Heber Valley Parkway Planning Study

Heber, Utah

July 2019

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HEBER CITY HEART OF THE WASATCH BACK

Heber Valley Parkway Planning Study

Prepared for:

Utah Department of Transportation

Mountainland Association of Governments

Wasatch County

Heber City

Prepared by:

Avenue Consultants

in association with

Penna Powers & Bio-West

July 10, 2019

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EXECUTIVE SUMMARY

The Heber Valley is growing rapidly. The population has doubled over the last 17 years and is expected to double again by 2050. This growth is leading to periodic congestion on Main Street (U.S. 40) in Heber City, particularly during the summer when regular traffic is joined by recreational traffic that accounts for potentially 35% of trips through town. Currently Main Street carries approximately 30,000 vehicles per day (vpd). By 2050, that volume is expected to increase by about 30% to 39,000 vpd. Meanwhile, traffic volumes on the other north-south roads through Heber are expected to approximately triple. This discrepancy between growth on Main Street and other roads is because Main Street is already nearing capacity today and will not be able to handle the full future traffic demands, which would cause traffic to spill over onto other roads to get around town.

Heber City and Wasatch County have seen this growth coming and have been planning on a new north-south roadway corridor on the west side of town between north U.S. 40 and U.S. 189 for over 20 years. This north - south corridor is now being called the Heber Valley Parkway (HVP). Historically, the corridor has also included an east-west component between the north-south corridor and south U.S. 40. This study builds on past planning efforts to analyze the feasibility and need for a new corridor, what type of facility it should be, and potential alignments it could follow.

GOALS AND OBJECTIVES

The study was directed by a steering committee that included representatives from the Utah Department of Transportation (UDOT), the Mountainland Association of Governments (MAG) (the regional planning organization), Wasatch County, and Heber City. At the beginning of the study, the steering committee developed goals and objectives for the study to serve as a guiding philosophy in making decisions. The goal of the corridor planning study is to address growth and provide a reliable transportation system for residents, visitors, and commuters in Heber City and the surrounding area. The objectives of the study are to:

- Alleviate specific types of traffic from Heber City's Main Street, including large trucks
- Reduce traffic congestion on Main Street, enhance economic development opportunities and improve overall quality of life in Heber City and Wasatch County
- Improve safety and mobility on the Main Street corridor
- Provide an opportunity for Main Street to become a more visitor-friendly destination

Removing trucks from Main Street was one of the objectives that received a lot of attention because it is important to Heber City and its residents. A survey performed for the Main Street Corridor Planning Study showed that residents feel that less heavy truck traffic would be the best thing that could be done to make downtown more welcoming. If a new corridor was built to state highway standards, then it would be possible for it to become a state-owned road and a new route for U.S. 40. This could allow for Main Street through Heber City to become a city-owned road, which the city could then change as they see fit to support their goals for downtown, including prohibiting semi-trucks, which they otherwise would be unable to do. An important factor in getting a new corridor to be a state-owned road would be to make it easy for trucks to use by minimizing stops, low speed curves, and turning movements required to make it through town.

INITIAL SCREENING

An initial screening process evaluated five high-level corridor options: Most of the options were similar with differences in one of the following categories: proximity to Heber City, roadway speed, east-west connection at 1300 South, and status of U.S. 189. The majority of the options were close to development, generally following South Field Road with a 55 to 65 mph speed limit and U.S. 189 staying in its current location. Table ES-1 lists each option, its disposition for each category, and whether or not it was advanced for further consideration. The primary basis for whether an option was advanced was whether it carried enough traffic to justify being a state road and to remove traffic from downtown Heber, which was determined to be about 20,000 vpd.

Table ES-1. Initial Screening Analysis

Option	Proximity to Heber City	HVP Speed (mph)[1]	U.S. 189 Alignment	1300 South East-West Connection	Advanced for Further Consideration
HVP with Existing U.S. 189	Close	55 to 65	Existing	Yes	Yes
HVP with Existing U.S. 189 and Freeway Speeds	Close	65 to 75	Existing	Yes	No
HVP with Existing U.S. 189 without East-West Connection	Close	55 to 65	Existing	No	No
HVP with U.S. 189 Realignment	Close	55 to 65	Realigned	Yes	Yes
Extended HVP	Wide	55 to 65	Existing	No	No

[1] East-west connection speed assumed to be 35 to 45 mph

The table shows that three options were not advanced for further consideration. The option with freeway speeds would carry over 20,000 vpd, but it didn't carry enough additional traffic beyond the other options to justify the impacts associated with building the corridor as a freeway (e.g. wider right-of-way, larger curves). The option without the east-west connection and the extend option (which had the corridor farther west than South Field Road and the connection to south U.S. 40 south of the airport) were also not advanced due to insufficient volumes. The option without the east-west connection did not attract much traffic from south U.S. 40, while the extend option was too far from the city to pick up much traffic going to or from Heber. The two options that were advanced for further consideration were those that most closely match the historic concepts with one of the options assuming that U.S. 189 would be realigned to be the Heber Valley Parkway and the current alignment vacated, while the other option assumed that U.S. 189 would remain in place. These options show that demand exists for a parallel corridor to Main Street and that it would pull traffic off Main Street and other north-south streets in Heber City, thereby improving traffic operations throughout the city.

Secondary Screening

The two options that made it through initial screening were then submitted to secondary screening. For this analysis the study corridor was divided into three segments for secondary screening analysis: north, west, and south. The north segment covered the area from about 600 South to north U.S. 40. The west segment went from about 600 South down to U.S. 189 and east to about Industrial Parkway (approximately 600 West). The south segment was for the connection between Industrial Parkway and south U.S. 40 and includes the area around the U.S. 40 & U.S. 189 / 1200 South intersection.

Three alignments were evaluated for the north segment (see Figure ES-1), but ultimately it was decided that no recommendation could be made without a full wetlands analysis, which was beyond the scope of this study and could instead be done during a future environmental study. Because wetlands are federally regulated, they are key to the north segment of the corridor.

The west segment has two main options (see Figure ES-1), one that follows the existing South Field Road and another that places the corridor on the west side of the sewer farm. Each of these options was also paired with the option to realign U.S. 189 onto the Parkway or leave it on its current alignment. Public feedback for both western segment options indicated several community concerns and issues. These concerns included the proximity of 1300 South to existing neighborhoods north of the corridor, as well as increased volumes on 1300 South due to realigned U.S. 189. Given these concerns, the study team did not make a recommendation for an alignment for this segment but did recommend that the western segment be evaluated further in a future environmental study.

Nine options were evaluated for the south segment, some with the U.S. 189 realignment and some without it. Based on ease of use for large trucks and traffic operations performance, the recommended alignment would create and east-west connection by turning south U.S. 40 from its current path and connecting it directly to 1300 South (see Figure ES-1). This option exists both with and without the realigned U.S. 189; as such, both options should be analyzed further in a future environmental study.

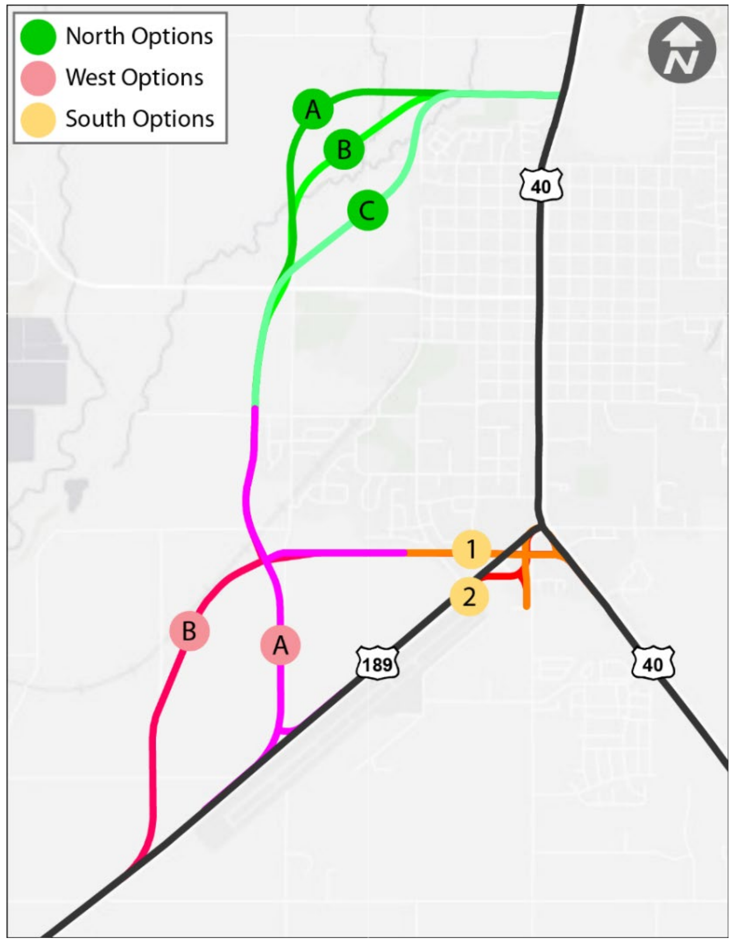


Figure ES-1: Heber Valley Parkway Alignments

Phasing Analysis

After secondary screening, a phasing analysis was performed to determine when a new corridor would be needed to keep Main Street from exceeding capacity more often (it already experiences periodic failure, particularly during the summer). The showed that Main Street would be regularly at capacity by 2035. It is recommended that the corridor be built by 2030.

Stakeholder and Public Involvement

This study featured a robust stakeholder and public involvement process that included focused stakeholder meetings, public open houses, coordination with governmental stakeholders, and study updates at key milestones. A combined total of approximately 500 community members attended the two open houses and submitted over 300 comments. The study team also participated in follow up community meetings after the second open house. As a result of the community engagement process, the study team carried forward more options through to a future environmental phase than previously anticipated.

Next Steps

The next phase in the planning process is to move the Heber Valley Parkway study into an environmental study. The environmental study will conduct an in-depth analysis of the information and data collected and evaluated in this planning study and may also include identifying and evaluating potential alternatives outside of the parameters of this study. In April 2019, the Utah Transportation Commission approved funding for UDOT to perform the environmental study, which will likely being in Fall 2019.

1 INTRODUCTION

Heber City is located in Wasatch County, where it is the county seat and the largest city in the Wasatch Back with a 2018 population of approximately 16,500. For the last 20 years, Heber has been growing at an average annual rate of 5% per year. The population has doubled over the last 17 years and is expected to double again by 2050.

Heber Main Street (U.S. 40) is the primary north-south road through the Heber Valley. To the north, it provides access to Park City and I-80. To the south, there is a major intersection with U.S. 189, which provides access to Utah County, while U.S. 40 continues southeast to the Uintah Basin (see Figure 1).

Traffic resulting from internal population and employment growth, combined with recreational and freight traffic traveling through the valley, has created congestion on Heber Main Street, which is expected to increase if no action is taken. Heber City and Wasatch County leaders anticipated this growth and have been planning on a new road to provide an alternative route through town and help alleviate traffic congestion. Historically this road has been referred to as the Heber Bypass, but for the purposes of this study it is referred to as the Heber Valley Parkway and occasionally the Parkway or HVP.

To advance planning for a potential Heber Valley Parkway, the Utah Department of Transportation (UDOT) partnered with Heber City, Wasatch County, and the Mountainland Association of Governments (MAG) to conduct this study.

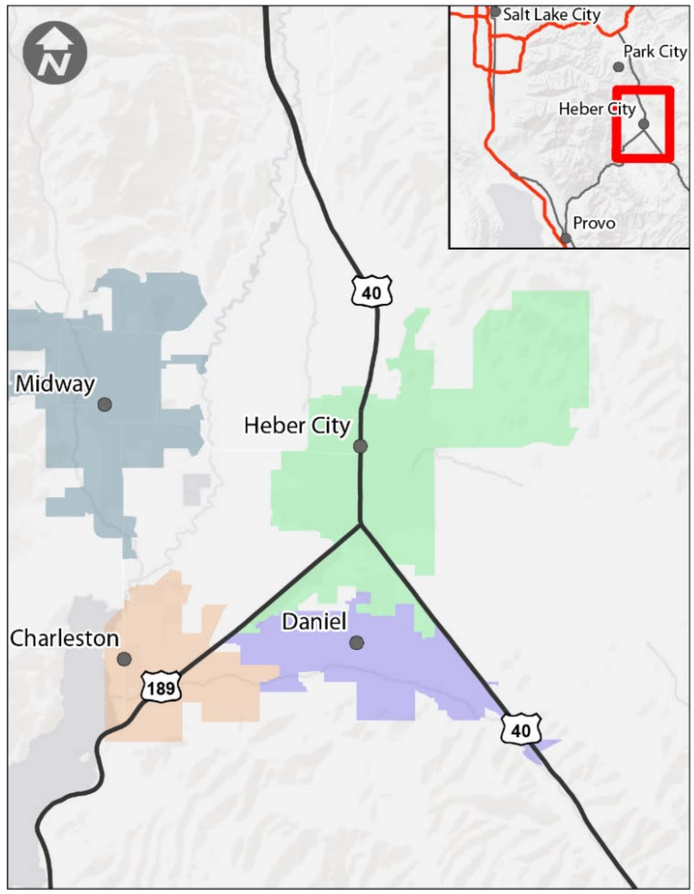


Figure 1: Heber Valley Vicinity Map

1.1 Background/History

Heber City and Wasatch County have been planning for a new corridor for at least 20 years.

- The 1997 Wasatch County Master Transportation Plan identified the need for the corridor and suggested alignment options.
- In 2006 and 2007, Wasatch County and Heber City, respectively, passed resolutions in favor of a limited access "alternate traffic corridor" to "relieve traffic on Heber City's Main Street." Around this same time, Wasatch County established a Transportation Corridor Preservation Fee to raise money to be used for purchasing property that would be used for the corridor.
- In 2008-2009, UDOT, MAG, Heber City, and Wasatch County partnered for a Highway Bypass Study that resulted in an alignment to be used for corridor preservation purposes

The current Heber City and Wasatch County transportation plans show the corridor alignments from the 2009 study. Figure 2 shows corridor alignment options from previous studies.

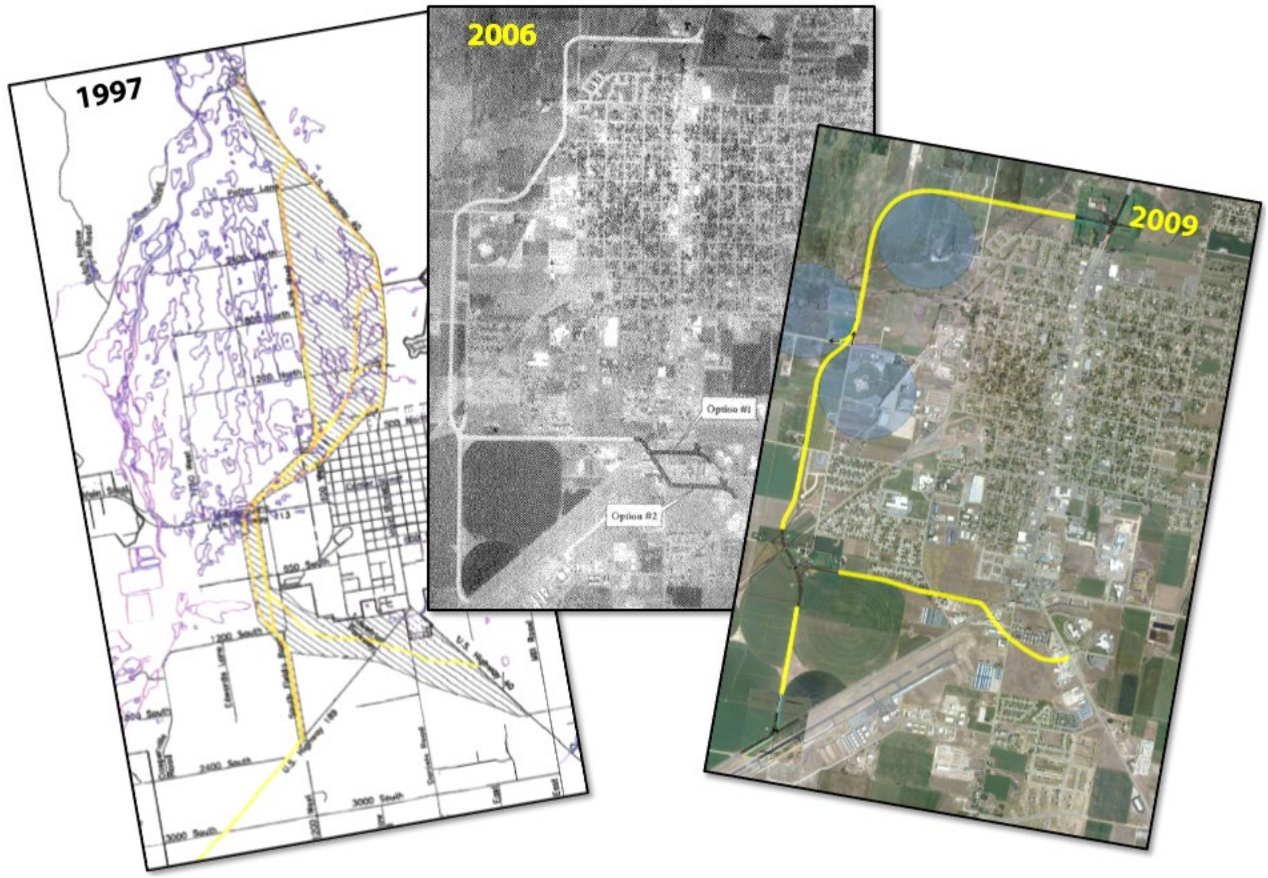


Figure 2: Previous Study Alignments

1.2 Study Steering Committee

The study was directed by the study steering committee, which primarily consisted of representatives from UDOT, MAG, Heber City, and Wasatch County. The steering committee met monthly throughout the study process to review analyses and provide feedback. Representatives from major stakeholders, including Heber Light and Power, Heber Valley Airport, and Heber Valley Special Service District, also participated in study meetings periodically throughout the study.

1.3 Goals and Objectives

At the beginning of the study, the study steering committee worked to develop the goals and objectives of the project, which served as a guiding philosophy in making decisions. These evolved over the course of the study, but the general vision remained the same. The goal of the corridor planning study is to address growth and provide a reliable transportation system for residents, visitors and commuters in Heber City and the surrounding area. The objectives of the study are to:

- Alleviate specific types of traffic from Heber City's Main Street, including large trucks
- Reduce traffic congestion on Main Street, enhance economic development opportunities and improve overall quality of life in Heber City and Wasatch County
- Improve safety and mobility on the Main Street corridor
- Provide an opportunity for Main Street to become a more visitor-friendly destination

An important component of these goals is removing semi-trucks from Main Street. While there has always been a desire to remove semi-trucks, it has been difficult because Main Street is a state road and trucks are allowed on state roads. For the purposes of this study, UDOT agreed to consider making the new corridor the state road (and, by extension, the U.S. highway), which would enable ownership of Main Street to be transferred to Heber City. This transfer of ownership would give Heber City the option to prohibit heavy trucks on Main Street. If this were to happen, it would also give the city more control over the character and feel of Main Street.

To further vet the idea of making the new corridor the state and US route, preliminary discussions were had with local representatives of the Federal Highway Administration to better understand the requirements associated with making changes to the National Network (NN). If the current NN routes (U.S. 40 & U.S. 189) are re-routed onto a new bypass, the new bypass would automatically become part of the NN; however, reasonable access to trucks would need to be provided. From a design perspective, the NN routes need to have adequate geometrics to support safe operations, which considers sight distance, severity and length of grades, pavement width (including minimum 12-foot lane widths), horizontal curvature, shoulder width, and intersection geometry. In general, UDOT roads comply with these criteria. For the purposes of this study, this resulted in a desire to minimize out of direction travel and low-speed curves, so that trucks would be as comfortable as possible using a new corridor.

2 TRAFFIC ANALYSIS METHODOLOGY

Two primary software tools were used for the traffic analysis: a travel demand model and a traffic operations model. The sections below describe how each of these tools were used.

2.1 Travel Demand Model

A travel demand model (TDM) is a tool used to predict future travel and traffic volumes based on land use and transportation networks. This section describes the development of the TDM that was used for this study and a discussion of the model inputs used.

2.1.1 Model Development

A TDM for the Heber Valley was developed by MAG over 10 years ago for use in developing long range plans for the area. The model was based on the model being used on the Wasatch Front at the time. Since then the model inputs have been periodically updated (most recently in 2014), but the overall model structure remains unchanged. Meanwhile, the Wasatch Front model has undergone several major version changes. Summit County recently created their own county-wide TDM based on the most recent Wasatch Front model. MAG is currently working to incorporate Wasatch County into the Summit County model. However, that model was not ready for this study.

To take advantage of the increased capability of the newer TDMs, such as including recreational trips and seasonal variations, the study team decided to update the Heber Valley model to be based on the Summit County model.

Modifications were made to account for differences between Summit County and Heber Valley. These included adjustments to recreational trips, production and attraction ratios, and external trip tables. Recreational trips were estimated to the Heber Valley Railroad depot based on ridership and schedule information. Production and attractions ratios were adjusted based on information available for Wasatch County from the 2012 Utah Household Survey. Pass through trips and those going to or from outside of the Heber Valley were updated using the latest version of the Utah Statewide Travel Model and adjusted for existing conditions to match available count data.

2.1.2 Model Inputs

The travel demand model has two primary inputs: land use data and transportation system data. Using the land use and transportation system inputs, the travel model predicts how many trips would be generated in the region, where those trips are going, and the transportation facilities that would be used to get there.

Land Use

The land use data for the TDM consists of residential and employment data for the Heber Valley. This data is prepared in geographic blocks called Traffic Analysis Zones (TAZs). The land use inputs are prepared for a base year, which in this case is 2018, and for future years, which in this case is 2035 and 2050. Updated land use input data was recently prepared by UDOT and MAG, who consulted with local and county planners to understand planned growth for the area.

To prepare the model for use, several TAZs were split in the Heber area, especially in the southern end of the valley, to improve the resolution of the model in the area and to more accurately reflect local travel patterns. A figure showing the TAZ splits can be found in Appendix A. Where TAZs were split, the resulting households and employment for each split TAZ were taken from the original TAZ and proportioned based on the distribution of development as observed through aerial photography. Figures showing the resulting population and employment numbers by TAZ for both 2018 and 2050 are also in Appendix A.

Transportation System

The second component of the TDM is the transportation network, which consists of the existing arterial and collector network. Future roadways are also included in the TDM based on the list of projects in long range transportation plans that are planned to meet future transportation needs over a 20+ year horizon. The projects in the vicinity of Heber Valley Parkway corridor that may affect the corridor include the following:

- Widening of Midway Lane to two lanes per direction between South Field Road and River Road
- Widening of 1200 South to two lanes per direction between 500 East and 1200 East
- Extending Valley Hills Drive to U.S. 40
- Widening of U.S. 40 to 1500 South to two lanes per direction

After refining the land use and transportation network, the base year TDM was validated for the study area by comparing TDM volumes to existing observed daily traffic volumes available from UDOT. Adjustments were made to the free-flow speed and capacity of Main Street to better reflect actual conditions. Free-flow speeds on River Road were also adjusted to bring the model volumes closer to the observed volumes.

2.2 Traffic Operations Model

The Vissim software was selected for this study because it allows for a detailed evaluation of traffic operations, including elements like closely spaced intersections and corridors. Vissim allows for driving behaviors to be modified, can collect travel time data for user-specified segments, and can measure queue lengths at intersections, which collectively were used to calibrate the model to observed conditions.

Existing traffic signal timing data were obtained from the UDOT Traffic Operations Center and used in modeling signalized intersections in Vissim. The intersections within the study area were modeled according to existing geometry and speeds. The study area was modeled as a network; however, the analysis was completed for each intersection independently. Where needed, specific intersections and areas were isolated in the model to better analyze specific proposed solutions.

MEASURES OF EFFECTIVENESS

For each Vissim analysis (e.g. existing conditions, 2050 no build), the model was run 10 times and the results averaged. Multiple runs are completed to replicate the fluctuation in traffic that is observed from day to day. Three key measures of effectiveness were extracted from the Vissim models to analyze performance along the study corridor. The first was intersection and turning movement delay, which was used to determine level of service (LOS), as described in the 2016 *Highway Capacity Manual*. LOS describes the operating performance of an intersection or roadway. LOS is measured quantitatively and is reported on a scale from A to F, with A representing the best performance and F the worst. For signalized intersections, an overall LOS is reported for the entire intersection based on the average delay of all vehicles, while for unsignalized intersection delay and LOS are reported for the approach with the highest delay. Table 1 provides a brief explanation for each LOS and the associated average delay per vehicle for signalized and unsignalized intersections.

Table 1. Intersection Level of Service Criteria

Level of Service	Traffic Conditions	Average Delay (seconds/vehicle)	
		Signalized Intersection	Unsignalized Intersection
A	Free Flow Operations / Insignificant Delay	0 ≤ 10	0 ≤ 10
B	Smooth Operations / Short Delays	> 10 and ≤ 20	> 10 and ≤ 15
C	Stable Operations / Acceptable Delays	> 20 and ≤ 35	> 15 and ≤ 25
D	Approaching Unstable Operations / Tolerable Delays	> 35 and ≤ 55	> 25 and ≤ 35
E	Unstable Operations / Significant Delays Begin	> 55 and ≤ 80	> 35 and ≤ 50
F	Very Poor Operations / Excessive Delays Occur	> 80	> 50

Source: Highway Capacity Manual 2016, *Transportation Research Board National Research Council, Washington D.C.*

The second key measure of effectiveness is the 95th percentile queue length for each intersection turning movement at each study intersection. The length of the 95th percentile queue is identified as the queue distance that would only be exceeded five percent of the time during the analysis period. The queue length helps to identify key issues such as queuing between intersections and queues that exceed the available turning movement storage.

The third key measure of effectiveness is travel time for specified roadway segments in the model. Various travel time data collection segments were placed throughout the Vissim model along Main Street (U.S. 40). Similar to intersections, level of service can also be calculated for roadway segments based on travel speed. Specifically, arterial LOS is determined by comparing the travel speed to the base free-flow speed, which in this case was assumed to be the speed limit. Table 2 shows the various speed thresholds for LOS as described in the 2016 Highway Capacity Manual by base free-flow speed.

Table 2. Arterial Level of Service Criteria

LOS	Travel Speed Threshold by Base Free-Flow Speed (mph)						
	55	50	45	40	35	30	25
A	> 44	> 40	> 36	> 32	> 28	> 24	> 20
B	> 37	> 34	> 30	> 27	> 23	> 20	> 17
C	> 28	> 25	> 23	> 20	> 18	> 15	> 13
D	> 22	> 20	> 18	> 16	> 14	> 12	> 10
E	> 17	> 15	> 14	> 12	> 11	> 9	> 8
F	≤ 17	≤ 15	≤ 14	≤ 12	≤ 11	≤ 9	≤ 8

Source: Highway Capacity Manual 2016, *Transportation Research Board National Research Council, Washington D.C*

3 EXISTING CONDITIONS

A traffic analysis was performed for existing conditions in the study area. This was used as a baseline for quantifying the impact of future growth in the study area as well as to calibrate the Vissim model.

3.1 Traffic Volumes

This section compiles and presents the various data collection and traffic volume analyses which were used to analyze the study area.

3.1.1 Seasonal Variations

Traffic volumes in the Heber area are very seasonal with summer volumes being quite a bit higher than the rest of the year. UDOT operates three continuous count stations (CCS) on the main roads in and out of the Heber Valley. The three CCS locations are on:

- U.S. 40 north of the S.R. 32 intersection (about 2.5 miles north of Heber)
- U.S. 189 in Provo Canyon near the Sundance turn-off (about 13 miles southwest of Heber)
- U.S. 40 near the mouth of Daniels Canyon (about 1.8 miles southeast of Heber)

These CCSs record traffic volumes data year-round and, as such, are a valuable resource in understanding traffic patterns by time of year and day of the week. Five years of data (2013-2017) was downloaded for each CCS and analyzed. The average annual daily traffic (AADT) volume was calculated and then compared to monthly and daily averages. Figure 3 shows the variation in daily traffic volumes expressed as a ratio of the average volume for each month or day of the week to the AADT. It shows that that the summer volumes are substantially higher than the AADT, particularly on U.S. 189 and south U.S. 40, which are over 30% higher in July, while north U.S. 40 is nearly 20% higher. The day of the week chart shows that Friday and Saturday are generally the highest volume days of the week. These patterns are largely driven by recreation traffic by people headed up to the mountains for the weekend.

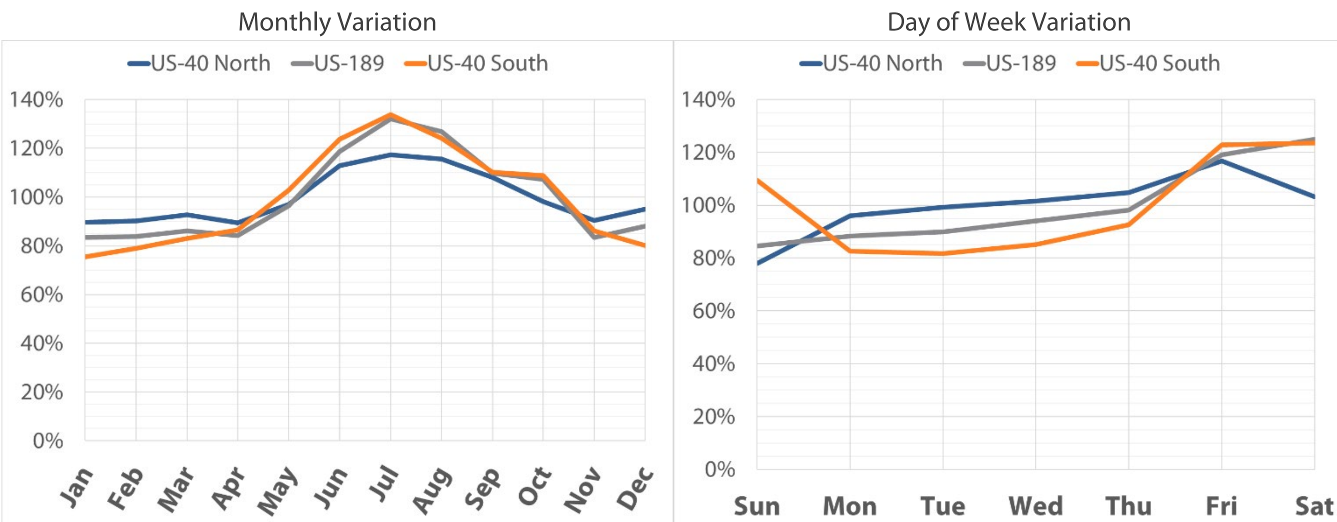


Figure 3: Daily Traffic Volume Variations by Month and Day of the Week

Using this data, we can estimate that, for example, a Friday in July on U.S. 189 would have a daily traffic volume 1.57 times that of an average day (1.32 month factor x 1.19 day of week factor).

3.1.2 Intersection Volumes

Traffic counts were collected at the study intersections on Tuesday, March 27, 2018 for the AM and PM peak periods. The PM volumes were 26% higher than the AM volumes, so traffic operations analyses for this study focused on the PM peak hour.

As mentioned previously, traffic volumes in the Heber Valley vary substantially by month and day of the week. Because the intersection counts were done on a Tuesday in March, volume adjustments were made to bring the volumes up to a representative summer weekday. Traffic observations were performed on Thursday, June 14, 2018 and the volumes were adjusted to be better match those conditions. Ultimately, the volumes were increased by approximately 30%. Through volumes on Main Street were increased more than side street volumes since most of the seasonal increase in traffic volumes can be attributed to through traffic traveling through town. Table 3 presents the adjusted PM peak hour intersection volumes used for the traffic operations analyses. A figure presenting these volumes by turning movement is included in Appendix B.

Table 3. Existing PM Peak Hour Intersection Volumes

Main Street Intersection	Intersection Volume
500 North	3,398
100 North	3,479
Center Street	4,033
100 South	4,023
600 South	4,217
U.S. 189 / 1200 South	3,698

3.1.3 48-Hour Tube Counts

Additionally, 48-hour tube counts were collected at four locations. The first three counts were performed in the spring from Tuesday, March 27 to Thursday, March 29, 2018 at the major entry/exit points to the Heber Valley on U.S. 40 and U.S. 189. The fourth count was performed in the summer from Tuesday, August 21 to Thursday, August 23, 2018 on Main Street in downtown Heber between 300 South and 400 South. Figure 4 shows the locations of these counts.

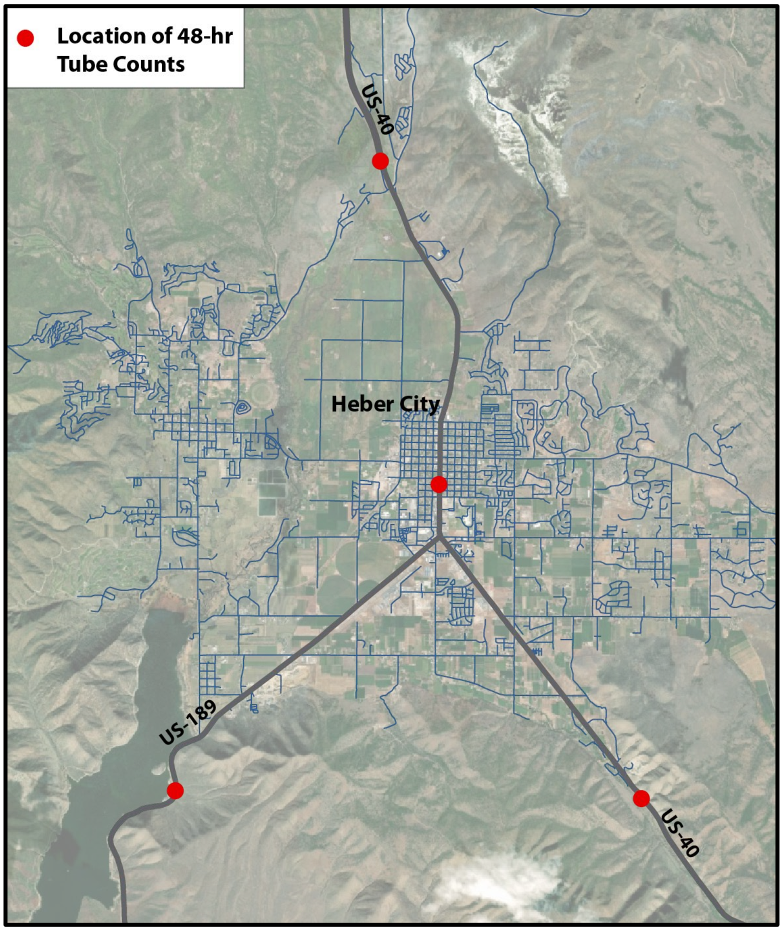


Figure 4: 48-Hour Tube Count Locations

These counts were used to understand total daily volumes and volumes by time of day. Average daily traffic (ADT) was compiled from the tube counts that were collected and are presented in Table 4.

Table 4. Existing Daily Volumes from 48-Hour Tube Counts

Location	Date	Daily Volume
U.S. 40 North of River Rd	March 2018	26,800
Main Street @ 350 South	August 2018	32,600
U.S. 189 South of 3600 West	March 2018	14,400
U.S. 40 South of Cove Lane	March 2018	4,500

UDOT annually publishes Average Annual Daily Traffic (AADT) volumes that represent the average volume over the entire year. There are two segments for Main Street through downtown Heber. Averaging these two segments for 2017 gives a Main Street AADT of 29,660. For the purposes of the analyses in this study, it was assumed that the 2018 average daily volume for Main Street was 30,000 vehicles per day (vpd). Subsequent sections of this report will describe how this value was used as a basis of comparison for various corridor options.

As mentioned, the tube counts were also used to gain an understanding of volumes by time of day. Figure 5 shows the traffic volumes by hour over the course of the day for all four counts. Each graph shows the northbound, southbound, and combined volume. It can be seen that the north U.S. 40 count location has a high directional split during the peak hours, indicative of heavy commuter traffic. The Main Street count shows little difference between the two directions and that volumes remain consistently high for most of the daytime hours. The U.S. 189 count also shows a commuter-type pattern, but not nearly as pronounced or directional as U.S. 40 North. This would suggest that commuter traffic to and from Utah County is fairly balanced. The U.S. 40 South count has low volumes with no real peaks.

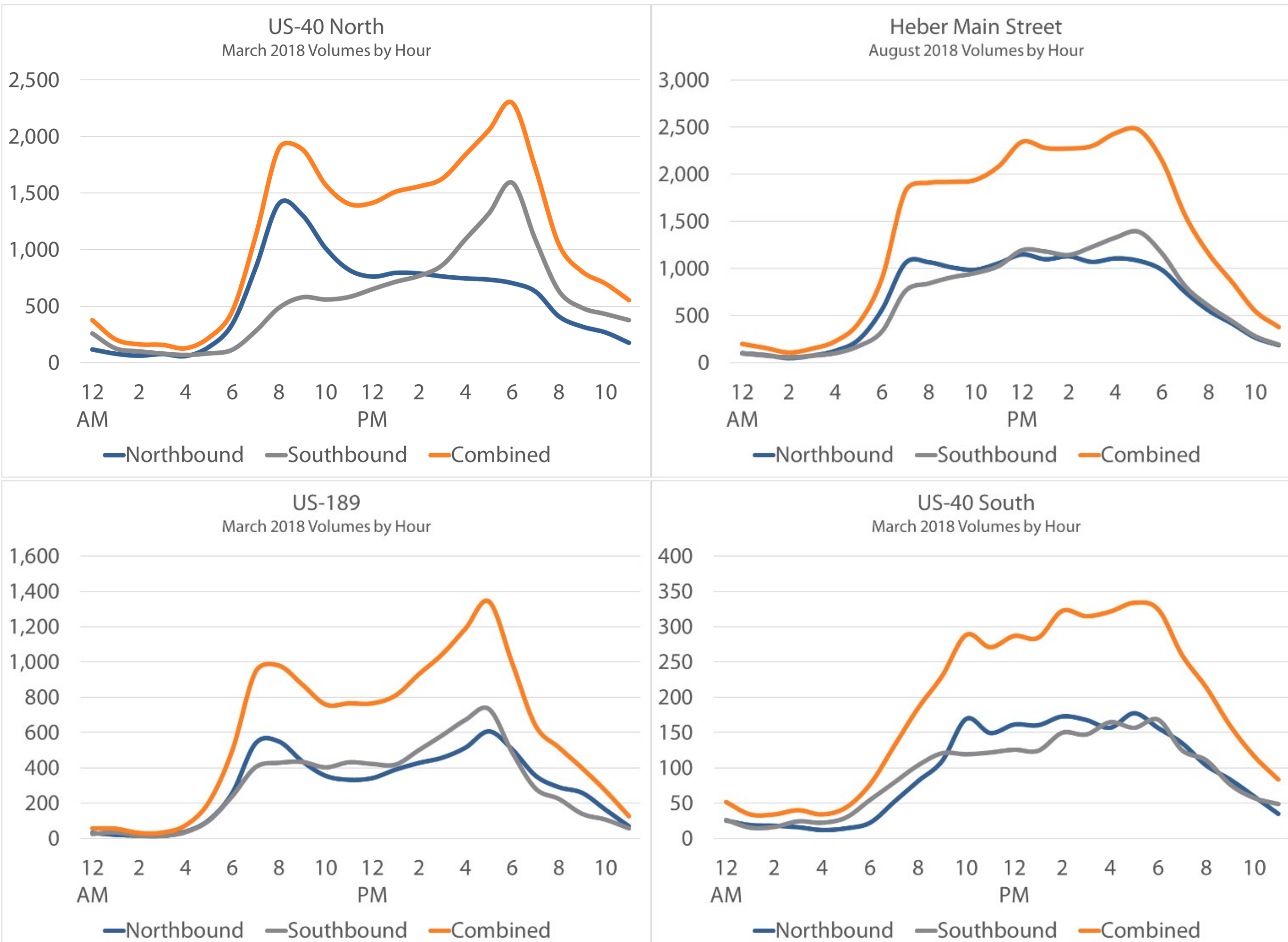


Figure 5: 48-Hour Tube Count Volumes by Hour

Figure 6 shows a final summary chart that shows the combined (both directions) volume for all four count locations, which provides context for the relative volume differences between each location. Having the counts all at the same scale indicates how low the south U.S. 40 count is in relation to the other three. Note that U.S. 40 South is most affected by monthly and day of the week factors with traffic on a Friday in July being 64% higher than the average day.

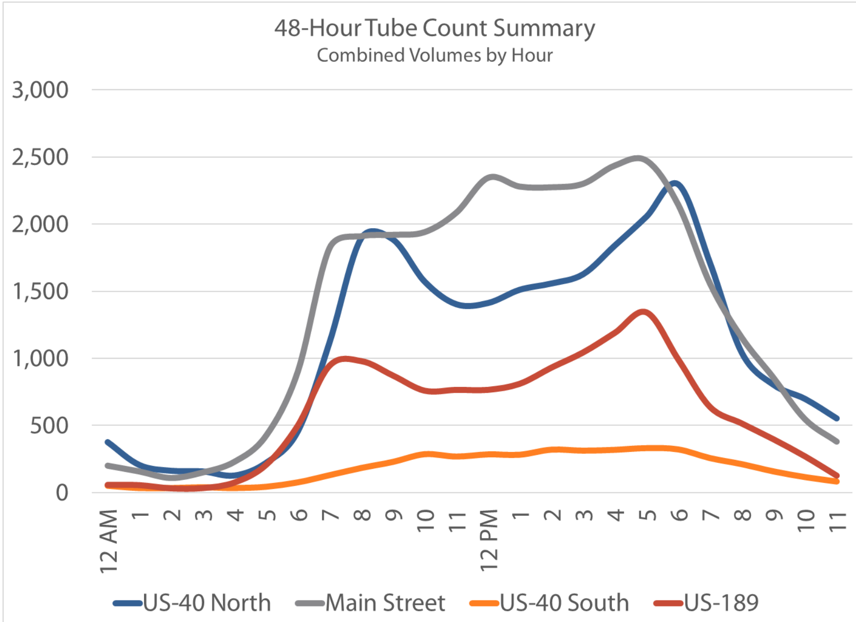


Figure 6: Combined 48-Hour Tube Count Volumes by Hour

3.1.4 Heavy Trucks

The Heber Valley, apart from being attractive to commuters and recreational trips, is also an important regional trucking route. For this purpose, vehicle composition data was collected as part of the 48-hour tube counts. UDOT reports heavy vehicle classifications as either single unit trucks (i.e. trucks without trailers) or combination unit trucks (i.e. semi-trucks with trailers). The count data was tabulated in the same format and is shown in Table 5, which lists the daily volume by vehicle class and the percentage of each class.

Table 5. Existing Vehicle Classifications

Location	Date	Daily Volume	Passenger Vehicles	Single Unit Trucks	Combination Unit Trucks
U.S. 40 North	March 2018	26,800	20,000 (75%)	4,900 (18%)	1,900 (7%)
Main Street	August 2018	32,600	24,800 (76%)	6,000 (18%)	1,800 (6%)
U.S. 189	March 2018	14,400	11,600 (80%)	2,100 (15%)	730 (5%)
U.S. 40 South	March 2018	4,500	2,700 (60%)	750 (17%)	1,100 (24%)

The table shows that the south U.S. 40 count location had the highest percentage of heavy trucks, particularly combination trucks as 24% of the total volume. Therefore, it is not surprising that south U.S. 40 would have the lowest percentage of passenger vehicles at 60%, while the other three locations have 75-80% passenger vehicles.

3.1.5 Pass-By Traffic

In July 2006, MAG performed a cordon study wherein they measured the amount of vehicle traffic passing through the Heber Valley. That study was updated as part of this effort. Three Bluetooth detectors were placed at the same major Heber Valley entry/exit points as the 48-hour tube counts. These detectors were deployed for a week from Tuesday, March 27 to Wednesday, April 4, 2018. They logged anonymized Bluetooth transmitters (e.g. cell phones, vehicle infotainment systems) at each location. The data for each collector was compared to quantify the number of vehicles crossing multiple detectors in a specified period of time versus those crossing just one detector. Combined with the volume data, it was then possible to calculate the number and percentage of vehicles passing through the Heber Valley. The results of this analysis are shown in Figure 7, which for each data collection location lists the daily volume from the 48-hour tube counts, the percentage of pass-by traffic for that location, and the distribution of that pass-by traffic to the other two data collection locations.

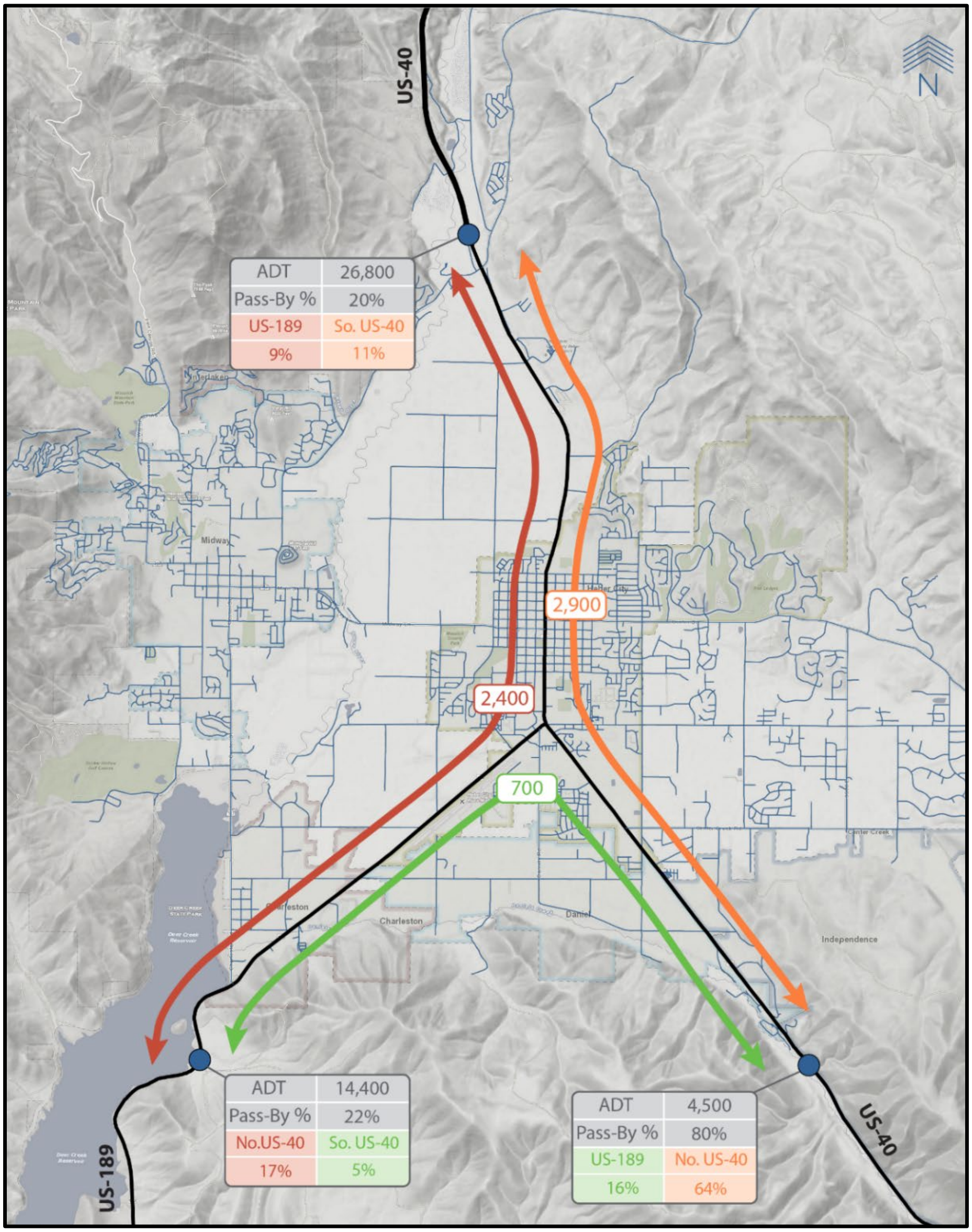


Figure 7: Heber Valley Pass-By Traffic

During the data collection period, 20% of the vehicles using north U.S. 40 and 22% of vehicles using U.S. 189 were pass-by trips, meaning they traveled through the valley with no more than a brief stop. By comparison, 80% of the vehicle trips from south U.S. 40 were pass-by traffic. This is indicative of the lack of commuters using

U.S. 40 South and the high truck traffic. The figure also shows that approximately 5,300 vehicles on Main Street were passing through, which is about 20% of the total traffic.

Because this data was collected in the spring, it is likely that the percentage of pass through trips is low compared to the summer when volumes are the highest. During the summer the number of pass through trips could double, which would increase the percentage of pass-by vehicles on Main Street to about 35%.

3.2 Traffic Operations Analysis

A Vissim micro-simulation traffic operations analysis was performed for the Main Street corridor from U.S. 189 / 1200 South to 500 North for the PM peak hour. The intersection traffic volumes and existing signal timings were used for the analysis. The model was calibrated to match observed conditions representative of a summer weekday with a special emphasis on the performance of southbound traffic entering town from north U.S. 40 for which long queues and slow traffic were seen during the field visit. The results of the existing conditions analysis are presented in the following sections which describe the intersection performance, vehicle queuing, and the overall roadway performance.

3.2.1 Intersection Delay and Level of Service

The Main Street intersection performance results are presented in Table 6. During the PM peak hour, all intersections performed at LOS D or better. A closer examination was made of southbound traffic wherein the worst performing 15-minute interval of the peak hour was determined and is also presented.

Table 6. Existing LOS and Delay per Vehicle (seconds)

Main Street Intersection	Intersection PM Peak Hour	SB Approach for Worst 15 Minutes
500 North	C / 25	D / 48
100 North[1]	C / 24 (EB)	--
Center Street	D / 42	**F / 85**
100 South	C / 23	C / 22
600 South	C / 30	C / 35
U.S. 189 / 1200 South	C / 31	C / 25

1. For unsignalized intersections LOS and delay are reported for the approach with the highest delay

The southbound approach at the Center Street intersection performed at LOS F during its worst 15-minute interval, which is representative of the congestion and queuing observed in the field. While the overall intersection performed at LOS D, isolating the critical approach during the PM peak hour demonstrates the true (and most memorable) condition of Main Street traffic, which would have otherwise been obscured by better performing approaches. The southbound approach is not presented for the 100 North intersection because it is an east-west stop-controlled intersection and the southbound approach is unsignalized.

3.2.2 95th Percentile Queues

The PM peak hour 95th percentile queues along Main Street are presented in Table 7. During the PM peak hour there is significant queuing which occurs in the southbound approach, which begins at the 100 South intersection. There is approximately 500 feet between the 100 South and Center Street intersections and approximately 2,400 feet between the Center Street and 500 North intersections. The 95th percentile queue lengths presented in the table are indicative of southbound queue during the PM peak hour which begins at 100 South and extends north through 500 North, which was an occurrence observed in the field.

Table 7. Existing PM Peak Hour 95th Percentile Queue Lengths (feet)

Main Street Intersection	Southbound Approach	Northbound Approach
500 North	1,000	250
Center Street	2,600	500
100 South	575	350
600 South	1,100	925
U.S. 189 / 1200 South	300	225

3.2.3 Arterial Level of Service

Travel time segments were created in Vissim along Main Street and U.S. 189 to collect speed data from which arterial LOS was used to measure the performance of the corridor. These segments were created at every intersection along the corridor and the resulting arterial LOS for the PM peak hour is presented in Figure 8 where LOS A through C are shown in green, LOS D in yellow, LOS E in orange, and LOS F in red.

The figure shows that during the PM peak hour southbound traffic between 100 South and 400 North operates at LOS E or F, which is consistent with the intersection performance and 95th percentile queues previously described. The figure also shows some minor congestion near the U.S. 189 / 1200 South, 600 South, and 500 North intersections.

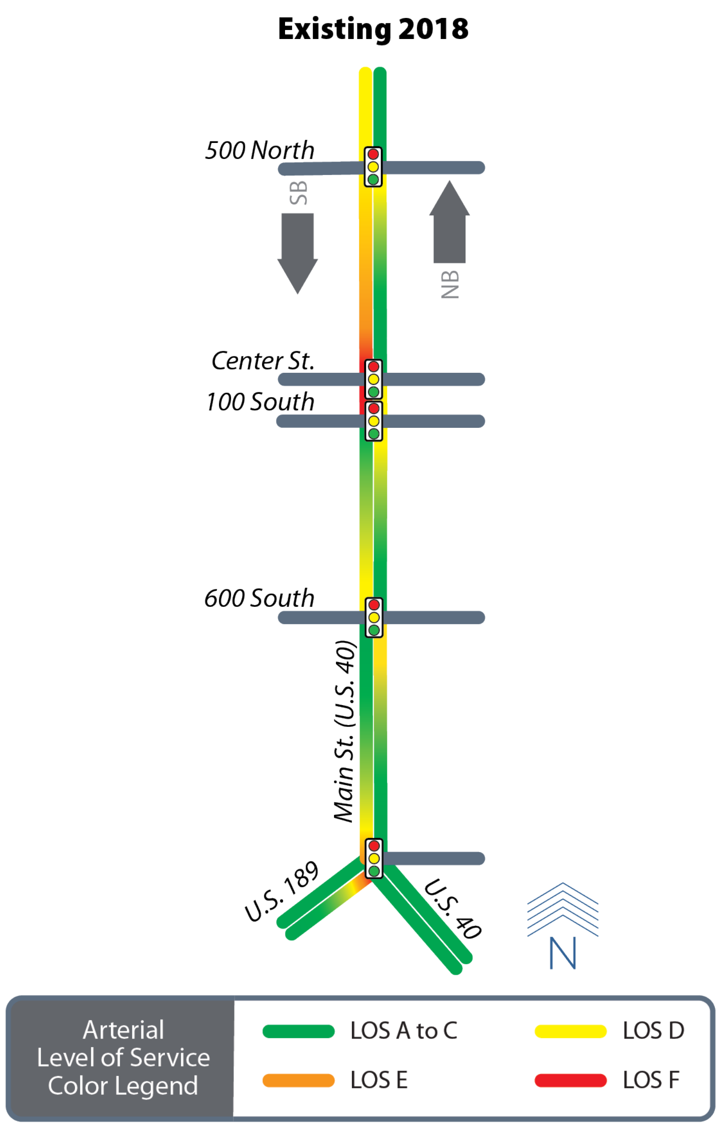


Figure 8: Existing PM Main Street Arterial LOS

4 FUTURE CONDITIONS

4.1 Land Use

Given its proximity to the rapidly growing Wasatch Front, it is expected that the Heber Valley will also continue to experience rapid growth. Figure 9 shows the trends for residential and employment growth over the next 30 years that were developed by the Gardner Policy Institute and MAG. By 2050, it is projected that there will be nearly 70,000 residents in the Heber area, which is more than double the approximately 32,000 residents that lived in the area today. Employment is not expected to grow at the same rate and is projected to increase to around 25,000 jobs, up from about 15,000 today. With population growing at a greater rate than employment, it is anticipated that the proportion of commuting traffic to adjacent areas, such as Park City and Utah County, will increase.

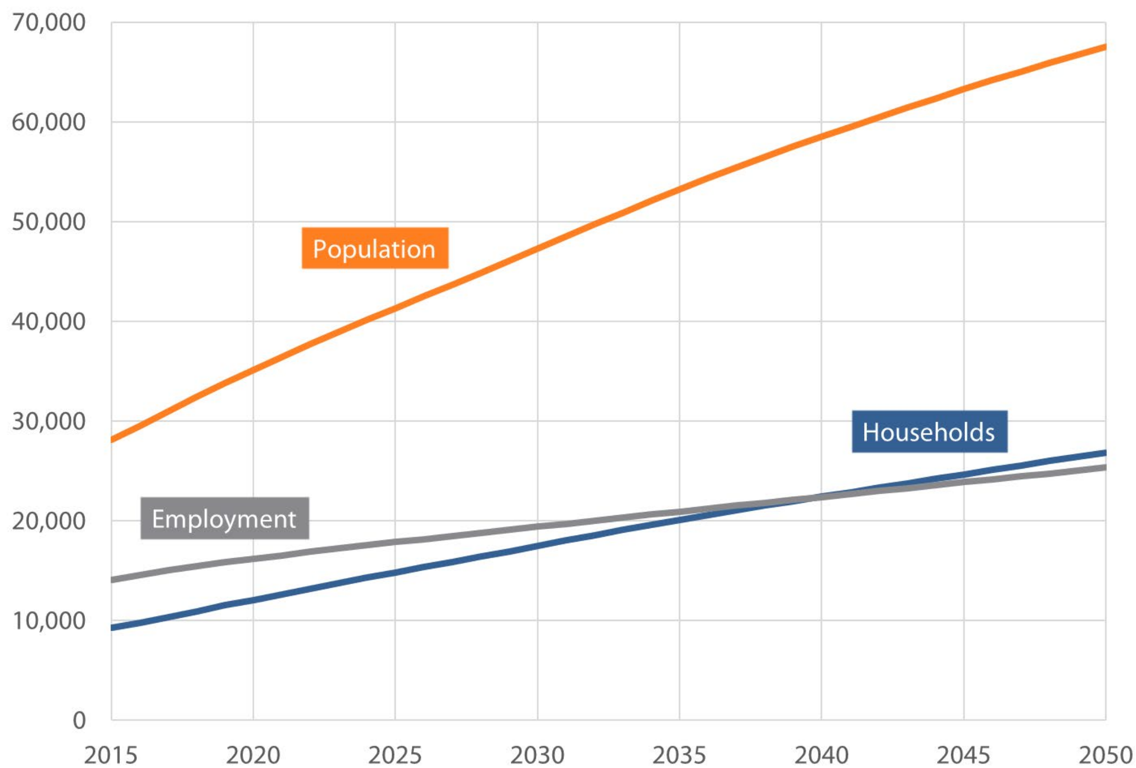


Figure 9: Heber Valley Household, Population, and Employment Trends

Most of the population growth in the Heber Valley is anticipated to occur east of U.S. 40. Midway on the west side of the valley will also experience some areas of more intense growth. However, along the Provo River flood plain in the central valley it is anticipated the very little population growth will occur. Most of the employment growth is projected to occur in the southern part of town with concentrations of growth just south of U.S. 189 and U.S. 40 near the airport. There are also areas of higher growth projected in the northern end of the valley west of U.S. 40. Figures showing household and employment growth by TAZ for the valley are included in Appendix A.

4.2 No Build Traffic Operations Analysis

A traffic operations analysis was performed for the Main Street corridor for a 2050 No Build PM peak hour scenario, in which there would not be a new corridor in the valley. The Heber Valley travel demand model was used to forecast future intersection volumes, which are presented in Table 8, along with the volume growth percentage from 2018. Total traffic in the valley is expected to increase by 85% by 2050. However, PM intersection volumes on Main Street are expected to increase by 15% or by only 10% if the U.S. 189 / 1200 South intersection were excluded. This modest growth is because Main Street is already nearing capacity under existing conditions, so there is little available capacity to accommodate future growth; as such, much of the future volume growth is projected to occur on other north-south roads through town.

Subsequent analyses present volumes on Main Street as well total volumes for other north-south roads in Heber, which are divided into westside and eastside roads. The westside roads include roads from 1200 West to 100 West. Similarly, the eastside roads include from 100 East to 1200 East. The volumes are taken from the travel model and are used to provide a fuller picture of traffic in Heber City and the interaction between Main Street and the other north-south roads in Heber.

Table 8. Existing and 2050 No Build PM Peak Hour Intersection Volumes Comparison

Main Street Intersection	Existing (2018)	2050 No Build	Percent Growth from 2018
500 North	3,398	3,890	14%
100 North	3,479	3,800	9%
Center Street	4,033	4,520	12%
100 South	4,023	4,360	8%
600 South	4,217	4,550	8%
U.S. 189 / 1200 South	3,698	5,060	37%

Daily 2050 No Build volumes were estimated for Main Street and other north-south roads through Heber, which are shown in Table 9, along with the same information for existing conditions and the percent change from existing to 2050. Main Street traffic is anticipated to increase by 31% to 39,000 vehicles per day, while traffic on the other north-south roads is expected to approximately triple. This is indicative of Main Street being at capacity and traffic spilling over onto other roads.

Table 9. Existing and 2050 No Build Daily Main Street Volumes

Scenario	Westside Streets	Daily Volume	Eastside Streets
Existing (2018)	7,700	30,000	6,100
2050 No Build	22,000 (186%)	39,000 (31%)	21,900 (259%)

4.2.1 Intersection Delay and Level of Service

The Vissim traffic operations analysis results for the 2050 No Build intersections are presented in Table 10. As with existing conditions, the table shows the performance for both the overall intersection for the peak hour and the southbound performance for the worst 15 minutes of the peak hour. During the PM peak hour, the Center Street and U.S. 189 / 1200 South intersections are expected to operate at LOS E and F, respectively. During the worst 15 minutes in the southbound direction, both 500 North and Center Street are anticipated to have over two minutes of delay per vehicle, indicative of severe congestion for traffic entering Heber from the north.

Table 10. Existing and 2050 No Build LOS and Delay per Vehicle (seconds) Comparison

Main Street Intersection	Intersection PM Peak Hour		SB Approach for Worst 15 Minutes	
	Existing (2018)	2050 No Build	Existing (2018)	2050 No Build
500 North	C / 25	D / 53	D / 48	**F /126**
Center Street	D / 42	**E / 58**	**F / 85**	**F / 125**
100 South	C / 23	D / 36	C / 22	B / 14
600 South	C / 30	D / 36	C / 35	C / 33
U.S. 189 / 1200 South	C / 31	**F / 110**	C / 25	**E / 67**

4.2.2 95th Percentile Queues

In the 2050 No Build scenario, the southbound 95th percentile queues during the PM peak hour at the study intersections along Main Street increase significantly. As shown in Table 11, six of the ten queues listed are expected to be over 1,000 feet long with two of those over 3,000 feet. As with the intersection delays, the longest queues are for southbound traffic entering Heber. Similar to the existing conditions, queueing begins at the 100 South & Main St intersection, and extends north through the 500 North intersection. It is also anticipated that there would be long queues in both the northbound and southbound directions at the U.S. 189 / 1200 South intersection.

Table 11. Existing and 2050 No Build PM Peak Hour 95th Percentile Queue Lengths (feet) Comparison

Main Street Intersection	Southbound Approach		Northbound Approach	
	Existing (2018)	2050 No Build	Existing (2018)	2050 No Build
500 North	**1,000**	**3,325**	250	625
Center Street	**2,600**	**3,225**	500	650
100 South	575	525	350	**1,550**
600 South	**1,100**	**1,100**	925	675
U.S. 189 / 1200 South	300	**1,725**	225	1,075

4.2.3 Arterial Level of Service

The 2050 No Build arterial LOS was calculated for the PM peak hour and are presented in Figure 10. Compared to the existing conditions analysis, the arterial performance on Main Street is expected to be considerably worse, most notably in the southbound direction of travel from Center Street to past 1200 North where the corridor would operate at LOS E or F. The figure also shows LOS E or F for all the approaches to the U.S. 189 / 1200 South intersection.

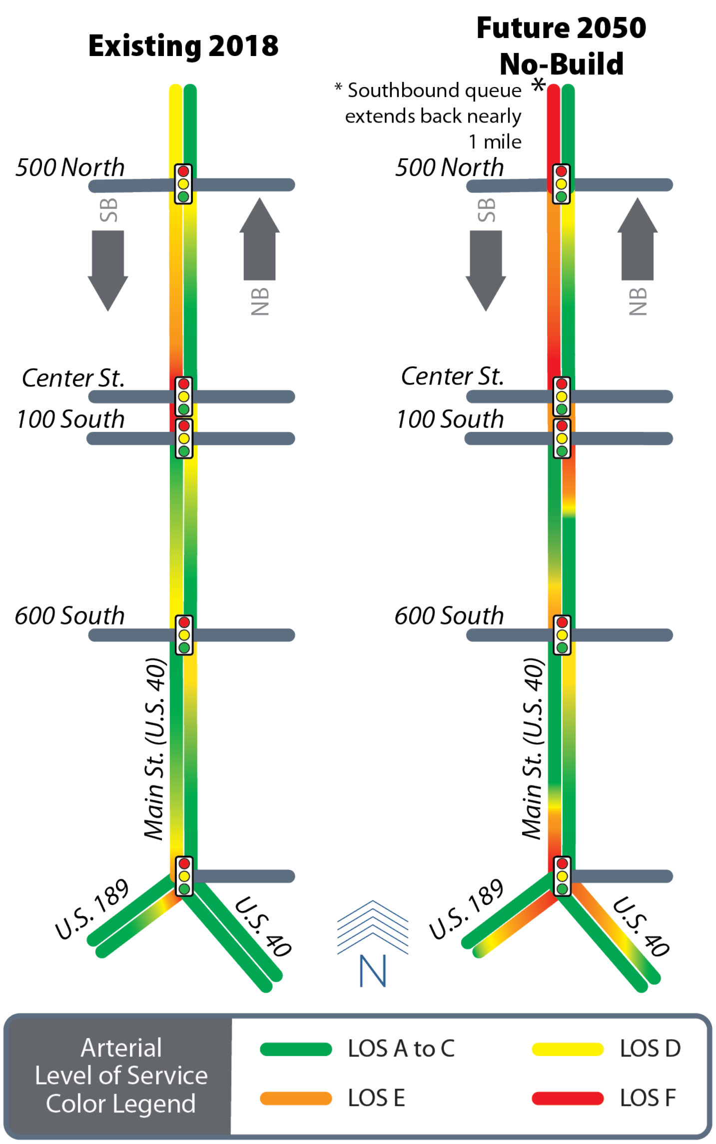


Figure 10: Existing and 2050 No Build PM Main St. Arterial LOS Comparison

5 INITIAL OPTIONS SCREENING

An initial set of options to meet the future traffic demands for the Heber Valley while relieving congestion on Main Street were developed. Five options were considered in the initial screening process. The ability of an option to serve the traffic demand was measured by the amount of traffic that would use the proposed roadway and the amount of traffic that would be taken off Main Street and other roads through Heber. Additionally, sensitivity testing was conducted to provide further insight into how operational changes would affect traffic volumes on the new corridor and through Heber.

5.1 Initial Options

The list of options to be considered in the initial screening process was developed in coordination with the study team and in response to public comments. All of the options included a new Heber Valley Parkway corridor with two travel lanes in each direction. The five options were:

- Heber Valley Parkway with Existing U.S. 189
- Heber Valley Parkway with Existing U.S. 189 and Freeway Speeds
- Heber Valley Parkway with Existing U.S. 189 without East-West Connection
- Heber Valley Parkway with U.S. 189 Realignment
- Extended Heber Valley Parkway

Schematics of these options are shown in Figure 11. The first two options have the same roadway configuration, and thus they are combined in the figure.

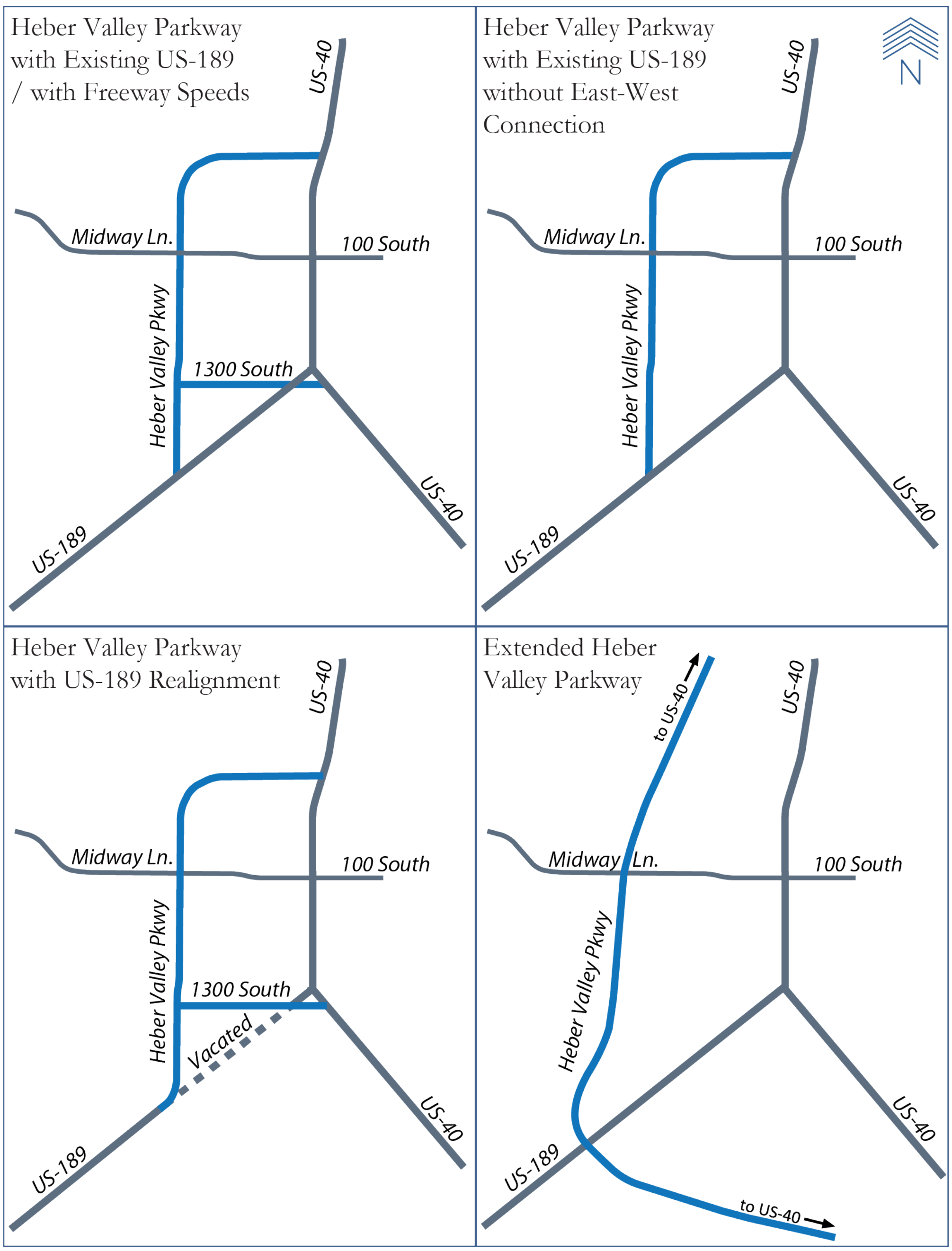


Figure 11: Initial Screening Options

Consistent with previous studies, the initial options for a viable alternative to Main Street include a new north-south roadway on the west side of the valley. Most of the options assume that this roadway would be an at-grade facility with speeds in the 55 to 65 mph range. However, the Freeway Speeds option would use this same alignment, but with the assumption that the corridor would be built as freeway facility with speeds in the 65 to 75 mph range. While this alignment would improve traffic traveling between U.S. 189 in the southwest part of the valley and north U.S. 40, it would do little for those traveling on south U.S. 40 to/from the north.

Most of the options had an east-west component to them. For those options, 1300 South, where a portion of the corridor has already been built between Industrial Parkway and U.S. 189, was included to provide a more attractive east-west connection for large trucks to the Heber Valley Parkway. It was assumed that this connection would also be at-grade with speeds in the 35 to 45 mph range. In the Without East-West Connection option where 1300 South is not included, traffic on south U.S. 40 could still use the parkway, but in addition to the out of direction travel to the west, users would also have to travel out of direction to the south to reach the corridor.

The Heber Valley Parkway with U.S. 189 Realignment option assumed that U.S. 189 would be rerouted onto the parkway until it intersected with 1300 South (rerouted U.S. 40) and that the existing U.S. 189 roadway would be removed. This would consolidate traffic on one roadway and increase the attractiveness of the parkway for U.S. 189 traffic traveling to/from the north.

While most of the options include a corridor close to the south and west side of Heber City, the Extended Heber Valley Parkway option would move the corridor farther away from the city, connecting U.S. 40 on both the north and southeast ends of the valley. This option includes a nearly 10-mile corridor that would connect to U.S. 40 South near Daniel around 3600 South, to U.S. 189 southwest of the airport, and to U.S. 40 North near the River Road / S.R. 32 intersection.

A base assumption in all options is that U.S. 40 would be rerouted onto the parkway and Main Street would become a city street. With Main Street as a city street, it was assumed that large trucks (i.e. semi-trucks) traveling through Heber would be restricted from Main Street. Trucks with an origin/destination in the city would still be allowed to use city roads.

5.2 2050 Daily Volume Comparison

Daily volumes for 2050 were estimated for roadways throughout the study area using the TDM. Table 12 shows the projected 2050 daily volumes for the Heber Valley Parkway, the westside streets in Heber, Main Street, and the eastside streets with the two options advanced for further consideration in a bold font. The table also shows the percent change from No Build. Appendix C contains figures showing additional Parkway volumes.

Table 12. 2050 Daily Volumes on Heber Valley Parkway and Heber Streets

Option	Heber Valley Parkway	Westside Streets	Main Street	Eastside Streets
No Build (without Heber Valley Parkway)	--	22,000	39,000	21,900
Heber Valley Parkway with Existing U.S. 189	**24,000**	**11,700 (-47%)**	**32,000 (-18%)**	**17,500 (-20%)**
Parkway with Ex. U.S. 189 and Freeway Speeds	26,000	11,000 (-50%)	34,000 (-13%)	17,000 (-22%)
Parkway with Ex. U.S. 189 & w/o E-W Connection	14,300	18,100 (-18%)	33,000 (-15%)	18,500 (-16%)
Parkway with U.S. 189 Realignment	**26,000**	**12,400 (-44%)**	**32,000 (-18%)**	**17,200 (-22%)**
Extended Heber Valley Parkway	13,800	18,400 (-16%)	36,000 (-8%)	18,800 (-14%)

The table shows for Heber Valley Parkway that three options that have around 25,000 vehicles per day: HVP with Existing U.S. 189, HVP with Existing U.S. 189 and Freeway Speeds, and HVP with U.S. 189 Realignment. The other two options, HVP with Existing U.S. 189 and without East-West Connection and Extended HVP, have substantially less volume with about 14,000 vpd.

Main Street volumes are relatively consistent amongst the various options, with ranges between 33,000 and 36,000 vpd. Differentiation in town traffic is only seen when looking at the other roadways through Heber. These other street volumes show that the three options that do best in drawing traffic to the Parkway are also the best at reducing overall traffic throughout the city. Essentially, as traffic is shifted from Main Street to the Parkway, it is being replaced by traffic on the other city streets, which is one of the objectives of the project.

5.3 Screening Evaluation

The study team reviewed the analysis results and decided to eliminate three options. The HVP with Existing U.S. 189 and without East-West Connection and the Extended Heber Valley Parkway options were not carried forward because they did not carry enough traffic to justify being a state road, which is critical in being able to prohibit heavy trucks on Main Street. While the HVP with Existing U.S. 189 and Freeway Speeds option would carry a high traffic volume, it would not carry enough additional traffic than the other options to justify the increased impacts inherent with building a freeway facility (e.g. wider right-of-way width, interchange footprints), when two other options provided equivalent performance.

Two options were carried forward into secondary screening: Heber Valley Parkway with Existing U.S. 189 and Heber Valley Parkway with U.S. 189 Realignment. These two options both had high volumes on the Parkway, lower volumes through town, and would not have the larger impacts of a freeway.

5.4 Sensitivity Tests

A couple of sensitivity tests were performed on the Heber Valley Parkway with Existing U.S. 189 option for two additional options. The first was to see how volumes would change if the speed limit on Main Street through Heber were reduced to 25 mph, while the second was if trucks were not restricted on Main Street. The resulting daily volumes are shown in Table 13, including comparisons to the HVP with Existing U.S. 189 option and the percent change from that option.

Table 13. Daily Volume on Heber Valley Parkway and Heber Streets for Sensitivity Analysis

Option	Heber Valley Parkway	Westside Streets	Main Street	Eastside Streets
Parkway with Existing U.S. 189	24,000	11,700	32,000	17,500
Parkway with Ex. U.S. 189 with Slow Main Street	25,000 (4%)	15,800 (35%)	26,000 (-19%)	21,700 (24%)
Parkway with Ex. U.S. 189 w/o Truck Restrictions	22,000 (-10%)	13,300 (14%)	34,000 (6%)	18,300 (5%)

The Reduced Speed for Main Street option substantially reduced traffic on Main Street, dropping it by nearly 20% down to 26,000 vpd. However, only an additional 1,000 vpd was shifted to the parkway. Most of the traffic would be diverted to other streets through Heber on both westside and eastside streets.

The Without Truck Restrictions option decreased Parkway volumes by 2,000 vpd or about 10%. Main Street volumes increased by 1,000 vpd, while other streets through Heber increased by 2,400 vpd. The primary reason for the volume increase imbalance between Main Street and other streets is due to the fact that heavy trucks consume more roadway capacity than passenger vehicles, so each heavy truck that moves over to Main Street would displace at least two passenger vehicles.

6 SECONDARY SCREENING

After the initial screening of options, the two that remained (Heber Valley Parkway with Existing U.S. 189 and Heber Valley Parkway with U.S. 189 Realignment) were further refined and screened. The first step was to work out the corridor details of access locations, roadway cross-sections, and right-of-way widths for use in concept design and assessing property impacts. Because the issues and constraints varied widely throughout the study area, the corridor was divided into three segments: North, West, and South, as shown in Figure 12. The following sections present the cross-sections and screening criteria and associated evaluations for each segment, which were each evaluated independently from the other segments.

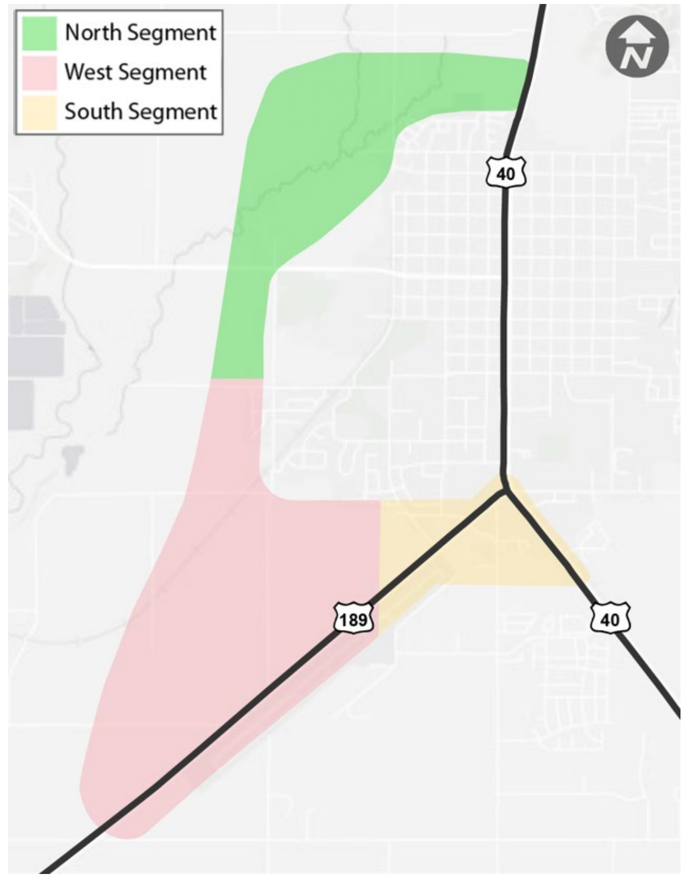


Figure 12: Heber Valley Parkway Segments

6.1 Corridor Details

6.1.1 Access Locations

One of the fundamental assumptions regarding the corridor is that it would be a limited access facility so as to preserve the desired speed and functionality. As such there would be limited access points. Table 14 lists the proposed access locations for the Heber Valley Parkway and 1300 South corridors.

Table 14: Corridor Access Locations

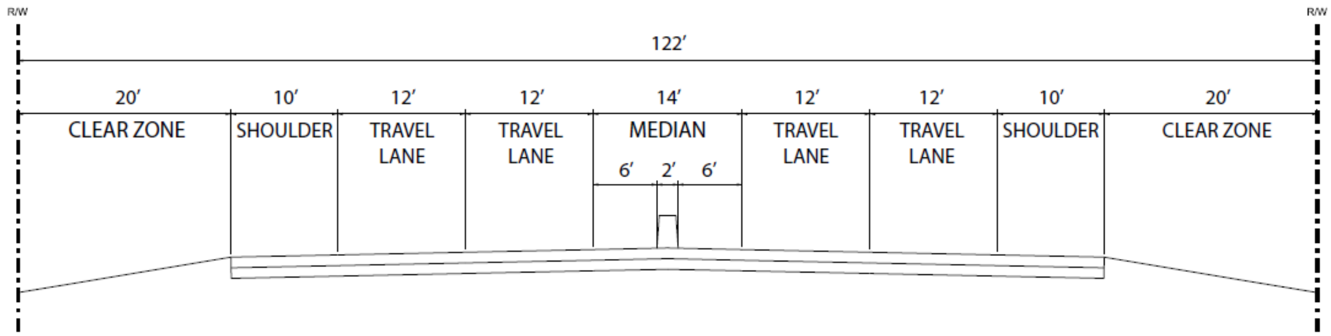
Heber Valley Parkway	1300 South
Main Street (U.S. 40)	Heber Valley Parkway
Midway Lane (S.R. 113)	Industrial Parkway
600 South	300 West
1300 South	U.S. 189
	U.S. 40

It was also assumed that the Parkway would cross over 1200 South using the same bridge structure that would cross the Heber Valley Railroad, but that there would not be any access to the corridor at that location. Passing through a more urbanized area, 1300 South would be a lower class of facility and have more access points. There may even need to be an unsignalized right-in/right-out intersection or two to provide access to homes and businesses.

6.1.2 Roadway Cross-Sections

The roadway cross-section refers to the items that comprise the right-of-way width that would be required for construction. Two cross-sections were developed, one for the north and west segments and another for the south segment. The north and west segments cross-section is somewhat rural in nature and would consist of two travel lanes in each direction, a center median with a barrier in the middle, and a sloped clear zone on the sides for a total right-of-way width of 122 feet. The cross-section for the south segment is urban in nature and would have curb, gutter, park strip, and sidewalk on each side. The actual width of the road itself would vary depending on the location since this segment would have a number of intersections requiring additional width for turn lanes or transitions between intersections. In general, the cross-section for this segment consists of two 12-foot through lanes in each direction, a 14-foot center median, and 8-foot shoulders. The right-of-way line on each side would be 11 feet behind the curb. Figure 13 shows both of the proposed cross-sections. For the east-west portion of the west segment, there would be an existing trail on the north side of 1300 South that could provide a buffer between the roadway and adjacent neighborhood. This trail would continue west to the planned rail trail.

North & West Segments



South Segment

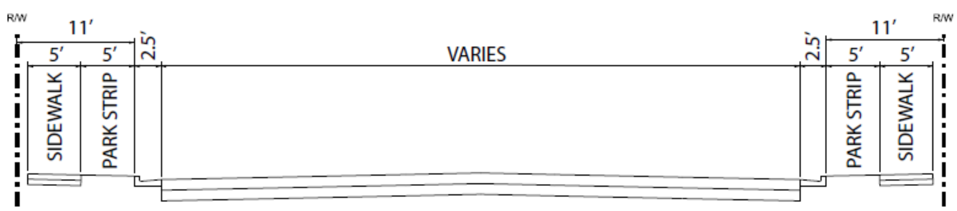


Figure 13: Heber Valley Parkway Typical Cross-Sections

6.2 North Segment

The north segment covers the section from about 600 South to U.S. 40 North. The area north of Midway Lane (S.R. 113) is the portion of the overall corridor that has the most wetlands, which is an important constraint for any alignment through this area. This section describes the screening criteria used to evaluate three alignment options and the results of the evaluation.

6.2.1 Screening Criteria

Four screening criteria were developed for the north segment, each of which is described below.

Wetland Impacts – There are extensive wetlands in the north segment area. This criterion is based on the acres of wetland impacts for each option.

Wetlands are always an important consideration for transportation (and other) projects because they are federally protected under Section 404 of the Clean Air Act and Executive Order 11990. As described in the executive order, agencies must avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds:

- That there is no practicable alternative to such construction which would have less adverse impact
- That the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

In making this finding, the head of the agency may take into account economic, environmental, and other pertinent factors, requiring agencies to minimize impacts to wetlands for all projects.

Truck Utility – This criterion is a measure of how easy it is for heavy trucks to use the option and is based on the travel speeds associated with the radii of the curves for each option.

Direct Property Impacts – This criterion is a measure of direct impacts to private property with weight given to impacts that would require acquisition of houses.

Adjacent Property Impacts – This criterion is a measure of indirect impacts (e.g. noise) to properties adjacent to the corridor.

6.2.2 Screening Evaluation

Three alignment options were evaluated, each of which is briefly described below.

A. **Original Concept** – This alignment largely follows the alignment from the 2009 study and essentially has a single curve to move the alignment from north-south to east-west. This alignment was intended to stay away from the housing developments around 600 West.

B. **Modified Original Concept** – This alignment is a variation of Option A, but with additional curves added to reduce wetland impacts while still maintaining separation from the housing developments.

C. **Edge Concept** – This alignment is intended to minimize wetland impacts by being closer to the housing developments. This is a tighter alignment that resulted in a single 45-mph curve.

The alignment options are presented in Figure 14 along with the estimated wetland boundaries. The wetlands information was obtained from two sources. The first is the delineation work performed by Heber Power and Light for a proposed new power line corridor and is shown in dark blue. This was a full delineation that was done in coordination with the US Army Corps of Engineers. The second is a desktop delineation performed by the consultant team based on examination of aerial imagery, which is shown in light blue.

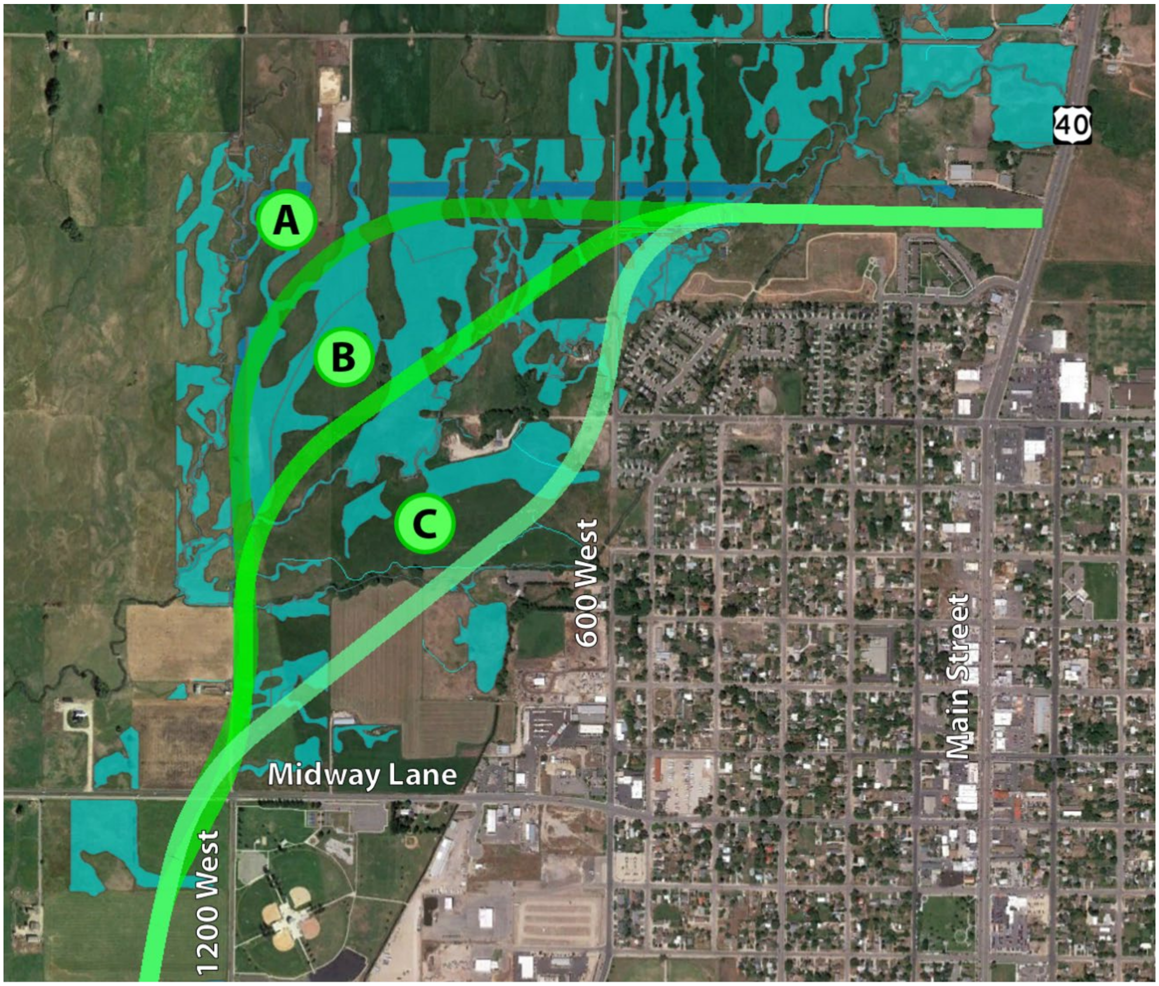


Figure 14: North Segment Alignment Options

The results of the screening evaluation are presented in Table 15. These results are presented in a qualitative manner, with green representing more favorable performance, yellow representing moderately favorable performance, and red representing unfavorable performance. The results are in comparison to each other and not to anything else.

Table 15. North Options Screening Evaluation

Screening Criteria	A Original Concept	B Modified Original Concept	C Edge Concept
Wetland Impacts	Red	Yellow	Green
Truck Utility	Green	Green	Yellow
Direct Property Impacts	Green	Yellow	Red
Adjacent Property Impacts	Green	Green	Red

As shown, Option C has the fewest wetland impacts, but the highest property impacts. Option B has low to medium impacts, with no high impact results. It is important to note that while Option C has the best wetland results, it is unknown at this time whether this option would be permittable by the US Army Corps of Engineers. Depending on the acres of wetlands that would be impacted, the federal wetland guidance (Section 404(B)(1) guidelines) would likely require clear demonstration that a practicable alternative with less wetland impact does not exist. The study team determined that this study did not have the resources necessary to resolve that issue and that a full environmental study would be needed with a complete wetlands delineation and a more robust alternatives analysis. Therefore, the study decided to not make an alignment recommendation for the north segment and recommended acceleration of an environmental study to provide wetland delineation and thorough alternatives analysis.

6.3 West Segment

The west segment covers the section from U.S. 189 to about 600 South and to the east to about Industrial Parkway. This section describes the screening criteria used to evaluate three alignment options and the results of the evaluation.

The majority of the land in the west segment is owned by the Heber Valley Special Service District (i.e. the sewer district), which farms the land and uses treated wastewater for irrigation. There are currently no plans to change the operations, so any property that is acquired for the Parkway would need to be replaced in-kind with nearby land suitable for farming. Additionally, because the irrigation water is not potable, it is not to come into contact with humans and a 100-foot buffer would be required from the Parkway to the farmland. This buffer would affect the amount of farmland that would be required to mitigate impacts from the corridor.

6.3.1 Screening Criteria

Four screening criteria were developed for the west segment, each of which is described below.

Sewer Farm Impacts – This criterion is a measure of how much property would need to be acquired from the sewer farm to accommodate the corridor and 100-foot buffer.

Traffic Impacts – This criterion is a measure of how well the option would be able to accommodate future traffic demand, particularly at the Heber Valley Parkway and 1300 South intersection.

Truck Utility – This criterion is a measure of how easy it is for heavy trucks to use the option and is primarily based on navigation of the Heber Valley Parkway and 1300 South intersection.

Property Impacts – This criterion is a measure of impacts (direct or indirect) to other property owners in or near the corridor.

6.3.2 Screening Evaluation

Three alignment options were evaluated, each of which is briefly described below.

A. **Original Concept** – This alignment follows the alignment from the 2009 study, which places the north-south alignment on South Field Road. At the 1300 South intersection, the north-south movement would be the through movement, so traffic using 1300 South would have to make a left or right turn.

B1. **Edge Concept** – This alignment attempts to minimize impacts to the sewer farm by placing the corridor on the west edge of the farm, so that the 100-foot buffer would only need to be applied to one side of the corridor. This alignment would have the through movement at the 1300 South intersection be in the east-west direction, so traffic using the north leg of the intersection would have to make a left or right turn.

B2. **Edge Concept with Roundabout** – This alignment follows the same route as B1, but with a large roundabout as the traffic control for the intersection with 1300 South. A roundabout could potentially allow heavy trucks to traverse the intersection without having to stop regardless of which direction they approach from, particularly during off-peak periods.

The alignment options are presented in Figure 15. Another alignment for the Edge Concept was briefly considered wherein the Parkway would remain the north-south road rather than becoming the east-west road. However, that alignment would likely create an undesirable skew with the railroad (which was assumed to have a bridge over it) and may result in the 1300 South intersection having to be located on or near the bridge. The study team chose to eliminate that option early in the study process before a full evaluation was performed.

The alignment for 1300 South was assumed to continue due west from its current terminus at Industrial Parkway rather than follow the alignment of the flood channel and sewer farm, which jog to the north. By continuing straight west, a buffer area would be created between the road and some of the homes to the north. It was also assumed that the existing trail on the north side of 1300 South would continue west to the railroad tracks and the future trail planned for the rail corridor.

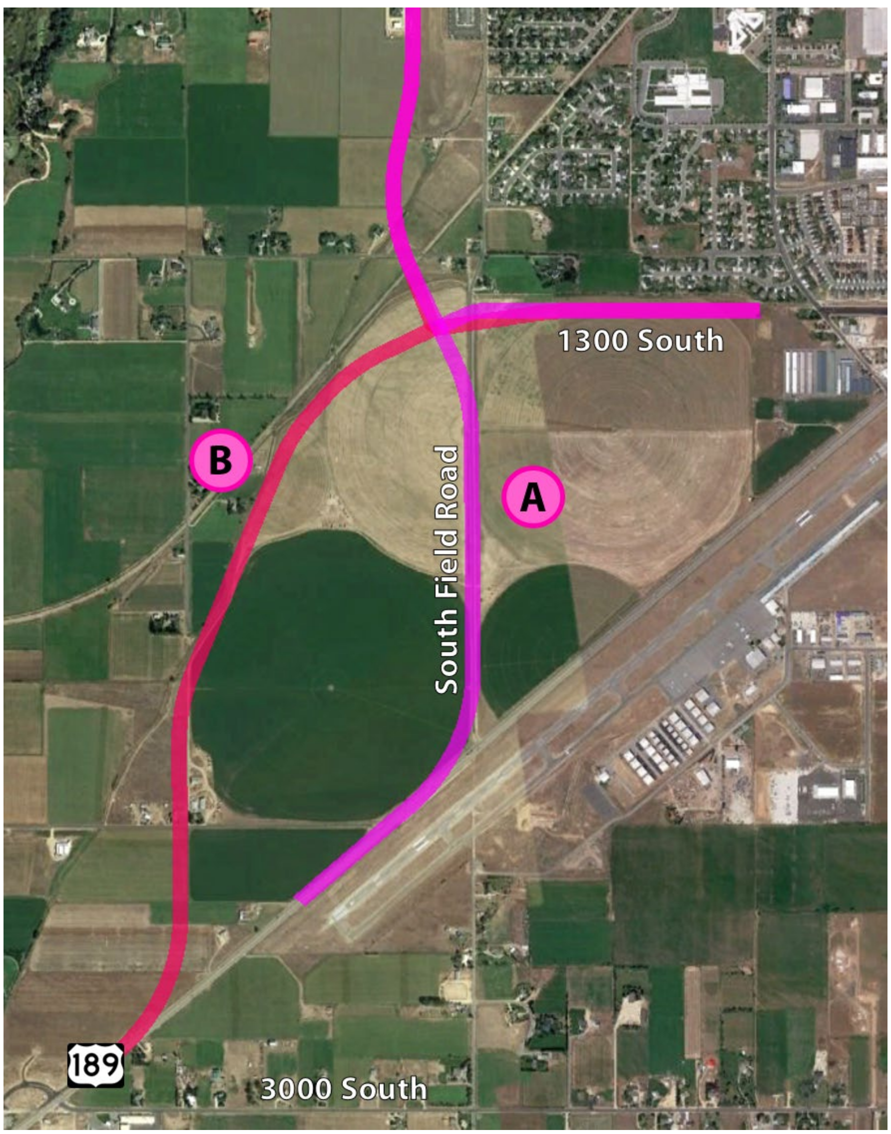


Figure 15: West Segment Alignment Options

One of the most important considerations for the west segment is the alignment of U.S. 189. Two possibilities were evaluated, one where U.S. 189 remains on its current alignment and creates a new intersection with the Parkway, and the other where U.S. 189 is re-routed onto the Parkway. Under this scenario, the existing alignment of U.S. 189 would be abandoned and potentially turned into farmland to mitigate sewer farm impacts. Based primarily on benefits to the south segment, the study team initially recommended the option that would re-route U.S. 189 onto the Heber Valley Parkway. However, based on feedback from the community primarily regarding proximity to nearby neighborhoods and increased volumes on 1300 South if U.S. 189 were realigned, the study team decided to carry both alignment options and both U.S. 189 options through to a future environmental study.

The evaluation for the west segment was performed for the realigned U.S. 189 scenario, the results of which can be seen in Table 16. These results are presented in the same qualitative manner used for the north option.

Table 16. West Options Screening Evaluation

Screening Criteria	A Original Concept	B1 Edge Concept	B2 Edge Concept w/ Roundabout
Sewer Farm Impacts	🔴	🔴	🔴
Traffic Performance	🔴	🟡	🟢
Truck Utility	🟢	🟡	🟢
Property Impacts	🟢	🟡	🟡

As shown, all options have approximately the same amount of sewer farm impacts (a little over 50 acres). The property impacts would be higher for the B options because they would be closer to homes on the west side of the sewer farm.

Option B2 is shown with the best traffic performance. Much of the traffic performance results are based on the orientation of the intersection of Heber Valley Parkway and 1300 South. Given that the analysis assumed the realignment of U.S. 189, the highest projected traffic volumes are between the south and east legs of the intersection. The options that have traffic moving between these two legs as the through movement perform best. Therefore, Option A, which would require traffic moving between the south and east legs to make right and left turns, would have the worst performance. The other two options move the south leg of the intersection to the west creating an east-west through movement that would match the predominant traffic flow. Option B2 would perform a little better because the roundabout would have less delay and would allow more vehicle to traverse the intersection without having to come to a complete stop (due to the way roundabouts function as a yield condition), which is especially useful for heavy trucks.

As mentioned, the above traffic performance results are based on a realigned U.S. 189. If U.S. 189 was not re-aligned, traffic volumes would decrease substantially at the Heber Valley Parkway and 1300 South intersection. Under this condition traffic performance for all options would improve.

Due to the mix of impacts and public input, the study team decided to not make a recommendation for the west segment; rather, these options should be studied in greater detail in a future environmental study.

6.4 South Segment

The south segment covers the section from Industrial Parkway to south U.S. 40. The segment features existing signalized intersections of U.S. 189 with 1300 South and U.S. 40 / 1200 South and a goal of connecting south U.S. 40 on the east to 1300 South on the west. This section describes the screening criteria used to evaluate nine alignment options and the results of the evaluation. Four of the options assumed the existing U.S. 189 configuration and five assumed a realigned U.S. 189.

6.4.1 Screening Criteria

Four screening criteria were developed for the south segment, each of which is described below.

Traffic Performance – This criterion is a measure of how well each option is able to accommodate the estimated 2050 traffic demands and is based on traffic operations analyses of all options.

Truck Utility – This criterion is a measure of how easy it is for heavy trucks to use the option and is primarily based on the number of curves and the speed at which those curves can be driven.

Property Impacts – This criterion is a measure of impacts (direct or indirect) to other property owners in or near the corridor.

Local Connections – This criterion is a measure of how easy or difficult it would be to provide or restore access to businesses or residences around each option.

6.4.2 Screening Evaluation

Nine alignment options were developed and analyzed for the south segment. Eight of the nine options would realign south U.S. 40 to become the east-west connector portion of the corridor. This was done to make it easier for the new road to become the new U.S. 40 and for heavy trucks to use the corridor since they wouldn't have to turn onto or off of south U.S. 40. Table 17 presents brief descriptions and schematic drawings of all nine south segment options.

Table 17. South Segment Alignment Options

Option	Map
1A: South Connection (with U.S. 189) This option would create a connection between the existing U.S. 40 and existing U.S. 189 on the north side of the vacant parcel south of the Burton Lumber and makes use of the existing Daniels Road alignment and the existing traffic signal at 1300 South. This option has a number of curves between the existing U.S. 40 and existing U.S. 189 and restoring local access would be problematic, particularly around the new intersections created at Daniels Road.	
1B: Far-South Connection (with U.S. 189) This option is very similar to Option 1A, except that the connection between the existing U.S. 40 and existing U.S. 189 would be located farther south in the vacant parcel. This provides a more direct route with fewer curves, although the vacant parcel would be effectively divided in two.	
1C: Central Connection (with U.S. 189) This option would cut straight across from existing U.S. 40 to 1300 South and would require realignment of portions of the existing U.S. 189, which would cause changes to local access. This option would also result in several closely spaced signalized intersections. Having U.S. 189 coming from the southwest results in a new intersection with Daniels Road that may also need to be signalized.	

Table 17 (Continued)

1D: North Connection (with U.S. 189) This option would reroute existing U.S. 40 and extend 1300 South to maintain the use of the existing intersection of U.S. 40 & U.S. 189 / 1200 South as the connection between U.S. 40 and U.S. 189. This would require new roadway alignment through commercial areas. It would also create a new intersection of U.S. 40 and 1200 South.	
2A: South Connection (without U.S. 189) This option is the same as Option 1A with the connection between existing U.S. 40 and 1300 South on the north side of the vacant parcel south of the Burton Lumber, but without U.S. 189 on its current alignment.	
2B: Far-South Connection (without U.S. 189) This option is the same as Option 1B with a connection between existing U.S. 40 and 1300 South farther south of the Burton Lumber, but without U.S. 189 on its current alignment.	

Table 17 (Continued)

2C: Central Connection (without U.S. 189)

This option is the same as Option 1C with a straight connection from existing U.S. 40 to 1300 South, but without U.S. 189 on its current alignment. This option would also result in several closely spaced signalized intersections; however, by not having U.S. 189 coming in from the southwest simplifies traffic operations by eliminating the intersection of U.S. 189 and Daniels Road that is present in Option 1C.

2E: Central Connection Combined (without U.S. 189)

This option is similar to Option 2C, but instead of splitting south Main Street into the existing U.S. 40 and existing U.S. 189 legs at 1200 South, they would remain combined and flow into Daniels Road. This would eliminate one of the intersections from Option 2C.

2F: Existing Connection (without U.S. 189)

In this option 1300 South would extend east along the alignment of existing U.S. 189 and use the intersection of existing U.S. 40 and existing U.S. 189 at 1200 South. The southwest leg would be realigned to connect directly with 1300 South.

The evaluation for the nine south segment options can be seen in Table 18. These results are presented in the same qualitative manner used for the other options.

Table 18. South Options Screening Evaluation

Screening Measure	1A	1B	1C	1D	2A	2B	2C	2E	2F
Traffic Performance	🟡	🟡	🟡	🟡	🟡	🟢	🟢	🔴	🟢
Truck Utility	🟡	🟡	🟢	🟡	🟡	🟡	🟢	🟢	🟡
Property Impacts	🟡	🟡	🟡	🔴	🟡	🟡	🟡	🟡	🟢
Local Connections	🔴	🟡	🟡	🟢	🔴	🟡	🟡	🟢	🟡

The table shows that the three options with the best traffic performance results are Options 2B, 2C, and 2F. All of these assume that U.S. 189 would be rerouted to the Parkway and the existing U.S. 189 alignment vacated. Moving that traffic over to 1300 South would simplify traffic operations by reducing the number of high traffic volume approaches to the intersection system that comprises the existing U.S. 40 (north and south legs), U.S. 189, 1200 South, and Daniels area. Accommodating five high-volume approaches would create problems for the options with U.S. 189 on its current alignment (1A-1D). In particular, there would be the potential for vehicle queues from one intersection to propagate upstream to nearby, closely-spaced intersections thereby disrupting traffic flow at those intersections as well. Consolidating the five high-volume approaches to four would provide substantial traffic benefit.

For truck utility, the three options that perform the best are 1C, 2C, and 2E. These are the three options that provide a straight connection to 1300 South, and thus the fewest curves for trucks to navigate. This was an important consideration for the study team because the more convenient it is for trucks to use the Parkway, the easier it would be to make the Parkway the state route and transfer Main Street to Heber City, which would allow the community to modify it as it sees fit to meet future goals for downtown.

All options would require some property acquisition, but Option 2F would have the least as it makes the most use of existing roads. Option 1D would have the most property impacts due to the complete realignment of U.S. 40 and 1300 South. Most of the options would create some issues with restoring access to homes and businesses, but Options 1A and 2A would be particularly difficult due to the locations of the old U.S. 40 and Daniels intersections with the corridor, which are near local roads that provide business access.

In summary, the study team found that Option 2C would have the most favorable traffic performance and truck utility. However, due to the public was concern about the proximity of 1300 South to existing neighborhoods to the north and the additional traffic that would use this corridor if U.S. 189 were realigned, the study team recommended that both Options 1C and 2C be advanced for further analysis in an environmental study.

7 MISCELLANEOUS TRAFFIC ANALYSES

After the screening process was completed, additional traffic analyses were performed, one for Main Street under future conditions if the Heber Valley Parkway were built, and the other evaluating the feasibility of an at-grade crossing of the Heber Valley Railroad instead of the grade-separated crossing that had previously been assumed.

7.1 Main Street Build Analysis

A traffic operations analysis was performed for the Main Street corridor for a 2050 Build PM peak hour scenario, in which the Heber Valley Parkway would be built. The Heber Valley travel demand model was used to forecast future intersection volumes, which are presented in Table 19, along with the percentage change in volume from the 2050 No Build. With the Parkway, PM intersection volumes on Main Street are expected to decrease by 7%, which would place them only 7% higher than existing conditions. As mentioned previously, these modest volume changes are because Main Street is nearing capacity under existing conditions, so there is little available capacity to accommodate future growth; as such, much of the future volume growth is projected to occur on other north-south roads through town. Building the Parkway frees up capacity on Main Street which leads traffic on the other north-south roads to shift over to Main Street, which is generally the shortest and fastest route through town.

Table 19. 2050 No Build and Build PM Peak Hour Intersection Volumes Comparison

Main Street Intersection	2050 No Build	2050 Build	Percent Change from No Build
500 North	3,890	3,550	-9%
100 North	3,800	3,780	-1%
Center Street	4,520	4,600	2%
100 South	4,360	4,150	-5%
600 South	4,550	4,460	-2%
U.S. 189 / 1200 South	5,060	3,920	-23%

7.1.1 Intersection Delay and Level of Service

The Vissim traffic operations analysis results for the 2050 Build intersections are presented in Table 20. As with the other scenarios, the table shows the performance for both the overall intersection peak hour and the worst 15 minutes of the peak hour for the southbound approach. Under the build conditions during the PM peak hour, all the Main Street intersections are expected to operate at LOS D or better. During the worst 15 minutes in the southbound direction, both Center Street and U.S. 189 / 1200 South are anticipated to be at LOS E. These results are substantially better than those of the 2050 No Build scenario, illustrating that a relatively small change in volume can make a large difference in performance. This is due to the fact that delay is not linear. Once capacity is reached, delay increases exponentially, so maintaining volumes below capacity yields large benefits.

Table 20. 2050 No Build and Build LOS and Delay per Vehicle (seconds) Comparison

Main Street Intersection	Intersection PM Peak Hour		SB Approach for Worst 15 Minutes	
	2050 No Build	2050 Build	2050 No Build	2050 Build
500 North	D / 53	B / 16	**F /126**	D / 41
Center Street	**E / 58**	D / 37	**F / 125**	**E / 67**
100 South	D / 36	C / 24	B / 14	D / 37
600 South	D / 36	C / 35	C / 33	D / 53
U.S. 189 / 1200 South	**F / 110**	D / 40	**E / 67**	**E / 56**

7.1.2 95th Percentile Queues

In the 2050 Build scenario, the southbound 95th percentile queues during the PM peak hour at the along Main Street intersections would decrease substantially compared to the No Build. As shown in Table 21, only one of the ten queues listed is expected to be over 1,000 feet, compared to six for the No Build. These queues would be slightly better than the existing conditions.

Table 21. 2050 No Build and Build PM Peak Hour 95th Percentile Queue Lengths (feet) Comparison

Main Street Intersection	Southbound Approach		Northbound Approach	
	2050 No Build	2050 Build	2050 No Build	2050 Build
500 North	**3,325**	400	625	200
Center Street	**3,225**	**1,725**	650	650
100 South	525	400	**1,550**	700
600 South	**1,100**	400	675	405
U.S. 189 / 1200 South	**1,725**	400	**1,075**	250

7.1.3 Arterial Level of Service

The 2050 Build arterial LOS was calculated for the PM peak hour and is presented in Figure 16. Compared to the No Build, Main Street performance is expected to be considerably better with only small pockets of slowing around the Center Street, 100 South, and U.S. 189 / 1200 South intersections.

7.2 Railroad Crossing Analysis

During the course of the study, the study team questioned whether the crossing of the Heber Valley Railroad could be an at-grade crossing controlled by flashers and gates rather than having a bridge over the railroad. This concept was evaluated via a traffic analysis using the Vissim software. Having an at-grade railroad crossing also meant that 1200 South would need to intersect the Parkway since building a bridge for just 1200 South or closing 1200 South were not deemed practical. Therefore, the analysis assumed 1200 South would be realigned to be the fourth leg of the Parkway and 1300 South intersection. A total of four scenarios were analyzed based on the combinations of being at-grade or not and with U.S. 189 realigned or not.

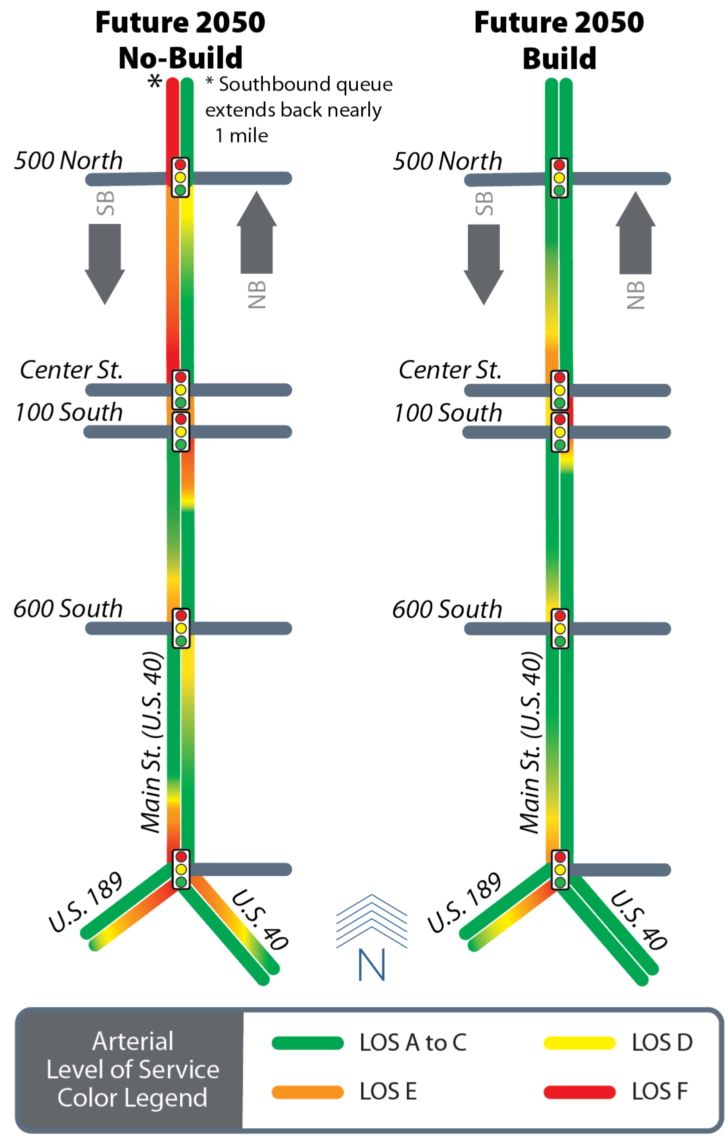


Figure 16: 2050 No Build and Build PM Main St. Arterial LOS Comparison

The analysis was performed for a worst-case scenario of a train crossing during the 2050 PM peak hour. Because the train is so slow moving, it was assumed that the gates would be down for approximately three minutes. The train was scheduled to cross the Parkway in the first few minutes of the peak hour. Total delay was measured every minute, which made it possible to look at how delay would build with the train crossing and then dissipate once the trained cleared and the gates were raised. The delays for each minute were also aggregated to calculate the total delay for the peak hour.

Given the large volumes on the Parkway and the long duration of the train crossing, total vehicles delays are expected to be considerable. Figure 17 is a chart showing the delay by minute for each scenario. This allows for a visual comparison of the relative delays and how long it takes for the scenarios with the train to get back to the baseline of the scenario without the train. Results show that for the scenarios with the U.S. 189 realignment that the delay for the train crossing scenario doesn't make it back to the baseline without the train, indicating that traffic does not recover in the PM peak hour. For the scenario without the U.S. 189 realignment, which has less traffic than the with U.S. 189 realignment and thus less delay, it is observed that traffic recovers to normal conditions within approximately 20 minutes of a train crossing.

The total combined delay for all vehicles in the network for the scenario without realigning U.S. 189 is 27 hours with the train versus 14 without, resulting in 13 hours of extra vehicle delay due to the train crossing. With a realigned U.S. 189 the delay goes from 66 hours to 104 hours, an increase of 38 hours and a system that doesn't recover within the peak hour. The study team felt that this type of performance was inadequate to merit further consideration, so the at-grade concept was dismissed.

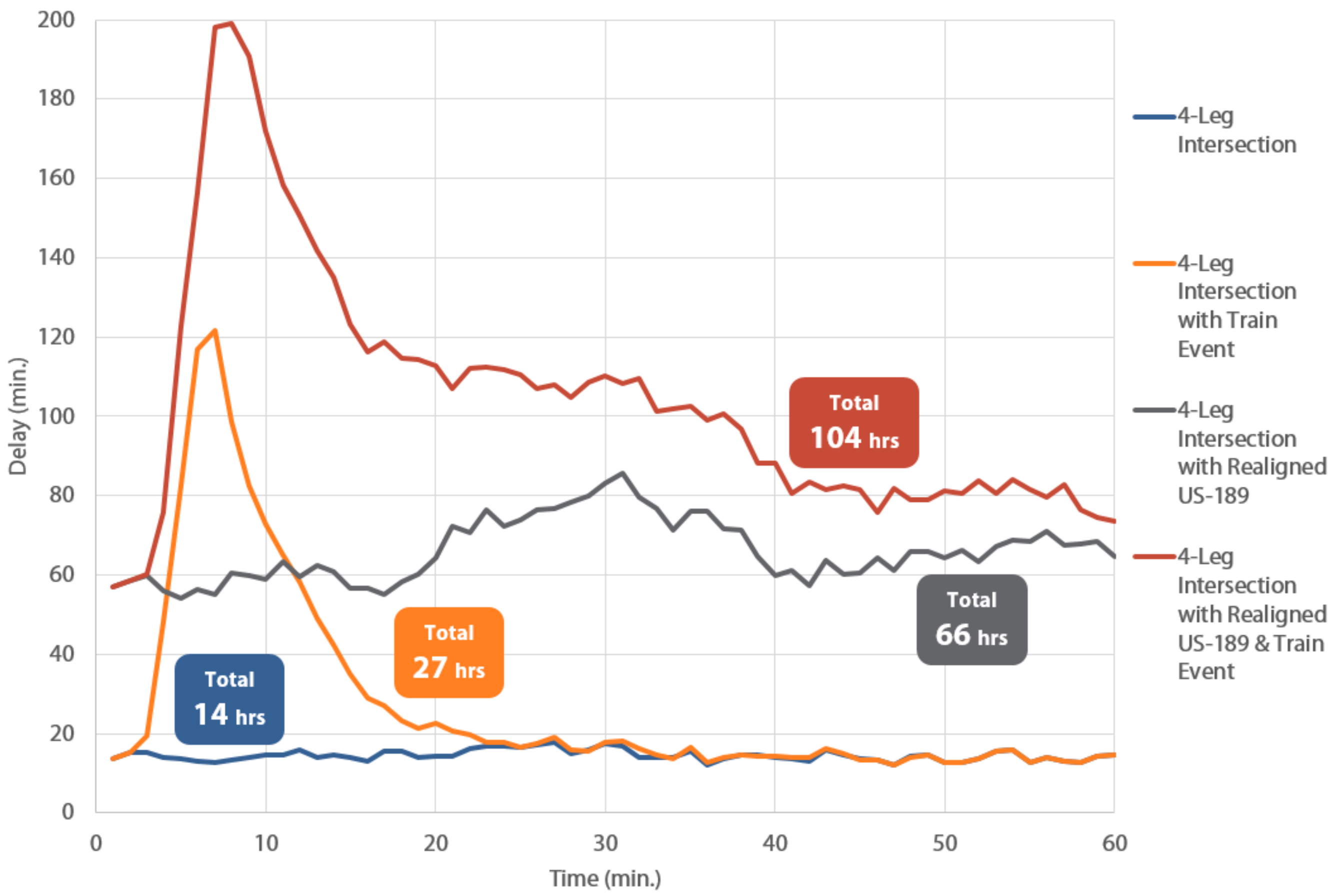


Figure 17: Heber Valley Pkwy & 1200 S/Heber Pkwy Total Delay Comparison – 2050 PM Peak Hour

8 PHASING ANALYSIS

A phasing analysis was performed to determined when the Heber Valley Parkway would need to be built to prevent Main Street from regular failure, rather than the periodic failure Main Street already experiences, especially during the summer. An analysis assuming that the Parkway had not yet been built was performed for 2035 conditions, which is about midway between existing conditions and 2050. The TDM was used to forecast future volumes and Main Street was analyzed in Vissim. The 2035 No Build volumes turned out to be only 1% less than the 2050 No Build volumes, suggesting that Main Street would be at full capacity by 2035 and that all future volume growth would occur on the side streets.

8.1 Intersection Delay and LOS

The results for the Main Street study intersections are presented in Table 22. The Center Street intersection in the southbound approach performs at LOS F, with the delay between that of the existing and the 2050 No Build results. This shows that by 2035, traffic performance is progressively worsening with the U.S. 189 / 1200 South intersection failing for the peak hour and three of the southbound approaches at LOS E or F for the worst 15 minutes.

Table 22. Existing and 2035 No Build PM Peak Hour Intersection LOS and Delay per Vehicle (s) Comparison

Main Street Intersection	Intersection PM Peak Hour		SB Approach for Worst 15 Minutes	
	Existing (2018)	2035 No Build	Existing (2018)	2035 No Build
500 North	C / 25	C / 28	D / 48	D / 43
Center Street	D / 42	D / 46	**F / 85**	**F / 105**
100 South	C / 23	C / 26	C / 22	B / 16
600 South	C / 30	D / 49	C / 35	**E / 72**
U.S. 189 / 1200 South	C / 31	**F / 100**	C / 25	**F / 124**

8.2 95th Percentile Queue

The 95th percentile queue, as shown in Table 23, continues to perform poorly by 2035, with queues four of the five intersections having southbound queues longer than 1,000 feet. The critical queue length in the PM peak hour would extend from the 100 South intersection beyond the 500 North intersection.

Table 23. Existing and 2035 No Build PM Peak Hour 95th Percentile Queue Length (feet) Comparison

Main Street Intersection	Southbound Approach		Northbound Approach	
	Existing (2018)	2035 No Build	Existing (2018)	2035 No Build
500 North	**1,000**	**1,150**	250	225
Center Street	**2,600**	**2,700**	500	575
100 South	575	525	350	900
600 South	1,100	**1,950**	925	900
U.S. 189 / 1200 South	300	**1,625**	225	450

8.3 Arterial Level of Service

The arterial LOS for Main Street is presented in Figure 18. As shown, arterial LOS is worse than existing, but not quite as poor as the LOS F seen in the 2050 No Build scenario. The southbound segments north of 100 South all perform at LOS E.

Based on modeling where Main Street is projected to already be at capacity by 2035, it seems reasonable to estimate that the Parkway would be needed by about 2030 to arrest the further degradation of Main Street traffic performance, particularly given the Main Street already experiences periodic failure during the summer.

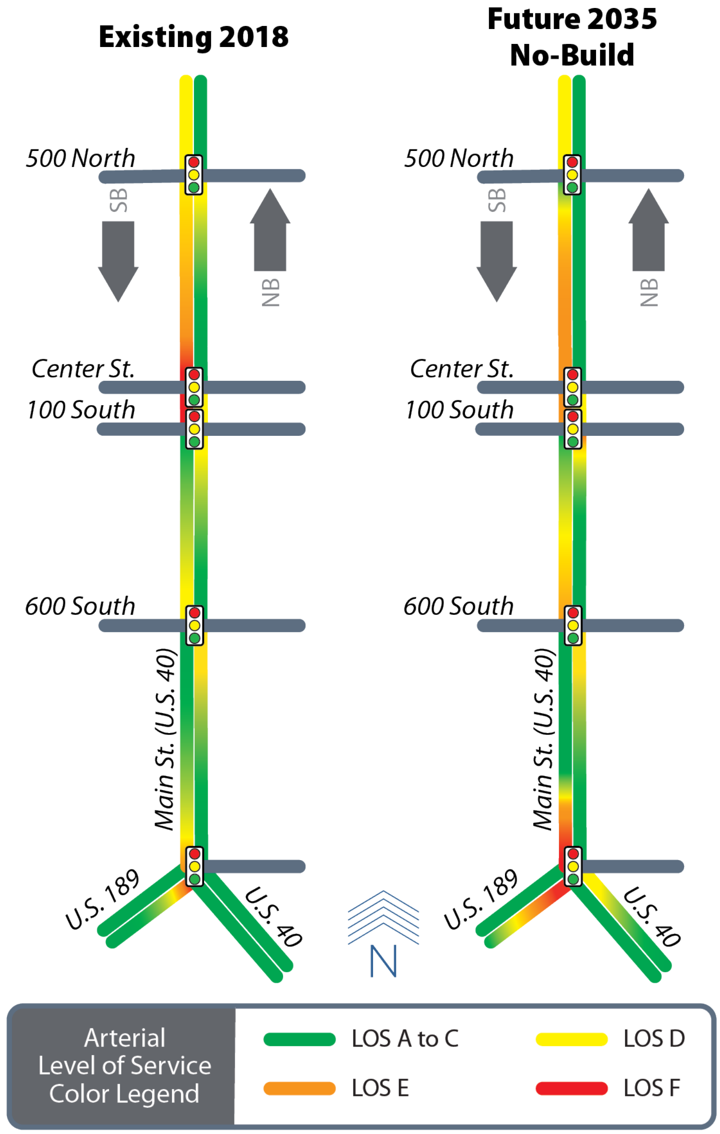


Figure 18: Existing and 2035 No Build PM Main St. Arterial LOS Comparison

9 PUBLIC INVOLVEMENT/ STAKEHOLDER OUTREACH

Due to the significance of the bypass concept for local travel patterns and the land use changes that could be associated with a given alignment, there is a high level of public interest in the project. To provide opportunity for input in the planning study, comments were gathered at two public meetings that were held during the study, as well as through email. A total of about 500 people attended the two meetings, resulting in nearly 300 comments received. Additionally, one-on-one meetings were held with local property owners to receive feedback on the options being evaluated, and monthly meetings were held with local government representatives throughout the study.

The following sections briefly summarize comments received at each public meeting. More detailed information on the meetings and specific comments received can be found in Appendix D.

9.1 Public Meeting #1

The first public meeting was held near the beginning of the study on Wednesday, August 8, 2018 at the Wasatch County Senior Center in Heber City. The meeting was in an open house format with a series of information stations presenting introductory information such as goals and objectives, study area, traffic performance, and some conceptual alignments. The meeting was attended by approximately 300 people and a total of nearly 100 comments were received via a combination of comments cards and emailed comments. The most common topics of the comments were:

- Potential impacts to neighboring homes
- Potential impacts to community resources, such as the sewer farm and planned Heber Light & Power transmission line
- Overall attention to safety
- New suggested alternative routes
- Potential economic impacts

9.2 Public Meeting #2

The second public meeting was held near the end of the study on Wednesday, February 20, 2019 at Heber Valley Elementary School in Heber City. The meeting was an open house format with a series of information stations presenting study information such as goals and objectives, option screening results, traffic performance, and recommended alignments for the west and south segments. The meeting was attended by approximately 200 people and over 200 comments were received via a combination of comments cards and emailed comments. The most common topics of the comments were:

- Potential impacts to neighboring homes
- Potential consequences of realigning U.S. 189, including airport related issues
- Need for greater public involvement
- Potential impacts to community resources, including the sewer farm
- Overall attention to safety
- New suggested alternative routes
- Potential economic impacts
- Potential impacts to the environment
- Preservation of community character
- Improvements to existing infrastructure to address traffic congestion

Following the second open house, several community members requested an opportunity to meet with the study team and discuss the options presented in greater detail. The team met with individual stakeholders and also participated in a community meeting organized by Heber City to answer additional questions and receive input.

As described earlier, based on public feedback the study team decided to not make any recommendations regarding the north or west segments or the realignment of U.S. 189 to the Parkway, but rather to evaluate them in more detail during the environmental study.

10 CONCLUSION

The study results indicate that demand exists for a parallel corridor to Main Street through the Heber Valley and that it would remove traffic off Main Street and other north-south streets in Heber City, thereby improving traffic operations throughout the city. Traffic problems are particularly acute in the summer when recreational traffic combines with regular traffic. If the corridor is built to state highway standards, it is possible that it may become a state road and Main Street through Heber City could be transferred to the city, which would allow them to make changes to the road to support their goals for downtown. This could include prohibiting semi-trucks, and action they otherwise would not be able to do. An important factor in getting the new corridor to be a state road is to make it easy for trucks to use by minimizing stops, low speed curves, and turning movements.

A number of high-level corridor concepts were evaluated, including a corridor farther from town than previously studied alignments, a freeway corridor, and a corridor without an east-west connection between U.S. 189 and south U.S. 40. These three concepts did not carry enough traffic to justify being a state road or, in the case of the freeway, would not draw enough traffic to justify the impacts associated with a freeway. One of the other concepts was to reroute U.S. 189 onto the new corridor and decommission the existing U.S. 189 roadway, which would provide substantial traffic benefits to the U.S. 40 & U.S. 189 / 1200 South area. However, due to public input that option could be further evaluated in the environmental study. In this same area, an alignment is recommended that would turn south U.S. 40 from its current path and have it connect directly to 1300 South, which would be the east-west connection between the corridor and south U.S. 40.

At the north end of the corridor, three alignments were evaluated, but ultimately it was decided that no recommendation could be made without a full wetlands analysis. Because they are federally protected, wetlands are a key component to the north segment of the corridor and could be further analyzed during a future environmental study.

A phasing analysis was performed to see when the new corridor would be needed to keep Main Street from getting too bad (it already experiences periodic failure). This analysis indicated that Main Street would be at capacity by 2035, and it is recommended that the new corridor be built by 2030.