

CONNECTING VILLAGE NODES

TASK 2:
DEVELOP PROJECT ALTERNATIVES
TECHNICAL MEMORANDUM

REVISED DRAFT
JULY 2024



PREPARED BY:



IN ASSOCIATION WITH:



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INTRODUCTION

The **Connecting Village Nodes Study** seeks to improve multimodal transportation connections between the nodes of Snowmass Center and the Base Village for residents, visitors, and employees. These connections would further support the economic vitality of both commercial nodes.

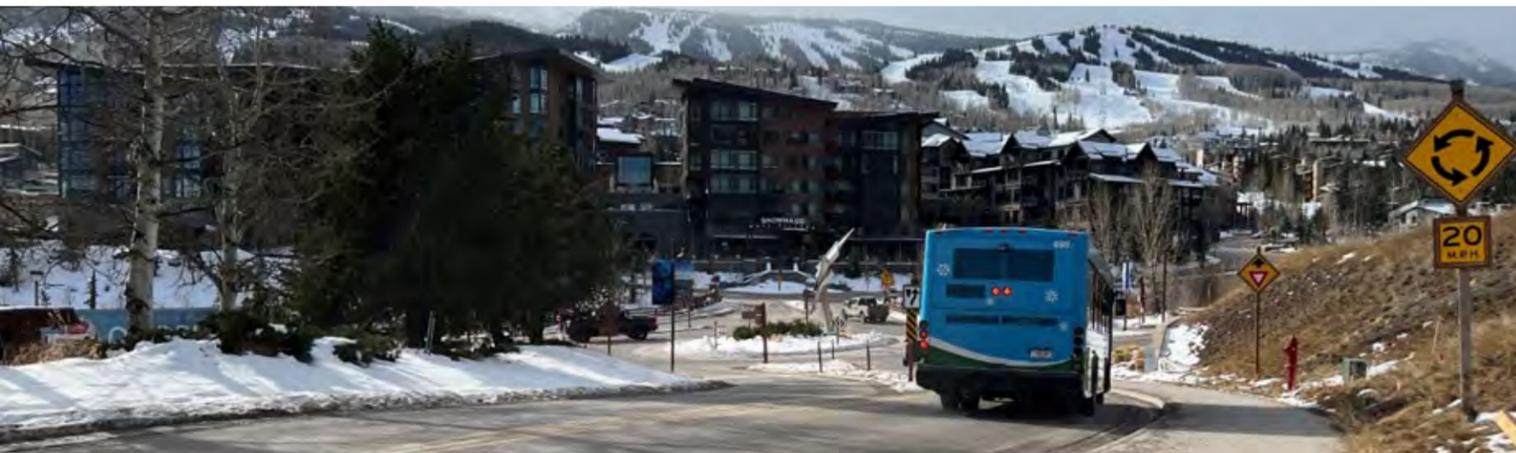
Users traveling between these two nodes are faced with several obstacles along their journey, including multiple at-grade street crossings, gaps in existing sidewalk connectivity, limited pedestrian-oriented wayfinding, challenging sight lines, and significant elevation changes.

This study examines a range of alternatives to improve this connection. There is need for a baseline set of street-level improvements to pedestrian and bicycle connectivity and wayfinding, along with a need to consider more significant improvements to connectivity that would help to address the elevation challenges present. Strategies to address these needs are identified as Foundational Improvements and Grand Investments in this memorandum.

The **Foundational Improvements** are a collection of small-scale, yet vital strategies that would complete the street-level active transportation network and address the baseline set of mobility and wayfinding needs for pedestrians and bicyclists.

The **Grand Investments** are a group of three optional large-scale conveyances that would further enhance multimodal transportation connectivity between Snowmass Center and the Base Village for residents, employees, and visitors. Each Grand Investment would build on the Foundational Improvements with the objective of removing several existing mobility constraints and challenges faced by individuals traveling between these two nodes. The Grand Investments would also contribute to increased economic vitality by strengthening the connectivity between the two nodes.

This memorandum provides an overview of the existing connectivity challenges faced by the three user groups in the study area and presents the Foundational Improvements and Grand Investment strategies for review and consideration by the Town of Snowmass Village and project stakeholders.



GUIDING PRINCIPLES

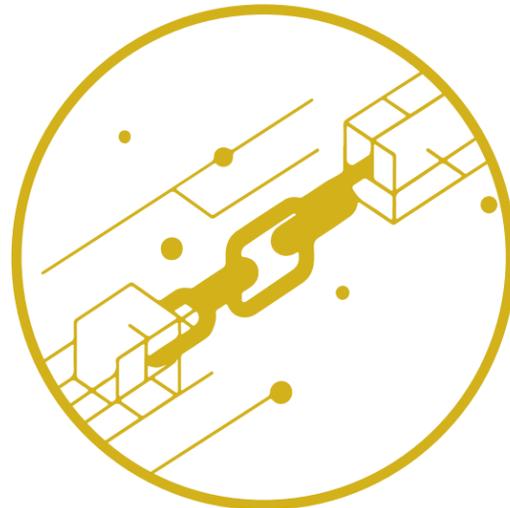
The following guiding principles were used to shape the development of the Foundational Improvements and Grand Investment strategies.

CONNECT PEDESTRIAN MOVEMENT



Implement continuous, safe, and unobstructed sidewalks and pedestrian crossings.

MAKE CONNECTION DIRECT AND CLEAR



Facilitate intuitive decision-making for all user types, especially first-time visitors.

SUPPORT ALL USERS IN ALL SEASONS



Make connections safe and comfortable for all ages and abilities in varying weather conditions year-round.

SUPPORT THE TOWN'S MULTI- MODAL GOALS



Prioritize walking, bicycling, and transit use to contribute to positive visitor experiences and economic vitality.

DILEMMAS

Dilemmas are the existing access and mobility challenges that pedestrians and bicycle users face today when traveling between Snowmass Center and the Base Village. Dilemmas can discourage travel by walking, bicycling, or transit and make the journey feel more difficult, more confusing, or less safe. Addressing these dilemmas would encourage more travel by walking, bicycling, and transit and improve the travel experience for everyone.

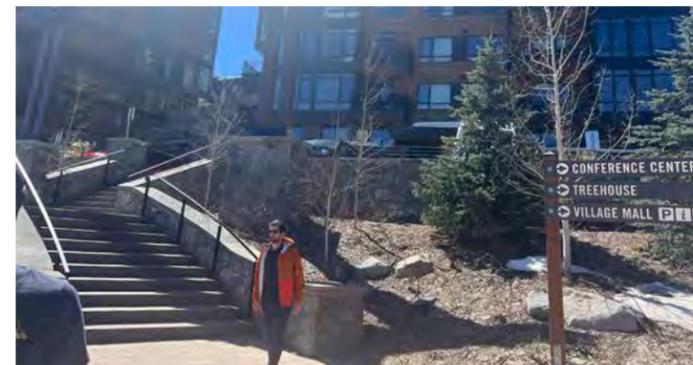
LINE-OF-SIGHT

Large buildings and curved roadways limit the ability of users to see their destination and their most efficient route. Intuitive and convenient pathways between Snowmass Center and the Base Village are needed.



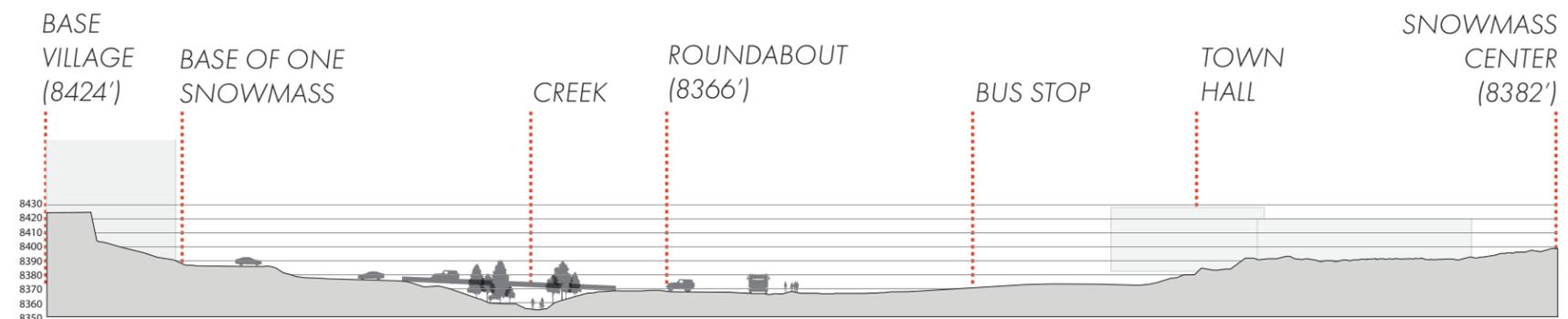
WAYFINDING

Existing wayfinding signage in the study area is oriented towards automobiles and it is not always clear to pedestrians and cyclists where they should travel and cross streets. A pedestrian-focused signage package that aligns with Snowmass Village's community character would support pedestrians and cyclists.



ELEVATION CHANGES

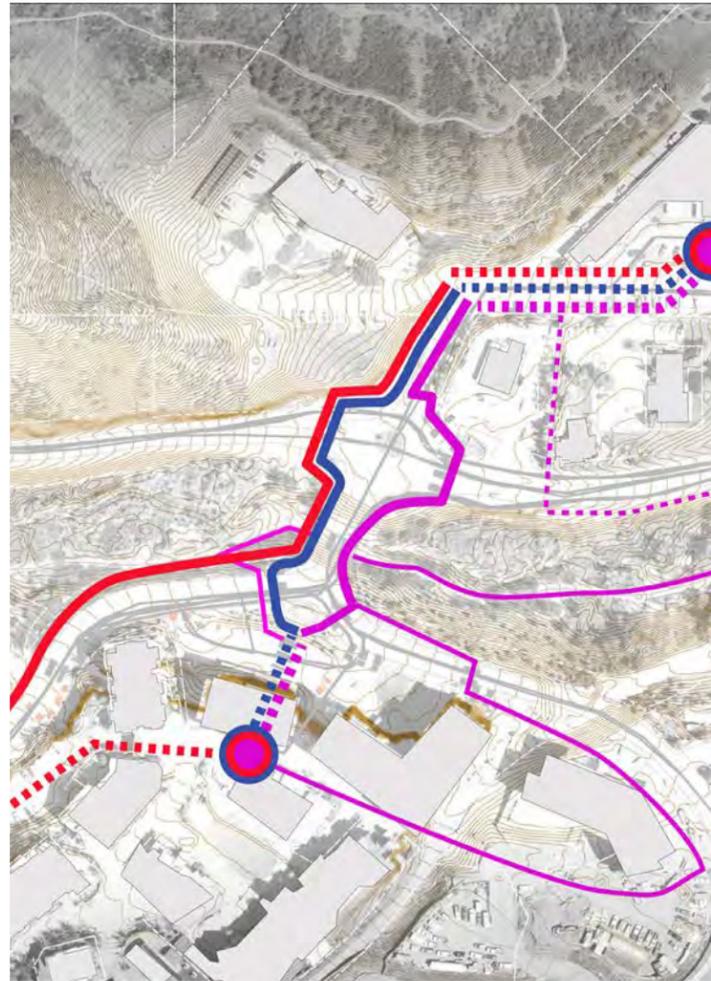
Significant elevation changes exist between the two nodes. Conveyances or strategies that would reduce or eliminate the effort needed to traverse these elevation changes are desirable.



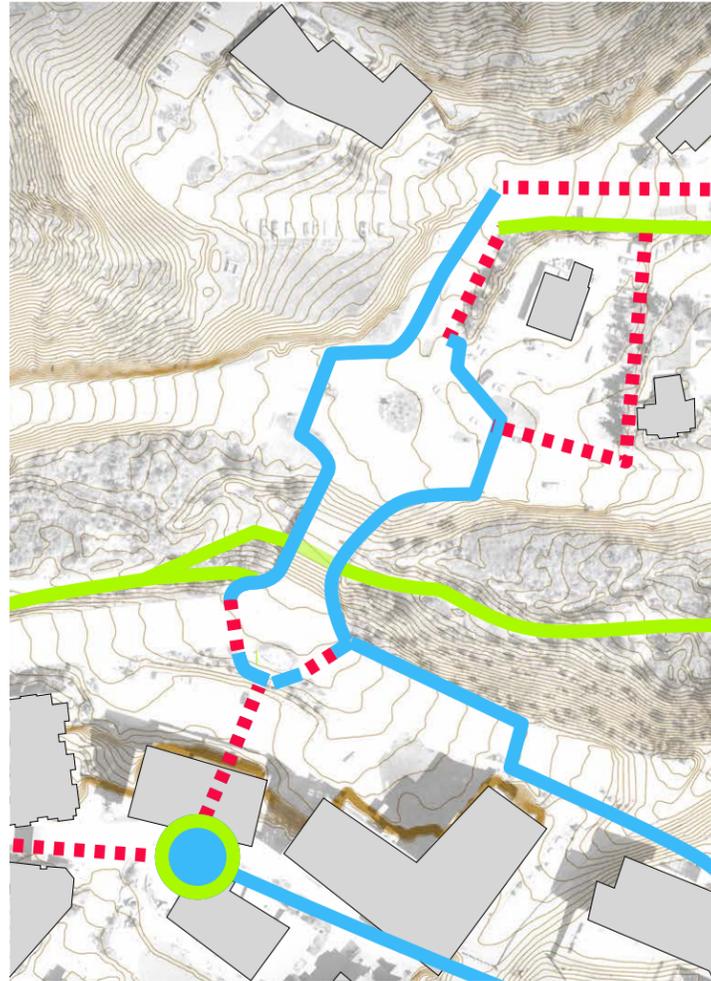
MOVEMENT TODAY

To identify appropriate solutions to the user dilemmas presented on the previous page, we need to understand how residents, employees, and visitors move in and through the study area today.

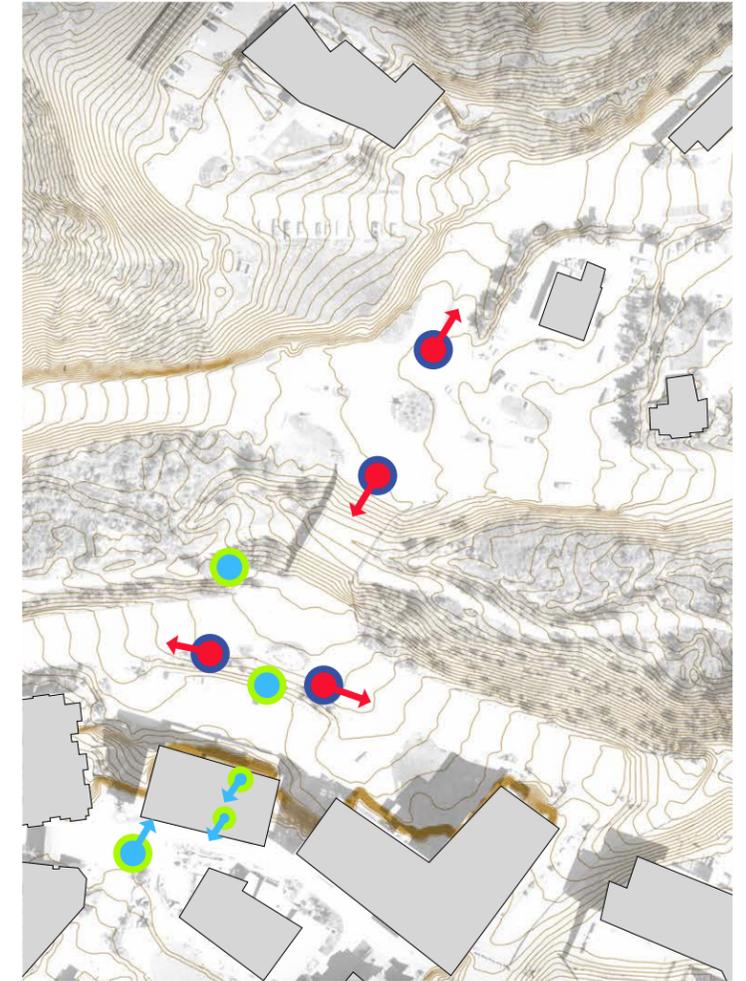
A variety of user types, pathways, travel modes, and user conflicts are discussed in the following pages.



USER TYPES



USER MODES & CONFLICT AREAS

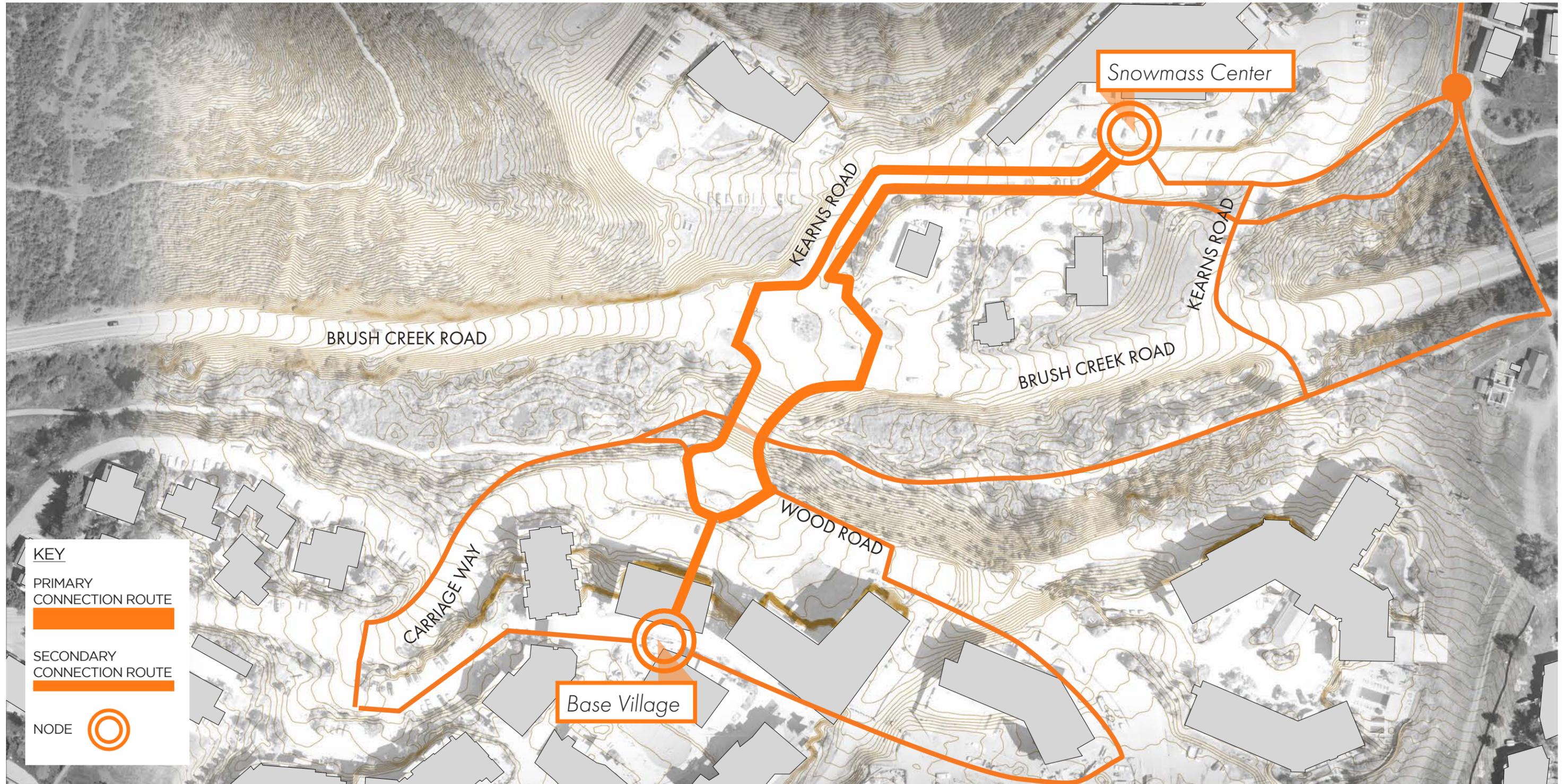


WAYFINDING & LINE-OF-SIGHT

MOVEMENT TODAY

PRIMARY AND SECONDARY CIRCULATION

The preferred alternative should emphasize multiple routes that promote user choice, all season travel, multi-modal mobility, and convenience. The map below shows existing primary and secondary travel corridors used today by pedestrians and cyclists to travel between the nodes.



MOVEMENT TODAY

USER TYPES

Proposed improvements would support a variety of user types, including visitors, employees, and residents.



Dayton
Visitor

Priority: Rapid Access to the Slopes

- *Flying in from East Coast.*
- *Arriving on transit for the first time.*
- *Confused by map directions.*



Hallie
Employee

Priority: Safe, Predictable Transportation

- *Lives in Basalt.*
- *Transit rider.*
- *Has a routine figured out.*



David
Base Village Guest

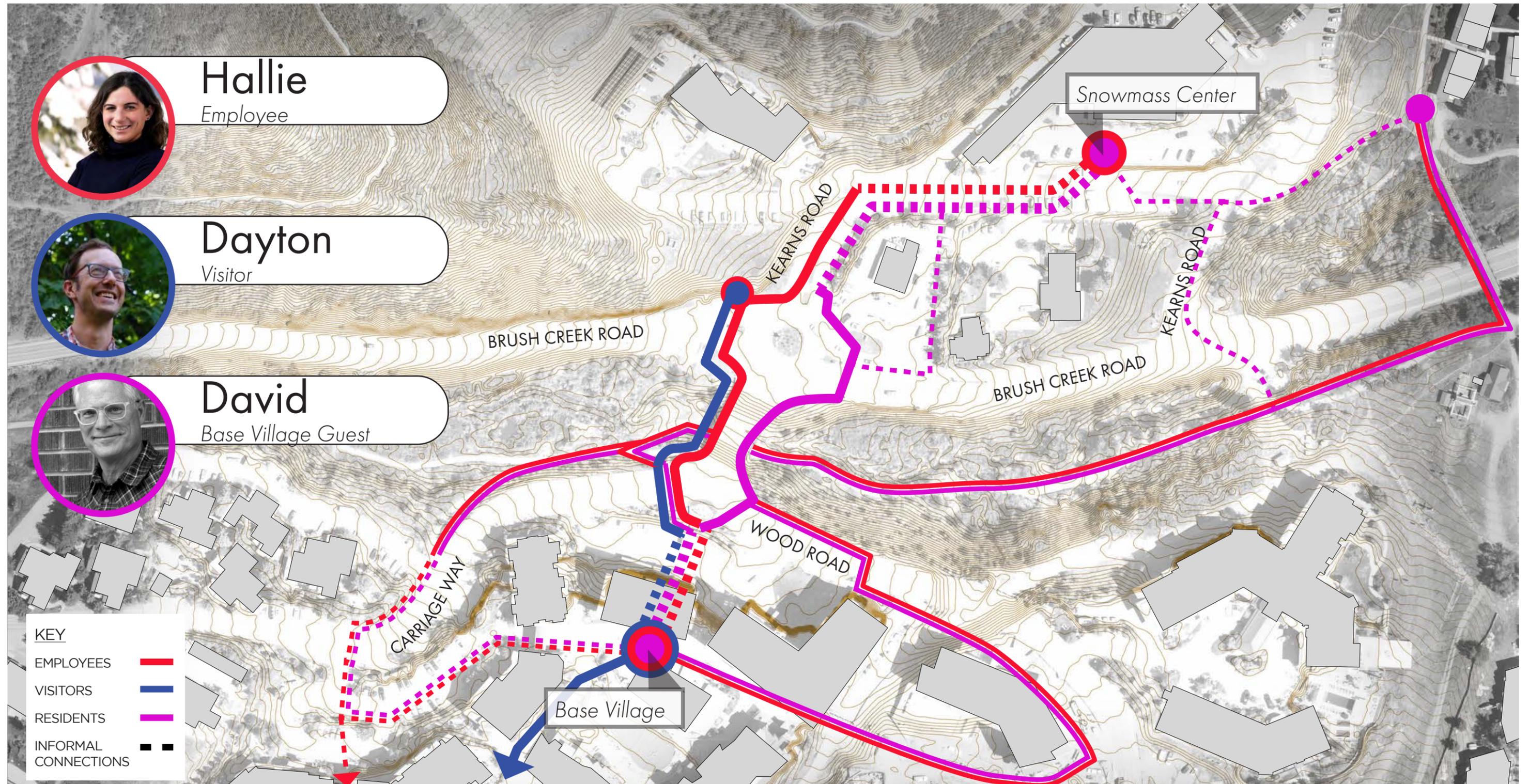
Priority: Comfort and Convenience

- *Stays often in Base Village.*
- *Shops at Snowmass Center.*
- *Often drives because the trip feels like a long walk.*
- *Likes to bike, but needs a comfortable and safe route.*

MOVEMENT TODAY

USER TYPES

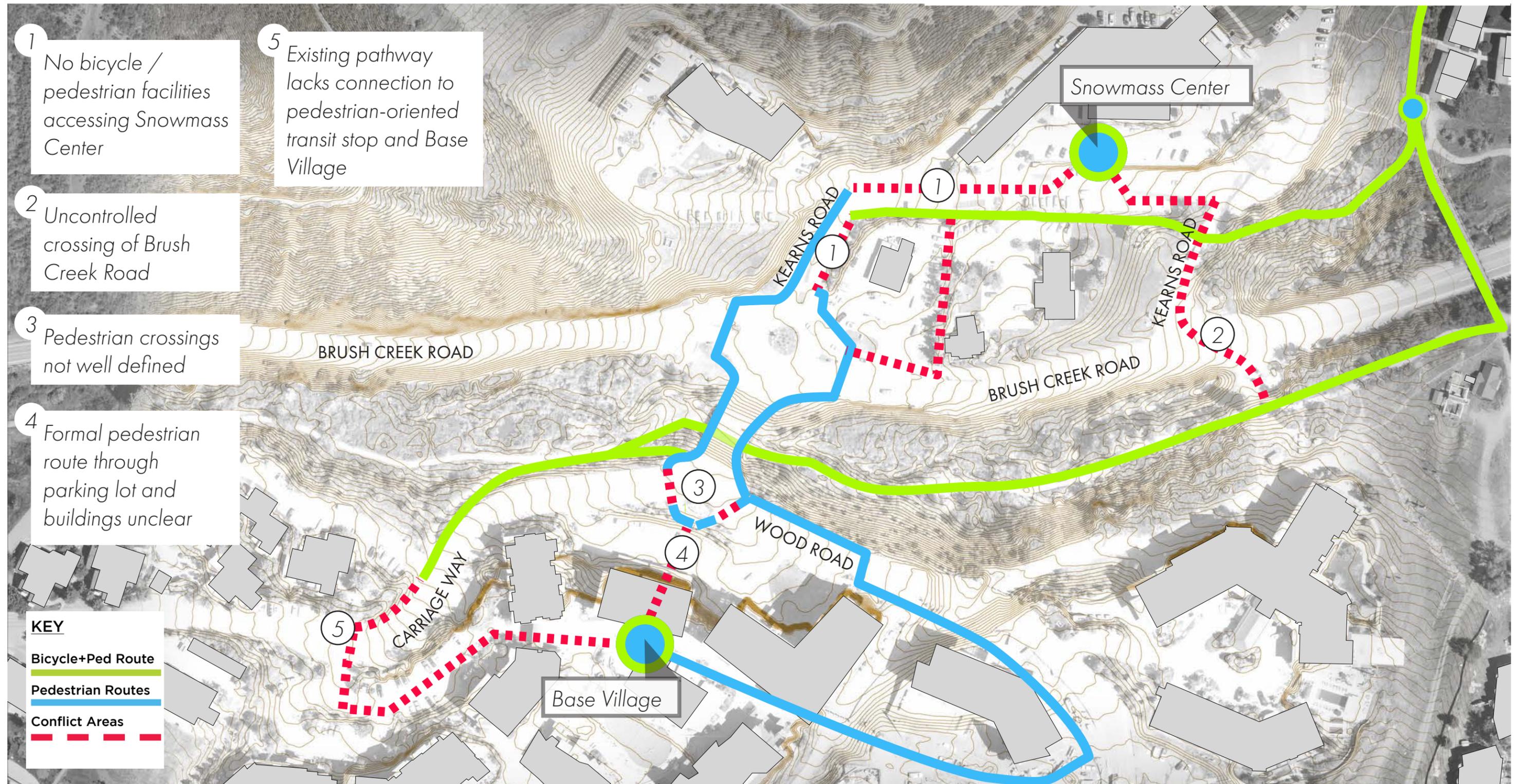
The common access pathways utilized by different user types traveling between the nodes are shown in the map below.



MOVEMENT TODAY

USER MODES & CONFLICT AREAS

Prioritize a reduction in conflicts for pedestrians, bicyclists, and transit riders. The map below shows the existing common access pathways between the two nodes. Areas in red highlight existing conflict areas along these pathways.



1 No bicycle / pedestrian facilities accessing Snowmass Center

5 Existing pathway lacks connection to pedestrian-oriented transit stop and Base Village

2 Uncontrolled crossing of Brush Creek Road

3 Pedestrian crossings not well defined

4 Formal pedestrian route through parking lot and buildings unclear

KEY

- Bicycle+Ped Route
- Pedestrian Routes
- Conflict Areas

MOVEMENT TODAY

USER MODES & CONFLICT AREAS

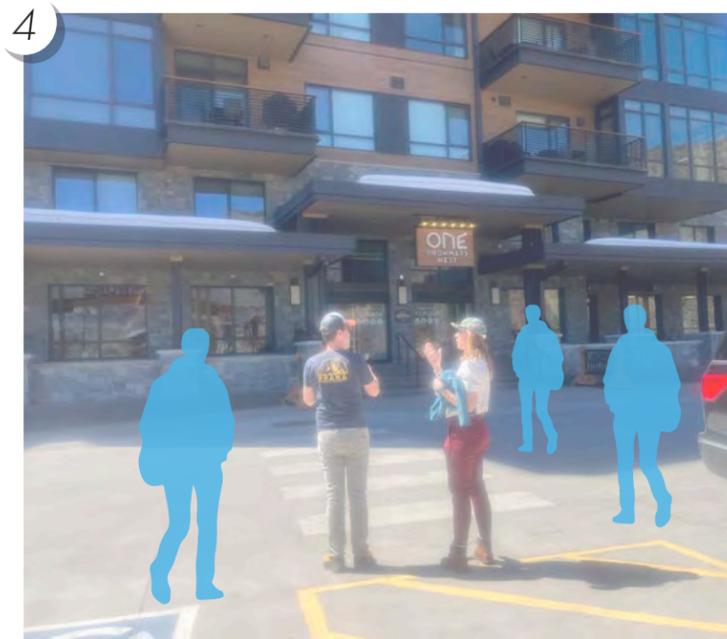
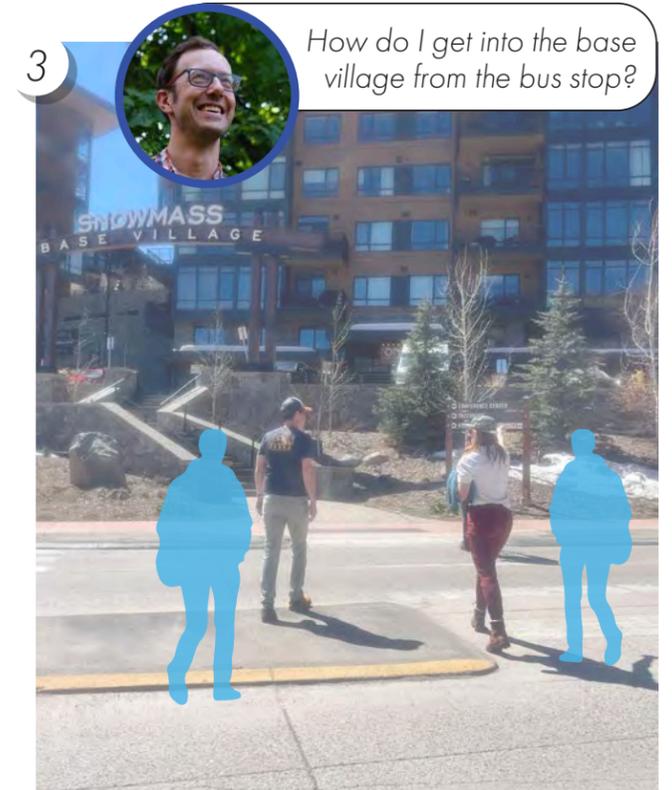
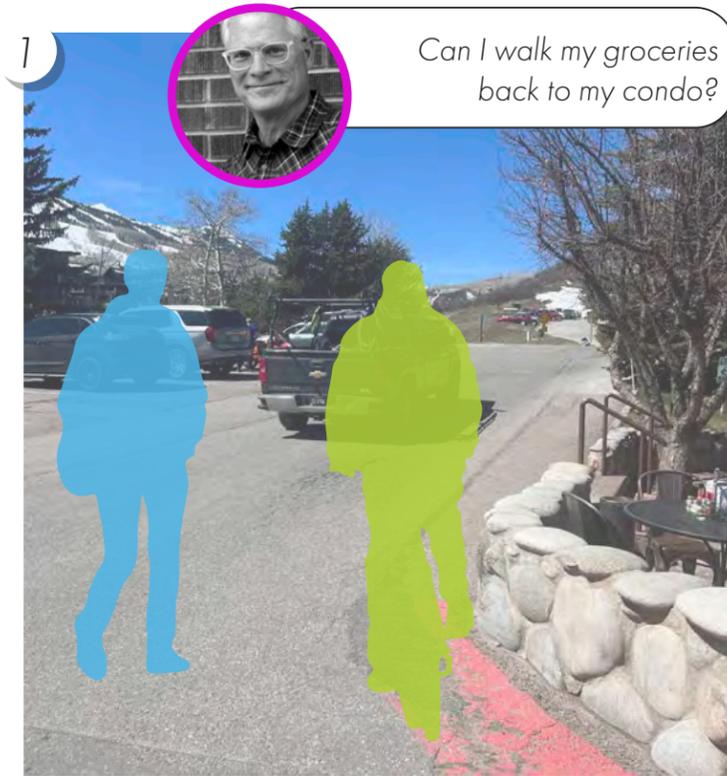
1) No bicycle /pedestrian facilities accessing Snowmass Center

2) Uncontrolled crossing of Brush Creek Road

3) Pedestrian crossings not well defined

4) Formal pedestrian route through parking lot and buildings unclear

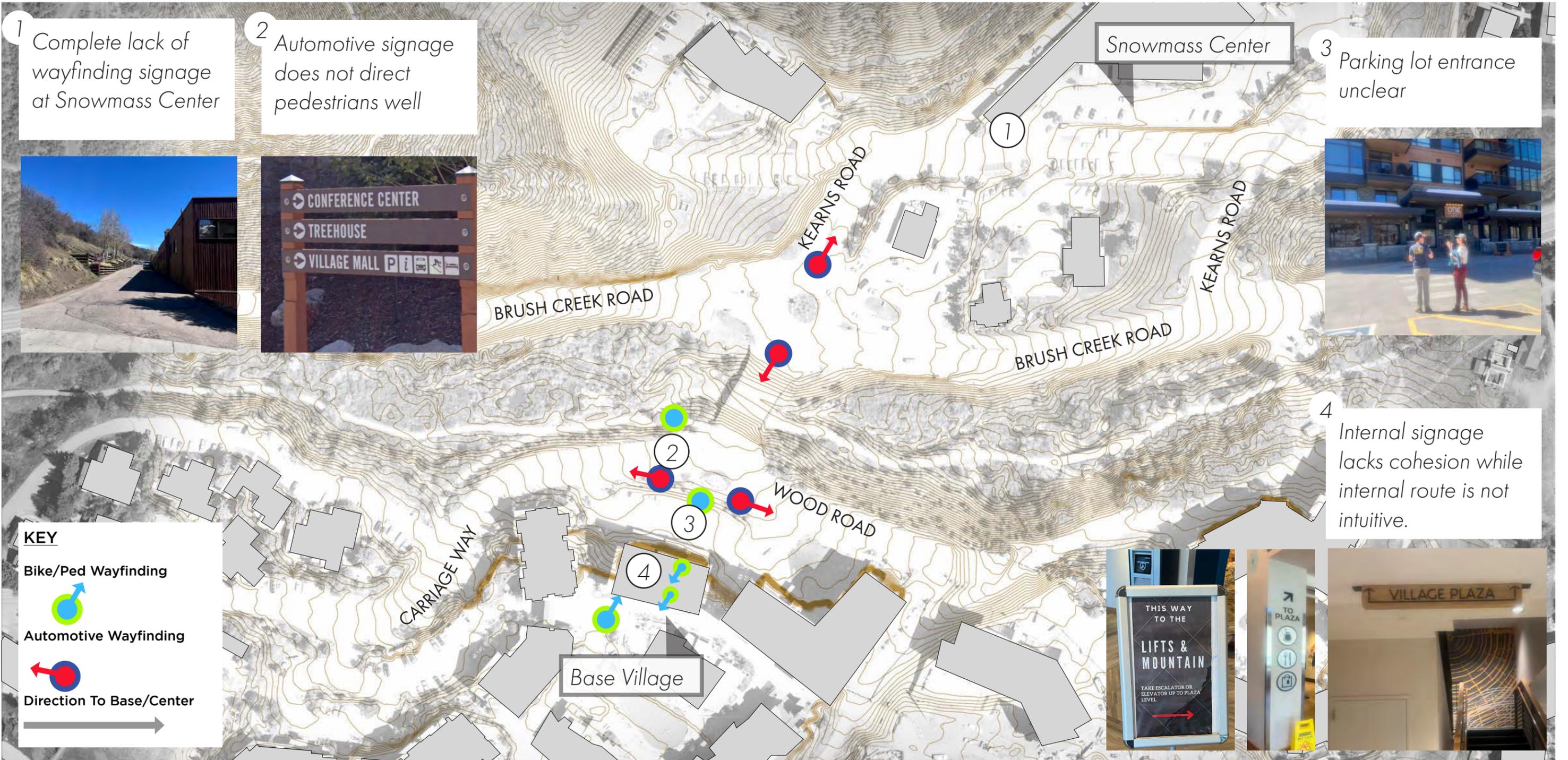
5) Existing pathway lacks connection to pedestrian-oriented transit stop and Base Village



MOVEMENT TODAY

WAYFINDING & LINE-OF-SIGHT

Movement today is guided by current wayfinding as well as existing lines-of-site. Improvements should establish a network of intuitive wayfinding that facilitates clear movement for pedestrians and bicyclists. The map below shows existing wayfinding between the two nodes.



ALTERNATIVES

A variety of strategies can be used to address existing barriers to walking, bicycling, and transit, and to enhance and prioritize connectivity between the Snowmass Center and the Base Village.

Alternatives are categorized into two groups:

- Foundational Improvements
- Grand Investments

FOUNDATIONAL IMPROVEMENTS

WAYFINDING



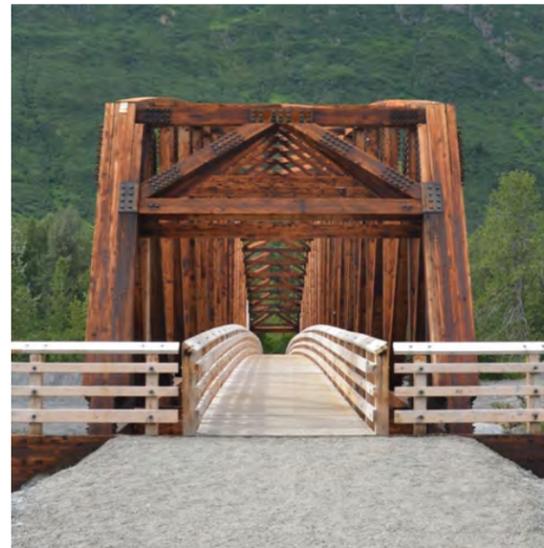
CROSSINGS & PATHWAYS



TRANSIT



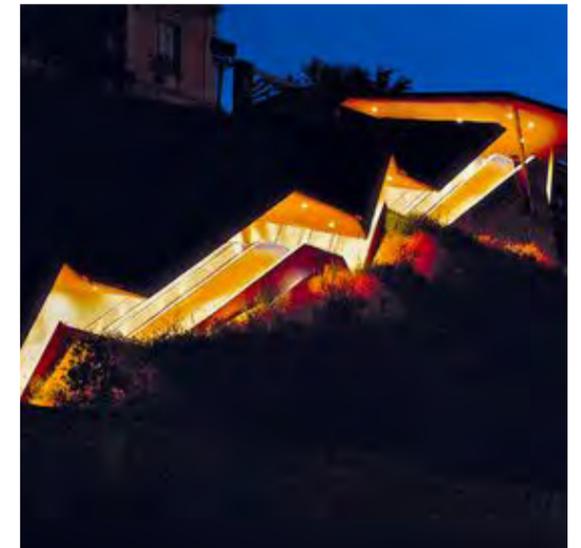
GRAND INVESTMENTS



BRIDGE



GONDOLA



ESCALATOR

FOUNDATIONAL IMPROVEMENTS

Foundational improvements are vital, smaller scale strategies that would complete the street-level multimodal transportation network, improve wayfinding, address existing barriers, and promote intuitive and accessible connections for all users year-round.

The Foundational Improvements have value independent of the Grand Investments and are proposed to be implemented prior to or in tandem with one or more of the Grand Investment ideas.



WAYFINDING



CROSSINGS
& PATHWAYS



TRANSIT

FOUNDATIONAL IMPROVEMENTS

WAYFINDING



Wayfinding is the use of signage, color, and other design elements to help users navigate between destinations. Wayfinding is especially important between the Base Village and Snowmass Center due to line of sight constraints and elevation changes.

Existing pedestrian-focused wayfinding between the two nodes is non-existent in some locations and limited elsewhere. Signage is present for trails only and can be difficult to discern from a distance. Unified signage located throughout the corridor, and that is easily distinguishable from vehicle-focused signage, can help to guide users to their destinations.

Though the corridor is surrounded by immense natural beauty, there are few instances of public art on display. Existing public art installations, including the art piece inside the Brush Creek Road and Kearns Road roundabout, are not oriented to support pedestrian-scale wayfinding. New public art would not only add movement, verticality, and playfulness to the corridor, but can indirectly guide users to destinations as well.

Ground plane art can pair with a unified signage package to directly “illuminate” the exact corridor to be used to travel between destinations. Though an effective secondary tool, ground plane art can be obscured by snowfall and would only be used in tandem with a unified signage package.

FOUNDATIONAL IMPROVEMENTS - WAYFINDING

UNIFIED PEDESTRIAN SIGNAGE THROUGHOUT

The map below identifies proposed locations and directionality for new pedestrian-focused wayfinding signage between the Snowmass Center and Base Village.



Pedestrian Wayfinding



KEY

PRIMARY
[Thick orange line]

SECONDARY
[Thin orange line]

WAYFINDING SIGN
[Black circle with arrows]

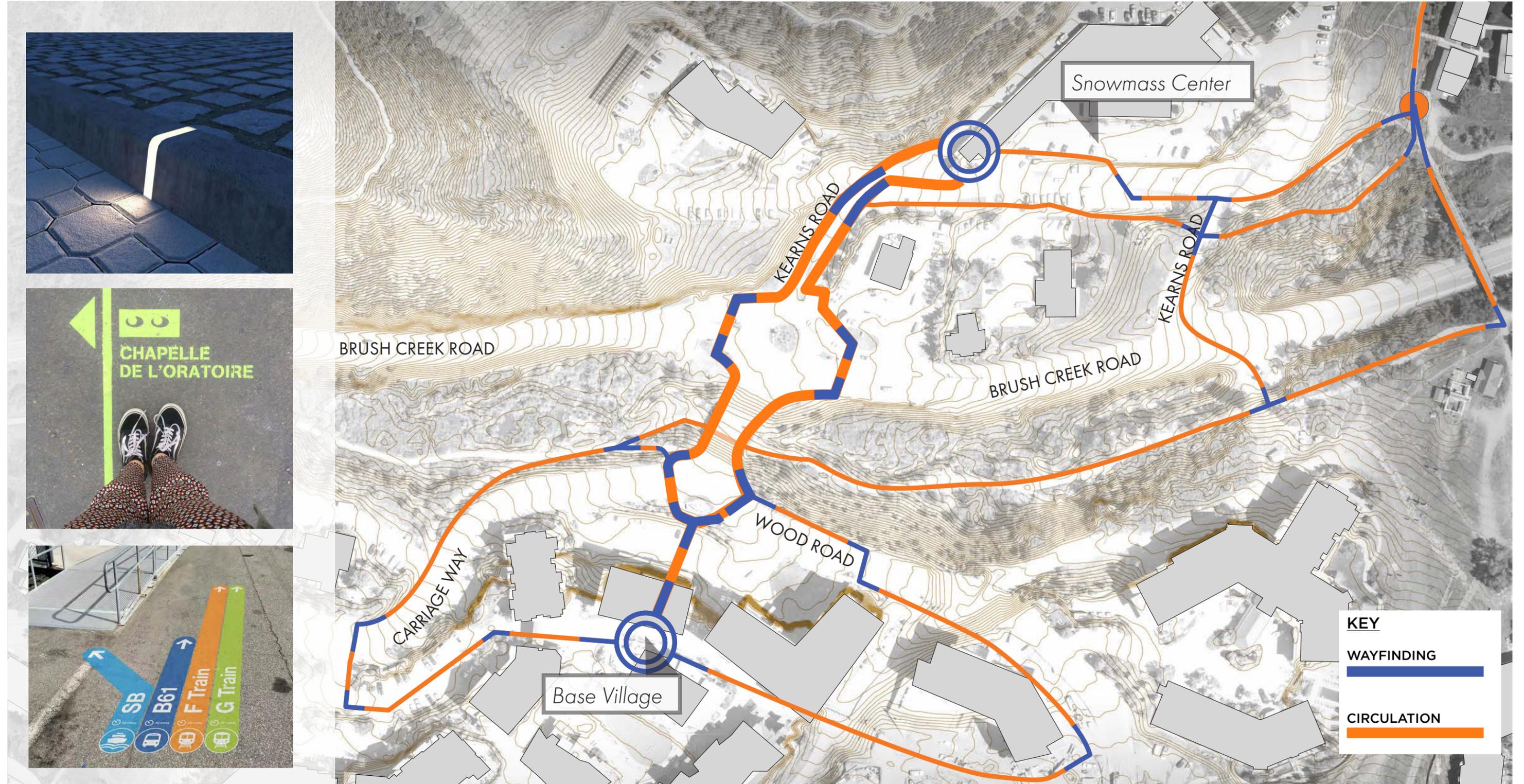


Automotive Wayfinding

FOUNDATIONAL IMPROVEMENTS - WAYFINDING

GROUND PLANE ART AS WAYFINDING

Ground plane wayfinding, such as in-ground lighting, paint, or stickers, can be used at decision points to clearly demonstrate the direction of travel towards key destinations.

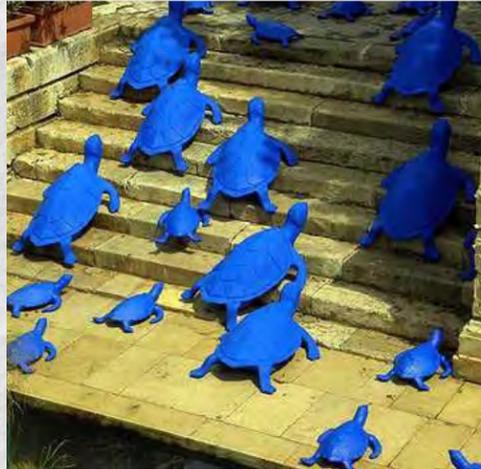


FOUNDATIONAL IMPROVEMENTS - WAYFINDING

ICONIC PUBLIC ART NODES

Public art can help guide users to follow the correct pathway and contribute to the overall aesthetic or design theme of the area.

Movement



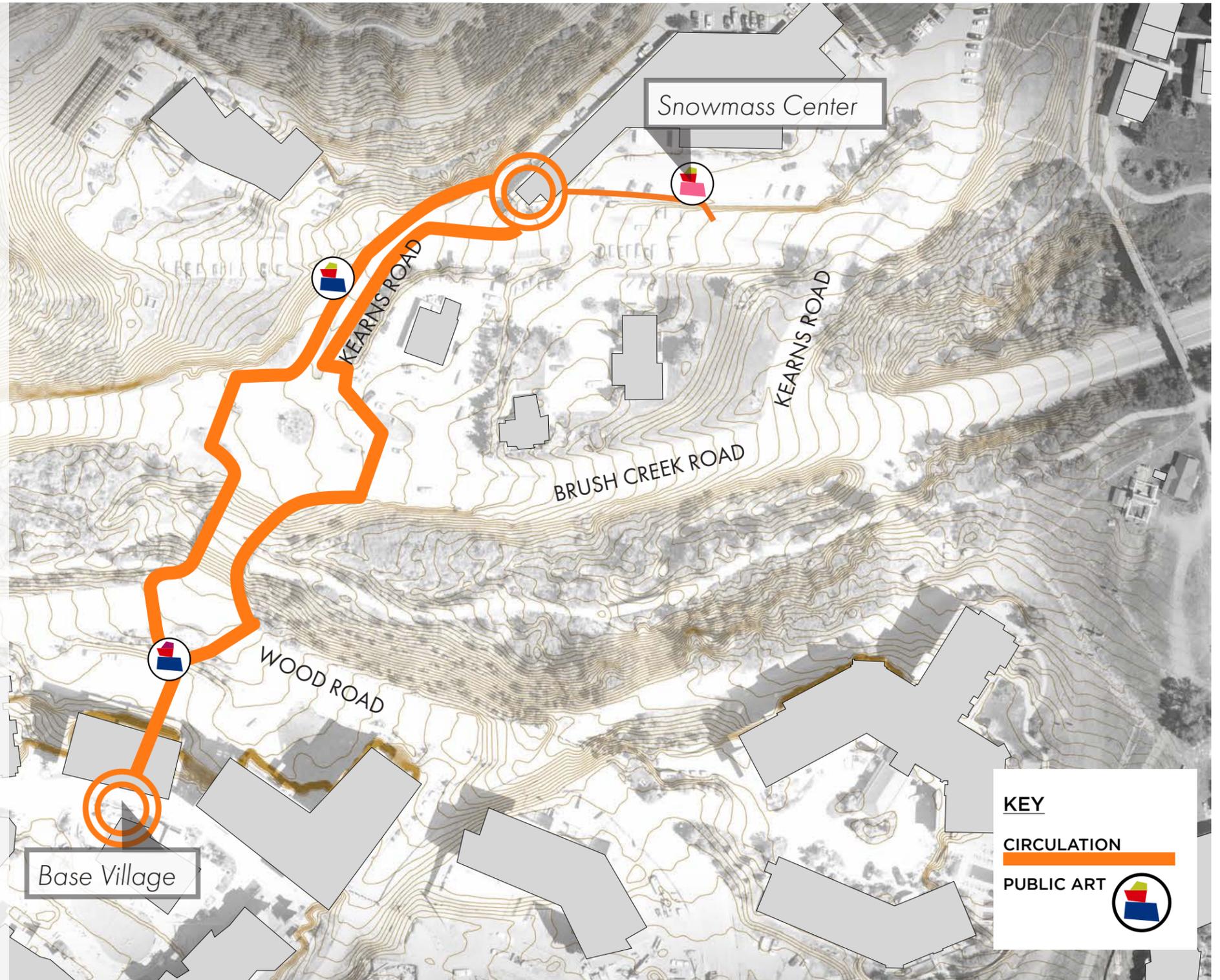
Playfulness



Verticality



Existing



FOUNDATIONAL IMPROVEMENTS

CROSSINGS AND PATHWAYS



Crossings and pathway improvements include new sidewalks and enhanced crosswalks to maintain continuous and safe connections between the two nodes.

Existing crosswalk features include paint striping or contrasting pavement in all locations, moveable/ temporary yield-to-pedestrian signs and pedestrian refuge islands in some locations, and two rectangular rapid flashing beacons (RRFBs) across Brush Creek Road at the Kearns Road roundabout. Pedestrian crossing signage is present for vehicles at crosswalk approaches as well.

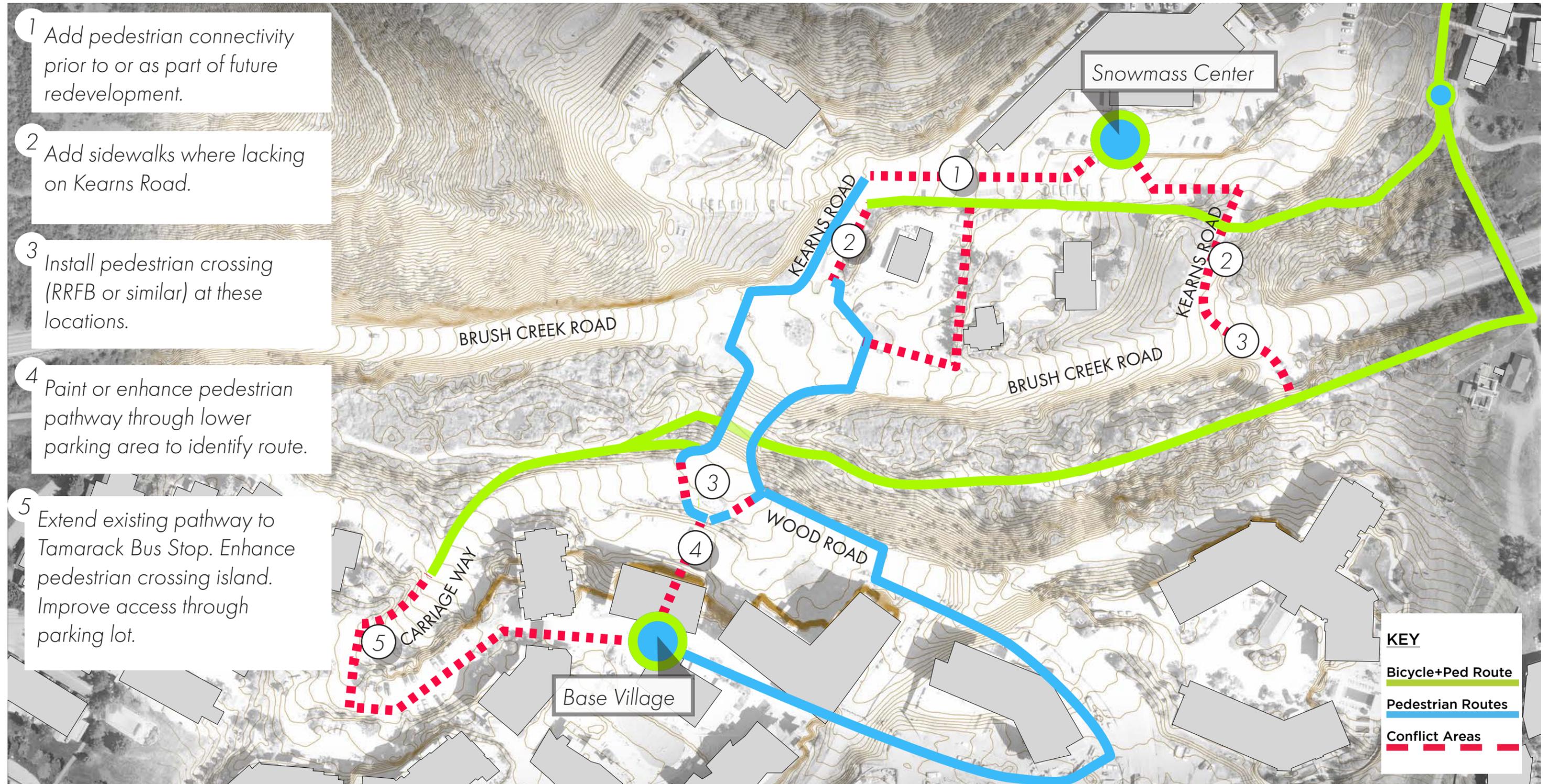
Existing pedestrian pathways are mostly complete south of Brush Creek Road adjacent to the Base Village. Pedestrian and bicycle infrastructure is lacking north of Brush Creek Road along upper Kearns Road. There is no sidewalk present on upper Kearns Road on the east or south side of the corridor directly adjacent to the Conoco gas station. There is also no sidewalk or crosswalk infrastructure on the north side of upper Kearns Road heading to the Snowmass Center.

Beyond these improvements to the primary pathway connection along upper Kearns Road, there is also a need for improvements to secondary pathways along lower Kearns Road and Carriage Way.

Creating these new connections through infrastructure improvements would improve user safety, accessibility, and experience. New sidewalks and enhanced crosswalks would establish continuous primary and secondary pathways between the two nodes.

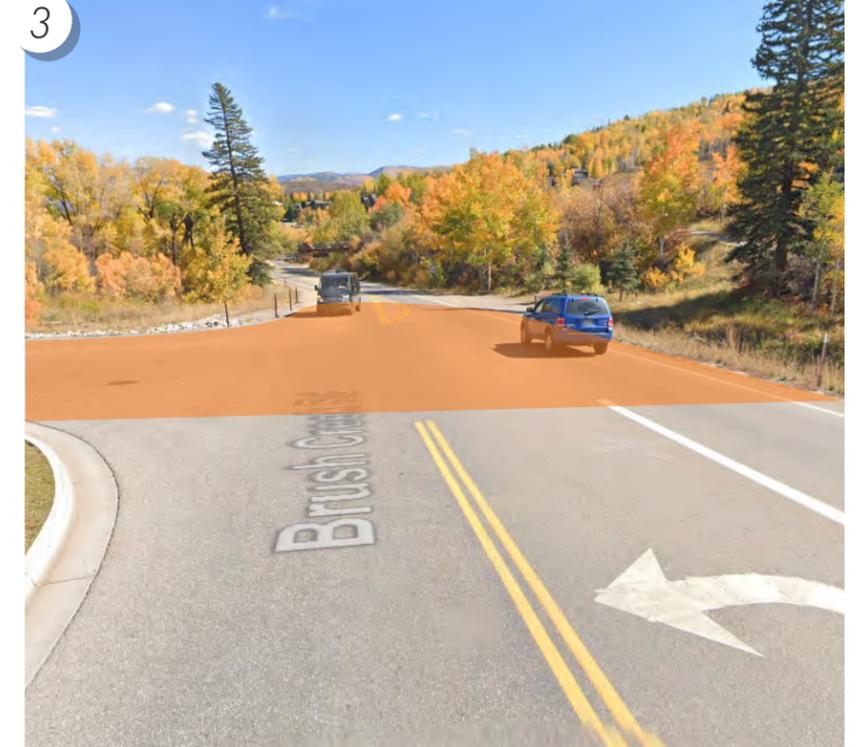
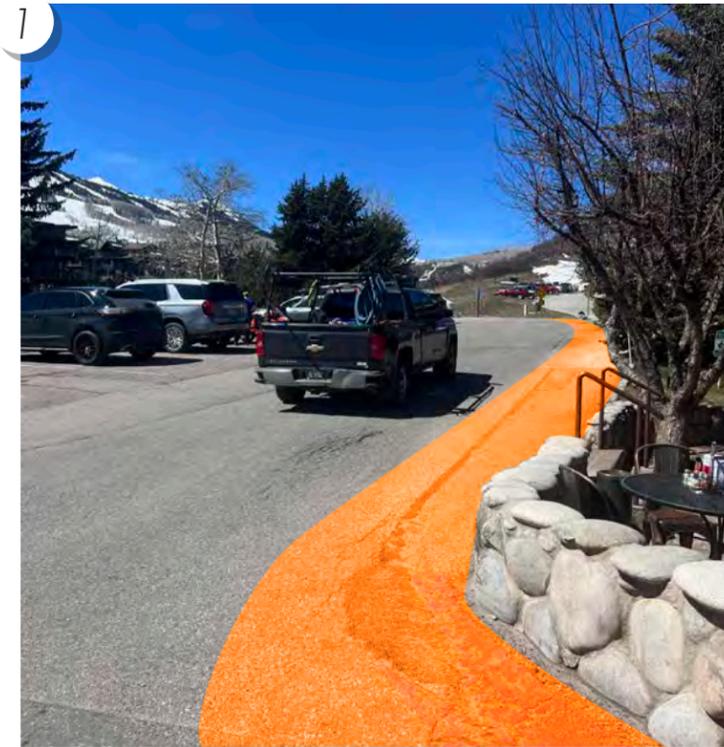
FOUNDATIONAL IMPROVEMENTS - CROSSINGS & PATHWAYS

The map below shows the location of existing crossings and pathways in blue, existing trails in green, and locations where pathway improvements are needed to complete the primary and secondary network in red.



FOUNDATIONAL IMPROVEMENTS - CROSSINGS & PATHWAYS

- 1) Add pedestrian connectivity prior to or as part of future redevelopment.
- 2) Add sidewalks where lacking on Kearns Road.
- 3) Install pedestrian crossing (RRFB or similar) at Lower Kearns Road and Brush Creek Road.
- 4) Enhance pedestrian pathway / crossing through lower parking area to identify route.
- 5) Extend existing pathway to Tamarack Bus Stop. Harden pedestrian crossing island. Improve access through parking lot.



FOUNDATIONAL IMPROVEMENTS

TRANSIT



Potential transit improvement recommendations consist of consolidating and modifying existing Snowmass Shuttle routing near the Snowmass Center to improve efficiency and make accessing transit services more intuitive. The transit improvements pair with a connected pedestrian and bicycle network to better facilitate inter- and intra-town trips.

For the Snowmass Shuttle, consolidating the number of shuttle stops at Snowmass Center from three to one would improve the clarity for stop locations, enhance accessibility, and reduce bus travel time in the uphill direction. This strategy should be paired with enhanced rider facilities and amenities at the new consolidated transit stop.

The new consolidated transit stop should expand existing facilities to accommodate more users, and include off-set signage and other wayfinding strategies by shuttle route number to differentiate between various buses serving at the combined stop. To ensure adequate facilities for an expanded bus bay, existing parallel parking directly adjacent to the Snowmass Center would need to be removed. This recommendation also aligns with the improvements proposed as part of the Snowmass Center redevelopment.

FOUNDATIONAL IMPROVEMENTS - TRANSIT

Existing TOSV Shuttle Service has three separate stops within the Snowmass Center complex.

All TOSV shuttle routes except for Route 4 access the Snowmass Center during the peak winter season.

The existing bus stop facilities at Snowmass Center have accessibility challenges, especially for the Lower Snowmass Center stop.



FOUNDATIONAL IMPROVEMENTS - TRANSIT

The enhanced bus stop at the Snowmass Center could be equipped with a bus shelter and heating facilities

The bus stop could include off-set signage and wayfinding to ensure rider clarity for arriving buses at the combined stop



FOUNDATIONAL IMPROVEMENTS

CONCEPTUAL COSTS

The Foundational Improvements together have an estimated cost to construct of \$638,000 in 2024 Dollars. These costs are allocated as follows:

- Wayfinding - \$105,000
- Crossings and Pathways - \$314,000
- Transit Stops - \$26,800
- Supporting Elements and Contingencies - \$192,000

Additional detail for these estimates is provided in the Appendix.

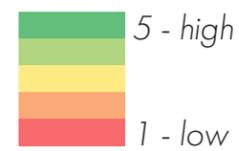
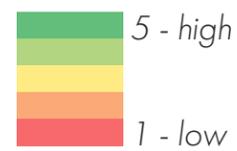
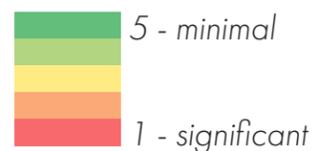


FOUNDATIONAL IMPROVEMENTS

BENEFITS AND IMPACTS COMPARISON

The Foundational Improvements are evaluated against key performance metrics, including the potential for visual impacts, user benefits, seasonal functionality, sustainability, installation cost, and maintenance cost. These performance metrics help provide an understanding of the potential benefits and impacts of the different strategies and would inform decision making related to refining or removing any strategies prior to implementation of the full package of improvements.

	Visual Impacts	User Benefits	Seasonal Functionality	Installation Cost	Maintenance Cost
Wayfinding Sign Updates	Moderate Updates to existing wayfinding signs and new pedestrian scale signage have minimal visual impact	Medium Signs do not provide a new route or improve accessibility - only information.	High Well designed signage can benefit users year round.	\$ Relatively low installation cost if using existing sign standards.	\$ Maintenance is minimal beyond replacing broken or aged signs
Wayfinding by Iconic Artwork	Significant Vertical artworks will be seen from all areas between Center and Base	Medium High High visibility makes these pieces more clear than a small sign on a post. Visible by all.	High No loss of functionality due to winter or summer cycles.	\$\$\$ Significant artwork will be expensive, but less so than relevant infrastructure improvements.	\$\$ Minimal maintenance beyond upkeep. Artwork durability should be a factor of design.
Wayfinding by ground plane artwork	Low Visible to pedestrians, but not legible to motorists. Overall impacts of ground plane artwork will be small	Medium Benefits many pedestrians, but may not be intuitive to all.	Low Will not be effective during winter months	\$\$ Low cost to implement. Artwork design could be connected to iconic artwork.	\$\$\$ May require annual updates if final design is paint based.
Intersection Improvements	Minimal Overall visual impacts of improved pedestrian infrastructure will be minimal	High Improves safety and reduces all pedestrian conflict with drivers.	High with plowed sidewalks, these improvements will benefit users year round.	\$\$\$ Full scale improvements to roadways, crossings, and sidewalks can range from \$.75 - 2M	\$ Once installed, maintenance costs will be minimal
Transit Improvements	Minimal No visual impacts associated with changes to transit routing.	Medium Will make access to base more direct at the cost of lesser utilized stops.	High Effective year round	\$ Costs include new rider shelter and signage at the consolidated Snowmass Center stop.	\$ No additional maintenance costs beyond existing services.



GRAND INVESTMENTS

Grand Investments are large-scale conveyances that would separate pedestrians and bicyclists from existing street-level barriers and would help to reduce or remove constraints related to elevation changes and weather when traveling between the two nodes.

The Grand Investments are intended to build on the Foundational Improvements. The three strategies are presented as alternatives. Only a single Grand Investment strategy would be selected to move forward to implementation. This contrasts with the Foundational Improvements, which are intended to be a package of improvements implemented together.

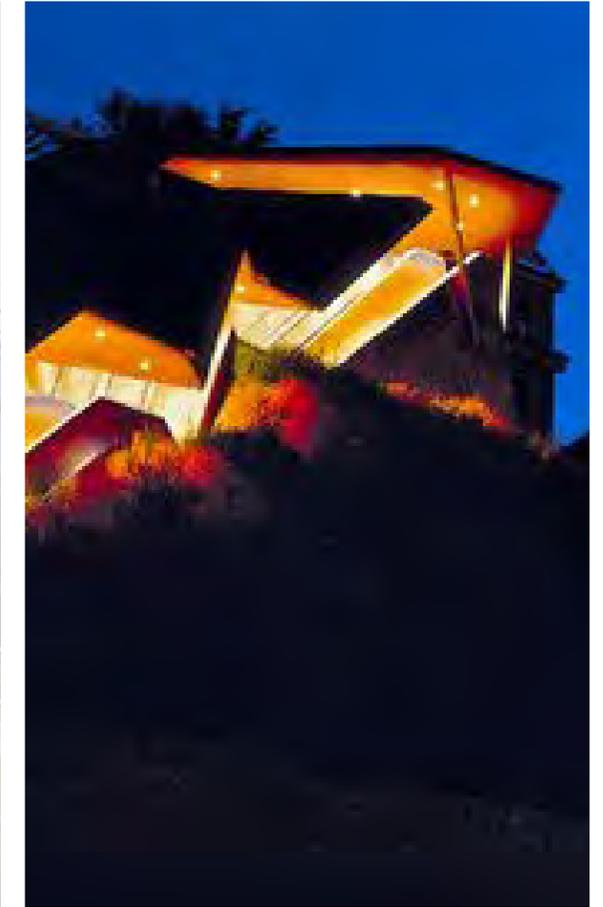
GRAND INVESTMENT ALTERNATIVES



PEDESTRIAN BRIDGE



GONDOLA



ESCALATOR

GRAND INVESTMENTS

PEDESTRIAN BRIDGE



A pedestrian bridge would provide a grade-separated pedestrian crossing between the nodes, removing street-level conflicts between pedestrians and vehicles, mitigating significant grade changes, and serving as a landmark when entering the Town Center.

GRAND INVESTMENT - PEDESTRIAN BRIDGE

PRECEDENT IMAGERY - WOOD, STEEL, AND CONCRETE PREFABRICATED BRIDGES



GIRDER BRIDGE



STEEL BRIDGE



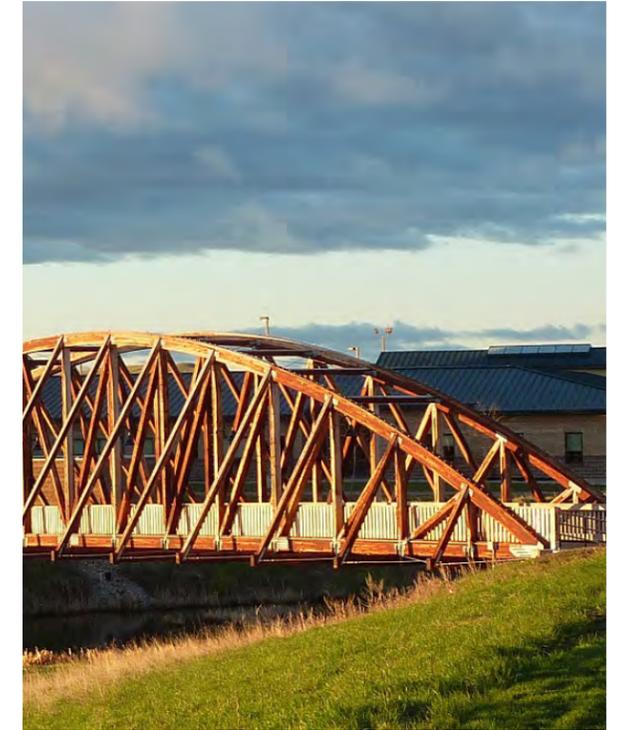
CONCRETE BRIDGE



CAMELBACK TRUSS BRIDGE



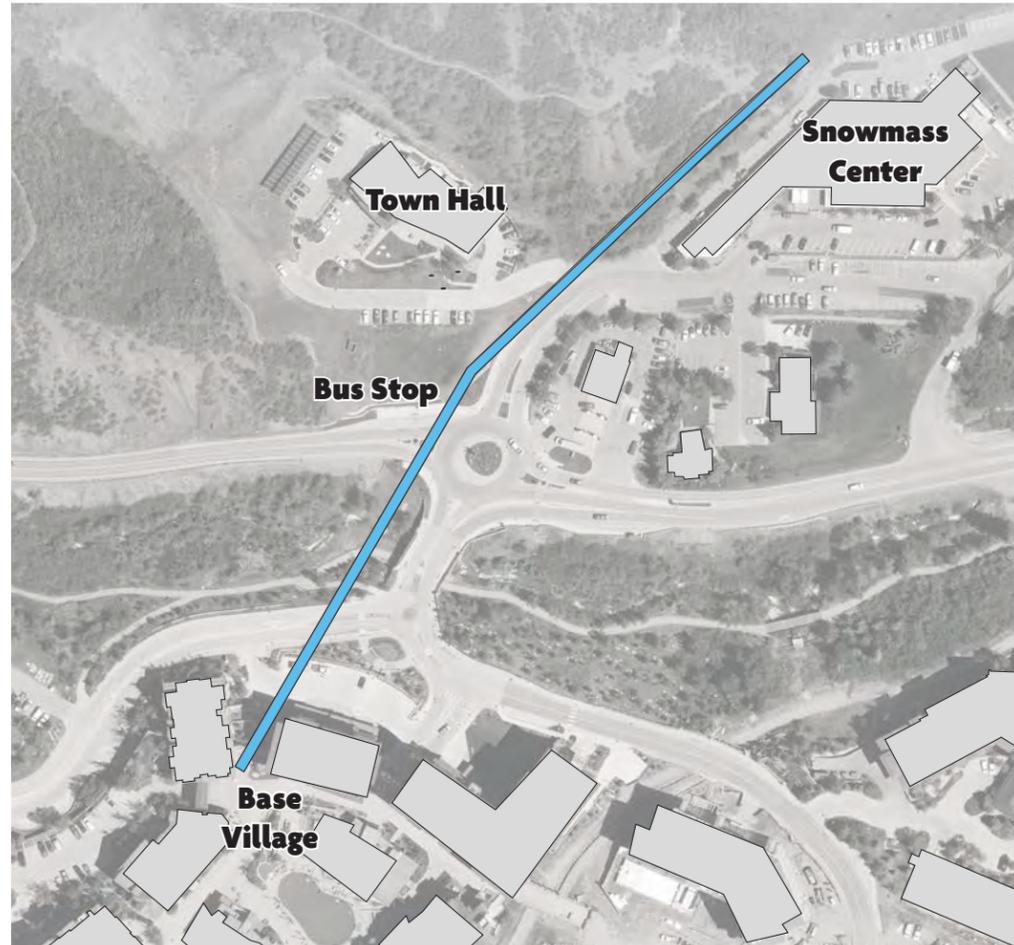
GIRDER BRIDGE



BOWSTRING BRIDGE

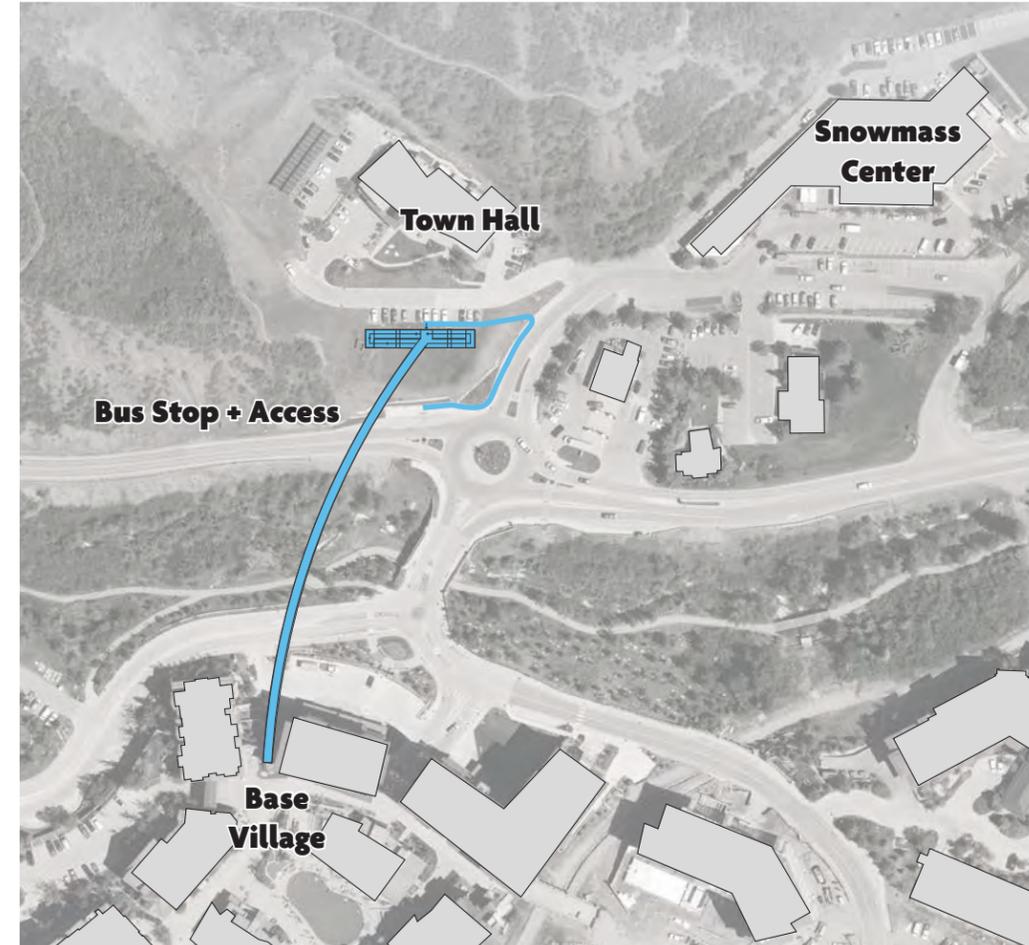
GRAND INVESTMENT - PEDESTRIAN BRIDGE

2003 CONCEPT - LANDING BEHIND CENTER
1040' LONG, 2.3% GRADE



A pedestrian bridge connecting the two nodes was first considered and evaluated by the Town in 2003. The 2003 bridge concept was over 1,000 feet long, connecting from Base Village to the north side (back) of Snowmass Center.

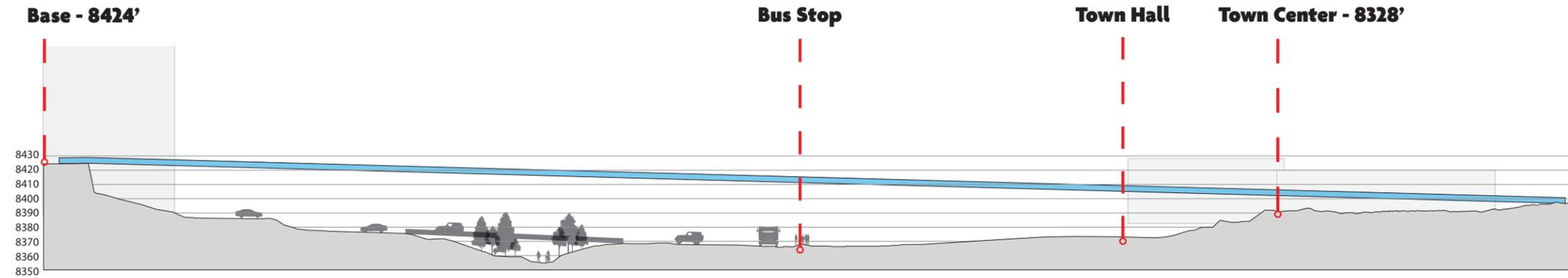
REVISED CONCEPT - ARCHED
625' LONG + ACCESS RAMP, 2.3% GRADE



A revised bridge concept is developed that would be half as long (620 feet) as the 2003 proposal, connecting from the Base Village to the Pointe, just south of Town Hall. This connection would require an access ramp from ground level to the bridge level. Key benefits of this proposed bridge landing location include direct access to the existing bus and shuttle stop on Brush Creek Road, improved connectivity to the "front door" of the existing Snowmass Center, and connectivity to Town Hall and proposed future residential uses to the northwest.

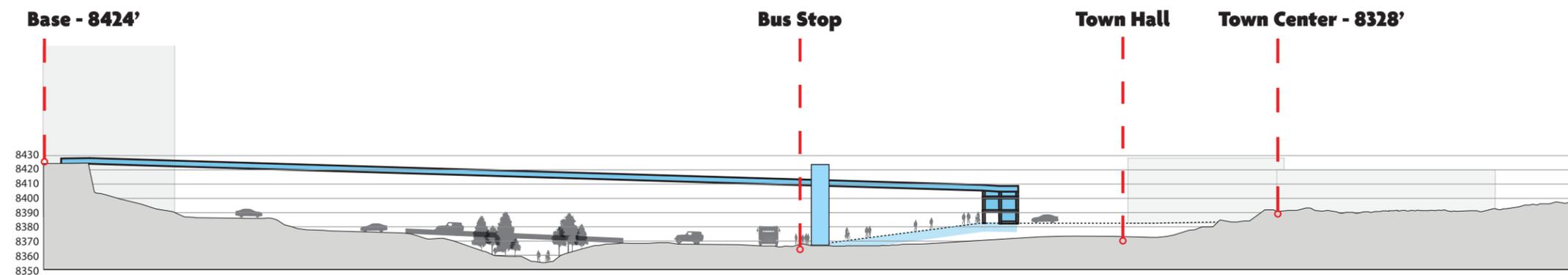
GRAND INVESTMENT - PEDESTRIAN BRIDGE

2003 CONCEPT



1040' Long x 12' Wide Pedestrian Bridge
No Access Ramp Needed, 2.3% Grade

REVISED CONCEPT



620' Long x 12' Wide Pedestrian Bridge
150' x 25' Access Ramp at 1:12 (ADA Accessible), 2.3% Grade

The proposed bridge would be constructed with an approximate 2.3% descending grade from the Base Village to the Pointe. The landing ramp would be ADA accessible and could include an elevator if desired. The base of the landing ramp would be directly connected to the existing bus stop along Brush Creek Road via the Kearns Road sidewalk. A direct connection from the bus stop to the bridge could be provided via an elevator and stairs. The base conceptual cost estimates for a bridge depend on the material used and length of bridge spans.

GRAND INVESTMENT - PEDESTRIAN BRIDGE

BRIDGE STYLE

Several options exist for the style of bridge that would be constructed. A bridge over 600 feet long would be comprised of multiple spans. Span lengths can vary depending on the conditions at the site, areas for placement of columns and supports, and the desired aesthetics. Prefabricated bridge types and conventional span characteristics include:

- Glued Laminated Timber Styles:
 - Girder Style Bridges would be comprised of eight separate bridges each roughly 77 feet long. Bridge girders would be 5'6" to 6'6" deep.
 - Bowstring Truss Bridges would be comprised of six separate bridges roughly 103 feet each in length. From the top of the deck to the bottom of bridge (where bridge rests on abutments) would be roughly 36 inches.
 - Camelback Truss Bridges would be comprised of three separate bridges roughly 205 feet in length. From the top of deck to bottom of bridge (where bridge rests on abutments) would be roughly 48 inches.
- Prefabricated Steel Bridge would be comprised of three to four spans.
- Precast Concrete Bridge would likely be comprised of four spans.

Increasing span lengths beyond these conventional lengths would increase costs for construction and installation. If a pedestrian bridge is advanced as the selected concept, subsequent design efforts will need to examine column support placement and span lengths and configuration.

CONCEPTUAL COST

Bridge costs are highly dependent on span length and configuration. Potential cost ranges for each bridge types noted above include:

- Glued Laminated Timber: \$12 - \$22 million.
- Prefabricated Steel: \$18 - \$34 million.
- Precast concrete: \$12 million for a simple highway style bridge - \$20 million or more for custom features or more aesthetically pleasing components.
- Direct connection from RFTA bus stop to bridge: \$1.5 - 3 million.

GRAND INVESTMENTS

GONDOLA



A gondola is an aerial conveyance propelled by cables from above. A gondola traveling between nodes would remove pedestrian conflicts with vehicles, mitigate steep grade changes, and efficiently move users from node to node.

GRAND INVESTMENT - GONDOLA

GONDOLA TYPES

There are two possible variations for the gondola design: a pulse gondola, similar to the existing Sky Cab (Skittles) and a detachable gondola similar to the existing Village Express. A detachable gondola has a greater passenger capacity per hour, but is significantly more expensive to construct than a pulse gondola. The Town is considering replacing the Skittles gondola with a new detachable gondola, which would create an opportunity to repurpose the Skittles gondola to connect the Base Village and Snowmass Center. When considering likely potential ridership demand and cost, a pulse gondola would be the preferred solution for this connection.

PULSE



CAPACITY: 500-700 PPL/HR
COST ASSOCIATED (APPROX): \$5-7M
REQUIRES CONSTANT STAFF SUPPORT FOR BOARDING/ALIGHTING

DETACHABLE

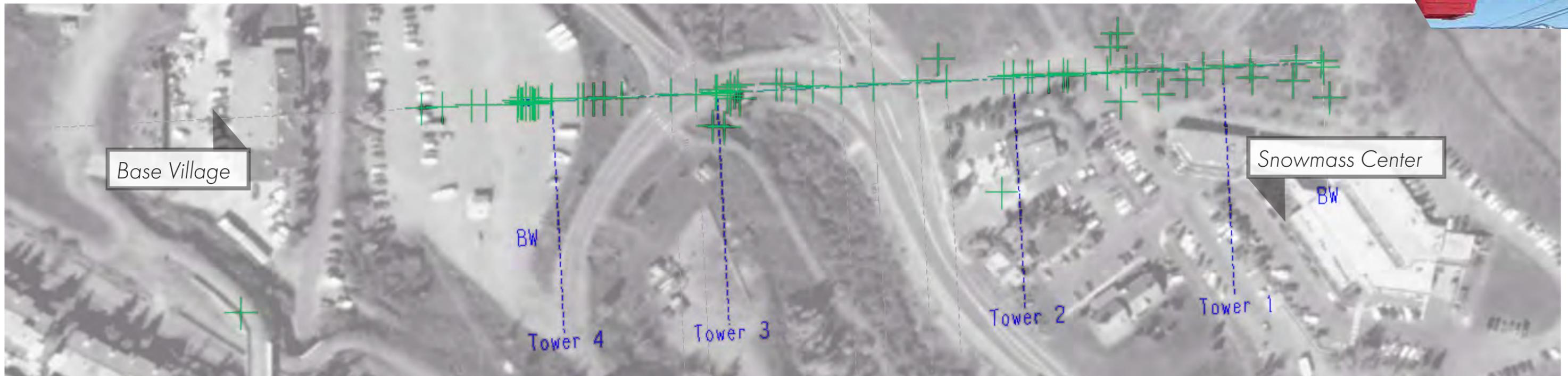


CAPACITY: 2400 PPL/HR
COST ASSOCIATED (APPROX): \$10-14M
REQUIRES CONSTANT STAFF SUPPORT FOR BOARDING/ALIGHTING

GRAND INVESTMENT - GONDOLA

PULSE GONDOLA

2006/7 Leitner Poma Foundations and site plan for a pulse gondola connecting Snowmass Center and Base Village.



Pre-existing gondola foundation location



DESIGN CAPACITY: 500 PEOPLE/HR

FOUR GROUPS OF THREE CABS
IDENTICAL CAB CONFIGURATION TO SKITTLES

RETURN AT BASE VILLAGE - DRIVE TERMINAL AT
SNOWMASS CENTER

GRAND INVESTMENTS

ESCALATOR



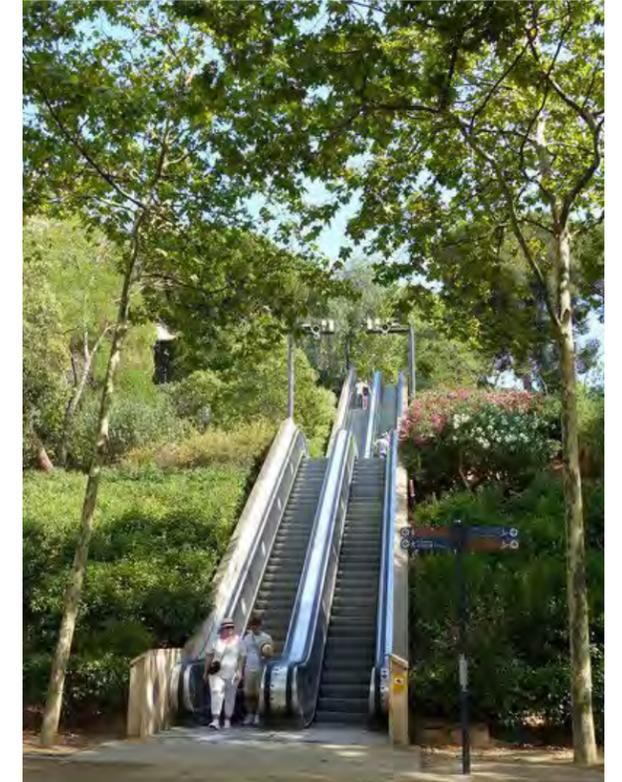
An outdoor escalator is a potential solution in areas with significant elevation changes or slopes. An escalator would address the most significant elevation change present in the study area between the Base Village plaza and the One Snowmass parking deck. The remainder of the connection between the nodes would occur at street level and would be facilitated by the Foundational Improvements.

A proposed escalator is assumed to be outdoor-rated and covered, similar to the example photo to the left. Partially or fully outdoor escalators have additional safety and operational features compared to indoor escalators in order to maintain operations in all climates and weather conditions, such as greater protection for main electric parts and the motor, as well as enhanced truss coating that is strongly resistant to corrosion. However, these escalators may still face potential operating challenges in a partial or fully outdoor environment.

There are two variations for the escalator that could be placed fully or partially within the existing access easement located between the Capitol Peak Lodge and One Snowmass. These escalator concepts would move users from Base Village to the One Snowmass parking deck approximately 40 feet below in elevation. The two concepts are presented in the following pages.

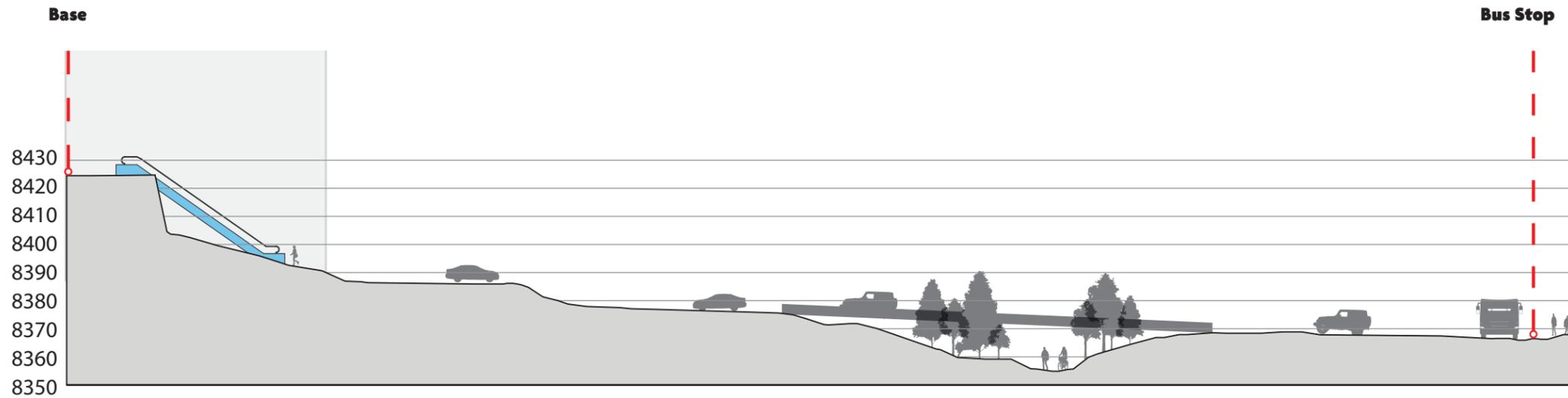
GRAND INVESTMENT - ESCALATOR

PRECEDENT IMAGERY



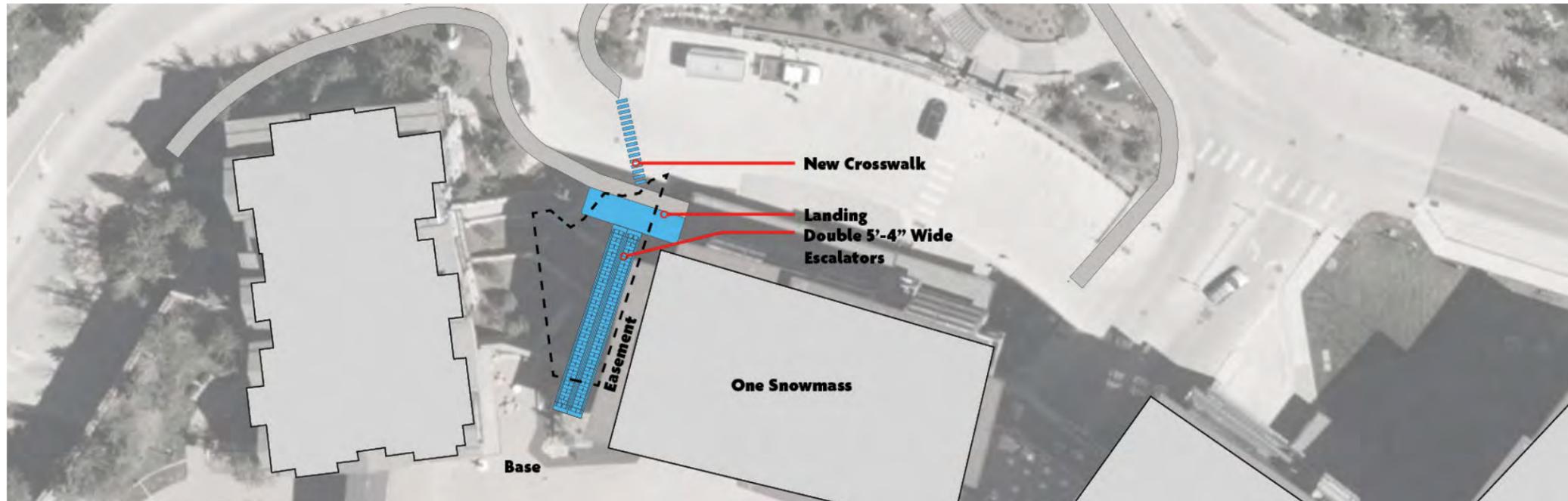
GRAND INVESTMENT - ESCALATOR

CONCEPT ONE



The first option would be a 70-foot-long escalator with a maximum 35-degree angle of ascent/descent.

Both escalator variations would have a passenger capacity for up to 6,000 users per hour. A new high-visibility crosswalk would be needed to allow users to safely cross the One Snowmass parking deck to reach the southern sidewalk on Carriage Way.

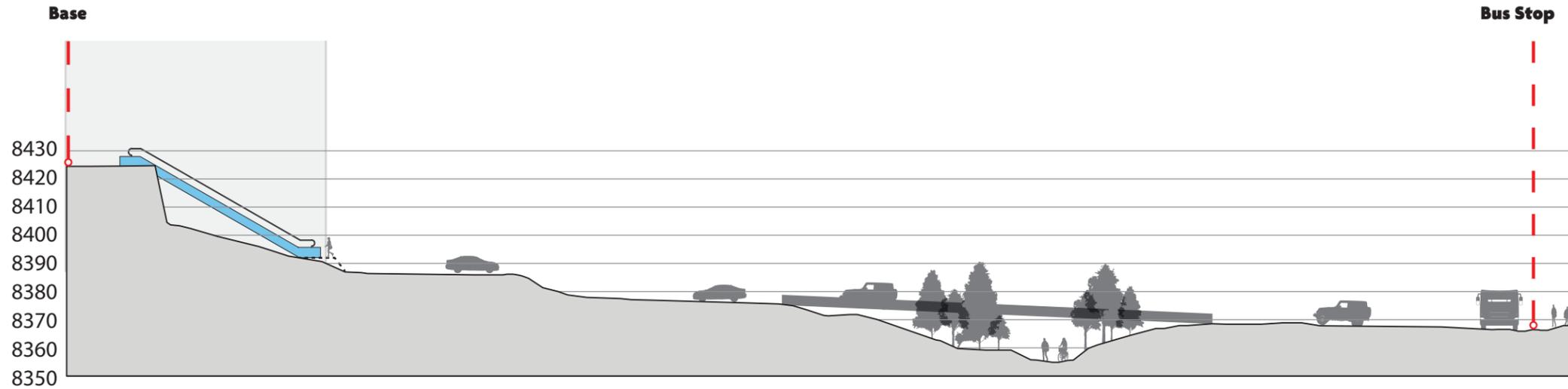


In 2023, the Town of Snowmass Village was granted a 2,067 square foot easement, depicted in the image to the left within the dashed black line, solely for providing pedestrian access to the Base Village Plaza. The easement boundary generally follows the One Snowmass building to the east, the top of the Plaza wall to the south, and the Lot 1/Lot 3 parcel boundary to the west. The easement's northern boundary includes a portion of the existing sidewalk fronting the existing One Snowmass loading zone, but does not include any portion of the existing stairwell from the loading zone to Capitol Peak Lodge.

70' Long, Max Escalator Angle: 35 Degrees
6000 people/ hr Passenger Capacity

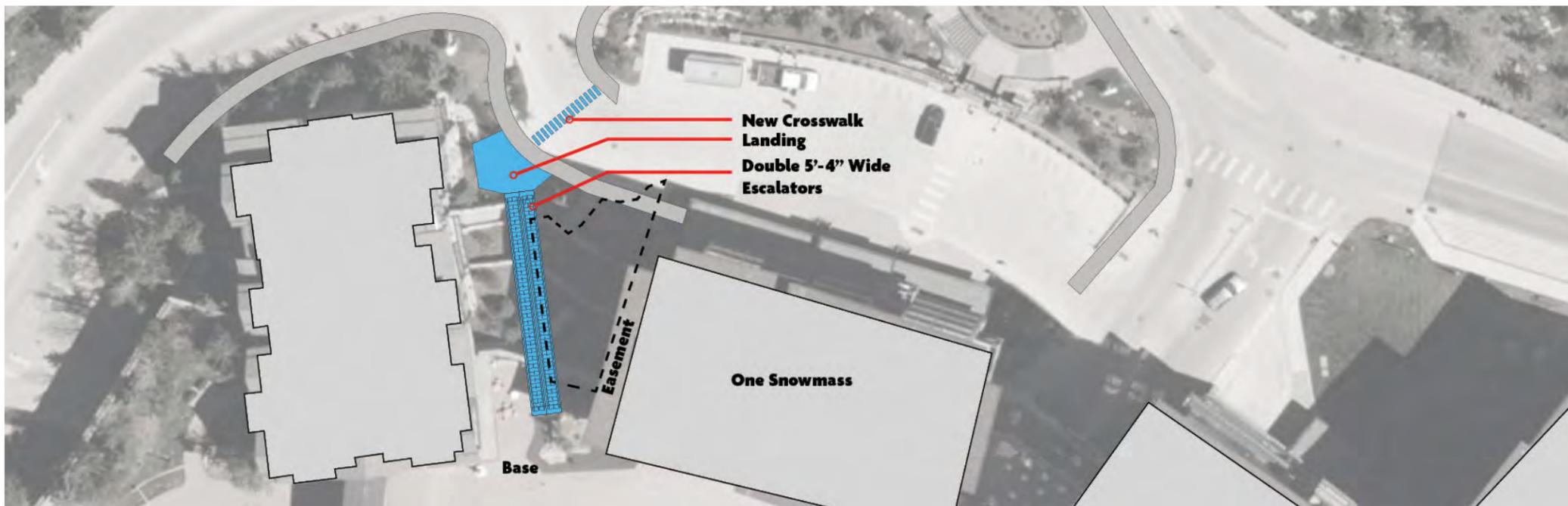
GRAND INVESTMENT - ESCALATOR

CONCEPT TWO



The second variation would be located outside the existing access easement boundary but would allow for an 80-foot-long escalator and a less steep 30-degree angle of ascent/descent.

Both escalator variations would have a passenger capacity for up to 6,000 users per hour. A new high-visibility crosswalk would be needed to allow users to safely cross the One Snowmass parking deck to reach the southern sidewalk on Carriage Way.



In 2023, the Town of Snowmass Village was granted a 2,067 square foot easement, depicted in the image to the left within the dashed black line, solely for providing pedestrian access to the Base Village Plaza. The easement boundary generally follows the One Snowmass building to the east, the top of the Plaza wall to the south, and the Lot 1/Lot 3 parcel boundary to the west. The easement's northern boundary includes a portion of the existing sidewalk fronting the existing One Snowmass loading zone, but does not include any portion of the existing stairwell from the loading zone to Capitol Peak Lodge.

80' Long, Min Escalator Angle: 30 Degrees
6000 people/ hr Passenger Capacity

GRAND INVESTMENT - ESCALATOR

CONCEPTUAL COSTS

The 70-foot escalator concept would have a capital cost of about \$600,000 given the capacity, higher degree of incline, and being outdoors.

The 80-foot escalator would have a similar cost, but may be slightly less costly due to the more standard 30 degree incline.

Additional costs include potential modification to, or reconstruction of, the existing retaining wall system present within the access easement. These costs are estimated in the range of \$1 million for the 70-foot escalator to \$1.5 million for the 80-foot escalator.

Ground-level improvements to the sidewalk and pedestrian crossing near the escalator landing points would cost about \$25,000. Together, the escalator proposals would range between \$1.6 million and \$2.1 million. Inclusion of a canopy or roof above the escalator could further increase these costs and would vary depending on the materials used for the canopy.

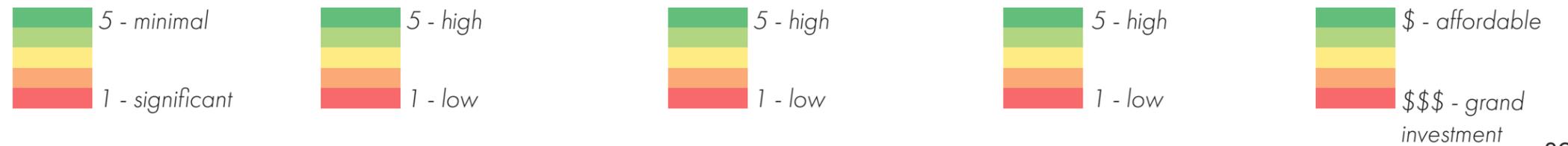
GRAND INVESTMENT

BENEFITS AND IMPACTS COMPARISON

The table below compares the benefits and impacts of the Grand Investment alternatives. This comparison will assist in facilitating a discussion about each Grand Investment and the potential benefits and trade-offs associated with each alternative.

There are opportunities to combine alternatives. The footprint of the escalator concept would allow for future implementation of either a pedestrian bridge or a gondola within and adjacent to the access easement. In this case, the escalator would be a lower-cost initial improvement that is then enhanced with later implementation of a bridge or gondola if funding becomes available.

	Max Capacity (ppl/hr)	Installation Cost (\$M)	Visual Impacts	User Benefits	Seasonal Functionality	Sustainability	Maintenance Cost
Bridge	42000	Timber: \$12-\$22 Steel: \$18-\$34 Concrete: \$12-\$20	High A bridge across Brush Creek would be visible from the entire area.	High This more direct route would also be free of any conflicts with traffic.	Moderate Snow clearing or a covered section of bridge would be needed to maintain functionality in winter.	High No fossil fuels required.	Low No significant annual maintenance needs.
Pulse Gondola	500	\$5-\$7	High Gondola will be visible from entire area.	High Provides direct link between two major nodes. Appeals to drivers who find walking hard.	High Year round comfort and functionality.	Medium Will require energy and staff costs to operate.	High Staff and energy costs.
Detached Gondola	2400	\$10-\$14	High Gondola will be visible from entire area.	High Provides direct link between two major nodes. Appeals to drivers who find walking hard.	High Year round comfort and functionality.	Medium Will require energy and staff costs to operate.	High Staff and energy costs, slightly above pulse gondola.
Escalators	6000	\$1.6-\$2.1	Low Escalator will only be visible adjacent to base.	Medium Will benefit users directly at Base - does not reduce conflicts with vehicles.	Moderate May be covered, but does not reduce exposure to the elements.	Medium Will require ongoing energy costs, but not staffing costs.	Medium Energy and maintenance costs will be ongoing.



ALTERNATIVES NOT SELECTED



TUNNEL / UNDERPASS

A tunnel or underpass is a grade-separated pedestrian crossing underneath a roadway or other barrier. A tunnel or underpass between the two nodes is less feasible than a pedestrian bridge, given the elevation profile of the study area. Overall, this type of improvement would be more expensive to construct than a bridge, would not be as inviting for users, and would exacerbate elevation changes given the area's elevation profile.



FUNICULAR / INCLINED ELEVATOR

A funicular/ inclined elevator is a cable railway system comprised of two or more cars that ascend and descend a relatively short but steep distance. This strategy has constraints related to implementation and maintenance costs, impacts to adjacent sensitive land uses, a short operating length, staffing for operations, and hours of operation. With these constraints, a gondola was determined to be a more feasible strategy to evaluate to make the connection.



STAIRCASE

A new staircase, rising approximately 40 feet in elevation to access the Base Village from the One Snowmass parking deck, could discourage travel by specific user types, especially those with disabilities or those carrying ski or snowboarding equipment.

A staircase also may be adversely affected by severe weather conditions and the required slopes between landings. Given these constraints, an escalator was determined to be a more feasible strategy for evaluation.

ALTERNATIVES NOT SELECTED



ELEVATOR

Similar to a funicular, an elevator would have capacity constraints and could create delays for users as they wait for the elevator to ascend and descend between Base Village and the parking deck. Elevators in heavy pedestrian traffic areas such as the Base Village are prone to significant user delays due to their limited carrying capacity, especially if users are carrying personal belongings such as skis. Outdoor elevators are also subject to potential maintenance concerns due to environmental conditions. Finally, placement of the elevator within the existing public access easement adjacent to One Snowmass would be challenging given the presence of the retaining walls. It is likely that an elevator would cost significantly more than an escalator, while not being able to move as many people. Given these constraints, an escalator was determined to be a more feasible strategy for evaluation.



RFTA SERVICE CHANGES

A review of existing transit boarding and alighting data shows that existing transit routing and stops may not prioritize rider convenience and connectivity.

For instance, the Base Village sees 363 RFTA daily boardings but only 25 RFTA daily alightings, whereas the Brush Creek + Wood Road (uphill) RFTA stop sees only 14 daily boardings to 299 daily alightings. This notable variation in boardings and alightings suggests that existing bus routing does not meet current user needs and destinations. Because of this, rerouting RFTA routes to stop at Base Village before the Snowmass Mall was considered.

This recommendation was not advanced due to numerous constraints. RFTA buses cannot operate in the uphill direction on Carriage Way due to the grade of the roadway, meaning an initial stop at the Base Village would significantly add to travel time. Additionally, per the terms of a 2004 agreement between the Town and Aspen Skiing Company, RFTA buses are required to serve the Mall first prior to serving Base Village. The requirement remains in place unless a modification is agreed to by the Town and Aspen Skiing Company.

APPENDIX

Engineer's Opinion of Probable Costs

Project: Snowmass Connecting the Nodes
Client: Town of Snowmass Village
DJ&A Project Number: #7483
Revised: 6/13/2024

OPINION OF PROBABLE COSTS					
Foundational Improvements					
Item No.	Description	Estimated Quantity	Unit	Unit Price	Amount
1000	Wayfinding				\$105,375.00
1001	Aluminum wayfinding sign (single rectangular pedestrian post)	8	EA	\$2,000.00	\$16,000.00
1002	Public art display	3	EA	\$15,000.00	\$45,000.00
1003	Pavement markings, lines & symbols (thermoplastic, assume equivalent to 6-inch thick lines)	977	SQFT	\$35.00	\$34,195.00
1004	Pavement markings, 9' radius circle (thermoplastic)	509	SQFT	\$20.00	\$10,180.00
2000	Crossings & Pathways				\$313,930.00
2001	Sidewalk, concrete, 8-feet wide, 8-inch thick	900	SQYD	\$200.00	\$180,000.00
2002	Aggregate base, 4-inch depth	140	TON	\$90.00	\$12,600.00
2003	Rectangular Rapid Flashing Beacon and sign	8	EA	\$4,000.00	\$32,000.00
2004	Curb Ramp	19	SQYD	\$250.00	\$4,675.00
2005	Detectable warning panel	4	EA	\$500.00	\$2,000.00
2006	Curb and gutter	1012	LNFT	\$65.00	\$65,780.00
2007	Colored concrete crosswalk (8-feet wide)	240	SQFT	\$45.00	\$10,800.00
2008	Concrete crosswalk border (1-foot wide)	3	SQFT	\$25.00	\$75.00
2009	Concrete median island (8-feet wide x 30-feet long)	240	SQFT	\$25.00	\$6,000.00
3000	Transit				\$26,800.00
3001	Aluminum transit stop sign	4	EA	\$2,000.00	\$8,000.00
3002	Bus Shelter, aluminum frame, acrylic glazing 99' x 12' x 8' high)	1	EA	\$18,800.00	\$18,800.00
DIRECT CONSTRUCTION SUBTOTAL					\$446,105.00
Mobilization/Demobilization & SWPPP				10%	\$44,610.00
Permits				2%	\$8,920.00
Traffic Control				1%	\$4,460.00
Contingency				30%	\$133,830.00
CONSTRUCTION SUBTOTAL					\$637,925.00

Engineer's Opinion of Probable Costs

Project: Snowmass Connecting the Nodes
 Client: Town of Snowmass Village
 DJ&A Project Number: #7483
 Revised: N/A

OPINION OF PROBABLE COSTS					
Escalator					
Item No.	Description	Estimated Quantity	Unit	Unit Price	Amount
4000	Site Improvements for Escalator				
4001	Sidewalk, concrete, 8-feet wide, 8-inch thick	40	SQYD	\$200.00	\$8,000.00
4002	Aggregate base, 4-inch depth	10	TON	\$90.00	\$900.00
4003	Curb Ramp	9	SQYD	\$250.00	\$2,250.00
4004	Detectable warning panel	2	EA	\$500.00	\$1,000.00
4005	Curb and gutter	30	LNFT	\$55.00	\$1,650.00
4006	Pavement markings, cross walk bars, thermoplastic	80	SQFT	\$40.00	\$3,200.00
	Escalator				
4007	Escalator	1	LS	\$600,000.00	\$600,000.00
	Retaining Wall				
4008	Modifications to Existing Retaining Wall	1	LS	\$1,000,000.00	\$1,000,000.00
DIRECT CONSTRUCTION SUBTOTAL					\$1,617,000.00
Mobilization/Demobilization & SWPPP				10%	\$161,700.00
Permits				2%	\$32,340.00
Traffic Control				1%	\$16,170.00
Contingency				30%	\$485,100.00
CONSTRUCTION SUBTOTAL					\$2,312,310.00

Engineer's Opinion of Probable Costs

Project: Snowmass Connecting the Nodes
Client: Town of Snowmass Village
DJ&A Project Number: #7483
Revised: N/A

OPINION OF PROBABLE COSTS					
Pedestrian Bridge Ground Level Improvements					
Item No.	Description	Estimated Quantity	Unit	Unit Price	Amount
5000	Sidewalk Connection				
5001	Sidewalk, concrete, 8-feet wide, 8-inch thick	116	SQYD	\$200.00	\$23,200.00
5002	Aggregate base, 4-inch depth	20	TON	\$90.00	\$1,800.00
5003	Curb and gutter	130	LNFT	\$55.00	\$7,150.00
5004	Grading Earthwork	154	CUYD	\$55.00	\$8,470.00
5005	Topsoil & Seeding	19	CYUD	\$70.00	\$1,330.00
DIRECT CONSTRUCTION SUBTOTAL					\$41,950.00
Mobilization/Demobilization & SWPPP (5%)					\$2,100.00
Permits (2%)					\$840.00
Traffic Control (1%)					\$6,290.00
Contingency (30%)					\$12,590.00
CONSTRUCTION SUBTOTAL					\$63,770.00

Costs for the bridge and support structure could vary widely based on the number of spans, span lengths, and elevation.
 Cost ranges for different bridge types are presented on page 30 of the memo .