



MEMORANDUM

To: Mountainland Association of Governments (MAG)
From: Avenue Consultants
Date: March 18, 2021
Subject: North Lakeshore Study Travel Modeling Analysis

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This memo describes the travel modeling analysis conducted for the MAG North Lakeshore Study covering north Utah County. The analysis evaluated a number of potential transportation projects in the study area for the transportation benefit they would provide. The following memo describes the methodology, assumptions, scenarios analyzed, and results of the modeling analysis.

1 METHODOLOGY

The following section discusses the methodology and measures of effectiveness used to analyze each of the scenarios.

1.1 Travel Demand Model

The WFRC/MAG travel demand model (TDM) was used to analyze transportation performance within the study area. Version 8.31 of the travel demand model was used for this study.

The travel demand model has two primary inputs: land use data and transportation system data. The land use data consists of residential and employment data for the entire region. This data is prepared in geographic blocks called Traffic Analysis Zones (TAZs). The travel model inputs are prepared for a base year, which in this case was 2019, and for a future year, which in this case was 2050. Some calibration efforts were involved in the study area of the TDM to verify and match recorded AADT volumes to 2019 TDM volumes and to match land use data to existing developments.

1.2 Districts

The North Lake Shore study area was divided into six districts, generally representing Eagle Mountain, Saratoga Springs, Lehi, Alpine-Highland, American Fork-Pleasant Grove, and Vineyard. These districts are used to present study area results in a more granular fashion. A map of the districts is included in the appendix.

1.3 Measures of Effectiveness

To evaluate the scenarios analyzed, measures of effectiveness (MOE) were developed to demonstrate which combination of improvements would provide the most benefit to the study area. The MOEs used for this study were vehicle delay, Jordan River screenline volumes and volume-to-capacity (v/c) ratios, travel times between select locations, transit mode share, and transit boardings.

Vehicle delay is obtained for each roadway link in the model by taking the difference between the modeled congested speed and the free-flow speed and multiplying it by the number of vehicles on that link. The delay values for each link in each district and the study area are added together to get a total delay that is useful measures of relative congestion between improvement scenarios. This MOE is reported by study area district.

A north-south screenline was established at the Jordan River and used to see how many vehicles would be using each road that crosses the screenline and the performance of that road at the screenline. The screenline included all east-west roads in north Utah County from the Salt Lake County line to the proposed Utah Lake bridge. Daily volume and PM v/c ratios are reported.

Travel time was used as a metric to determine how long it would take to get from either Eagle Mountain or Saratoga Springs to centers of regional significance, namely Thanksgiving Point, American Fork, and Provo. PM travel times are reported in minutes and are also divided by free-flow travel times to obtain the travel time index. A map of the travel time origins and destinations assumed for the analysis is included in the appendix.

Transit mode share and transit boardings were also used as MOEs to understand the relative transit performance of the various improvement scenarios. Transit mode share is presented as the percentage of both work trips and all trips that would be made using transit. Transit boardings show how many individuals used transit by mode. This data is presented by district and for the overall study area.

2 SCENARIO VARIABLES

The various scenarios were analyzed by changing key variables from model run to model run allowing for a systematic analysis. The variables considered in the analysis were: travel demand management strategies, land uses, transit routes, and roadway network modifications. This section describes the assumptions associated with each of the scenario variables. All scenarios were analyzed for 2050, which is the horizon year for the MAG Regional Transportation Plan (RTP)

2.1 Travel Demand Management

The study team desired to evaluate scenario options where approximately 20% of jobs were performed from home. The model currently assumes that approximately 7% of jobs are home-based. For this analysis approximately 13% of home-based work trips were removed from the model trip tables after the distribution step using custom model scripts. By removing the trips at this stage of the model process, the “work from home” factor affects both transit usage and roadway volumes. Because not all jobs can be readily performed from home, adjustments were only made to TAZs with office, government/education, health, and other job categories.

2.2 Land Use

The primary future land use assumptions for this study were those from the MAG 2050 RTP (aka TransPlan50); however, the study team desired to test a couple of transit supportive land use options. New land use model inputs were created for the following two options:

- **Clustered** – This land use option identified major transit stops in the study area for a potential high-capacity transit system and increased household and employment densities within approximately a quarter mile of the transit stop.
- **Increased Jobs/Housing Balance** – This land use option increased the number of 2050 jobs in Utah County by approximately 35% so that the county would have the same jobs-to-housing balance as Salt Lake County, which is 2.2 jobs per households.

2.3 Transit Routes

Three new high-capacity transit routes were considered as part of the scenario options in addition to those included in the MAG 2050 RTP. The new routes are shown in Figure 1 and are described below.

- **Red Line Extension** – A light rail extension of the existing Red Line from Daybreak in South Jordan through Saratoga Springs along the Mountain View Corridor / Foothill Boulevard Freeway and into Provo via the Utah Lake Bridge to the FrontRunner station.
- **Lehi-Eagle Mountain** – A LRT or BRT line that would run between the Lehi FrontRunner Station in Thanksgiving Point and Eagle Mountain.
- **State Street BRT Extension** – A BRT extension of the planned State Street BRT line from its planned terminus at the American Fork FrontRunner Station through Lehi and Saratoga Springs and into Eagle Mountain. This configuration is inconsistent with the recommendations from the Central Corridor Transit Study, which shows the State Street BRT route continuing north into Lehi, terminating in the Silicon Slopes area. Unless State Street services were duplicated south of American Fork Main Street, such a scenario would require a transfer to the route serving south Lehi, Saratoga Springs, and Eagle Mountain, which would reduce the ridership on the route.

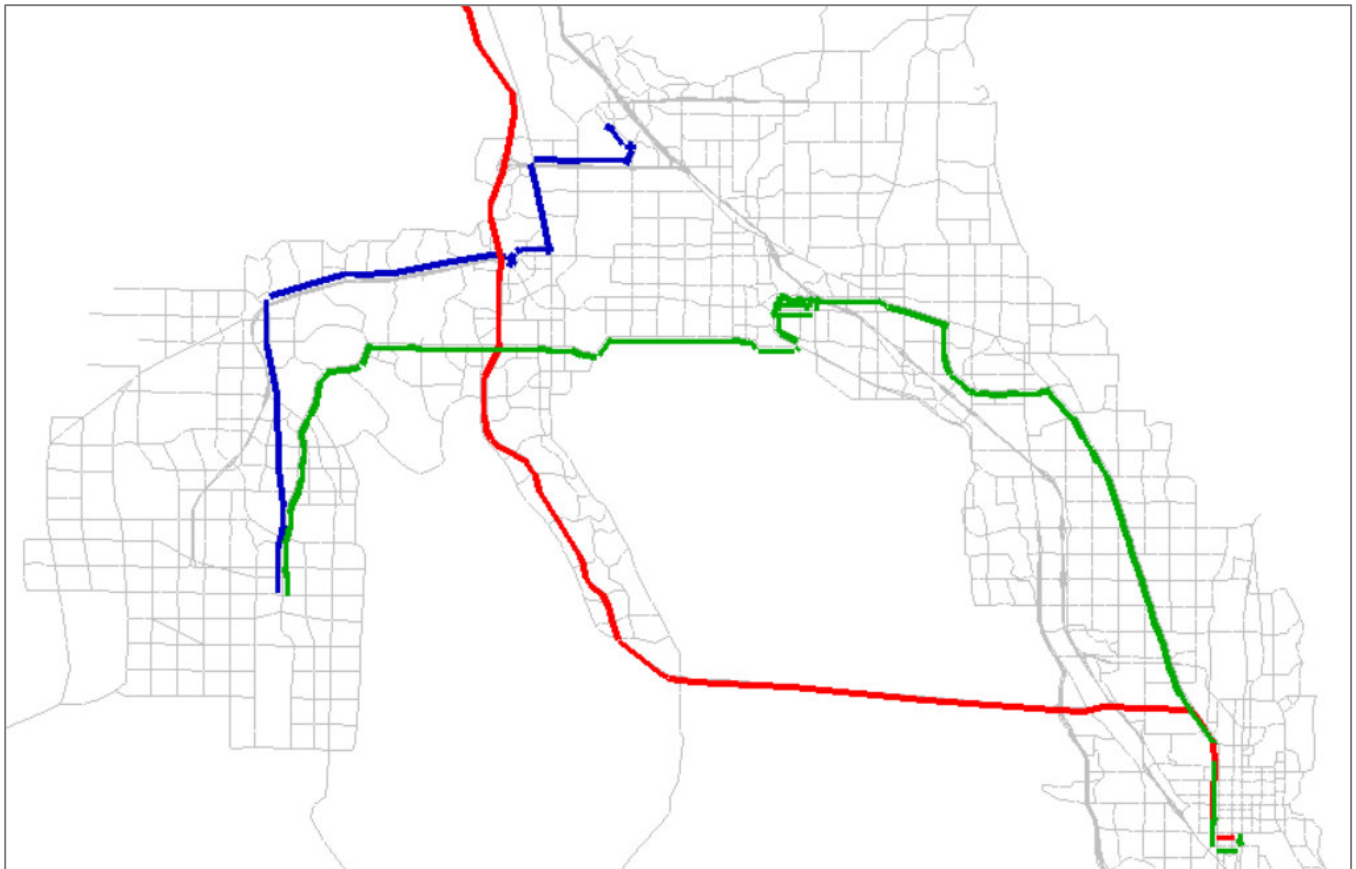


Figure 1. New High-Capacity Transit Routes

2.4 Roadway Network

A large number of roadway network modification options were evaluated during the course of the study. Those options were focused around major study area corridors, namely: Pioneer Crossing, Pony Express Parkway, Vineyard Connector, and the Utah Lake Bridge. The options associated with each of these corridors are described in the following sub-sections. The major corridor modifications were added to a base network referred to as the Master Transportation Plan (MTP) network.

As its name suggest, the MTP network is based on the transportation master plans of the study area cities. The roadway element of each plan was coded into the travel model with minor allowances for TAZ boundaries. In addition to the community plans, several RTP freeway projects that have completed or planned environmental documents were included as part of the MTP network. Those freeway projects are the Mountain View Corridor, 2100 North Freeway, SR-73 Freeway, and Foothill Boulevard Freeway.

The RTP roadway network was assumed outside of the study area, which included another important new freeway facility: the north-south parallel freeway that would run west of I-15 from the Payson area to American Fork. For the purposes of this study, the parallel freeway was assumed to have its northern terminus in the Orem 800 North & Geneva Road area.

Figure 2 shows the roadway system assumed in the MTP network. The following list describes the MTP network assumptions for the four corridors that are the primary focus of the study scenario options:

- **Pioneer Crossing** – The MTP network assumes that Pioneer Crossing is widened to have a continuous six-lane expressway from the Mountain View Corridor to I-15.
- **Pony Express Parkway** – The MTP network assumes that Pony Express Parkway will be a four-lane arterial that will connect directly into the Vineyard Connector.
- **Vineyard Connector** – The MTP network assumes that the Vineyard Connector will be a four-lane arterial from Orem 800 North to Pony Express Parkway. No direct connection to Pioneer Crossing is assumed, instead connectivity would be via the grid network, which is inconsistent with the Vineyard Connector environmental study, but consistent with the community transportation plans.
- **Utah Lake Bridge** – The MTP network does not include the Utah Lake Bridge.

Unlike the rest of the MTP network, the assumptions for these four corridors change based on the scenario and option being analyzed.

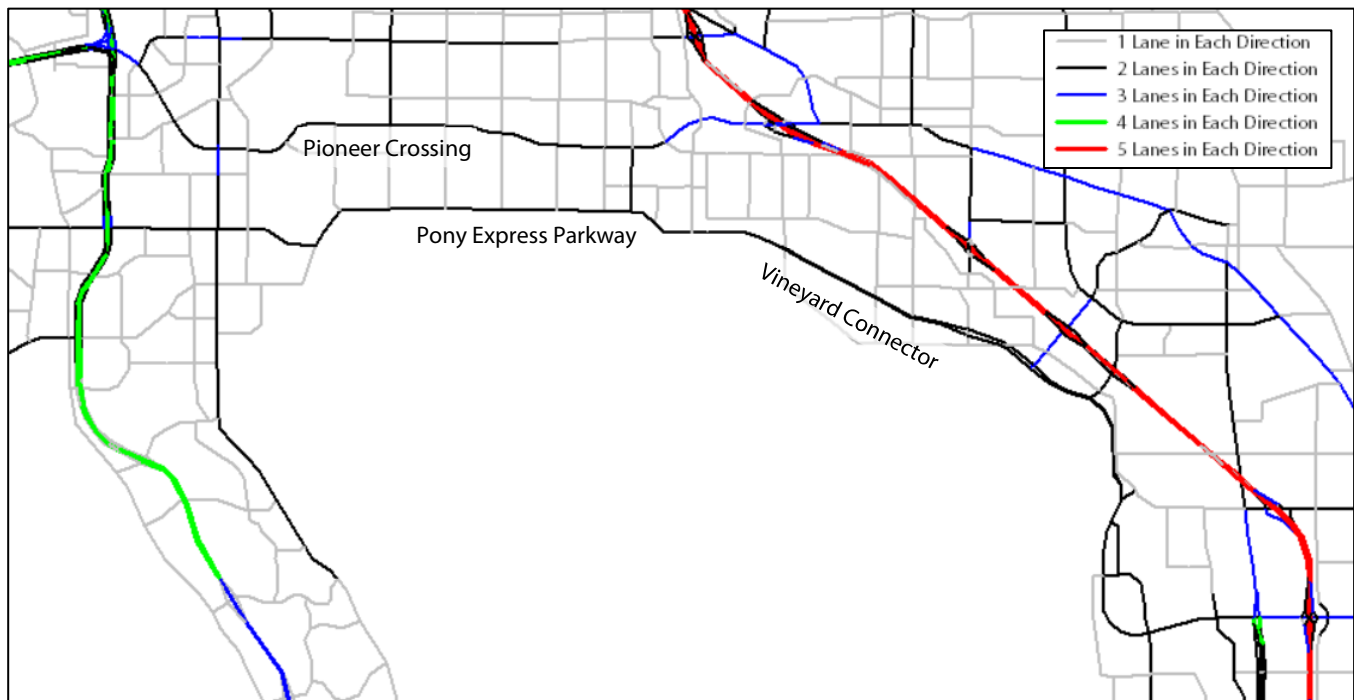


Figure 2. MTP Roadway Network

2.4.1 Pioneer Crossing

Pioneer Crossing has two primary options: six-lane expressway and eight-lane freeway. A couple of the scenario options keep Pioneer Crossing in its current four-lane expressway configuration. All of the freeway scenario options include a freeway-to-freeway connection to I-15. For some of the scenario options when both Pioneer Crossing and Vineyard Connector are freeways, freeway-to-freeway connections are assumed between the two facilities. On the west end of the Pioneer Crossing corridor some of the freeway scenarios assume that the freeway continues due west and intersects the Foothill Boulevard Freeway at a system-to-system interchange. This would place the new system-to-system interchange less than one mile south of the planned Mountain View Corridor/Foothill Boulevard Freeway & SR-73 Freeway interchange, which could result in operational challenges due to the less-than-desired spacing between interchanges. Other scenario options assume that the Pioneer Crossing freeway continues northwest on the existing Pioneer Crossing alignment and connects to the Mountain View Corridor / SR-73 system-to-system interchange.

2.4.2 Pony Express Parkway

Pony Express Parkway has two primary options: four-lane arterial and eight-lane freeway. A couple of the scenario options assume that the corridor essentially remains in its existing + funded condition with a two-lane arterial from Redwood Road to Lehi 2300 West and as a two-lane collector to Lehi Center Street with no connection to Vineyard Connector.

The four-lane arterial options either connect directly into Vineyard Connector such that they function as the same road or Pony Express Parkway ends at Vineyard Connector in scenario options where Vineyard Connector connects directly into Pioneer Crossing.

There are several alignment options for the Pony Express Parkway freeway options. Some have both Pony Express Parkway and Vineyard Connector as freeways where they connect directly into each other. In other options the freeway leaves dry ground to travel across the north side of Utah Lake, thus minimizing property impacts, before ultimately connecting to I-15 in the Pleasant Grove Boulevard interchange area.

2.4.3 Vineyard Connector

Vineyard Connector has two primary options: four-lane arterial and six-lane freeway. As described in previous sections, regardless of Vineyard Connector facility type there are scenario options where the corridor connects directly to Pony Express Parkway or continues north to connect to Pioneer Crossing. The freeway options all connect to the north-south parallel freeway at Orem 800 North. They also bypass the sharp curve at the west end of 800 North in favor of a larger curve that would leave the Geneva Road corridor north of 800 North and connect back to the planned Vineyard Connector alignment north of Orem 1600 North. Finally, there are a couple of scenario options that do not modify the Vineyard Connector beyond its current environmentally-cleared configuration.

2.4.4 Utah Lake Bridge

There are only two options for the Utah Lake Bridge: with it or without it. For all the scenario options that include the bridge, it is assumed that the bridge would be a six-lane freeway extension of the Foothill Boulevard Freeway from Redwood Road across the lake to connect with I-15 near the Orem/Provo boundary. It would also have a system interchange with the north-south parallel freeway.



3 SCENARIO DESCRIPTIONS

This section describes the three major scenarios used to analyze transportation performance in the North Lakeshore study area. Scenario 1 primarily includes modifications to travel demand management, land use, and transit, but also includes some modifications to the roadway network. Scenario 2 focuses on Pioneer Crossing as a freeway, while Scenario 3 focuses on Pony Express Parkway as a freeway. Each of these three scenarios have multiple options where different combinations of scenario variables were applied to understand the implications or benefits of the different variables. Tables and screenshot images of the TDM are used to describe the various scenarios that were analyzed.

3.1 Scenario 1 – Travel Demand Management & Transit

The eight scenario options analyzed in Scenario 1 consisted of testing the increased work from home factors, transit supportive land uses, new transit routes, and the need for additional major roadways in the study area. Table 1 presents the variations analyzed under Scenario 1 with a description of how each solution option was applied.

Table 1. Scenario 1 Options

Solution Options	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8
Travel Demand Management	20% WFH	No Change	No Change	No Change	20% WFH	20% WFH	No Change	20% WFH
Land Use	RTP	RTP	Clustered	Increase Jobs/HH Balance	RTP	RTP	RTP	RTP
Transit Lines	All Three	All Three	All Three	All Three	RTP	All Three	All Three	Lehi-EM
Pioneer Crossing	6-Lane Expressway	6-Lane Expressway	6-Lane Expressway	6-Lane Expressway	6-Lane Expressway	Existing	Existing	6-Lane Expressway
Pony Express Parkway	4-Ln Arterial to Vnyd Con	4-Ln Arterial to Vnyd Con	4-Ln Arterial to Vnyd Con	4-Ln Arterial to Vnyd Con	4-Ln Arterial to Vnyd Con	Existing	Existing	4-Ln Arterial to Vnyd Con
Vineyard Connector	4-Ln Arterial	4-Ln Arterial	4-Ln Arterial	4-Ln Arterial	4-Ln Arterial	Existing	Existing	4-Ln Arterial
UT Lake Bridge	Bridge	Bridge	Bridge	Bridge	Bridge	No Bridge	No Bridge	Bridge

For scenario options 1.2, 1.4, 1.6, and 1.8, work from home jobs were increased to 20%. This adjustment was applied to observe how a decrease in work trips for certain types of employment would affect the transportation network. The scenarios with “no change” to the work from home percent assumed the 7% home-based jobs included in the RTP.

Scenario options 1.3 and 1.3a were those that adjusted land use. Scenario 1.3 analyzed the study area using a modified SE dataset which showed a higher density of employment and households around major transit stops. Scenario 1.3a analyzed increased 2050 employment in Utah County by approximately 35% such that the county’s jobs-to-housing balance matches that of Salt Lake County.

The scenarios that analyzed three new transit lines included an LRT extension of the Red Line from Daybreak, an LRT line from Thanksgiving Point to Eagle Mountain (Lehi-EM) and a BRT extension of the planned State Street line from American Fork along Pony Express Parkway to Eagle Mountain. These three lines were all in addition to the routes assumed in the RTP. Scenario option 1.4 assumed just the RTP transit and scenario option 1.8 assumed that the only additional transit service would be the Lehi-EM line.

For Scenario 1, the roadway network was generally assumed to be consistent between options with Pioneer Crossing Blvd as a 6-lane expressway, both Pony Express Parkway and Vineyard Connector as 4-lane arterials, and with the Utah Lake Bridge. Figure 3 shows the travel model roadway network with these assumptions.

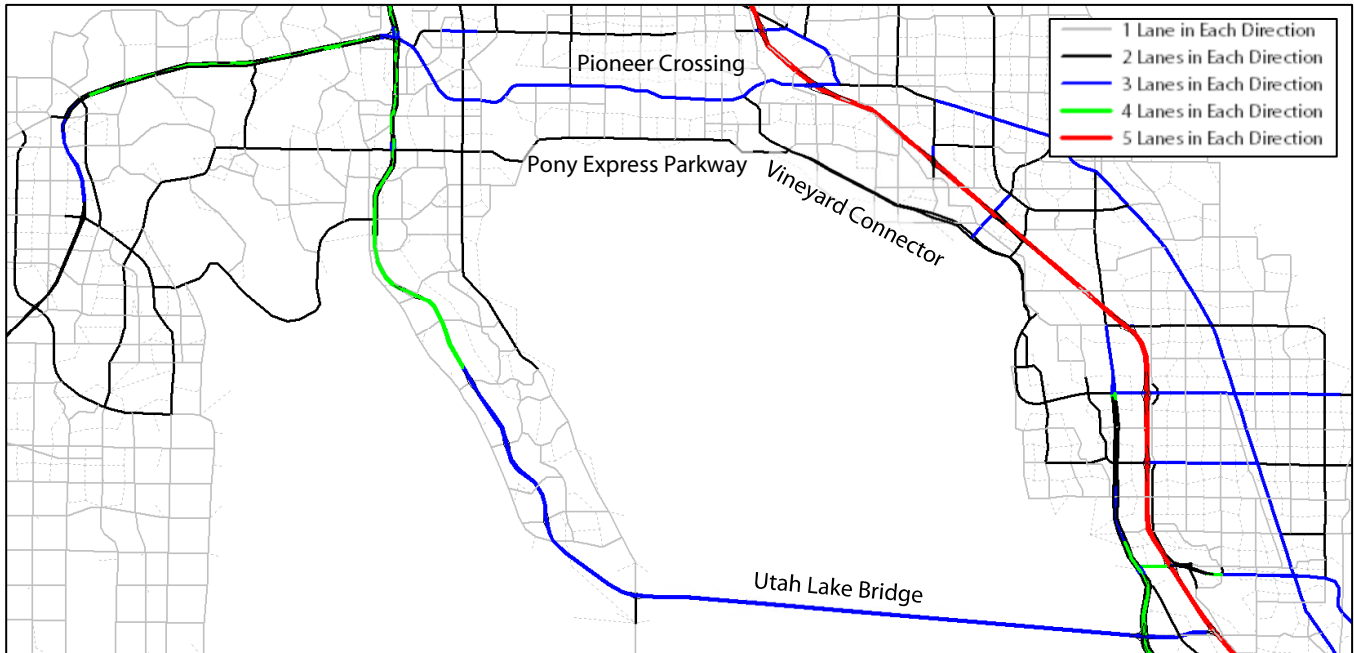


Figure 3. Scenario 1 General Roadway Network

Scenario options 1.6 and 1.7 are the exception to the general roadway configuration in that Pioneer Crossing, Pony Express Parkway, and Vineyard Connector are all assumed to be in their existing condition and it was assumed that there would not be a Utah Lake Bridge. The roadway network for these scenario options is shown in Figure 4.

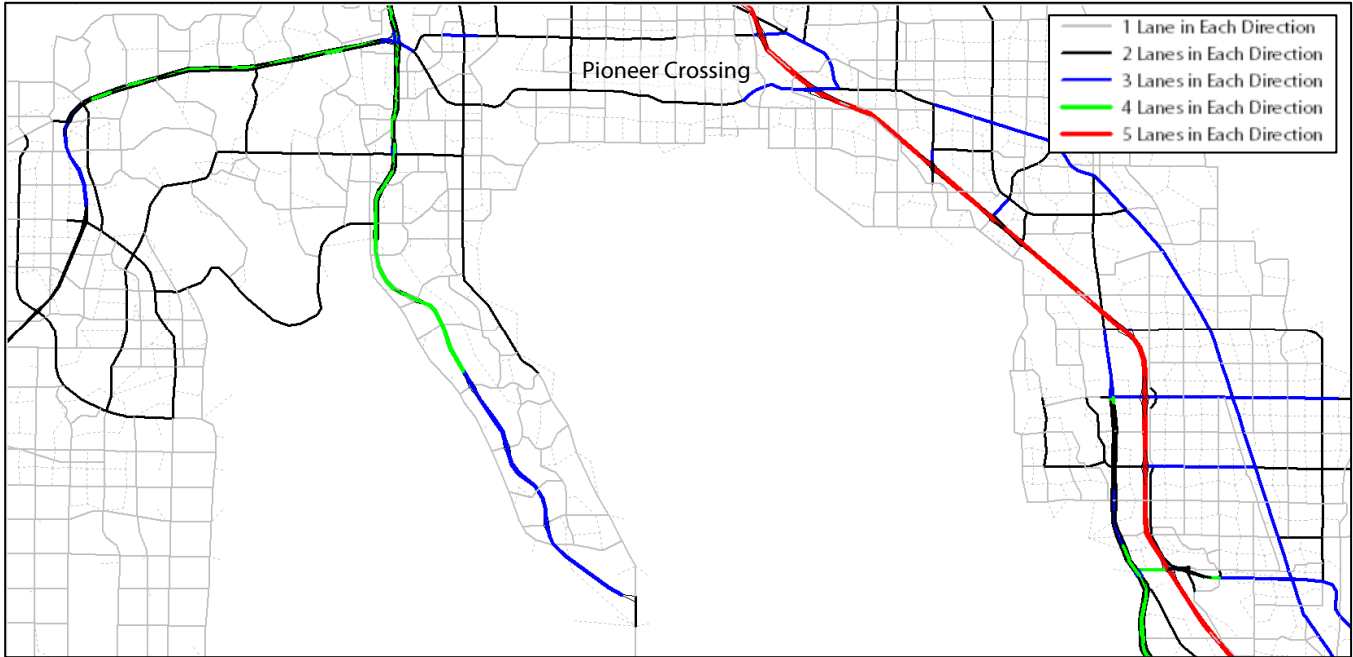


Figure 4. Scenario Options 1.6 and 1.7 Roadway Network

3.2 Scenario 2 – Pioneer Crossing Freeway

The six scenario options analyzed in Scenario 2 tested different freeway alignments, assumptions regarding the presence of Pony Express Parkway and the Utah Lake Bridge, and the facility type for Vineyard Connector. Table 2 shows the list of options associated with Scenario 2.

Table 2. Scenario 2 Options

Solution Options	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6
Travel Demand Management	No Change	No Change	No Change	No Change	No Change	No Change
Land Use	RTP	RTP	RTP	RTP	RTP	RTP
Transit Lines	Lehi-EM	State St BRT Ext	State St BRT Ext	State St BRT Ext	State St BRT Ext	State St BRT Ext
Pioneer Crossing	Freeway	Freeway	Fwy to Vineyard	Fwy Straight Rdwd/ MVC	Fwy Straight Rdwd/ MVC	Fwy Straight Rdwd/ MVC
Pony Express Parkway	4-Ln Arterial Con to Vnyd	4-Ln Arterial Con to Vnyd	4-Ln Arterial End at Vnyd	4-Ln Arterial End at Vnyd	Existing	Existing
Vineyard Connector	4-Ln Arterial	4-Ln Arterial	Freeway	Freeway	Freeway	Freeway
UT Lake Bridge	Bridge	Bridge	Bridge	Bridge	Bridge	No Bridge

There were no adjustments made to the travel demand management or land use in this scenario. Scenario options 2.1 included a Lehi-EM BRT transit line while all the other assumed the State Street BRT extension. Scenario options 2.1 and 2.2 directly compare these two transit options. Both lines were assumed to be BRT routes. The State Street BRT extension performed better, as will be described in the evaluation section, and was assumed to be the transit route for the remaining scenario options.

In scenario options 2.1 and 2.2, Pioneer Crossing is a freeway along the existing alignment with system-to-system ramps located at both I-15 and Mountain View Corridor/SR-73 Freeway. Pony Express Parkway is a 4-lane arterial that terminates at Vineyard Connector. Vineyard Connector is a 4-lane arterial running parallel to I-15 and connecting to Pioneer Crossing on the north. These alignments, as coded in the TDM, are shown in Figure 5. All the Scenario 2 options include the Utah Lake Bridge, except for 2.6.

Scenario option 2.3 assumes Vineyard Connector as a freeway, as shown in Figure 6. Scenario options 2.4, 2.5, and 2.6 have a modified alignment where west of Redwood Road where the Pioneer Crossing Freeway continues straight to the Foothill Boulevard Freeway to intersect it perpendicularly. This straight alignment is shown in Figure 7, along with the scenario option 2.4 Pony Express Parkway arterial and Vineyard Connector freeway. As mentioned previously, there are concerns that the new system-to-system interchange with the Foothill Boulevard Freeway would be too close to the planned Mountain View Corridor/Foothill Boulevard Freeway & SR-73 Freeway system-to-system interchange leading to operational challenges.

Scenario options 2.5 and 2.6 include the straight freeway connection at Pioneer Crossing, a freeway at Vineyard Crossing but existing conditions for Pony Express Parkway. The difference between the two options is that 2.5 assumes the Utah Lake Bridge, while 2.6 does not include the bridge.

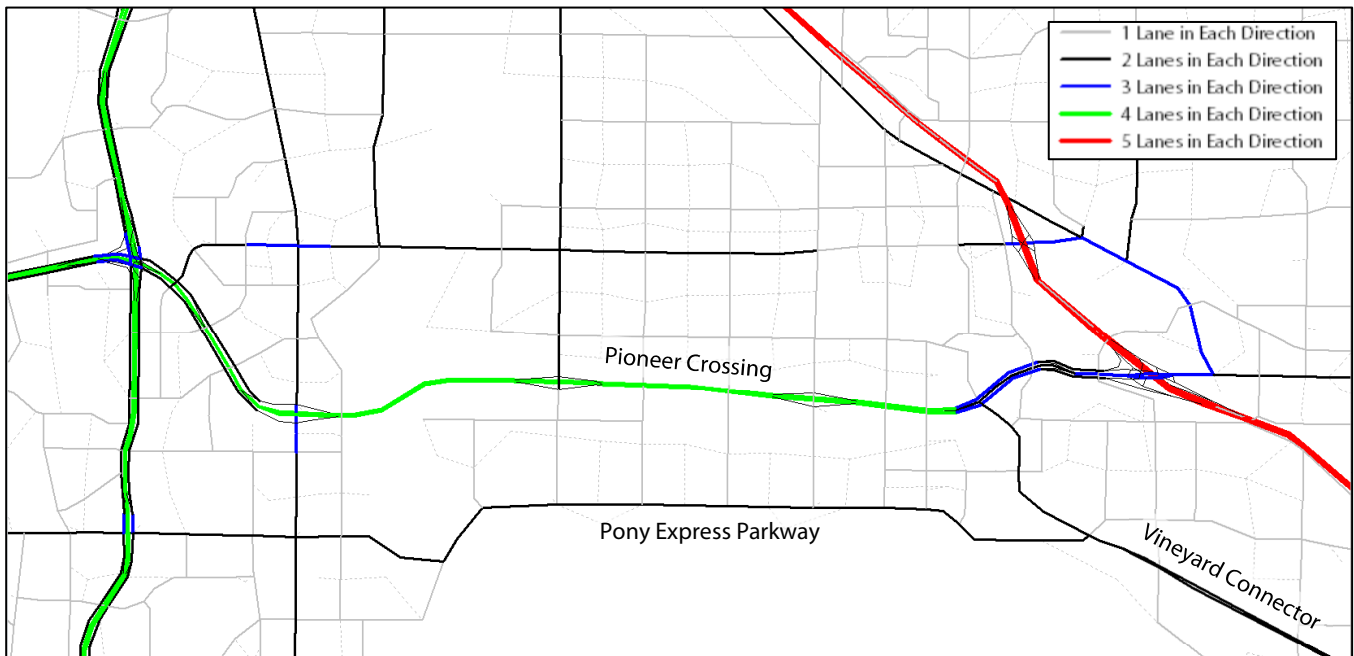


Figure 5. Scenario Options 2.1 and 2.2 Roadway Network

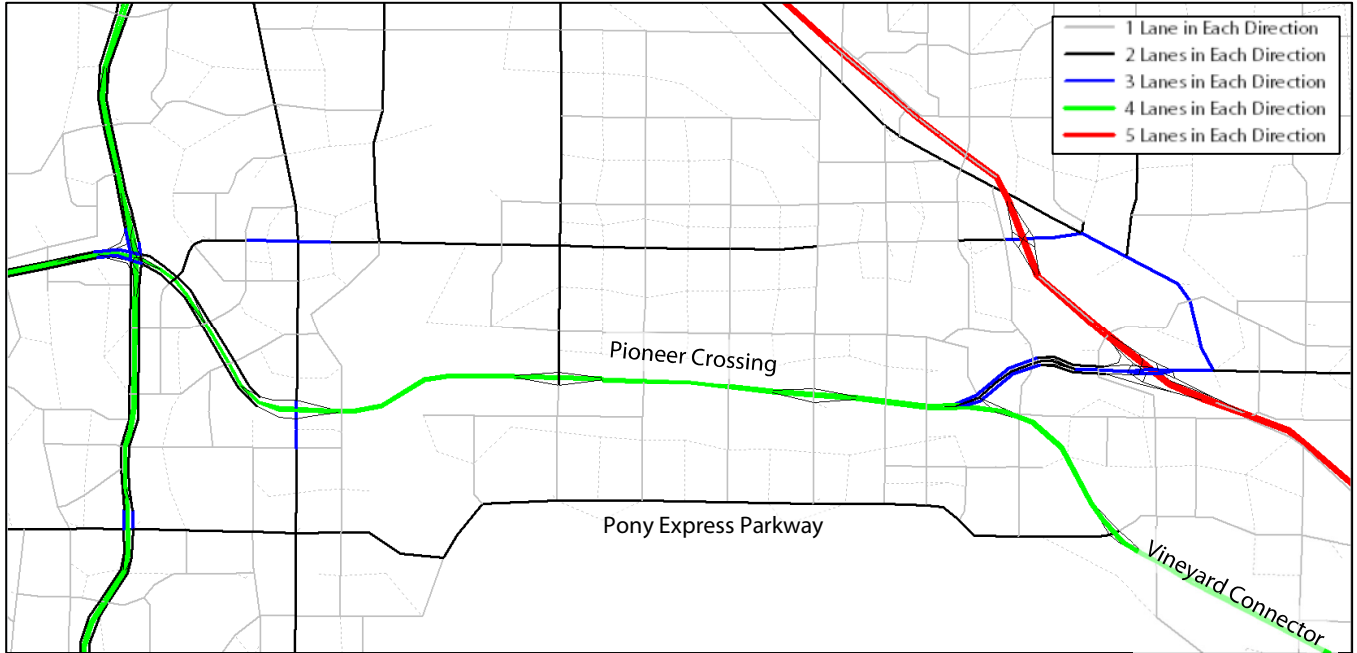


Figure 6. Scenario Option 2.3 Roadway Network – Assumes Vineyard Connector Freeway

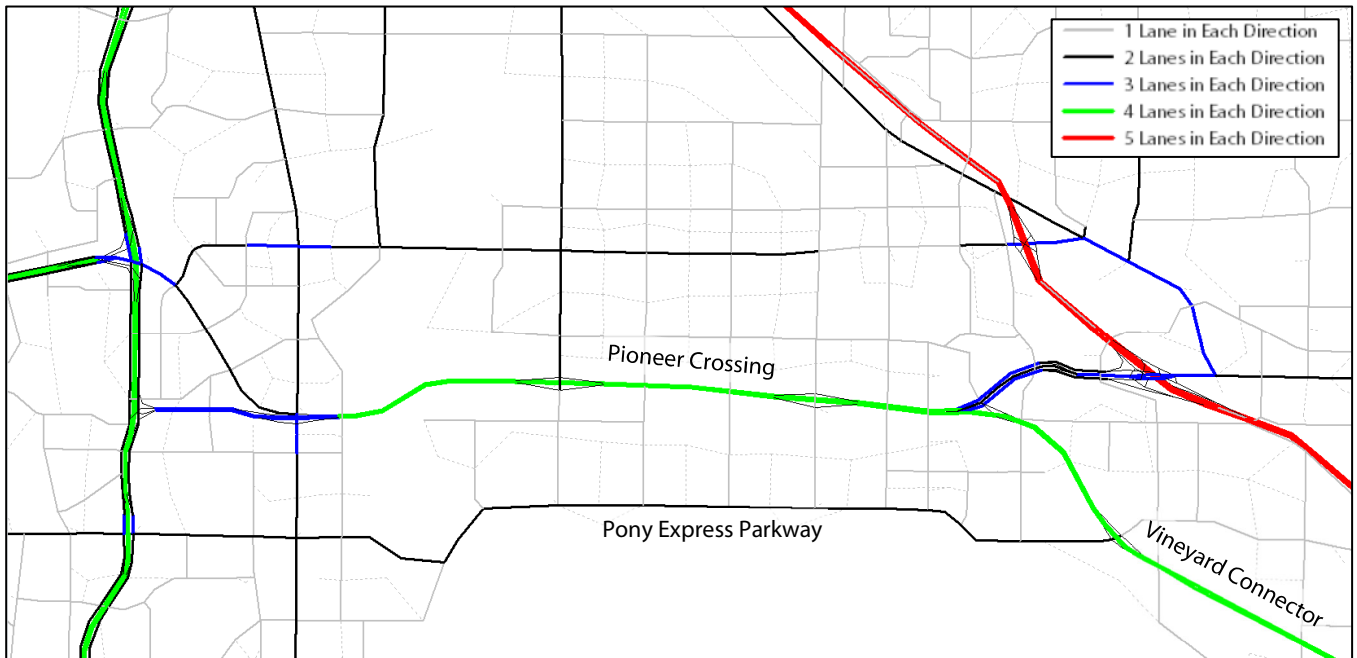


Figure 7. Scenario Option 2.4 Roadway Network – Assumes Straight Connection to Foothill Boulevard Freeway

3.3 Scenario 3 – Pony Express Freeway

The five Scenario 3 options evaluated Pony Express Parkway as a freeway and tested assumptions regarding the freeway alignment and connections to other freeways, the Vineyard Connector facility type, and the presence of the Utah Lake Bridge. No changes were made to the travel demand management, land use, and transit assumptions. Table 3 shows the list of options associated with Scenario 3.

Table 3. Scenario 3 Options

Solution Options	S3.1	S3.2	S3.3	S3.4	S3.5
Travel Demand Management	No Change	No Change	No Change	No Change	No Change
Land Use	RTP	RTP	RTP	RTP	RTP
Transit Lines	State St BRT Ext	State St BRT Ext	State St BRT Ext	State St BRT Ext	State St BRT Ext
Pioneer Crossing	6-Lane Expressway	6-Lane Expressway	6-Lane Expressway	6-Lane Expressway	6-Lane Expressway
Pony Express Parkway	Fwy to PG Int	Fwy to PG Int 400 N Bridge	Fwy to PG Int Lehi Bridge	Fwy to Vnyd	Fwy to Vnyd
Vineyard Connector	4-Ln Arterial	4-Ln Arterial	Fwy	Fwy	Fwy
UT Lake Bridge	Bridge	Bridge	Bridge	Bridge	No Bridge

Scenario option 3.1 assumes the Pony Express Freeway would connect to I-15 via system-to system ramps at the Pleasant Grove Boulevard interchange. Vineyard Connector would intersect with the Pony Express Freeway and would not extend north of the freeway due to the Pony Express Freeway alignment interfering with where it would otherwise be built, as shown in Figure 8. The option includes Pioneer Crossing as a 6-lane expressway and the Utah Lake Bridge.

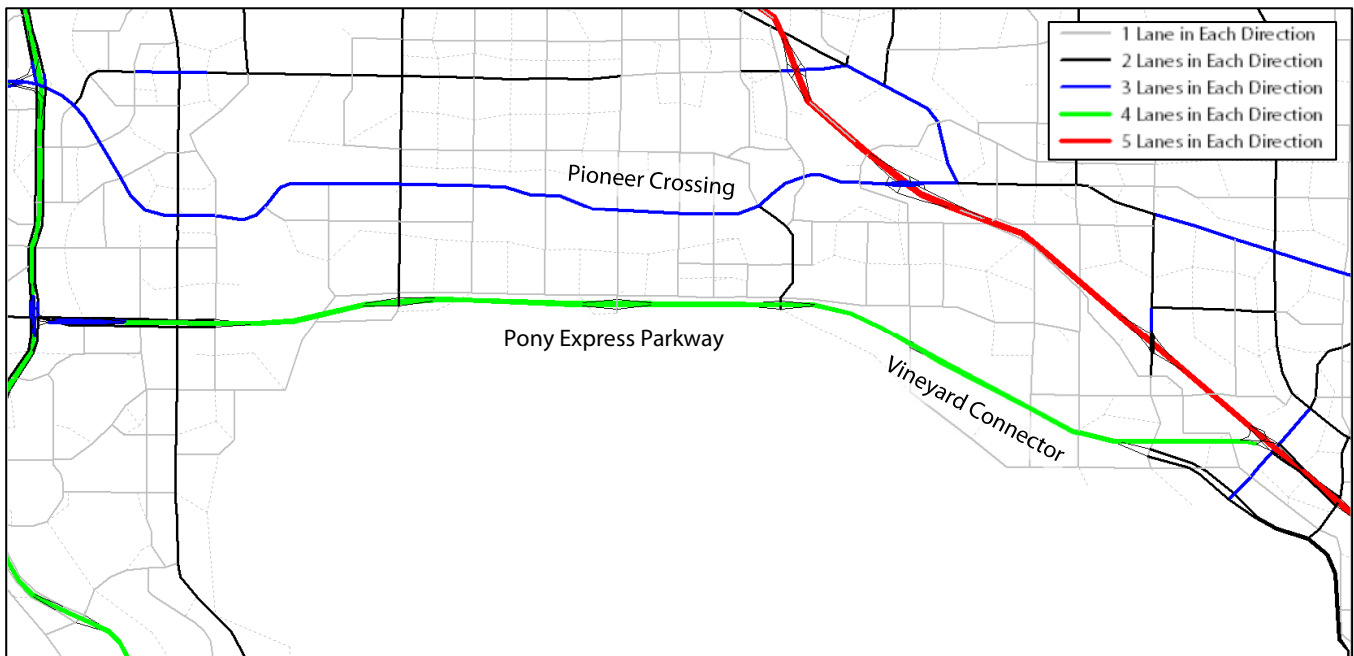


Figure 8. Scenario Option 3.1 Roadway Network

Scenario option 3.2 includes the same roadway network as 3.1, but with the Pony Express freeway connecting to the Pleasant Grove Blvd interchange via a bridge over Utah Lake beginning at 400 North in Saratoga Springs.

This bridge is in addition to the Utah Lake Bridge farther south. Figure 9 shows the alignment of the 400 North Utah Lake Bridge. The Pony Express Freeway would intersect Vineyard Connector perpendicularly and connect to Pleasant Grove Boulevard and I-15.

Scenario option 3.3 has the same roadway alignments as 3.2 except the Pony Express Freeway bridge would start farther east after an interchange with Lehi 2300 West, as shown in Figure 10.

Scenario option 3.4 has the Pony Express freeway along its current alignment north of Utah Lake to connect into the Vineyard Connector, as shown in Figure 11. This essentially combines both freeways into a continuous facility running parallel to I-15 and then parallel to Pioneer Crossing. Scenario option 3.5 is the same as 3.4 but without the Utah Lake Bridge.

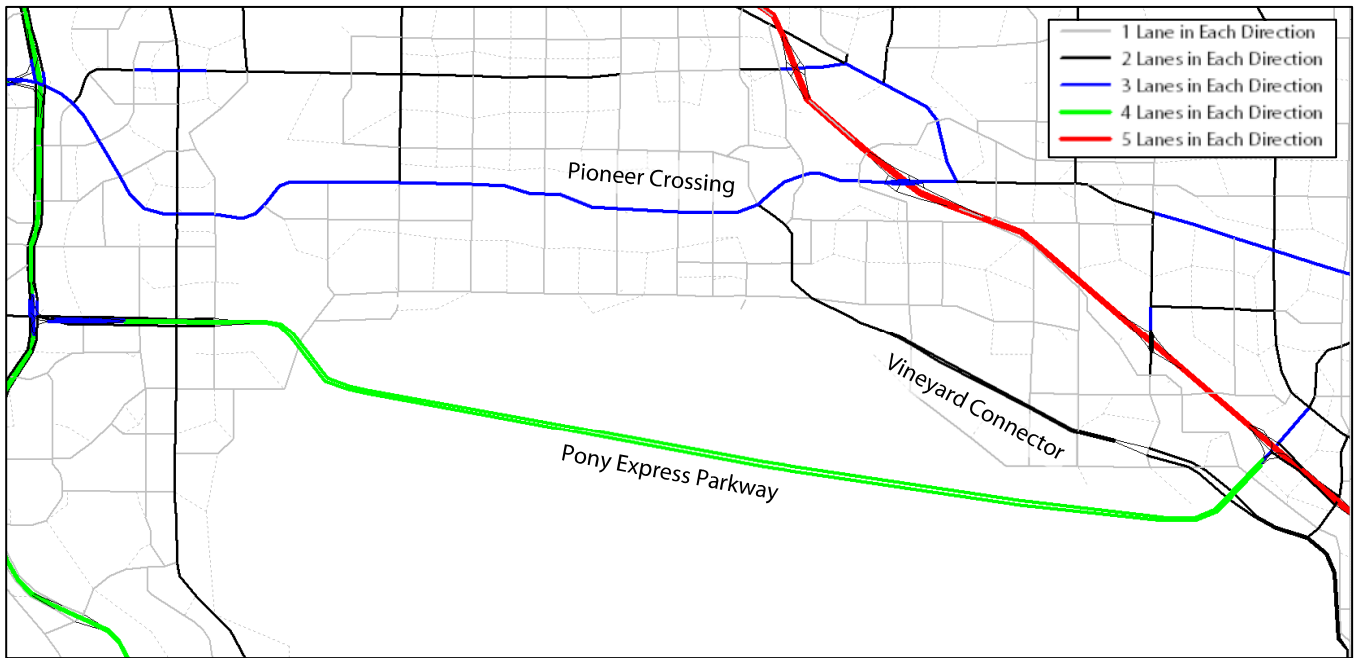


Figure 9. Scenario Option 3.2 Roadway Network – Assumes 400 North Bridge

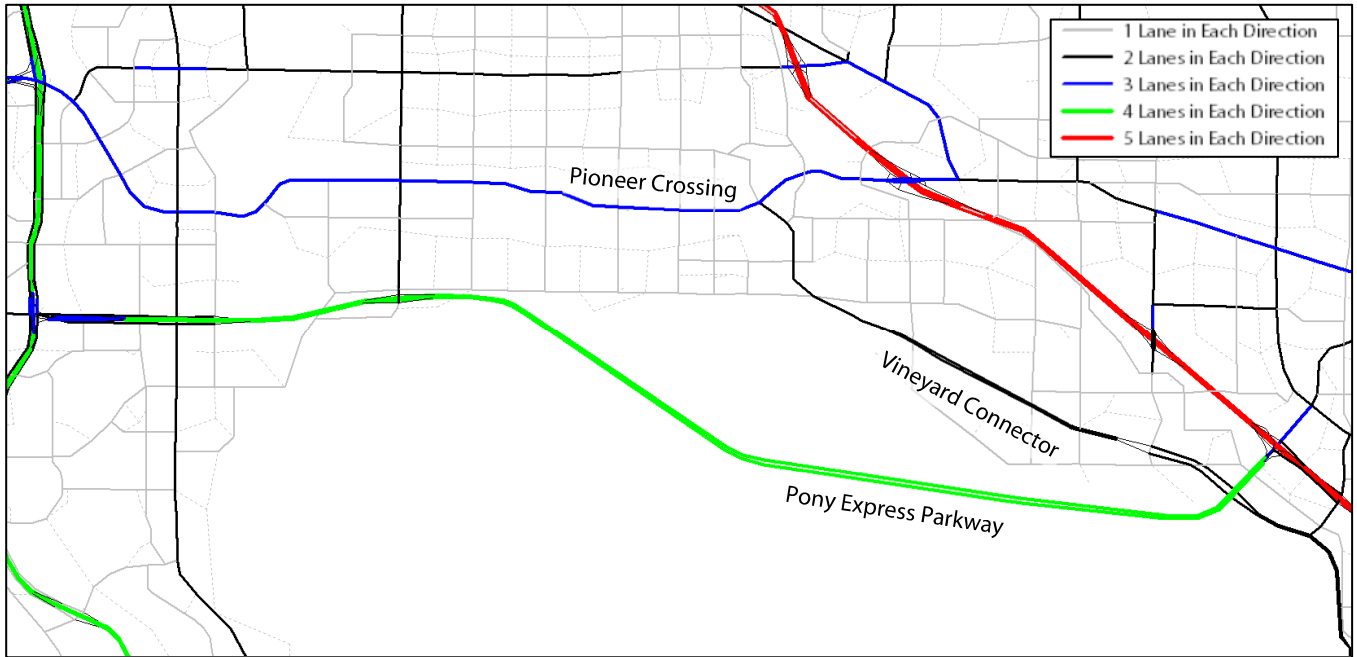


Figure 10. Scenario Option 3.3 Roadway Network – Assumes Lehi 2300 West Bridge

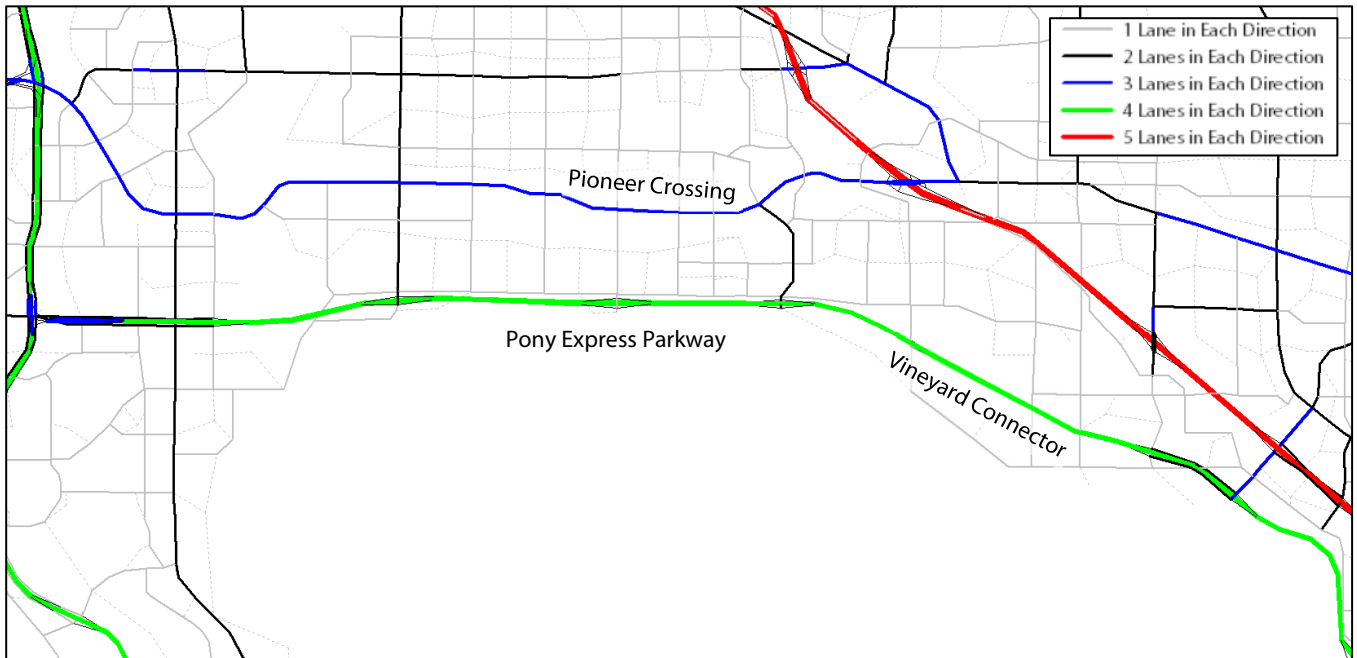


Figure 11. Scenario Options 3.4 and 3.5 Roadway Network – Assumes Freeway to Vineyard Connector

4 SCENARIOS EVALUATION

This section presents the analysis results for all the scenarios, describing how the various solutions would affect transportation within the study area. Portions of the MOE results are presented in each section. A complete report of each MOE for all the scenarios is included in the appendix.

4.1 MTP Results

The MTP scenario serves as a baseline against which the other scenarios can be compared. Because the MTP scenario represents the communities’ master plans, it reflects what would happen if nothing else were done for the transportation system. The primary measure of effectiveness for this study was study area delay, which is essentially the sum of all the congestion in the study area. Table 4 presents the total study area delay as well as the delay for east-west and north-south roads. Because large area delay values like this are difficult to interpret since drivers are aware of their individual delay but not necessarily the aggregate delay for an entire area, study area delay values are most useful when compared to other scenarios. Existing delay is always a good starting point since people are generally familiar with existing traffic conditions and then may understand how much more delay the future will have than the present. As such, the table also presents 2019 delay values, which show that the 2050 MTP delay is expected to be five times greater than the existing delay. This suggests that the MTP scenario will not be sufficient to accommodate all the 2050 transportation demand and that additional transportation infrastructure will be needed to keep delay at tolerable levels.

Another version of the MTP scenario that was considered is one that included the Utah Lake Bridge. The table shows that adding the bridge would reduce the study area delay by nearly 50% compared to the MTP scenario. However, this does not mean that the Utah Lake Bridge is the most valuable project. Because there is so much congestion in the MTP scenario, any high-capacity project would provide substantial delay benefit.

Table 4. MTP Scenario Study Area Delay (hours)

Delay Category	2019	MTP	MTP w/ Bridge
East-West Roads	10,300	55,700	24,600
North-South Roads	7,300	33,100	23,100
Study Area Total	17,600	88,800	47,700

Another important consideration for the study is the performance of the transit system. Table 5 shows the share of work trips being made by transit and number of daily boardings by district for the study area. It shows with the transit service assumed in the RTP that transit usage is expected to increase substantially by 2050. The highest future transit shares and boardings are expected to be in the Vineyard area where there will soon be a FrontRunner station, and the lowest transit shares are expected to be in the Cedar Valley where transit service would still be quite limited. A transit analysis was not performed for the MTP with Bridge scenario.

Table 5. MTP Scenario Transit Share (% of trips) and Boardings

District Name	Work Trips Transit Share		Transit Boardings	
	2019	MTP	2019	MTP
Cedar Valley	0.42	0.36	30	470
Saratoga Springs	0.50	1.27	70	2,320
Lehi	1.35	3.44	1,490	8,860
Alpine-Highland	0.36	0.77	70	170
AF-PG	0.80	3.07	1,570	8,100
Vineyard	1.84	6.86	2,120	9,850
Study Area Total	1.05	2.67	5,340	29,770

4.2 Scenario 1 – Travel Demand Management & Transit Results

Scenario 1 primarily focused on modifications to travel demand management, land use, and new transit lines beyond those included in the RTP. The variations in the roadway network consisted of whether Pioneer Crossing was widened and Pony Express Parkway and Vineyard Connector were constructed at all. Table 6 presents the study area vehicle delay for the scenario options. Options 1.3 and 1.3a are land use options to evaluate how they would affect transit usage. Because households and employment were not controlled to countywide control totals, they have more trips than the other options and are not suitable for delay comparisons.

Table 6. Scenario 1 2050 Daily Study Area Delay (hours)

Delay Category	S1.2	S1.2a	S1.4	S1.6	S1.7	S1.8
East-West Roads	17,100	20,700	17,100	42,400	47,200	17,000
North-South Roads	15,400	19,800	15,500	24,100	30,000	15,400
Study Area Total	32,500	40,500	32,500	66,500	77,300	32,400

Scenario options 1.2, 1.4, and 1.8 have delay values that are virtually identical. The only differences between these options are the transit assumptions ranging from no additional transit beyond the RTP to three new transit lines. The similarity in delay suggests that increased transit service does not appreciably affect vehicle delay.

Scenario options 1.2 and 1.2a differ only in their travel demand management strategies with 1.2 having an increased work from home factor of 20% while 1.2a has no additional work from home factor. Scenario option 1.2 has 8,000 hours fewer hours of delay, which is about 20% less delay than 1.2a. This shows that reducing work trips can be very effective at reducing vehicle delay, which is something that was observed in Spring 2020 when the Covid-19 pandemic resulted in dramatic reductions travel and congestion. However, since then traffic has continually increased and nearly a year later is nearly back to pre-pandemic condition, which illustrates the difficulty in sustaining the type of major “work from home” program that would provide the benefits shown in the analysis.

Scenario options 1.6 and 1.7 do not assume any improvements to the major roadway facilities and show substantially higher delays than any other of the scenario options. Not surprisingly, this shows that doing nothing for the roadway network will lead to large vehicle delays.

Table 7 shows the Jordan River screenline PM v/c ratio for the direction with the highest value. It shows that Pony Express Parkway would be near or over a v/c ratio of one for all the scenario options and well over two for options 1.6 and 1.7, thus further illustrating the need for additional transportation infrastructure. Daily volume corresponding to the v/c ratios can be found in the appendix.

Table 7. Scenario 1 Jordan River Screenline PM V/C Ratios

Screenline Roadway	S1.2	S1.2a	S1.4	S1.6	S1.7	S1.8
Lehi Main Street	0.83	0.87	0.84	1.01	1.27	0.85
Pioneer Crossing	0.88	0.93	0.89	1.25	1.25	0.89
Pony Express Parkway	0.96	1.02	0.97	2.64	2.43	0.97
Utah Lake Bridge	0.80	0.84	0.80	--	--	0.80

The transit mode share analysis results for work trips going to or from the study are shown in Table 8 and the transit boardings are shown in Table 9. Scenario options 1.3, 1.6, and 1.7 have the highest share of transit work trips, each over 3.3%. Scenario option 1.3 does well because it includes additional density around major transit stops. It is likely that 1.6 and 1.7 do well because of the extreme congestion on the roadway network in these options draws more people to transit. A similar pattern can be seen the transit boardings, but with 1.3 have over 10% more boardings than 1.6 and 1.7. This is due to the increased density in option 1.3 that results in more overall trips than the other two, so more boardings are needed to achieve the same transit mode share. Generally speaking, the increase in transit usage does not seem to be proportionate to the number of houses and jobs that were added near key transit stops.

Table 8. Scenario 1 Work Trips Transit Shares (% of trips)

District Name	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8
Cedar Valley	1.01	0.99	1.58	0.88	0.16	1.14	1.14	0.56
Saratoga Springs	2.29	2.24	3.13	1.98	0.97	2.68	2.66	1.22
Lehi	3.53	3.48	3.63	3.64	3.31	3.79	3.78	3.40
Alpine-Highland	0.80	0.79	0.82	0.54	0.79	0.82	0.82	0.79
AF-PG	3.29	3.26	4.27	3.08	3.10	3.56	3.54	3.12
Vineyard	6.35	6.41	6.63	5.56	6.29	7.98	8.07	6.32
Total	2.94	2.92	3.31	2.74	2.53	3.34	3.33	2.62

Table 9. Scenario 1 Total Transit Boardings

District Name	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8
Cedar Valley	1,120	1,140	2,130	1,260	310	1,210	1,250	740
Saratoga Springs	4,060	4,180	8,000	4,430	1,900	4,710	4,870	2,360
Lehi	8,640	8,970	9,930	9,970	8,130	9,150	9,540	8,670
Alpine-Highland	170	170	170	190	170	170	180	170
AF-PG	7,280	7,520	8,920	8,190	7,040	7,570	7,870	7,050
Vineyard	9,540	9,840	10,130	10,360	9,450	10,410	10,800	9,490
Total	30,810	31,830	39,280	34,400	27,000	33,230	34,510	28,480

Scenario options 1.2, 1.4, and 1.8 compare the three transit scenarios with 1.2 having three new services, 1.8 with one new service, and 1.4 with no new services. The difference in 2050 daily study area transit boardings between these three options is less than 4,000. This suggests that ridership on these new services is low and that high-capacity transit services such as exclusive guideway BRT or light rail are likely not warranted in the short and medium term. Better value can be obtained by providing frequent local bus service and mixed-flow BRT with 15-minute headways. Nevertheless, growth will still occur beyond the horizon year of this study and the time will come when high-capacity transit will be important. It is still important to plan for the long-term future when high-capacity transit will be warranted.

Scenario 1 performs well in options that assume a 20% work from home factor, which reduces study area delays by 20%. The best performing options also include the Utah Lake Bridge, which appears to be an important part of the future transportation system. Achieving 20% of non-retail, non-industrial jobs working from home is a very aspirational target that would likely be difficult to achieve. It would be a worthwhile goal, but the region probably should not bet the future performance of the transportation system on it. If anything, it can help the region with what comes after 2050.

4.3 Scenario 2 – Pioneer Crossing Freeway Results

Scenario 2 assumed a Pioneer Crossing freeway with the differences between options focusing on assumptions for other corridors and how the freeway would connect to the Foothill Freeway. Table 10 shows the total delay in the study area by direction. It shows that the lowest delays are in scenario options 2.3, 2.4 and 2.5. The common characteristic of these three options is that they all assume that Vineyard Connector is a freeway that connects to the Pioneer Crossing freeway and the Utah Lake Bridge. Removing one or the other of these assumptions increases the delay by approximately 20%. Assuming Vineyard Connector as a freeway connects the parallel freeway from Pioneer Crossing down to the Payson area, which provides a substantial reduction in delay within the study area.

Table 10. Scenario 2 2050 Daily Study Area Delay (hours)

Delay Category	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6
East-West Roads	18,900	19,000	14,100	14,100	14,600	20,400
North-South Roads	19,400	19,400	18,200	17,700	17,900	19,900
Study Area Total	38,300	38,300	32,300	31,800	32,500	40,300

The alignment of the Pioneer Crossing freeway on the west end seems to not impact delay significantly. Scenario options 2.3 and 2.4 have the same roadway network except for the Pioneer Crossing freeway alignment. There is no change in north-south delay between these scenarios and a slight reduction by 500 hours with the straight freeway alignment in scenario 2.4. Because the delay differences are so minor between the scenario options and due to system-to-system interchange spacing concerns on the Foothill Boulevard with the potential for two interchanges in less than one mile, the study team felt that scenario option 2.3 with the freeway remaining on the Pioneer Crossing alignment would be the better option.

Table 11 shows the Jordan River screenline volumes for each of the Scenario 2 options. The direct freeway-to-freeway connection to Vineyard Connector increases the volumes on Pioneer Crossing Freeway by about 20,000 vehicles per day and reduces volumes on the Utah Lake Bridge by 9,000 to 13,000 vehicles. Without the Utah Lake Bridge or Pony Express Parkway improvements, Pioneer Crossing Freeway volumes increase by 40,000 vehicles per day, which would require an additional lane in each direction. Daily volumes on Pony Express Parkway are relatively consistent between scenario options ranging from 16,000 to 23,000 vehicles.

Table 11. Scenario 2 Jordan River Screenline Daily 2050 Volumes

Screenline Roadway	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6
Lehi Main Street	23,000	23,000	24,000	24,000	25,000	26,000
Pioneer Crossing Freeway	104,000	104,000	125,000	124,000	125,000	167,000
Pony Express Parkway	23,000	23,000	19,000	17,000	16,000	18,000
Utah Lake Bridge	75,000	75,000	62,000	65,000	66,000	--

Table 12 shows the Jordan River screenline v/c ratios for each of the Scenario 2 options. The analysis shows that most the key east-west roads in the study area would operate effectively. Pony Express Parkway would exceed its capacity in options 2.5 and 2.6, both of which assume no Pony Express Parkway improvements beyond existing + funded conditions. Pioneer Crossing Freeway would be approaching a v/c ratio of 1.0 in scenario option 2.6, which assumes no Utah Lake Bridge or Pony Express Parkway improvements. Scenario options 2.1 through 2.4 all include four lanes on Pony Express Parkway and all have v/c ratios greater than 0.5. This means that even with a freeway on Pioneer Crossing that there would be sufficient demand to justify four lanes on Pony Express Parkway.

Table 12. Scenario 3 Jordan River Screenline PM V/C Ratios

Screenline Roadway	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6
Lehi Main Street	0.66	0.66	0.72	0.76	0.78	0.84
Pioneer Crossing Freeway	0.66	0.66	0.77	0.80	0.82	0.97
Pony Express Parkway	0.75	0.75	0.61	0.54	1.01	1.30
Utah Lake Bridge	0.81	0.81	0.63	0.65	0.65	--

There were no changes to the transit or land use for any of the scenario options, so the transit performance is virtually identical for all the Scenario 2 options and are most like scenario option 1.8.

The analysis of Scenario 2 shows that Pioneer Crossing as a freeway is very effective at reducing study area vehicle delay, particularly when paired with a Vineyard Connector freeway and Utah Lake Bridge. Eliminating either of those supporting corridors would increase the study area delay by approximately 20%. Overall, scenario option 2.4 has the lowest study area delay of any of the options evaluated in this study.

4.4 Scenario 3 – Pony Express Freeway Results

Scenario 3 assumed a Pony Express Freeway with the difference between the scenario options focusing on the alignment of the freeway and assumptions for other corridors. All the scenarios analyzed in Scenario 3 have Pioneer Crossing as a 6-lane expressway. It is assumed that Pioneer Crossing will be widened to six lanes within the next 10 years to serve as an interim improvement before a larger long-term solution can be implemented. Table 13 shows the total delay in the study area. Scenario option 3.4 has the lowest delay of the options analyzed and is comparable to lowest delay options from the other scenarios. The total delay for this scenario shows 32,500 hours compared to an average of 37,850 hours from the other scenarios. The difference between 3.4 and the other options is that the Pony Express Freeway is assumed to connect directly into the Vineyard Connector freeway creating a continuous freeway and connection to the I-15 parallel freeway and it includes the Utah Lake Bridge. The other freeway alignment options connect to I-15 at the Pleasant Grove Parkway interchange, which means it doesn't connect to the I-15 parallel freeway. It may be that if an I-15 C-D system was assumed instead of a parallel freeway that scenario options 3.1, 3.2, and 3.3 would operate more efficiently. It was beyond the scope of this study to evaluate an I-15 C-D system. Another factor in the performance of scenario options 3.2 and 3.3 is that because they go out over the lake, they do not provide as much connectivity to the arterial and collector roadway network.

Table 13. Scenario 3 2050 Daily Study Area Delay (hours)

Delay Category	S3.1	S3.2	S3.3	S3.4	S3.5
East-West Roads	17,200	17,900	16,800	14,300	18,900
North-South Roads	19,900	21,500	19,800	18,200	19,400
Study Area Total	37,100	39,400	36,600	32,500	38,300

Table 14 shows the Jordan River screenline volumes for each of the Scenario 3 options. The table includes Pony Express as both an arterial and a freeway. As shown in Figures 10-12, all the Pony Express freeway options also include the existing Pony Express Parkway segments that would be used for local circulation serving relatively

low volumes. The table shows large differences in volumes on the Pony Express Freeway based on the option, which also affects the volumes on the other corridors. It is particularly interesting to see how low the Pioneer Crossing volumes are in most the scenario options.

Table 14. Scenario 3 Jordan River Screenline Daily 2050 Volumes

Screenline Roadway	S3.1	S3.2	S3.3	S3.4	S3.5
Lehi Main Street	28,700	30,500	29,700	29,100	30,100
Pioneer Crossing	13,600	31,500	19,200	14,000	17,000
Pony Express Parkway (Arterial)	9,500	17,100	12,800	9,600	10,400
Pony Express Freeway	105,500	73,500	91,200	106,000	153,000
Utah Lake Bridge	67,300	69,000	69,300	66,700	--

Table 15 presents the v/c ratios for the Jordan River screenline for select corridors. The low values for Pony Express Freeway in some of the options suggest that eight freeway lanes might not be needed for all the options, particularly 3.2 which is over the lake for most of its length. Pioneer Crossing has some very low v/c values for most of the options, which means that it would be overbuilt for those scenario options. However, it is not practical to have a smaller Pioneer Crossing cross-section because all six lanes will be needed for the years before the any of the freeway facilities from this study would ever be built. This is an issue with having two major corridors separated by less than a mile. The Pony Express Freeway draws most of the east-west traffic in the area onto it due to its higher speed and capacity leaving Pioneer Crossing overbuilt and underutilized.

Table 15. Scenario 3 Jordan River Screenline PM V/C Ratios

Screenline Roadway	S3.1	S3.2	S3.3	S3.4	S3.5
Lehi Main Street	0.82	0.80	0.81	0.84	0.83
Pioneer Crossing	0.31	0.74	0.45	0.34	0.51
Pony Express Parkway (Arterial)	0.57	0.91	0.66	0.57	0.73
Pony Express Freeway	0.68	0.48	0.62	0.73	0.91
Utah Lake Bridge	0.68	0.68	0.67	0.61	--

There were no changes to the transit or land use for any of the scenario options, so the transit performance is virtually identical for all the Scenario 3 options and are most like scenario option 1.8.

The analysis of Scenario 3 shows that Pony Express as a freeway can be very effective at reducing study area vehicle delay when it connects directly to a Vineyard Connector freeway and in conjunction with a Utah Lake Bridge. Eliminating either of those features would increase by delay by 10-20%. However, this scenario would also result in a six-lane Pioneer Crossing express that would carry less than 20,000 vehicles per day in 2050, severely underutilizing the investment in that corridor.

5 CONCLUSION

The North Lakeshore Study evaluated nearly 20 options to accommodate the estimated 2050 travel demand. The list below highlights the key findings of the analyses.

- Scenario option 2.3 (shown below in Figure 12), which is the Pioneer Crossing freeway with Pony Express Parkway as a four-lane arterial, Vineyard Connector as a freeway, and the Utah Lake Bridge, provides the best overall performance with the fewest ancillary issues.
 - This option assumes that at the west end the Pioneer Crossing freeway will continue on the existing Pioneer Crossing alignment northwest to the Mountain View Corridor/Foothill Boulevard Freeway & SR-73 Freeway system-to-system interchange, which eliminates the closely spaced interchanges issue on the Foothill Boulevard Freeway associated with option 2.4.
 - Scenario option 2.5 also performs very well and is only slightly behind scenario options 2.4 and 2.3. This scenario is identical to 2.4 except that 2.5 does not include the four-lane Pony Express Parkway, but instead assumes that no other improvements are made to Pony Express Parkway beyond what is currently built or funded. However, this option does cause the two-lane Pony Express Parkway to be over capacity at the Jordan River screenline, indicating that four lanes are indeed warranted.

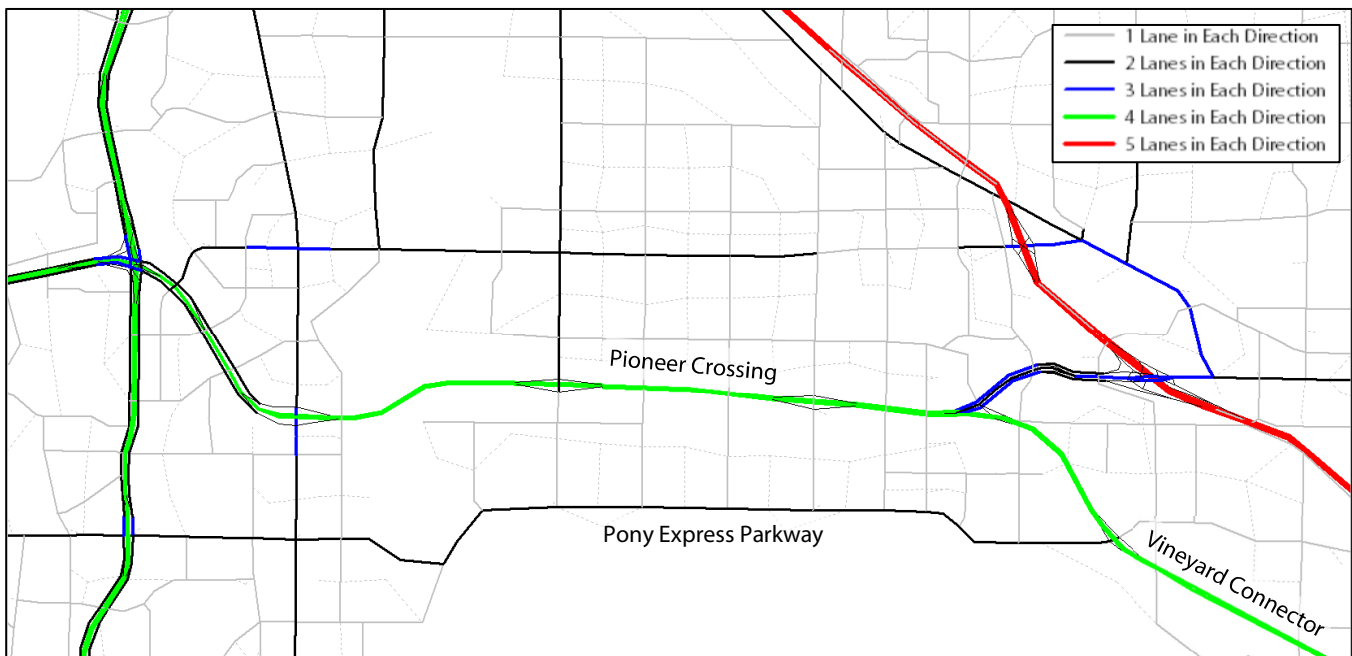


Figure 12. Scenario Option 2.3 Roadway Network – Assumes Vineyard Connector Freeway

- Scenario option 3.4 (shown in Figure 13) is the best performing of the Scenario 2 – Pony Express Freeway options with performance that is nearly as good as scenario option 2.3. This option assumes that Pioneer Crossing would be a six-lane expressway, the Pony Express Freeway would connect directly into Vineyard Connector as a freeway, and the Utah Lake Bridge.
 - An issue associated with most of the Scenario 2 options, including 3.4, is that the Pony Express Freeway pulls a lot of traffic off Pioneer Crossing, so much so that it becomes very underutilized

with a 2050 Jordan River screenline volume of 14,000 vehicles per day (less than half of the existing volume) and a volume-to-capacity ratio of 0.34. This means that even though there would be six lanes of capacity, barely two lanes capacity would actually be needed. In financial terms, it would result in a poor return on the Pioneer Crossing investment. (Pioneer Crossing was assumed as a six-lane facility because adding a lane in each direction would be a relatively easy short-term project to increase capacity and address existing traffic congestion before a larger, long-term project could be built.)

- Scenario options 3.1, 3.2, and 3.3 are all assumed to connect to I-15 near the Pleasant Grove Boulevard interchange. Vineyard Connector would be four-lane arterial in each of these options, which configuration would disconnect the parallel freeway and increase delay. If an I-15 C-D system was ultimately built instead of a parallel freeway then these could be more competitive in their traffic performance.

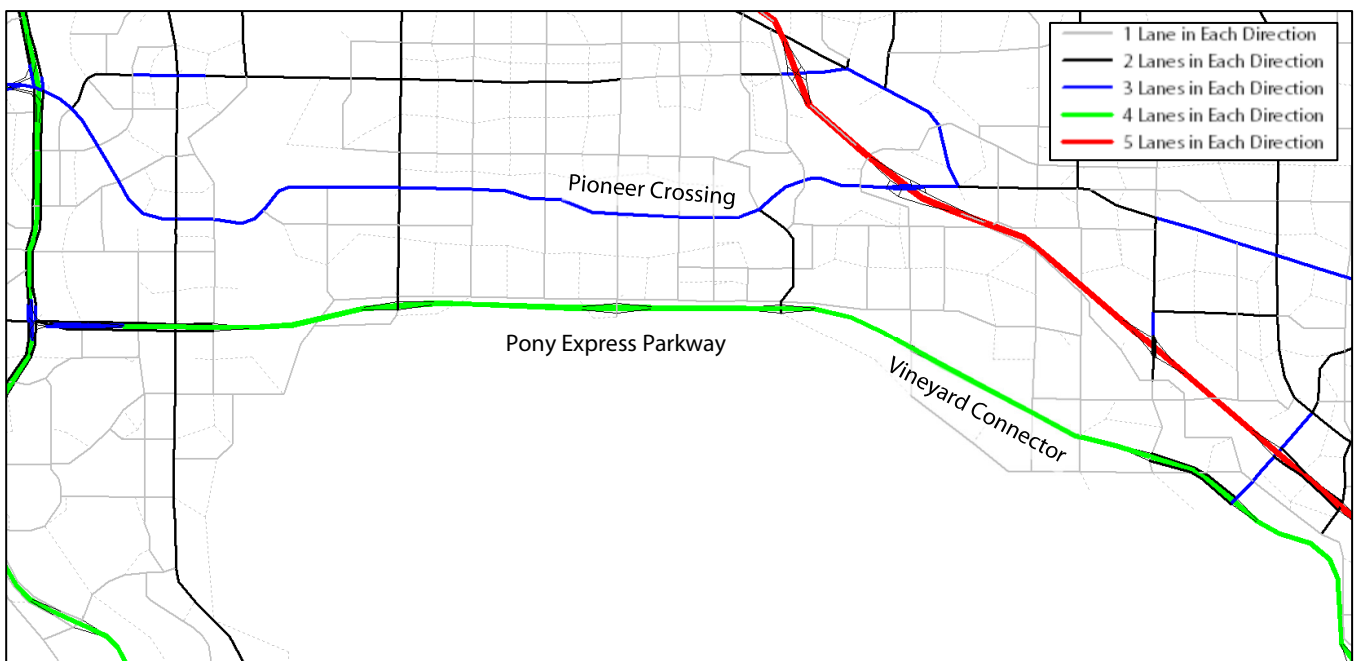


Figure 13. Scenario Options 3.4 Roadway Network – Assumes Freeway to Vineyard Connector

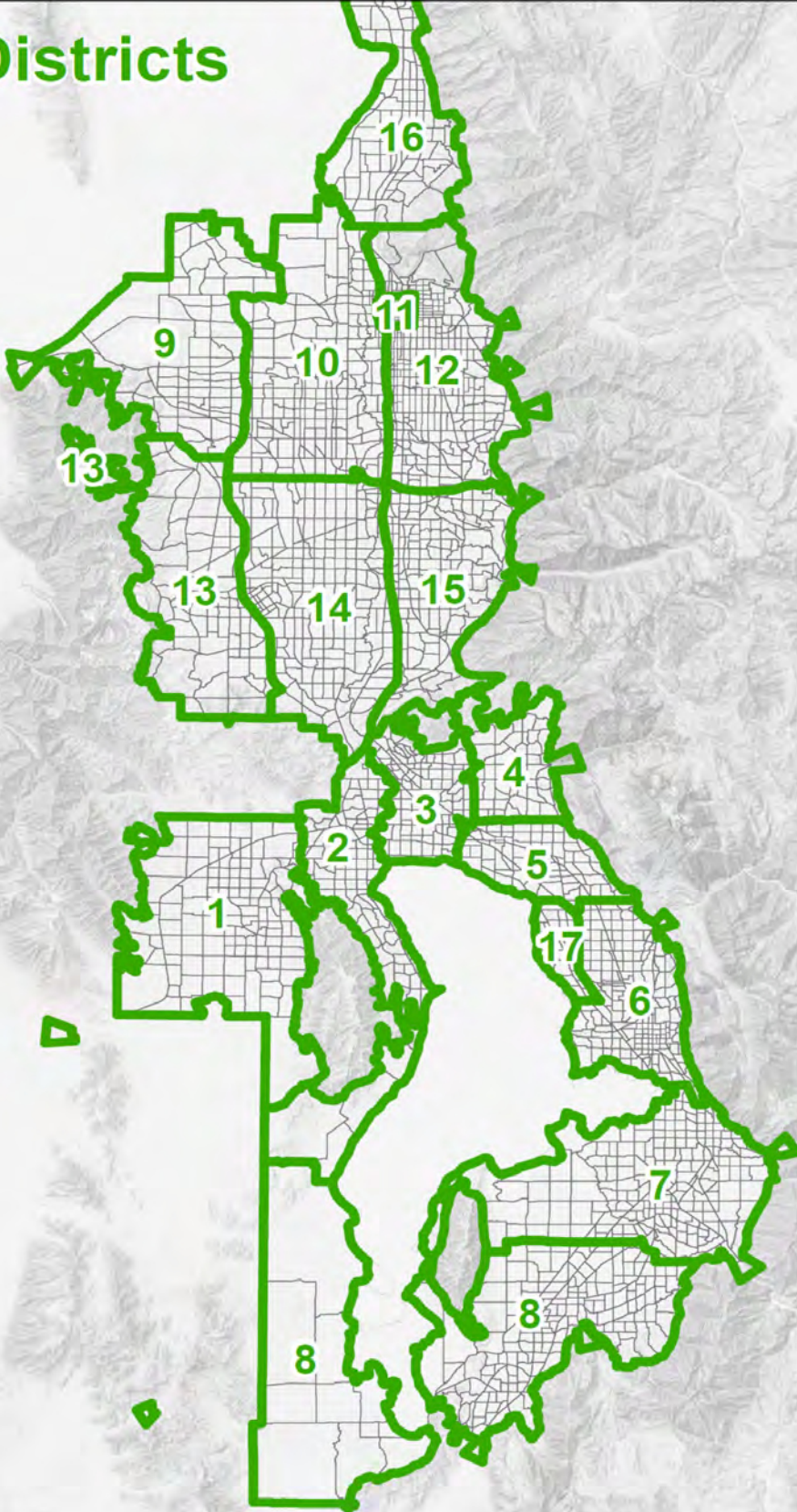
- Scenario options 1.2, 1.4, and 1.8 are the best performing of the Scenario 1 – Travel Demand Management and Transit options with performance that is nearly as good as scenario option 2.4 and equivalent to scenario option 3.4. Each option has identical roadway network assumptions, including Pioneer Crossing as a six-lane expressway, Pony Express Parkway and Vineyard Connector as four-lane arterials, and the Utah Lake Bridge. These options also include the assumption of the 20% work-from-home factor, which is why they are all so competitive in their traffic performance. Their delay would increase by approximately 20% without this factor. Because this work-from-factor is so speculative and largely out of the control of the transportation agencies, it is not recommended that these options be advanced for further study. However, it is important that the region to emphasize and promote travel demand management strategies. They may ultimately be what creates acceptable congestion levels beyond 2050.
- Scenario evaluated three different transit options, one with three additional transit services beyond the RTP, one with one additional serve, and another with no additional transit service. The difference in 2050

daily study area transit boardings between those three options is less than 4,000. Having three new services result in so few new boardings suggests that high-capacity transit services such as exclusive guideway BRT or light rail are likely not warranted in the short and medium term. Better value can be obtained by providing frequent local bus service and mixed-flow BRT with 15-minute headways. Nevertheless, growth will still occur beyond the horizon year of this study and the time when come when high-capacity transit will be important. It is important to continue plan for the long-term future when high-capacity transit will be warranted.

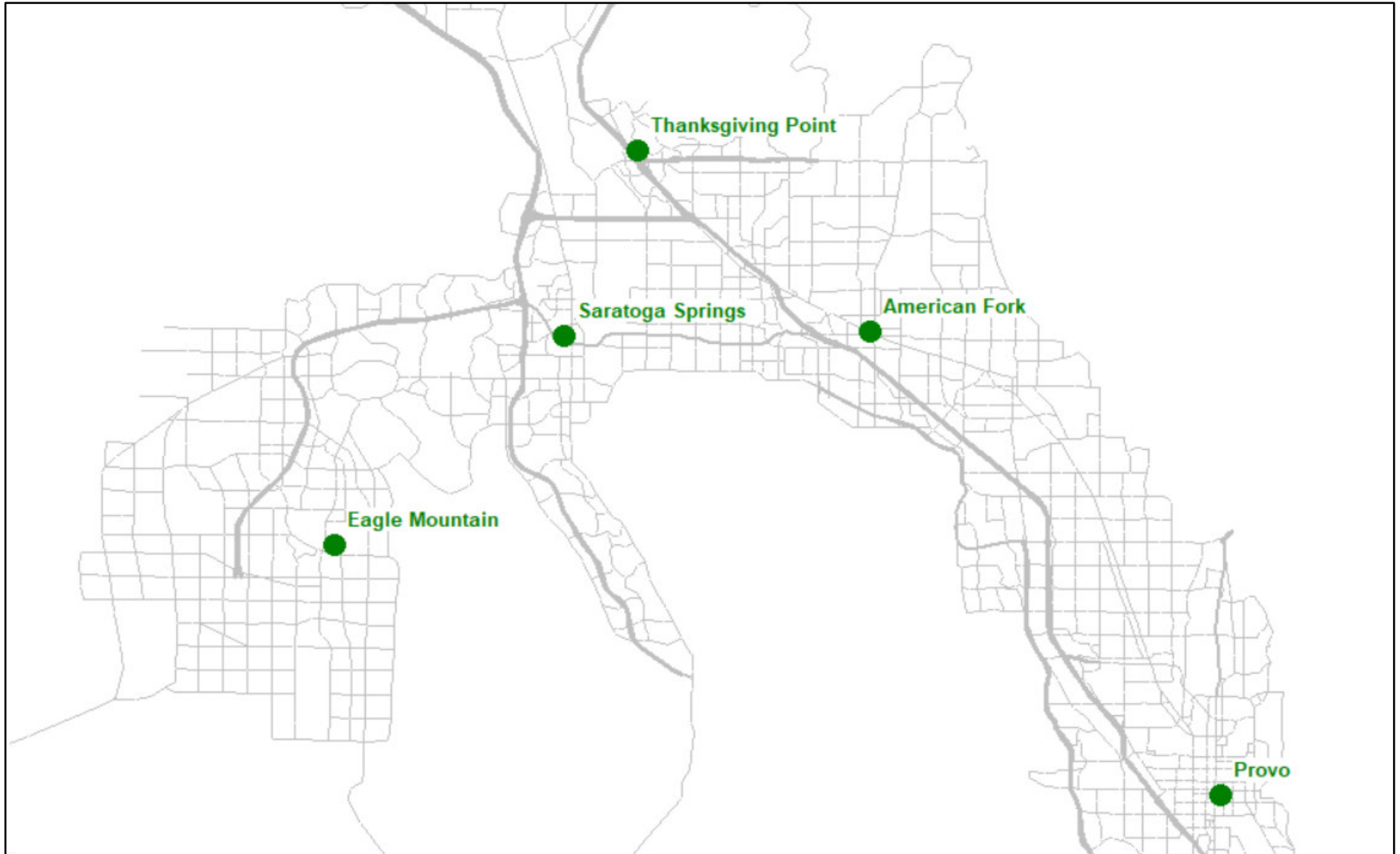
APPENDIX

- Study Districts Map
- Travel Time Locations
- Detailed Analysis Results

NLS Districts



Travel Time Locations



Daily Study Area Delay

District	District Name	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Cedar Valley	302	2,167	2,152	1,734	2,030	2,700	2,449	1,757	1,666	1,900	1,744	2,078	2,067	2,074	2,092	2,097	2,126	2,094	2,150	2,108	2,124	2,149
2	Saratoga Springs	2,478	20,567	14,223	9,772	12,332	29,253	14,771	9,802	15,590	19,119	10,109	11,143	11,113	10,791	10,319	10,742	11,914	11,454	11,927	10,942	11,264	11,019
3	Lehi	8,806	26,403	13,217	9,640	11,947	15,863	13,311	9,747	20,228	22,256	9,332	9,849	9,870	10,183	10,279	10,517	13,102	9,623	10,035	10,003	9,959	11,831
4	Alpine-Highland	205	2,312	1,519	904	1,285	1,466	1,395	903	1,155	1,482	895	1,234	1,252	1,137	1,169	1,150	1,240	1,139	1,209	1,221	1,182	1,247
5	AF-PG	4,998	29,347	10,172	7,609	9,325	9,572	13,099	7,552	21,739	25,621	7,547	10,407	10,488	5,658	5,572	5,636	8,300	8,695	8,510	8,301	5,568	8,057
17	Vineyard	832	8,001	6,445	2,815	3,606	5,212	5,607	2,786	6,141	6,878	2,797	3,569	3,539	2,472	2,379	2,368	3,658	4,124	5,571	4,030	2,430	3,971
Total		17,600	88,800	47,700	32,500	40,500	64,100	50,600	32,500	66,500	77,300	32,400	38,300	38,300	32,300	31,800	32,500	40,300	37,100	39,400	36,600	32,500	38,300
	Rank		21	16	4	15	18	17	4	19	20	3	10	10	2	1	4	14	9	13	8	4	10

Daily Study Area East-West Delay

District	District Name	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Cedar Valley	154	1,513	1,548	1,244	1,457	1,700	1,793	1,262	1,176	1,332	1,250	1,486	1,476	1,474	1,503	1,507	1,514	1,510	1,543	1,512	1,529	1,531
2	Saratoga Springs	1,034	7,478	5,336	3,300	4,019	10,593	7,409	3,367	6,543	6,755	3,663	3,235	3,233	2,769	2,761	2,877	3,669	3,069	3,230	2,997	2,989	3,331
3	Lehi	4,493	18,887	6,971	5,222	6,229	7,838	7,784	5,205	14,475	15,535	4,891	4,196	4,208	4,341	4,323	4,663	7,017	4,043	4,471	4,243	4,346	5,845
4	Alpine-Highland	87	1,385	860	511	728	824	670	509	716	911	506	684	697	597	615	601	667	632	665	669	627	679
5	AF-PG	4,216	23,669	7,918	5,970	7,176	7,410	9,471	5,869	17,135	19,975	5,871	8,175	8,256	4,229	4,166	4,191	6,408	6,446	6,025	5,934	4,040	6,187
17	Vineyard	313	2,774	1,953	872	1,098	1,671	1,980	851	2,362	2,716	855	1,106	1,087	730	723	738	1,135	1,544	1,956	1,436	758	1,284
Total		10,300	55,700	24,600	17,100	20,700	30,000	29,100	17,100	42,400	47,200	17,000	18,900	19,000	14,100	14,100	14,600	20,400	17,200	17,900	16,800	14,300	18,900
	Rank		21	16	7	15	18	17	7	19	20	6	11	13	1	1	4	14	9	10	5	3	11

Daily Study Area North-South Delay

District	District Name	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Cedar Valley	148	654	603	489	572	1,000	656	495	489	568	494	592	591	599	589	590	611	584	607	596	595	617
2	Saratoga Springs	1,444	13,088	8,887	6,472	8,313	18,660	7,362	6,436	9,048	12,365	6,445	7,907	7,880	8,023	7,559	7,866	8,245	8,385	8,697	7,945	8,275	7,688
3	Lehi	4,313	7,517	6,246	4,418	5,718	8,025	5,526	4,542	5,753	6,721	4,441	5,653	5,662	5,842	5,956	5,854	6,085	5,580	5,563	5,760	5,613	5,985
4	Alpine-Highland	118	927	659	393	557	642	725	393	439	571	389	550	555	540	554	549	572	507	544	552	555	568
5	AF-PG	782	5,678	2,254	1,640	2,149	2,162	3,629	1,683	4,603	5,645	1,676	2,233	2,232	1,429	1,406	1,445	1,892	2,248	2,484	2,367	1,527	1,870
17	Vineyard	520	5,227	4,492	1,943	2,507	3,541	3,627	1,935	3,779	4,162	1,941	2,463	2,452	1,743	1,656	1,630	2,523	2,580	3,615	2,594	1,673	2,688
Total		7,300	33,100	23,100	15,400	19,800	34,000	21,500	15,500	24,100	30,000	15,400	19,400	19,400	18,200	17,700	17,900	19,900	19,900	21,500	19,800	18,200	19,400
	Rank		20	17	1	11	21	15	3	18	19	1	8	8	6	4	5	13	13	15	11	6	8

Daily Study Area Surface Street Delay

District	District Name	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Cedar Valley	300	1,535	1,564	1,322	1,500	2,224	1,782	1,334	1,224	1,378	1,330	1,451	1,447	1,435	1,504	1,503	1,480	1,546	1,585	1,570	1,567	1,574
2	Saratoga Springs	2,478	10,375	6,532	3,832	4,864	14,277	5,965	4,091	8,997	9,228	4,541	3,739	3,733	3,815	4,119	4,184	4,059	4,630	4,806	4,657	5,513	4,323
3	Lehi	2,139	15,708	5,893	3,690	4,510	7,123	6,471	3,807	13,150	13,450	3,776	3,073	3,080	3,187	3,444	3,390	3,841	3,370	3,509	3,594	3,499	3,691
4	Alpine-Highland	205	2,306	1,514	903	1,282	1,462	1,393	902	1,152	1,479	894	1,232	1,250	1,134	1,166	1,147	1,237	1,137	1,206	1,218	1,179	1,244
5	AF-PG	1,885	14,697	5,357	3,602	4,754	5,116	7,661	3,775	11,070	13,078	3,766	5,236	5,330	2,332	2,342	2,508	2,891	3,825	3,939	3,777	2,339	2,813
17	Vineyard	97	3,716	2,322	1,302	1,790	1,997	2,739	1,337	2,866	3,092	1,342	1,688	1,682	863	859	893	1,199	1,684	1,936	1,798	894	1,407
Total		7,100	48,300	23,200	14,700	18,700	32,200	26,000	15,200	38,500	41,700	15,600	16,400	16,500	12,800	13,400	13,600	14,700	16,200	17,000	16,600	15,000	15,100
	Rank		21	16	4	15	18	17	8	19	20	9	11	12	1	2	3	4	10	14	13	6	7

Daily Study Area Freeway Delay

District	District Name	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Cedar Valley	2	632	588	412	529	477	667	423	441	522	414	627	620	639	588	595	646	548	565	538	557	574
2	Saratoga Springs	0	10,192	7,691	5,940	7,468	14,976	8,806	5,711	6,593	9,892	5,568	7,404	7,381	6,976	6,200	6,559	7,855	6,824	7,120	6,284	5,751	6,696
3	Lehi	6,667	10,696	7,324	5,951	7,437	8,740	6,840	5,940	7,078	8,806	5,557	6,777	6,789	6,996	6,834	7,127	9,261	6,253	6,526	6,409	6,461	8,140
4	Alpine-Highland	0	7	5	1	3	4	2	1	3	3	1	2	2	3	3	3	2	2	3	3	3	3
5	AF-PG	3,113	14,651	4,815	4,007	4,571	4,456	5,438	3,777	10,669	12,543	3,781	5,171	5,159	3,326	3,230	3,128	5,409	4,869	4,571	4,524	3,229	5,244
17	Vineyard	735	4,285	4,122	1,513	1,816	3,215	2,869	1,449	3,275	3,786	1,455	1,881	1,857	1,609	1,519	1,475	2,459	2,440	3,635	2,233	1,536	2,565
Total		10,500	40,500	24,500	17,800	21,800	31,900	24,600	17,300	28,100	35,600	16,800	21,900	21,800	19,500	18,400	18,900	25,600	20,900	22,400	20,000	17,500	23,200
	Rank		21	15	4	10	19	16	2	18	20	1	12	10	7	5	6	17	9	13	8	3	14

Daily Jordan River Screenline Volume

District	District Name	Direction	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Clubhouse Drive	WB	--	13,500	12,860	12,818	13,033	14,353	14,073	12,652	13,141	13,312	12,666	12,807	12,755	12,782	12,721	12,646	12,951	12,726	12,878	12,712	12,782	12,869
2	Clubhouse Drive	EB	--	12,519	12,297	11,865	12,055	13,396	13,388	11,978	12,244	12,563	11,980	11,888	11,885	11,912	11,926	12,066	12,017	12,005	11,990	11,994	12,093	11,969
3	2100 North FR	WB	21,021	8,993	7,115	6,711	7,043	9,735	6,356	6,788	8,572	8,849	6,732	6,514	6,577	6,627	6,738	6,896	6,913	6,965	6,793	6,879	6,962	6,877
4	2100 North FR	EB	20,940	12,694	10,793	10,367	10,425	11,714	11,630	10,841	12,211	12,406	10,706	9,798	9,784	10,015	9,810	10,172	10,376	10,061	10,127	10,102	10,126	10,394
5	2100 North Fwy	WB	--	80,317	68,853	70,040	71,503	77,800	76,010	68,620	78,638	81,588	68,566	63,560	63,567	62,453	61,440	61,463	63,510	64,260	66,789	64,741	64,876	65,502
6	2100 North Fwy	EB	--	78,333	65,436	65,724	66,740	76,176	68,789	64,117	77,318	80,193	64,138	58,366	58,251	55,842	56,524	56,469	59,899	59,275	60,049	59,516	58,680	61,060
7	1500 North	WB	1,675	7,128	5,649	5,049	5,363	7,776	6,325	5,107	7,036	6,822	5,153	4,636	4,673	4,721	4,691	4,824	5,021	4,810	5,052	4,955	4,802	5,076
8	1500 North	EB	828	6,438	5,175	4,822	4,888	6,708	5,916	4,831	5,838	6,315	5,040	4,405	4,399	4,482	4,522	4,498	4,538	4,683	4,777	4,721	4,776	4,681
9	900 North	WB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	900 North	EB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11	Lehi Main Street	WB	8,323	20,215	17,124	16,869	17,628	20,737	18,521	17,328	18,521	20,182	17,286	11,782	11,771	12,310	12,002	12,218	13,073	14,391	15,401	15,029	14,531	15,119
12	Lehi Main Street	EB	8,453	19,964	16,454	16,438	16,867	19,811	18,151	16,933	20,154	18,801	17,011	11,505	11,479	12,128	12,066	12,235	13,043	14,291	15,086	14,665	14,578	14,944
13	Pioneer Crossing - Arterial	WB	21,872	37,609	28,686	20,573	21,557	26,522	22,410	20,955	35,907	35,979	20,939	--	--	--	--	--	--	6,684	16,246	9,725	6,832	8,640
14	Pioneer Crossing - Arterial	EB	21,173	35,902	28,221	21,132	21,764	26,725	23,569	21,455	35,660	35,349	21,467	--	--	--	--	--	--	6,939	15,288	9,502	7,183	8,340
15	Pioneer Crossing - Fwy	WB	--	--	--	--	--	--	--	--	--	--	--	52,260	52,102	61,615	62,943	63,512	82,716	--	--	--	--	--
16	Pioneer Crossing - Fwy	EB	--	--	--	--	--	--	--	--	--	--	--	51,691	51,623	63,443	61,448	61,712	83,991	--	--	--	--	--
17	Pony Express - Arterial	WB	4,017	26,139	17,339	17,908	18,444	19,542	18,707	18,115	14,007	13,396	18,093	11,845	11,842	10,004	8,830	7,944	8,965	4,829	8,771	6,461	4,846	5,281
18	Pony Express - Arterial	EB	4,373	25,993	17,064	17,470	17,923	18,645	18,464	17,757	12,288	14,782	17,707	10,901	10,909	9,310	8,538	7,842	8,782	4,621	8,361	6,343	4,758	5,132
19	Pony Express - Fwy	WB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50,709	--	43,962	52,568	75,157
20	Pony Express - Fwy	EB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	54,834	--	47,256	53,458	77,862
21	Pony Express - Fwy (Lake)	WB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	34,270	--	--	--
22	Pony Express - Fwy (Lake)	EB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	39,197	--	--	--
23	Utah Lake Bridge	WB	--	--	41,251	39,425	41,538	50,988	45,963	39,425	--	--	39,417	35,577	35,529	29,562	30,383	30,480	--	33,593	34,471	34,266	32,079	--
24	Utah Lake Bridge	EB	--	--	44,048	42,046	43,970	52,613	49,217	42,732	--	--	42,699	39,768	39,728	32,321	34,858	35,066	--	33,670	34,506	35,081	34,626	--
Total			112,675	385,744	398,365	379,257	390,741	453,241	417,489	379,634	351,535	360,537	379,600	397,303	396,874	399,527	399,440	400,043	385,795	399,346	400,052	397,910	400,556	388,903

PM Jordan River Screenline V/C Ratio

District	District Name	Direction	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Clubhouse Drive	WB	--	1.49	1.27	1.24	1.27	1.24	1.48	1.19	1.38	1.41	1.20	1.19	1.16	1.18	1.16	1.15	1.25	1.18	1.21	1.16	1.18	1.23
2	Clubhouse Drive	EB	--	1.17	1.16	1.04	1.06	1.19	1.11	1.06	1.12	1.13	1.07	1.03	1.04	1.04	1.03	1.08	1.06	1.06	1.05	1.05	1.13	1.04
3	2100 North FR	WB	1.03	0.65	0.41	0.37	0.40	0.50	0.41	0.38	0.62	0.63	0.37	0.33	0.34	0.35	0.36	0.38	0.39	0.40	0.37	0.39	0.41	0.38
4	2100 North FR	EB	0.69	0.67	0.55	0.54	0.52	0.62	0.62	0.55	0.63	0.63	0.53	0.44	0.44	0.48	0.47	0.51	0.56	0.47	0.48	0.47	0.50	0.51
5	2100 North Fwy	WB	--	1.02	0.90	0.87	0.90	0.94	0.92	0.87	0.95	1.02	0.87	0.85	0.85	0.85	0.83	0.84	0.90	0.85	0.86	0.84	0.84	0.88
6	2100 North Fwy	EB	--	0.85	0.66	0.59	0.64	0.79	0.51	0.60	0.80	0.81	0.59	0.58	0.58	0.53	0.54	0.56	0.63	0.55	0.53	0.54	0.53	0.61
7	1500 North	WB	0.59	1.27	0.88	0.79	0.82	0.98	1.03	0.74	1.38	1.18	0.77	0.60	0.61	0.62	0.61	0.65	0.76	0.62	0.70	0.66	0.62	0.72
8	1500 North	EB	0.13	0.89	0.78	0.76	0.71	0.98	0.74	0.67	0.85	0.76	0.76	0.63	0.62	0.67	0.69	0.68	0.69	0.71	0.73	0.70	0.77	0.69
9	900 North	WB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	900 North	EB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11	Lehi Main Street	WB	0.90	1.24	0.94	0.81	0.87	1.01	0.99	0.84	1.01	1.27	0.83	0.60	0.60	0.64	0.59	0.64	0.79	0.68	0.74	0.70	0.67	0.72
12	Lehi Main Street	EB	0.64	1.10	0.89	0.83	0.87	1.04	0.88	0.84	0.97	0.88	0.85	0.66	0.66	0.72	0.76	0.78	0.84	0.82	0.80	0.81	0.84	0.83
13	Pioneer Crossing - Arterial	WB	0.97	1.49	1.11	0.88	0.93	1.06	1.02	0.89	1.25	1.25	0.89	--	--	--	--	--	--	0.27	0.74	0.45	0.29	0.51
14	Pioneer Crossing - Arterial	EB	0.66	1.26	0.98	0.75	0.77	1.01	0.81	0.75	1.22	1.14	0.75	--	--	--	--	--	--	0.31	0.57	0.41	0.34	0.44
15	Pioneer Crossing - Fwy	WB	--	--	--	--	--	--	--	--	--	--	--	0.66	0.66	0.77	0.80	0.82	0.97	--	--	--	--	--
16	Pioneer Crossing - Fwy	EB	--	--	--	--	--	--	--	--	--	--	--	0.51	0.51	0.71	0.69	0.70	0.86	--	--	--	--	--
17	Pony Express - Arterial	WB	1.06	1.48	1.14	0.96	1.02	1.16	1.09	0.97	2.64	2.04	0.97	0.75	0.75	0.61	0.54	1.01	1.30	0.57	0.91	0.66	0.57	0.73
18	Pony Express - Arterial	EB	0.37	1.28	0.85	0.77	0.78	0.93	0.83	0.77	1.61	2.43	0.76	0.55	0.54	0.46	0.43	0.87	1.04	0.42	0.63	0.50	0.43	0.53
19	Pony Express - Fwy	WB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.68	--	0.62	0.73	0.91
20	Pony Express - Fwy	EB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.57	--	0.53	0.63	0.82
21	Pony Express - Fwy (Lake)	WB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.48	--	--	--
22	Pony Express - Fwy (Lake)	EB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.48	--	--	--
23	Utah Lake Bridge	WB	--	--	0.87	0.79	0.84	0.96	0.99	0.80	--	--	0.80	0.75	0.74	0.63	0.65	0.65	--	0.67	0.68	0.66	0.62	--
24	Utah Lake Bridge	EB	--	--	0.85	0.80	0.82	0.85	0.79	0.80	--	--	0.80	0.81	0.81	0.61	0.61	0.60	--	0.69	0.67	0.67	0.59	--
Total			0.76	1.05	0.84	0.76	0.80	0.91	0.82	0.76	0.99	1.02	0.76	0.66	0.66	0.67	0.67	0.70	0.82	0.63	0.63	0.62	0.63	0.74
		Rank	21	17	11	14	18	15	11	19	20	11	5	5	7	7	9	15	2	2	1	2	10	

Travel Time Index (Peak Travel Time Divided by Free Flow Travel Time)

#	Between	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	EM-Thnksvgv Pt	1.3	1.8	1.5	1.4	1.5	1.6	1.6	1.4	1.5	1.8	1.4	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2	EM-Am Fork	1.4	2.0	1.5	1.4	1.5	1.6	1.6	1.4	1.7	2.0	1.4	1.3	1.3	1.2	1.2	1.3	1.4	1.2	1.5	1.3	1.3	1.3
3	EM-Provo	1.4	1.9	1.3	1.2	1.2	1.3	1.4	1.2	1.6	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.1	1.1	1.3
4	SS-Thnksvgv Pt	1.3	1.6	1.4	1.3	1.4	1.6	1.5	1.3	1.4	1.6	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.3	1.4	1.4	1.4	1.3
5	SS-Am Fork	1.4	2.3	1.5	1.2	1.3	1.4	1.4	1.2	1.9	2.2	1.2	1.2	1.2	1.2	1.2	1.2	1.4	1.1	1.3	1.1	1.1	1.1
6	SS-Provo	1.4	2.1	1.4	1.2	1.3	1.5	1.4	1.2	1.8	1.8	1.2	1.4	1.4	1.2	1.2	1.2	1.5	1.2	1.3	1.2	1.2	1.3
Total		1.7	2.4	1.7	1.6	1.7	1.8	1.8	1.6	2.0	2.3	1.6	1.6	1.6	1.5	1.5	1.5	1.7	1.5	1.7	1.5	1.5	1.6
	Rank		21	16	9	13	17	18	11	19	20	7	8	10	6	2	3	15	1	14	4	4	12

PM Travel Times

#	Between	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	EM-Thnksvgv Pt	34	43	35	33	35	40	38	34	35	41	33	34	34	35	34	35	35	35	36	34	34	35
2	EM-Am Fork	36	51	38	36	38	43	42	36	43	50	36	30	30	29	29	30	34	31	39	34	34	33
3	EM-Provo	56	70	47	41	43	49	55	41	59	66	41	42	42	41	41	41	48	41	43	41	41	48
4	SS-Thnksvgv Pt	18	25	22	20	22	25	23	21	22	25	21	20	20	21	21	21	22	21	22	22	22	21
5	SS-Am Fork	19	33	22	20	21	23	22	20	27	32	20	16	16	16	16	16	19	17	22	18	18	18
6	SS-Provo	39	57	38	34	36	41	43	34	50	51	34	34	34	31	30	30	36	32	36	32	32	37
Total		201	280	202	186	194	221	222	186	235	265	184	177	177	171	170	172	193	177	197	180	180	192
	Rank		21	16	10	14	17	18	11	19	20	9	4	6	2	1	3	13	5	15	7	7	12

Free Flow Travel Times

#	Between	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	EM-Thnksvgv Pt	26	23	23	23	23	25	25	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
2	EM-Am Fork	26	26	26	26	26	27	27	26	26	26	26	24	24	24	24	24	24	26	26	26	26	26
3	EM-Provo	39	37	37	35	35	37	38	35	37	37	35	35	35	35	35	35	36	35	35	35	35	37
4	SS-Thnksvgv Pt	14	16	16	16	16	16	16	16	16	16	16	15	15	15	16	16	16	16	16	16	16	16
5	SS-Am Fork	14	15	15	16	16	17	16	16	15	15	16	13	13	13	13	13	13	16	16	16	16	16
6	SS-Provo	27	28	28	28	28	28	30	28	28	28	28	25	25	25	25	25	25	26	28	26	27	28
Total		117	116	116	116	116	121	121	116	116	116	116	111	111	111	112	112	112	116	116	116	116	118

Work Trips Transit Shares

District	District Name	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Cedar Valley	0.42	0.36	0.36	1.01	0.99	1.58	0.88	0.16	1.14	1.14	0.56	0.48	0.50	0.55	0.52	0.52	0.48	0.49	0.45	0.43	0.46	0.46
2	Saratoga Springs	0.50	1.27	1.27	2.29	2.24	3.13	1.98	0.97	2.68	2.66	1.22	1.08	1.15	1.19	1.20	1.20	1.19	1.20	1.12	1.17	1.22	1.24
3	Lehi	1.35	3.44	3.44	3.53	3.48	3.63	3.64	3.31	3.79	3.78	3.40	3.33	3.35	3.36	3.36	3.36	3.36	3.34	3.35	3.34	3.35	3.36
4	Alpine-Highland	0.36	0.77	0.77	0.80	0.79	0.82	0.54	0.79	0.82	0.82	0.79	0.78	0.78	0.78	0.78	0.78	0.79	0.78	0.78	0.78	0.78	0.78
5	AF-PG	0.80	3.07	3.07	3.29	3.26	4.27	3.08	3.10	3.56	3.54	3.12	3.05	3.22	3.20	3.20	3.20	3.24	3.21	3.22	3.23	3.21	3.23
17	Vineyard	1.84	6.86	6.86	6.35	6.41	6.63	5.56	6.29	7.98	8.07	6.32	6.33	6.35	6.78	6.79	6.79	6.94	6.30	6.26	6.30	6.79	6.95
Study Area Total		1.05	2.67	2.67	2.94	2.92	3.31	2.74	2.53	3.34	3.33	2.62	2.58	2.63	2.69	2.69	2.69	2.72	2.62	2.60	2.61	2.69	2.73
	Rank	13	13	13	4	5	3	6	23	1	2	18	22	17	9	9	9	8	18	21	20	9	7

All Trips Transit Shares

District	District Name	2019	MTP	MTPb	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Cedar Valley	0.18	0.16	0.16	0.48	0.50	0.83	0.48	0.06	0.54	0.56	0.27	0.26	0.26	0.29	0.27	0.27	0.27	0.27	0.24	0.24	0.26	0.26
2	Saratoga Springs	0.20	0.60	0.60	1.01	1.02	1.39	0.99	0.42	1.25	1.29	0.56	0.51	0.53	0.55	0.56	0.56	0.58	0.55	0.51	0.53	0.55	0.60
3	Lehi	0.59	1.57	1.57	1.52	1.56	1.59	1.68	1.41	1.61	1.66	1.46	1.47	1.50	1.50	1.50	1.50	1.50	1.48	1.50	1.48	1.48	1.50
4	Alpine-Highland	0.26	0.43	0.43	0.43	0.44	0.43	0.39	0.42	0.45	0.45	0.43	0.44	0.43	0.43	0.43	0.43	0.43	0.43	0.44	0.44	0.43	0.43
5	AF-PG	0.40	1.39	1.39	1.40	1.43	1.73	1.43	1.33	1.48	1.52	1.33	1.36	1.42	1.41	1.41	1.41	1.42	1.41	1.42	1.42	1.41	1.42
17	Vineyard	1.22	2.94	2.94	2.69	2.80	2.87	2.63	2.67	3.18	3.31	2.68	2.77	2.78	2.91	2.92	2.92	2.96	2.76	2.75	2.76	2.92	2.97
Study Area Total		0.52	1.14	1.14	1.22	1.26	1.38	1.25	1.05	1.36	1.40	1.09	1.10	1.13	1.15	1.15	1.15	1.16	1.13	1.12	1.12	1.14	1.16
	Rank	12	12	12	6	4	2	5	23	3	1	21	20	16	9	9	9	7	16	18	18	12	7

Total Transit Boardings

District	District Name	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Cedar Valley	30	471	471	1,120	1,140	2,130	1,260	310	1,210	1,250	740	690	680	770	760	760	770	760	750	750	760	760
2	Saratoga Springs	73	2,320	2,320	4,060	4,180	8,000	4,430	1,900	4,710	4,870	2,360	2,050	2,150	2,230	2,240	2,240	2,250	2,210	2,290	2,270	2,280	2,270
3	Lehi	1,489	8,861	8,861	8,640	8,970	9,930	9,970	8,130	9,150	9,540	8,670	8,530	8,540	8,570	8,590	8,580	8,690	8,450	8,470	8,480	8,490	8,580
4	Alpine-Highland	65	168	168	170	170	170	190	170	170	170	180	170	170	170	170	170	170	170	170	170	170	170
5	AF-PG	1,566	8,095	8,095	7,280	7,520	8,920	8,190	7,040	7,570	7,870	7,050	7,390	7,760	7,800	7,800	7,800	7,780	7,790	7,760	7,710	7,720	7,850
17	Vineyard	2,115	9,850	9,850	9,540	9,840	10,130	10,360	9,450	10,410	10,800	9,490	9,760	9,820	9,830	9,840	9,840	10,000	9,780	9,720	9,730	9,770	10,020
Study Area Total		5,338	29,765	29,765	30,810	31,830	39,280	34,400	27,000	33,230	34,510	28,480	28,590	29,110	29,380	29,400	29,390	29,650	29,160	29,150	29,110	29,170	29,650
	Rank		7	7	6	5	1	3	23	4	2	22	21	19	14	12	13	10	17	18	19	16	10

Local Bus Boardings

District	District Name	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Cedar Valley	30	299	299	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
2	Saratoga Springs	73	1,473	1,473	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470
3	Lehi	564	3,214	3,214	3,230	3,280	3,330	3,470	3,180	3,320	3,360	3,230	3,250	3,230	3,230	3,230	3,230	3,240	3,220	3,230	3,230	3,230	3,240
4	Alpine-Highland	65	168	168	170	170	170	190	170	170	180	170	170	170	170	170	170	170	170	170	170	170	170
5	AF-PG	990	1,888	1,888	1,950	1,990	2,030	2,170	1,920	1,970	2,010	1,930	1,960	1,990	1,980	1,980	1,980	1,980	1,950	1,990	1,990	1,980	1,980
17	Vineyard	143	1,307	1,307	1,410	1,450	1,480	1,750	1,410	1,350	1,400	1,410	1,450	1,460	1,320	1,320	1,320	1,330	1,450	1,450	1,450	1,320	1,330
Study Area Total		1,865	8,350	8,350	8,530	8,660	8,790	9,350	8,450	8,590	8,720	8,500	8,600	8,610	8,470	8,470	8,470	8,500	8,570	8,610	8,620	8,470	8,490

BRT Boardings

District	District Name	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Cedar Valley	0	159	159	300	310	620	360	0	350	360	0	380	360	460	450	450	460	450	440	450	450	440
2	Saratoga Springs	0	1,041	1,041	1,050	1,090	2,220	1,300	620	1,120	1,160	670	770	870	950	960	960	970	930	1,010	930	930	1,000
3	Lehi	0	1,234	1,234	940	1,000	1,320	1,300	830	1,060	1,140	860	970	980	1,020	1,020	1,010	1,010	950	1,010	950	950	960
4	Alpine-Highland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	AF-PG	0	2,555	2,555	1,990	2,070	2,230	2,650	1,880	2,090	2,190	1,880	1,910	2,070	2,120	2,110	2,120	2,140	2,120	2,160	2,120	2,120	2,120
17	Vineyard	410	747	747	740	750	770	890	740	750	760	740	750	750	750	750	750	760	750	750	750	750	760
Study Area Total		410	5,735	5,735	5,020	5,220	7,170	6,500	4,070	5,370	5,610	4,150	4,780	5,030	5,300	5,300	5,290	5,340	5,200	5,360	5,200	5,200	5,280

Light Rail Boardings

District	District Name	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Cedar Valley	0	0	0	510	520	1,200	590	0	550	580	430	0	0	0	0	0	0	0	0	0	0	0
2	Saratoga Springs	0	0	0	1,730	1,820	4,500	1,850	0	2,310	2,430	420	0	0	0	0	0	0	0	0	0	0	0
3	Lehi	0	2,300	2,300	2,270	2,360	2,590	2,740	2,020	2,310	2,420	2,330	2,190	2,190	2,170	2,180	2,170	2,130	2,140	2,090	2,150	2,150	2,140
4	Alpine-Highland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	AF-PG	0	1,377	1,377	1,310	1,370	1,400	1,310	1,320	1,350	1,420	1,320	1,380	1,400	1,400	1,400	1,400	1,400	1,380	1,400	1,380	1,410	1,400
17	Vineyard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Study Area Total		0	3,677	3,677	5,810	6,070	9,680	6,480	3,340	6,520	6,840	4,490	3,570	3,590	3,570	3,580	3,580	3,530	3,520	3,490	3,530	3,560	3,540

Commuter Rail Boardings

District	District Name	2019	MTP	MTP BR	S1.2	S1.2a	S1.3	S1.3a	S1.4	S1.6	S1.7	S1.8	S2.1	S2.2	S2.3	S2.4	S2.5	S2.6	S3.1	S3.2	S3.3	S3.4	S3.5
1	Cedar Valley	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Saratoga Springs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Lehi	926	2,682	2,682	2,770	2,900	3,260	3,030	2,670	3,040	3,190	2,830	2,690	2,710	2,720	2,720	2,730	2,870	2,710	2,720	2,710	2,720	2,800
4	Alpine-Highland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	AF-PG	575	2,475	2,475	2,230	2,290	3,460	2,270	2,120	2,350	2,460	2,120	2,340	2,510	2,500	2,510	2,500	2,450	2,530	2,410	2,410	2,420	2,560
17	Vineyard	1,562	7,796	7,796	7,400	7,640	7,880	7,720	7,300	8,310	8,640	7,340	7,560	7,610	7,770	7,770	7,770	7,920	7,580	7,520	7,530	7,700	7,940
Study Area Total		3,063	12,952	12,952	12,400	12,830	14,600	13,020	12,090	13,690	14,280	12,280	12,590	12,830	12,990	13,000	13,000	13,240	12,810	12,640	12,650	12,840	13,290