existing north-south multi-use trails in the Heber Valley.

The *Wasatch County Trails Master Plan* shows many planned multi-use trails in the Heber Valley, including along U.S. 40 north of 500 North and south of 1200 South, along U.S. 189 from 1300 South to S.R. 113, along the Heber Valley Historic Railroad, and along a western bypass. The master plan also shows bicycle lanes on U.S. 40 north of 500 North and shared-lane pavement markings on Main Street between 500 North and 1200 South (Wasatch County 2016). See Figure 4.

Heber City's Main Street has contiguous sidewalks on both sides of the road from 750 North to 1000 South. Traffic signals at 500 North, Center Street, 100 South, and 600 South allow pedestrians to cross Main Street at a signalized location. Additionally, a pedestrian-activated overhead flashing beacon is located at 100 North, and a high-intensity activated crosswalk beacon is located at 250 South. Beyond the vicinity of Center Street, east-west mobility for pedestrians is limited, with pedestrians having to make multi-block detours to get to designated crossing areas.

Main Street has no designated bicycle infrastructure, and this lack of accommodations creates a low-comfort experience for all but the most confident riders due to the large traffic volumes and vehicles parallel parked on the shoulders. Crash data from 2016 to 2018 show three crashes involving bicyclists riding on the sidewalk, which might indicate that bicyclists are afraid to ride on Main Street (Parametrix 2020).

Figure 4. Existing and Planned Trails in the Heber Valley



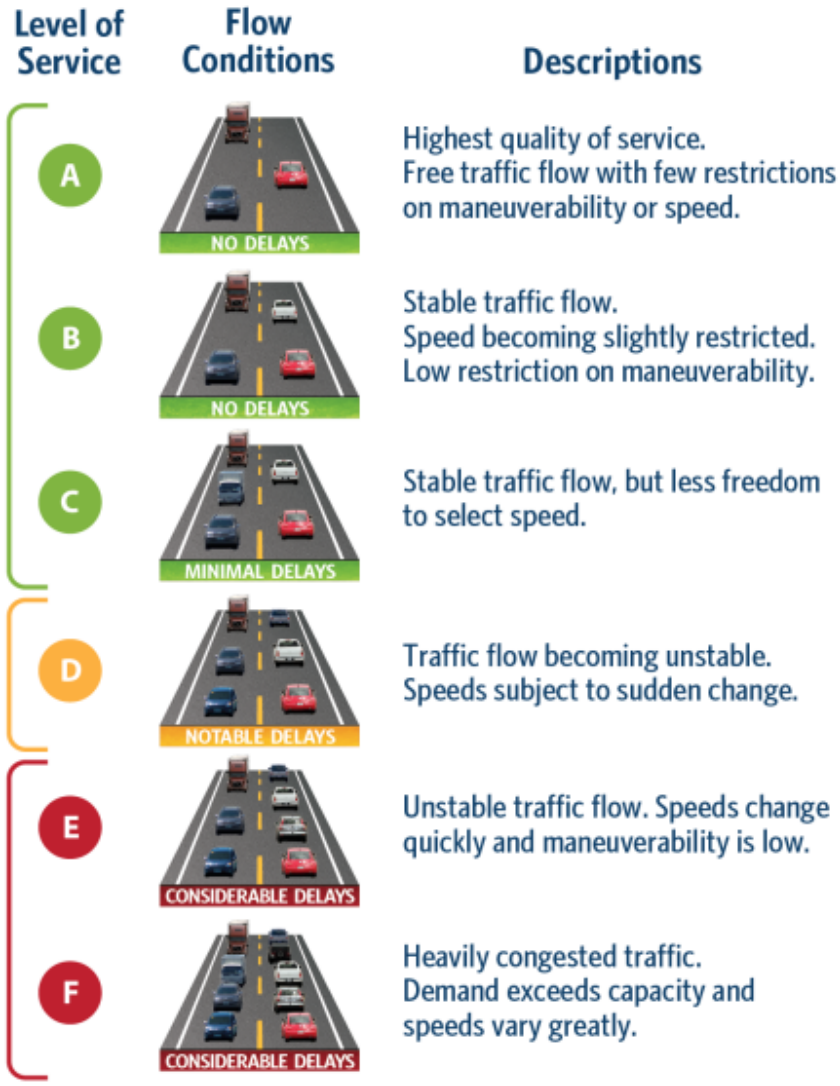
4.3 Current and Future Mobility Conditions

One of the goals of UDOTs 2020 strategic direction (UDOT 2020) is to optimize mobility throughout the state by adding roadway capacity and incorporating innovative design and traffic-management strategies.

4.3.1 Roadway Level of Service

Level of service (LOS) is measurement of the vehicle-carrying capacity and performance of a street, freeway, or intersection. When the capacity of a road is exceeded, the result is congestion, delay, and a poor level of service. Level of service is represented by a letter "grade" ranging from A for excellent conditions (free-flowing traffic and little delay) to F for failure conditions (extremely congested, stop-and-go traffic, and excessive delay). LOS B through LOS E describe progressively worse traffic conditions (Figure 5).

Figure 5. Levels of Service



UDOT has set a goal of maintaining urban roads at LOS D or better during peak travel periods. Typically, in urban areas, LOS E and F are considered unacceptable operating conditions, and LOS A through D are considered acceptable operating conditions.

A level of service analysis was conducted for U.S. 40 that evaluated the traffic conditions during the PM peak hour under current conditions and under the no-action conditions in 2050. For the current conditions, traffic data from 2019 were generally used.

What is the PM peak hour?

For the Heber Valley Corridor Project, the PM peak hour is from 5:00 to 6:00 PM.

Analyzing the weekday peak hour is standard practice for a traffic analysis. The PM peak hour is used in a traffic analysis because it is typically the most congested travel period. During the PM peak hour, people will make trips to run errands and attend activities in addition to making work trips. Table 4, Table 5, and Figure 6 show the level of service for signalized intersections and arterial (road) segments in the needs assessment evaluation area under current and 2050 no-action conditions.

The level of service at intersections is based on the average vehicle delay at each traffic signal. It is possible for an intersection as a whole to have an acceptable level of service even if the traffic movement in one direction is operating at unacceptable conditions (LOS E or F). As shown in Table 4 and Figure 6, all of the intersections in the needs assessment evaluation area currently operate at acceptable conditions during the weekday PM peak hour. However, all intersections on Main Street are projected to operate at unacceptable conditions if no improvements are made by 2050. At these intersections, drivers would likely wait through several cycles of the traffic signal.

Table 4. Level of Service at Intersections in the Needs Assessment Evaluation Area during the Weekday PM Peak Hour (Current and 2050 No-action)

Intersection	Current		2050 No-action	
	Average Vehicle Delay (seconds/vehicle)	LOS	Average Vehicle Delay (seconds/vehicle)	LOS
Main Street (U.S. 40) / 500 North	17	B	>100	F
Main Street (U.S. 40) / Center Street	24	C	59	E
Main Street (U.S. 40) / 100 South	30	C	>100	F
Main Street (U.S. 40) / 600 South	18	B	>100	F
Main Street (U.S. 40) / U.S. 189	29	C	59	E
1300 South / U.S. 189	10	A	22	C

Source: Parametrix 2020

The level of service on arterial streets is based on the average speed a vehicle can travel in each road segment. As shown in Table 5 and Figure 6, the southbound segments of U.S. 40 from 500 North to 100 South and the northbound segment of U.S. 40 from 100 South to Center Street currently operate at unacceptable conditions during the weekday PM peak hour. Conditions are projected to deteriorate if no improvements are made by 2050. The southbound segments from S.R. 32 to 100 South and the northbound segment from 100 South to Center Street are projected to operate at unacceptable conditions. Southbound conditions are worse during the PM peak hour because of commuter traffic returning to Heber City.

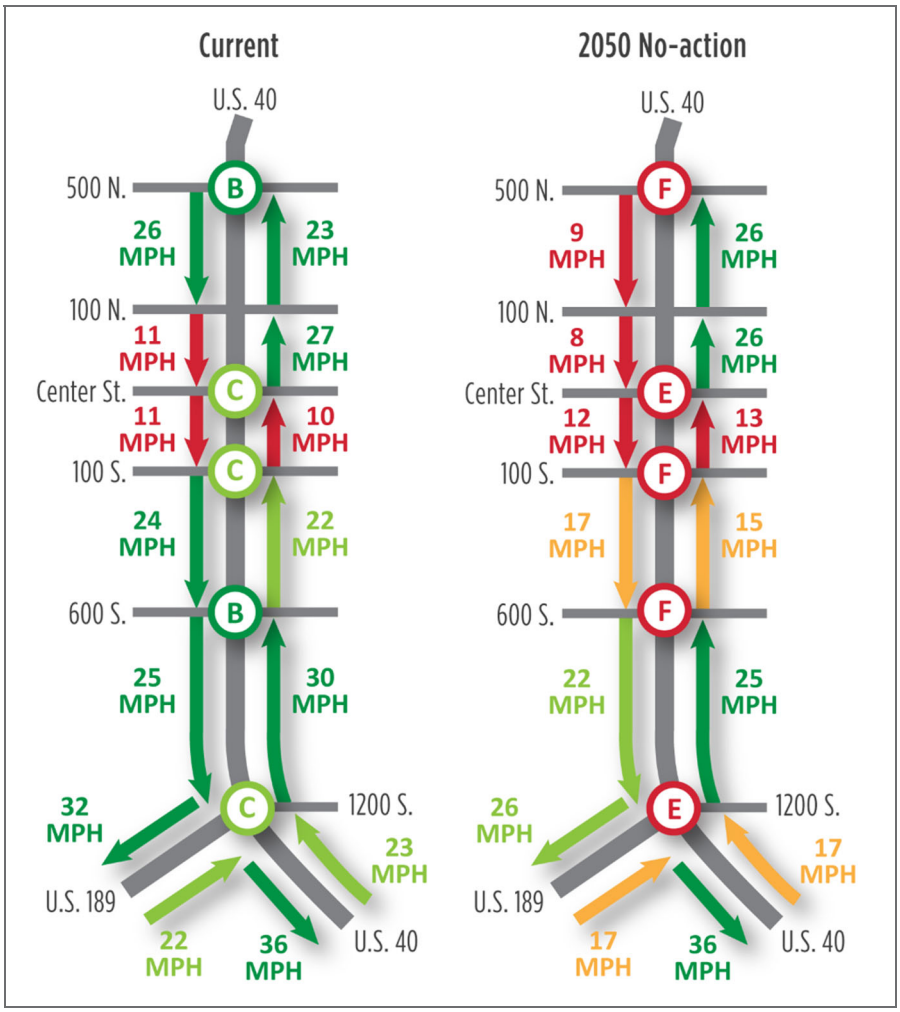
Table 5. Level of Service on Arterial Streets in the Needs Assessment Evaluation Area during the Weekday PM Peak Hour (Current and 2050 No-action)

Street Segment	Posted Speed (miles/hour)	Current		2050 No-action	
		Average Segment Speed (miles/hour)	LOS	Average Segment Speed (miles/hour)	LOS
Southbound					
U.S. 40: From 500 North to 100 North	35	26	B	9	F
U.S. 40: From 100 North to Center Street	35	11	F	8	F
U.S. 40: From Center Street to 100 South	35	11	F	12	E
U.S. 40: From 100 South to 600 South	35	24	B	17	D
U.S. 40: From 600 South to U.S. 189	35–40	25	B	22	C
U.S. 40: South of U.S. 189	40–50	36	A	36	A
U.S. 189 Southwest of U.S. 40	40–60	32	B	26	C
Northbound					
U.S. 189: Northeast to U.S. 40	60–45	22	C	17	D
U.S. 40: North to U.S. 189	60–40	23	C	17	D
U.S. 40: From U.S. 189 to 600 South	40–35	30	A	25	B
U.S. 40: From 600 South to 100 South	35	22	C	15	D
U.S. 40: From 100 South to Center Street	35	10	F	13	E
U.S. 40: From Center Street to 100 North	35	27	B	26	B
U.S. 40: From 100 North to 500 North	35	23	B	26	B

Source: Parametrix 2020

Figure 6 illustrates the level of service at intersections and on arterial segments of U.S. 40 during the PM peak hour under current and 2050 no-action conditions.

Figure 6. Intersection and Arterial Level of Service on U.S. 40 during the Weekday PM Peak Hour (Current and 2050 No-action)



4.3.2 Vehicle Travel Time

Vehicle travel times were evaluated on road segments in the needs assessment evaluation area during the weekday PM peak hour for current and 2050 no-action conditions. The results of the analysis are shown in Figure 7 and Table 6.

Table 6. Average Travel Time and Speed on Road Segments in the Needs Assessment Evaluation Area during the Weekday PM Peak Hour (Current and 2050 No-action)

Road Segment	Prevailing Posted Speed Limit (mph)	Length (miles)	Current		2050 No-action	
			Travel Time (mm:ss)	Average Travel Speed (mph)	Travel Time (mm:ss)	Average Travel Speed (mph)
Southbound						
U.S. 40 from S.R. 32 to 500 North	55	3.2	3:50	50	9:20	21
Main Street (U.S. 40) from 500 North to U.S. 189	35	1.5	4:30	20	7:20	12
U.S. 189 from U.S. 40 to S.R. 113	60	4.1	5:05	50	5:45	44
Northbound						
U.S. 189 from S.R. 113 to U.S. 40	60	4.1	4:30	56	4:40	53
Main Street (U.S. 40) from U.S. 189 to 500 North	35	1.5	4:00	22	5:30	16
U.S. 40 from 500 North to S.R. 32	55	3.2	3:55	49	3:40	53

Source: Parametrix 2020
mm:ss = minutes:seconds; mph = miles per hour

As shown in Table 6 and Figure 7, the average travel time for vehicles traveling southbound between S.R. 32 and 500 North is anticipated to increase from 3 minutes 50 seconds to 9 minutes 20 seconds over the 3.2-mile segment. This increase would be caused primarily by vehicles being delayed at the 500 North intersection, which is anticipated to be unable to handle the forecasted southbound traffic. Additionally, drivers traveling southbound along Heber City's Main Street are anticipated to experience nearly 3 minutes of additional travel time. The total travel time from S.R. 32 to U.S. 189 is expected to double from 8 minutes 20 seconds to 16 minutes 40 seconds, as shown in Figure 8.

Along the other road segments, lesser increases in travel time are expected. However, note that many of these segments are not operating at their full traffic capacity due to the overcapacity conditions at the 500 North intersection. In other words, the 500 North intersection is a bottleneck that limits the number of southbound vehicles that can proceed through the intersection to other downtown intersections.

Finally, a small decrease in travel time is expected for northbound U.S. 40 from 500 North to S.R. 32. This decrease is primarily due to the planned U.S. 40/S.R. 32 interchange, which would eliminate delay at traffic signals for vehicles crossing S.R. 32 on U.S. 40.

Figure 7. Travel Time between S.R. 32 and S.R. 113 (Current and 2050 No-action)

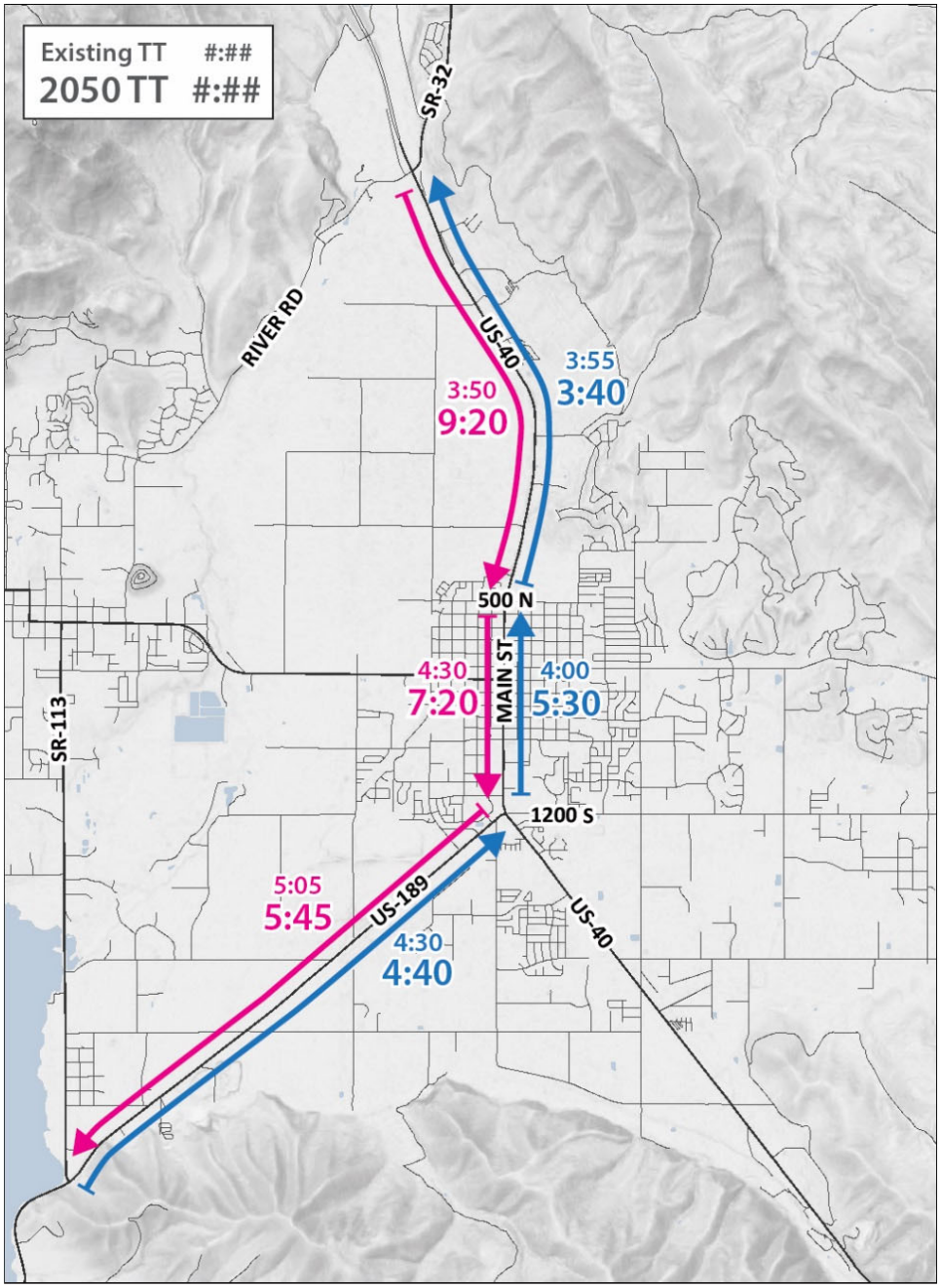
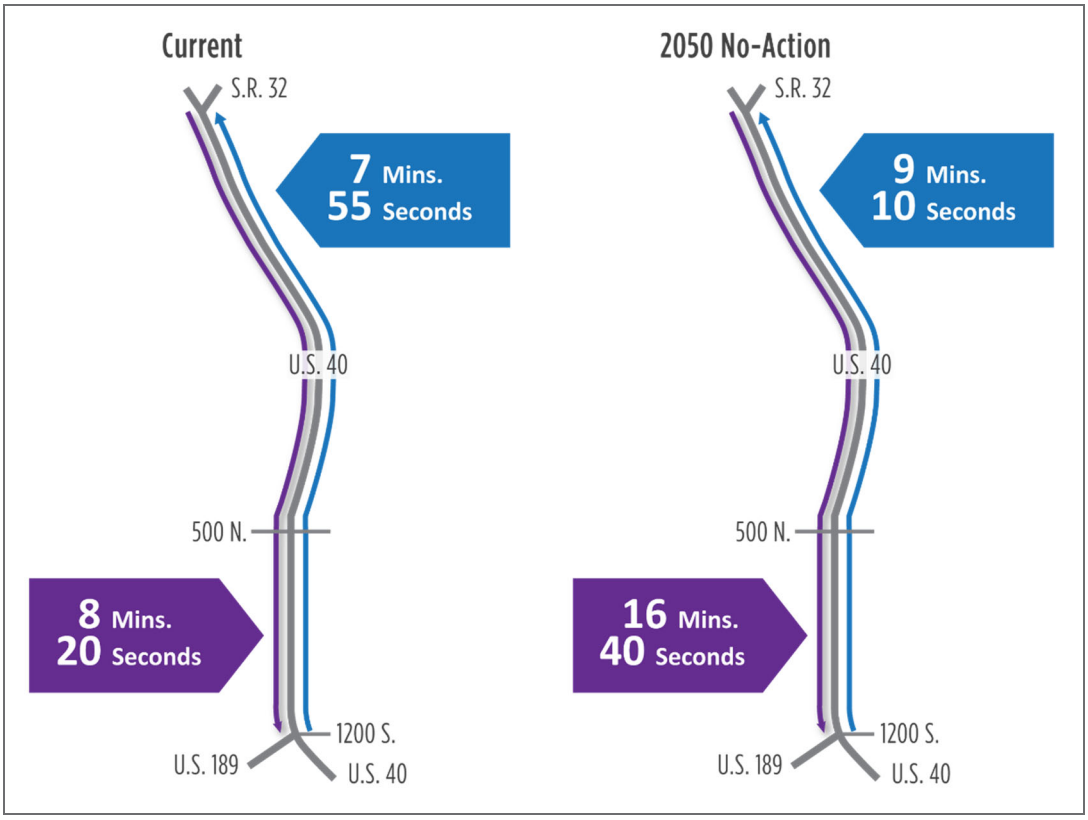


Figure 8. Travel Time between S.R. 32 and U.S. 189 (Current and 2050 No-action)



4.3.3 Intersection Queuing (Vehicle Backup)

Vehicle queue lengths were measured at intersections in the traffic simulation model for current and 2050 No-action conditions during the weekday PM peak hour. Figure 9 shows the queue lengths at the most congested intersections under current conditions. The average queue length is shown in red, and the 95th-percentile queue length is shown in orange.

What is the 95th-percentile queue?

The queue length is the length of a line of vehicles backed up waiting to get through an intersection. The 95th percentile represents the typical longest vehicle queue in the PM peak hour.

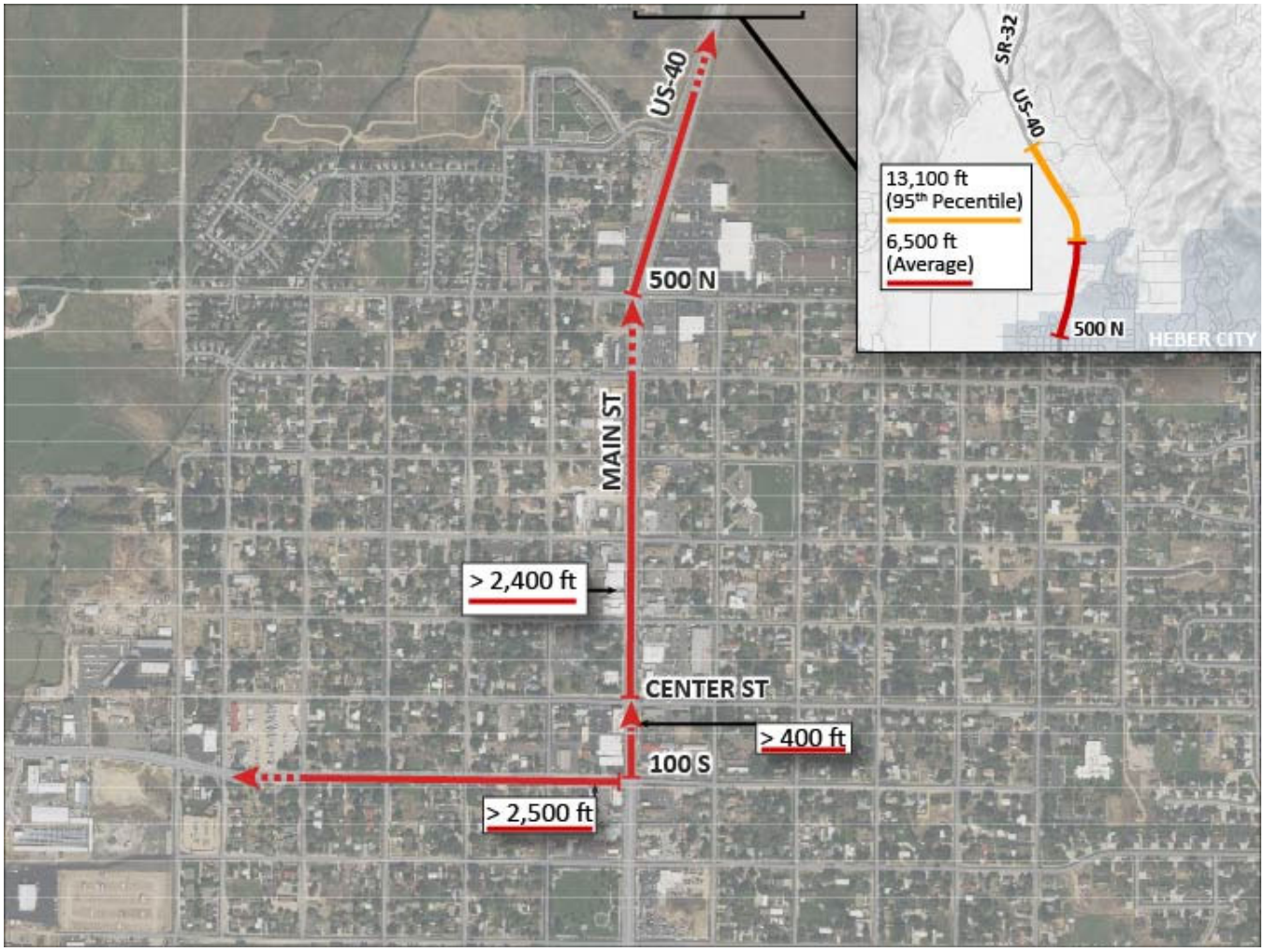
For drivers approaching the 500 North intersection in the southbound direction, the average queue length is 275 feet with a 95th-percentile queue length of 375 feet. At the 100 South intersection, average southbound queues were measured at 300 feet with the 95th-percentile queue backing through the Center Street intersection. Similarly, at the Center Street intersection, the average vehicle queue for the southbound through movement extends about 550 feet north of the intersection, while the 95th-percentile queue extends 750 feet from the intersection, or about 1.5 blocks.

Figure 9. Vehicle Queue Lengths at Key Intersections in the Needs Assessment Evaluation Area during the Current PM Peak Hour

Figure 10 shows the vehicle queue lengths at the most congested intersections under the 2050 no-action conditions. Southbound vehicles are projected to back up substantially on U.S. 40 because intersections on Main Street would be unable to meet the forecasted vehicle demand. At 500 North, the average vehicle queue length would extend 6,500 feet, and the 95th-percentile queue would extend about 13,100 feet (2.5 miles) during the weekday PM peak hour. In this situation, stopped vehicles would be backed up on U.S. 40 in area where the posted speed limit is 55 miles per hour, and approaching vehicles would be traveling downhill in an area where the sight distance is limited by a curve and a hillside.

At Center Street, the average southbound queue would extend 2,400 feet back to 500 North. Traffic at the 100 South intersection would extend back into the Center Street intersection. Additionally, the eastbound vehicle queue would be greater than 2,500 feet long. These intersections are expected to have inadequate capacity to handle the projected traffic. Given this lack of capacity, drivers would wait through several cycles of the traffic signals to make it through the intersections.

Figure 10. Vehicle Queue Lengths at Key Intersections in the Needs Assessment Evaluation Area during the 2050 No-action PM Peak Hour



4.4 Safety Conditions

UDOT conducted a crash analysis using the most recently available 3 years of crash data (2016 to 2018).

4.4.1 Crash Rates

Table 7 summarizes the crash rates and severe crash rates compared with the statewide averages for crashes and severe crashes on road segments of similar functional class and volume. As shown in Table 7, overall crash rates on U.S. 40 were generally lower than the statewide average range, except for the segment of U.S. 40 from 500 North to 100 South and the segment of U.S. 189 from U.S. 40 to 3000 South, which had crash rates slightly higher than the statewide average. Severe crash rates were higher than the statewide average on several segments; these crash rates are shaded in red in the table.

There were two clusters of severe crashes on U.S. 40 north of Heber City consisting of six total severe crashes. The cluster of severe crashes on U.S. 40 north of Heber City is likely due to higher roadway speeds and the roadway geometry (curve). However, UDOT has an upcoming project to install center rumble strips on U.S. 40 north of Heber City to S.R. 32, which are intended to reduce the number of head-on collisions.

Table 7. Crash Rates in the Needs Assessment Evaluation Area (2016–2018)

Route	Segment	Crash Rate[a]		Severe Crash Rate[b]	
		Actual	Statewide Average[c]	Actual	Statewide Average[c]
U.S. 40	S.R. 32 to 1200 North	1.34	3.52 – 4.10	12.1	7.3 – 8.7
	1200 North to 500 North	2.37	3.52 – 4.10	7.4	7.3 – 8.7
	500 North to 100 South	4.11	3.52 – 4.10	12.3	7.3 – 8.7
	100 South to U.S. 189	3.75	3.52 – 4.10	3.2	7.3 – 8.7
	U.S. 189 to 3600 South	2.35	2.69 – 3.23	19.6	6.9 – 9.5
U.S. 189	U.S. 40 to 3000 South	3.50	2.69 – 3.23	18.1	6.9 – 9.5
	S.R. 113 to 3000 South	1.12	1.19 – 1.57	8.4	4.3 – 6.1

These data might be protected under 23 USC Section 409 (information gathered for safety reports cannot be used in a liability lawsuit).

[a] Crashes per year per million vehicle-miles

[b] Severe crashes per year per hundred million vehicle-miles

[c] UDOT statewide average for roads of similar volume and functional class

4.4.2 Bicycle and Pedestrian Crashes

From 2016 to 2018, there were relatively few pedestrian or bicycle crashes in the needs assessment evaluation area—three crashes involving bicyclists and one crash involving a pedestrian. Of the three bicycle crashes on Heber City's Main Street, two involved vehicles turning onto Main Street and colliding with a bicyclist in a crosswalk, and one involved a vehicle turning onto Main Street from an alley and colliding with a bicyclist on the sidewalk. The crash patterns on Main Street might indicate that Main Street is unfriendly to bicyclists, a sentiment that has also been expressed in public comments, as well as indicating that bicyclists are choosing to ride on sidewalks rather than in the travel lanes on Main Street.

4.4.3 Commercial Motor Vehicle Crashes

About 6% of the total crashes in the Heber Valley involved a commercial motor vehicle. On Heber City's Main Street, 21 commercial motor vehicle crashes occurred from 2016 to 2018, with a little over half occurring at intersections. Six of the 21 crashes involved vehicles pulling onto Main Street from a side street or driveway and colliding with a commercial motor vehicle. In 7 of the 21 crashes, the crash was the fault of the commercial motor vehicle driver. Most of the crashes in which the commercial motor vehicle driver was at fault occurred at intersections and were the result of a commercial motor vehicle rear-ending vehicles at an intersection or turning too wide and hitting other vehicles.

5.0 Public and Agency Involvement in Developing the Purpose and Need Statement

As part of the environmental review process, the lead agency is required to identify and involve cooperating and participating agencies, develop coordination plans, provide opportunities for the public and participating agencies to be involved in defining the purpose and need statement and determining the range of alternatives, and collaborate with cooperating and participating agencies to determine methodologies and the level of detail for analyzing alternatives.[1] Lead agencies must also provide oversight with regard to managing the NEPA process and resolving issues.

[1] These steps are required by 23 USC Section 139, which establishes an environmental review process that must be used when preparing an EIS for a highway or transit project.

6.0 References

Avenue Consultants

2019 Heber Valley Parkway Planning Study. July.

[FHWA] Federal Highway Administration

2013 Highway Functional Classification Concepts, Criteria and Procedures. No date.

Heber City

2017 Heber City General Plan, Chapter 3: Transportation Plan 2017. Update to the July 3, 2003, General Plan. http://heber-ut.granicus.com/DocumentViewer.php?file=heber-ut_291762f131b7aaf4d6e1539ca3b066f9.pdf. October 24.

2020 Heber City Envision 2050 General Plan. https://envisionheber.com/GeneralPlan/HeberCityGeneralPlan.pdf. Adopted March 17.

Kem C. Gardner Policy Institute

2017 Utah's Long-term Demographic and Economic Projections. July 1.

2019 The State of Utah's Travel and Tourism Industry.

[MAG] Mountainland Association of Governments

2019 Wasatch County Regional Transportation Plan 2019–2050. https://mountainland.org/img/transportation/RPO/Maps/wasatchRPO2019_2050.pdf.

Parametrix

2020 Existing and 2050 No-build Traffic and Safety Analysis. October 29.

[PEC] Project Engineering Consultants

2008 Heber City Highway Bypass Study.

[UDOT] Utah Department of Transportation

2017 Utah Freight Plan. https://drive.google.com/file/d/1AWWtqjK4ES_KDm965novQgmrev9dGTIN/view. December 4.

2019 Statewide Rural Long-range Transportation Plan 2019–2050. https://drive.google.com/file/d/1mkQvc9qsyg_IRI75i_yxTOPwmkii4jRd/view.

2020 Utah's Strategic Direction. http://www.udot.utah.gov/strategic-direction/.

Wasatch County

2010 General Plan 2001–2016. Amended February 2010.

2016 Regional Trails Master Plan. February 1.