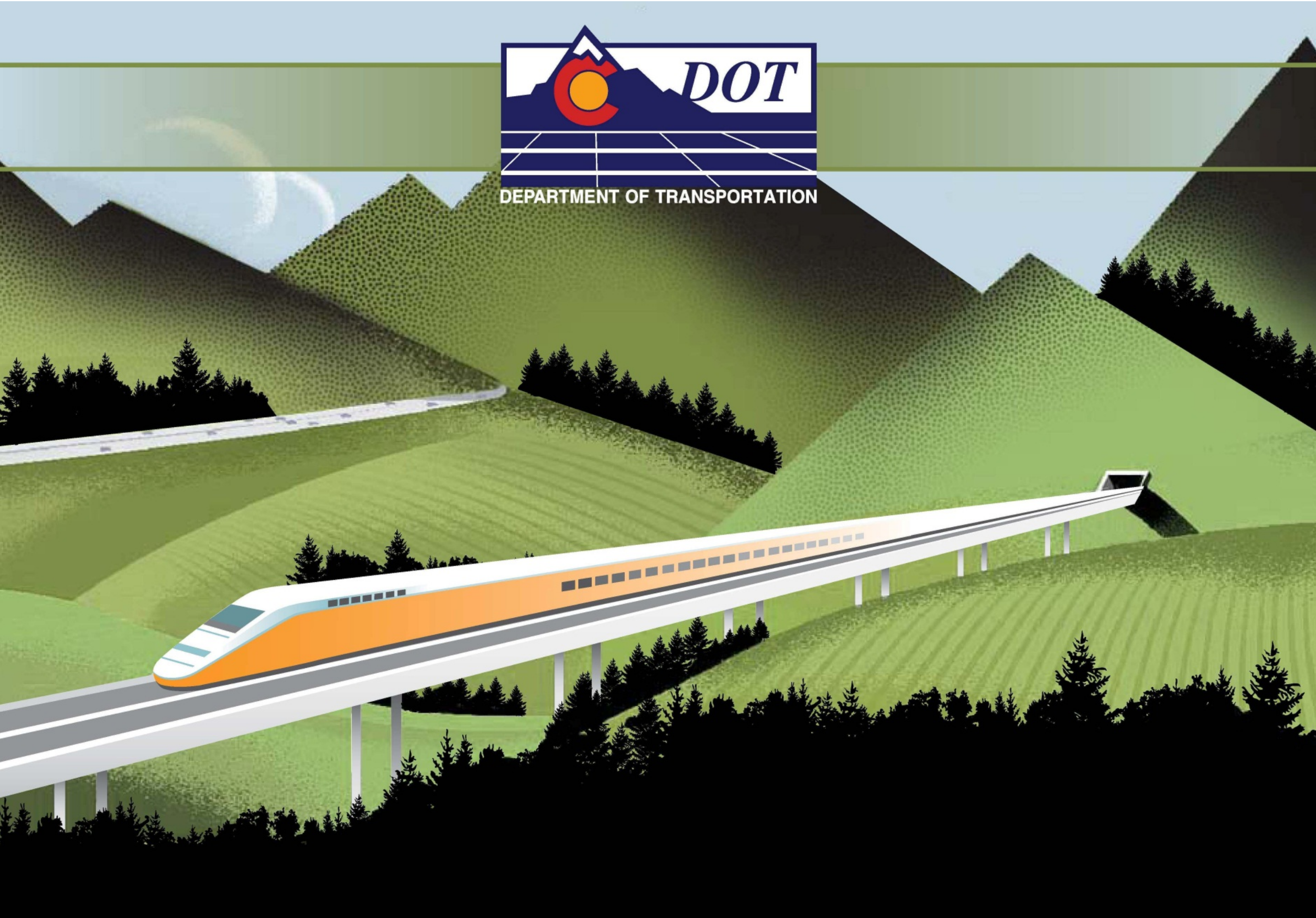


ADVANCED GUIDEWAY SYSTEM (AGS)
FEASIBILITY STUDY

CHAPTER 3
DEVELOPMENT OF ALIGNMENTS AND STATION LOCATIONS

Chapter 3 Development of Alignments and Station Locations

More than any other characteristic of an Advanced Guideway System (AGS), the alignment, or its physical location, is the one most likely to be noticed by the traveling public. The alignment also would have the greatest potential to affect the project cost, and it would have more bearing on the number of impacts to I-70 Mountain Corridor and the adjacent communities. The AGS Study Team developed the alignments with this in mind, while meeting the goals of a Context Sensitive Solution and a design for the AGS that is practical and makes best use of funds.

The alignments presented in this chapter represent the AGS Study Team's initial design options developed with the AGS Project Leadership Team (PLT). It is anticipated that further refinement of the alignments will occur when the AGS is implemented.

3.1 Alignment Location Considerations

There are several potential alignment locations between the two termini of the study area. To develop alignment options, the AGS Study Team took the following into consideration.

3.1.1 Technologies

Based on the results of the technology evaluations presented in Chapter 2, initial alignment design focused on the three technology groups that were either commercially available or were well along in development. The three technology groups below also represent other technologies through speed characteristics, and grade climbing capability, as explained later in this chapter.

- 120 mph Maglev – American Maglev or General Atomics
- High Speed Maglev – Transrapid
- High Speed Rail – Talgo

3.1.2 Station Locations

To determine potential alignments for the AGS, the AGS Study Team first determined where stations could plausibly be located. Stations would provide the sole point of access to the AGS and would need to be located where they could best serve the demand and attract passengers who normally would use the I-70 Mountain Corridor.

Three main factors had a bearing on the possible station locations: geography, economics, and station spacing.

Geography – Any alignment needed to consider the physical location of the possible destinations and the actual terrain to be navigated. This was of particular importance in Summit County, where the crossing of the Continental Divide and steep grades determined where it made the most sense to locate the AGS alignment and, therefore, where any stations might be located along that alignment.

Economics – Economics were considered in terms of the cost of construction, but more importantly in terms of future revenues and operating costs. Any possible AGS alignment was intended to serve the maximum number of passengers, and the stations would need to be located where they could achieve this goal. The better locations in terms of economics would:

- Generate more revenue, i.e., sales or property taxes, which would greatly contribute to the financial viability of the AGS.
- Minimize environmental impacts, which would lower project costs.
- Provide badly needed relief for congestion on I-70, particularly on weekends.
- Allow passengers to more quickly arrive at their destinations and enjoy those amenities, thereby adding to the appeal (and likely use) of the AGS.

Spacing between stations – This issue would likely impact the overall capacity of a high-speed corridor. Stations spaced too closely could artificially limit the maximum operating speed of a vehicle consist; and a vehicle may not have enough distance to accelerate to and decelerate from the speed at which it is capable of operating. Conversely, stations spaced too far apart would mean fewer stations along the alignment. This could limit ridership numbers for two reasons. First, fewer stations would reduce the number of possible destinations and reasons to use the AGS. Secondly, with fewer locations to board the AGS, each vehicle consist would need to be larger/longer to carry more passengers.

Based on these main considerations and the I-70 Coalition's 2009 *Land Use Planning Study for Rail Transit Alignment throughout the I-70 Corridor*, the AGS Study Team and PLT generated a list of locations where a station seemed plausible and also had local support:

- Eagle County Regional Airport
- Town of Eagle
- Wolcott
- Avon
- Vail
- Copper Mountain
- Breckenridge
- South Dillon Lake
- Frisco
- Lake Hill (Between Frisco and Silverthorne)
- Silverthorne
- Keystone
- Loveland Ski Basin
- Silver Plume
- Georgetown
- Idaho Springs
- El Rancho/I-70 Evergreen Interchange
- I-70/C-470 in Golden

Additional factors in determining plausible station locations included:

- Desire for the most cost-efficient design in light of the stated goals for the AGS system.
- Various technology types and their design parameters, based on the information provided by technology providers.
- Input of local communities.
- Impacts to cost and the environment.

One area along the potential alignments presented a unique set of challenges. In Summit County, all alignments originally roughly paralleled the I-70 Mountain Corridor, passing north of the Dillon Reservoir and through the Silverthorne area. However, the likely generators of revenue and ridership for the AGS in this area are located south of I-70, particularly the ski areas in and around Breckenridge and Keystone. The AGS Study Team discussed how to best serve this area and had broad agreement on several items:

- No one alignment would to be able to serve all the locations in Summit County.
- Connecting bus services transport passengers to a wider geographical area. However, considering ridership appeal and environmental impacts, it was best to avoid relying on supplemental transportation and transfers wherever possible. A station in Silverthorne, Frisco, or any location on the north side of the Dillon Reservoir would have a greater need for a connecting bus service.
- I-70 passes through Silverthorne largely because of the location of the Eisenhower-Johnson Memorial Tunnel (EJMT). Because the AGS would require its own tunnel under the Continental Divide, it would be worth considering alternate tunnel locations if they resulted in an alignment more likely to directly serve a greater ridership volume to and from Summit County.

As a result of these discussions and as each technology type permitted, the AGS Study Team rerouted some of the preliminary alignments south of Dillon Reservoir.

3.1.3 Alignments

The AGS Study Team identified four alignments that could be used by one or more of the feasible technologies. They were:

- **I-70 Alignment** – This alignment stays strictly within the I-70 right-of-way and has an anticipated lower operating speed of between 85 and 120 mph. The sharper curves and steeper grades of this alignment limit the number of technologies that could operate along it. Medium speed maglev is representative of a group of technologies with these speed & grade climbing characteristics.
- **Hybrid Alignment** – This alignment uses the I-70 right-of-way as much as possible, but deviates, as needed, to accommodate higher speeds or to lower design and construction costs. Like the I-70 alignment, capabilities to handle steep grades are required for this alignment. It is anticipated to run at a speed of about 120 mph, which could accommodate several technology types, including medium-speed and high-speed maglev, among others.
- **High Speed Maglev Alignment** – This alignment is largely independent of I-70 right-of-way. Like the I-70 and Hybrid alignments, capabilities to handle steep grades are required for this alignment. It would run at a speed of approximately 200 mph and could accommodate a variety of technologies, including high-speed maglev.

- **High Speed Rail Alignment** – This alignment would be outside the I-70 right-of-way. It would use high-speed steel wheel on rail and would operate at a speed of approximately 200 to 220 mph. Because it has gentle grades, it could accommodate any technology, including maglev.

Each alignment had its own set of design criteria, based upon the technology type being considered for the alignment. The horizontal and vertical geometry and grade limitations of the I-70 Mountain Corridor had a great impact on where the alignments were located.

The AGS Study Team paired the three technologies with alignments, as follows:

- I-70 Alignment with 120 mph Maglev vehicles (I-70 Alignment)
- Hybrid Alignment with 120 mph Maglev vehicles (Hybrid/120 mph Maglev)
- High Speed Maglev Alignment with High Speed Maglev vehicles (High Speed Maglev)
- High Speed Rail Alignment with High Speed Rail (High Speed Rail)

Table 3-1 summarizes the design criteria used for each alignment.

Table 3-1: Alignment Design Criteria

Parameter	I-70	Hybrid	High Speed Maglev	High Speed Rail
Acceleration	0.06g	0.06g	0.06g	0.06g
Deceleration	0.06g	0.06g	0.06g	0.06g
Headway Minimums	2 minutes	2 minutes	6 minutes	6 minutes
Height	33 ft.	33 ft.	33 ft.	33 ft.
Width	60 ft.	60 ft.	40 ft.	50 ft.
Minimum Vertical Radii	10,000 ft.	10,000 ft.	52,000 ft. (Crest) 26,000 ft. (Sag)	40,000 ft.
Maximum Sustained Grade	7%	7%	7%	3%
Minimum Horizontal Radii (Operating)	4,000 ft.	4,000 ft.	10,500 ft.	11,500 ft.
Minimum Tangent Between Reversing Curves	200 ft.	400 ft.	400 ft.	600 ft.
Maximum Operating Speed	120 mph	120 mph	200 mph	200 mph
Minimum Normal Span	88 ft.	88 ft.	100 ft.	Not applicable
Maximum Normal Span	162 ft.	162 ft.	210 ft.	Not applicable
Foundation Size (Diameter)	9 ft.	9 ft.	10 ft.	Not applicable
Minimum Station Footprint	54,000 sq. ft.	54,000 sq. ft.	54,000 sq. ft.	54,000 sq. ft.
Desired Station Footprint	100,000 sq. ft.	100,000 sq. ft.	100,000 sq. ft.	100,000 sq. ft.
Minimum Operations and Maintenance Facility Footprint	80,000 sq. ft.	80,000 sq. ft.	80,000 sq. ft.	80,000 sq. ft.
Minimum Substation Footprint	3,500 sq. ft.	3,500 sq. ft.	3,500 sq. ft.	3,500 sq. ft.

It should be noted that in the vicinity of stations, the design criteria were relaxed and allowed for much tighter horizontal and vertical curves than would otherwise be desired because the vehicles are traveling at a much lower speed at the approach and departure. Also, for the I-70 Alignment, the design criteria were held as much as possible, but overridden where necessary to keep the alignment within the I-70 right-of-way.

3.2 Alignment Descriptions and Analysis

3.2.1 I-70 Alignment

The I-70 Alignment in Figure 3-1 could be built and operated entirely within the I-70 right-of-way, with very limited exceptions at individual stations and at the east and west ends of the study area. It would likely use a medium-speed maglev technology or other emerging technology.

The I-70 Alignment begins at the Eagle County Regional Airport and immediately proceeds northeast, past the east end of the airport to the I-70 right-of-way and remains in the I-70 right-of-way through Eagle, Avon, Vail, Copper Mountain, Frisco, Silverthorne, Silver Plume, Georgetown, Idaho Springs, and to Golden. The I-70 Alignment would have two tunnels paralleling the existing tunnels on I-70: a 1.8-mile bore near EJMT, and an 800-foot bore near the Twin Tunnels east of Idaho Springs.

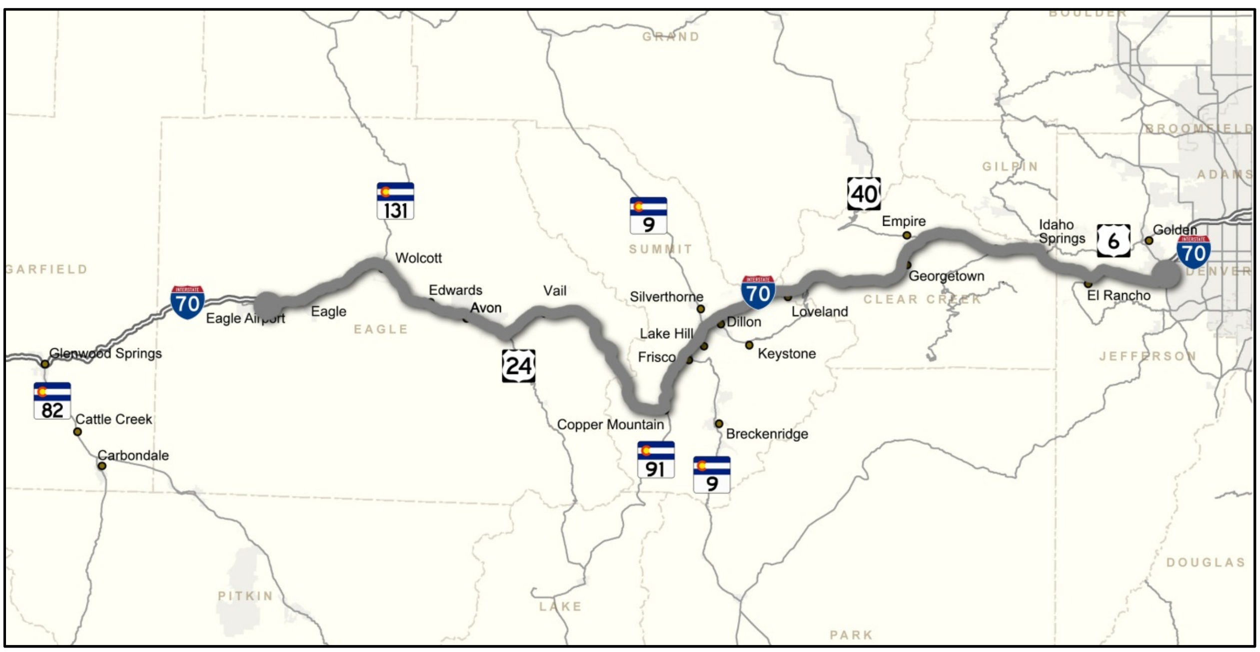


Figure 3-1: I-70 Alignment

The *I-70 Mountain Corridor Final Programmatic Environmental Impact Statement* had anticipated that the AGS would run down the center median of I-70; however, to decrease costs, improve constructability, and increase curve radii, the I-70 Alignment developed for this Study was typically located to one side of and parallel to the highway. Keeping the alignment off the I-70 median was easier for station access.

Avoiding the median also helps limit the number of highly skewed crossings of I-70 along the alignment. While not completely avoidable, these crossings are undesirable because they typically require straddle bents. Straddle bents are supports for a bridge skewed at a very acute angle across one or both directions of I-70 and require bridge piers on both sides of the highway. Straddle bents are costly to build and are aesthetically unpleasing. Further, they are detrimental from the standpoint of driver expectancy, particularly in rural environments, at night, or in inclement weather, all of which could happen together on I-70. These overhead crossings appear very suddenly in the driver's field of view, causing momentary distraction, at best, or an overreaction by the vehicle operator, at worst.

Possible station locations along the I-70 Alignment were:

- Eagle County Regional Airport
- Avon
- Vail
- Copper Mountain
- Silverthorne or Lake Hill
- Georgetown or Idaho Springs
- Golden/Jefferson County

Station locations off of I-70 could potentially be reached by supplementary services or by adding spur track/guideway to the overall system.

I-70 Alignment Analysis

There are numerous locations along the I-70 Alignment where the minimum horizontal radius design criteria of 4,000 feet would not be possible within the I-70 right-of-way. One of the 120 mph maglev technology providers pointed out that horizontal curves under 4,000 feet would limit how fast the AGS would be able to travel. The sharper curves would result in an average speed of approximately 45 mph when station dwell time was included. This low operating speed would mean the travel times would be longer than those of vehicles currently using I-70. Despite its anticipated lower cost compared to the other three alignments, because of this limitation, the AGS Study Team decided the I-70 Alignment would not be a feasible alternative.

Even with pod-based/PRT technologies and/or with all off-line stations, the best this alignment could do would be to match the speed of existing autos during uncongested travel along I-70. Costs would increase to provide all off-line stations and/or to extend the system network length to achieve the auto-competitive travel times proposed by pod-based/PRT technologies.

For these reasons, the I-70 Alignment was not carried forward for further consideration, nor were costs estimated for it. The Hybrid Alignment became the lower-bound alignment representing lowest cost, medium speed, grade-capable technologies.

3.2.2 Hybrid Alignment

The Hybrid Alignment illustrated in Figure 3-2 would use the I-70 right-of-way as much as possible, but would leave the right-of-way where necessary to increase curve radii to accommodate higher speeds. It would leave I-70 at Copper Mountain and proceed under the Ten-Mile Range in a tunnel to Breckenridge. It would then cross to Keystone where it would parallel US 6 to the Arapahoe Basin Ski Area, cross under Grizzly Peak, and then follow the alignment of Grizzly Gulch Road and Stevens Gulch Road back to I-70 just east of the Bakersville interchange.

The Hybrid Alignment is assumed to have stations at:

- Eagle County Regional Airport
- Avon
- Vail
- Copper Mountain
- Breckenridge
- Keystone
- Idaho Springs
- Golden/Jefferson County

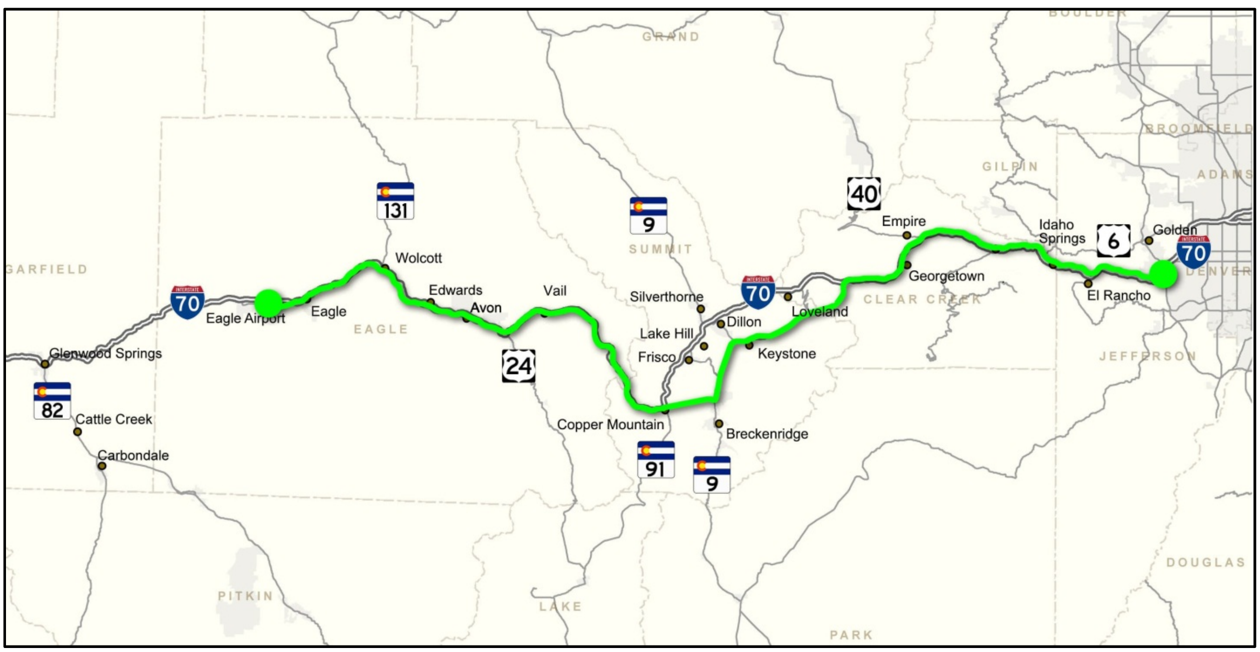


Figure 3-2: Hybrid Alignment

Hybrid Alignment Analysis

The Hybrid Alignment operates at lower speeds (maximum 120 mph) than the High Speed Maglev or High Speed Rail Alignments. This offers several advantages. The geometric design criteria are significantly more forgiving than those of the High Speed Maglev or High Speed Rail Alignments and, therefore, require fewer tunnels. It is inherently the most flexible in terms of being able to fit the land or be directed to a specific area. Although it is the longest alignment, it is significantly less costly to build because of fewer tunnels.

The AGS PLT asked the design team if it were possible to use the Hybrid Alignment with high-speed maglev technology. The design team determined that the high-speed maglev technology could run on the Hybrid Alignment, and would bring the cost for high-speed maglev technology closer to the Hybrid Alignment cost. However, it would force the high-speed maglev to run at a much lower speed than it was designed for, likely close to 120 mph. More information on the Hybrid Alignment/high-speed maglev technology combination is presented in Chapter 4.

3.2.3 High Speed Maglev Alignment

The High Speed Maglev Alignment illustrated in Figure 3-3 generally follows I-70, but is mostly outside the I-70 right-of-way. Like the Hybrid Alignment, it leaves I-70 to reach the stations in Breckenridge and Keystone and rejoins I-70 near the Loveland Ski Area. The alignment would operate at a maximum speed close to 200 mph and must be straighter to accommodate these higher speeds.

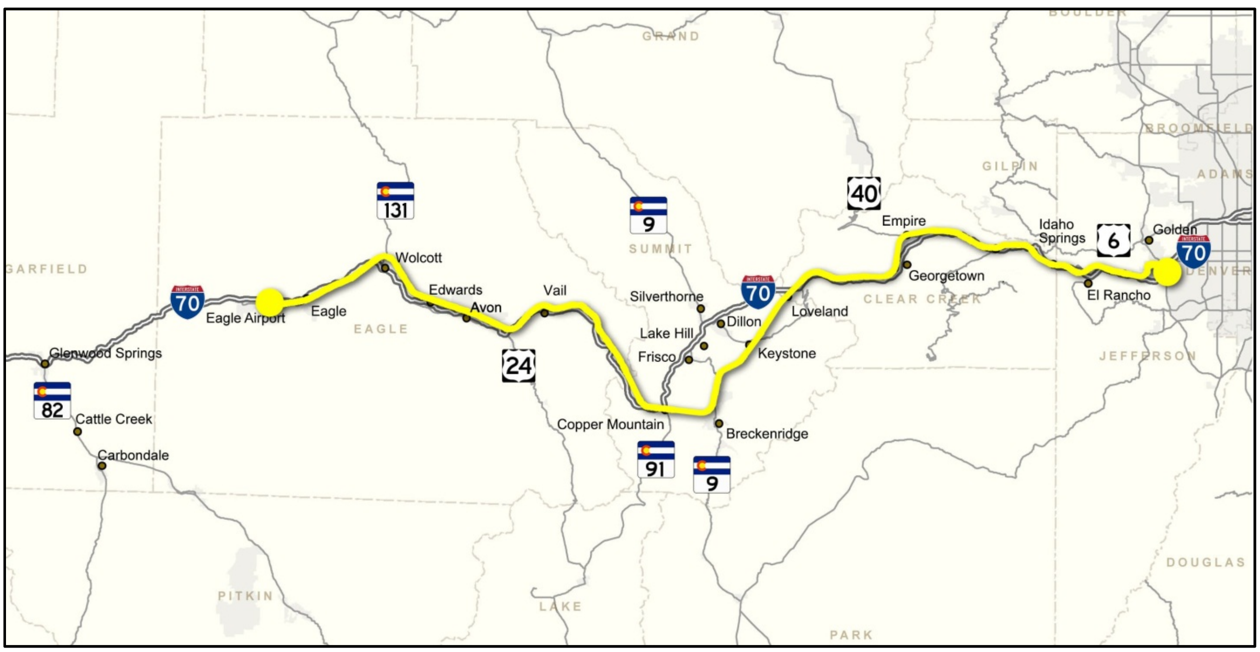


Figure 3-3: High Speed Maglev Alignment

The High Speed Maglev Alignment is assumed to have stations at:

- Eagle County Regional Airport
- Avon
- Vail
- Breckenridge
- Keystone
- Idaho Springs
- Golden/Jefferson County

High Speed Maglev Alignment Analysis

The High Speed Maglev Alignment strikes a balance in terms of costs between the Hybrid Alignment and the High Speed Rail Alignment. High-speed maglev technology can match or exceed the speed of high-speed rail, and unlike high-speed rail, has some flexibility with regard to grade. Compared to the Hybrid Alignment, the High Speed Maglev Alignment requires fewer straddle bent crossings as it does not cross I-70 as often. It also avoids the Clear Creek Canyon area.

The High Speed Maglev Alignment has significantly higher costs than the Hybrid Alignment. To accommodate the higher speeds, very flat horizontal and vertical curve radii are required. This geometry, combined with the high relief and steep grades of the I-70 Mountain Corridor, results in needing many more miles of tunnel compared to the Hybrid Alignment at a correspondingly higher cost.

3.2.4 High Speed Rail Alignment

An alignment utilizing High Speed Rail technology is illustrated in Figure 3-4, and would operate at a maximum speed close to 200 mph. Similar to the High Speed Maglev Alignment, the High Speed Rail Alignment has much stricter geometric requirements because of its anticipated operating speed. Because the maximum grade for high-speed rail is 3 percent, it requires a significant number of tunnels to maintain the desired speeds, some of them quite long. The High Speed Rail Alignment diverges the most from I-70, including a long tunnel to avoid the grades at Vail Pass that cuts off Copper Mountain from the alignment and routing in the general vicinity of Clear Creek/US 6 from the base of Floyd Hill to Golden. It includes a spur from the Frisco/Silverthorne area to Breckenridge.

The High Speed Rail Alignment uses a proven technology on the shortest of all the alignment alternatives. It also requires the fewest straddle bent crossings of I-70 compared to any other alignment. The alignment operates at a maximum speed close to 200 mph and must be flatter and straighter to accommodate these higher speeds.

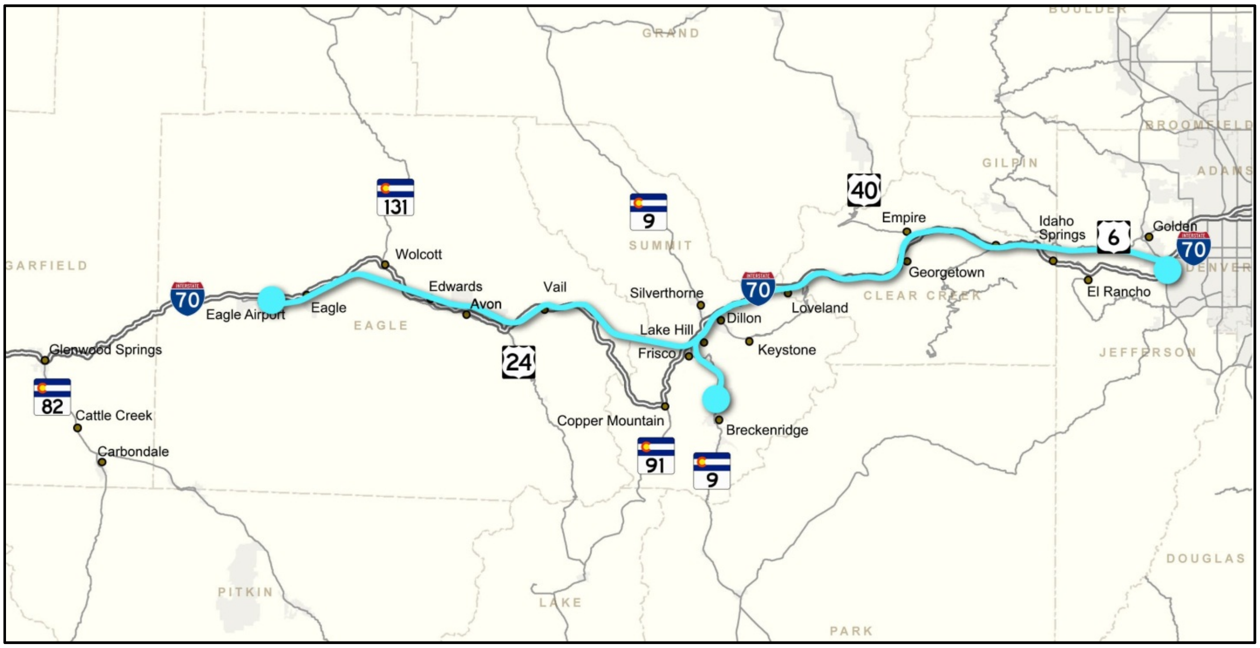


Figure 3-4: High Speed Rail Alignment

The High Speed Rail Alignment is assumed to have stations at:

- Eagle County Regional Airport
- Vail
- Lake Hill (between Frisco and Silverthorne)
- Breckenridge (via spur from Lake Hill station)
- Georgetown or Idaho Springs
- Golden/Jefferson County

High Speed Rail Alignment Analysis

High-speed rail is limited by grade; it can climb at a rate less than half that of maglev. Because Floyd Hill is too steep for high-speed rail, this alignment must run parallel to the Clear Creek Canyon area. This grade restriction results in the need for many tunnels. It should be noted that the numerous tunnels would be connected by short bridges; therefore, keeping the alignment off the Clear Creek Canyon valley floor. Because of the high number of tunnels, the High Speed Rail Alignment is the most expensive alternative.

The grades over Vail Pass are too steep for high-speed rail to connect directly from Breckenridge to Vail. Constructing another tunnel some 20 miles long is an undesirable, expensive solution. Therefore, this alignment includes a spur line to service Breckenridge, which would result in a longer travel time than a direct connection.

3.2.5 Alignment Summary

The metrics for the three feasible alignments are summarized in Table 3-2.

Table 3-2: Alignment Metrics

Alignment	System Length (ft.)	System Length (mi.)	Tunnel Length (mi.)	Tunnel Length as % of Total Length
Hybrid	636,401	120.5	15.7	13%
High Speed Maglev	625,538	118.5	40.1	34%
High Speed Rail	575,097	108.9	65.0	60%

3.3 Station Sites

To determine specific station sites along each of the alignment options, the next phase of work involved working with the Counties. Several station sites were considered in each County and weighed against comprehensive evaluation criteria. Each County's station preferences were combined with alignment options and technology to determine how technology choice and performance matched up with the station site. The process used to coordinate with the Counties is described in Chapter 8.

Each County began its discussion with a range of possible station sites described below:

Jefferson County – I-70 and 6th Avenue triangle near current big box development of office park; just south of I-70 at current Colorado Mills site; along I-70 at Morrison in currently undeveloped land; just west of I-70 at SH 58 in undeveloped land.

Clear Creek County – Idaho Springs at the current baseball field; Idaho Springs Argo Mine site; Idaho Springs football field; Downieville; Dumont; Empire Junction both north and south of I-70; Georgetown at the undeveloped land adjacent to the lake; and Loveland Ski area.

Summit County – Silverthorne south of the interchange fitting with alignments; Frisco along SH 9 south of the interchange; Keystone adjacent to River Run parking lot; the south end of Dillon Reservoir adjacent to SH 9 heading into Breckenridge; in north Breckenridge undeveloped area west of SH 9; near the Breckenridge Central Business District; and Copper Mountain adjacent to I-70 at the foot of the mountain.

Eagle County – Vail in the Central Valley; Vail at Timber Ridge; Avon at Traer Creek undeveloped land just south of I-70; Edwards just south of the I-70 interchange and Eagle County Regional Airport.

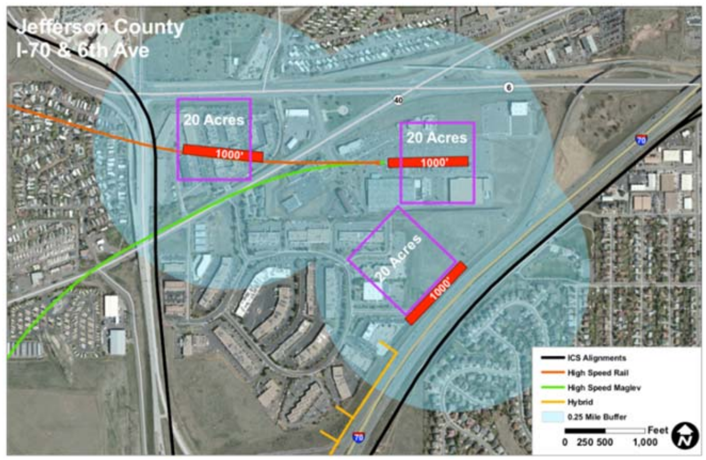
Station sites sized 10 to 20 acres were laid into mapping at each station location, along with alignment options through that location. Initial impressions of the feasibility of each site were supplemented with a review of evaluation criteria and associated findings. The major categories of evaluation criteria considered or analyzed by each County and the AGS Study Team are described in the following sections.

3.3.1 Land Use / Developability

This category included such factors as:

- Availability of land for both the station and surrounding supporting development.
- Location of that land relative to serving local population, visitors, and employees.
- Infrastructure capacity of the site in support of future station and development.
- Compatibility of the location with local land use plans and local mountain or historic character.

The ability to support development around the station is not only good for the local economy but is often a funding mechanism for the development of the station, and it contributes to the greater value of the system to the region and to the state. The available development acreage or infill was evaluated at priority locations in each County to determine if the sites were suitable for further consideration. In some of the priority locations, a high-level value was estimated based on the methodology derived in the *Interregional Connectivity Study*, representing a composite square footage value from sample Denver metropolitan area developments and conservative density assumptions. An example priority station site, potential future AGS station siting, and an estimated value of redevelopment of the surrounding property is shown in Figure 3-5.



Potential West Suburban station location in Jefferson County: Assumption of 60 acres of available infill development at 35% developable area and a Floor Area Ratio (FAR) of 3 would mean over 5 million square feet of development valued at over $900 million. FAR is the ratio of a building's total floor area (gross floor area) to the size of the piece of land upon which it is built.

Figure 3-5: Example Priority Station Site

3.3.2 Transportation Access and Capacity

This category included such factors as:

- Existing infrastructure capacity and local roadway access.
- Ability to provide for infrastructure improvements to support increased travel demand.
- Regional access to the location.
- Ease of use by regional market.

3.3.3 Transit Distribution

This category included such factors as:

- Transit travel time to local activity centers or resorts from the station location.
- The directness of travel from that location to surrounding destinations once the passenger had arrived or was making a return trip.

A transit system assessment was mapped for priority locations indicating the travel time to adjacent towns or resorts—10 minutes, 20 minutes, 25 minutes, 50 minutes, and over 60 minutes. This assessment illustrated that a central location within each county typically provided a more equitable transit distribution network and the least out-of-direction travel for most of the passengers.

Transit connectivity options for Clear Creek, Summit, and Eagle Counties are shown in Figure 3-6, Figure 3-7, and Figure 3-8. No transit connectivity analysis was done for Jefferson County because it is already served by the Regional Transportation District (RTD) with buses and the recently completed FasTracks West Line light rail.

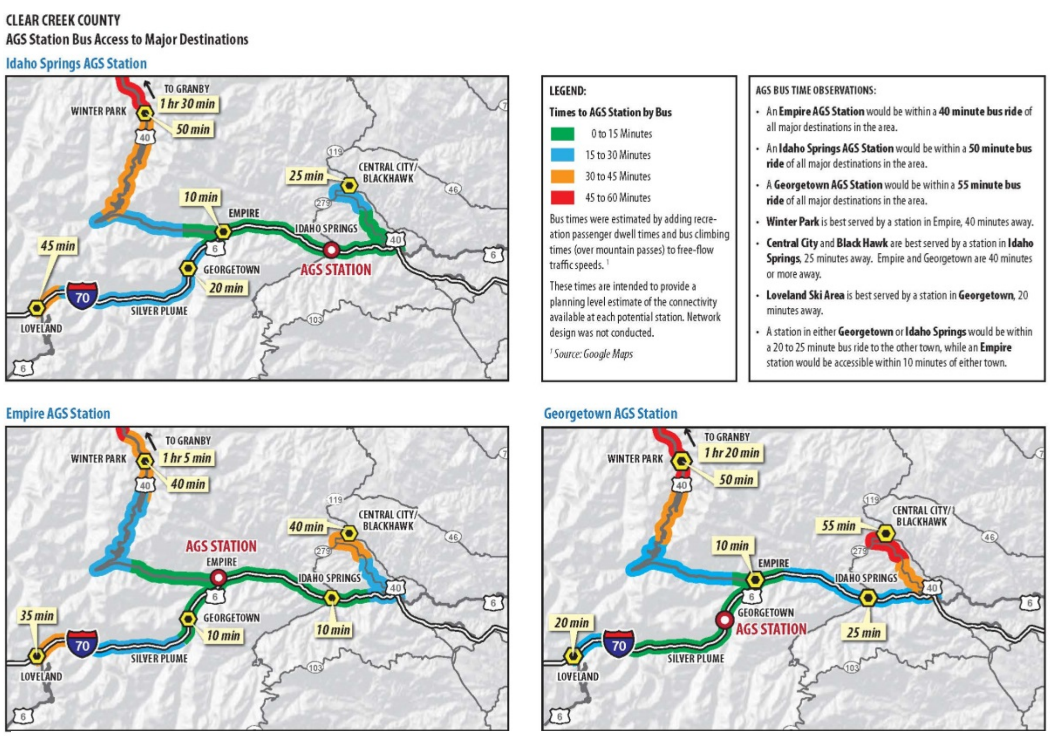


Figure 3-6: Transit Connectivity Options – Clear Creek County

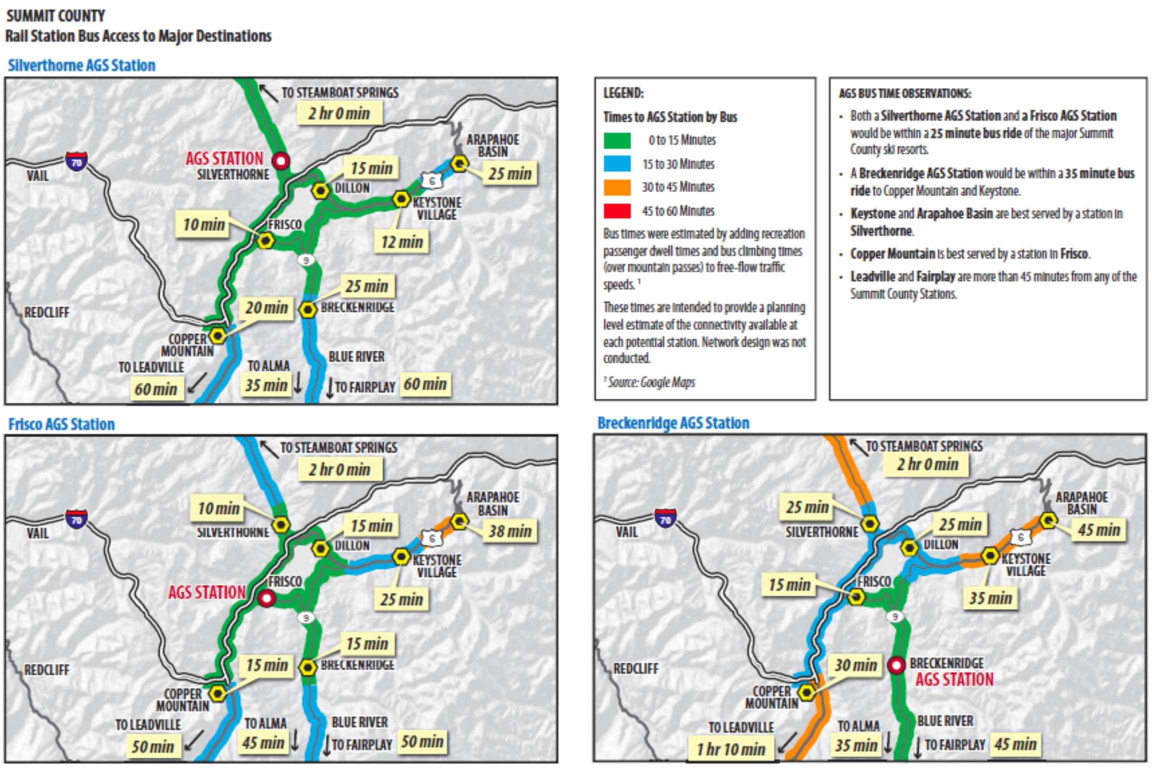


Figure 3-7: Transit Connectivity Options – Summit County

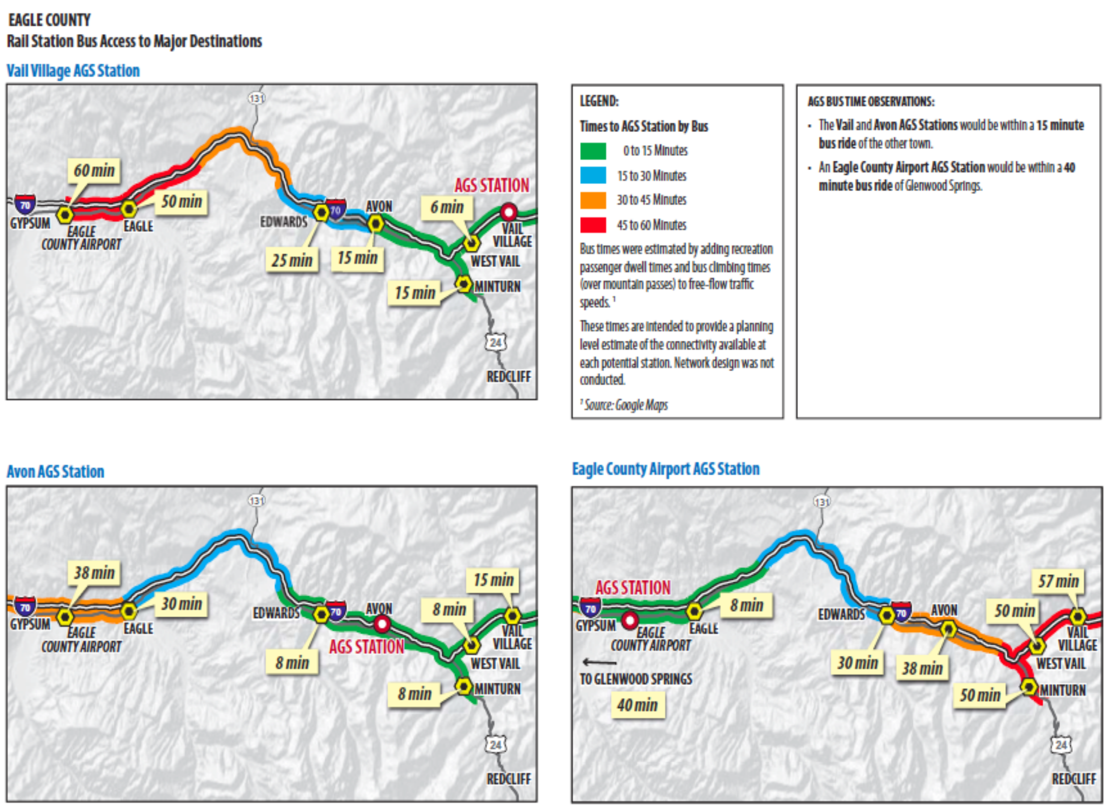


Figure 3-8: Transit Connectivity Options – Eagle County

3.3.4 Community and Regional Support

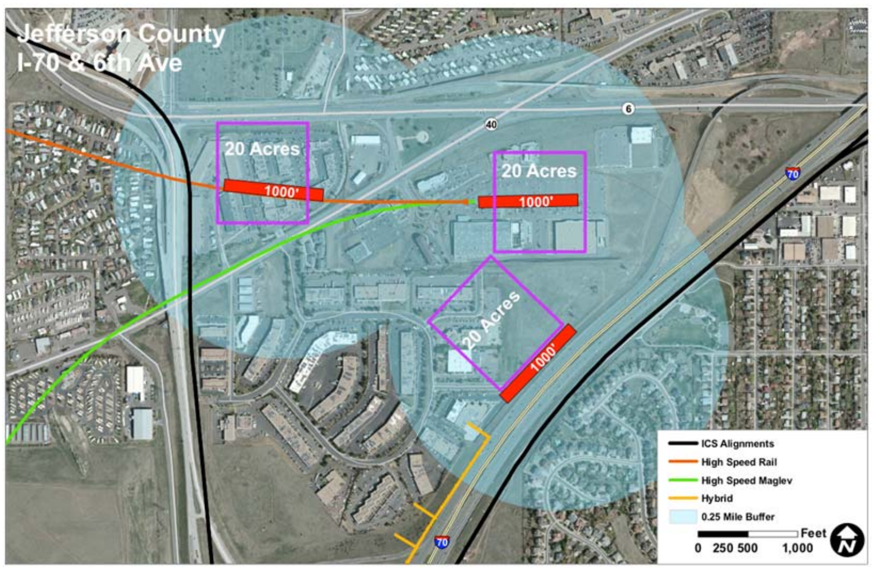
Input for this evaluation category came from County representatives. This category included such factors as:

- The likelihood of community and political support for the location.
- Any environmental red flags that might make that support difficult.

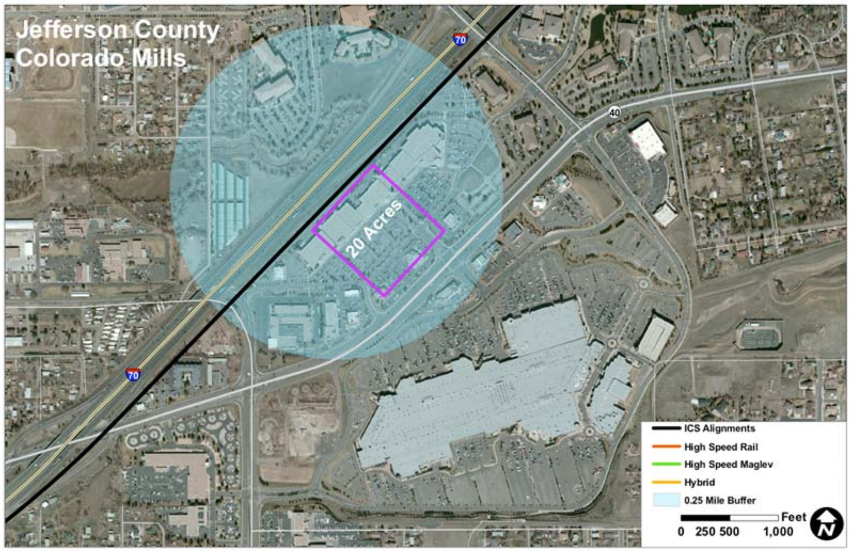
3.4 Priority Station Sites

Based on the evaluation of the sites initially presented by the Counties, priority station sites for each County were identified and are presented in the following sections. These priority station sites were later compared to alignment options with the greatest performance and ridership estimation results for those alignment/station alternatives.

3.4.1 Jefferson County



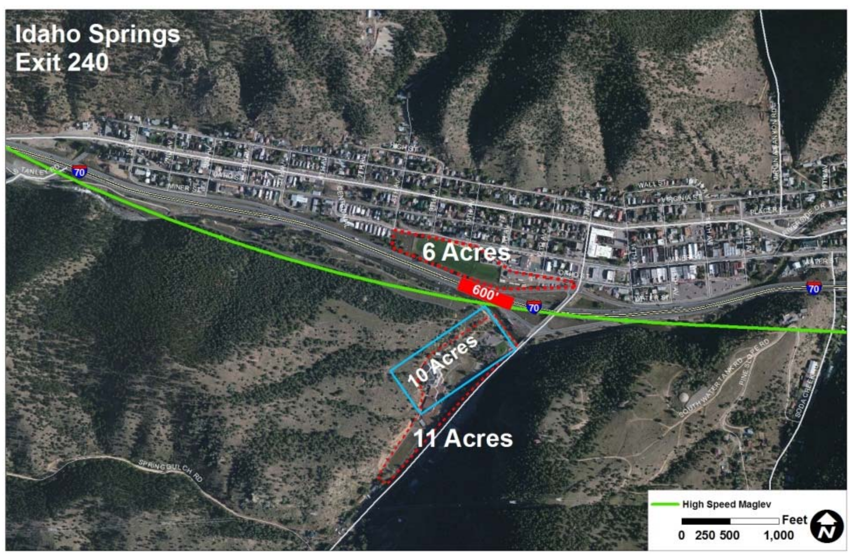
The location at I-70 and 6th Avenue offers significant potential for redevelopment and infill for Golden and Jefferson County, is consistent with local land use plans allowing for a mix of uses and higher densities, and can be supported locally. The site is sufficient in size to meet potential sizing requirements of the I–70/C-470 station as a regional collector station in the AGS and *Interregional Connectivity Study* System. Regional highway access and local circulation improvements would be needed to increase access to the site. Consideration of pedestrian or transit linkages to the RTD West Line station at Jefferson County would also be critical to enabling transfers between the two systems.



The Colorado Mills site, south of I-70, remains a possible location for Jefferson County, offering redevelopment potential and consistency with existing land use plans, much the same as the other site. This site has better vehicular access, however, from the Denver West/I-70 interchange, the Colfax/I-70 Interchange, and local circulation along Colfax Avenue directly to the site from either access point. Easy linkages between the West Suburban station and RTD's West Line station at Jefferson County would not be possible.

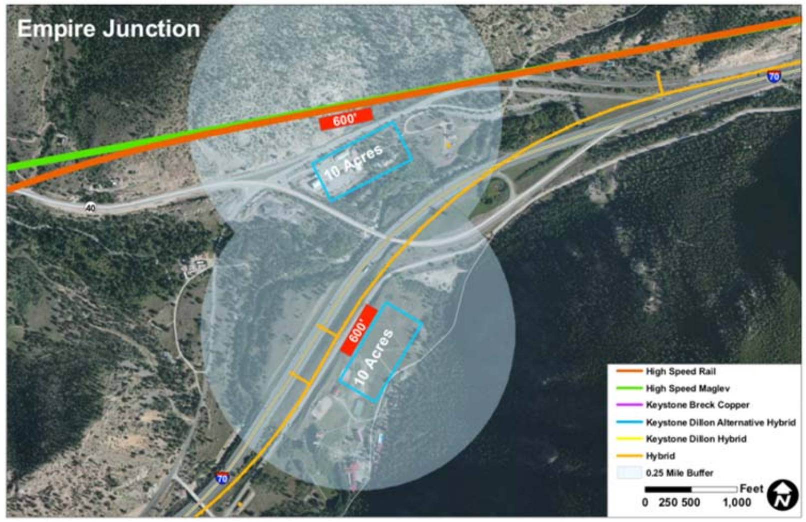
3.4.2 Clear Creek County

There are three priority sites in Clear Creek County, and the communities would need to weigh in on these locations prior to final decision-making. They are the Idaho Springs Exit 240 location, Empire Junction, and Georgetown Lake.

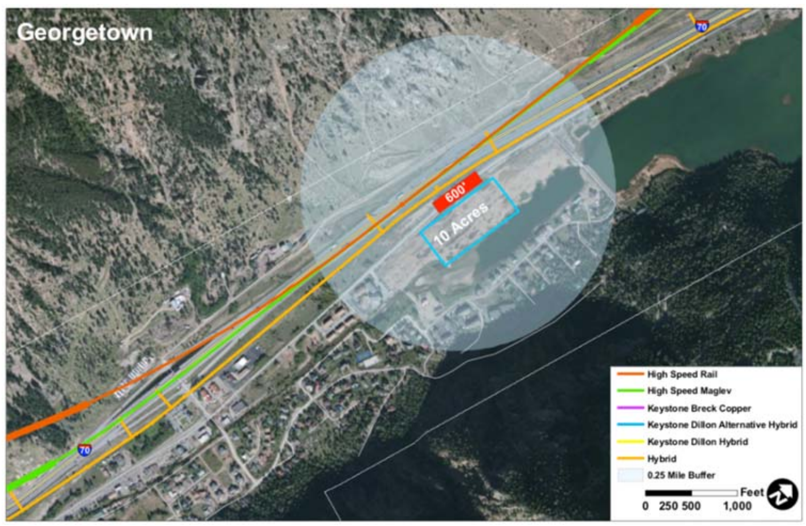


The Idaho Springs Exit 240 location is centrally located within Idaho Springs and adjacent, but not within, the historic downtown. This means the setting offers the appropriate community context and protection of the historic character downtown. This location supports visitors and residents alike and allows for residential infill development for the anticipated increase in commuter population in Idaho Springs. The site is accessible from the interchange at I-70; local traffic circulation in place today would potentially require capacity modifications. Transit distribution is longer to neighboring destinations from an Idaho Springs location than the other two priority locations, including Winter Park and Grand County.

The Empire Junction location offers easy regional and local access and is situated well to act as a transit distribution system transfer point to Winter Park and Grand County. While there is likely room to accommodate a station, surrounding land use development is limited by availability and topography. This factor would need further evaluation and community buy-in because development may be important to support the funding for the station.

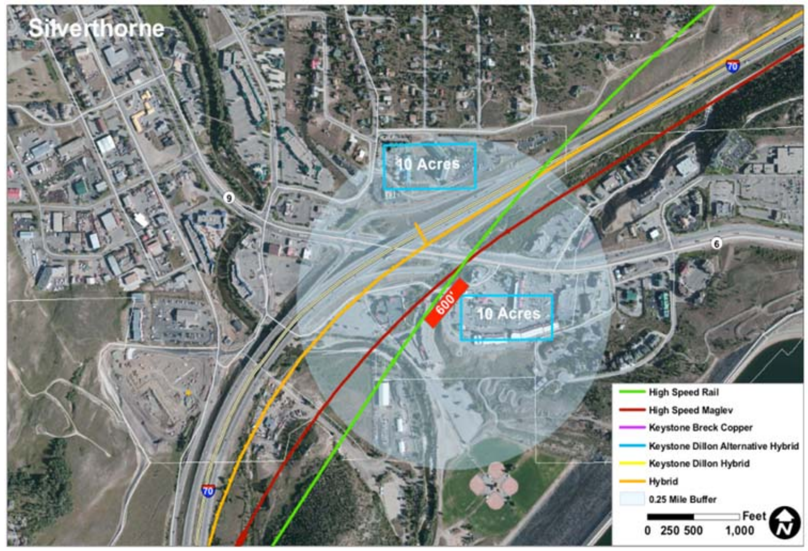


Georgetown Lake offers similar opportunities for infill development and town support as Idaho Springs. It is regionally accessible by the I-70/ Georgetown interchange. Local roadway capacity improvements would be needed to support new development and station needs adjacent to the lake. This location requires the most out-of-direction travel for transit connections back to Clear Creek County communities or Winter Park and Grand County.

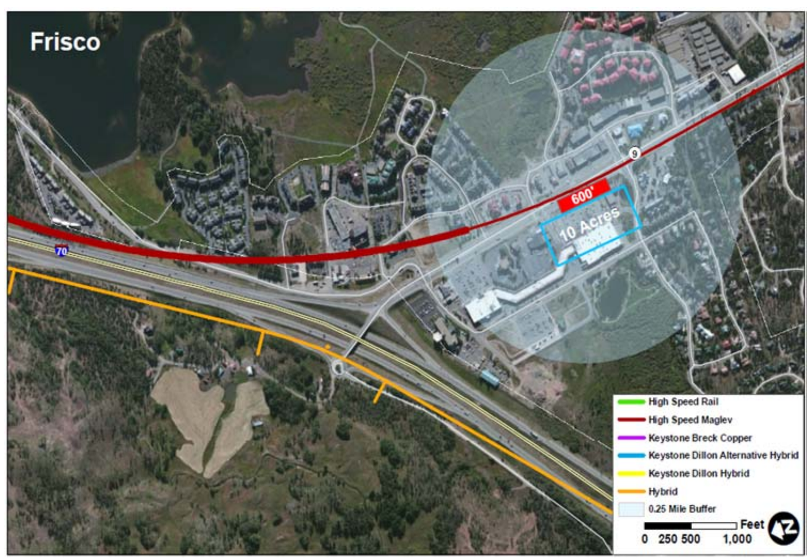


3.4.3 Summit County

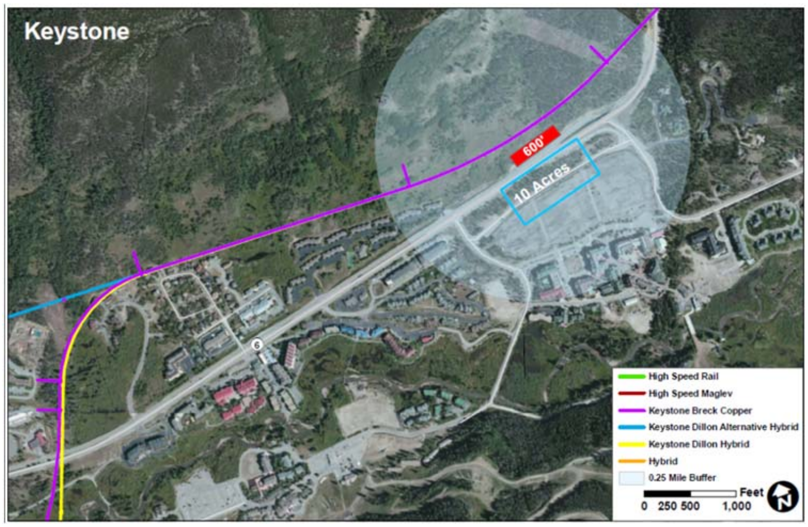
Summit County priority station sites are identified, but the County has retained options that will depend on final technology and alignment decisions and associated ridership.



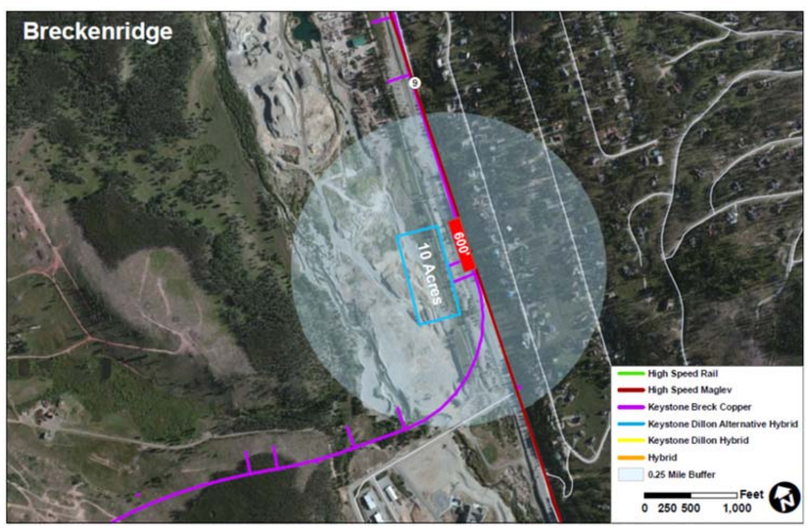
The land surrounding the Silverthorne interchange is currently outlet mall shopping and has the opportunity for higher-density redevelopment and infill consistent with Silverthorne's land use plans. The acreage available would enable station operations, a significant Summit County transit distribution operation, and regional access and local traffic circulation along US 6. Development opportunities appear to be highest in Summit County at this site. Transit travel times for passengers to Summit County resort destinations are the longest from this location, but somewhat shorter for residents in Silverthorne, Dillon, and Frisco. All technologies could reach a station in Silverthorne. However, only the High Speed Rail Alignment is currently situated to have a Silverthorne station.



Adequate land is available within the Town of Frisco at the north Frisco location. The location is accessed easily from the I-70/Frisco interchange, and SH 9 provides good local circulation. Redevelopment and infill would be consistent with local land use plans, and the site is supportive of a transit distribution network (currently served by Summit Stage and Greyhound at the Transit Center). Transit travel times to Copper Mountain and Breckenridge would be shorter than from Silverthorne, and it would be out of direction and somewhat longer back to Keystone and Arapahoe Basin. All technologies could reach a station in Frisco. However, only the High Speed Rail Alignment currently is situated to have a Frisco station.



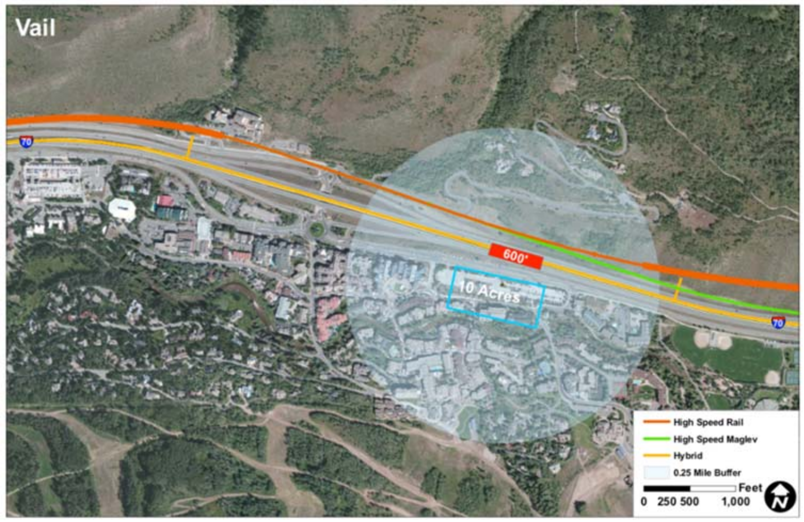
A combination of stations in Keystone and north Breckenridge is proposed to bring AGS further back into Summit County and more directly serve the resort communities. The most ideal location at Keystone would be within the River Run neighborhood in the location of the existing 18-acre parking lot. Additional high-density development in the area would be consistent with current land use patterns and land use plans. Vehicular access is limited to local circulation along US 6, and transit distribution to other Summit County communities would likely be to Dillon and Silverthorne. The High Speed Maglev and Hybrid/120 mph Maglev Alignments can both reach a Keystone station.



The north Breckenridge site located at SH 9 and Coyne Valley Road also works with an alignment that brings AGS further back into Summit County. This location is accessible by SH 9 and fairly far removed from surrounding Summit County communities. Infill development at this site would be consistent with local land use plans and support existing densities and transit systems in Breckenridge. Transit distribution from this location would likely serve Frisco and Copper Mountain. The High Speed Maglev and Hybrid/120 mph Maglev Alignments can reach the Breckenridge station via an on-line station. The High Speed Rail Alignment would reach Breckenridge via a spur coming off the mainline track in the Frisco area.

3.4.4 Eagle County

Eagle County has identified three sites that serve the resort communities of Vail and Avon and an end-of-the line station at Eagle County Regional Airport. This number of stations exceeds what was originally assumed in Eagle County, but until implementation phasing and operations are further refined, all three locations are considered priority stations.



The Vail station is preferred to be located within the highway right-of-way with supporting development and connected to a transit distribution system located just south of I-70 within the existing Town of Vail development. The current land use densities and destination activities provide a strong land use pattern for this station. Access from I-70, local circulation along the frontage road, and transit operations are supportive of good access and distribution for this station.

The Traer Creek site was proposed specifically by the Town of Avon. The site is linked by an extension of the local roadway network, and regional access is available from I-70. The site can support significant development densities and mix of uses consistent with local land use plans and supportive of station activities. Transit operations would link residents, employees, and visitors with resort destinations at Beaver Creek and Vail.

Eagle County Regional Airport is proposed to be the end-of-the line station. There is strong support from Airport management to locate the AGS station within Airport property, which is consistent with Airport redevelopment plans. Close proximity of the station would enable an easy transfer from the terminal to the AGS platform for visitors to the area.

3.5 Conclusion

The AGS Study Team developed three viable alignment options for the AGS—the Hybrid Alignment, High Speed Maglev Alignment, and High Speed Rail Alignment. The I-70 Alignment is not viable for 120 mph Maglev, but could be viable for other technologies in the future.

The alignments were designed specifically for the three technologies being considered. 120 mph Maglev could use any of the three alignments (as could most of the other feasible technologies discussed in Chapter 2). High Speed Maglev could use either the alignment developed for it or the alignment developed for High Speed Rail. High Speed Rail can use only its specific alignment.

These alignments are preliminary in nature. Further refinement will be required in the future based on the current design standards associated with the technologies being considered.

A number of potential station sites were identified for each of the four counties along the AGS. It will be necessary to refine the alignment designs based on the final locations of the stations.