SOUTH VALLEY
TRANSIT
STUDY

APPENDIX D - INITIAL EVALUATION RESULTS AND RECOMMENDATIONS

Initial Evaluation Results and Recommendations

Overview

The Cities of Provo, Springville, Mapleton, Spanish Fork, Salem, Payson, and Santaquin, in collaboration with Mountainland Association of Governments (MAG), Utah Transit Authority (UTA), and Utah Department of Transportation (UDOT) have initiated a transit study to evaluate options for providing expanded regional transit service in the southern portion of Utah County, from Provo to Santaquin. The purpose of the study is to determine a Preferred Alternative that can be advanced into the next phase of project development – environmental study and preliminary engineering. The Preferred Alternative will identify the transit alignment (corridor and station locations to be served) and the transit mode (type of transit technology, e.g. commuter rail, bus rapid transit, etc.). Additional characteristics of the Preferred Alternative, including service frequency and other operating features will also be defined. In addition, near-term investments and phased transit service options will be explored to bridge the gap between existing transit service and full implementation of the Preferred Alternative.

The South Valley Transit Study is utilizing a multi-step evaluation process to determine a Preferred Alternative (Figure 1). An initial **Pre-Screening** step is used to ensure corridor and modal alternatives meet and address the project's Purpose and Need and remove alternatives with an obvious fatal flaw to implementation. The next step – **Initial Evaluation** – combines corridors and modes into logical alternatives and completes a high-level screening to further refine alternatives and identify those that are "best performing." This step is followed by a **Detailed Evaluation** which will provide greater definition for each alternative and examine critical design and operational considerations, such as service assumptions, station locations, and alignment details. The final step of the process will be to develop an **Implementation Plan** for the Preferred Alternative, which outlines how this investment is built out, including potential interim phasing options.

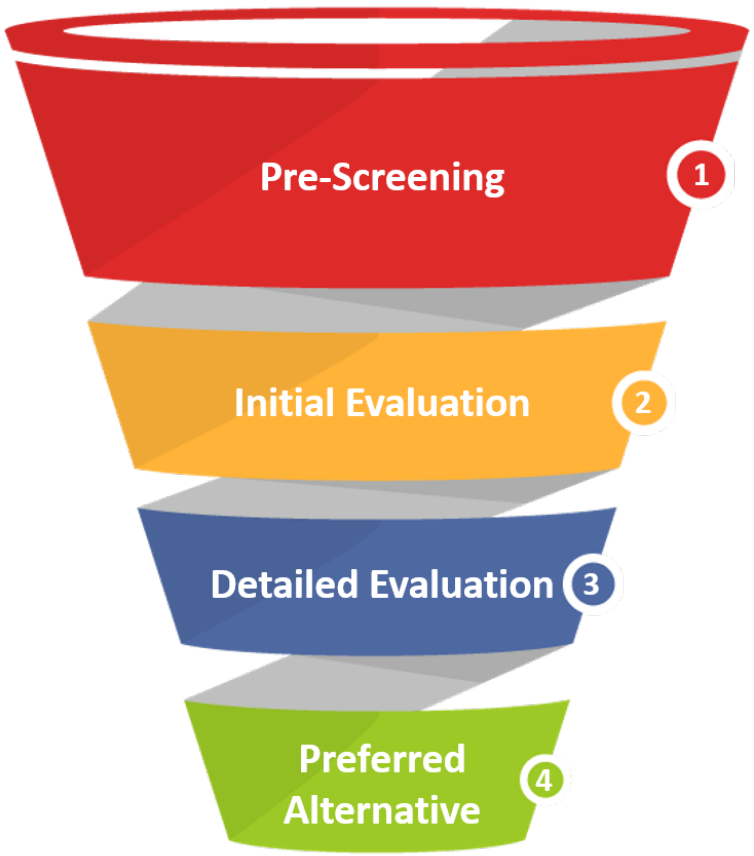
Purpose

The purpose of this memo is to summarize:

- Recommendations and feedback from the Technical Advisory Committee (TAC[1]) and Executive Committee [2]
- Development of modal and corridor transit alternatives
- Pre-Screening and Initial Evaluation findings

[1] The TAC is comprised of technical planning and engineering staff from UDOT, UTA, MAG, and all participating cities (Provo, Springville, Mapleton, Spanish Fork, Salem, Payson, and Santaquin).

[2] The Executive Committee is comprised of elected officials and other government leads from all participating cities, including representation from UDOT, UTA, and MAG.



Recommendation

Based on the Initial Evaluation results, two alternatives have been identified to advance into the Detailed Evaluation: (1) commuter rail and (2) bus rapid transit (BRT), both on the Rail Corridor alignment.

For both alternatives, two operational scenarios will be considered: (1) all day service versus (2) AM/PM peak service.

Additionally, further coordination with UTA and freight rail operations will be conducted to understand if corridor refinements are needed for the BRT option, due to potential operational and right-of-way constraints in the northern portion of the study area between Provo and Springville on the Sharp Industrial Lead.

Full Range of Initial Alternatives

A series of meetings were held with the Executive Committee, TAC, and other project stakeholders to generate the broad range of corridor and modal alternatives to be assessed during this study. In addition, the study team referenced previous plans and recommendations to understand what has been proposed in the past, to understand what communities are planning for, and how this corridor fits within the broader regional transportation system.

Five transit modes were identified as possible options to implement within this corridor, with further characteristics highlighted in Figure 2:

- Commuter Rail (exclusive guideway)
- Light Rail (exclusive guideway)
- BRT (exclusive guideway)
- Local Bus Service (mixed flow)
- Express Bus Service (mixed flow)

	BUS RAPID TRANSIT	LIGHT RAIL TRANSIT	COMMUTER RAIL TRANSIT	EXPRESS BUS	LOCAL BUS
Trip Types	Local and regional	Local and regional	Regional	Regional	Local
Operating Environment	Exclusive right-of-way or mixed traffic along arterial streets or highways[a]	Exclusive right-of-way within arterial streets or in dedicated right-of-way separate from streets	Separate right-of-way	Utilizes existing travel lanes, often on interstates mixes with general traffic	Utilizes existing local streets, mixes with general traffict
Typical Spacing of Stops	1/2 - 1 mile	1 mile	4-5 miles	Varies, but tends to have longer stop spacing (>1 mile)	1/4 - 1/2 mile
Typical Peak Frequencies	5-10 minutes	15 minutes	30 minutes	30 minutes during AM/PM peak, little or none outside of that	15-30 minutes
Passenger Capacity per Vehicle	60-90 per bus	180-200 per car[b]	100-200 per car[b]	60-90 per bus	40-80 per bus
UTA Example	 UVX	 TRAX	 FrontRunner	 Route 805	 Route 822

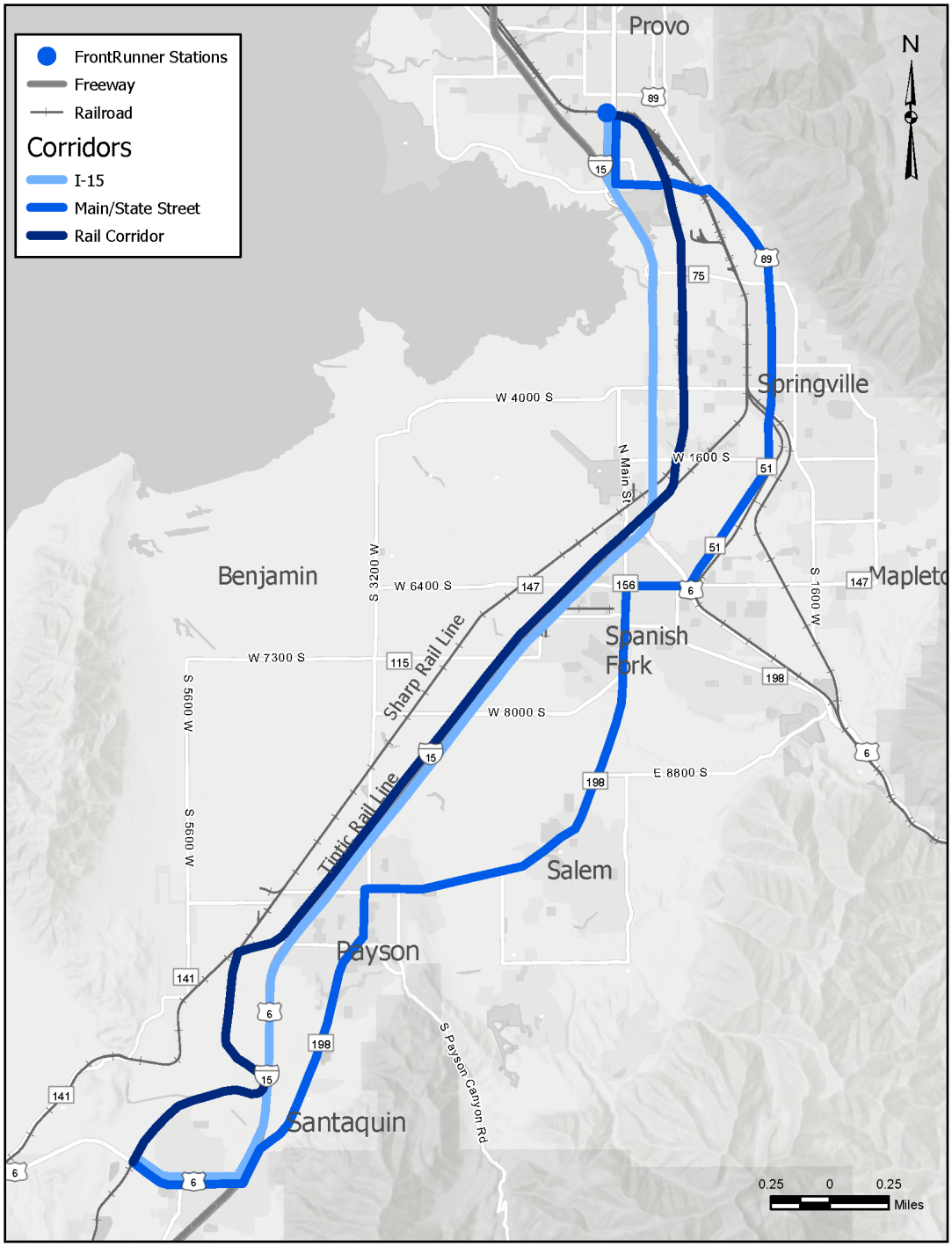
a - BRT has the greatest flexibility in operating environment. In addition to functioning in a typical street environment, it can also operate along highways, including in high-occupancy vehicle (HOV) lanes.

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

Figure 3 illustrates the three corridor alternatives developed, all beginning at the Provo FrontRunner station and ending in Santaquin:

- **Rail Corridor:** Following the Sharp Industrial Lead south to Springville, and then deviating onto the Tintic Industrial Lead to Payson where UTA's right-of-way ends. From Payson to Santaquin the representative alignment uses the Sharp Industrial lead, however multiple alignment options exist in this segment that will be explored further in the Detailed Evaluation step.
- **I-15:** Co-located on I-15 throughout study area, until the proposed end of line in Santaquin.

- **Main/State Street:** Multiple options exist for this route, with the representative alignment using a combination of US 89, SR 156, SR 198, and US 6.



Pre-Screening Results

Pre-Screening is used to ensure alternatives meet and address the project's Purpose and Need and eliminate any options that do not clearly meet Purpose and Need and/or have fatal flaws likely to prevent successful implementation. Input was solicited from stakeholders on the viability of all corridor and modal options.

The primary purpose of the investment is to:

- Support the transportation demands of population and employment growth in southern Utah County.
- Provide efficient regional transit service in the project corridor between Provo and Santaquin.
- Support adopted regional plans and local plans and policies.
- Enhance economic development in the corridor by improving access to and connections between existing and planned employment and key activity centers.

Based on these statements, all corridors will advance into the Initial Evaluation, and **one mode was screened out: local bus service**. Because a major tenant of the Purpose and Need is to provide regional transit service between Provo and Santaquin, local bus service operating in mixed flow traffic does not meet this expectation.

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

Initial Evaluation

A series of nine alternatives were advanced from the Pre-Screening into the Initial Evaluation, when logical corridors and modes were paired together. Table 1 presents an overview of the pairing, with a definition of how each mode could operate.

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

Mode	Definition	Rail Corridor	I-15	State/ Main
Commuter Rail	• Operates in exclusive transit alignment • Regional service with longer stop spacing (4 stations)	Yes	No	No
Light Rail	• Operates in exclusive transit alignment (shoulder-running/median on I-15 or State/Main; Rail Corridor right-of-way) • Regional service with longer stop spacing (4 stations)	Yes	Yes	Yes
Bus Rapid Transit	• Operates in exclusive transit alignment on Rail Corridor; operates in about 50% exclusive alignment on I-15 and State/Main • Regional service with longer stop spacing (4 stations)	Yes	Yes	Yes

Mode	Definition	Rail Corridor	I-15	State/ Main
Express Bus	• Operates in mixed flow traffic • Regional service with longer stop spacing (4 stations)	No	Yes	Yes

Notes:
– Frequency of service would be the same for all alternatives
– Regional stop spacing represents approximately 5 miles between stations

Please note that alternatives represent the long-term investment anticipated at full buildout (2050) in the study area. Interim or phased improvements may be explored in the Implementation Plan.

The Initial Evaluation includes multiple quantitative and qualitative measures that correspond with the Purpose and Need, as well as additional planning-related factors, such as potential impacts to sensitive environmental resources.

The Initial Evaluation is a high-level analysis used to illustrate key differences between alternatives based on mode and corridor characteristics and identify those that are best performing.

Table 2 (at the end of this document) provides a summary overview of the Initial Evaluation results. A more detailed description of the results and criteria can be found in Table 3. Relative performance of each alternative is assessed using a three-scale rating (high – medium – low) based on comparative performance between alternatives or level of potential impact. For example:

- **High performance** = alternative performs best or better than most other alternatives **OR** has limited or no potential impacts
- **Medium performance** = alternative does not perform distinctly better or worse than other alternatives **OR** has moderate levels of potential impacts
- **Low performance** = alternative performs poorly compared to the other alternatives **OR** has high levels of potential impacts

Initial Evaluation Results

Both commuter rail and BRT on the rail corridor are recommended to advance into the next phase of study: Detailed Evaluation.

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

Generally speaking, alternatives on I-15 have the most variability of performance by mode and the most challenges to serve with fully exclusive transit. Because of the nature of I-15 as an access-controlled corridor, incorporating high-capacity transit can cause transportation system impacts and lower the ability for transit connections. Additionally, these options do not lend well toward community compatibility and economic

development. Reliability and speeds vary, depending on how each mode could operate along the interstate.

The State/Main alternatives have the greatest overall length and highest number of signalized intersections, reducing transit performance and making these options more difficult to serve the primary purpose of regional need. Construction would likely be more complex because of the adjacent development and right-of-way impacts. Because of the number of intersections, implementing high-capacity transit would impact the local roadway network, without reasonable benefits in transit speed and reliability. *Transit alternatives along the State/Main corridor should continue to be explored for more localized service.*

Specific to the mode options – light rail, as a mode, offers many operational challenges in each corridor, with lower speeds than desired for a regional high-capacity transit route. From a reliability and speed perspective, this mode would not compete well with driving.

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

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

Next Steps

Both the Executive Committee and TAC have supported the Initial Evaluation recommendations, with minor comments on potential corridor refinements to better optimize operations and implementability of the remaining alternatives. The Purpose and Need and initial alternatives will be presented to the public for feedback.

Modifications will be made to the alternatives based on feedback received, and then the project team will evaluate the alternatives in greater detail. The Detailed Evaluation will provide greater definition to each alternative, including service assumptions, station locations, and specific alignment details, resulting in a Preferred Alternative.

Once a Preferred Alternative is selected, an implementation plan will be developed that considers potential phasing, frequencies, and other operational parameters.

Table 2. Initial Evaluation – Summary Results

Initial Evaluation Criteria | Measure	Rail Corridor Commuter Rail	Rail Corridor Light Rail	Rail Corridor Bus Rapid Transit	I-15 Light Rail	I-15 Bus Rapid Transit	I-15 Express Bus	State/Main Light Rail	State/Main Bus Rapid Transit	State/Main Express Bus
Transit speed	🟢	🟡	🟢	🟡	🟢	🟢	🔴	🔴	🔴
Transit reliability	🟢	🟢	🟢	🟢	🟡	🔴	🟢	🟡	🔴
Transit connections	🟢	🟡	🟡	🟡	🟡	🔴	🟡	🟡	🔴
Transit ridership potential	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
Transportation system impacts	🟡	🟡	🟡	🔴	🔴	🟡	🔴	🔴	🔴
Community compatibility	🟢	🟢	🟢	🔴	🔴	🔴	🔴	🔴	🔴
Economic development potential	🟢	🟢	🟢	🔴	🟡	🔴	🟡	🟡	🔴
Cost considerations	🟡	🟡	🟡	🔴	🟡	🟢	🔴	🟡	🟢
Constructability or operational considerations	🟡	🔴	🟡	🔴	🟡	🟢	🔴	🔴	🟢
Natural and built environment considerations	🟡	🟡	🟡	🟡	🟢	🟢	🔴	🟡	🟢
Project stakeholder input **Public input**									

Key:

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

Table 3. Initial Evaluation – Detailed Criteria and Results

Initial Evaluation Criteria | Measure	Rail Corridor Commuter Rail	Rail Corridor Light Rail	Rail Corridor Bus Rapid Transit	I-15 Light Rail	I-15 Bus Rapid Transit	I-15 Express Bus	State/Main Light Rail	State/Main Bus Rapid Transit	State/Main Express Bus
High-Level Definition	23.9 miles 4 stations 100% exclusive transit	23.9 miles 4 stations 100% exclusive transit	23.9 miles 4 stations 100% exclusive transit	22.7 miles 4 stations 100% exclusive transit	22.7 miles 4 stations 51% exclusive transit	22.7 miles 4 stations 0% exclusive transit, transit signal priority	26.8 miles 4 stations 100% exclusive transit	26.8 miles 4 stations 51% exclusive transit	26.8 miles 4 stations 0% exclusive transit, transit signal priority
Transit speed Average speed considerations based on corridor and mode characteristics.	**High Performance** Commuter rail operating on the Rail Corridor allows for a maximum transit speed of nearly 80 mph.	**Medium Performance** This alignment allows for maximum Light Rail Transit (LRT) speed of 55 mph.	**High Performance** Bus Rapid Transit (BRT) operating on the Rail Corridor would have a maximum speed of 70 mph.	**Medium Performance** This alignment allows for maximum transit speed of 55 mph.	**High Performance** This alignment would operate at roadway speeds and allow for maximum transit speeds of 70 to 75 mph. These speeds could be reduced by highway congestion in areas where BRT operates in shared use.	**High Performance** The Express Bus operates with potential maximum speeds of 70 to 75 mph. These maximum speeds could be reduced by highway congestion.	**Low Performance** Maximum speeds on State/Main for LRT would match existing roadway speeds of 30 to 45 mph.	**Low Performance** Maximum speeds on State/Main for BRT would match existing roadway speeds of 30 to 45 mph when in exclusive lanes. These speeds could be reduced by local roadway congestion in areas where BRT operates in shared use.	**Low Performance** The Express Bus operates in this corridor with speeds of 30 to 45 mph. These speeds could be reduced by local roadway congestion.
Transit reliability Potential to accommodate exclusive transit operations.	**High Performance** Corridor is 100% exclusive, with signal pre-emption at roadway crossings.	**High Performance** Corridor is 100% exclusive LRT track in exclusive right-of-way with LRT priority at roadway crossings.	**High Performance** Corridor is 100% exclusive in exclusive right-of-way with BRT priority at roadway crossings.	**High Performance** Corridor is 100% exclusive with exclusive right-of-way adjacent to UDOT facilities.	**Medium Performance** Corridor is 51% exclusive with portions of bus shoulder-running lanes along the corridor. Remaining portion would operate in shared use. Where shared use, subject to congestion similar to general purpose traffic, therefore having potential for delay.	**Low Performance** Corridor is 100% shared use along the corridor. Transit reliability upgrades are assumed such as transit signal priority and queue jumps where space is available. Transit subject to congestion similar to general purpose traffic, therefore having potential for delay.	**High Performance** Corridor is 100% exclusive LRT track in center-running guideway with transit priority at roadway crossings.	**Medium Performance** Corridor is 51% exclusive with exclusive center-running guideway and 49% of shared use along the corridor. Where shared use, subject to congestion similar to general purpose traffic, therefore having potential for delay.	**Low Performance** Corridor is 100% shared use along the corridor. Transit reliability upgrades are assumed such as transit signal priority and queue jumps where space is available. Transit subject to congestion similar to general purpose traffic, therefore having potential for delay.
Transit connections Potential to complement and integrate within	**High Performance** Only alternative that has potential for no forced transfers connecting into	**Medium Performance** Integrated within transit network, though mode transfer	**Medium Performance** Integrated within transit network, though transfer	**Medium Performance** Integrated within transit network, though mode transfer	**Medium Performance** Integrated within transit network, though transfer	**Low Performance** Integrated within transit network, though transfer required for	**Medium Performance** Integrated within transit network, though mode transfer	**Medium Performance** Integrated within transit network, though transfer	**Low Performance** Integrated within transit network, though transfer required for

Initial Evaluation Criteria | Measure	Rail Corridor Commuter Rail	Rail Corridor Light Rail	Rail Corridor Bus Rapid Transit	I-15 Light Rail	I-15 Bus Rapid Transit	I-15 Express Bus	State/Main Light Rail	State/Main Bus Rapid Transit	State/Main Express Bus
existing and planned regional transit network.	regional transit service.	required for destinations beyond Provo. Better opportunity for timed transfer because of high level of exclusivity.	required for destinations beyond Provo. Better opportunity for timed transfer because of high level of exclusivity.	required for destinations beyond Provo. Better opportunity for timed transfer because of high level of exclusivity.	required for destinations beyond Provo. Better opportunity for timed transfer because of high level of exclusivity.	destinations beyond Provo. More uncertainty and reduced ability to coordinate transfer timing because of mixed flow transit operations.	required for destinations beyond Provo. Better opportunity for timed transfer because of high level of exclusivity.	required for destinations beyond Provo. Better opportunity for timed transfer because of high level of exclusivity.	destinations beyond Provo. More uncertainty and reduced ability to coordinate transfer timing because of mixed flow transit operations.
Transit ridership potential Current and future population and employment in proximity to transit stations (half-mile).	**High Performance** 2019 Pop: 20,647 2019 Emp: 21,277 2050 Pop: 57,707 2050 Emp: 40,216 Pop % Change: 179% Emp % Change: 89%	**High Performance** 2019 Pop: 20,647 2019 Emp: 21,277 2050 Pop: 57,707 2050 Emp: 40,216 Pop % Change: 179% Emp % Change: 89%	**High Performance** 2019 Pop: 20,647 2019 Emp: 21,277 2050 Pop: 57,707 2050 Emp: 40,216 Pop % Change: 179% Emp % Change: 89%	**High Performance** 2019 Pop: 20,519 2019 Emp: 24,235 2050 Pop: 60,279 2050 Emp: 47,415 Pop % Change: 194% Emp % Change: 96%	**High Performance** 2019 Pop: 20,519 2019 Emp: 24,235 2050 Pop: 60,279 2050 Emp: 47,415 Pop % Change: 194% Emp % Change: 96%	**High Performance** 2019 Pop: 20,519 2019 Emp: 24,235 2050 Pop: 60,279 2050 Emp: 47,415 Pop % Change: 194% Emp % Change: 96%	**High Performance** 2019 Pop: 40,886 2019 Emp: 29,138 2050 Pop: 62,346 2050 Emp: 39,412 Pop % Change: 52% Emp % Change: 35%	**High Performance** 2019 Pop: 40,886 2019 Emp: 29,138 2050 Pop: 62,346 2050 Emp: 39,412 Pop % Change: 52% Emp % Change: 35%	**High Performance** 2019 Pop: 40,886 2019 Emp: 29,138 2050 Pop: 62,346 2050 Emp: 39,412 Pop % Change: 52% Emp % Change: 35%
Transportation system impacts Potential effects on existing and planned traffic operations, including freight (truck and rail).	**Medium Performance** Commuter rail is an additional rail line, adjacent to the Sharp/Tintic Rail Lines and it would have limited impacts to freight rail, with a proposed grade separation over the existing rail yard. It has the potential to disrupt daily cross vehicle traffic operations at the gate crossings depending on frequency.	**Medium Performance** LRT would operate adjacent to the Sharp/Tintic Rail Lines and it would have limited impacts to freight rail, with a proposed grade separation over the existing rail yard. It has the potential to disrupt daily cross vehicle traffic operations at the gate crossings depending on frequency.	**Medium Performance** BRT would operate adjacent to the Sharp/Tintic Rail Lines and it would have limited impacts to freight rail, with a proposed grade separation over the existing rail yard. It has the potential to disrupt daily cross traffic operations at the gate crossings depending on frequency.	**Low Performance** Because this alignment requires exclusive operations through adjacent right-of-way, there would be significant construction impacts on existing infrastructure such as bridges and adjacent roads. It could potentially disrupt future I-15 widening efforts as well. However, this alternative would have limited to no impacts on traffic once operational.	**Low Performance** In the exclusive section, this alignment operates on I-15, utilizing shoulder-running buses. Outside of potential merging delays, this alternative has limited impact to traffic operations. The shared use portion of the alignment would cause delays to both transit and traffic operations. If a larger extent of exclusive guideway is desired, could potentially have greater impacts, similar to LRT on I-15.	**Medium Performance** The Express Bus operates in mixed flow traffic and would affect daily traffic operations as the bus moves in and out of traffic at stops.	**Low Performance** This alignment requires exclusive right-of-way operations and has priority at roadway crossings, therefore it has higher impacts on traffic operations.	**Low Performance** This alignment requires 51% exclusive operations through center-running guideway which would have impacts on cross traffic operations due to the transit priority at signals. The shared use portion of the alignment would cause delays to both transit and traffic operations.	**Low Performance** The Express Bus operates in mixed flow traffic and would affect daily traffic operations as the bus moves in and out of traffic at stops.

Initial Evaluation Criteria | Measure	Rail Corridor Commuter Rail	Rail Corridor Light Rail	Rail Corridor Bus Rapid Transit	I-15 Light Rail	I-15 Bus Rapid Transit	I-15 Express Bus	State/Main Light Rail	State/Main Bus Rapid Transit	State/Main Express Bus
Community compatibility Compatibility of alignments with adopted local plans and policies.	**High Performance** Many local plans have begun to strategize the location of potential future high-capacity transit station locations, which are primarily located along the Rail Corridor alignment. Surrounding land uses are transit-supportive in nature, including mixed use, transit-oriented development, commercial, and/or village core.	**High Performance** Many local plans have begun to strategize the location of potential future high-capacity transit station locations, which are primarily located along the Rail Corridor alignment. Surrounding land uses are transit-supportive in nature, including mixed use, transit-oriented development, commercial, and/or village core.	**High Performance** Many local plans have begun to strategize the location of potential future high-capacity transit station locations, which are primarily located along the Rail Corridor alignment. Surrounding land uses are transit-supportive in nature, including mixed use, transit-oriented development, commercial, and/or village core.	**Low Performance** Several potential future transit station locations and complementary transit-supportive planned land uses are located within the vicinity of the I-15 corridor, but not directly on this alignment. Additionally, a transit facility on/adjacent to I-15 does not provide adequate or accessible first/last mile connections.	**Low Performance** Several potential future transit station locations and complementary transit-supportive planned land uses are located within the vicinity of the I-15 corridor, but not directly on this alignment. Additionally, a transit facility on/adjacent to I-15 does not provide adequate or accessible first/last mile connections.	**Low Performance** Several potential future transit station locations are located in the vicinity, but not directly on this alignment. Surrounding land uses are transit-supportive in nature, however, a transit facility on I-15 does not provide adequate or accessible first/last mile connections. Many adopted plans in the area indicate that express bus would not provide adequate service coverage and frequency to meet their land use goals and growth projections.	**Low Performance** The varied existing and future land uses along the corridor could be supportive of high frequency transit (LRT) if built at the right densities, but the high degree of industrial land in the northern portion, paired with mostly residential land uses in the south, make this mode and alignment less compatible.	**Low Performance** The varied existing and future land uses along the corridor could be supportive of high frequency transit (BRT) if built at the right densities, but the high degree of industrial land in the northern portion, paired with mostly residential land uses in the south, make this mode and alignment less compatible.	**Low Performance** The varied existing and future land uses along the corridor could be supportive of high frequency transit (express bus) if built at the right densities, but the high degree of industrial land in the northern portion, paired with mostly residential land uses in the south, make this mode and alignment less compatible. Many adopted plans in the area indicate that express bus would not provide adequate service coverage and frequency to meet their land use goals and growth projections.
Economic development potential Transit investment ability to support/promote increased economic development.	**High Performance** The permanence of commuter rail stations and fixed guideway promote development certainty. In addition, corridor has supportive land uses and highest amount of development and redevelopment opportunities.	**High Performance** The permanence of LRT stations and fixed guideway promote development certainty. In addition, corridor has supportive land uses and highest amount of development and redevelopment opportunities.	**High Performance** The permanence of BRT stations and fixed guideway promote development certainty. In addition, corridor has supportive land uses and highest amount of development and redevelopment opportunities.	**Low Performance** The permanence of LRT stations and fixed guideway promote development certainty. However, siting LRT stations would have to occur directly adjacent to I-15 and would limit economic development opportunity.	**Medium Performance** The permanence of BRT stations and fixed guideway promote development certainty. BRT offers some flexibility to site stations at appropriate locations of desired development opportunity around existing/future interchanges.	**Low Performance** The lack of permanent features associated with express bus may discourage development and reduce economic development opportunity.	**Medium Performance** The permanence of LRT stations and guideways promote development certainty. The State/Main corridor is more built out than the other corridors and development and redevelopment economic development opportunities around transit may be	**Medium Performance** The permanence of BRT stations and guideways promote development certainty. The State/Main corridor is more built out than the other corridors and development and redevelopment economic development opportunities around transit may be	**Low Performance** The lack of permanent features associated with express bus may discourage development and reduce economic development opportunity.

Initial Evaluation Criteria | Measure	Rail Corridor Commuter Rail	Rail Corridor Light Rail	Rail Corridor Bus Rapid Transit	I-15 Light Rail	I-15 Bus Rapid Transit	I-15 Express Bus	State/Main Light Rail	State/Main Bus Rapid Transit	State/Main Express Bus
							reduced compared to other corridors.	reduced compared to other corridors.	
Cost considerations Planning-level cost per mile and other major cost items that deviate from a standard cost per mile.	**Medium Performance** This alignment adds 23.9 miles of track and four stations with approximately 5 miles of right-of-way acquisition (Payson to Santaquin). Several grade-separated bridges will also increase costs of the alignment.	**Medium Performance** This alignment adds a new operations and maintenance facility, 23.9 miles of track, and four stations with approximately 5 miles of right-of-way acquisition (Payson to Santaquin). Several grade-separated bridges will also increase costs of the alignment.	**Medium Performance** This alignment adds 23.9 miles of roadway and four stations with approximately 5 miles of right-of-way acquisition. Several grade-separated bridges will also increase costs of the alignment.	**Low Performance** This alignment requires a new operations and maintenance facility and 22.7 miles of new track to be constructed in an exclusive at-grade guideway adjacent to I-15. Numerous grade-separated bridges and/or crossing of existing interchanges adjacent to I-15 will also increase costs of the alignment.	**Medium Performance** The total length of this corridor is 22.7 miles. A shoulder-running BRT system would operate on 51% of the corridor. It is assumed that widening is not necessary to accommodate this guideway in this alternative; however, improvements would need to be made including striping, signage, and potential pavement upgrades.	**High Performance** With the Express Bus operating in mixed flow traffic for the entire 22.7 miles of the corridor, there would be minimal infrastructure improvements and therefore a low cost per mile.	**Low Performance** This alignment requires a new operations and maintenance facility and construction of 26.8 miles of track in exclusive right-of-way within a street corridor, resulting in a high cost per mile.	**Medium Performance** The total length of this corridor is 26.8 miles. An exclusive center-running guideway would need to be constructed along 51% of the corridor. Widening is assumed to be necessary to accommodate this guideway.	**High Performance** With the Express Bus operating in mixed flow traffic for the entire 26.8 miles of the corridor, there would be minimal infrastructure improvements and therefore a low cost per mile.
Constructability or operational considerations Potential conflicts with major utilities, structures, or other transportation infrastructure; unique or operational construction challenges.	**Medium Performance** Commuter rail on this alignment follows existing rail corridor and adds 23.9 miles of track. There are 4 bridges that could increase potential construction complexity. Crossing the existing Provo rail yard could be a substantial challenge. Adding nearly 24 miles of length to existing commuter rail operations may present operational challenges due to overall length of line,	**Low Performance** LRT on this alignment follows existing rail corridor and adds 23.9 miles of track. There are 4 bridges that could increase potential construction complexity. Crossing the existing rail yard could be a substantial challenge. Operation of LRT as an independent system outside of existing UTA LRT infrastructure present significant operational challenges.	**Medium Performance** This alignment follows existing rail corridor and adds 23.9 miles of BRT infrastructure, operating in an exclusive right-of-way. There could be potential conflicts within this ROW with other infrastructure and some construction complexity with the 4 bridges along the alignment. Although it does not affect performance, regional stop spacing	**Low Performance** This alignment follows I-15 with exclusive at-grade guideway within UDOT right-of-way, where available. The construction would have numerous impacts to I-15, with potential bridge widening and challenging interchange reconfiguration or grade-separated crossings in order to run adjacent to I-15. Construction would significantly interfere with traffic operations.	**Medium Performance** This alignment uses shoulder-running bus operations on 51% of the corridor and it is assumed that no widening is necessary. If upgrades to the shoulders are needed, construction would significantly interfere with traffic operations. Although it does not affect performance, regional stop spacing with BRT may not match public perception.	**High Performance** The Express Bus operates in mixed flow traffic and would have limited construction impacts or challenges.	**Low Performance** This alignment requires construction of center-running guideway in a constrained, existing street right-of-way. This could potentially conflict with utilities and other infrastructure. Construction would significantly interfere with traffic operations. Operation of LRT as an independent system outside of existing UTA LRT infrastructure present	**Low Performance** This alignment requires construction of center-running guideway in a constrained, existing street right of way for 51% of the corridor. Widening is necessary to accommodate exclusivity. Construction would significantly interfere with traffic operations. Although it does not affect performance, regional stop spacing with BRT may not	**High Performance** The Express Bus operates in mixed flow traffic and would have limited construction impacts or challenges.

Initial Evaluation Criteria | Measure	Rail Corridor Commuter Rail	Rail Corridor Light Rail	Rail Corridor Bus Rapid Transit	I-15 Light Rail	I-15 Bus Rapid Transit	I-15 Express Bus	State/Main Light Rail	State/Main Bus Rapid Transit	State/Main Express Bus
	scheduling, and required operator breaks.	Although it does not affect performance, regional stop spacing with LRT may not match public perception.	with BRT may not match public perception.	Operation of LRT as an independent system outside of existing UTA LRT infrastructure present significant operational challenges. Although it does not affect performance, regional stop spacing with LRT may not match public perception.			significant operational challenges. Although it does not affect performance, regional stop spacing with LRT may not match public perception.	match public perception.	
Natural and Built environment considerations Potential for adverse effects on natural built environment resources.	**Medium Performance** This alignment requires approximately 5 miles of right-of-way acquisition which could have potential effects on the built environment and moderate potential impacts to the natural and built environment, including small lakes and protected agriculture along the rail corridor in the southern portion of the study area.	**Medium Performance** This alignment requires approximately 5 miles of right-of-way acquisition which could have potential effects on the built environment and moderate potential impacts to the natural and built environment, including small lakes and protected agriculture along the rail corridor in the southern portion of the study area.	**Medium Performance** This alignment requires approximately 5 miles of right-of-way acquisition which could have potential effects on the built environment and moderate potential impacts to the natural and built environment, including small lakes and protected agriculture along the rail corridor in the southern portion of the study area.	**Medium Performance** This alignment has some impact on the natural and built environment because of widening to accommodate the right-of-way needed for the exclusive right-of-way.	**High Performance** This alignment has limited impacts on the built environment because it uses the existing shoulder infrastructure on I-15 along 51% of the corridor. As defined, an alignment using the existing I-15 corridor would have minimal impacts on the surrounding natural and built environment. Additional consideration would be required for clear zone and other UDOT requirements.	**High Performance** This alignment operates in mixed flow traffic and would have limited impact on the built environment. Alignments using the existing I-15 corridor would have minimal impacts on the surrounding natural and built environment.	**Low Performance** This alignment has the most substantial impact on the built environment because of the right-of-way needed due to widening for the semi-exclusive right-of-way. This alignment could have more potential impacts to elements of the natural and built environment, including water resources, parks, and historic properties.	**Medium Performance** This alignment impacts the built environment through the exclusive center-running guideway that would need to be constructed through 51% of the corridor and the associated widening. This alignment could have more potential impacts to elements of the natural and built environment, including water resources, parks, and historic properties.	**High Performance** This alignment operates in mixed flow traffic and would have limited impact on the built environment. This alignment could have more potential impacts to elements of the natural and built environment, including water resources, parks, and historic properties.
Project stakeholder input **Public input**									