

APRIL 2022



Mt. Rose CORRIDOR PLAN

FINAL REPORT | VOLUME 1

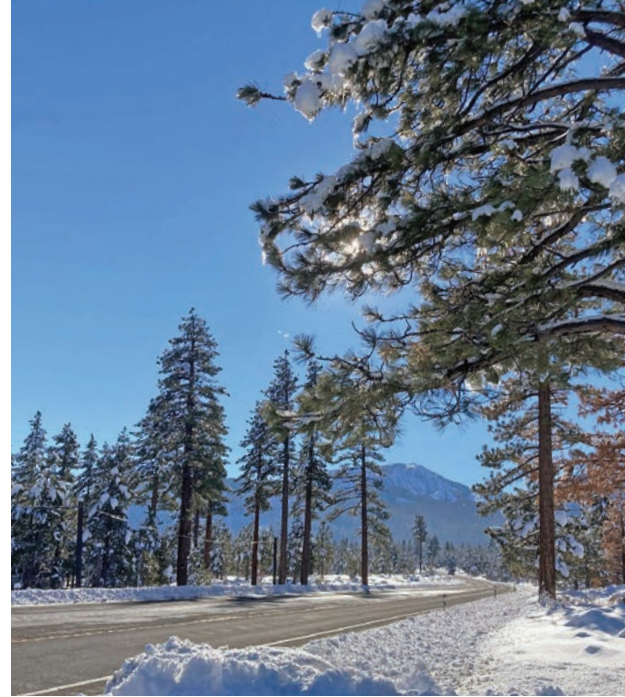


Parametrix



Photo courtesy of Ken Lund via Flickr.

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Acknowledgments

The Mt. Rose Highway Corridor Study is a product of the vision, hard work, and commitment of the Nevada Department of Transportation (NDOT), partner agencies and their dedicated staff, and members of the public along this important Nevada Scenic Byway corridor.

Individuals within the following agencies have invested their time and resources to envision the future of the Mt. Rose Highway, an important transportation connection for both local residents and visitors to Lake Tahoe. Various members of each agency participated in Technical Advisory Committee (TAC) or Stakeholder Working Group (SWG) meetings, providing knowledge, data, and ideas on decision points throughout the study process. Together with the general public, their partnership and efforts were completed in true collaboration and set the foundation for a renewed and safe travel experience for the traveling public.

STUDY PARTNERS

- » City of Reno
- » Nevada Department of Public Safety
- » Nevada Department of Transportation
- » Regional Transportation Commission of Washoe County
- » Truckee Meadows Fire Department
- » Truckee Meadows Regional Planning Agency
- » Washoe County
- » Washoe County Regional Parks and Open Space
- » Washoe County School District

CONSULTANT TEAM

- » CA Group
- » Parametrix
- » The Abbi Agency

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- » Crash Data Analysis Technical Memorandum
- » Traffic Technical Memorandum
- » Stakeholder and Public Engagement Summary
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Introduction



The Mt. Rose Highway corridor is a critical regional link between Lake Tahoe and Reno-Sparks.

In recent years, the corridor has faced increased pressure from new development, increasing speeds, and rising safety concerns. Based on these needs, the Nevada Department of Transportation (NDOT), in collaboration with the City of Reno, Washoe County, Washoe County School District, the Regional Transportation Commission (RTC) of Washoe County, Nevada State Police (NSP), and the Truckee Meadows Regional Planning Agency (TMRPA), have completed this planning effort to address these needs, establish a long-term vision for the corridor, and determine potential improvement concepts to allow the Mt. Rose Highway to continue to provide a safe and efficient route for all users.

State Route 431 (SR 431), locally known as the Mt. Rose Highway, is a 24.5-mile highway in Washoe County, Nevada, that connects Incline Village at Lake Tahoe with the Reno-Sparks metropolitan area. The highway, a Nevada Scenic Byway, takes its name from Mount Rose, which lies just off the highway.

CORRIDOR PLAN PURPOSE

- » Collaborate and engage with local partner agencies and the public to establish a vision to address the top corridor priorities
- » Develop a Corridor Plan that is a useful blueprint to guide future development and transportation projects

This Corridor Plan is focused on potential improvement concepts between Veterans Parkway and Douglas Fir Drive. This segment of highway forms a transition from an urban setting on the east to a more suburban and rural feel on the west. Mt. Rose Highway is a primary travel route from Reno to Incline Village and the Lake Tahoe North Shore, resulting in a mixture of local commuters and tourists utilizing the roadway.

» **Exhibit 1. Mt. Rose Highway Study Corridor and Vicinity**



The **7.5-mile study segment** links south Reno and Lake Tahoe

2

Two lanes in each direction:
Veterans Parkway to Bordeaux Drive

1

One lane in each direction:
Bordeaux Drive to Douglas Fir Drive



The corridor is a designated **Nevada Scenic Byway**



The speed limit changes from **45 mph to 55 mph**, east to west



1.3 miles of the corridor includes an existing, separated, multi-use path



Seven fatalities occurred along the corridor between 2018 and 2020

34

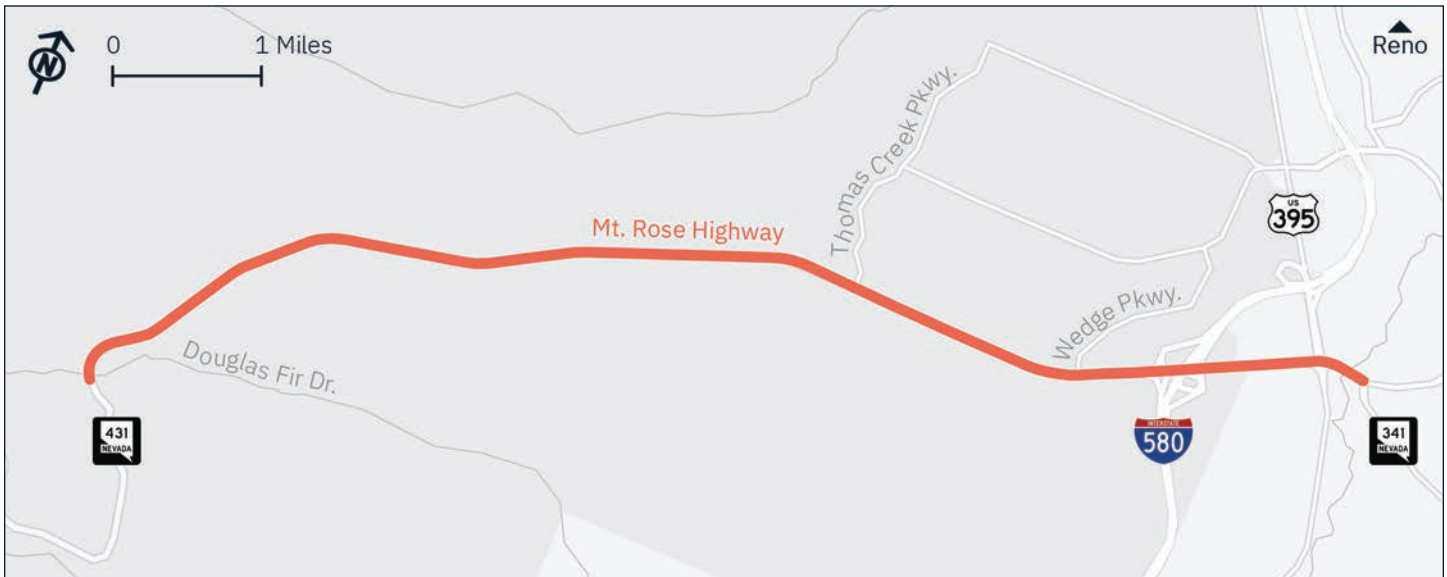
34 driveway, trail, or fire gate **access points** exist



Corridor Conditions

This study considered the 7.5-mile stretch of Mt. Rose Highway (SR-431) between Douglas Fir Drive and Veterans Parkway (corridor is signed as SR-341/Geiger Grade Road east of Virginia Street). A comprehensive review of existing conditions along the corridor was conducted to better understand needs and opportunities and inform development of the corridor vision. Major areas of focus included safety, land use (existing and future), multimodal facilities, traffic conditions, and previous study recommendations.

✦ Exhibit 2. Study Area Map



SAFETY OVERVIEW

- » Mt. Rose Highway exceeds the statewide average for fatal crashes, with the highest rate in the central section of the corridor (Callahan Road, Thomas Creek Road). High speeds are a likely contributing factor, with actual speeds 10-15 mph higher than posted speeds, as discovered in a recent NDOT speed study.
- » There is a high incidence of all crash types on the eastern end of the corridor, specifically at the Mt. Rose Highway intersection with US 395/Virginia Street. Approximately two-thirds of crashes near this intersection are rear-end crashes, which may be associated with congestion at the traffic signal. A lower incidence of crashes occurs at the adjacent Geiger Grade roundabout and the crashes are generally less severe due to slower travel speed.
- » Moderate crash rates on the western end of the corridor (Bordeaux Drive to Douglas Fir Drive) pose concerns related to minimal outside shoulders, high speeds, and wildlife movement.
- » Several multiple fatality incidents have occurred in recent years, highlighting speed concerns.

PREVIOUS STUDIES

Previous studies have identified a number of needed safety and operations improvements along the corridor, including:

- » Consistent, upgraded lighting
- » Better signage and pavement markings for multimodal users, improved pedestrian crossings
- » Installation of a roundabout at Callahan Road (the site of multiple fatalities and high-risk crash types)
- » Extension of Butch Cassidy to Thomas Creek Road
- » Realignment of Geiger Grade
- » Traffic signal installation at the I-580 northbound off-ramp


LAND USE OVERVIEW


Existing land use varies along the corridor, but is primarily residential in character. The western portion of the corridor is bordered by Forest Service land and provides access to the Galena Creek Visitor’s Center and trail system. The middle section of the corridor is bordered almost exclusively by neighborhoods, as well as Galena High School and Doral Academy of Northern Nevada kindergarten through 8th grade charter school. The eastern section of the corridor contains a more diverse mixture of uses, including commercial, single- and multi-family residential, the satellite University of Nevada-Reno: Redfield Campus, Summit Mall, and some vacant parcels.


Proposed development along the corridor largely mirrors existing conditions, with additional residential development slated for the central segment, specifically within the Ascente development (access via Fawn Lane), which could require new access directly to Mt. Rose Highway. Expanded development at the Summit Mall, along with new commercial/industrial development located between I-580 and US 395 could add traffic generators to the eastern portion of the study corridor.


MULTIMODAL FACILITIES

The provision of bicycle, pedestrian, trail, and transit facilities and crossing opportunities varies along Mt. Rose Highway.

 Sidewalks are typically only provided along more developed stretches of the corridor (e.g., adjacent to commercial areas). Crosswalks and/or pedestrian walk signals are provided at some intersections along the corridor, including Thomas Creek Road, Wedge Parkway, I-580, Herz Boulevard, and Virginia Street.

 Some form of bicycle facility is present along much of the corridor, typically in the form of a bike lane or paved shoulder. However, in some locations, paved shoulders are not wide enough to safely accommodate bicycles. A multi-use path is present on the north side of the highway between Wedge Parkway and Virginia Street.

 There are numerous recreational trails on both sides and in close proximity to Mt. Rose Highway, especially along the western section of the corridor near Douglas Fir Drive. Additional connectivity and crossing opportunities may be needed to connect to the neighborhoods on both sides of Mt. Rose Highway.

 The RTC Regional Connector service between Reno and Carson City crosses Mt. Rose Highway and has a stop at the Summit Mall Park & Ride lot. Route 56 provides service on nearby Damonte Ranch Parkway. RTC piloted a FlexRIDE microtransit service between the Summit Mall and Incline Village/North Lake Tahoe in the summer of 2021, results of which are currently being evaluated.

TRAFFIC CONDITIONS

Traffic generally flows along Mt. Rose Highway at acceptable levels of service in both the AM and PM peak periods, except at its intersection with Callahan Road. This intersection has lengthy wait times for motorists seeking to turn left onto or across Mt. Rose Highway.

More delays are experienced for motorists turning left from the north side of Mt. Rose Highway, especially at the intersections of Mt. Rose Highway and Timberline Drive/Bordeaux Drive and DeSpain Lane/Sundance Drive. Operational issues also exist at Virginia Street and Veterans Parkway.



Community Engagement

Community engagement is essential for a successful planning study and a priority of NDOT as well as the partner agencies. This study included two rounds of public meetings, an online survey, monthly meetings with the Technical Advisory Committee, and quarterly meetings with a Stakeholder Working Group. Data, input, and feedback were used to develop a shared vision for the future of Mt. Rose Highway.

VIRTUAL PUBLIC MEETING

A live, online event was held January 26, 2021 and was available for viewing and public comment through February 9, 2021.

- » Presented existing conditions analysis
- » Asked for public input about issues, concerns, and ideas

IN-PERSON PUBLIC MEETING

An in-person public meeting was held August 10, 2021 from 4:00 p.m. to 7:00 p.m. at 13101 South Virginia Street. A recording was available online for viewing through September 10, 2021.

- » Presented corridor vision for further public input
- » Presented draft alternatives for public comment

STAKEHOLDER WORKING GROUP



SURVEY RESULTS

Survey results from the virtual public meeting showed that safety is the number one concern for the corridor, followed by multimodal access. This information was used to inform the Corridor Vision, which is discussed in more detail, including public meeting feedback, in the following section.



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Project Vision

This study began with an intensive, data-driven review of existing corridor conditions, including safety, mobility, land use and development, and past study recommendations. The data was paired with concerns and priorities expressed by study area stakeholders and the general public. The priorities of the community were used to establish the vision for the corridor and prioritize alternatives.

PUBLIC MEETING SURVEY

The top concern and priority for the over 170 residents and stakeholders that participated is safety. Almost 75% of survey participants identified safety as their primary concern for the Mt. Rose Corridor. High speeds are the leading cause of crashes. Safety was followed by multimodal access, such as more connected access to walking and biking facilities, with 20% of participants identifying it as their top priority.



SAFETY

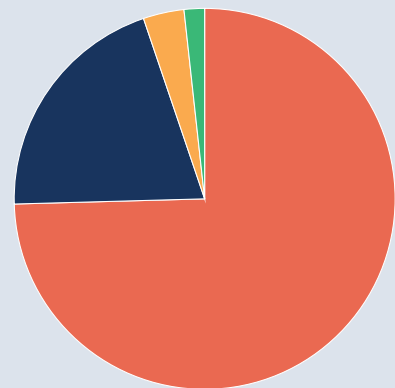
- » High crash rates, especially fatalities
- » High speeds
- » Compromised sight distance
- » Left turns across traffic
- » Animal crossings



MULTIMODAL

- » More connected and safer access to facilities for pedestrians, bicyclists, and recreation/trails
- » Feeling of being safe while using facilities
- » Connectivity to desirable activities and destinations

SAFETY IS THE #1 TRANSPORTATION PRIORITY



- Safety: 74.6%
- Multimodal: 20.2%
- Access: 3.5%
- Capacity and Operations: 1.7%



The Mt. Rose Corridor Study’s vision is to develop a long term (30-year) implementation framework, including **immediate mobility strategies**, to provide a **safe** and reliable **multimodal** corridor that **maintains connectivity** to the community in a fiscally responsible manner. These strategies will be based on local partner agencies and public input and accommodate future planned development through sound planning policies.



ENHANCE SAFETY



PRESERVE MOBILITY



ENHANCE MULTIMODAL





Corridor Alternatives Development and Evaluation Screening

Based on the vision identified, a series of corridor alternatives were developed for Mt. Rose Highway that reflect different roadway functions. A two-part screening process was carried out to evaluate the alternatives, including consideration of input received from the public meetings, stakeholder engagement, and past study recommendations to determine the best suite of improvement concepts that match the corridor’s vision. The study area was divided into four segments for more context-sensitive consideration of each corridor alternative, ensuring the greatest compatibility with adjacent land uses and roadway function.

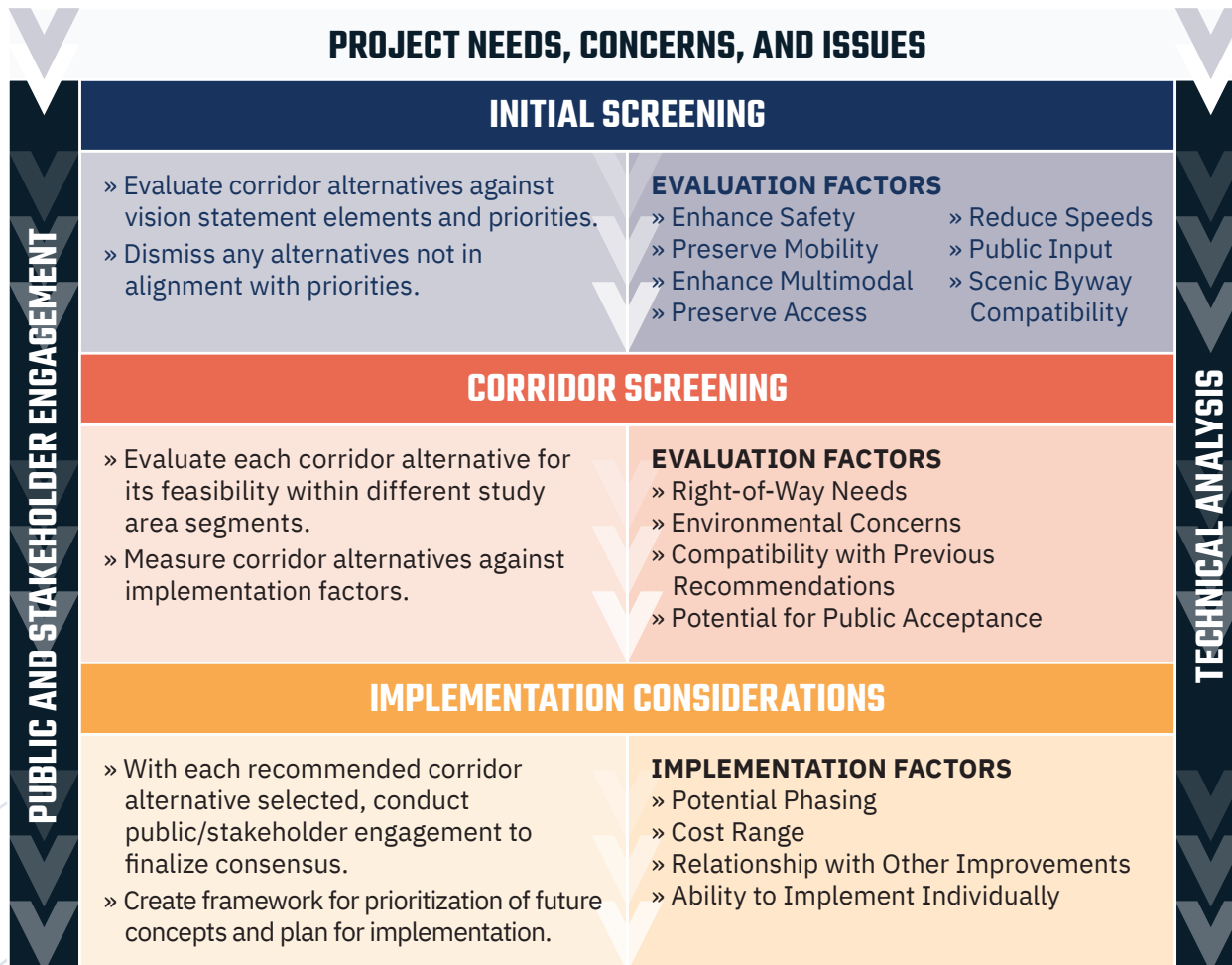


Exhibit 3. Corridor Segmentation



INITIAL SCREENING

Four corridor alternatives were developed, including different approaches to intersection control, median type, pedestrian and bicycle access, posted speed limit, and access management. Alternatives are designed to improve both safety and multimodal connectivity while preserving mobility, which in turn influences the intended travel behavior. The initial screening ranked the vision components and opportunity for fatal flaws as high/medium/low, with “high” indicating high ability to meet objective and/or low impact to objective, and “low” indicating low compatibility with vision objective.



Photo courtesy of Ken Lund via Flickr.

CONTROLLED ACCESS ALTERNATIVE

This corridor alternative would convert the Mt. Rose Highway Corridor into a high-speed, access-controlled facility, with the purpose of moving large volumes of traffic, and utilize a center median rail to physically separate eastbound and westbound traffic. It could also include a barrier rail along the outside shoulders. This would be an expressway classification, with posted speeds in the range of 45-60 mph. This corridor alternative would limit access to Mt. Rose Highway through the use of frontage roads and potential interchange-type intersections. Any pedestrian or bicycle accommodation would need to be barrier separated from the main facility and located adjacent to frontage roads. It is anticipated that additional right-of-way would be required to accommodate the expanded footprint.



URBAN ARTERIAL ALTERNATIVE

This corridor alternative would develop Mt. Rose Highway into a typical urban arterial often seen in developed areas. A primary characteristic for this vision is the use of traffic signals for major intersection control, and raised median islands to control left turn access and separate opposing traffic. Posted speed limits would likely range from 35-45 mph, with lower speeds near areas with frequent access to businesses or neighborhoods.

SUBURBAN PARKWAY ALTERNATIVE

This corridor alternative would use roundabouts, natural/landscaped medians, and roadway curvature to control or reduce vehicular speeds along the corridor. The biggest differentiator of this alternative is the use of roundabouts for major intersection control. Speed limits would be posted between 35-45 mph, however, roundabout geometry would reduce those speeds to approximately 25 mph at major intersections. Roadway curvature, along with reduced shoulder and lane widths, could also help result in lower travel speeds. Signalized pedestrian crosswalk systems would be needed in this alternative.



RURAL ALTERNATIVE

This corridor alternative would include a reduced number of travel lanes, with wider shoulders and a wide median buffer. Access is likely to be more limited with this alternative, but not highly restricted. This footprint allows for special accommodation for wildlife avoidance. Speeds could range from 45-55 mph. Multimodal travel could be accommodated through a parallel multi-use path, with pedestrian crossings at-grade or grade-separated. This concept was primarily focused around the two-lane segment from Bordeaux Drive to Douglas Fir Drive where minimal new development is expected because of the adjacent National Forest land.



⌘ Photo courtesy of Ken Lund via Flickr.

⌘ Exhibit 4. Initial Screening Results

| VISION COMPONENT | CONTROLLED ACCESS ALTERNATIVE | URBAN ARTERIAL ALTERNATIVE | SUBURBAN PARKWAY ALTERNATIVE | RURAL ALTERNATIVE |
|----------------------------|-------------------------------|----------------------------|------------------------------|-------------------|
| Enhance Safety | ● | ● | ● | ● |
| Preserve Mobility | ● | ● | ● | ● |
| Enhance Multimodal | ● | ● | ● | ● |
| Preserve Access | ● | ● | ● | ● |
| Reduce Speeds | ● | ● | ● | ● |
| Public Acceptance | ● | ● | ● | ● |
| Scenic Byway Compatibility | ● | ● | ● | ● |

● = High ● = Medium ● = Low

INITIAL SCREENING RESULTS

The initial screening eliminated the “Controlled Access Alternative” from further evaluation, as this corridor alternative did not meet the vision elements. As a high-speed, access-controlled corridor, this alternative does not accommodate multimodal travel, would include higher speeds than desired for safety, would not be compatible with the Scenic Byway designation, and would reduce local access along the corridor. The three remaining corridor alternatives were advanced into the more detailed corridor screening.

CORRIDOR SCREENING AND TOOLBOX OF IMPROVEMENT OPTIONS

The more detailed corridor screening identified compatible corridor alternatives for the four corridor segments. It evaluated which alternative best serves the surrounding corridor context and use of the roadway with identification of likely improvement concepts, such as use of traffic signals versus roundabouts for intersection control.

The following sections describe the three corridor alternatives considered, including a “toolbox” of possible improvement concepts, the benefits of implementing the corridor alternative, as well as the trade-offs that each would include.

CORRIDOR ALTERNATIVES CONSIDERED

URBAN ARTERIAL



| IMPROVEMENT CONCEPTS | BENEFITS | TRADE-OFFS |
|---|---|---|
| <ul style="list-style-type: none"> » Traffic signals » Curb and gutter » Raised median » Narrowed lane widths, including shoulders » Signalized pedestrian crosswalks » Sidewalks and/or multi-use pathway » Innovative intersections (J-Cut and High-T) | <ul style="list-style-type: none"> » Better access from local streets » Potentially lower posted speed limits » Signalized pedestrian crossings » Constricted roadway feel to encourage lower speeds » Limited new right-of-way needs » Limited environmental impacts anticipated | <ul style="list-style-type: none"> » Potential for higher severity accidents at signalized intersections » Minimal speed metering with signals » Signals must be warranted prior to installation » Snow removal throughout corridor |

SUBURBAN PARKWAY



| IMPROVEMENT CONCEPTS | BENEFITS | TRADE-OFFS |
|--|--|--|
| <ul style="list-style-type: none"> » Roundabouts » Natural median island » Curved roadway » Signalized pedestrian crosswalks » Innovative intersections (J-Cut and High-T) » Speed reduction | <ul style="list-style-type: none"> » Potential left turn refuges allowing crossing one direction at a time » Roundabouts at major intersection for constant speed control » Roadway curvature to control speeds » “Free flow” through roundabouts » Limited new right-of-way needs » Limited environmental impacts anticipated | <ul style="list-style-type: none"> » Roundabout driver confusion » Limited left turn access requiring minor out-of-direction travel » Snow removal at roundabouts |

RURAL



| IMPROVEMENT CONCEPTS | BENEFITS | TRADE-OFFS |
|---|---|--|
| <ul style="list-style-type: none"> » Striped median buffer » Wide shoulders for wildlife avoidance » Dedicated left and right turn lanes | <ul style="list-style-type: none"> » Improved intersection operations and safety » Accommodation for wildlife avoidance » Potential use of rumble strips for driver awareness » Limited new right-of-way needs » Limited environmental impacts anticipated | <ul style="list-style-type: none"> » Widened pavement may encourage higher speeds |

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⤴ Photo courtesy of Famartin via Wikimedia.

Corridor Screening Recommendations

The corridor screening evaluated each of the four study segments against one or more corridor alternatives to understand which vision best fits the surrounding area in the most context-sensitive manner. The screening considered the feasibility and operations of types of future improvements, such as intersection controls, speeds, and multimodal accommodation, as well as right-of-way needs, potential environmental impact, and public acceptance.

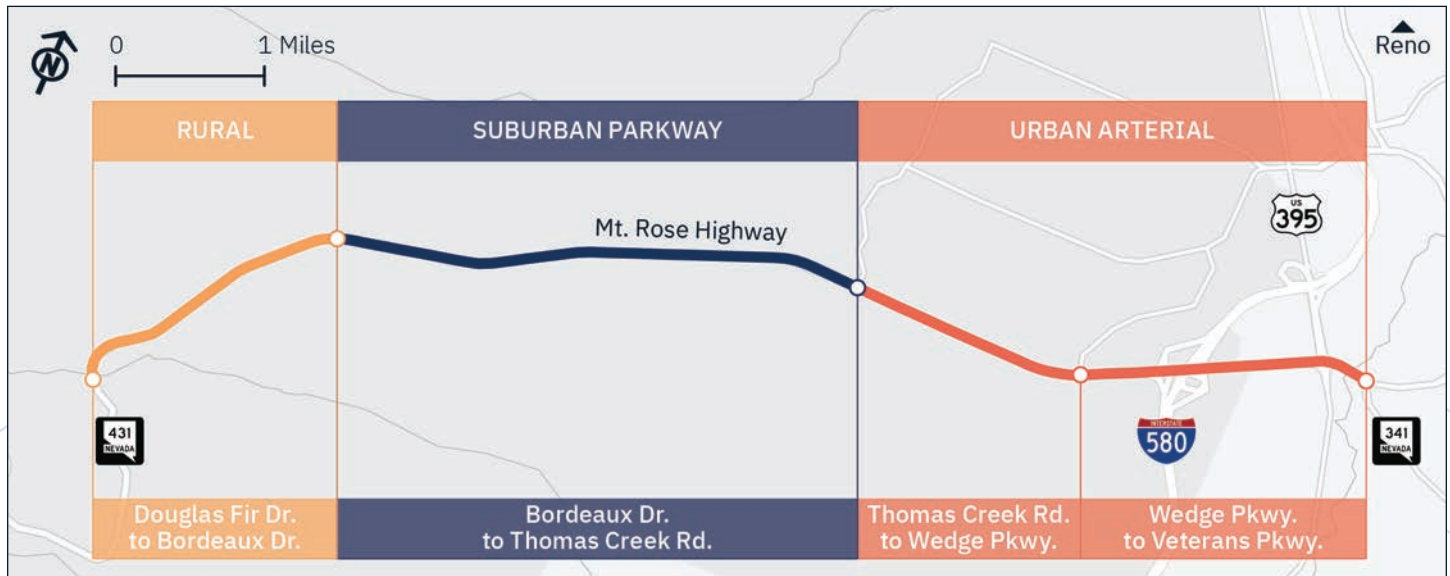
✧ Exhibit 5. Corridor Alternatives by Segment

| CORRIDOR ALTERNATIVE | DOUGLAS FIR DR. TO BORDEAUX DR. | BORDEAUX DR. TO THOMAS CREEK RD. | THOMAS CREEK RD. TO WEDGE PKWY. | WEDGE PKWY. TO VETERANS PKWY. |
|----------------------|---------------------------------|----------------------------------|---------------------------------|-------------------------------|
| Urban Arterial | | | | * |
| Suburban Parkway | | | | |
| Rural | ** | | | |

* Only one corridor alternative considered in this segment as existing conditions closely match this vision. This is the most urban portion of the study area and not part of the Nevada Scenic Byway designation. Corridor analysis included additional consideration of a realignment of Geiger Grade Road.

** Only one corridor alternative considered in this segment as existing conditions closely match this vision. This segment forms the transition from developed suburban neighborhoods to more rural surroundings, traveling through National Forest land.

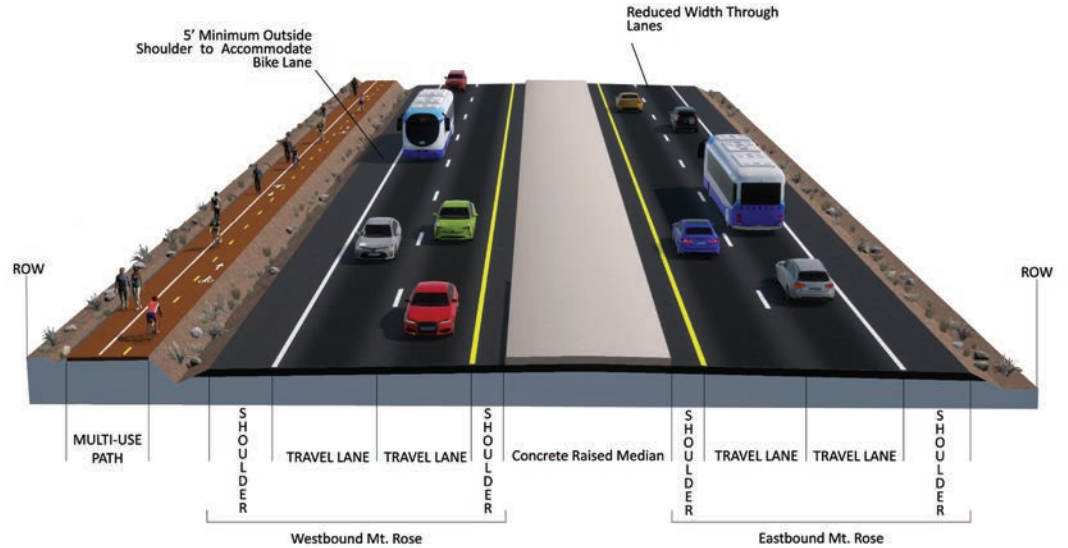
✧ Exhibit 6. Corridor Concept Designation by Segment



Corridor alternative recommendations include:

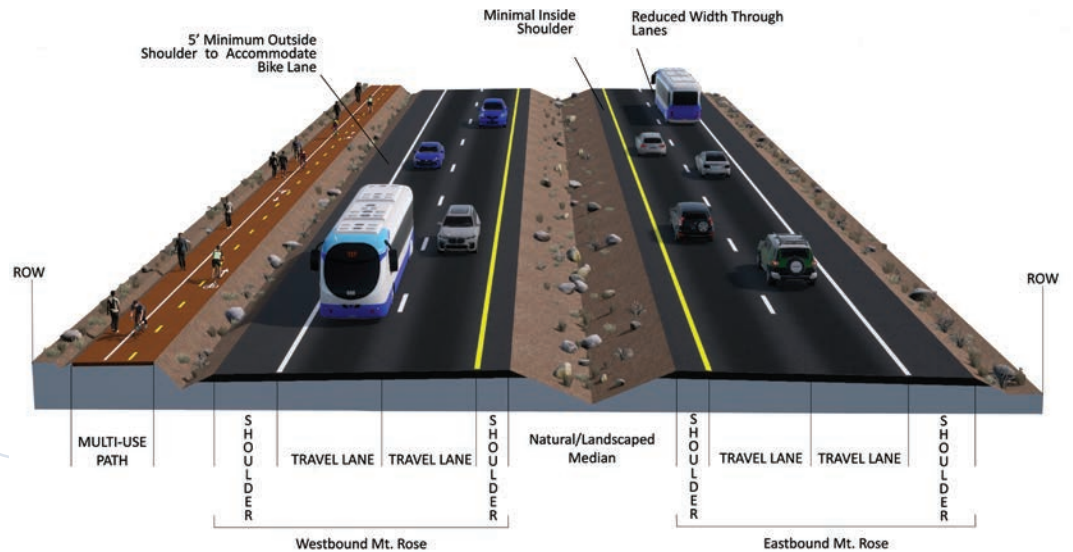
Public feedback expressed interest in maintaining neighborhood and commercial access points.

Implement **Urban Arterial** corridor alternative in the two most eastern segments, from **Thomas Creek Road to Veterans Parkway**. These segments are the most developed with a diversity of land use types that lend toward a more urban roadway type. Traffic will be controlled with signalized intersections, narrowed lane widths, and a raised median. The Veterans Parkway roundabout could be enhanced for better operations.

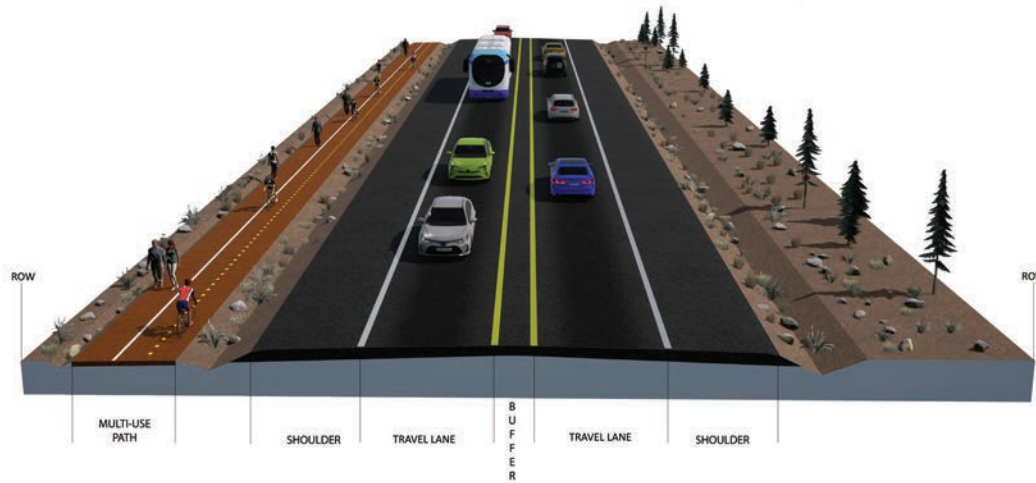


Public feedback was very positive in regard to maintaining traffic flow and local street access, while slowing speeds through this primarily residential area.

Implement **Suburban Parkway** corridor alternative between **Bordeaux Drive and Thomas Creek Road**. This segment forms the transition between the more urbanized area near the freeway to the more rural section heading into the National Forest. This selected corridor alternative reflects that transition with a reconstruction concept to provide a larger natural median, introduce slight roadway curvature, and utilize narrower lanes all to control speeds while maintaining scenic byway characteristics. It would also use roundabouts to slow and direct traffic.



Implement **Rural** corridor alternative between **Douglas Fir Drive and Bordeaux Drive**. This segment enters/is partially bordered by National Forest Service land and becomes a much more rural and meandering route with greater grade changes and lower speed limit (45 mph). As a two-lane corridor, this concept would provide widened shoulders for avid bicyclists or room to pull off for wildlife avoidance.



Public feedback has continually requested a safer crossing to the Galena Creek Visitor's Center. Therefore, an enhanced trail pedestrian crossing has been identified to allow recreational visitors to safely cross the highway via a future overpass crossing.

Implement a series of common elements throughout the entire corridor:

- » **Multi-use path:** Parallel multi-use path from Wedge Parkway to Douglas Fir Drive to provide safe and separated pedestrian and bicycle connectivity along the corridor.
- » **Driver feedback signs:** Locate driver feedback signs throughout corridor to help reduce drive speed, especially in eastbound, downhill direction.
- » **Wildlife fencing:** Install wildlife fencing west of Thomas Creek Road to reduce wildlife collisions. Unlike the corridor to the east, this area is not characterized by privacy fencing, allowing wildlife to freely cross Mt. Rose Highway.
- » **Safety countermeasures:** Several of FHWA's Proven Safety Countermeasures are recommended for use throughout the corridor, including but not limited to appropriate speed limits for all users, enhanced delineation for curves, roundabouts, reduced left-turn conflict intersections, medians and pedestrian refuge islands, separated bike paths/walkways, enhanced lighting, and others.



FHWA'S PROVEN SAFETY COUNTERMEASURES

FHWA's Proven Safety Countermeasures initiative is a collection of strategies that have been proven effective in reducing roadway fatalities and serious injuries. Many of these will be deployed throughout the Mt. Rose corridor.

- » Speed Management
- » Roadway Departure
- » Intersections
- » Pedestrian/Bicyclist
- » Crosscutting

Learn more at safety.fhwa.dot.gov/

Spot improvement recommendations include:

- » **Veterans Parkway Roundabout:** A critical area facing current and future congestion is the segment between S. Virginia Street and the Veterans Parkway roundabout. This segment serves as a primary connection to a significant residential area, as well as to SR 341, which provides access to Virginia City. Working closely with the RTC, the study team identified needed operational improvements to the existing roundabout. The improvement would not only enhance the operations of the roundabout, but also provide better lane utilization along the west approach.



» Potential roundabout reconfiguration concept for Veterans Parkway intersection.

- » **Toll Road Extension:** The RTC’s South Meadows Multimodal Transportation Study and 2050 RTP identified the need for a new connection south of the SR 431/341 corridor. The connection, commonly referred to as the Toll Road Extension, would connect Geiger Grade Road to US 395A, reducing traffic on Mt. Rose Highway. The validity and need for the connection was evaluated and confirmed as part of this study. Should this extension be implemented, it would eliminate the need for providing additional capacity at the S. Virginia/SR 431 intersection.
- » **Callahan Intersection Improvement:** To slow travel speeds, reduce the number and severity of crashes, and improve traffic operations, improvements are recommended at the Callahan Road and Mt. Rose Highway intersection. A roundabout at this location would slow downhill travel speeds and improve safety. It would further reduce delays for left turn movements at this intersection.
- » **Edmonton Intersection Improvement:** Improvements to the Edmonton/Mt. Rose Highway intersection are currently under design for near-term implementation. These include reducing the size of the existing concrete “pork chop” island to allow left turns from Edmonton onto westbound Mt. Rose Highway. In addition, an acceleration lane will be constructed for cars turning right from Edmonton onto eastbound Mt. Rose Highway. Along Mt. Rose, NDOT will install a concrete median island to help channelize and protect traffic turning left from Mt. Rose Highway to Edmonton and from Edmonton to westbound Mt. Rose Highway.



Implementation of the Vision

The selection of corridor alternatives for each study area segment establishes the long-term vision for how to manage the roadway footprint and operations, including intersection controls, speeds, access, and accommodation of multimodal travel. To this end, 26 potential improvement concepts are identified along the corridor to achieve the corridor’s vision.

The improvement concepts identified reflect major character elements inherent to the selected corridor alternative and also address critical intersection operations. Each of the 26 concepts are independent and financially manageable, with preliminary estimates ranging from less than \$100,000 to \$9 million each. **This totals \$75-\$100 million of identified corridor investment.**

All of the proposed improvement concepts include sponsorship or partnering opportunities between the various study partners (NDOT, RTC, Washoe County, City of Reno, U.S. Forest Service [USFS]). NDOT will likely lead major roadway reconstruction elements, but local agencies could partner or move forward with other concepts independently, as well as those outside the primary study corridor, such as the Toll Road Extension.

The following maps and tables outline the improvement concepts by potential phasing, which is based on engineering complexity, project readiness, and/or immediacy of need. The project IDs are not meant to infer priority or phasing, but to easily cross-reference projects between the maps and tables. Generally:

- » **Near-term** needs are typically smaller or easier to implement. They can move through design and environmental clearance quickly, and likely do not require a lot of capital expense. While it is envisioned that most of these could be completed in the next five years, they must be evaluated against NDOT’s project needs across all of Nevada, so timing could shift based on priority.
- » **Mid-term** needs generally require additional coordination and engineering work, such as further design, right-of-way acquisition, or environmental review to be completed.
- » **Long-term** needs are either not immediately warranted or have a longer lead time on planning, design, and regulatory reviews. Long-term needs also have the potential to be combined or implemented with major rehabilitation projects.

As improvement concepts are refined and prioritized, corridor characteristics will need to be finalized such as lane widths, shoulder widths, and driveway access treatment, to maintain consistency and ensure that improvements are providing a safe roadway and preserving mobility needs.

It is important to note: Phasing priorities presented in this study may fluctuate as statewide funding availability or transportation needs shift. It is intended that the improvement concept recommendations made in this Corridor Plan remain as the foundational vision for future development. Specific concepts, however, may change or evolve.

IMPROVEMENT CONCEPTS

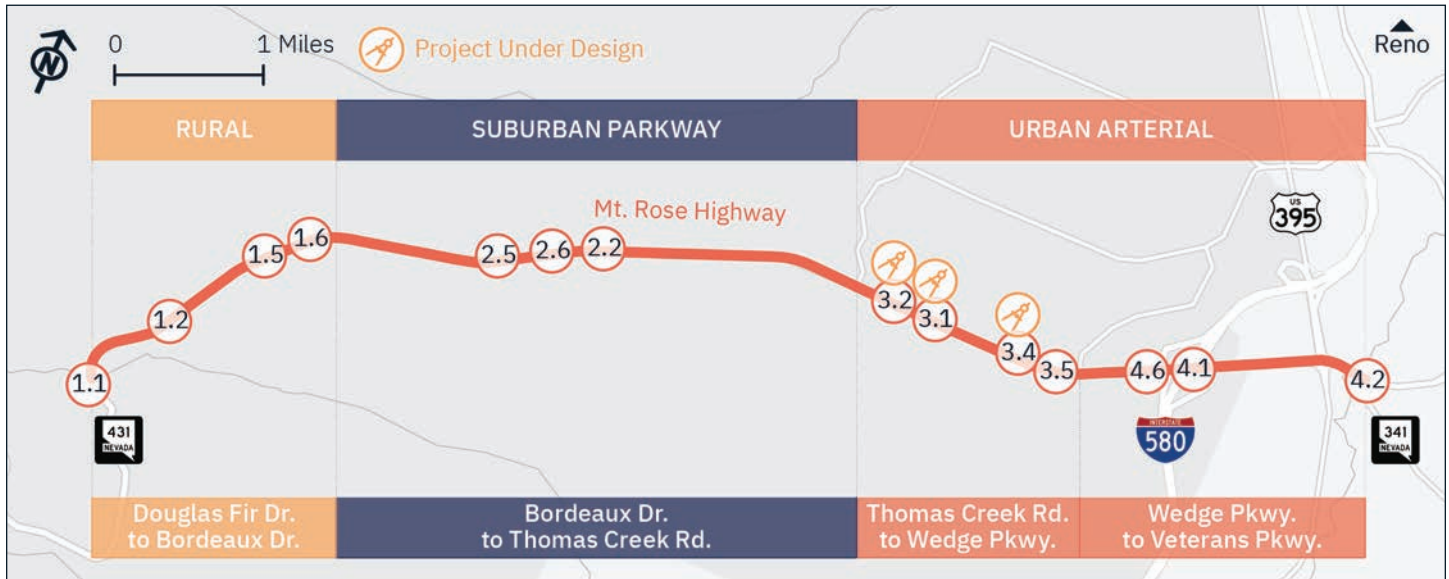
These improvement concepts do not represent the full inventory of needs that may be required long-term, but sets the framework for travel and operations along Mt. Rose Highway. As a follow-on to this vision study, further planning and design work will need to evaluate specific improvements, including detailed safety enhancements, in more detail. Once the concepts are further refined and developed into individual and specific projects, they can be integrated into NDOT and partner agency’s program of projects for implementation.

NEAR-TERM NEEDS

Near-term concepts are intended to see early-action improvement to corridor operations. Most of the near-term concept ideas are focused on safety and multimodal enhancements, two of the primary vision elements.

Several near-term improvement concepts are currently under design by NDOT and are programmed for construction starting in 2023, including the Edmonton Drive High-T intersection improvement, multi-use path between Thomas Creek Road and Edmonton Drive, and raised median island between Wedge Parkway and Thomas Creek Road.

Exhibit 7. Near-Term Improvements



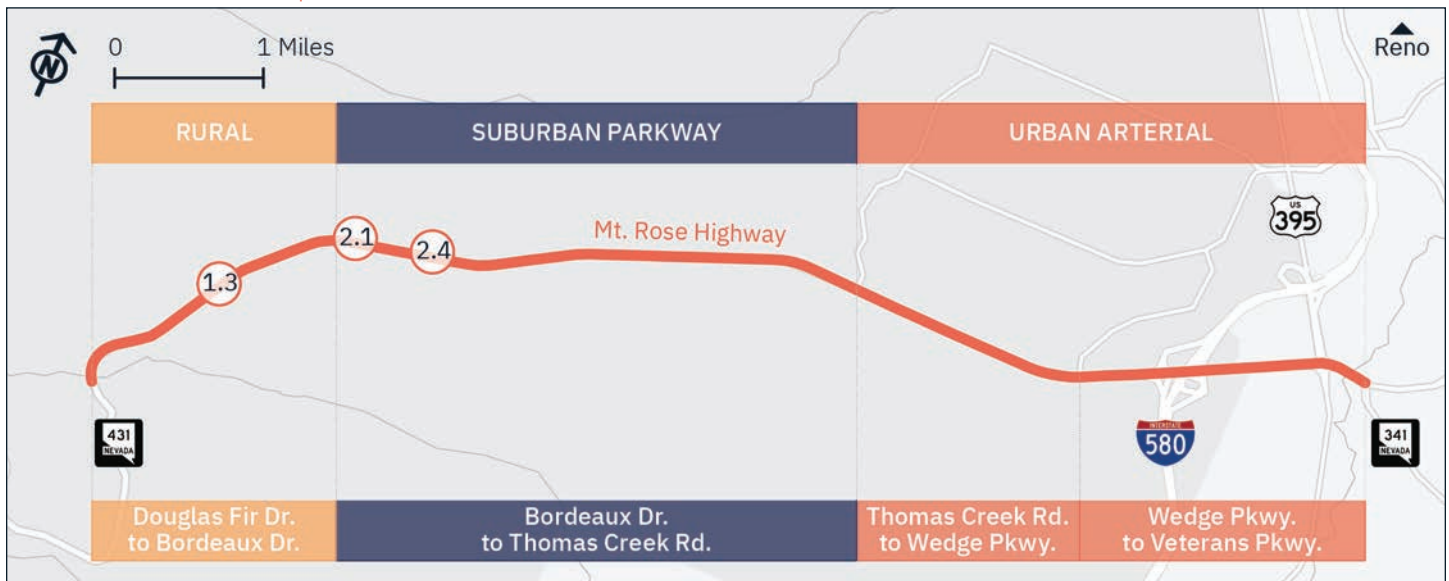
| SEG- MENT | PROJECT ID | PROJECT DESCRIPTION | PROJECT PARTNERS | PLANNING LEVEL COST RANGE | TYPE OF IMPROVEMENT | | |
|--------------|---------------|--|---------------------------|---------------------------------|---------------------|----------|-----------------|
| | | | | | Safety | Mobility | Multi- modal |
| 1 | 1.1 | Dedicated Left and Right Turn Lanes at Douglas Fir Drive | NDOT | \$3-4M | Green | Green | Grey |
| 1 | 1.2 | Multi-Use Path | RTC, USFS, NDOT | \$2-3M | Green | Grey | Green |
| 1 | 1.5 | Wildlife Fencing | NDOT, Washoe County, NDOW | \$1-2M | Green | Grey | Grey |
| 1 | 1.6 | Driver Feedback Signs | NDOT | <\$100K | Green | Grey | Grey |
| 2 | 2.2 | Callahan Road Roundabout | RTC, NDOT | \$2-3M | Green | Green | Green |
| 2 | 2.5 | Wildlife Fencing | NDOT, Washoe County, NDOW | \$2-3M | Green | Grey | Grey |
| 2 | 2.6 | Driver Feedback Signs | NDOT | <\$100K | Green | Grey | Grey |
| 3 | 3.1 | Edmonton Drive High-T Construction | NDOT | \$1-2M | Green | Green | Grey |
| 3 | 3.2 | Multi-Use Path | RTC, NDOT | \$2-3M | Green | Grey | Green |
| 3 | 3.4 | Raised Median Island | NDOT | <\$1M | Green | Grey | Grey |
| 3 | 3.5 | Driver Feedback Signs | NDOT | <\$100K | Green | Grey | Grey |
| 4 | 4.1 | Traffic Signal at I-580 Northbound Off-Ramp | NDOT | <\$1M | Green | Green | Grey |
| 4 | 4.2 | Veterans Parkway Roundabout Modification | RTC, NDOT | <\$1M | Green | Green | Green |
| 4 | 4.6 | Westbound Mt Rose at I-580 Southbound Off-Ramp Re-striping | NDOT | <\$100K | Green | Grey | Grey |



MID-TERM NEEDS

Mid-term needs are well defined, but either require additional work before they become programmed projects or are dependent on other near-term concepts to be completed first.

✦ Exhibit 8. Mid-Term Improvements

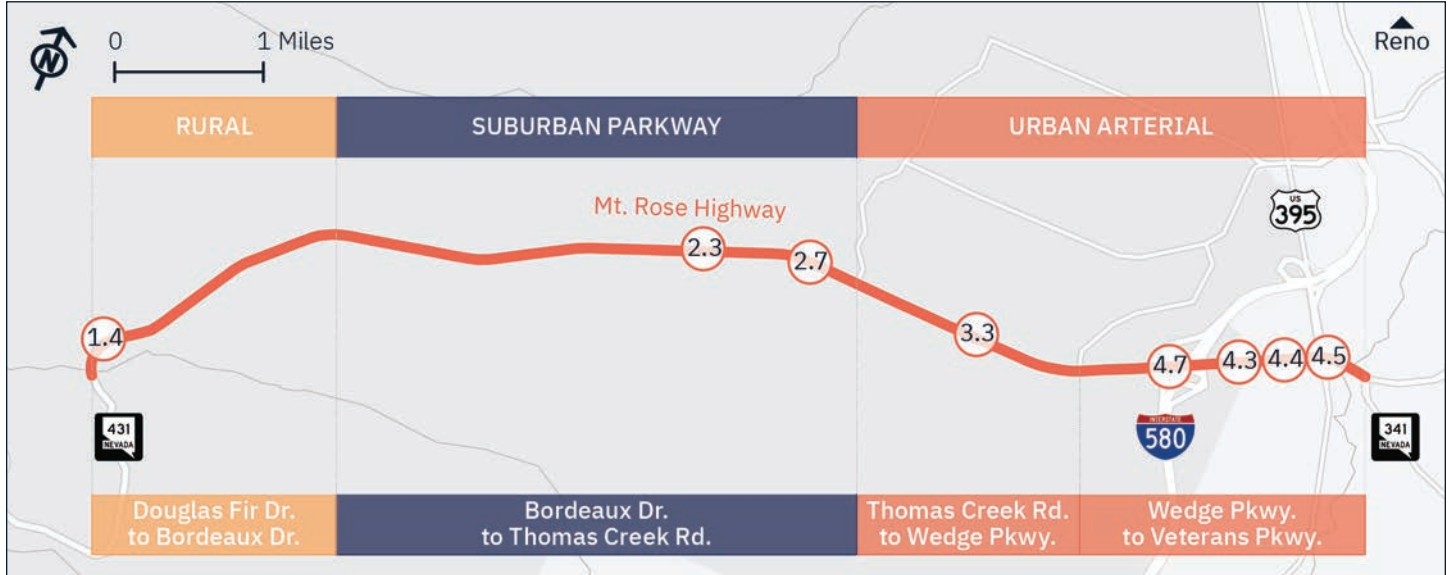


| SEG- MENT | PROJECT ID | PROJECT DESCRIPTION | PROJECT PARTNERS | PLANNING LEVEL COST RANGE | TYPE OF IMPROVEMENT | | |
|--------------|---------------|---|---------------------|---------------------------------|---------------------|----------|-----------------|
| | | | | | Safety | Mobility | Multi- modal |
| 1 | 1.3 | Mt. Rose Highway Reconstruction to Rural Concept Vision | NDOT | \$4-5M | Green | White | Green |
| 2 | 2.1 | Bordeaux Drive Roundabout | RTC, NDOT | \$2-3M | Green | Green | Green |
| 2 | 2.4 | Multi-Use Path | RTC, NDOT | \$3-4M | Green | White | Green |

LONG-TERM NEEDS

Long-term needs have the greatest implementation complexity and therefore require several additional steps before the concepts can be refined into programmable projects. Most of these improvement concepts require additional coordination among study stakeholders and may not be immediately warranted. As traffic and development patterns change, these needs will move through the project development process.

Exhibit 9. Long-Term Improvements

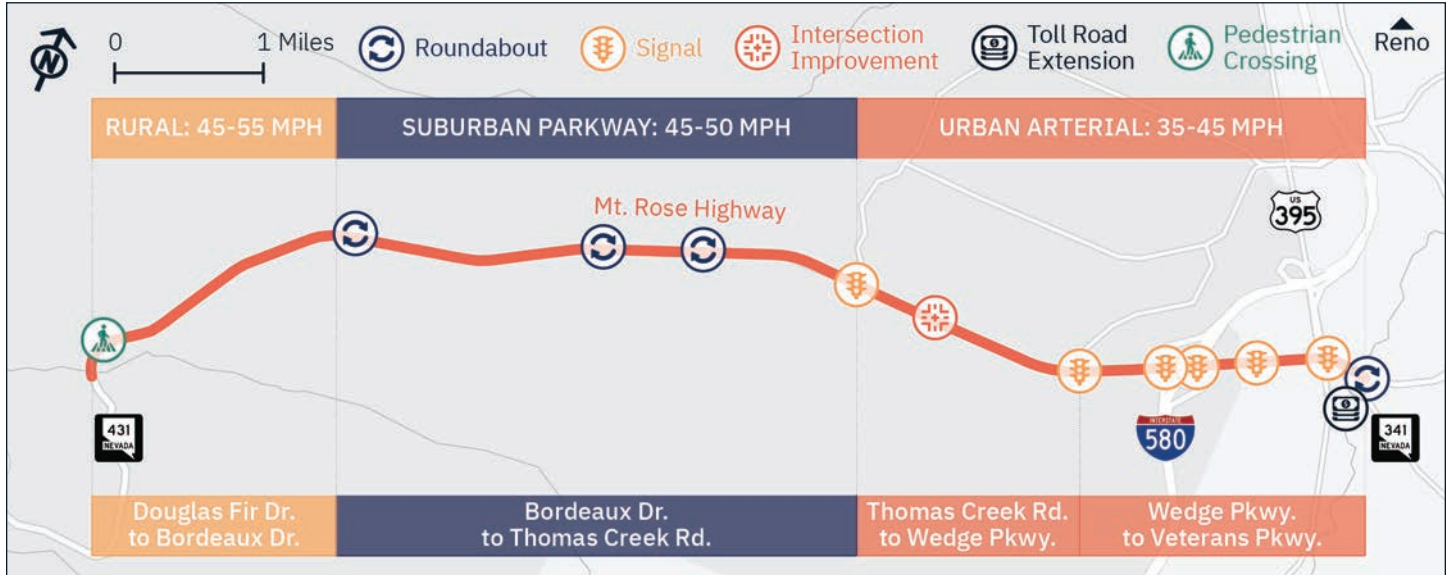


| SEG- MENT | PROJECT ID | PROJECT DESCRIPTION | PROJECT PARTNERS | PLANNING LEVEL COST RANGE | TYPE OF IMPROVEMENT | | |
|--------------|---------------|--|---------------------------|------------------------------------|---------------------|----------|-----------------|
| | | | | | Safety | Mobility | Multi- modal |
| 1 | 1.4 | Galena Creek Grade Separated Trail Crossing (Near Douglas Fir Drive) | Washoe County, USFS, NDOT | \$2-3M | Green | White | Green |
| 2 | 2.3 | Fawn Lane Roundabout | RTC, NDOT | \$2-3M | Green | Green | Green |
| 2 | 2.7 | Mt. Rose Highway Reconstruction to Parkway Concept Vision | NDOT | \$7-9M | Green | White | White |
| 3 | 3.3 | Butch Cassidy Connection from Edmonton Drive to Thomas Creek Road | Private, Washoe County | \$3-4M | Green | Green | Green |
| 4 | 4.3 | Geiger Grade- New 4 Lane Road, Virginia St to Toll Rd. | RTC | \$15-20M | White | Green | Green |
| 4 | 4.4 | Widen SR 341 to Three Lanes | NDOT | \$2-3M | White | Green | White |
| 4 | 4.5 | Construct Triple Left Turn Lanes at Southbound Virginia to SR 341 | RTC, NDOT | \$4-5M | Green | Green | White |
| 4 | 4.7 | I-580 Interchange Ramp Enhancements | NDOT, FHWA | \$5-7M | Green | Green | White |

IMPROVEMENT CONCEPT SUMMARY

Exhibit 10 summarizes the major improvement concepts proposed as part of this Corridor Plan to meet the corridor vision.

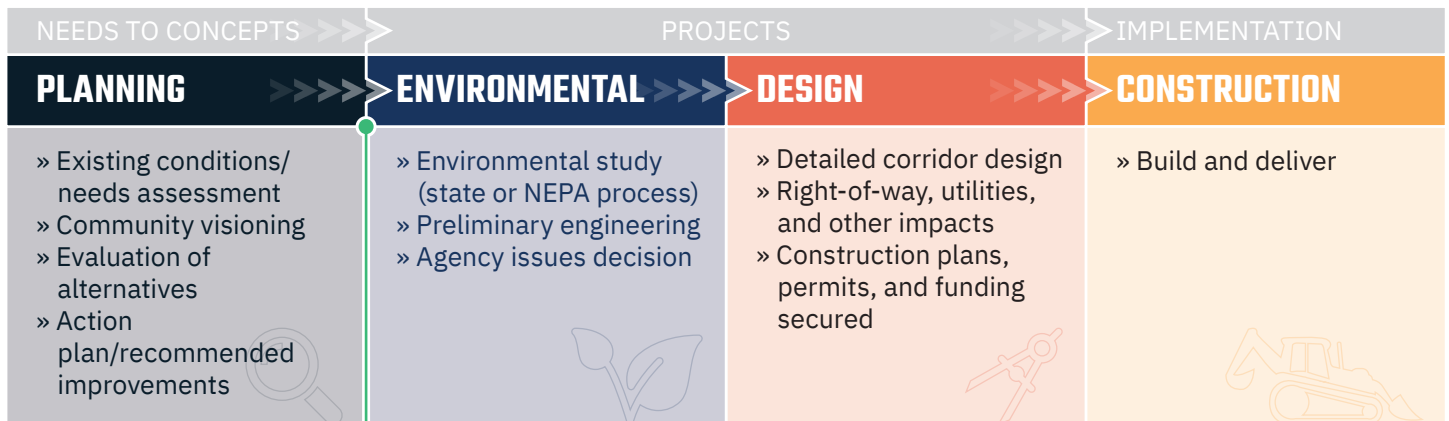
» Exhibit 10. Major Improvement Concepts



NEXT STEPS FOR PROJECT DEVELOPMENT AND IMPLEMENTATION

This is a planning study, which is the start of the overall project development process. The two-step alternatives screening process evaluated how well different alternatives met the corridor vision, resulting in this Mt. Rose Highway Corridor Plan which outlines a vision and blueprint for future corridor improvements.

Following this corridor plan, NDOT and partnering agencies will need to prioritize the list of improvement concepts based on overall agency goals and priorities. **It is important to understand the Mt. Rose Corridor is only 7.5 miles of a significantly larger responsibility for NDOT, RTC, and other stakeholders.**



ONE NEVADA PRIORITIZATION

- » Evaluate improvement concepts against six One Nevada goal areas
- » Perform statewide prioritization
- » Advance prioritized concepts through project development process

The Mount Rose Corridor is an important regional link in our community, joining the Reno/Sparks and Lake Tahoe areas, and carrying approximately 20,000 vehicles per day. As our community grows, the RTC is honored to partner with the Nevada Department of Transportation to help improve safety and mobility along this critical corridor while maintaining the roadway’s role as the connection between Reno/Sparks and Lake Tahoe.

^ Bill Thomas
Executive Director, RTC

The previous graphic shows the major steps taken in advancing needs to concepts to projects. The identification of a need triggers the planning process, where a need is investigated and improvement concepts are formulated. The Mt. Rose Highway Corridor Plan is the result of this action.

As planning studies are completed, the project development process is paused so that recommended concepts can be prioritized through NDOT’s One Nevada process, which is a partnership between NDOT and regional agencies that fund and construct transportation projects. Transportation needs are always greater than funding availability. Therefore, One Nevada identifies six goal areas that provide a shared policy framework for making informed, data-driven, transparent, and responsive transportation investment decisions. **The statewide prioritization process allows NDOT and partnering agencies to maximize their return on investment.**

Once a concept is prioritized and incorporated into the funded program of projects, the project development process recommences, conducting the necessary activities to transform improvement concepts into constructible projects. This may include further planning, local agency partnerships, environmental study, detailed engineering, and/or right-of-way acquisition. At any point before construction, projects may be re-prioritized, shuffling implementation timing to respond to new needs that arise.

HOW DOES THIS RELATE TO THE ONE NEVADA TRANSPORTATION PLAN?

From a local perspective, this study has identified a vision to aid local agencies in conditioning new development to adapt to the transportation vision. This could include providing the Butch Cassidy extension, or implementing the multi-use path in phases as new development occurs and land can be dedicated for long-term maintenance and connectivity to future corridor improvements.

More broadly, this study has identified a phased list of improvement concepts. These concepts will be incorporated into the next round of One Nevada prioritization, a process which occurs annually. Project sponsors will be selected for each concept, and needs will be advanced as funding is available for implementation. As funding allows, concepts will advance through the project development process for implementation.

ADDITIONAL ITEMS FOR CONSIDERATION AND DISCUSSION

One of the primary concerns expressed by local agencies and the general public was the high speeds along the corridor. NDOT’s approach to providing safer roadways is through the four Es: **engineering, enforcement, education, and emergency services**. Many of the needs addressed in this plan utilize engineering concepts, such as roundabouts, to try and reduce speeds along with potential conflict points. However, as NDOT and partnering agencies move forward, education and enforcement activities must also be implemented. Providing continuous education about driving laws and how users should navigate the roadways must be a focal point for all agencies’ public communication strategies. In addition, NDOT and partnering agencies need to identify grant opportunities to fund additional corridor specific enforcement for speeding, aggressive driving, and driving under the influence violations to aid in improving the corridor’s safety.



Mt. Rose
CORRIDOR PLAN

For additional information, please contact:

Nanette Maxwell, PE
NDOT Senior Project Manager
775.301.8891 or nmaxwell@dot.nv.gov

Kevin Verre
NDOT Assistant Chief, Multi-Modal and Program Development
775.888.7712 or kverre@dot.nv.gov

www.dot.nv.gov/projects-programs/programs-studies/mt-rose-highway-corridor-study