Regional Transportation Commission of Washoe County, Nevada (RTC)

Tahoe-Reno Industrial Center (TRI Center) Workforce Rail Feasibility Study

DRAFT Final Report

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Regional Transportation Commission of Washoe County, Nevada (RTC)

Tahoe-Reno Industrial Center (TRI Center) Commuter Rail Feasibility Study

Final Report—Draft Revision

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Prepared for

The Regional Transportation Commission of Washoe County (RTC)

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Submitted to

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1 Executive Summary

The Tahoe-Reno Industrial Center (TRI Center) has emerged as one of the most significant employment and industrial hubs in the western United States, supporting more than 20,000 daily workers today and projected to exceed 40,000 workers within the next decade. The vast majority of these employees commute from the Reno–Sparks metropolitan area, relying almost exclusively on Interstate 80 (I-80) as the sole direct access route. This dependence has resulted in recurring congestion, unreliable travel times, and heightened safety risks—conditions that are expected to worsen substantially during the upcoming multi-year I-80 widening project.

In response to these challenges, the Regional Transportation Commission of Washoe County (RTC) initiated this Workforce Rail Feasibility Study to evaluate whether a rail-based commuter service could provide a reliable, scalable, and economically competitive alternative to roadway travel between Reno-Sparks and the TRI Center. The study evaluates market demand, operational feasibility, infrastructure requirements, costs, environmental considerations, and implementation strategies for both an initial startup service (hereafter defined as the Near-Term Alternative) and a full build system (hereafter defined as the Long-Term Alternative).

1.1.1. Key Findings

The study finds that **Workforce Rail is feasible** under defined conditions and presents a compelling opportunity to improve mobility, reliability, and regional economic competitiveness.

Key findings include:

- **Strong and concentrated market demand.** More than 80 percent of TRI Center workers commute from the west along the I-80 corridor, with peak travel tightly concentrated around peak shift change times. Ridership analysis indicates strong potential demand, particularly during the I-80 construction period when roadway travel times are expected to degrade significantly.
- **Severe corridor constraints.** I-80 is the only practical roadway connection between Reno/Sparks and the TRI Center. Alternate routes add 70 miles or more and are not viable for daily commuting. The parallel Union Pacific Railroad (UPRR) mainline provides the only non-roadway, fixed-guideway passenger transportation option in the corridor (once UPRR access and operating agreements can be achieved).
- **Feasibility of startup service using existing rail infrastructure, pending an access and operating agreement with UPRR.** The Near-Term Alternative will be presented to UPRR for consideration. The concept proposes hosting a startup service on the existing UPRR mainline with minimal capital improvements. This service is conditional upon both project funding and approvals and, most importantly, the achievement of access and operating agreements with UPRR that address identified capacity constraints.
- **Need for phased implementation.** While the Near-Term Alternative is proposed to operate largely within existing infrastructure, the Long-Term Alternative will require

additional agreements, permitting, and a major capital investment. Long-Term Alternative elements include an extension of service deep into the TRI Center for direct access to major employers, construction of mainline capacity improvements, permanent Workforce Rail facilities, and potentially enhanced freight intermodal access.

- **Opportunities for shared passenger and freight benefits.** Strategic investments—such as double tracking, grade-separated crossings, and expanded yard or intermodal capacity—can deliver mutual benefits to both Workforce Rail operations and UPRR's freight network.
- **Institutional and governance challenges.** Nevada currently lacks a state-supported passenger rail entity. Advancing Workforce Rail will require the creation or designation of a sponsoring organization capable of funding, insuring, and managing rail operations in coordination with UPRR.

1.1.2. Primary Recommendations

Based on the technical analysis and stakeholder engagement conducted as part of this study, the project team recommends the following measures to advance Workforce Rail:

1. **Advance the Near-Term Alternative.**
   Implement a weekday, peak-period, minimal startup Workforce Rail service between the existing Reno Amtrak Station and a new TRI Center station near USA Parkway. This service should be timed to support major shift changes and designed to operate during the I-80 construction period as a reliable alternate choice to highway travel. This service requires capital investments and, most importantly, concurrence with UPRR. UPRR currently has no obligation to host passenger rail or workforce transportation in the corridor beyond the single daily Amtrak *California Zephyr* round trip.
2. **Adopt a Phased, Scalable Implementation Strategy.**
   Structure Workforce Rail as a two-phase program:
   - **Phase 1 Near-Term Alternative,** focused on rapid deployment with minimal capital investment.
   - **Phase 2 Long-Term Alternative** that extends service into the TRI Center, adds mainline capacity, and supports higher service frequencies as demand grows.
3. **Preserve and Advance the Recommended Long-Term Alignment.**
   Protect and further develop the recommended TRI Center Workforce Rail Alignment (Option 6), including locations for an Operations and Maintenance Facility, providing the best balance of constructability, operational performance, and compatibility with future passenger and freight needs.
4. **Pursue Win-Win Investments with UPRR.**
   Frame Workforce Rail not as a competing use of the mainline, but as a catalyst for corridor investment that improves freight fluidity, safety, and capacity while enabling passenger service. This includes opportunities to leverage Workforce Rail investments to enhance intermodal freight access to TRI Center manufacturers.

5. **Integrate Workforce Rail with Existing Commute Services.**
   Coordinate rail service with employer shuttles, vanpools, and RTC transit to address first- and last-mile challenges, particularly within the TRI Center, where non-motorized access is limited.
6. **Position the Project for Federal, State, and Local Funding.**
   Advance the project in a manner that aligns with eligibility for federal rail, transit, and multimodal grant programs, while leveraging state, regional, and private-sector participation where appropriate.

1.1.3. Next Steps

To move from feasibility to implementation, the following steps are recommended:

- **Engage UPRR in formal negotiations** to define the conditions, costs, and infrastructure improvements required to host Workforce Rail service on the mainline.
- **Conduct detailed operational modeling** using UPRR-required tools to confirm capacity needs for both near-term and long-term service scenarios.
- **Advance preliminary engineering and environmental review** for Near-Term Alternative stations and layover facilities, as well as any required corridor improvements.
- **Identify and secure a sponsoring organization** with the authority and capability to plan, fund, insure, and operate passenger rail service.
- **Refine ridership and service planning** through targeted employer and employee surveys to validate demand assumptions and optimize schedules.
- **Pursue phased funding strategies** that support early implementation while preserving flexibility for the Long-Term Alternative.

2 Introduction

2.1. Purpose and Scope of the Study

This study evaluates the feasibility of developing a commuter/workforce rail service to provide a reliable alternate mode of transportation for daily commuting between the Reno-Sparks area and the Tahoe-Reno Industrial Center (TRI Center), located in Storey County. The purpose of this service is specifically to provide workforce transportation, with an ideal startup during the upcoming I-80 reconstruction period. The project team's recommended defining term for the service is "Workforce Rail" as opposed to "commuter rail," which is considered a type of public transit catering to a variety of trip purposes in addition to work trips. This system is anticipated to utilize the existing UPRR right-of-way and mainline facilities, should conditions be established under which UPRR is agreeable to host Workforce Rail.

In addition to UPRR access, the service is dependent upon funding and financing availability, market demand for Workforce Rail, space for one or more potential Workforce Rail stations at the TRI Center, home origin stations in Reno and Sparks, and the development of supportive rail facilities and railroad capacity enhancements. The objective is to provide seamless workforce transportation between Reno-Sparks and the TRI Center.

The study involves coordination with stakeholders to identify TRI Center employee work shift patterns, work destinations inside the TRI Center, home-based trip origins, and first/last mile connections to meet travel demand. These connections to and from trains will be especially needed at the TRI Center, where door-to-door connections are essential. The near-term concepts presented in this report propose a TRI Center station near the freight railroad mainline to facilitate the quickest possible implementation. The longer-term concepts herein propose extending rail service deeper into the TRI Center, with a walking connection to the largest jobs center. Additionally, the study evaluates high-level concepts for expanded freight rail intermodal service within the TRI Center complex.

The study also touches upon opportunities to coordinate Workforce Rail developments with ongoing planning by the California Department of Transportation (Caltrans) and the Capitol Corridor Joint Powers Authority (CCJPA) to extend state-supported passenger rail across the Sierra Nevada to Tahoe and Reno-Sparks. CCJPA coordination stems from that agency's award of a federal Corridor Identification and Development (CID) Program grant (received through Caltrans) to evaluate opportunities to extend the existing *Capitol Corridor* intercity passenger rail service eastward from its current terminus in Auburn, CA to Reno. The CID study will explore opportunities to connect northwestern Nevada with Sacramento and the San Francisco Bay Area via passenger rail. Coordination would mainly be in the areas of potential interface/overlap of commuter and intercity operations, line capacity, and opportunities for shared facilities and investments. The Capitol Corridor CID grant was obligated in May 2024 for Step 1 of the CID

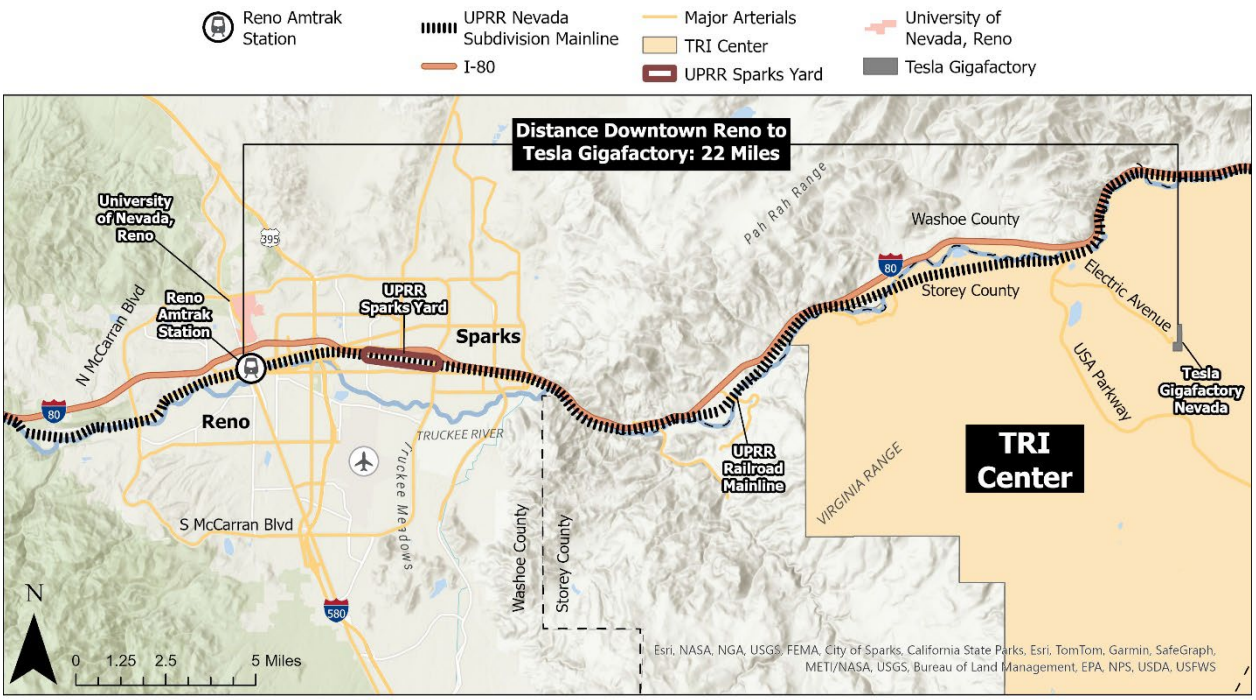
program to develop a scope, schedule, and statement of work for a Service Development Plan (SDP). If advanced[1], the SDP would include specific alignment, station, track access, and facility requirements for extending *Capital Corridor* service to Reno-Sparks and, potentially, the TRI Center.

2.2. Project Study Area Overview

2.2.1. Workforce Rail Study Area

The study area includes the UPRR Nevada Subdivision mainline and adjoining areas between western Reno and the TRI Center, including downtown Reno, Sparks, and the Truckee River Canyon. The distance between downtown Reno and the heart of the TRI Center is approximately 22 miles (see Figure 1).[2]

Figure 1: Workforce Rail Study Area



UPRR is the owner of the existing rail corridor with sole responsibility for dispatching all train movements and maintaining the existing freight rail infrastructure. The UPRR Nevada Subdivision is a primary rail corridor of national significance with traffic between the Port of Oakland and other Pacific ports, Salt Lake City and Denver, inland intermodal facilities, the greater Chicago logistics complex and points east. UPRR is currently in negotiations to acquire a major Class 1 railroad in

[1] The CID study referenced appeared on the Caltrans project look-ahead portal in February 2026.
[2] The study corridor length, approximately 27 miles, represents the track distance (existing and proposed new track) between western Reno (near Woodland Avenue) and the Tesla Gigafactory within the TRI Center.

the eastern US, Norfolk Southern Railway, to create a unified transcontinental railroad (the first of the modern era) with one of its main lines through the study area.

The National Railroad Passenger Corporation (also known as Amtrak), through its enabling legislation, has the right to negotiate with private railroads such as UPRR for access to their tracks to provide intercity passenger rail service. Amtrak has contracted with UPRR for rights to operate a single daily round-trip, long-distance passenger rail service between the San Francisco Bay Area (Emeryville, across the Bay from San Francisco) and Chicago: the *California Zephyr*. This Amtrak service operates through the study area with a single station in downtown Reno. The station is owned and maintained by the City of Reno. The daily Amtrak *California Zephyr* 2025 schedule includes one daily eastbound trip from Reno Amtrak station departing at 3:37 PM to Chicago, IL, and one daily westbound trip departing from the Reno Amtrak station at 9:24 AM to Emeryville, CA.

States and other entities can approach UPRR or another private railroad to explore conditions under which additional passenger or rail transit services may be hosted on existing freight railroad owned and operated corridors. However, UPRR and the other Class 1 railroads are under no obligation to allow passenger service on their networks. Passenger service creates liabilities and risks for host railroads and competes for valuable transportation capacity with existing and future freight rail services. In the case of TRI Center Workforce Rail service, RTC and its partners will likely need to offer concessions to UPRR for access to the tracks. The challenge will be to weigh these concessions against project benefits. Example concessions may include elements such as additional line capacity, grade crossing improvements or elimination, and opportunities for expanded and more efficient freight rail and intermodal service delivery.

The single viable roadway access route in the corridor between Reno-Sparks and the TRI Center is Interstate 80 (I-80), following the Truckee River Canyon. Alternate roadway routes add 70 miles or more of travel distance. The canyon is framed by mountains: the Virginia Range to the south and the Pah Rah Range to the north. Nearly every commute between Reno and the TRI Center that travels the I-80 corridor is by car, employee-sponsored motorcoach, or vanpool.

The Nevada Department of Transportation (NDOT) is currently in the process of widening I-80 between Vista Boulevard in Sparks and the State Route 439 (USA Parkway) interchange, with associated improvements recently completing a National Environmental Policy Act (NEPA) review process. The planned widening will improve traffic mobility and safety for the estimated 48,000 vehicles that travel the interstate daily. The improvements address frequent congestion and safety concerns caused by narrow shoulders and limited recovery space. The project is planned to widen the roadway by one lane in each direction, while providing wider shoulders and replacing bridges at three locations. The proposed widening will require extensive geotechnical engineering due to steep slopes and rock formations bordering the interstate. The widened footprint is primarily planned to skew towards the hillside (north) to minimize disruption to existing infrastructure on the

south side. However, certain segments require widening to the south as well, expanding the footprint towards UPRR right-of-way and the Truckee River.

NDOT anticipates I-80 construction to begin in 2027 and take several years to complete, which will severely impact travel to and from the TRI Center. Thus, there is much interest in the region and among state leadership in providing non-roadway transportation options during the I-80 construction period, if possible. Workforce Rail has been identified as an attractive travel mode if partnerships are able to deliver this service.

2.2.2. Study Area Region

The project study area is located in northwestern Nevada and includes the Reno-Sparks metropolitan area and Storey County. The Reno-Sparks Metropolitan Statistical Area (MSA), as defined by the U.S. Census Bureau, is anchored by the cities of Reno and Sparks and is the second-most populous metropolitan area in Nevada after the Las Vegas Valley.[3] The broader MSA encompasses Washoe, Storey, and Lyon Counties; the independent city of Carson City, the state capital; and portions of Placer and Nevada Counties in California. Encompassing approximately 8,583 square miles, the metro region has a population of approximately 564,500.[4]

Situated in the High Eastern Sierra foothills and the Truckee River valley, the metro area includes towns and villages on Lake Tahoe and ski resorts in the surrounding mountains. Portions of the Lake Tahoe shore are within a typical 45-minute drive of downtown Reno; thus, the region blends major urban and outdoor recreational attractions. The metro area also serves as Nevada's historic population center, home to state government functions, the University of Nevada, Reno, and significant heritage sites such as ancient petroglyph sites (some dating back up to 15,000 years), the Pyramid Lake Paiute Tribe Museum, the Transcontinental Railroad corridor, the Comstock Lode silver mining complex and Sutro Tunnel, Donner Pass, and the Mormon Station State Historic Park in Genoa. Prior to European settlement in the 1840s, the land along the Truckee River was inhabited by Washoe and Paiute peoples. During the California Gold Rush in the late 1840s and 1850s, thousands of westbound travelers stopped in the Truckee Meadows to rest and graze their livestock before crossing the Sierra Nevada.[5] In 1868, construction of the transcontinental railroad through the area (now the UPRR Nevada Subdivision and proposed Workforce Rail corridor) catalyzed the formation of Reno.[6] Sparks, located just east of Reno, began as a railroad town in 1903, serving as a key division point on the Southern Pacific Railroad. Transportation has remained central to the region's development.

The Reno-Sparks metropolitan area's modern economy has evolved through several phases, beginning with mining and agriculture in the 19th century, followed by a boom in gaming and tourism after the legalization of gambling in 1931. The region's gaming economy relies heavily on visitors from California and other states. Competition with Native American casinos in California

[3] https://nevada.hometownlocator.com/cities/msa/
[4] https://censusreporter.org/profiles/31000US39900-reno-nv-metro-area/
[5] https://www.nvhistoricalsociety.org/exhibits/reno-history/
[6] Ibid.

since the 1980s has caused a decline in the region's gaming revenues. In recent decades, the region has pursued a strategy of economic diversification, successfully attracting technology firms, manufacturing operations, and logistics companies. The region's dramatic natural setting and business-oriented environment have helped make it a hub for warehousing and distribution.[7] Examples of business-friendly legislation in the state include the Free Port Law, which allows for the tax-free storage and assembly of goods in interstate commerce, and the lack of a state income tax.

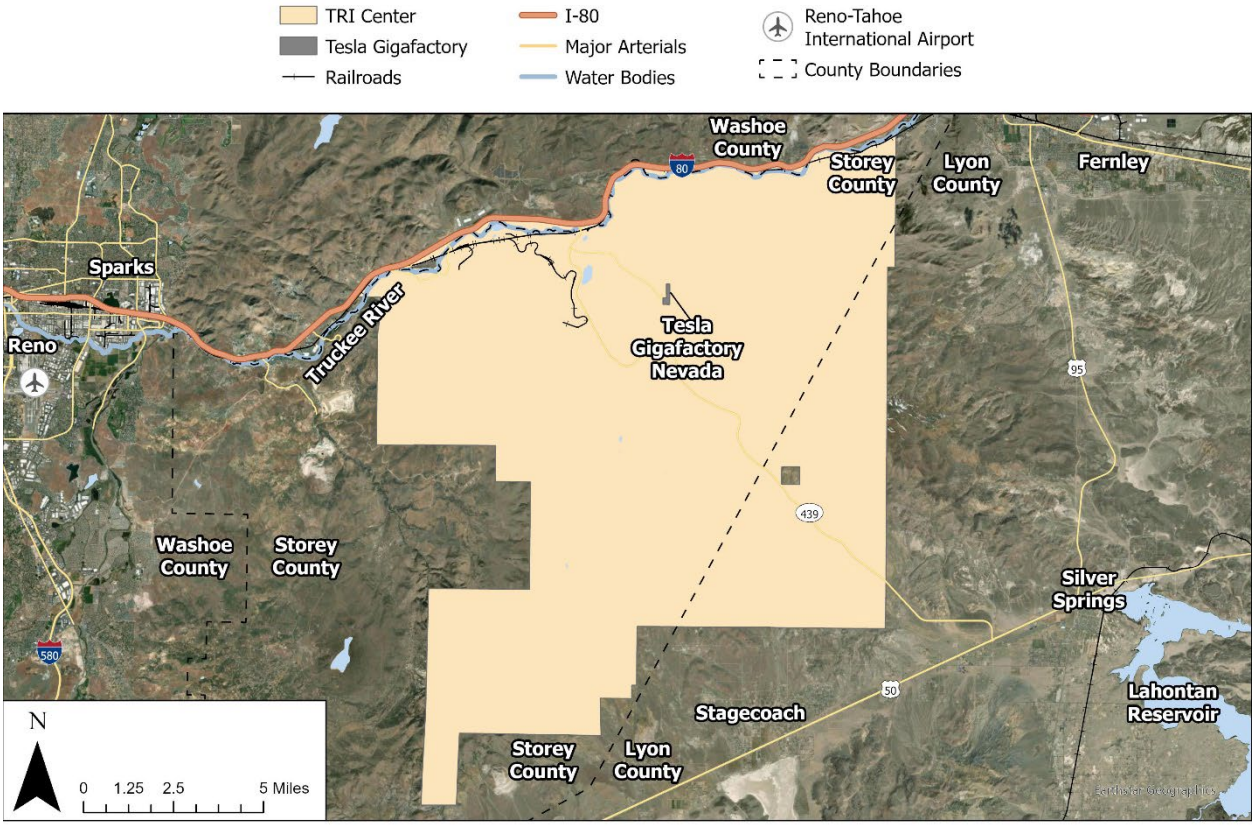
One of the most significant contributors to this shift has been the development of the TRI Center, which is home to several major employers. Notably, it hosts the Tesla Gigafactory Nevada (the "Gigafactory"), which at 5.8 million square feet is one of the largest buildings in the United States. The arrival of Tesla, technology industry investments, advanced manufacturing and drone technology firms has helped solidify the region's position as a growing center for innovation and industrial activity.

2.2.3. Tahoe-Reno Industrial Center (TRI Center)

The Tahoe-Reno Industrial Center (TRI Center) is one of the largest industrial parks by land area in the world and the largest in the United States. It spans 107,000 acres (approximately 160 square miles) within Storey and Lyon Counties, with over 30,000 acres designated for industrial development.[8] The TRI Center has a perimeter distance of 50 miles and represents the majority of Storey County's land area.[9] The TRI Center offers convenient access to both I-80 and U.S. Route 50, as well as proximity to the Reno-Tahoe International Airport, which is typically accessible via a 30-to-45-minute drive.

[7] https://www.rgj.com/story/money/business/2017/11/20/ho-ho-holiday-shipping-heres-how-reno-created-biggest-little-distribution-center-mecca/876543001/
[8] https://tahoereno.com/project-overview/
[9] TRI Center website: https://tahoereno.com/

Figure 2: Tahoe-Reno Industrial Center (TRI Center)



The TRI Center is a major regional employment hub, currently supporting over 22,000 daily workers. That figure is expected to more than double over the next 10 years due to continued expansion. TRI Center manufacturer permits from recent years show the following employee counts for the TRI Center's four largest employers[10]:

- Tesla, Inc.: 7,873
- Panasonic Corporation: 4,321
- Redwood Materials: 1,465
- Wal-Mart: 1,134

The site is zoned for Heavy Industrial use under the Storey County Zoning Ordinance, allowing most industrial uses by right and requiring minimal permitting (typically just a county building permit). This "state of readiness" enables rapid development and site activation for new businesses.[11] The center is designed as a mixed-use, non-residential development, accommodating a wide range of industrial, logistics, office, and commercial activities. Recent growth includes a significant boom in data center construction. Microsoft, for example, recently

[10] Employment at the four largest TRI Center employers as provided by Storey County, as reported for permit renewal in recent years.
[11] Ibid.

acquired more than 225 acres within the park, and several major tech companies are actively building or expanding large-scale facilities.[12] These developments point to continued growth in the coming years and underscore the need for improved and expanded transportation and power infrastructure to serve the TRI Center. I-80 forms the northern border of the facility.

First/last mile passenger connections at the TRI Center are generally challenging and currently require motor vehicle circulation. Sidewalks and bicycle paths are not provided for the entire distance between Sparks and the TRI Center. The TRI Center itself contains no continuous sidewalks, shade trees or public streetscape greenery according to direction from the Center's Architectural Design Review Board. While the UPRR mainline also traverses the northern edge of the TRI Center, new connections are needed to deliver Workforce Rail passengers nearer to employers. This study explores options for easing these connections with both rail extensions and local bus/van shuttles.

In addition to industrial employers, the TRI Center also contains some ancillary businesses, including a day care center, restaurants, a bank, and a gym. Today, these destinations can only be reached by car or shuttle due to the vast open areas between developments and safety concerns with non-motorized circulation.

The TRI Center's hills and mountains are populated with wild horses, which have been known to enter TRI Center properties, attracted by greenery. Visiting horses have been identified as a nuisance by TRI Center business owners, and landscaping with plants that are a potential food source for the horses is discouraged by Storey County.

[12] https://www.technologyreview.com/2025/05/20/1116287/ai-data-centers-nevada-water-reno-computing-environmental-impact/

3 Previous Studies & Plans

3.1. Background Transportation Studies and Data

3.1.1. I-80 Improvement Plan

Final environmental approvals for the I-80 widening were achieved in September 2025, with a Finding of No Significant Impact (FONSI). The next steps in the I-80 widening project include securing resource agency permits, getting approvals from the Federal Highway Administration (FHWA), and developing the preliminary design for the preferred alternative. NDOT plans to deliver the project under a Progressive Design Build model.

3.1.2. Nevada State Rail Plan

The 2021 Nevada State Rail Plan sets forth policies involving both freight and passenger rail in the state. The plan offers recommendations and strategies for enhancing the public benefits of rail service and serves as the basis for federal and state rail investments within Nevada. The Rail Plan looked at industries that could potentially be customers for freight rail, the impact of an unbalanced truck/rail relationship, challenges to rail growth in Nevada, and how to collaborate with stakeholders. The plan development team coordinated with more than 200 stakeholders.

The Rail Plan creates a forward-thinking approach to identify ways to advance freight and passenger rail during the next 40+ years. It addresses the challenges and opportunities associated with one of the nation's fastest-growing state populations and economies. It specifically addresses growing traffic volumes and congestion on existing railroads, highways, and access roads as manufacturing and warehousing continue to grow.

One of the key points in the Nevada State Rail Plan is the expansion of California's supply chain to Nevada, creating opportunities and challenges for both states. Truck traffic is increasing between the two states, and 70% of interstate truck travel connects to California[13]. The Rail Plan outlines how freight railroads can be leveraged to meet the growing supply chain needs and mitigate the effects of increasing truck traffic.

The Rail Plan also outlines how passenger rail service in the State of Nevada is limited to a single daily round trip Amtrak *California Zephyr* train with three stops in the state: Reno, Winnemucca, and Elko. No passenger rail service currently connects to the state's largest metro area, greater Las Vegas, though international standard high-speed rail between Las Vegas and Southern California is currently under construction. That project, Brightline West, is designed to travel at a speed of 200 mph or higher. Expansion of passenger rail in the state has been impaired by a

[13] Nevada Department of Transportation. (2021). *2021 Nevada State Rail Plan*, p. ix.

number of factors, including insufficient funding and the absence of existing infrastructure for intercity or regional rail.

The Rail Plan recommends evaluating four new station stops on the Amtrak *California Zephyr* corridor: West Wendover, Lovelock, Fernley, and Sparks. Sparks is in the Workforce Rail study area. Fast-growing markets east of the TRI Center include Fernley (14 miles east of the TRI Center along the UPRR mainline) and Fallon (approximately 27 miles east of Fernley on a connecting rail branch); these are candidate communities for a future workforce or regional rail extension.

The Rail Plan is organized by eight rail development regions across the state, with strategies for each region identified for both passenger and freight rail for the near term (1 to 4 years) and long-term (5 to 40 or more years). The TRI Center is located in Region 5: Fernley/Hazen/Fallon/Silver Springs/Innovation Park, and the employee base includes both Region 5 and Region 6: Reno-Sparks-Stead. The recommendations are closely related for these regions, including establishing the state's first commuter/Workforce Rail service.

In the Region 5 overview, the Nevada State Rail Plan describes the TRI Center as largely dependent on trucks for freight. It noted that only 6 (17%) of the 35 TRI Center tenants at the time of publishing use rail for shipping needs. The TRI Center has 7.5 miles of private track with access to UPRR and Burlington Northern Santa Fe (BNSF) Railway (via trackage rights) service on the UPRR Nevada Subdivision. Rail-served companies located at TRI Center include Golden Gate Petroleum, PPG Industries, Truckee Tahoe Lumber, and Hardie Building Products. A 2.5-mile right-of-way extension has been evaluated in partnership with UPRR for a potential extension to Tesla's Gigafactory. The Rail Plan estimates that rail intermodal service at Tesla would eliminate 36,400 truck trips a year on I-80 through Sparks, Reno, and northern California.

A key recommendation for Region 6 is to initiate commuter rail service in the I-80 corridor via UPRR to the TRI Center. This new rail service would serve the TRI Center, referred to as the Reno Innovation Park in the Rail Plan. The proposed Workforce Rail service studied here is consistent with this recommendation.

The Rail Plan notes that TRI Center commuter rail would require negotiations with UPRR. Additionally, since there is no state-supported passenger rail service in Nevada, it would require the creation of a new governance structure to oversee the service. The Rail Plan recommends that TRI Center commuter rail service should include a stop along the UPRR mainline rather than branch into the TRI Center. Employees would then travel on shuttle buses between the rail station and employment centers.

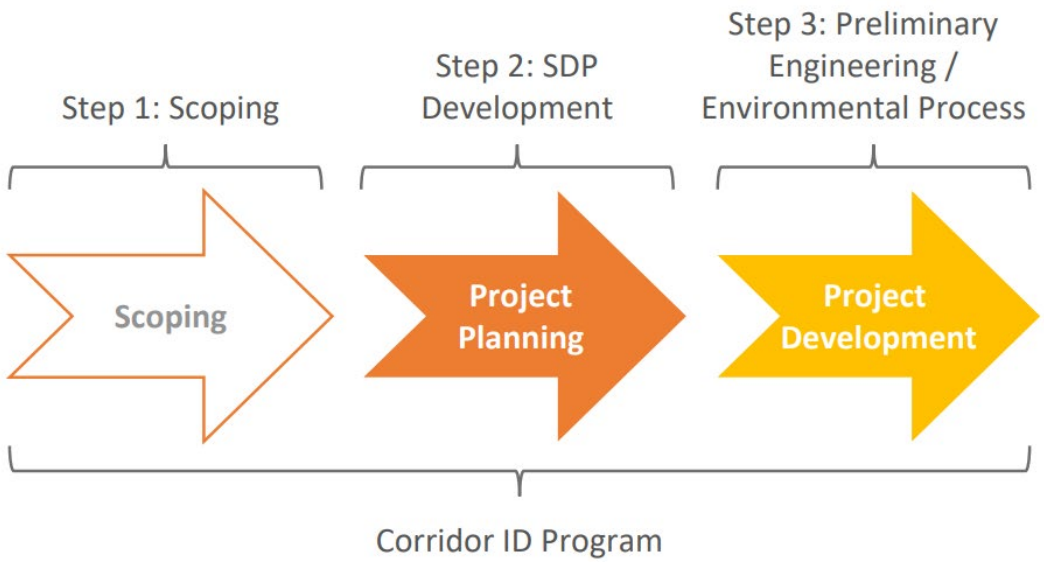
The Rail Plan also notes that Region 6 has extensive freight rail infrastructure, including spurs and branch lines that are underutilized. The plan emphasizes opportunities to expand both freight and passenger rail service to reduce congestion and improve air quality.

3.1.3. Caltrans FRA CID Grant to Study Reno-Sparks Rail Extension

The Federal Railroad Administration (FRA) has awarded the California Department of Transportation (Caltrans) with a Corridor Identification and Development (CID) Program planning grant to study improving existing service between San Jose and Auburn, California, with an extension to San Francisco, Salinas, and Novato, CA, and to Reno-Sparks, NV.[14] The Reno-Sparks extension would connect the San Francisco Bay and Sacramento Valley regions to the Sierra Nevada, Lake Tahoe, and Reno-Spark regions.

The FRA CID Program is a comprehensive intercity passenger rail planning and development program that will help guide intercity passenger rail investments throughout the country and create a pipeline of intercity passenger rail projects ready for implementation. For corridors selected to participate in the CID Program, corridor development will occur in three sequenced steps as depicted in Figure 3. The Capitol Corridor CID study, currently in Step 1 Scoping for the Step 2 Service Development Plan (SDP), will explore potential passenger rail investments in Reno-Sparks that could potentially be shared with Workforce Rail.

Figure 3: FRA Corridor Identification and Development Program: Flow Chart for Intercity Passenger Rail Corridor Advancement (Source: FRA)



[14] CID Step 1 Grant funds, for advancing scope, schedule and budget for a CID Step 2 Service Development Plan, were obligated on 5/20/2024 per the FRA obligation status report dated 01/06/2025.

3.1.4. The Inter-County and Regional Transportation Plan

The Inter-County and Regional Transportation Plan for the five-county Northern Nevada region was developed by NDOT in partnership with local communities. The plan was published in three technical memoranda in 2018 and 2019[15] and addresses the current and projected inter-county transit commuting needs within the five-county region of Washoe, Storey, Carson City, Lyon, and Churchill Counties and the TRI Center. The plan studied methods to anticipate and mitigate the congestion that was anticipated by 2030. Origin/Destination studies determined that over 80% of TRI Center employees come from the Reno-Sparks area, and no obvious alternate roadway routes to I-80 were available. At that time, 34% of TRI Center employees reported commuting via carpool or "transit" (in this case, meaning private motorcoach or vanpool within the TRI Center) to work, with 66% driving alone to work based on a 2018 survey. Additionally, 59% of respondents indicated they were interested in options other than driving alone.

The report further notes that traffic volumes on I-80 near USA Parkway have grown in recent years, lengthening commutes, with peak travel periods during the 6:00 AM and 6:00 PM hours. The TRI Center had experienced growth over the preceding 20 years to approximately 16,000 employees at the time the report was published. The plan highlights projected growth to 25,000 TRI Center employees within the following 10 years, with 75 percent of those employees living north of I-80. This growth would add to the congestion along I-80 during commute hours. It should be noted that the current workforce at the TRI Center is already approaching this number, at about 22,000 employees.

Because a significant number of surveyed employees responded with interest in alternate work commute choices, the study proposed that the five local counties work together to form a Transportation Management Association (TMA) for the TRI Center to provide and promote other travel modes than driving alone. The study recommended the TMA identify potential TRI Center mobility options, including a vehicle-share network, shuttle services, emerging technology solutions, fixed guideway transit, and app-based rideshare services.

Since the study was published, RTC staff, along with Storey County, the Economic Development Authority of Western Nevada (EDAWN) and representatives from neighboring counties have met several times after the study concluded to begin the work to create a TRI Center TMA. However, as of the publishing of this report, a TMA has not yet been formed.

3.1.5. Nevada Regional Rail Study

In June 2025, the Governor of Nevada, Joe Lombard, signed Assembly Bill 256 (AB 256), which directs the Legislative Commission to appoint a Regional Rail Transit Advisory Working Group. This Working Group is directed to conduct a study during the 2025–2026 Legislative Interim Session concerning the development of regional rail transit in Clark (Las Vegas) and Washoe (Reno) Counties. It appears that RTC's Workforce Rail study meets this objective within Washoe

[15] Nevada DOT Transit Plans and Resources, Regional, Inter-County and Regional Transit Plan: Transit Plans and Resources | Nevada Department of Transportation, "Existing TRIC Commuter Travel Data in the Five-County Northern Nevada Region".

County. The Working Group will also evaluate funding opportunities and potential partnerships and build upon regional studies. The Working Group is expected to deliver a report to lawmakers in July 2026 with an action plan for achieving regional rail service and recommendations to the 2027 Legislature.

3.1.6. Reno Revival Development

A new mixed-use complex called “Reno Revival” is being planned immediately adjacent to the existing Amtrak station in Downtown Reno. This development will be located inside or next to the former Harrah’s Casino at 219 North Center Street. Reno Revival’s phased development will include a full redesign of three separate towers, featuring 300 market-rate residential apartments, corporate housing, a reinvigorated hotel concept, and Class A office space. The development also proposes retail, restaurant, and grocery spaces integrated into a ground-level outdoor plaza. As a flagship tenant, Las Vegas-based Fine Entertainment plans to open a vibrant dining and entertainment complex within Reno Revival to serve as a central gathering point, all within footsteps of the Amtrak and potential Workforce Rail station. Reno Revival is currently scheduled to open in 2026.

This development aligns with Reno’s broader economic development initiative to revive downtown areas through densification and economic diversification. The hope is that these efforts will increase tax revenues, stimulate economic activity, and lead to quality-of-life improvements, making central Reno a more desirable location to live and work.

3.2. Summary of Findings from Previous Reports

The Nevada State Rail Plan outlines the growing congestion on I-80 as a challenge for Northern Nevada and recommends leveraging freight rail as an alternative to trucking. The Rail Plan also outlines how the TRI Center is largely dependent on trucks for supply chain needs, while the existing freight rail capacity is underutilized. The Rail Plan also recommends that the state initiate commuter rail service in the I-80 corridor via UPRR between Reno-Sparks and the TRI Center, which is the objective of Workforce Rail.

The Inter-County and Regional Transportation Plan addressed current and projected congestion on the I-80 Corridor that was anticipated by 2030, including the travel patterns of TRI Center employees, which showed that 80% of TRI Center employees come from the Reno-Sparks area, and the lack of obvious alternate routes to I-80. The plan notes that traffic volumes on I-80 near USA Parkway have grown in recent years and are projected to grow further in the next 10 years, adding to the congestion on I-80.

3.3. Gaps in Previous Studies

While the Nevada State Rail Plan recommends initiating commuter rail service in the I-80 corridor via the UPRR to the TRI Center, there is limited detail on how this service would operate, be financed, or governed/overseen. The Rail Plan recommends a station stop adjacent to the TRI Center along the UPRR mainline but did not analyze the impact on freight traffic. The Rail Plan also recommends leveraging freight rail as an alternative to trucking for the TRI Center but did not outline the specific infrastructure improvements to accomplish this objective.

4 Stakeholder Engagement

4.1. Stakeholder Coordination

During the 2025 calendar year, the RTC project team led a focused stakeholder engagement process to build a common understanding, document operational constraints, and capture stakeholder needs to inform the current study. Outreach with major employers, local and state agencies, and UPRR has yielded employee shift and residence data, travel pattern insights, and clarity on mainline access and corridor infrastructure needs. Additionally, the project team has gained insight into existing travel patterns and TRI Center employees' use of commuter services. This information has been critical for ridership forecasting and station siting. Immediate priorities are confirming funding, securing a formal agreement with UPRR, and validating technical assumptions.

4.1.1. Engagement Timeline and Major Events

- March 5, 2025 - kickoff meeting with regional leadership and state partners
- Employer outreach and survey distribution to major TRI Center employers
- Multiple coordination meetings with stakeholder agencies
- Direct briefings with UPRR in August 2025 and follow-up engagement in October and November 2025
- October 14, 2025, update to stakeholders regarding technical analyses, conceptual engineering, and UPRR engagement

4.1.2. Kickoff Coordination with Stakeholders

The project team hosted a kickoff meeting with stakeholders on March 5, 2025, at 2:00 PM Pacific. The audience included leadership from RTC, the cities of Reno and Sparks, NDOT, the Nevada Governor's office, and additional regional stakeholders. The presentation explained the study's objective to improve access between Reno-Sparks and the TRI Center and to evaluate the feasibility of a Workforce Rail system. Stakeholders discussed the approach for engaging UPRR engagement, employer and demand considerations, corridor constraints and risks, and immediate next steps.

4.1.3. Direct Engagement with TRI Center Employers and Stakeholders

The project team conducted direct outreach with the TRI Center's largest employers (Tesla, Panasonic, Walmart, and Redwood Materials), which together account for approximately 75 percent of the daily workforce. These employers helped to populate survey data regarding:

- Shift schedules and employees per shift
- Employee origins and residential concentrations
- Ride share programs and employee participation
- Freight rail opportunities and operational considerations

Employer-provided data clarified commuting patterns and services, which supported the study's market analysis and helped refine potential station locations.

The project team also engaged with public sector stakeholders, including RTC, the Governor's office, EDAWN, Storey County, and Washoe County, to understand relevant local/state policies, current ride-share operations, and corridor constraints. These conversations informed assumptions for service design and identified operational barriers.

4.1.4. Direct UPRR Engagement

The project team initiated direct discussions with UPRR to explore mainline access, partnership opportunities, and operational constraints. The first meeting was held on August 20, 2025, at 11:00 AM Pacific to brief UPRR on the study's purpose and scope, as well as the proposed project specifications and benefits.

A follow-up meeting was held on October 22, 2025, at 8:00 AM Pacific. This meeting examined how railroad capacity modeling could support the feasibility assessment of Workforce Rail. A follow-up coordination meeting was scheduled for November 19, 2025.

4.1.5. Stakeholder Update

On October 14, 2025, the project team hosted a project update briefing for stakeholders. The briefing covered the rail operations model, stakeholder engagement, ridership needs and expectations, conceptual engineering cost estimates, the results of the August UPRR meeting, and the next steps. The meeting concluded with general support. Limited discussion focused on station siting and confirmation of ongoing coordination with UPRR.

4.1.6. Key Themes Emerging from Stakeholder Engagement

Major themes emerging from the engagement sessions include:

- Broad regional interest in advancing Workforce Rail hosted on the UPRR mainline, should UPRR agree to terms that allow this.
- Openness on the part of UPRR to explore options.
- Desire for a solution that provides an early version of Workforce Rail during the I-80 construction period, as an alternative to roadway travel.
- Interest among TRI Center employers in both a Workforce Rail schedule that coordinates with existing work shift times and also opportunities for expanded intermodal freight shipping opportunities at the TRI Center.
- Multiple comments supporting a Sparks station due to a concentrated flow of employees from within and north of Sparks to the TRI Center. A preferred location, if feasible, is near the Nugget Casino and parking lots currently used by TRI Center commuters. Backtracking from Sparks to Reno to board trains is not seen as an attractive option.
- Interest in a startup service that can be extended and expanded in the future to potentially function as a transportation mode for trips other than to and from TRI Center jobs.
- Sensitivity regarding federally listed species and historic resources in the corridor.

5 Existing Conditions

5.1. Description of Existing Corridor

5.1.1. Geography

5.1.1.1. Truckee River and Canyon Opportunities and Constraints

The Truckee River flows from Lake Tahoe and the Sierra Nevada through downtown Reno and Sparks. It continues through the Truckee River Canyon east of Sparks, parallel to I-80 and the UPRR mainline. The river defines the northern edge of the TRI Center and flows northeast to its outflow into Pyramid Lake, an inland sea. The river hosts endangered species and is a major scenic and recreational attraction throughout its course. It is an essential source of drinking water for the surrounding area and is also used to irrigate crops.

The Truckee River is subject to major seasonal flow rate fluctuations which pose flooding risks, especially during spring runoff and major thunderstorms. The project team learned of an occurrence in recent years where flooding inundated the entire manufacturing zone in Sparks between the river and I-80 and overflowed I-80, causing some transportation assets to wash into Sparks Marina Park Lake. The UPRR mainline was also impacted during this event.

Through most of the corridor, the UPRR mainline is immediately adjacent to the river. In the near-term, any rail service planning must include contingency plans for operations during flood events. UPRR likely already has similar plans for their freight operations, but specific flood event plans for Workforce Rail will be required. To keep capital costs down and implementation quick in the near-term, it is imperative that new construction or upgrades be minimized to avoid lengthy and costly environmental reviews and permitting. A longer-term solution to flooding on the mainline could involve elevating or reinforcing the railbed. Focus areas would include those that have historically been subject to flooding; this can reduce operational risks for both freight and Workforce Rail. Such investments in the rail corridor may coincide with river-resilient development near the UPRR mainline, particularly in Reno and Sparks.

5.1.2. Transportation

5.1.2.1. Union Pacific Railroad

The UPRR Nevada Subdivision mainline parallels I-80 through central Reno and Sparks, and in the sparsely developed Truckee River Canyon area between Sparks and the TRI Center. The UPRR mainline is also known as the Overland Route (the historic Southern Pacific route) and is the principal cross-country railroad between Oakland, CA, and Chicago, IL. The Overland Route

is owned by UPRR as part of the Utah and Roseville service units. The Overland Route mainline is historically the corridor of the original United States Transcontinental Railroad.

Through central Reno, the mainline is double-tracked and operates within the Reno Trench, a depressed opencut railroad corridor owned by the City of Reno. Built in 2006, the Reno Trench eliminated 10 rail crossings that divided the city, significantly improving safety, traffic flow, noise pollution, and economic development opportunities. The trench extends approximately 2.25 miles through downtown Reno and is 54 feet wide. The trench includes a station platform for Amtrak service along the southern mainline track (Westward Track 1). The northern mainline track is Eastward Track 2. The Amtrak *California Zephyr* stops in both directions on Track 1.

The distance between the Reno Amtrak station in downtown Reno and an access point to the TRI Center (USA Parkway / SR 439) is roughly 20 miles. The majority of the UPRR corridor in the study area (approximately 12 miles) consists of a single-track mainline through the Truckee River Canyon with multiple passing sidings, with single-track sections making up approximately half (6 miles) of this corridor segment. This stretch is geographically constrained between the river, abutting rock formations, and I-80. This segment also includes multiple single-track bridge crossings of the Truckee River.

5.1.2.2. Interstate-80 (I-80)

Interstate I-80 is currently the only direct access route to the TRI Center from Reno and Sparks in the west and Fernley to the east. Based on NDOT counts, 84% of vehicles access the TRI Center from the north via I-80, and 16% of vehicles are traveling from the south via U.S. Route 50 and USA Parkway / SR 439.[16] I-80 is physically constrained by surrounding mountains, the Truckee River, and nearby infrastructure such as the UPRR railroad, which concentrates congestion. Over the past decade, traffic volumes on this corridor have increased by 61%, and a recent five-year period saw an average of 155 crashes on I-80 annually.

NDOT's 2019 Inter-County and Regional Transit Plan, which analyzed travel behavior in the five-county region, found that the vast majority of commuters use single-occupancy vehicles.[17] An accompanying survey of TRI Center employees revealed that over 80% of them commute from the west along I-80, and 66% drive alone, with the remaining 34% using carpooling, ridesharing, or employer-provided transportation. As displayed in Table 1, the American Community Survey (ACS) showed that for workers in Storey County, 57% drove alone, 30% shared a ride, 8% took public transit, 2% took a taxi, bike, or other mode, and the remaining 3% worked from home.[18] TRI Center employees are twice as likely to share a ride or use public transportation compared to the average Nevada worker.

[16] Source: Nevada Department of Transportation Traffic Counts, https://gis.dot.nv.gov/trina/
[17] Includes Washoe, Storey, Ormsby, Lyon and Churchill Counties.
[18] Source: ACS Table B08541, Means of Transportation to Work for Workplace Geography, 2023 5-year data

Table 1: Commute Mode for Those Who Work in Storey County (American Community Survey)

Mode	Storey County		Nevada	
	Number of Workers	Share of Workers	Number of Workers	Share of Workers
Drive alone	4,272	57%	1,071,494	70%
Shared ride	2,255	30%	185,984	12%
Public transportation	582	8%	35,076	2%
Walk	0	0%	22,724	1%
Taxi, bike, other	129	2%	39,032	3%
Work from home	210	3%	177,803	12%
Total Workers	7,448		1,532,113	

Source: ACS Table B08541, Means of Transportation to Work for Workplace Geography, 2023 5-year data

More recent data from Panasonic Energy Corporation of North America, a major TRI Center employer, reinforces these patterns. This data shows that approximately 72% of Panasonic's 4000-plus employees likely commute from the west via I-80. This geospatial analysis highlights I-80 between Reno-Sparks and the TRI Center as the primary travel corridor for the majority of Panasonic's workforce.

5.1.2.3. TRI Center Connections

Table 2 displays traffic counts at roadway entry points to the TRI Center. There are three entry points from the north from I-80 into the TRI Center, including Exit 28 at Waltham Way and Exit 32 Interchange at USA Parkway from the west and east. From the south, there is one entry to the TRI Center via USA Parkway from US-50. USA Parkway runs north and south, connecting I-80 and US-50 through the heart of the TRI Center for approximately 19 miles. Based on traffic counts collected by the Nevada Department of Transportation in July 2023, there were 33,900 daily vehicles at the four TRI Center main entry points, of which 71% or 24,000 were coming from the west of TRI Center along I-80, including the Reno-Sparks area. An additional 4,400 vehicles were connecting from the east along I-80 and 5,500 from the south via U.S. Route 50.

Table 2: Total Daily Vehicles and Share of Total Vehicles at TRI Center Main Entry Points

Roadway	Total Vehicles by Direction in relation to TRI Center				Share of Total Vehicles by Direction in relation to TRI Center			
	West	East	South	Total	West	East	South	Total
USA Pkwy – I-80 exit	22,000	4,400		26,400	65%	13%	0%	78%
Waltham –I-80 exit	2,000			2,000	6%	0%	0%	6%
USA Pkwy and US 50			5,500	5,500	0%	0%	16%	16%
Total	24,000	4,400	5,500	33,900	71%	13%	16%	100%

Source: Nevada Department of Transportation Traffic Counts, https://gis.dot.nv.gov/trina/

Peak hour traffic between Reno-Sparks and the TRI Center periodically exceeds I-80's free flow capacity. The existing I-80 four-lane configuration with limited shoulders has led to reliability issues during incidents and periodic excessive backups. These are symbolized in a few anecdotes reported to the project team by TRI Center employees:

- One employer uses several large screen displays on the manufacturing floor to provide employee information that supports work activities. Near the end of work shifts, these displays switch to providing traffic updates. If I-80 congestion grows, workers are excused early to beat the worst traffic. One employee described how his commute to Sparks will rapidly switch from a 35-minute free-flow commute to a 90-minute backup.
- Another employee described an alternate path that adds 70 miles to her one-way commute distance. If traffic reports suggest I-80 traffic congestion, she automatically selects the alternate longer-distance route.

The pending I-80 improvement program will add roadway capacity (one additional lane in each direction) plus full shoulders to improve roadway reliability and safety.

5.1.2.4. Employee Shuttles: My Ride to Work

My Ride to Work is a private transportation service provider located in northern Nevada that offers bus and shuttle services, including several employer-sponsored over-the-road motorcoach routes connecting to the TRI Center. My Ride to Work reports that it serves more than 27,000 weekly passengers in the Reno metropolitan area.[19] It is not known how many TRI Center employers contract this service, though the project team has estimated that approximately 2,000 employees utilize this service daily to reach the TRI Center.[20] Pick-up/drop-off locations for My Ride to Work are located throughout the Reno-Sparks area. RTC bus routes connect to some known pick-up and drop-off locations for My Ride to Work and potential rail stations, including the RTC Centennial Plaza Station in Sparks. Commuter parking is available in Nugget Casino parking lots across I-80 from Centennial Plaza Station. A roadway and sidewalk connection under I-80 provides a walking path between the facilities.

5.1.2.5. RTC Vanpool and Commuter Assistance Services

RTC offers vanpools for commuters with TRI Center workplaces. They operate approximately 330 vans with nearly 2,000 riders. Approximately 240 of these vans go directly to the TRI Center. These vanpools typically host between 4 and 14 riders who share a similar commute. This commuting option can help employees save money and stress by grouping with others who share a similar commute. RTC uses a partnership with Enterprise to operate the program. Enterprise provides the vehicles, maintenance and insurance, while RTC and in some cases employers

[19] Source: My Ride to Work myridetowork.com
[20] RTC 2050 Regional Transportation Plan 2025 Update,

subsidize the costs. This option helps reduce congestion by reducing single-occupant vehicles and also allows commuters to take a break from driving.

5.1.2.6. RTC Transit Service

RTC provides fixed-route, express, and paratransit services in Northern Nevada and coordinates with regional transit partners. While these services help connect the five-county region, none currently provide direct public transit service to Storey County and the TRI Center. However, for some commuters, regional transit services to Reno or Sparks may be used to connect to carpooling or company-sponsored transportation services that originate in those cities.

1) Bus Rapid Transit (BRT)

RTC operates two BRT routes: the Virginia Line and the Lincoln Line. Both routes operate in the service area and connect with candidate Workforce Rail station areas.

i. *Virginia Line*

The RTC RAPID Virginia Line is the region's primary fixed-route transit service, originally operating along Virginia Street from downtown Reno to southern Reno. The Virginia Line was extended north to the University of Nevada, Reno, in March 2021. The route connects key destinations, including the university, downtown Reno, Midtown Reno, and Meadowood Mall. The service uses all-electric buses and includes features such as stations spaced approximately every half mile, near-level-boarding platforms, and dedicated bus lanes in certain segments.

As part of the Virginia Street Project, RTC added five new BRT stations near the university, completed sidewalk improvements, and constructed a roundabout at the entrance to the university's West Stadium Parking Complex. Virginia Street was also reconfigured to include one general traffic lane and one shared bus/bike lane in each direction.

The Virginia Line operates a robust schedule with 10-minute scheduled headways. The route's span of service is weekdays 6:00 AM to 1:00 AM, Saturdays from 6:30 AM to 1:00 AM, and Sundays from 6:30 AM to 11:00 PM. While the Virginia Line offers strong weekday and Saturday service, there are limitations in early morning first/last-mile connections for riders seeking to connect with potential early rail departures.

ii. *Lincoln Line*

The RTC RAPID Lincoln Line launched in December 2018, along the 4th Street/Prater Way corridor between Downtown Reno and Downtown Sparks. The corridor was implemented through a $58 million project that began in January 2017, with improvements including:

- Stations spaced approximately every half mile, using near-level-boarding platforms. The eight BRT stations are themed around the historic Lincoln Highway;
- All-electric buses; and

- New sidewalks, bike lanes, landscaping, LED street lighting, and underground utility installation. Enhancements were designed to improve accessibility and comply with the Americans with Disabilities Act (ADA).

The Lincoln Line runs on weekdays from 6:00 AM to 8:30 PM, Saturdays from 6:41 AM to 8:00 PM, and Sundays from 6:40 AM to 7:52 PM. This span of service is not as robust as the Virginia Line and may require an adjustment to connect with Workforce Rail service.

2) Fixed Route Service and Transit Centers

RTC provides two primary transit hubs in Reno and Sparks. These are:

- The RTC 4th Street Station, adjacent to the Reno Amtrak Station in downtown Reno. 4th Street Station is the main transit center for RTC buses and is served by both the Virginia and Lincoln Line BRT routes and several RTC local bus routes (1, 4, 5, 7, 12, 13, 14, 16, and 18).
- The RTC Centennial Plaza Station in Sparks, near the Nugget Casino Resort. This station is served by the Lincoln Line BRT route and four local bus routes (RTC Routes 2, 11, 21, and 54). Centennial Plaza is also a known connection point for employer-sponsored motorcoach services connecting to the TRI Center.

The span of service for RTC bus routes will need to be considered, as it is possible that an appropriate Workforce Rail schedule would begin earlier and run later than RTC's present peak bus schedule.

3) Longer-Distance Commuter Bus Service

The RTC Regional Connector operates between Reno and Carson City using 40-foot buses.

4) Paratransit Services

RTC Access is a paratransit service that provides door-to-door, prescheduled transportation for individuals who meet eligibility criteria under the ADA.

5) Local Transit Service Outside Reno-Sparks

RTC provides funding or coordination support for the following regional services:

- Jump Around Carson (JAC) is the transit provider in Carson City. Transfers to and from RTC Regional Connector are free.
- Tahoe Transportation District operates public transit between South Lake Tahoe and Carson City. Transfers from RTC Regional Connector are free with a valid transfer.
- Tahoe Area Regional Transit (TART) is operated by Placer County in the Lake Tahoe Basin.

5.1.2.7. Intercity Motorcoach Service

Greyhound provides intercity bus service in the Reno-Sparks area with stops at two locations:

- Reno Amtrak Station at 280 N Center Street, Reno
- Sparks Transit Center at 1421 Victorian Avenue, Sparks

From these locations, Greyhound offers routes to multiple destinations, including South Lake Tahoe, CA; Sacramento, CA; and Elko, NV.

To extend Amtrak service to communities without rail access and offer a broader range of destinations, Amtrak established Amtrak Thruway Connection bus service with guaranteed connections to its trains. Dedicated buses carry Amtrak passengers exclusively, while coordinated buses operate on individual carrier schedules but provide convenient access to the Amtrak network. Although this service was previously available between Reno and Las Vegas, it is no longer offered on that route. However, Thruway service remains available in other Amtrak-served cities.

5.1.2.8. Active Transportation and First/Last-Mile Connections

The Reno-Sparks metropolitan region has made notable progress in expanding its bicycle and pedestrian infrastructure since the adoption of the 2011 Reno-Sparks Bicycle and Pedestrian Master Plan. Since then, RTC has constructed over 50 miles of bike lanes, 20 miles of sidewalks, and 500 curb ramps to improve access and connectivity for cyclists and pedestrians.

Despite the progress within the urban core, there are currently no bicycle facilities that connect the Reno-Sparks area to the TRI Center (unsurprising given the constricted right of way and relatively long distance between origin and destination). Moreover, active transportation infrastructure (such as sidewalks or bike paths) is explicitly prohibited within the TRI Center itself. This presents a major challenge for first/last-mile connectivity, particularly as regional agencies consider future rail connections to serve workers commuting to the area

5.1.3. Roadway and Access Limitations

Within the TRI Center, there are several geographic constraints to consider. USA Parkway / SR 429 is the main road in and out of the TRI Center. This major north-south arterial is being used heavily by both commuters and truck freight, with the majority of traffic flowing to and from I-80. The TRI Center setting is hilly and even mountainous in places, with industrial sites arranged on leveled ground on hillsides and in valleys. The project team has evaluated options for rail extensions into the TRI Center complex that work with the geography to the extent possible, limiting the need for excavation, retention, and tunnelling.

The Tesla Gigafactory is connected to USA Parkway via Electric Avenue (primarily) and E. Sydney Drive (secondarily). Both roadways feature security gate checkpoints on the approaches

to the Gigafactory. The project team is exploring options for a rail extension for both Workforce Rail and freight rail parallel to Electric Avenue.

5.1.4. Demographics

5.1.4.1. Reno

Reno is the largest city in Northern Nevada and the third most populous city in the state, with a population of more than 264,000.[21] The city has approximately 116,500 total housing units[22] and an estimated 115,000 households.[23] Reno's median household income is $80,365, which is slightly higher than the state median of $76,364 and the national median of $77,719.[24] The city also maintains a relatively low poverty rate at 11.3%, compared to 12% for Nevada and 12.5% for the United States. The employment rate in Reno stands at 64.2% (compared to 60.6% nationally), reflecting a strong labor force participation rate for the region.

5.1.4.2. Sparks

Sparks is located just east of Reno and is part of the Reno-Sparks metropolitan area. Sparks is the fifth most populous city in the state, with a population of approximately 108,500. The city continues to expand in both population and economic activity, as a sister city to Reno at the heart of the metro area.[25] Sparks had an estimated 43,000 total housing units as of the 2020 Census and an estimated 42,000 households.[26] The median household income in Sparks is $86,081, which is notably higher than both the Nevada state median of $76,364 and the national median of $77,719. The city also has a relatively low poverty rate of 9.7% compared to 12% for the state and 12.5% for the nation. The employment rate is 64.2%, mirroring that of neighboring Reno, and indicates a similarly strong labor market.

5.1.4.3. Native American Communities

Washoe County is named after the Washoe Tribe, who have lived for thousands of years in the region surrounding Lake Tahoe and the eastern Sierra Nevada mountains. The Washoe people are traditionally divided into three main bands: the Welmelti (Northern), the Pawalu (Carson Valley), and the Hung A Lel Ti (Southern). Today, Washoe tribal members live in communities such as Carson City, Gardnerville, and Woodfords, as well as in the Reno-Sparks Indian Colony (RSIC).

The RSIC is a federally recognized tribal community representing members of three Great Basin tribes: the Paiute, Shoshone, and Washoe. Established in the early 1900s by Native people who had moved to the area for employment, the RSIC received federal recognition in 1934. It serves

[21] 2020 Decennial Census
[22] 2020 Census
[23] 2023 American Community Survey 1-Year Estimates
[24] https://data.census.gov/profile/Reno_city,_Nevada?g=160XX00US3260600
[25] 2020 Census.
[26] 2023 American Community Survey 1-Year Estimates

as a vibrant community that preserves cultural traditions while engaging in modern governance and economic development.

The RSIC is headquartered in Reno and has a tribal membership of approximately 1,300 as of January 2023.[27] Its reservation lands include the original 28-acre colony located in central-west Reno and a 1,920-acre tract in Hungry Valley, about 19 miles north of the colony near Eagle Canyon and Spanish Springs. In 2016, the RSIC received an additional 13,400 acres of land through the Nevada Native Nations Lands Act, part of a broader effort that placed over 71,000 acres of Bureau of Land Management and U.S. Forest Service land into trust for six Nevada tribes.[28] This land transfer provides a stronger and more sustainable land base for tribal communities and supports conservation efforts.

The RSIC funds its tribal government through revenue generated by its enterprises, including retail taxes levied on transactions occurring on tribal lands. While historically reliant on tobacco-related sales, primarily through five tribal smoke shops, the RSIC has made strategic moves to diversify its economy. The tribes have successfully developed and leased commercial properties in Reno, Sparks, and Washoe County to reduce dependence on tobacco revenues. Tenants include nationally recognized businesses such as Mercedes-Benz of Reno, Acura of Reno, Infiniti of Reno, and Walmart, along with numerous local businesses. These developments support essential government services for RSIC members, residents, and other urban Native Americans.

The RSIC has actively assembled and redeveloped land parcels in urban, suburban, and high-growth areas over the past two decades. Its Economic Development Department has also led major community-focused projects, including the $20 million Reno-Sparks Tribal Health Center on Kuenzli Street along the Truckee River. This facility provides health care services to RSIC members and other Native Americans living in the region.

5.1.5. Employment

The modern economy of the Reno-Sparks region has evolved through several phases, beginning with mining and agriculture in the 19th century, followed by a boom in gaming and tourism after the legalization of gambling in 1931. In more recent decades, the region has pursued a strategy of economic diversification, successfully attracting technology firms, manufacturing operations, and logistics companies. Reno-Sparks is strategically located for goods movement. The UPRR Nevada mainline and I-80 are major freight conduits between the Port of Oakland and Chicago.

One of the most significant contributors to the shift towards manufacturing and technology has been the development of the TRI Center, as previously noted, home to several major employers, most notably the Tesla Gigafactory. The arrival of advanced manufacturing and technology firms has helped solidify Reno-Sparks' position as a growing center for innovation and industrial activity.

[27] https://www.rsic.org/228/Tribal-Government
[28] https://indiancountrytodaymedianetwork.com/2016/11/24/obama-sets-new-standard-land-trust-166469

5.2. Opportunities and Constraints

This section identifies several opportunities and constraints for introducing Workforce Rail service between Reno-Sparks and the TRI Center. These are generally physical, operational, and policy-based opportunities and constraints. The section addresses three geographic areas: Reno-Sparks, the Truckee River Canyon, and the TRI Center. It includes considerations for both Near-Term Alternative considerations and Long-Term Alternative strategies. Near-Term Alternative opportunities leverage existing infrastructure to the extent possible, plus essential track, station, and facility improvements. Ideally, Near-Term improvements will allow a quick startup during the I-80 construction period. Long-Term investments require more complex infrastructure development and investments to expand service directly to major TRI Center workplaces.

Amtrak offered a recent example of rapid passenger rail equipment deployment. In the Pacific Northwest, along a state-supported passenger rail corridor connecting Oregon, Washington State, and British Columbia, critical rolling stock was inspected and deemed unfit for service. This led to a period of replacement bus service with minimal train service. However, within just a few weeks, Amtrak was able to deploy railcars from eastern states and roll them into revenue service, restoring the full rail schedule. Railroad equipment is but one factor in establishing a new passenger, commuter, or Workforce Rail service, yet the example is noteworthy.

One of the opportunities for the introduction of Workforce Rail is the current use of shared transportation for the TRI Center, which is used by employees at more than twice the rate of other regions of Nevada. As outlined in Section 5.1.2, the American Community Survey (ACS) shows that those who work in Storey County, where the vast majority of jobs are located in TRI Center, are over twice as likely to share a ride or use public transportation than the average Nevada worker.

Additionally, an online 2018 survey from the Inter-County and Regional Transit Plan asked employees who drove alone if they were interested in other transit options, including taking a bus, carpool, or ride share. 59 percent of responses indicated some interest in alternate choices to driving alone, including 20 percent expressing high interest and 39 percent indicating some interest.[29]

5.2.1. Reno Railroad Trench Considerations

The Reno Trench is approximately 2.2-miles, 54 feet wide, and up to 35 feet deep trench built in downtown Reno to move the train tracks below ground. The trench was completed in 2006 as part of the Reno Transportation Rail Access Corridor (ReTRAC) project, which eliminated 11 grade crossings and improved safety and pedestrian access in downtown Reno.

[29] Nevada Department of Transportation Inter-County and Regional Transit Plan, Technical Memorandum #2, “Existing TRIC Commuter Travel Data in the Five-County Northern Nevada Region”.

The Reno Trench presents some constraints and opportunities for Workforce Rail. The trench is double-tracked but does not provide space for sidings, and thus any train layover or servicing activity in the trench would effectively block one of the mainline tracks. Any expansion or widening to provide storage and maintenance space is unlikely to be feasible given the required cost and extensive construction. For this reason, either a layover siding will be needed west of the trench, or layover trains would reach the station from the east and reverse direction as quickly as possible after customers board at the Reno Amtrak station.

5.3. Existing Rail Operations in the Corridor

The UPRR Nevada Subdivision mainline is primarily a freight railroad, though it does host the previously described daily Amtrak passenger round trip. The project team assembled an overview of freight railroad traffic in the corridor, which does not include local switching, industrial lead activity, and movements in and out of the UPRR Sparks Yard. Railroads are required to submit information to FRA about crossings through which they operate. The team collected United States Department of Transportation (USDOT) FRA Crossing Inventory reports for seven (7) Railroad Crossings in the corridor. Two of the Inventory Reports were updated in 2023 using 2019 train count data that showed an average of eight (8) daily trains during the day and seven (7) trains at night, including the 2 Amtrak trains (eastbound and westbound *California Zephyr*). A summary of the crossing information is provided in Table 3. The line's maximum operable speed for freight trains is provided where this information was available in the Crossing Inventory.

Table 3: U.S. DOT CROSSING INVENTORY Reports for UPRR, Washoe County, Sparks, Nevada

FRA Rail Milepost	Street/Name Number	DOT Inventory Crossing Number	Total Day Thru Trains (6 AM – 6 PM)	Total Night Thru Trains (6 PM – 6 AM)	Max Operable Speed (MPH) for Freight Trains	Revision Date	Year of Train Count Data
242.6	Kietzke Road	740741D	8	7	-	11/28/2023	2019
246.7	Vista Way	753719D	8	7	-	11/23/2023	2019
252.3	Private Road - Rainbow Bend	922313L	9	8	40	10/30/2024	2020
257.1	Private McCarren Ranch	753721E	9	8	70	2/29/2024	2020
258.2	Waltham Way	913207E	8	8	70	2/5/2024	2020
260.1	Private - Tracy Power Plant	740750C	9	8	70	11/19/2024	2020
262.0	Clark Station Road	740752R	9	8	70	2/5/2024	2020

Source: U.S. Department of Transportation Federal Railroad Administration, https://railroads.dot.gov/railroad-safety/divisions/crossing-safety-and-trespass-prevention/crossing-inventory

Five (5) of the inventory reports were updated in 2024 using 2020 train count data. This dataset showed an average of nine (9) daily trains that operate during the day between 6:00 AM and 6:00 PM, and eight (8) daily trains that operate at night between 6:00 PM and 6:00 AM.[30] These figures include the 2 daily passenger rail trips per day provided by Amtrak, with one Amtrak train in each direction on the line.

UPRR owns and operates the Sparks Intermodal Railyard, a consolidation and intermodal railyard in Sparks that serves as a critical link in the railroad's 32,000-mile operation on the Overland Route. The railyard provides facilities for trailer-on-flat car (TOFC) or container-on-flat car (COFC) units to be transferred between rail cars and trucks.

There are currently 9 freight rail-served customers in and around the TRI Center. These customers are currently served 5 days per week by UPRR from the railyard in Sparks, 13.3 miles away. The TRI Center contains a rail support yard between employers James Hardie and PPG Coatings, with a capacity of 105 railcars and an unfinished yard off Peru Drive. BNSF Railway currently accesses the park with service on UPRR trains (haulage), though BNSF has the right to serve directly.

Train operations in the UPRR corridor consist primarily of freight trains operated by UPRR and BNSF Railway, which has trackage rights in the corridor.

[30] The FRA U.S. Inventory Reports are for crossing 740752R at Clark Station Road and 9132017E near Waltham Way, both in Sparks, Nevada.

6 Workforce Rail Market Analysis

The project team developed initial high-level estimates of potential ridership demand for the proposed Workforce Rail service between Reno and the TRI Center. A formal ridership/travel demand model was not developed or utilized for this study. The approach used available data, derived assumptions, and professional judgment to estimate potential demand. If the project progresses, a more precise ridership estimate will be needed, additional data will need to be collected, and a more robust approach to ridership analysis will be required.

6.1. Data and Assumptions

Data for the market analysis was obtained through publicly available websites or through direct conversations with stakeholders. Assumptions were necessary to fill gaps where data was not available.

6.1.1. Census Data

The American Community Survey (ACS) is an ongoing survey conducted by the U.S. Census Bureau to gather annually updated demographic, social, economic, and housing information about the population of the United States. The survey also asks about workers' means of transportation to work. As previously described, employees who work in Storey County are over twice as likely to share a ride or use public transportation than the average Nevada worker. Since the survey respondents self-report, shared services like My Ride to Work or RTC's Vanpool could be reported as "shared ride" or "public transportation." The Longitudinal Employer-Household Dynamics (LEHD) data, produced by the U.S. Census Bureau, is a quarterly database of linked employer-employee data covering over 95% of employment in the United States. OnTheMap, which utilizes LEHD data, is a web-based mapping and reporting application that provides a visualization of where people work and live. This data was used to determine where TRI Center workers live, to help understand the distribution of total commute demand to/from the TRI Center. Table 4 provides the results of the latest data available from 2022, which shows that approximately 56% of TRI Center workers live in Reno or Sparks.

Table 4: Home Location for those with Employment at the TRI Center

Home Location	Count	Share
Reno, NV	6,043	32%
Sparks, NV	4,531	24%
Fernley, NV	1,940	10%
Carson City, NV	616	3%
Sun Valley CDP, NV	482	3%
Silver Springs CDP, NV	392	2%
Dayton CDP, NV	362	2%
Spanish Springs CDP, NV	356	2%
Fallon, NV	317	2%
Cold Springs CDP, NV	180	1%
Other	3,477	19%
Total	**18,696**	**100%**

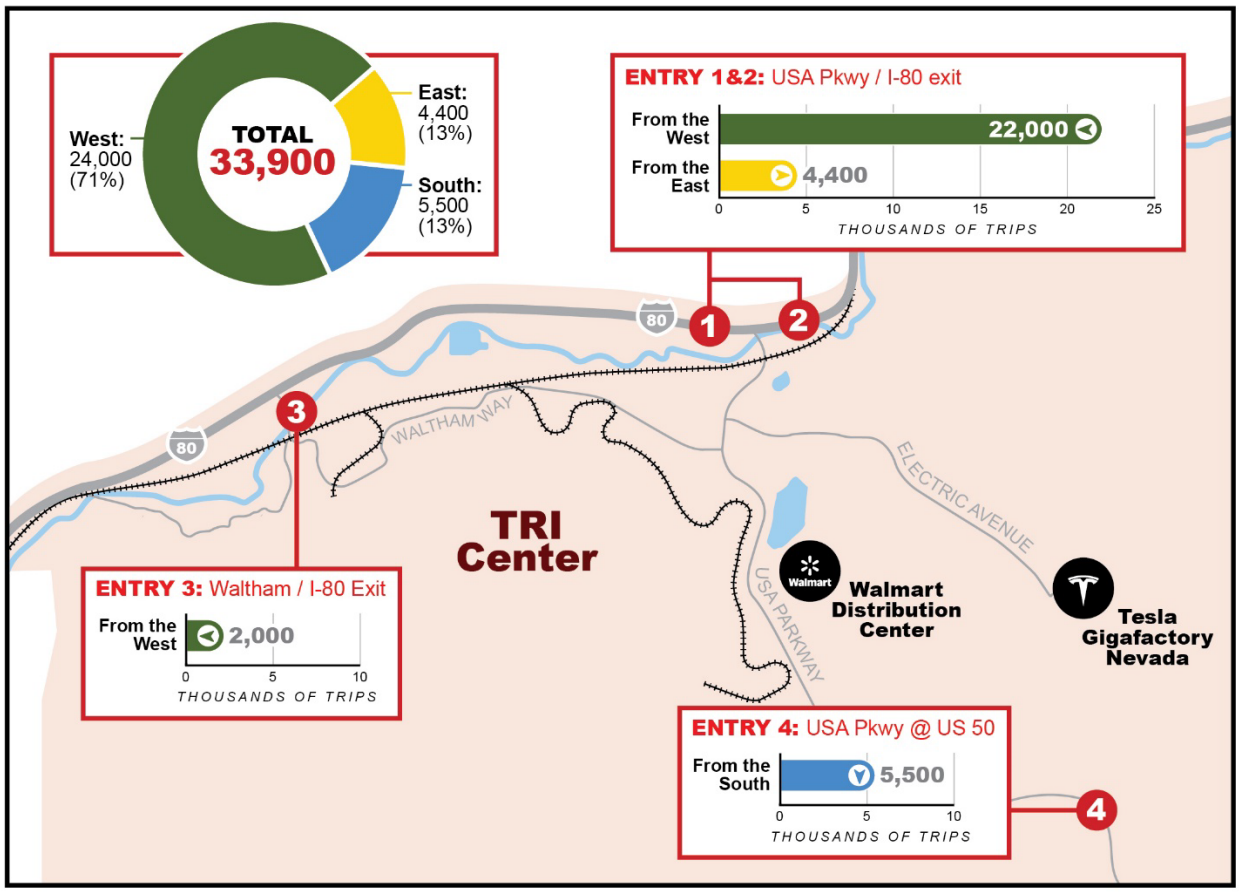
6.1.2. Traffic Counts

There are four main vehicular entry points to the TRI Center (as shown in Figure 4):

1. SR 439 / USA Parkway @ I-80 on/off ramps to the West
2. SR 439 /USA Parkway @ I-80 on/off ramps to the East
3. Waltham on/off ramps @ I-80 from the West
4. SR 439 /USA Parkway south of the TRI Center

Traffic counts collected by NDOT are available at each of these locations. The entry points are displayed in Figure 4.

Figure 4: Main Roadway Entry Points and Directional Flows for Vehicle Trips to the TRI Center



Hourly traffic counts for locations 1 through 4 (the I-80 ramps) were collected between July 13, 2023, and July 18, 2023, but do not contain vehicle classification data. The traffic count location on SR 439 south of the TRI Center is a permanent count station. with vehicle classification counts. Annual Class Distribution counts for 2024 were utilized to estimate truck travel to/from the TRI Center (since vehicle classification was not available at the other locations). At the southern SR 439 location, trucks made up 7% of the average daily traffic.

Table 2 (in Section 5.1.2) provides the total daily vehicle counts at each of those main entry points. Based on these counts, a total of 71% of vehicles going to the TRI Center come from west of the TRI Center, including the Reno-Sparks area as well as other locations. This estimate makes sense given the LEHD estimate of 57% of workers coming from the Reno-Sparks area alone. The estimate assumes 7% of all vehicles are used for rideshare and a 1.18 average vehicle occupancy rate, due to the high preference of Storey County workers to share a ride to work.

Table 5 provides the estimated total daily person-trips (round-trips) to/from the TRI Center by their general origin location. The key market of interest is workers traveling through the I-80 corridor from the west, accessing the TRI Center via USA Parkway, where the Workforce Rail service is

proposed to operate. It is estimated that approximately 12,100 TRI Center workers are traveling through the I-80 corridor by car.

Table 5: Estimated Total Round-trip Daily Person Trips by Auto to TRI Center, by Origin Location

Roadway	Total Round-trip Daily Person Trips by Auto to TRI Center (Origins in Relation to the TRI Center)			
	West	East	South	Total
USA Pkwy @ I-80	12,100	2,400		14,500
Waltham	1,100			1,100
SR 439			3,000	3,000
Total	13,200	2,400	3,000	18,600

Counts at the USA Parkway on- and off-ramps by time of day were used to determine the distribution of demand by time of day. Table 6 provides the time-of-day distribution for those traveling along the potential rail corridor: those going east on I-80 and exiting at the USA Parkway off-ramp and those using the USA Parkway on-ramp to travel west on I-80, in other words, to and from the Reno-Sparks area.

Table 6: Traffic Count Time of Day Distribution for I-80 and USA Parkway Ramps

Hour	Eastbound Off-ramp	Westbound On-ramp
0	0%	1%
1	1%	3%
2	1%	1%
3	2%	1%
4	7%	1%
5	23%	3%
6	12%	7%
7	10%	6%
8	4%	3%
9	3%	3%
10	3%	3%
11	3%	3%
12	3%	4%
13	3%	4%
14	3%	8%
15	2%	9%
16	4%	13%
17	9%	12%
18	4%	9%
19	1%	5%
20	1%	2%
21	1%	1%
22	1%	1%
23	0%	1%

Based on this data, it was assumed that up to approximately 6,200 people traveling by car in the potential rail corridor are working “regular” shifts, with start times between 5:00 AM and 9:00 AM. An additional 2,100 might be working “night” shifts, with start times between 4:00 PM and 6:00 PM. This results in an assumption that approximately 75% of workers have “regular” shifts.

6.1.3. Shared Shuttle and Van Services

There are two services providing non-single occupant vehicle transportation for TRI Center workers: My Ride to Work private motorcoaches and RTC Vanpool. Since no detailed ridership information was available for My Ride to Work, assumptions were developed to estimate ridership in the corridor. From stakeholder conversations, it was assumed that there are approximately 2,000 riders on an average day who use My Ride to Work to get to and from the Tesla Gigafactory. A My Ride to Work Schedule from 2021 found online[1] indicated that there were 21 trips per day to and from the Gigafactory; 15 of those (70%) were to/from Reno or Sparks, with other routes

serving Carson City, Fallon, and Fernley. If we were to assume that the scheduling of the service reflects the distribution of worker demand, approximately 65% of workers are doing “regular” shifts. Assuming 57% of the 2,000 My Ride to Work riders have home origins in Reno or Sparks, and distributing those riders based on the shuttle scheduling, Table 7 provides an estimate of riders per hour, assuming the distribution of services by time of day as found in the 2021 online schedule.

For RTC Vanpool, RTC provided average ridership per van, the origin location of the van, and start and end times for the van trips. All van services to the Tesla Gigafactory originate in Reno or Sparks. An average of 700 riders per day were assumed, and Table 7 provides the average distribution of those riders.

The total estimated shared services ridership between Reno-Sparks and the Tesla Gigafactory is approximately 1,800 workers per day.

Table 7: Estimated My Ride to Work and RTC Vanpool Ridership by Hour, to/from Reno-Sparks

Hour	My Ride to Work		RTC Vanpool	
	Eastbound Inbound	Westbound Outbound	Eastbound Inbound	Westbound Outbound
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	600	0	320	250
7	100	300	100	0
8	100	0	40	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	20
16	0	0	0	30
17	0	100	0	50
18	300	0	240	350
19	0	700	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
Total	**1,100**	**1,100**	**700**	**700**

6.1.4. Other Assumptions

To understand the total demand, estimates of total employment are required. Based on conversations with stakeholders, it is assumed that approximately 20,000 employees currently work at the TRI Center (see Table 8). This is reasonably close to the 2022 value reported by LEHD. It is also assumed that the Tesla/Panasonic plants will be increasing the number of workers from 9,500 to 16,000 by 2028, an increase of 70%.[31]

[31] https://myridetowork.com/wp-content/uploads/2021/06/PENA-Schedule-V43.pdf

Table 8: Total TRI Center Employment by Employer (Rounded to Nearest 25)

Employer	Today[32]	2028 Projected
Tesla + Panasonic	9,500	16,000
Redwood Materials	1,475	N/A
Walmart Distribution Center	650	N/A
Walmart Fulfillment Center	475	N/A
Other	N/A	N/A
Estimated Total	20,000	26,500

This assumed 20,000 workers confirms reasonable data from the counts and subsequent assumptions to estimate employee trip flows (with 18,600 total workers traveling by car, as shown in Table 5) and the LEHD data, which showed 18,700 total workers at the TRI Center (Table 4).

6.2. Methodology

The technical approach included estimating overall demand along the corridor and then estimating the potential for rail ridership, based on the current alternate mode (shared shuttle and van services) ridership and expected travel times.

Based on the data and assumptions described above, the following are estimates about the employee demand for an average weekday along the I-80 corridor between Reno-Sparks and the TRI Center:

- 12,100 workers commute by car, with the peak hourly demand being about 2,700 (23%) in the morning.
- 1,800 workers commute by a shared service, with the peak hourly demand being about 900 in the morning.

While no rail service plan has been developed to inform these ridership forecasts, the train is assumed to be competitive with vehicles traveling along I-80. For 2028, the base demand was multiplied by 1.7 to account for the expansion of the Gigafactory. Additionally, it was assumed that I-80 construction delays may as much as double vehicle travel time (from an average of 30 minutes to 60 minutes), making the train a faster and likely more reliable option. An assumption of a 0.5% increase in ridership for each 1% change in travel time is used to estimate mode shift from the car commuters.[33]

[32] Source: Business License renewals from a recent year, as provided by Storey County.
[33] https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Transit_Service_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf

6.3. Results

Two scenarios were developed for high-level ridership estimates, focusing on maximum peak-hour demand to inform train size and capacity as well as total daily demand. It was assumed the train would run during the 3-hour peak periods – arriving at the TRI Center between 6:00 – 9:00 AM and leaving the TRI Center between 5:00 – 7:00 PM. The first scenario assumes that the rail service would replace existing shared services in the corridor, to estimate an upper limit of peak demand for this stage of feasibility testing. The 2028 scenario assumes Tesla Gigafactory expansion and significant delays on I-80 due to construction. The results are provided in Table 9.

Table 9: Ridership Estimates for a Workforce Rail Service under Existing Conditions and Forecasted 2028 Conditions

Hour	2025 Rail Ridership Estimates (*Assumes no shared services)*		2028 Rail Ridership Estimates (*Assumes I-80 construction delays, no shared services & increase in Tesla/Panasonic workers)*	
	Eastbound	**Westbound**	**Eastbound**	**Westbound**
6	900	400	3,100	1,200
7	200	500	700	1,600
8	140	50	500	100
17	30	200	100	600
18	600	300	2,000	1,100
19	300	800	900	2,600
Total	2,200	2,300	7,300	7,200

A more robust estimate of ridership would require a detailed ridership survey/analysis and a rail service plan. Rail ridership estimates can change significantly based on more specific estimates of travel time (accounting for train station locations and first/last mile connection options), fare/costs of travel by mode (unknown at this time), and demographics of the served markets. Furthermore, these initial estimates rely heavily on the current shared services riders, as they are already willing to use alternate, non-single occupant vehicle modes of transportation to work. The My Ride to Work services, based on historic schedules, run most trips to arrive for 6:00 AM shifts and leave after 7:00 PM shifts, for the “regular” shift workers. Conversations with stakeholders indicate there are many Gigafactory workers doing either 6:00 AM – 6:00 PM or 7:00 AM – 7:00 PM shifts. The My Ride to Work shuttles bracket those two shifts so that both can access the trip. This is reflected in the Table 9 ridership estimates. If rail services operate more frequently than the shared services, the peak hour demand may go down as it spreads across the hours to better accommodate actual worker shift times. A more concentrated peak-hour demand was assumed as a conservative estimate for this study’s purposes.

7 Definition of Workforce Rail Alternatives, Conceptual Design and Evaluation

This section provides an overview of the infrastructure improvements evaluated to advance Workforce Rail service, for both the Near-Term and Long-Term conditions. This section identifies and evaluates a set of capital projects needed to construct and operate Workforce Rail. Each capital project identified is supported by a set of conceptual engineering drawings provided in the Appendix.

The engineering methodology completed to date has focused on identifying the critical design requirements and base criteria that would be applicable both to the rail corridor improvement projects and to projects for the station and facilities locations needed for Workforce Rail. The engineering criteria controls and help define the feasibility and spatial requirements of design elements throughout the project.

7.1.1.1. Design Criteria

The Rail Corridor Design Criteria are compiled based on UPRR Mainline and Industry Track Design Criteria, Existing Conditions of the Corridor, and Industry Standards for regional/commuter passenger rail operations. The goal of the criteria is to summarize the base parameters used to evaluate the addition of the Workforce Rail service to existing UPRR mainline tracks by leveraging the existing infrastructure and identifying projects that may be mutually beneficial and/or reduce potential impacts to UPRR operations while accommodating the additional service. All corridor-specific projects must follow UPRR Mainline Design Criteria, with deviations for passenger rail-specific items only at station locations. All TRI Center-specific projects follow UPRR Industry Standards or industry standards for passenger rail, as existing conditions allow, with deviations only for constrained areas where applicable. The Design Criteria is detailed in Table 10.

Table 10 : Rail Corridor Design Criteria

Rail Corridor Design Criteria	Description
Vertical Profile (Mainline)	Match existing mainline top of rail profile grade for corridor improvements. The maximum ruling grade for this section is 1.0%.
Vertical Profile (Industry Track)	Maximum of 2% grade on any track shared with UPRR operations.
Vertical Profile (Workforce Rail on TRI Center property)	Absolute Maximum of 4.0% with a desirable maximum of 3.5% grade for passenger-only track.
Vertical Profile (Stations)	Desired grade is 0.0% with a maximum allowed of 1.0%
Vertical Profile (Intermodal Facility Tracks)	Desired grade is 0.0% with a maximum allowed of 0.5%
Horizontal Alignments (Mainline)	Match existing mainline corridor for degree of curvature, superelevation and track center spacing.
Horizontal Alignments (TRI Center)	Desired Maximum degree of curvature of 7^30' with Absolute Maximum degree of curvature of 10^00'
Horizontal Alignment (stations)	Desired Minimum is 1,200' tangent track at station platform to accommodate a 1000' platform with 100' clear space at both ends. Less than desired minimums must account for vehicle swing at the platform.
Siding Requirements	Any new potential station location on the UPRR mainline corridor requires a new, separate siding/station track and use of existing right-of-way (if available) to provide a level area for the platform. All new tracks will be placed to maintain a minimum of 25-foot track centers to the nearest UPRR track.
Siding Turnouts	All connections between new siding infrastructure and the existing UPRR mainline track must connect on horizontally and vertically tangent track. Typical turnout number to be #15 or greater, all power operated.
Turnouts (TRI Center Area)	All turnouts must connect on horizontally and vertically tangent track. Tangent distances preceding the turnout may be reduced with approval due to lower speeds. Typical turnout size within Intermodal Facility (IMF), Operating and Maintenance Facility (OMF) and TRI Center tracks to be #11 or greater, all power operated.
Platform Length	1,000' long platform.
Platform Width	Desired minimum side platform of 20' to accommodate passengers on a single-sided platform.

For passenger rail stations on UPRR mainline track or on shared UPRR track, the UPRR and BNSF Joint Standard – General Platform Guidelines, Standard Plan #713000, is followed. This standard has been developed to address critical clearances from adjacent tracks and required platform design elements to safely accommodate passenger rail service in a shared environment with freight trains. Standard Plan #713000 addresses only those elements critical to rail safety and operations. Elements within the passenger station will also need to comply with local, state, and federal guidelines, including but not limited to compliance with ADA accessibility requirements and NFPA 130 Emergency Egress guidelines. More extensive station facilities may be developed by local or private entities as part of station-area development.

7.1.1.2. Basis of Infrastructure Evaluation

The following guiding principles establish the basis for evaluating infrastructure improvements required to implement Workforce Rail operations within the project corridor. These principles support both the near-term goal of implementing Workforce Rail during the I-80 construction period and the longer-term vision of developing a sustainable, efficient, and attractive Workforce Rail service that supports the anticipated development and growth at the TRI Center.

- Utilizing available data, identify and evaluate possible solutions to support a workforce-specific commuter rail service that is FRA-compliant to operate in a mixed-use freight and passenger environment on an existing UPRR-owned, operated, and maintained corridor.
- Identify and evaluate constructable alignment alternatives to provide Workforce Rail service to the existing Tesla Gigafactory, collocated Panasonic employment, future Tesla Semi Truck Assembly Plant, and adjacent companies.
- Identify and evaluate alternate station locations required to support both Near-Term (Startup) service and Long-Term (Full Build) service. Station locations should minimize impacts to UPRR freight operations, TRI Center tenants, and roadway traffic.
- Identify and evaluate mainline capacity improvements to accommodate implementation of Workforce Rail service for both the Near-Term and Long-Term Alternatives.
- Identify and evaluate concepts for storage and layover facilities required to minimize impacts to UPRR mainline freight operations.
- Identify and evaluate concepts for an Operations and Maintenance facility (OMF) required to maintain the proposed Workforce Rail to support the Long-Term (Full Build) service.

7.2. Development Guidelines and Constraints

7.2.1. TRI Center Development Guidelines

The TRI Center is an industrial complex that has guidelines defined by development requirements. The Appendix contains the current standards. Although Workforce Rail is not a mode of transportation considered or described in the current standards, there are key

components within the guidelines that can be applied to potential station locations and other passenger rail facilities. Currently, there are no alternate modes of transportation operating within the TRI Center other than motorised passenger vehicles and motorcoach services. Additionally, Storey County regulations specifically prohibit the construction of sidewalks and biking infrastructure within the active industrial complex. This presents challenges for first- and last-mile connections for alternate modes of transportation such as Workforce Rail within the TRI Center, requiring door-to-door shuttle services. These challenges will require Workforce Rail station site locations to have the ability to provide easy shuttle access and connections to the current roadway system in the TRI Center to be competitive with other options. Existing employer-sponsored motorcoach operations provide on-property connections to employers within the TRI Center, as opposed to connecting at streetside bus stops or other transfer locations. Workforce Rail will need to accommodate similar door-to-door service.

7.2.2. NDOT I-80 Widening Design Review – Potential Constraints

The I-80 corridor between Vista Boulevard and USA Parkway is undergoing improvements to address frequent congestion and safety concerns caused by narrow shoulders and limited recovery space. NDOT is in the process of developing plans for widening the roadway to add one lane in each direction, provide wider shoulders, and replace five bridges within the corridor. The widening footprint is planned towards the hillside (north), between Vista Boulevard and the Mustang interchange, to minimize disruption to existing infrastructure and geographic features on the south side, including the UPRR mainline and the Truckee River. From the Mustang interchange east to USA Parkway, a majority of the widening will be symmetrical, with widening on the north and south. The proposed typical roadway section includes three 12’ travel lanes, a 10’ inside shoulder, and a 12’ outside shoulder in each direction. Table 11 summarizes specific dimensions of the existing and proposed roadway sections:

Table 11: I-80 Widening Roadway Section Comparison

	Existing (each direction)	Proposed (each direction)
Through Lanes	2 x 12 ft	3 x 12 ft
Inside Shoulder	4 ft	10 ft
Outside Shoulder	7 ft	12 ft

Given that this segment of I-80 lies within a tightly constrained canyon with the UPRR mainline and the Truckee River directly adjacent along the southern edge and mountainous terrain north through a significant section, the project team conducted a focused review of the proposed widening project to identify any areas that may restrict improvements needed for implementation of Workforce Rail. Two locations were identified that create potential challenges relating to constructing new track needed to provide additional rail capacity between Sparks and the TRI Center. The following summarizes the challenges at these critical locations.

7.2.2.1. Rainbow Bend

Based on the current design, a portion of NDOT's right-of-way overlaps with the assumed existing UPRR ROW near Rainbow Bend. It is important to note that the UPRR ROW will need to be confirmed, and an assumed 100' width was used for this evaluation. In this section, the I-80 roadway widening extends to the south, with the maximum width between the existing and new edge of pavement being approximately 18 feet. Based on the review of roadway cross-sections through this section, the southern widening will require retaining walls up to approximately 10' in height. Figure 5 illustrates the proposed widening at this location, and Figure 6 provides a design section comparison at Rainbow Bend.

Figure 5: Proposed I-80 Widening at Rainbow Bend

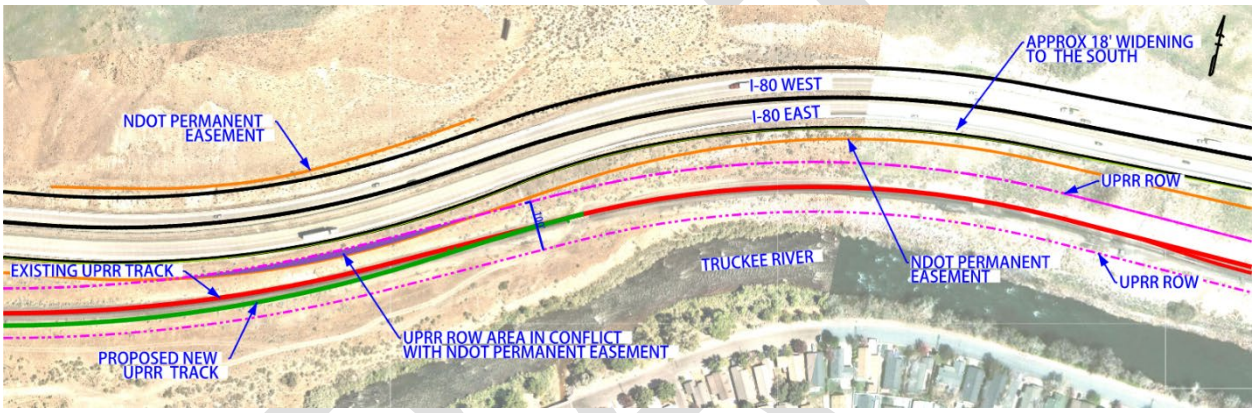
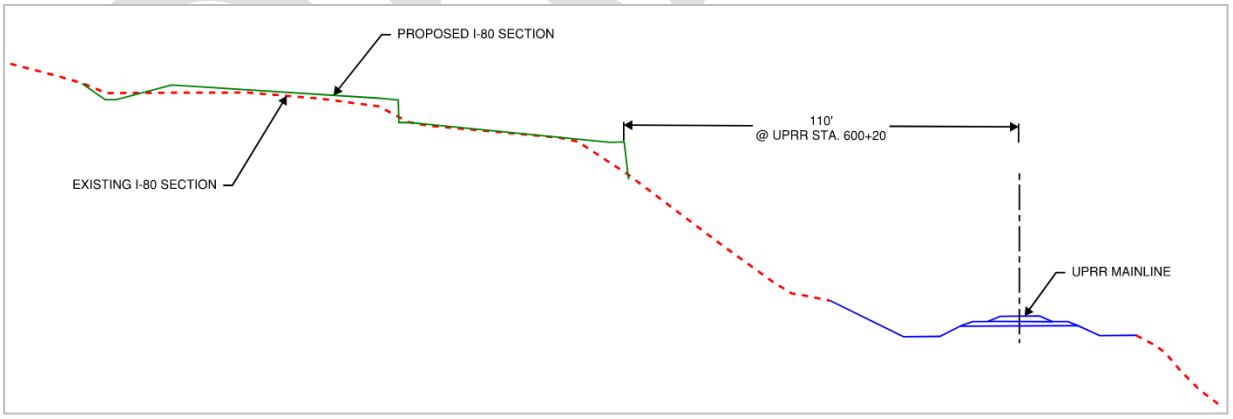


Figure 6: Comparison of Existing and Proposed I-80 Sections at Rainbow Bend



7.2.2.2. Truckee River Bend at McCarran Ranch Road

This area features narrow and steep terrain with existing retaining walls between I-80 and the existing UPRR track. The proposed I-80 improvements along this section include roadway widening to the south, with the maximum width between the existing and new edge of pavement

being approximately 11 feet. This southern widening encroaches within a portion of UPRR ROW but within NDOT's existing I-80 easement. Based on the review of roadway cross-sections along this segment, the southern widening will require retaining walls up to approximately 5' in height. Figure 7 shows NDOT's proposed I-80 reconfiguration near McCarran Ranch Road, and Figure 8 provides a design section comparison at this location.

Figure 7: Truckee River Bend near McCarran Ranch Road

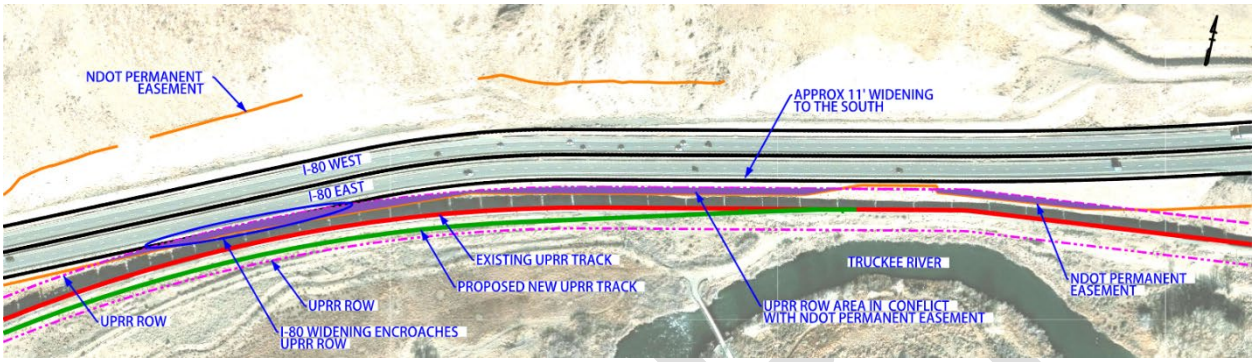
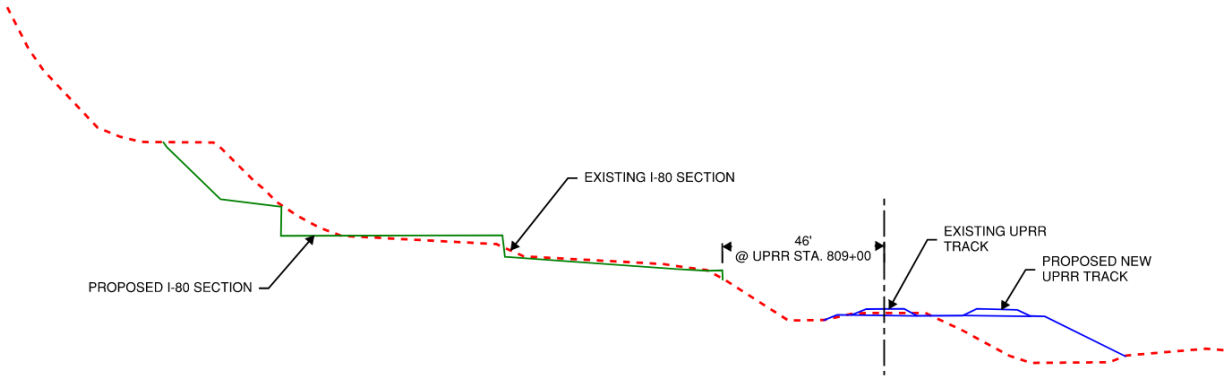


Figure 8: Comparison of Existing and Proposed I-80 Sections near McCarran Ranch Road



7.3. Workforce Rail Alternatives: Definition and Evaluation

This section describes the evaluation of options for Workforce Rail stations in Reno and Sparks for both the Near-Term Alternative and the Long-Term Alternative service scenarios. Each Alternative is defined by:

- **Alignment**: route, distance, and areas travelled through and served by stations,
- **Service Type**: defined as trainsets with a locomotive and passenger coaches with equipment that can operate on the same line as freight trains,
- **Service Schedule**: frequency and span of service (the hours between the first and last trips of the day),
- **Station Locations**, and
- **Infrastructure** required to deliver service.

Each of these characteristics are addressed in the following sections, not in the order provided above. The section begins with essential elements for the Near-Term Alternative, which ideally will be operable during the I-80 construction period and provides a station in the northern TRI Center, near the UPRR mainline. It is possible that the Near-Term Alternative may not include every feature defined here when it enters operation. The section then describes additional improvements included in the Long-Term Alternative that would be added in subsequent years. Notably, the Long-Term Alternative proposes to extend service into the heart of the TRI Center, providing an additional station near the TRI Center's busiest employment site, the Tesla Gigafactory. The Long-Term Alternative also adds a permanent OMF for workforce rail, with a site recommended at the TRI Center. The Long-Term Alternative also includes mainline railroad capacity enhancements and presents opportunities for expanded intermodal freight rail access at and near the TRI Center. It bears repeating that both alternatives are dependent upon successful negotiations with UPRR toward hosting Workforce Rail on UPRR tracks and property.

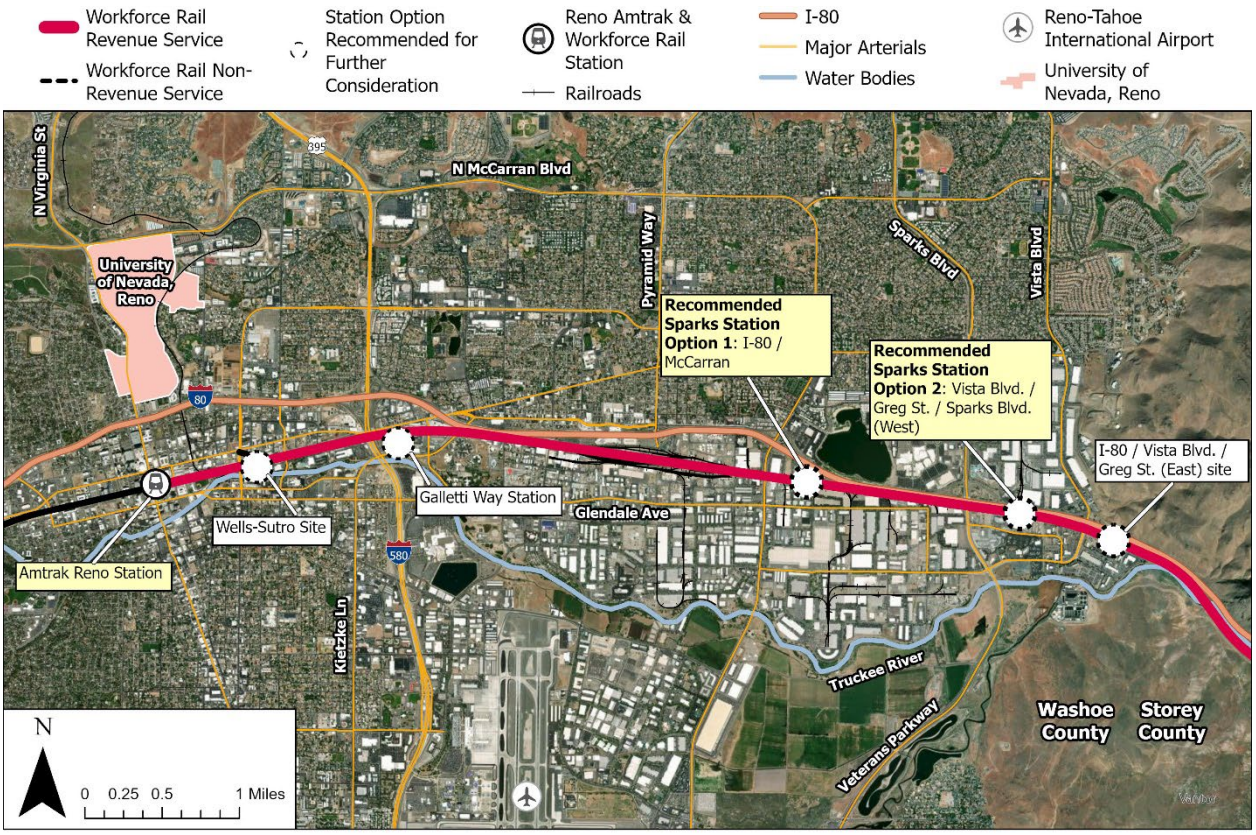
7.3.1. Stations

Each alternative will require stations serving both communities in Reno-Sparks and employment sites at the TRI Center. The same stations provided for the Near-Term Alternative would also be included in the future Long-Term Alternative, though the Long-Term Alternative would add a new station near the Tesla Gigafactory.

7.3.1.1. Reno-Sparks Station Options

The candidate station locations in Reno and Sparks are shown in Figure 9.

Figure 9: Evaluated Candidate Workforce Rail Stations in Reno and Sparks



7.3.1.1. Downtown Reno (Amtrak Station)

The downtown Reno Amtrak station, located at 280 N. Center St., currently has access to transit and intercity bus connections, available parking, and activity centers, which make it an ideal Workforce Rail access point that could be immediately available to implement Workforce Rail as part of the Near-Term Alternative. The existing station was added to the historic Southern Railroad Depot in 2006 as part of the multi-year Reno Transportation Rail Access Corridor (ReTRAC) project, and currently is only used to serve Amtrak's *California Zephyr* twice daily. Passengers enter the station at street level from E. Commercial Row. The platform for train access is at the lower level, accessed either via stairs or a provided elevator. The station is owned by the City of Reno and provides indoor waiting space for Amtrak customers. Arrangements will need to be secured for Workforce Rail trains to be served at the existing platform and for customers to have access at convenient times to the station's waiting areas and vertical circulation pathways.

This station has supportive infrastructure in place, such as a station platform (more than 800' long currently, with the ability to extend the length to 1000') on the southern mainline track, an indoor

waiting area, and accessible paths from street level to the platform in the trench. Intercity motorcoach services, including Greyhound, directly connect to the station. The station is located one block from the region's primary public transit hub, RTC's 4th Street Station, which is connected to multiple bus routes and both region's BRT lines. Additionally, several parking garages in the surrounding area currently have capacity for station parking. The station is centrally located for walk and bike access from the entire downtown area.

7.3.1.2. Other Evaluated Reno and Sparks Station Options

In addition to the Reno Amtrak Station location, a Workforce Rail station on a siding clear of the UPRR mainline track would offer significant operational benefits and provide an attractive travel choice for residents en route to and from the TRI Center. This concept was shared throughout the project's stakeholder engagement process and received positive feedback for Near-Term and Long-Term service, providing convenience for commuters. Ultimately, a new station located clear of the mainline would likely be required by UPRR to minimize impacts to freight operations. A new station should be located with direct access to I-80 and/or major arterials for convenient station access for parking and/or connections to RTC transit services and other transportation operators.

The 2021 Nevada State Rail Plan notes that Sparks, NV, had an Amtrak stop prior to May 2009. However, the passenger station was co-located within the limits of the UPRR freight yard, which is currently not accessible for Workforce Rail operations.

Stakeholders have noted that a desired location for a Sparks station would be near the RTC's Centennial Plaza Station at 1421 Victorian Ave. Parking lots belonging to the Nugget Casino Resort, currently made available for commuter parking, are located between the railroad corridor and Centennial Plaza Station. This area currently serves as a pick-up and drop-off point for My Ride to Work commuter buses and associated parking serving the TRI Center. However, UPRR Sparks Yard facilities in this vicinity likely prevent near-term access to the mainline track area without significant modification to or relocation of the existing UPRR intermodal facility (IMF). Because this location requires significant modification to the existing UPRR IMF, it was not considered as an option for this study but should be explored further for future consideration.

Other potential station locations that show promise for park-and-ride access and multimodal connectivity are described in this section. The project team identified a set of potential station locations that could be implemented while the initial Near-Term Alternative service would be in operation. Five potential station options were evaluated for the study, with two options recommended to advance for further evaluation. A sixth station option was identified early in the project at I-80 and S. Rock Blvd to achieve proximity to RTC's Centennial Plaza Station as discussed above but was not advanced as it was determined to be in direct conflict with future I-80 expansion projects and unfeasible.

In addition to the existing Reno Amtrak station, the five other station locations evaluated for Near and Long-Term service are described in Table 12.

Table 12: Evaluated Station Locations in Reno and Sparks (in Addition to the Amtrak Reno Station)

STATION OPTION	DESCRIPTION	BENEFITS	CHALLENGES
N Wells - Sutro St. Station, Reno (Not recommended for further study)	Located along the UPRR corridor approximately 0.5 miles east of the existing Amtrak Reno Station and at the western end of the downtown trench.	• Leverage existing City owned property for station site, does not appear private ROW acquisitions required. • Ability to accommodate a 1000' platform on tangent track with thru track configuration.	• Location is in Reno, near the existing Amtrak station • Location site is constrained by the start of the RR trench to the west and the Sutro At-grade crossing to the East. • New at-grade crossing configuration at Sutro Street that widens the crossing to 70' increasing safety concerns for trapping pedestrians and motorists • Only 0.5 miles from Reno Amtrak Station site, not resolving concerns of a downtown station and access from the North and East. • Requires part of downtown Trench wall to be removed making feasibility uncertain • Appears to require additional pier protection for Wells Ave. overpass • No visibility of station from I-80 • No direct or easy connection to I-80
Galletti Way Station, Reno and Sparks (Not recommended for further study)	Located along the I-80 Corridor west of 580 and east of Greg Street. This station option would pull a new station siding track off the UPRR mainline corridor to the North.	• Location would capture employees on their way to the TRI Center rather than require them to commute into Reno or westbound instead of eastbound	• UPRR Mainline is on a horizontal curve at station site location, less desirable and will require variances / approvals • Station siding track will need to extend through curve limits to connect in areas of tangent, unknown feasibility and increased cost. • No visibility of station from I-80 • No direct or easy connection from 580, but appears to be visible to those drivers • No direct or easy connect from I-80 • Private ROW acquisitions required
I-80 / S McCarran Blvd Station, Sparks (Recommended for further study)	Located along the I-80 Corridor east of McCarren Blvd. This station option would pull a new station siding track off the UPRR mainline corridor to the North.	• Direct or easy connection to I-80 using Nugget Ave • Visibility of station from I-80 to potentially drive awareness of service or allow drivers to see competitive travel times	• Removal or relocation of highway billboard • Private ROW acquisitions required • May require reconfiguration of UPRR maintenance access road

STATION OPTION	DESCRIPTION	BENEFITS	CHALLENGES
		• Layout would avoid the existing signal bridge to the west • Layout does not have horizontal constraints to the east • Location would capture employees on their way to the TRI Center rather than require them to commute into Reno or westbound instead of eastbound	
Vista Blvd. / Greg St. / Sparks Blvd. (West) Station, Sparks (Recommended for further study)	Located along the I-80 Corridor west of Sparks Blvd and east of Greg Street, this station option would pull a new station siding track off the UPRR mainline corridor to the South.	• Visibility of station from I-80 to potentially drive awareness of service or allow drivers to see competitive travel times • Location would capture employees on their way to the TRI Center rather than require them to commute into Reno or westbound instead of eastbound	• No direct or easy connection to I-80 • Private ROW acquisitions may be required
I-80 / Vista Blvd. / Greg St. (East) Station, Sparks (Not recommended for further study)	Located along the I-80 Corridor east of Greg Street this station option would pull a new station siding track off the UPRR mainline corridor to the North.	• Visibility of station from I-80 to potentially drive awareness of service or allow drivers to see competitive travel times • Location would capture employees on their way to the TRI Center rather than require them to commute into Reno or westbound instead of eastbound • Property for proposed station site appears to be either NDOT or UPRR ROW, minimizing private ROW acquisitions	• Station location access is very challenging, requiring a one-way loop coming off of the I-80 EB On Ramp and then a new bridge/overpass under I-80 to connect to the I-80 WB off ramp • Large infrastructure projects required for implementation • Station location is constrained with limited tangent track on the UPRR Mainline corridor. Site is constrained between two existing horizontal curves.

Reno and Sparks Stations Evaluated and Not Recommended for Further Consideration

The N. Wells - Sutro St. site, while potentially suitable, is too close to the Amtrak station to offer appropriate station spacing in addition to the Amtrak station. The Galletti Way station option, on the border between Reno and Sparks, was similarly found to be unnecessary as an additional station in Reno should the existing Amtrak station site advance. As a Sparks station location, Galletti Way was determined to be too far west to provide optimal access. The I- 80 / Vista Blvd. / Greg St. (East) Station in Sparks appeared attractive at first as a site with potentially available, publicly controlled property. Upon further analysis, it was determined that this location requires costly roadway improvements to provide site access, and the controllable property is within the I-80 construction zone. None of these candidate station sites are recommended for further consideration.

The following figures show conceptual site plans for the Reno and Sparks Workforce Rail station options that are not recommended for further consideration.

Figure 10: N Wells - Sutro St. Station Option, Reno (Not Recommended)

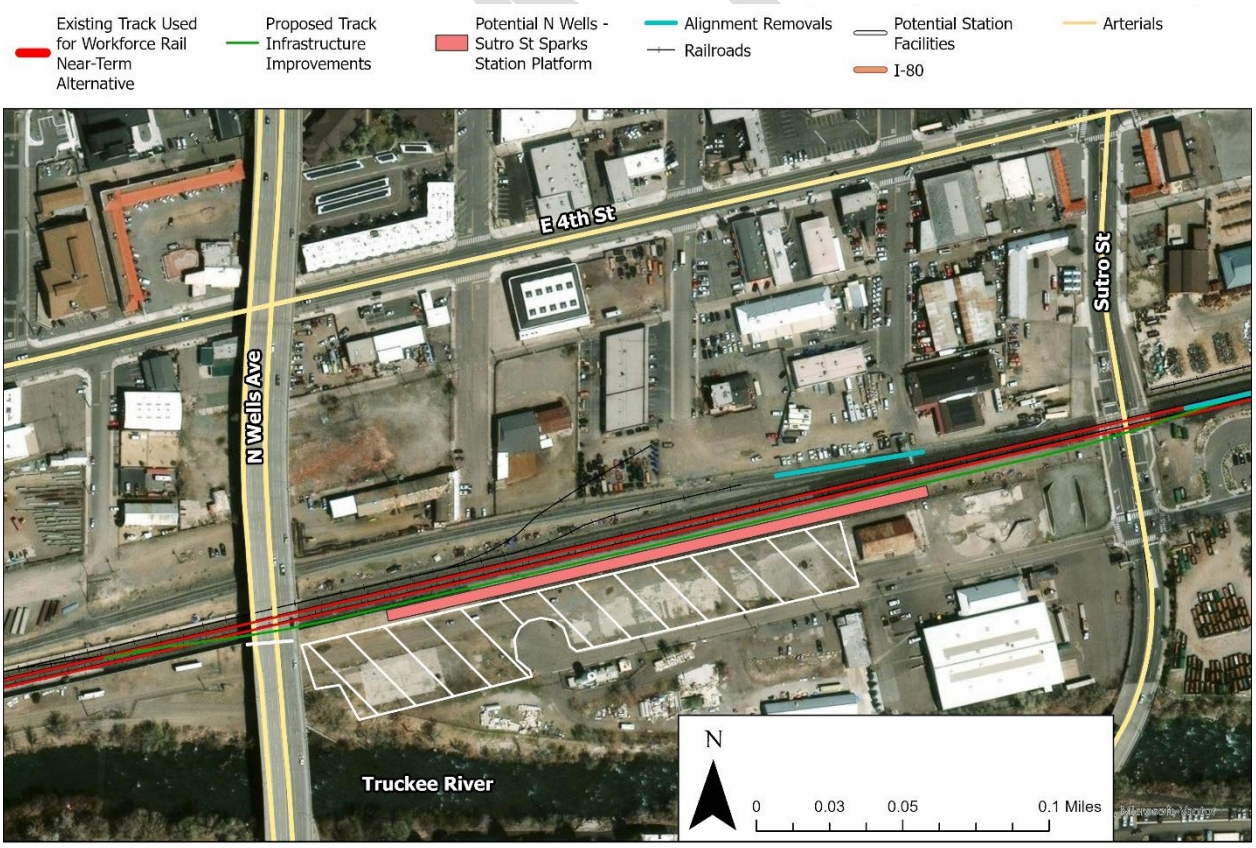


Figure 11: Galletti Way Station, Reno and Sparks (Not Recommended)

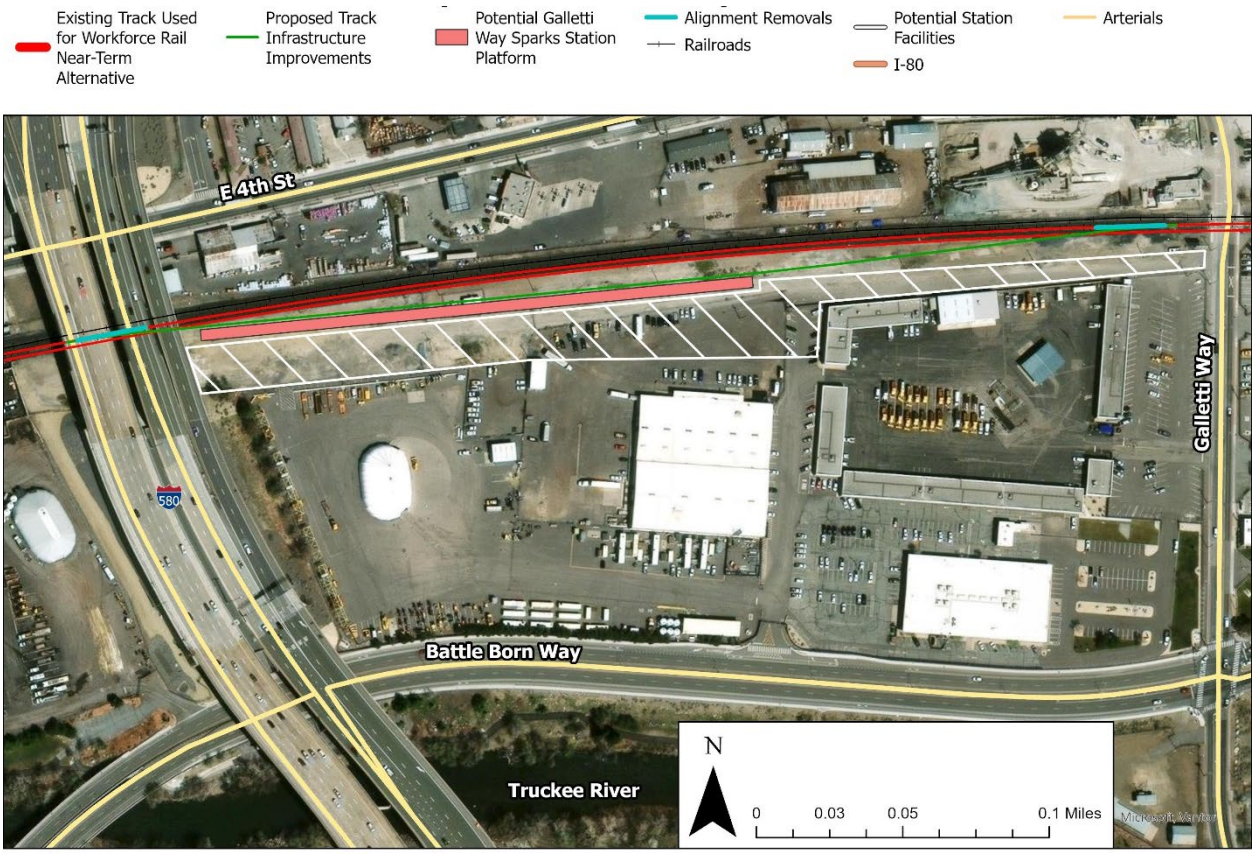
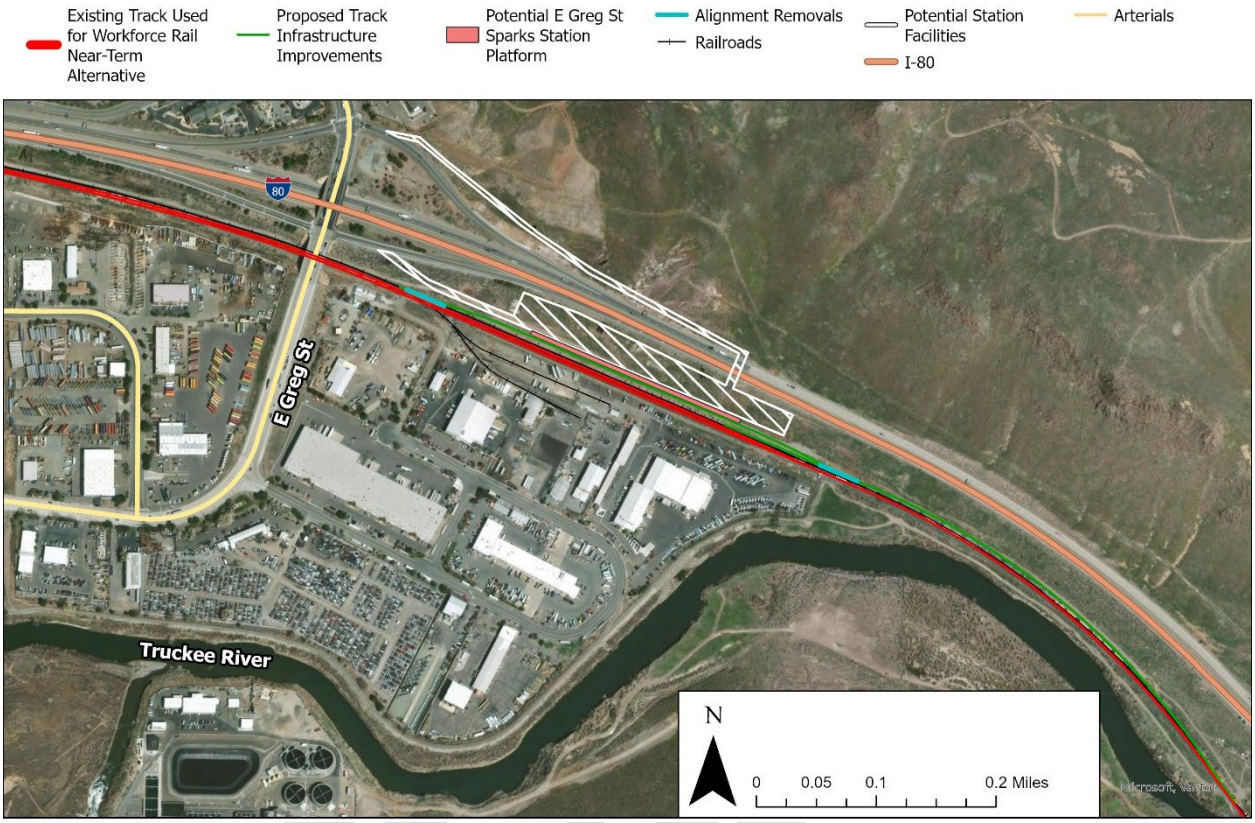


Figure 12: I-80 / Vista Blvd. / Greg St. (East) Station, Sparks (Not Recommended)



Recommended Station Options in Reno and Sparks (for the Near and Long-Term Alternatives)

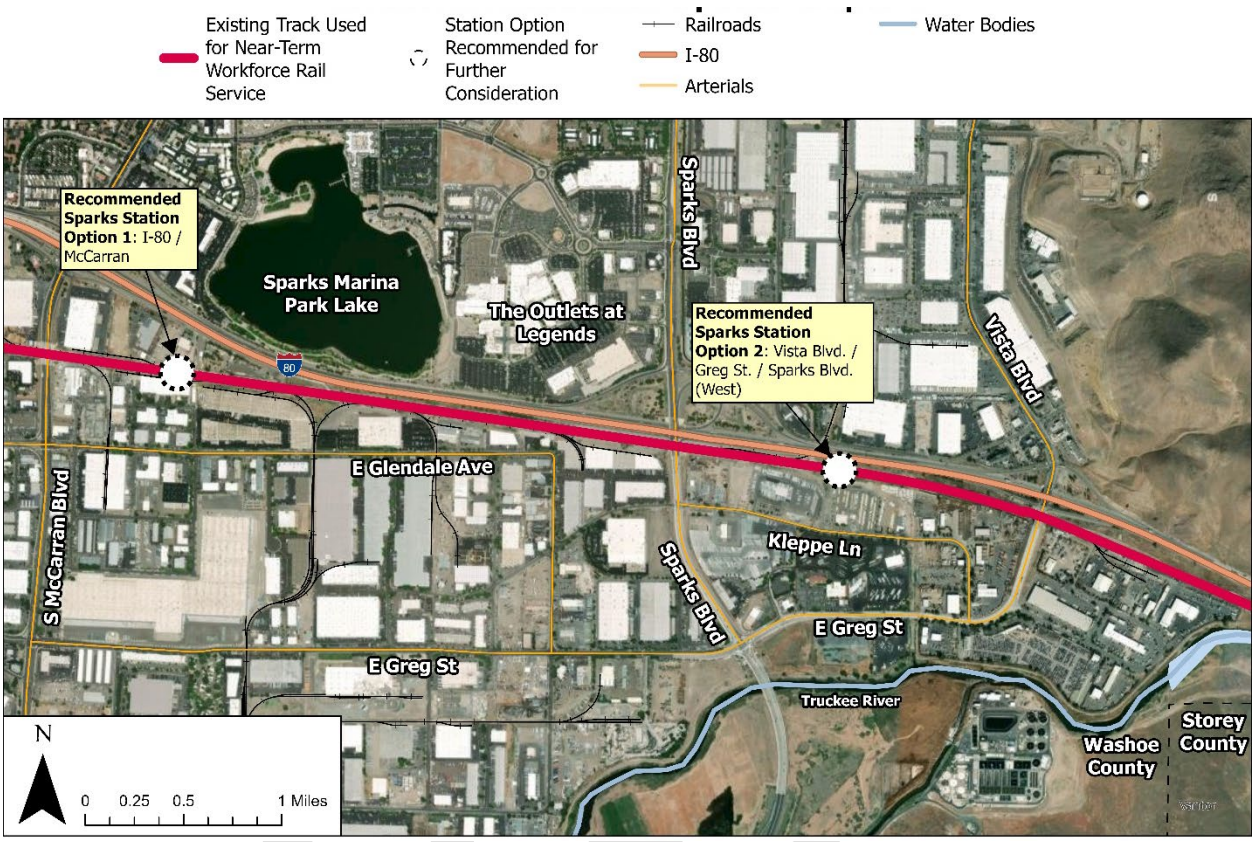
The existing Amtrak Reno Station is recommended as the only station within the city of Reno currently. The station is an existing facility serving passenger rail and is well-located for Workforce Rail in the central business district with adjacent multimodal connections.

The two candidate Sparks stations recommended for further consideration in the next phase of the project are the I-80 / McCarran Station and the Vista Blvd. / Greg St. / Sparks Blvd. Station. These locations offer the advantage of capturing potential Sparks-vicinity employees on their way to the TRI Center rather than requiring them to backtrack into Reno to take the train. The recommended Sparks station options are further detailed in the following sections.

Figure 13 shows the recommended Near-Term stations in Reno and Sparks. Figure 14 focuses on two candidate Sparks stations recommended for consideration in the next phase of the study. Figure 15 and Figure 16, respectively, show conceptual site plans for the Sparks station Options 1 and 2.

Figure 13: Workforce Rail Candidate Reno and Sparks Stations Recommended for Further Consideration

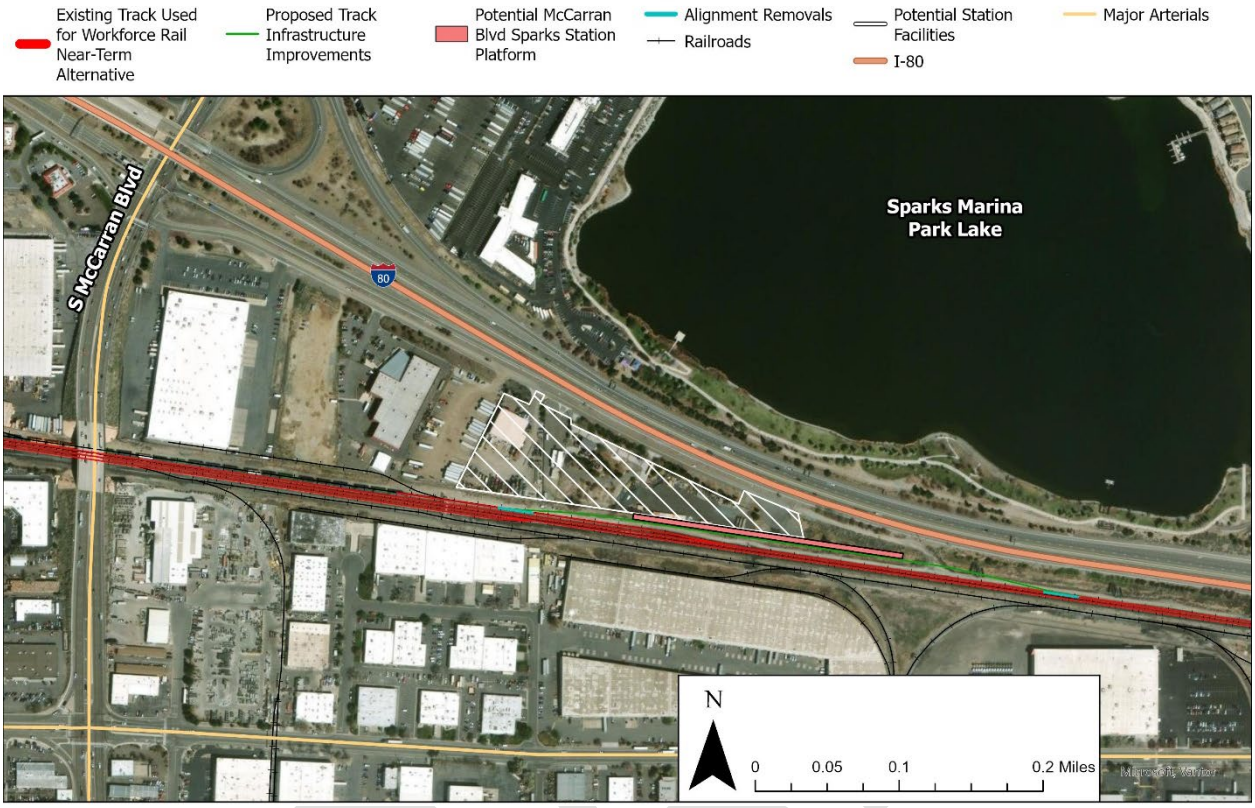
Figure 14: Candidate Sparks Stations Recommended for Further Consideration in the Next Phase of Workforce Rail Advancement



Sparks Station Option 1: I-80 / McCarran

The McCarran Station site is located along the I-80 Corridor east of McCarren Blvd and would include a new station siding track branching from the UPRR mainline corridor to the north. The McCarran Station offers several advantages. It is located east of the downtown area and connects to highways, capturing employees on their normal routes to the TRI Center. It also provides convenient access from I-80 via Nugget Avenue and is highly visible from the highway, which could encourage mode shift among drivers. Some publicly controlled properties in the area offer the potential for park-and-ride and multimodal station elements. This station is shown in Figure 15.

Figure 15: Sparks Station Option 1—McCarran Blvd.

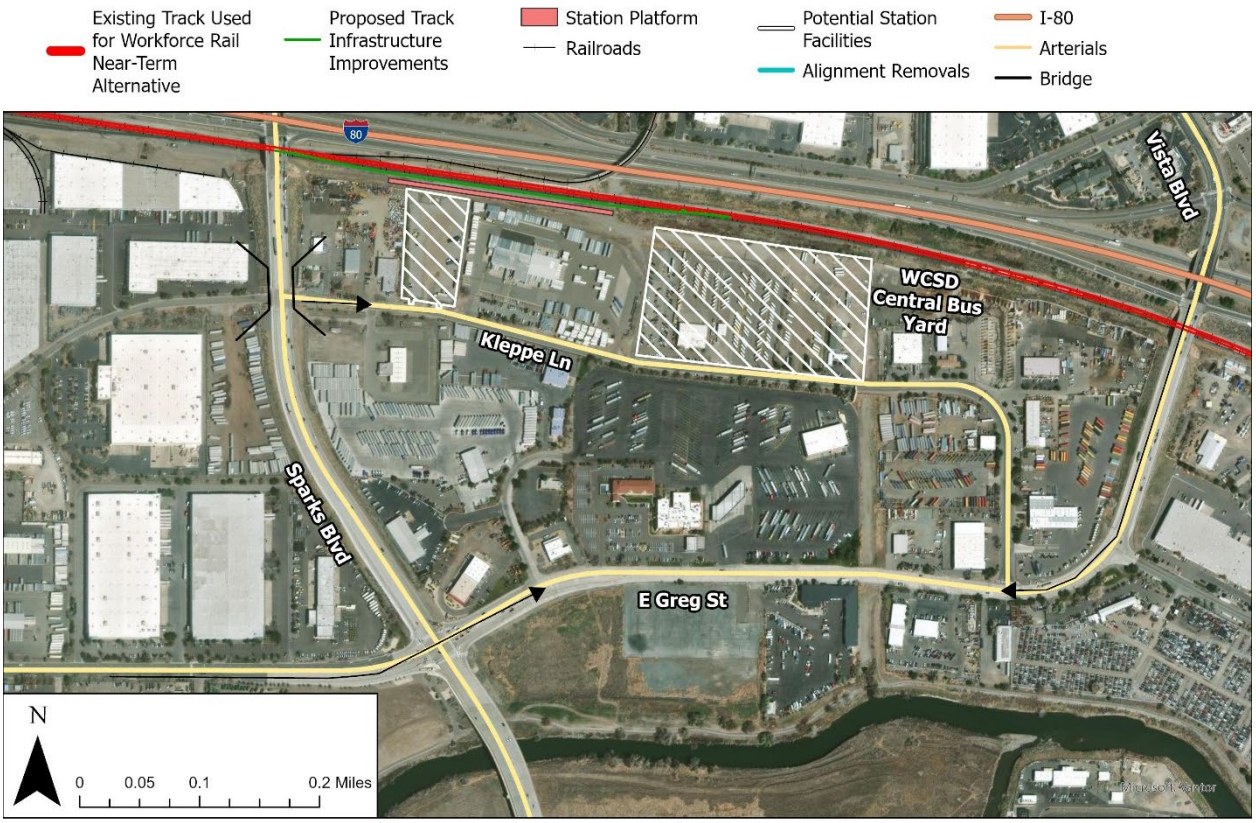


This location also presents some challenges. The concept would require the removal of existing highway billboards in the area, acquisition of private right-of-way, and reconfiguration of the existing UPRR maintenance access road. The site would also require Workforce Rail trains to transition from the southern main track to tracks north of the mainline at the station site if the Amtrak Reno station is to be used long-term. UPRR may also find value in maintaining the northern main track for freight-only movements, simultaneous with Workforce Rail movements. These constraints and opportunities should be explored in greater detail during the next phase of the study.

Sparks Station Option 2: Vista Blvd. / Greg St. / Sparks Blvd. (West)

The Vista Blvd. / Greg St. / Sparks Blvd. (West) Station site is located along the I-80 Corridor west of Sparks Blvd and east of Greg St., which is the southern continuation of Vista Blvd. This station could be configured with a new siding track off the existing UPRR mainline along the southern edge of the corridor. The platform would be located on the same track as the existing Reno station and would be visible from I-80, which would potentially encourage drivers to shift to rail. Access to this location would be from Kleppe Lane via Greg Street. This station location is shown in Figure 16.

Figure 16: Sparks Station Option 2—Vista Blvd. / Greg St. / Sparks Blvd.

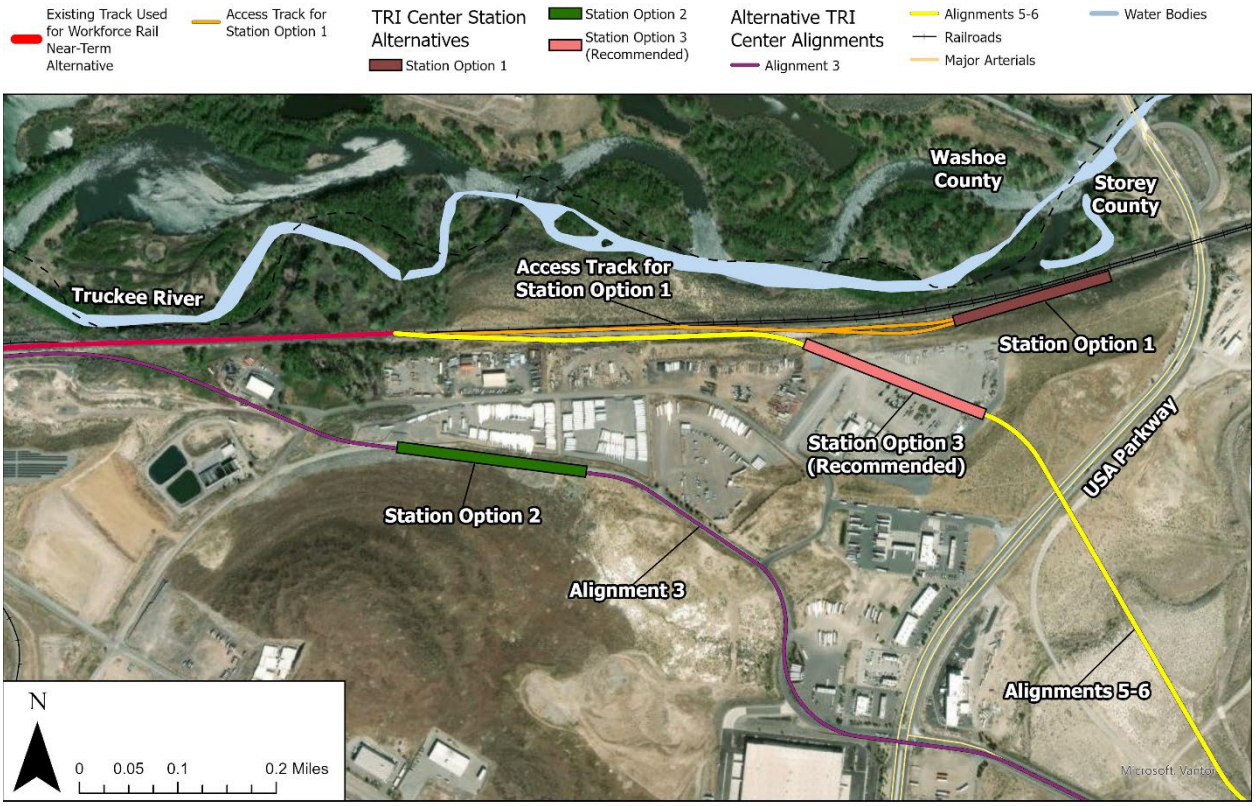


The site is adjoined by a Washoe County Schools bus yard that could potentially be consolidated or relocated and repurposed for park-and-ride and multimodal facilities. Given the site's current use, access conditions appear appropriate for bus and motorcoach connections to the station.

7.3.1.3. TRI Center USA Parkway Station Options (Near-and Long-Term)

Three TRI Center station location options in the vicinity of USA Parkway were evaluated for a Near-Term Alternative station, with the expectation that this station would provide ongoing utility for the future Long-Term Alternative with its extension to the Tesla Gigafactory. Even if a station near the Gigafactory is provided, this initial near-term station near USA Parkway would remain to provide a transfer hub for TRI Center employers not working at or directly adjacent to the Gigafactory. All three Near-Term and Long-Term USA Parkway station options are situated near the UPRR mainline and are displayed in Figure 17. These potential station locations are referred to in this section as USA Parkway Station options.

Figure 17: TRI Center Near-Term / Long-Term USA Parkway Station Options



Three candidate station sites were identified for the Near-Term service at the TRI Center. Sites were identified that are close to the UPRR mainline to minimize Near-Term capital costs and implementation complexity. The station locations are also situated as near as possible to USA Parkway to provide direct access to workplaces throughout the TRI Center for first / last-mile shuttle transfers. These USA Parkway Station options are generally located on or near proposed Long-Term Workforce Rail alignment options for a future extension to the Gigafactory as part of the Long-Term Alternative.

USA Parkway Station Option 1 is located off the existing UPRR Siding Track 130. Two new siding tracks would be constructed adjacent to the UPRR mainline corridor and follow the UPRR mainline track profile to reduce earthwork and potential for retaining walls between the two facilities. The station would be located in the southwest quadrant of the USA Parkway overpass at the UPRR mainline corridor. This station site does not require significant rail infrastructure to implement; however, the station platform and bus transfer lot will require significant excavation to closely match the existing UPRR mainline grade. The roadway connection to USA Parkway will require a significant vertical grade to navigate the 20-to-25-foot elevation difference between the parkway and station site.

This station site is conveniently located for a Near-Term introductory Workforce Rail service. Yet it is not located on any of the TRI Center Long-Term Workforce Rail alignment options and therefore would not integrate well with Long-Term operations. Service to this station upon

completion of an extension of Workforce Rail to the Gigafactory would require a split service operation with reversing movements, making service less efficient, less attractive, and more costly to operate. Without integration into the Long-Term Alternative scenario, capital costs related to this station would be in addition to any Long-Term Alternative corridor and not shared with those options.

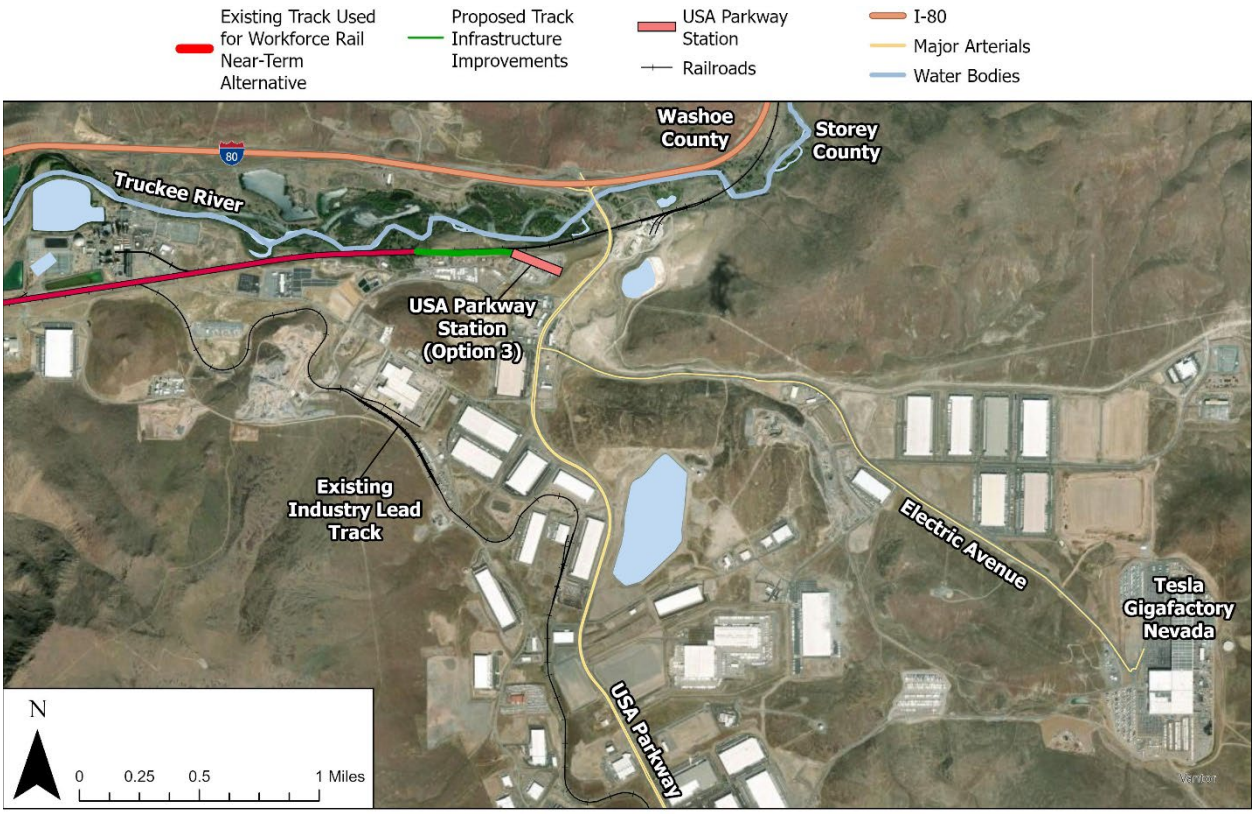
USA Parkway Station Option 2 is on the proposed TRI Center Long-Term Alignment Option 3, in an area currently undeveloped along Britain Drive. Unlike the USA Parkway Station Option 1, this station location will allow for an extension to the Tesla Gigafactory on the recommended alignment, recovering the initial capital costs in the Long-Term Alternative. The challenges related to this station location include requiring a new connection to the UPRR mainline at a location that requires significant embankment or a bridge to construct. It appears the alignment may require utility relocation in the area connecting to the UPRR mainline corridor. Additionally, the station location on Britain Drive will require significant excavation to construct a station and bus transfer lot. The extension of this future alignment to Tesla will also require an at-grade crossing at USA Parkway.

USA Parkway Station Option 3 is located on the Long-Term TRI Center Workforce Rail Alignment Options 5 and 6 in a location currently developed and occupied. This location provides a more direct connection to the UPRR mainline from Siding Track 130 with minimal grading required to match the existing mainline rail profile. This reduces the initial capital costs and projects required for implementation. This location also provides the opportunity for direct shuttle access to USA Parkway. An extension of this general alignment to Tesla provides an opportunity for a grade-separated crossing of USA Parkway with the rail alignment crossing under the existing grade of the roadway, eliminating future impacts to roadway traffic.

7.3.1.4. Recommended USA Parkway Station (Near-and-Long-Term): Option 3

The recommended alignment combines TRI Center Workforce Rail Alignment Option 6 with USA Parkway Station Option 3. The proposed initial station location would be on the proposed southern track and currently shown on the existing tenant property west of USA Parkway. This initial option would not require the grade-separated crossing with USA Parkway to be constructed prior to service implementation. The recommended Near-Term alignment and USA Parkway Station are shown in Figure 18.

Figure 18: Recommended Near-Term Alternative at the TRI Center and USA Parkway Station



This site benefits from an existing siding track connection, making it effectively "shovel-ready." It is also aligned with the recommended Long-Term Alternative as described in Section 7.3.4, which supports a less capital-intensive, phased approach. However, this location also presents some challenges. One to two existing customers or tenants within the TRI Center would need to be relocated, which will require further evaluation in the next phase of the study.

The station's access alignment connects two lead tracks to the UPRR mainline at the existing switch location for siding Track 130, both following the mainline corridor for about 1000' before turning south. After turning south, there is a tangent section of track, west of USA Parkway, that is proposed as the initial station location. As described in Section 7.3.2, this station location and alignment are also recommended for hosting service to and from the recommended location for an Operations and Maintenance facility as part of the Long-Term Alternative. This alignment is also recommended for evaluation of a new freight Intermodal Facility, as described in Section 7.3.9.

Both station tracks would be reserved for Workforce Rail operations in the Near-Term Alternative. In the Long-Term Alternative, the southern track is potentially available for freight intermodal access. A grade-separated crossing of USA Parkway is not required for the Near-Term Alternative but is required to support the Long-Term Alternative extension to the Gigafactory. The addition of a universal crossover would allow for this adjustment in the initial service to address layover needs

and avoid additional movements on the UPRR mainline corridor back to Reno in between TRI Center services.

The two remaining USA Parkway station options are not recommended for advancement due to significant challenges, including the need for extensive earthwork to construct the bus transfer facility, limited storage capacity, and the requirement for multiple bridges, as well as a new UPRR mainline connection. USA Parkway Station Option 1, which was identified as a potentially attractive Near-Term station solution, was ultimately removed from further consideration as its utility in the Long-Term Alternative was not evident.

7.3.2. Overnight and Mid-Day Layover Yard Options

Due to the distance between the TRI Center and the Reno-Sparks area, a location at each end of the corridor is necessary to stage and store trains. Having storage capability on each end of the service will reduce the necessary passenger train occupancy of the UPRR mainline corridor, allowing for greater operational flexibility for the UPRR and the Workforce Rail service. In the Near-Term, this need is greatest at the Reno-Sparks end of the corridor for overnight storage and basic servicing.

At the TRI Center end, the proposed Near-Term station site would provide sufficient station track capacity for mid-day staging and storing of trains, with a transition to layover capacity at both the Gigafactory and the OMF in the Long-Term Alternative. In the Reno-Sparks area, there is not the same opportunity to modify an existing station or design a proposed station into a large enough facility to layover trains for the proposed Workforce Rail service, because the Reno-Sparks area is more developed and the UPRR corridor is constrained through the downtown area.

Three layover locations were evaluated in the Reno-Sparks area to accommodate staging, storing, and light maintenance of the Workforce Rail passenger trainsets: Option 1 – Woodland Avenue; Option 2 – Wells Avenue / Sutro Street (North); and Option 3 – Wells Avenue / Sutro Street (South). Descriptions of each are described in the following tables and figures.

Figure 19: Candidate Trainset Layover Facilities in Reno

Table 13: Layover Facility Option 1 – Woodland Avenue (West Reno)

Description	Key Highlights and Challenges
The Woodland Ave. layover facility is located approximately 5 miles west of Downtown Reno. The facility would utilize an existing mainline connection for a current industry customer to create a stub end facility. The Woodland Ave. layover facility has 6 different stub end tracks with each track able to hold a 1000' length train consist. The tracks are split between 3 on the west side of Woodland Ave. and 3 on the east side	▪ Utilizes existing UPRR mainline connection reducing mainline impacts ▪ Available Right of Way with minimized impacts to existing adjacent property owners ▪ Any switching movements for this facility will have impacts to the roadway network with prolonged gate downtimes at the Woodland Ave. crossing ▪ Turnouts for the yard are closer than preferred to the at-grade roadway crossing with Woodland Ave, increasing complexity of the grade crossing signal system ▪ The 6th storage spot is not usable during times the UPRR is serving the existing industrial customer ▪ The existing industrial customer lead track would need to be reconstructed including the at-grade crossing at White Fir Street to accommodate the new turnout configuration of the layover yard. ▪ The existing Truckee Meadows Water Authority White Fir Street construction water fill site would need to be relocated. It appears there is opportunity within the proposed layover facility for this relocation. ▪ The private parcel at the western edge of the proposed site will need a new driveway connection ▪ Being 5 miles away from the Reno Amtrak Station will add run time and extended track occupancy windows and more non-revenue mileage on the UPRR mainline tracks.

Figure 20: Layover Facility Option 1 – Woodland Avenue (West Reno)

Table 14: Layover Facility Option 2 – Wells Avenue / Sutro Street (North)

Description	Key Highlights and Challenges
This layover facility is located at the connection of the UPRR Reno Subdivision and UPRR Nevada Subdivision about 0.5 miles east of the existing Amtrak Downtown Reno station. The facility would utilize the existing mainline connection for the Reno Subdivision. This would be a stub end facility. This facility has 5 stub end tracks with each track able to hold a 1000' consist. The City owns the property adjacent to the rail ROW and west of the Wells Ave. overpass.	▪ Utilizes existing UPRR mainline connection for the Reno Subdivision ▪ Requires complex non-revenue train movements at the junction of the UPRR Nevada and Reno Subdivisions, a double crossing of the Sutro Street at-grade crossing, and access to both Nevada Subdivision mainline tracks. ▪ Stub end facility that may impact the Siding Track 803 operations and connection to Reno Subdivision. ▪ Nonrevenue train movements to and from the Reno Amtrak Station require a pause and change of direction at the station. ▪ Final yard configuration subject to Wells Ave. Overpass piers. Anticipated additional pier protection would be required. ▪ Multiple private Right-of-Way acquisitions required east of the Wells Avenue overpass. ▪ Stakeholders have expressed an interest in evaluating at a future time an extension of passenger rail service to the University of Reno, Nevada and points north along the Reno Subdivision. This location would likely be a candidate station option for such a service extension.

Figure 21: Layover Facility Option 2 – Wells Avenue / Sutro Street (North)

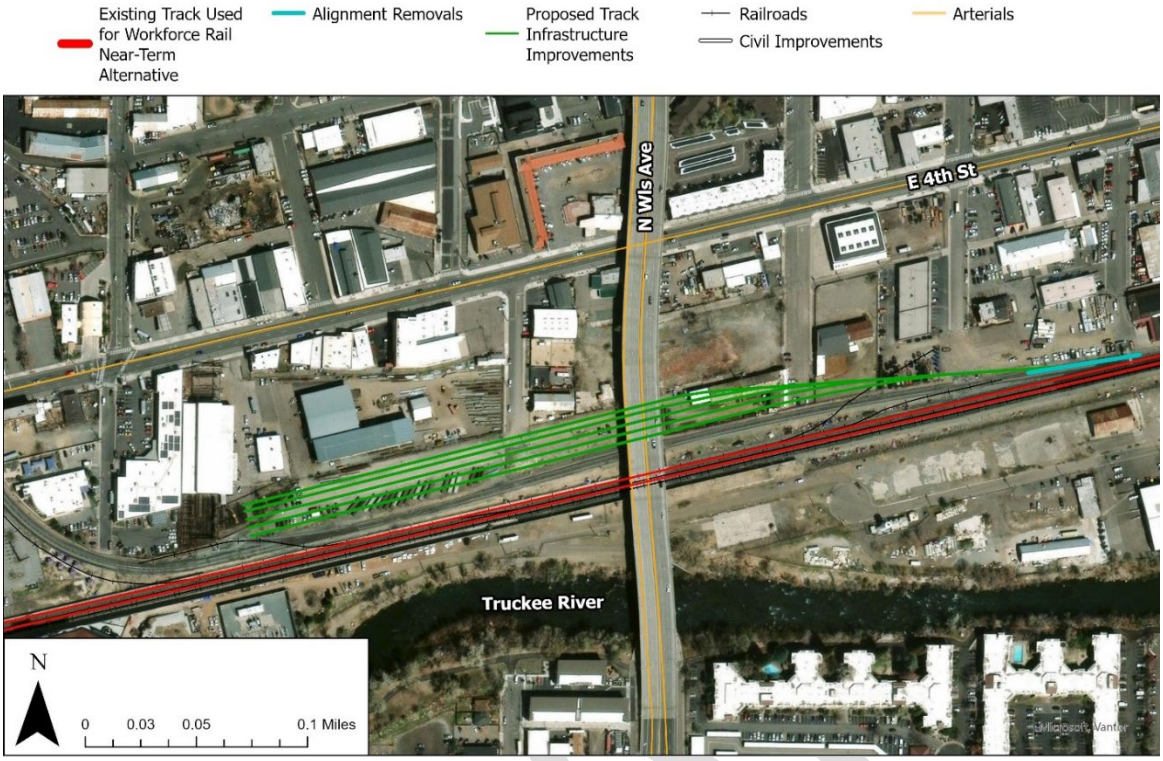


Table 15: Layover Facility Option 3 – Wells Avenue / Sutro Street (South)

Description	Challenges
The Wells Ave / Sutro Street South layover facility is located between Sutro Street and Wells Ave. on the south side of the UPRR mainline corridor about 0.5 miles east of the existing Amtrak Downtown Reno station. The facility would require a new mainline connection. This would be a stub end facility. This facility has 5 different stub end tracks with each track able to hold a 1000' consist.	▪ The parcel is located between the Truckee River and the start of the rail trench for the downtown Reno area. ▪ The existing Sutro at-grade crossing would be modified adding 2 additional tracks and widening it to a 100'+ wide crossing, significantly increasing safety concerns for pedestrians and motorists to be trapped within the crossing. ▪ Track centers within the yard would be modified to 15' in one case (between tracks 2 and 3) to keep special trackwork outside the limits of the at-grade roadway crossing. ▪ Stub end facility that would impact the Sutro St. crossing and UPRR mainline track for any track switching within the facility. Two reversing movements on the mainline would be required to serve the Reno Amtrak station: a backing movement eastward out of the yard, with change of direction westward on the main line; and a pause and change of direction at the Reno Amtrak Station. These reversing movements would extend passenger train track occupancy on the UPRR mainline. ▪ Final yard configuration subject to Wells Ave. Overpass piers. Anticipated additional pier protection would be required.

Figure 22: Layover Facility Option 3 – Wells Avenue / Sutro Street (South)

the

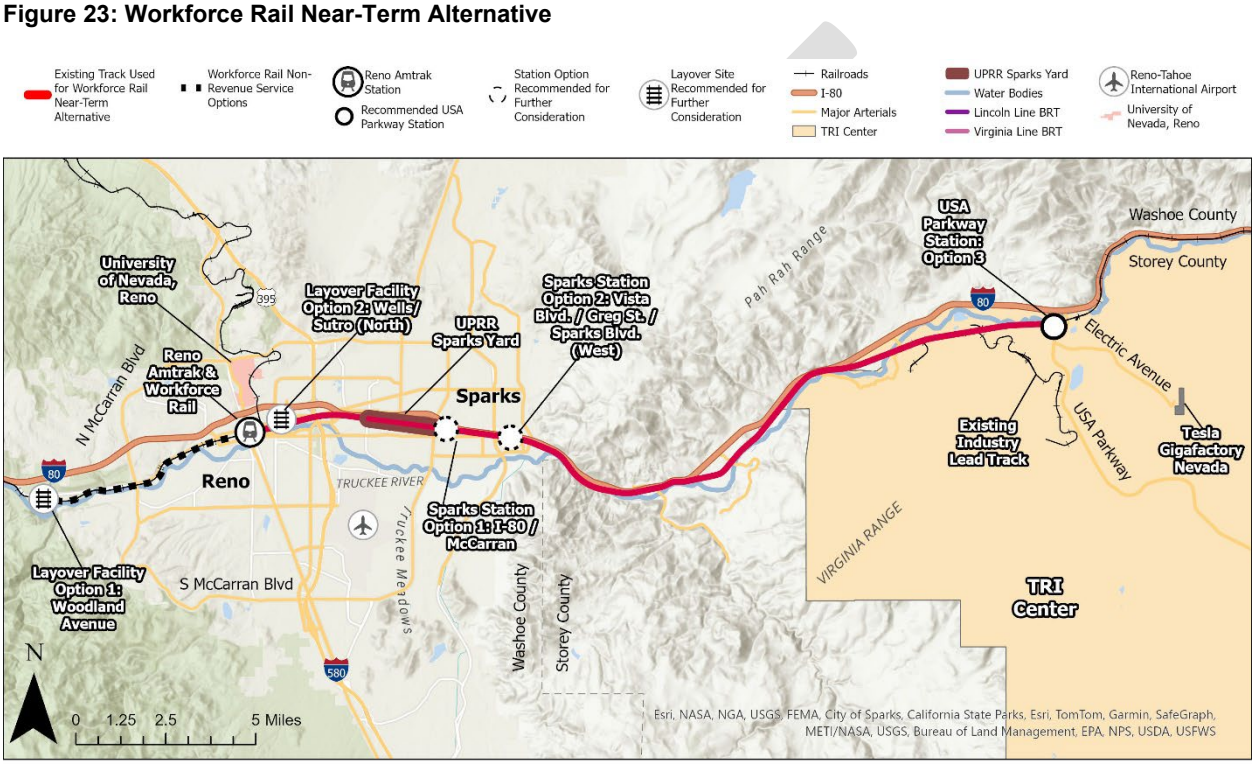
7.3.2.1. Recommended Layover Facility Options in Reno-Sparks

This report recommends carrying two layover sites into the next phase of the study for further consideration. These sites are Option 1, the Woodland Avenue (West Reno) site, and Option 2, Wells Avenue / Sutro Street (North) site. Both sites will require non-revenue movements on the mainline to support Workforce Rail operations. Option 2 minimizes non-revenue mileage yet requires complex mainline moves, including reversing and two crossings of the Sutro Street at-grade crossing to enter service. Option 1 would require a much longer non-revenue move of approximately 5 miles in each direction, though the move is simple and stays on the UPRR south mainline track, the track that the existing Amtrak station adjoins. The non-revenue access distance could change in the future for either site if an additional station location is warranted on the west side of Reno.

7.3.3. Recommended Workforce Rail Near-Term Alternative

The Workforce Rail Near-Term Alternative includes a minimal set of capital improvements required to operate the initial Workforce Rail service during the I-80 construction period. It would operate along a 19-mile corridor between the existing Reno Amtrak Station and a new TRI Center Station located just off the UPRR right-of-way, near USA Parkway. The full Near-Term Alternative is shown in Figure 23.

Figure 23: Workforce Rail Near-Term Alternative



At the TRI Center, two lead tracks extend from the UPRR mainline at the existing switch location for siding track 130, both following the mainline corridor for about 1000' before turning south. The initial concept is for a station platform to be constructed between the two lead tracks, at a property to be acquired near London Drive and USA Parkway. Having two tracks enables one track to be used for midday storage, while keeping a second track free for revenue service.

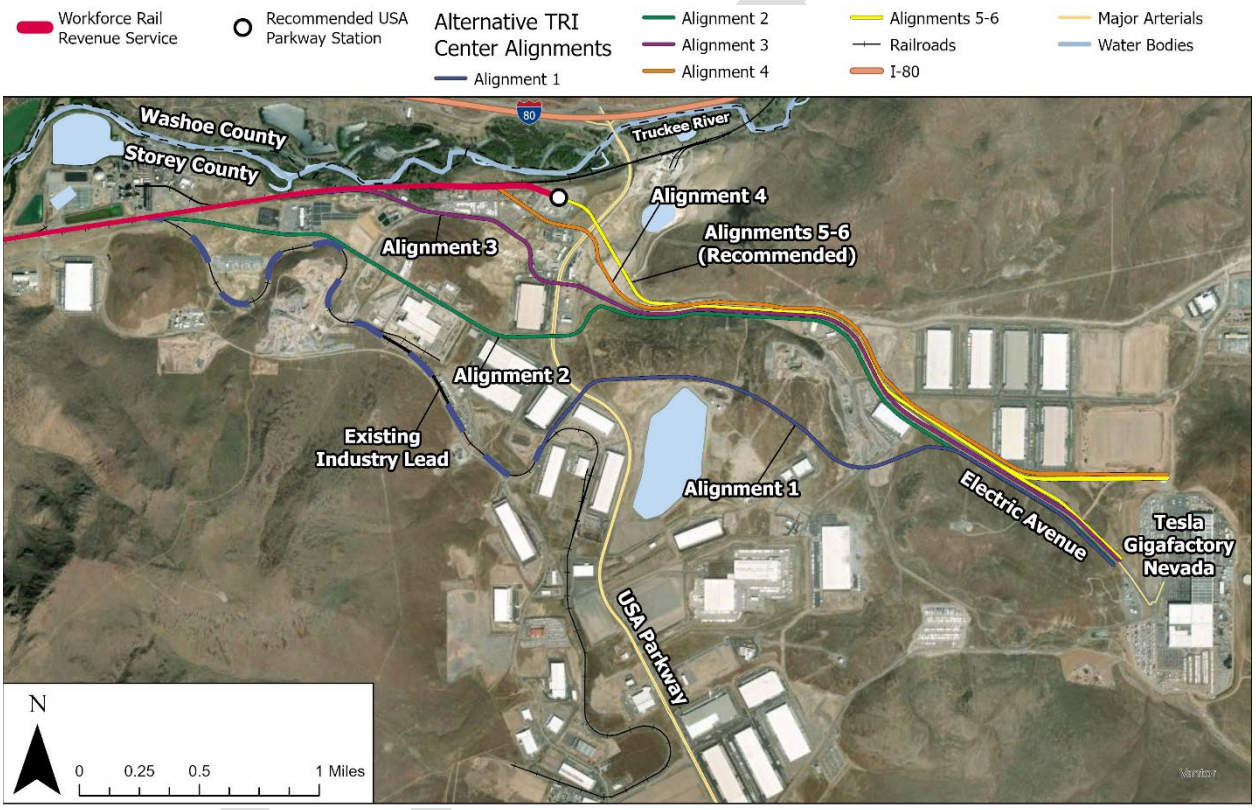
Two candidate Sparks station locations, as previously described, are carried forward for further consideration.

A non-revenue connection would be provided between downtown Reno and western Reno for trainset storage and servicing. This non-revenue connection could potentially be converted to revenue service with a western Reno station should future conditions demand this service. Project partners would coordinate with UPRR toward basic Workforce Rail operations during the I-80 construction period to mitigate construction impacts. Alternatively, a site east of the Reno Amtrak Station could be provided, but presents operational difficulties, as it requires reverse movements on the mainline.

7.3.4. Workforce Rail TRI Center Long-Term Alignment Options (Extension to Tesla Gigafactory)

A total of six (6) TRI Center Workforce Rail Long-Term Alternative Alignment Options (as opposed to intermodal freight alignment options discussed in a later section) were evaluated to extend Workforce Rail further into the TRI Center, from the recommended Near-Term Alternative alignment and USA Parkway Station to the Tesla Gigafactory. These TRI Center Long-Term Alignment Options are displayed in Figure 24.

Figure 24: TRI Center Long-Term Workforce Rail Alignments Options



Each of the optional TRI Center Long-Term Alignment Options is assumed to provide two TRI Center stations:

- A Near-Term and Long-Term station to be provided near USA Parkway (as described in Section 7.3.1.3), and
- A Long-Term station to be provided near the Tesla Gigafactory

An evaluation of each TRI Center Alignment Option is provided in Table 16. An overview of the evaluation process is provided in the following paragraphs.

Table 16: TRI Center Long-Term Alignment Options

WORKFORCE RAIL TRI CENTER LONG-TERM ALIGNMENT OPTION	BENEFITS	CHALLENGES
WORKFORCE RAIL ALIGNMENT OPTION 1	• Leverage existing infrastructure with existing industry lead track/connections • Minimizes impacts to existing tenants	• Not competitive with car travel times • Does not have ability to phase the corridor • At-grade crossing with USA Parkway or significant infrastructure modifications required • Significant earthwork required; majority of the alignment would be grade separated (on or in structures) • No opportunity for OMF on the corridor • No opportunity for IMF on the corridor
WORKFORCE RAIL ALIGNMENT OPTION 2	• Competitive travel time • Minimizes earthwork using existing roadway corridors • Minimizes impacts to existing tenants	• Does not leverage existing infrastructure or have ability to phase the corridor • New connections required to UPRR Mainline • At-grade crossing with USA Parkway or significant infrastructure modifications required • Corridor overlaps utility backbones for TRI Center, larger relocations required • Significant at-grade roadway crossings for tenant driveways/access • No opportunity for OMF on the corridor • No opportunity for IMF on the corridor
WORKFORCE RAIL ALIGNMENT OPTION 3	• Competitive travel time • Allows phasing of corridor with initial station location on the corridor • Minimizes earthwork using existing roadway corridors – east of USA Parkway ONLY, not full corridor • Minimizes impacts to existing tenants	• Does not leverage existing infrastructure • Initial station location for phased corridor approach requires bridges and at-grade crossings • New connections required to UPRR mainline • At-grade crossing with USA Parkway or significant infrastructure modifications required • Significant at-grade roadway crossings for tenant driveways/access • No opportunity for OMF on the corridor • No opportunity for IMF on the corridor
WORKFORCE RAIL ALIGNMENT OPTION 4	• Competitive travel time • Leverages existing infrastructure with no new connections to UPRR mainline • Grade separated crossing with USA Parkway • Minimizes earthwork using existing roadway corridors	• Impacts multiple existing TRI Center tenants west of USA Parkway • Does not have ability to phase the corridor • No opportunity for OMF on the corridor • No opportunity for IMF on the corridor

WORKFORCE RAIL TRI CENTER LONG-TERM ALIGNMENT OPTION	BENEFITS	CHALLENGES
WORKFORCE RAIL ALIGNMENT OPTION 5	• Competitive travel time • Leverages existing infrastructure with no new connections to UPRR mainline • Allows phasing of corridor with initial station location on the corridor • Grade separated crossing with USA Parkway • Opportunity for OMF on the corridor	• Impacts an existing TRI Center tenant west of USA Parkway • Significant earthwork required at end of line and potential IMF
WORKFORCE RAIL ALIGNMENT OPTION 6 (RECOMMENDED)	• Competitive travel time • Leverages existing infrastructure with no new connections to UPRR mainline • Allows phasing of corridor with initial station location on the corridor • Grade separated crossing with USA Parkway • Opportunity for OMF on the corridor	• Impacts an existing TRI Center tenant west of USA Parkway

Not every alignment option considered offered a prudent or feasible solution for a USA Parkway Near-Term Alternative station. The analysis assumed that such alignment options would include a "remote" USA Parkway Station (TRI Center Near-Term Station Option 1, adjacent to the UPRR mainline). This means that each of these alignment options without an "inline" USA Parkway station would require multiple reversing movements. Service would follow the UPRR mainline to USA Parkway Station Option 1, unload and load passengers, and then reverse course along the UPRR mainline to the Workforce Rail TRI Center Long-Term Alignment Option access point. The train would then change direction once again to continue towards the Gigafactory. As both inbound and outbound trips would serve the USA Parkway Station, the reversing movements would be required in both directions of travel. These movements would extend corridor travel times and consume valuable line capacity. Therefore, for multiple reasons, a remote, non-inline USA Parkway station is sub-optimal.

Given that the TRI Center already has an existing industrial lead extending well into the TRI Center, the initial Workforce Rail Long-Term Alignment considered (Option 1) looked to leverage that infrastructure to lower the initial capital costs for implementing service. Workforce Rail Alignment Option 1 would use the existing lead track into the TRI Center area and then extend into a new alignment corridor heading east to the existing Gigafactory. While the horizontal alignment appeared feasible, it was noted that the vertical alignment would require an at-grade crossing with USA Parkway or a significant adjustment to the existing infrastructure, along with requiring most of the alignment to Tesla to be on structure or in tunnels. Additional evaluation determined that the existing industrial lead track would be incompatible with Workforce Rail operations. The existing lead is curvilinear and designed for slower (10 MPH) travel speeds,

making it a challenging alignment for time-sensitive workforce travel options. The existing industrial lead is also used to store local freight trains for existing customers and would likely require additional trackage to provide capacity for Workforce Rail. An alignment separated from the existing industry lead that would provide a more direct route was determined to be the better approach for extending Workforce Rail to the existing Gigafactory.

TRI Center Workforce Rail Alignment Option 2 looked at constructing a new Workforce Rail lead track extending from the UPRR mainline near the existing TRI Center industry lead connection. This alignment takes advantage of an existing siding at this location to minimize modifications and costs for preserving UPRR mainline operations. Workforce Rail Alignment Option 2 parallels the existing Waltham Way roadway alignment, thus minimizing significant grading challenges and potentially eliminating the need for bridge and/or tunnel infrastructure. The challenge with the Waltham Way alignment is that this corridor is occupied as a major utility backbone for TRI Center tenants (including data centers) and would require significant relocation of major utility infrastructure. Also, this alignment cuts through a large section of the TRI Center that is fully developed and would require mitigation of multiple at-grade crossings, including an at-grade crossing with USA Parkway.

A significant challenge with Workforce Rail Alignment Options 1 and 2 is that neither provides an opportunity for a convenient Near-Term station with future phasing for an extension to Tesla and Panasonic. (Near-Term TRI Center station sites were previously discussed in Section 7.3.1.3.) These Near-Term station considerations, along with the previously described alignment concerns, resulted in eliminating Workforce Rail Alignment Options 1 and 2 from further consideration.

TRI Center Workforce Rail Alignment Option 3 was the first evaluated alignment that paired a Near-Term station option near USA Parkway with a future extension of the same alignment to the Gigafactory. It extends from the UPRR mainline near the Barrick Gold Western 102 power plant and follows the curvature of Britain Drive towards Electric Avenue. This alignment would require at-grade crossings (including USA Parkway) and presents conflicts with existing development. It also requires significant capital investment to deliver an attractive Near-Term station. For these reasons, TRI Center Workforce Rail Alignment Option 3 was eliminated from further consideration.

TRI Center Workforce Rail Alignment Option 4 extends from the UPRR mainline just east of Option 3, paralleling London Drive through this section of the TRI Center. This adjustment minimizes or eliminates challenges associated with a connection to UPRR mainline and eliminates multiple at-grade roadway crossings. It also provides for a Near-Term station with access to USA Parkway. The intent of this alignment is to remain at a lower elevation at the approach to USA Parkway to enable a below-grade rail crossing of the Parkway. The primary challenge with this alignment is that it crosses through multiple privately-owned parcels that are currently occupied by TRI Center tenants. Challenges associated with these property acquisitions and business relocations led the team to eliminate Workforce Rail Alignment Option 4 from further consideration.

TRI Center Workforce Rail Alignment Options 5 and 6 shifted the alignment farther north, away from London Drive, to reduce the impacts to existing tenants and take advantage of the existing UPRR siding track connection. This solved a host of problems. Both alignments reduce the impact to existing TRI Center tenants west of USA Parkway, avoid or minimize utility conflicts, and approach USA Parkway at a natural grade for a grade-separated rail crossing beneath USA Parkway. Both Alignment Options provide a Near-Term and Long-Term station at USA Parkway that is relatively simple to implement (though it does require property acquisition and relocation) and would not require reverse movements to serve. The station appears to be implementable during the I-80 construction period and requires no bridging and tunneling or grade separation for the Near-Term Alternative.

The Workforce Rail aspects of this alignment were sufficiently promising that the project team then began to explore options for a freight intermodal facility (IMF) that leverages this alignment. Workforce Rail Alignment Option 5 explored an IMF yard at the eastern end of the alignment, directly between the Gigafactory and emerging Tesla semi-truck facility. An expanded discussion of IMF options is provided in Section 7.3.9.

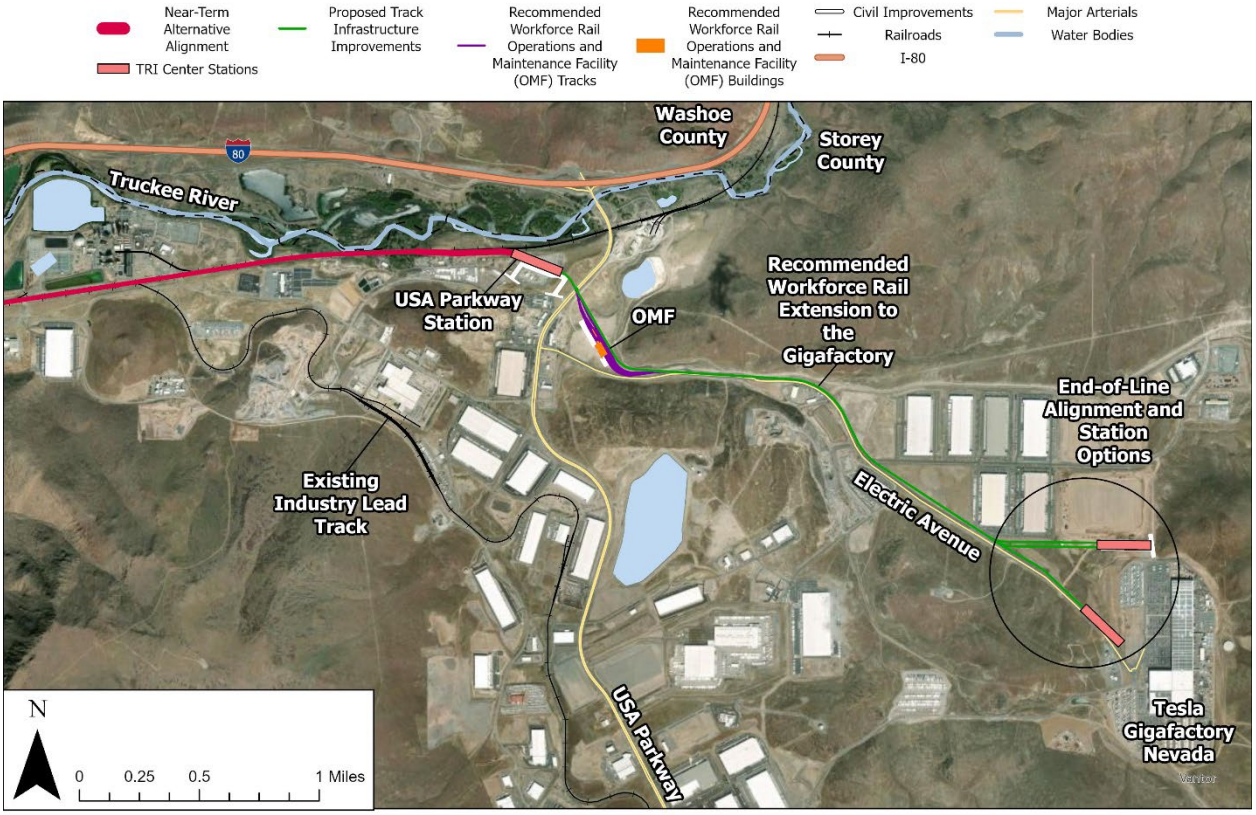
A challenge with Workforce Rail Alignment Option 5 / IMF Option 2 is related to the difference in slope gradient that Workforce Rail trains could navigate (approximately 3.5%) compared to freight trains (2%). The hilly terrain along the alignment required earthwork for freight service that is an order of magnitude higher than that required for Workforce Rail service. The alignment follows the existing Electric Avenue roadway profile. Near the Gigafactory, the slope geometry resulted in 100' cuts for freight service at the IMF facility, raising logistical and cost concerns for site access and service.

Workforce Rail Alignment Option 6 / IMF Option 3 resulted in a solution to the earthwork challenges. This alignment follows the same horizontal alignment as Option 5 but relocates the IMF to a site between the Gigafactory and USA Parkway. This resulted in rail grades to the Gigafactory that are navigable by Workforce Rail but not freight trains, minimizing earthwork requirements and impacts to the existing tenants and infrastructure. This resulted in the advancement of TRI Center Workforce Rail Alignment Option 6 / IMF Option 3, with two optional Gigafactory station locations to be evaluated in the next phase of the project.

7.3.5. Recommended Long-Term TRI Center Workforce Rail Alignment: Option 6

Each of the Workforce Rail Long-Term Alternative TRI Center Alignment Options attempted to build on the positive aspects of the Near-Term Alternative and minimize or remove the challenges. This culminated in Workforce Rail TRI Center Alignment Option 6 as the recommended alignment. This recommended alignment is shown in Figure 25.

Figure 25: Recommended Workforce Rail TRI Center Long-Term Alternative TRI Center Alignment (Option 6)



The other alignment options were not advanced due to a combination of factors, including:

- Longer operational run times and complex reverse movements,
- Significant impacts to existing roadways, including at-grade rail crossings of USA Parkway,
- Topography requiring the building of tunnels and bridges, resulting in additional capital costs,
- Impacts to existing tenants, and/or
- No ability to support an inline USA Parkway station, OMF, or freight IMF on the proposed alignment.

Given the existing conditions, site terrain, and rail criteria, none of the Workforce Rail alignment options are free from challenges, but the project team felt that Alignment Option 6 was able to build upon positive aspects of the Near-Term Alternative while maintaining flexibility to address Long-Term Alternative challenges.

The recommended Workforce Rail TRI Center Long-Term Alternative alignment extends east from USA Parkway, following the northern side of the existing Electric Avenue roadway corridor. Past this initial station location, both lead tracks would continue east under USA Parkway in a

grade-separated crossing. The existing elevation difference between USA Parkway and the initial station location allows for this configuration without extensive earthwork or adjustments to the current USA Parkway roadway profile.

The rail corridor follows the existing Electric Avenue roadway profile to reduce earthwork. This includes hinging the profile from a 2% grade to a 3.5% grade as it approaches the Gigafactory. The proposed profile, as the Workforce Rail corridor approaches the Gigafactory, exceeds freight standards, so only lighter Workforce Rail trains would be operating in this section.

Currently, the recommended alignment carries two end-of-line TRI Center station options, depending on employer preference. One station option turns almost 90 degrees to the north from Electric Avenue, ending between the Gigafactory and the Semi-Truck facility. The other station option follows Electric Avenue to a point near the existing Gigafactory employee parking lots.

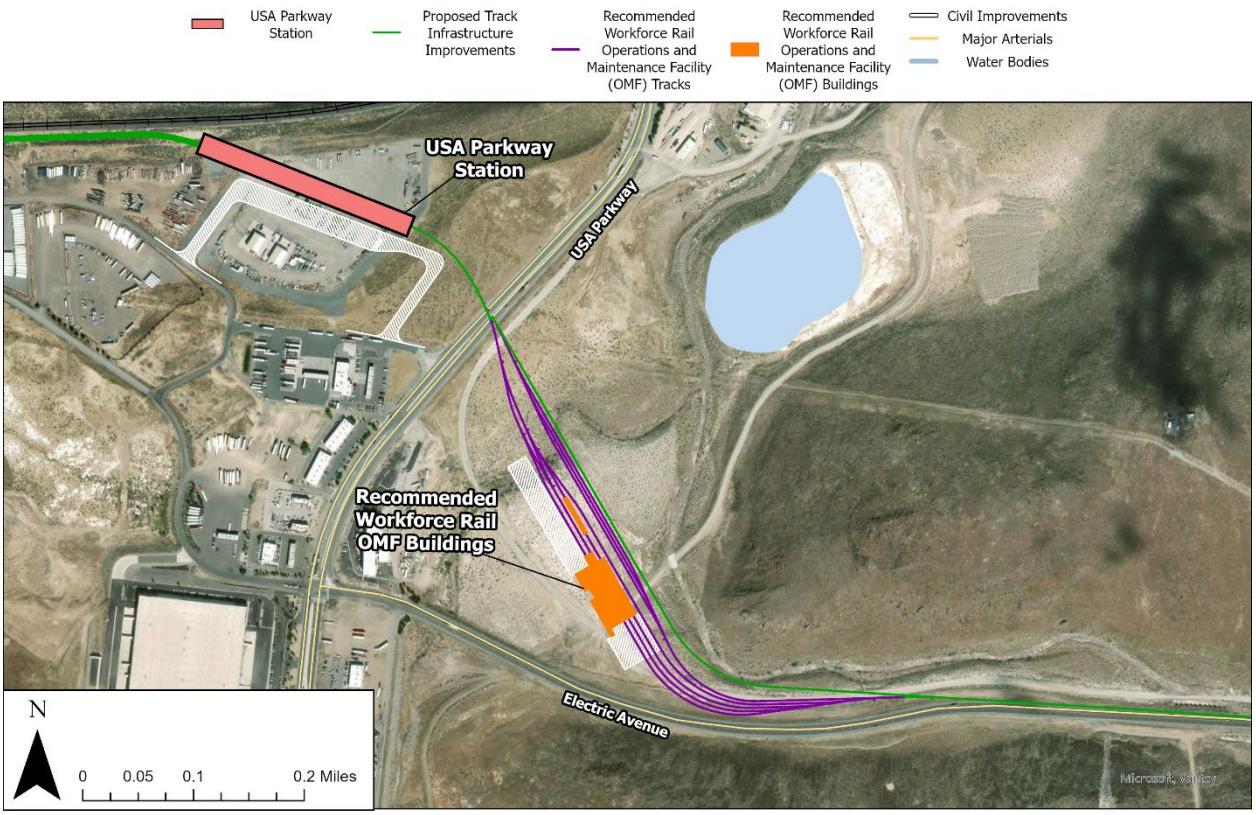
The key benefits of the recommended Workforce Rail TRI Center Long-Term Alternative Alignment (Option 6) are as follows:

- Direct access to the UPRR mainline track, avoiding the existing industrial track and reducing travel time, allowing the alignment to be competitive with car travel.
- Allows for phased implementation on the one corridor where construction of the Near-Term Alternative can be built upon for the Long-Term Alternative, with the extension to the Gigafactory.
- Grade-separated crossing with USA Parkway
- Accommodates an OMF concept on the proposed corridor with direct access to the proposed extension

7.3.6. Operations and Maintenance Facility (OMF)

The Workforce Rail OMF would address heavy maintenance needs for the service and Long-Term Alternative layover options at the TRI Center. The recommended location for the Workforce Rail OMF is along Workforce Rail TRI Center Alignment Option 6. The site is on the plateau near the Northeast corner of the USA Parkway and Electric Avenue intersection. The recommended OMF location is shown in Figure 26.

Figure 26: Recommended Long-Term TRI Center Alignment (Option 6) and Operations and Maintenance Facility (OMF) Location



The OMF is split into two areas. The first area is next to the Workforce Rail mainline track extension for service to the existing Tesla facility. This area of the OMF consists of 3 storage tracks capable of storing a 1000' long train each. The second part of the facility is a four-track yard area. The general concept of the facility would include one run around track outside of the building and three tracks with maintenance bays within the building. The paved apron around the building would extend to the east along the three building tracks, allowing for light maintenance activities to extend outside the building area if required. Additionally, a car wash is added to the track adjacent to the building footprint to maintain the cleanliness of the fleet for normal operations. The main access point to the facility for rail would be from the west side near the USA parkway overpass. The facility is designed as a 'through' facility for more efficient operations and flexibility.

The initial review of the site shows that minimal earthwork is required due to the existing terrain of the area. However, a full grading plan would be required to understand the scope of potential capital projects for the site. Additional evaluation is required in the next phase of the study, and coordination will need to occur with existing tenants to understand the potential impacts to existing roadways or service roads currently utilized within the proposed footprint of the OMF.

7.3.7. UPRR Mainline Capacity Improvements

This section describes the mainline improvements needed to create a full double-track alignment between Sparks and the TRI Center that was evaluated as part of this study. These modifications were assumed to be the minimum requirements to create the capacity needed to implement Long-Term Alternative Workforce Rail operations. The following evaluation is limited to the addition of a second main track in the sections that are currently limited to single-track. Ultimately, any mainline capacity improvements will need to be evaluated in concurrence with UPRR and will eventually require full operational modeling using Rail Traffic Controller© (RTC, *and not the same as the Regional Transportation Commission of Washoe County*) network simulation modeling in accordance with UPRR requirements. The double-track locations evaluated are illustrated in Figure 27 and described in Table 17. Subsequent figures show specific track improvement segments.

Figure 27: Recommended Mainline Track Improvements in the Truckee River Canyon as part of the Long-Term Alternative

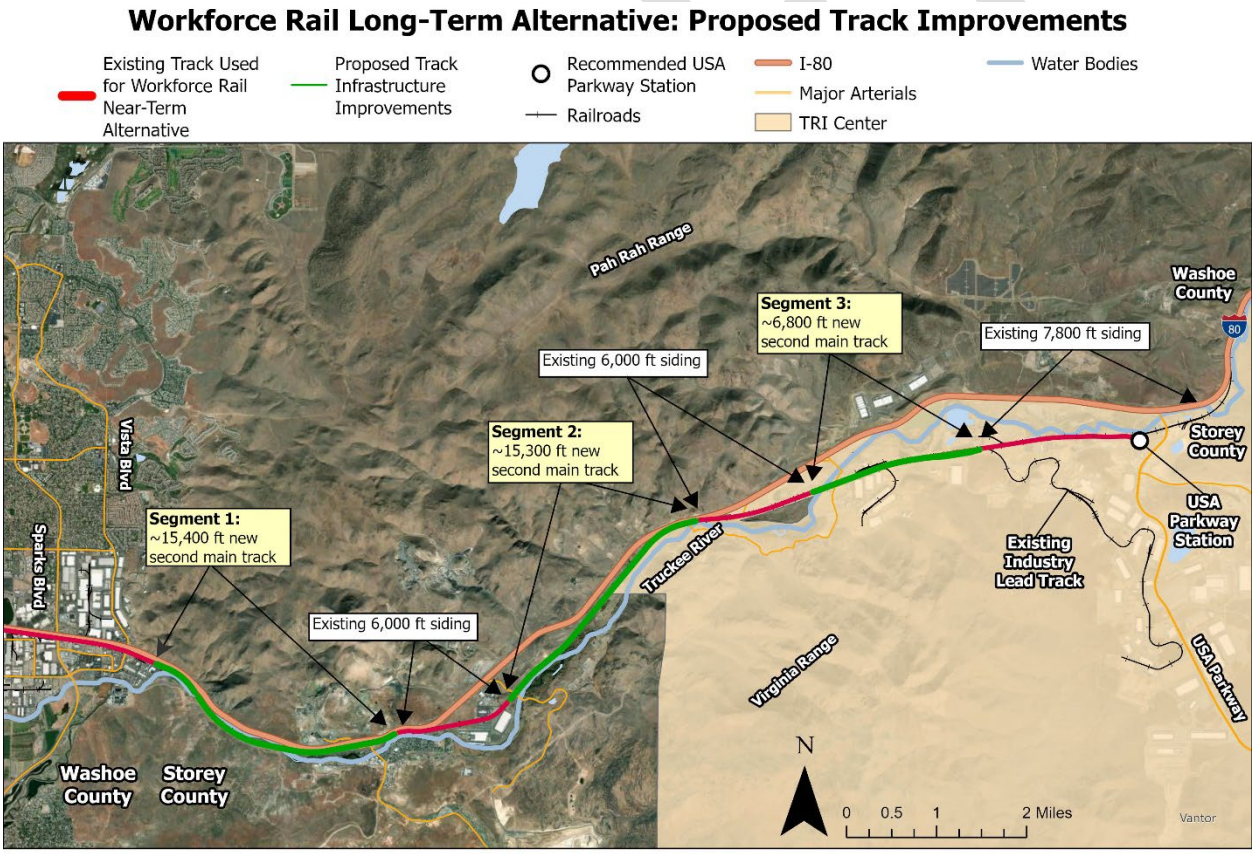


Table 17: UPRR Mainline Capacity Improvement Descriptions & Challenges

Track Improvement Segment	Description	Challenges
Segment 1	Approximately 15,400' of track to be constructed from the existing #20 Equilateral turnout at MP 249.39 to the pinch point with the Truckee River near Lockwood Road at MP 252.25.	2 bridges over Truckee River (MP 249.84 and MP 250.99), could face significant challenges from an environmental standpoint. Multiple rail bridges or culverts required for drainage through this section of track. Extends through 2 control points for the mainline track corridor. This improvement area would require an additional rail overpass of Canyon Road at the I-80 interchange. An additional Bridge over the Truckee River at MP 250.99 would be required
Segment 2	Approximately ~15,300' of track to be constructed to the south of the existing mainline track. Running from the end of the existing siding track at ~MP 253.79 until the next pinch point for the rail corridor and the Truckee River adjacent to the McCarran Ranch crossing of the Truckee River at ~MP256.68. This improvement area would require an additional rail overpass bridge at Mustang Road	This section of track is very close to the I-80 corridor in certain areas. Additional retaining walls may be required due to steep terrain and significant earthwork requirements. Additional infrastructure outside of rail to implement, including the new rail bridge at Mustang Road.
Segment 3	Approximately 6,800' of track to be constructed to the south of the existing mainline track. Running from the end of the existing siding at ~MP 258.03 until the start of the TRI Center yard at ~MP 259.26. This improvement area would require an additional rail bridge over the Truckee River.	Bridge over Truckee River could face significant challenges from an environmental standpoint. Modifications to existing at grade crossing with Waltham Way. Two tracks at crossing modifying the crossing protection and mainline corridor signal system. Multiple utilities in the area, overlapping systems of utilities.

Figure 28: Double Track Segment 1

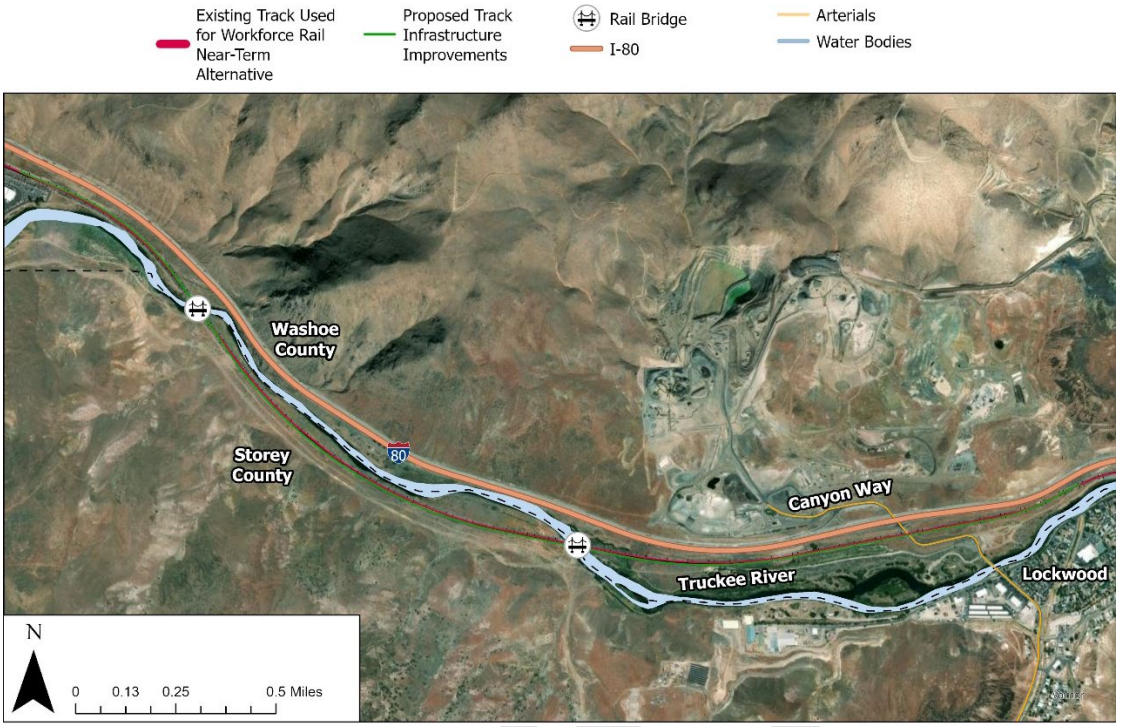


Figure 29: Double Track Segment 2

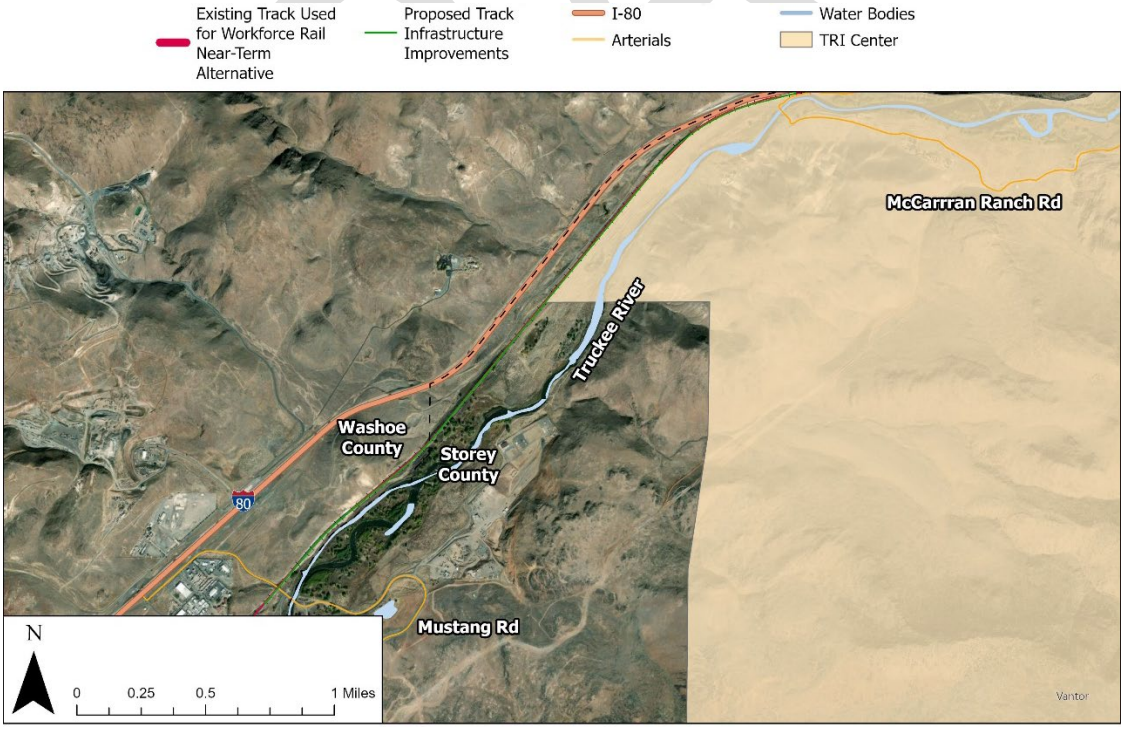
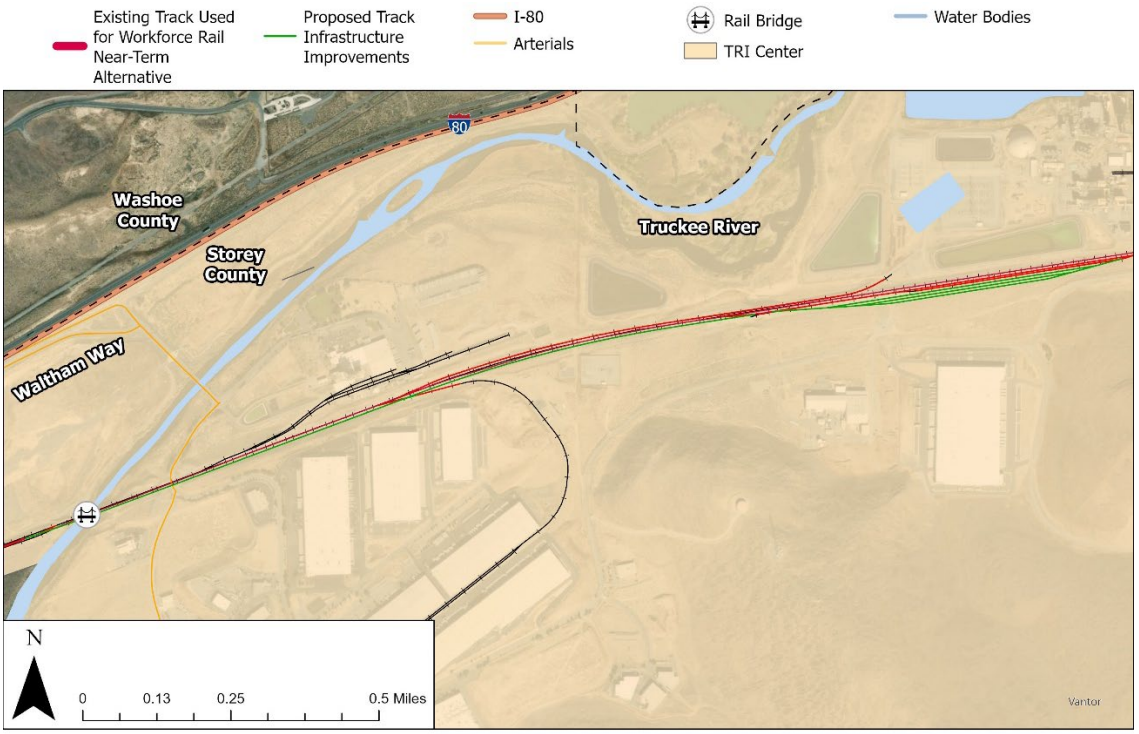


Figure 30: Double Track Segment 3



7.3.8. TRI Center Freight Storage Yard Capacity Improvements

In addition to the mainline capacity improvements, the project team identified an opportunity to expand the storage yard at the existing TRI Center industry spur. An initial review of the site indicated the yard area could be extended to create additional storage length near the existing TRI Center industry spur. This expansion would also extend the lead and double-track limits. Further evaluation is required in partnership with UPRR to evaluate if this expansion would provide a benefit to existing operations. The existing site may be limited due to existing overhead electrical lines. Characteristics of the conceptual improvements are shown in Table 18. The existing track storage area is shown in Figure 31, and the conceptual expanded storage area is shown in Figure 32.

Table 18 : Additional TRI Center Freight Storage Capacity Near the UPRR Mainline

Description	Benefits	Challenges
Added Capacity at existing storage track area near the UPRR mainline and existing TRI Center Industrial Lead connection	5,710’ of new track could be constructed. Site would expand to include 3 new tracks with each track having a minimum of 1,000’ to store rail cars. (Actual clear lengths vary from 1,330’ to 2,440’ for the three tracks.)	Site is constrained to the east due to the existing TRI Center lead track. Site is constrained on the west due to existing utility corridors and the relocation costs required. Unclear if this added length would benefit UPRR operations

Figure 31: Existing TRI Center Freight Storage Track

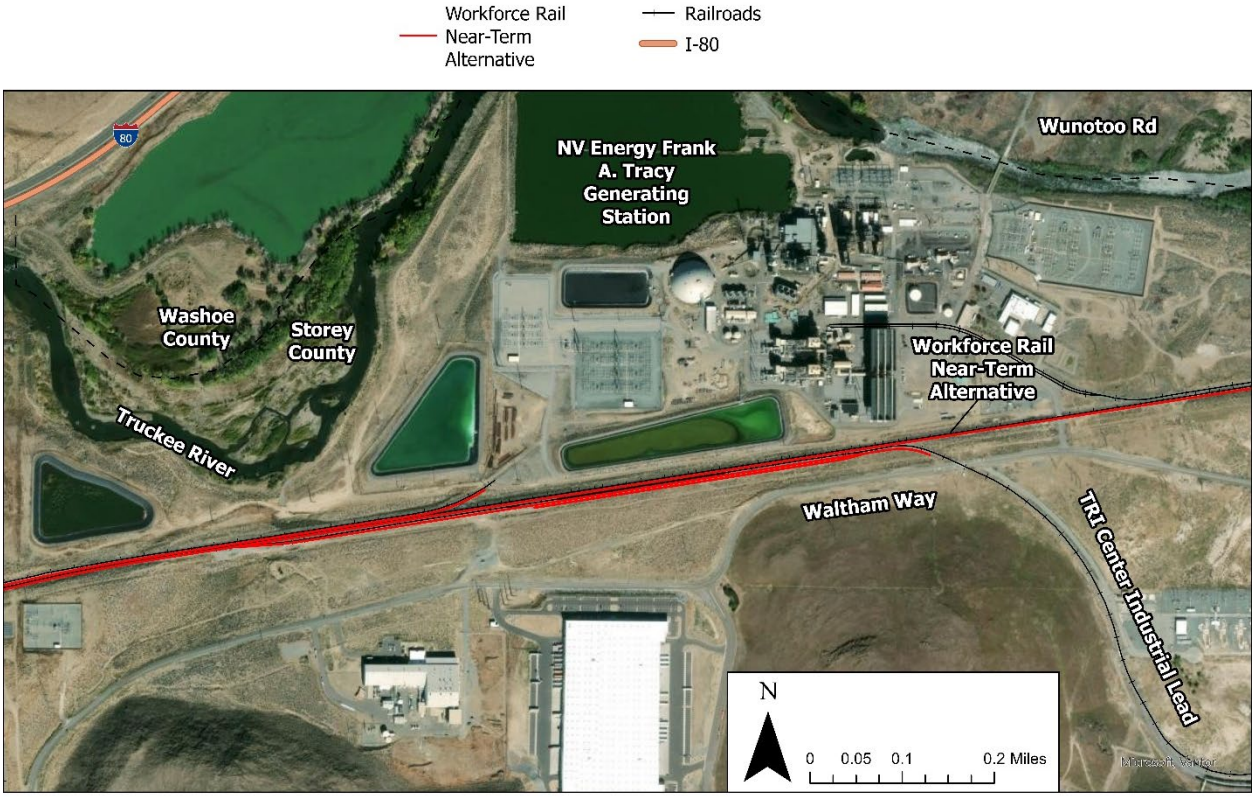
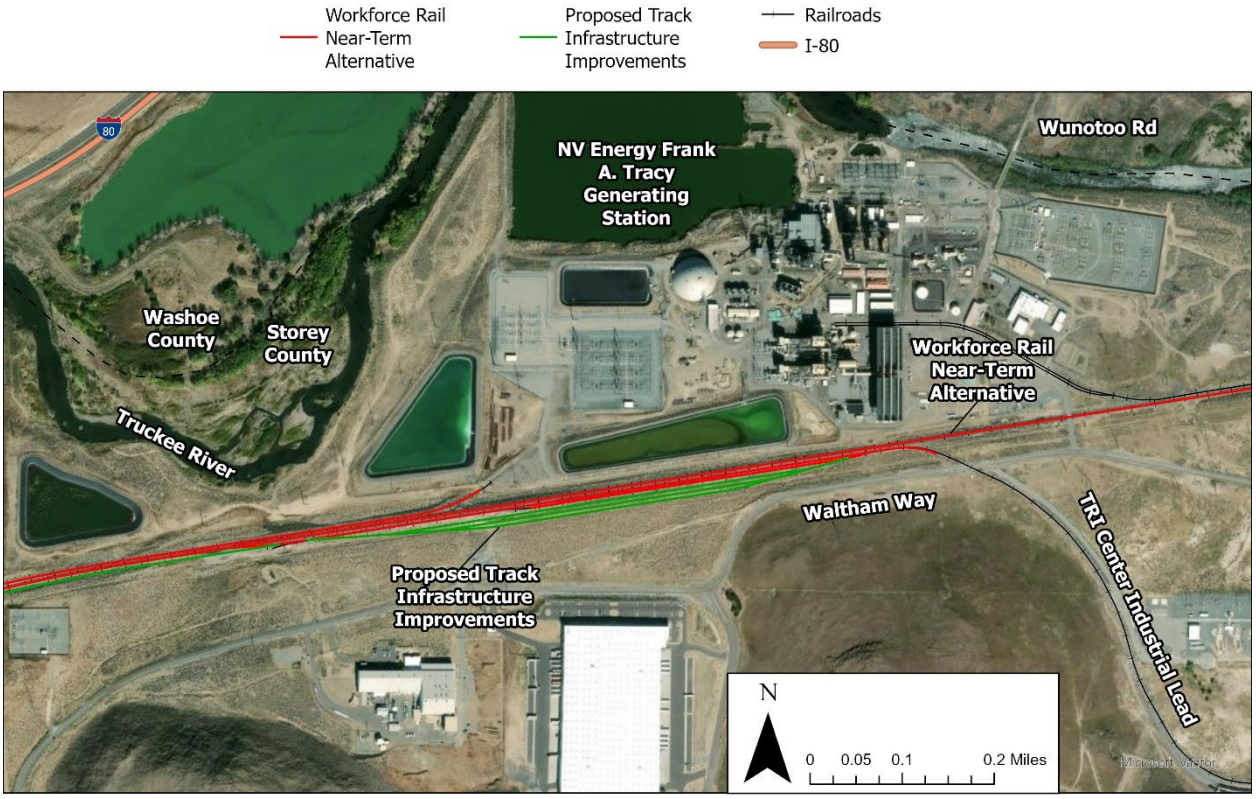


Figure 32: Conceptual TRI Center Expanded Freight Storage Yard



7.3.9. TRI Center Freight Intermodal Facility (IMF) Site and Access Alignment Options

Freight capacity and new business opportunities may exist with the expansion of current TRI Center employers and the desire for the Tesla Semi Truck Plant to utilize freight rail options for material supply and transport of finished product. Multiple TRI Center companies have expressed interest in shipping by rail including Tesla, Panasonic, Redwood Materials, and others. Section 7.3.3 described the identification and evaluation of TRI Center Workforce Rail Alignment Options. Multiple options were also explored for a freight intermodal facility (IMF) in proximity to the Tesla Gigafactory and Semi-Truck Plant. This facility is predominantly assumed to be for containerized shipping but could also be used to accommodate other modes of freight rail shipments as required.

This section presents three (3) freight intermodal facility (IMF) Site and Access Alignment options at the TRI Center, each of which would be complemented by the expanded storage yard near the junction of the UPRR mainline and TRI Center industry lead, as described in Section 7.3.7. Advancement of an IMF facility requires significant coordination between TRI Center stakeholders and UPRR to determine final location, layout, and capacity requirements. The three IMF Site Options and lead track Alignments are illustrated in Figure 33. Table 19 summarizes considerations for each site and alignment option.

Figure 33: TRI Center IMF Site and Access Alignment Options

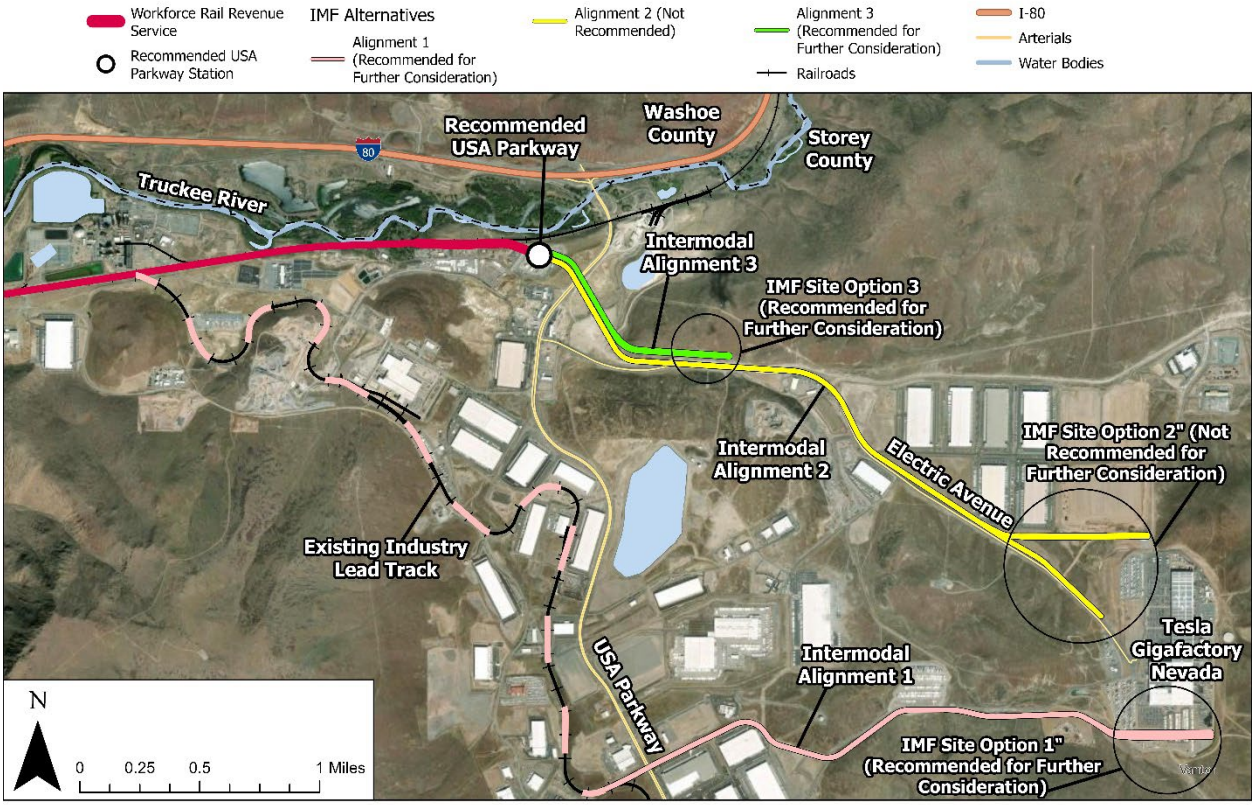


Table 19: IMF Site and Access Alignment Option

IMF SITE AND ACCESS ALIGNMENT OPTION	DESCRIPTION	BENEFITS	CHALLENGES
IMF OPTION 1	This IMF site is located at the southern end of the existing Tesla Gigafactory facility. The IMF Access Alignment would utilize existing TRI Center Industry lead track with an extension under USA Parkway and continuing east generally following existing Sydney Drive to the southern end of the Tesla property.	• Concept has been theoretically accepted by UPRR pending further analysis and design development • Minimized impacts to existing tenants outside of Tesla • Alignment utilizes existing industry track infrastructure	• Grade separated crossing with USA Parkway requires raising the roadway in combination with extending the existing industry track profile grade. Raising USA Parkway will create impacts to existing tenant connections and frontage. • Proposed track alignment runs directly adjacent to existing building structures east of USA Pkwy. with the track depressed 15-20 feet below grade requiring significant walls/structures to support existing building foundations. • E. Sydney Drive roadway follows the existing topography resulting in steeper than acceptable freight profile grades. Alignment can run parallel horizontally to the roadway but will need a separate vertical profile. • Grading challenges along the proposed alignment may require bridges and/or walls to achieve concept alignment. • Location of proposed IMF is on the southern end of the Gigafactory requiring significant trucking requirements to serve proposed Semi Truck facility. • Operational run times to access this facility would be long - existing TRI Center lead is limited to 10 MPH due to existing horizontal curvature and vertical grade. • Only IMF on this alignment, no Workforce Rail

IMF SITE AND ACCESS ALIGNMENT OPTION	DESCRIPTION	BENEFITS	CHALLENGES
IMF OPTION 2	This IMF site is located directly adjacent to the Tesla Semi Plant and uses Workforce Rail TRI Center Alignment Option 5, with a new connection to the UPRR mainline east of the existing TRI Center industrial lead. IMF Option 2 follows Electric Avenue until turning 90^ to parallel Semi Truck plant location.	• Conceptually locating the IMF directly adjacent to the Tesla Semi Truck facility would be the best solution to minimize container movements. • Shared infrastructure costs due to shared corridor with Workforce Rail alignment.	• Restricting the alignment to a maximum allowable freight grade of 2.0% will set the top of rail at the desired IMF location at approximately 100 feet below the finished grade of the finished floor for the Tesla Semi Factory. • The maximum 2.0% grade along Electric Avenue will result in significant excavation for track alignment with retaining walls required to maintain roadway and adjacent building structures at critical locations. • The maximum allowable profile grade for freight will impact the preferred passenger alignment requiring the station platform to be significantly lower than desired for service to the Giga Factory and proposed Semi Factory • Shared tracks with Workforce Rail may limit service time or operations within the proposed IMF to avoid occupying the mainline and delaying service runs. Will require double track alignment to mitigate delays.
IMF OPTION 3	This IMF option was developed with Workforce Rail TRI Center Alignment Option 6. The IMF is located on the existing roadway bench for Electric Avenue, where it appears to widen in various areas due to natural topography, minimizing required earthwork for the site.	• Dedicated IMF lead track, no impacts to passenger rail service during any IMF operations or movements. • Space for 6,000' of capacity over 3 tracks. • Grade separated crossing at USA Parkway without roadway modifications required. • Accommodate direct roadway access from USA Parkway and/or Electric Avenue. • Reduced infrastructure cost due to proximity to UPRR mainline corridor and shared USA Parkway overpass with Workforce Rail. • IMF located where other TRI Center companies can access via trucking.	• Non-standard layout of IMF track to reduce earthwork. This may require a wide spanning crane or other specialty equipment. • May require tiering for container/trailer storage dependent on final layout. • Location of IMF will require trucking to/from the Tesla Semi Truck facility.

IMF Option 1 features a conceptual alignment that was previously agreed to with UPRR's local operations leadership. It utilizes the existing TRI Center industrial lead track through the existing customers until north of E. Sydney Drive. A new lead extension would be pulled off at this location, going under USA Parkway and following along the outside of existing tenant properties. A grade-separated crossing with E. Sydney Drive is proposed as the alignment turns east towards the existing Tesla Facility. The E. Sydney Drive roadway corridor has a steeper grade than the allowed freight profile grade and a narrow bench. This will translate into a need for retaining walls for the entire length of any proposed track along this alignment. The significant earthwork required to create this new rail bench will likely negate any cost savings associated with utilizing the existing TRI Center lead infrastructure. Additionally, the drainage channels near the IMF may require the end of the facility to be on a structure, requiring a 4-track wide (minimum) bridge. IMF Option 1 is recommended for additional consideration in the next phase of the project.

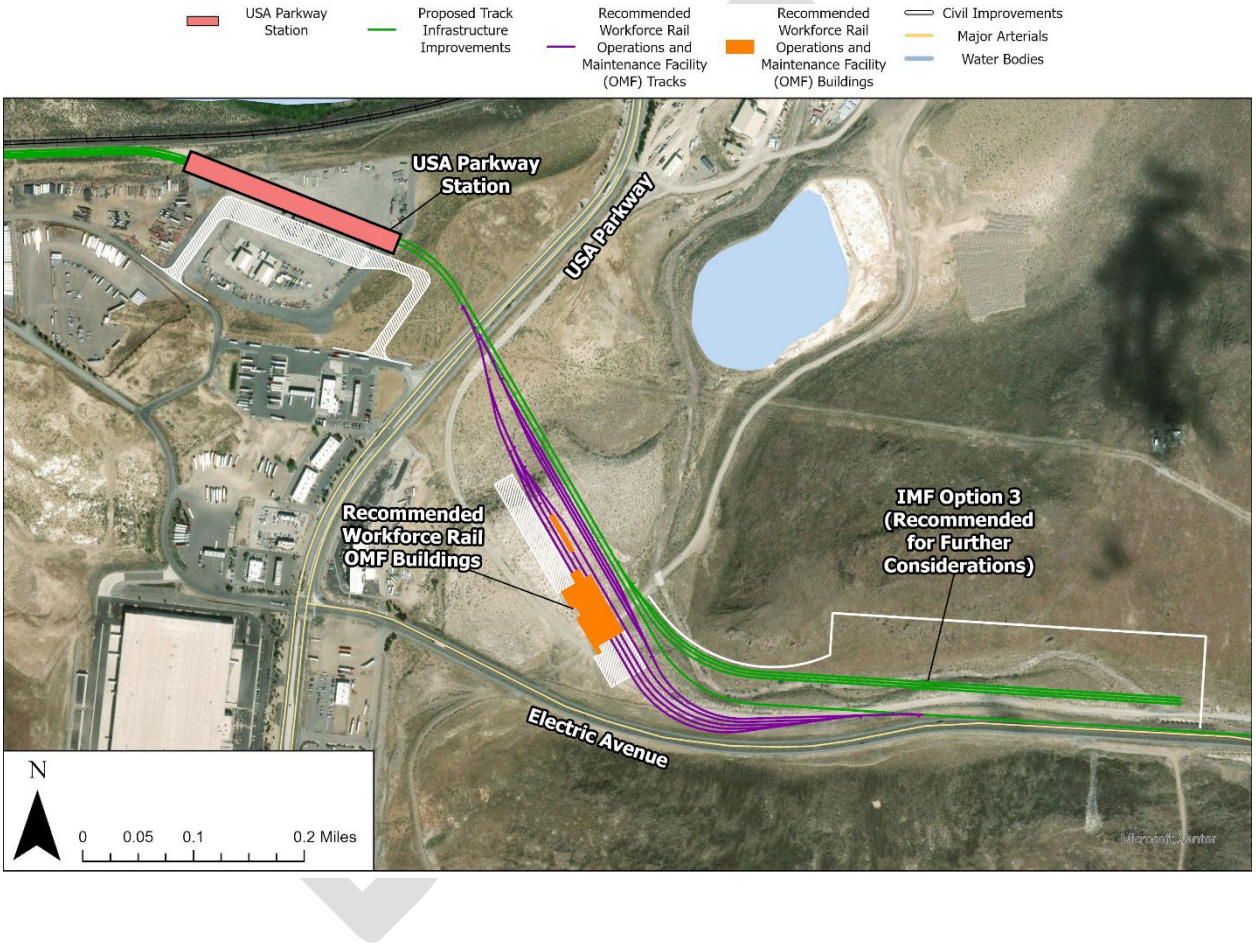
IMF Option 2 was developed to address the benefit of cost efficiency with proximity to the Tesla Semi Truck facility. Instead of realizing cost efficiency by utilizing the existing TRI Center lead, the idea of sharing the corridor with Workforce Rail was investigated. This could be achieved by looking to modify Workforce Rail TRI Center Alignment Option 5. It appears that the Electric Avenue roadway bench can accommodate a single IMF access track until the roadway turns south; this profile grade is at 2%, which is compatible with freight operations. Further along towards the Gigafactory, the roadway hinges to a steeper grade, while the combined IMF and Workforce Rail lead would need to remain at 2%. This results in the alignment and IMF facility near the Semi Truck facility and Gigafactory requiring excavation to as much as 100' below existing grade. The excavation raises logistical concerns for getting containers to and from a deep cut facility, as well as capital cost concerns. The shared Workforce Rail and freight corridor would also limit operations for both modes as a shared corridor means no Workforce Rail operations when the IMF needs operating slots in the shared territory.

Building on the lessons learned from the IMF Options 1 and 2, the project team developed IMF Option 3, which aligns with the recommended Workforce Rail TRI Center Alignment (Option 6). This option, shown in Figure 33, attempted to minimize conflicts between Workforce Rail and freight movements within the TRI Center, capital-intensive elements, and run times. IMF Option 3 provides a dedicated lead track to the IMF that is located along Electric Ave. prior to the roadway grade change that caused significant excavation for Option 2. The IMF lead would be constructed at the same time as the recommended USA Parkway Station and used as a layover track until the Long-Term Alternative corridor is implemented. The IMF would be constructed just east of the recommended site for the Workforce Rail OMF. The access grade to the IMF is kept at 2%, while the remaining Workforce Rail alignment to the Gigafactory navigates a 3.5% grade. Additional cost efficiencies can be realized with the shared grade separated crossing with the Workforce Rail at USA Parkway and the reduced earthwork grading near the Gigafactory.

7.3.9.1. IMF Locations Recommended for Further Consideration

A preferred TRI Center IMF option will ultimately be determined with further evaluation in partnership with UPRR. The project team recommends carrying both IMF Options 1 and 3 into the next phase of the project for further evaluation. The location most closely associated with the Workforce Rail Near and Long-Term Alternatives is IMF Option 3; this option is shown in Figure 34, in context with the recommended Workforce Rail Long-Term Alternative TRI Center Alignment (Option 6), and OMF location.

Figure 34: IMF Option 3 (Recommended for Further Consideration) with Recommended USA Parkway Station (Option 3), Recommended Workforce Rail Long-Term Alignment (Option 6) and OMF Location



7.4. Recommended Workforce Rail Long-Term Alternative

The recommended full corridor Workforce Rail Long-Term Alternative is shown in Figure 35. The proposed Workforce Rail Long-Term Alternative elements within the TRI Center are shown in Figure 36. The Workforce Rail Long-Term Alternative infrastructure elements within the TRI Center are shown in Figure 37. Elements of the Long-Term Alternative include:

- Stations and the small set of improvements recommended for the Near-Term Alternative;
- Track improvements to add mainline capacity between Sparks and the TRI Center;
- The recommended TRI Center Workforce Rail Alignment (Option 6), including one of the optional stations at the Gigafactory, the recommended Operations and Maintenance Facility, and provisions for a conceptual freight Intermodal Facility (IMF Option 3); and
- Conceptual added storage track adjacent to the UPRR mainline at the junction of the TRI Center industrial Lead track.

Figure 35: Recommended Workforce Rail Long-Term Alternative

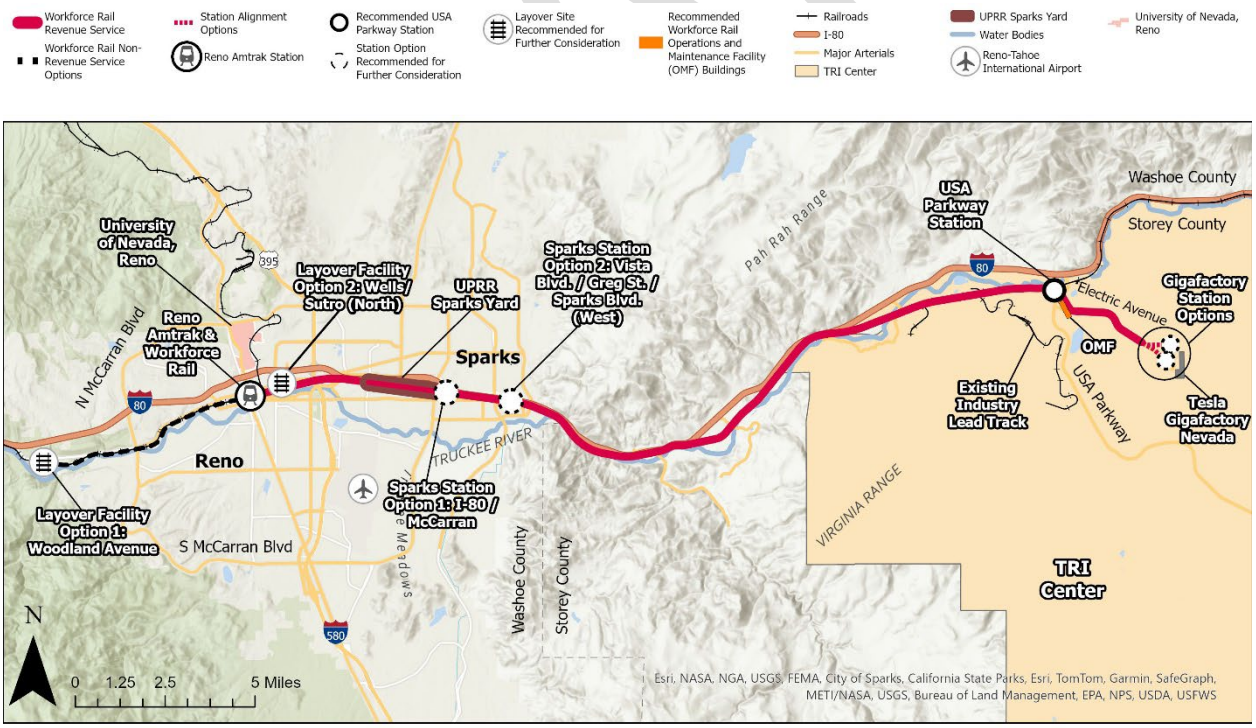


Figure 36: Recommended Workforce Rail Long-Term Alternative within the TRI Center

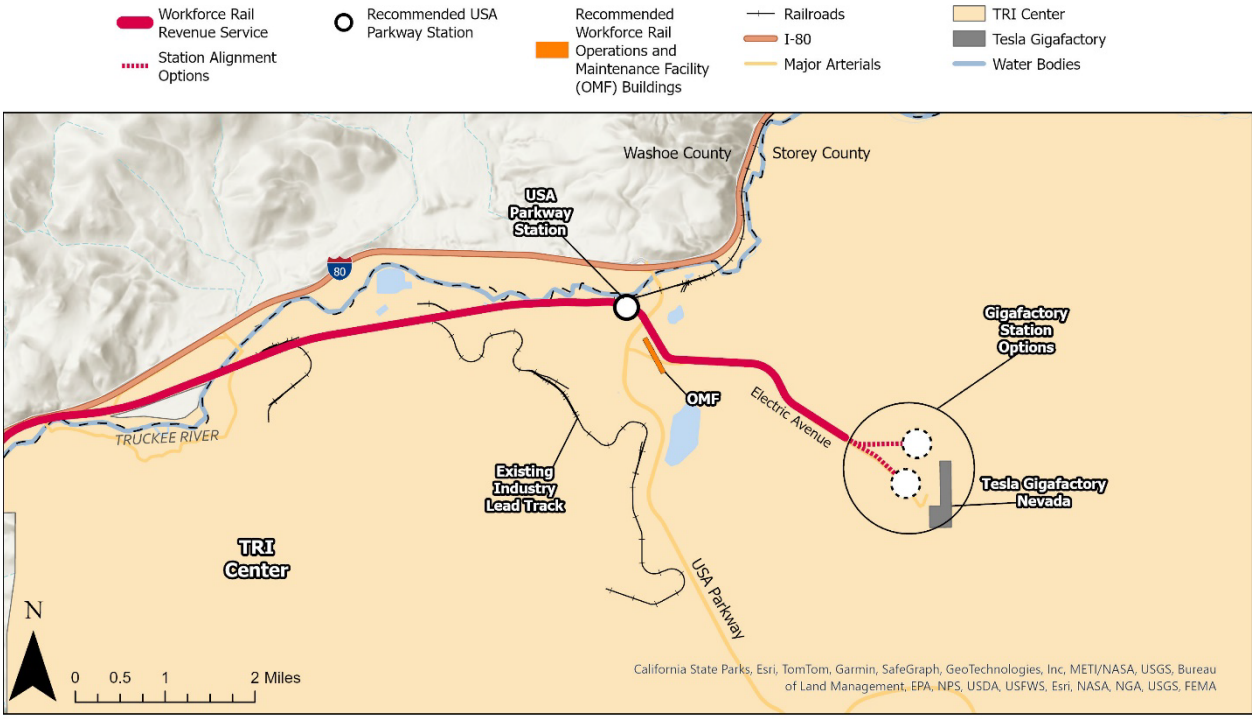
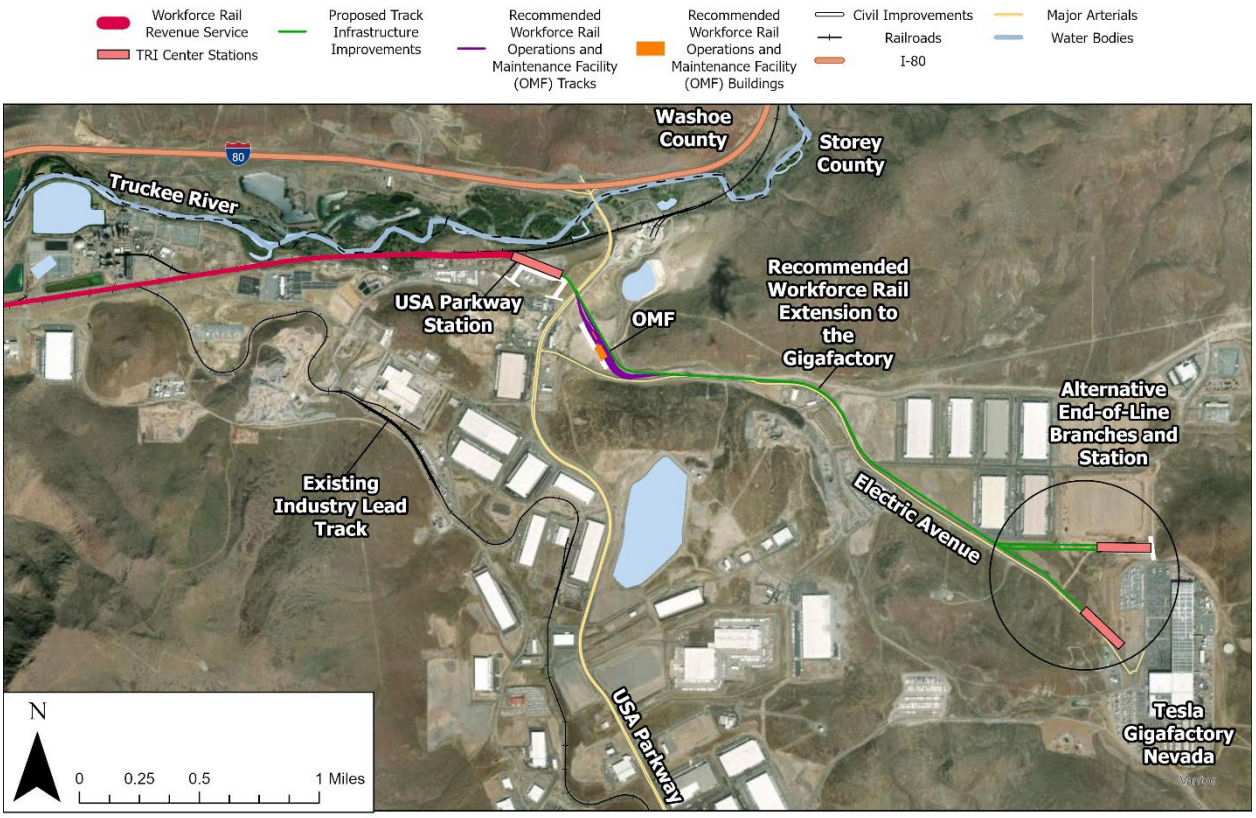


Figure 37: Workforce Rail Long-Term Alternative Infrastructure Elements within the TRI Center



7.5. Summary of Recommended Workforce Rail Alternatives

This section provides a summary description of the recommended conceptual alternatives based on the evaluation described in previous sections of this chapter. The recommended alternatives are used as the basis for the operational analysis conducted for this study, cost estimating, and implementation phasing as described in the following sections of this report. Specific service plans for each alternative are provided in Section 8. The following represents the recommended alternatives organized by phase:

- **Near-Term (Initial Startup) Alternative** - Workforce Rail infrastructure needed for service includes the implementation of Workforce Rail operations utilizing the existing UPRR mainline track infrastructure with minimum improvements required to facilitate passenger loading and unloading at Reno and at the TRI Center, and in Sparks, if achievable. This initial operation assumes the following minimum infrastructure improvements:

    - **Reno Amtrak Station** – the Near-Term Alternative will utilize the existing Amtrak Reno Station platform for loading and unloading passengers. It is assumed that no significant modifications or improvements would be needed to implement the Workforce Rail Near-Term Alternative at this station. Passengers will access the station using the existing public parking structure and other parking facilities adjacent to the Amtrak station area, existing transit at the RTC 4th Street Station transit center, and rideshare options.
    - **Sparks Station** – Two candidate station areas are recommended for further consideration. RTC and its partners will work to include this station in the Near-Term operation, though related logistical constraints may require that Workforce Rail begin its operation without a Sparks Station.
    - **TRI Center USA Parkway Station Option 3** - A new passenger station platform will need to be constructed at the TRI Center, clear of the UPRR mainline. The new station will include a bus transfer area adjacent to the platform to facilitate the transfer of passengers from the train to buses or shuttles for the final connection to their place of employment. The bus transfer lot will have a direct connection to USA Parkway to enhance connectivity and minimize travel times. The recommended station is located along the recommended Workforce Rail TRI Center Long-Term Alternative alignment (Option 6).
        - The USA Parkway Station will include interim end-of-line storage tracks to hold the passenger trains during the day until needed to transport passengers back to Reno at the end of each day. Interim storage may occur at the passenger station loading platform and may utilize the recommended IMF lead track until that facility is built.

- **Overnight Layover Facility** - A new layover facility would be required in Reno-Sparks to hold passenger trains overnight, facilitate light maintenance, and to minimize deadhead and mainline reversing moves at the start and end of service. This report presents two locations for further consideration. Alternatively, it may be possible to lease existing tracks within the UPRR Sparks Yard to accommodate this need; RTC and its partners will inquire with UPRR about this. Layover tracks in this scenario would be for staging and storing trains for the purpose of minimizing impacts to freight operations. Cleaning and light maintenance will be conducted for all trains at the layover yard each night or as required. Heavy maintenance activities would be conducted at an off-site location to be identified during further analysis.
- **UPRR Mainline Improvements** - For the Near-Term Alternative, it is assumed that no improvements would be required for the existing UPRR mainline trackage between Sparks and the TRI Center. It is assumed that the existing sidings within the study section would be sufficient for meeting and passing trains as needed.

- **Long-Term (Full Build) Alternative** - Workforce Rail infrastructure needed for the Long-Term Alternative includes the infrastructure identified above for Near-Term (Initial Startup) Service operations utilizing the existing UPRR mainline track infrastructure with the additional improvements described below to provide passenger service to the Tesla Gigafactory and develop stations for passenger loading and unloading clear of the existing UPRR mainline at a candidate Sparks Station (if not delivered as part of the Near-Term Alternative) and at the TRI Center. The Long-Term Alternative assumes the following infrastructure improvements in addition to the Near-Term Alternative infrastructure described above:
  - **UPRR Mainline Improvements** - Constructing approximately 37,550 feet of a second main track between Sparks and the TRI Center. The second mainline track would be constructed in three segments, including new bridges at three Truckee River crossings.
  - **Sparks Station** - Constructing a new Workforce Rail station platform and parking lot at one of two optional station locations in Sparks (if not delivered as part of the Near-Term Alternative), to be further evaluated in the next phase of the project. The station would be constructed with a new siding track to allow the passenger train to load/unload clear of the UPRR mainline track. The new station would include parking and direct roadway access from I-80 to facilitate passenger drop-off and pick-up.
  - **TRI Center Workforce Rail alignment to Tesla Gigafactory** - Construction of new Workforce Rail track alignment on TRI Center property from the Near-Term Alternative USA Parkway Station to the Tesla Gigafactory. This alignment would

provide direct access to a Gigafactory station platform, with two location options carried into the next phase of the project. The recommended alignment is Workforce Rail TRI Center Alignment Option 6. The USA Parkway Station would remain in service for TRI Center commuters whose jobs are not located near the Gigafactory.

  - **Workforce Rail Station at Tesla Gigafactory** - Construct a new passenger station platform and associated civil and multimodal improvements near the existing Tesla Gigafactory. This station will accommodate the storage of multiple train consists during the day as an alternative storage facility to the OMF.
  - **Operations and Maintenance Facility** - Construction of an OMF to store and maintain all Workforce Rail trainsets. This OMF would be located along the recommended alignment (Workforce Rail TRI Center Alignment Option 6), near the northeast quadrant of the USA Parkway and Electric Avenue intersection.

- **Additional Freight Capacity and New Freight Business** – freight capacity constraints and new business opportunities may exist with the expansion of current TRI Center employers and the desire for the Tesla Semi Truck facility and other employers to utilize rail in supply chain logistics. Conceptual intermodal elements recommended for further consideration include:
  - **Storage Yard** – This element would consist of an expansion of the existing siding track at the TRI Center industry spur. An initial review of the site indicated approximately 6,000 feet of additional track could be constructed in this area, extending the lead and double track limits. Further evaluation will be required in partnership with UPRR to evaluate the benefit to existing and potential future operations.
  - **Intermodal Facility** (IMF) – Two options are carried into the next phase of the project for further consideration. These options include:
    - The concept previously explored by Tesla and UPRR to extend the existing industry spur track from the vicinity of the USA Parkway / Italy Drive intersection to an area just south of the Tesla Gigafactory, where an intermodal yard would be located, and/or
    - An IMF facility to be located east of the recommended OMF and north of Electric Avenue (IMF Option 3). Access to this facility would be enabled by completion of the Workforce Rail Long-Term Alternative's extension beyond the USA Parkway Station.
    - Further evaluation of each option will be required in partnership with UPRR to determine benefit and operational requirements.

8 Workforce Rail Service Analysis

The Workforce Rail Market Analysis, as shown in Section 6, indicates that the demand is strong for a workforce specific commuter rail alternative within the I-80 corridor connecting Reno-Sparks to the TRI Center. The ridership analysis indicates a potential demand for more than 7,000 daily Workforce Rail round-trips during the I-80 construction period, or more than 14,000 total boardings. Further analysis is required to understand Alternative-specific ridership demand, particularly after I-80 widening construction is complete.

This section identifies considerations for Workforce Rail service scenarios based on the recommended Near-Term and Long-Term Alternatives. The service scenarios are built around the primary shift change timeframes identified in Section 6 Market Analysis.

- Delivery Timeframes:
    - Near-Term Alternative opportunities that are potentially deliverable and operable during the I-80 construction period with minimal capital investment, and
    - Long-Term Alternative options aligned with demand projections, with capital improvements and service into the TRI Center

8.1. Workforce Rail Service Types

After I-80 construction is complete, a widened roadway corridor with full shoulders offers increased vehicular capacity, which also may induce higher roadway demand, creating future impacts to commuters while the TRI Center is experiencing significant growth. Induced roadway demand (also called induced traffic or induced travel) is the potential result of increasing roadway capacity, such as by adding new lanes or building new highways, which leads to more driving, rather than permanently relieving congestion. When new road capacity is added, traffic congestion often improves at first. However, over time, drivers change their behavior in ways that increase the total amount of travel, eventually bringing congestion back to similar or even worse levels than before. Numerous studies have shown a strong relationship between road expansion and an increase in vehicle miles traveled (VMT). A common finding is that an increase in lane miles often leads to an equivalent increase in VMT within a few years.[34] Therefore, diversification from roadway travel is often the only way to truly reduce congestion in a corridor and is the reason why exploring Workforce Rail and potentially a fuller regional/commuter rail service is in the best interest of the TRI Center and the region.

8.1.1. Recommended Trainset Type

The recommended transportation technology for Workforce Rail is a form of regional/commuter rail transportation that can operate in a joint-use environment with freight and Amtrak trains on the existing UPRR mainline. This type of trainset complies with FRA criteria for safe operations on the same tracks and simultaneously with freight trains. This type of service is designed for high-capacity transport during peak demand periods. It is typically designed to operate at speeds that allow the service to be time competitive with regional highway commute travel and adds to regional commuting capacity. This type of service is typically provided in one of two forms:

1. **Trainset Type 1**: Passenger coaches pulled or pushed by a locomotive, and often configured in very long, high-capacity trainsets (sometimes with 10 or more coaches, often double-decked), and
2. **Trainset Type 2:** Self-propelled passenger trainsets typically referred to as Multiple Units (MUs). These units are typically configured in shorter trainsets with lower passenger capacities, paired with higher-frequency operations, and can operate with either diesel, electric, battery, or hydrogen fuel cell propulsion. In the case of the Workforce Rail service, diesel is the most appropriate technology, given that it will operate on existing freight railroad tracks.

Given the challenges to implement Near-Term Workforce Rail using UPRR tracks (due to the use of limited capacity on the line), operations would rely on long, high-capacity trainsets to meet anticipated demand, at least for the Near-Term Alternative. Thus, Trainset Type 1 is recommended for the Near-Term Alternative. In the longer term, should capital improvements and UPRR agreements allow more frequent operations, Trainset Type 2 may be well suited for corridor needs. Figure 38 depicts the typical Type 1 trainset type recommended for Workforce Rail. The assumed capacity and operating characteristics are based on similar equipment used for the Metrolink commuter rail service in Southern California, with a variety of trainset lengths.

Figure 38: Southern California Regional Rail Authority/Metrolink Bi-Level Trainset

(Photo Source: https://rapidotrains.com/master-classes/bilevel-commuter-car-master-class?srsltid=AfmBOop2t4zC1E7_qr7IeAN6r_uRxKUexHRSUQRlihdvLtbU1Zkdd2_x)

8.1.1.1. Service Characteristics

This section describes the assumptions and preliminary service characteristics of recommended Workforce Rail trainsets. This section begins by outlining foundational elements such as equipment assumptions, infrastructure, and travel time before progressing to service planning, scheduling, and infrastructure requirements, ultimately concluding with draft versions of potential timetables for the proposed service.

Passenger rail planning in this corridor faces several challenges. The UPRR mainline is a vital transcontinental freight artery, hosting multiple daily freight movements as well as Amtrak's *California Zephyr*. TRI Center commuting demand is heavily concentrated during workforce shift changes, producing extremely sharp peaks with little demand outside those windows. Finally, while portions of the corridor are double-tracked, long stretches of single-track east of Sparks create significant bottlenecks that complicate bi-directional service.

To evaluate these constraints, an operations analysis was conducted using Viriato, rail planning software that allows detailed infrastructure coding, timetable simulation, and graphical visualization of all train movements over time and distance. It should be noted that the Viriato model is used in this study as a planning tool to verify operational characteristics with the recommended infrastructure improvements. Ultimately, all final infrastructure and operational improvements will need to be modeled using Rail Traffic Controller (RTC) in accordance with UPRR requirements.

8.1.1.2. Service Concept and Train Performance Modeling Assumptions

The following section outlines the assumptions for modeling service concepts and train performance in Viriato software for the Near-Term and Long-Term Alternatives.

Infrastructure

The Viriato infrastructure model was used to simulate the existing condition of the UPRR mainline, including single-track and double-track segments, posted speed change locations, gradients, and train control points based on collected and digitized UPRR track charts. Additionally, the model was populated with the recommended infrastructure improvements for the Near-Term and Long-Term Alternatives.

Train Performance and Rolling Stock

The train performance assumptions were used for the development of a draft operating plan analysis for the Workforce Rail between Reno-Sparks-TRI Center Corridor.

Two rolling stock options for Trainset Type 1 were defined to establish baseline travel times: a shorter option (1 locomotive with up to 6 coaches) and a longer option (1 locomotive with 10 coaches). Rolling stock operational characteristics match the performance of an MP40 locomotive and Bombardier Multilevel coaches, including a cab car on the end opposite the locomotive. Trainset characteristics are provided in Table 20.

Table 20: Rolling Stock Options

Rolling Stock Option	Equipment	Length	Passenger Capacity
Option 1: Shorter Consists	1× MP40 Locomotive + 6 Bombardier Multilevel cars	580 Ft.	888 Seats
Option 2: Longer Consists	1× MP40 Locomotive + 10 Bombardier Multilevel cars	920 Ft.	1,350 Seats

8.1.1.3. Geographical Considerations for Trainset Selection

The Reno–Sparks–TRI Center corridor traverses a complex transition from the Sierra Nevada foothills to the Great Basin. The western end lies within the Truckee Meadows valley at roughly 4,500 feet elevation, while the eastern portion toward the TRI Center follows a more undulating, semi-mountainous terrain with steep grades and limited space for new infrastructure. The UPRR mainline follows this natural topography, threading through narrow valleys and cut sections that constrain opportunities for straight, high-speed segments or additional tracks. Specifically, grades and curvature limit operating speeds, while restricted right-of-way width complicates the addition of sidings or double track to support higher frequencies. Potentially extending passenger rail beyond the UPRR corridor toward the Tesla facility poses even greater engineering and operational challenges, with steeper grades and tight curvature required to navigate the surrounding hills, leading to lower feasible speeds and longer travel times. The specific motive power requirements for Workforce Rail trainsets will be evaluated in future phases of Workforce Rail delivery.

8.1.1.4. Ridership Considerations

The project's market analysis indicates demand with extreme peaks based on employee shifts at the TRI Center. For example, demand for more than 3,000 eastbound passengers is projected before 6:00 AM, while demand outside AM and PM peaks is negligible. This tidal demand pattern requires service capacity to be concentrated into very narrow operating windows.

8.1.1.5. Service Frequency Assumptions

The project team defined two distinct scenarios to frame a phased approach for passenger rail implementation along the Reno-Sparks–TRI Center corridor. Operating characteristics of the Near-Term and Long-Term Alternatives are shown in Table 21.

Table 21: General Operating Characteristics for the Near-Term and Long-Term Alternatives

Scenario	Service Plan	One-way travel time end-to-end
Near-Term Alternative	3 round trips AM 3 round trips PM	30 minutes
Long-Term Alternative	4-5 round trip AM 4-5 round trips PM	40 minutes

8.2. Near-Term Alternative Service Characteristics

The Workforce Rail Near-Term Alternative would operate on weekdays only with operating hours that align with workforce peak shifts, with headways to be determined. The following preliminary operating hours considered are as follows:

- 5:00 – 9:00 AM
- 4:00 – 8:00 PM

The end-to-end run times and Near-Term service scenarios were generated using the Viriato simulation software with existing track configuration data based on UPRR track charts with the following inputs:

- Track alignment, speed profiles, grade/elevation
- Posted speed changes, gradients, and train control points
- For movements along single-track segments, an applied 5-minute buffer is used to account for dispatching trains of opposite direction
- Rolling stock specifications, including the MP-40 locomotive model and Bombardier Multi-level coach model with a cab car
- Station dwell times of 2 minutes

Preliminary station-to-station travel time estimates are shown in Table 22.

Table 22: Station-to-Station Travel Time Estimates: Near-Term Alternative

Eastbound Schedule	***Segment Time (Minutes)***
Amtrak Reno Station	
Sparks Station (specific location to be identified)	0:08
TRI Center USA Parkway Station	0:20
TOTAL	**0:28**
Westbound Schedule	***Segment Time (Minutes)***
TRI Center USA Parkway Station	
Sparks Station (specific location to be identified)	0:21
Amtrak Reno Station	0:09
TOTAL	**0:30**

Service frequency and scheduling would be negotiated with UPRR to provide the maximum level of service permitted. The preliminary weekday service plan, shown in Table 23, assumes three round-trips in the morning and three round-trips in the afternoon/evening period, with trains every 50-60 minutes. The initial timetables developed were coordinated with demand modeling to assess ridership patterns around very concentrated demand at shift change times.

The conceptual weekday timetable incorporated a 30-minute allowance for first/last-mile connections between the TRI Center station site and major employers in the TRI Center area. The 30-minute buffer accounts for shuttle operations, parking, walk/bus transfers, and variability, effectively requiring eastbound trains to arrive ~5:30 AM for a 6:00 AM shift start and delaying westbound departures until at least ~30 minutes after shift end.

Table 23: Workforce Rail Conceptual Weekday Schedule

Eastbound Schedule	***AM Train 1***	***AM Train 2***	***AM Train 3***	***PM Train 1***	***PM Train 2***	***PM Train 3***
Amtrak Reno Station	5:07	5:57	6:57	16:07	16:56	17:56
Sparks Station (specific location to be identified)	5:15	6:05	7:05	16:16	17:05	18:05
TRI Center USA Parkway Station	5:35	6:25	7:25	16:35	17:25	18:25
Westbound Schedule	***AM Train 1***	***AM Train 2***	***AM Train 3***	***PM Train 1***	***PM Train 2***	***PM Train 3***
TRI Center USA Parkway Station	6:35	7:35	8:25	17:35	18:35	19:24
Sparks Station (specific location to be identified)	6:56	7:56	8:46	17:57	18:57	19:46
Amtrak Reno Station	7:05	8:05	8:55	18:06	19:05	19:55

8.2.1. Near-Term Operating Requirements

The operating requirements for the Workforce Rail Near-Term Alternative include:

- Proposed service frequencies with a train every 50-60 minutes for a total of 3 round-trips in the morning and 3 round-trips in the afternoon/evening.
- Proposed spans of service of approximately 5:00 AM to 9:00 AM and 4:00 PM to 8:00 PM
- Modeled travel time estimates of 28 minutes eastbound and 30 minutes westbound.
- Peak vehicle service requirement of three trainsets consisting of 1 Diesel Locomotive, 9 Bi-Level Coaches, and 1 Bi-level Cab car to provide pull/push operation. Note that this does not include spare equipment.

Table 24 displays a sample operations schedule that was developed in Viriato to determine daily and annual revenue train hours, mileage, and fuel consumption.

Table 24: Operating Requirements for the Near-Term Alternative

Day	Service Statistic	Near term Service Plan
Weekday Annual	Annual Train Hours	1,443
	Annual Car Hours	14,433
	Annual Train Miles	56,552
	Annual Car Miles	565,519
	Annual Fuel Consumption (gal)	141,380

8.3. Long-Term Alternative Service Characteristics

The Long-Term Alternative explores how to extend service from the USA Parkway station to the Tesla Gigafactory, while addressing needs for mainline capacity for both freight and Workforce Rail. It also explores provisions for two key capabilities at the TRI Center:

1. A Workforce Rail OMF to fully support operations and maintenance capabilities in the project area.
2. Provisions for both intermodal freight activity and train consolidation within and near the TRI Center. The need for these activities is subject to review with UPRR.

The Long-Term Alternative also provides needed mainline capacity enhancements throughout the project area, with the intent of providing full mainline double tracking in the Truckee River Canyon and throughout the project area.

Previous sections describe the Long-Term Workforce Rail extension that goes deeper into the TRI Center. This new, dedicated Workforce Rail right-of-way from the UPRR mainline to the Tesla Gigafactory area traverses challenging mountainous terrain and steep grades. After a comparative review, one alignment was identified as the preferred option and subsequently modeled in Viriato. Due to geometric constraints, the extension features numerous curves and relatively low operating speeds, resulting in a total one-way travel time of approximately 40 minutes between the Reno Amtrak Station and the Tesla Gigafactory (approximately 10 minutes longer than the Near-Term Alternative, which does not extend to the Gigafactory). The modeled configuration assumes full double-tracking throughout the Reno–Tesla segment, enabling sufficient capacity to operate the number of trains required to fully meet the forecasted passenger demand.

The Workforce Rail Long-Term Alternative would operate on weekdays only with operating hours that align with workforce peak shifts. Headways are anticipated to be approximately every 30 – 60 minutes during peak hours. The following preliminary operating hours were assumed:

- 4:00 – 9:00 AM
- 4:00 – 9:00 PM

The end-to-end run times for the Long-Term Alternative were generated using the Viriato simulation software based on existing track configuration as described in the UPRR track charts and proposed infrastructure improvements, with the following inputs:

- Track alignment, speed profiles, grade/elevation
- Posted speed changes, gradients, and train control points
- Assumes that the whole segment on the UPRR mainline is double-tracked
- Rolling stock specifications, including the MP-40 locomotive model and Bombardier Multi-level coach model with a cab car
- Station dwell times of 2 minutes

Table 25 displays anticipated station-to-station travel times for the Long-Term Alternative.

Table 25: Station-to-Station Travel Time Estimates: Long-Term Alternative

Eastbound Schedule	***Segment Time (Minutes)***
Amtrak Reno Station	
Sparks Station (specific location to be identified)	0:08
TRI Center USA Parkway Station *Gigafactory Station* ***TOTAL***	0:20 0:10 **0:38**
Westbound Schedule	***Segment Time (Minutes)***
Gigafactory Station *TRI Center USA Parkway Station*	 0:10
Sparks Station (specific location to be identified)	0:21
Amtrak Reno Station	0:09
TOTAL	**0:40**

Service frequency and scheduling would have to be negotiated with UPRR to provide the maximum level of service permitted. The preliminary service plan developed assumes four to five round-trips in the morning and four to five round-trips in the afternoon/evening period, with trains every 30-60 minutes. The initial timetables developed were coordinated with demand modeling to assess ridership patterns around very concentrated demand at peak shift changes.

8.3.1. Operating Requirements for the Long-Term Alternative

The operating requirements for the Long-Term Alternative are the following:

- Proposed service frequencies with a train every 30-60 minutes for a total of 4-5 round trips in the morning and 4-5 round trips in the afternoon/evening.
- Proposed spans of service of approximately 4:00 AM to 9:00 AM and 4:00 PM to 9:00 PM.
- Modeled travel time estimates of 38 minutes eastbound and 40 minutes westbound
- Peak vehicle service requirement of three trainsets consisting of 1 Diesel Locomotive, 9 Bi-Level Coaches, and 1 Bi-Level Cab car to provide push/pull capability. Note that this does not include spare equipment.

9 Cost Estimating

9.1.1. Capital Costs

Capital cost estimates were created for conceptual level engineering plans developed to support the evaluation of alternatives for this study. At this preliminary stage of design, not all details are comprehensively developed, and many elements remain undefined. The intent of the capital cost estimate exercise is to evaluate and identify an order of magnitude cost for all related infrastructure improvements considered for this study, inclusive of proposed infrastructure required for implementation of Workforce Rail service, as well as improvements to UPRR's existing freight infrastructure to provide additional capacity and potential for additional business opportunities within the study area. Contingency and escalation factors have been included in the estimates to address uncertainties that cannot be accounted for at this conceptual planning level of evaluation. These contingencies are designed to account for potential design modifications, fluctuations in material costs, and other unforeseen factors, thereby ensuring a more resilient and adaptable financial plan.

Capital cost estimates for mainline capacity improvements, stations, and required layover and maintenance facilities reflect the recommended Near-Term and Long-Term Workforce Rail Alternatives and proposed freight improvements as described in Section 7. A cost summary of the Recommended Alternatives is provided in the following tables.

Table 26: Workforce Rail Recommended Alternative Cost per Phase

INFRASTRUCTURE PROJECT:	DESCRIPTION:	Initial Start Up	Full Build Out
TRIC Passenger Projects			
TRIC Station Alt 3	TRIC Passenger Alt 6 Alignment	$97,784,943	
Sparks McCarran Station		$42,580,667	
Sparks Layover Facility - Wells Ave North		$34,777,212	
TRIC Passenger Alt 6 Alignment	Passenger - UPRR ML to Electric Ave (USA Pky underpass)		$293,814,492
TRIC O&M Track and Civil			$57,132,914
TRIC O&M Building			$36,797,184
Subtotal TRIC Passenger Per Phase		**$175,142,821**	**$387,744,590**
Total TRIC Passenger			**$562,887,411**
Mainline & Freight Improvements			
UPRR Mainline - segment 1	Sparks to Lockwood (Rainbow Bend)		$116,511,519
UPRR Mainline - segment 2	Mustang Rd to McCarran Ranch Rd		$64,956,851
UPRR Mainline - segment 3	Waltham Way to UPRR TRIC Ind Spur		$51,627,130
UPRR Storage Yard at TRIC Ind Spur			$24,795,523
TRIC IMF Alt 3 - Electric Ave	IMF - UPRR ML to Electric Ave (USA Pky underpass)		$419,055,780
Subtotal Mainline & Freight Improvements			**$676,946,802**
Total TRIC Passenger + Mainline & Freight Improvements			**$1,239,834,214**

Table 27: Leased Railroad Equipment Costs

Leased - Rail Vehicle	2025 $'s			
	Unit Price	QTY	Cost	Cost Basis
Locomotive - MP40	$1,327,331	1	$1,327,331	NorthStar to TRE lease
BiLevel Trailer Coach Car	$754,166	9	$6,787,490	NorthStar to TRE lease
BiLevel Cab Coach Car	$754,166	1	$754,166	NorthStar to TRE lease
			$8,868,987	**Train Set per year**
Near-Term (Start Up) Service				
3 Train Sets	$8,868,987	3	$26,606,962	
BiLevel Trailer Coach Car Spares	$754,166	3	$2,262,497	NorthStar to TRE lease
BiLevel Cab Coach Car Spare	$754,166	1	$754,166	NorthStar to TRE lease
Spare Parts		1	$2,962,362	10% of Vehicle Cost
			$32,585,986	**per year**
Long-Term (Full Build) Service				
5 Train Sets	$8,868,987	5	$44,344,936	
BiLevel Trailer Coach Car Spares	$754,166	5	$3,770,828	NorthStar to TRE lease
BiLevel Cab Coach Car Spare	$754,166	2	$1,508,331	NorthStar to TRE lease
Spare Parts		1	$4,962,409	10% of Vehicle Cost
			$54,586,504	**per year**

Table 28: Purchased (New) Railroad Equipment Costs

New Purchased - Rail Vehicle	2025 $'s			
	Unit Price	QTY	Cost	Cost Basis
Locomotive - MP40	$9,561,849	1	$9,561,849	75% of NCTD Charger
BiLevel Trailer Coach Car	$4,322,977	9	$38,906,794	NCTD with Metrolink overhaul
BiLevel Cab Coach Car	$4,842,108	1	$4,842,108	NCTD with Metrolink overhaul
			$53,310,751	**Total Contract / Train Set**
Near-Term (Start Up) Service				
3 Train Sets	$53,310,751	3	$159,932,253	
BiLevel Trailer Coach Car Spares	$4,322,977	3	$12,968,931	NorthStar to TRE lease
BiLevel Cab Coach Car Spare	$4,842,108	1	$4,842,108	NorthStar to TRE lease
Spare Parts		1	$17,774,329	10% of Vehicle Cost
			$195,517,621	**Total Contract Value**
Long-Term (Full Build) Service				
5 Train Sets	$53,310,751	5	$266,553,754	
BiLevel Trailer Coach Car Spares	$4,322,977	5	$21,614,886	NorthStar to TRE lease
BiLevel Cab Coach Car Spare	$4,842,108	2	$9,684,216	NorthStar to TRE lease
Spare Parts		1	$29,785,286	10% of Vehicle Cost
			$327,638,141	**Total Contract Value**

9.1.2. Operations and Maintenance Costs

Operations and Maintenance (O&M) cost estimates were developed for the Near-Term Alternative using a cost model that is calibrated with unit costs compared to peer agencies and services using key service inputs. The annual service inputs used in the O&M model were generated through Viriato service planning software for the Near-Term service option with 3 round-trips in the morning and 3 round-trips in the afternoons/evenings on weekdays, stopping at the Reno Amtrak station, a new Sparks station, and the TRI Center USA Parkway station. Annual O&M costs have several drivers, including:

- Labor costs
- Materials costs
- Utilities costs
- Administrative costs
- Contracted services (e.g., planning, engineering)

The service inputs for the O&M model used for this study include the following:

- Annual train hours and train miles
- Annual car hours and car miles
- Labor force
- Track and yard miles
- Fleet by equipment type (cab, coaches, and locomotives) and diesel consumption (gallons)

- Stations

The service inputs were then multiplied by the annual 2024-unit costs by cost category. Certain inputs also generated full-time equivalent staff estimates by category using industry productivity ratios. The annual service costs were derived by multiplying the results of the inputs with unit costs by category, including elements such as cost per track mile, cost per train hour and mile, cost per employee, and cost per station. The annual estimated costs are summarized below. These annual O&M costs will be refined as additional service inputs are finalized.

Diesel fuel costs were derived from the U.S. Energy Information Administration (EIA) Gasoline and Diesel Fuel Update 11/25/24, Petroleum Administration for Defense District (PADD) 5 for the West Coast area minus California, which is estimated at $3.74 per gallon. The model also assumes that the trainsets use 2.5 gallons of diesel fuel per mile on average.

Labor costs were derived from the U.S. Bureau of Labor Statistics (BLS), May 2023 - NAICS 482100 - Rail Transportation salary tables to determine salary rates. These were multiplied by an additional 135% to account for fringe benefits and a 3% escalation to bring it to 2024 dollars. Labor assumptions include positions for Train Operations, Train Maintenance, Yard Operations, Station Operations and Maintenance, and Others.

Materials costs were derived from 2011 material cost unit prices escalated at 3% annually to 2024 dollars. Materials include items needed for maintaining rolling stock, track and structures, signals, communications, and stations.

While costs for Maintenance of Way (MoW) are calculated in the model, it is assumed that UPRR will continue to perform the maintenance on their respective segments of the corridor and charge the future service owner some portion of the total cost, which is yet to be determined. For estimation purposes, analysts assumed that the Workforce Rail service owner would bear 20% of the total MoW cost. The final cost may be more or less, depending upon the outcome of negotiations with UPRR.

The model also includes additional cost assumptions:

- Host railroad (UPRR) Franchise Access Fee of $15.00/train mile (subject to negotiations with UPRR)
- 15% of the subtotal for O&M contractor fee and contingency
- Utilities at $30 per train hour
- Professional service contracts at $50 per train hour
- 2% administrative costs
- 12% insurance costs

- 1% marketing costs
- 2% legal and real estate services costs
- Service owner costs to monitor the contracts
- A calculation for a set-aside for a Rolling Stock Replacement Reserve, to purchase new rolling stock 25 years in the future. The project team conservatively estimates that federal funding will be available for 40% of the total cost of new rolling stock. The set-aside, as a result, would require a 60% local match. Federal transportation policy may change between now and 25 years from now; the projected funding shares strike a reasonable balance between optimism and caution.

The final output from the model, as displayed in Table 29, is a rough order-of-magnitude (ROM) O&M cost estimate in 2024 dollars that can be escalated by 3% annually to project year-of-operation costs.

Table 29: Annual Operations & Maintenance Costs for the Near-Term Alternative (2024 $)

Cost Category	Annual Cost
Train Operations	$1,916,000
Train Maintenance	$3,014,000
Maintenance of Way	$316,000
Yard Operations	$292,000
Station Operations and Maintenance	$245,000
UPRR Franchise Access Fee	$848,000
O&M Contractor Fee/Contingency	$868,000
Utilities	$43,000
Professional Service Contracts (GEC)	$72,000
Administration	$116,000
Salary and Benefits – Oversight	$324,000
Insurance	$694,000
Marketing	$58,000
Legal & Real Estate Services	$116,000
Rolling Stock Replacement Reserve	$3,000,000
TOTAL Annual O&M COST	**$11,022,000**

10 Environmental Constraints

A high-level screening of potential environmental constraints for Workforce Rail is detailed in Table 30. The environmental screening is focused on the segment of the corridor between Sparks and USA Parkway at the entrance to the TRI Center.

Table 30: Summary of Potential Environmental Constraints

Resource	Environmental Considerations and Constraints
Floodplains and Water Resources	The UPRR right-of-way is located adjacent to or within the regulatory floodway and crosses the Truckee River in three locations. Stormwater quality, changes in impervious surfaces, and drainage patterns would need to be considered. Potential encroachment on the river would be likely. As such, early coordination with regulatory and permitting agencies should be prioritized. Section 404 and Section 408 permits would likely be required. Early coordination with US Army Corps of Engineers (USACOE), Federal Emergency Management Agency (FEMA), Nevada Division of Water Resources (NDWR), Carson Truckee Water Conservancy District (CTWCD), Washoe County, and Storey County should be prioritized during the next phases of project development to identify specific permitting requirements. Resource and regulatory agency coordination is a long-lead schedule item and could drive the overall project schedule. The Section 408 permit process is estimated to take 24 to 36 months to complete. The Section 404 permit process is estimated to take 12 to 24 months to complete, depending on the specific type of permit required.
Biological Resources	Three species are currently listed as either federally threatened, endangered, or proposed were identified in 2025 in the project area by resource agencies: Cui-Ui, Lahontan cutthroat trout, and northwestern pond turtle. One candidate species, monarch butterfly, was identified to occur in the project area. Best Management Practices (BMPs) to minimize potential impacts to the Truckee River should be incorporated into the project. Depending on potential impacts, formal consultation with US Fish and Wildlife Service (USFWS) may be necessary. Early coordination with resource agencies should be prioritized during the next phases of project development to identify current regulatory requirements and listed species. Resource and regulatory agency coordination is a long-lead schedule item and could drive the overall project schedule. If required, formal Section 7 consultation with USFWS could take 12 to 24 months to complete. Informal Section 7 consultation is estimated to take six to 12 months to complete.

Resource	Environmental Considerations and Constraints
Cultural Resources	Historic Properties – UPRR line is eligible for listing on the National Register of Historic Properties (NRHP). The UPRR line, including bridges, and other structural properties 45 years and older within the Area of Potential Effects (APE) should be evaluated for eligibility and potential impacts as part of the Section 106 process. Coordination with the Nevada State Historic Preservation Office (SHPO) will be required. Early coordination with SHPO to determine the APE should be prioritized during the next phase of project development. Archaeological Resources – As part of the I-80 East Widening project, three environmentally sensitive avoidance areas were identified, one of which is adjacent to the UPRR right-of-way. A records search and literature review will need to be conducted to identify additional known archaeological sites and additional avoidance areas may be identified. Improvements should be designed to avoid impacts in these areas. Coordination with interested Tribal parties should be conducted as part of the project. Regulatory agency and tribal coordination is a long-lead schedule item and could drive the overall project schedule. The Section 106 consultation process is estimated to take 12 to 24 months to complete, depending on potential impacts to cultural resources.
Socioeconomics/Land Use	Land use is primarily industrial with some residential, commercial, and recreational areas. The Lockwood (Rainbow Bend) community is the primary residential area within the study area and consists of single-family homes, school, and community center located south of I-80 and Canyon Way. Project outreach efforts should conduct early engagement with the residential community of Lockwood.
Noise	As part of the I-80 East Widening project public outreach, members of the Lockwood community expressed concerns about noise from existing rail activity within the corridor. Future improvements should consider potential impacts at noise sensitive locations. As noted previously, project outreach efforts should conduct early engagement with the residents of Lockwood.

Resource	Environmental Considerations and Constraints
Recreation/Section 4(F)	There are several recreation resources located within the corridor that are subject to Section 4(f) protections – Lockwood Park, McCarran Ranch Preserve, and Tahoe-Pyramid Trail. National Register eligible historic properties and archaeological sites are also subject to Section 4(f) protections. The Truckee River itself, although used informally for recreation purposes, is not a designated National Wild and Scenic River; therefore Section 4(f) does not apply to the Truckee River as a recreational resource. Potential impacts to identified Section 4(f) properties should be avoided or minimized as part of the project development process.

11 Funding and Grant Opportunities

The purpose of this section is to identify potential funding and financing strategies available to support the delivery of Workforce Rail. This section identifies federal, state, regional, and local funding sources, along with relevant financing tools, to provide potential pathways for advancing project implementation.

11.1. Overview and Approach

The approach for this section is focused on identifying relevant federal, state, regional, and local funding programs and applicable financing mechanisms, including bonds and credit programs for which the Workforce Rail project may be eligible. The analysis prioritizes feasibility and alignment with anticipated project phasing. Time frames in this document represent fiscal years (FY). For information, the Federal fiscal year runs from October 1 through September 30.

11.2. Federal Funding Programs

This section documents and describes the formula and discretionary federal funding programs for which the Workforce Rail Project may be eligible. Programs include formula and discretionary funding opportunities administered by the Federal Railroad Administration (FRA), the Federal Transit Administration (FTA), the Federal Highway Administration (FHWA), and the U.S. Department of Transportation (USDOT).

11.2.1. Federal-State Partnership for Intercity Passenger Rail Grant Program (FRA - FSP National)

Program Overview

The Federal-State Partnership for Intercity Passenger Rail Grant Program (FSP National, also now referred to as the National Railroad Partnership Program) funds capital projects not located on the Northeast corridor that reduce the state of good repair backlog, improve performance, or expand or establish new intercity passenger rail service, including privately operated intercity passenger rail service. Workforce Rail, as a regional commuting mode, is not an eligible mode, though elements could be included in a partnering intercity passenger service.

The FSP National Program was authorized under the Infrastructure Investment and Jobs Act (IIJA), allocating millions of dollars annually in FSP National funding from federal fiscal years (FY) 2022 - 2026. A Notice of Funding Opportunity (NOFO) for FY 2024 – 2025 indicates $5 billion available for the fiscal year. The current proposed FY26 transportation funding that passed the

House of U.S. Representatives reduces this funding to only $65 million for the future cycle. However, it retains $7.2 billion in IIJA funds that were previously authorized.

Eligible Applicants

- States (including the District of Columbia).
- Local Governments.
- A political subdivision of a State.
- Federally Recognized Tribes and Affiliated Groups
- Transportation Providers and Operators.

Eligible Projects/Activities

- A project to improve intercity passenger rail service performance, including reduced trip times, increased train frequencies, higher operating speeds, improved reliability, expanded capacity, reduced congestion, electrification, and other improvements.
- A project to expand or establish new intercity passenger rail service.

Potential Project Nexus with Funding Program

FSP National funds are a good fit for rail corridors owned by Class 1 Railroads such as UPRR, that host intercity passenger services, such as Amtrak's *California Zephyr* long-distance route. The current administration is prioritizing grade-crossing elimination in this program for FY24-25 and will likely continue this into the FY26 program. Other safety improvements that improve passenger rail service reliability could be a competitive approach as well.

11.2.2. Consolidated Rail Infrastructure and Safety Improvements Program (FRA - CRISI)

Program Overview

This program provides funding for projects that improve the safety, efficiency, and reliability of intercity passenger and freight rail.

The CRISI was authorized under the Infrastructure Investment and Jobs Act (IIJA), allocating millions of dollars annually in FSP National funding from federal fiscal years (FY) 2022 - 2026. The current proposed FY26 transportation funding that passed the House of U.S. Representatives reduces this funding to only $137 million for the future cycle (of which $87 million is designated for Congressionally Designated Spending projects). However, it retains $1 billion in IIJA funds that were previously authorized.

Eligible Applicants

- States (including the District of Columbia).

- Group of states.
- Interstate compacts.
- Public agencies or publicly chartered authorities established by one or more states.
- Political subdivisions of states.
- Amtrak or another rail carrier that provides intercity rail passenger transportation; Class II railroad or Class III railroad or a holding company of a Class II or Class III railroad, or an association representing a Class II or III railroad.
- Federally recognized Indian Tribes.
- Any rail carrier or rail equipment manufacturer in partnership with at least one of the entities described in (1) through (5).

Eligible Projects/Activities

- Deployment of railroad safety technology.
- Capital projects, as defined in section 49 U.S.C. § 24401(2) for intercity passenger rail service, except that a project under this NOFO is not required to be in a state rail plan. This includes projects that:
    - reduce congestion and facilitate ridership growth along heavily traveled rail corridors.
    - improve short-line or regional railroad infrastructure.
- Highway-rail grade crossing improvement projects.
- Rail line relocation and improvement projects.
- Regional rail and corridor service development plans and environmental analyses.
- Any project necessary to enhance multimodal connections or facilitate service integration between rail service and other modes.

Potential Project Nexus with Funding Program

CRISI would be a good fit for the Project, where there are safety and state-of-good-repair needs that align with UPRR operations. This includes grade crossing improvements, improvements such as double tracking, deployment of safety technology, or other improvements to reliability. The project, as a commuter rail program, also qualifies as a standalone option, but correlating opportunities with UPRR would significantly improve competitiveness.

11.2.3. Railroad Crossing Elimination Grant Program (FRA - RCE)

Program Overview

The Railroad Crossing Elimination Grant Program (RCE) provides funding for highway-rail or pathway-rail grade crossing improvement projects that focus on improving the safety and mobility of people and goods.

The RCE was authorized under the IIJA, allocating millions of dollars annually in FSP National funding from federal FY 2022 - 2026. The U.S. DOT FY 2026 Budget Highlights, released in May 2025, indicate that $600 million in RCE funding has been allocated for the upcoming fiscal year.

The IIJA funding authorizations are set to expire at the end of federal fiscal year 2026. The current proposed budget does not include any funding for this program.

Eligible Recipients

- States (including the District of Columbia).
- Political subdivisions of states.
- Federally recognized Indian Tribe.
- Units of local government or groups of local governments.
- Public port authorities.
- Metropolitan planning organizations.

Eligible Projects/Activities

- Grade separation or crossing closure.
- Track relocation.
- Improvement or installation of protective devices, signals, signs, or other.
- Measures to improve safety related to a separation, closure, or track relocation project.

Potential Project Nexus with Funding Program

The project has an opportunity to specifically request funds for any at-grade crossing removal or improvement along the corridor. The most competitive crossings would have a higher safety need with a history of collisions and plans to fully separate the crossing from vehicles and pedestrians.

11.2.4. Capital Investment Grants (USDOT - FTA - CIG)

Program Overview

The Capital Investment Grant (CIG) discretionary grant program provides funding for fixed guideway capital improvements such as new and expanded rapid rail, commuter rail, light rail, streetcars, BRT, and ferries, as well as corridor-based BRT investments. The CIG Program includes three types of eligible projects: Core Capacity, New Starts, and Small Starts. Each type of CIG project has a unique set of requirements in the law, although many similarities exist among them. To be eligible to receive a CIG construction grant, all proposed projects must go through a multi-year, multi-step development process outlined in the law.

The CIG program is a competitive process in which projects are evaluated and rated based on project justification and local financial commitment criteria. Project justification considers factors such as mobility improvements, environmental benefits, congestion relief, economic development

effects, land use, and cost-effectiveness. The local financial commitment assessment reviews current capital and operating conditions, the strength and reliability of committed capital and operating funds, and the reasonableness of capital and operating cost estimates.

The CIG program provides federal grants for major transit capital investments. The passage of the IIJA provided up to $15 billion in grant funds for transit projects for FY 2022 - 2026. The IIJA funding authorizations are set to expire at the end of federal fiscal year 2026; future funding opportunities will depend on the passage of a new surface transportation reauthorization bill.

Eligible Applicants

- State and local government agencies, including transit agencies.

Eligible Project/Activities

- **Core Capacity**: Design and construction of a corridor-based investment in an existing fixed guideway system that improves capacity by at least 10 percent in a corridor that is at capacity today or will be in 10 years. The project may not include elements designed to maintain a state of good repair.
- **New Starts and Small Starts**: Design and construction of new fixed-guideways or extensions to fixed guideways (projects that operate on a separate right-of-way exclusively for public transportation, or that include a rail or a catenary system).
    - **New Starts**: Total project cost is equal to or greater than $400 million, or total New Starts funding sought equals or exceeds $150 million.
    - **Small Starts**: Total project cost is less than $400 million, and total Small Starts funding sought is less than $150 million.
- **Joint intercity rail/public transportation project:** Design and construction elements attributable to the public transportation portion of the total project cost based on projected use of the new segment or expanded capacity of the project corridor, not including elements designed to achieve a state of good repair.

Potential Project Nexus with Funding Program

The CIG program funds major transit capital investments, including commuter rail projects. While this project may be eligible to apply for CIG funding, it must score well in both the project justification and local financial commitment criteria to be considered competitive. The process for CIG funds is a multi-year effort requiring ongoing coordination with FTA.

11.2.5. Better Utilizing Investments to Leverage Development (USDOT - BUILD)

Program Overview

The Better Utilizing Investments to Leverage Development (BUILD) discretionary grant program, formerly known as Rebuilding American Infrastructure with Sustainability and Equity (RAISE) and Transportation Investment Generating Economic Recovery (TIGER) discretionary grants, is a

competitive USDOT grant program. BUILD supports the capital costs of road, rail, transit, and multimodal projects that have a significant impact on the nation, a region, or a metropolitan area.

USDOT has released the FY 2026 Notice of Funding Opportunity (NOFO), announcing $1.5 billion in available funds, with applications due February 24, 2026. Future funding opportunities will depend on the passage of a new surface transportation reauthorization bill.

Eligible Applicants

- States (including the District of Columbia).
- Units of local government.
- Public agencies or publicly chartered authorities established by one or more States.
- Special-purpose districts or public authorities with a transportation function
- Transit agencies.

Eligible Projects/Activities

- Highway or bridge projects eligible under Title 23.
- Public transportation projects eligible under Chapter 53 of Title 49.
- Passenger and freight rail transportation projects.

Potential Project Nexus with Funding Program

The project may seek funds for both the planning and construction phases of the Project. The emphasis would be on safety, mobility, and economic development. Maximum awards for funds are up to $25 million and could fund stations, multi-modal improvements, grade crossings, and other transportation related infrastructure that improve the surface transportation system.

11.2.6. National Infrastructure Project Assistance (USDOT – MEGA)

Program Overview

The MEGA Program (a.k.a. the National Infrastructure Project Assistance program) supports large, complex projects that are difficult to fund by other means and are likely to generate national or regional economic, mobility, and/or safety benefits.

MEGA is part of the Multimodal Project Discretionary Grant (MPDG) Opportunity, which is a combined solicitation. The other grant programs included in the MPDG are the Nationally Significant Multimodal Freight & Highway Projects Grant program (INFRA) and the Rural Surface Transportation Grant program.

The Program was funded by IIJA funds, which made up to $5 billion available for the period of FY 2022 through 2026. The USDOT completed all IIJA funding allocations, with FY 2026 applications

closing in 2024. Future funding opportunities under a similar program will depend on the passage of a new surface transportation reauthorization bill. Funds from IIJA for this program have mostly been depleted at this time.

Eligible Applicants

- States or groups of states (including the District of Columbia).
- Metropolitan planning organizations.
- Units of local government.
- Political subdivisions of a state.
- Special-purpose districts or public authorities with a transportation function.

Eligible Projects/Activities

- A freight intermodal (including public ports) or freight rail project that provides public benefit.
- A highway-rail grade separation or elimination project.
- An intercity passenger rail project.

Potential Project Nexus with Funding Program

The MEGA Program is tailored for large complex projects seeking significant funding. This is highly competitive and requires extension planning and project development. The project may be considered as a strong candidate with significant development and engagement with partners.

11.2.7. Infrastructure for Rebuilding America (USDOT - INFRA)

Program Overview

The Nationally Significant Multimodal Freight & Highway Projects grant program (also known as INFRA) is dedicated to rebuilding the nation's aging infrastructure. INFRA utilizes selection criteria that promote projects with national and regional economic vitality as well as environmental justice benefits in highway and intercity passenger/freight rail projects. The program also incentivizes project sponsors to pursue innovative delivery strategies, including public-private partnerships.

INFRA is part of the Multimodal Project Discretionary Grant (MPDG) Opportunity, which is a combined solicitation. The other grant programs included in the MPDG are the National Infrastructure Project Assistance grants program (MEGA) and the Rural Surface Transportation Grant program.

The IIJA makes available up to $8 billion for the Infra program for the period of FY 2022 through 2026, with FY 2026 applications closing in 2024. Future funding opportunities under a similar

program will depend on the passage of a new surface transportation reauthorization bill. Funds from IIJA for this program have mostly been depleted at this time.

Eligible Applicants

- States or groups of states (including the District of Columbia).
- Metropolitan planning organizations.
- Units of local government.
- Political subdivisions of states.
- Special-purpose districts or public authorities with a transportation function.

Eligible Projects/Activities

Projects that:

- Improve the safety, efficiency, and reliability of the movement of freight and people in and across rural and urban areas.
- Generate national or regional economic benefits and an increase in the global economic competitiveness of the U.S.
- Reduce highway or freight congestion and bottlenecks.
- Improve connectivity between modes of freight transportation.
- Enhance the resiliency of critical highway or freight infrastructure and help protect the environment.

Potential Project Nexus with Funding Program

The project can seek funds that improve freight mobility as the primary benefit and the overall project goals as a secondary benefit. The focus of INFRA is freight, and UPRR would have to be engaged as a partner to seek funds to improve congestion and safety.

11.2.8. Surface Transportation Block Grant (FHWA - STBG)

Program Overview

Flexible funding that may be used for projects to preserve or improve conditions and performance on any Federal-aid highway, bridge projects on any public road, facilities for non-motorized transportation, transit capital, and public bus terminals and facilities.

The IIJA funding authorizations are set to expire at the end of federal fiscal year 2026. Future funding opportunities will depend on the passage of a new surface transportation reauthorization bill.

Eligible Applicants

- Local governments.

- Regional transportation authorities.
- Transit agencies.
- States (including the District of Columbia), at the request of an entity listed above.

Eligible Projects/Activities

- Capital costs for transit projects eligible for assistance under Chapter 53 of Title 49, including vehicles and facilities.

Potential Project Nexus with Funding Program

The project may seek funds under the federal formula program, coordinating with regional and state partners. Funds may be flexed to improve transit options under the STBG as well as the Congestion Mitigation and Air Quality (CMAQ) program. These funds are provided to the State of Nevada and regional MPOs under a formula designated by the US Congress.

11.3. State and Local Funding Options

This section will document and describe the state local funding sources that the TRI Center Workforce Rail project could potentially utilize. Funding options include dedicated transportation taxes and other local or state-generated revenues.

11.4. State

11.4.1. Nevada Department of Transportation

NDOT is responsible for the planning, construction, operation, and maintenance of the 5,400 miles of highway and over 1,000 bridges which make up the state highway system. NDOT funds are derived from a mix of federal and state sources. The Nevada constitution created the State Highway Fund with proceeds from licensing, registration, and other charges with respect to operating any motor vehicle on any public highway in the state, plus excise taxes on fuel. NDOT funds are typically reserved for constructing, maintaining, and repairing public highways in Nevada.

11.5. Local

11.5.1. Regional Transportation Commission of Washoe County Capital Program

The Regional Transportation Commission (RTC) of Washoe County may consider contributing to the TRI Center Workforce Rail project through its capital improvement program, which is supported by a combination of local tax revenues.

Several initiatives have made additional local funding available to RTC. In 1982, voters approved a one-quarter percent sales tax dedicated to public transportation. In 2003, with the approval of Washoe County ballot question WC-2, a one-eighth percent sales tax was added to implement road and transit projects, and fuel tax indexing was implemented based on the Consumer Price Index (CPI). The one-eighth percent sales tax was split evenly between road and transit projects. In 2008, with the approval of Washoe County ballot question RTC-5, the CPI indexing was discontinued in favor of new indexing provisions calculated on the Producer Price Index (PPI).

RTC-5 Fuel Tax

Following passage of RTC-5, legislation was approved in 2009 to index fuel to PPI, and additional bases were added, including federal, state, diesel, and alternative fuels. Eligible uses for fuel tax include overlays, reconstruction, and new construction for regional streets included in the regional road system. RTC dedicates a portion of this funding source to the preservation of the existing regional network.

This fuel tax will fund more than $558 million in roadway improvements needed over the next 5 years and is the primary local funding source for some $5 billion of planned roadway improvements over the next 30 years. The fuel tax has also been pledged as security for $312 million in outstanding bonds that have to be repaid.

Increased vehicle fuel economy and electrification of vehicles aren't captured as part of fuel tax indexing, which means the RTC is collecting less on average per vehicle every year, even with the annual adjustments.

Transit Sales Tax

The single most important funding source for transit in Washoe County continues to be the dedicated five-sixteenths percent sales tax (comprised of the one-quarter percent and half of the one-eighth percent sales tax provisions). The revenue generated by this tax provided more than half the funds necessary for RTC to operate RTC RIDE and RTC ACCESS and to contribute to the TART service. Fluctuations in growth for this source are determined as part of the fiscal constraint process for the Regional Transportation Plan (RTP) and carried over into the Regional Transportation Improvement Program (RTIP). The amount of available sales tax revenue greatly affects the level of public transit service RTC can provide.

Road Sales Tax

The other half of the one-eighth percent sales tax is allocated to road projects. This funding source has been used for the pavement preservation program.

Regional Road Impact Fees (RRIF)

Impact fees are levied on new development to offset the cost of providing specific infrastructure improvements necessary to serve that new development. New development can be required to improve and add facilities necessary to maintain an established policy level of service (LOS).

Impact fees are calculated and levied on the new development based on the degree which they contribute to the need for identified improvements.

11.6. Financing Mechanisms

This section will document and describe financing mechanisms for which the TRI Center Project could be eligible. Options include mechanisms such as bonds and credit programs.

11.6.1. Transportation Infrastructure Finance and Innovation Act (USDOT - TIFIA)

Program Overview

The Transportation Infrastructure Finance and Innovation Act (TIFIA) provides federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national and regional significance. This program includes several eligibility requirements, most notably that projects must meet minimum anticipated project costs of $10 million for Transit-Oriented Development (TOD), local, and rural projects; $15 million for Intelligent Transportation System (ITS) projects; and $50 million for all other eligible transportation projects.

Pursuant to the Fixing America's Surface Transportation (FAST) Act, USDOT authorized billions of dollars in federal funds to provide TIFIA credit assistance for eligible projects. TIFIA accepts applications on a rolling basis, and applicants must submit detailed Letters of Interest once their project is able to provide sufficient information to demonstrate compliance with the program's statutory eligibility requirements.

Eligible Applicants

- States (including the District of Columbia).
- State infrastructure banks.
- Private firms.
- Special authorities.
- Local governments.
- Transportation improvement districts.

Eligible Projects/Activities

- Highways and bridges.
- Intelligent Transportation Systems elements.

- Intermodal connectors.
- Transit vehicles and facilities.
- Intercity buses and facilities.
- Freight transfer facilities.
- Pedestrian and bicycle infrastructure networks.
- Transit-Oriented Development.
- Rural infrastructure projects.
- Passenger rail vehicles and facilities.
- Surface transportation elements of port projects.

11.6.2. Railroad Rehabilitation & Improvement Financing (USDOT – RRIF)

Program Overview

The Railroad Rehabilitation and Improvement Financing (RRIF) program provides federal credit assistance in the form of direct loans, loan guarantees, and lines of credit to finance rail projects. RRIF offers direct loans for up to 100% of the project cost. Under this program, USDOT is authorized to provide direct loans and loan guarantees up to $35 billion to finance the development of railroad infrastructure. Not less than $7 billion is reserved for projects benefiting freight railroads other than Class I carriers.

Eligible Applicants

- States (including the District of Columbia).
- State infrastructure banks.
- Private firms.
- Special authorities.
- Local governments.
- Transportation improvement districts.

Eligible Projects/Activities

Projects to:

- Acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings and shops, and including the installation of positive train control systems.
- Develop or establish new intermodal or railroad facilities.
- Reimburse planning and design expenses relating to activities listed above.

11.6.3. Private Activity Bonds (USDOT - PABs)

USDOT's Private Activity Bonds (PABs) Program is a key financing tool to support private sector participation and investment in critical transportation infrastructure projects nationwide. As a tax-exempt debt instrument, PABs offer a financing option at a lower cost than comparable taxable bonds for a range of transportation projects that are privately developed, built, financed, operated, and/or maintained utilizing public-private partnership (P3) project delivery methods. The USDOT is authorized to allocate up to $30 billion in PABs.

11.6.4. Public-Private Partnerships (USDOT - P3 Financing)

Public-private partnerships (P3s) allow public agencies to access private equity capital to finance projects. The two most typical types of P3 financing include P3 equity and P3 debt. P3 equity represents a private ownership stake in an enterprise with an aim of making a profitable return. This may include investment from commercial developers, financial investors, pension funds, sovereign wealth funds, insurance companies, and private equity funds. A P3 equity stake is just one component of an overall project delivery strategy. P3 debt can be coupled with equity to finance the initial investment and may include PABs, taxable bonds, bank loans, and other debt instruments. P3s have the potential to support a significant share of project costs and could facilitate lower project costs as part of a comprehensive program delivery strategy. However, the resulting transfer of project risk to the private sector typically requires program sponsors also transfer some direct control of the program.

11.6.5. Nevada State Infrastructure Bank (NSIB)

Established in 2017 as Nevada's infrastructure financing authority, the Nevada State Infrastructure Bank (NSIB) provides low-cost loans and credit assistance for eligible public projects. The NSIB may provide financing for a variety of infrastructure projects, including transportation facilities, utility infrastructure, and other infrastructure related to economic development.

11.6.1. Tax Increment Financing (TIF)

Tax Increment Financing (TIF) is a public financing method used by local governments to stimulate economic development in designated areas, often those considered blighted or underutilized. TIF works by capturing the future increase in property tax revenues, known as the "tax increment", that results from rising property values due to new development or infrastructure

improvements. These incremental revenues are then reinvested back into the area to help fund redevelopment projects that might not be financially feasible otherwise.

In Nevada, cities and counties can create special districts where TIF is applied. When a Redevelopment Area is established, the current property tax base value is frozen for overlapping taxing bodies (city, county, school district, etc.), which continue to receive taxes on that base amount. Any additional tax revenue from rising values (the increment) is set aside in a redevelopment fund.

To be considered for TIF assistance in the Reno-Sparks area, a project generally must be located within the boundaries of an active redevelopment area (RDA), and the project should further the goals of that redevelopment plan. Reno has a structured process for developers or entities seeking TIF support. In late 2025, the Reno Redevelopment Agency opened a formal application portal for redevelopment project proposals. Sparks, on the other hand, operates on a smaller scale and project sponsors work directly with SRA staff and the City Manager's office when seeking support.

11.7. Alternative Funding Options

11.7.1. Congressionally Directed Spending (CDS)

Congressionally Directed Spending (CDS), previously known as Congressional Earmarks, are funds directed by Congress to a specific project. These funds bypass the merit-based or competitive allocation process. These funds are administered by the House Appropriations Committee. A member of Congress may submit up to 15 requests to the Committee for review. Entities that can receive funds include local hospitals, schools, municipal authorities, and other nonprofit organizations.

11.7.2. UPRR Capital Funds

UPRR's capital program is primarily funded through its freight and operating revenues, enabling the railroad to consistently reinvest in maintaining and expanding its network. In 2024, UPRR advanced a $3.4 billion capital plan, reflecting its ongoing commitment to system renewal, modernization, and capacity enhancements. Given this structure, UPRR could contribute to both capital and operating costs for partnership projects, provided those expenditures are incorporated into its future capital plans and align with network and business priorities.

11.8. Operating & Maintenance Funds

11.8.1. RTC Operating Funds

RTC could use its operating funds to support TRI Center operations, including revenues from farebox collections as well as ancillary sources such as parking, advertising, concessions, and other non-fare revenues.

11.8.2. Urbanized Area Formula Grants (FTA – Section 5307)

The Urbanized Area Formula Funding program makes federal resources available to urbanized areas for transit operating assistance in urbanized areas in addition to transportation-related planning and capital costs. An urbanized area is an area with a population of 50,000 or more. This grant program can provide support for transit capital, operating assistance, and transportation-related planning.

11.8.3. State of Good Repair Formula Grants (FTA – Section 5337)

The State of Good Repair Grants Program provides formula funds for maintenance, replacement, and rehabilitation projects of high-intensity fixed guideway and motorbus systems to help transit agencies maintain assets in a state of good repair in urbanized areas.

11.8.4. Vehicle Replacement Programs (FTA)

The Rail Vehicle Replacement Program makes funding available competitively to help fund capital projects to replace rail rolling stock. For the purposes of this program, rail rolling stock is defined as revenue service, passenger-carrying vehicles, or propulsion (locomotive) vehicles necessary for the provision of rail public transportation. The program is a set-aside of the State of Good Repair Formula Grants Program (Section 5337).

Eligible Applicants

- States (including the District of Columbia)
- Local government authorities

Eligible Projects/Activities

- Replacement of rail rolling stock.
- Restoration of previously operated service.

11.8.5. Restoration and Enhancement Grant Program (FRA – R&E)

The Restoration and Enhancement (R&E) program funds grants for initiating, restoring, or enhancing intercity passenger rail transportation. The objective is to help offset initial operating losses while the new or expanded intercity rail passenger transportation services build their ridership and revenue base, since such services and frequencies do not realize their longer-term ridership/revenue potential immediately upon the start of operations.

The most recent Notice of Funding Opportunity (NOFO) issued July 2024 defines Intercity Rail Passenger Transportation as rail passenger transportation excluding Commuter Rail Passenger Transportation. Because the Workforce Rail project is characterized as commuter rail service, it does not automatically meet the NOFO's eligibility criteria for Intercity Rail Passenger Transportation funding. However, the proposed Workforce Rail project has an opportunity to partner with the project to extend the Capitol Corridor service to connect California cities with Reno-Sparks. The project may be eligible for future funding if elements are incorporated into the Corridor Identification and Development Program and pursued in partnership with Amtrak.

Eligible Applicants

- States (including the District of Columbia);
- An Interstate Compact;
- A public agency or publicly chartered authority established by one or more states;
- A political subdivision of a state;
- Amtrak or another Rail Carrier that provides Intercity Rail Passenger Transportation; and
- Any Rail Carrier in partnership with at least one of the entities described above.

Eligible Projects/Activities

- Additional frequency of current service
- Offering new on-board services
- Establishing new service
- Extension of current service
- Restoration of previously operated service

11.8.6. Private Direct Investment

Another option for project partners to explore is direct investment by private companies in Workforce Rail. An example is the Tesla Giga Train service to the Berlin-Brandenburg

Gigafactory in Germany. In that case, Tesla funded a service branch, approximately 2 miles long, from an existing regional rail service. The extension allows rides from Berlin and its eastern suburbs directly to the Gigafactory. Employees are able to ride at no cost.

The Workforce Rail Long-Term Alternative includes significant rail infrastructure improvements and the development of new station facilities near the Tesla Gigafactory, including a dedicated Workforce Rail station and track enhancements. Given that the plan directly supports employee mobility, freight logistics, and long-term expansion opportunities for major Tahoe-Reno Industrial Center tenants, Tesla and peer TRI Center manufacturers may be inclined to contribute funding toward this buildout.

11.9. Conclusions Regarding Funding and Financing

Once the funding need is defined, a tailored mix of federal, state, regional, local and private funding sources (as outlined in this report) can be proposed to support project implementation. Table 31 provides a summary of the funding sources described in this section, including their applicability to various project phases. It is offered as a roadmap to RTC and its partners for a funding strategy. The project team recommends prioritizing those funding sources that are most applicable to the Near-Term Alternative and timeframe for I-80 construction. The project team recommends that partners also continue to advance a vision for the Long-Term Alternative, with special focus on the main line track improvements that UPRR expects to be included in agreements for any Workforce Rail operations in the region. Figure 39 offers a conceptual timeline for Long-Term Alternative project development.

Figure 39: Conceptual Timeline for Long-Term Alternative Project Development

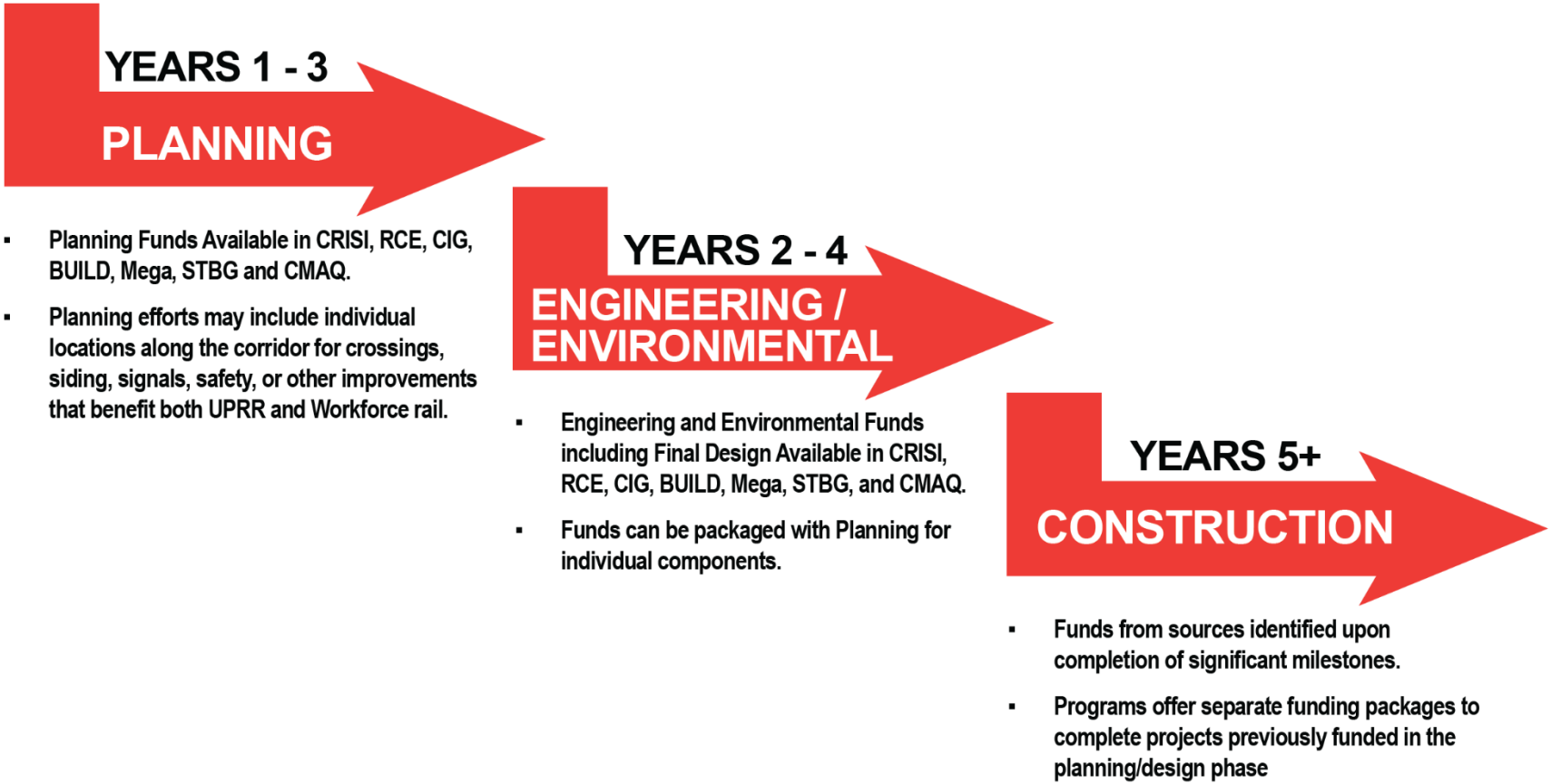


Table 31: Summary of Funding Sources, Applicability and Priority

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
Federal Railroad Administration (FRA) – Federal-State Partnership (FRA-FSP)	**Not Applicable**	**Yes**	**High –** Commuter rail projects on routes shared with Amtrak (intercity rail) are eligible if they improve capacity, safety, or reliability for the intercity service.	**Very High.** National funds are a good fit for rail corridors owned by Class 1 Railroads	**Not eligible.** Funds capital projects, not O&M.	**No**	**Yes**
FRA – Consolidated Rail Infrastructure and Safety Improvements (FRA-CRISI)	**Yes**	**Yes**	**High.** CRISI would be a good fit for the Project where there are safety and state of good repair needs that align with UPRR operations	**Very High.** Improvements such as double-tracking or other improvements to reliability.	**Not eligible.** Funds capital projects, not O&M.	**Yes**	**Yes**
FRA – Railroad Crossing Elimination	**Yes**	**Yes**	**High.** The project has an opportunity to specifically	**High.** Track relocation, grade separation, and/or improvement or	**Not eligible.** Funds capital	**Yes**	**Yes**

Funding Source	Planning	Design	Near-Term Alt. Capital Applicability	Long-Term Alt. Capital Applicability	Annual O&M Applicability	Priority for Near-Term Alt.	Priority for Long-Term Alt.
Program (FRA-RCE)			request funds for any at-grade crossing removal or improvement along the corridor	installation of protective devices, signals, signs, or other	projects, not O&M.		
Federal Transit Administration (FTA) – Capital Investment Grants (CIG)	**Yes**	**Yes**	**Low.** To be eligible to receive a CIG construction grant, all proposed projects must go through a multi-year, multi-step development process outlined in the law.	**High.** The Capital Investment Grant (CIG) discretionary grant program provides funding for fixed guideway capital improvements, including major transit capital investments, including commuter rail projects.	**Not eligible.** Funds capital projects, not O&M.	**No**	**Yes**
U.S. Department of Transportation (USDOT) – Better Utilizing Investments to	**Yes**	**Yes**	**Moderate.** This is a historic opportunity, but the current IIJA authorization expires in	**High.** Supports the capital costs of road, rail, transit, and multimodal projects that have a significant impact	**Not eligible.** Funds capital projects, not O&M.	**No**	**Yes**

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
Leverage Development (USDOT-BUILD)			FY2026 and the NOFO for this cycle is closing. Funds for future years will be less.	on the nation, a region, or a metropolitan area.			
USDOT – National Infrastructure Project Assistance (USDOT-MEGA)	**Yes**	**Yes**	**N/A.** Funds from IIJA for this program have mostly been depleted, with the combined FY2026 NOFO closed in 2024.	**Low.** This program is newly established under the Infrastructure Investment and Jobs Act (IIJA). Because it is tied to a one-time authorization period and IIJA funding sunsets at the end of fiscal year 2026, it is currently uncertain whether this program will receive funding in future years.	**Not eligible.** Funds capital projects, not O&M.	**No**	**No**
U.S. Department of	**Yes**	**Yes**	**N/A.** Funds from IIJA for this	**Low.** This program is newly	**Not eligible.** Funds capital	**No**	**No**

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
Transportation – Infrastructure for Rebuilding America (USDOT-INFRA)			program have mostly been depleted, with the combined FY2026 NOFO closing in 2024. Program likely to continue.	established under the Infrastructure Investment and Jobs Act (IIJA). Because it is tied to a one-time authorization period and IIJA funding sunsets at the end of fiscal year 2026, it is currently uncertain how much funding this program will receive in future years.	projects, not O&M.		
Federal Highway Administration – Surface Transportation Block Grant (FHWA-STBG)	**Yes**	**Yes**	**High.** Funds may be flexed to improve transit options under the STBG	**High**	**Not eligible.** Funds capital projects, not O&M.	**Yes**	**Yes**
Congestion Mitigation and Air Quality	**Yes**	**Yes**	**High.** A flexible funding source to State and local	**High**	**High.** Allows CMAQ funds to be used for	**Yes**	**Yes**

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
Improvement (CMAQ – FHWA)			governments for transportation projects and programs to help meet the requirements of the Clean Air Act		operating assistance		
Nevada Department of Transportation (NDOT)	**Yes**	**Yes**	**High.**	**High.** NDOT could provide financial support through state transportation programs, discretionary funds, or matching contribution for federal grants.	**Moderate.** NDOT funds are typically reserved for constructing, maintaining, and repairing public highways in Nevada State DOTs can facilitate state support for operating intercity and regional rail service	**Yes**	**Yes**

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
RTC-5 / Fuel-Tax	**Yes**	**Yes**	**Low.** In FY 2024, 28 percent of revenues were used for transit and 58 percent were used for roadways	**Low.** Eligible uses for fuel tax include overlays, reconstruction and new construction for regional streets included in the regional road system	**Not eligible.** For regional streets included in the regional road system	**No**	**No**
Transit Sales Tax	**No**	**No**	**Moderate.** Dependent on available sales tax revenues	**Moderate.** Dependent on available sales tax revenues.	**Very High.** The revenue generated by this tax provided more than half the funds necessary for RTC to operate RTC RIDE and RTC ACCESS and to contribute to the TART service	**Yes**	**Yes**

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
Road Sales Tax	**No**	**No**	**Low.** One-eighth percent sales tax is allocated to road projects	**Low.** One-eighth percent sales tax is allocated to road projects	Eligible only for **maintenance of access roads**	**No**	**Yes**
Regional Road Impact Fees (RRIF)	**Yes**	**Yes**	**Not eligible.** RRIF funds are used to build capacity improvements, such as new roads and ramps, road widening and intersection improvements, and to preserve right of way for future capacity improvements	**High.** Impact fees are levied on new development to offset the cost of providing specific infrastructure improvements necessary to serve that new development	**Not eligible**	**No**	**Yes**
USDOT – Transportation Infrastructure Finance and Innovation Act (USDOT-TIFIA)	**Yes**	**Yes**	**High**	**High.** Passenger rail vehicles and facilities	**Not eligible.** Funds capital projects, not O&M	**TBD**	**TBD**

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
USDOT – Railroad Rehabilitation & Improvement Financing (USDOT-RRIF)	**Yes**	**Yes**	**Very High.** Acquire, improve, or rehabilitate… track, components of track, bridges, yards, buildings and shops… [and] develop or establish new intermodal or railroad facilities.	**Very High.** USDOT is authorized to provide direct loans and loan guarantees up to $35 billion to finance development of railroad infrastructure.	**Not eligible**	**Yes**	**Yes**
U.S. Department of Transportation – Private Activity Bonds (USDOT-PABs)	**Yes**	**Yes**	**High**	**High.** USDOT's Private Activity Bonds (PABs) Program is a key financing tool to support private sector participation and investment in critical transportation infrastructure projects nationwide.	**Not eligible.** Funds capital projects, not O&M	**Yes**	**Yes**

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
USDOT – Public-Private Partnership Financing (USDOT-P3 Financing)	**Yes**	**Yes**	**High**	**High.** The proposed Long-Term Alternative includes significant rail infrastructure improvements. Tesla may be inclined to contribute funding toward this buildout	**Not eligible.** Funds capital projects, not O&M	**Yes**	**Yes**
Nevada State Infrastructure Bank (NSIB)	**Yes**	**Yes**	**High**	**High.** The NSIB may provide financing for a variety of infrastructure projects including transportation facilities, utility infrastructure, and other infrastructure related to economic development	**Not eligible.**	**Yes**	**Yes**

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
Tax Increment Financing (TIF)	**No**	**Yes**	**High**	**High** To be considered for TIF assistance in the Reno-Sparks area, a project generally must be located within the boundaries of an active redevelopment area (RDA), and the project should further the goals of that redevelopment plan.	**Not eligible.**	**Yes**	**Yes**
Congressionally Directed Spending (CDS)	**Yes**	**Yes**	**Moderate.** These funds bypass the merit-based or competitive allocation process but are highly competitive.	**High**	**Not eligible.**	**Yes**	**Yes**

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
UPRR Capital	**TBD**	**TBD**	**TBD, Subject to UPRR access and operating agreements** UPRR could contribute to both capital and operating costs for partnership projects, provided those expenditures are incorporated into its future capital plans and align with network and business priorities.	**TBD, Subject to UPRR access and operating agreements**	**N/A**	**TBD**	**TBD**
RTC Operating Funds	**No**	**No**	**Not eligible.**	**Not eligible.**	**Very High.** RTC could use its operating funds to support TRI Center operations, including	**Yes**	**Yes**

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
					revenues from farebox collections as well as ancillary sources such as parking, advertising, concessions, and other non-fare revenues.		
FTA – Section 5307 Urbanized Area Formula Program (FTA-Section 5307)	**Yes**	**Yes**	**Moderate**. The Urbanized Area Formula Funding program makes federal resources available… in addition to transportation-related planning and capital costs.	**Moderate.**	**Not eligible.**	**Yes**	**Yes**
FTA – Section 5337 State of Good Repair	**No**	**Yes**	**N/A.**	**Moderate**. Provides formula funds for	**Not eligible.**	**No**	**Yes**

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
(FTA-Section 5337)				maintenance, replacement, and rehabilitation projects… to help transit agencies maintain assets in a state of good repair in urbanized areas.			
FTA – Vehicle Replacement Program (FTA-VRP)	**No**	**No**	**N/A**	**Moderate.** The Rail Vehicle Replacement Program makes funding available competitively to help fund capital projects to replace rail rolling stock.	**Not eligible.** Not an O&M program.	**No**	**Yes**
FRA – Restoration & Enhancement (FRA-R&E)	**Yes**	**No**	**Not eligible.**	**Not eligible.** The objective is to help offset initial operating losses while the new or expanded intercity rail passenger	**Potentially eligible if partnered with intercity passenger rail.** Because the Workforce	**No**	**Yes**

Funding Source	***Planning***	***Design***	***Near-Term Alt. Capital Applicability***	***Long-Term Alt. Capital Applicability***	***Annual O&M Applicability***	***Priority for Near-Term Alt.***	***Priority for Long-Term Alt.***
				transportation services build their ridership and revenue base	Rail project is characterized as commuter rail service, it does not automatically meet the NOFO's eligibility criteria for Intercity Rail Passenger Transportation funding		
Direct Private Investment	**Yes**	**Yes**	**Yes**	**Yes.** Example: Tesla Giga Train in metro Berlin.	**Yes**	**Yes**	**Yes**

12 Implementation Strategy

12.1. Phased Approach

The implementation of Workforce Rail between Reno-Sparks and the TRI Center is envisioned as a phased program that incrementally builds capacity, confidence, and partnerships while managing cost, risk, and institutional complexity. This phased approach aligns infrastructure investment with demonstrated demand, negotiated access to the UPRR mainline, and the region's near-term transportation challenges—most notably the I-80 reconstruction period—while preserving flexibility to expand into the Long-Term Alternative integrated with freight capacity improvements.

12.1.1. Phase 1: Workforce Rail Near-Term Alternative / Initial Startup Service

The first phase focuses on implementing the Near-Term Alternative, which can be delivered with comparatively modest capital investment and within an accelerated timeframe, should an access and operating agreement be reached with UPRR. The primary objective of this phase is to provide a reliable, non-roadway commuting option during the I-80 construction period, when roadway capacity and travel time reliability are expected to be significantly degraded. This initial service would operate on weekdays during peak shift-change periods using the existing UPRR mainline between the downtown Reno Amtrak Station and a newly constructed TRI Center USA Parkway station located just off the mainline. If possible, an additional new station in Sparks can be included in the Near-Term Alternative program. The Reno station would leverage existing passenger rail infrastructure with minimal modification, while the TRI Center and potential Sparks stations would be purpose-built to support bus and shuttle transfers for first- and last-mile access, to employment sites throughout the TRI Center (in the case of the USA Parkway Station), and station parking (in the case of a Sparks station).

Key elements of Phase 1 include:

- Negotiation of a host railroad access and operating agreement with UPRR for limited, peak-period passenger operations on the existing mainline.
- Construction of the TRI Center USA Parkway station and associated transfer facilities positioned to integrate into the recommended long-term alignment.
- Establishment of a layover and light servicing area at the western end of the corridor, with two locations advanced for further consideration.
- Deployment of high-capacity, locomotive-hauled trainsets to accommodate concentrated peak demand while minimizing the number of train movements on the mainline.

- Construction, if achievable, of a Sparks station (two locations offered for further consideration), with associated transfer and park-and-ride facilities.

This phase is explicitly designed as a proof of concept: it allows RTC and its partners to test market demand, operational performance, institutional arrangements, and public reception before committing to larger-scale capital improvements. Importantly, the Near-Term Alternative is not stranded; station siting and track connections are intentionally aligned to support extension into the TRI Center under the Long-Term Alternative in Phase 2. -of-concept: it allows RTC and its partners to test market demand, operational performance, institutional arrangements, and public reception before committing to larger-scale capital improvements.

12.1.2. Phase 2: Workforce Rail Long-Term Alternative / Full Build Corridor Investment-Term

Phase 2 advances the Long-Term Alternative, responding to long-range employment growth projections at the TRI Center, continued congestion pressures on I-80, and the opportunity to integrate Workforce Rail investments with freight rail capacity enhancements. This phase includes extending Workforce Rail from the USA Parkway station directly to the Tesla Gigafactory area via the recommended TRI Center Alignment Option 6, as well as upgrading capacity on constrained segments of the UPRR mainline between Sparks and the TRI Center.

Major components of Phase 2 include:

- Incremental double-tracking of critical single-track segments in the Truckee River Canyon to increase mainline capacity and operational resilience and flexibility for both passenger and freight movements.
- Delivery of a Sparks station (if not completed as part of the Near-Term Alternative).
- Construction of a dedicated Workforce Rail alignment on TRI Center property, incorporating a grade-separated crossing of USA Parkway and an additional station serving major employment concentrations.
- Development of a Workforce Rail OMF within the TRI Center to support service reliability, equipment storage, and heavy maintenance of trainsets.

Delivery of Phase 2 would be sequenced based on funding availability, environmental clearance, and negotiated agreements with UPRR, and would likely occur over multiple sub-phases rather than as a single construction program. This approach allows improvements with system-wide benefits—such as mainline capacity projects—to move forward independently of localized station or alignment investments.

12.1.3. Win-Win Opportunities for Workforce Rail and Freight Operations-Win Opportunities for Workforce Rail and Freight Operations

A central theme of the implementation strategy is the identification of mutually beneficial investments that improve both Workforce Rail service and freight rail operations. Because UPRR has no obligation to host passenger service, the long-term viability of Workforce Rail depends on structuring investments that address UPRR's operational needs while simultaneously advancing regional mobility objectives. Some benefits from corridor improvements to Workforce Rail and freight shipping, respectively, are described in the following sections.

12.1.3.1. Benefits to Workforce Rail

For Workforce Rail, the phased program delivers:

- **Travel time reliability** independent of highway congestion, particularly during construction and incident conditions on I-80.
- **Scalable capacity** that can grow with employment at the TRI Center by lengthening trains, increasing frequency, or extending service deeper into the industrial park.
- **System resilience**, with double-tracked segments and off-mainline stations reducing exposure to freight interference and operational delays.
- **Regional connectivity**, including integration with Amtrak, local transit, and employer-provided shuttle and vanpool services.

12.1.3.2. Benefits to Freight Rail and Industrial Users

For freight operations and industrial stakeholders, the strategy offers several complementary benefits:

- Mainline capacity enhancements, such as targeted double tracking and additional sidings, directly support UPRR's transcontinental freight operations and improve network fluidity independent of passenger service.
- Expanded storage and intermodal capacity at or near the TRI Center can reduce congestion at the Sparks Yard and enable new rail-served logistics opportunities for existing and future tenants.
- Shared infrastructure investments, including grade-separated crossings and corridor earthwork, lower the unit cost of improvements compared to freight-only or passenger-only projects.
- New rail market opportunities, particularly for containerized and bulk shipments associated with large manufacturers such as Tesla, Panasonic, and other TRI Center tenants, support regional economic competitiveness while reducing truck trips on I-80.

By tying passenger rail access to tangible freight benefits, the proposed implementation strategy positions Workforce Rail not as a competing use of limited mainline capacity but as a catalyst for corridor investment that strengthens the long-term performance of the UPRR Nevada Subdivision.

13 Next Steps and Future Work

The UPRR mainline, a private railroad asset, presents an attractive alignment for Workforce Rail. UPRR has no obligation to host Workforce Rail, but RTC and its partners have an opportunity to engage UPRR with specific line capacity improvements and rail market enhancements, such as a fully double-tracked mainline and new freight intermodal facilities to increase rail shipping at the TRI Center. These improvements would need to be funded by parties other than UPRR, and UPRR has the right to decline such offers.

A critical step for advancing Workforce Rail is to identify or create an organization to plan, fund, and insure the proposed rail service. The Inter-County and Regional Rail Plan recommended the creation of a Transportation Management Association (TMA) for inter-county and TRI Center commuter transportation needs. No agency or organization has yet emerged to host this TMA.

As noted in the Nevada State Rail Plan, no state-funded rail service exists today in Nevada. A new and separate passenger rail agency would need to be formed outside the Nevada Department of Transportation with the capability of obtaining the necessary liability insurance required under 49 U.S.C. §28103.

13.1. Next Steps for the Advancement of Workforce Rail

- Present the findings of the Feasibility Study to stakeholders, including the RTC Board and UPRR.
- Establish a Reimbursement Agreement with the UPRR to address required review and coordination needs as the project moves forward.
- Work with UPRR to conduct a Rail Traffic Controller (RTC, *not the Regional Transportation Commission of Washoe County*) network simulation exercise to further evaluate the mainline capacity improvements required to implement Workforce Rail service for both Near-Term and Long-Term Alternatives.
    - RTC Modeling will help to confirm and/or establish the list of capital projects. Those projects required for implementation of the Near-Term Alternative will need to progress through the engineering department submittals, specifically to 30%, when UPRR typically engages a construction and maintenance agreement for the projects to define roles, responsibilities and costs associated with the projects.

- A separate agreement may be required to address the intent of any infrastructure improvements on the UPRR mainline corridor as part of the Long-Term Alternative.

- Work with UPRR and stakeholders to evaluate and determine the feasibility of implementing an Intermodal Facility on TRI Center property to provide direct containerized rail shipping to Tesla, Panasonic, and other TRI Center companies.
- Conduct further evaluation of the Near-Term and Long-Term Alternatives to:
  - Confirm a recommended layover site, and
  - Identify and secure a preferred station location in Sparks.
- Conduct a detailed ridership study to include traffic monitoring and employee surveys to confirm and/or update the anticipated ridership demand for the Workforce Rail service.
- Identify potential funding sources for each project identified through RTC simulation and UPRR negotiations for implementation of all service options, engaging UPRR as a project partner for all grant applications.
- Identify NEPA Class of Action and conduct an environmental review for the required capital improvements confirmed by the RTC simulation results.
- Advance the Near-Term Alternative through funding, governance, design, permitting, acquisition of railroad equipment, construction and selection of an operations and maintenance contractor.
- Advance preliminary engineering and environmental impact analysis for each station location.
  - Station locations will need to follow the UPRR Public Projects Guidelines with submittals at 10%, 25%, 30% and 90% before final plans.
- Confirm and refine the phasing and implementation plan.

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