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**OPPORTUNITY & PACKAGE DETAILS:**

Opportunity Number:	FR-CRS-24-001
Opportunity Title:	FY23-24 Consolidated Rail Infrastructure and Safety Improvements Grant Program
Opportunity Package ID:	PKG00285695
CFDA Number:	20.325
CFDA Description:	Consolidated Rail Infrastructure and Safety Improvements
Competition ID:	FR-CRS-24-001-110514
Competition Title:	FY23-24 Consolidated Rail Infrastructure and Safety Improvements Grant Program
Opening Date:	04/02/2024
Closing Date:	05/28/2024
Agency:	DOT - Federal Railroad Administration
Contact Information:	Office of Railroad Development Deborah Kobrin (202) 420-1281 deborah.kobrin@dot.gov

**APPLICANT & WORKSPACE DETAILS:**

Workspace ID:	WS01338460
Application Filing Name:	NEVADA NORTHERN RAILWAY: REHABILITATING A KEY INFRASTRUCTURE LIFELINE IN RURAL NEVADA
UEI:	C1AJMSQCNH59
Organization:	CITY OF ELY
Form Name:	Attachments
Form Version:	1.2
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**FORM ACTIONS:**

## ATTACHMENTS FORM

**Instructions:** On this form, you will attach the various files that make up your grant application. Please consult with the appropriate Agency Guidelines for more information about each needed file. Please remember that any files you attach must be in the document format and named as specified in the Guidelines.

**Important:** Please attach your files in the proper sequence. See the appropriate Agency Guidelines for details.

1) Please attach Attachment 1	NNRY Project CRISI Grant Narr	Add Attachment	Delete Attachment	View Attachment
2) Please attach Attachment 2	APPENDIX_B-Statement_of_Work	Add Attachment	Delete Attachment	View Attachment
3) Please attach Attachment 3	APPENDIX_C-Benefit_Cost_Analy	Add Attachment	Delete Attachment	View Attachment
4) Please attach Attachment 4	APPENDIX_A-Funding_Commitment	Add Attachment	Delete Attachment	View Attachment
5) Please attach Attachment 5	APPENDIX_D-Strategic_Transpor	Add Attachment	Delete Attachment	View Attachment
6) Please attach Attachment 6	APPENDIX_E-Letters_of_Support	Add Attachment	Delete Attachment	View Attachment
7) Please attach Attachment 7	APPENDIX_F-Preliminary_Engine	Add Attachment	Delete Attachment	View Attachment
8) Please attach Attachment 8	APPENDIX_G-Relevant_support_d	Add Attachment	Delete Attachment	View Attachment
9) Please attach Attachment 9	APPENDIX_H-Grade_Crossing_Da	Add Attachment	Delete Attachment	View Attachment
10) Please attach Attachment 10		Add Attachment	Delete Attachment	View Attachment
11) Please attach Attachment 11		Add Attachment	Delete Attachment	View Attachment
12) Please attach Attachment 12		Add Attachment	Delete Attachment	View Attachment
13) Please attach Attachment 13		Add Attachment	Delete Attachment	View Attachment
14) Please attach Attachment 14		Add Attachment	Delete Attachment	View Attachment
15) Please attach Attachment 15		Add Attachment	Delete Attachment	View Attachment

NEVADA NORTHERN RAILWAY: REHABILITATING A  
KEY INFRASTRUCTURE LIFELINE IN RURAL NEVADA  
MAY 2024

Applicant Name	City of Ely, Nevada
Federal Funding Requested Under this NOFO	\$98,971,874
Proposed Non-Federal Match	\$34,773,902
Other sources of Federal funding, if applicable	None
Source(s) of Proposed Non-Federal Match	City-backed Financing and In-Kind Material Contributions
Total Project Cost	\$133,745,776
Was a Federal Grant Application Previously Submitted for this Project?	Yes – 2013 TIGER V Application. Title: “Nevada Northern Railway Rehabilitation Phase 2”
City(-ies), State(s) Where the Project is Located.	The project takes place entirely in Nevada. The project corridor extends between Ely, Nevada and Shafter, Nevada.
Is the Project Located in a rural Area?	Yes – 100%
Congressional District(s) Where the Project is Located.	Nevada 02
Application Track(s) proposed to be funded by this NOFO?	Track 3
Lifecycle Stage(s) proposed to be funded by this NOFO?	Final Design and Construction
Current Lifecycle Stage and Anticipated completion of current Lifecycle Stage?	Project Development & NEPA, Completion by Q3 2024
Is the Project located on real property owned by someone other than the applicant?	The property is owned jointly by the City of Ely (Applicant) and the Nevada Northern Railway Foundation (Co-Applicant)
Host Railroad/Infrastructure Owner(s) of Project Assets;	Great Basin & Northern Railroad, Subsidiary of Nevada Northern Railway Foundation
Other impacted Railroad(s)	Union Pacific and BNSF Railway (Interchange Only)
Tenant Railroad(s), if applicable	Not Applicable

If applicable, is a 49 U.S.C. 22905-compliant Railroad Agreement executed or pending?

Not Applicable

Is the project currently programmed in ANY medium- or long-range planning document: *For example, State rail plan, or interregional intercity passenger rail systems planning study, State Freight Plan, TIP, STIP, MPO Long Range Transportation Plan, State Long Range Transportation Plan, etc.?*

Yes. Nevada State Rail Plan. Nevada State Freight Plan.

Is the project located on a potential corridor selected for the Corridor Identification and Development Program?

No.

Is this a project eligible under 49 U.S.C. 22907(c)(2) that supports the development of new intercity passenger rail service routes including alignments for existing routes?

No.

Is this a project eligible under 49 U.S.C. 22907(c)(11) that supports the development and implementation of measures to prevent trespassing and reduce associated injuries and fatalities?

No.

If YES to the previous question, is this project located in a county identified in FRA's National Strategy to Prevent Trespassing on Railroad Property?

Is the application seeking consideration for funding under the Maglev Grants Program?

No



## TABLE OF CONTENTS

I. Cover Page .....	i
II. Project Summary .....	1
III. Grant Funds, Sources, and Uses of Project Funds .....	1
IV. Applicant Eligibility Criteria.....	4
V. Project Eligibility Criteria .....	5
VI. Detailed Project Description .....	5
VII. Project Location .....	19
VIII. Evaluation and Selection Criteria.....	20
IX. Project Implementation and Management.....	25

## APPENDICES:

Appendix A – Funding Commitment Letters  
Appendix B – Statement of Work  
Appendix C – Benefit-Cost Analysis  
Appendix D – Strategic Transportation Plans or Studies  
Appendix E – Letters of Support  
Appendix F – Preliminary Engineering  
Appendix G – Relevant Supporting Consulting Study  
Appendix H – Grade Crossing Data

## **II. PROJECT SUMMARY**

*The Nevada Northern Railway: Rehabilitating a Key Infrastructure Lifeline in Rural Nevada Project* (“NNRV Project”) is a \$133,745,776 effort that will rehabilitate a 116.9-mile long, 119-year-old rail corridor co-owned by the City of Ely (“the City”) and the Nevada Northern Railway Foundation (the “Foundation”) into a robust, safe connection to the general railroad system to support the ongoing development of the local, state, and regional economy in rural Northeast Nevada. The restoration of this rail line will enable a documented 7,200 – 12,400 carloads of freight to originate or terminate in Ely, supporting the growth of our rural community and creating much-needed jobs in our community with an earnest investment that will promote justice and social equity, economic resilience, and environmentally-conscious energy-efficient transportation.

Our City, in collaboration with the 501c(3) Nevada Northern Railway Foundation (the “Foundation”), acquired the entirety of the Nevada Northern Railway (“NNRV”) in 2005 from the Los Angeles Department of Water and Power with the intention of revitalizing the long-dormant rail line to support the economic sustainability of our rural community. In 2006, the Safe, Accountable, Flexible, Efficient Transportation Equity Act, Public Law 109-59, transferred the federal property underlying the rail line to the City of Ely. The passage of this law put the entire railroad under the ownership of the City and the Foundation. The railroad had been long-disused at that point, and though we have pursued an economic plan to support its revitalization since that time, no known Federal funding program with the same scope as CRISI has been available to support its rehabilitation until now. Still situated with the original steel rails that the line was built with in 1905/1906, the subject portion of the NNRV is out of service and unable to support modern freight rail operations. The NNRV Project does more than merely rehabilitate a key railroad corridor; as evidenced in the letters of support, this project will have a meaningful impact on the economic competitiveness of our region, improve highway safety of our residents by removing an estimated 24,500 - 42,000 trucks per year from the roads, and improve the cost-effectiveness and efficiency of transportation in this rural area.

To return this key rail corridor to safe and compliant condition, the project components of the NNRV Project include: upgrading 116.9 miles of mainline rail from primarily 60 lb. rail to entirely 6” base rail (131 lb. section); replacing approximately 98,000 wooden crossties; installing 24 new turnouts; reactivating twelve (12) mainline sidings totaling 13,700 feet in length, replacing 14 culverts; dumping more than 670,000 tons of locally-sourced ballast; repairing 40 public and private at-grade railroad crossings, including signalizing two (2); replacing 22 cattle guards; and returning the entire railroad to 286K GRL. The City of Ely respectfully requests the FRA contribute \$98,971,874 to the effort, equivalent to 74% of the \$133,745,776 effort. The NNRV Project will result in \$393 million of short-term stimulus impact to our region, the creation of 3,419 short-term jobs, 11 new permanent railroad jobs, the retention of 12 existing railroad jobs, the development of more than 40 long-time downstream jobs, and the annual removal of up-to 42,000 trucks from dangerous two-lane rural highways running through this economically depressed region.

## **III. PROJECT FUNDING**

The City of Ely, Nevada, (the “City”) proposes funding 26% of the total \$133,745,776 through a combination of FRA Railroad Rehabilitation and Investment Financing (“RRIF”) and in-kind

contributions of building materials, with the remaining 74% of the project (not to exceed \$98,971,874) to be funded through the CRISI Program.

The City jointly owns the subject rail corridor with the nonprofit Nevada Northern Railway Foundation (“Foundation”), and the Foundation’s for-profit freight subsidiary, the Great Basin & Northern Railroad (“GBNR”), a Class III common-carrier. The three organizations are working together to champion the restoration of rail operations in rural northeast Nevada, aided by two counties, the State of Nevada, multiple shippers, and additional key regional partners. The entirety of the railroad is referred to for convenience as the “Nevada Northern Railway,” but this CRISI project will not result in improvements to the historic Nevada Northern Railway and Museum, which operates a National Historic Landmark preserved railroad just to the East of downtown Ely (refer to the Map on Page 19).

Since 2005, the Applicants have worked closely to both preserve and operate the historic Nevada Northern Railway Museum and make strides in returning the majority of the railroad to operational condition. Incremental progress has been made by restoring multiple railroad grade crossings, soliciting grant funding to restore the mainline to McGill, Nevada, and applying for general state of good repair funding. That said, given the magnitude of the NNRy Project, the applicants have heretofore been unable to solicit the funding required to support the anticipated freight rail demand that has returned to the region since the line was initially laid dormant in 1987 (refer to the History section of this document on Page 6 for more information). The improvements outlined in this proposal were prioritized within the 2022 Nevada State Rail Plan and, likewise, supported by multiple key local, county, regional, and state stakeholders.

Table 1 provides a detailed accounting of the federal funding requested in support of the NNRy Project, and it also outlines the proposed non-federal match provided by the City and key community-based future rail shippers. This project includes national, state, regional, and local stakeholders. Commitment letters from the City and the Foundation / GBNR are included in Appendix A.



U.S. Department of Transportation  
**Federal Railroad Administration**

### **CITY OF ELY, NEVADA**

(State-Chartered City)

**Roles:** Applicant, Track Co-Owner,  
Proposed CRISI Grant Manager

### **NEVADA NORTHERN RAILWAY FOUNDATION**

(Private, 501c(3) Not-for-Profit)

**Roles:** Co-Applicant, Track Co-Owner,  
Track Maintenance, Capital Funding

### **GREAT BASIN & NORTHERN RAILROAD**

(For-Profit Subsidiary of Foundation)

**Roles:** Co-Applicant, Freight Operator

### **NEVADA NORTHERN RAILWAY MUSEUM**

(Not-for-Profit Museum Arm of Foundation)

**Roles:** Referenced in Application, not Party

CRISI GRANT SUBMISSION – NNRY PROJECT

TABLE 1: PROJECT FUNDING TABLE

Lifecycle Stage	Task No.	Task / Name of Project Component	Cost	% of Total	Source of funds and citation
Project	1.1	Project Administration	\$349,943	0.26%	N/A
Project	1.2	Project Management Plan	\$0	0.00%	N/A
Project	1.3	Final Performance Report	\$0	0.00%	N/A
Project	Cost of Administration		\$349,943	0.26%	N/A
Final Design	2.1	Complete Final Design, Including Budget, Schedule + Procurement	\$252,350	0.19%	N/A
Final Design	2.2	Finalize NEPA Categorical Exclusion	\$208,833	0.16%	N/A
Final Design	Cost of Final Design		\$461,183	0.34%	N/A
Construction	3.1A	Construction Kickoff with FRA	\$0	0.00%	N/A
Construction	3.1B	Contractor Mobilization, Bonding, Administration, Management	\$1,802,500	1.35%	N/A
Construction	3.2	Replace Main Line Ties	\$15,123,581	11.31%	N/A
Construction	3.3	Replace Mainline Track	\$90,080,802	67.35%	N/A
Construction	3.4	Relay Sidings	\$2,598,053	1.94%	N/A
Construction	3.5	Replace Culverts	\$489,765	0.37%	N/A
Construction	3.6A	Source Ballast	\$15,225,997	11.38%	Two (2) Local Industries, In Kind
Construction	3.6B	Surface Railroad	\$3,159,935	2.36%	N/A
Construction	3.7	Grade Crossing Improvements	\$2,108,966	1.58%	N/A
Construction	3.8	Source and Install Cattle Guards	\$192,610	0.14%	N/A
Construction	3.9A	Construction Oversight + Management	\$311,060	0.23%	N/A
Construction	3.9B	Contractor Demobilization	\$1,802,500	1.35%	N/A
Construction	3.9C	Testing and Commissioning	\$38,883	0.03%	N/A
Construction	Cost of Construction		\$132,934,651	99.39%	N/A
Total Project Cost			\$133,745,776	100%	N/A
Federal Funding Requested in this Application			\$98,971,874	74%	CRISI Grant Funding
Non-Federal Funding (Private Sector) - In Kind:			\$15,225,997	11%	Two (2) Local Industries, In Kind - Letters of Support
Non-Federal Funding (Local) - Cash:			\$19,547,905	15%	RRIF Loan Financing of City - Letter of Funding Commitment
Portion of Total Project Costs Spent in Rural Area			\$133,745,776	100%	N/A

The non-Federal match of this grant will be provided through a combination of RRIF financing of the applicant and in-kind contributions of KGHM and White Pine Metals (refer to Appendix A). The in-kind contributions consist of more than 670,000 tons of ballast materials for the railroad at a market value of approximately \$22 per ton in YOE dollars. The final in-kind contribution of this ballast material will be made in full conformance with 2 CFR 200.306 insofar as the ballast material, as a third-party in-kind contribution, shall... “be documented and to the extent feasible supported by the same methods used internally by the non-Federal entity” and any other applicable portions of the cited regulation.

The NNRY Project is 100% Rural. The project extends from the outskirts of the City at HiLine Junction (MP 135.4) north to the interchange with the Union Pacific Railroad mainline at Shafter (MP 18.5). The population of the City of Ely was 3,924 at the 2020 Decennial Census. The first 60.9 miles of the project (between MP 18.5 and MP 74.5) will take place in White Pine County and encompasses the following places: Ely, McGill, and Cherry Creek. The entire population of White Pine County, according to the 2020 Decennial Census, was 9,080. The final 56.0 miles of the project (between MP 74.5 and 18.5) will take place in rural Elko County and encompasses the unincorporated town of Currie, Nevada (est. population < 20). The entire population of Elko County, according to the 2020 Decennial Census, was 53,702. The entirety of this rural corridor is designated as disadvantaged by either the CEJST or the FRA’s Climate Justice tool.

Federal funding has been previously sought for a portion of this project – namely, the partial restoration of the railroad mainline to a lower track maintenance standard. This portion was applied for as part of the TIGER V Grant Process in the 2013 funding cycle. The augmented NNRY Project in this CRISI proposal seeks to return the entirety of the mainline between Shafter and HiLine Junction to FRA Class 2 standards, is underpinned by demonstrably greater freight potential, is referenced in key state planning documents, and has substantial local and state support.

Finally, the applicant has no obligation to spend the money received under this CRISI Grant by a certain date as a result of discrepancies or relationships with other Federal or non-Federal funding sources.

#### **IV. APPLICANT ELIGIBILITY**

The City of Ely, Nevada, (the “City”) and the Nevada Northern Railway Foundation (the “Foundation”) are co-owners of the Nevada Northern Railway. The City, as the Applicant, is a political subdivision of the State of Nevada, and it was incorporated in 1907. Its existence today is governed by *Nevada Revised Statutes Chapter 266 – General Law for Incorporation of Cities and Towns*. The City meets the applicant eligibility requirements under Section C.1.e if the CRISI NOFO.

The City acquired the rail line with the Nevada Northern Railway Foundation (“Foundation”) in 2005, and the two parties have jointly owned the corridor since that time. The Foundation and its subsidiary Great Basin & Northern Railroad (“GBNR”), a Class III rail carrier, serve as the common carrier freight operator of the line. The City would note that Class III railroads are also eligible under this program. The Foundation is an IRS 501c(3) not-for-profit corporation that operates a rail tourist operation and provides education and cultural enhancement in the region. Its subsidiary GBNR is a for-profit rail carrier defined under 49 U.S.C. 24102(1) as a Class III

Railroad operating under the jurisdiction of the Surface Transportation Board, which meets the applicant eligibility requirement outlined in Section C.1.g of the NOFO.

## **V. PROJECT ELIGIBILITY**

The *Nevada Northern Railway: Rehabilitating a Key Infrastructure Lifeline in Rural Nevada CRISI Project* (“NNRV Project”) is a capital project to revitalize a 116.9-mile corridor, returning key rail shippers to the interstate railroad network and opening up Ely, Nevada, as a key rail connectivity hub for additional freight rail partners in the region. This project will meet the present and future needs for freight rail transportation, address safety and climate change concerns, substantially increase the efficiency of goods transportation in the region, and support the economic development of a distressed, rural, and traditionally underserved community.

The NNRV Project is eligible under two sections of the eligibility requirements outlined in Section C(3) of the CRISI NOFO. First, the NNRV Project is a capital project to improve short line railroad infrastructure (C3a.vii). It will result in the capital programmatic replacement of rail, ties, OTM, and key culverts to return the rail line to operational condition and ensure its ability to handle modern freight cars and reopen the line for freight rail service. The NNRV Project also qualifies as a rail line improvement project (C3a.vi), which is manifest through the rehabilitation of 116.9 miles of degraded and out-of-service mainline track to operational condition, connecting the last (currently-in-service) 10.5 miles of track between Keystone (MP 145.8) with HiLine Junction (MP 135.4) with the general railroad system at Shafter (MP 18.5).

Finally, the NNRV Project is within the scope of Track 3-FD/Construction (C3c.iii). The preliminary engineering and Project Planning have been completed, and the Categorical Exclusion applications are drafted and scheduled to be submitted to FRA by Q3 2024. As outlined later in this application, a project management plan is in place for the implementation of this project, should a CRISI Grant be awarded.

## **VI. DETAILED PROJECT DESCRIPTION**

In 2005, the City and the Foundation acquired a long-disused rail line as an innovative public-private partnership, utilizing the heritage rail and National Historic Landmark Status of the historic Nevada Northern Railway Museum, which operates on only the last 10 miles of track, to drive tourism and economic development to the region. The primary intention of the acquisition of this long rail line, however, was to serve as an engine of economic development for the region, serving as a freight rail transportation lifeline between the isolated City of Ely and the North American and global marketplace.

The isolation of Ely cannot be overstated. The community was supposed to be served by both I-70 and I-11. Unfortunately, neither project was constructed leaving the community 120 miles from the nearest interstate highway. The goal of both the City and the Foundation is to rehabilitate this irreplaceable asset to bolster job creation, and economic development, and to support the key minerals extracted in our region to underpin the growth of the clean energy economy in the U.S. and to provide access to strategic minerals such as antimony, magnesium as well as copper.

The rehabilitation of this rail line and the fulfillment of the City’s goal to utilize the NNRV for economic development has been limited by a lack of sufficient capital to return the railroad to

operational condition. The approach outlined in this CRISI Grant Application takes a pragmatic, cost-conscious approach to returning the NNRV to operational condition, with the intention of transporting the 7,200 – 12,400 carloads of freight per year that are currently unable to ship between Ely and the general railroad system via rail due to our out-of-service track. The lack of any notable capital investment in our rail line since the 1970s, its exceptionally light weight rail, marginal tie condition, and defective culverts hampers our ability to rehabilitate the NNRV, absent the magnitude of investment as proposed in this CRISI Grant Application.

### **HISTORY OF THE NNRV AND THIS REHABILITATION PROJECT**

The Nevada Northern Railway (“NNRV”) was opened in 1906 primarily to serve the copper mines in White Pine County. It operated as a common carrier railroad moving freight and passengers in interstate commerce, with volume varying with the fluctuations in the copper market. Due to economic factors, mineral mining goes through extreme boom and bust cycles. After multiple temporary shutdowns, the mines were in a bust cycle in 1987. The NNRV was sold off in two pieces by its then-owner Kennecott Copper: the City of Los Angeles purchased the northern two-thirds of the railroad for a power plant project, and the southern third of the railroad was donated to the City and the White Pine Historic Railroad Foundation, which is now known the Nevada Northern Railway Foundation (“Foundation”), to create the Nevada Northern Railway Museum. After plans for the coal-fired power plants were shelved, the City and the Foundation jointly purchased the track owned by the City of Los Angeles in 2005, making the railroad whole again. In 2006, Congress passed the Safe, Accountable, Flexible, Efficient Transportation Equity Act, Public Law 109-59, transferring the underlying federal property to the City of Ely. This Act meant that the entire railroad was on City of Ely property or City of Ely and Foundation real property.



**Figure 1:** A long, 129 car loaded ore train is shown stopped at MP 87 in 1999.

One of the key rail shippers on the line is the original copper mine site at Ruth (refer to Table 2 on Page 15 for details of expected rail volumes), which has recently seen a resurgence in operation since being acquired by KGHM in 2012. The last time the subject portion of the NNRV saw any sort of freight service was in the three years between 1996 and 1999, when the Robinson copper mine reopened and copper concentrate was shipped via the railroad. The light weight rail and poor track condition plagued the operation at that time, limiting train speeds to no more than a walking pace and requiring continuous attention for broken joint bars. After shutting down briefly in 1999, the mine was reopened in 2004. Thanks to changes in the copper industry and sale to KGHM, it has grown to be a major producer of copper, gold, and molybdenite in the state. Instead of the copper concentrate moving out of this mine by rail, however, it is forced to leave White Pine County by truck to a rail yard in Wendover, Utah, where it is transloaded into rail cars for shipping west to Vancouver, Washington, for export.

Though Ely has been unable to access the General Railroad System due to poor track condition since 1999, the City and the Foundation have worked diligently to prepare to reopen the rail line. In 2008, the Foundation rebuilt the Club 50 highway grade crossing near McGill to allow access to the northern part of the railroad. State and federal funding enabled the partial rehabilitation of that section and included reopening the Club 50 crossing. This made it possible to access the entire southern part of the railroad from the mine at Sunshine (MP 146.5) to just North of the US Highway 93 grade crossing at Currie (MP 63.2).

### **PROJECT DESCRIPTION**

The NNRV Project will completely revitalize the nearly 120-year-old railroad corridor from an out-of-service, decrepit, under-utilized asset into a key economic development tool to a rural, disadvantaged community located more than 200 miles from any metropolitan areas. The principal activities are categorized under Track 3 of the CRISI NOFO: Final Design and Construction.

Related to Final Design, principal activities include: completing a final inventory and survey of the rail line; completing final design to the 100% level, including budget and schedule; soliciting approval of the NEPA Categorical Exclusion; and procurement, financial planning, and project management. The vast majority of the NNRV Project will be the capital overhaul of the 116.9 mile-long corridor, including: contractor selection and mobilization; procurement of supplies; replacement of all culverts; relaying the entire mainline with 6"-base rail (e.g., 131-pound section); replacing all grade crossings along the line; signaling key grade crossings; installing cattle guards, and testing / commissioning of the rail line. These improvements will go to support two online shippers and facilitate the location of an additional four shippers to the line to capture up to 11,800 carloads of freight per year that are currently being trucked through the region by up to 42,000 trucks per year.



**Figure 2:** A broken joint bar on the 60-pound mainline rail near Cherry Creek (MP 91.3) is indicative of the condition of the NNRV Mainline.

In the course of just 48 months, the NNRV will be transformed from a disused liability into a key economic asset in the region. The plan to re-open the rail line will solve existing transportation problems by routing thousands of tons of freight per year from long-distance trucking (e.g., refined oil products currently move over-the-road between Ely and Salt Lake City), which will, in turn, substantially decrease transportation costs, improve the safety of the rural two-lane highways in the region and support sustainable transportation alternatives.

By returning the railroad to a state of good repair, each of these roughly 12,000 carloads of freight will move by rail, which includes a substantial volume of hazardous materials that currently move via truck through our small towns. In total, more than 50,000,000 gallons of petroleum-based products (e.g., diesel fuel, asphalt paving oil, etc.) transit our two-lane highways every year – items that would shift to rail for safer, more economical transportation. Furthermore, an estimated 18,000



tons of explosive ammonium nitrate transit our highways each year to support various mining operations. The NNRY Project would see these explosives shift from truck-to-rail, thereby minimizing the risk of incidents in-transit.

Due to the unique nature of the Great Basin, a high desert out of which water does not flow, our railroad is built entirely without any bridges. In fact, the largest span on the entire length of the 116.9-mile corridor is a mere 24-foot-long double-box culvert across Duck Creek (MP 114.5), which will be replaced during this project. That said, the increase in extreme rain events due to climate change is impacting the ability of the occluded culverts on the NNRY to properly shed water. By replacing 14 culverts along the line and raising the overall track level with proper ballasting, the NNRY Project will eliminate a safety hazard and aid in preventing future washouts or incidents along the rail line.

The work proposed includes specifically:

- I. **Completion of Final Design (Final Design):** The restoration of the NNRY has been studied nearly a half-dozen times since the late 1990s, initially with a goal of upgrading the majority of this corridor to FRA Class 4 track condition for unit coal train service. With the sale of the line from the City of Los Angeles to the City / Foundation, the project has shifted to a railroad rehabilitation project, whereby the line will be upgraded in place as is, with a program tie replacement and an upgrade in rail to 6" base rail (e.g., 131 RE rail). The City has worked with a railroad consulting firm since early 2023 to complete a 30% design study of the corridor (Refer to Appendix G), including conducting a site visit to verify the condition of the corridor. This Final Design task is anticipated to take six (6) months to complete, and work items include: a kickoff meeting with FRA; clearing of brush on the line; detailed 100% design including final inventory and survey; completion of the NEPA Categorical Exclusion; and adoption of a final Project Management Plan, Financial Plan, and Procurement.
- II. **Culvert Replacement (Construction):** Having been built near the base of both Steptoe Valley and Goshute Valley, one might expect the railroad to have to cross dozens of roaring streams. Given the high desert location in the Great Basin, the NNRY is host to only culverts, the largest of which is just 24 feet in length. Of the 75 documented culverts along the line,



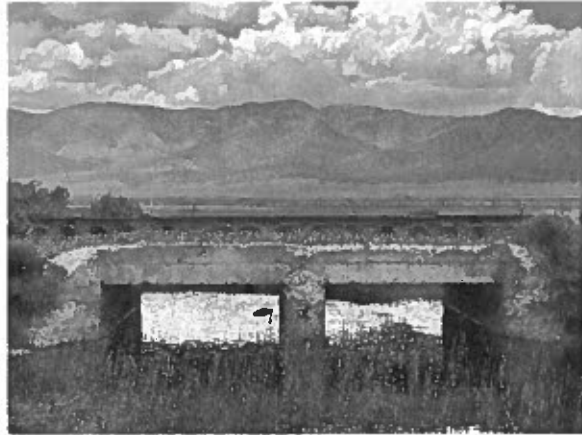
**Figure 3:** This is one of the ore trucks that pass daily in front of the White Pine Middle School. This route through downtown Ely is the only way to reach the mines that are to the west of Ely. Daily heavy truck traffic including fuel and explosives take this route. The crosswalk leads to a park that is used by the school's students, forcing them to cross this street.

fourteen were identified as requiring replacement. These will be replaced in-kind as either concrete box culverts or corrugated metal pipes to facilitate the restoration of service along the line at a 286K GRL rating. A comprehensive list of culverts can be found in Appendix B – Statement of Work, with additional underlying condition assessments can be found in Appendix F.)

- III. Track Upgrades (Construction):** The NNRV Project will result in the replacement of 116.9 miles of mainline track with 6" base (e.g., 131-lb) jointed rail, with the replacement of every fourth tie (on average) and a complete resurfacing of the line requiring more than 670,000 tons of locally sourced ballast. In an effort to minimize carbon emissions associated with the project, the rail has been specified as domestically sourced, No. 2 relay material. This condition of rail will be sufficient to support the projected volumes and return the NNRV to operational condition in a cost-effective manner. In addition to relaying the mainline, this project will see the heavier grade rail present between MP 18.5 and 19.5 and MP 63.6 and 66.3 cascaded down for use in the 13 passing sidings along the railroad, which will be reconnected by the addition of 24 relay turnouts off the mainline.

- IV. Grade Crossing Replacement (Construction):** The subject portion of the NNRV is host to 40 at-grade crossings, the vast majority of which are private crossings utilized by ranchers to cross the tracks. Of these crossings, 21 are known to have DOT crossing numbers, and only eight (8) are public roads. The NNRV Project will see all crossings serviced and repaired (except the Club 50 crossing on US 93, which was previously upgraded), with the private, dirt roads receiving timber crossing surfaces and the paved roads receiving crossing panels. Signalization will be installed on the US Highway 93 and Cherry Creek crossings, and the electronics at the Club 50 crossing on US 93 crossing will be serviced and reactivated as needed. The entire line will undergo a grade crossing inventory and update as part of this proposed CRISI Project.

- V. Cattle Guard Replacement (Construction):** Though the underlying land of the entirety of the Nevada Northern Railway is owned fee-simple by the City and the Nevada Northern Railway, the adjoining land for most of the corridor is owned and managed by the Bureau of Land Management as open range. As such, there are more than 20 places along the 116.9-



**Figure 4:** The largest bridge/structure on the line is the double-box culvert at Cherry Creek, which measures a mere 24 feet in length.



**Figure 5:** One of 22 cattle guards / fence crossings along the NNRV main line, each of which will be replaced / upgraded.

mile-long right-of-way where fences cross the mainline, either with proper cattle guards or as simple barbed wire strung across the line.

This project will have a transformational impact on Northeast Nevada. The City and NNRY Foundation have already received more than 30 letters of support from a mix of businesses, community stakeholders, and elected officials, each of which outlines specifically the importance of both the revitalization of this rail line and the future prosperity its reopening will eschew.

### Existing Challenges

The proposed NNRY Project is key to re-opening rail connectivity to the City, thereby enabling multiple large employers in the region to safely ship more than 1 million net tons of freight into and out of the region by railcar each year. The following are key existing challenges facing the railroad:

**Poor Track Condition Inhibits Rail Line Operation:** First and foremost, the NNRY mainline between the interchange and Shafter (MP 18.5) and HiLine Junction (MP 135.4) has been out of service for revenue freight since 1999. The vast majority of that mainline (106.2 out of 116.9 miles) is laid with 60-pound rail, none of which was control cooled and all of which is too light to safely support modern freight cars. When last in operation in the 1990s, vertical head splits, broken joint bars, and gauge-related derailments were common. While the high desert environment serves to preserve timber ties compared with eastern locales, the ballast section across almost the entirety of the line consists primarily of rock fines and washed stone, none of which is appropriate for proper drainage and surfacing. One example of the existing, poor surface on the railroad is shown at right in Figure 5.



**Figure 5:** The mainline at MP 87, as photographed in May 2023. Note the poor surface of the railroad and washed-stone ballast.

The restoration of the mainline as part of the NNRY Project will connect the currently operational portion of the NNRY mainline, which is laid with heavier 90 and 115 pound rail, and currently maintained to FRA Class 1 track standards, to the general railroad system. The current-day operations cover the mainly mountainous portion of the line between the mine at Keystone and HiLine Junction, and as such, freight operations are not expected to exceed 10 mph to support economic, and safe service. Therefore, the existing operating characteristics, which limit freight operations to 10 mph, are sufficient to support the reinitiation of freight service.

**Freight Growth Constraints:** Without a connection to the general railroad system, the NNRY is forever constrained to be nothing more than a tourist railroad (albeit a world-class, National Historic Landmark tourist railroad). Key to achieving the goal set out when the City and the Foundation acquired the line in 2005 is the ability to ship freight again across the 116.9 mile-long corridor and interchange with the Union Pacific Railroad and BNSF Railway at Shafter.

Furthermore, the Northeastern Nevada Regional Development Authority (“NNRDA”) has documented relevant rail-related project leads requesting siting in the region. Between 2016 and 2023, the NNRDA received thirty (30) requests from leading manufacturers for developable sites to source new industries but could not respond favorably due to the line being inoperable. These requests amount to more than \$8.8 billion in missed economic opportunities that would have resulted in more than 9,300 jobs in the region.

In preparation for this application, the City, Foundation, and its railroad consulting team members spoke with dozens of interested parties and potential shippers, soliciting earnest letters of support from multiple key shippers that long desperately to transport their goods to market via rail. These carload projections, ranging from 7,200 to 12,400 carloads per year (See Table 2 on Page 15), constitute a meaningful volume of freight that, due to the track being out of service, now ships via truck over our rural highways.

**Drainage Improvements, While Minimal, Are Required:** The NNRY is blessed with having minimal structures and no bridges of any note along the subject portion of the mainline. That said, there are portions of the mainline where improper ballast section has led to silt washing across the rail line during high water events, and 19% of the culverts along the subject corridor will require replacement due to marginal or poor condition. To address the flowage / silting issue, and increased probability of flowages due to climate change, the entirety of the rail line will see at least an 8” ballast lift as part of its rehabilitation.

**Grade Crossings Need Renewal:** The NNRY is host to 40 at grade road crossings, of which 39 will need re-surfacing, and two will need signalization. The vast majority of these (87.5%) are dirt crossings, many of which appear to be excluded from the FRA Grade Crossing Database due to their private nature and/or having been installed after the railroad ceased operation by land users to facilitate access to public ranch lands. Most crossings are made of dirt, impounded by timbers adjacent to the rails, or they are made using a collection of old rails (similar in construction to a cattle guard). Each of these crossings needs to be upgraded, and a comprehensive updating of the FRA Grade Crossing database will need to be completed to accompany any restoration of service. Combined with proper markings and signalization (as applicable), the improved grade crossings will ensure the safe operation of the re-started railroad.

**Fence Crossings Require Replacements:** Due to inactivity on the rail line, local ranchers have, in many places, stretched barbed wire across the railroad and/or removed cattle guards in favor of fences. This limits the ability to operate the railroad safely and, without reinstallation of cattle guards, simply removing the fences would cause issues with the open grazing of cattle on public lands. To solve this problem, the execution of the NNRY Project will result in the installation of 22 cattle guards along the right-of-way, ensuring they meet PUC clearance requirements, as necessary, and enabling the safe co-habitation of active railroad and grazing operations.

### Current Railroad Operations

The only current railroad operations on the NNRV are limited to the historic excursion train operations that occur on the mainline between J&M (MP 133.0) and Keystone (MP 145.8) as well as into the historic rail yard at East Ely and on a portion of the HiLine Branch to a point called Lavon (MP H3.8). These operations constitute the extent of any current operations, none of which are for revenue freight due to the mainline being out of service between MP 18.5 and MP 133.0. The for-profit Great Basin & Northern Railroad (“GBNR”), a subsidiary of the Foundation, has exclusive rights and control to operate common-carrier freight over the line, though it does not operate due to the line being out-of-service.

In 2009, a third party was granted a concession by City of Ely and the Foundation to operate a car storage business on the north end of the railroad, between MP 18.5 (Shafter) and MP 63.0 (Currie). This concessionaire invested approximately \$500,000 in clearing the mainline between Shafter and Currie, with that portion of the line reopened for empty car storage in 2010. The concessionaire also removed the Decoy Siding to serve as a source for spare 60-pound rails. This contracting arrangement was terminated in 2022, and there are currently no concessionaires on the line.

The northern half of the NNRV Project area, which has had more recent operations, is in better overall condition than the southern half of the line, which lies lower in the valley and, therefore, is host to substantially more vegetation. The following figures compare railroad surface conditions of North vs. South on subject portions of the NNRV mainline.



**Figure 6:** The NNRV main in the vicinity of MP 22.



**Figure 7:** The NNRV main in the vicinity of MP 124.

### Proposed Railroad Operations

Based upon commitments from six major shippers and discussions with a handful of other prospective shippers, the NNRV Project is anticipated to shift a minimum of 7,000 carloads and up-to 12,000 carloads of freight per year off the highways and onto the general railroad system in Northeastern Nevada each year. The initial railroad operating plan would see the rail line serviced by one “local” job based out of Ely, Nevada, two days per week, and additional “road” jobs operating three days week to transfer cars between Ely and the interchange at Shafter. Each round trip between Ely and Shafter is anticipated to take 11 hours to complete.

The NNRV interchanges with the Union Pacific Railroad (“UPRR”) at Shafter. As a result of the merger of UPRR with the Southern Pacific Railroad on July 3, 1996, the Surface Transportation Board granted the BNSF Railway (“BNSF”) trackage rights on some key UPRR mainlines, including the line on which the NNRV connects. As such, the rehabilitated NNRV will be both the

only short line railroad in the state as well as a “dual served” short line, which will provide a substantial competitive advantage to any industry that locates on the line.

Concurrent with the proposed NNRV Project, a variety of rail shippers will be rehabilitating and/or developing a means to ship traffic on the NNRV. The largest single online shipper, KGHM, is prepared to rehabilitate its private connection track between the NNRV at Keystone (MP 145.8) and the mine load out to provide direct rail access and eliminate completely the need to truck copper concentrate. Likewise, major shippers Sky Quarry, White Pine Metals, and Western Magnesium intend to develop facilities adjacent to the NNRV (between MP 140.0 and MP 135.0) to access the rail network.

Given the volume of freight set to move on the line (Refer to Table 2 on Page 15), the NNRV anticipates “road jobs” will operate three times per week and be, on average, 88 cars in length (approximately half-load and half-empty) and weighing an average of 7,612 tons. Given the flat profile of the railroad, this service is expected to be hauled by two (2) turbocharged 3,000 horsepower locomotives. The turbocharging is preferable due to the high-altitude operation, which is entirely higher 5,500 feet above sea level. As traffic increases, so too can train frequency.

#### Primary Expected Project Outcomes / Benefits

The NNRV Project will facilitate meaningful safety benefits, help transform the nation’s infrastructure through increased freight rail shipment, increase resiliency in the face of climate change, and will result in a meaningful investment in a disadvantaged, rural area.

**Safety Benefits:** The NNRV Project will result in the reactivation of a long-dormant rail line, enabling the shifting of an estimated 24,500 - 42,000 trucks off of the highways each year. This will not only increase the safety of the community by shifting trucks off the road and decreasing the likelihood of truck-related crashes, it will also reduce emissions associated with transporting freight.

**Rural Benefits:** In alignment with the Rural Opportunities to Use Transportation for Economic Success (“ROUTES”) initiative, this project will benefit rural areas by rehabilitating degraded infrastructure which, in its current state, poses efficiency, quality of life, and safety barriers to vulnerable populations, including the poor, who live in those rural areas. The lack of economic opportunity and affordable housing caused by the high transportation costs associated with the shuttered railroad is a burden upon the people in these areas, including motorists, residents, and visitors. This also impacts the potential customers of the NNRV, who are otherwise forced to ship their commodities over the road via costly, less-efficient motor freight. One hundred percent (100%) of the industries and employees that will benefit from this project, in both counties, live in rural America. It was only through the advocacy and forethought of the community leaders in the City and their partners at the Foundation that the entirety of this line was spared from liquidation and scrapping, and now is the opportunity to return it to operational condition to realize these rural benefits.

**Workforce:** The NNRV currently employs 25 paid staff and is host to more than 130 volunteers on the roster, which enables the NNRV Museum to operate hundreds of trains every year and pursue the Foundation’s mission. The NNRV Project is expected to increase that workforce by at

least 50%, including the addition of 13 full-time railroad employees. The project is also expected to provide sufficient income to the Foundation to support: 1) paying wages that are competitive to nearby mining operations; 2) enabling the railroad employees to each pay into the Railroad Retirement Board; 3) supporting strong workforce development programs.

**Community Development:** As a tourist rail operation, the Nevada Northern Railway Museum (NNRY) has been lauded for its global reach and its significant economic benefit to the City. On June 21, 1983, the last Nevada Northern Railway train operated, marking the end of 78 years of service. Typically, the next steps would have been to dismantle and scrap the railroad, as had happened to fifty other railroads that once operated in Nevada. However, forty years ago, a group of farsighted local individuals took an immense gamble. They facilitated the transfer of the Nevada Northern Railway East Ely Complex to the City of Ely and established a new non-profit corporation. The mission was not only to preserve the railroad but, even more remarkably, to operate it. In the most remote city in the contiguous United States, with a sign just outside Ely stating “Next Gas 167 Miles,” and after the major employer had shut down, the community believed they could preserve and operate a steam-powered railroad in the middle of nowhere.

Forty years later, the railroad is thriving! NNRY Museum visitors have spent an estimated \$112,000,000 in Nevada. While the NNRY has faced, and continue to face, challenges, its track record over the past 40 years has been incredible. We have saved seven buildings from collapse: the Machine Shop/Engine House Building, the Master Mechanic’s Building, the McGill Depot, the Chief Engineer’s Building, the Blacksmith Shop, the Garages, the Bus Barn, and the Ice House. We have worked diligently to keep our three original, century-old steam locomotives in operation, restoring all three to working condition. Additionally, we have maintained thirty miles of track and have replaced thousands of ties.

When opportunities present themselves, the City and Foundation work hard to capitalize on them. For thirteen years (2009-2022), we partnered with a concessionaire to store freight cars on the northern portion of the line, interchanging with the Union Pacific Railroad. We have partnered with Great Basin National Park to create the Great Basin Star Trains, which are so popular they sell out a year in advance. The Foundation has numerous partners. Locally, we collaborate with Great Basin College, White Pine County Tourism and Recreation, White Pine Main Street, White Pine Chamber of Commerce, and the local school district. At the state level, we work with the Nevada Public Utilities Commission, Travel Nevada, Nevada State Historic Preservation Office, Nevada Department of Transportation, the Commission for Cultural Affairs, and the Commission for Cultural Centers and Historic Preservation. Federally, we collaborate with the Bureau of Land Management, the US Forest Service, the Surface Transportation Board, and the Federal Railroad Administration. These partnerships allow the Foundation to “...punch above its weight class” as a small non-profit corporation located 200 miles from the nearest Walmart.

#### Expected Users / Beneficiaries of Railroad

As outlined in their letters of support, the NNRY Project is a key infrastructure project for the continued growth and prosperity of industry in the region. As it happens, Nevada is the *only state* in the lower 48 states that does not have an operable common-carrier short line railroad. These short line railroads are key conduits for supporting the “first mile / last mile” railroading, providing the customer service-focused connectivity required to foster meaningful economic growth.

As cited in the 2021 Nevada State Rail Plan (see page 18), the key to revitalizing the Nevada Northern Railway is to aggregate the potential rail shippers to utilize this rail line. Over the past year, the Foundation, City, and their consultants have reached out to more than a dozen prospective freight shippers and as evidenced in many letters of support (refer to Appendix E), an estimated volume of approximately 7,200 – 12,434 railcars of freight per year have been identified. These are summarized below in Table 2 and discussed further in Appendix G.

TABLE 2: PROSPECTIVE FREIGHT SHIPPERS

SHIPPER	DESCRIPTION	FLOW	Est. Start	EST. VOL.
KGHM	Copper concentrate, fuels, etc.	Both	2029	3,098
Silver Lions Farm	Fertilizer, Propane, etc.	Inbound	2029	TBD
Bath Lumber Company	Lumber, building materials, etc.	Inbound	2029	25
Sky Quarry	Roofing shingle oil, VGO, diesel	Both	2029	2,007
White Pine Metal	Copper concentrate, fuels, etc.	Both	2029	1,538
Western Magnesium	Dolomite Ore	Outbound	2035	5200
Aggregate of small mines	Diesel fuel, lime, grinding balls	Inbound	2029	566
Eureka Hay Growers	Containerized Hay for Export	Outbound	2029	TBD
Kinross Gold Corp.	Diesel fuel, mine equip., etc.	Both	TBD	TBD
Estimated Annual Carloads (Year 0)			2029	7,233
Estimated Annual Carloads (Year 5+)			2035	12,434

Without CRISI support, the NNRV will be unable to rehabilitate our mainline to return this line to operational condition, thereby condemning the potential freight volumes outlined in Table 2 to continue traveling over the two-lane highways that connect rural Ely with the rest of the country.

### Specific Components of the Project

For all intents and purposes, the NNRV Project is the capital overhaul of an existing, out-of-service rail line. The specific components of the project, which are provided in detail in both the budget and the Statement of Work section of the project, are those required to complete the Final Design and Construction Lifecycle Stages for this Track 3 project.

As specified in FRA Attachment 2, and as provided with further detail in the Statement of Work, the NNRV Project anticipates undertaking three (3) Tasks related to overall project Administration. These are:

- 1.1 Project Administration:** The City of Ely will work with the Foundation and other users of the property to ensure that the rail line is rehabilitated in an efficient manner. Key project partners include: the City of Ely (Applicant) and the Nevada Northern Railway Foundation (Co-Applciant). The Applicants anticipate retaining outside consulting assistance to aid the additional nuances of grand administration. This Team will work effectively to ensure that the project is effectively managed. This work will include all key meetings and reporting tasks, as further defined in the Statement of Work.



- 1.2 **Project Management Plan:** The City of Ely, the Foundation, and its consultants will prepare a final Project Management Plan for submission to the FRA as part of the contracting and negotiation process. The FRA has outlined very clear expectations related to the structure of the Project Management Plan, and the City of Ely will utilize the detailed capital cost estimates, schedules, and procurement items provided in its Application and this Statement of Work. These will include, at a minimum, the five primary sections of the PMP.
- 1.3 **Project Closeout:** The City will submit a Final Performance Report as required by Section 7.2 of Attachment 1 of the Agreement, which will describe the cumulative activities of the NNRY Project, including a complete description of the City's achievements with respect to the Project objectives and milestones.

Related to the Final Design Lifecycle Stage, the NNRY Project will complete the following tasks:

- 2.1 **Complete Design to 100% Level, Including Budget and Schedule:** As a program overhaul project, not unlike the rail replacement, tie replacement, and surfacing projects undertaken by the Class I railroads, the NNRY Project will not require detailed design drawings of the *entire* 116.9-mile-long corridor. Instead, the 100% design level will result in a comprehensive scoping document, complete with designs for key components (e.g., replacing the double box culvert at Duck Creek MP 114.5; reinstalling the grade crossing at Currie MP 63.5, etc.). Additional work will include the creation of standard procurement scoping for use in Task 1.5. The Budgeting and Schedule for this project have been completed, but a refined budget shall be amended to reflect any Final Design-related modifications. Concurrent with the Final Design, the City will put the construction process out to bid, with specific attention paid to taking affirmative steps to employ small businesses consistent with 2 CFR 200.321. The final contracting team ("Contractor") shall be retained to complete the Construction Stage of the NNRY Project.
- 2.2 **Finalize NEPA Categorical Exclusion:** As referenced later in this application, the capital overhaul of the subject rail corridor is eligible for a NEPA Categorical Exclusion ("C.E."). The Foundation has made initial contact with the Nevada State Historic Preservation Office related to the project, and the NEPA C.E. is expected to be submitted concurrent with FRA contracting related to this CRISI Grant. The NNRY Project has included this Task in the event anything pertinent arises as part of the Final Design that requires addressing.

Related to the Construction Lifecycle Stage, the NNRY Project will complete the following:

- 3.1A **Construction Kickoff with FRA:** Upon completion of procurement, the first task will be to host a kickoff meeting with the FRA to discuss the project overall and to finalize next steps in the process.
- 3.1B **Contractor Mobilization, Bonding, Administration, Management:** The contractor will be required to mobilize to initiate the project. This will include their own project administration, bonding requirements, and development of their internal management procedures.
- 3.2 **Replace Main Line Ties:** With the line cleared, the contractor can utilize the existing rail to facilitate mainline tie replacement. The contractor will source the required ties (estimated at 97,887) to re-tie between MP 18.5 and MP 128.4. The line between MP 128.4 and 135.4 is receiving new ties and surface as part of a grant that is underway right now.

- 3.3 **Replace Main Line Rail:** The contractor shall source 116.9 track miles of No. 2 relay 6” base rails. In pursuit of innovative contracting, the Foundation will pursue in-kind donation of these elements, using its 501c(3) status to solicit support from adjoining Class I railroads to keep project costs to a minimum. Any savings would be shared proportionally between the FRA and the City pursuant to the final grant agreement. The contractor shall source all new other track materials, including spikes, plates, joint bars, and track bolts. The project has been budgeted as a jointed rail undertaking but, should final design indicate it is feasible, the project may be laid as CWR with flash butt welding in the field. The capital cost differential between jointed rail and flash butt welding is generally negligible.
- 3.4 **Relay Sidings:** Concurrent with the relaying of the mainline, the contractor shall relay all mainline sidings with salvaged 85- and 90-pound rail to a minimum of FRA Class 1 track condition. The contractor shall also source 24 like-size No. 8 turnouts to replace the 60-pound turnouts in place today, and it shall reuse existing ties of sufficient condition to relay the sidings along the mainline.
- 3.5 **Replace Culverts:** Concurrent with the relaying of the mainline rail, the Contractor shall replace the fourteen defective culverts along the rail corridor.
- 3.6 **Surface Railroad:** Two local industries have offered to provide the estimated 670,000 tons of crushed stone ballast required to rehabilitate the NNRY. This will facilitate up-to a 12-inch lift between MP 82.8 and MP128.4 and up-to an 8-inch lift between MP 18.5 and MP 82.8. The Contractor shall dump the ballast and surface the railroad in a series of multiple lifts to facilitate its return to a minimum FRA Class 2 surface standard.
- 3.7 **Grade Crossing Improvements:** Of the 40 grade crossing surfaces along the NNRY Project corridor, 39 will be replaced during the reconstruction of the railroad. This will constitute the replacement of 35 dirt crossings with timber crossings and replacing four (4) asphalt crossings with new pads or repaving. This work will also include placement of railroad Crossbucks at the dirt crossings, installing all-new ENS signs, and ensuring all grade crossings are properly accounted for and entered into the FRA Grade Crossing Inventory Database. The grade crossings at Currie (MP 63.0) and Cherry Creek (MP 91.3) will be signalized in accordance with NV PUC guidelines. It is anticipated that the crossing at Currie will require lights and gates.
- 3.8 **Source and Install Cattle Guards:** Along the NNRY Project corridor, there are a total of 22 fence-line crossings, some of which have dilapidated cattle guards and the remainder of which are merely fence crossings. As part of the rail line restoration, each of these crossings shall be replaced with a cattle guard.
- 3.9A **Construction Oversight + Management:** Throughout the project, the City and Foundation shall provide construction oversight and management throughout the NNRY Project.
- 3.9B **Testing and Commissioning + Final Reporting:** The final part of this project is the testing and commissioning phase, whereby the railroad will begin initial operations. As a follow up, the City is prepared to coordinate with FRA to provide reporting related to the performance of the projects to aid in its evaluation of benefits of public sector investments.
- 3.9C **Contractor Demobilization:** The contractor shall be required to demobilize.

### *Proposed Performance Metrics*

The NNRY Project team is experienced in the adoption of, and adherence to, performance measures as required for Federal and State funding programs. Since 1996, the City and the

Foundation have successfully solicited and received donations of more than \$8.5 million and grants in excess of \$16.9 million to aid in the ongoing maintenance, repair, and operation of the NNRV. As part of the implementation of the NNRV Project, the NNRV Project Team shall complete Quarterly Reports for FRA review and approval; each of these reports shall include the status of performance measures. Specific performance measures suggested for the NNRV Project include:

- Percentage complete of Final Design
- Percentage complete of mainline tie replacement
- Percentage complete of mainline rail replacement
- Percentage complete of siding replacement
- Percentage complete of culvert replacement
- Percentage complete of railroad surfaced
- Percentage complete of Grade Crossing Upgrades
- Percentage complete of Cattle Guards Installed

Performance measures suggested for the 30-year Project operating period include:

- Miles of mainline track with slow orders;
- Number of derailments per year;
- Track maintenance expense and capital improvements versus budget.

#### Grade Crossing Inventory Information

Appendix H provides an inventory of all grade crossings in the FRA grade crossing database, including coordinates and additional information.

#### Alignment with State Rail Planning and Comprehensive Planning

The NNRV Project is in alignment with a variety of state-level and regional planning and development priorities.

**2021 Nevada DOT State Rail Plan:** The 2021 Nevada Department of Transportation State Rail Plan (“NVS RP”) specifically lists the Nevada Northern Project as the only primary opportunity in Region 3. Supporting documentation is included in Appendix D of this proposal, pages 4-42 through 4-46. Quoting the rail plan:

*Because the original 60-pound rail (weight per 3-foot section) from 1905-06 was never upgraded for most of the NNRV’s length, the resumption of standard operations with modern heavy cars and engines would require the replacement of most of NNRV’s rail. (Contemporary rail weight ranges from 110- pound to 136 pound). However, given the mineral wealth in this area, a baseload opportunity that justifies the financial investment of a major rebuild may exist...*

#### *Key Strategies*

- *Initiate robust engagement with all potential rail shippers in the corridor to aggregate the overall prospects for rail line utilization*
- *If substantial enough, proceed to evaluate approximate rebuilding and operating costs to establish preliminary viability*
- *If viable, develop a complete proforma business and financial model for the reconstruction and operation of the restarted NNRV*
- *Proceed to structure a development, operating, and funding strategy that serves all stakeholders*

Each of the key strategies above have been completed by the City and Foundation since 2022 (refer to Appendices F and G). Furthermore, the NNRV Project aligns with all the goals of the One Nevada Transportation Plan, as outlined on pages v to vii of the NVSRP – namely: enhance safety; preserve infrastructure; optimize mobility; transform economies; foster sustainability; and connect communities.

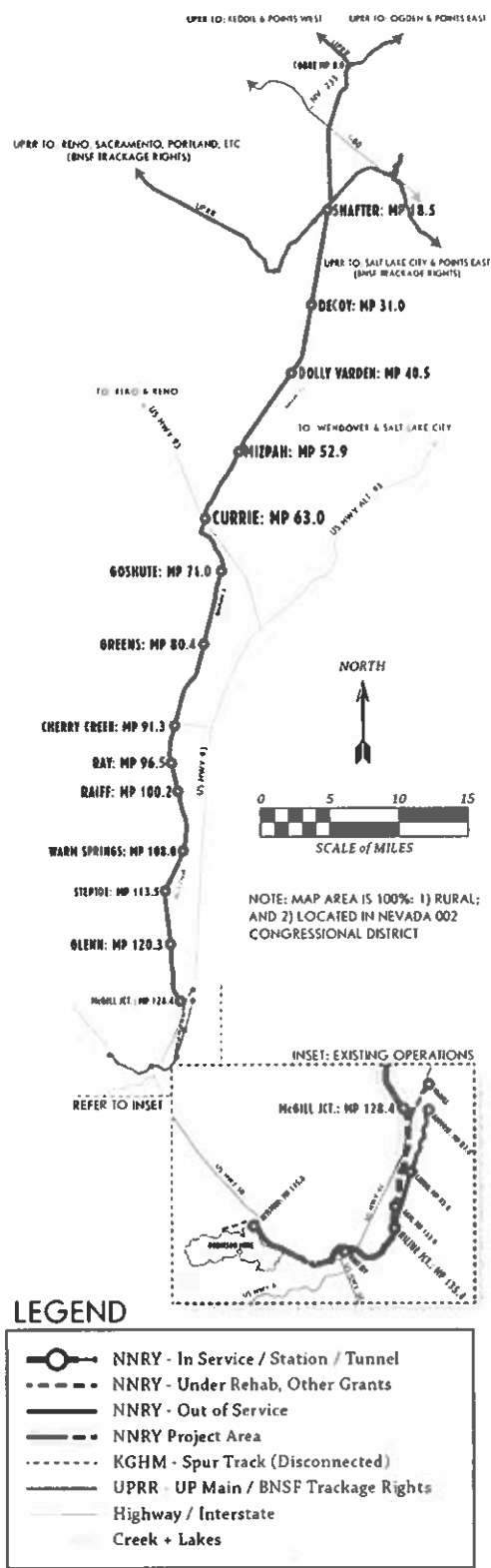
**2022 Nevada DOT Freight Plan Update:** The 2022 NVDOT Freight Plan Update cites the redevelopment of the Nevada Northern Railway, as cited in the 2021 SRP, to be the key opportunity for development in Region 3.

#### Prior Federal Assistance

Neither the City, nor the Foundation, has received Federal financial assistance for the NNRV Project. That said, the Foundation did receive a \$750,000 EDA grant for rehabilitating its mainline between East Ely Yard (MP 138.5) and HiLine Junction (MP 135.4).

## VII. PROJECT LOCATION

The Nevada-based NNRV Project extends 116.9 miles between the outskirts of Ely, Nevada at HiLine Junction (MP 135.4 | 39.275908, -114.815574) and Shafter (MP 18.5 | 40.853909, -114.443996). The entire project (and this map) is in a rural area, and the entire region is in the NV 002 congressional district. The detailed project maps outlined accompanying the Statement of Work and in Appendix F provide a reference of all key GIS data, crossings, and mile



markers. That said, a project overview map is provided herewith. Note: due to the Southern Pacific and Western Pacific Railroads becoming merged into the Union Pacific Railroad, there is no commercial reason to restore the 18.5 miles of railroad between Cobre (MP 0.0) and Shafter (MP 18.5). This portion of the rail line is envisioned to lay fallow for the foreseeable future.

## **VIII. EVALUATION AND SELECTION CRITERIA**

The NNRY Project meets all of the evaluation criteria outlined in Section E of the CRISI NOFO. The following subsections describe how the Project meets each of these criteria.

### **PROJECT READINESS**

Despite the substantial budget required to complete the NNRY Project, the work required is a relatively routine capital Program Maintenance project to rehabilitate an existing rail corridor in place. The City and the Foundation are both reasonably equipped to undertake capital projects on a timely basis. This is evidenced by the ongoing maintenance and rehabilitation of railroads (including the current 10 miles of mainline and roughly 6 miles of branch lines that have operated as part of the NNRY Museum since 1987) as well as soliciting and successfully managing grants. Likewise, the City and Foundation have collaborated on successive grants related to rehabbing the NNRY mainline, including soliciting more than \$13.2 million in funding to: 1) restore two major grade crossings; 2) rehabilitate the railroad between HiLine Junction and McGill; and 3) perform general capital overhaul. The following are specific examples of the NNRY Project's Readiness:

- (A) The NNRY application is a routine Program maintenance of an existing rail line in-place. The City has begun drafting the required NEPA Categorical Exclusion documentation (refer to the Environmental Readiness portion of this Application), and it is anticipated to be submitted in Q3 2024 to the FRA.
- (B) The NNRY Project has all agreements in place required under 49 U.S.C. 22905(c)(1) to undertake this project. The Applicant and Co-Applicant co-own the rail corridor, and the common-carrier freight operator is a wholly owned subsidiary of the Foundation (Co-Applicant).
- (C) The NNRY Project is a Track 3 FD/Construction project that has successfully completed the Preliminary Engineering and is prepared to undertake Final Design and Construction tasking, as outlined in this grant application. The Systems Planning has been completed and documented in the Nevada DOT State Rail Plan (refer to Appendix D, Page 4-42 ), and the applicants have championed the Project Planning and Project Development tasks.
- (D) All required project partner coordination and commitments, letters of support, and letters of funding commitment are in hand. Furthermore, the City and Foundation's logistics and financing Team has begun a dialogue with the Build America Bureau to utilize a Railroad Rehabilitation and Investment Financing ("RRIF") loan in parallel path with the CRISI Grant to underwrite this project.

### **TECHNICAL MERIT**

The following summary confirms the technical merit of this application, per the requirements of the NOFO.

- (A) The tasks and subtasks outlined in the scope of work provide a clear explanation of the expected outcomes of the proposed project, and the individual deliverables required to achieve success.
- (B) The NNRV Project has been planned over the course of nearly two decades through the efforts of multiple key consulting firms that specialize in railroad construction and economics. The City has budgeted for contract consulting assistance to ensure that the project is properly managed and executed, and it anticipates utilizing a robust procurement process to ensure that the winning construction team has the experience and technical aptitude to properly execute the project. This work will be a follow-on to the \$32 million of successfully managed grant projects undertaken by the City and Foundation since 2008.
- (C) The proposed business plan is a public-private partnership between the City, the Foundation, and its GBNR railroad operator. Key shipper stakeholders have pledged more than 10% of the overall project cost as in-kind construction materials, further emphasizing the importance and buy-in of regional economic partners. Furthermore, these shippers will either be reinstating online rail connectivity (e.g., KGHM, Bath Lumber Company) or working to develop rail-served transload sites in concert with the proposed development.
- (D) The Applicant and co-applicants have substantial experience managing and completing grant projects as part of local, state, and federal programs. As the owners of the right-of-way, the City and the Foundation have the legal authority to execute the NNRV Project. After the NNRV Project is implemented, GBNR will continue as operator and control use of locomotives through purchase or lease and will, if necessary, work with shippers to provide freight cars if not available through interchange.
- (E) The NNRV Project will venture, to the extent possible, to solicit Construction bids that employ innovative approaches to project implementation. The NNRV Project, which is of regional priority as outlined in the 2021 NV State Rail Plan and documented through dozens of letters of support, will return a short line railroad to operation in the *only state in the lower 48* to not have a short line railroad. Already the City has solicited substantial in-kind support, and all project partners will venture to employ a diverse construction team to complete this transformational project. In the pursuit of innovative financing, the City has already solicited substantial in-kind contributions from key stakeholders, which will be aided by the utilization of the RRIF program to underwrite the cash match portion of this project.
- (F) The NNRV Project is specifically listed in the 2021 Nevada State Rail Plan as the only Region 3 project and the most viable path to developing short line railroad connectivity in the state. Likewise, the NNRV Project is cross-referenced in the 2022 NVDOT Freight Plan Update as the only key freight rail opportunity for Region 3. Additional details can be found referenced earlier in this grant proposal.

### **PROJECT BENEFITS**

A complete Benefit-Cost Analysis (“BCA”) of the public and private benefits of the NNRV Project is included as Appendix C. The BCA estimates a BCA ratio of 4.7X, indicating the substantial anticipated public and private benefits of the NNRV Project. The proposed project will provide the following four overall benefits noted in the NOFO:

**Effects on system and service performance:** The NNRV Project will realize the reactivation of a long-dormant freight corridor in rural Nevada, connecting the City with the general railroad

system for direct freight rail service for the first time in 25 years. It will see the upgrading of the railroad to FRA Class 2 standards, resulting in the fuel-efficient future operation of the rail line. These improvements will facilitate the safer transport of goods over land compared with existing truck-only alternatives, especially for high-risk commodities such as fuels and explosives that are so crucial for mine operations.

**Effects on safety, competitiveness, reliability, trip or transit time, and resilience:** The NNRV Project will result in improved safety for highway and roadway users by diverting thousands of trucks onto rail. This will result in lower transportation costs for shippers (thereby increasing their ability to efficiently produce and transport their products). Furthermore, once operational again for interstate commerce, the NNRV will be the only short line railroad in Nevada and a dual-served short line, interchanging with both UPRR and BNSF (via trackage rights) at Shafter, which will enable shippers to tap into competitive rail rates, have alternative service routings for resiliency, and enable the efficient and safe transport of goods.

**Efficiencies from improved integration with other modes:** By the very nature of returning the railroad to operational condition, the NNRV Project will substantially improve integration of rail with other modes. Some of the shippers (e.g., KGHM and Bath Lumber) will return their existing spurs to operational condition to ship by rail, whereas other shippers (e.g., Sky Quarry and White Pine Metals) anticipate developing transload sites adjacent to the extant operational rail corridor to drey materials to the line for rail transportation.

**Ability to meet existing or anticipated demand:** The tonnages associated with the NNRV Project, while impressive in comparison to its current out-of-service status, are roughly one-fifth the tonnage of the railroad between the years 1912 and 1917. Rehabilitating the railroad in situ, as originally surveyed, will be sufficient to meet near-term demand and the traffic forecasts based upon existing planned development. Should traffic grow more than 100% of the anticipated project, the City and Foundation have sufficient available adjacent land to facilitate the development of adjoining rail yards or industries required to meet said surge.

## **SELECTION CRITERIA**

The following subsection of this proposal outlines the ways in which the NNRV Project is in alignment with the selection criteria and Administration Priorities described in the CRISI NOFO section E(3)(a) and E(3)(b), respectively.

### ***Alignment with Applicable FRA Preferences***

- (A) Given the scope of the proposed work, and its relatively fundamental nature as a railroad capital project, the NNRV Project is uniquely suited to funding under the CRISI Program. Attempts to secure funding through general DOT Funding (e.g., TIGER V application in 2013) were well received but ultimately did not solicit a winning award. Furthermore, FRA grants, such as the Grade Crossing Elimination fund, are not valid absent a funding mechanism to return the currently-out-of-service railroad to operation.
- (B) Not Applicable – Note: The proposed Federal share of this project is 74%, which the Applicant notes is greater than the 50% threshold for preferential review provided by the FRA. That said, the project does feature a substantial net Benefit-Cost Analysis.
- (C) The proposed non-Federal share of the match is to be financing provided by the City/Foundation/GBNR combined with in-kind contributions of railroad construction

materials. As is outlined in the BCA, 4.7X BCA Ratio is estimated for the NNRV Project, indicating anticipation of substantial net positive benefits resultant from public sector investment. As summarized above, the detailed BCA may be found in Appendix C.

(D) Not Applicable – Note: By design and scoping, the NNRV Project is not a project in alignment with 49 U.S.C. 22907(c)(11).

### **ALIGNMENT WITH KEY ADMINISTRATIVE PRIORITIES**

The proposed NNRV Project is in alignment with each of the key Administration Priorities, as outlined in the NOFO.

**(A) Safety:** The NNRV Project will result in positive safety benefits for all users, specifically by shifting the transport of tens-of-thousands of truckloads of goods from area highways and onto rail while also resulting in the marked reduction of related harmful greenhouse gas emissions thanks to that modal shift. By upgrading the rail itself, both the age and size of the rail and the supporting ballast and ties, the risk of derailment from operations across the rehabilitated NNRV will also be markedly reduced compared with a mere restoration of the railroad with its antiquated, non-control cooled 60-pound rail and till-laden ballast.

**(B) Climate Change and Sustainability:** The NNRV Project meets all applicable key factors of the DOT Navigator Climate Checklist. For instance, this project will increase options to travel more efficiently by providing the opportunity to shift freight from over-the-road trucks to freight rail. As demonstrated in the BCA, the NNRV Project is anticipated to result in a net greenhouse gas emissions reduction of more than 1.5 million tons of carbon dioxide, among other benefits. On the community level, the project will result in more resilient transportation alternatives, reducing wear on roads and providing a safer transportation alternative. On a rail-centric design basis, the NNRV Project will replace aging culverts and, through appropriate surfacing of the railroad (and the resultant 8-to-12-inch lift), provide enhanced structure and slope embankments to deal with increasing water inundation events. Each of these items will result in improving the resiliency of our transportation network in the face of increased risk of flooding and rain events.

**(C) Equity and Justice40:** Split between the FRA’s Justice40 Rail Explorer and the Climate & Economic Justice Screening Tool, the entirety of the NNRV Project will take place within noted disadvantaged areas. Table 3 provides the portions of the NNRV Project (by mile marker) and the adjoining source of the disadvantage as well as which agency / tool designated the region as disadvantaged.

**TABLE 3: Equity & Justice 40**

TRACT INFO	NNRV MP RANGES	PRIMARY DISADVANTAGES	SOURCE
32033970200	MP 135.4 – 132.2	Low income (66 <sup>th</sup> k-th); < HS Education (13 <sup>th</sup> k-th), among other disadvantages	CEJST
9701 – White Pine Co.	MP 132.2 – 74.5	Disadvantage Comm. Rank (74.84 k-th), among other disadvantages	FRA Justice40
9502 – Elko Co.	MP 74.5 – 63.0	Disadvantage Comm. Rank (83.37 k-th), among other disadvantages	FRA Justice40
9515 – Elko Co.	MP 63.0 – 18.5	Disadvantage Comm. Rank (80.35 k-th), among other disadvantages	FRA Justice40



In addition to the calculated benefits outlined in the NNRV Project BCA, supporting economic impact studies based upon IMPLAN data show that the NNRV Project will result in \$393 million in construction-related benefits and more than 3,400 short term direct, indirect, and induced jobs and, on the long term, it will result in more than 50 full time direct, indirect, and induced jobs and an ongoing annualized net benefit of \$7.1 million per year. All of these benefits will aid a region that is starving for meaningful, sustainable development.

**(D) Workforce Development, Job Quality, and Wealth Creation:** The NNRV Project is a unique, mission-driven public-private partnership whose sole owners are not-for-profit entities (namely a municipality and a foundation). Each of these key partners are structured so-as to ensure profits are reinvested in the asset (and the community), and that the operation and maintenance of the rail line going forward will ensure continued economic development in their isolated community. The City and the Foundation are dedicated to ensuring: 1) the long-term jobs created as a result of the NNRV Project pay fair wages and are also railroad retirement board benefit jobs; 2) that employees shall have a few and fair choice to join a union; 3) that the jobs created by the railroad continue to leverage local trade and technical schools, combined with continuing education, to train the workforce in the unique, and highly-valued, tools required to maintain and operate a short line railroad; 4) that the Foundation and GBNR shall prioritize the hiring of local labor, where practicable, to further the rehabilitation, operation, and maintenance of the NNRV; and 5) that the NNRV Project shall continue to promote local and inclusive economic and entrepreneurial programs, such as the growth of local small businesses through freight connectivity (e.g., Bath Lumber Co.).

Regarding workforce development, the Foundation champions a very active intern program that has been ongoing for 15 years. The interns receive extensive training in both the mechanical aspects of railroading and operations. As a result of this program, our interns have successfully secured jobs with major railroads such as the UPRR, BNSF, and Florida East Coast Railroad, as well as with various tourist railroads and railroad museums. In addition to our intern program, we have partnered with Great Basin College to develop their diesel training program. This collaboration has been highly beneficial, with four of our current employees having completed the program and contributing significantly to the maintenance of the Foundation's current fleet of diesel-electric locomotives.

## **ENVIRONMENTAL READINESS**

The capital overhaul of the subject rail corridor is eligible for a NEPA Categorical Exclusion ("C.E.") given under 23 CFR § 771.116 (C)(22), which is quoted in part as:

*Track and track structure maintenance and improvements when carried out predominantly within the existing right-of-way that do not cause a substantial increase in rail traffic beyond existing or historic levels, such as stabilizing embankments, installing or reinstalling track, re-grading, replacing rail, ties, slabs and ballast, installing, maintaining, or restoring drainage ditches, cleaning ballast, constructing minor curve realignments, improving or replacing interlockings, and the installation or maintenance of ancillary equipment.*

The projected level of traffic anticipated when the rail line is reopened is anticipated to be approximately one-fifth the historical tonnages, based upon historical record. Likewise, the Foundation has been in touch with the Nevada State Historic Preservation Office to begin Section 106 discussions. The C.E. is scheduled to be ready for submission by the end of Q3 2024.

## **IX. PROJECT IMPLEMENTATION AND MANAGEMENT**

As outlined in the organization chart in Section IV of this grant proposal, the NNRV Project will be managed by the City, with substantial support from the Foundation. Furthermore, the applicant and co-applicants have successfully collaborated on numerous large infrastructure grant programs both individually and collaboratively. In total, since 2005, the City and Foundation have been successful in garnering more than \$16.9 million of public sector investment for the railroad. In addition, the NNRV Foundation, in its role as a 501c(3) not-for-profit, has solicited more than \$8.5 million in private donations and revenues to foster its mission, growth, and ongoing maintenance, bringing the total investment to more than \$25.9 million invested. The proper use of these funds is demonstrated through its 990 filings, annual audits, and industry-best reporting to its more than 5,200 members spanning 12 countries.

In addition, the City has experience managing large and complex grant programs, having received grants totaling more than \$15 million across the past seven years. In combination with the projects managed by the Foundation, each of these grants necessitated proper management, procurement, and reporting to the public sector funding bodies.

The City shall serve as the project manager in preparation of procurement items, soliciting bids, conducting oversight, and maintaining financial records throughout the project in accordance with generally accepted accounting principles (“GAAP”). The City shall open a separate bank account to manage all grant funding. Furthermore, the City shall contract with an experienced railroad capital project management firm to handle the nuances of ensuring this project is completed on time and on budget.

Throughout the NNRV Project, the City shall handle, at a minimum, the following submissions, as requested by FRA:

- Quarterly Progress Reports (FRA Quarterly Progress Report);
- Quarterly Federal financial reports (Federal Financial Report – SF425); and
- The final grant report, on or before the end of the period of performance (Final Performance Report).

As outlined in Section VI of this proposal, the City will put the construction process out to bid, with specific attention paid to taking affirmative steps to employ small businesses consistent with 2 CFR 200.321. This will include setting anticipated participant goals and prioritization for contractors employing small businesses enterprises specifically. The NNRV project is anticipated to be completed 48 months after FRA contracting is complete. The Gantt chart found in the attached Statement of Work provides a task-by-task breakdown of the proposed project structure.

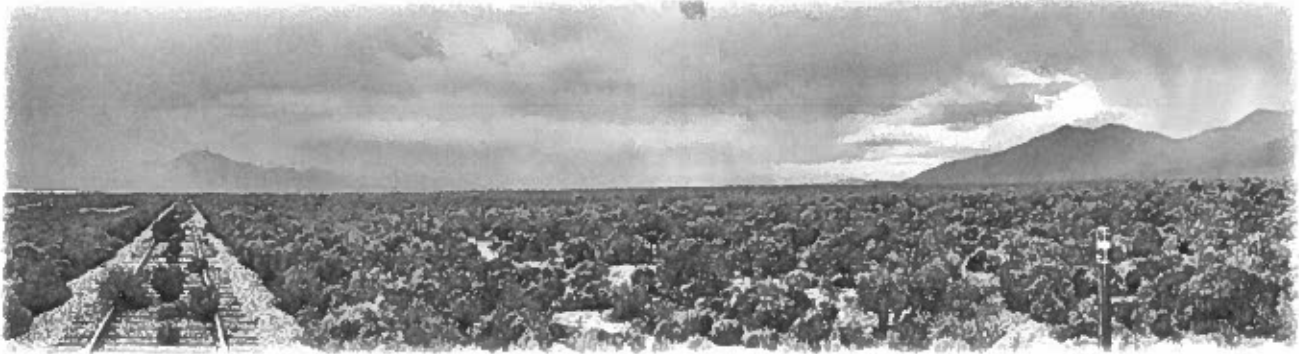
## APPENDIX B

### STATEMENT OF WORK

#### CONTENTS

- Statement of Work, in accordance with CRISI NOFO Guidelines

## NNRV PROJECT STATEMENT OF WORK



### **INTRODUCTION**

This portion of the NNRV Project CRISI Grant Application outlines our approach to the Statement of Work (“SOW”). In conformance with the FRA CRISI NOFO Section D.xiii.b.i Statement of Work, we have structured this SOW in conformance with the guidance outlined in Article 4-7 of “Attachment 2: Project Specific Terms and Conditions.”

### **ARTICLE 4 – STATEMENT OF WORK**

#### **4.1 GENERAL PROJECT DESCRIPTION**

*The Nevada Northern Railway: Rehabilitating a Key Infrastructure Lifeline in Rural Nevada Project* (“NNRV Project”) is a \$133,745,776 effort that will rehabilitate a 116.9-mile long, 119-year-old rail corridor owned by the City of Ely (“the City”) and the Nevada Northern Railway Foundation (“Foundation”) into a robust, safe connection to the general railroad system to support the ongoing development of the local, state, and regional economy in rural Northeast Nevada. The restoration of this rail line will enable a documented 7,200 – 12,400 carloads of freight to originate or terminate in Ely, supporting the growth of our rural community and creating much-needed jobs in our community with an earnest investment that will promote justice and social equity, economic resilience, and environmentally-conscious energy-efficient transportation.

To return this key rail corridor to safe and compliant condition, the project components of the NNRV Project include: upgrading 116.9 miles of mainline rail from primarily 60 lb. rail to entirely 6” base rail (131 lb. section); replacing approximately 98,000 wooden crossties; installing 24 new turnouts; reactivating twelve (12) mainline sidings totaling 13,700 feet in length, replacing 14 culverts; dumping more than 670,000 tons of locally-sourced ballast; repairing 40 public and private at-grade railroad crossings, including signaling one (1); replacing 22 cattle guards; and returning the entire railroad to 286K GRL.

The work proposed includes specifically:

- I. **Completion of Final Design (Final Design):** The restoration of the NNRY has been studied nearly a half-dozen times since the late 1990s, initially with a goal of upgrading the majority of this corridor to FRA Class 4 track condition for unit coal train service. With the sale of the line from the City of Los Angeles to the City / Foundation, the project has shifted to a railroad rehabilitation project, whereby the line will be upgraded in-place as is, with a program tie replacement and an upgrade in rail to 6" base rail (e.g., 131 RE rail). The City has worked with a railroad consulting firm since early 2023 to complete a 30% design study of the corridor (Refer to Appendix F), including conducting a site visit to verify the condition of the corridor. This Final Design task is anticipated to take six (6) months to complete, and work items include: a kickoff meeting with FRA; clearing of brush on the line; detailed 100% design including final inventory and survey; completion of the NEPA Categorical Exclusion; and adoption of Project Management Plan, Financial Plan, and Procurement.
- II. **Culvert Replacement (Construction):** Having been built near the base of both Steptoe Valley and Goshute Valley, one might expect the railroad to have to cross dozens of roaring streams. Given the high desert location in the Great Basin, the NNRY is host to only culverts, the largest of which is just 24 feet in length. Of the 75 documented culverts along the line, fourteen were identified as requiring replacement. These will be replaced in-kind as either concrete box culverts or corrugated metal pipes to facilitate the restoration of service along the line at a 286K GRL rating.
- III. **Track Upgrades (Construction):** The NNRY Project will result in the replacement of 116.9 miles of mainline track with 6" base (e.g., 131-lb) jointed rail, with the replacement of every fourth tie (on average) and a complete resurfacing of the line requiring more than 670,000 tons of locally sourced ballast. To minimize carbon emissions associated with the project, the rail has been specified as domestically sourced, No. 2 relay material. This condition of rail will be sufficient to support the projected volumes and return the NNRY to operational condition in a cost-effective manner. In addition to relaying the mainline, this project will see the heavier grade rail present between MP 18.5 and 19.5 and MP 63.6 and 66.3 cascaded down for use in the 13 passing sidings along the railroad, which will be reconnected by the addition of 24 relay turnouts off the mainline.
- IV. **Grade Crossing Improvements (Construction):** The subject portion of the NNRY is host to 40 at-grade crossings, the vast majority of which are private crossings utilized by ranchers to cross the tracks. Of these crossings, 18 are known to have DOT crossing numbers, and only eight (8) are public roads. The NNRY Project will see all crossings serviced and repaired (except the US 93, Club 50 crossing, which was previously upgraded), with the private, dirt roads receiving timber crossing surfaces and the paved roads receiving crossing panels. Signalization will be installed on the US Highway 93 crossing at Currie, and the electronics at the US 93, Club 50 crossing will be serviced and reactivated, as needed. The entire line will undergo a grade crossing inventory and update as part of this proposed CRISI Project.
- V. **Cattle Guard Replacement (Construction):** Though the underlying land of the entirety of the Nevada Northern Railway is owned fee-simple by the City and the Nevada Northern Railway Foundation, the adjoining land for most of the corridor is owned and managed by the Bureau of Land Management as open range. As such, there are more than 20 places along the 116.9 mile-long right-of-way where fences cross the

mainline, either with proper cattle guards or as simple barbed wire strung across the line.

### **NNRV Project Objectives and Benefits:**

The NNRV Project seeks to return 116.9 miles of mainline track to FRA Class 2 standards, which will reconnect Ely, Nevada, to the general railroad system and provide much-needed freight rail connectivity to our economically depressed region. This is outlined in detail in our Narrative.

That said, as part of the implementation of the NNRV Project, the NNRV Project Team shall complete Quarterly Reports for FRA review and approval; each of these reports shall include the status of performance measures. Specific performance measures for the NNRV Project include:

- Percentage complete of Final Design
- Percentage complete of mainline tie replacement
- Percentage complete of mainline rail replacement
- Percentage complete of siding replacement
- Percentage complete of culvert replacement
- Percentage complete of railroad surfaced
- Percentage complete of Grade Crossing Upgrades
- Percentage complete of Cattle Guards Installed

Performance measures suggested for the 30-year Project operating period include:

- Miles of mainline track with slow orders;
- Number of derailments per year;
- Track maintenance expense and capital improvements versus budget.

The realization of these objectives will result in substantial benefits from the NNRV Project. These benefits are outlined as follows:

**Effects on system and service performance:** The NNRV Project will realize the reactivation of a long-dormant freight corridor in rural Nevada, connecting the City with the general railroad system for direct freight rail service for the first time in 25 years. It will see the upgrading of the railroad to FRA Class 2 standards, resulting in the fuel-efficient future operation of the rail line. These improvements will facilitate the safer transport of goods over land compared with existing truck-only alternatives, especially for high-risk commodities such as fuels and explosives that are so crucial for mine operations.

**Effects on safety, competitiveness, reliability, trip or transit time, and resilience:** The NNRV Project will result in improved safety for highway and roadway users by diverting thousands of trucks onto rail. This will result in lower transportation costs for shippers (thereby increasing their ability to efficiently produce and transport their products). Furthermore, once operational again for interstate commerce, the NNRV will be the only short line railroad in Nevada and a dual-served short line, interchanging with both UPRR and BNSF (via trackage rights) at Shafter, which will enable shippers to tap into competitive rail rates, have alternative service routings for resiliency, and enable the efficient and safe transport of goods.

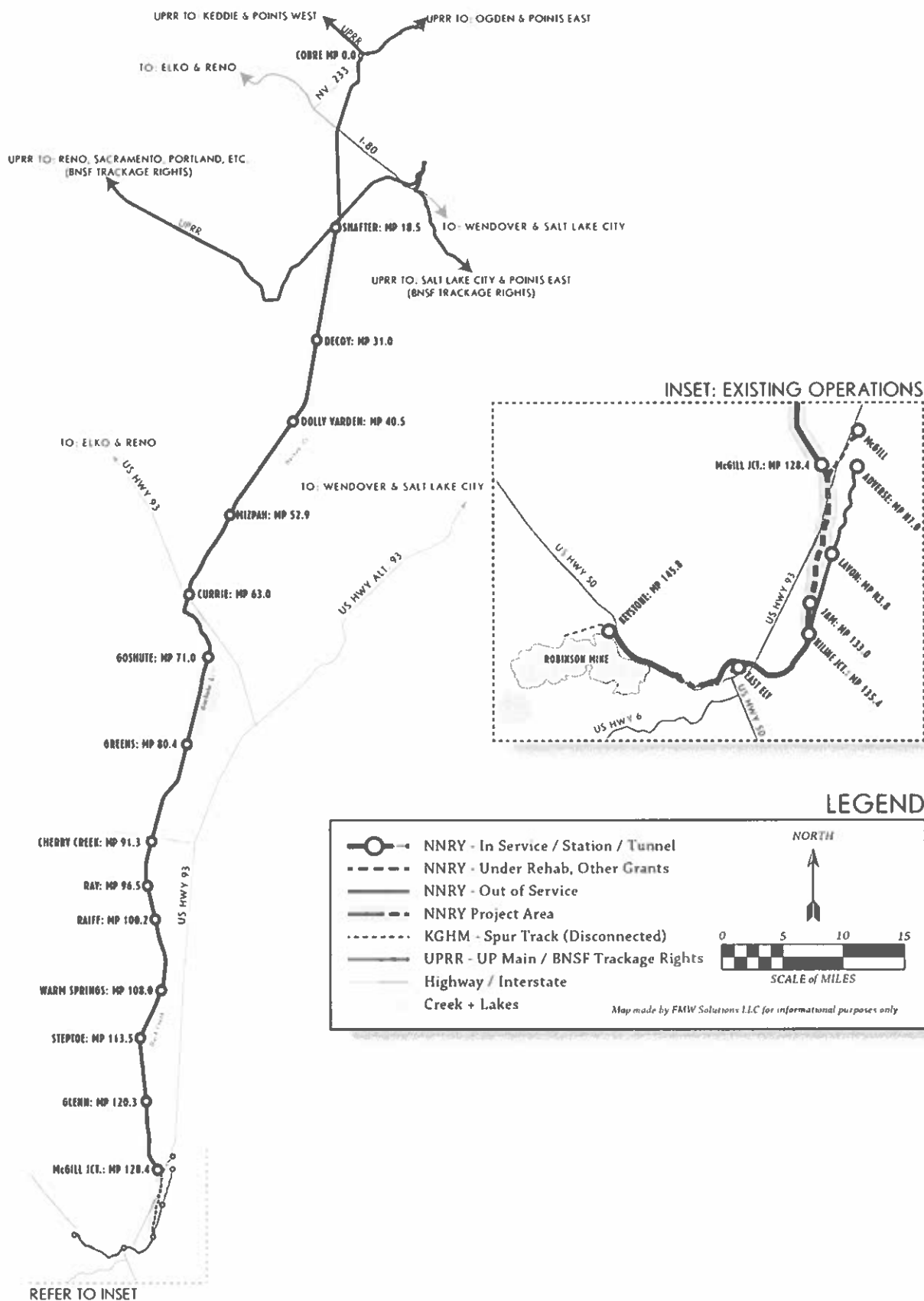
**Efficiencies from improved integration with other modes:** By the very nature of returning the railroad to operational condition, the NNRV Project will substantially improve integration of rail with other modes. Some of the shippers (e.g., KGHM and Bath Lumber) will return their existing spurs to operational condition to ship by rail, whereas other shippers (e.g., Sky Quarry and White Pine Metals) anticipate developing transload sites adjacent to the extant operational rail corridor to drey materials to the line for rail transportation.

**Ability to meet existing or anticipated demand:** The tonnages associated with the NNRV Project, while impressive in comparison to its current out-of-service status, are roughly one-fifth the tonnage of the railroad between the years 1912 and 1917. Rehabilitating the railroad in situ, as originally surveyed, will be sufficient to meet near-term demand and the traffic forecasts based upon existing planned development. Should traffic grow more than 100% of the anticipated project, the City and Foundation have sufficient available adjacent land to facilitate the development of adjoining rail yards or industries required to meet said surge.

## **4.2 PROJECT LOCATION**

The Nevada-based NNRV Project extends 116.9 miles between the outskirts of Ely at HiLine Junction (MP 135.4 | 39.275908, -114.815574) and Shafter (MP 18.5 | 40.853909, -114.443996). The entire project (and this map) is in a rural area, and the entire region is in the NV 002 congressional district. An overview map is provided on page 5, and a detailed map is included in Appendix F to the CRISI Grant Proposal.

Given the length of the corridor to be rehabilitated, this SOW includes detailed mile marker-based task-specific breakdowns of work to be performed.





### **4.3 Project Scope**

#### **Task 1: Project Administration and Management**

##### ***Subtask 1.1: Project Administration***

The City of Ely will work with the Foundation and other users of the property to ensure that the rail line is rehabilitated in an efficient manner. Key project partners include: the City of Ely (Applicant); the Nevada Northern Railway Foundation (Co-Applicant); and FMW Solutions LLC d/b/a National Rail Consulting Group (Consultant or “NRCG”). This team, which has worked closely over the last 14 months to refine the NNRY Project, will work effectively to ensure that the project is effectively managed.

The Recipient will perform all tasks required to complete the NNRY Project through a coordinated process, which will involve affected railroad owners, operators, and funding partners, including:

- Federal Railroad Administration
- City of Ely
- Nevada Northern Railway Foundation
  - Great Basin & Northern Railroad
  - Nevada Northern Railway Museum

The Recipient will facilitate the coordination of all activities necessary for the implementation of the Project. The Recipient will:

- Participate in a Project kickoff meeting with FRA following award;
- Complete the necessary steps to formalize the retention of a qualified consultant to perform management as well as define procurement parameters;
- Hold regularly scheduled Project meetings with FRA;
- Inspect and approve work as it is completed; and
- Participate in other coordination, as needed.

##### ***Subtask 1.2: Project Management Plan***

The City of Ely, the Foundation, and its consultants will finalize a final Project Management Plan for submission to the FRA as part of the contracting and negotiation process. The FRA has outlined very clear expectations related to the structure of the Project Management Plan, and the City of Ely will utilize the detailed capital cost estimates, schedules, and procurement items provided in its Application and this Statement of Work. These will include, at a minimum, the five primary sections of the PMP.

***Subtask 1.3: Project Closeout***

The City will submit a Final Performance Report as required by Section 7.2 of Attachment 1 of the Agreement, which will describe the cumulative activities of the NNRY Project, including a complete description of the City’s achievements with respect to the Project objectives and milestones.

**TASK 1 DELIVERABLES**

Deliverable ID	Subtask	Deliverable Name
1.1	1.2	Project Management Plan
1.2	1.3	Final Performance Report

**Task 2: Final Design**

Related to the Final Design Lifecycle Stage, the NNRY Project will complete the following tasks:

***Subtask 2.1: Complete Design to 100% Level, Including Budget, Schedule and Procurement***

As a program overhaul project, similar in many regards to the rail replacement, tie replacement, and surfacing projects undertaken by the Class I railroads, the NNRY Project will not require detailed design drawings of the entire 116.9-mile-long corridor. Instead, the 100% design level will result in a comprehensive scoping document, complete with designs for key components (e.g., replacing the double box culvert at Duck Creek MP 114.5; reinstalling the grade crossing at Currie MP 63.5, etc.). Additional work will include the creation of standard procurement scoping. The Budgeting and Schedule for this project have been completed, but a refined budget shall be amended to reflect any Final Design-related modifications.

The final design will include the following key deliverables: 1) final engineering, including specifications for structures and recommended cross sections; 2) final detailed budget and project schedule; 3) a draft request of the procurement RFP for review by the FRA and made in conformance with 2 CFR 200.321, 4) refining the Project Management Plan to suit the finalized project; 5) milestone-related review of the final design seeking FRA approval of its completion; and 6) undertaking final procurement.

Appendix F to the NNRY Project CRISI Grant submittal, is a restoration cost estimate and engineering report, including detailed maps of the proposed project area.

***Subtask 2.2: Finalize NEPA Categorical Exclusion***

The capital overhaul of the subject rail corridor is eligible for a NEPA Categorical Exclusion (“C.E.”). The Foundation has made initial contact with the Nevada State Historic Preservation Office related to the project, and the NEPA C.E. is expected to be submitted concurrent with FRA contracting related to this CRISI Grant.

The NNRY Project has included this Task in the event anything pertinent arises as part of the Final Design that requires addressing and to support working with the FRA to complete the approval of the C.E.

**Task 2 DELIVERABLES**

Deliverable ID	Subtask	Deliverable Name
2.0	2.1	Complete Design to 100% Level, Including Budget, Schedule, and Procurement
2.0	2.2	Finalize NEPA Categorical Exclusion

**Task 3: Construction**

Related to the Construction Lifecycle Stage, the NNRY Project will complete the following:

***Subtask 3.1: Construction Kickoff and Mobilization***

Upon completion of procurement, the first task will be to host a kickoff meeting with the FRA to discuss the project overall and to finalize next steps in the process. The selected track contracting team (“Contractor”) will be required to mobilize to initiate the project. This will include their own project administration, bonding requirements, and development of their internal management procedures, in accordance with the specifications and obligations stipulated as part of the RFP process.

***Subtask 3.2: Replace Mainline Ties***

With the line cleared, the contractor can utilize the existing rail to facilitate mainline tie replacement. The contractor will source the required ties (estimated at 97,887) to re-tie between MP 18.5 and MP 128.4. The City notes that the line between MP 128.4 and 135.4 is receiving new ties and surface as part of a grant that is underway right now.



**Image 1:** This site survey photo shows poor tie condition represented in some portions of the line.

The total estimated required replacement of ties is based upon the following data:

N. MP	S. MP	Miles	Defective %	Ties/Mile	Defective Ties
18.5	74.0	55.5	22.50%	3335	41,646
74.0	128.4	54.4	31.00%	3335	56,241
128.4	135.7	7.3	0.00%	3335	0
Calculated Defective Ties					97,887

### ***Subtask 3.3: Replace Main Line Rail***

The contractor shall source 116.9 track miles of No. 2 relay 6" base rails. In pursuit of innovative contracting, the Foundation will pursue in-kind donation of these elements, using its 501c(3) status to solicit support from adjoining Class I railroads to keep project costs to a minimum. Any savings would be shared proportionally between the FRA and the City pursuant to the final grant agreement. The contractor shall source all new other track materials, including spikes, plates, joint bars, and track bolts. The project has been budgeted as a jointed rail undertaking but, should final design indicate it is feasible, the project may be laid as 0.5"CWR with flash butt welding in the field. The capital cost differential between jointed rail and flash butt welding is generally negligible.

The contractor shall undertake the major task of relaying the railroad. This will involve a combination of: removing the existing 60- and 70-pound rails for liquidation, including OTM; removing and stockpiling all 85- and 90-pound rails for relaying in sidings; plugging all remaining ties; and replacing all mainline rail and OTM with 6-inch base rail.



**Image 2:** This site survey photo shows general state of rail and joints along the entire line – note head cracking.

The total estimated replacement of rail is based upon the following data:

N. MP	S. MP	Type	Length (Mi)	Remarks	Replacement Rail	Replacement Tonnage
18.5	19.5	85 lb ARA	1.0	Save for Sidings	131 RE	230.56
19.5	63.6	60 lb ARA	44.1	Liquidate	131RE	10,167.70
63.6	66.3	90 lb ARA	2.7	Save for Sidings	131RE	622.51
66.3	128.4	60 lb ARA	62.1	Liquidate	131RE	14,317.78
128.4	135.4	70 lb ARA	7.00	Save for Sidings / Relay	131RE	1,613.92
Total Milage:			116.9	Total Replacement Tonnage:		26,952.47

### ***Subtask 3.4: Relay Sidings***

Concurrent with the relaying of the mainline, the contractor shall relay all existing mainline sidings (non-Yard) with salvaged 85- and 90- pound rail to a minimum of FRA Class 1 track condition. The contractor shall also source 24 like-size No. 8 turnouts to replace the 60-pound turnouts in place today, and it shall reuse existing ties of sufficient condition to relay the sidings along the mainline.

The following is a summary of all sidings on the line. The sidings at Shafter are in sufficient which are to be replaced as part of this project.

Milepost	Name	Length	Capacity	Side of Track	Replace?
18.5	Shafter	3087	51	East	No
18.5	Shafter	2500	41	East	No
18.5	Shafter	772	12	East	No
31	Decoy	Removed in 2010		West	No
40.5	Dolly Varden	983	16	East	Yes
52.9	Mizpah	909	15	West	Yes
63	Currie	1968	32	East	Yes
63.2	Currie	1568	26	East	Yes
71	Goshute	2005	33	West	Yes
80.4	Greens	720	12	West	Yes
91.35	Cherry Creek	2141	35	East	Yes
91.35	Cherry Creek	0	0	West	No
100	Raiff	2499	41	East	Yes
107.8	Warm Springs	760	12	West	Yes
120.2	Glenn	1500	25	West	Yes
127.4	McGill Jct	1584	26	East	Yes
Totals:		22,996	377	N/A	N/A

### ***Subtask 3.5: Replace Culverts***

Concurrent with the relaying of the mainline rail, the Contractor shall replace the fourteen defective culverts along the rail corridor. The following table provides an inventory of the defective culverts along the NNRY to be replaced, delineated by railroad mile marker.



**Image 3:** This site survey photo shows general state of the culverts along the entire line.

Milepost	Type	Dia. or Dims. (In.)	Length (Ft)	Remarks	Status
50.1	Corrugated Metal Pipe	30	24	Double Barrel	Replace
54.15	Triangular Concrete	21x17.5	24	Triangular	Replace
58.6	Wooden Box Culvert	24x18	24	Triangular	Replace
58.6	Triangular Concrete	21x17.5	24		Replace
58.95	Triangular Concrete	24x28	24		Replace
64.1	Concrete Box Culvert	36x96	20		Marginal
64.8	Corrugated Metal Pipe	30	32	Deteriorating	Replace
80.7	Corrugated Metal Pipe	36	18		Replace
80.9	Triangular Steel	21x17.5	24		Replace
83	Concrete Box Culvert	36x96	18	Sidewalls Deteriorating	Marginal
83.3	Concrete Box Culvert	40x96	24	Inside Deteriorating	Marginal
98.3	Cast Iron Pipe	5	24		Replace
98.7	Corrugated Metal Pipe	6	30		Replace
114.4	Concrete Box Culvert	36x144	24	16" Wide Center Post - Duck Creek	Marginal

### ***Subtask 3.6: Surface Railroad***

Two local industries have offered to provide the estimated 670,000 tons of crushed stone ballast required to rehabilitate the NNRY. This will facilitate up-to a 12-inch lift between MP 82.8 and MP128.4 and up-to an 8-inch lift between MP 18.5 and MP 82.8, higher if required. The Contractor shall dump the ballast and surface the railroad in a series of multiple lifts to facilitate its return to a minimum FRA Class 2 surface standard.

A large portion of the railroad is missing a proper ballast section due to erosion and poor initial ballast conditions. Therefore, the NNRY Project has estimated an estimated roughly one ton per linear foot to ballast across the entire railroad. This will serve to address poor shoulder conditions and aid in ensuring proper surface and drainage going forward.



**Image 4:** This site survey photo shows the general state of ROW roadbed, including ballast section loss.

### Subtask 3.7: Grade Crossing Improvements

Of the 40 grade crossing surfaces on in the NNRV Project corridor, 39 will be replaced during the reconstruction of the railroad. This will constitute the replacement of 35 dirt crossings with timber crossings and replacing four (4) asphalt crossings with concrete crossing pads. This work will also include placement of railroad Crossbucks at the dirt crossings, installing all new ENS signs, and ensuring all grade crossings are properly accounted for and entered into, the FRA Grade Crossing Inventory Database. The grade crossing at Currie (MP 63.0) will be signalized in accordance with NV PUC guidelines. It is anticipated that the crossing at Currie will require lights and gates, and that the crossing at Cherry Creek will require lights.



**Image 5:** This site survey photo shows the paved-over US 93 grade crossing at Currie – MP 63.07, USDOT 855866Y.

The following table provides a summary of the known crossings and recommended improvements.

USDOT Grade Crossing Inventory #	Proposed Improvement	Rail Operator	Railroad Owner	RR MP	Latitude	Longitude
855858G	New timbers, new signage	NNRV/GBNR	City/Fndn	18.5	40.85374	-114.44405
855859N	New timbers, new signage	NNRV/GBNR	City/Fndn	18.7	40.83979	-114.44737
	New timbers, new signage	NNRV/GBNR	City/Fndn	19.5		
	New timbers, new signage	NNRV/GBNR	City/Fndn	25.8		
855860H	New timbers, new signage	NNRV/GBNR	City/Fndn	30.85	40.67919	-114.48564
	New timbers, new signage	NNRV/GBNR	City/Fndn	34.3		
	New timbers, new signage	NNRV/GBNR	City/Fndn	39.8		
	New timbers, new signage	NNRV/GBNR	City/Fndn	40.4		
855861P	New timbers, new signage	NNRV/GBNR	City/Fndn	40.74	40.54345	-114.53700
855862W	New timbers, new signage	NNRV/GBNR	City/Fndn	48.96	40.40109	-114.66069
	New timbers, new signage	NNRV/GBNR	City/Fndn	52.5		
855863D	New timbers, new signage	NNRV/GBNR	City/Fndn	58.59	40.35357	-114.69298
855864K	New timbers, new signage	NNRV/GBNR	City/Fndn	60.85	40.32742	-114.71501
855865S	New timbers, new signage	NNRV/GBNR	City/Fndn	62.2	40.29661	-114.73749
855867F	New timbers, new signage	NNRV/GBNR	City/Fndn	63.02	40.26666	-114.74778
855866Y	Concrete Panels, Signalization	NNRV/GBNR	City/Fndn	63.07	40.26640	-114.74789
	New timbers, new signage	NNRV/GBNR	City/Fndn	64.07		
855868M	New timbers, new signage	NNRV/GBNR	City/Fndn	65.75	40.23865	-114.73660
	New timbers, new signage	NNRV/GBNR	City/Fndn	67.3		
	New timbers, new signage	NNRV/GBNR	City/Fndn	71.02		
	New timbers, new signage	NNRV/GBNR	City/Fndn	80.9		
855869U	New timbers, new signage	NNRV/GBNR	City/Fndn	81.07	40.02822	-114.75180

855870N	New timbers, new signage	NNRV/GBNR	City/Fndn	81.96	40.01608	-114.75575
	New timbers, new signage	NNRV/GBNR	City/Fndn	87.1		
855871V	Repave (Asphalt), new signage	NNRV/GBNR	City/Fndn	91.2	39.82284	-114.82351
	New timbers, new signage	NNRV/GBNR	City/Fndn	94.4		
855872C	Repave (Asphalt), new signage	NNRV/GBNR	City/Fndn	96.3	39.82045	-114.82868
	New timbers, new signage	NNRV/GBNR	City/Fndn	106.7		
855873J	Repave (Asphalt), new signage	NNRV/GBNR	City/Fndn	108.04	39.65509	-114.80049
	New timbers, new signage	NNRV/GBNR	City/Fndn	110.68	39.61943	-114.81987
	New timbers, new signage	NNRV/GBNR	City/Fndn	113.5		
	New timbers, new signage	NNRV/GBNR	City/Fndn	114.2		
	New timbers, new signage	NNRV/GBNR	City/Fndn	117.1		
855875X	New timbers, new signage	NNRV/GBNR	City/Fndn	118.59	39.50962	-114.83266
	New timbers, new signage	NNRV/GBNR	City/Fndn	120.5		
	New timbers, new signage	NNRV/GBNR	City/Fndn	121.1		
855876E	New timbers, new signage	NNRV/GBNR	City/Fndn	123.11	39.44450	-114.82637
	New timbers, new signage	NNRV/GBNR	City/Fndn	127.6		
855877L	New timbers, new signage	NNRV/GBNR	City/Fndn	128.02	39.37807	-114.80313
855878T	Confirm Signalization	NNRV/GBNR	City/Fndn	129.18	39.36231	-114.79852

#### ***Subtask 3.8: Source and Install Cattle Guards:***

Along the NNRV Project corridor, there are 22 known fence-line crossings, some of which have dilapidated cattle guards and the remainder of which are merely fence crossings. As part of the rail line restoration each of these crossings shall be replaced with a cattle guard.

This is an ideal opportunity for the City and Foundation to retain a local, small business to fabricate custom cattle guards as part of the procurement process.



**Image 4:** This site survey photo shows one of the many cattleguards to be replaced.

#### ***Subtask 3.9 Construction Oversight, Testing and Commissioning, and Contractor Demobilization***

Throughout the project, the City and Foundation shall provide construction oversight and management throughout the NNRV Project. The final part of this project is the testing and commissioning phase, whereby the railroad will begin initial operations. As a follow up, the City is prepared to coordinate with FRA to provide reporting related on the performance of the projects to aid in its evaluation of benefits of public sector investments. Finally, the contractor shall be required to demobilize.



Task 3 DELIVERABLES

Deliverable ID	Subtask	Deliverable Name
3.0	3.1	Construction Kick Off and Mobilization
3.0	3.2	Relay Mainline
3.0	3.3	Source and Replace Main Line Ties
3.0	3.4	Relay Mainline Track
3.0	3.5	Relay Sidings
3.0	3.6	Surface Railroad
3.0	3.7	Grade Crossing Improvements
3.0	3.8	Source and Install Cattle Guards
3.0	3.9	Construction Oversight, Contractor Demobilization, Testing and Commissioning

***ADDITIONAL TASK:***

None.

**TASK 4.4: IMPLEMENT REQUIRED ENVIRONMENTAL COMMITMENTS**

The Recipient will implement the Project consistent with the documents and environmental commitments identified below.

Other than the NEPA clearance process, for which a Categorical Exclusion (“CE”) is anticipated, the City is aware of no other approvals that will be necessary for any part of the Project.

## **ARTICLE 5: AWARD DATES AND ESTIMATED PROJECT SCHEDULE**

### **5.1 Award Dates**

The Award Date is yet to be determined.

### **5.2 Estimated Project Schedule**

As outlined, the milestones associated with the NNRY Project are identified in Table 5-A: Estimated Project Schedule. The City will work to complete these milestones to FRA's satisfaction by the Schedule Date. The City will notify FRA in writing when it believes it has achieved the milestone.

Table 5-A: Estimated Schedule

Milestone	Schedule Date
Project Management Plan Completion	Month 1
Final Design Completion	Month 12
NEPA Completion	Month 12
Mainline Tie Replacement Completed	Month 30
Mainline Rail Replacement Completed	Month 42
Mainline Siding Replacement Completed	Month 36
Culvert Replacement Completed	Month 33
Railroad Surfaced	Month 45
Grade Crossing Upgrades Completed	Month 39
Cattle Guard Replacement Completed	Month 42
Construction Substantial Completion	Month 44
Final Performance Report Completed	Month 48+ (TBD in coordination with FRA)

Given the duration of some of the tasks, we have provided an estimated project Gantt chart, as follows, to outline the sequencing and estimated duration of the multitude of tasks.

MAJOR TASK	MONTH	6	12	18	24	30	36	42	48
1.1 Project Administration									
1.2 Project Management Plan									
1.3 Final Performance Report									
2.1 Final Design, Incl. Budget, Sched. & Proc									
2.2 Finalize NEPA C.E.									
2.1 Construction Kick Off + Mobilization									
2.2 Source + Replace Mainline Ties									
2.3 Relay Mainline Track									
2.4 Relay Sidings									
2.5 Replace Culverts									
2.6 Source Ballast and Surface Railroad									
2.7 Replace and Upgrade GXings									
2.8 Source and Install Cattle Guards									
2.9 Construction Oversight, Testing, Demob.									

## **ARTICLE 6: AWARD AND PROJECT FINANCIAL INFORMATION**

### **6.1 Award Amount**

Requested Federal Funds: \$98,971,874

### **6.2 Federal Obligation Information**

Federal Obligation Type: Phased.

### **6.3 Federal Authorization and Funding Source.**

Authorizing Statute: TBD

Appropriation: TBD

### **6.4 Funding Availability**

TBD

### **6.5 Approved Project Budget**

The estimated total Project cost under this Agreement is \$133,745,776. The applicant has requested FRA to contribute a maximum of 74 percent of the total Project cost, not to exceed the Agreement Federal Funds in Section 6.1 of this Attachment 2. FRA will fund the Project at the

lesser amount of the Agreement Federal Funds or the FRA maximum contribution percentage of total Project costs.

The City will contribute \$34,773,902 in Agreement Non-Federal Funds. The City's Agreement Non-Federal Funds are comprised of \$19,547,905 in cash contributions and an additional \$15,225,997 of in-kind construction materials.

The Recipient will complete the Project to FRA's satisfaction within the Approved Project Budget, subject to Article 5 of Attachment 1 of this Agreement.

Table 6-A: Project Budget by Task

Task #	Task Title	Agreement Federal Funds	Agreement Non-Federal Funds	In Kind Contribution	Total
1.1	Project Administration	\$292,225	\$57,717	\$0	\$349,943
1.2	Project Management Plan	\$0	\$0	\$0	\$0
1.3	Final Performance Report	\$0	\$0	\$0	\$0
2.1	Complete Final Design, Including Budget, Schedule + Procurement	\$210,729	\$41,621	\$0	\$252,350
2.2	Finalize NEPA Categorical Exclusion	\$174,389	\$34,444	\$0	\$208,833
3.1A	Construction Kickoff with FRA	\$0	\$0	\$0	\$0
3.1B	Contractor Mobilization, Bonding, Administration, Management	\$1,505,207	\$297,293	\$0	\$1,802,500
3.2	Replace Main Line Ties	\$12,629,193	\$2,494,388	\$0	\$15,123,581
3.3	Replace Mainline Track	\$75,223,443	\$14,857,359	\$0	\$90,080,802
3.4	Relay Sidings	\$2,169,546	\$428,506	\$0	\$2,598,053
3.5	Replace Culverts	\$408,986	\$80,779	\$0	\$489,765
3.6A	Source Ballast	\$0	\$0	\$15,225,997	\$15,225,997
3.6B	Surface Railroad	\$2,638,755	\$521,180	\$0	\$3,159,935

3.7	Grade Crossing Improvements	\$1,761,127	\$347,840	\$0	\$2,108,966
3.8	Source and Install Cattle Guards	\$160,842	\$31,768	\$0	\$192,610
3.9A	Construction Oversight + Management	\$259,756	\$51,304	\$0	\$311,060
3.9B	Contractor Demobilization	\$1,505,207	\$297,293	\$0	\$1,802,500
3.9C	Testing and Commissioning	\$32,469	\$6,413	\$0	\$38,883
<b>Total</b>		<b>\$98,971,874</b>	<b>\$19,547,905</b>	<b>\$15,225,997</b>	<b>\$133,745,776</b>

Note: The City is prepared to provide a copy of “Table 6-B: Approved Project Budget by Source” as part of the negotiations process, to coincide with the Approved Budget.

#### **6.6 Pre-Award Costs**

Consistent with 2 C.F.R. part 200, the City acknowledges that costs incurred before the date of this Agreement are not allowable costs under this award. FRA will neither reimburse those costs under this award nor consider them as a non-Federal cost-sharing contribution to this award.

#### **6.7 Phased Funding Agreement**

The City is prepared to committing Tables 6-C and 6-D concurrent with future negotiations with the FRA upon the potential award of partial funding for this project. Further, the City acknowledges the following:

- The proposed Agreement is a phased funding agreement under 49 U.S.C. § 24911(g)(2). The maximum amount of Federal financial assistance ((49 U.S.C. § 24911(g)(2)(B)(ii)) for the Project will not exceed the maximum Federal share (80 percent) of the total costs of the Project (49 U.S.C. § 24911(f)(2)).
- The proposed total amount of funds that may be obligated under this Agreement is \$98,971,874, which is the sum of the Agreement Federal Funds and the Contingent Commitment identified in Section 6.1 of this Attachment 2.
- Pursuant to 49 U.S.C. § 24911(g)(2)(C), if the Recipient does not carry out the Project for reasons within control of the Recipient, the Recipient will repay all Federal grant funds awarded for the Project from all Federal funding sources, for all Project activities, facilities, and equipment, plus reasonable interest and penalty charges allowable by law or established in this Agreement. For the avoidance of doubt, this clause does not restrict or otherwise limit FRA’s ability to act under Article 9 or 10 of Attachment 1 of this Agreement.

## ARTICLE 7: PERFORMANCE MEASUREMENT INFORMATION

Table 7-A: Performance Measurement Table identifies the performance measures that this Project is expected to achieve. These performance measures will enable FRA to assess the Recipient's progress in achieving grant program goals and objectives. The Recipient will report on these performance measures in accordance with the frequency and duration specified in Table 7-A.

Upon Project completion, the Recipient will submit reports comparing the actual Project performance of the new and or improved asset(s) against the pre-Project (baseline) performance and expected post-Project performance as described in Table 7-A. The Recipient will submit the performance measures report to the Project Manager in accordance with Table 7-A.

**Table 7-A: Performance Measure Table**

Goal	Objective	Performance Measure	Description of Measure	Measurement	Reporting
1	Complete Final Design ("FD")	Percentage Complete	Based upon discrete tasking, document % complete	Baseline 30% Design	Frequency: Quarterly
				Post-Project: 100%	Duration: FD Lifecycle
2	Replace mainline ties, per FD	Percentage Complete	Ratio of ties installed vs. those required	Baseline: Rail condition is FRA Excepted / Out of Service	Frequency: Quarterly
				Post-Project: Sufficient to meet FRA Class 2	Duration: Construction Lifecycle
3	Replace Mainline Rails	Percentage Complete	Ratio of Miles Installed vs. Total Miles	Baseline: Rail too small to support traffic	Frequency: Quarterly
				Post-Project: Sufficient to meet 286 GRL	Duration: Construction Lifecycle
4	Upgrade Siding Rail Weight	Percentage Complete	Ratio of Miles Installed vs. Total Miles	Baseline: Rail too small to support traffic	Frequency: Quarterly
				Post-Project: Sufficient to meet 286 GRL	Duration: Construction Lifecycle
5	Select culverts are degraded / unable to support 286K GRL	Percentage Replaced	Ratio of culverts replaced vs. total requiring replacement	Baseline: 14 Culverts Poor Condition	Frequency: Quarterly
				Post-Project: Sufficient to meet 286 GRL	Duration: Construction Lifecycle
6	Surface mainline to FRA Class 2 Standards	Percentage Complete	Ratio of miles surfaced vs. total mileage	Baseline: Rail surface FRA Excepted	Frequency: Quarterly
				Post-Project: Sufficient to meet 286 GRL	Duration: Construction Lifecycle
7	Upgrade railroad grade crossings	Percentage Complete	Ratio of crossings upgraded vs. total crossings	Baseline: All crossings out of service	Frequency: Quarterly
				Post-Project: All crossings renewed and in service	Duration: Construction Lifecycle
8	Replace cattle guards / fence crossings	Percentage Complete	Ratio of cattle guards installed	Baseline: All cattle guards beyond useful life, seven fenced-across locations	Frequency: Quarterly

			vs. total guards required	Post-Project: 22 New Cattle Guards Installed	Duration: Construction Lifecycle
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In addition to the eight (8) performance measures enumerated above, the City is prepared to monitor the following three (3) performance measures across the 30-year

Project operating period include:

- Miles of mainline track with slow orders;
- Number of derailments per year;
- Track maintenance expense and capital improvements versus budget.





Appendix 4f - Residual Value  
Nevada Northern Railway Rehabilitating a Key Infrastructure Lifeline in Rural Nevada  
Applicant: City of Ely, Nevada  
CRISI FY 23/FY 24 Application Benefit-Cost Analysis

Contains confidential business information

Residual Value of Selected Major Classes of Assets (All Capitalized Costs)

TABLE 16	Years from Construction Year > Calendar Year >	Unit	# of Units	\$/Unit	Value (2024\$)	Depreciation Cost Basis	Salvage Value	Expected Lifespan (Years)	Straight Line Depreciation p.a.	2024\$			2024\$			2024\$		
										Constr. Year 2025	Constr. Year 2026	Constr. Year 2027	Constr. Year 2028	Constr. Year 2029	Constr. Year 2030	Constr. Year 2031	Constr. Year 2032	Constr. Year 2033
Project Component / Asset Class																		
State of Good Repair Contingency		%		3.0%														
Project and Final Design Kickoff with FRA			1	246,195	246,195													
Complete Final Design, Including Budget, Schedule & Procurement			1	203,739	203,739													
Finalize NEPA Categorical Exclusion			1	331,342	331,342													
Project Administration			1															
Cost of Final Design					\$ 781,276													
Construction Kickoff with FRA			1	1,722,367	1,722,367													
Contractor Mobilization, Bonding, Administration, Management			1	14,315,230	14,315,230													
Source and Replace Main Line Ties			1	84,999,431	84,999,431													
Relay Mainline Track			1	2,436,263	2,436,263													
Relay Sidings			1	459,266	459,266													
Replace Culverts			1	14,276,556	14,276,556													
Source Ballast			1	2,962,893	2,962,893													
Surface Railroad			1	1,962,284	1,962,284													
Replace Grade Crossings, Upgrade Select Crossings			1	177,248	177,248													
Source and Install Cattle Guards			1	294,521	294,521													
Construction Oversight & Management			1	1,706,663	1,706,663													
Contractor Demobilization			1															
Testing and Commissioning			1	36,815	36,815													
Cost of Construction					\$ 125,355,537													
Totals																		
In to 2023																		
Factor to state in 2023																		

Year of expenditure adjustment dollars

TABLE 17	Years from Construction Year > Calendar Year >																	
Project Component / Asset Class																		
State of Good Repair																		
Project and Final Design Kickoff with FRA																		
Complete Final Design, Including Budget, Schedule & Procurement																		
Finalize NEPA Categorical Exclusion																		
Project Administration																		
Cost of Final Design																		
Construction Kickoff with FRA																		
Contractor Mobilization, Bonding, Administration, Management																		
Source and Replace Main Line Ties																		
Relay Mainline Track																		
Relay Sidings																		
Replace Culverts																		
Source Ballast																		
Surface Railroad																		
Replace Grade Crossings, Upgrade Select Crossings																		
Source and Install Cattle Guards																		
Construction Oversight & Management																		
Contractor Demobilization																		
Testing and Commissioning																		
Totals																		
In to 2023																		
Factor to state in 2023																		

Year of expenditure adjustment  
YOE adjustment (from 2024)  
YOE adjustment (from 2023)

Source: Year of expenditure adjustment, GDP Deflator International Monetary Fund, 2023 United States Article IV Consultation, Appendix II, Figure 4 United States: Baseline Scenario, page 48 (June 2023)

NPV Residual

3.1%

\$ 11,709,167

6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
237,209	232,162	227,115	222,068	217,021	211,974	206,927	201,880	196,833	191,786	186,739	181,692	176,645	171,598	166,551	161,504	156,457
196,303	192,126	187,949	183,773	179,596	175,418	171,243	167,066	162,890	158,713	154,536	150,359	146,183	142,006	137,829	133,653	129,476
328,946	321,947	314,948	307,949	300,950	293,952	286,953	279,954	272,955	265,956	258,957	251,958	244,959	237,961	230,962	223,963	216,964
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,622,250	1,562,167	1,502,083	1,442,000	1,381,917	1,321,833	1,261,750	1,201,667	1,141,583	1,081,500	1,021,417	961,333	901,250	841,167	781,083	721,000	660,917
11,549,539	11,141,036	10,712,536	10,284,035	9,855,533	9,427,032	8,998,531	8,570,029	8,141,528	7,713,026	7,284,525	6,856,023	6,427,522	5,999,020	5,570,519	5,142,017	4,713,516
71,974,561	70,443,187	68,911,814	67,380,440	65,849,066	64,317,693	62,786,319	61,254,945	59,723,572	58,192,198	56,660,824	55,129,451	53,598,077	52,066,704	50,535,330	49,003,956	47,472,583
2,075,844	2,031,677	1,987,510	1,943,343	1,899,176	1,855,010	1,810,843	1,766,676	1,722,509	1,678,342	1,634,175	1,590,008	1,545,841	1,501,674	1,457,507	1,413,341	1,369,174
391,322	382,996	374,670	366,344	358,018	349,692	341,366	333,040	324,714	316,388	308,062	299,736	291,410	283,084	274,758	266,432	258,106
11,647,687	11,216,464	10,785,241	10,354,018	9,922,795	9,491,572	9,060,349	8,629,126	8,197,903	7,766,680	7,335,457	6,904,234	6,473,011	6,041,788	5,610,565	5,179,342	4,748,119
2,417,350	2,337,819	2,258,287	2,178,756	2,099,224	2,019,693	1,940,161	1,860,630	1,781,098	1,701,567	1,622,035	1,542,504	1,462,972	1,383,441	1,303,909	1,224,378	1,144,846
1,613,359	1,553,605	1,493,851	1,434,097	1,374,343	1,314,589	1,254,835	1,195,081	1,135,327	1,075,573	1,015,819	956,065	896,311	836,557	776,803	717,049	657,294
153,896	150,621	147,347	144,072	140,798	137,524	134,249	130,975	127,700	124,426	121,152	117,877	114,603	111,329	108,054	104,780	101,505
276,965	269,588	259,217	248,846	238,475	228,103	217,731	207,359	196,987	186,615	176,243	165,871	155,500	145,128	134,756	124,384	114,012
1,622,250	1,562,167	1,502,083	1,442,000	1,381,917	1,321,833	1,261,750	1,201,667	1,141,583	1,081,500	1,021,417	961,333	901,250	841,167	781,083	721,000	660,917
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1,622,250	1,562,167	1,502,083	1,442,000	1,381,917	1,321,833	1,261,750	1,201,667	1,141,583	1,081,500	1,021,417	961,333	901,250	841,167	781,083	721,000	660,917
1,622,250	1,562,167	1,502,083	1,442,000	1,381,917	1,321,833	1,261,750	1,201,667	1,141,583	1,081,500	1,021,417	961,333	901,250	841,167	781,083	721,000	660,917
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1,622,250	1,562,167	1,502,083	1,442,000	1,381,917	1,321,833	1,261,750	1,201									

23	24	25	26	27	28	29	30	31	32	33
2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058
-	-	-	-	-	-	-	-	-	-	-
151,410	146,363	141,316	136,269	131,222	126,175	121,128	116,081	111,034	105,987	100,940
125,300	121,123	116,948	112,770	108,593	104,416	100,240	96,063	91,886	87,710	83,533
209,065	202,967	195,968	188,969	181,970	174,971	167,972	160,973	153,975	146,976	139,977
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
600,633	540,750	480,867	420,983	360,500	300,417	240,333	180,250	120,167	60,083	0
4,285,015	3,856,513	3,428,012	2,999,510	2,571,009	2,142,507	1,714,006	1,285,504	857,003	428,501	(0)
45,941,209	44,409,835	42,878,462	41,347,088	39,815,714	38,284,341	36,752,967	35,221,594	33,690,220	32,158,846	30,627,473
1,325,007	1,280,840	1,236,673	1,192,506	1,148,339	1,104,172	1,060,005	1,015,839	971,672	927,505	883,338
249,780	241,454	233,128	224,802	216,476	208,150	199,824	191,498	183,172	174,846	166,520
4,314,032	3,882,029	3,451,228	3,019,823	2,588,419	2,157,016	1,725,613	1,294,210	862,806	431,403	(0)
885,315	805,783	716,252	626,720	537,189	447,657	358,126	268,594	179,063	88,531	0
597,540	537,766	478,032	418,278	358,524	298,770	239,016	179,262	119,508	59,754	0
98,231	84,957	71,682	58,408	45,134	31,859	18,585	5,311	2,036	68,762	65,487
103,887	63,318	82,950	72,581	62,112	51,843	41,475	31,108	20,737	10,369	0
600,633	540,750	480,867	420,983	360,500	300,417	240,333	180,250	120,167	60,083	0
\$ 50,488,158	\$ 50,755,060	\$ 54,911,880	\$ 51,268,891	\$ 48,535,802	\$ 45,782,713	\$ 43,030,624	\$ 40,286,535	\$ 37,553,448	\$ 34,810,357	\$ 32,067,268
										\$ 32,067,268

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83,533 40.0%

139,977 40.0%

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##### 28.0%

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## APPENDIX A

### FUNDING & COMMITMENT LETTERS

#### CONTENTS

- City of Ely (Applicant) – Commitment Letter
- Nevada Northern Railway Foundation (Co-Applicant) - Commitment Letter
  - KGHM – Letter of Support Noting In-Kind Contribution
  - White Pine Metals – Letter of Support Noting In-Kind Contribution



# CITY OF ELY

501 Mill Street Ely, Nevada 89301

City Hall (775) 289-2430

Cityofelynv.gov

May 23, 2024

The Honorable Amit Bose  
Administrator  
Federal Railroad Administration  
1200 New Jersey Avenue SE  
Washington, DC 20590

RE: Fiscal Years 2022-2023 CRISI

Dear Administrator Bose:

This letter is to confirm the City of Ely's commitment to provide \$19,547,905 towards the project outlined in its application to the Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program. This Letter of Commitment was approved by a vote of our City Council on May 23, 2024.

The City of Ely has also solicited in-kind support from local businesses in the form of pledged construction materials at an aggregate value of \$15,225,997.

Please note that if awarded a grant:

- a. The City of Ely has a system for procuring property and services under Federal award under the NOFO that supports the provisions of 2 CFR 200 Subpart D Procurement Standards at CFR 200.317-326 and 2 CFR 1201.317.
- b. The City of Ely is not nor any of its principals are presently suspended, debarred, voluntarily excluded, or disqualified from receiving federal awards.
- c. The City of Ely has not nor any of its principals have been convicted within the preceding three (3) years of any of the offenses listed in 2 CFR 180.800(a) or had a civil judgment rendered against the organization or the individual for one of those offenses within the time period.
- d. The City of Ely is not nor any of its principals are presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, state, or local) with commission of any the offenses listed in 2 CFR 180.800(a).
- e. The City of Ely has not nor any of its principals have had one or more public transactions (Federal, state or local) terminated within the preceding three (3) years for cause or default (including material failure to comply).

Thank you in advance for your attention to this letter. If you have any questions or would like additional information, please do not hesitate to contact me.

Sincerely,

Nathan Robertson, Mayor

The City of Ely is an equal opportunity provider and employer.

# NEVADA NORTHERN RAILWAY

NATIONAL HISTORIC LANDMARK



## Nevada Northern Railway Foundation

A Nevada 501 (c) 3 Non-Profit Corporation

Depot: 1100 Avenue A, Ely, Nevada 89301

Mailing Address: PO Box 150040, Ely, Nevada 89315

Voice: (775) 289-2085 • Web: [www.nnry.com](http://www.nnry.com) • E-mail: [info@nnry.com](mailto:info@nnry.com)

May 26, 2024

The Honorable Amit Bose  
Administrator  
Federal Railroad Administration  
1200 New Jersey Avenue SE  
Washington, DC 20590

RE: Fiscal Years 2022-2023 CRISI

Dear Administrator Bose:

Please accept this Letter of Intent from the Nevada Northern Railway Foundation and its subsidiary, the Great Basin and Northern Railroad, to partner with the City of Ely, Nevada to submit a FY2022-2023 CRISI grant application to the Federal Railroad Administration (FRA).

The purpose of this grant application is to rehabilitate a 116.9-mile long, 119-year-old rail corridor owned by the City of Ely (Nevada) and the Nevada Northern Railway Foundation into a robust, safe connection to the general railroad system. Restoring the railroad to handle modern freight service will support the ongoing development of the local, state, and regional economy in rural northeast Nevada. The restoration of this rail line will enable a documented 7,200 – 11,800 carloads of freight to originate or terminate in Ely, supporting the growth of our rural community and creating much-needed jobs in our community with an earnest investment that will promote justice and social equity, economic resilience, and environmentally-conscious energy-efficient transportation.

This exceptional public-private partnership involving the City of Ely, the Nevada Northern Railway Foundation, KGHM Robinson Mine and the new White Pine Precious Mineral's Taylor Mine has already generated \$15,225,997 of committed in kind support.

As the co-owner of the railroad, it is our intent to operate the railroad through our wholly subsidiary, the Great Basin and Northern Railroad which has already been granted Surface Transportation Board authority to handle freight on the entire railroad. The Foundation is celebrating the 40<sup>th</sup> Anniversary of the community banding together to accept and operate the Nevada Northern Railway as a tourist attraction after the major employer, the copper company closed down. During these decades, the railroad has been operated according to the Code of Federal Regulations (CFR) Title 49, Transportation, Chapter II Federal Railroad Administration, Department of Transportation Part 200 – 299.

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### Award Winning Destination

Best Adrenaline Rush in Rural Nevada – 2020

Best Historic Railroad of the West – 2023, 2022


Best Museum in Rural Nevada – 2022, 2020, 2017, 2016, 2014, 2013, 2010, 2009, 2008

Trip Advisor Certificate of Excellence – 2023, 2022, 2021, 2020, 2019, 2018, 2017, 2016, 2015, 2014

Best Place to Take the Kids in Rural Nevada - 2020, 2019, 2018, 2015, 2014, 2013, 2012, 2011, 2010-2007

Opening the railroad to freight traffic will allow it to become a self-sustaining economic lifeline for northeastern Nevada. The model of cooperation we are fostering here reflects the enlightened spirit of the local government, a non-profit corporation and local businesses to come together and address our mutual transportation challenges. We are hopeful that FRA will help us implement this innovative approach in returning our community short-line railroad to a state of good repair. This will allow northeastern Nevada to once again experience economical freight transportation that is tied into the international transportation grid.

Sincerely,



Mark S. Bassett

President





23 May 2024

The Honorable Amit Bose  
Administrator  
Federal Railroad Administration  
1200 New Jersey Avenue SE  
Washington, DC 20590

RE: Consolidated Rail Infrastructure and Safety Improvements ("CRISI") Program grant application of the City of Ely for the Nevada Northern Railway

Dear Administrator Bose:

I am writing in support of the City of Ely (Nevada) grant application under the CRISI Program to partially fund the Nevada Northern Railway: Rehabilitating A Key Infrastructure Lifeline in Rural Nevada Project. On behalf of KGHM, I want to express our earnest support for this project. The rehabilitation of the Nevada Northern Railway ("NNRY") will reconnect our mine with the general railroad system, enabling us to safely transport approximately 3,000 carloads of freight per year, removing trucks from the road and improving the economic viability of our operation.

To further show our support for this project, KGHM Robinson Mine is willing to provide approximately 336k tons of ballast materials as a contribution to the CRISI Grant, which would add significant value to the overall project effort.

KGHM has two operating mines in the United States as well as several more around the world. As noted above Robinson produces considerable quantities of bulk copper concentrate and has been in continuous operations for 20 years with 12 years of current mine life remaining. Economic improvements could extend mining even further and bolster the White Pine County economy.

By helping to fund the proposed project, the FRA will enable all of Northeast Nevada to grow. As a result, current jobs at industries utilizing rail service will be more secure, and improved rail infrastructure will assist the economic development efforts in this area to attract additional businesses, creating more direct and indirect jobs for our region.

We support FRA's careful review and approval of the City of Ely's application.

Sincerely,

A handwritten signature in black ink that reads "Neil Jensen".

Neil Jensen  
VP & GM Robinson  
CC: Mayor Nathan Robertson

Robinson Nevada Mining Company  
Robinson Mine  
4232 West White Pine County Rd 44  
Ruth, NV 89319 USA

T +1 775 289 7000  
[www.kghm.com](http://www.kghm.com)



May 10<sup>th</sup>, 2024

The Honorable Amit Bose  
Administrator  
Federal Railroad Administration  
1200 New Jersey Avenue SE  
Washington, DC 20590

RE: Consolidated Rail Infrastructure and Safety Improvements ("CRISI") Program grant application of the City of Ely for the Nevada Northern Railway

Dear Administrator Bose:

I am writing today to express our sincere support of the City of Ely's (Nevada) grant application under the CRISI Program to partially fund the Nevada Northern Railway: Rehabilitating A Key Infrastructure Lifeline in Rural Nevada Project. As the Chief Operating Officer (COO) of White Pine Metals, I am proud to express our support of this important project.

Our mine project, when fully operational, estimated to be back in production in 2032, is estimated to support the transport of an estimated 1,500 carloads of rail freight per year. The rehabilitated Nevada Northern Railway will enable us to transport those goods via rail, keeping more than 4,000 long haul semi-trucks off the road.

To aid the City of Ely with completing this project, White Pine Metals also pledges to provide materials to construct this project. The mine has an estimated 500,000+ tons of high quality construction rock which could be used for base, fill, rip-rap and potentially ballast material; working with construction partners we believe we would be able to supply more than 336,000 tons of ballast materials as an in-kind contribution to the CRISI Grant. This contribution, which has an estimated value of at least \$7,612,998, will serve as a tangible example of our company's dedication to this important project.

On a personal note, we have worked closely with local leaders in Ely, and we have a good idea of what a great and positive impact the rehabilitated Nevada Northern Railway will have on all facets of the Ely community – including improved economic, quality of life, housing and infrastructure of this great community. We know how important this project will be for the long-term improvement and viability of the City of Ely and the region, and therefore, wholeheartedly support this project and will assist in any way we can to make it a reality.

We support FRA's careful review and approval of the City of Ely's application; please let me know if we can provide additional information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Steve Spitze', is written over a horizontal line.

Steve Spitze  
COO  
White Pine Metals LLC



CC: PROJECT CONTACT

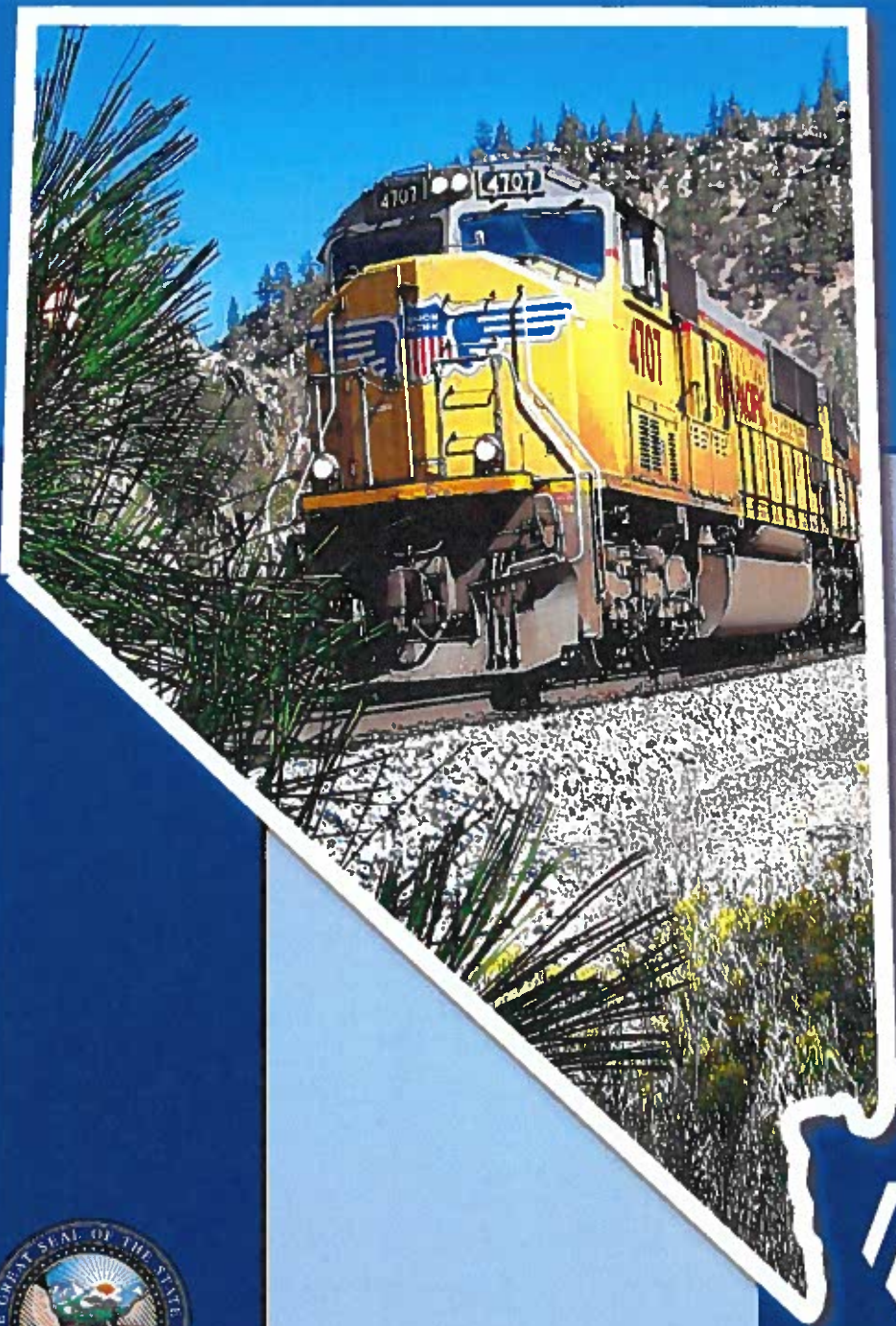
## APPENDIX D

### STRATEGIC TRANSPORTATION PLANS OR STUDIES

#### CONTENTS

- 2021 NEVADA STATE RAIL PLAN
- 2022 NEVADA STATE FREIGHT PLAN

# NEVADA STATE RAIL PLAN



2021



PRODUCED BY THE NEVADA DEPARTMENT OF TRANSPORTATION

## Acknowledgements

### Statewide Rail Stakeholders

#### The following made significant contributions to preparation of the plan:

Scott Carey, Nevada State Land Use Planning Advisory Council, State Lands Planner

Jeff Fontaine, Lincoln County Regional Development Authority, Executive Director

Rob Hooper, Northeastern Nevada Development Authority, Executive Director

Ron Kaminkow, Sierra Club, Toiyabe Chapter, Volunteer

Paul Marcinko, Union Pacific Railroad, Industrial Development Manager, NV and CA

Maureen Haney, Union Pacific Railroad, Director Industrial Development

Megan Shea, BNSF Railway, Assistant Director of Public Projects

Sheldon Mudd, Northeastern Nevada Development Authority, Executive Director

Drew Roschli, Roschli Rail Consulting, Principal

Jim Hoecker, Railroad Electrification Council, Founder

Randy Carpenter, Cargo Flow Solutions, LLC.

In addition, all the regional and statewide stakeholders are acknowledged for their contributions to the Nevada State Rail Plan.

#### Leadership of the planning effort was provided by the following:

Sondra Rosenberg, Nevada DOT Assistant Director of Planning

Mark Costa, Nevada DOT, Multi-modal Program Development Chief

Guinevere Hobdy, Nevada DOT, Assistant Chief, Multi-Modal Planning Rural Programs

Lee Bonner, Nevada DOT, State Railroad Coordinator

Bill Thompson, Nevada DOT Freight Program Manager

#### Special thanks to the following:

Nevada Governor's Office of Economic Development:

Bob Potts, GOED, Deputy Director

Kris Sanchez, GOED, Deputy Director

Northern Nevada Development Authority

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## Table of Contents

List of Abbreviations.....	i
Glossary of Terms.....	iv
Executive Summary .....	vi
Blueprint for Action .....	xv

## Chapter 1 Table of Contents

Chapter 1 The Role of Rail in Statewide Transportation (Overview) .....	1-3
A. Introduction .....	1-3
B. The State's Goals for the Multimodal Transportation System .....	1-4
C. Nevada's Rail Transportation System Overview .....	1-5
D. Institutional Governance Structure of the State Rail Program.....	1-7
D-1. Nevada Department of Transportation .....	1-7
Rail Planning Section .....	1-7
Railroad Safety Program .....	1-8
Nevada Freight Advisory Committee (FAC) .....	1-8
E. The State's Authority for Grant, Loan, and Public/Private Partnership Financing .....	1-8
E-1. State Infrastructure Bank.....	1-8
E-2. Public-Private Partnerships ("P3s").....	1-9
E-3. Private Activity Bonds .....	1-10
F. Nevada's Freight and Passenger Rail Agencies, Initiatives, and Plans .....	1-10
F-1. Transportation Agencies .....	1-10
Nevada Department of Transportation .....	1-10
F-2. Regional and Local Public Entities .....	1-11
Metropolitan Planning Organizations.....	1-11
Regional Economic Development Entities .....	1-11
F-3. Nevada Transportation Plans.....	1-12
Nevada State Freight Plan.....	1-12
One Nevada Transportation Plan.....	1-12
Nevada Statewide Transportation Improvement Program .....	1-12

## Chapter 1 Figure

Figure 1-1: Nevada Rail Network .....	1-6
---------------------------------------	-----

## Chapter 2 Table of Contents

Chapter 2 Table of Contents .....	2
Chapter 2 Figures .....	4
Chapter 2 Tables.....	5
Chapter 2 Existing Nevada Rail System .....	7
A. Passenger Rail Infrastructure and Operations .....	9
A-1. Passenger Service Objectives and Performance .....	9
A-2. Passenger Rail Service.....	10
Amtrak’s California Zephyr.....	11
Passenger Activity and Travel Times.....	13
Desert Wind.....	15
Southwest Chief.....	15
A-3. Amtrak Thruway Bus Service.....	16
A-4. Amtrak Facts in Nevada .....	17
A-5. Excursion and Tourist Railroads .....	18
Nevada Northern Railway .....	20
V&T Railroad Company and V&T Railway Commission .....	21
Nevada State Railroad Museum .....	21
Nevada Southern Railway - Boulder City .....	21
A-6. Multimodal Passenger Connections .....	22
Las Vegas .....	23
Reno .....	27
Elko.....	29
Winnemucca.....	30
Sparks.....	33
Laughlin .....	35
Stateline .....	37
Primm.....	40
B. Freight Rail Infrastructure and Operations .....	40
B-1. Main Lines .....	41
Union Pacific in Nevada.....	42
Northern Nevada Main Lines.....	42
Southern Nevada Main Lines.....	46

B-2. Branch and Short Lines .....	47
Northern Nevada Branch and Short Lines.....	49
Southern Nevada Branch and Private Lines .....	51
B-3. Freight Rail Facilities .....	52
Intermodal Facilities.....	53
Classification Yards .....	55
Rail-Served Businesses and Industrial Parks.....	56
B-4. Rail Line Abandonments and Land-Banked Track .....	57
B-5. Rails-to-Trails and Rails-with-Trails.....	59
C. Freight Commodities .....	60
C-1. Overview of Data Sources .....	60
The STB Waybill Sampling of Rail Data .....	60
Freight Analysis Framework Truck and Rail Data .....	60
TRANSEARCH® Truck Data .....	61
Commodity Code Descriptions .....	61
Reporting Features and Enhancements .....	61
C-2. Nevada Freight Flows Overview: 2018 Rail and Truck Traffic .....	61
2018 and 2009 Summary of Total Rail Freight Flows and Commodities .....	63
Nevada Rail Outflows (Nevada Originations) .....	64
Nevada Rail Inflows (Nevada Destinations) .....	67
Nevada Rail Through Traffic .....	70
Nevada Intrastate Rail Traffic .....	72
C-3. Forecast Commodity Flows Overview .....	72
Forecasted Freight Flows .....	73
Forecasted Rail Inflows .....	73
Forecasted Rail Outflows .....	74
D. General Analysis of Rail Transportation’s Economic and Environmental Impacts.....	75
D-1. Congestion Mitigation .....	75
D-2. Trade and Economic Development .....	76
D-3. Air Quality .....	78
D-4. Reduction in Greenhouse Gas Emissions.....	79
Implications for Nevada .....	80
Fernley to Oakland : Conversion of through Farm and Food Products traffic .....	80



Fernley to Sacramento : Conversion of local freight traffic .....	80
Fernley to Oakland : Diversion and conversion of Los Angeles through freight traffic .....	80
D-5. Land Use .....	82
D-6. Energy & Fuel Use .....	83
D-6. Community Impacts .....	86
Population Demographics and Income .....	86
E. Pointing to a New Future .....	88
E-1. Passenger Rail .....	88
Overview & Key Issues .....	88
Service Gaps .....	89
Improvements and Opportunities – The Case for Rail .....	90
Passenger Rail in Summation .....	93
E-2. Freight Rail .....	93

## Chapter 2 Figures

Figure 2-1: Nevada Rail Network .....	8
Figure 2-2: California Zephyr and Amtrak System .....	10
Figure 2-3: California Zephyr Station Stops in Nevada .....	12
Figure 2-4: California Zephyr 2020 Timetable .....	14
Figure 2-5: Connecting Amtrak Thruway Bus Service with Nevada .....	16
Figure 2-6: Excursion Lines .....	19
Figure 2-7: 2019 Greyhound System Map .....	23
Figure 2-8: Las Vegas Multimodal Passenger Connections .....	25
Figure 2-9: Reno Multimodal Passenger Connections .....	28
Figure 2-10: Elko Amtrak Passenger Station .....	29
Figure 2-11: Winnemucca Amtrak Passenger Station .....	32
Figure 2-12: Sparks Multimodal Passenger Connections .....	34
Figure 2-13: Laughlin Multimodal Passenger Connections .....	36
Figures 2-14 and 2-14.1: Stateline Multimodal Passenger Connections .....	38
Figure 2-15: Nevada Main Lines .....	44
Figure 2-16: Major Line Network in Adjoining States .....	45
Figure 2-17: Nevada Branch Lines .....	48
Figure 2-18: Freight Right-of-Way and Major Facilities in Nevada .....	54
Figure 2-19: Abandoned Rail Line .....	58
Figure 2-20: 2018 Nevada Modal Distribution of Road & Rail Across All Freight Flows .....	62
Figure 2-21: 2009 Nevada Total Distribution of Rail Traffic Flows .....	63
Figure 2-22: 2018 Nevada Total Distribution of Rail Traffic Flows .....	63
Figure 2-23: 2018 Nevada Total Distribution .....	64
Figure 2-24: 2018 Nevada Total Distribution .....	64
Figure 2-25: Destination of Rail Traffic Originating in Nevada (2018) .....	66
Figure 2-26: 2018 Nevada Distribution by Rail Modes - Outflow Traffic .....	67

Figure 2-27: 2018 Nevada Distribution by Traffic Types - Outflow Traffic .....	67
Figure 2-28: Origination of Rail Traffic Terminating in Nevada (2018) .....	69
Figure 2-29: 2018 Nevada Distribution of Rail Modes - Inflow Traffic .....	70
Figure 2-30: 2018 Nevada Distribution of Traffic Types - Inflow Traffic .....	70
Figure 2-31: 2018 Nevada Distribution of Rail Modes – Through Traffic .....	72
Figure 2-32: 2018 Nevada Distribution of Rail Traffic Types – Through Traffic .....	72
Figure 2-33: 2018-2045 Nevada Growth by Freight Flows .....	73
Figure 2-34: Nevada Means of Transportation to Work .....	75
Figure 2-35: Long-Term Industrial Employment Projections, 2016-2026 .....	77
Figure 2-36: US Greenhouse Gas Emissions by Economic Sector, 2018 .....	79
Figure 2-37: Nevada Total Population (2019) .....	83
Figure 2-38: Primary Energy Consumption by Source and Sector, 2019 .....	84
Figure 2-39: Median Household Income in the Past 12 Months in 2018 (Percent of Population) .....	86
Figure 2-40: Nevada Population Below Poverty Line in 2018 .....	87

## Chapter 2 Tables

Table 2-1: PRIIA Section 207 Performance Metrics for Amtrak Long-Haul Routes .....	9
Table 2-2: California Zephyr Route Characteristics .....	11
Table 2-3: California Zephyr Ridership in Context with Nevada Stations 2013-2019 .....	14
Table 2-4: Modal Travel Times on Major Corridors from California Zephyr Served Stations in Nevada....	15
Table 2-5: Amtrak Thruway Bus Service Overview .....	17
Table 2-6: Amtrak Facts in Nevada .....	17
Table 2-7: Excursion and Tourist Railroad Characteristics .....	18
Table 2-8: Multimodal Connections Serving Amtrak Stations in Nevada Cities Ranked by Size .....	23
Table 2-9: FRA Track Classification and .....	40
Table 2-10: Union Pacific in Nevada .....	42
Table 2-11: Main Line Rail Routes and Mileage .....	43
Table 2-12: Nevada UPRR Main Line Freight Operating Characteristics .....	43
Table 2-13: Northern Nevada Branch and Short Line Operating Characteristics .....	49
Table 2-14: Southern Nevada Branch and Short Line Operating Characteristics .....	51
Table 2-15: 2018 Nevada Freight Flow Matrix: Distribution of Transit Modes and Freight Flows .....	62
Table 2-16: 2009 & 2018 Top Five Nevada Commodities: All Rail Flow Traffic .....	63
Table 2-17: 2009 & 2018 Top 5 Nevada Commodities: Rail Outflow Traffic .....	64
Table 2-18: 2018 Nevada Commodities Ranked by Value: Rail Outflow Traffic .....	65
Table 2-19: 2009 & 2018 Nevada Top Destination Ranking: Rail Outflow Traffic .....	65
Table 2-20: 2009 & 2018 Top 5 Nevada Commodities: Rail Inflow Traffic .....	67
Table 2-21: 2018 Nevada Commodities Ranked by Value: Rail Inflow Traffic .....	68
Table 2-22: 2009 & 2018 Nevada Top Origination Ranking: Rail Inflow Traffic .....	68
Table 2-23: 2018 & 2009 Top 5 Nevada Commodities: Rail Through-Traffic .....	70
Table 2-24: 2018 Nevada Top Origination-Destination Pairings: Rail Through Traffic .....	71
Table 2-25: 2018 Nevada Commodities Ranked by Value: Rail Through Traffic .....	71
Table 2-26: 2018 & 2009 Top 4 Nevada Commodities: Rail Intrastate Traffic .....	72
Table 2-27: 2018-2045 Nevada Top Commodities and .....	73
Table 2-28: 2018-2045 Nevada Top State Partners and .....	74



Table 2-29: 2018-2045 Nevada Top Commodities and .....	74
Table 2-30: 2018-2045 Nevada Top State Partners .....	74
Table 2-31: Nevada Transportation Industry Employment Projections .....	78
Table 2-32: Environmental Benefits of truck to rail conversions on three primary freight flows.....	81

## Chapter 3 Table of Contents

### Chapter 3 Proposed Passenger Rail Improvements and Investments 3-4

A. Introduction .....	3-4
B. Passenger Rail Improvement Opportunities .....	3-5
B-1. Intercity Rail Improvements.....	3-5
Amtrak California Zephyr .....	3-5
Extension of Amtrak's Capital Corridor to Reno-Sparks .....	3-10
Multistate Intercity Equipment Pool.....	3-12
Brightline West – Rancho Cucamonga, CA to Las Vegas, NV .....	3-12
Southwest Multi- State Rail Planning Study .....	3-14
Thruway Expansion & C Route: Reno to Las Vegas by Way of Central California .....	3-16
Amtrak Service Between Salt Lake City, Las Vegas, and Los Angeles .....	3-20
B-2. Excursion Rail Improvements.....	3-22
Nevada Northern Railway .....	3-23
Virginia & Truckee Railway Commission .....	3-25
Nevada Southern Railway – “The Hoover Dam Limited” .....	3-26
Las Vegas Xpress X-Train Los Angeles to Las Vegas .....	3-27
B-3. Commuter Rail Improvements .....	3-27
Reno, Nevada, and Innovation Park (formerly Tahoe-Reno Industrial Center - “TRIC”) .....	3-27
Reno Area Transit Service .....	3-29
Brightline West - Las Vegas Commuter.....	3-31
Extension of the Las Vegas Monorail to Brightline West .....	3-33
B-4. Challenges of Developing Passenger Rail.....	3-36
Policy & Funding .....	3-36
Ownership and Access .....	3-36
B-5. Conclusion .....	3-38
Summary of Passenger Rail Service Recommendations .....	3-38

## Chapter 3 Figures

Figure 3-1 Proposed Amtrak California Zephyr Station Stops .....	3-9
Figure 3-2 Proposed Amtrak Capitol Corridor Extension to Reno/Sparks .....	3-11
Figure 3-3 Brightline West Route Map .....	3-13
Figure 3-4: Proposed FRA Southwest Multi-State High Speed Rail .....	3-15
Figure 3-5: Las Vegas – Reno C Route .....	3-18
Figure 3-6: C Route Highlight Overlay on Population Heat Map .....	3-19
Figure 3-7: Desert Wind Corridor .....	3-21
Figure 3-8: Nevada Northern Railway McGill Extension .....	3-24
Figure 3-9: V&T Railway Extension .....	3-26
Figure 3-10: Innovation Park Commuter Rail Service .....	3-28
Figure 3-11: RailPAC Reno Corridor Proposals .....	3-30
Figure 3-12: Las Vegas – Primm Regional Rail .....	3-32
Figure 3-13: Las Vegas Monorail Extension to Brightline West .....	3-35
Figure 3-14: Existing Nevada Rail Network .....	3-37

## Chapter 4 Table of Contents

Chapter 4 The Nevada State Freight Rail Strategic Plan .....	4-6
A. Meeting the Opportunity of Rail Development .....	4-6
B. Radical Inclusion Is a Fundamental Building Block .....	4-7
B-1. Radical Inclusion Part 1: <i>Businesses and Industries</i> .....	4-7
B-2. Radical Inclusion Part 2: <i>Key State Policy Makers &amp; Private Sector Influencers</i> .....	4-8
B-3. Radical Inclusion Part 3: <i>County Planners and Economic Development Agencies</i> .....	4-8
B-4. Radical Inclusion Part 4: <i>Land Developers and Landowners</i> .....	4-8
C. Supply-Chain Infrastructure Planning .....	4-8
C-1. Nevada’s Mining Industry – Overview & Trends .....	4-9
C-2. Mining Materials Supply Chain Logistics Strategy .....	4-11
Mapping the current mining materials and supply chain .....	4-12
Mapping the materials and supply chain for mines in development .....	4-12
Mapping current transportation, storage, and distribution facilities .....	4-12
Discerning the optimal mining materials and supply chain logistics system .....	4-12
Diversification and Beneficiation—logistics for new processing and associated product manufacturing .....	4-12
C-3. Beneficiation of Nevada’s Natural Resource Economy .....	4-13
C-4. Nevada’s Other Commodity Supply Chains .....	4-18

C-5. Rail Electrification Addresses Nevada Governor’s Executive Order on Climate Change .....	4-18
D. Funding Rail Development in Nevada .....	4-18
E. Stewarding Plans to Action .....	4-19
F. Rail Service Expansion Recommendations .....	4-21
Background for Expanding the Nevada Rail System .....	4-21
Recommendation #2: Initiate and expand new intermodal services .....	4-24
Recommendation #3: Facilitate shippers’ early-stage use of the rail network .....	4-24
Recommendation #4: Utilize existing rail Infrastructure .....	4-24
Recommendation #6: Balance long-term planning of large projects with near-term improvements for existing shippers.....	4-26
Recommendation #14: Enact effective freight transportation land use strategies .....	4-26
Recommendation #16: Support BNSF service in Nevada.....	4-27
Recommendation #17: Focus on fundamental performance measures for improving Nevada’s rail system .....	4-28
G. Nevada State Rail Plan Regions.....	4-28
G-1. Region 1: Clark County .....	4-31
Overview .....	4-31
Key Strategies .....	4-32
Regional Development Authority.....	4-39
The regional Development Authority contact for this region is Perry Ursem of the Las Vegas Global Economic Alliance.....	4-39
G-2. Region 2: Lincoln County .....	4-39
Overview .....	4-39
Key Strategies .....	4-40
Regional Development Authority.....	4-42
The regional Development Authority contact for this region is Jeff Fontaine, Lincoln County Regional Development Authority. ....	4-42
G-3. Region 3: Nevada Northern Railway .....	4-42
Overview .....	4-42
Key Strategies .....	4-43
Regional Development Authority.....	4-46
The regional Development Authority contact for this region is Sheldon Mudd, Northeastern Nevada Regional Development Authority. ....	4-46
G-4. Region 4: I-80 Corridor .....	4-46

Overview .....	4-46
Key Strategies .....	4-47
<i>Regional Development Authority</i> .....	4-53
The regional Development Authority contact for this region is Sheldon Mudd, Northeastern Nevada Regional Development Authority or Humboldt Development Authority .....	4-53
G-5. Region 5: Fernley/Hazen/Fallon/Silver Springs/Innovation Park.....	4-53
Overview .....	4-53
Key Strategies .....	4-55
<i>Regional Development Authority</i> .....	4-69
The regional Development Authority contact for this region is Rob Hooper, Northern Nevada Development Authority. ....	4-69
G-6. Region 6: Reno/Sparks/Stead .....	4-69
Overview .....	4-69
Key Strategies .....	4-70
<i>Regional Development Authority</i> .....	4-79
The regional Development Authority contact for this region is Nancy McCormick, Economic Development Authority of Western Nevada. ....	4-79
G-7. Region 7: Mina Branch .....	4-79
Overview .....	4-79
Key Strategies .....	4-80
<i>Regional Development Authority</i> .....	4-86
The regional Development Authority contact for this region is Sean Rowe, Mineral County District Attorney. ....	4-86
G-8. Region 8: Beatty/Pahrump .....	4-86
Overview .....	4-86
Key Strategies .....	4-86
<i>Regional Development Authority</i> .....	4-89
The regional Development Authority contact for this region is Paul Miller, Nye Co & Esmeralda Regional Economic Development Authority. ....	4-89
Summary—Nevada Freight Rail Strategic Plan.....	4-89

## Chapter 4 Figures

Figure 4-1: Nevada Active Mines Overview .....	4-10
Figure 4-2: Nevada Strategic Regions .....	4-30



Figure 4-3: Region 1 - Clark County .....	4-33
Figure 4-4: Region 1 – Black Mountain Industrial Complex Area.....	4-35
Figure 4-5: Region 1 – North Las Vegas Area .....	4-36
Figure 4-6: Region 1 – Nellis Area .....	4-37
Figure 4-7: Region 2 - Lincoln County .....	4-41
Figure 4-8: Region 3 - Nevada Northern Railway .....	4-44
Figure 4-9: Region 4 - I-80 Corridor .....	4-49
Figure 4-10: Region 5 – Industrial Parks .....	4-58
Figure 4-11: Region 5 – Pyramid Commercial.....	4-59
Figure 4-12: Region 5 – Victory Logistics District .....	4-60
Figure 4-13: Region 5 – TRI II .....	4-61
Figure 4-14: Region 5 – NNIC.....	4-62
Figure 4-15: Region 5 – SSOF .....	4-63
Figure 4-16: Region 5 – Hazen NW .....	4-64
Figure 4-17: Region 5 – Hazen South.....	4-65
Figure 4-18: Region 5 – Innovation Park.....	4-66
Figure 4-19: Innovation Park (Inset) .....	4-67
Figure 4-20: Fernley Northeast Area .....	4-68
Figure 4-21: Region 6 – Reno/Sparks/Stead .....	4-73
Figure 4-22: Region 6 – Reno Stead Area .....	4-75
Figure 4-23: Region 6 – Reno Parr Area.....	4-75
Figure 4-24: Region 6 – Sparks Yard Area .....	4-76
Figure 4-25: Region 6 – Sparks Southeast Area .....	4-77
Figure 4-26: Region 6 – Sparks Northeast Area .....	4-78
Figure 4-27: Region 7 – Mina Branch .....	4-83
Figure 4-28: Region 8 – Beatty/Pahrump Area .....	4-89

## Chapter 4 Tables

Table 4-1: Nevada Long-Term Industrial Employment Projection from 2016-2026 .....	4-11
Table 4-2: GDP contribution of Mining Equipment, Technology and Services Sector .....	4-16
Table 4-3: METS Case Study 2 – Darwin, Northern Territory.....	4-17
Table 4-4: Freight Rail Service Recommendations.....	4-23
Table 4-5: Performance Measures .....	4-28
Table 4-6: Region 1 – Project List .....	4-37
Table 4-7: Region 1 – Active Mines .....	4-38
Table 4-8: Region 2 – Project List .....	4-42
Table 4-9: Region 2 – Active Mine.....	4-42
Table 4-10: Region 3 – Project List .....	4-45
Table 4-11: Region 3 – Active Mines .....	4-45
Table 4-12: Region 4 – Project List .....	4-51
Table 4-13: Region 4 – Active Mines .....	4-51
Table 4-14: Region 5 Industrial Parks Under Development.....	4-54
Table 4-15: Region 5 Project List .....	4-68
Table 4-16: Region 5 – Active Mines .....	4-69

Table 4-17: Region 6 – Project List .....	4-79
Table 4-18: Region 6 – Active Mines .....	4-79
Table 4-19: Region 7 – Project List – One- to Four-Year Horizon.....	4-84
Table 4-20: Region 8 – Project List – Five- to Twenty-Year Horizon .....	4-84
Table 4-21: Region 7 – Active Mines .....	4-85

## Chapter 5 Table of Contents

Chapter 5 The State’s Rail Service and Investment Program .....	5-3
---	-----

## Chapter 5 Tables

Table 5-1: Rail Service and Investment Program Freight Project List, All Regions–Four-Year Horizon.....	5-4
Table 5-1a: Union Pacific Railroad suggested additions to Nevada Rail Service and Investment Program Freight Project List.....	5-7
Table 5-2: Rail Service and Investment Program Freight Project List, All Regions–Five to Twenty-Year Horizon .....	5-7
Table 5-3: Rail Service and Investment Program Passenger Project List, All Regions–Four-Year Horizon	5-8
Table 5-4: Rail Service and Investment Program Passenger Project List, All Regions–Five- to Twenty-Year Horizon .....	5-9
Table 5-5: 2021 Nevada Statewide Transportation Improvement Program (STIP) List .....	5-11

## Chapter 6 Table of Contents

Chapter 6 Coordination and Review .....	6-3
A. Approach to Public and Agency Participation .....	6-3
B. Coordination with Neighboring States .....	6-3
C. Involvement of Stakeholders in the Preparation and Review of the State Rail Plan.....	6-5
D. Issues Raised During Preparation of the NVSRP and Their Consideration .....	6-7
E. Recommendations Made by Participants .....	6-7
F. Coordination with Other Planning Functions .....	6-7
F.1 U.S. Department of Defense Strategic Rail Corridor Network (STRACNET) .....	6-8

## Chapter 6 Table of Figures

Figure 6-1: STRACNET and Defense Connector Lines .....	6-9
Figure 6-2: STRACNET in Nevada.....	6-10



## Appendix Table of Contents

- 1. Nevada Inventory of Industry: Businesses with Sidetracks and Nearby Truckload Shippers**  
The first of the baseline statewide studies conducted for the NVSRP was the creation of a comprehensive list of all existing sidetracks in the state, to include private sidetracks and Union Pacific's sidetracks that do not appear to be regularly used to support UP's linehaul or switching operations and are therefore potentially available for use by shippers. Included in this list are truckload shippers without sidetracks but who are located next to active rail right-of-way. .... 4
- 2. Nevada Truckload Shippers**  
The second of the baseline statewide studies conducted for the NVSRP was the creation of a comprehensive list of all existing industrial buildings that appear to receive or ship in truckload lots, but are not already included in Appendix 1, making these facilities candidates for intermodal or transloading service from the railroad. Some already utilize intermodal or transloading service from the railroad. Some are located near active rail right-of-way..... 22
- 3. Nevada Active Mines 2019**  
This list of active mines was prepared and provided by the Nevada Bureau of Mines and Geology. . 33
- 4. Nevada State Rail Plan Catalogued Stakeholder Groups**  
This appendix is an overview of the groups interviewed or the areas of concentration researched in contacting stakeholders in the creation of the NVSRP. .... 36
- 5. Nevada State Rail Plan Stakeholder List**  
This appendix identifies the names of 260+ persons who were interviewed in the creation of the NVSRP. (Persons contacted in the creation of Appendix 1 are listed separately in Appendix 7.) ..... 39
- 6. Nevada State Rail Plan IntelliConference Synthesis**  
Over two weeks in early April 2020, 81 Nevada transportation and planning-related stakeholders participated in the Opening Nevada State Rail Plan online IntelliConference. The responses were on the whole thoughtful and well-developed. This Digest version, Part 1, is highly condensed to offer the reader an overview of Round One of the IntelliConference. The longer Summary version, Part 2 offers the reader a wider range of stakeholder perspectives. You can also use this Digest version to find your way to specific areas of interest. The links in blue will lead you to the page containing the wider set of stakeholder responses in the Summary version..... 46
- 7. Nevada Shipper Interviews List**  
This appendix identifies persons contacted in the creation of Appendix 1, which sometimes entailed a personal visit and sometimes entailed a telephone call. .... 95
- 8. Land Development Progress Assessment Form**  
Each of the developers in Region 5 who is in the process of creating a new industrial park was requested to fill out a Land Development Progress Assessment form. The completed forms were used to supplement information in Chapter 4 about Region 5. This appendix is a sample of a blank form..... 99

<b>9. Fernley Multimodal Freight Facility Feasibility Study</b>	
The feasibility study researched the achievability and practicality of developing a multimodal freight facility, qualified Fernley as the optimal location, and assessed the potential economic impact on the surrounding region.....	103
<b>10. Nevada State Rail Plan Mapping Process</b>	
The NVSRP uses maps as the central tool for understanding a system that is as geographically and topographically based as railroads.....	193
<b>11. Funding Resources and Strategies</b>	
Now more than ever, railroads will require new customer infrastructure projects to be presented fully funded and with well-conceived business plans that include realistic requirements of physical and operational interface. This section addresses these project funding requirements. ....	262
<b>12. Rail Electrification Council Statement on Nevada Rail Electrification .....</b>	<b>272</b>
<b>13. Rail Plan Public Comments Record .....</b>	<b>278</b>

## List of Abbreviations

Acronym	Definition
AAR	Association of American Railroads
3PL	Third-Party Logistics
ABS	Automatic Block Signals
ADA	Americans with Disabilities Act of 1990
ARRA	American Recovery and Reinvestment Act of 2009
BLM	U.S. Bureau of Land Management
BNSF	Burlington Northern Santa Fe Railway
BTS	Bureau of Transportation Statistics
BTU	British Thermal Unit
CBP	U.S. Customs and Border Protection
CCJPA	Capitol Corridor Joint Powers Authority in California
CFS	Commodity Flow Survey
COFC	Container on Flat Car
CRA	Community Reinvestment Act
CSI	Customer Service Index
CTC	Centralized Traffic Control
DC	Distribution Centers
DOD	U.S. Department of Defense
EPA	Environmental Protection Agency
FAC	Nevada Freight Advisory Committee
FAF	Freight Analysis Framework
FCA	Fernley Catchment Area
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GDP	Gross Domestic Product
HDL	Hoover Dam Limited
HVDC	High Voltage Direct Current
ICTF	Intermodal Container Transfer Facility
IMCTF	Integrated Multimodal Cargo Transfer Facility
IRS	Internal Revenue Service
L RTP	Long-Range Transportation Plan
LTL	Less-than-Truckload freight
METS	Mining Equipment, Technology and Services
MPO	Metropolitan Planning Organization
MTMC	Military Traffic Management Command
NDOT	Nevada Department of Transportation
NNDA	Northern Nevada Development Agency
NNRDA	Northeastern Nevada Regional Development Authority
NNRY	Nevada Northern Railway

<b>Acronym</b>	<b>Definition</b>
NRS	Nevada Revised Statutes
NTSB	National Transportation Safety Board
NVSRP	Nevada State Rail Plan
O/D	Origin - Destination
OTP	On Time Performance
P3s	Public-Private Partnerships
PABs	Private Activity Bonds
PFC	Passenger Facility Charges
PGA	Partnering Governing Agencies
PIP	Performance Improvement Plan
PRIIA	Passenger Railroad Investment and Improvement Act of 2008
PSR	Precision Scheduled Railroading
PTC	Positive Train Control
RailPAC	Rail Passenger Association of California and Nevada
REC	Rail Electrification Council
ReTRAC	Reno Transportation Rail Access Corridor
ROIC	Return on Invested Capital
RONIC	Return on New Invested Capital
RPA	Regional Planning Association
RSIP	Rail Service and Investment Program
RTC	Regional Transportation Commission
SLUPAC	Nevada State Land Use Planning Advisory Council
SPTC	Southern Pacific Transportation Company
SRPAA	State Rail Plan Approval Authority
SRTAA	State Rail Transportation Authority
STCC	Standard Transportation Commodity Code
STIP	Statewide Transportation Improvement Program
STP	State Transportation Plan
STRACNET	Strategic Rail Corridor Network - Dept of Defense
STTAC	Statewide Transportation Technical Advisory Committee
SWARS	Southwest Association of Rail Shippers
TIP	Transportation Improvement Program
TNC	Transportation Network Company (Rideshares)
TOD	Transit Oriented Development
TOFC	Trailer on Flat Car
TRIC	Tahoe Reno Industrial Center (former name of Innovation Park)
TWC	Track Warrant Control
U.S.C.	United States Code
UPRR	Union Pacific Railroad
USDA	U.S. Department of Agriculture
VCA	Value Capture Assessment
VMT	Vehicle Miles Traveled

Acronym	Definition
WASHTO	Western Association of State Highway and Transportation Officials
WSFC	Western States Freight Coalition

## Glossary of Terms

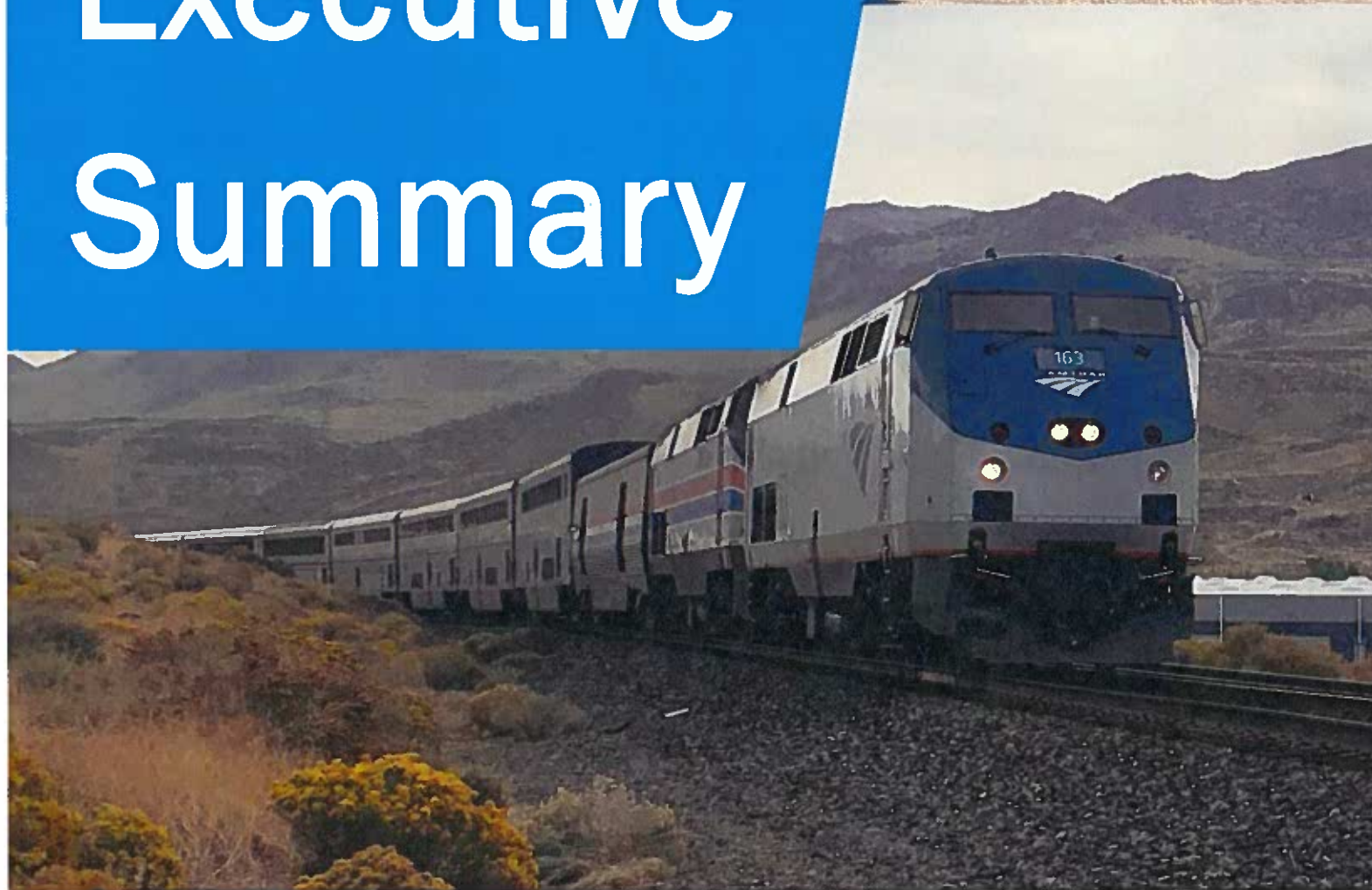
Term	Definition
Automatic Block System (ABS)	Signal system that controls the movement of trains between segments of track (blocks) with automatic signals
Beneficiation	creating additional local jobs and economic activity in subsequent stages of the value chain of an existing business sector
Branch Line	a long RR-owned and maintained track off of a main line that reaches sidetracks
Centralized Traffic Control (CTC)	Train signal system that consolidates train movement decisions in a centralized train dispatching office
Class I Railroad	US common carrier RR with over \$448 million in annual revenue (goes up annually)
Class II Railroad	US common carrier RR with \$36-to-\$448 million in annual revenue (goes up annually)
Class III Railroad	US common carrier railroad with less than \$36 million in annual revenue (goes up annually)
Common Carrier	a railroad certified for operation by the STB that is subject to FRA safety regulations
FRA	Federal Railroad Administration--the federal agency with rail safety authority (rail OSHA)
Freight Analysis Framework (FAF)	Freight statistics produced by a partnership of the Bureau of Transportation Statistics (BTS) and the Federal Highway Administration (FHWA)
Industrial Lead Track	a short RR-owned and maintained track off of a main line that reaches sidetracks
Intermodal Trains	freight train of flatcars loaded with containers and trailers at specialized intermodal yards
Local Train	train of mixed freight based in a serving yard to pick up and drop off cars at private sidetracks
Main Line	long RR-owned and maintained track(s) that extend between major metropolitan areas or major yards
Manifest Train	train of mixed freight with blocks of cars destined for different classification yards
Nevada Revised Statutes (NRS)	Current codified laws of the State of Nevada
Nevada SIB	Nevada State Infrastructure Bank
Positive Train Control (PTC)	automatically stops trains to prevent excessive speeds, collisions, and derailments
Precision Scheduled Railroading (PSR)	Improving operating ratios by operating fewer trains with the greatest number of cars and tonnage possible on schedules that minimize intermediate switching events
Rails to Trails	Abandoned railroads converted to trails for recreational use
Regional Railroad	informal term for a railroad of medium size in customers, network miles and carload volumes

<b>Term</b>	<b>Definition</b>
Restricted Access main line	Union Pacific Railroad term for a major main line off of which new sidetracks are restricted
Shortline Railroad	informal term for a railroad of small size
Sidetrack	a track that is not used to reach other tracks or to switch cars, but to load/unload cars
Standard Transportation Commodity Code (STCC)	a publication, with seven-digit numeric codes for each commodity, containing specific product information used on waybills and other shipping documents
STB	Surface Transportation Board--the federal regulatory agency with authority over railroads
Team Track	a RR-owned & maintained track that is open to use by the general public under RR rules
Track Warrant Control (TWC)	Verbal authorization for a train to operate on un-signalized track between two designated locations
Transit Oriented Communities	Residential communities developed around a transit facility
Transit Oriented Development (TOD)	Commercial, Residential, Retail development built adjacent to or as part of transit facilities
Unit Train	freight train of one car type carrying one commodity between large handling facilities





# Executive Summary





## Introduction

Nevada, like many states, has railroads at the heart of its modern development, with Reno, Sparks, Las Vegas, Caliente, Winnemucca, and many other towns founded with the arrival of rail. While railroads are hardly top of mind in the 21<sup>st</sup> century, reconnecting with their value to a well-working, sustainable society is key to Nevada's future.

When people in the United States are asked about railroads the almost universal response proceeds down a dual path. One is that people immediately think about passenger rail, not freight rail, wondering aloud why the U.S. doesn't have beautiful trains like Europe or Asia. The second path is where they share their latent enthusiasm for trains in general. While the paucity of passenger train service in the U.S. provides one impression of rail in our country, people are usually surprised to learn that the U.S. freight rail system, unlike our passenger rail system, is a global leader.

Yet, in spite of this leadership, North America shares a dynamic with the rest of the world, wherein freight railroads' market share of land transportation lags problematically behind truck transport.<sup>1</sup> The early 20<sup>th</sup> century saw the U.S., which already benefited from a privately owned rail network of 254,000 miles, choose to make direct public investments toward a system of roads for both passengers and freight. While this road network has supported massive population and industrial growth, its public subsidization has been a major influence on the rail system's contraction to 134,000 route miles. The Nevada rail system has receded from its 1914 peak of 2,422 miles to its current 1,193 miles while the state's population and industrial activity continue to expand.

The Nevada State Rail Plan (NVSRP) has been created in support of Nevada's commitment to creating a balanced transportation system that moves goods and people sustainably.

## Purpose of this Plan

The Nevada Department of Transportation (NDOT) determined in 2019 to commission a new Nevada State Rail Plan that exceeds basic federal requirements. NDOT's goal was to update the state rail plan by meeting the FRA requirement of assessing Nevada's current rail system and highlighting what an efficient freight and passenger transportation system could do when aligned with these goals of the One Nevada Transportation Plan:

**Enhance Safety:** Expanded use of rail will improve safety due to the inherently safer mode of rail transportation.

**Preserve Infrastructure:** Less freight traffic by truck will reduce wear and tear and maintenance expense of state and federal highways.

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<sup>1</sup> North American Transborder Freight Data. (2018, March 16). ([source link](#))

**Optimize Mobility:** Utilizing and planning for an efficient rail infrastructure will optimize mobility of people and goods.

**Transform Economies:** As local communities around the state expand industrial development a rail plan will add to the success of their economies.

**Foster Sustainability:** Creating an efficient transportation system will help limit emissions and improve air quality.

**Connect Communities:** Illuminating rail options throughout the state enables both passenger and freight connectivity between communities.

The NVSRP updates the 2012 Nevada state rail plan with a new approach to public-sector transportation planning that:

- Engages with the economic development community and the private sector from the outset to create and implement commercially relevant plans
- Addresses the marketplace dynamics that have led to a shrinking rail network and service in Nevada
- Identifies growth opportunities for freight rail that the private-sector business and investment community are attracted to fund
- Builds on existing rail assets and private-sector initiatives to grow passenger rail transportation
- Supports the sustainability of Nevada's industrial development and transportation

The NVSRP has been created with the input of over 270 Nevada stakeholders from government, industry, and the community. It is a strategic plan that will be continuously refined and advanced with ongoing input from these stakeholders.

## Goals of the 2021 Nevada State Rail Plan

- Integrate rail and truck transportation for logistics services that capitalize on the strategic location of the state and its businesses
- Mitigate the negative transportation impacts of industrial development and population growth on the environment and communities
- Integrate freight transportation with strategic land-use planning
- Develop options for the efficient transportation and distribution of minerals and bio-resources and their return logistics for recycling, reuse, and re-manufacturing
- Improve the safety of freight rail transportation
- Explore how the state can leverage private-sector passenger rail initiatives and expand Amtrak service
- Provide a structure for ongoing rail project support
- Establish a public/private funding mechanism for new rail infrastructure

## Key Findings

Traditional rail plans are packed with freight rail data. Counter-intuitively, it is trucking data that is most useful in a rail plan. Truck shipment data provides critical visibility into the bulk of a region's freight activity, illuminating the path toward an ideal truck-rail balance. The 2021 Nevada State Rail Plan is informed by a thorough analysis of rail and truck freight data.

### Data Has to be Analyzed and Applied, Not Just Charted

Data must be analyzed for commercial relevance to identify specific logistics opportunities and consequently the new markets that can be reached for distribution and sourcing of goods and materials. The NVSRP shares these insights with the stakeholders who can most effectively utilize the information — economic development agencies, land developers, shippers, planners, and transportation providers. These key stakeholders can then apply the insights to advance their business growth opportunities.

### Key Data Findings

- Currently, there is only one warehouse in Nevada actively using a rail siding
- 77% of freight tonnage is carried by trucks
- 70% of trucks in the entire state are moving to or from CA
- 4% of ground freight moving in the state is by rail to or from Nevada businesses
- Most shippers located along rail rights of way do not use rail
  - 41.4% of privately owned sidetracks are not used
  - 96.4% of Union Pacific Railroad (UP) owned sidetracks not needed for linehaul or switching operations are not used
  - 139 truckload shippers located *adjacent to* a UP track could readily build a private sidetrack but have not done so
  - 500+ truckload-quantity shippers *near* rail lines do not use rail

### Key Observations

- Rail routes consist of three east-west main lines, a few branch lines, and no shortlines.
- Intermodal and carload rail service between Nevada and California is limited.
- Intermodal and carload rail service between Nevada and the rest of the country is limited.
- Rail service between Nevada businesses is practically non-existent at just 644 railcars a year.
- There is no regional passenger rail service in Reno or Las Vegas.
- Rail infrastructure and service in Nevada is not keeping up with the growth in warehousing, distribution, and industrial development.
- Rail service in Nevada is 83% through traffic and primarily serves commerce outside the state, except for a few large shippers in the state.

- Since 70% of the trucks moving in and out of Nevada are coming from or going to California, and the boom in warehousing and manufacturing is occurring north and east of Las Vegas and north and east of Reno, increasing truck traffic through the two most populated areas in the state on I-15 and I-80 is problematic.
- Land developers and economic development executives who have not typically focused on the importance of rail logistics are enthusiastically considering passenger and freight rail.

## Primary Opportunities

The NVSRP has been organized to facilitate eight rail-development regions and teams. Strategies for each region are listed below. Eighty (80) rail expansion projects offering an investment opportunity of \$7.8B are listed in *Chapter 5, The State's Rail Service and Investment Program*. These projects involve both passenger rail and freight rail, and horizons of either near-term (1-4 years) or long-term (5-20 years).

- **Region 1.** (Clark County) Redevelop Black Mountain Industrial Center as a rail-served heavy-industry site, connect existing truckload shippers to rail, support land developers in orienting around rail, and develop new regional passenger rail services.
- **Region 2.** (Lincoln County) Establish transload facility for Pozzolan and other commodities.
- **Region 3.** (Ely-North to W. Wendover [White Pine County; some Elko County]) Aggregate shipper needs into a viable redevelopment strategy for the Nevada Northern Railway.
- **Region 4.** (I-80 Corridor, Lovelock to W. Wendover) Create corridor-wide, rail-based land development strategy for I-80 communities, establish freight rail connections with California market and ports, and expand Amtrak services.
- **Region 5.** (TRIC-Fernley-Hazen-Fallon-Silver Springs) Support private-sector freight-rail served developments including investment in an integrated multimodal cargo transfer facility in the Fernley area, and establish public transportation service between Reno, Sparks, and the Tahoe-Reno Industrial Center.
- **Region 6.** (Reno-Sparks-Stead) Focus on connecting existing truckload shippers to rail service.
- **Region 7.** (South of Silver Springs to Beatty) Reestablish civilian freight-rail service to Hawthorne Army Depot, build a truck-to-rail transload facility at Hawthorne, and address the need for local rail service with a transload facility in the Yerington/Wabuska area.
- **Region 8.** (South of Beatty) Set the stage for rebuilding the rail line from Hawthorne to Clark County by strengthening rail service south from Hazen to Hawthorne and then integrating the freight needs of existing and prospective mines between Hawthorne and southern Nevada into a viable rail service plan.
- **Regions 1-8.** Implement the Mining Materials Supply Chain Logistics Strategy for all regions, then for all nine primary Nevada commodity groups.

## Recommendations

The NVSRP's Recommendations are designed to be implemented in their entirety, in a coordinated, integrated sequence. The following 17 recommendations comprise a systematic solution to the challenge of optimizing the use of rail for Nevada's economic expansion and environmental improvement. It is more productive and efficient to transform a system all at once. Each recommendation is accompanied by a link to its coverage in the NVSRP. (Note: Links will be live in final document)

	Recommendation	Page Location	Agency
1	Expand Nevada freight rail service to and from California and points east	<a href="#">Blueprint for Action Approach #12, xxvii</a>	NDOT/GOED
2	Initiate and expand new intermodal services	<a href="#">Chapter 4, p28</a>	NDOT/GOED
3	Facilitate shippers' early-stage use of the rail network	<a href="#">Chapter 4, p28</a>	RDA
4	Preserve and utilize existing rail assets, including branch lines / industrial lead tracks	<a href="#">Chapter 4, p28</a>	RDA
5	Develop rail operating plans that serve local Nevada	<a href="#">Blueprint for Action Approach #5, vii</a>	RDA
6	Balance long-term project planning with near-term improvements for existing shippers	<a href="#">Chapter 4, p30</a>	RDA
7	Aggregate shippers' needs into corridor plans through the state freight plan	<a href="#">Blueprint for Action Approach #11, xi</a>	GOED/RDA
8	Co-locate new rail shippers in industrial parks when sensible	<a href="#">Chapter 4, p58</a>	RDA
9	Provide rail-informed expertise to shippers and land developers	<a href="#">Chapter 4, p23</a>	RDA
10	Provide financing solutions for all-size rail infrastructure	<a href="#">Chapter 4, p23</a>	GOED/RDA
11	Evaluate freight movement data for meaningful commercial opportunities	<a href="#">Blueprint for Action Approach #4, xxvii</a>	RDA
12	Facilitate collaborative dialogue among suppliers, customers, transportation providers, developers, and citizens	<a href="#">Blueprint for Action Approach #2, v</a>	RDA
13	Initiate rail-served supply chain planning and add to the state freight plan	<a href="#">Chapter 4, p8</a>	NDOT /GOED/RDA
14	Enact freight transportation land use strategies	<a href="#">Chapter 4, p30</a>	State Lands
15	Establish Partnership with UPRR and BNSF	<a href="#">Blueprint for Action Approach #12, xxvii</a>	NDOT/GOED
16	Support BNSF expansion in Nevada	<a href="#">Chapter 4, p31</a>	RDA
17	Fundamental Performance Measures for Improving Nevada's Rail System	<a href="#">Chapter 4, p32</a>	NDOT/GOED

## Implementation

The NVSRP tackles the chronic challenges to state rail plan implementation:

- 1) Funding for rail infrastructure
- 2) Follow-up organizational structure and commitment
- 3) Regional marketplace dynamics that throttle rail expansion

The balance of this Executive Summary highlights the elements of the NVSRP that address these implementation challenges. The sections are: Funding Perspectives, and the California-Nevada Supply Chain Alliance.

### Funding Perspectives

#### Freight

NDOT, in commissioning this production of the NVSRP, recognizes that freight-rail development is essentially a private-sector activity. Producing results as a public-sector agency is a function of facilitation, not capitalization. Fortunately, plentiful funding is available from the private sector that stands to gain from rail development. The NVSRP and its stakeholders have positioned rail development as an attractive investment opportunity at a time when global investors are actively seeking investments in North American rail infrastructure. The NVSRP is a guide for responding to that interest. Nevada is ideally poised to support the new national imperatives to re-shore manufacturing and shorten supply chains. Investors will be attracted to fund rail construction as well as the business developments served by this new infrastructure.

The State's Rail Service and Improvement Program for freight as presented in Chapter 5, lists \$740,300,000 as the total costs of connecting rail infrastructure to 53 currently identified rail growth projects. Where limited public dollars must be responsibly stewarded to address multiple community needs, an amount of this magnitude is typically viewed as a cost, rather than as an opportunity. The NVSRP, recognizing that there is ample private-sector capital for all rail growth projects in Nevada, relates to this funding need as an attractive set of business investment opportunities, rather than as a burden.

#### Passenger

As described in Chapter 3, passenger rail services can reduce traffic congestion, energy consumption, and pollution while improving Nevada's economy and employment opportunities. While most of the freight-rail expansion projects can be funded with private investment, passenger-rail expansion requires significant commitment of public support in all forms.

Public financing from both state and federal sources have traditionally funded rail-passenger projects around the United States. More recently there has been a re-awakening of private financing for passenger rail at levels not seen since the early 20<sup>th</sup> century. The Brightline West high-speed rail service to be built between Las Vegas and Southern California deploys over \$5B in private financing justified by ticket revenues from a projected ridership of over 10 million passengers a year.



The use of existing infrastructure in other rail-passenger projects proposed in the NVSRP lowers capital outlay. Successful implementation of these lower-cost projects can be achieved by utilizing three key financial strategies:

- **Public-Private Partnerships (or P3s)** to plan, finance, design, construct, improve, maintain, operate, or acquire the rights of way for a transportation facility using private financing and matching public funding.
- **State Infrastructure Bank** - The enabling legislation for the Nevada State Infrastructure Bank (“Nevada SIB”) was signed into law June 2017 (NV AB-399)<sup>2</sup>; however, the Bank has not been capitalized. Capitalization of the Nevada SIB would aid the development of rail infrastructure in Nevada.

### California-Nevada Supply Chain Alliance

The NVSRP focuses on the supply chain relationships between Nevada and California that must be addressed to make meaningful improvements in Nevada. NDOT can step into a key leadership role in establishing the *California-Nevada Supply Chain Alliance*.

The California-Nevada Supply Chain Alliance deploys an organizational model for businesses, governments, and communities throughout a region to engage in whole-systems transportation and land-use planning and investment. Following is the rationale for this alliance:

- California is the 5<sup>th</sup> largest economy in the world, after the U.S., China, Japan, and Germany.
- Truck traffic is increasing in both states as California’s supply chain has expanded into Nevada for warehousing, distribution, and production.
- Currently, 70% of all trucks traveling in Nevada are coming from or going to California.
- There are many commercial and economic opportunities that can best be cultivated with an informed redesign of the land transport system between the two states of Nevada and California.
- Currently, aggregates and non-metallic minerals are the two largest commodities trucked from Nevada to California, generating over 500,000 empty return truckloads a year.
- One of the most valuable logistics opportunities for both states is the development of a Fernley-area facility to transload farm and food products from domestic trucks traveling primarily on I-15 through Las Vegas from other states to the Ports of Los Angeles and Long Beach into international containers and then moved by rail to the Port of Oakland, addressing many California issues.
- Improving the stability and profitability of the trucking industry along with the quality of professional and personal life of its drivers is a key opportunity.

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<sup>2</sup>Nevada Assembly Bill 399, [source link](#), effective June 2017.

- Rail rights of way between the two states may be useful for connecting new electric generation in Nevada to the California marketplace.
- Neither the marketplace nor government alone has the power to implement this new level of supply-chain coordination.
- Supply chains are shortening. Local and regional supply chains enabled by rail are needed to add resilience and mitigate the environmental impact of freight movement.
- These large-scale strategies for stable, whole-systems investment will be extremely attractive to major infrastructure investors.

**Welcome to the 2021 Nevada State Rail Plan.**



A landscape photograph of a desert valley. In the foreground, a highway with a guardrail runs along a hillside covered in dry, yellowish-brown vegetation. To the right of the highway, a set of railroad tracks curves through the valley. In the background, there are rolling hills and mountains under a cloudy sky. A large blue banner is overlaid on the left side of the image, containing the title text.

# BLUEPRINT FOR ACTION

*Introducing the Strategy of the  
Nevada State Rail Plan*

## Table of Contents

Introduction .....	xvii
New Challenges Require New Approaches to Rail Planning .....	xviii
1. Plans are for Action .....	xviii
2. A System for Collaboration.....	xix
3. Rail and Roads are One System .....	xix
Rail and Trucking .....	xx
4. Truck Data is as Valuable as Rail Data in a Rail Plan .....	xx
Covid-19 Challenges Require Data that Supports an 18-Month Economic Recovery Plan .....	xxi
5. Service Through the State is Different than Service to the State .....	xxi
State Rail Plans Should Prioritize Projects that Serve the State .....	xxi
6. Every Local Transportation Project is a National Project .....	xxi
It is More Effective to Include All Elements and All Stakeholders .....	xxii
Inclusion Amasses Synergy and Attracts Capital.....	xxii
7. The Right Tools Make the Right Data Actionable .....	xxii
Innovative Data Tools Custom-Designed for Statewide Rail Development .....	xxii
Geography as The Organizing “Hub” of Diverse Datasets .....	xxiii
Effective Facilitation Tools for Regional and Statewide Teamwork .....	xxiii
New Online Tool Shifts Stakeholder Input to Stakeholder Dialogue .....	xxiii
8. It is Time to Plan Supply-Chain Systems, not Just Projects .....	xxiv
An Example: The Mining Materials Supply Chain Logistics Strategy .....	xxiv
Supply Chains Extend Beyond State Borders—California is Key for Nevada.....	xxiv
The California-Nevada Supply Chain Alliance .....	xxv
9. Logistics Can Drive Economic Development.....	xxv
Rail Transportation is as Relevant as Ever to Nevada Growth.....	xxv
10. Freight Transportation is Inseparable from Land Use Planning .....	xxvi
Freight Transportation Land Use Strategies Make Sense.....	xxvi
11. Capital is Available for All Well-Conceived Projects .....	xxvii
Regional and Corridor Rail Business Development Plans .....	xxvii
12. Union Pacific Railroad and BNSF are Likely to Partner in this Coherent Statewide Rail Development Plan .....	xxvii
Reconnecting Shippers to Rail Through Facilitation and Education.....	xxviii
The Nevada State Rail Plan is Right on Time.....	xxviii
13. Shifting from Planning to Action: Perpetuating Momentum .....	xxviii
Your Invitation to Contribute .....	xxix



# BLUEPRINT FOR ACTION

## How Nevada will Deliver Results from Its New State Rail Plan

### Introduction

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Rail route mileage in the United States reached its peak in 1916 at 254,000 miles.<sup>1</sup> After a steady retreat over the following hundred years, the active network has shrunk to 137,000 miles in 2020.<sup>2</sup> Intercity passenger rail service, once a mainstay of national life, has been reduced to a handful of long-distance trains, and for close to 80% of the nation's towns and cities trucks are the only surface freight transportation mode.<sup>3</sup> Of all the freight moving in, out, and through Nevada, only 4% is hauled by rail to or from a Nevada business.<sup>4</sup> In spite of highway congestion and air quality issues that could be alleviated by the energy, capital, and space efficiency of moving freight and people by rail, the United States continues to bear the costs and consequences of more and more cars, trucks, and buses.

#### **Why have state rail plans failed to shift the ongoing imbalance in surface transportation modal share between trucks, cars, buses, and trains?**

The 2021 update of the 2012 Nevada State Rail Plan begins with that question. Before any public-sector sponsored planning or policy endeavor can transform a marketplace dynamic, previous attempts must be evaluated with an open mind. While America's over-reliance on cars and buses for passenger transport rather than trains is often discussed, the parallel and ongoing expansion of truck-centric supply chains is barely examined. Despite the earnest efforts of many knowledgeable staff within departments of transportation in every state and the federal government, the cost to our society of this growing imbalance remains unaddressed by either the marketplace or public policy. Though the United States has perhaps the most robust freight rail system in the world, attracting revenue of about \$80 billion a year<sup>5</sup>, trucking is an \$800 billion-a-year industry.<sup>6</sup>

The Nevada Department of Transportation (NDOT) chose to take a new path in state rail planning that not only meets federal requirements but creates a rail development plan that immediately begins advancing economic opportunities in Nevada. From the outset, the commitment has been to create a new future for transportation in the state, not simply a moment-in-time report based on projections as if the future is already determined by past trends.

This plan has been informed by the experiences of freight and passenger stakeholders, local and state officials, business and community leaders, and NDOT's rail plan advisors, Strategic Rail Finance (SRF). SRF

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<sup>1</sup> RailServe.com: , [source link](#), accessed July 10, 2020.

<sup>2</sup> Federal Railroad Administration, [source link](#), accessed July 10, 2020.

<sup>3</sup> Source: Darren Roth, American Trucking Association, Interviewed by Author, September 27, 2019.

<sup>4</sup> STB Waybill Sample 2018; TRANSEARCH® Truck Data 2018

<sup>5</sup> IBISWorld: , [source link](#), accessed July 10, 2020.

<sup>6</sup> American Trucking Association: , [source link](#), accessed July 10, 2020.

prepared for this innovative approach by analyzing over 100 state rail plans while overseeing funding of rail projects in 40 states during the past 25 years.

The Nevada State Rail Plan is built on the following 13 innovations in state rail planning — necessary for creating a new future for transportation. This interrelated set of innovations constitute a breakthrough approach for improving a state’s rail infrastructure and economy, grounded in the strengths of collaboration, inclusion, and trust. Looming environmental and congestion issues demand this shift to an approach that empowers business, government, and community leaders to collaborate toward a balanced freight and passenger transport system.

## New Challenges Require New Approaches to Rail Planning

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### 1. Plans are for Action

#### *Create Plans and Planning Documents that Are Continually Enhanced by Stakeholders*

One of the distinctive design features of this state rail plan is that stakeholders stay engaged to collaborate and contribute to the document’s continual evolution and implementation. This is contrary to a plan document that is fixed in time at its submittal. A second unintended obstacle to implementation that is being addressed is the federal content requirement that results in a document so unwieldy that most are never read again. Therefore, NDOT is submitting three integrated plans to the Federal Railroad Administration:

1. **Update of the 2012 Nevada State Rail Plan:** Addresses all requirements of the Federal Railroad Administration’s 2013 State Rail Plan guidance
2. **A Freight Rail Strategic Plan:** Will be continually expanded by Nevada stakeholders, included in its entirety as Chapter 4
3. **A Passenger Rail Strategic Plan:** Will be continually expanded by Nevada stakeholders, included in its entirety as Chapter 3

There are several practical reasons why it is important to distinguish between a passenger rail plan and a freight rail plan. Passenger rail development in the United States is typically a public-sector subsidized activity as fares rarely generate an operating profit, let alone cover capital expense. The economic and environmental benefits of passenger rail service warrant this support. Freight rail development, however, always serves private-sector businesses, for whom freight rail service is an integral element of their profit-making endeavors. They require different approaches and strategies. And for the most part, the stakeholders and interested outsiders for the two rail activities are distinct. It is, therefore, more productive to direct readers to the strategic plan that most touches their lives or businesses. Where passenger rail development is conceived to run on freight rail rights-of-way, the two systems can then be evaluated, imagined, and planned in concert.

The possibilities for passenger rail development in Nevada are focused at this time on new commuter rail service in the Reno-Sparks and Las Vegas metro areas, and enhancements in the form of new stations and scheduling of Amtrak’s “California Zephyr Route” along the I-80 corridor. Outside of the two metropolitan areas, Nevada’s rural population is largely dependent on long-distance personal vehicle travel. The high cost and low utilization of new passenger rail infrastructure in low-density rural areas precludes

development of rail passenger options across much of Nevada unless existing freight or excursion lines can be adopted for passenger rail development.

Meanwhile, recent progress points toward an attractive private sector sponsored passenger high-speed rail option for travel between Southern California and Las Vegas by 2023. The incorporation of this development into Nevada's rail network not only realizes a long-proposed goal of direct intercity passenger service, but it opens exciting opportunities to develop commuter rail service into Las Vegas.

On the other hand, vastly increasing freight traffic from the state's growth in mining, bio-resource development, manufacturing, and warehousing calls out for development of expanded freight rail options. Readers will note that much of this Blueprint for Action applies to innovations in freight rail development. The Passenger Rail Strategic Plan is presented in its entirety in Chapter 3.

## **2. A System for Collaboration**

### ***Institute a New Framework for Public-Private Collaboration***

From the outset, SRF and NDOT took on creating a plan that expands and improves upon typical stakeholder engagement. SRF, with NDOT's significant participation, has conducted in-depth dialogues with 235 (and counting) stakeholders from every related public- and private-sector arena. In many cases the dialogues have led to second and third conversations. These conversations continue to illuminate the challenges, opportunities, and needs particular to Nevada's regions and industries that would not otherwise be discerned.

### **Regional, Cross-Agency, and Cross-Industry Teams**

The NVSRP organizes Nevada into eight regions distinguished by a combination of geography, governing jurisdictions, and operating characteristics of each section of the rail network. This structure facilitates effective stakeholder collaboration on rail-based economic development in each region. The 450+ stakeholders catalogued within the NVSRP database are organized by region, industry, and/or public service role so that group dialogues can be conducted with the most appropriate stakeholder representatives. This degree of specificity demonstrates respect for stakeholders' time and energy, which engenders trust and participation.

## **3. Rail and Roads are One System**

### ***Integrate to Make the Optimal Use of Each Mode***

The NVSRP's central goal is to enable as much future freight traffic to move by rail as is practical. The point is not to limit the viability or success of the trucking industry. While encouraging the expansion of rail service, Nevada cannot afford to pit highway, air, pipeline, and railway transport modes against each other, either in public policy or the marketplace. Integration and coordination for maximum efficiency and utilization of assets must now guide planning and investment. When rail mileage in the United States reached its peak in 1916 at 254,000 route miles it became clear that an expanded road network to and from rail stations was needed.<sup>7</sup> The nascent trucking industry and the highly developed rail industry were made to compete rather than cooperate for commercial and policy attention. Our country continues to pay the price of that failure to coordinate and integrate, as the U.S. rail system only carries 38.2% of the

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<sup>7</sup> Bureau of Transportation Statistics, [source link](#), accessed July 10, 2020.

land freight ton-miles.<sup>8</sup> Little effort to develop a symbiotic relationship between rail and highway carriers has been put forth in the United States.

### **Rail and Trucking**

Rail transportation is neither the only method for moving heavy weight over land, nor the best way in all cases. NDOT will continue to engage with the local and national trucking industry to explore how improved rail service can be conceived to also improve the stability and profitability of trucking companies, and the quality of work-life for truck drivers.

For a more environmentally sound, commercially viable transportation system, Nevada's economic recovery and future growth can best be served by an improved balance between the rail and trucking modes. According to the USDOT Bureau of Transportation Statistics, 17.8 billion tons of freight were transported by all modes within the United States in 2015. Ten percent was carried by rail while 65% was carried by truck. By 2045, U.S. freight transport is expected to grow 40% to 25 billion tons annually.<sup>9</sup> Over-reliance on truck transportation for this new volume will have increased adverse impacts on pollution and traffic congestion in Nevada.

The goal is not, as is often stated, to "take trucks off the road." Truck transportation is a critical component of goods movement that should be integrated with its complementary transportation partner — railroads. But given each mode's relative impact on energy consumption, emissions, highway congestion, safety, road maintenance costs, noise, light pollution, and land use, sensible planning is now critical. Achieving a new sustainable balance will require thoughtful integration alongside useful competition. The only way to advance this level of collaborative, shared success between trucking and railroading is to create it together. All who read this document are welcome to contribute the next word, suggestion, or concern. It is the inclusion of all perspectives that leads to wise public policies and sustainable commercial activity.

## **4. Truck Data is as Valuable as Rail Data in a Rail Plan**

### ***Focus on Freight Data that Informs Economic Progress for Nevada***

Traditional rail plans are packed with freight rail data, but to what end? How can that data be used to improve a state's rail system? It represents freight movements that are already successfully moving by rail, with routings, frequency, and rates that work for shippers. Are there improvements that this data can point to? Perhaps, but not much. Counter-intuitively, it is trucking data that is most useful in a rail plan. Truck shipment data provides critical visibility into the bulk of a region's freight activity, illuminating the path toward an ideal truck-rail balance. The 2021 Nevada State Rail Plan is informed by a deep dive into rail and truck freight data.

### **Data Has to be Analyzed and Applied, Not Just Charted**

Data within reports takes commercially relevant analysis to identify specific logistics opportunities, and consequently the new markets that can be reached for distribution and sourcing of goods and materials. The NVSRP shares these insights with the stakeholders who can most effectively utilize the information — economic development agencies, land developers, shippers, and transportation providers. These key stakeholders can then apply the insights to identify potential tenants and business growth opportunities.

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<sup>8</sup> Bureau of Transportation Statistics, [source link](#), accessed July 10, 2020.

<sup>9</sup> Bureau of Transportation Statistics, [source link](#), accessed July 10, 2020.

### **Plan for What is Wanted, Not What Seems Inevitable**

The 2021 Nevada State Rail Plan transforms the fundamental notion of state rail plans from simply accepting the inevitability of a future based on past data to instead proactively designing a new future. Otherwise, why invest intellect and capital in plans based on data projections that echo the past? Now is the time to apply commercially relevant data analysis to set a new course for optimal benefit to business and society.

### **Covid-19 Challenges Require Data that Supports an 18-Month Economic Recovery Plan**

The Nevada State Rail Plan update had already been oriented toward immediate and near-term results. That approach is now even more relevant in light of the Covid-19 economic downturn. This follows the Nevada Governor's Office of Economic Development's transition of its long-term statewide plan into an 18-month recovery plan. Data that is used to project 20 to 40 years into the future has limited utility at the best of times. At this moment, the NVSRP is focused on projects that answer Nevada's urgent need for economic stimulus. Given the aggressive pace of land development underway in the state, it is important to act now to foster rail-served growth, thereby minimizing the consequent social costs while maximizing the benefits of rail transportation to Nevada's businesses and economy.

## **5. Service Through the State is Different than Service to the State**

### ***Focus on the Needs and Opportunities of In-state Businesses and Citizens***

Gaps in public policy along with Wall Street pressure have inadvertently encouraged a Class I railroad business model that focuses on long-haul goods movement with limited local pick-up and delivery. In many states, local rail service has been assumed by shortline and regional rail companies that have acquired parts of the rail network from Class I operators. Nevada has no such Class II and III rail providers. Consequently, of all the rail traffic in Nevada, 83% passes through the state without stopping.<sup>10</sup>

### **State Rail Plans Should Prioritize Projects that Serve the State**

While it is critical to ensure that this long-haul rail traffic transits Nevada safely and efficiently, it is vitally important that businesses and communities in the state benefit from more direct rail connections and transloading opportunities. Union Pacific Railroad and BNSF, the two rail carriers of this long-haul traffic, operate responsibly while paying millions in property and fuel taxes to the state. That said, in order to move toward a rail system that better serves the state, the NVSRP focuses on projects that benefit shippers and land developers located in the state.

## **6. Every Local Transportation Project is a National Project**

### ***Include all Shippers, Properties, Projects, and Regions***

The very nature of transportation is that it is not confined to the geographic boundaries of individual businesses, projects, or regions. Goods movement flows from business to business, state to state, and country to country. This flow demands that we evaluate how individual projects relate to the whole system from origination to destination of the shipments. The popular focus in national transportation investment on "Projects of National Significance" must be informed by the fact that there are no projects

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<sup>10</sup> Nevada Department of Transportation, "Nevada Freight Program Assessment Statewide", page 3-17, [source link](#), accessed July 10, 2020.

of national significance without many projects of local significance. The vision of effective transportation planning and investment must include every region and as many stakeholders and projects as possible. And given the outsize impact that transportation has on communities and the environment, it is important to include stakeholders that are impacted by the system, not just those directly using the system.

### **It is More Effective to Include All Elements and All Stakeholders**

The 2021 Nevada State Rail Plan process began with a commitment to include the entire state in the effort. Indeed, this has proven to be not only achievable, but effective. This commitment to inclusion has led to in-depth interviews with 235 stakeholders and an additional 141 shippers, an in-person inventory of the entire state's rail network, and extensive use of satellite imagery. This has proven to be an effective method for the identification of 1) every rail siding in the state, 2) every truckload shipper in the state, and 3) every non-rail shipper located adjacent to a rail line.

With this much on-the-ground intelligence, economic development plans can be based on actual pragmatic business opportunities that may be challenging to serve by rail independently, but when aggregated, provide the volume on which to base successful infrastructure and service investments.

### **Inclusion Amasses Synergy and Attracts Capital**

Because public funding for transportation infrastructure has its limits, accepted logic has called for state rail plans to prioritize only the most valuable projects and regions. Decision-making within this mindset of scarcity understandably deploys ranking, comparing, and voting as decision-making practices. When then, are the "lesser" ranked projects and their communities supported and funded? *Given that there is ample private-sector capital available for all worthwhile freight rail infrastructure investments, all projects, communities, and regions should be included.* The NVSRP is grounded in the understanding that transportation is a system, best served when all parts are included in comprehensive growth and improvement plans. In fact, the viability of local rail operations is enhanced by the number and diversity of customers, large and small. Inclusion of all opportunities improves the feasibility, and therefore the fundability of rail development plans. Every region, town, business, and project counts, and they have all been identified, catalogued, and included in the NVSRP.

## **7. The Right Tools Make the Right Data Actionable**

### ***Provide Stakeholders with a Complete Set of Rail Development Tools***

Raw data that informs is one level of usefulness; data made accessible and applicable is another. The tools that NDOT and SRF have developed empower stakeholders to contribute to statewide rail development. The NVSRP is built around leveraging each stakeholder's professional and civic vantage point for contributing to Nevada's rail development.

### **Innovative Data Tools Custom-Designed for Statewide Rail Development**

These data tools identify the following:

- All active and non-active rail sidings in the state
- All truckload shippers in the state
- All truckload shippers located adjacent to a rail line
- All commercial projects that could benefit from expanded rail service



- All location data includes addresses and contact information. This catalogued data is accessible to the NVSRP management team, stakeholders, and interested third parties through an interactive database, spreadsheets, and digital mapping system.

### **Geography as The Organizing “Hub” of Diverse Datasets**

Rail lines extend for miles across political jurisdictions, topographical features, and geographic elements. The NVSRP’s first-of-its-kind 15-layer mapping system displays the location and contact info for each data category listed above, plus the exact routing of the entire rail network in relation to existing properties, buildings, topography, and landscape features. This mapping system has already led to the correction of unexamined thinking about where new rail lines in Nevada can and cannot be routed to provide rail service to important industrial properties and regions. Accurate geographical representation is a core component of the NVSRP “Mapping System,” but the tool’s versatility exceeds that basic function. An array of datasets is digitally layered onto the geographical rendering that includes property ownership, Opportunity Zone designations, truck, and rail shipper locations, and more so that stakeholders can further invent productive uses of the comprehensive information. This data organization, reliability, and transparency provide a robust platform for stakeholder deliberation.

### **Effective Facilitation Tools for Regional and Statewide Teamwork**

The challenge of orchestrating coordination and collaboration across regional, cross-agency, and cross-industry teams has been addressed by the NVSRP with a suite of new tools and approaches. One key is the segmentation of the state’s rail system and relevant data into eight logical regions. This enables stakeholders to focus their team efforts on local rail development. Statewide dialogues can also be convened cross-agency and/or cross-industry because data and stakeholder roles are clearly identified. For instance, the identification of all locations, companies, academia, and public sector staff involved in the mining industry facilitates productive convening of conversations around mining logistics.

### **New Online Tool Shifts Stakeholder Input to Stakeholder Dialogue**

This regional and statewide teamwork is made practical by an innovative, online, time-saving program for multi-stakeholder dialogue. The program design accommodates stakeholders participating asynchronously, on their own schedules, from the convenience and safety of their remote locations. This inquiry-based dialogue methodology, called IntelliConference, has been provided by a nonprofit transportation policy development organization, *OnTrackNorthAmerica*, founded and led by the principals of Strategic Rail Finance. The IntelliConference system facilitates asynchronous online summits of stakeholder representatives for efficient gathering of collective input and intelligence. The IntelliConference methodology also supports real-time, in-person and virtual summits. With each successive summit, new points of view are added to an ongoing dialogue that incorporates diverse perspectives. This methodology puts into practice cutting-edge research in civic and large-group engagement.

As a complement to these summits, the NDOT Rail website at [www.nevadadot.com/mobility/rail-planning](http://www.nevadadot.com/mobility/rail-planning) serves as a portal for ongoing multi-stakeholder input. All participating stakeholders and interested observers can follow this evolving process. The website also serves as the platform for compiling and cataloguing relevant reports, projects, plans, and events.

## 8. It is Time to Plan Supply-Chain Systems, not Just Projects

### *Apply a Supply-Chain System Approach to Transportation Planning*

Nevada's early rail lines, as with much of the West, were first and foremost envisioned as part of expansive supply chains. The country's seemingly infinite supply of natural resources drove the need for a sophisticated set of industrial supply chain solutions, resulting in a vast build-out of the national rail network in 19<sup>th</sup> century America. Before individual local projects were conceived and built, an entire corridor or region as a supply chain system was envisioned. James J. Hill, the respected railroad builder of the Great Northern Railway, in 1878, envisioned a complete supply chain approach when evaluating the opportunity of sixteen hundred miles of undeveloped forest and mineral resources between St. Paul and the Pacific Ocean. His supply chain approach to railroad development, typical of the era's rail leaders, has long been supplanted by a narrow focus on proximal returns. Nevada's early rail line development was informed by this grasp of supply chains, from mine to factory and from farm to table. The NVSRP advances a plan that reinstitutes supply chain logistics strategies.

### **An Example: The Mining Materials Supply Chain Logistics Strategy**

Nevada's mining industry is surging, yet under-utilizing rail transportation. The rail network in the state has contracted from its 1914 peak of 2,418 route miles to its current 1,190 route miles.<sup>11</sup> This track is almost exclusively main line along I-80 and I-15 with just a few branch lines. The mining industry in Nevada, like almost all industries, is comprised of entities that largely operate independently. However, significant economic efficiencies for these enterprises can be gained by planning the logistics of incoming and outgoing materials collaboratively, and as a complete supply chain system.

Conceiving rail infrastructure around the needs and opportunities of individual businesses, and then integrating those needs into comprehensive plans can deliver a major advancement in transportation efficiency, increased profitability, and supply-chain sustainability. This logistics strategy is presented thoroughly in Chapter 4, including its application to other key industrial sectors in Nevada. The NVSRP team has explored the creation of the Mining Materials Supply Chain Logistics Strategy with the Nevada Mining Association, the Nevada Bureau of Mines, the University of Nevada Mackay School of Earth Sciences and Engineering, and leading mining companies in the state. All parties have been open to building a successful strategy.

### **Supply Chains Extend Beyond State Borders—California is Key for Nevada**

Rail plans for each state must pinpoint the adjacent or distant states that are its most significant supply-chain partners. Freight logistics between these states have mostly evolved in a vacuum of planning. As a result, commercial land development for warehouse and distribution facilities in Nevada that primarily serves California has led to only one warehouse in Nevada utilizing rail.<sup>12</sup> The California-Nevada commerce driving this demand has become so robust that 70% of all trucks in Nevada are coming from or going to California. Since this truck-centric growth is predominantly occurring east and south of Las Vegas, and east and north of Reno-Sparks, the resultant increase in California-related traffic passing through these two major metropolitan areas is exacerbating highway congestion, safety concerns, and air quality

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<sup>11</sup>This figure on route miles is based on two sources:

(a) Union Pacific Railroad, Nevada Fact Sheet, [source link](#), accessed July 10, 2020.

(b) American Association of Railroads, Freight Railroads in Nevada Fact Sheet, [source link](#), accessed July 10, 2020.

<sup>12</sup>Sourced from current [Google Earth](#) data, accessed May 2020.

challenges. Additionally, snow on I-80 at the Donner Pass—the only east-west truck route through the Sierra Mountains, often delays truck movements, adding to the uncertainty and costs of freight transportation for businesses in both states.

### **The California-Nevada Supply Chain Alliance**

Nevada rail-based economic development can advance more sustainably if informed by productive engagement with California’s public agencies, port authorities, economic developers, businesses, communities, and transportation providers. The NVSRP team has initiated that process, identifying and engaging California stakeholders, including Caltrans, for this two-state supply-chain approach. The NVSRP envisions establishing the **California-Nevada Supply Chain Alliance** as a breakthrough in multi-state, results-producing supply-chain transportation planning.

## **9. Logistics Can Drive Economic Development**

### ***Integrate Rail Planning with Economic Development***

Across the country transportation departments and economic development agencies work independently on matters that co-influence rail development. The gap between their efforts has widened even further due to the reduction of Class I railroad staff assigned to coordinate with these public-sector entities. Rail-served economic development has been overlooked and transportation efficiency has suffered as a result. This dynamic is at the root of untold missed opportunities yet presents an ideal opening for significant rail-aided economic development growth. How many industries have an entire infrastructure of public sector agencies established to support their success? Almost every state’s department of transportation, as well as the U.S. government, have “rail departments” charged with supporting rail industry service and safety. Now is the time for a new era of coordination and collaboration among these transportation departments, economic development agencies, local planners, transportation providers, shippers, and communities. Covid-19 challenges have brought to light the critical importance of efficient supply chains. With environmental issues still looming large, we must develop lower impact supply chains for not only medical supplies, but all goods movement.

### **Rail Transportation is as Relevant as Ever to Nevada Growth**

Nothing in the 175-year history of railroading in Nevada or in the United States has rendered it any less vital to a sound economy and healthy communities. There are no new technologies on the horizon, including autonomous trucks, for replacing railroads as a low-impact, sustainable method of moving people and heavy freight over land. America’s early 20<sup>th</sup> century adoption of roads and individual vehicles as the primary focus of transportation investment has not diminished railroads’ enduring efficiency.

Increasing population and industrial development stimulates ongoing growth of manufacturing and distribution, and therefore transportation. Making the most efficient use of the wheel can deliver cascading benefits to the rest of the transportation system and indeed the economy, environment, and quality of community life. Nevada will experience significant gains from orienting its economic recovery plans around a rail-based economic and environmental improvement strategy.

## 10. Freight Transportation is Inseparable from Land Use Planning

### *Bridge the Divide Between Land Use Planning and Freight Transportation*

Developable land, along with clean air and water, is now recognized as a valuable resource with decreasing availability. Nevadans are quick to point out that 86% of the state is already owned by the federal government through the Bureau of Land Management, Department of Defense, Department of the Interior, or the U.S. Forest Service. Continued population and economic growth necessitate that we make the best use of limited land and space for moving goods and people. Given the compelling differential in the amount of space it takes to move goods on highways versus railroads (27 miles of trucks are needed to move the same goods as a one-mile train) a balanced, efficient system requires land-use planning that recognizes externalized impacts.<sup>13</sup> Since freight-oriented development stimulates long distance movement of goods and employees, the focus of land-use planning needs to now be as much on travel to and from a property as on the activities that take place at the property. Land use planning for freight-oriented development requires integration with supply chain and transportation planning, so that the use of each property leads to the most efficient movement of goods and people in the overall system.

### **Freight Transportation Land Use Strategies Make Sense**

Land-use planning guided by zoning regulations and codes has long been an accepted practice in residential and commercial development and passenger transportation. There is much to be gained by instituting a parallel set of land-use practices in industrial development and freight transportation. Doing so maximizes commercial productivity while minimizing use of land for roads. Ultimately, it is effective land-use planning that will decrease the impact of goods movement on the environment.

Akin to the municipal regulations that communities enact to preserve land along beautiful lakefronts for appropriate uses, there is a common sense that land along rail rights-of-way should be preserved for rail-served commercial development. The NVSRP team worked with the Nevada State Land Use Planning Advisory Council and the Nevada Association of Counties toward a strategy for most efficiently locating commercial, logistics, and transportation facilities within new and existing road and rail systems.

The purpose of this strategy is the following:

- Make the best use of land for moving goods while limiting industrial and residential sprawl
- Expand freight capacity while lessening transport congestion
- Lower the carbon footprint of goods movements
- Minimize noise and visual pollution
- Maximize accessibility to the most efficient freight transport mode as possible for as many of the state's communities and businesses

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<sup>13</sup> A mile-long train contains about 81 railcars, each with a 200K pound tare weight, totaling 16.2 million pounds. Tractor trailer tare weights are typically 40K pounds, requiring 405 trucks to carry the same weight. 65 MPH equates to 95 feet per second, requiring 617 feet of safe following distance per truck (1 second per 10 MPH), plus the typical tractor trailer length of 65 feet = 682.5 total feet per truck, times 405 trucks = 276,412 total feet = 52 miles of safely spaced trucks. Adjusting for typical driving habits, using 285 feet following distance, or 350 feet including rig length x 405 trucks = 27 miles; See "The Rule of Seconds – Calculating Safe Following Distances" by Allen, Allen, Allen, & Allen, [source link](#).

## **11. Capital is Available for All Well-Conceived Projects**

### ***Connect Private-Sector Capital with Rail Development***

State government should not have to fund freight rail development as railroads and shippers are engaged in private-sector, income-producing enterprise that can attract private-sector funding. Infrastructure investors and lenders now holding hundreds of billions of dollars in investment capital will be attracted to fund individual projects within the NVSRP's commercially relevant planning approach. The NVSRP team has initially identified over 50 private-sector business projects across the state that require enhanced rail service for their success. These initiatives include substantial new or expanding mining and agriculture operations and major land-development projects. Rather than applying the same approaches necessary for funding publicly owned roads and highways, limited public-sector dollars can be leveraged with private capital to foster the success of these private-sector businesses.

### **Regional and Corridor Rail Business Development Plans**

Truck service is ubiquitous because society provides road infrastructure as a public service to shippers and transportation providers. Almost any size project with a large or small logistics need is accommodated from the outset, as if roads were a fundamental economic right. Freight rail service, on the other hand, requires an early stage return to the railroads to justify the upfront and ongoing costs of building, maintaining, and operating each segment of rail line to connect with individual shippers or receivers. Funding many individual freight rail projects in Nevada is made feasible when the infrastructure build-out is planned to serve a coherent aggregation of projects and customers within a region or corridor. The NVSRP is focused on building these regional and corridor rail-based economic development plans because the marketplace by itself does not foster the required collaboration. Yet, when discussing the idea of collaboration with individual project sponsors, the response has been thoroughly positive. Even the idea of sharing new proprietary rail facilities with other businesses in the same or different industries has been received with enthusiastic interest. Local public planners and economic developers in the state have also been appreciative of the opportunity to collaborate with other agencies, towns, counties, and business developers in support of shared regional interests.

The eight regions of the NVSRP have been conceived around segments of Nevada's rail network that lend themselves to feasible, regional approaches to rail service expansion. The trust engendered by NDOT and the NVSRP team leaders has prompted collaboration among stakeholders toward rail development plans that will attract not only the capital required for new construction, but also the requisite partnerships with Union Pacific Railroad and BNSF.

## **12. Union Pacific Railroad and BNSF are Likely to Partner in this Coherent Statewide Rail Development Plan**

### ***Present Rail Service Providers with an Innovative and Compelling Action Plan***

This is the most important innovation in the Nevada State Rail Plan. NDOT must continue to advance a statewide, business-savvy plan for modern rail development that is financially attractive to Union Pacific Railroad and BNSF. The high level of attention that railroads once gave to local shipper business development can now be reinstituted with the assistance of NDOT. Nevada's surging industrial development, increasing sourcing of strategic minerals and bio-resources, sustainable energy sourcing,



and adjacency to California represent a rail logistics opportunity of significant proportion. Stakeholders in both states will benefit as a result of this rail-enabled commercial activity. Union Pacific and BNSF will more readily engage with the flexibility required to reinvent local and regional rail service in the best interests of small- and large-town America.

### **Reconnecting Shippers to Rail Through Facilitation and Education**

Rail shipper development requires an exchange of not only information, but deeper education, oftentimes beginning with the fundamental aspects of railroading, so that logistics decisions and projects can advance through the Class I railroads' rigorous vetting. Otherwise, faced with rail's complexities and mysteries, logistics decisions will automatically default to the increased use and cost of trucks.

### **The Nevada State Rail Plan is Right on Time**

Union Pacific Railroad's and BNSF's openness to Nevada rail development resonates with current rail-industry dynamics and world affairs. Class I railroads have a renewed interest in 1) serving the growing North American consumer economy<sup>14</sup>, 2) supporting the reshoring of U.S. manufacturing<sup>15</sup>, and 3) contributing to a better-balanced market share with trucks. Their adoption of Precision Scheduled Railroading presents new possibilities for adding less-than-unit-train freight volumes to scheduled manifest (mixed freight) trains. Additionally, the rail industry's focus on longer lengths of haul that has diminished service between California and Nevada is shifting back to include shorter lengths of haul in feasible lanes. Both Union Pacific and BNSF are exploring the development of new intermodal "inland ports" with shuttle trains to and from west coast ports. Growing export volumes are also increasing the practice of transloading the contents of international containers into domestic trailers prior to inland transit, ensuring quicker return of scarce 40-foot containers. Nevada is ideal for locating these inland logistics hubs.

Advancing local rail service requires coordination with numerous economic development entities, public agencies, governing bodies, land developers, and businesses that can make smarter logistics-related decisions within a statewide collaborative effort than if engaged individually.

## **13. Shifting from Planning to Action: Perpetuating Momentum**

### ***NVSRP Transitions to a New Organizational Model for Public/Private-Sector Collaboration***

Public- and private-sector staff are weary of plans that are not implemented, only to be updated years later before steps are taken to rectify the shortcomings that led to inaction on the previous plans' goals.

It is never enough to create studies and plans — it is the execution of plans that produces results. Typically, this is where state rail plans falter, no matter how useful and well-intentioned they may be.

The stewards of the state rail plan implementation will have primary responsibility for the following:

- Convening and facilitating stakeholders as partners in plan implementation

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<sup>14</sup> Railway Age Podcast: 'The Future of Freight' with CN's JJ Ruest, [source link](#), published May 29, 2020.

<sup>15</sup> Reshoring Initiative, Reshoring Initiative 2018 Data Report, page 2, [source link](#), accessed July 10, 2020.

*Excerpt: "2018 the combined reshoring and related foreign direct investment (FDI) announcements remained strong, adding more than 145,000 jobs, with an additional 36,000 in revisions to the years 2010 through 2017. This brings the total number of announced manufacturing jobs brought to the U.S. from offshore to over 757,000 since the manufacturing employment low of 2010."*

- Educating and guiding stakeholders for maximum effectiveness
- Leading the vision for progressive rail development
- Managing the elements of plan execution
- Delivering logistics and railroad advisory services
- Maintaining a large set of community and commercial relationships
- Establishing Nevada Rail Development Fund
- Facilitating corridor and regional multijurisdictional, multistakeholder rail service development strategies
- Recruiting and managing specialized experts

## Your Invitation to Contribute

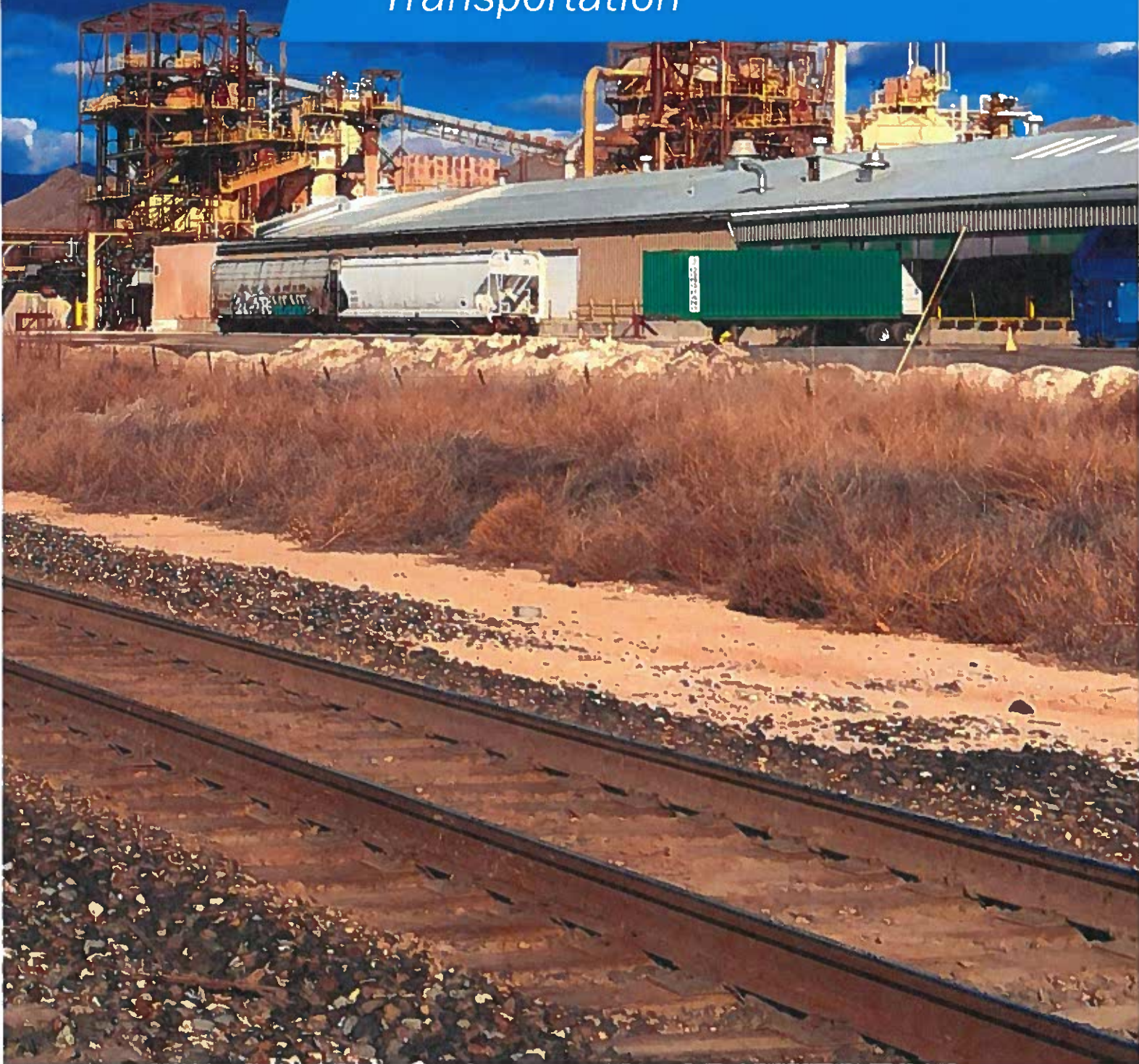
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This Blueprint for Action introduces the foundational principles around which the new Nevada State Rail Plan has been developed. Your knowledge, perspectives, and/or accountabilities likely render you a stakeholder in Nevada rail development. You are, therefore invited to contribute to all aspects of this plan.



# CHAPTER 1

*The Role of Rail in Statewide  
Transportation*





## Chapter 1 Table of Contents

Chapter 1 The Role of Rail in Statewide Transportation (Overview) .....	1-3
A. Introduction .....	1-3
B. The State's Goals for the Multimodal Transportation System .....	1-4
C. Nevada's Rail Transportation System Overview .....	1-5
D. Institutional Governance Structure of the State Rail Program .....	1-7
D-1. Nevada Department of Transportation .....	1-7
Rail Planning Section .....	1-7
Railroad Safety Program .....	1-8
Nevada Freight Advisory Committee (FAC) .....	1-8
E. The State's Authority for Grant, Loan, and Public/Private Partnership Financing .....	1-8
E-1. State Infrastructure Bank .....	1-8
E-2. Public-Private Partnerships ("P3s") .....	1-9
E-3. Private Activity Bonds .....	1-10
F. Nevada's Freight and Passenger Rail Agencies, Initiatives, and Plans .....	1-10
F-1. Transportation Agencies .....	1-10
Nevada Department of Transportation .....	1-10
F-2. Regional and Local Public Entities .....	1-11
Metropolitan Planning Organizations .....	1-11
Regional Economic Development Entities .....	1-11
F-3. Nevada Transportation Plans .....	1-12
Nevada State Freight Plan .....	1-12
One Nevada Transportation Plan .....	1-12
Nevada Statewide Transportation Improvement Program .....	1-12

## Chapter 1 Figure

Figure 1-1: Nevada Rail Network .....	1-6
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## Chapter 1 The Role of Rail in Statewide Transportation (Overview)

### A. Introduction

Nevada is one of the nation's fastest growing states as measured by population and economic activity. This is the result of successful state and local government policies to attract residents and businesses to the employment, quality of life, and economic opportunities offered by the Silver State. Economic and population growth brings many benefits to the state's residents. An increased tax base supports urban and rural development, improving health, housing, and economic opportunity for all Nevadans. These benefits fuel a virtuous circle attracting ever more residents and businesses to the state and increasing revenues which in turn supports the development of a sustainable and inclusive economy.

As Nevada's residents and businesses have benefited economically and socially from this expansion the growth has brought new challenges for the state to address. Increasing road traffic is contributing to higher levels of traffic congestion and lower air quality. The state's air quality is challenged by weather patterns like drought and events like wildfires, which are increasing in frequency and intensity in many areas due to climate change. Nevada has the 46<sup>th</sup> lowest overall air quality in the nation<sup>1</sup> and Clark County/Las Vegas is regularly cited for its poor air quality.<sup>2</sup> Polling during the 2020 Nevada Caucus identified healthcare as the number one concern of the state's citizens and the environment as number two.<sup>3</sup>

Governor Sisolak's Executive Order 2019-22 issued in November 2019 addresses this issue, focusing on reducing carbon pollution to combat climate change caused by greenhouse gas emissions and improving the quality of air Nevadans breathe.

The new Nevada State Rail Plan (NVSRP) focuses on the contribution rail offers for economic development and personal mobility, and how rail mitigates these environmental and congestion challenges. On average, railroads are three to four times more fuel efficient than trucks, so moving freight by rail instead of truck lowers greenhouse gas emissions by up to 75%.<sup>4</sup> Rail investments uniquely deliver a 'double benefit' by meeting development objectives while addressing congestion and environmental challenges.

The Nevada Department of Transportation has embarked on an ambitious effort to have its state rail plan and its subsequent implementation contribute to an improved economy and quality of life for Nevada's citizens.

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<sup>1</sup> America's Health Rankings - United Health Foundation, "Air Pollution By State, 2019 Annual Report", [source link](#).  
*Note: This ranking is based on the average exposure of the general public to particulate matter of 2.5 microns or less measured in micrograms per cubic meter (3-year estimate), sourced from U.S. Environmental Protection Agency; U.S. Census Bureau, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2018.*

<sup>2</sup> American Lung Association, "State of the Air - Most Polluted Cities" page, [source link](#), accessed August 6, 2020.

<sup>3</sup> CBS 8 News Now Las Vegas, "8 News Now/Emerson College poll shows health care, environment are important issues with voters" article, [source link](#), published February 21, 2020.

<sup>4</sup> Association of American Railroads, "Freight Rail & Preserving the Environment" report, [source link](#), published July 2020.

## B. The State's Goals for the Multimodal Transportation System

The Nevada Department of Transportation (NDOT) in its 2020 *One Nevada Transportation Plan* expresses these six key goal areas, which have informed the new Nevada State Rail Plan (NVSRP):

- **Enhance safety** by building, maintaining, and operating the safest transportation system possible.
- **Preserve infrastructure** to support economic vitality, visitor experience, and travel safety.
- **Optimize mobility** to provide convenient and reliable movement of people and goods across all modes.
- **Transform economies** by supporting an innovative transportation framework.
- **Foster sustainability** by lowering long-term maintenance costs, promoting fiscal responsibility, and reducing greenhouse gas emissions from the transportation sector.
- **Connect communities** to local resources and amenities and collaborate with partners to best serve our communities.

*The Nevada Freight Plan*, published in January of 2017, identifies these goals which further inform the new NVSRP:

1. **Economic Competitiveness:** Improve the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness.
2. **Safety:** Improve the safety of the freight transportation system
3. **Advanced Innovative Technology:** Use advanced technology, innovation, competition, and accountability in operating and maintaining the freight transportation system.
4. **Sustainable Funding:** Fully fund the operations, maintenance, renewal, and expansion of the freight transportation system.
5. **Mobility and Reliability:** Provide an efficient and reliable multimodal freight transportation system for shippers and receivers across the state.
6. **Infrastructure Preservation:** Maintain and improve essential multimodal infrastructure within the state.
7. **Environmental Sustainability & Livability:** Reduce adverse environmental and community impacts of the freight transportation system.
8. **Collaboration, Land Use and Community Values:** Establish an ongoing freight planning process to coordinate the freight transportation system and ensure consistency with local land use decisions and community values.

The process of creating the new Nevada State Rail Plan aligns with the vision of statewide collaboration expressed by NDOT's Executive Director, Kristina Swallow, in the *One Nevada Transportation Plan*:

*"Delivering the transportation system, we have collectively envisioned requires a unified effort from NDOT and our partner agencies in both the urban centers and rural areas of the state. From updating our data systems to effectively prioritizing investments and measuring performance against goals, to making effective change in greenhouse gas emissions, collaboration is the catalyst for success. This plan provides the foundation and allows us to adapt in a dynamic environment of technology advances, user needs and preferences, and funding sources and levels."*

NDOT has adopted these specific goals for the NVSRP:

- Enhance rail logistics to optimize the strategic location of the state and its businesses
- Mitigate negative impact of freight logistics on the environment and communities
- Improve passenger mobility through rail passenger projects that utilize existing infrastructure
- Establish smart freight-transportation land use protocols for sustainable economic development
- Improve the safety of rail transportation
- Provide a structure for ongoing rail knowledge and development support
- Establish a public/private funding mechanism for new rail infrastructure and improvements
- Develop options for efficient transportation and distribution of minerals and bio-resources and their return logistics for recycling, reuse, and remanufacturing

### **C. Nevada's Rail Transportation System Overview**

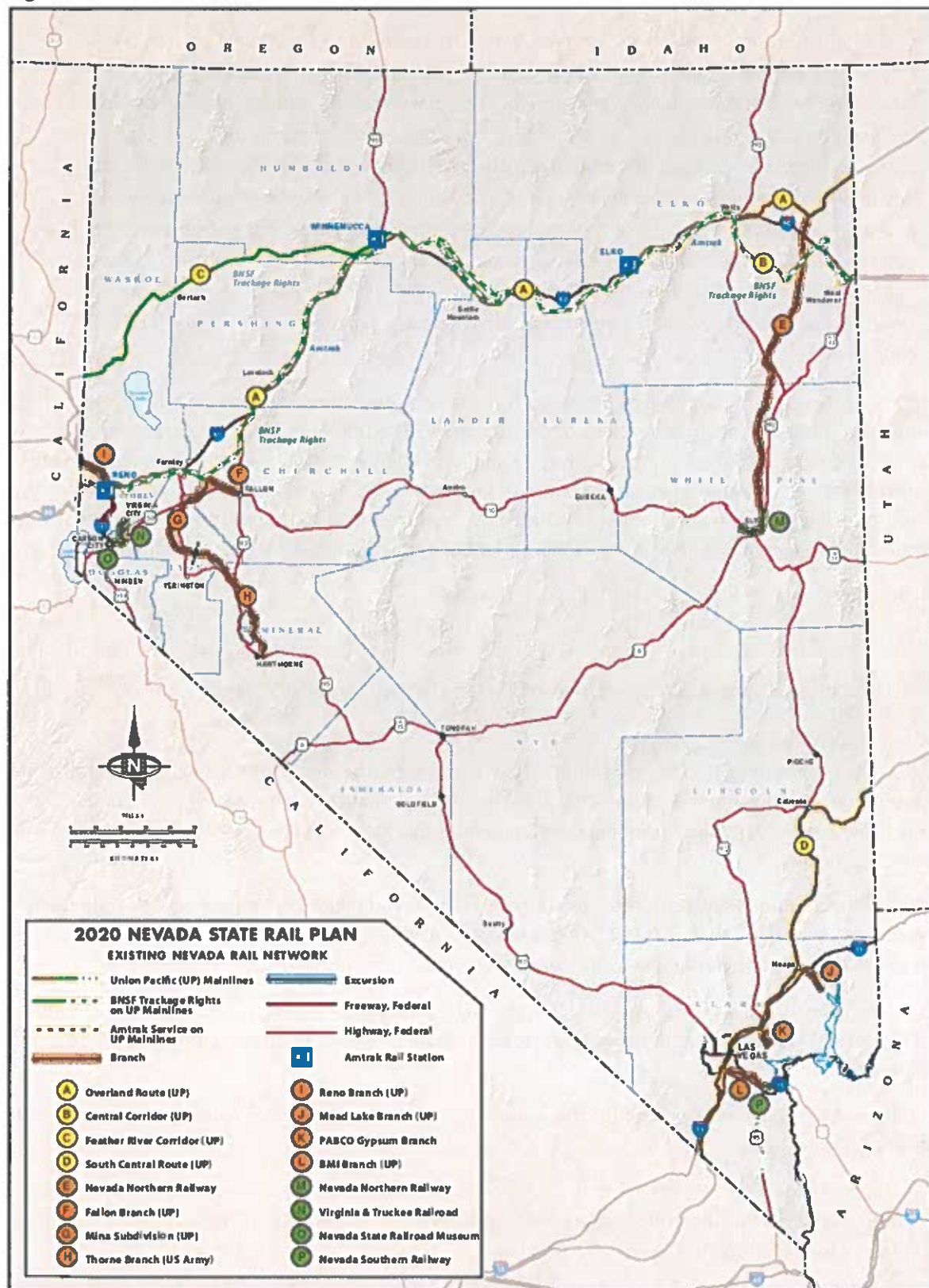
Nevada's geography and historic development patterns have resulted in two primary rail corridors, which generally run east-west across the state, along with a few supplemental branch lines. The Union Pacific Railroad (UPRR) operates both the northern and the southern east-west corridors, as a result of mergers; BNSF Railway (BNSF) has trackage rights on nearly three-quarters of UPRR's Nevada trackage as a condition of the mergers. The two-route northern corridor serves Reno, as well as other northern Nevada communities, and connects with Salt Lake City and Denver to the east and with Sacramento and the San Francisco area to the west. Amtrak operates once-a-day passenger rail service in each direction across this northern Nevada corridor; I-80 generally parallels the rail lines in this corridor. The southern corridor serves Las Vegas and connects it with Salt Lake City to the northeast and with Los Angeles to the southwest. Amtrak discontinued providing service in this corridor some 23 years ago; I-15 generally parallels the single-track rail line in this corridor. The state lacks north-south through rail or interstate highway linkages; thus, Las Vegas is not connected to Reno or with nearby Phoenix to the southeast.

In addition to Nevada's freight and intercity passenger rail services, four tourist railroads operate in the state:

- Virginia & Truckee Railroad
- V&T Railway Commission
- Nevada Northern Railway
- Nevada State Railroad Museum, Boulder City



Figure 1-1: Nevada Rail Network



The NVSRP embraces many of the perspectives expressed in the 2017 Nevada Freight Plan (P 1-7):

*“As in most urban centers in the United States, Las Vegas and Reno have a scattered and fragmented pattern of air, rail, trucking, customs, and other freight service functions, and have never emerged as major freight centers. There are extremely modest intermodal yards in Reno and Las Vegas, as well as a few bulk transloading facilities throughout the state. Although there is major through-railroad activity in Nevada, the trains do not stop in the state and they do not create cost and congestion relief advantages for Nevada shippers going east and west. This fragmented pattern of logistics forces trucks involved in freight movements and transfers through heavily urbanized areas results in conflicts and inefficiencies. This is a major inhibitor to a development-positive rail system that will be needed to further unite the state into the global economy and to increase its logistic function within its western U.S. context.”*

There are no Class II or Class III freight railroads in Nevada. Thus, Nevada's role is one of supporting, coordinating, and enhancing the services of the Union Pacific (UPRR), BNSF, and Amtrak. For example, NDOT commits staff resources to work with state and local highway officials, UPRR personnel, and other key stakeholders to identify needed rail-highway grade crossing projects each year and improve the selected crossings, using federal dollars and a UPRR local match. NDOT's primary objective with this program is to improve the state's quality of life, safety, and environmental/economic sustainability.

A full description of Nevada's railroads follows in Chapter 2.

## **D. Institutional Governance Structure of the State Rail Program**

### **D-1. Nevada Department of Transportation**

The Nevada Department of Transportation (NDOT) is responsible for coordinating the overall state transportation improvement strategy. The department is primarily responsible for rail planning and project development activities, including development of this State Rail Plan. NDOT's headquarters is in Carson City, Nevada.

NDOT is Nevada's State Rail Transportation Authority (SRTA) and (SRPAA). Furthermore, Nevada follows the requirements of 49 U.S.C. §22102, which stipulates eligibility requirements for the FRA rail freight grant assistance program pertaining to state planning and administration.

NDOT is the primary rail planning agency within the state of Nevada. However, NDOT has limited funding authority for rail. It participates in the railroad abandonment process and offers comment on federal rail legislation and rulemaking.

The following are those divisions under the jurisdiction of NDOT which have existing or potential rail-related responsibilities.

#### **Rail Planning Section**

The Rail Planning Section has the primary responsibility for rail planning in Nevada DOT. The office administers various rail-related programs, including:

- Rail policy and legislation development
- Information and communications
- Passenger and freight rail planning

#### *Railroad Safety Program*

- Highway/railroad crossing agreements
- Crossing safety and inspections
- Crossing equipment and road surface maintenance

#### *Nevada Freight Advisory Committee (FAC)*

The FAC is housed within NDOT and made up of representatives from private sector companies and public agencies. Together, the Committee discusses topics that impact freight transport in Nevada and provide NDOT with guidance. Meetings are held in video conference rooms across the state with a webinar link available to those not conveniently located near a meeting site.

The Transportation Public Advisory Committee (TPAC) will review and advise on adopting the state rail plan; and the Nevada State Transportation Board has final state rail plan approval authority for Nevada. The Federal Railroad Administration (FRA) will accept the document for the federal government.

## **E. The State's Authority for Grant, Loan, and Public/Private Partnership Financing**

### **E-1. State Infrastructure Bank**

The enabling legislation for Nevada State Infrastructure Bank ("Nevada SIB") was signed into law June 2017 (NV AB-399)<sup>5</sup>; however, the Bank has not been capitalized, as required, to "carry out the business of the Nevada State Infrastructure Bank". See quote below from legislation creating the Nevada SIB in 2017. Absent capitalization of the Nevada SIB by the State of Nevada, the enabling legislation passed in 2017 is not useful for aiding the development of rail infrastructure in Nevada, by any party, public or private.

If the Nevada SIB were indeed 'capitalized' by the State, eligible projects would include "Transportation Facilities. Nevada Revised Statutes ("NRS") NRS 408.55066<sup>6</sup> define "Transportation facility" as:

*"Transportation facility" means any existing, enhanced, upgraded or new facility that is used or useful for the safe transport of people, information, or goods via one or more modes of transport, including, without limitation, any of the following:*

1. *A road, railroad, bridge, tunnel, overpass, airport, mass transit, light or commuter rail, conduit, ferry, boat, vessel, parking facility, intermodal or multimodal system or any other mode of transport, including, without limitation, those utilizing autonomous technology, and any rights of way necessary for any eligible transportation facility.*
2. *Related or ancillary to, or used or useful to provide, operate, maintain or generate revenue for, a facility described in subsection 1, including, without limitation, administrative buildings and other*

<sup>5</sup>Nevada Assembly Bill 399, [source link](#), effective June 2017.

<sup>6</sup>Nevada Revised Statutes 408.55066, [source link](#), effective 2017.

*buildings, structures, rest areas, maintenance yards, rail yards, ports of entry or storage facilities, vehicles, rolling stock, energy systems, control, communications and information systems, parking facilities and similar commercial facilities used for the support of or the transportation of persons, information or goods or other related equipment, items or property, including, without limitation, any other property that is needed to operate the facility.*

3. *All improvements, including equipment necessary to the full utilization of a transportation facility, including, without limitation, site preparation, roads and streets, sidewalks, water supply, outdoor lighting, belt line railroad sidings and lead tracks, bridges, causeways, terminals for railroad, automotive and air transportation and transportation facilities incidental to the project.*

## **E-2. Public-Private Partnerships (“P3s”)**

The Nevada Senate Bill SB 448<sup>7</sup> explicitly added P3s to the Nevada statutory framework of applicable laws in July 2017 which was codified as the following:

*NRS 338.1587 Public-private partnership: Authority to enter; authorized provisions.*

1. *A public body may enter into a public-private partnership to plan, finance, design, construct, improve, maintain, operate, or acquire the rights-of-way for, or any combination thereof, a transportation facility.*
2. *A public-private partnership may include, without limitation:*
  - a. *A predevelopment agreement leading to another implementing agreement for a transportation facility as described in this subsection.*
  - b. *A design-build contract.*
  - c. *A design-build contract that includes the financing, maintenance or operation, or any combination thereof, of the transportation facility.*
  - d. *A contract involving a construction manager at risk.*
  - e. *A concession, including, without limitation, a toll concession, and an availability payment concession.*
  - f. *A construction agreement that includes the financing, maintenance or operation, or any combination thereof, of the transportation facility.*
  - g. *An operation and maintenance agreement for a transportation facility.*
  - h. *Any other method or agreement for completion of the transportation facility that the public body determines will serve the public interest; or*
  - i. *Any combination of paragraphs (a) to (h), inclusive.*

Since the enabling legislation was enacted in 2017, there has not yet been a P3 financing structure deployed for an infrastructure project. Nevada DOT identifies the USA Parkway Interchange project in 2007-2008 as a successful P3 funding example.

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<sup>7</sup>Nevada Senate Bill 448, [source link](#), effective July 2017.



### E-3. Private Activity Bonds

Nevada is the 7<sup>th</sup> largest state in size, but only the 32<sup>nd</sup> largest in population (2019 population of 3.08M). Population determines the allocation of a host of United States federal benefits and allocations. In the case of Private Activity Bonds (PABs), the Internal Revenue Service (IRS) most recently established each State's per capita 'PAB Volume Cap' and small state minimum levels in November 2019 (see Rev. Proc 2019-44). In 2020, The per capita PAB Volume Cap will be \$105 per capita, the same amount as in 2019, but the small state minimum for PAB Volume Cap will increase to \$321,775,000 per year from \$316,745,000. With a population of 3.08M, Nevada's PAB Volume Cap is approximately \$323M, a relatively small amount of bond authority to deploy for transportation and other eligible projects carried forward by a private entity in Nevada.

PABs are an important tool, as can be seen from the case of the Brightline West high-speed passenger rail project which will hopefully soon break ground on the rail infrastructure to carry passengers from Victorville, CA to Las Vegas, NV and back. Brightline West just received (July 2020) an allocation of \$200M in PAB issuance authority from the Nevada State Board of Finance. California, with a far greater PAB Volume Cap, was able to provide \$600M in allocation to Brightline West in April 2020.

## F. Nevada's Freight and Passenger Rail Agencies, Initiatives, and Plans

### F-1. Transportation Agencies

#### *Nevada Department of Transportation*

Rail planning functions at NDOT are located within the Department's Rural Programs Section. This Section is part of the Transportation/Multimodal Planning Division, which reports to the Assistant Director for Planning, one of four assistant directors under NDOT's Director and two Deputy Directors. The Section is fully integrated into NDOT's administrative structure and interacts effectively with the other operating units at NDOT. The Section is currently staffed with a division chief and separate program managers over the transit, aviation, freight, and rail programs. This multimodal division is tasked with oversight of passenger and freight rail system improvements within the state as well as updating the state freight and rail plans.

Nevada revised statutes (NRS) authorize and direct NDOT to engage in rail planning and development in the state. NRS 705.421 directs NDOT to prepare and implement a state plan for rail service in cooperation with Nevada's Public Utilities Commission (NPUC), including projects to preserve rail lines, rehabilitate rail lines to improve service, and restore or improve freight service on rail lines that are potentially subject to abandonment. NRS 705.423 gives NDOT the power to accept federal, state, local, and private money to develop and implement the state rail plan with state legislative approval to expend funds to implement the plan; to enter into agreements for railroad purposes; and to act as the agent for counties and cities for railroad purposes. NRS 705.425 provides for a state program to preserve lines where service has been discontinued; NRS 705.427 permits NDOT to acquire and operate track and other railroad property that is the subject of abandonment or discontinuation of service. NRS 705.428 authorizes NDOT to contract for construction, improvement, or rehabilitation of any trackage or rail line property, provided state

legislative approval authorizes the expenditure of any funds. NDOT has been coordinating and communicating with the PUC throughout the state rail plan process.

## **F-2. Regional and Local Public Entities**

Nevada's transportation agencies, besides NDOT, include Metropolitan Planning Organizations (MPOs) and Regional Planning Associations (RPAs). MPOs, RPAs, as well as Economic Development Entities are identified and described in this section.

### *Metropolitan Planning Organizations*

Metropolitan Planning Organizations (MPOs) are federally mandated and funded transportation policy-making organizations composed of local government and transportation officials. The formation of an MPO is required for any urbanized area with a population greater than 50,000.

MPOs are required to maintain and continually update a Long-Range Transportation Plan (LRTP) as well as a Transportation Improvement Program (TIP), which is a multi-year program of transportation projects to be funded with federal and other transportation funding sources. As MPO planning activities have evolved to address the movement of freight as well as passengers, they have included consideration of multimodal solutions, improved intermodal connections, and more specific rail and rail-related project solutions. MPOs must work cooperatively with area transportation stakeholders to understand and anticipate the area's travel needs and to develop the aforementioned documents.

There are three MPOs in Nevada:

- Carson Area Metropolitan Planning Organization
- Regional Transportation Commission (RTC) of Washoe County
- Regional Transportation Commission of Southern Nevada
- Tahoe Metropolitan Planning Organization

### *Regional Economic Development Entities*

Nevada has several regional public economic development entities which recruit industries and businesses based on their location, available labor force, room for growth, and access to rail and other transportation assets. These entities often employ incentives such as tax incentives, infrastructure assistance, and other support to attract businesses to locate in the state. Although these entities do not generally work directly with freight railroad operators, they do have a vested interest in the level of rail services and rail assistance programs available to supplement their incentives for attracting and serving area businesses.

The following Nevada economic development entities were engaged in the NVSRP process:

- Economic Development Authority of Western Nevada
- Las Vegas Global Economic Alliance
- Northeastern Nevada Regional Development Authority
- Northern Nevada Development Authority
- Storey County Economic Development Office

### F-3. Nevada Transportation Plans

#### *Nevada State Freight Plan*

Nevada's latest state freight plan<sup>8</sup> was completed in 2017. The primary purpose of the Nevada Freight Plan is to serve as a statewide long-range freight planning document, fully integrated with other state planning initiatives. The State Freight Plan will align with the National Freight Goals to:

- Improve the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness.
- Reduce congestion on the freight transportation system.
- Improve the safety, security, and resilience of the freight transportation system.
- Improve the state of good repair of the freight transportation system.
- Use advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system.
- Reduce adverse environmental and community impacts of the freight system.

#### *One Nevada Transportation Plan*

One Nevada Transportation Plan<sup>9</sup> builds on Nevada's success with a previous long-range transportation plan and provides direction for all transportation modes in the state, including rail and public transit. The document was adopted and approved in 2018. The One Nevada Transportation Plan projects the demand for transportation infrastructure and services to the year 2040 and considers the social and economic changes that are expected to occur in the state between 2018 and 2040. The One Nevada Transportation Plan underscores the idea that Nevada's economy, quality of life, and competitiveness will require a transportation system that is developed with these changes in mind.

Nevada's adopted guiding principles as the basis for decision-making and investment actions covering all transportation modes, are:

- Enhance Safety
- Preserve Infrastructure
- Optimize Mobility
- Transform Economies
- Foster Sustainability
- Connect Communities

#### *Nevada Statewide Transportation Improvement Program*

The Statewide Transportation Improvement Program 2016-2019 Draft (STIP)<sup>10</sup> is a federally required systematic listing of projects for which federal-aid funding is proposed. This document grows out of the STP and outlines NDOT's funding objectives to maintain a globally competitive and attractive climate for businesses and people, and to ensure that the transportation system contributes to a productive and

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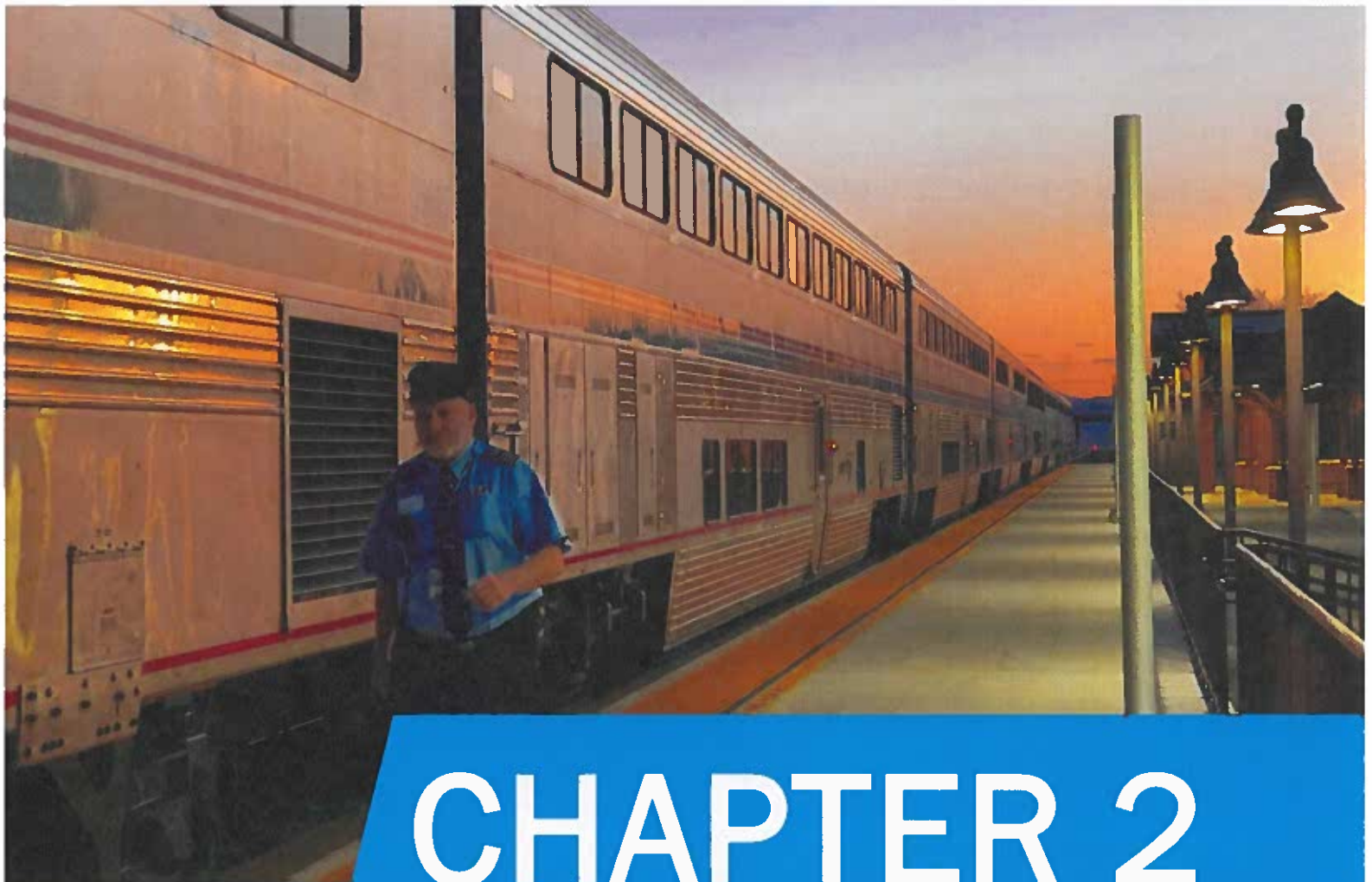
<sup>8</sup> Nevada Department of Transportation (NDOT), "Nevada State Freight Rail Plan", [source link](#), published January 2017.

<sup>9</sup> NDOT, "One Nevada Transportation Plan", [source link](#), published November 2018.

<sup>10</sup> NDOT website, "2019 Statewide Transportation Improvement Program (STIP)" projects list page, [source link](#), accessed August 13, 2020.

efficient economy. Nevada's rail network is a key asset in attaining these objectives. The STIP identifies projects funded by the Federal Highway Administration (FHWA), including highway-railroad grade crossing safety projects, and the Federal Transit Administration (FTA) programs. These projects may have a potential intersection with the Nevada railroad network. Rail projects in the state have also been added to the STIP in the past for illustrative purposes to support applications for federal grant funding.

A detailed description of Nevada's rail system, including freight data for rail and truck movements, is covered in Chapter 2.



# CHAPTER 2

*Existing Nevada Rail System*





## Chapter 2 Table of Contents

Chapter 2 Table of Contents .....	2
Chapter 2 Figures .....	4
Chapter 2 Tables.....	5
Chapter 2 Existing Nevada Rail System .....	7
A. Passenger Rail Infrastructure and Operations .....	9
A-1. Passenger Service Objectives and Performance .....	9
A-2. Passenger Rail Service.....	10
Amtrak's California Zephyr.....	11
Passenger Activity and Travel Times.....	13
Desert Wind.....	15
Southwest Chief.....	15
A-3. Amtrak Thruway Bus Service.....	16
A-4. Amtrak Facts in Nevada .....	17
A-5. Excursion and Tourist Railroads .....	18
Nevada Northern Railway .....	20
V&T Railroad Company and V&T Railway Commission .....	21
Nevada State Railroad Museum .....	21
Nevada Southern Railway - Boulder City .....	21
A-6. Multimodal Passenger Connections .....	22
Las Vegas .....	23
Reno .....	27
Elko.....	29
Winnemucca.....	30
Sparks.....	33
Laughlin .....	35
Stateline .....	37
Primm.....	40
B. Freight Rail Infrastructure and Operations .....	40
B-1. Main Lines .....	41
Union Pacific in Nevada.....	42
Northern Nevada Main Lines.....	42
Southern Nevada Main Lines.....	46
B-2. Branch and Short Lines .....	47

Northern Nevada Branch and Short Lines.....	49
Southern Nevada Branch and Private Lines .....	51
B-3. Freight Rail Facilities .....	52
Intermodal Facilities.....	53
Classification Yards .....	55
Rail-Served Businesses and Industrial Parks.....	56
B-4. Rail Line Abandonments and Land-Banked Track .....	57
B-5. Rails-to-Trails and Rails-with-Trails.....	59
C. Freight Commodities .....	60
C-1. Overview of Data Sources .....	60
The STB Waybill Sampling of Rail Data .....	60
Freight Analysis Framework Truck and Rail Data .....	60
TRANSEARCH® Truck Data.....	61
Commodity Code Descriptions .....	61
Reporting Features and Enhancements.....	61
C-2. Nevada Freight Flows Overview: 2018 Rail and Truck Traffic .....	61
2018 and 2009 Summary of Total Rail Freight Flows and Commodities .....	63
Nevada Rail Outflows (Nevada Originations) .....	64
Nevada Rail Inflows (Nevada Destinations) .....	67
Nevada Rail Through Traffic .....	70
Nevada Intrastate Rail Traffic .....	72
C-3. Forecast Commodity Flows Overview .....	72
Forecasted Freight Flows .....	73
Forecasted Rail Inflows .....	73
Forecasted Rail Outflows .....	74
D. General Analysis of Rail Transportation’s Economic and Environmental Impacts.....	75
D-1. Congestion Mitigation .....	75
D-2. Trade and Economic Development .....	76
D-3. Air Quality .....	78
D-4. Reduction in Greenhouse Gas Emissions.....	79
Implications for Nevada .....	80
Fernley to Oakland : Conversion of through Farm and Food Products traffic .....	80
Fernley to Sacramento : Conversion of local freight traffic .....	80
Fernley to Oakland : Diversion and conversion of Los Angeles through freight traffic .....	80

D-5. Land Use .....	82
D-6. Energy & Fuel Use .....	83
D-6. Community Impacts .....	86
Population Demographics and Income .....	86
E. Pointing to a New Future .....	88
E-1. Passenger Rail .....	88
Overview & Key Issues .....	88
Service Gaps .....	89
Improvements and Opportunities – The Case for Rail .....	90
Passenger Rail in Summation .....	93
E-2. Freight Rail .....	93

## Chapter 2 Figures

Figure 2-1: Nevada Rail Network .....	8
Figure 2-2: California Zephyr and Amtrak System .....	10
Figure 2-3: California Zephyr Station Stops in Nevada .....	12
Figure 2-4: California Zephyr 2020 Timetable .....	14
Figure 2-5: Connecting Amtrak Thruway Bus Service with Nevada .....	16
Figure 2-6: Excursion Lines .....	19
Figure 2-7: 2019 Greyhound System Map .....	23
Figure 2-8: Las Vegas Multimodal Passenger Connections .....	25
Figure 2-9: Reno Multimodal Passenger Connections .....	28
Figure 2-10: Elko Amtrak Passenger Station .....	29
Figure 2-11: Winnemucca Amtrak Passenger Station .....	32
Figure 2-12: Sparks Multimodal Passenger Connections .....	34
Figure 2-13: Laughlin Multimodal Passenger Connections .....	36
Figures 2-14 and 2-14.1: Stateline Multimodal Passenger Connections .....	38
Figure 2-15: Nevada Main Lines .....	44
Figure 2-16: Major Line Network in Adjoining States .....	45
Figure 2-17: Nevada Branch Lines .....	48
Figure 2-18: Freight Right-of-Way and Major Facilities in Nevada .....	54
Figure 2-19: Abandoned Rail Line .....	58
Figure 2-20: 2018 Nevada Modal Distribution of Road & Rail Across All Freight Flows .....	62
Figure 2-21: 2009 Nevada Total Distribution of Rail Traffic Flows .....	63
Figure 2-22: 2018 Nevada Total Distribution of Rail Traffic Flows .....	63
Figure 2-23: 2018 Nevada Total Distribution      Figure 2-24: 2018 Nevada Total Distribution .....	64
Figure 2-25: Destination of Rail Traffic Originating in Nevada (2018) .....	66
Figure 2-26: 2018 Nevada Distribution by Rail Modes - Outflow Traffic .....	67
Figure 2-27: 2018 Nevada Distribution by Traffic Types - Outflow Traffic .....	67
Figure 2-28: Origination of Rail Traffic Terminating in Nevada (2018) .....	69



Figure 2-29: 2018 Nevada Distribution of Rail Modes - Inflow Traffic .....	70
Figure 2-30: 2018 Nevada Distribution of Traffic Types - Inflow Traffic.....	70
Figure 2-31: 2018 Nevada Distribution of Rail Modes – Through Traffic .....	72
Figure 2-32: 2018 Nevada Distribution of Rail Traffic Types – Through Traffic .....	72
Figure 2-33: 2018-2045 Nevada Growth by Freight Flows .....	73
Figure 2-34: Nevada Means of Transportation to Work .....	75
Figure 2-35: Long-Term Industrial Employment Projections, 2016-2026 .....	77
Figure 2-36: US Greenhouse Gas Emissions by Economic Sector, 2018.....	79
Figure 2-37: Nevada Total Population (2019) .....	83
Figure 2-38: Primary Energy Consumption by Source and Sector, 2019.....	84
Figure 2-39: Median Household Income in the Past 12 Months in 2018 (Percent of Population) .....	86
Figure 2-40: Nevada Population Below Poverty Line in 2018.....	87

## Chapter 2 Tables

Table 2-1: PRIIA Section 207 Performance Metrics for Amtrak Long-Haul Routes.....	9
Table 2-2: California Zephyr Route Characteristics .....	11
Table 2-3: California Zephyr Ridership in Context with Nevada Stations 2013-2019 .....	14
Table 2-4: Modal Travel Times on Major Corridors from California Zephyr Served Stations in Nevada....	15
Table 2-5: Amtrak Thruway Bus Service Overview.....	17
Table 2-6: Amtrak Facts in Nevada.....	17
Table 2-7: Excursion and Tourist Railroad Characteristics.....	18
Table 2-8: Multimodal Connections Serving Amtrak Stations in Nevada Cities Ranked by Size.....	23
Table 2-9: FRA Track Classification and .....	40
Table 2-10: Union Pacific in Nevada .....	42
Table 2-11: Main Line Rail Routes and Mileage .....	43
Table 2-12: Nevada UPRR Main Line Freight Operating Characteristics .....	43
Table 2-13: Northern Nevada Branch and Short Line Operating Characteristics .....	49
Table 2-14: Southern Nevada Branch and Short Line Operating Characteristics .....	51
Table 2-15: 2018 Nevada Freight Flow Matrix: Distribution of Transit Modes and Freight Flows .....	62
Table 2-16: 2009 & 2018 Top Five Nevada Commodities: All Rail Flow Traffic .....	63
Table 2-17: 2009 & 2018 Top 5 Nevada Commodities: Rail Outflow Traffic .....	64
Table 2-18: 2018 Nevada Commodities Ranked by Value: Rail Outflow Traffic .....	65
Table 2-19: 2009 & 2018 Nevada Top Destination Ranking: Rail Outflow Traffic .....	65
Table 2-20: 2009 & 2018 Top 5 Nevada Commodities: Rail Inflow Traffic .....	67
Table 2-21: 2018 Nevada Commodities Ranked by Value: Rail Inflow Traffic .....	68
Table 2-22: 2009 & 2018 Nevada Top Origination Ranking: Rail Inflow Traffic.....	68
Table 2-23: 2018 & 2009 Top 5 Nevada Commodities: Rail Through-Traffic .....	70
Table 2-24: 2018 Nevada Top Origination-Destination Pairings: Rail Through Traffic.....	71
Table 2-25: 2018 Nevada Commodities Ranked by Value: Rail Through Traffic.....	71
Table 2-26: 2018 & 2009 Top 4 Nevada Commodities: Rail Intrastate Traffic.....	72
Table 2-27: 2018-2045 Nevada Top Commodities and .....	73
Table 2-28: 2018-2045 Nevada Top State Partners and.....	74
Table 2-29: 2018-2045 Nevada Top Commodities and .....	74
Table 2-30: 2018-2045 Nevada Top State Partners .....	74

Table 2-31: Nevada Transportation Industry Employment Projections ..... 78

Table 2-32: Environmental Benefits of truck to rail conversions on three primary freight flows..... 81

## Chapter 2 Existing Nevada Rail System

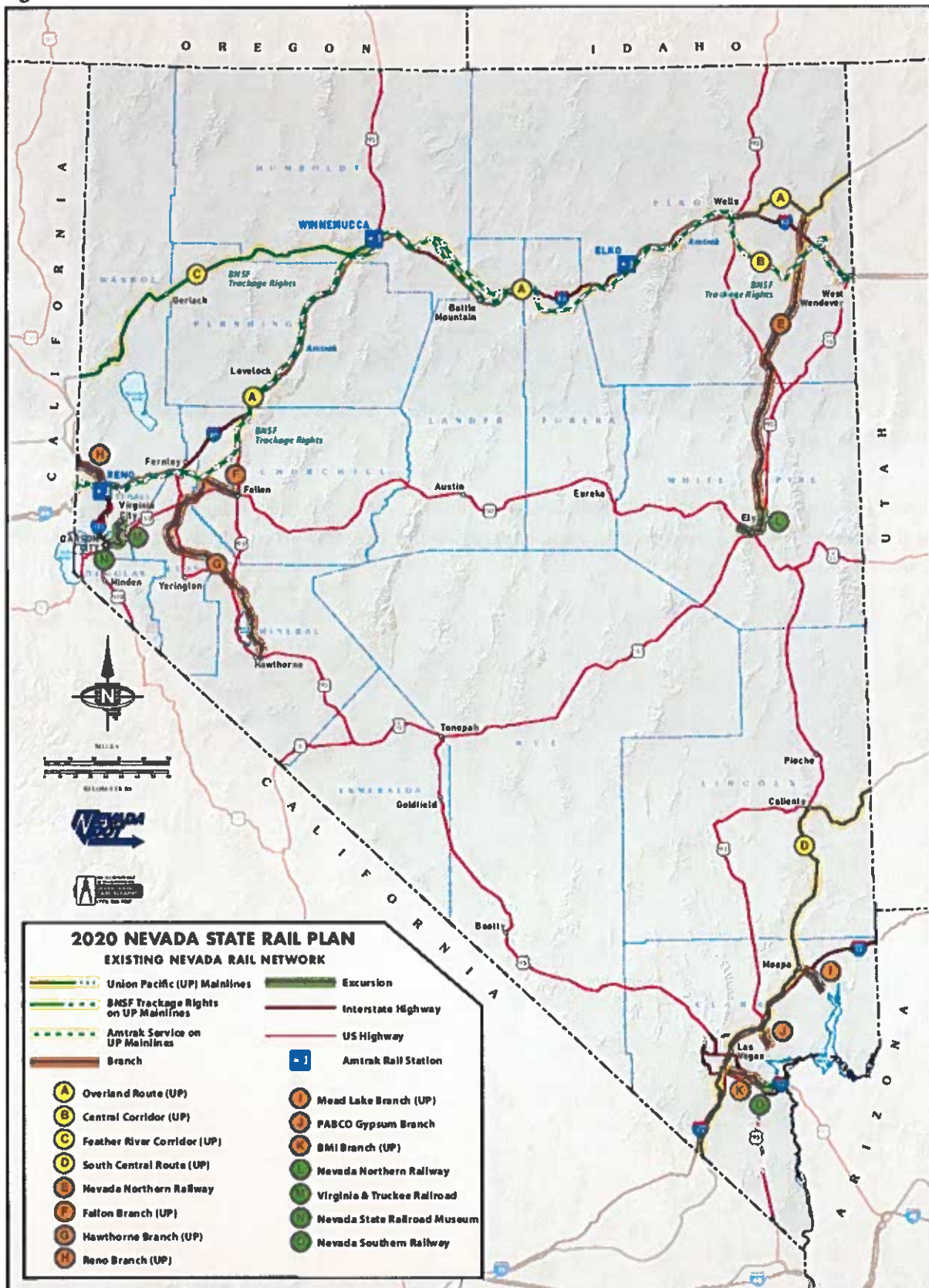


***BNSF Locomotive***

**Figure 2-1** shows the main, branch, and excursion rail lines currently used for passenger and freight service in the state of Nevada. The following sections describe in more detail the rail service that these lines provide.



Figure 2-1: Nevada Rail Network



## A. Passenger Rail Infrastructure and Operations

### A-1. Passenger Service Objectives and Performance

The Passenger Railroad Investment and Improvement Act (PRIIA), which Congress passed in 2008, created a set of metrics that Amtrak was to use in managing and measuring performance and service quality on its intercity passenger rail routes. PRIIA Section 207 outlined the service standards that Amtrak was to achieve by the end of FY14; these standards include cost recovery, passenger miles per train mile, on-time performance, train delays, and customer satisfaction.

**Table 2-1** lists the PRIIA performance metrics achieved on Amtrak's long-haul routes, including the *California Zephyr*, which is the only Amtrak rail route currently operating in Nevada. Section 207 mandated that all Amtrak long-haul routes must achieve an on-time performance measure of 85 percent and an overall Customer Service Index (CSI) of 90 percent by the end of FY14. The Federal Railroad Administration (FRA) was given the responsibility of preparing a quarterly report on Amtrak's progress and achievements.

**Table 2-1: PRIIA Section 207 Performance Metrics for Amtrak Long-Haul Routes**

On-Time Performance (OTP)		Standard (FY14)
Endpoint OTP		85%
All Station OTP		85%
Train Delays		Standard (FY14)
Amtrak-responsible delays per 10,000 train miles		325 minutes/10,000 train miles
Host-responsible delays per 10,000 train miles		900 minutes/10,000 train miles
Customer Service Index (CSI)		Standard (FY14)
Percent of customers "Very Satisfied" with		90%
Overall service		90%
Amtrak personnel		90%
Information given		90%
On-board comfort		90%
On-board cleanliness		90%
On-board food service		90%
Financial/Operating		Standard (FY14)
Short-term operating cost recovery		Continuous year-over-year improvement on eight-quarter moving average
Fully allocated operating cost recovery		
Long-term avoidable operating loss per passenger-mile		
Passenger miles per train mile		

The On-Time Performance (OTP) protections afforded by PRIIA were struck down by the D.C. Court of Appeals in 2014, bowing to a suit brought by the Association of American Railroads (AAR). A subsequent D.C. Court of Appeals ruling in July of 2018<sup>1</sup> again granted Amtrak and the FRA the ability to determine on-time performance metrics and standards. In June of 2019, the Supreme Court denied an AAR petition for a *writ of certiorari*<sup>2</sup>, thus affirming Amtrak and the FRA's ability to determine appropriate performance metrics and standards which, as of writing, are still being drafted.

<sup>1</sup> Amtrak, "General and Legislative Annual Report & Fiscal Year 2020 Grant Request", page 34, [source link](#).

<sup>2</sup> US Supreme Court, "AAR v. Department of Transportation et al.", [source link](#), accessed June 9, 2020.



The *California Zephyr* currently ranks in the bottom third of Amtrak routes in on-time performance, achieving only a 38.1% on-time performance in the latest available Amtrak Monthly Performance Report. The host railroad in Nevada, Union Pacific, does not appear to be responsible because most delays appear to occur on BNSF lines hosting the train east of Denver to Chicago. Amtrak created a Performance Improvement Plan (PIP) in September 2010 to improve the *California Zephyr's* on-time performance through better coordination with host railroads and improving customer service through a Customer Excellence Program, which emphasizes staff training and employee incentives. The *California Zephyr's* overall Customer Satisfaction Index (CSI) of 87.5 percent in FY19, closely approaches the goal of a 90 percent CSI rating.

## A-2. Passenger Rail Service

**Figure 2-2** shows the *California Zephyr* route and the complete Amtrak network in the US.

**Figure 2-2: California Zephyr and Amtrak System<sup>3</sup>**



Current passenger rail service in Nevada consists of Amtrak's *California Zephyr* route, which travels 2,438 miles between Chicago and the San Francisco Bay area. The route began service in 1949 as a joint operation of the Chicago Burlington and Quincy Railroad, Denver and Rio Grande Western Railroad and Western Pacific Railroad. The line experienced various route and name changes over the next 34 years

<sup>3</sup> Amtrak website, [source link](#), accessed June 9, 2020.

until Amtrak created the current alignment in 1983. Notably, the train in the pre-Amtrak era used its unusually spectacular scenery as a selling point, and recent indicators from Amtrak management<sup>4</sup> suggest that the route will have staying power into the future because of its scenery. The following section summarizes the operational characteristics of Amtrak service in Nevada. Until FY2018, Amtrak also contracted with a tour operator, Key Holidays, to operate special “Fun Trains” and “Snow Trains”, which carried thousands of passengers in between the San Francisco Bay area and Reno during the winter months when other modes of transportation are often incapacitated by adverse weather.

#### *Amtrak’s California Zephyr*

The *California Zephyr* is a cross-country intercity passenger rail operation that Amtrak operates with one trip daily in each direction between Chicago and Emeryville, CA. The route passes through Illinois, Iowa, Nebraska, Colorado, Utah, Nevada, and California.

**Table 2-2: California Zephyr Route Characteristics**

<i>California Zephyr Route Characteristics</i>	
<b>Daily Round Trips</b>	1 <sup>5</sup>
<b>Equipment</b>	Superliner Coaches & Sleepers
<b>Number of Stops</b>	34
<b>Distance Travelled</b>	2,438
<b>Stops in Nevada</b>	Reno, Winnemucca, Elko
<b>2019 Total Train Ridership</b>	418,203 <sup>6</sup>
<b>2019 On Time Performance</b>	39.80% <sup>7</sup>
<b>2019 CSI Score</b>	87.50%
<b>2019 Annual Nevada Ridership</b>	88,960 <sup>8</sup>
<b>2019 NV Automotive VMT Saved</b>	17.8 Million

The *California Zephyr* is a full-service, Superliner-equipped train, which typically includes three Superliner sleeping cars, three Superliner coaches, a sightseer lounge car, and a dining car. During off-peak months, “right sizing” is undertaken by Amtrak, reducing the train by one sleeper and one coach car. **Table 2-2** summarizes the *California Zephyr* operating

characteristics and will be further elaborated in the text. **Figure 2-3** presents the existing *California Zephyr* route in Nevada.

The train operates over 427 miles of UPRR-owned track in Nevada where it stops in the cities of Elko, Winnemucca, and Reno. UPRR owns the Elko and Winnemucca Amtrak stations while the city of Reno owns the Reno Amtrak station. A station in Sparks was discontinued in 2009 because of operating constraints at the terminal within the UPRR intermodal yard.

<sup>4</sup> Bloomberg Businessweek, “Amtrak CEO Has a Plan for Profitability, and You Won’t Like It” article, [source link](#), published November 20, 2019.

<sup>5</sup> Amtrak *California Zephyr* Timetable, [source link](#), as of March 16, 2020.

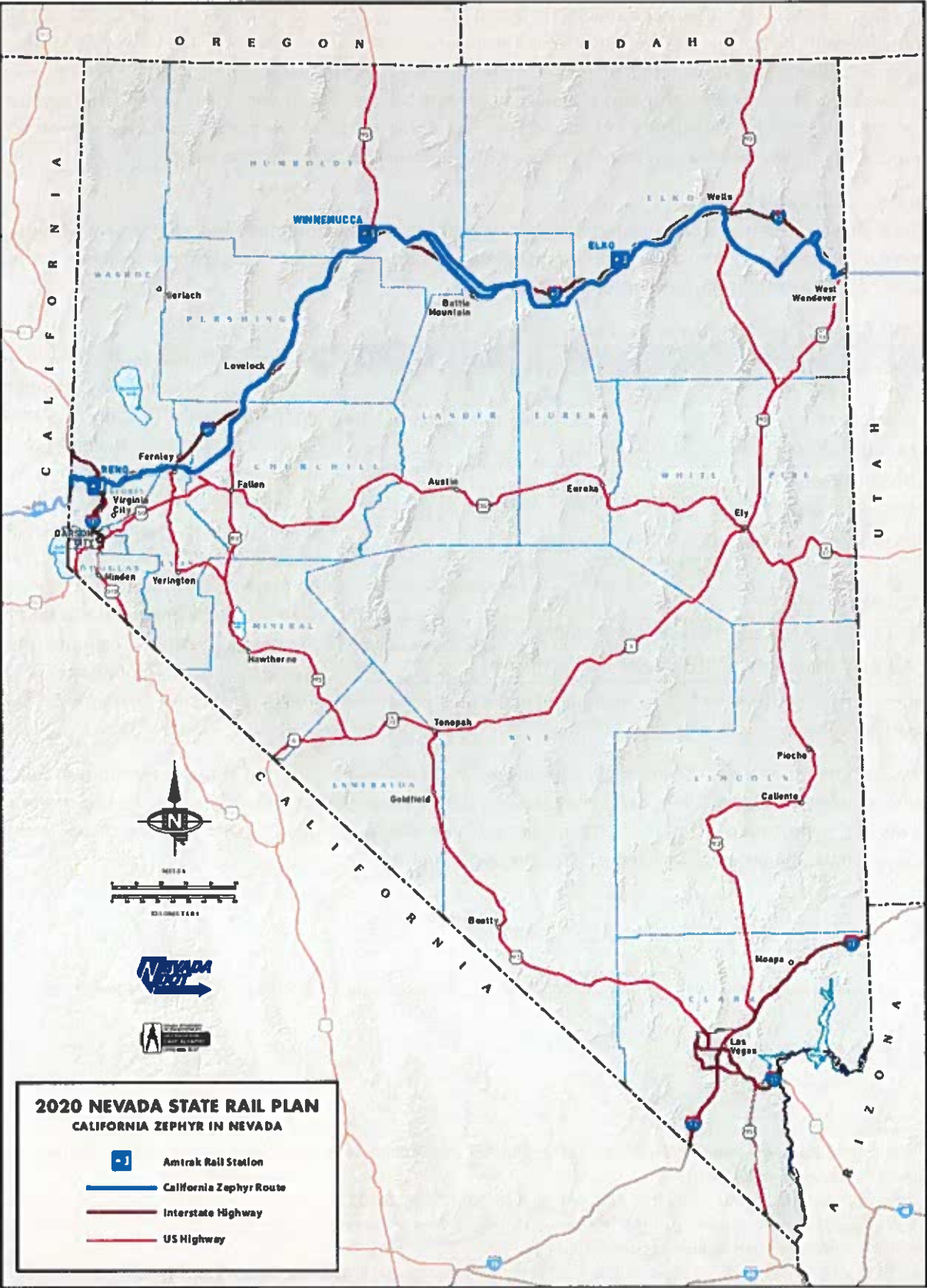
<sup>6</sup> Rail Passengers Association, “Amtrak fact sheet: California Zephyr service”, [source link](#), accessed June 9, 2020.

<sup>7</sup> Amtrak, “Host Railroad Report”, accessed June 9, 2020.

<sup>8</sup> Rail Passengers Association, “Fact sheet: Amtrak in Nevada”, [source link](#), accessed June 9, 2020.



Figure 2-3: California Zephyr Station Stops in Nevada



Amtrak employed 29 Nevada residents in FY17 (the last year with publicly available data)<sup>9</sup> with total annual wages of \$2,627,457 while Amtrak spent \$4,799,494 on goods and services in the state in FY17, including \$4,598,260 specifically in Reno. Amtrak invested \$2MM in accessibility improvements at the Elko and Winnemucca stations, and a new shelter and platform in Winnemucca using American Recovery and Reinvestment Act (ARRA) program funding in 2009. The Reno station was relocated to a new full-service facility in 2006 as part of the Reno Transportation Rail Access Corridor (ReTRAC) project, which depressed two miles of UPRR main line track through downtown Reno, eliminating all grade crossings. In contrast, the Amtrak station in Elko, NV remains by far the most dysfunctional intercity passenger rail facility in the state; there is a difficult three-quarter-mile distance between its eastbound and westbound platforms (see Chapter 2, Section 5: *Intermodal Connections*). The City of West Wendover, NV, on the border of Utah is, as of this writing, in talks with Amtrak and Union Pacific about adding a station stop.<sup>10</sup>

### *Passenger Activity and Travel Times*

The *California Zephyr* carried a total of 418,203 passengers<sup>11</sup> in 2019. Of those passengers, 88,960 used Nevada as an origin or destination. 78,921 travelled in coach an average of 377 miles and 10,039 of them were in sleeping cars, travelling an average of 817 miles. Using the most recent Nevada-specific data available<sup>12</sup> from Amtrak, 47 percent of those passengers would have driven, 23 percent would have flown, 28 percent would not have travelled at all, and 2 percent would have travelled by bus. Using these numbers, about 41,800 passengers would have driven a combined average of 427 miles each, meaning that the *California Zephyr* saved about 17.8 million Vehicle Miles Traveled (VMT) in 2019 alone. Also important to note, is that about 25,000 passengers would not have travelled at all. In other words, 25,000 trips were created by the availability of the train. Nationally, only 8 percent of Amtrak passengers would not travel were it not for the train service, so the *California Zephyr*, at 28 percent, creates an outsized benefit to the residents of Northern Nevada.

Passenger activity (boardings and alightings) on the *California Zephyr* route in Nevada has fluctuated over the last decade, after experiencing significant growth in the 2000s, with ridership more than doubling at Elko and Winnemucca over the decade and with more modest increases at Reno. Amtrak experienced the highest ridership total in its history in 2019 with 32.5M passengers. Nevada ridership experienced a peak in 2013 at 91,016 passengers,<sup>13</sup> but has been in a state of flux since. Table 2-3 shows passenger usage by station in Nevada since the 2012 Nevada State Rail Plan was issued, in context with local population numbers. In Elko and Winnemucca, the train makes an outsized impact, with ridership in Winnemucca representing almost 70 percent of the town's population in 2019. The train also has a big effect in Reno, with a ridership number equal to about a third of its population.

Two of the ten busiest trip segments the *California Zephyr* serves across seven states include Reno as an origin and destination. The fourth largest travel market on the line is between Sacramento and Reno, while the seventh largest travel market on the route is between Emeryville and Reno. The market between Reno and Northern California benefits from attractive travel times in both directions, with all stations from Reno to Emeryville served between the daylight hours of 8:00 am and 5:00 pm.

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<sup>9</sup> Amtrak, "Amtrak Fact Sheet, Fiscal Year 2017 State of Nevada", [source link](#), accessed June 9, 2020.

<sup>10</sup> Amtrak, "Amtrak Fact Sheet, Fiscal Year 2018 State of Nevada", [source link](#), accessed June 9, 2020.

<sup>11</sup> Rail Passengers Association, "Amtrak fact sheet: California Zephyr service", accessed June 9, 2020.

<sup>12</sup> Amtrak, "Amtrak's Contributions to Nevada", [source link](#), accessed June 9, 2020.

<sup>13</sup> Rail Passengers Association, "Fact sheet: Amtrak in Nevada", accessed June 9, 2020.

**Table 2-3: California Zephyr Ridership in Context with Nevada Stations 2013-2019**

Fiscal Year		2019	2018	2017	2016	2015	2014	2013
Elko	Train Passengers	8,360	8,656	7,219	7,550	8,050	9,436	9,657
	Population* <sup>14</sup>	20,452	20,341	20,339	20,276	20,108	20,149	19,237
	% Population	41%	43%	35%	37%	40%	47%	50%
Winnemucca	Train Passengers	5,203	4,540	4,146	4,050	3,617	4,660	4,481
	Population*	7,754	7,763	7,727	7,771	7,834	7,932	7,753
	% Population	67%	58%	54%	52%	46%	59%	58%
Reno	Train Passengers	75,397	70,518	69,904	69,297	56,318	63,029	76,878
	Population*	250,998	247,106	242,476	234,301	231,161	229,069	227,160
	% Population	30%	29%	29%	30%	24%	28%	34%

Elko and Winnemucca have less convenient service with trains departing between 7:00 pm and 9:30 pm eastbound and between 3:00 am and 5:00 am westbound. The total travel time from one side of the state to the other (Elko to Reno) is about five-and-a-half hours. **Figure 2-4** provides Amtrak's complete *California Zephyr* schedule.

The state of Nevada does not contract with Amtrak to provide any additional passenger service to supplement the California Zephyr route. Fifteen states, including the neighboring states of California and Oregon, provide operating and capital funding to obtain additional service. These include the *Cascades* route in Oregon and the *Capitol Corridor*, *San Joaquin* and *Pacific Surfliner* routes in California. The California routes offer timed connections to Nevada via Thruway Bus service (see Chapter 2, Section 5: *Intermodal Connections*).

Greyhound discontinued its route along Nevada's northern tier in February 2018, rendering Amtrak's *California Zephyr* the only public transportation across northern Nevada east of Reno. In place of busses, Greyhound now interlines with Amtrak service. Booking a trip from Reno to Chicago on Greyhound now buys a passenger a train trip from Reno to Salt Lake City, where a passenger then transfers to a Greyhound bus for the rest of the trip (which is less expensive compared with an all-Amtrak ride to Chicago.)

**Figure 2-4: California Zephyr 2020 Timetable<sup>15</sup>**

5		Train Number		6	
Daily		Normal Days of Operation		Daily	
R/B X		On Board Service		R/B X	
Read Down	Mile		Symbol		Read Up
2:00P	0	Chicago, IL—Union Station (CT)	●●●	Ar	2:00P
2:34P	28	Naperville, IL (METRA/BN Line)	●●●	Ar	D12 43P
3:44P	104	Princeton, IL	○		D12 23P
4:38P	162	Galesburg, IL—S. Seminary St. (B)	●●●	Ar	D11 31A
6:26P	205	Burlington, IA	○		10:36A
6:59P	233	Mount Pleasant, IA	○		9:54A
6:53P	279	Ottumwa, IA	○		9:00A
8:09P	359	Osceola, IA (Des Moines)	○		7:40A
8:41P	392	Creston, IA	○		7:04A
10:56P	500	Omaha, NE	●●●	Ar	5:14A
11:55P					4:59A
12:08A	555	Lincoln, NE	●●●	Ar	3:28A
12:14A					3:20A
1:47A	652	Hastings, NE (Grand Island)	○		1:42A
2:34A	706	Holdrege, NE	○		12:54A
3:43A	783	McCook, NE	○		11:48P
6:05A	950	Fort Morgan, CO (Sterling) (MT)	○		8:25P
7:15A	1038	Denver, CO	●●●	Ar	7:10P
8:05A		Colorado Springs, Pueblo, Vall. Glenwood Springs —see back			6:38P
10:07A	1100	Fraser-Winter Park, CO	○		3:50P
10:37A	1113	Glenwood Springs, CO (Rocky Mt. Nat'l Park)	○		3:12P
1:53P	1223	Glenwood Springs, CO (Aspen)	●●●	Ar	12:10P
4:10P	1311	Grand Junction, CO	○		10:23A
6:58P	1417	Green River, UT	○		7:59A
7:20P	1488	Helper, UT (Price)	○		6:37A
8:26P	1563	Provo, UT	○		4:35A
11:06P	1608	Salt Lake City, UT	●●●	Ar	3:30A
11:30P		Ogden, Boise, Las Vegas —see back			3:05A
3:03A	1871	Elko, NV (PT)	○		8:31P
5:40A	2013	Winnemucca, NV	○		7:08P
8:38A	2202	Reno, NV	●●●	Ar	4:08P
9:37A	2237	Truckee, CA (Lake Tahoe)	○		2:38P
11:48A	2301	Coffey, CA	○		12:21P
12:57P	2336	Roseville, CA	○		11:35A
D2 13P	2353	Sacramento, CA	●●●	Ar	11:09A
D2 44P	2367	Davis, CA	○		10:36A
D3 26P	2411	Martinez, CA (San Joaquin Trains)	●●●	Ar	9:54A
D3 59P	2430	Richmond, CA	○		9:22A
4:10P	2438	Emeryville, CA	●●●	Ar	9:10A
		San Francisco—see back			

<sup>14</sup> \* denotes statistics pulled from U.S. Census Bureau

<sup>15</sup> Amtrak website, [source link](#), accessed June 9, 2020.



Less than 10 percent of *California Zephyr* passengers travel more than 2,000 miles<sup>16</sup>, evinced by the top city-pairs on the train by ridership including Reno and Salt Lake City, UT as well as Sacramento, CA and Emeryville, CA (San Francisco, CA region). **Table 2-4** provides a sample of travel times by mode from Nevada stations to these nearby population centers on the *California Zephyr* route. Amtrak offers no time savings over driving, but it is important to note that it facilitates many trip pairs that are only otherwise possible by private automobile.

**Table 2-4: Modal Travel Times on Major Corridors from California Zephyr Served Stations in Nevada**

Origin	Destination	<i>California Zephyr</i>	Airline <sup>17</sup>	Bus	Automobile
<b>Reno, NV</b>	Winnemucca, NV	3 hours	N/A	N/A	2.5 hours
	Elko, NV	5 hours	N/A	N/A	4 hours
	Sacramento, CA	5 hours	5 hours <sup>18</sup>	3.5 hours	2.5 hours
	Emeryville, CA	7 hours	2.5 hours	6 hours	4 hours
	Salt Lake City, UT	11 hours	3 hours	N/A	8 hours
<b>Winnemucca, NV</b>	Reno, NV	3 hours	N/A	N/A	2.5 hours
	Elko, NV	2.5 hours	N/A	N/A	2 hours
	Sacramento, CA	8.5 hours	N/A	N/A	4.5 hours
	Emeryville, CA	10.5 hours	N/A	N/A	6 hours
	Salt Lake City, UT	7 hours	N/A	N/A	5 hours
<b>Elko, NV</b>	Winnemucca, NV	2.5 hours	N/A	N/A	2 hours
	Reno, NV	5 hours	N/A	N/A	5 hours
	Sacramento, CA	11 hours	N/A	N/A	7 hours
	Emeryville, CA	13 hours	N/A	N/A	8.5 hours
	Salt Lake City, UT	4.5 hours	N/A	N/A	3.5 hours

#### *Desert Wind*

The *Desert Wind* service between Chicago and Los Angeles was discontinued in 1997 because of budget cuts in the Amtrak system. *Desert Wind* served Las Vegas and Caliente, NV and provided direct trips to Salt Lake City and Los Angeles. Southern Nevada has not had any direct passenger rail service since the elimination of the route, and its only connection to the national passenger rail network is made possible via Amtrak's Thruway Bus service.

#### *Southwest Chief*

The *Southwest Chief* travels 2,256 miles between Chicago and Los Angeles with 31 interim stops, including Kansas City, Albuquerque, and Flagstaff. The route operates one trip daily in each direction and passes through the states of Illinois, Iowa, Missouri, Kansas, Colorado, New Mexico, Arizona, and California. The route travels through northern Arizona along the I-40 corridor within 30 miles of southern Nevada. Amtrak Thruway Buses connect the Kingman, AZ station with Laughlin, NV, and Las Vegas. A total of 334,415 passengers rode the *Southwest Chief* in FY2019<sup>19</sup>.

<sup>16</sup> Rail Passengers Association, "Amtrak fact sheet: California Zephyr service", accessed June 9, 2020.

<sup>17</sup> Includes additional 1.5 hours for airport travel and security lines

<sup>18</sup> No direct flights are offered as of writing

<sup>19</sup> Rail Passengers Association, "Amtrak fact sheet: Southwest Chief service", [source link](#), accessed June 7, 2020.

### A-3. Amtrak Thruway Bus Service

Amtrak Thruway Bus operates six routes in the state of Nevada connecting to four different train routes including the *California Zephyr* and the *Southwest Chief*, plus the *Capitol Corridor* and the *San Joaquin* services in California. The *Southwest Chief* route, which operates between Chicago and Los Angeles, is the closest Amtrak route to southern Nevada. A map of the Thruway Bus service is shown in Figure 2-5. An overview of the Amtrak Thruway Bus service in Nevada is provided in Table 2-5.

The Thruway Bus service provides connections between Las Vegas and the cities of Salt Lake City, Kingman, AZ, Los Angeles, and Bakersfield, CA. Service to and from Reno connects to the Sacramento Amtrak station with transfer opportunities to and from San Francisco on the *Capitol Corridor* route. Various private motor coach lines also provide service in the I-80 corridor with daily casino trips between Sacramento and the San Francisco Bay area, and Reno and Sparks. Other Nevada communities with Thruway Bus connections include Stateline, Sparks, and Laughlin.

Figure 2-5: Connecting Amtrak Thruway Bus Service with Nevada



**Table 2-5: Amtrak Thruway Bus Service Overview**

<b>Train Service Connection</b>	<b>Trips Provided</b>	<b>2019 NV Ridership</b>	<b>Thruway Route</b>	<b>Stations in Nevada</b>
<b>Capitol Corridor &amp; San Joaquin via Sacramento, CA</b>	3 roundtrips daily to Reno, NV 2 roundtrips daily to Sparks, NV 1 daily round trip to Stateline, NV (Lake Tahoe)	19,493	Sacramento to Reno & Sparks	Reno Amtrak Station & the Nugget in Sparks
<b>San Joaquin via Bakersfield, CA</b>	1 daily round trip to Las Vegas, NV	11,980	Bakersfield to Las Vegas	Las Vegas Greyhound Station
<b>Southwest Chief via Kingman, AZ</b>	1 trip daily inbound to Las Vegas, NV	3,489	Kingman to Laughlin, NV and Las Vegas	Tropicana Express in Laughlin & McCarran Airport in Las Vegas
<b>Southwest Chief via Los Angeles, CA</b>	1 daily round trip to Las Vegas, NV	3,287	Los Angeles to Las Vegas (Greyhound)	Kingsbury Transit Center in Stateline
<b>California Zephyr via Salt Lake City, UT</b>	1 daily round trip to Las Vegas, NV	276	Salt Lake City to Las Vegas (Greyhound)	Las Vegas Greyhound Station
<b>Total</b>		<b>38,568</b>		

#### A-4. Amtrak Facts in Nevada

Amtrak's operation in Nevada provides a number of employment and tax revenue benefits to the State of Nevada. Table 2-6 provides a summary of Amtrak's impact in Nevada:

**Table 2-6: Amtrak Facts in Nevada**

<b>Amtrak Facts in Nevada</b>	
Passenger Miles Served <sup>20</sup>	17,847,679
Annual Payroll <sup>21</sup>	\$4,629,000
In-State Spending by Amtrak tourists (24,000) <sup>22</sup>	\$28,071,429
Employees <sup>23</sup>	100
Passengers Served <sup>24</sup>	85,315
Local Amtrak Ticket Revenue <sup>25</sup>	\$3,221,563
State and Local Tax Revenues from Amtrak tourists <sup>26</sup>	\$1,804,592

<sup>20</sup> Amtrak website, 2016 Amtrak's Contributions to Nevada Fact Sheet, [source link](#), accessed August 27, 2020.

<sup>21</sup> Amtrak website, 2016 Amtrak's Contributions to Nevada Fact Sheet, [source link](#), accessed August 27, 2020.

<sup>22</sup> Nevada Tourism and Cultural Affairs, Nevada Division of Tourism (TravelNevada) Strategic Plan FY18 – 19, [source link](#), accessed August 27, 2020.

<sup>23</sup> Amtrak website, 2016 Amtrak's Contributions to Nevada Fact Sheet, [source link](#), accessed August 27, 2020.

<sup>24</sup> Amtrak website, Amtrak Fact Sheet Fiscal Year 2018 State of Nevada, [source link](#), accessed August 27, 2020.

<sup>25</sup> Nevada Tourism and Cultural Affairs, Nevada Division of Tourism (TravelNevada) Strategic Plan FY18 – 19, [source link](#), accessed August 27, 2020.

<sup>26</sup> Nevada Tourism and Cultural Affairs, Nevada Division of Tourism (TravelNevada) Strategic Plan FY18 – 19, [source link](#), accessed August 27, 2020.



#### A-5. Excursion and Tourist Railroads

Five excursion railroads operate in the state of Nevada:

1. Nevada Northern Railway
2. Virginia & Truckee (V&T) Railroad Company
3. Virginia & Truckee (V&T) Railway Commission
4. Nevada State Railroad Museum
5. Nevada Southern Railway



*Nevada Southern Railway Steam Locomotive*

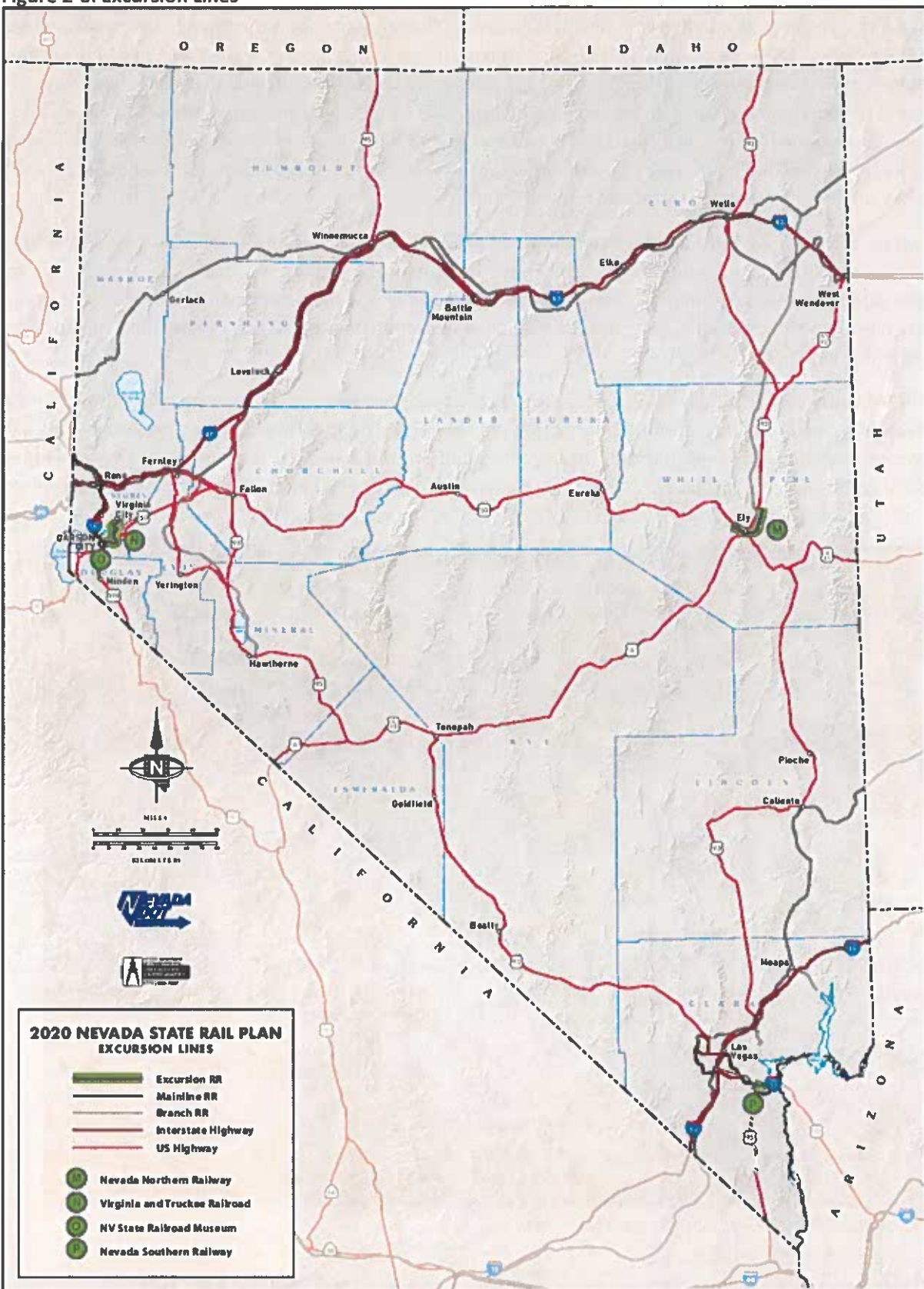
Combined, the five railroads operate on 53 miles of track and can carry over 150,000 passengers annually. The five excursion railroads address a notable component of the state's tourism industry. **Table 2-7** presents an overview of the tourist and excursion lines.

**Figure 2-6** (next page) shows the locations of excursion services in the state.

**Table 2-7: Excursion and Tourist Railroad Characteristics**

Railroad	Total Route Miles	Annual Ridership
Nevada Northern Railway	30	13,000 to 16,000
V&T Railroad Company	3	40,000 to 70,000
V&T Railway Commission	14	25,000
Nevada State Railroad Museum	1	17,000 to 25,000
Nevada Southern Railway	5	50,000

Figure 2-6: Excursion Lines

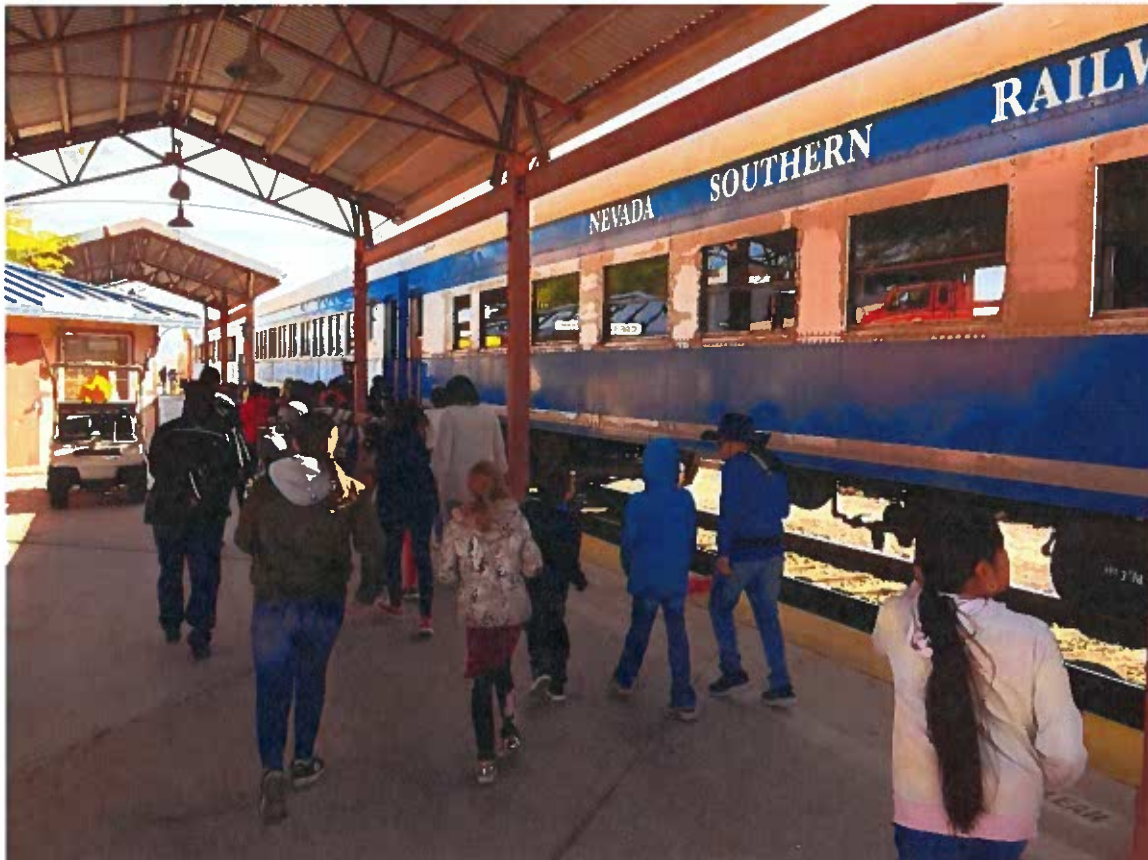


### *Nevada Northern Railway*

The 149-mile-long railroad line was initially built to haul copper ore and was operated in this capacity from 1906 to 1983, when the Kennecott Minerals Company donated the line and related facilities to the White Pine Historical Railroad Foundation. The Nevada Northern Railway Museum and the White Pine Historical Railroad Foundation operate steam and diesel locomotive excursion service throughout the year on a 30-mile-long segment of the historic route. The opening of its Hilina Branch, which runs parallel to the east of its McGill Junction Route on a more circuitous and scenic route, nearly doubled its operational mileage from what was reported in the 2012 State Rail Plan.<sup>27</sup>

Today, the Nevada Northern Railway Museum provides a 56-acre historic railroad complex with a museum, historic depot, and 68 other buildings and structures, including a roundhouse, machine shops and yards. These assets together form a unique time capsule of American industrial history, which owes its survival to its remote location. The excursion line operation employs a staff of nine full-time and two part-time workers.

The Nevada Northern Railway operates two routes from its depot in Ely on weekends from April to September and weekdays from Memorial Day to Labor Day. The two routes make one to two trips per service day, depending on the time of year. In addition, the railway offers special event train rides throughout the year, including Polar Express trains in the winter and haunted ghost trains on Halloween. Ridership on the two lines ranges from 13,000 to 16,000 passengers annually.



***Nevada Northern Railway Boulder City Station***

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<sup>27</sup> Source: Mark Basset, Nevada Northern Railway, Interview by Author, April 2020.



### *V&T Railroad Company and V&T Railway Commission*

The V&T Railroad was completed in 1870 to haul gold and silver ore from the famous Comstock Lode mines in the Virginia City area to Carson City and Reno. The line was operated continuously for 80 years until freight service was discontinued in 1950 after the line lost market share to highway truck traffic.

Today the operable sections of the V&T are used by two separate entities: the private V&T Railroad (V&TRR) and the publicly owned V&T Railway Commission (V&TRRY Commission). The two entities are distinct yet interrelated. The V&TRR has operated on a three-mile section between Virginia City and Gold Hill since 1976, effectively preserving historic elements of the railroad through an era when much was lost elsewhere. Building on the success of the V&TRR, the formation of the V&TRRY Commission made possible the rehabilitation of the 14-mile V&TRRY Commission extension of the V&TRR in the late 2000s. The V&TRR acts as an operator and maintenance contractor of the V&TRRY Commission's trains.

The V&TRR<sup>28</sup> has undergone several capital improvements since the 2012 Nevada State Rail Plan<sup>29</sup>, including refurbishment of its 1870s-era depot, a diesel shop extension, a new car shed in Virginia City, and currently the installation of a turntable. Seventy-five-pound rail has been replaced with 90-pound rail for its three-mile run. Tunnel number four has been repaired and extended by 30 feet.

The V&TRRY Commission operates two excursion trains on sections of the original right-of-way from May to October. The Sisters in History Route provides diesel and steam trains on weekends, offering two to three trips between Carson City and Virginia City. The route traverses 14 miles and lasts one-and-a-half hours in each direction. In 2019, the route carried 25,200 passengers, a significant increase from the 13,000 reported in the last state rail plan. The V&TRRY Commission spent \$140,000 on advertising in 2019, in part to differentiate itself from the shorter V&TRR service.

The V&TRR operates seven trips daily on the three-mile segment between Virginia City and Gold Hill. The V&TRR also operates special event trains throughout the year, including the Comstock Christmas train and the Polar Express. Ridership ranges from 40,000 to 70,000 annually.

### *Nevada State Railroad Museum*

The Nevada State Railroad Museum in Carson City operates excursion service six days a week on a one-mile loop around the museum property from May to October with special holiday service in December. The museum operates a steam engine one weekend per month and motor car service the other weekends with 7 to 14 trips per day. Annual ridership on the line ranges from 17,000 to 25,000 annually. The museum is currently in the process of adding a third rail to its mile-long loop track to accommodate its collection of narrow-gauge equipment.<sup>30</sup>

### *Nevada Southern Railway - Boulder City*

The Nevada Southern Railway operates from the Nevada State Railroad Museum's Yucca Street Station in Boulder City (the State Railroad Museum's southern counterpart) along 4.5 miles of track to Railroad Pass. The railway was originally built in the 1930s as a UPRR branch line to transport equipment and supplies for construction of the Hoover Dam.

Annual ridership on the Nevada Southern Railway has increased by 36 percent from 2010 to an annual average of 50,000 riders per year, as of 2019. This was accomplished through a successful promotion

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<sup>28</sup> Source: Tom Grey, V&T Railroad Company, Interview by Author, May 2020.

<sup>29</sup> Source: Elaine Barkdull-Spencer, V&T Railway Commission, Interview by Author, April 2020.

<sup>30</sup> Source: Dan P. Thielen, Nevada State Railroad Museum, Carson City, Interview by Author, June 2020

campaign and a partnership with “Rail Explorers”, offering joint excursions with rail bicycles followed by trains using rigorous safety protocols.<sup>31</sup>

As of this writing, the Nevada Southern Railway is starting service on a half-mile extension, for a total of five miles of railroad in service. The extension, afforded by a highway grade-separation project, reconnects the railroad to the industrial spur owned by the City of Henderson and UPRR. The extension crests a hill, granting Nevada Southern trains spectacular views of the Las Vegas Strip.

As the Nevada Southern is a volunteer-operated, non-insular tourist railroad, it falls under FRA “Lite” regulations, which require double derails at its new interchange with UPRR. This effectively prevents it from interchanging between the two railroads within the city of Henderson and preserves its reduced regulation requirements.

#### A-6. Multimodal Passenger Connections

This section provides an overview of the multi-modal transportation connections available within the eight Nevada cities that currently are served by either Amtrak rail or Thruway Bus service. The section highlights non-automobile modes with a focus on transit and regional intercity connections; additional linkages might be developed in conjunction with new passenger rail service provided to any of these cities. Walk, bike, and transit scores associated with each of the Amtrak-served stations in these eight cities have been reported where available. All Amtrak rail and Thruway Bus departure and arrival times are based on the June 2018 Full System Timetable. Significantly, in Northern Nevada, Greyhound discontinued all service east of Reno to Salt Lake City in February 2018. Instead, Greyhound arranged for its passengers to travel via Amtrak. This decision by Greyhound has rendered Amtrak’s *California Zephyr* as the only common carrier passenger service in the corridor and the sole intercity public transit connection to Elko, Winnemucca, and Reno, to and from points further east to Northern Nevada. **Figure 2-7** shows the 2019 Greyhound System Map, showing the lack of service to Nevada. **Table 2-8** displays a summary of the modes available in each Amtrak served city.

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<sup>31</sup> Source: Randall C. Hees, Director, Nevada State Railroad Museum, interview by author, Boulder City, March 2020.

Figure 2-7: 2019 Greyhound System Map<sup>32</sup>



Table 2-8: Multimodal Connections Serving Amtrak Stations in Nevada Cities Ranked by Size

City	Amtrak Rail	Amtrak Thruway Bus	Greyhound	Intracity Transit	Regional Transit	Airport Shuttles	Taxi	Rental Car
<b>Las Vegas</b>		X	X	X	X	X	X	X
<b>Reno</b>	X	X	X	X	X	X	X	X
<b>Elko</b>	X			X			X	X
<b>Winnemucca</b>	X						X	
<b>Sparks</b>		X		X	X	X	X	X
<b>Laughlin</b>		X	X	X	X	X	X	X
<b>Stateline / South Lake Tahoe</b>		X		X	X	X	X	X

### Las Vegas

Nevada's largest city, Las Vegas, has not been served by intercity passenger rail trains since the termination of Amtrak's *Desert Wind* in 1997, which linked Las Vegas and Salt Lake City and Los Angeles with a stop in Caliente, NV. Las Vegas currently is served by four Amtrak Thruway Bus lines with direct service to Salt Lake City; Kingman, AZ, where it connects with Amtrak's *Southwest Chief*; Los Angeles; and Bakersfield, CA. All Amtrak Thruway service operates out of the downtown Greyhound Station at 200

<sup>32</sup> Greyhound, 2019 Greyhound Network Map, [source link](#), accessed June 7 2020.



South Main Street, except for the Kingman, AZ line, which stops at McCarran International Airport. **Figure 2-8** shows the locations of the multimodal passenger connections in Las Vegas.

#### [Connections to/from the \*California Zephyr\* via Salt Lake City](#)

The Thruway service interlines with Greyhound between Las Vegas and the *California Zephyr* route in Salt Lake City. The route operates one round trip per day between Las Vegas and Salt Lake City. The eastbound bus departs Las Vegas at 7:55 am and arrives in Salt Lake City at 5:05 pm. The westbound bus departs from Salt Lake City at 7:45 am and arrives at the Las Vegas Greyhound station at 2:55 pm. Neither trip provides convenient connections to the *California Zephyr*; trains depart Salt Lake City at 11:30 pm in the westbound direction and 3:30 am in the eastbound direction. This means that passengers face an over six-hour wait to catch the train in Salt Lake City after having arrived from Las Vegas, and a 5.5-hour wait in Salt Lake City for the bus connection to Las Vegas after having detrained at 3:30 am.

#### [Connections to/from the \*Southwest Chief\* via Kingman, AZ](#)

Amtrak operates one Thruway Bus trip per day in each direction between Las Vegas McCarran International Airport and Kingman's Amtrak Station, connecting with the *Southwest Chief*. The bus departs Las Vegas at 9:30 pm and arrives in Kingman at 1:00 am. It makes the return trip from Kingman at 11:50 pm and arrives at 3:10 am in Las Vegas. The *Southwest Chief* is scheduled to stop in Kingman daily at 11:46 pm westbound and 1:33 am eastbound. Effectively, this thruway service exclusively works for passengers originating from East of Kingman, AZ, aboard the *Southwest Chief* as passengers departing from or to the west would face a 24-hour wait for a bus or train connection. Passengers from the west therefore are served by Thruway service originating from Los Angeles Union Station.

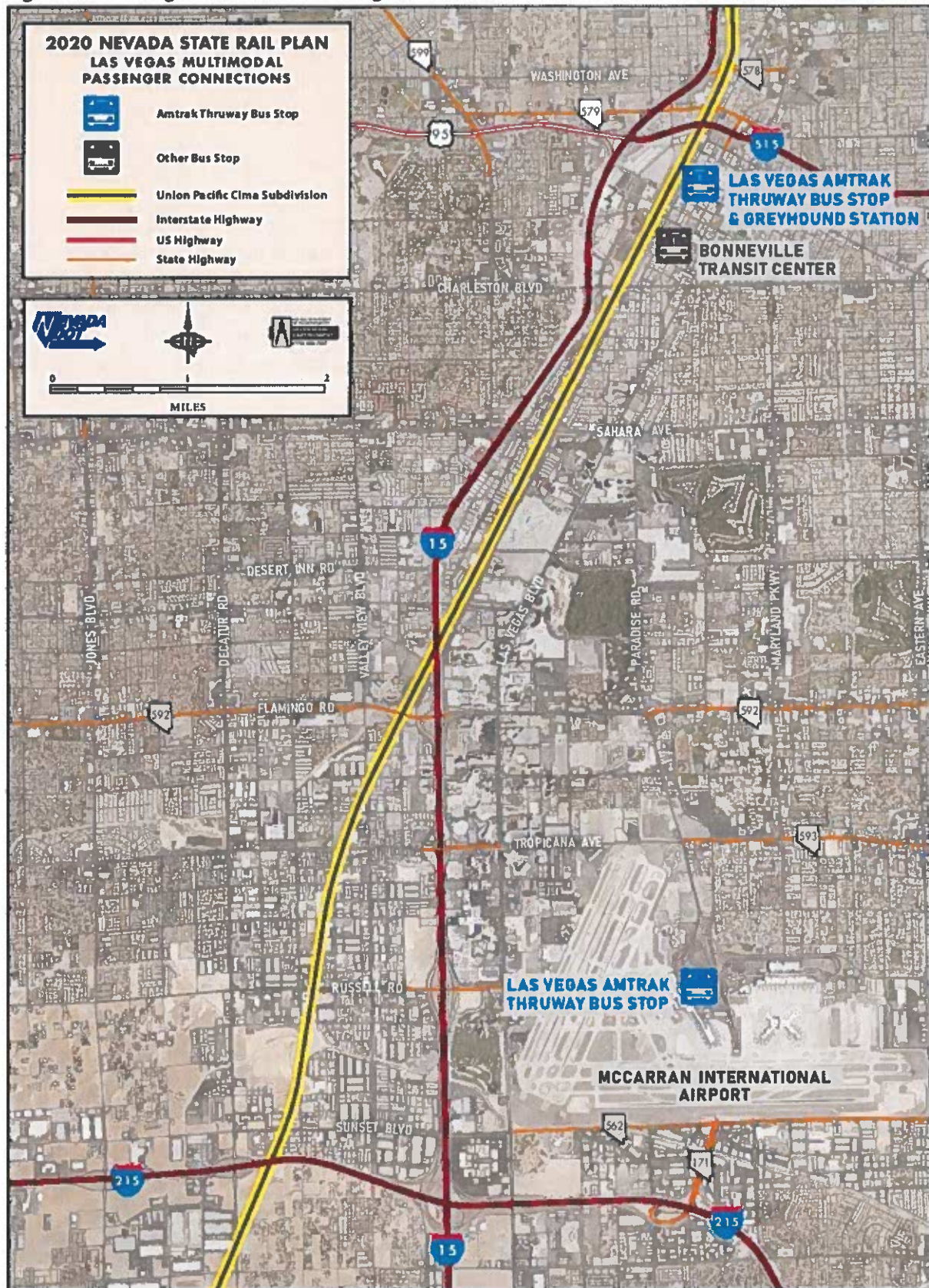
#### [Connections to the \*Southwest Chief\* via Los Angeles](#)

Amtrak interlines with Greyhound to operate two trips daily from Los Angeles to Las Vegas and one trip per day from Las Vegas to Los Angeles. Trips from Los Angeles depart at 10:25 am and 4:00 pm and arrive in Las Vegas at 5:10 pm and 8:45 pm respectively. Trips from Las Vegas depart at 8:00 am and arrive in Los Angeles at 1:15pm. The *Southwest Chief* departs Los Angeles at 6:15 pm daily with service to Chicago and arrives from Chicago at 8:15 am two days later.

#### [Connections to/from the \*San Joaquin\* via Bakersfield, CA](#)

Amtrak Thruway Buses operate one trip per day between Las Vegas and Bakersfield with connections to the *San Joaquin* line. The *San Joaquin* travels through California's Central Valley between Sacramento, Stockton, and Bakersfield. Thruway Bus service connects Las Vegas with Bakersfield once per day in both directions. The bus departs Las Vegas at 9:25 am and arrives in Bakersfield at 3:55 pm. It then departs from Bakersfield at 4:05 pm and arrives in Las Vegas at 8:40 pm. San Joaquin Trains 712 and 717 directly connect to the Las Vegas-bound Thruway Bus.

Figure 2-8: Las Vegas Multimodal Passenger Connections





### Greyhound

In addition to the specific cases where it interlines with Amtrak in Northern Nevada (see Reno, Elko, and Winnemucca in this section), Greyhound provides direct service from Las Vegas to Utah, Arizona, and Southern California. Connections between Greyhound and the Amtrak Thruway Bus line to Bakersfield can be made within the Greyhound terminal at 200 South Main Street in downtown Las Vegas.

### Transit

#### *Regional Transportation Commission of Southern Nevada (RTC)*

RTC operates 41 routes, serving Las Vegas and the surrounding area, with 12 routes offering 24-hour service<sup>33</sup>. Three bus routes directly serve the Amtrak Thruway Bus stop at the Greyhound station while numerous other routes provide service within a six-block walk at the Bonneville Transit Center at 101 East Bonneville Avenue at Casino Center Boulevard. Three bus routes serve the Amtrak bus stop located at McCarran International Airport, including 15-minute service to and from downtown via RTC route 109 and the Westcliff Airport Express (WAX) line, which operates every 30 to 60 minutes between the airport, the Strip, downtown, and the Westcliff Transit Center.

### Las Vegas Monorail

The Las Vegas Monorail, a private transit operating company, provides service along a 3.9-mile line east of the Las Vegas Strip between the MGM Grand Hotel and the Sahara Hotel, with interim stations at Bally's/Paris Las Vegas, Flamingo/Caesar's Palace, Harrah's/Imperial Palace, Las Vegas Convention Center, and the Las Vegas Hilton. The monorail line does not currently link with any Amtrak bus stops; the Las Vegas Monorail company previously entertained the idea of extending its line south from



**Las Vegas Monorail at Westgate Station**

the MGM Grand Hotel to the McCarran International Airport, a plan that was officially abandoned in favor of an extension to the Mandalay Bay Convention Center on the south strip in 2015.<sup>34</sup>

### Other Modes

A full range of transportation connecting services is available in Las Vegas, a major tourist destination, including shuttles, taxis, rideshare, and rental cars. The Las Vegas Greyhound Station merits a walk score of 77 ("Very Walkable") a transit score of 69 ("good transit"), and a bike score of 67 ("flat as a pancake,

<sup>33</sup> Regional Transportation Commission of Southern Nevada, "Transit Map Effective December 8, 2019", [source link](#).

<sup>34</sup> Las Vegas Sun, article "Report: Future of Las Vegas transportation includes light rail under Strip, monorail extension", [source link](#), published May 27, 2015.

good bike lanes”). Las Vegas McCarran Airport earned a walk score of 36 (“Car-Dependent”), a transit score of 42 (“Some Transit”) and a bike score of 40 (“flat as a pancake, minimal bike lanes”).<sup>35</sup>

## Reno

Figure 2-9 shows the locations of the multimodal passenger connections in Reno. Amtrak’s *California Zephyr* provides one trip daily to Reno. Eastbound trains to Chicago stop in Reno at 4:06 pm and westbound trains headed to Emeryville, CA stop at 8:36 am. The Capitol Corridor Joint Powers Authority (CCJPA) contracts with Amtrak Thruway Buses to operate three buses per day in each direction to and from Reno. Two of three eastbound buses terminate at The Nugget Casino and Hotel in Sparks while westbound buses travel to Sacramento for direct connections to the *Capitol Corridor* route. Reno at 5:45 pm and 9:40 pm while westbound buses depart at 8:00 am, 11:25 am and 2:45 pm. CCJPA business plans listed extending Capitol Corridor passenger rail service from Sacramento to Reno, electing not to pursue the extension in 2005 following UPRR’s capacity determination that separate rights of way requiring costly new trackage would be needed on the Donner Pass route. Both Amtrak rail and bus services operate out of the full-service Amtrak station located in downtown Reno at 280 North Center Street, which opened in 2006 as part of the ReTRAC project.

## Greyhound

Greyhound now interlines with Amtrak along the I-80 corridor, only offering bus trips from Reno to points east. To illustrate this point, booking purely bus-only service from Sparks to Salt Lake City requires a 46-hour bus route through Portland, OR. Direct service east along I-80 is provided via interlined tickets aboard Amtrak’s *California Zephyr*, if tickets are booked originating at the Reno Amtrak Station. Travel from Reno to points west (Sacramento and the San Francisco Bay area) are served regularly by Greyhound busses. Greyhound serves the Amtrak station as well as the Sparks Transit Center located at 1421 Victorian Avenue.

## Transit

Reno’s RTC Ride transit system provides service throughout the region on 33 bus lines, including express service to Carson City. RTC’s 4th Street Transit Center is located downtown at 4th Street and Evans Avenue, three blocks from the Amtrak Station. Amtrak patrons enjoy multiple transit options, including the high-capacity RTC Rapid Virginia line which operates 24 hours a day, providing direct connections between Amtrak and other areas of downtown Reno and the Virginia Street corridor. Regional transit entities also provide service from Reno, including Eastern Sierra Transit Authority to Bishop, CA, South Tahoe Express to South Lake Tahoe, and Modoc Sage Stage to Alturas and Susanville, CA.

## Other Modes

Numerous private charter coach lines operate along the I-80 corridor between Reno and Sacramento and the San Francisco Bay area year-round, taking passengers to casino destinations. Rental cars, taxis, and rideshare services are readily available in downtown Reno near the Amtrak station. The Amtrak Reno Station merits a walk score of 97 (“Walker’s Paradise”), a transit score of 65 (“Good Transit”), and a bike score of 88 (“Very Bikeable”).<sup>36</sup>

<sup>35</sup> Walk Score, [source link](#), accessed June 7, 2020.

<sup>36</sup> Walk Score, [source link](#), accessed June 7, 2020.



Figure 2-9: Reno Multimodal Passenger Connections

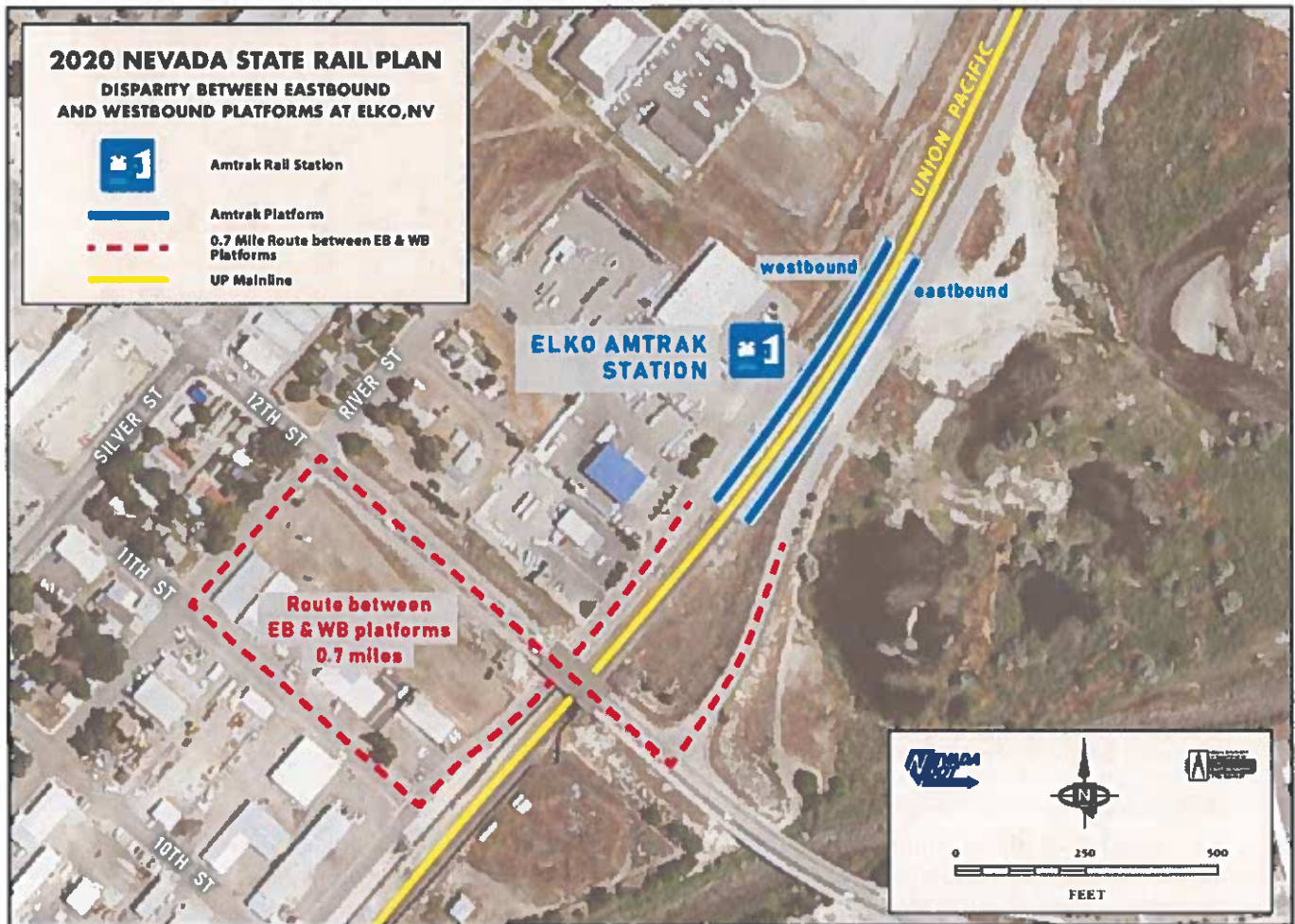




## Elko

Amtrak's *California Zephyr* passenger rail line makes one trip daily in each direction to Elko. The westbound train arrives in Elko at 3:03 am and the eastbound train arrives at 9:31 pm. Elko's Amtrak station is located at 1300 Water Street about one-half mile northeast of downtown (see Figure 2-10). The station is comprised of an eastbound and westbound platform shelter and bench, with no Amtrak staff on the premises. The Elko Station is highly unusual and dysfunctional in nature given that there is no legal passage across the Union Pacific main line in Elko. Instead, travel between the eastbound and westbound platforms is made possible only via a passage three-quarters of a mile long using public streets and a grade-separated overpass. This arrangement was reported to have caused passenger confusion in the previous 2012 rail plan and persists today.

Figure 2-10: Elko Amtrak Passenger Station



## Greyhound

Greyhound discontinued its route between Salt Lake City, UT and Reno in 2018, ending Greyhound service to Elko. Greyhound now interlines with Amtrak's *California Zephyr*, leaving it as the sole public transportation provider to the city.

## Transit

The Elko County "Blue Line Flex Route" bus service does not officially serve the Amtrak station directly, though riders are advised that they may "flag the flex" at any point along its route, which runs on an



intersecting street near the Amtrak platforms during its operational hours of 6:30 am to 5:30 pm on weekdays. The service does not operate at the times Amtrak stops in Elko.

#### Other Modes

Connections between Amtrak and other destinations in Elko can be made through the Elko Taxi service, which operates 24 hours per day. Rental cars are available through Enterprise Rent-A-Car at the Elko airport. Rideshare services are not available in Elko. The Elko Amtrak Station merits a walk score of 49 (“Car-Dependent”) and a bike score of 47 (“Somewhat Bikeable”).<sup>37</sup>



**Amtrak's California Zephyr at Winnemucca Station**

#### Winnemucca

Winnemucca is in the northern part of the state on I-80 about two-and-a-half hours (170 miles) east of Reno. Winnemucca currently is exclusively served by Amtrak's *California Zephyr* given Greyhound's cancellation of its route in 2018, between Reno and Salt Lake City, UT. The eastbound *California Zephyr* stops in Winnemucca daily at 7:08 pm while the westbound *California Zephyr* stops in Winnemucca at 5:40 am. Amtrak's unstaffed Winnemucca station is located at 209 Railroad Street. It was upgraded with an ADA-compliant platform and a traditional railroad shelter featuring an enclosed waiting room constructed in 2012 (see Figure 2-11).

<sup>37</sup> Walk Score, [source link](#), accessed June 7, 2020.

### Greyhound

Greyhound interlines with Amtrak's *California Zephyr* to serve Winnemucca to Salt Lake City and to Reno.

### Transit and Other Modes

Winnemucca Taxi provides 24-hour service to the Amtrak station. Transit, shuttle, and rental car services are not available in Winnemucca, nor are Uber, Lyft or other TNC services. The Winnemucca Amtrak Station has a walk score of 70 ("Very Walkable") and a bike score of 50 ("Bikeable").<sup>38</sup>

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<sup>38</sup> Walk Score, [source link](#), accessed June 7, 2020.



Figure 2-11: Winnemucca Amtrak Passenger Station



### Sparks

Amtrak discontinued *California Zephyr* service to Sparks in 2009, although Amtrak Thruway Bus service continues to operate between Sparks, Reno, and Sacramento with connections to the *Capitol Corridor* route. Buses stop at John Ascuaga's Nugget Hotel and Casino at 1100 Nugget Avenue (see **Figure 2-12**). Eastbound buses arrive in Sparks at 6:05 pm and 10:00 pm while westbound buses depart from Sparks at 7:40 am and 11:05 am.

### Greyhound

Greyhound serves the Amtrak station in Reno as well as the Sparks Transit Center located at 1421 Victorian Avenue.

### Transit

Sparks is part of the RTC Ride service area with seven routes operating out of the RTC Centennial Plaza transit center connecting downtown Sparks with the greater Reno metropolitan area. RTC does not provide direct bus service to the Amtrak Thruway Bus stop; the transit center is located within a 10-minute walk of the Amtrak Thruway Bus stop.

### Other Modes

Sparks and Reno have numerous shuttle, taxi, rental car, and rideshare services available. The Nugget Hotel and Casino has a walk score of 67 ("Somewhat Walkable") and a bike score of 69 ("Bikeable").<sup>39</sup>

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<sup>39</sup> Walk Score, [source link](#), accessed June 7, 2020.



Figure 2-12: Sparks Multimodal Passenger Connections





### Laughlin

The city of Laughlin is located two hours southeast of Las Vegas via US93 and US163 on the Arizona border. Amtrak's Thruway Bus service, connecting Las Vegas' McCarran International Airport to the *Southwest Chief* route in Kingman, AZ, stops in Laughlin once a day at the Tropicana Express Hotel, located at 2121 South Casino Drive (see **Figure 2-13**). Northbound buses arrive in Laughlin at 12:50 am while southbound buses arrive at 12:01 am.

### Greyhound

Greyhound provides multiple trips per day to Las Vegas, Phoenix, and Flagstaff from the Bullhead City stop at 1000 Highway 95, which is located 2.5 miles from the Amtrak stop in Laughlin (see **Figure 2-13**).

### Transit

Silver Rider transit operates two one-way loop bus routes that circulate throughout the city of Laughlin, providing hourly service to the Amtrak bus stop in Laughlin. Route 777 operates 24 hours per day in a counterclockwise direction and Route 888 operates 19 hours per day in a clockwise direction.

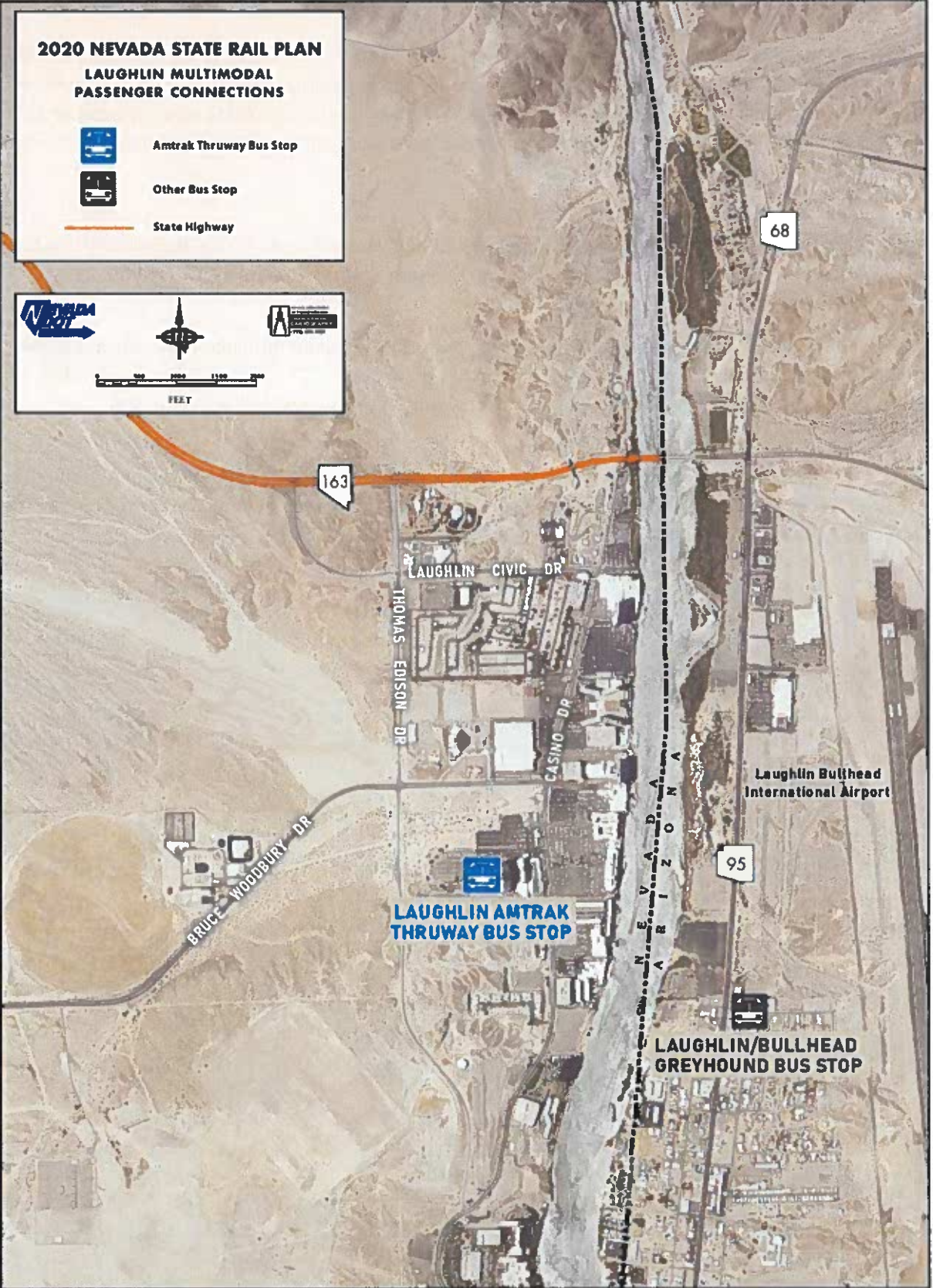
### Other Modes

Several shuttle operators provide daily trips between Laughlin and McCarran International Airport in Las Vegas. Taxi and rental car services are also available in Laughlin, as well as limited rideshare coverage. The Tropicana Express Hotel merits a walk score of 25 ("Car Dependent").<sup>40</sup>

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<sup>40</sup> Walk Score, [source link](#), accessed June 7, 2020.

Figure 2-13: Laughlin Multimodal Passenger Connections



### Stateline

The small community of Stateline, NV is located at the California border directly across from South Lake Tahoe. It is a recreation destination with skiing in the winter and lake-oriented activities and hiking the rest of the year. Amtrak's Thruway Bus service operates one trip per day in each direction from Stateline's Kingsbury Transit Center to Sacramento with direct connections to the *Capitol Corridor*. (See **Figure 2-14**.) The bus departs Stateline at 2:00 pm for trips to Sacramento aboard *Capitol Corridor* Trains 547 and 747 and arrives in Stateline from Sacramento at 12:35 pm on weekdays and 12:55 pm on weekends for connections with *Capitol Corridor* trains 524 and 720, respectively.

### Greyhound

Greyhound does not serve the Stateline/South Lake Tahoe area.

### Transit

Lake Tahoe's BlueGo Transit operates five routes in Stateline with service to the Kingsbury Transit Center for direct connections to Amtrak buses. The routes provide service to the surrounding area, as well connections to Carson City (see **Figure 2-14**).

### Other Modes

Shuttles are available for trips between the Tahoe area and Reno. South Lake Tahoe and Stateline also have numerous taxi, rental car, and rideshare services available. The Kingsbury Transit Center merits a walk score of 38 ("Car-Dependent") and a bike score of 58 ("Bikeable").<sup>41</sup>

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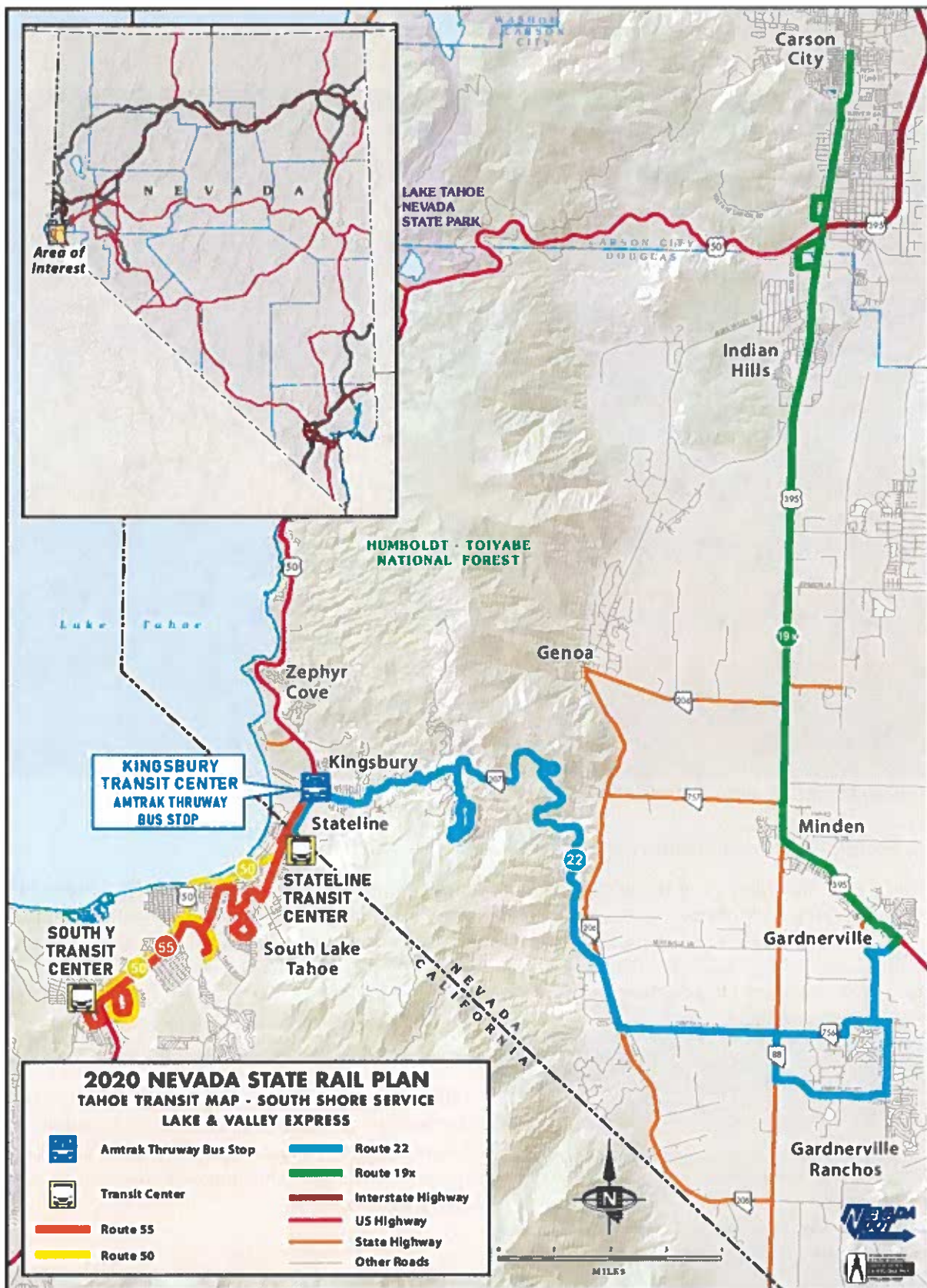
<sup>41</sup> Walk Score, [source link](#), accessed June 7, 2020.



Figures 2-14 and 2-14.1: Stateline Multimodal Passenger Connections









### Primm

Primm, NV no longer has a connection to the national rail network via Amtrak Thruway Bus service. The connection disappeared from Amtrak timetables in 2014.



*Union Pacific Locomotives in North Las Vegas*

## B. Freight Rail Infrastructure and Operations

This section describes all of the active and inactive freight rail lines and facilities, including intermodal facilities, in the state of Nevada. The description of each active railroad includes key characteristics, such as route miles, weight restrictions, track classifications, and maximum operating speeds.

**Table 2-9: FRA Track Classification and Maximum Operating Speeds**

Track Class	Maximum Freight Operating Speed (mph)
Excepted Track	10
Class 1 Track	10
Class 2 Track	25
Class 3 Track	40
Class 4 Track	60
Class 5 Track	80
Class 6 Track	110

Table 2-9 gives the maximum operating speeds that the Federal Railroad Administration (FRA) permits for freight traffic on various classifications of track. These speed restrictions are imposed to ensure safe operating conditions.

### B-1. Main Lines

Two Class I transcontinental railroads: Union Pacific Railroad (UPRR) and Burlington Northern Santa Fe (BNSF) operate within the state of Nevada. The UPRR is the largest carrier in Nevada and owns all 1,193 main line and branch line route miles in the state (1,131 miles of single track and 62 miles of double track, not including parallel main lines run unidirectionally as double track: 178 miles of former Western Pacific and 183 miles of former Southern Pacific between Alazon and Weso). BNSF has trackage rights on 798 route miles or 67 percent of the freight rail line in the state; BNSF does not own any trackage in Nevada. BNSF gained its trackage rights as a result of the Surface Transportation Board's (STB) approval of the 1996 UPRR merger with the Southern Pacific Transportation Company (SPTC).

BNSF was granted the following access rights to maintain pre-merger competition:

- the right to access all customers on the UPRR and former Southern Pacific main lines between Weso and Alazon (where BNSF has opted to serve only 16 of 29 private sidetracks);
- the right to establish exclusive intermodal, automotive, and transload facilities in the Reno-Sparks area (where BNSF has never exercised its rights for intermodal or automotive purposes and has unofficially terminated its transloading operation);
- the right to interchange directly with the Nevada Northern Railway (former BHP Nevada Railroad) at Shafter (where BNSF has never exercised its interchange rights with a car storage concessionaire, S&S Shortline Leasing, in operation since 2009); and
- the right to access all customers who locate on the BNSF trackage lines after the merger (which BNSF has opted to do for only 13 new private sidetracks).

UPRR employed 448 people living as residents in the state of Nevada with an annual payroll of \$39.7M million in 2019; BNSF uses UPRR operating crews to move BNSF freight in the state by agreement with UPRR.

Combined, these two railroads hauled about 44 million net tons of freight through Nevada in 2018. Through-traffic comprised 83 percent of freight railroad traffic in the state. Traffic originating outside of Nevada with destinations in the state accounted for 5.3 million tons, including coal, clay, concrete, chemical products. The UPRR and BNSF shipped 2.3 million tons of freight originating in Nevada to destinations outside the state, which included commodities such as chemical or allied products, intermodal, and non-metallic minerals.

UPRR freight rail traffic in Nevada has declined from 92,921 rail cars terminating in Nevada in 2007 to 84,223 carloads in 2019, a decrease of nine percent. Rail cars originating in Nevada have moderately increased from 30,905 in 2007 to 32,782 in 2019, or 6 percent.

The UPRR main lines operate east-west across Nevada, connecting Salt Lake City and other destinations to the east, including Denver and Chicago with northern and southern California. The state does not have any north-south lines connecting its two largest regions: Reno and Las Vegas.

Nevada's freight rail system is comprised of three UPRR main lines in northern Nevada (Overland Route, Central Corridor, and Feather River Corridor) and one in southern Nevada, the South Central Route. **Table 2-11** provides an overview of the freight rail routes and mileage, and **Table 2-12** displays route operating characteristics. **Figure 2-15** shows the main line routes and trackage right routes in Nevada; **Figure 2-16** shows key UPRR and BNSF mainline routes in adjacent states.

### Union Pacific in Nevada

**Table 2-10: Union Pacific in Nevada<sup>42</sup>**

Union Pacific Facts in Nevada	
Miles of Track	1,193
Annual Payroll	\$39.7MM
In-State Purchases	\$9MM
Capital Investment	\$50.7MM
Employees	488
U.S. Job Supported <sup>43</sup>	4,392

Union Pacific's operation in Nevada provides a number of employment and tax revenue benefits in the State of Nevada. **Table 2-10** provides a summary of UP's impact in Nevada.

### Northern Nevada Main Lines

#### Overland Route (Historic Southern Pacific Route)

The Overland Route is a principal UPRR cross-country line, connecting Chicago, IL to Oakland, CA. The Overland Route

travels 446 miles across the northern part of the state of Nevada, passing through the cities of Wells, Elko, Winnemucca, Hazen, Fernley, Sparks, Reno, and Verdi. The route runs east from Nevada connecting the states of Utah, Wyoming, Colorado, Nebraska, Iowa, and Illinois. The route runs west from Nevada crossing the Sierra Nevada Range over Donner Pass, linking Nevada with Roseville, Sacramento, and Oakland, CA. The Overland Route connects in Roseville to UPRR's I-5 Corridor with service to the San Joaquin Valley, Southern California, and north to Oregon and Washington. The Overland Route connects in Oakland to the San Francisco Bay area and to the UPRR's Coast Line, which runs south to Los Angeles.

The Overland Route operates predominantly as a single-track mainline with only 53 miles (12 percent) of the 446-mile route operating as a double-track mainline. The standard double-tracked segments include Reno to Vista (11 miles), Alazon to Moor (14 miles), and Valley Pass to Tecoma near the Utah border (28 miles). Automatic Block Signals (ABS) are used to control traffic along the eastern part of the route between Verdi and Reno, Winnemucca and Moor, and Valley Pass and the Utah border. Centralized Traffic Control (CTC) is used to control traffic on the section of the railroad between Reno and Winnemucca and between Moor and Valley Pass. The maximum authorized freight speed is 79 miles per hour (mph), which is classified as Class 5 track under FRA Track Safety Standards. The track along the route is comprised primarily of 132- and 136-pound continuous welded rail. As mandated by Congress and the FRA, train operations on the Overland Route are protected by Positive Train Control (PTC).

<sup>42</sup> Union Pacific Railroad website, Union Pacific in Nevada, [source link](#), accessed August 27, 2020.

<sup>43</sup> Each American freight rail job supports 9 jobs elsewhere in the U.S. economy. (Association of American Railroads)

**Table 2-11: Main Line Rail Routes and Mileage**

Route	Description	Route Miles in Nevada	BNSF Trackage Rights (miles)
<b>Overland Route</b>	Oakland, CA to Chicago via Reno and Ogden, UT (formerly Southern Pacific)	446	377
<b>Central Corridor</b>	Winnemucca to Denver via Salt Lake City (formerly Western Pacific)	273	273
<b>Feather River Corridor</b>	Sacramento to Winnemucca (formerly Western Pacific)	154	154
<b>South Central Route</b>	Los Angeles-Long Beach, CA to Salt Lake City via Las Vegas	212	0
<b>Total Miles</b>		<b>1,085</b>	<b>804</b>

**Table 2-12: Nevada UPRR Main Line Freight Operating Characteristics**

Operating Characteristic	Overland Route	Central Corridor	Feather River Corridor	South Central Route
<b>Operator</b>	UPRR, BNSF	UPRR, BNSF	UPRR, BNSF	UPRR
<b>Speed (mph)</b>	70-79	70-79	70	70-79
<b>Track Class</b>	5	5	5	5
<b>Track Type (Single or Double Track)</b>	Single track with double track segments at MP 238 to 249 (Reno to Vista), MP 603 to 617 (Alazon to Moor), MP 641 to 669 (Valley Pass to Tecoma)	Single Track	Single Track	Single track with double track segment at MP 326 to 335 (Woodbury Beltway to Owens Ave in Las Vegas)
<b>Type of Control</b>	Automatic Block Signal (ABS) - Verdi to Reno, Winnemucca to Moor, Valley Pass to Utah border. CTC - Reno to Winnemucca and Moor to Valley Pass. PTC Equipped	ABS - Weso to Wells. CTC - Wells to Utah border. PTC Equipped	Centralized Traffic Control (CTC) and Positive Train Control (PTC)	CTC and PTC
<b>Rail Main (pounds)</b>	Mostly 132 and 136	Mostly 133	Mostly 133	Mostly 133
<b>Subdivision</b>	Roseville, Nevada, Elko, Shafter, Lakeside	Winnemucca Elko, Shafter	Winnemucca	Cima and Caliente
<b>Division</b>	Roseville and Utah	Roseville and Utah	Roseville	Los Angeles and Utah



**2020 NEVADA STATE RAIL PLAN  
MAIN LINES**

- Union Pacific (UP) Mainlines
- BNSF Trackage Rights on UP Mainlines
- Amtrak Services on UP Mainlines
- Branch
- Excursion
- Interstate Highway
- US Highway
- Amtrak Rail Station
- Overland Route (UP)
- Central Corridor (UP)
- Feather River Corridor (UP)
- South Central Route (UP)



Figure 2-16: Major Line Network in Adjoining States



The Overland Route parallels the Central Corridor route for 183 of its miles between Weso and Alazon, where the two routes run within the same valley and share similar alignments. All eastbound traffic operates on the Central Corridor and westbound trains operate on the Overland Route. The Overland Route connects to the Feather River Corridor in Weso and to the Fallon, Mina, and Thorne branch lines in Hazen. UPRR's highest car volumes in Nevada occur on the segment of the shared Overland Route/Central Corridor segment between Alazon and Weso.

The Overland Route is part of UPRR's Utah and Roseville service units and travels through the UPRR Lakeside, Elko, Nevada, and Roseville subdivisions.

BNSF obtained trackage rights on the 377-mile Verdi-to-Alazon segment of the Overland Route in Nevada after the UPRR and SPTC merged in 1996. The SPTC owned the Overland Route prior to the merger, and the STB required that a second Class I railroad carrier be granted trackage rights in the state to preserve pre-merger competition in areas where it previously existed. BNSF was granted the right to serve some existing and all new customers along segments of the line.

UPRR changed its operations following the merger. UPRR had historically operated the Central Corridor across Nevada and west to Oakland over the Feather River branch. After the merger, UPRR split the

Central Corridor into two lines at Weso, designating the line west of Weso as the Feather River Corridor and the trackage east of Weso as the Central Corridor. The changes were made to reduce redundancy and improve operational efficiency on the overall UPRR system.

#### **Central Corridor (Historic Western Pacific Route)**

The UPRR's Central Corridor travels 273 miles across northern Nevada, linking Winnemucca and northwestern Nevada with Salt Lake City and Denver. The Central Corridor runs through West Wendover, Shafter, Wells, Elko, and Carlin in Nevada. The Central Corridor parallels the Overland Route between Wells and Winnemucca, a distance of 178 miles where the two lines are situated within the same valley and operate with all eastbound traffic on the Central Corridor track and westbound trains on the Overland Route.

The Central Corridor diverges from the Overland Route at Wells and travels southeast to Salt Lake City. The Alazon-to-Weso track segment that the Central Corridor shares with the Overland Route has UPRR's highest car volumes in Nevada. The Central Corridor connects with the Feather River Corridor to the west at Weso.

The Central Corridor is a single-track main line with a maximum operating speed of 79 mph (Class 5 track). The track consists primarily of 133-pound continuous welded rail. CTC is used to control traffic between the Utah border and Wells, and ABS is used between Wells and Weso. The Central Corridor is part of UPRR's Utah and Roseville service units and the UPRR Shafter and Elko subdivisions. BNSF has trackage rights on the Central Corridor.

As mandated by Congress and the FRA, train operations on the Central Corridor are protected by Positive Train Control (PTC).

#### **Feather River Corridor (Historic Western Pacific Route)**

The Feather River Corridor is a 154-mile-long UPRR line, connecting Weso to Sacramento. The line follows the Feather River through Ronda, Gerlach, and Flanigan west of Winnemucca and through Portola, Keddie, and Oroville in eastern California before reaching Sacramento. The line connects in Sacramento to the I-5 Corridor with service to Oregon and Washington to the north, and the San Joaquin Valley and Southern California to the south, and to the San Francisco Bay Area via the Overland Route. Connections can be made in Weso to both the Central Corridor (Salt Lake City and Denver) and the Overland Route (Chicago).

The single-track Feather River Corridor line is CTC-controlled and has a maximum authorized operating speed of 70 mph over Class 5 track. The track consists of mostly 133- and 136-pound continuous welded rail. The Feather River Corridor is part of UPRR's Roseville service unit and the Winnemucca subdivision. BNSF has operating rights to serve new customers on the Feather River Corridor. As mandated by Congress and the FRA, train operations on the Feather River Corridor are protected by Positive Train Control (PTC).

UPRR shifted most traffic from the slower Feather River Corridor to the more direct Donner Pass route in 2009 after the completing a tunnel-notching project to allow for double-stacked container shipments. The Feather River Corridor is now used primarily for bulk commodities and as an alternate route during winter storms.

#### **Southern Nevada Main Lines**

##### **South Central Route**

The UPRR main line across southern Nevada travels 212 miles through the state, connecting Salt Lake City and points east with Los Angeles-Long Beach. The line passes through the Nevada cities of Caliente,

Moapa, Las Vegas, Jean, and Calada. Connections can be made in Colton, CA to UPRR's Sunset Route which serves Arizona, New Mexico, Texas, and Louisiana, and to the I-5 Corridor, which serves northern California, Oregon, and Washington. BNSF does not have operating rights on the South Central Route.

UPRR plans to maintain some traffic on the South Central Route, although the railroad has reduced traffic on this line. UPRR has shifted east-west traffic from the South Central Route to the Sunset Route, which travels between Los Angeles and El Paso. The railroad has invested heavily in upgrading the Sunset Route, which is mostly double-tracked. The Sunset Route offers a more favorable route to Chicago and points east using the Golden State Route between El Paso and Kansas City and BNSF trackage rights from Kansas City to Chicago. The Sunset Route has advantages over the South Central Route through Salt Lake City and Omaha to Chicago and points east as it avoids the slower speeds and higher fuel consumption of operating through the heart of the Rocky Mountains east of Salt Lake City.

The South Central Route is predominantly a single-track main line, except for a nine-mile-long double-tracked section in Las Vegas between Owens Avenue in North Las Vegas and Bruce Woodbury Beltway west of McCarran International Airport. The line is CTC-controlled and operates at a maximum authorized speed of 79 mph (Class 5 track). The track is comprised of primarily 133-pound continuous welded rail. The route is part of UPRR's Utah and Los Angeles service units and the Caliente and Cima subdivisions. As mandated by the FRA, train operations on the Southern Central Route are protected by Positive Train Control (PTC).

#### **B-2. Branch and Short Lines**

Nevada has 368 railroad route miles of freight track on six UP branch lines of four or more miles, six UP industrial leads of one or two miles, and five privately owned freight lines of five or more miles. Of the 368 route miles, only 198 miles are in service for commercial freight railroad operations. Out of service are the Nevada Northern Railway (164 miles), and the Empire Mining Company's branch to Empire (five miles). The entire network of branch and short lines is single-tracked, consisting of Class 1 and 2 tracks. **Figure 2-17** shows the locations of the larger branch and private lines, which are described in the following paragraphs in east-to-west order first in northern and then in southern Nevada.



**2020 NEVADA STATE RAIL PLAN BRANCH LINES**

- Branch
- Mainline
- Excursion
- Interstate Highway
- US Highway

- Nevada Northern Railway
- Fallon Branch (UP)
- Hawthorne Branch (UP)
- Reno Branch (UP)
- Mead Lake Branch (UP)
- PABCO Gypsum Branch
- BML Branch (UP)

**Inset A**

**Inset B**

### *Northern Nevada Branch and Short Lines*

The longer northern Nevada branch and private lines are the Nevada Northern Railway and the Fallon, Mina, and Thorne branches.

**Table 2-13: Northern Nevada Branch and Short Line Operating Characteristics**

<b>Operating Characteristic</b>	<b>Nevada Northern Railway</b>	<b>Fallon Branch</b>	<b>Mina Branch</b>	<b>Thorne Branch</b>	<b>Reno Branch</b>
<b>Owner</b>	White Pine RR Foundation	UPRR	UPRR	US Army	UPRR
<b>Operator</b>	NA	UPRR	UPRR	US Army	UPRR
<b>NV Route Miles</b>	149	16	43	53	18
<b>Speed (mph)</b>	25	10	25	10	20
<b>Track Class</b>	2	FRA Excepted	2	1	1
<b>Track Type (Single or Double)</b>	Single Track	Single Track	Single Track	Single Track	Single Track
<b>Type of Control</b>	TWC	TWC	TWC	TWC	TWC
<b>Rail Main (pounds)</b>	60	80	Mostly 133	Mostly 132 and 136	Mostly 100 and 110
<b>Subdivision</b>	NA	Fallon	Mina	Mina	Reno
<b>Division</b>	Roseville	Roseville	Roseville	Roseville	Roseville
<b>Mile Posts</b>	0 - 149	288 - 304	288 - 331	331 - 384	11 - 29

### *Nevada Northern Railway*

The Nevada Northern Railway consists of 148 route miles between the Overland Route main line in Cobre and mine property west of Ely. The White Pine Historical Railroad Foundation purchased the first 145 miles and two branch lines in the vicinity of McGill in 2004 from BHP Copper North America, which used the line to serve its copper mine in White Pine County. BHP discontinued service on the line in 1999 when the copper mines closed.

White Pine Historical Railroad Foundation granted a car storage concession to S&S Shortline Leasing in 2009, but that concession is being contested due to failure to perform. S&S Shortline installed safety ties over 43 miles of the line between Shafter (MP 18.5) and Currie (MP 62), but most of the line has not been used since 2009. The route consists of 60-pound rail produced in 1906, far too light and old to accommodate line-haul service. The White Pine Historical Railroad Foundation also granted a successful concession south of milepost 128.5 to an excursion train line in Ely.



### Fallon Branch

The UPRR's Fallon Branch, which was once part of the SPTC, extends 16 miles from the Overland Route main line in Hazen southeast to Fallon. Freight shipments on the Fallon line consist primarily of magnesium oxide, which is shipped from Fallon to the main line in Hazen. Premier Magnesia ships the materials by trucks operated by the SS Hert Trucking Company from mines in Gabbs (Nye County) to Fallon, where it is transferred to rail cars at their facility in the Fallon Yard.

The maximum authorized speed is 10 mph (FRA Excepted Track) over 80-pound rail. The entire line is single-tracked and TWC-controlled. The Fallon Branch is part of UPRR's Fallon subdivision within the Roseville service unit.

### Mina Branch

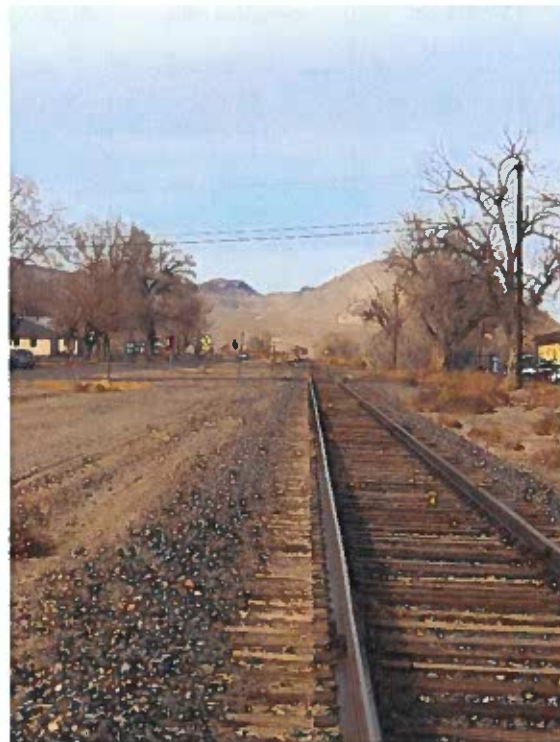
UPRR also owns and operates the Mina Branch, which was formerly part of the SPTC system. The line connects to the Overland Route main line in Hazen and extends 43 miles south to Fort Churchill near Wabuska. The line formerly served Nevada Energy's Geothermal Power Plant two miles east of Wabuska. The maximum authorized speed on the line is 25 mph (Track Class 2), and the rail consists of mostly 133-pound continuous welded rail. The Mina Branch is single-tracked and TWC-controlled. The Mina Branch is part of UPRR's Mina subdivision within the Roseville service unit.

### Thorne Branch

The Thorne Branch is the continuation of the Mina Branch south of Fort Churchill to the Hawthorne Army Depot. The federal government owns and operates this 54-mile branch line and uses it for classified military shipments. The maximum authorized speed on the single-track line is 10 mph (FRA Excepted Track). The track consists of mostly 132- and 136-pound continuous welded rail and is TWC-controlled.

### Reno Branch

The Reno Branch connects the Feather River Corridor to the Overland Route in Reno. The branch line operates from the Reno Yard in North Reno to a customer at milepost 11 and to a connection with the four-mile Learen Industrial Lead at milepost 22. UPRR serves some industries on the Reno Branch and its Learen Industrial Lead and maintains the line for operational redundancy when weather or other conditions require alternate routes.



*US Army's Thorne Branch*

The maximum authorized speed on the line is 20 mph (Track Class 2), and the rail consists of mostly 110-pound continuous welded rail. The Reno Branch is single-tracked and TWC-controlled. The Reno Branch is part of UPRR's Reno subdivision within the Roseville service unit.

#### *Southern Nevada Branch and Private Lines*

The southern Nevada branch and private lines include: Mead Lake, Pabco Gypsum, and BMI, and City of Henderson branches.

**Table 2-14: Southern Nevada Branch and Short Line Operating Characteristics**

Operating Characteristic	Mead Lake Branch	PABCO Gypsum	BMI Branch	City of Henderson
Owner	UPRR	Pabco	UPRR	Henderson
Operator	UPRR	Pabco	UPRR	UPRR
NV Route Miles	18	12	11	7
Speed (mph)	25	20	10	10
Track Class	2	1	1	1
Track Type (single or double track)	Single Track	Single Track	Single Track	Single Track
Type of Control	TWC	TWC	TWC	TWC
Rail Main (pounds)	Mostly 90 and 133	131	133	90
Subdivision	Mead Lake	NA	BMI	BMI
Division	Utah	Utah	Utah	Utah
Mile Posts	0 - 18	0 - 12	0 - 11	11 – 18

#### *Mead Lake Branch*

UPRR owns and operates the 18-mile single-track Mead Lake Branch, making two to three round trips per week between Moapa and Lake Mead, serving Simplot Cement. The maximum authorized speed on the line is 25 mph (Track Class 2). The line is TWC-controlled and is comprised mostly of 90- and 133-pound rail. The Mead Lake Branch is part of UPRR's Mead Lake subdivision within the Utah service unit.

#### *Pabco Gypsum Branch*

The Pabco Gypsum Branch (also known as the Nevada Industrial Switch) is the only private freight railroad still operating in Nevada. It is a 12-mile-long single-track line between the UPRR main line at Moapa and the Pabco gypsum wallboard plant north of Lake Mead. The maximum authorized speed on the line is 20 mph (Track Class 2) and it is TWC-controlled.

#### *BMI (Basic Magnesium Inc.) Branch*

Three different owners control the 22-mile-long Basic Magnesium Inc. (aka Black Mountain Industrial, and BMI) line. The branch was originally built to Boulder City in 1931 by the Union Pacific to support construction of the Hoover Dam. During World War II it was a critical supply line for the production of magnesium at BMI in Henderson.

The Nevada State Railroad Museum owns the most easterly 4.6 miles of the BMI Branch and operates excursion trains on the trackage from the Boulder City Depot. A complete description of this service is included in the excursion line section.



*Approaching End of Operations at Henderson on the Nevada Southern Railway*

The city of Henderson owns the middle seven miles of the BMI Branch that includes a spur to serve the Henderson Industrial Park (from mile post 11 to mile post 18). The primary commodities shipped on the line are consumer goods, plastics, and chemicals for companies, such as Ocean Spray, Lhoist North America, Berry Global, and Poly-West. The city of Henderson added new crossties, replaced rail, and added ballast to the line in 2009 to increase its operating speed to 25 mph (Track Class 2). The line is single-tracked, TWC-controlled, and comprised of 90-pound rail.

The UPRR owns and operates the 11-mile single-track western segment from the Boulder Highway and Railroad Pass crossing in the city of Henderson to Boulder Junction. The maximum speed on this segment is 10 mph (FRA Excepted Track), and it is TWC-controlled on mostly 133-pound rail. The BMI Branch is part of UPRR's Utah service unit and BMI subdivision.

### B-3. Freight Rail Facilities

Nevada serves as a major warehouse and distribution center in the western United States, providing as a transition hub between California, Utah, and points east. The warehousing industry in the state has grown considerably over the past 20 years with the development of large-scale industrial parks in the Reno-Sparks, Fernley, and Las Vegas areas. Intermodal traffic serving these industrial parks and other facilities is comprised primarily of high-value, low-density commodities, such as consumer goods. Rail freight originating and terminating in Nevada is predominantly bulk commodities such as coal, minerals, chemicals, glass, stone, and petroleum. In addition to the intermodal facilities and industrial parks, UPRR operates classification, maintenance, storage, and switching yards at select locations within the state. BNSF also operates a transload facility in Sparks to support freight operations.

**Figure 2-18** shows the locations of the freight rail facilities in the state. BNSF owns a proprietary transload facility in Sparks and has invested in trackage in Fernley to support its customer's volume. BNSF may use the UPRR's Sparks Intermodal Facility and can establish its own automotive, intermodal, or transload facilities in Reno.

### *Intermodal Facilities*

Nevada has two freight intermodal facilities where trailer-on-flat car (TOFC) or container-on-flat car (COFC) can be transferred between rail cars and/or trucks. The facilities include the UPRR Sparks Intermodal Facility in northern Nevada and the UPRR Las Vegas Intermodal Facility in North Las Vegas.

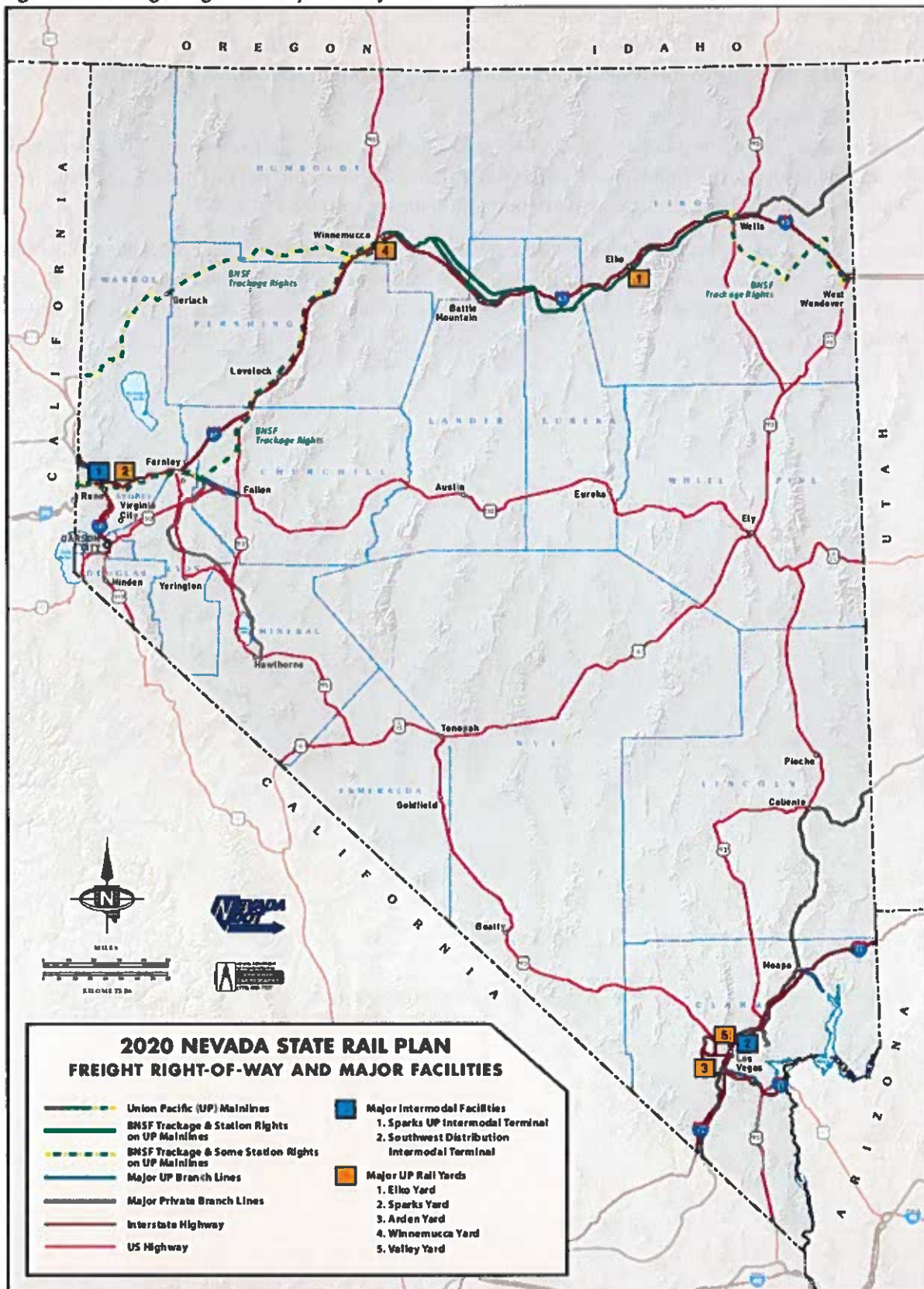
#### **UPRR Sparks Intermodal Facility**

The intermodal facility in Sparks is located at 1151 Nugget Avenue and is part of a larger general classification yard. The intermodal facility operates a side loader one shift per day between 6:00 am and 2:00 pm. Sparks is the only terminal in the state that includes both TOFC and COFC.

Donner Pass improvements allow double-stack containers to travel through the tunnels between Roseville and Truckee, which has allowed UPRR to shift traffic from the Feather River Corridor to its Overland Route to Salt Lake City and Chicago. There is currently no intermodal service offered between Sparks and California.



Figure 2-18: Freight Right-of-Way and Major Facilities in Nevada





#### UPRR Las Vegas Intermodal Facility (Valley Yard)

The Las Vegas Intermodal Facility is located at 4740 Tropical Parkway in North Las Vegas near US15 and the Bruce Woodbury Beltway. The UPRR owns the yard, which includes an intermodal (COFC only) and auto carload facility operated by Southwest Transload & Distribution. The Las Vegas facility contains four tracks, two for auto unloading/loading and two for intermodal. Each track accommodates about 16 cars. Storage capacity is sufficient for about 80 trailers and containers. Traffic includes paper products, autos, and building materials.

UPRR traffic at the Las Vegas Intermodal facility has declined due to UPRR's shifting of traffic from its South Central Route through southern Nevada to its Sunset Route through Arizona. UPRR has made major improvements in the former SPTC Sunset Route (Los Angeles to New Orleans) following the UPRR/SPTC merger to accommodate more traffic because of the Sunset Route's more favorable grades and alignment.

#### Classification Yards

Classification yards are facilities used to separate and organize rail cars into groups or unit trains of shipments bound for the same destination. UPRR has three classification yards in Nevada. The Elko Yard on the Central Corridor line and the Sparks Yard on the Overland Route serve industries in the northern part of the state. The Arden Yard on the South Central Route serves the southern part of the state.

#### Elko, Sparks, and Arden Yards

The Elko Yard has nine double-ended classification tracks and three receiving/departure tracks. It serves as a key UPRR refueling facility and crew change location along the main line. Increased fuel capacity was added and installation of a direct-to-train fueling pad was completed in October 2011 at the Elko Yard; it can accommodate four trains with four separate fueling stations.

The Sparks Yard has two receiving/departure tracks and fifteen double-ended classification tracks and a small repair facility.

The Arden Yard has two receiving/departure tracks and five double-ended classification tracks. It handles the switching requirements for Las Vegas as well as BMI Branch traffic. The UPRR Arden Yard is used for drop-off and pick-up of traffic for southern Nevada, rail staging, switching, and as a crew change location for the Cima subdivision.



**UP Intermodal Train Operating Through Arden Yard, Las Vegas**

### *Rail-Served Businesses and Industrial Parks*

Industrial leads are tracks connecting industrial parks, business parks, and individual companies directly to the main or branch line. Industrial lead facilities are mostly used for shipping, transloading, and warehousing. The following section provides an overview of the larger industrial facilities currently in use in Nevada.

#### **Northeastern Nevada Regional Railport (NNRR)**

NNRR opened in 2010 as part of a public-private revenue-sharing agreement between Elko County and Savage Services. This 60-acre intermodal transloading facility is located on the eastern edge of Elko adjacent to the UPRR Elko Yard. The facility includes rail-to-truck and truck-to-rail capabilities, as well as rail-car switching, storage, and warehousing.

#### **Fernley**

Fernley has two industrial spurs off the main line: the 1.5-mile Fernley Industrial Lead in east Fernley near Nevada Pacific Parkway and Newlands Road, and the one-mile Louisiana Pacific Lead in west Fernley near I-80 and West Main Street. The former serves the Nevada Cement Company. The latter serves companies such as Johns Manville, Deceuninck, Sherwin-Williams, and Trex.

#### **Tahoe Reno Industrial Center near Reno**

The Tahoe Reno Industrial Center (TRIC) is a 107,000-acre industrial park located in Storey County about 25 miles east of Reno. The park has 7.5 miles of private track with access to BNSF and UPRR service on the Overland Route. Rail-served companies located at TRIC include Golden Gate Petroleum, PPG, Truckee Tahoe Lumber, and Hardie Building Products. A 2.5-mile right-of-way extension exists that could serve Tesla's huge Gigafactory.

#### **Industrial Leads in Sparks**

There are four major industrial leads of one- to two-mile lengths each in Sparks: a running track south of the yard, the Purina Lead, the Meiser Drill, and the GM Lead. Together they reach nine active sidetracks and 27 inactive sidetrack customers.

#### **Industrial Leads in North Las Vegas**

There are three major industrial leads of one- to two-mile lengths each in North Las Vegas: Las Vegas Industrial Park, the Golden Triangle Industrial Track, and the Nellis Industrial Lead. Together they reach 15 active and seven inactive sidetrack customers.

#### **Statewide Sidetrack Statistics**

As of mid-2020, cumulative Nevada totals for facilities served by sidetracks are as follows:

- 139 active sidetracks serving manufacturing or bulk commodity facilities
- 51 inactive sidetracks serving manufacturing or bulk commodity facilities
- 1 active sidetrack serving warehouses or distribution facilities
- 48 inactive serving warehouses or distribution facilities
- 2 active intermodal (COFC/TOFC) facilities
- 83 UP sidetracks suitable for lease to/for use by transloaders
- 324 total sidetracks for existing or potential freight facilities

An inventory of Nevada businesses with sidetracks can be found in the Appendix.

#### B-4. Rail Line Abandonments and Land-Banked Track

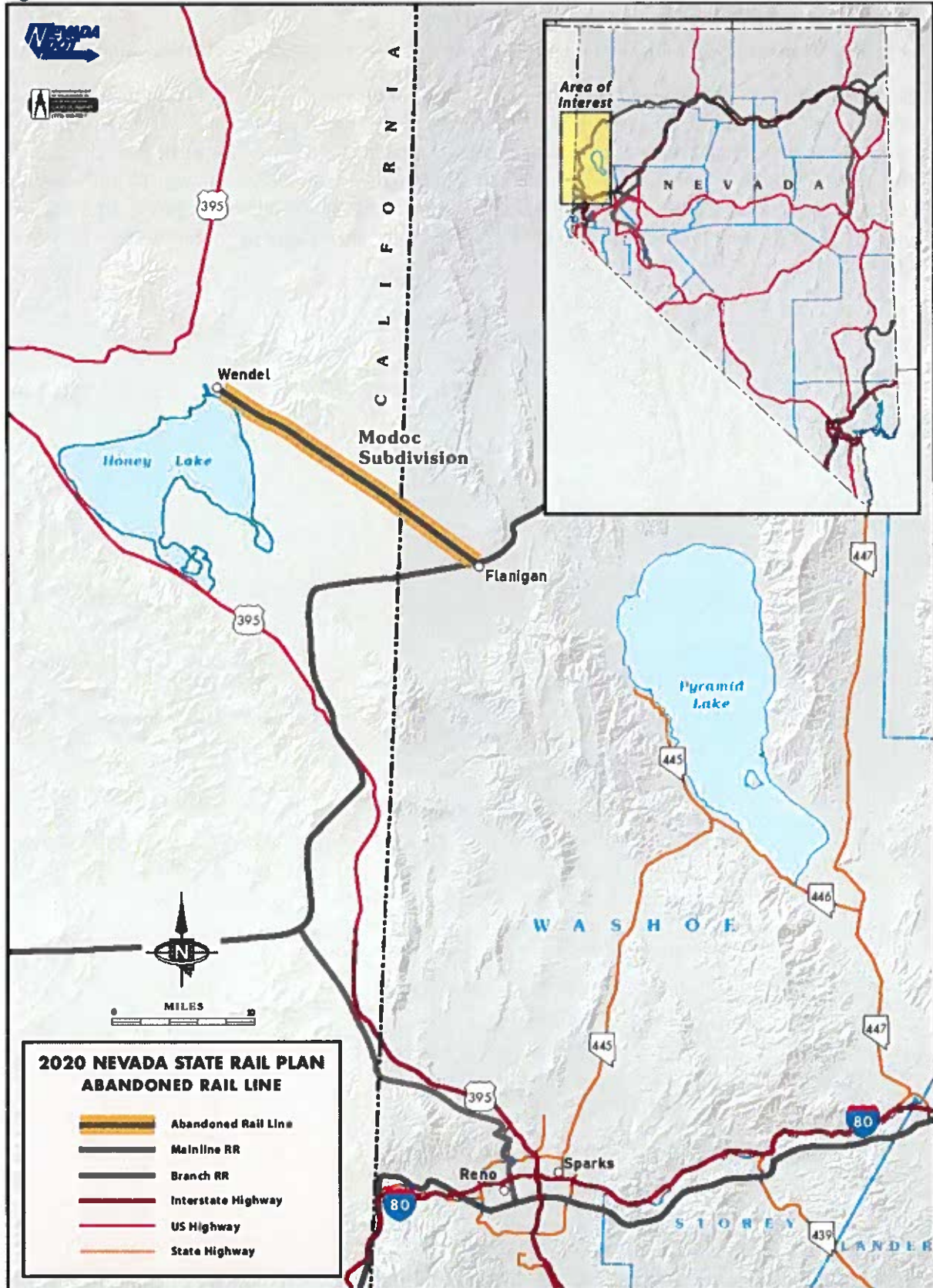
There have been no new rail abandonments in Nevada since the 2012 state rail plan was published.

Only one rail line has been abandoned in the last 20 years in Nevada<sup>44</sup> — the Modoc Subdivision, shown in **Figure 2-19**. The line ran for seven miles in Washoe County and an additional 21 miles into northern California, terminating in Wendel, CA. The line used to serve a California power plant and lumber mill. UPRR reclassified the line to an Industrial Lead and sold it to the Lassen Valley Railway LLC on December 3, 2009 when the tracks were last used. STB authorized abandoning the line on August 8, 2011 and the American Trails Association, Inc. consummated a trail use/rail banking agreement for the right of way on October 1, 2011.

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<sup>44</sup> Surface Transportation Board, Abandoned and Railbanked Rail Lines Map, [source link](#), accessed July 22, 2020.

Figure 2-19: Abandoned Rail Line





### B-5. Rails-to-Trails and Rails-with-Trails

More than 23,000 miles of abandoned rail lines in the US have been converted to multi-use bicycle and pedestrian trails in the last 35 years through the Rails-to-Trails program.<sup>45</sup>

Communities have also used Rails-with-Trails in recent years as another way to secure land for recreational trails. The Rails-with-Trails program is defined as a shared-use path located on or adjacent to an active railroad.

The Rails-to-Trails Conservancy and other organizations have helped develop six Rails-to-Trails projects in Nevada: the Historic Virginia and Truckee Trail (1.9 miles) on an abandoned segment of the V&T Railroad; the Historic Railroad Trail (3.7 miles) near Boulder City; the River Mountains Loop Trail (35.3 miles) near Henderson and the Hoover Dam; the Union Pacific Railroad Trail (7.3 miles) near Henderson; the Goodsprings Trail (2.2 miles) completed in 2019, forty miles southwest of Las Vegas; and the Tahoe-Pyramid Bikeway (49.6 miles) near the Reno & Pyramid Lake area with a three-mile segment on a former railroad corridor.<sup>46</sup> The Tahoe-Pyramid Bikeway is still in development, though the majority of the trail is largely complete as of this writing.



*Historic Rail Trail Boulder City to the Hoover Dam*



*Historic Rail Trail and Tunnel near Hoover Dam*

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<sup>45</sup> Rails-To-Trails Conservancy, About Page, [source link](#), accessed July 22, 2020.

<sup>46</sup> TrailLink website, [source link](#), accessed July 22, 2020.



## C. Freight Commodities

### C-1. Overview of Data Sources

The 2021 Nevada State Rail Plan utilized a variety of data sources to determine the estimated road and rail traffic that impact the State of Nevada's surface-based freight transportation network. The intent is to fully document the cargo unit volumes and commodities tonnage that comprise Nevada's freight movement and to illustrate the degree to which Nevada's transportation infrastructure serves as a critical origin or pass-through for cargo destined to other states.

Rail-based cargo flow data from the Surface Transportation Board (STB), combined with the truck-based flows provided by TRANSEARCH®, capture the unit volume, commodity descriptions, and tonnage. This enables detailed analysis of the full scope of Nevada's surface transportation network and potential opportunities for modal conversion and other strategies for more efficient freight movement.

The Data Sources:

1. The Surface Transportation Board's (STB) 2018 stratified rail carload waybill sampling
2. The Freight Analysis Framework (FAF-4.51) for 2018 and 2045 is produced through a partnership between the Bureau of Transportation Statistics (BTS) and the Federal Highway Administration (FHWA)
3. IHS-Markit TRANSEARCH® Truck Freight Flows

#### *The STB Waybill Sampling of Rail Data*

The STB waybill sampling is a stratified sample of carload waybills (usually 1-3%) for all U.S. rail traffic submitted by those rail carriers terminating 4,500 or more revenue carloads annually. The data provided was for the most current year available of 2018. Waybill data has broad applications and is used by transportation practitioners as a primary source of information for the development of state transportation plans. In the case of the 2021 Nevada State Rail Plan, the dataset was transmitted to TRANSEARCH® where it was processed and formatted in a Microsoft Access database and transmitted to Strategic Rail Finance for analysis and reporting.

For the reporting period of 2017 and onward, the STB implemented a new methodology for processing waybill samples, specifically, Waybill Miling Methodology, which modifies how waybills are routed for through traffic. This new methodology has had a material impact on the reporting of Nevada's rail through-traffic reporting. Therefore, direct comparative analysis of both total and through-traffic reporting prior to and after 2017, is no longer possible. It should also be noted that this change in methodology has not impacted rail cargo inflow, outflow, or intrastate rail traffic.<sup>47</sup>

#### *Freight Analysis Framework Truck and Rail Data*

The Freight Analysis Framework (FAF), produced through a partnership between BTS and FHWA, integrates data from a variety of sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation. Starting with data from the 2012

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<sup>47</sup> Verification of the changes in through-traffic was confirmed in writing with TRANSEARCH®, where a reconciliation of flow patterns established the integrity of the dataset. Furthermore, additional correspondences with the STB verified that the current STB waybill processing methodology has led to variances in current through-traffic reporting versus prior periods.

Commodity Flow Survey (CFS) and international trade data from the Census Bureau, FAF incorporates data from agriculture, extraction, utility, construction, service, and other sectors.

The data source utilized in this analysis is the latest version FAF-4.5.1. Released on December 19, 2019, FAF-4.5.1 includes 2018 actual estimates. Thus, for the purpose of this report, all tabular data representations are based upon 2018 freight flows, and future estimated forecasts are based upon the latest available forecast year of 2045.

#### *TRANSEARCH® Truck Data*

Developed by IHS Global Insight, TRANSEARCH® is an extensive database of North American freight flows, compiled from more than a hundred industry, commodity, and proprietary data exchange sources. The truck data provided was for the most current year available of 2018. TRANSEARCH® combines primary shipment data obtained from some of the nation's largest truck freight carriers with information from public, commercial, and proprietary sources to generate a base year estimate of freight flows at the county level. Furthermore, TRANSEARCH® establishes market-specific production tonnages by industry or commodity, drawn mostly from IHS Global Insight's Business Markets Insights (BMI) database.

#### *Commodity Code Descriptions*

Both the STB Waybill Sampling and the TRANSEARCH® truck data classify and report using the Standard Transportation Commodity Code (STCC) scheme. STCC is a publication containing specific product information used on waybills and other shipping documents. A STCC code is a seven-digit numeric code representing and consolidating into 38 commodity groupings (STCC2) on which this Plan reports. Assignment of a STCC Code is associated with a commodity description developed to conform with exact descriptions in freight transportation classifications of rail and motor carriers. Accompanying a STCC code are two corresponding codes, a Harmonized Commodity Description Coding System (HS) and a Standard Classification of Transported Goods (SCTG) category.

The SCTG is the commodity reporting scheme employed in the Freight Analysis Framework (FAF), to which this report relies upon for forecasting purposes. While there is no direct correlation between the two schemes, there exists a sufficient commonality between the two schemes to allow for general forecasting of commodity trends into the future.

#### *Reporting Features and Enhancements*

Where possible, the tables have been structured to create side-by-side comparisons with the previous 2012 Nevada State Rail Plan. This enables ready comparison and serves to compress the narrative.

The updated 2021 report includes additional data-reporting refinements. These enhancements include the following:

1. Unit volume reporting for rail-based carload and intermodal activity
2. Commodity values for all trade flows
3. Trade type reporting, i.e., Domestic, Import, Export and NAFTA trade flows
4. General Rail Equipment reporting of intermodal and railcars

## **C-2. Nevada Freight Flows Overview: 2018 Rail and Truck Traffic**

The 2021 Nevada State Rail Plan incorporates the latest available freight data that reports traffic and commodity flows across Nevada's freight rail ecosystem. In addition, this document includes a summary

reporting of truck traffic, which provides the State with context relative to the two transit modes and to serve as a basis for future planning.

In 2018, Nevada freight flows across the State's road and rail infrastructure approached 190 million tons of cargo. From **Table 2-15** below, there is a significant concentration of overall truck flows relative to its rail counterpart. Total rail flows account for 23% of the cargo freight volume (43.7 million tons) versus truck-based cargo freight volume of 77% (145.3 million tons).

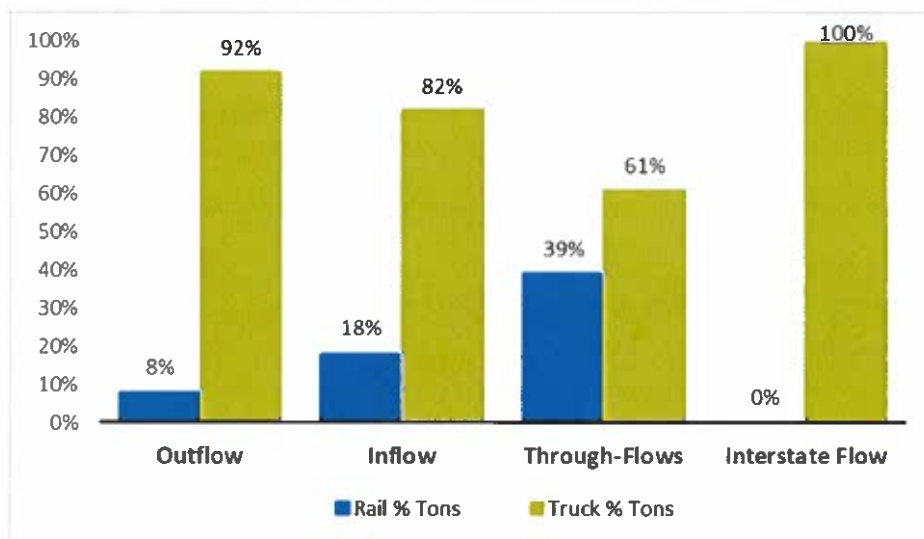
Also noteworthy is that over 92 million tons of total cargo flow was classified as through traffic that neither originated nor terminated in Nevada; through-traffic volume accounted for nearly 50% of the 189 million tons of all modes of freight transport.

**Table 2-15: 2018 Nevada Freight Flow Matrix: Distribution of Transit Modes and Freight Flows<sup>48</sup>**

Mode/Flow Type	Rail (Tons)*	Rail Car Units*	Truck (Tons)**	Truck Units**	Total (Tons)	Rail Tons	% Truck Tons
Nevada Outflows	2,254,185	44,564	25,149,322	1,831,180	27,403,507	8%	92%
Nevada Inflows	5,279,174	78,456	24,439,479	2,015,119	29,718,653	18%	82%
Nevada Intrastate	62,628	644	39,660,227	3,857,820	39,722,855	0%	100%
Through Traffic	36,086,935	1,128,538	56,034,539	2,874,243	92,121,474	39%	61%
<b>Totals</b>	<b>43,682,922</b>	<b>1,252,202</b>	<b>145,286,567</b>	<b>10,578,362</b>	<b>188,966,489</b>	<b>23%</b>	<b>77%</b>

**Figure 2-20**, as seen below, illustrates the modal distribution of road and rail traffic and flows in all directions. With the exception of through traffic, which is nearly balanced between road and rail, the disproportional modal mix is clearly evident. This is especially true with interstate cargo flows, where almost 100% of freight traffic is conducted by truck traffic only.

**Figure 2-20: 2018 Nevada Modal Distribution of Road & Rail Across All Freight Flows<sup>49</sup>**



<sup>48</sup> \*Source: STB Waybill Sample 2018; \*\* Source: TRANSEARCH® Truck Data 2018

<sup>49</sup>STB Waybill Sample 2018; TRANSEARCH® Truck Data 2018

### 2018 and 2009 Summary of Total Rail Freight Flows and Commodities

The new Waybill Miling Methodology has had the following impacts on the reporting of 2009 and 2018 rail traffic data:

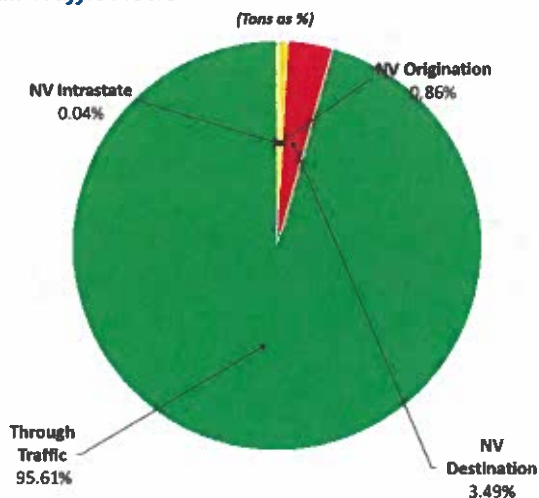
- Total of all rail traffic flows as reported in 2009 was 192 million tons of freight, versus 44 million tons in 2018. This represents a reduction of 148 million tons in total reported volume.
- Through-traffic reporting for 2009 was 183 million tons, versus 36 million tons in 2018. This represents a reduction or under-reporting of 147 million tons of through-traffic volume.
- There is no evidence that the STB change in methodology has impacted inflow, outflow, or intrastate rail traffic reporting.

**Table 2-16: 2009 & 2018 Top Five Nevada Commodities: All Rail Flow Traffic<sup>50</sup>**

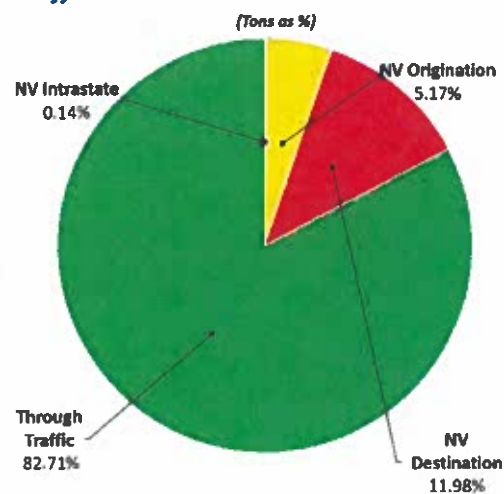
STCC2	STCC Name	2009 % of Total	2018 % of Total
20	Food or Kindred Products	12%	18%
46	Intermodal and FAK	29%	16%
11	Coal	6%	16%
1	Farm Products	22%	14%
28	Chemicals or Allied Products	7%	11%
	All Others	24%	25%
	<b>Total</b>	<b>100%</b>	<b>100%</b>

As evidenced by Table 2-16, the total concentration of rail-based commodities has remained consistent over the reporting periods of 2018 and 2009, where approximately 75% of all commodities moved by rail are represented by five top commodities. The primary difference between the reporting periods is that the top five in 2018 are generally more evenly distributed than in 2009.

**Figure 2-21: 2009 Nevada Total Distribution of Rail Traffic Flows<sup>51</sup>**



**Figure 2-22: 2018 Nevada Total Distribution of Rail Traffic Flows<sup>52</sup>**



<sup>50</sup> STB Waybill Sample 2018 & 2009

<sup>51</sup> STB Waybill Sample 2018

<sup>52</sup> STB Waybill Sample 2009 Nevada Total Distribution of Rail Traffic Flows

Figure 2-21 depicts the 2009 distribution of rail freight flows impacting the State of Nevada with Figure 2-22, the 2018 distribution of rail flows. Aside from the change in methodologies between reporting periods, there has been no material difference in flow patterns. In 2018, nearly 83 percent of rail cargo flow is through traffic, followed by freight terminating in Nevada (12%); the remaining five percent of rail cargo flows are Nevada intrastate and Nevada origination traffic flows.

Figure 2-23: 2018 Nevada Total Distribution by Rail Modes<sup>53</sup>

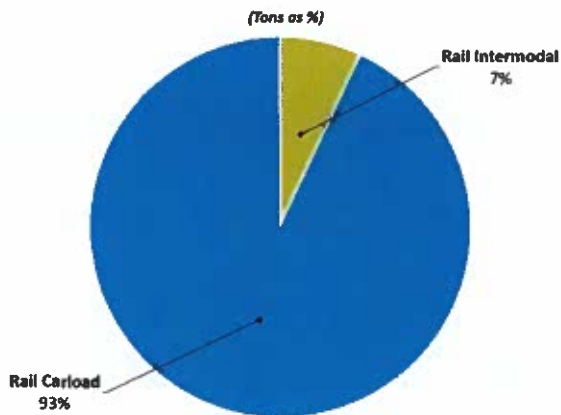


Figure 2-24: 2018 Nevada Total Distribution by Rail Traffic Type<sup>54</sup>

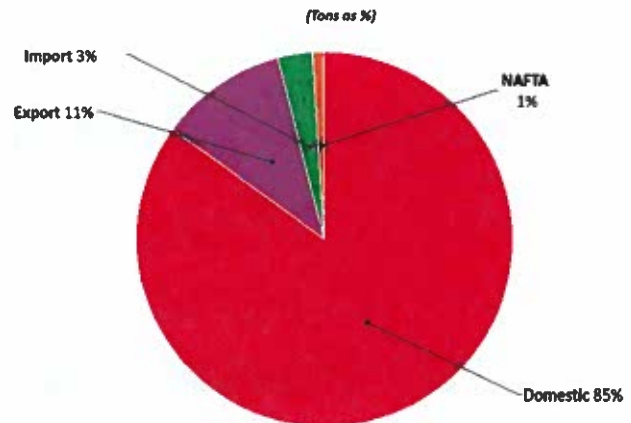


Figure 2-23 presents the 2018 distribution of rail equipment modes for Nevada across all freight flows. Expressed as a percentage of total tonnage, carload volumes represent 71% of the total volume while intermodal volumes are only 29%. Figure 2-24 presents the distribution of rail traffic type across all flows; domestic freight destinations are 85% of all rail freight traffic.

#### *Nevada Rail Outflows (Nevada Originations)*

In 2018, over 2,254,000 tons and 33,564 carloads of rail cargo originated in the state of Nevada. This represents over 5% of the total rail flow impacting the State. This cargo volume also represents a 38% increase from the reported inflow tonnage for 2009. Below, Table 2-17 ranks the top five commodities originating in the State of Nevada alongside data from the 2009 STB Waybill Sample.

Table 2-17: 2009 & 2018 Top 5 Nevada Commodities: Rail Outflow Traffic<sup>55</sup>

Based on 2009 STB Waybill				Based on 2018 STB Waybill			
STCC2	Description	Tons	% Total	STCC2	Description	Tons	% Total
28	Chemicals or Allied Products	401,069	51.50%	14	Nonmetallic Minerals	839,640	37.25%
18	Nonmetallic Minerals	345,346	12.80%	32	Clay, Concrete, Glass, or Stone	750,573	33.30%
32	Clay, Concrete, Glass, or Stone	320,047	11.80%	40	Waste or Scrap Materials	291,076	12.91%
40	Waste or Scrap Materials	243,596	11.10%	46	Intermodal/Freight All Kinds	104,400	4.63%
46	Intermodal/Freight All Kinds	126,792	3.50%	28	Chemicals or Allied Products	83,320	3.70%
	All Others	194,099	9.30%		All Others	185,176	8.21%
Total		1,630,949	100.00%	Total		2,254,185	100.00%

<sup>53</sup> STB Waybill Sample 2018

<sup>54</sup> STB Waybill Sample 2018

<sup>55</sup> STB Waybill Sample 2018 & 2009



It should be noted that there have been several significant increases in certain commodity flows between the periods. Most notably is the significant increase in the outbound shipments of Nonmetallic Minerals and clay, concrete, glass, or stone, with an increase of 143% or nearly 500 thousand tons and an increase of 135% or over 430 thousand tons, respectively. These gains in commodity shipments were partially offset by a significant decrease (79% or 318 thousand tons) in the shipments of Chemicals or Allied Products. The overall net effect of these changes account for nearly the entire increase in total commodity outflows between the periods of 2009 and 2018.

**Table 2-18: 2018 Nevada Commodities Ranked by Value: Rail Outflow Traffic<sup>56</sup>**

STCC2	STCC Name	Value	Value % of Total	Total Tons	Total Units
46	Intermodal/Freight All Kinds	\$534,882,272	43.39%	104,400	6,440
32	Clay, Concrete, Glass, or Stone	\$175,921,869	14.30%	750,573	7,348
37	Transportation Equipment	\$90,786,380	7.38%	17,440	996
33	Primary Metal Products	\$75,717,056	6.16%	17,000	200
40	Waste or Scrap Materials	\$72,302,376	5.88%	291,076	3,296
29	Petroleum or Coal Products	\$60,320,554	4.90%	74,240	960
14	Nonmetallic Minerals	\$45,137,861	3.67%	839,640	9,396
28	Chemicals or Allied Products	\$43,239,907	3.52%	83,320	1,200
35	Machinery	\$29,110,615	2.37%	2,120	120
23	Apparel or Related Products	\$25,191,181	2.05%	3,120	240
	All Others	\$77,322,139	6.29%	71,256	3,368
<b>Total</b>		<b>\$1,229,932,210</b>	<b>100.00%</b>	<b>2,254,185</b>	<b>33,564</b>

**Table 2-18** ranks the top ten commodity outflow in terms of value shipped. As with rail freight inflows, it is important to note the degree of commodity concentration in terms of value for rail cargo outflows. Of particular interest are the top value shipments of Mixed Freight/Intermodal, which represents over 43% of the total value of rail cargo outflows and is entirely intermodal loads. The top three commodities shipped represented 65% of the total value, and the top ten commodities account for over 94% of the value. All remaining commodities ("All Others") account for 6%.

**Table 2-19: 2009 & 2018 Nevada Top Destination Ranking: Rail Outflow Traffic<sup>57</sup>**

Based on 2009 STB Waybill			Based on 2018 STB Waybill		
State	Total Tonnage	% Total	State	Total Tonnage	% Total
California	700,078	42.92%	California	1,194,373	52.98%
Illinois	218,655	13.41%	Utah	188,360	8.36%
Utah	111,558	6.84%	Illinois	149,004	6.61%
Wyoming	85,334	5.23%	Wyoming	93,360	4.14%
Nevada	81,439	4.99%	Washington	82,604	3.66%
Colorado	55,994	3.43%	Colorado	79,460	3.52%
Oregon	45,908	2.81%	Pennsylvania	61,280	2.72%
Washington	45,733	2.80%	Oregon	58,048	2.58%
Arizona	42,372	2.60%	North Dakota	41,880	1.86%

<sup>56</sup> STB Waybill Sample 2018

<sup>57</sup> STB Waybill Sample 2018 & 2009

Based on 2009 STB Waybill			Based on 2018 STB Waybill		
State	Total Tonnage	% Total	State	Total Tonnage	% Total
Pennsylvania	38,266	2.35%	Louisiana	40,200	1.78%
All Others	205,612	12.61%	All Others	265,616	11.78%
Total	1,630,949	100.00%	Total	2,254,185	100.00%

Table 2-19 represents the top ten rail-based trading partners with cargo outflows originating in the State of Nevada. As the table demonstrates, while the State of California remains the top destination state partner, cargo flows to California have also increased over 70% or nearly 500 thousand tons. Other than California, the table demonstrates moderate changes in state rankings and modest changes in cargo volumes, and the overall increase in flow is primarily attributed to the state of California. Figure 2-25 illustrates the concentration of Nevada rail freight outflows nationwide.

**Figure 2-25: Destination of Rail Traffic Originating in Nevada (2018)**

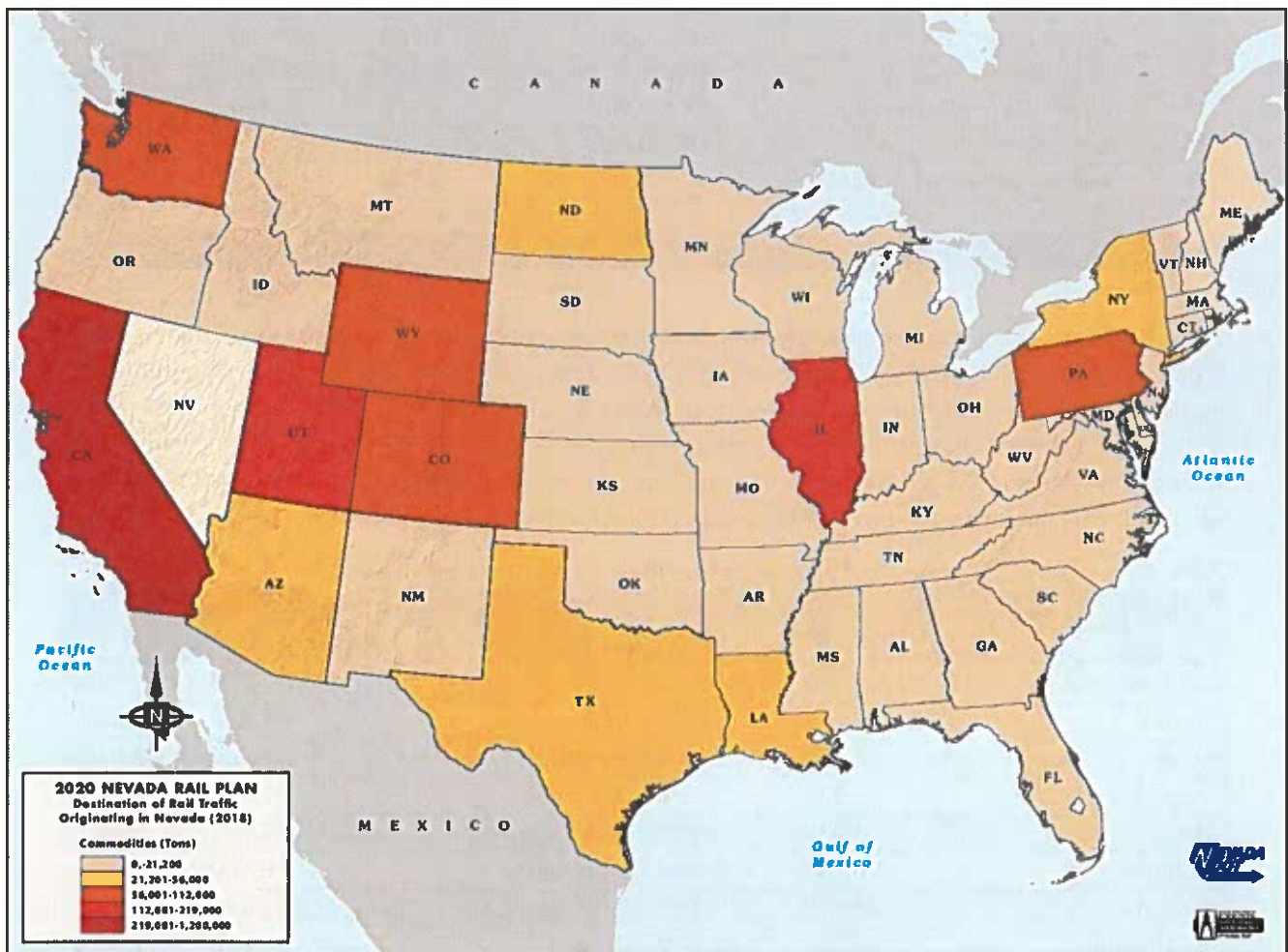
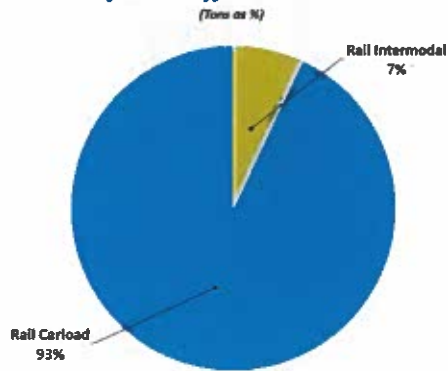


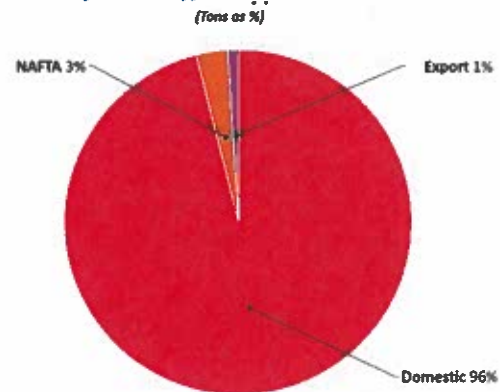
Figure 2-26 presents the 2018 distribution of rail equipment modes for originating freight outflows from Nevada. Expressed as a percentage of total tonnage, carload volumes represent 93% of the total volume

while intermodal volumes are only 7%. **Figure 2-27** represents the distribution of rail traffic flow types, where domestic freight destinations are 96% of all freight traffic.

**Figure 2-26: 2018 Nevada Distribution by Rail Modes - Outflow Traffic<sup>58</sup>**



**Figure 2-27: 2018 Nevada Distribution by Traffic Types - Outflow Traffic<sup>59</sup>**



#### *Nevada Rail Inflows (Nevada Destinations)*

In 2018, nearly 5,280,000 tons and 78,000 carloads of rail cargo terminated in the state of Nevada. This represents nearly 12% of the total rail flow impacting the State. This cargo volume also represents a nearly 21% decrease from the reported inflow tonnage for 2009. **Table 2-20** ranks the top five commodities terminating in the State of Nevada, alongside the 2012 State Rail Plan that sourced data from the 2009 STB Waybill Sample.

**Table 2-20: 2009 & 2018 Top 5 Nevada Commodities: Rail Inflow Traffic<sup>60</sup>**

Based on 2009 STB Waybill				Based on 2018 STB Waybill			
STCC2	Description	Tons	% Total	STCC2	Description	Tons	% Total
11	Coal	3,437,693	51.45%	28	Chemicals or Allied Products	1,655,732	31.36%
32	Clay, Concrete, Glass, or Stone	856,939	12.83%	11	Coal	1,101,970	19.28%
28	Chemicals or Allied Products	789,083	11.81%	32	Clay, Concrete, Glass, or Stone	579,924	10.99%
29	Petroleum or Coal Products	739,797	11.07%	24	Lumber or Wood Products	401,960	7.61%
20	Food or Kindred Products	236,447	3.54%	29	Petroleum or Coal Products	389,524	7.38%
	All Others	621,559	9.30%		All Others	1,233,890	23.37%
	<b>Total</b>	<b>6,681,518</b>	<b>100.00%</b>		<b>Total</b>	<b>5,279,000</b>	<b>100.00%</b>

From the table above, it should be noted that there have been several significant shifts in commodity flows between the two periods. Most notably is the significant reduction in coal imports (1,018 Ktons in

<sup>58</sup> STB Waybill Sample 2018

<sup>59</sup> STB Waybill Sample 2018

<sup>60</sup> STB Waybill Sample 2018 & 2009



2020 vs. 3,438 Ktons in 2012) and a corresponding increase in Chemicals or Allied products (1,656 Ktons in 2020 vs. 789 Ktons in 2012).

**Table 2-21: 2018 Nevada Commodities Ranked by Value: Rail Inflow Traffic<sup>61</sup>**

STCC2	STCC Name	Value	Value % of Total	Total Tons	Total Units
28	Chemicals or Allied Products	\$1,851,295	33.12%	1,656	18
37	Transportation Equipment	\$1,319,348	23.60%	140	8
46	Misc. Mixed Shipments/Intermodal	\$856,222	15.32%	167	10
29	Petroleum or Coal Products	\$261,953	4.69%	390	5
33	Primary Metal Products	\$258,612	4.63%	165	2
26	Pulp, Paper or Allied Products	\$208,525	3.73%	130	3
20	Food or Kindred Products	\$158,677	2.84%	267	4
24	Lumber or Wood Products	\$121,899	2.18%	402	4
23	Apparel or Related Products	\$120,405	2.15%	22	2
30	Rubber or Misc. Plastics	\$88,495	1.58%	15	1
	All Others	\$344,185	6.16%	1,926	22
	<b>Total</b>	<b>\$5,589,616</b>	<b>100.00%</b>	<b>5,279</b>	<b>78</b>

**Table 2-21** ranks the top ten commodity inflows in terms of value. It is important to note the degree of commodity concentration in terms of value. Chemical and Allied Products, Transportation Equipment and Mixed Freight/Intermodal account for over 72% of the total value of rail traffic terminating in the State of Nevada. The top ten commodities account for over 93% of the value, and all remaining commodities account for just 6%.

**Table 2-22: 2009 & 2018 Nevada Top Origination Ranking: Rail Inflow Traffic<sup>62</sup>**

Based on 2009 STB Waybill			Based on 2018 STB Waybill		
State	Total Tonnage	% Total	State	Total Tonnage	% Total
Utah	2,677,341	40.07%	Wyoming	921,650	17.46%
Wyoming	801,996	12.00%	California	610,160	11.56%
Texas	717,408	10.74%	Utah	470,962	8.92%
California	613,257	9.18%	Idaho	435,588	8.25%
Colorado	322,709	4.83%	Illinois	354,240	6.71%
Oregon	291,238	4.36%	Texas	352,400	6.68%
Iowa	184,700	2.75%	Oregon	273,792	5.19%
Illinois	178,238	2.67%	Louisiana	218,160	4.13%
Nebraska	102,975	1.54%	Minnesota	200,044	3.79%
Montana	85,628	1.28%	Colorado	160,370	3.04%
All Others	791,655	9.30%	All Others	1,281,808	24.00%
<b>Total</b>	<b>6,681,517</b>	<b>100.00%</b>	<b>Total</b>	<b>5,279,174</b>	<b>100.00%</b>

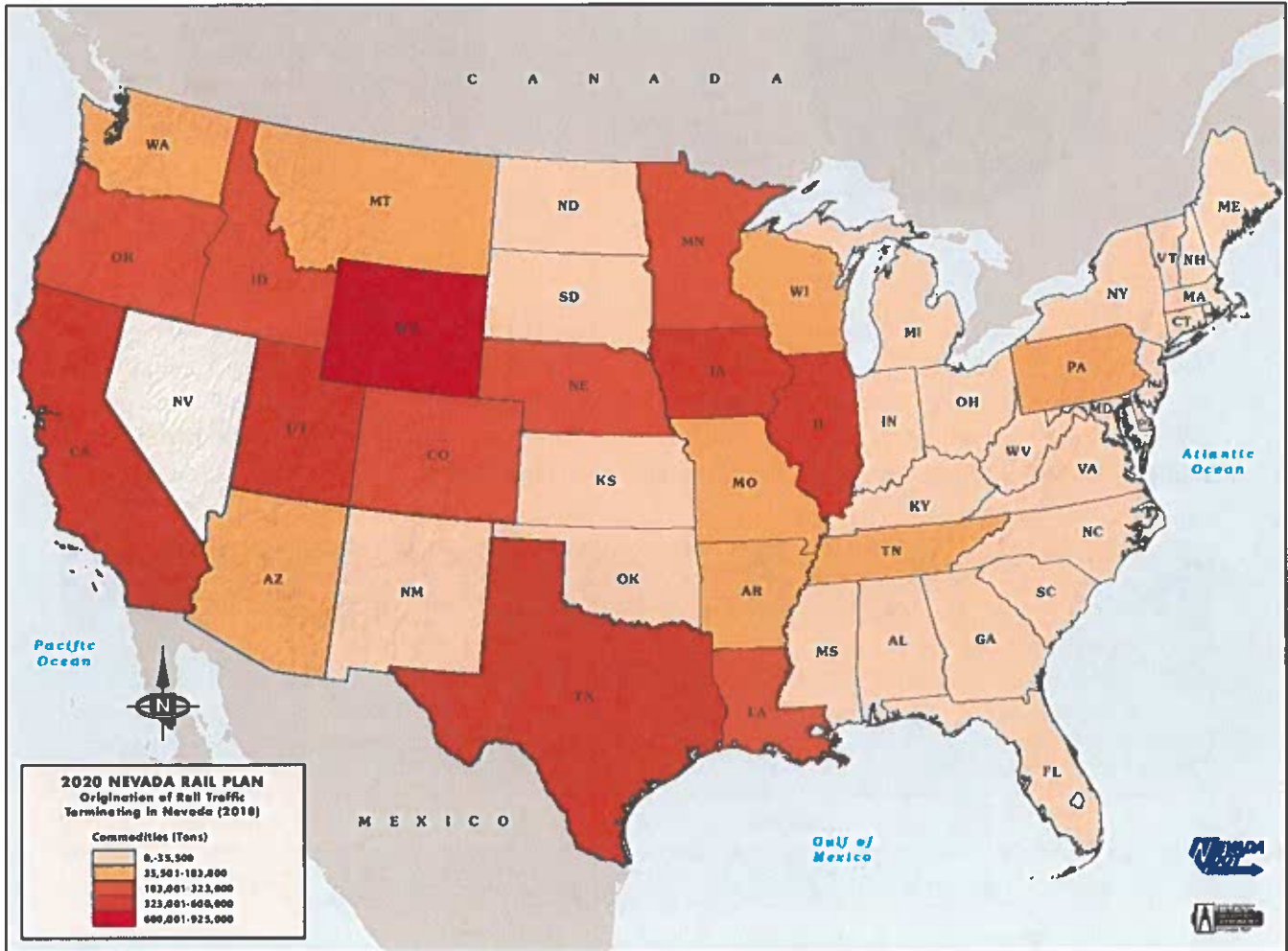
**Table 2-22** ranks the top ten rail-based State trading partners with cargo inflows terminating in the State of Nevada. As the table demonstrates, there have been significant changes in state rankings between the periods of 2009 and 2018. Based on the above commodity flow table, the reductions in demand for Coal

<sup>61</sup> STB Waybill Sample 2018 & 2009

<sup>62</sup> STB Waybill Sample 2018 & 2009

and Coal/Petroleum Products and the increased demand for Chemical or Allied Products have led to re-sorting of State partners over the nine-year span. **Figure 2-28** illustrates the concentration of Nevada rail freight inflows nationwide.

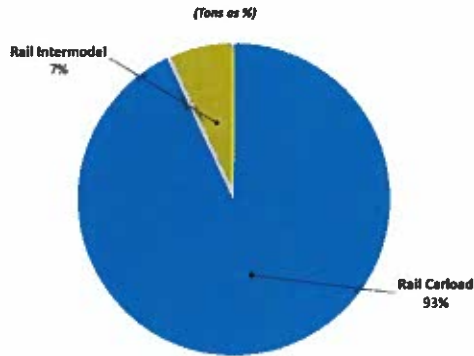
**Figure 2-28: Origination of Rail Traffic Terminating in Nevada (2018)**



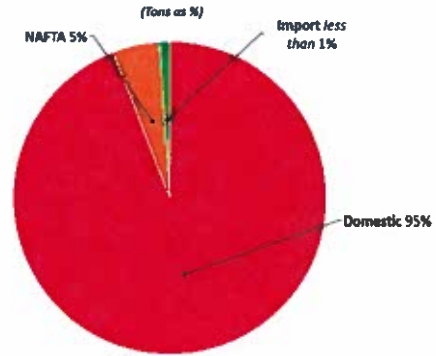
**Figure 2-29** presents the 2018 distribution of rail equipment modes for freight inflows to Nevada. Expressed as a percentage of total tonnage, carload volumes represent 93% of the total volume while intermodal volumes are only 7%. **Figure 2-30** represents the distribution of rail traffic flow types, where domestic freight destinations are 96% of all freight traffic.



**Figure 2-29: 2018 Nevada Distribution of Rail Modes - Inflow Traffic<sup>63</sup>**



**Figure 2-30: 2018 Nevada Distribution of Traffic Types - Inflow Traffic<sup>64</sup>**



#### *Nevada Rail Through Traffic*

STB's revised calculation of through-traffic has had a material downward impact on the reporting of Nevada carload through-traffic volumes when compared to the prior years. Therefore, direct comparative analysis of reported through-traffic cargo volumes, prior to and after 2017, is no longer a viable measuring tool. The reporting data in this section should be considered on its own, where future comparisons can be made. Table 2-23 illustrates the impact of this change in reporting.

**Table 2-23: 2018 & 2009 Top 5 Nevada Commodities: Rail Through-Traffic<sup>65</sup>**

Based on 2009 STB Waybill				Based on 2018 STB Waybill			
STCC2	Description	Tons	% Total	STCC2	Description	Tons	% Total
46	Intermodal/Freight All Kinds	54,348,091	29.71%	20	Food or Kindred Products	7,655,955	21.22%
1	Farm Products	41,516,765	22.70%	46	Intermodal/Freight All Kinds	6,786,841	18.81%
20	Food or Kindred Products	22,803,433	12.47%	1	Farm Products	5,864,909	16.25%
28	Chemicals or Allied Products	12,900,362	7.05%	11	Coal	5,854,322	16.22%
11	Coal	8,464,284	4.63%	28	Chemicals or Allied Products	3,046,230	8.44%
	All Others	42,889,000	23.45%		All Others	6,879,000	19.06%
	<b>Total</b>	<b>182,921,935</b>	<b>100.00%</b>		<b>Total</b>	<b>36,087,257</b>	<b>100.00%</b>

**Table 2-24** ranks the top ten origin-destination (O/D) trade lane pairs for Nevada pass-through rail traffic. What is evident is that O/D trade-lane traffic, in terms of tonnage, is heavily biased towards westbound traffic (78%) versus eastbound traffic (22%). Conversely, unit carload and intermodal volumes do not correlate to tonnage. Westbound and eastbound unit traffic percentages are 59% and 41% respectively. The explanation primarily lies in the mix of rail equipment, where over 40% of total rail traffic is intermodal, and the unit weight density for eastbound traffic is less than 50% of its westbound counterpart.

<sup>63</sup> STB Waybill Sample 2018

<sup>64</sup> STB Waybill Sample 2018

<sup>65</sup> STB Waybill Sample 2018 and 2009

**Table 2-24: 2018 Nevada Top Origination-Destination Pairings: Rail Through Traffic<sup>66</sup>**

Origination	Destination	Direction	Tons	% Total Tons	Unit Value
Utah	California	Westbound	5,519,161	15.29%	95,837
California	Illinois	Eastbound	4,439,108	12.30%	271,484
Illinois	California	Westbound	4,084,079	11.32%	239,630
Nebraska	California	Westbound	3,637,650	10.08%	38,553
Iowa	California	Westbound	3,422,465	9.48%	57,346
Colorado	California	Westbound	2,658,374	7.37%	56,619
Minnesota	California	Westbound	1,881,497	5.21%	20,378
California	Utah	Eastbound	1,307,788	3.62%	62,204
Idaho	California	Westbound	932,064	2.58%	10,156
California	Colorado	Eastbound	551,584	1.53%	32,180
All Others			7,653,164	21.21%	244,151
<b>Total</b>			<b>36,086,934</b>	<b>100.00%</b>	<b>1,128,538</b>

**Table 2-25** depicts the distribution of through traffic in terms of commodity value. Intermodal/Freight All Kinds leads the way with over 45% of the total value of Nevada through traffic. The top three reported commodities account for 77% of the total value of Nevada through traffic.

**Table 2-25: 2018 Nevada Commodities Ranked by Value: Rail Through Traffic<sup>67</sup>**

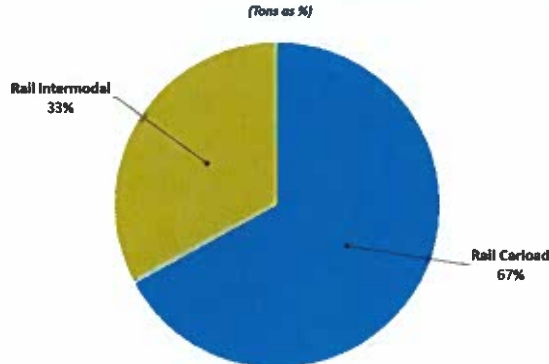
STCC2	STCC Name	Value	Value % of Total	Total Tons	Total Units
46	Intermodal/Freight All Kinds	\$34,653,205,631	45.67%	6,786,841	456,240
20	Food or Kindred Products	\$12,008,494,994	15.82%	7,655,955	161,947
37	Transportation Equipment	\$11,685,942,980	15.40%	1,186,700	66,716
28	Chemicals or Allied Products	\$4,180,720,007	5.51%	3,046,230	53,097
23	Apparel or Related Products	\$3,277,191,009	4.32%	607,240	49,000
30	Rubber or Misc. Plastics	\$1,937,811,784	2.55%	450,960	41,560
1	Farm Products	\$1,203,850,188	1.59%	5,864,909	72,317
34	Fabricated Metal Products	\$848,171,572	1.12%	120,688	9,080
25	Furniture or Fixtures	\$846,246,928	1.12%	187,160	17,680
26	Pulp, Paper or Allied Products	\$761,036,128	1.00%	549,600	18,680
	All Others	\$4,481,397,780	5.91%	9,630,651	182,221
	<b>Total</b>	<b>\$75,884,069,000</b>	<b>100.00%</b>	<b>36,086,934</b>	<b>1,128,538</b>

**Figure 2-31** presents the 2018 distribution of rail equipment modes for Nevada pass-through traffic. Expressed as a percentage of total tonnage, carload volumes represent 67% of the total volume while intermodal volumes were 33%. **Figure 2-32** represents the distribution of rail traffic flow types, where domestic freight destinations are 83% of all freight traffic.

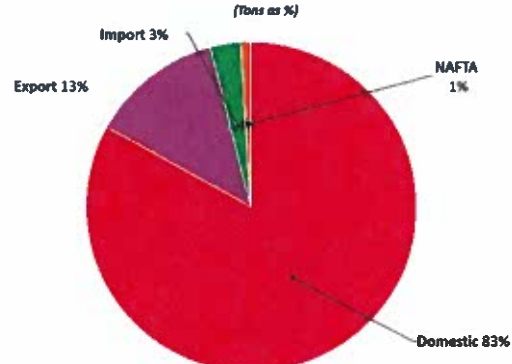
<sup>66</sup> STB Waybill Sample 2018

<sup>67</sup> STB Waybill Sample 2018

**Figure 2-31: 2018 Nevada Distribution of Rail Modes – Through Traffic<sup>68</sup>**  
(Tons as %)



**Figure 2-32: 2018 Nevada Distribution of Rail Traffic Types – Through Traffic<sup>69</sup>**  
(Tons as %)



### *Nevada Intrastate Rail Traffic*

Nevada intrastate rail traffic represents only 0.16% of the total rail traffic traversing the state's rail network. Total tonnage for 2018 was less than 63,000, compared to over 81,000 tons in 2009 – a 22% decline over the two periods. It is also only represented by two commodity groups: Clay, Concrete, Glass, or Stone (STCC 32), and Waste and Scrap Materials (STCC 40). Table 2-26 represents a comparative representation of those commodities compared to the 2012 plan.

**Table 2-26: 2018 & 2009 Top 4 Nevada Commodities: Rail Intrastate Traffic<sup>70</sup>**

Based on 2009 STB Waybill				Based on 2018 STB Waybill			
STCC2	Description	Tons	% Total	STCC2	Description	Tons	% Total
32	Clay, Concrete, Glass or Stone	67,189	82.50%	32	Clay, Concrete, Glass or Stone	55,548	88.70%
40	Waste or Scrap Materials	0	0.00%	40	Waste or Scrap Materials	7,080	11.30%
28	Chemicals or Allied Products	14,064	17.27%	28	Chemicals or Allied Products	0	0.00%
14	Nonmetallic Minerals	185	0.23%	14	Nonmetallic Minerals	0	0.00%
Total		81,439	100.00%	Total		62,628	100.00%

### **C-3. Forecast Commodity Flows Overview**

The FHWA's Freight Analysis Framework (FAF version 4.51) forecasts commodity flows to the year 2045 and is the data source utilized in the production of commodity flow forecasts for the 2021 Nevada State Rail Plan. A full description of the FAF data source is located in [Freight Analysis Framework Truck and Rail Data](#).

As much as 70% of the data sourcing for the FAF model is derived from the Commodity Flow Survey (CFS), which is conducted every five years. The latest survey was conducted for 2017. However, the incorporation of the 2017 CFS results will not be available until the latter part of 2020. Therefore, the current forecasting model utilizes the 2012 base-year CFS data. The reliability or refinement of the

<sup>68</sup> STB Waybill Sample 2018

<sup>69</sup> STB Waybill Sample 2018

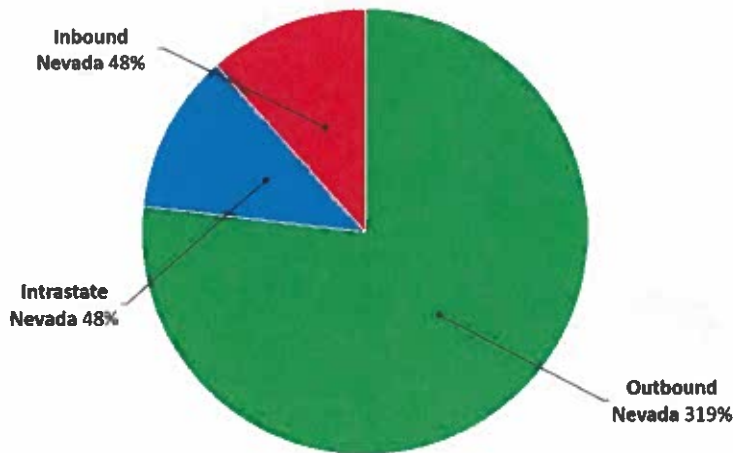
<sup>70</sup> STB Waybill Sample 2018 and 2009

forecasts may not accurately represent the current forecasted changes due to the age of the base-year data. Based upon these facts, the following forecasts will be presented on a percentage basis, with only limited refinements to cargo tonnage. A supplemental forecast to the 2021 State Rail Plan, with further refinements, will be resubmitted upon the publishing of next FAF version.

#### Forecasted Freight Flows

Figure 2-33 demonstrates the anticipated growth in Nevada State cargo flow tonnage expressed as percentage increases. The forecasts, which span a 27-year period, demonstrate expected in-scope growth for both inbound and intrastate traffic. Worthy of particular attention is the atypical growth in Nevada outbound flows, largely attributed to significant increases in the production and distribution of metallic ores, which will be addressed in the subsequent tables and narratives.

Figure 2-33: 2018-2045 Nevada Growth by Freight Flows



#### Forecasted Rail Inflows

Table 2-27 ranks the top five commodities with the largest change in volume between the years 2018 and 2045. The net change in tonnage for the top five commodities represents over 72% of the total forecasted change in volume between 2018-2045. Nevada terminating freight of Nonmetallic Minerals and Petroleum/Coal Products lead the way in rail cargo inflows, and as expected, inflows of coal continue to decline.

Table 2-27: 2018-2045 Nevada Top Commodities and Changes in Volume: Rail Inflow Traffic<sup>71</sup>

Commodity Type	kTon Change	% Change
Nonmetallic Minerals/Products	689	76%
Petroleum or Coal Products	411	97%
Plastics/Rubber	230	118%
Chemicals and Allied Products	148	53%
Coal	-377	-45%

<sup>71</sup> FHWA Freight Analysis Framework, 2018 v. 4.5.1



Table 2-28 depicts the forecasted top five Nevada State rail trading partners in the year 2045. Utah demonstrates the largest volume increase of freight flows to Nevada, while the inflows from Wyoming is forecasted to contract by over 27% during the 27-year span.

**Table 2-28: 2018-2045 Nevada Top State Partners and Changes in Volume: Rail Inflow Traffic<sup>72</sup>**

State	Total Ktons in 2045	KTon Change	% Change
Utah	1,652	733	80%
Washington	397	215	118%
Nebraska	277	134	94%
California	284	101	55%
Wyoming	686	-249	-17%

#### *Forecasted Rail Outflows*

Table 2-29 depicts the top four commodity outflows in terms of forecasted volume increases between 2018 and 2045. These four commodities represent over 92% of the total outflow tonnage in the year 2045. Metallic Ores are forecasted to increase by over nine-fold over the period and Waste and Scrap is forecasted to increase well over two-fold the outflow activity of 2018.

**Table 2-29: 2018-2045 Nevada Top Commodities and Changes in Volume: Rail Outflow Traffic<sup>73</sup>**

Commodity Type	KTon Change	% Change
Metallic Ores	3,680	930%
Nonmetallic Minerals or Products	530	47%
Chemicals and Allied Products	506	75%
Waste and Scrap	409	242%

Table 2-30 ranks the top five Nevada state trading partners in year 2045. These five states represent 92% of total state trading partner outflows. The out-of-scope growth in outflow trade to Michigan, combined with the extraordinary growth in Metallic Ores, are intertwined. Deeper research into these data points led to the determination that the FAF survey anticipates significant growth in shipments of iron ore to the Detroit, MI region in the year 2045. This suggests that the mining industry in Nevada will perhaps play a major role in the shift in the raw material supply chain feeding the Detroit regional industries.

**Table 2-30: 2018-2045 Nevada Top State Partners and Changes in Volume: Rail Outflow Traffic<sup>74</sup>**

State	Total Ktons in 2045	KTon Change	% Change
Michigan	4,051	3,819	1,645%
California	682	411	152%
Kansas	171	30	21%
Minnesota	150	96	178%
Arizona	94	26	39%

<sup>72</sup> FHWA Freight Analysis Framework, 2018 v. 4.5.1

<sup>73</sup> FHWA Freight Analysis Framework, 2018 v. 4.5.1

<sup>74</sup> FHWA Freight Analysis Framework, 2018 v. 4.5.1



## D. General Analysis of Rail Transportation's Economic and Environmental Impacts

Effective and efficient comprehensive transportation systems provide a variety of regional and local benefits. Rail is a key component of Nevada's overall transportation system moving both freight and people. Investments in rail transportation technologies can help realize numerous community goals. Retrofitting, rehabilitating, and designing new infrastructure can benefit the national and state transportation system as well as the quality of life for Nevada residents.

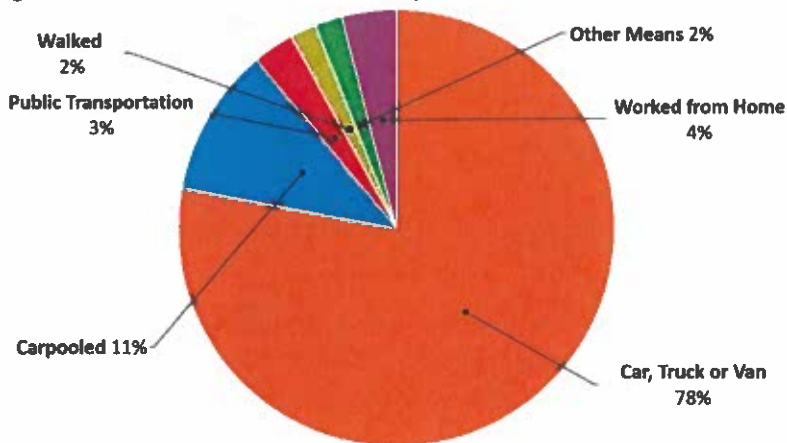
This section identifies benefits for the state of Nevada that will result from improvements in rail infrastructure. The economic and environmental impacts of rail infrastructure are embedded into many aspects of the state's economy, including such things as congestion mitigation (highway, airport, and rail), trade and economic development, air quality, land use, energy use, and community impacts, which are discussed below.

### D-1. Congestion Mitigation

NDOT is tasked with developing and maintaining a modern transportation system with the capacity to accommodate future growth, and thus is constantly evaluating congestion levels to determine the use and capacity of the state's infrastructure. Air, truck, car, and train traffic all contribute to congestion within Nevada, affecting both freight and passenger movement and services.

As of 2018, the FHWA Office of Highway Policy Information lists 48,458 miles of public roads in the state of Nevada, including urban and rural interstates, principal arterials, minor arterials, collectors, local roads, and other freeways<sup>75</sup>. Even with some 79 percent of Nevada's roadway system classified as rural,<sup>76</sup> urban residents accounted for over 22 billion miles traveled, which is equivalent to approximately 80 percent of all vehicle miles traveled in Nevada in 2018.<sup>77</sup> A vast majority of Nevada residents chose to commute to work by means of car, truck, or van, as shown on Figure 2-34.

Figure 2-34: Nevada Means of Transportation to Work<sup>78</sup>



<sup>75</sup> FHWA Office of Highway Policy Information, Highway Statistics 2018, Public Road Length – 2018 Miles By Ownership (Table HM-10), [source link](#), accessed July 2, 2020.

<sup>76</sup> FHWA Office of Highway Policy Information, Highway Statistics 2018, Public Road Length – 2018 Miles By Ownership (Table HM-10), accessed July 2, 2020.

<sup>77</sup> FHWA Office of Highway Policy Information Highway Statistics 2018, Functional System Travel - 2018 Annual Vehicle-Miles (Table VM-2), [source link](#), accessed July 2, 2020.

<sup>78</sup> U.S. Census Bureau - American Community Survey (ACS) 2018 Figures

As a continuation of trends identified in the 2012 state rail plan, local commuter trips contribute to congestion in the state's urban areas. According to the U.S. Census Bureau, Nevada was the sixth highest state in the U.S. for population growth by percentage (14.1 percent) in the last decade.<sup>79</sup> The existing transportation networks are becoming strained, causing delay in intercity truck freight shipment and motorist trips. Urban public transportation systems throughout Nevada continue to add local bus service and other high-capacity transit service options to help mitigate demand on highway infrastructure. The largest transit agencies within the state of Nevada are both operated by their respective regional transportation commissions (RTC), the RTC of Southern Nevada and the RTC of Washoe County.

Las Vegas' McCarran International Airport supports the local economy as the principal gateway for the majority of the city's visitors, and therefore is an essential component of the tourism, hospitality, and gaming industries. This airport is the 30th busiest in the world for passenger traffic,<sup>80</sup> serving more than 51 million travelers in 2019.<sup>81</sup> Cargo operations are also an important component of this airport's operations, moving over 264 million pounds of cargo in 2019.<sup>82</sup> McCarran, with a maximum capacity of 625,000 aircraft movements,<sup>83</sup> is anticipated to reach that capacity in the next decade.

Growing competition and increasing demand for freight traffic and passenger movements on existing rail lines suggest a need to restructure the movement of both people and goods. TOFC and COFC service is increasingly a major source of traffic and revenue. FHWA's Freight Management and Operations Department projects that rail congestion will worsen in Nevada. Although all rail lines in Nevada are currently operating below capacity, segments of UPRR's Overland Route are projected to experience train volumes at a level of maximum capacity by 2035, and UPRR's South Central Route is projected to be operating above capacity.

## D-2. Trade and Economic Development

The transportation system provides mobility to the state's residents, visitors, and businesses, to reach school, work, recreation, healthcare, social, and commercial activities. Transportation and economic development are integrally linked. Investments in transportation infrastructure, and more specifically rail infrastructure, can provide numerous economic benefits for the region, while deficiencies within the system can be a detriment to Nevada's reaching its economic potential.

The development and construction process can create jobs and support other job-creation initiatives. Rail investments can spur supportive land use and developments to maximize land utility. Agencies and private industries that create efficient and safe infrastructure have a positive effect on multiple industries that are dependent on rail service.

Efficient transportation infrastructure can attract new talent needed to supplement the existing workforce. Nevada's Department of Employment, Training and Rehabilitation notes that manufacturing will see the largest increased requirements from 2016 to 2026 with 45.2 percent growth.<sup>84</sup> **Figure 2-35**

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<sup>79</sup> U.S. Census Bureau, "Last Census Population Estimates of the Decade Preview 2020 Census Count", [source link](#), published April 6, 2020.

<sup>80</sup> Airports Council International, [source link](#), accessed July 2, 2020.

<sup>81</sup> Clark County Department of Aviation Statistics, 2019 Detailed Cargo By Airline Report, [source link](#).

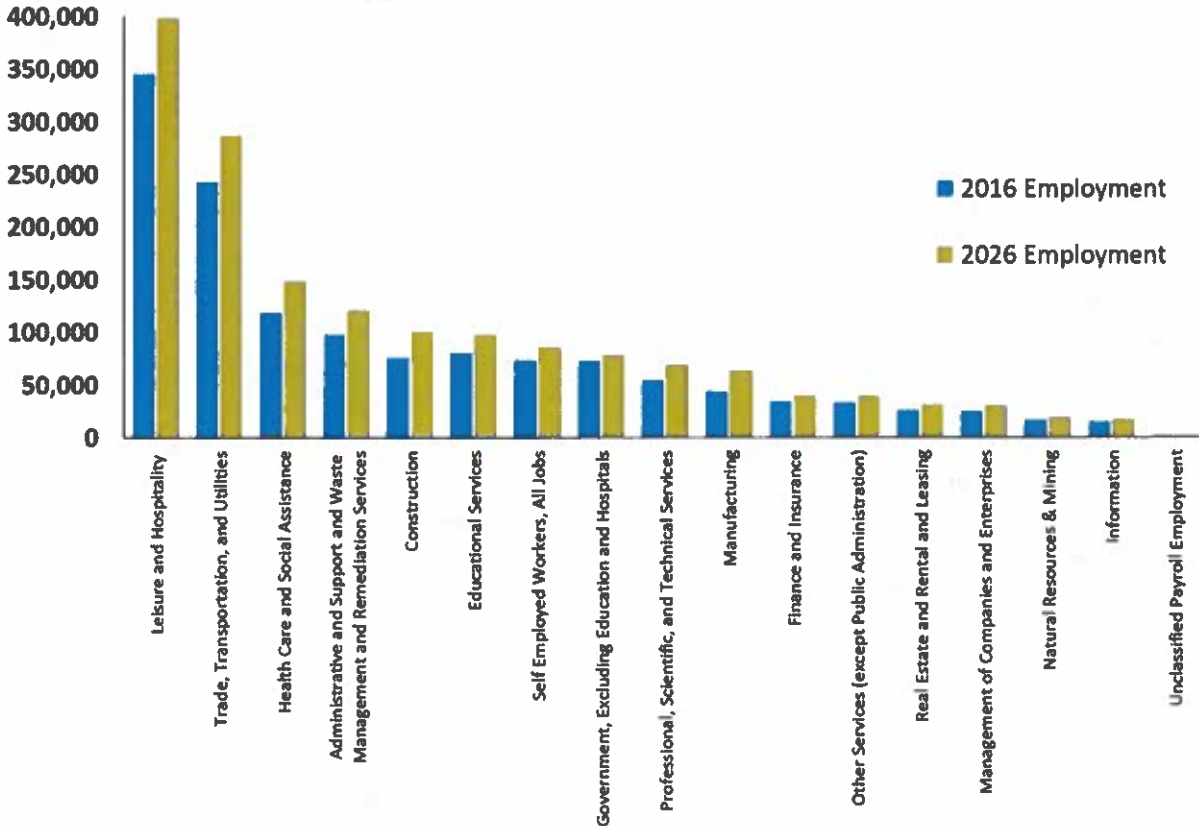
<sup>82</sup> Clark County Department of Aviation Statistics, 2019 Detailed Cargo By Airline Report.

<sup>83</sup> Las Vegas Airport website, [source link](#), accessed July 2, 2020.

<sup>84</sup> Nevada's Department of Employment, Training and Rehabilitation, Long Term Industry Projections 2016-2026 Report, [source link](#), accessed July 2, 2020.

shows that trade, transportation, and utilities as well as leisure and hospitality will remain the dominant industries in terms of employment share.

Figure 2-35: Long-Term Industrial Employment Projections, 2016-2026<sup>85</sup>



Transportation remains a critical component of Nevada’s economy. Transportation and warehousing employment opportunities are projected to constitute approximately 4.5 percent of the total future share of Nevada industry jobs. Nearly all transportation sectors anticipate growth over the ten-year period as shown in Table 2-31.

The state’s productivity and competitiveness, nationally and internationally, continues to depend heavily on the reliability and condition of the state’s transportation infrastructure. Short- and long-term economic goals can be aided by reducing the cost of travel and by improving transportation infrastructure and systems.

<sup>85</sup> Nevada’s Department of Employment, Training and Rehabilitation, Long Term Industry Projections 2016-2026 Report, accessed July 2, 2020.

**Table 2-31: Nevada Transportation Industry Employment Projections<sup>86</sup>**

Industry	2016 Employment	2026 Employment	2016 – 2026 Percent Change
Air Transportation	6,780	7,500	10.6%
Rail Transportation	775	757	-2.3%
Water Transportation	35	50	42.9%
Truck Transportation	8,391	9,905	18.0%
Water Transportation	14,236	15,270	7.3%
Scenic and Sightseeing Transportation	1,368	1,676	22.5%
Support Activities for Transportation	7,211	8,987	24.6%
Couriers and Messengers	5,079	6,093	20.0%
Warehousing and Storage	15,638	21,775	39.2%

Industrial development surrounding freight rail improvements can spur supportive service industries. An efficient rail system will help Nevada sustain the health, diversity, and productivity of its public lands. As of 2018, Nevada is the fifth largest gold producer in the world and is responsible for 83 percent of U.S. gold production.<sup>87</sup> Reducing the monetary and time costs involved with building, using, improving, and maintaining the transportation system will help sustain stable economic growth across multiple Nevada industries.

Development amenities around passenger rail stations take the form of mixed use, diverse, and dense land uses suitable for urban dwellers. This development can maximize land productivity and help agencies reach optimal transit occupancy. This type of urban development can create areas of dense economic activity, which support the revitalization and investment goals of urban communities.

### D-3. Air Quality

The “transportation sector,” including automobiles, trucks, buses, motorcycles, trains, subways, and other rail vehicles, aircraft, ships, barges, and other waterborne vehicles, plays a prominent role in regional and local air quality standards. **Figure 2-36** shows that transportation accounts for 28.4 percent of CO<sub>2</sub> emissions in the United States. As of 2015, the transportation sector emitted 35 percent of gross greenhouse gas emissions in Nevada.<sup>88</sup>

<sup>86</sup> Nevada’s Department of Employment, Training and Rehabilitation, Long Term Industry Projections 2016-2026 Report, accessed July 2, 2020.

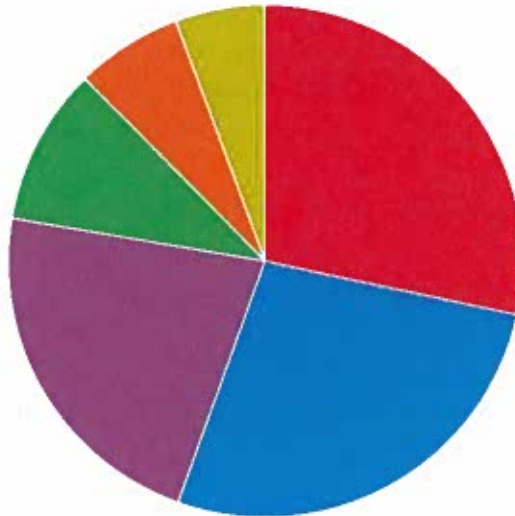
<sup>87</sup> State of Nevada Commission on Mineral Resources – Division of Minerals, “Major Mines of Nevada 2018” Report, page 23, [source link](#).

<sup>88</sup> Nevada Division of Environmental Protection, “Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2039” (2019 Report), page 18, [source link](#).

**Figure 2-36: US Greenhouse Gas Emissions by Economic Sector, 2018<sup>89</sup>**

(Click to hide) Emissions in million metric tons of carbon dioxide equivalents

- Transportation (28.4%)
- Electricity generation (27.1%)
- Industry (22.2%)
- Agriculture (9.9%)
- Commercial (6.7%)
- Residential (5.7%)



Source: U.S. EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2018.  
<https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>

In 2017, Nevada consumed over 238 million British Thermal Units (BTUs) of energy, equating to over \$3,100 per Nevada resident in the calendar year,<sup>90</sup> according to the U.S. Energy Information Administration. Carbon dioxide (CO<sub>2</sub>) emissions created by the transportation sector are mostly attributed to petroleum and partially to natural gas. Mobile combustion includes all emissions from passenger cars and trucks, air, rail, and marine transportation, plus farm and construction equipment. Nitrous oxide (NO<sub>x</sub>) emissions are sourced from stationary combustion, or consumption of energy for heat or electricity.

Investments in travel demand-management strategies, idle-reduction initiatives, and intermodal freight transportation improvements have the potential to improve air quality in Nevada. Intermodal projects are designed to improve the efficiency of truck, rail, and marine operations by connecting and coordinating between modes.

#### D-4. Reduction in Greenhouse Gas Emissions

The NVSRP has identified various opportunities to address the current overdependence on road trucking in Nevada by converting a proportion of existing and future freight movements to rail. Increasing the share of rail borne freight brings direct and indirect benefits to the economy and the citizens of Nevada. The primary direct benefit is the financial savings afforded to shippers resulting from lower comparative costs associated with moving freight by rail. Indirect benefits include the reduced costs of highway maintenance, eased congestion, fewer traffic accidents and lower environmental impacts.

The environmental benefits which result from increasing rail's share of freight can be highly significant in terms of reduced Greenhouse Gases (GHG) and improved air quality. GHG is defined as gases in Earth's

<sup>89</sup> U.S. Environmental Protection Agency, [source link](#), accessed July 2, 2020.

<sup>90</sup> U.S. Energy Information Administration, [source link](#), accessed July 2, 2020.



atmosphere that trap heat from sunlight and contribute to unnatural warming. The most prevalent greenhouse gas contributing to this is carbon dioxide (CO<sub>2</sub>) which on average represents more than 95% of the impacts from burning transportation fuels.<sup>91</sup> The U.S. Environmental Protection Agency (EPA) closely tracks emissions by transportation modes and publishes detailed analysis of emissions by rail and truck segmented by length of journey, cargo type and weight. Considering that one single freight train can replace over 300 individual truck journeys it is not surprising that data from the latest EPA study published in 2019 finds the volume of CO<sub>2</sub> emitted by trucks is eight times that emitted by rail.<sup>92,93</sup>

In 2015 a U.S. Congressional Budget Office working paper computed a financial cost for the environmental impacts of truck and rail modes of freight transportation.<sup>94</sup> This calculated the costs of GHG carbon dioxide emissions are between 180% and 340% greater for trucks in dollars per ton mile shipped.

### Implications for Nevada

The NVSRP identifies three major freight flows passing through the state that offer a high probability for conversion from truck to rail:

#### *Fernley to Oakland : Conversion of through Farm and Food Products traffic*

Over 50% of freight flowing through Nevada towards the Oakland port and region are farm and food products accounting for 385,000 annual truck movements, Development of rail infrastructure including an intermodal facility at Fernley would convert a proportion of this eastbound and westbound freight flow. This conversion would eliminate truck-trip mileage of ~246 miles for each converted trip.

#### *Fernley to Sacramento : Conversion of local freight traffic*

Annually, 510,000 truck journeys transport clay, concrete, glass, stone, and non-metallic minerals from the Fernley region to Sacramento and surrounding area. This generates a further 510,000 empty return journeys making a total of 1.1MM truck movements. Development of rail infrastructure including an intermodal facility at Fernley would convert a proportion of this eastbound and westbound freight flow. This conversion would eliminate truck-trip mileage of ~165 miles for each converted trip.

#### *Fernley to Oakland : Diversion and conversion of Los Angeles through freight traffic*

Over 35% of through-state freight flows destined for the Los Angeles ports and region are farm and food products accounting for 395,000 annual truck movements, development of rail infrastructure including an intermodal facility at Fernley would divert a proportion of this eastbound and westbound freight flow

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<sup>91</sup> Federal Transit Administration, U. (2010, January). Public Transportation's Role in Responding to Climate Change. Retrieved from

<https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/PublicTransportationsRoleInRespondingToClimateChange2010.pdf>

<sup>92</sup> E. (2019, October). 2019 SmartWay Shipper Company Partner Tool: Technical Documentation. Retrieved from <https://www.epa.gov/sites/production/files/2019-10/documents/420b19052.pdf>

<sup>93</sup> Based on average CO<sub>2</sub>/mile across five truck categories of 1710g against average CO<sub>2</sub>/mile per rail car of 980g converted to truck equivalent unit at 25% to give 245g. Ratio of 1710:245 equates to 8 fold differential. Source <https://www.epa.gov/sites/production/files/2019-10/documents/420b19052.pdf>

<sup>94</sup> Austin, D. (2015, March). Pricing Freight Transport to Account for External Costs. Retrieved from [https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/workingpaper/50049-Freight\\_Transport\\_Working\\_Paper-2.pdf](https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/workingpaper/50049-Freight_Transport_Working_Paper-2.pdf)

to Fernley for conversion to rail. The impact would be to divert truck traffic away from the I15 corridor towards the I80 corridor with conversion to rail at Fernley. This diversion and conversion would eliminate truck-trip mileage of ~202 miles for each trip.

Table 2-32 below provides a representation of the emissions benefits from these three freight flow conversions. Three conversion scenarios are considered; 5%, 15% and 25% of existing truck journeys being successfully converted to rail.

**Table 2-32: Environmental Benefits of truck to rail conversions on three primary freight flows**

Freight Flow	%age Conversion (truck to rail)	Reduced Annual Truck Trips	Reduced Annual Truck Mileage	Reduced CO <sub>2</sub> GHG (Gram)	Additional Rail CO <sub>2</sub> GHG (Gram)	NET CO <sub>2</sub> Saving (Gram)
Fernley to Oakland Conversion	5%	19,250	4,735,500	8,097,705,000	1,160,197,500	6,937,507,500
Fernley to Oakland Conversion	15%	57,750	14,206,500	24,293,115,000	3,480,592,500	20,812,522,500
Fernley to Oakland Conversion	25%	96,250	23,677,500	40,488,525,000	5,800,987,500	34,687,537,500
Fernley to Sacramento Conversion	5%	55,000	9,075,000	15,518,250,000	2,223,375,000	13,294,875,000
Fernley to Sacramento Conversion	15%	165,000	27,225,000	46,554,750,000	6,670,125,000	39,884,625,000
Fernley to Sacramento Conversion	25%	275,000	45,375,000	77,591,250,000	11,116,875,000	66,474,375,000
Fernley to Oakland Diversion	5%	19,750	3,989,500	6,822,045,000	977,427,500	5,844,617,500
Fernley to Oakland Diversion	15%	59,250	11,968,500	20,466,135,000	2,932,282,500	17,533,852,500
Fernley to Oakland Diversion	25%	98,750	19,947,500	34,110,225,000	4,887,137,500	29,223,087,500

Freight Flow	%age Conversion (truck to rail)	Reduced Annual Truck Trips	Reduced Annual Truck Mileage	Reduced CO <sub>2</sub> GHG (Gram)	Additional Rail CO <sub>2</sub> GHG (Gram)	NET CO <sub>2</sub> Saving (Gram)
<b>TOTAL All 3 Flows</b>	<b>5%</b>	<b>94,000</b>	<b>17,800,000</b>	<b>30,438,000,000</b>	<b>4,361,000,000</b>	<b>26,077,000,000</b>
<b>TOTAL All 3 Flows</b>	<b>15%</b>	<b>282,000</b>	<b>53,400,000</b>	<b>91,314,000,000</b>	<b>13,083,000,000</b>	<b>78,231,000,000</b>
<b>TOTAL All 3 Flows</b>	<b>25%</b>	<b>470,000</b>	<b>89,000,000</b>	<b>152,190,000,000</b>	<b>21,805,000,000</b>	<b>130,385,000,000</b>

Table 2-32 above illustrates the potential for material GHG reductions resulting from converting a proportion of freight from truck to rail on these three freight flows. Even a modest 5% conversion of current flows would equate to a reduction of 26,077,000,000 grams (or 28,600 tons) of CO<sub>2</sub> emissions per year. Converting 25% of these existing freight flows, which is a reasonable expectation resulting from the implementation of rail development projects recommended in this report, would equate to a reduction of 130,385,000,000 grams (or 143,000 tons) of CO<sub>2</sub> emissions per year.

These GHG reductions resulting from the conversion of tons of freight transported through Nevada will make a significant contribution to the Governors Executive Order 2019-22 (November 2019) and Nevada Senate Bill 254 to achieve greenhouse gas emission reductions in the areas of transportation amongst other sectors.

#### D-5. Land Use

Nevada's land mass covers almost 110,000 square miles,<sup>95</sup> and supports a wide variety of industries, public land resources, and numerous urban and rural communities. The Federal Bureau of Land Management (BLM) manages 63 percent of Nevada's land as public lands.<sup>96</sup> Nevada has many important cultural transportation resources including historic roads, trails, railways, highways, and associated sidings and stations throughout the state.

Major destinations within the state of Nevada depend on a reliable and safe transportation system to maintain operations. Many cities and towns within Nevada also serve as the economic activity centers for the surrounding smaller communities. The most populous counties include Clark, Washoe, Carson City, and Lyon, which include the cities of Las Vegas, Reno, Carson City, and Fernley, respectively.<sup>97</sup>

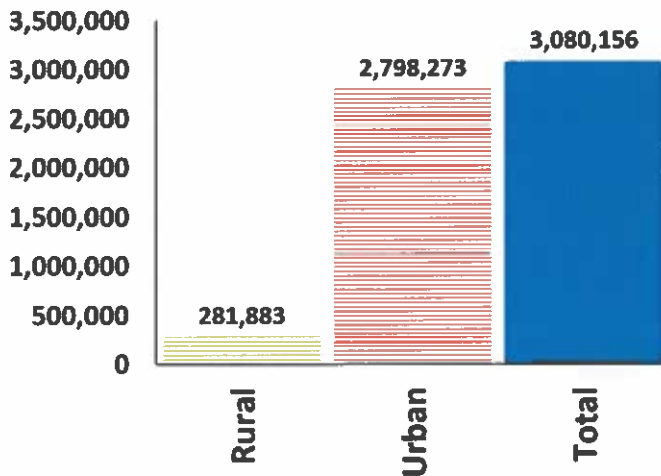
Nevada's population is projected to reach over three million people by the new decade (from 2.7 million from the U.S. Census 2010), of which 91 percent live in an urban setting. (See **Figure 2-37.**) Future growth trends in population and employment will continually require additional investments in infrastructure and services to meet the growing population demands.

<sup>95</sup> U.S. Census Bureau, [source link](#), accessed July 3, 2020.

<sup>96</sup> Bureau of Land Management, [source link](#), accessed July 3, 2020.

<sup>97</sup> U.S. Census Bureau, 2018 data, [source link](#), accessed July 3, 2020.

Figure 2-37: Nevada Total Population (2019)<sup>98</sup>



Transit-Oriented Development (TOD) is development associated with passenger rail and transit station areas. The compact urban TOD incorporates a mix of land uses, including residential and commercial activities. Station areas reinforce the importance of multimodal transportation, including transit, pedestrian, and bicycle travel. Several Nevada cities have incorporated TOD into the planning of land-use development, including Reno, Las Vegas, North Las Vegas, Sparks, and Henderson. Planning for TOD before high-capacity transit is

implemented ensures that communities gain the full value of any future transit investment.

#### D-6. Energy & Fuel Use

The U.S. Energy Information Administration found that the transportation sector's consumption of energy in 2019 continues to exceed residential- and commercial-sector consumption with 28.2 percent of total consumption, as shown on **Figure 2-38**. Unlike other sectors, the transportation sector's energy consumption is mostly attributed to one energy source, petroleum.<sup>99</sup> Reliance on a single energy source can cause an unpredictable and unmanageable environment for future transportation investments. In 2018, the transportation sector used over 14 million barrels of petroleum products per day<sup>100</sup> compared to 13.5 million barrels per day in the last state rail plan. Most petroleum consumption can be attributed to motor gasoline; other major products include distillate fuel oil and jet fuel.

Nevada consumes about 238 million BTUs of energy per person each year, ranking 40th in consumption in the U.S.<sup>101</sup> In 2018, the Nevada transportation sector consumed approximately 230,000 billion BTUs of energy, or 0.8 percent of transportation energy usage nationwide. The state consumes approximately 41 million barrels of petroleum on an annual basis, which represents a 0.7 percent share of total U.S. petroleum consumption. While petroleum consumption is low, jet fuel consumption is disproportionately high, in part because of demand from airports in Las Vegas, Reno, and at the U.S. Air Force bases.

Renewable energy development of solar and geothermal energy continues to increase in prominence. SB 358 was passed into Nevada law in 2019, raising Nevada's renewable portfolio standard to require that 50 percent of its electricity come from renewable sources by 2030.<sup>102</sup>

<sup>98</sup> United States Department of Agriculture - Economic Research Service (USDA-ERS), [source link](#), accessed July 3, 2020.

<sup>99</sup> U.S. Energy Information Administration, [source link](#), accessed July 3, 2020.

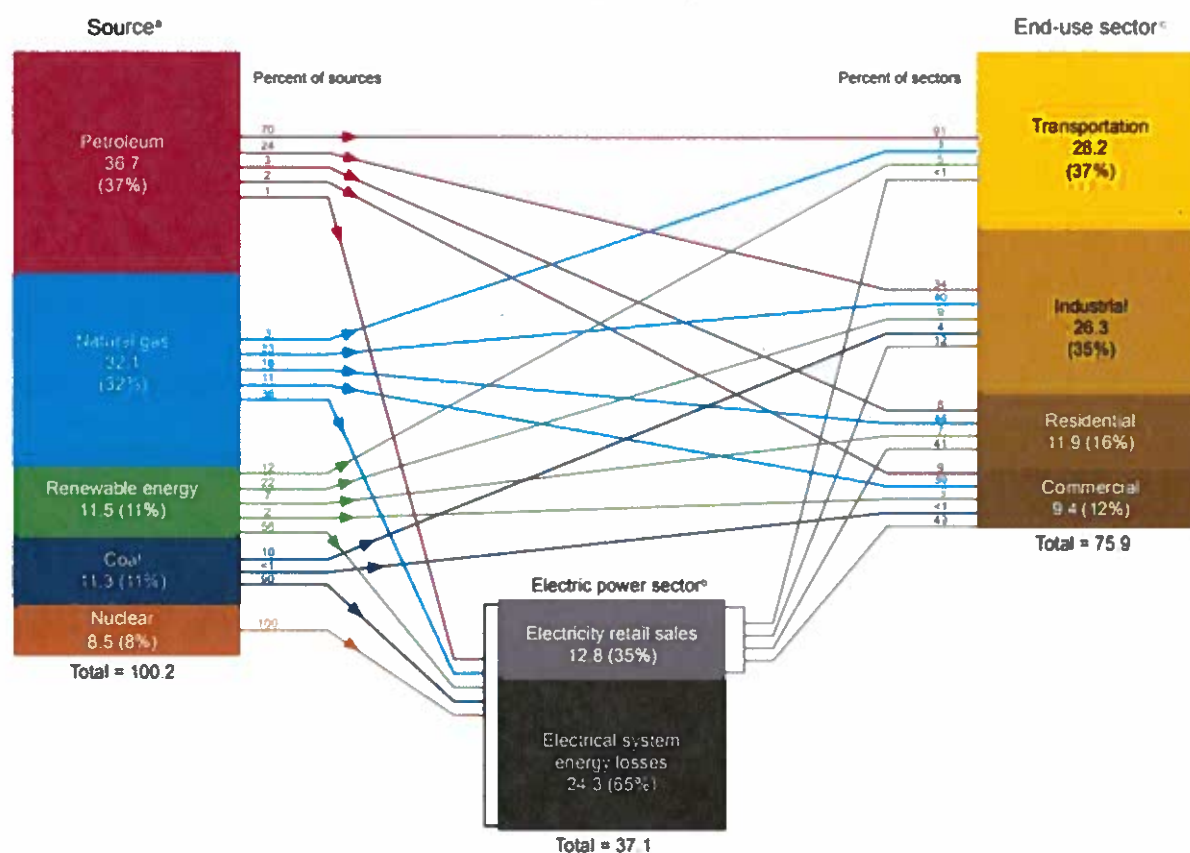
<sup>100</sup> U.S. Energy Information Administration, [source link](#), accessed July 3, 2020.

<sup>101</sup> U.S. Energy Information Administration, [source link](#), accessed July 3, 2020.

<sup>102</sup> Office of Governor Steve Sisolak, Press Release, Nevada Governor Steve Sisolak, [source link](#), accessed July 3, 2020.

Regional planning organizations and agencies envision integrated transportation and land use planning as a primary strategy to reduce transportation energy usage in the long term. Nevada's economic growth, and specifically, casino resort and real estate development and its associated uses, require an increase in energy. Current land use and development patterns throughout Nevada's urban areas generate an increase in the number and length of vehicle trips. The state and regional agencies can influence energy consumption by reducing passenger miles through land use planning and promotion of telecommuting. Effective transportation policies combined with effective land use policies can reduce automobile travel and shift traffic to more efficient modes. Using existing mass transit and commuter travel systems and building compact development can result in energy savings for individuals and for agencies.

**Figure 2-38: Primary U.S. Energy Consumption by Source and Sector, 2019<sup>103</sup>**  
(Quadrillion Btu)



\* Primary energy consumption. Each energy source is measured in different physical units and converted to common British thermal units (Btu). See U.S. Energy Information Administration (EIA), Monthly Energy Review, Appendix A. Noncombustible renewable energy sources are converted to Btu using the "Fossil Fuel Equivalency Approach", see EIA's Monthly Energy Review, Appendix E.

\* The electric power sector includes electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public. Energy consumed by these plants reflects the approximate heat rates for electricity in EIA's Monthly Energy Review, Appendix A. The total includes the heat content of electricity net imports, not shown separately. Electrical system energy losses are calculated as the

<sup>103</sup> U.S. Energy Information Administration, Monthly Energy Review (April 2020) Report, [source link](#).



primary energy consumed by the electric power sector minus the heat content of electricity retail sales. See Note 1, "Electrical System Energy Losses," at the end of EIA's Monthly Energy Review, Section 2.

<sup>c</sup>End-use sector consumption of primary energy and electricity retail sales, excluding electrical system energy losses from electricity retail sales. Industrial and commercial sectors consumption include primary energy consumption by combined-heat-and-power (CHP) and electricity-only plants contained within the sector. Note: Sum of components may not equal total due to independent rounding. All source and end-use sector consumption data include other energy losses from energy use, transformation, and distribution not separately identified. See "Extended Chart Notes" on the next page.

## D-6. Community Impacts

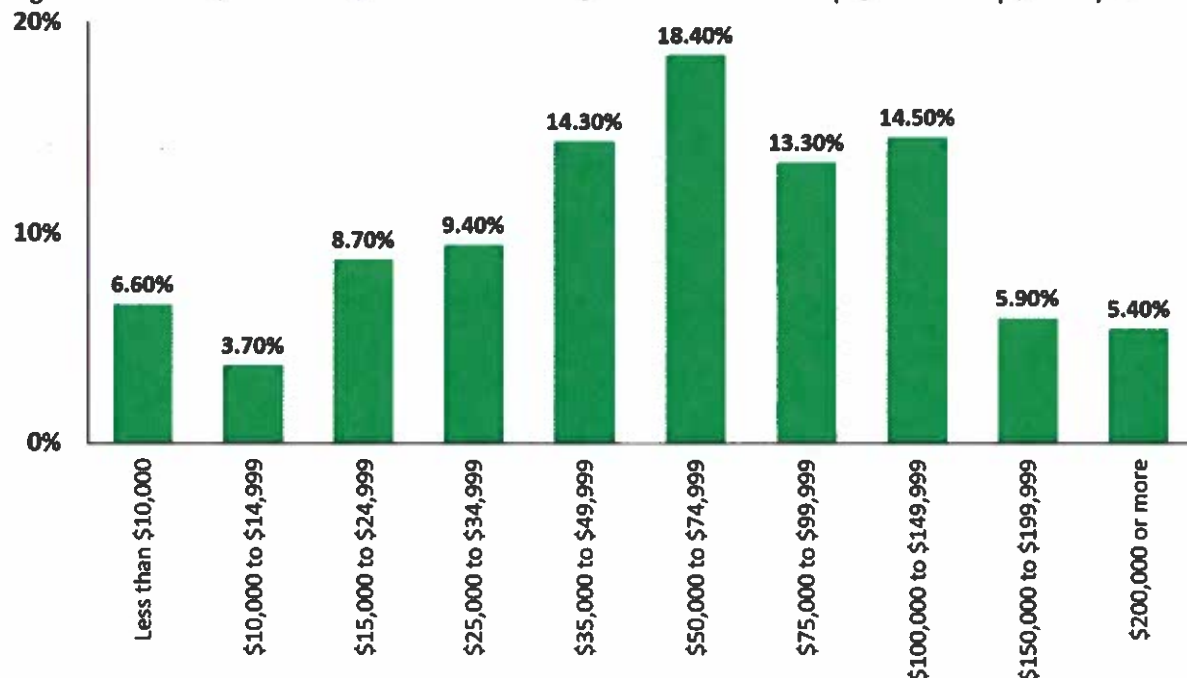
### *Population Demographics and Income*

In 2019, Nevada's three million residents have a diverse range of nationalities, races, and socioeconomic characteristics. Most of Nevada's population is urban (91 percent in 2019 versus 76 percent reported in the 2012 state rail plan) and white alone (49 percent in 2019 versus 56 percent reported in the 2012 state rail plan). Twenty-nine percent of Nevada is Hispanic or Latino. Other minority populations residing in Nevada include Black or African American (ten percent), Asian (nine percent), American Indian or Alaska Native (two percent), and Native Hawaiian and Other Pacific Islander (one percent).<sup>104</sup>

Rail and transit investments in the state will result in both direct and indirect benefits. Effects on communities and concentrations of certain populations will need to be examined as individual projects advance to determine the level of impact and benefits of each project.

The median household income in Nevada is approximately \$58,650 with 60.5 percent of Nevada residents earning between \$35,000 and \$149,999, according to the U.S. Census Bureau, see **Figure 2-39**. **Figure 2-40** shows that 12.9 percent or over 387,000 residents are living below the poverty line, compared to 158,000 reported in the last state rail plan.

**Figure 2-39: Median Household Income in the Past 12 Months in 2018 (Percent of Population)**<sup>105</sup>



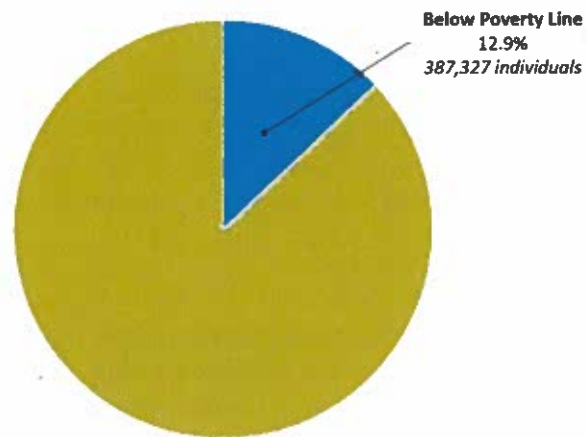
<sup>104</sup> U.S. Census Bureau, Nevada Quick Facts, [source link](#), accessed July 3, 2020.

<sup>105</sup> U.S. Census Bureau – American Community Survey (ACS) 2018, Nevada Median Household Income Report, [source link](#), accessed July 3, 2020.

### Safety

Safety is one of the most tangible outcomes of creating a sustainable and effective state rail plan. FRA has jurisdiction for most rail safety rules and regulations. The state consistently ranks the lowest in the nation in terms of incidents and fatalities, with between zero to four train accidents occurring per year from 2017 to 2020, according to the FRA Office of Safety Analysis. The existing rail safety program inspects four major categories: hazardous material, operating practices, track and motive power, and equipment.

Figure 2-40: Nevada Population Below Poverty Line in 2018<sup>106</sup>



Crossing safety can often be improved by adjusting the roadway network in the area around the crossing. Collisions and derailments can be avoided by implementing improved technologies, such as Positive Train Control (PTC), Light Emitting Diode (LED) signal systems, wayside detection systems, and automatic train stop systems, among others. PTC is a concept which allows trains to receive geographic information and safe movement authorities; this technology allows computer systems to override human actions in emergencies. PTC user benefits include increased fuel efficiency and locomotive diagnostics. FRA requires this technology to be implemented for all Class I freight railroads and Amtrak by December 2020.

<sup>106</sup> U.S. Census Bureau – American Community Survey (ACS) 2018, Nevada Poverty Classification by Setting Report, [source link](#), accessed July 3, 2020.

## E. Pointing to a New Future

### E-1. Passenger Rail

#### *Overview & Key Issues*

As outlined in the previous section, passenger rail has a very small footprint in Nevada and subsequently contributes little to the economic and social development of the state. Passenger rail accounts for a tiny fraction of personal transportation flows (see Section 2.2), commensurate to the amount Nevada is presently obligated to fund, which itself amounts to a tiny fraction of the state budget for occasional and limited capital improvements.

There are no regional passenger rail services in the state, despite the presence of operational rail lines passing through the major urban centers of Las Vegas, Sparks-Reno, and Elko. Although Intercity rail does exist in Nevada, it is limited to the once-daily Amtrak *California Zephyr* service which stops at Reno, Winnemucca, and Elko. Amtrak's federally funded *California Zephyr* serves a role of essential importance to the state, given its status as the sole common carrier passenger service in Northern Nevada between Reno and Salt Lake City, UT in the wake of Greyhound's abandonment of its parallel bus service.



***Amtrak Winnemucca Station***

Las Vegas is included in the Amtrak intercity network but has no direct passenger rail service. The state's largest urban center is served by Amtrak's Thruway connecting bus service which involves lengthy road journeys from Kingman (AZ), Bakersfield (CA), Los Angeles (CA), or Salt Lake City (UT). Laughlin, located at

the southern tip of the state along the Arizona border, is also served by Amtrak's Thruway service from Kingman, AZ.

Nevada has only three rail passenger stations (Reno, Winnemucca, and Elko) and four additional locations (Las Vegas, Stateline (South Lake Tahoe), Sparks, and Laughlin) included in the Amtrak network via direct connecting bus service. Direct connections to California's corridor services via Sacramento, CA Los Angeles, CA, and Bakersfield, CA are subsidized by that state. Despite Nevada's currently limited passenger rail service there is significant potential to develop rail as a sustainable and attractive personal transportation option in the state and as a net economic and social contributor to the state, as evidenced by several private ventures that have aimed to expand service.

Nevada has enjoyed perhaps more 21<sup>st</sup> century entrepreneurial private interest in its passenger rail corridors than any other state in the union, having no less than five private entities proposing new service within the state at the time of the 2012 State Rail Plan. However, in the wake of that plan, four of five have failed, the Brightline West project being the sole survivor. This dramatic rate of attrition is a key issue for stakeholders and policy makers; symptomatic of the market in which passenger trains are to compete with subsidized state and federally highways and significantly subsidized air travel. With an absence of in-kind support, it can come as no surprise that the Pullman Palace Car Company, X-Train, and others failed to materialize operations.

The remainder of this section will review the sizable service gaps that exist and outline various improvements and opportunities for developing passenger rail.

#### *Service Gaps*

The single passenger rail operation in Nevada is Amtrak's *California Zephyr* service, a part of Amtrak's Long Distance service line that operates between Chicago and Emeryville/San Francisco and takes over 50 hours, serving multiple travel market corridors. This train traverses northern Nevada with a daily frequency in each direction calling at Reno, Winnemucca, and Elko, utilizing the rails of Union Pacific's Overland Route.

Nevada does benefit from having three cities directly connected to the Amtrak intercity rail network, enabling passenger transport connectivity to points throughout the United States. This became more important since April 2018 when Greyhound ceased its Salt Lake City to Reno bus service making Amtrak the only common carrier intercity passenger transport option spanning Northern Nevada. Unlike arrangements in other states, Nevada does not financially subsidize Amtrak's service in the state.

Despite these benefits, the *California Zephyr* rail service has major service gaps which significantly reduces its value as an intra-state transportation link:

- **Frequency:** the train's present schedule of one daily train in each direction means Nevadans using the train are effectively making a commitment to a multiple-day journey.
- **Schedule:** The westbound service timings are far from appealing, running during the night, departing Elko daily at 3am, Winnemucca at 5:40 am and arriving in Reno at 8:36 am. The eastbound service departs Reno daily at 4:06 pm, Winnemucca at 7:08pm and arrives at Elko at 9:31 pm which makes a day trip to Reno for Northern Nevadans possible.
- **Reliability:** The *California Zephyr* is one of Amtrak's least reliable services. In 2018, it ran more than 15 minutes late 52% of the time.<sup>1</sup> This poor performance is the result of Amtrak's need to access rail rights of way from freight rail companies as well as the complexities of traversing a 2,438-mile route.



- **Speed:** The service covers the 330 route miles between Elko and Reno in 5.5 hours averaging 60mph. While it is relatively swift for Amtrak's long-distance routes, it is still slower than the equivalent road journey, via I-80, which takes between four and five hours depending on time of day.
- **Stations:** With only three stations over the approximately 400 miles of route crossing the state, several population centers are not connected. West Wendover (pop 4,300), located close to the Utah state line, has been proposing an Amtrak stop for over a decade. The line also routes through Lovelock (pop 1,800), the seat of Pershing County, midway between Winnemucca and Reno. Fernley (pop 21,000) and Sparks (pop 104,000) would also be important additional Amtrak stops, especially since Greyhound no longer serves Northern Nevada.
- **Facilities:** Although Reno has a station building with facilities, Winnemucca and Elko are very basic, having only a simple shelter and automobile parking. The station at Elko does not even allow for a direct connection between its eastbound and westbound platforms.

Further connections to Amtrak's Long Distance services exist via Amtrak Thruway bus connections. Las Vegas has Amtrak Thruway bus connections to Salt Lake City (seven to eight hours), Los Angeles (six hours) and Kingman (two-and-a-half hours) scheduled around rail services. For Salt Lake City and Kingman, connecting to the *California Zephyr* and *Southwest Chief* services respectively, that means service once per day in each direction. The schedule is unattractive. For example, Kingman services depart Las Vegas at 9:30 pm to meet a 2:30 am eastbound train, while in the other direction the bus departs Kingman at 12:50 am arriving Las Vegas at 3:00 am. Laughlin is also served by the Kingman Thruway service with equally unpalatable hours of 12:00 am and 1:00 am.

Direct connections to frequent Amtrak corridor services sponsored by the state of California are found in Las Vegas, Reno, Sparks, and Stateline, and represent the bulk of Thruway bus traffic in the state.

In conclusion, although Nevada is connected to Amtrak's national intercity route network it has no effective intra-state rail service. The *California Zephyr* service does connect Reno, Winnemucca, and Elko but the schedule of this once-daily train makes it impractical to accommodate a same-day return trip between any of these cities. Several Thruway bus connections exist but use of this service is restricted to passengers travelling on the feeding Amtrak rail services beyond Kingman or Salt Lake City due to a federal rule restricting Amtrak selling "bus-only" trips on bus routes<sup>2</sup>.

#### *Improvements and Opportunities – The Case for Rail*

Multiple opportunities exist to develop rail as a sustainable passenger transportation mode in the state. These range from enhancements to the existing service footprint to exploring new passenger rail options either utilizing existing infrastructure or new build.

As a large, mostly rural state, Nevada's options for passenger rail service are limited by low population density, great distances, and lack of railroad infrastructure, specifically within its most populous regions of Reno and Las Vegas. However, passenger rail can still play an important role in the economic and social development of the state.

Passenger rail service supports urban and land planning policies enabling sustainable commuting and intercity travel options. Rail is also the most efficient mode of personal transport as it is energy efficient and environmentally benign. A single rail line with a 14-foot right of way has the capacity of a 20-lane highway.<sup>3</sup> It can reduce congestion on urban as well as interurban routes saving large investments in local and interstate highway development, expansion, with attendant maintenance costs. The economic

implications of congestion are significant in terms of wasted personal time, the “costs of doing business”, and snarling supply chains as trucks and delivery vehicles are forced to operate sub-optimally, which itself brings more vehicles into the system and further increasing costs and congestion.

Even as self-driving vehicles emerge and the road infrastructure slowly evolves to accommodate autonomous operations of automobiles, passenger trains will continue to have the advantages of safety, more headroom/legroom than cars, speeds over 150 mph and restrooms, and cafes being available at any time without stopping. Passenger rail’s comparative advantages will continue into the foreseeable future.

Moreover, passenger trains also have the advantage of operating reliably in adverse weather, and crucially for anyone travelling between point A and point B, they provide a certainty on journey time. Whether the journey is for business, commuting, or leisure one of the fundamental needs of any passenger is to have certainty over how long the journey will take and when they will arrive. Experience in cities and rural regions around the world proves that rail travel is unrivalled in providing this assurance and confidence. Passenger rail therefore unlocks untold efficiencies across personal and commercial travel with a major benefit for all aspects of the economy.

This report recommends considering two focus areas for Nevada: enhance existing service and develop new service.

#### Enhance Existing Service

The current Amtrak intercity service can be enhanced to deliver greater value to Nevada and residents in the northern part of the state. A direct and reliable rail service with daily connecting service from Elko and Winnemucca direct to urban centers such as Reno, Salt Lake City, Sacramento, Oakland, and San Francisco is an attractive offering which should generate far more demand than current ridership levels. Many states spend a great deal of time and resources trying to secure Amtrak service in order to reap the benefits of an intercity train option. Here are recommendations for improvements:

- More effective marketing of this service for residents
- Improvement of facilities to make them more welcoming, practical, and safer (such as connecting the platforms in Elko, NV)
- Opening new stations along this 400-mile route in Nevada (such as West Wendover, Lovelock, Fernley, and Sparks, which would effectively allow for intrastate travel, including a day trip to Reno)
- Active engagement with Amtrak and Union Pacific to improve reliability and even scheduling times for westbound service
- Improved customer information tools (schedules, running times, delays, station information)
- Local initiatives in Reno, Winnemucca, and Elko to generate awareness
- Collaboration with other states, local authorities, and rail advocacy groups to learn and put into place best practices for leveraging existing Amtrak long-distance service to create local economic benefit and develop intra-state passenger rail

#### Develop New Service

##### Reno and Las Vegas

Reno and Las Vegas are major population centers with congestion and urban development challenges that can be addressed fully, or in part, by the adoption of commuter or regional passenger rail service. Both cities have existing and operational rail infrastructure that can be utilized for passenger rail services. The existence of rail track and infrastructure is a major benefit as it will significantly reduce the costs

associated with implementing a rail service. Many passenger rail initiatives in urban centers are unable to make an economic case due to the high costs associated with land acquisition and virgin infrastructure construction. When existing track beds exist, and especially when a rail line is in active use, such as in Reno and Las Vegas, this materially reduces capital investment requirements. The costs of adapting existing rail infrastructure are far lower than building anew. New passenger rail projects that utilize existing rail lines and focus investments on line extension spurs, stations construction, and upgrading signaling make a far better economic case than new-build projects.

The Reno-Sparks metro area is a fast-growing urban center facing issues of congestion and housing supply. It has an existing passenger rail station and operational Union Pacific rail lines to the North, East, and West which could potentially be leveraged for passenger service together with spurs from the line. The only public transportation modes in Reno are buses that do not offer speed or distance and add to congestion and environmental issues.

Las Vegas has no passenger rail station but does have an existing operational Union Pacific rail line crossing the city from North to South. This could be leveraged for passenger service together with spurs from the line. Las Vegas has adopted some non-road public transportation; it has three independent monorails that link the casinos along the Strip. Two are short routes operated by hotels with five stations. The third monorail is a traditional fare-based public transit operation, the Las Vegas Monorail, consisting of seven stations over a four-mile route connecting casinos from MGM northwards to Sahara. However, as these monorails are designed for tourism and convention business, they are limited as a passenger transport option for residents and businesses who are left with little option but private cars and road-based transit, adding to congestion and its economic and environmental impacts.

Over the past decade several passenger rail initiatives linking Las Vegas with Southern California and/or Reno have been proposed and evaluated yet none have transpired. However, one initiative, now branded Brightline West, linking Las Vegas to Victorville, CA is scheduled to break ground in 2020 and be operational by 2023. These plans appear to be unaffected by the COVID-19 pandemic during 2020.

Brightline West, owned by Fortress Investment Group, plans to operate a high frequency, high speed (up to 200mph) service covering the route's 170 miles in 85 minutes. The service will bring passenger rail to Las Vegas for the first time since the closure of Las Vegas' Amtrak station in 1997 when Amtrak dropped its *Desert Wind* service. A new rail station and operational rail infrastructure serving Las Vegas will open the door to significant development opportunities for new commuter rail services with stations on the newly built line or short extension spurs, which could be integrated into the Brightline West service. Brightline West's parent company also operates the Brightline passenger rail service in Florida from West Palm Beach to Miami via Fort Lauderdale. Opened in 2018, the Brightline service was originally marketed as a high-speed, intercity service, but it is now introducing intermediate stations at Boca Raton and Aventura, creating a hybrid intercity and regional commuter operation. Given recent developments at Brightline's Florida franchise, it is especially timely to consider development of local rail service along the I-15 route to Primm, NV near Las Vegas.

Any rail development plans in these two metro areas would need to be coordinated with local planning, urban development, and economic development bodies. Introducing passenger rail service into metros that are limited to personal car use for transportation can deliver significant benefits in terms of journey times, environment, and efficient use of land and capital. However, realizing these economic and social

benefits requires rail-based solutions to be incorporated into the economic and urban planning strategies for the metro. Collaboration and buy-in of stakeholders at state and local levels is fundamental for the success of passenger rail projects as they involve and benefit so many strategic areas: economic development, land use, urban planning, social development, tourism, and of course transportation.

#### *Intercity and other rail developments*

In terms of new intercity passenger rail within the state's borders, the only feasible new pairing would be between Reno and Las Vegas with a potential connection to Carson City. The 2014 FRA Southwest Multi-State Rail Planning Study classified this corridor as "third tier", or as being heavily dependent on other regional rail connections being established first, such as Las Vegas to Los Angeles. Therefore, it is local, commuter lines, and lines connecting to population centers outside of the state that are considered the optimal approach for new passenger rail development and investment in the short to medium term. Use of existing railroad lines can connect Las Vegas with Reno via the populous California Central Valley. Sections of this train could also provide Las Vegas rail service to San Jose and San Francisco with travel times competitive with drive times.

One further area for consideration is to utilize existing rail lines in the state for high-end tourism rail experiences. Nevada, especially Las Vegas, attracts significant volumes of tourists, and Nevada can exploit its existing rail lines and natural beauty to promote luxury rail-based services such as the Blue Train (South Africa) and Orient Express (France/Italy). These can provide a mix of high value and "red letter" experiences, moving through the majestic natural scenery in a temperature controlled vehicle in the 100-degree summer heat.

There are also a handful of existing heritage, excursion, and tourist rail lines across the state, such as the Nevada Southern Railway and Nevada Northern Railway, which operate services using period rolling stock. These small operations could be boosted by a coordinated rail tourism initiative sponsored by the state. These excursion operations could perhaps be developed to provide regular passenger rail services. As an example, in rural areas of the United Kingdom, some heritage railroads operate as the public transportation company in addition to their main tourist excursion business, with subsidized fares for local residents for whom the heritage railroad is their only means of transportation.

#### *Passenger Rail in Summation*

Despite a low penetration of passenger rail in Nevada, there are multiple opportunities to enhance existing service to develop new rail initiatives. Rail offers solutions to the challenges of highway congestion, safety, and pollution caused by an over-reliance on road-based transportation. Rail also enhances sustainable urban expansion when intelligently coordinated with land-use planning and economic development.

Nevada is fortunate to have rail infrastructure already in place at its two largest urban centers. This will materially reduce the financial outlay associated with constructing rail lines and services at Reno and Las Vegas. In addition, the upcoming high-speed passenger rail service to and from Las Vegas is a tremendous opportunity to develop complementary local passenger rail services.

## **E-2. Freight Rail**

Nevada's impressive industrial and commercial growth requires a unique set of approaches to expand the contribution of rail transportation to the state's logistics-based economic opportunities. The large amount of raw land in the state is rapidly being developed with little consideration of rail service. While vast stretches of the state are lightly populated rural communities where transportation inefficiency is less

visible, two high-growth urban areas — Clark County in the south and Reno-Sparks-Stead in the north — are experiencing the negative impacts of loosely planned industrial development with its consequent highway congestion impinging on the quality of life for a growing population.



*Rail-Served Industry in North Las Vegas*

In the face of increasing costs and impacts from industrial development growth and its consequent increase in truck and passenger vehicle traffic, more rail transportation is needed for goods movement and regional transit. Given rail transportation's efficient use of space for moving goods and people, Nevada needs more rail service to enhance the compatibility of commercial developments and quality of community life.

Moving heavy weight and people over land using hard steel wheels over smooth steel rails generates much less friction than using rubber tires on rough concrete and asphalt. The resulting decrease in fuel use, air pollutants, highway congestion, infrastructure costs, crashes, and improvement in quality of life are critical elements of a well-working, modern society.

Freight rail development in Nevada should be forwarded as a response to two dynamics contributing to the state's commercial development. One is the increasing demand for strategic minerals of which Nevada has an abundance. Mining continues to be a major industry in the Nevada economy with an \$8B gross value of produced minerals in 2018.<sup>107</sup> The other is locating warehouse and distribution centers in Nevada that primarily serve California's economy and population. The proximity of California, which has 13 times the population of Nevada and 20 times the Gross Domestic Product has stimulated the building of many large distribution centers in Nevada, only one of which is served by rail. The negative impacts of the

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<sup>107</sup> Nevada Commission on Mineral Resources – Division of Minerals, Report "Major Mines of 2018", page 26, [source link](#).



activity from each of these developments would be alleviated if rail were integrated into the transportation planning for goods, materials, and people.

#### **Regional, Cross-Agency, and Cross-Industry Approach**

The Nevada State Rail Plan (NVSRP) organizes Nevada into eight regions distinguished by a combination of geography, governing jurisdictions, and operating characteristics of each section of the rail network. This structure facilitates effective stakeholder collaboration on rail-based economic development in each region. The 450+ stakeholders catalogued within the NVSRP database are organized by region, industry, and/or public service role so that group dialogues can be conducted with the most appropriate stakeholder representatives. This degree of specificity demonstrates respect for stakeholders' time and energy, which engenders trust and participation.

Nevada, given its adjacency to California, is experiencing the geographic flipside of what has occurred in Pennsylvania due to its proximity to New Jersey. Nevada and Pennsylvania's lower land prices, reduced construction and labor costs, lower taxes, and relaxed development rules have led to a surge in the development of warehouse and distribution facilities serving the more densely populated coastal states of California and New Jersey. The sensibility, or lack thereof, of this development dynamic is being driven by land prices and real estate transactions, not by logistics and land-use planning. The result is that new businesses are locating in Nevada without the benefit of rail service and rail transportation's overall efficiencies, lower cost, and access to markets across the supply chain.

Nevada can gain much by centering its critical Covid-19 economic recovery plan on a logistics- and rail-based development strategy that brings rail and truck service into full integration to and from Nevada's growing industrial base. As California's economy is right behind the four largest national economies (United States, China, Germany, and Japan) and its ocean ports provide access to the entire eastern hemisphere, there is much to be gained by improving rail service between Nevada and California.

Fortunately, in the face of newly depressed public-sector treasuries, freight-rail development in Nevada can be funded by private-sector capital, along with integration of low-interest federal loan funding where available. The new Nevada State Rail Plan includes an innovative approach to public/private funding of this rail-centered economic development, which will be presented in Chapter 4.

# CHAPTER 3

## *Nevada Passenger Rail Strategic Plan*



## Chapter 3 Table of Contents

### Chapter 3 Proposed Passenger Rail Improvements and Investments 3-4

A. Introduction .....	3-4
B. Passenger Rail Improvement Opportunities .....	3-5
B-1. Intercity Rail Improvements .....	3-5
Amtrak California Zephyr .....	3-5
Extension of Amtrak's Capital Corridor to Reno-Sparks .....	3-10
Multistate Intercity Equipment Pool.....	3-12
Brightline West – Rancho Cucamonga, CA to Las Vegas, NV .....	3-12
Southwest Multi- State Rail Planning Study .....	3-14
Thruway Expansion & C Route: Reno to Las Vegas by Way of Central California .....	3-16
Amtrak Service Between Salt Lake City, Las Vegas, and Los Angeles .....	3-20
B-2. Excursion Rail Improvements .....	3-22
Nevada Northern Railway .....	3-23
Virginia & Truckee Railway Commission .....	3-25
Nevada Southern Railway – “The Hoover Dam Limited” .....	3-26
Las Vegas Xpress X-Train Los Angeles to Las Vegas .....	3-27
B-3. Commuter Rail Improvements .....	3-27
Reno, Nevada, and Innovation Park (formerly Tahoe-Reno Industrial Center - “TRIC”) .....	3-27
Reno Area Transit Service .....	3-29
Brightline West - Las Vegas Commuter.....	3-31
Extension of the Las Vegas Monorail to Brightline West .....	3-33
B-4. Challenges of Developing Passenger Rail.....	3-36
Policy & Funding .....	3-36
Ownership and Access .....	3-36
B-5. Conclusion .....	3-38
Summary of Passenger Rail Service Recommendations .....	3-38



## Chapter 3 Figures

Figure 3-1 Proposed Amtrak California Zephyr Station Stops .....	3-9
Figure 3-2 Proposed Amtrak Capitol Corridor Extension to Reno/Sparks .....	3-11
Figure 3-3 Brightline West Route Map .....	3-13
Figure 3-4: Proposed FRA Southwest Multi-State High Speed Rail .....	3-15
Figure 3-5: Las Vegas – Reno C Route .....	3-18
Figure 3-6: C Route Highlight Overlay on Population Heat Map.....	3-19
Figure 3-7: Desert Wind Corridor .....	3-21
Figure 3-8: Nevada Northern Railway McGill Extension.....	3-24
Figure 3-9: V&T Railway Extension.....	3-26
Figure 3-10: Innovation Park Commuter Rail Service.....	3-28
Figure 3-11: RailPAC Reno Corridor Proposals.....	3-30
Figure 3-12: Las Vegas – Primm Regional Rail.....	3-32
Figure 3-13: Las Vegas Monorail Extension to Brightline West .....	3-35
Figure 3-14: Existing Nevada Rail Network.....	3-37

## Chapter 3 Proposed Passenger Rail Improvements and Investments

### A. Introduction

As covered in Chapter 2, passenger rail service in Nevada is presently limited in scope, frequency, and availability. Development of passenger rail in the state has been historically impaired by numerous challenges ranging from limited funding sources, subsidized competition from air and highways, topography, distance between the larger potential passenger rail markets, and the location or absence of existing infrastructure for intercity or commuter rail.



***Amtrak's Westbound California Zephyr at Reno***

Although many of these challenges continue to exist, this section details a broad range of proposed projects and investments to address passenger rail needs in the state. These proposals, improvements, and investments cover enhancements to existing services and the development of new services. The scope of these improvements encompasses conventional and high-speed intercity services, commuter services, excursion rail attractions, and intermodal passenger transportation connectivity. While the Nevada State government has been encouraging a private-sector passenger rail initiative that promises



to institute new high-speed rail between Southern California and Las Vegas, the primary focus of the new state rail plan is on the use of existing railroad infrastructure as the base for new passenger transit development.

## **B. Passenger Rail Improvement Opportunities**

Nevada has opportunities to grow passenger rail service in the near- and long-term. Multiple proposals and studies have addressed and analyzed this opportunity, considering intercity, commuter, and excursion services and encompassing many corridors and urban centers in the state.

The following sections describe each opportunity area in detail, categorized by rail type:

- Intercity
  - Amtrak *California Zephyr* Improvements
  - Extension of Amtrak's Capital Corridor to Reno-Sparks
  - Multistate Intercity Equipment Pool
  - Brightline West
  - Southwest Multi-State Rail Planning Study
  - Thruway Improvements and the C Route from Las Vegas to Reno
  - Amtrak service: Salt Lake City to Las Vegas and Los Angeles
- Excursion
  - Nevada Northern Railway
  - Virginia & Truckee Railroad
  - Nevada Southern Railway – *The Hoover Dam Limited*
  - Las Vegas Xpress X-Train Los Angeles to Las Vegas
- Commuter
  - Reno to Innovation Park (formerly the Tahoe-Reno Industrial Center)
  - Reno Area Transit Service
  - Brightline West Commuter
  - Extension of the Las Vegas Monorail to the Brightline West Terminal

### **B-1. Intercity Rail Improvements**

#### ***Amtrak California Zephyr***

Amtrak currently provides conventional passenger rail service in northern Nevada with its national-network *California Zephyr* line between Chicago and the San Francisco Bay area with Nevada stops in Elko, Winnemucca, and Reno. Following Greyhound Lines' abandonment in 2018 of its parallel services, Amtrak represents the only public transport option between these cities. Amtrak has no plans to add stops in

other Nevada cities at the present time, though there are ongoing discussions with the city of West Wendover, NV.<sup>1</sup>

The state rail plan has elicited suggestions to enhance station facilities and operations and to expand service; these suggestions do not include cost estimates, schedules, or benefit/cost analyses (BCA) but do expand on their potential connectivity, economic, environmental, and social benefits. Other sources of improvement suggestions are Amtrak's *California Zephyr's* Performance Improvement Plan (CZ PIP) in 2010 and recommendations from advocacy groups.

- **Improve Passenger Station Facilities at Elko** to conform with best practices by facilitating a direct connection between eastbound and westbound platforms. The present three-quarter mile distance between platforms, which causes lengthy and challenging walks (as reported in chapter 2, section 2-5 of this rail plan), is worthy of further analysis, perhaps taking advantage of the nearby South 12<sup>th</sup> Street overpass that bridges the tracks. Train stations can stimulate area growth and economic development even if they only see one daily train as Elko does, as attested by many communities participating effectively in the Great American Stations Project.<sup>2</sup> However, these benefits are hard to capture if the station facility is not itself inviting, let alone intuitively functional. Due to the late-night train arrival and departure times, local bus transit connections are not available.
- **ADA Improvements at Elko** Amtrak has several initiatives underway to bring all its stations into ADA (Americans with Disabilities Act) compliance, along with an initiative to improve station signage and information displays. The Winnemucca station work was focused on meeting ADA requirements and included parking spaces, pathways, a new unstaffed station providing a three-sided shelter in the style of a traditional railway station, and a new platform. The Elko station upgrades included parking improvements, new concrete sidewalks, pathways, curb ramps, new stairs with handrails, a new fence and guardrail, new doors and hardware, and repair of the existing platforms including the addition of detectable warning strips on the platform edges and new signs on the platforms. However, as stated above, this station's fundamental dysfunction of separate platform access has yet to be addressed fully.
- **Add Sleeping Cars to the *California Zephyr*** train sets as per the 2010 PIP performed by Amtrak to add capacity for visitors to Nevada. Sleeping cars frequently sell out.
- **Add Service Between Reno and the San Francisco Bay Area** during the winter months as a more desirable means of transportation between these two areas as recommended in Amtrak's 2010 CZ PIP<sup>3</sup>.

This will meet peak seasonal demand for ski tourists visiting Nevada. Dedicated shuttle service from Reno or Truckee, CA would provide better transportation options for ski travelers to Tahoe.

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<sup>1</sup>Amtrak, "Amtrak Fact Sheet, Fiscal Year 2018, State of Nevada" Report, [source link](#).

<sup>2</sup>The Great American Stations website, [source link](#), accessed July 24, 2020.

<sup>3</sup> PRIIA Section 210 Report, *California Zephyr, Performance Improvement Plan* (pp. 1-36, Rep.). Washington, D.C.: Amtrak, [source link](#)

- **Add a Second Daily Train in Each Direction to the *California Zephyr*** service for the length of its Chicago-to-San-Francisco-Bay-Area run. This will create more connectivity between the stations on the route and more local travel opportunities for communities in Nevada (Amtrak 2010 PIP).
- **Adding Station Stops in Nevada** further leverages this federally subsidized train to produce an increase in service for the state. The one-time capital expense associated with constructing new station(s) provides an attractive return on investment because the entire ongoing costs of operating and maintaining the rail service continue to be borne by Amtrak. The investment would be felt along the route of the *California Zephyr* in Nevada, especially as its corridor isn't served by another public transportation mode. Furthermore, the addition of these stations may help the *California Zephyr's* own performance given the Reno, NV-Salt Lake City, UT segment of the *California Zephyr*, which at present has the lightest coach class ridership on the route.<sup>4</sup> Please refer to **Figure 3-1** for more detail.
  - **West Wendover, NV** (population 5,700) has been in discussions with Amtrak since the 2012 Nevada State Rail Plan to add a station on the Utah/Nevada border, and may induce casino traffic from Salt Lake City. Amtrak has agreed to add the stop if West Wendover can secure the funds for constructing the station.
  - **Lovelock, NV** (population 1,800) is the seat of Pershing County, and is an optimally located stop to leverage the *California Zephyr* to better serve Nevada. The present *California Zephyr* timetable would allow for a day trip from Lovelock to Reno, a travel pattern not presently available to Nevadans. Given the average catchment zone for an Amtrak long-distance train in a rural location of up to 50 miles,<sup>5</sup> such a stop could see impressive ridership as compared to the local population, as experienced at rural stations elsewhere on Amtrak's Long Distance network.<sup>6</sup>
  - **Fernley, NV** is a satellite community of Reno, roughly 35 rail miles east of the Reno depot. It has seen significant growth over the past decade. A stop at Fernley would also provide more convenient access to Fallon, NV. Fernley has a growing industrial base (such as Tesla's Gigafactory) while Fallon is the home of the Naval Aviation Warfighting Development Center. (Combined populations of Fernley and Fallon total almost 30,000).
  - **Sparks, NV** (population 104,000) was an Amtrak stop prior to May 2009. Safety issues developed as the passenger station was co-located in the Union Pacific freight yard. As the largest town between Reno and Salt Lake City, it represents an important community to serve.

<sup>4</sup> Source: RailPAC, Interviewed by Author, April 22, 2020.

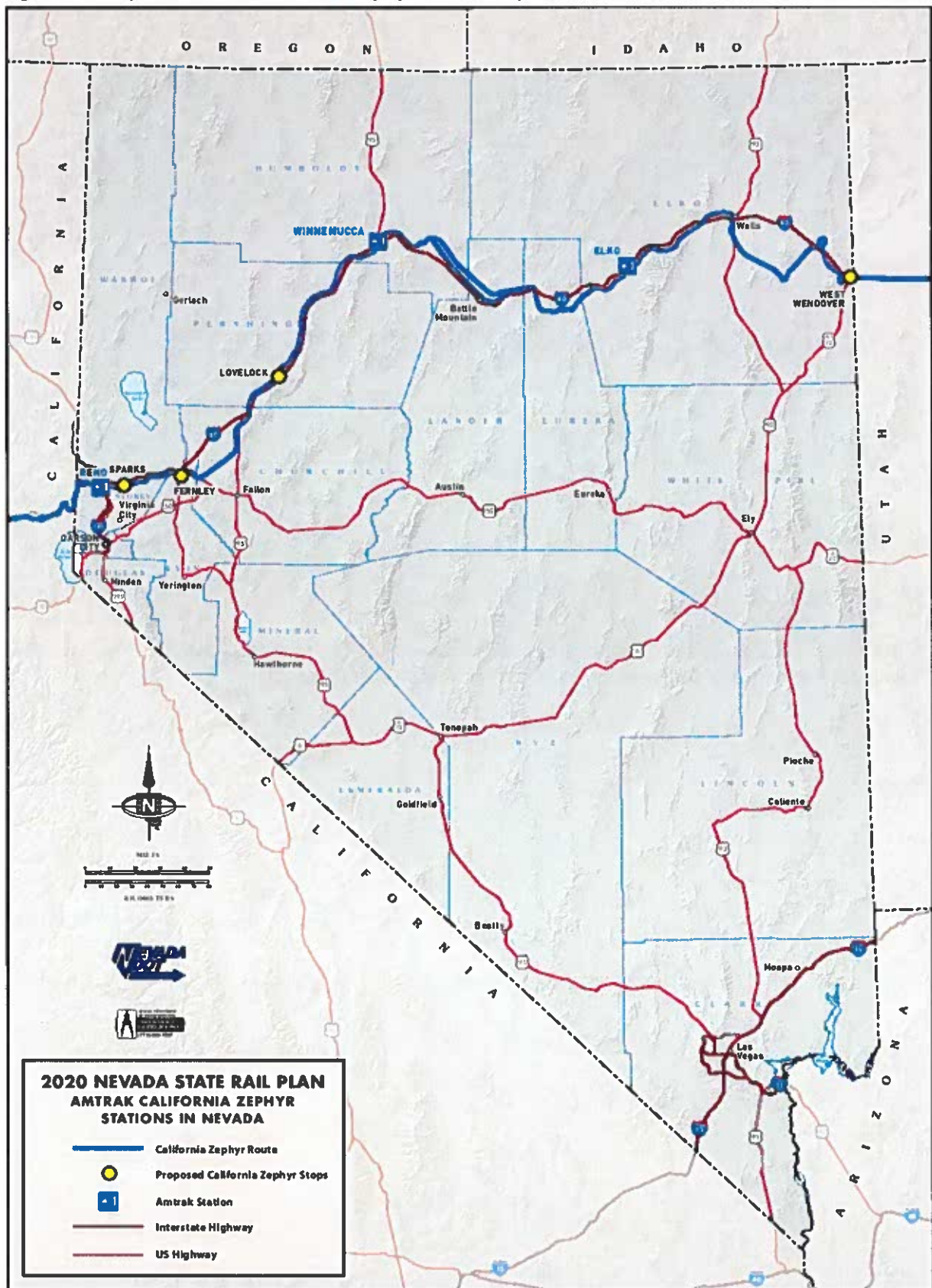
<sup>5</sup> Rail Passenger Association, Route Fact Sheet, 2010

<sup>6</sup> Note the *California Zephyr's* presently high ratio of ridership to population in Nevada in Table 2-3 in Chapter 2 of this study – 40% in Elko, 67% in Winnemucca, 30% in Reno.



*Lounge Car on Amtrak's California Zephyr Crossing Nevada East of Reno*

Figure 3-1 Proposed Amtrak California Zephyr Station Stops





Since the *California Zephyr* arrives westbound at Reno at 8:36am and departs Reno eastbound at 4:06pm new Amtrak stops at Lovelock, Fernley and Sparks would create improved mobility for Nevadans and provide those rural residents with the opportunity to make day trips to Reno for doctor appointments, shopping, visiting family, friends, and local attractions.

Adding stops would require a formal local or state request, an Amtrak evaluation of the revenue, the costs of adding the proposed stop(s), and negotiations involving Union Pacific's evaluation of capacity impacts on the line's throughput. Costs could include improvements such as station platforms, lighting, main line track or siding, signal upgrades, and grade-crossing improvements to maintain the line's existing level of freight service.

Amtrak's September 2010 PRIIA PIP presents Amtrak's proposed plan for improving the *California Zephyr* including customer service, equipment inspections, and ADA access at stations. The PIP proposed to upgrade the *California Zephyr* to premium service, pending equipment availability; such service would require, at a minimum, an additional sleeping car and a dedicated first class lounge car. As noted in the 2012 State Rail Plan, Amtrak's comprehensive business plan called for a consistent, sustainable annual fleet purchase plan to replace Amtrak's national fleet with new intercity equipment. In addition, Amtrak previously entertained other options to enhance its *California Zephyr* service, including the Sparks Car Initiative, which would add passenger cars and increase seating capacity between Emeryville, CA, and Reno during the popular winter months. Extra cars would be added to the train for the segment from Emeryville to Reno, and the additional cars would then be detached in the Sparks railyard for servicing before returning to Emeryville on the return Amtrak train.

The above initiatives have not been pursued, and the *California Zephyr* presently operates with heavily depreciated 40-year-old Superliner equipment. Amtrak has stated that it does not intend to begin the procurement process for the Superliner fleet until after 2025,<sup>7</sup> meaning that the equipment used by Nevada's only passenger train will have to wait until it reaches an average age of nearly 50 years before there is even an established timeline for its replacement. The shortfall could lead to an existential threat to this essential service.

Adding a second daily train to Amtrak's *California Zephyr* service will require Amtrak's fleet replacement program to be established, Congressional approval and funding, as well as host railroad capacity evaluations, which are likely to result in a need for capital improvements.

#### *Extension of Amtrak's Capital Corridor to Reno-Sparks*

The Rail Passenger Association of California and Nevada (RailPAC) has recommended that the Nevada State Rail Plan consider the potential of extending Amtrak's *Capital Corridor* service to Reno-Sparks over the Union Pacific and the *California Zephyr* route. Refer to **Figure 3-2** for more details.

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<sup>7</sup>Amtrak, "Five-Year Service Line Plans, Fiscal Years 2021- 2025" Report, pg. 88, [source link](#).

Figure 3-2 Proposed Amtrak Capitol Corridor Extension to Reno/Sparks



[UPRR Comment: Extension of Amtrak's Capitol Corridor to Reno-Sparks Given the regular suspension of passenger rail service over Donner Pass during snow events, UPRR does not support the implied greater availability of the rail route versus I-80 during winter storms.] There is substantial travel from Northern California cities to the Reno metro area as a result of leisure and vacation activities, visiting family and friends (many California retirees have relocated to the Reno area) and student travel from California to the University of Nevada, Reno. This travel demand becomes especially problematic during winter storms when I-80 can be unreliable.

As part of the California State Rail Plan, extension of *Capitol Corridor* service to Reno-Sparks was listed. RailPAC recommends that Nevada DOT coordinate with Caltrans and the Capitol Corridor Joint Powers Authority (CCJPA) in identifying and funding capacity improvements for extending *Capitol Corridor* service between the Bay Area and Reno-Sparks. Nevada DOT would be the lead agency for capacity projects in Nevada.

A further recommendation stated Nevada DOT should coordinate with Caltrans and the CCJPA on the location, scope, and design of a layover facility for the extended *Capitol Corridor* service.

#### *Multistate Intercity Equipment Pool*

RailPAC recommends that Nevada explore with other states the initiation of a multi-state equipment pool. This pool of cars would provide Nevada with equipment to extend the *Capitol Corridor* service to Reno, add additional capacity between Oakland and Reno on the *California Zephyr* and reestablish service on the *Desert Wind* route: LA – Las Vegas – Salt Lake City.

Another goal of this effort would be to provide, as states phase in additional rail service over time, a steady stream of production to maintain a robust U.S. railway passenger equipment manufacturing base.

#### *Brightline West – Rancho Cucamonga, CA to Las Vegas, NV*

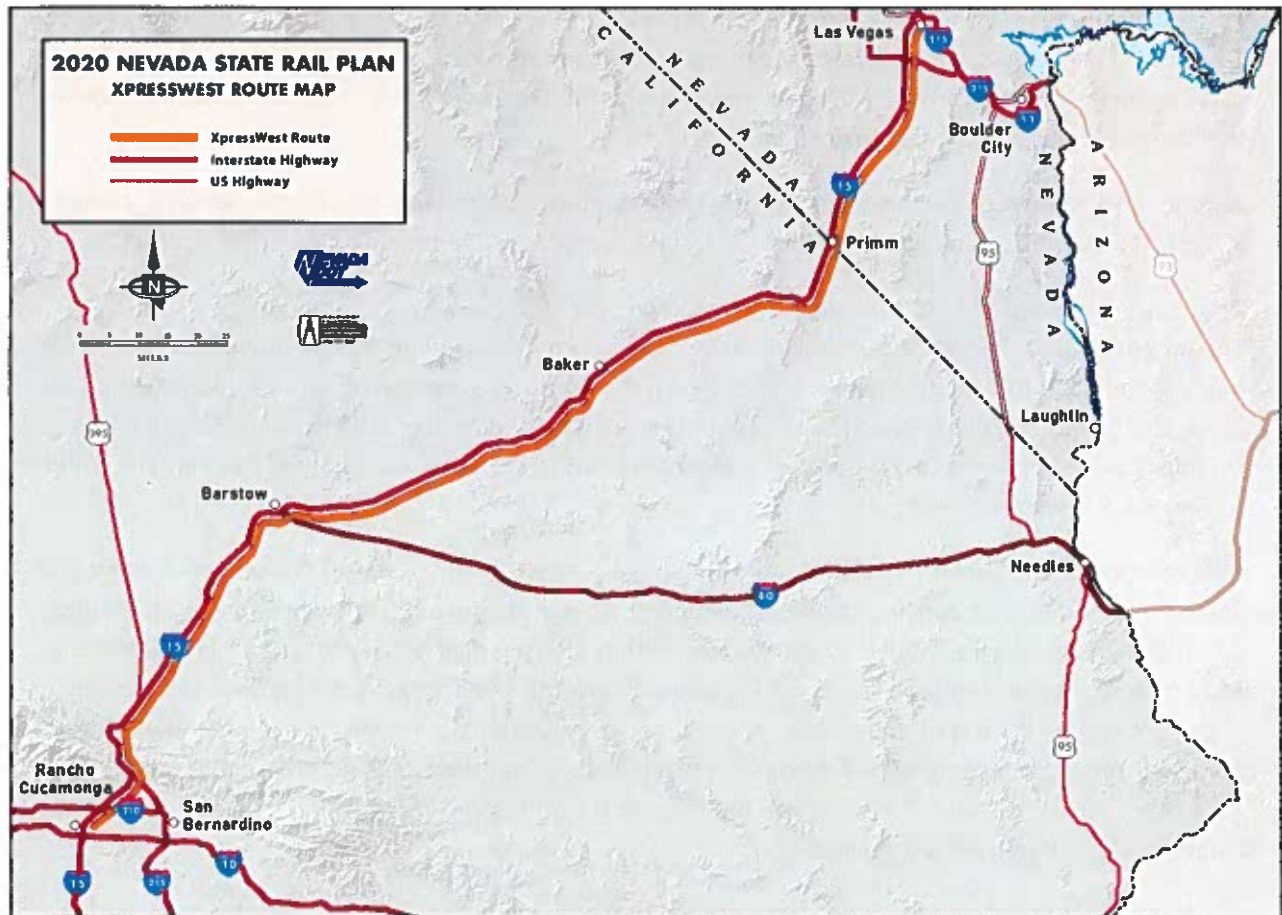
The proposed Brightline West service between Las Vegas and Rancho Cucamonga and ultimately the LA Basin in the California Inland Empire is the sole survivor of three separate private venture attempts to serve the Southern California-to-Las Vegas market as recorded in the 2012 Nevada State Rail Plan. Originally named DesertXpress the project was renamed in 2018 when it was acquired by Brightline. Refer to **Figure 3-3** for more details.

Brightline West will construct, operate, and maintain a high-speed passenger train system along the approximately 220-mile corridor between Las Vegas, NV and the Inland Empire in Rancho Cucamonga, CA. The alignment is predominantly constructed within the I-15 right of way in California and Nevada. Most of that alignment within the I-15 right of way will be within the median of the highway and the entire alignment will be protected and isolated from the highway, creating a dedicated rail corridor with no grade crossings. The alignment will be primarily single track with passing “sidings” that allow trains to pass each other on the corridor. The train will be fully electric with trainsets provided by Siemens, a global leader in high-speed train technology.

Upon opening, the company expects to operate trains departing every 45 minutes in each direction. There will be three stations: one in Rancho Cucamonga, one in Las Vegas, and a station in between called Victor Valley, in Apple Valley, CA. Each station will be located adjacent to the I-15 corridor. The project will include a vehicle maintenance facility adjacent to the Victor Valley station and ancillary operations and maintenance facilities along the corridor.

This passenger rail service will be substantially similar to the service Brightline West currently provides in South Florida. This passenger rail service will offer business, leisure, and personal travelers safe, sustainable, fast, reliable, convenient, and comfortable travel. Travelers will be able to reserve specific seats on trains and at times that fit their specific travel needs. Passengers will enjoy free high-speed Wi-Fi on board and other amenities at all three stations, such as business centers with print and copy services. Ancillary services on board the trains and in stations include the sale of passenger tickets, food and beverages, merchandise, parking, and other related services.

Figure 3-3 Brightline West Route Map



Upon arrival, Brightline West passengers will be able to continue to travel seamlessly to their destinations. Train stations are usually conveniently located near major travel destinations and offer access to other modes of transportation such as public ground transportation and ride-sharing services. The Brightline West station in Las Vegas is primarily designed to have access to ride-sharing services and shuttle vans from casino hotels. The station in Rancho Cucamonga will be adjacent to the existing Metrolink station, which provides direct connectivity to Los Angeles Union Station and connects to the full Southern California mass-transit system.

The service will bring passenger rail service to Las Vegas for the first time since the closure of Las Vegas' Amtrak station in 1997 when the intercity rail operator dropped its *Desert Wind* service.

These plans appear to be unaffected by the COVID-19 pandemic during 2020 and open an exciting new chapter for passenger rail in Las Vegas and Southern Nevada as the development of new rights-of-way offers commuter and regional rail opportunities. (*These opportunities are covered in the Commuter Rail Section below.*)



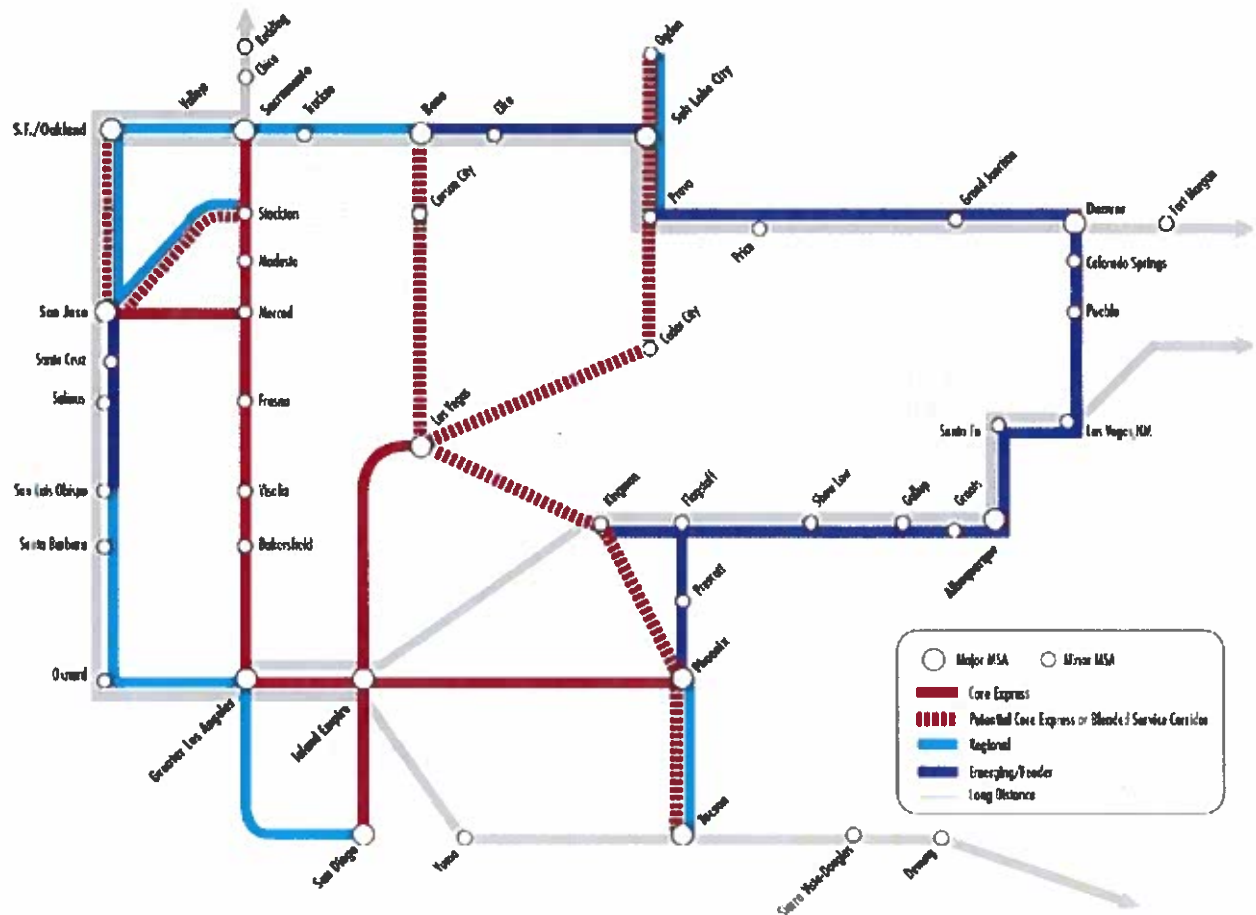
Brightline West anticipates a high level of demand for its service. Las Vegas is an international tourist and business convention destination, and demand for travel between Southern California and Las Vegas has substantially increased over the years. Approximately 85% percent of visitors from Southern California drive on I-15, the only highway connecting Southern California with Las Vegas. Over the last decade, the trip on I-15 has become a time-consuming, stressful, and congested travel experience. The Brightline West service will offer an attractive alternate mode of transportation for travelers between Southern California and Las Vegas. Automobile travel from Rancho Cucamonga to Las Vegas takes four hours without traffic, and that time increases considerably during peak days and times. The train will take approximately one hour and 20 minutes. The project will offer passengers an unparalleled transportation experience that bypasses traffic along this busy corridor in approximately half the time, and a better, cleaner, and safer alternative to driving. For air passengers, not only will the monetary savings be substantial, but the check-in process for rail service is also faster, easier, and less stressful than airport check-in and security procedures, providing a better experience for the traveler.

#### *Southwest Multi- State Rail Planning Study*

FRA's Southwest Multi-State Rail Planning Study completed and published in 2014 contemplated 11 intercity rail corridors, six of which involve Nevada. Together, the 11 corridors form an expanded "Golden Triangle" connection involving Las Vegas, Phoenix, and Los Angeles that was previously the major focus of the Western High Speed Rail Alliance (WHSRA). All but one of the six corridors in the Southwest Multi-State Rail Planning Study involving Nevada are subject to proposals described in detail in this report. The corridors and cross references to their relevant sections in this report are listed below. Refer to **Figure 3-4** for more details.



Figure 3-4: Proposed FRA Southwest Multi-State High Speed Rail



#### Greater Los Angeles–Las Vegas

Proposals and developments on this corridor are referenced in the section “Brightline West -- Rancho Cucamonga to Las Vegas” above.

#### S.F./Oakland–Reno

Proposals and developments on this corridor are referenced in the section “Thruway Expansion & C Route” below.

#### Las Vegas–Salt Lake City

Proposals and developments on this corridor are referenced in the section “Amtrak Salt Lake City-to-Las Vegas and Los Angeles Service” below.

#### Las Vegas–Reno

Proposals and developments on this corridor are referenced in the section “Thruway expansion & C Route” below.

#### Reno–Salt Lake City

Proposals and developments on this corridor are referenced in the section “Amtrak *California Zephyr*” above

### **Las Vegas–Tucson via Phoenix**

This corridor, running from Las Vegas via Kingman, AZ to Phoenix and Tucson, has not engendered further studies or proposals.

### *Thruway Expansion & C Route: Reno to Las Vegas by Way of Central California*

Several of Amtrak's Thruway bus routes that serve Reno offer direct connections to some of the most successful passenger rail corridors in North America, run by the state of California such as the *Capitol Corridor* and the *San Joaquins* serving California's Central Valley. Proximity to these routes could be leveraged, rather than building a customer base from scratch. Past California Rail Plans have contemplated more proactive involvement by Nevada in these corridors.

California's importance to the state of Nevada cannot be overstated either in terms of the dynamics of its travel markets nor in its connections to the national rail network. California visitors represent a plurality of visitors to Nevada's major travel markets. They comprise 27% of all visitors to Reno-Tahoe<sup>8</sup> and 23% of all visitors to Las Vegas.<sup>9</sup> The rail corridors with the highest ridership in the United States outside of the Northeast Corridor exist in California, and all three presently boast Thruway Bus connections to Nevada, paid for by the State of California. In the FRA's 2014 Southwest Multi-State Rail Planning Study, the FRA found that travel demand between San Francisco to Reno "allows competitive trip times for destinations throughout the entire Southwest network, including Los Angeles, San Diego, and Las Vegas. The recovery ratio exceeds 1.0 when the corridor is part of the greater network."<sup>10</sup>

This follows, given California's high frequency *Capitol Corridor* between San Francisco and Sacramento serving as the fourth busiest Amtrak route by ridership. While a direct rail extension of this corridor to Reno has been contemplated in the past,<sup>11</sup> the motivation to extend frequent corridor service into the state of Nevada did not originate from Nevada itself, and has not been seen in a business plan regarding the *Capitol Corridor* since 2005.

Nevada has no connection between its major population centers via grade-separated highways nor by railroad, reflecting the historic east-west pattern of development by which the state grew. The present ongoing development of the Interstate-11 project serves as evidence that a dedicated and modern ground connection between the cities of Las Vegas and Reno, NV will be a 21<sup>st</sup> century project.<sup>12</sup> The 2014 FRA Southwest Multi-State Planning Study categorized this corridor as third-tier: to be developed after other regional rail connections are established, such as between Las Vegas and Los Angeles, and San Francisco and Reno.

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<sup>8</sup>Reno-Sparks Convention and Visitors Authority, "Reno Tahoe 2019 Visitor Profile Survey – Executive Summary Report January – December 2019", pg. 15, [source link](#).

<sup>9</sup>Las Vegas Convention and Visitors Authority, "Las Vegas Visitor Profile, Calendar Year 2018 – Southern California and International Visitors Version", pg. 72, [source link](#).

<sup>10</sup>Federal Railroad Administration, "2014 Southwest Multi-State Rail Planning Study", pg. 137.

<sup>11</sup> *Several Capitol Corridor Joint Power Authority business plans listed extending Capitol Corridor passenger rail service from Sacramento to Reno, electing not to pursue the extension in 2005 following UPRR's capacity determination that separate right-of-way requiring costly new trackage would be needed on the Donner Pass route.*

<sup>12</sup>I-11 and Intermountain West Corridor Study, "Corridor Concept Report – November 2014", [source link](#).

In service of establishing what the FRA deemed as the region's "low hanging fruit", it is worthwhile to note that passenger rail works well directly connecting travel markets, but it is arguably at its most effective when it serves a corridor of multiple travel markets linked together. This is a reason why Amtrak's Northeast Corridor as well as its seemingly disparate long distance service lines boast similar load factors; they both serve a great number of possible and viable trip permutations.<sup>13</sup>

With this dynamic keenly in mind, in terms of conventional rail, Nevada should investigate the feasibility of developing a rail corridor between its major population centers using the bedrock of California's corridor system as a means of connection. Rights of way for such a service would utilize already extant, frequent California corridor services that already have a ready ridership base within a significant catchment area. Such service would leverage California's decades of investment in frequent corridor services and intermodal connections throughout the population centers of that state into a feeder system to the major tourist markets in Nevada. Such an interregional corridor could also take significant advantage of brand new passenger rail infrastructure as it comes online, in the form of the California High Speed Rail Project's initial segment currently under construction and the eventual Brightline West right of way in the I-15 corridor.

Using conventional rail passenger equipment and the existing railroad lines of Union Pacific and BNSF, service could be started anytime between Las Vegas and Reno over a "C" shaped route from Las Vegas to Bakersfield via Barstow and Tehachapi, as illustrated in **Figures 3-5** and **Figure 3-6**.

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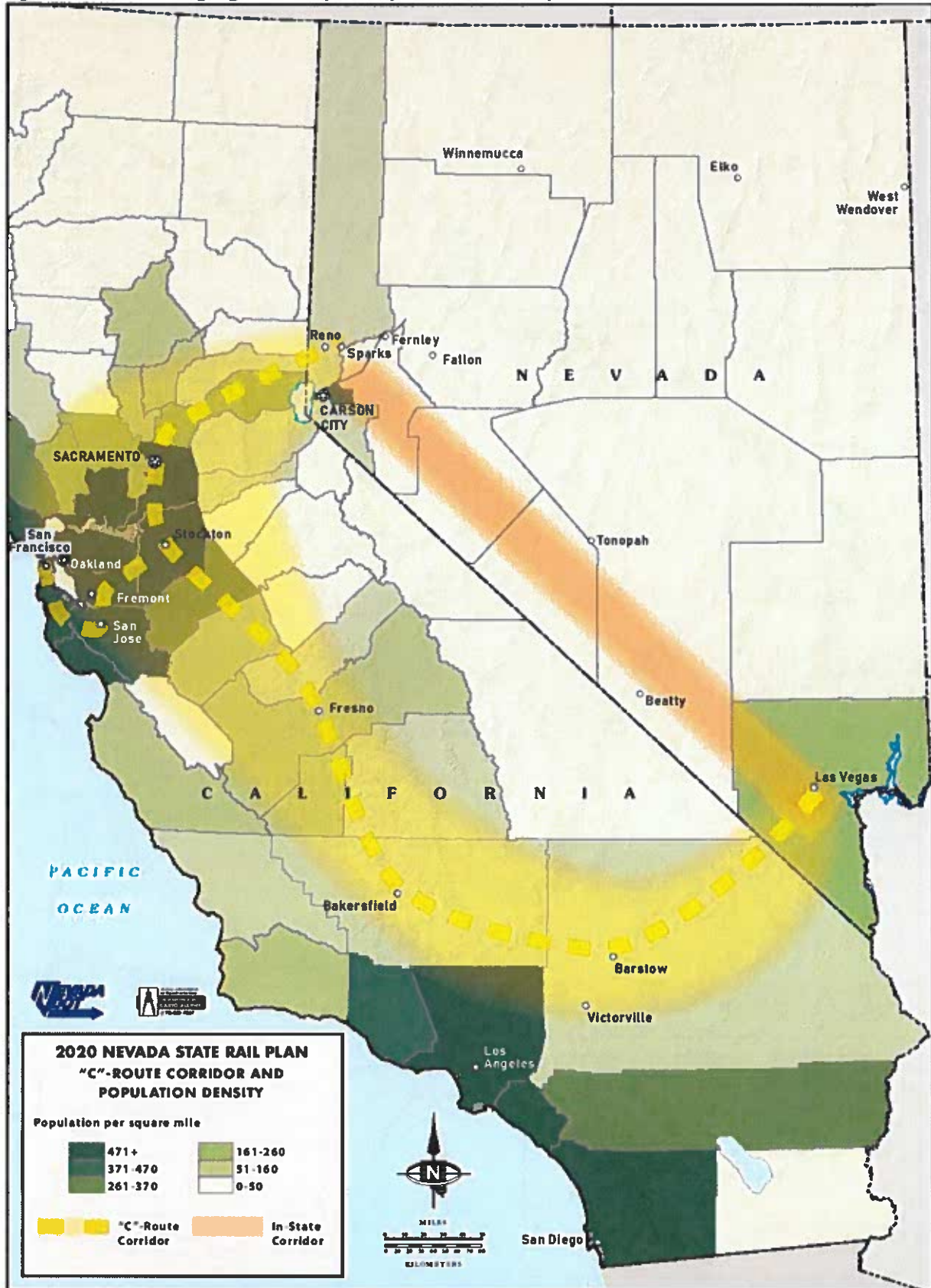
<sup>13</sup>Amtrak, "Five-Year Service Line Plans, Fiscal Years 2025-2025" Report, pg. 19, [source link](#).

Figure 3-5: Las Vegas – Reno C Route





Figure 3-6: C Route Highlight Overlay on Population Heat Map





From Bakersfield to Sacramento, the “C” Route would follow the existing routes of Amtrak’s *San Joaquins* and *Capital Corridor* trains to serve stations in the heavily populated Central Valley of California including Fresno, Merced, and Stockton. From Sacramento the C Route would follow the *California Zephyr* route to Reno.

A section of the train would provide through service from Las Vegas to San Jose and San Francisco. Although the running time between Las Vegas and Reno would be 12–14 hours [UPRR Comment: Without understanding the full route, capacity, capabilities, and proposed passenger equipment, UPRR does not support including a statement estimating the potential running time between those two points as 12-14 hours.], it would provide an important alternative for seniors who do not want to fly or drive. The Las Vegas service to the Central Valley, San Jose, and San Francisco would be competitive with drive times because the geography makes trips by car long and circuitous. Air service from the Central Valley to Las Vegas is infrequent and expensive. Even with good, low-fare air service from the Bay Area to Las Vegas, more than half of the tourists choose to drive, according to previous National Household Travel surveys by the USDOT.

As a non-rail alternative, new intercity bus service will begin along the US 95 corridor between Reno and Las Vegas. This service will be operated by Greyhound per an agreement with NDOT. A separate agreement between NDOT and Salt Lake Express has also been finalized, which will add two other intercity bus routes connecting Elko to Salt Lake City, UT on one route, and Elko to Twin Falls, ID on the other. All three routes are slated for a late 2020 or early 2021 start. Details about the service will be posted to the [NDOT Public Transit web page](#) as they become available.

#### *Amtrak Service Between Salt Lake City, Las Vegas, and Los Angeles*

The 2012 state rail plan expressed citizen interest in reviving conventional passenger rail service between Salt Lake City and Las Vegas, which was formerly provided as part of Amtrak’s *Desert Wind* service between Chicago and Los Angeles, until it was discontinued in 1997. Public transit planners in Clark County have also expressed their interest in restoring service on the route.

Amtrak provided Las Vegas and Caliente, NV with direct rail trips to Salt Lake City and Los Angeles until 1997 when Congressional budget cuts required Amtrak to discontinue its *Desert Wind* service. *Desert Wind* ran daily between Salt Lake City and Los Angeles between 1979 and 1995, when the service was modified to extend to Chicago with only three-day-a-week service and interlined with four-day-a-week *California Zephyr* service. Prior to the discontinuation, only a *Desert Wind* through coach and sleeping car extended east of Salt Lake City to Chicago. After the discontinuation, *California Zephyr* service was restored to daily operations between Salt Lake City and Emeryville, which had been provided before 1995. (Changes in Amtrak’s Pioneer service, linking Salt Lake City; Boise, ID; Portland, OR; and Seattle, WA, mirrored those of the *Desert Wind*.) Southern Nevada has not had any passenger rail service since the elimination of the route.

Variations on *Desert Wind* service restoration could involve providing connecting train service at Salt Lake City, extending to Las Vegas and Los Angeles, or providing connecting train service at Salt Lake City, extending to Las Vegas, and linking with timed transfers to and from Brightline West or another proposed service in Las Vegas. Refer to **Figure 3-7** for more details.

Figure 3-7: Desert Wind Corridor



However, requiring transfers can result in significant losses in ridership. Also, the two states would likely need to pay Amtrak to provide the Salt Lake City-Las Vegas service. If cost is based on line length in each state, the bulk of the cost would fall to Utah, where the state constitution prohibits using gas tax receipts for non-highway expenditures. Utah might also be disinclined to fund such a service because the Union Pacific main line between Salt Lake City and Las Vegas is located away from the more populated areas in Utah, lying between the two cities. Historically, I-15 travel has been greater between Salt Lake City and St. George, UT than to Las Vegas; Salt Lake City's airport is a hub for Delta and Southwest airlines, so Salt Lake City residents would not be inclined to go to Las Vegas' McCarran Airport to catch a flight. In addition, the Las Vegas-Los Angeles leg of the original *Desert Wind* service garnered higher ridership than the Salt Lake City-Las Vegas segment.

Union Pacific uses its *South Central Route* between Las Vegas and Salt Lake City to handle traffic between Los Angeles and Salt Lake City, as well as to accommodate *Sunset Route* traffic shifts in response to construction, maintenance, weather, and other conditions. Union Pacific continues to upgrade its *Sunset*

Route since the merger with the SPTC in 1997 because the *Sunset Route* offers a more favorable route east than the *South Central Route*, from which it has removed some traffic, especially within the last four years. However, the *South Central Route* provides a viable main line function for the railroad, which the company is interested in continuing.

Amtrak's September 2010 PRIIA PIP suggests restoring the Chicago-to-Los Angeles *Desert Wind* service in the long term to complement the existing *California Zephyr* service, pending host railroad negotiations, and securing capital and operating funding, which would be expected to require federal appropriations to cover capital costs for equipment, stations, freight capacity analysis improvements, and operating losses. If such conditions could be realized, states along the route could opt to provide supplemental support for the line similar to California's contract with Amtrak on the *Capitol Corridor* line. The 2014 FRA Southwest Multi-State Rail Planning Study classified this corridor as a later-phase development, meaning its viability is heavily dependent on other regional rail connections being established first, such as Las Vegas to Los Angeles.

## B-2. Excursion Rail Improvements

Excursion rail enhancements also present opportunities to advance the state's tourism and economic development. Nevada's Excursion Railroads play a significant role in the state's more rural tourism economy outside of Reno and Las Vegas. The Virginia & Truckee (V&T) Commission and the Nevada Northern Railway both have plans for expansion that reflect their popularity with Nevadans and out-of-state visitors alike.



**Northern Railway at Ely**

**Nevada**

### *Nevada Northern Railway*

The Nevada Northern Railway Museum and the White Pine Historical Railroad Foundation, which operate excursion trains in northeast Nevada, propose to rehabilitate the four miles of trackage from McGill Junction to McGill Depot in the near term and operate its *McGill Junction Route* on this extension. See **Figure 3-8**.

Reopening the closed US93 at-grade crossing between McGill Depot and McGill Junction will require widening the road by two lanes for appropriate grade-crossing protection. The historic McGill depot was restored with state grants by the Nevada Northern Railway. The Railway has an active partner in turning McGill into an attraction that is a beneficent owner of historic properties adjacent to the depot, including the historic Oddfellows Hall and the town theater.

### *Las Vegas to Caliente Excursion*

Caliente, in Lincoln County, Nevada offers several destinations for tourists to enjoy. These attractions include hot springs, six state parks and a network of trails for hiking, biking and horseback riding that attracts visitors from around the country and around the world. This is a tourist destination that could be made more accessible to the visitors and residents of Las Vegas with energy efficient, climate friendly passenger trains. [This is a conceptual idea from Lincoln County and UPRR has not been engaged in discussions regarding the use of their rail line for this excursion route.]

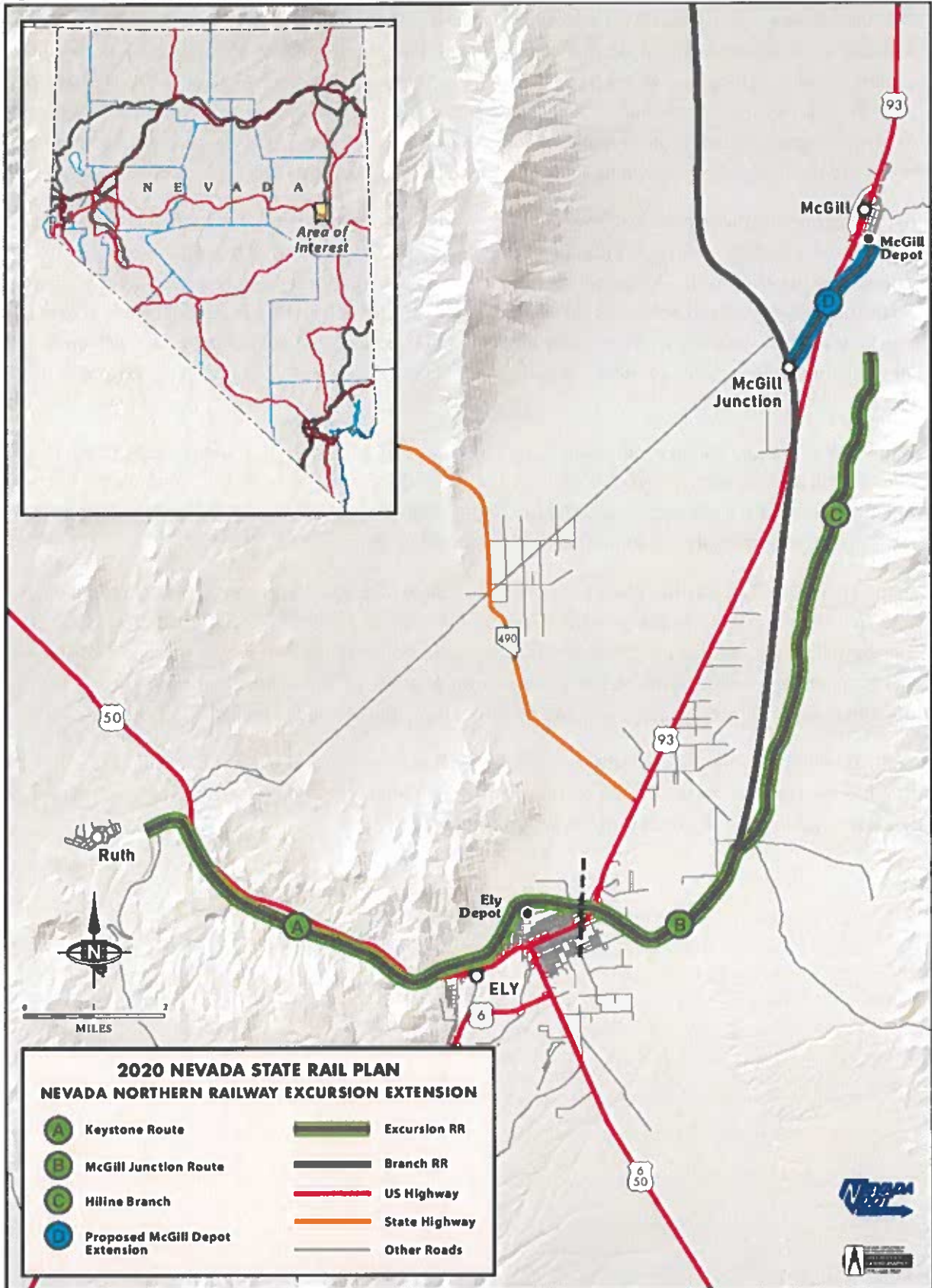
Currently reaching Caliente requires a bus or car to travel a circuitous 151 mile route via Nevada 93 that takes about 3 hours, 15 minutes. As can be seen in **Figure 3-15: Existing Nevada Rail Network**, the South Central mainline of the Union Pacific provides a more direct route between Las Vegas and Caliente of only 126 miles. With current track speeds up to 79 MPH on the UP, passenger trains can average 50 mph and connect Las Vegas and Caliente in 2 hours, 30 minutes thus offering an alternative that is faster than driving.

Using Caliente as an overnight base for the excursion train, multiple roundtrips a day could be operated to provide Caliente and Lincoln County residents with an early morning train for day trips to Las Vegas. This train would also make it possible for tourists to arrange overnight stays in Caliente.

In 2023, NDOT will have a unique opportunity to observe the first hydrogen fuel-cell powered, Zero Emission Multiple Unit (ZEMU) train in the United States. The ZEMU train is being built for the ARROW Redlands – San Bernardino Rail Project by Stadler in Salt Lake City and will be delivered to California via the rail line through Caliente and Las Vegas. Each ZEMU train has capacity for at least 100 passengers and as many as 12 bicycles for residents of Las Vegas to bring bikes to Caliente. Tourists could rent bikes in Caliente for touring the bike trails.



Figure 3-8: Nevada Northern Railway McGill Extension





### *Virginia & Truckee Railway Commission*

The V&T Railway, which operates excursion trains in western Nevada in conjunction with the V&T Railroad, is requesting financial assistance for the extension of the Railway into the Carson River Canyon as part of their ongoing rail system reconstruction project between Carson City and Gold Hill, NV. While over 12 miles of the railroad has already been reconstructed through a combination of local, state, federal, and private funding and donations, additional funding will allow for the extension of another 2.25 miles into the river canyon providing sightseeing access to this historical hidden treasure.

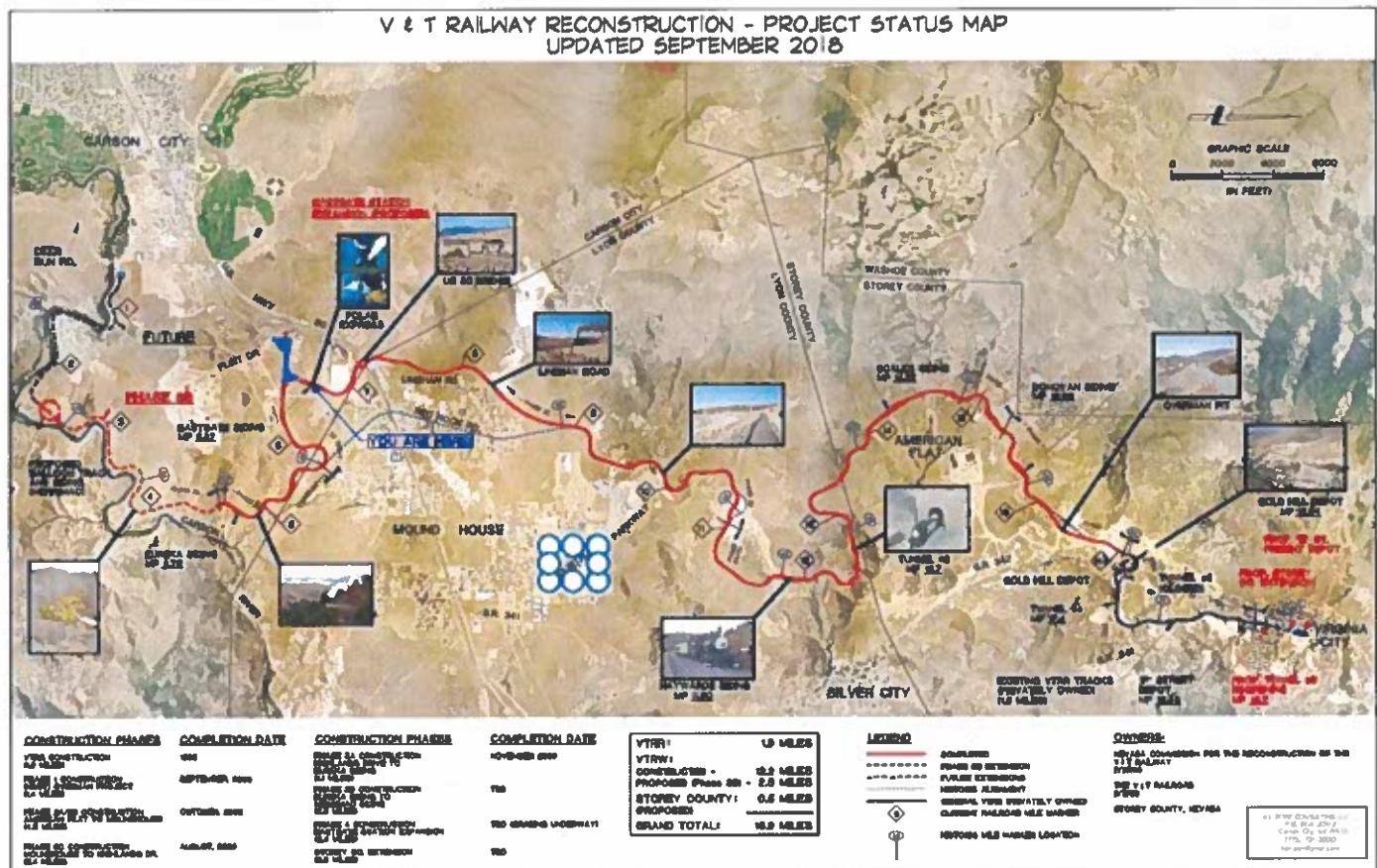
Returning the historic right of way to railroad access will effectively eliminate automotive access to the canyon and the accompanying continual problems Carson City has had with illegal dumping into the canyon and the river itself. The problem is pronounced enough at present to require an annual cleanup effort to remove trash and debris, including abandoned vehicles deliberately placed alongside of or within the waters of the Carson River. Necessary environmental assessments and approvals have been issued, 90% construction plans are complete, and the right of way has been secured for this next phase of the project.

**Figure 3-9** shows the planned extension. Long term, the V&T would like to connect closer to downtown Carson City, possibly with the Nevada State Prison grounds located at 3301 E. 5th Street on the east side of Carson City. Such a connection would require the evaluation of alternate alignments, additional river crossings, environmental documentation, and additional funding.

In the near-term, The V&T has plans to improve the safety of its railroad crossings. At F Street in Virginia City, four streets and the entrance to the Events Arena West intersect with the railroad at various angles. The complex sightlines for motorists and railroad operations are protected by a railroad crossing with aging signal components. The V&T is proposing an upgrade of this railroad crossing to improve the operating safety of its excursion trains and motorists using the railroad crossing.

V&T has identified other railroad crossings to be evaluated for safety improvements including one location that has the steepest railroad grade on the sharpest railroad curve and crosses the steepest roadway in the state, just below the sharpest roadway curve in the state.

**Figure 3-9: V&T Railway Extension**



*Nevada Southern Railway – “The Hoover Dam Limited”*

Commuter rail service between Las Vegas and Henderson was proposed in the Nevada State Rail Plan prior to 2012 and was subject to intense community opposition.<sup>14</sup> A decade later, this corridor, which includes the Nevada Southern Railway, is worthy of a revisit.

In service of reducing rental car congestion to visit the Hoover Dam as well as attracting tourist dollars outside of Las Vegas proper, it is proposed that local governments consider a partnership with Union Pacific Railroad and the Nevada State Railroad Museum in Boulder City to create a unique rail experience to attractions around the Hoover Dam for Las Vegas tourists and convention attendees.

<sup>14</sup> Nevada Department of Transportation, “2012 Nevada State Rail Plan”, Table 3-1, pg. 3-27, [source link](#).

#### *Las Vegas Xpress X-Train Los Angeles to Las Vegas*

Specialty passenger rail company Las Vegas Xpress has plans to operate luxury excursion trains between San Bernardino, CA, and a new rail station they would construct in Las Vegas. Branded as X-Train, the concept has been under consideration for a while, including back in the 2012 Nevada Strategic Rail Plan. According to Las Vegas Xpress' website the company is targeting the launch of X-Train services in September 2021. Their proposal is to utilize existing locomotives, cars, and Union Pacific tracks under contract with Amtrak, and operate a Friday-to-Sunday schedule. According to an August 1, 2020 report in the *Las Vegas Review-Journal* the company has yet to finalize operating agreements with Union Pacific and Amtrak, confirm the Las Vegas station location, or secure the \$100MM in private financing needed for the project.

#### **B-3. Commuter Rail Improvements**

There are several opportunities for new-start rail service utilizing existing infrastructure and taking advantage of established travel patterns outside of robust passenger rail corridors. They include a new commuter rail service between Reno and Innovation Park, Reno Area Transit Service, and opportunities to utilize the new Brightline West intercity trackage for Nevada commuter rail service, opening in Las Vegas in 2023.

#### *Reno, Nevada, and Innovation Park (formerly Tahoe-Reno Industrial Center - "TRIC")*

Twenty-four miles to the East of Reno is a 107,000-acre industrial park hosting growing companies like Tesla, Blockchains, Switch, and Google. Presently 12,000 employees commute from Greater Reno to Innovation Park for work. The projected growth for Innovation Park employment to 25,000 has created concerns for capacity on the I-80 corridor and the development patterns that may result.<sup>15</sup>

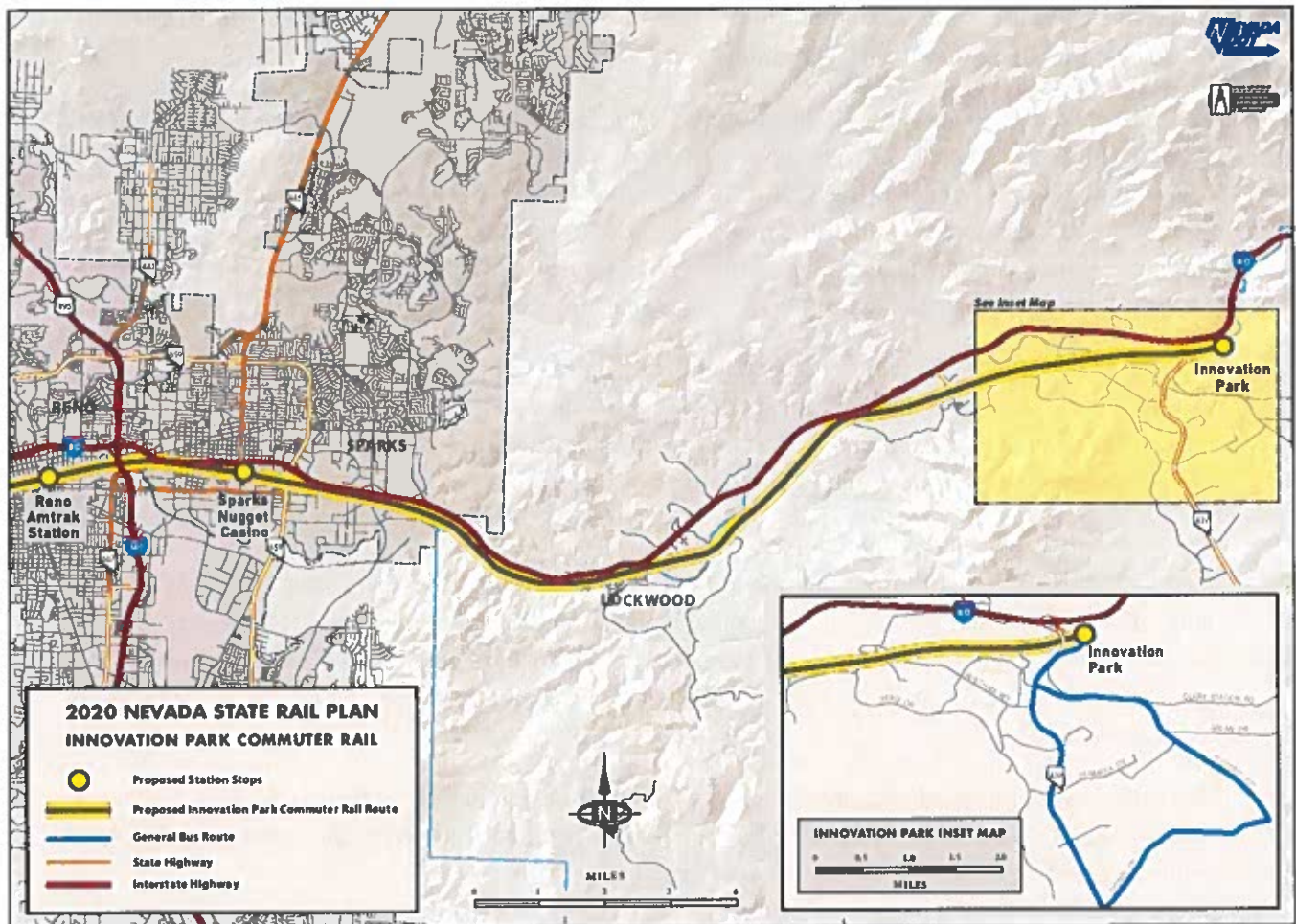
The Union Pacific *Central Corridor* runs directly east to Innovation Park from Reno's Amtrak station, which is Greater Reno Metropolitan Area's center of highest population. It could become a reliable conduit to Innovation Park with the development of adequate commuter rail service. (See route map in **Figure 3-11.**)

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<sup>15</sup> 2019 NDOT Inter-County and Regional Transit Plan



Figure 3-10: Innovation Park Commuter Rail Service



Such service would represent the state's first foray into commuter rail service and would require further study in several areas. Under 49 U.S.C. §28103, commuter rail operators and Amtrak must be insured to a level not exceeding \$200MM per claim. Many states prohibit state agencies from taking on significant liability insurance. Since no state-funded and insured rail passenger service exists in Nevada, a new and separate agency would need to be formed outside of the Department of Transportation.<sup>16</sup> Finally, this effort like any other new service seeking access to the extant national rail network within the borders of Nevada would require negotiations with host railroad Union Pacific to gain adequate access to its central corridor.

If rail service is to be successful it will need to be as attractive as possible in speed, frequency, and access to the front door of workplaces via shuttle bus connections.

<sup>16</sup>Federal Transit Administration, "TCRP Contracting Commuter Rail Services Guidebook, Vol. I" pg. 26.

Although Innovation Park is served by a five-mile branch line, it is not expected to offer useful access to workplaces because of its circuitous route, operating speeds that may be limited to 20 MPH, and congestion from freight-switching operations.

Maximizing hourly service to the Union Pacific main line road crossings at Innovation Park (Waltham Way or Clark Station Road) could provide the fastest access to the front door of Innovation Park workplaces using shuttle bus connections. The 2018 TRIC Circulation Options Study recommended shuttle buses to individual work locations as well as the development of a Transportation Management Association that would potentially coordinate and operate this type of service. NDOT is a stakeholder in the group that is attempting to formally implement a TRIC Transit Management Association.

Significant issues for this service will be obtaining track rights on the Union Pacific and insurance coverage in the range of \$200MM+. State ownership of the Reno trench and other Nevada state rail issues potentially could be important in negotiations with Union Pacific for trackage rights. UPRR reserves the right to determine the capacity and capability of its rail lines.

The Reno-Innovation Park Commuter Rail service would address several goals, objectives, and issues identified in NDOT's 2019 Inter-County and Regional Transit Plan. One key finding is that 80% of the Innovation Park workers are driving through Reno-Sparks on I-80, which is well suited to be served by rail stations. Innovation Park is also expected to increase the number of workers to 25,000 later this decade, creating additional residential sprawl, traffic, pollution, and congestion issues, with commuter rail service as an alternative.

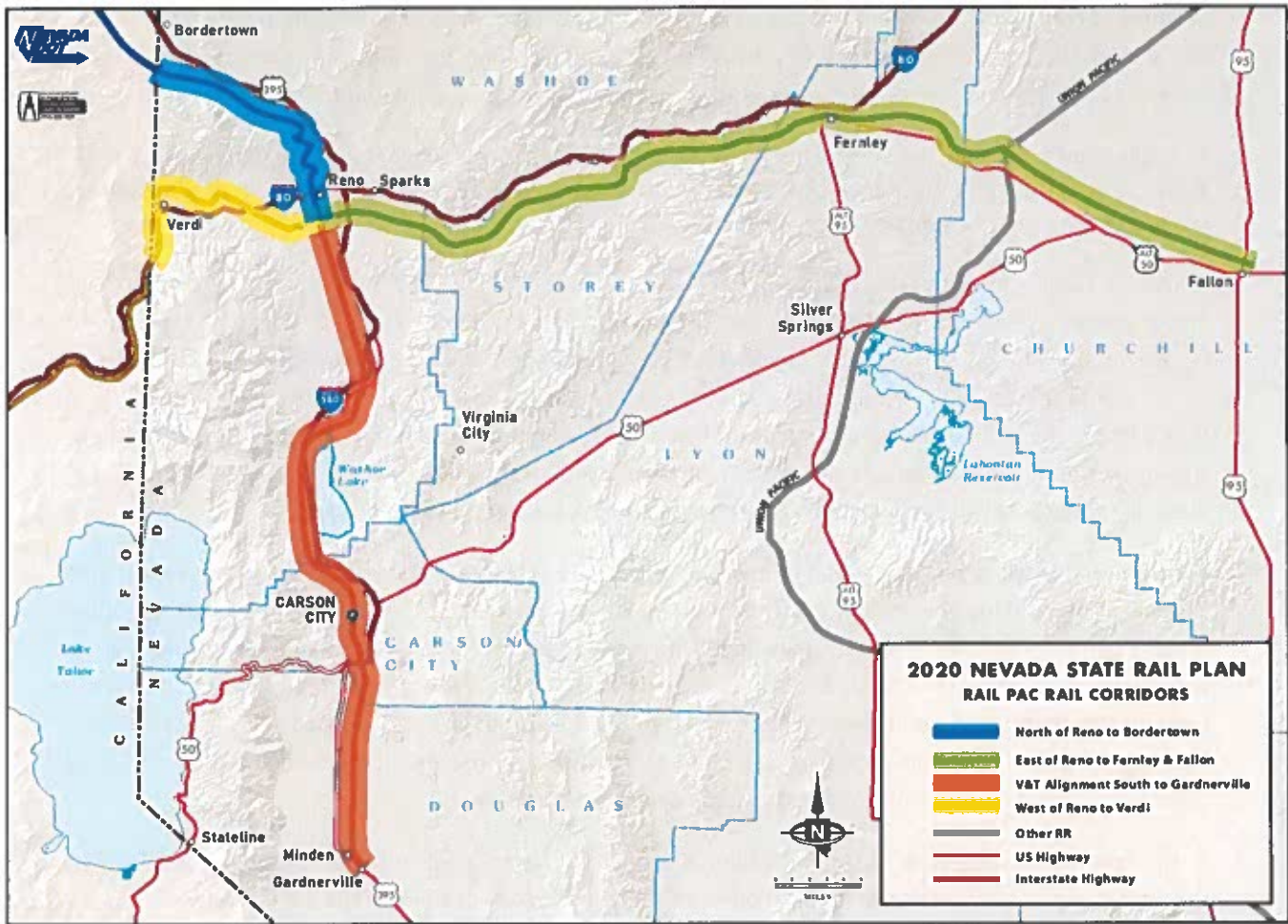
This commuter rail service is also consistent with the recommendations of the Sierra Club Toiyabe Chapter Transportation Team and is part of their three-stage proposal (presented in September 2020) for expanding rail passenger service in Northern Nevada.

#### *Reno Area Transit Service*

With continued population and economic growth in the Reno metro area, the existing road network will be under pressure to handle future traffic volumes. To forestall gridlock or ever costlier highway expansion, RailPAC recommends efforts to preserve and/or acquire existing historic rail rights of way. In addition, operation, ridership, and financial studies should be undertaken to analyze the feasibility of using these local rights of way to provide future passenger transit in the greater Reno area. See **Figure 3-12**.



Figure 3-11: RailPAC Reno Corridor Proposals



Routes suggested by RailPAC include the following:

- a) The Reno Branch north to Bordertown and Reno Junction
- b) V&T gradient/Hwy 395 South to Carson City, Minden, and Gardnerville
- c) East to Fernley (MP 276) on the Union Pacific main line and branch line from the main at Hazen (Nevada Subdivision MP 288) to Fallon
- d) West on the Union Pacific main line to California border at Verdi, NV (Roseville Subdivision MP229)

Many elements of the RailPAC vision for Reno Area Transit Service are reflected in the Sierra Club proposal to improve rail passenger service in Northern Nevada. The goals of this initiative include: “reduce traffic congestion; safely and efficiently get people where they need to go; improve air quality; and enable Nevada to meet its clean energy goals.”

A key part of the Sierra Club’s vision for a Northern Nevada Regional Rail Passenger Service Network is to preserve the future mobility of service on the proposed rail lines by acting now to acquire the railroad

lines and station sites before future real estate development pressures impede building the rail network because of rising land prices and the loss of rail rights of way to abandonment. As discussed in Chapter 4, this would also create the opportunity to co-locate utilities along the rail lines to encourage transit-oriented development and avoid the checkerboard sprawl of development and utility corridors.

To implement their plan, the Sierra Club proposes that “the State of Nevada, in conjunction with Washoe, Storey, and Carson counties, develop a regional passenger authority to oversee creation of a passenger rail system to serve the people of northwest Nevada.”

#### *Brightline West - Las Vegas Commuter*

The Brightline West high speed intercity line between Rancho Cucamonga and Las Vegas is scheduled to be operational in 2023. A commuter regional rail service is recommended between Las Vegas and Primm, which would utilize the new rail infrastructure. A new service would utilize excess capacity of the high speed line along I-15 between Las Vegas and the Nevada state line at Primm to support future Southern Nevada residential development and provide fast rail access to the proposed second Las Vegas Airport at Ivanpah, about 30 miles from McCarran Airport along I-15, between Jean and Primm.

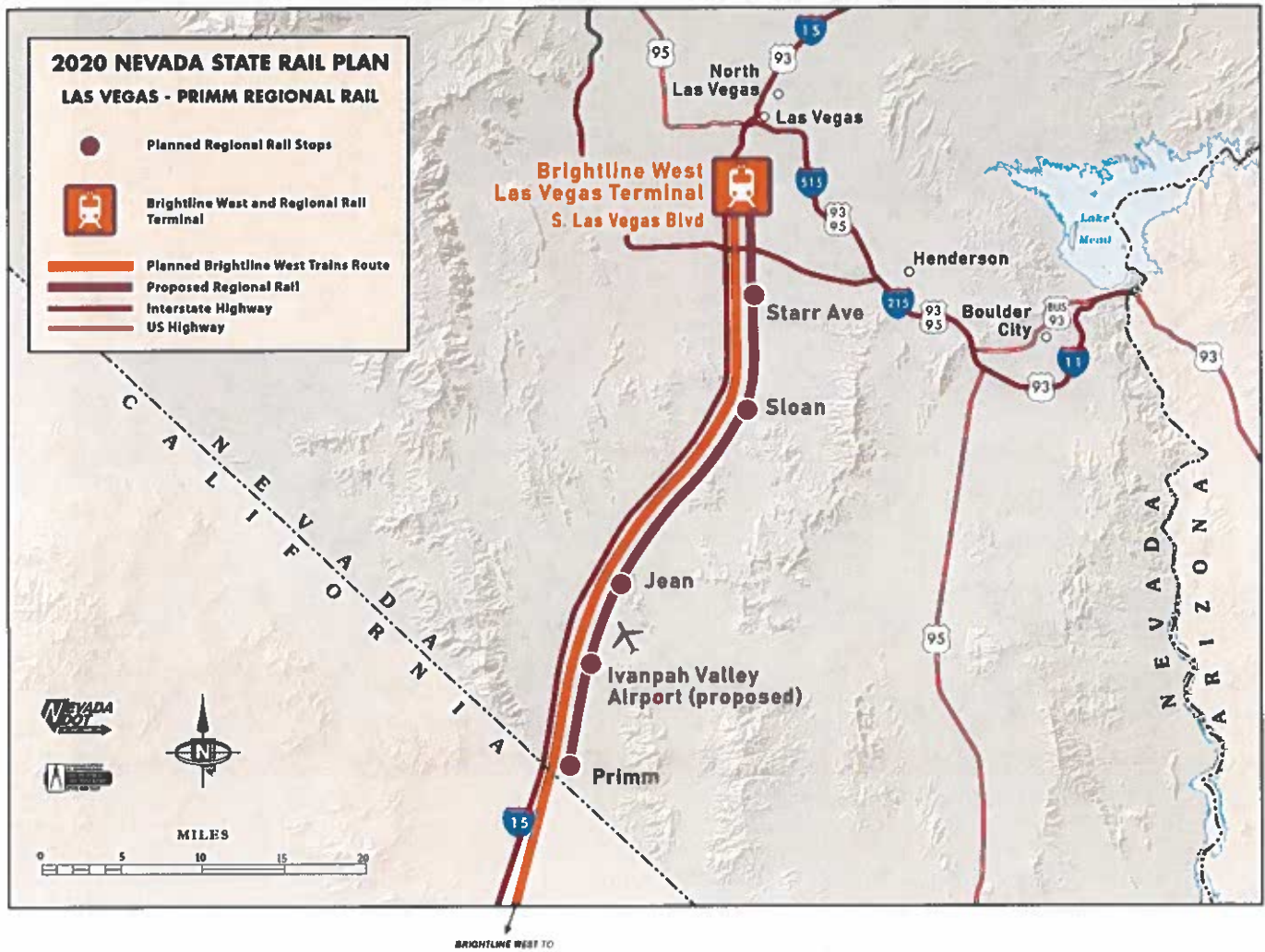
This rail service will provide regional mobility, reduce I-15 traffic congestion, and encourage sustainable expansion of residential areas and transit-oriented communities along this rail line. Although Brightline West is building the Brightline West high speed line to connect Southern California residents and tourists with Las Vegas, utilizing the high speed line infrastructure to operate Las Vegas Regional Rail Service will provide Nevadans with real transportation benefits for the use of the I-15 public right of way. NDOT's arrangements with Brightline West to use the I-15 right of way makes the high-speed line feasible to construct without complex environmental issues and land purchases.

It is possible for a Las Vegas commuter regional service to share tracks with high-speed trains by selling the unused operating slots of its infrastructure to the public agencies funding the service.

This creates a win-win opportunity to develop local rail service at a fraction of the costs of building a brand-new rail line with the local operator paying Brightline West user fees for the use of track slots and their Las Vegas terminal. Public agencies in Nevada would only need to fund the costs of new trainsets (which could operate up to 125mph in commuter rail service), some additional trackwork, and new stations, as illustrated in **Figure 3-13**. The following are proposed stops with excellent access to I-15 for park and ride stations:

- Starr Avenue
- Sloan
- Jean
- Ivanpah Valley Airport (Brightline West trains could also serve this new airport)
- Primm

Figure 3-12: Las Vegas – Primm Regional Rail



Brightline West's parent company also operates the Brightline passenger rail service in Florida from West Palm Beach to Miami via Fort Lauderdale. Opened in 2018, the Brightline service was originally marketed as a high speed, intercity service but it is now introducing intermediate stations at Boca Raton and Aventura, creating a hybrid intercity and regional commuter operation. Given recent developments at Brightline's Florida franchise, it is especially timely to consider development of local rail service along the I-15 route to Primm, near Las Vegas.





***Las Vegas Monorail near Westgate Station***

***Extension of the Las Vegas Monorail to Brightline West***

The recent decision by Brightline West to develop their Las Vegas station along South Las Vegas Boulevard between Blue Diamond Road and West Warm Springs Road creates an opportunity for NDOT to facilitate development of intermodal opportunities between Brightline West, Las Vegas Monorail, Allegiant Stadium, and the McCarran Airport, the Las Vegas strip, and the Convention Center.

A five-mile extension from the MGM Grand to the Brightline West Las Vegas Station would add new monorail stations at Luxor/Mandalay Bay, Allegiant Stadium, McCarran Airport (Rental Car Center), and Brightline West Las Vegas.

The Las Vegas Monorail station at the McCarran Car Rental Center would provide access to the airport via the existing car-rental shuttle buses.

The Las Vegas Monorail is the only form of electrically powered mass transit in Nevada. It can utilize solar, hydro-electric and/or wind power to provide carbon-neutral transportation. Extending the Las Vegas Monorail would provide Brightline West passengers with zero-emission access to the Las Vegas Convention Center, hotels, and casinos. The proposed extension of the electrically powered Las Vegas Monorail represents the most significant opportunity to reduce greenhouse gas emissions in Las Vegas

#### B-4. Challenges of Developing Passenger Rail

The preceding sections have described numerous proposals and projects to develop passenger rail services in Nevada. These range from relatively straightforward amendments to existing services, such as Amtrak's *California Zephyr* upgrades to more complex development of existing rail track into new passenger services such as the route from Reno to Innovation Park.

The description of each proposal included the benefits and return on investment, with a focus on the value generated by each project. Although some challenges were also referenced in these descriptions, such as host railroad permissions, this was covered exhaustively. This section provides more details on the policy, funding, and ownership challenges that impact rail passenger development.

##### *Policy & Funding*

Per NRS 705.428, the Nevada Department of Transportation may contract for the construction, improvement, or rehabilitation of the trackage and other rail properties of any rail line, but no such contract may require the expenditure of state money unless previously authorized by the Legislature. Moreover, as Amtrak is a federally funded intercity passenger railroad, the 2008 PRIIA legislation, Section 209, stipulates that all Amtrak-related passenger services under 750 miles be funded by the states they serve. As Nevada, like all other states, subsidizes highways and airports that otherwise compete with passenger rail, the lack of state funding for passenger rail service precludes public options pending new state legislation.

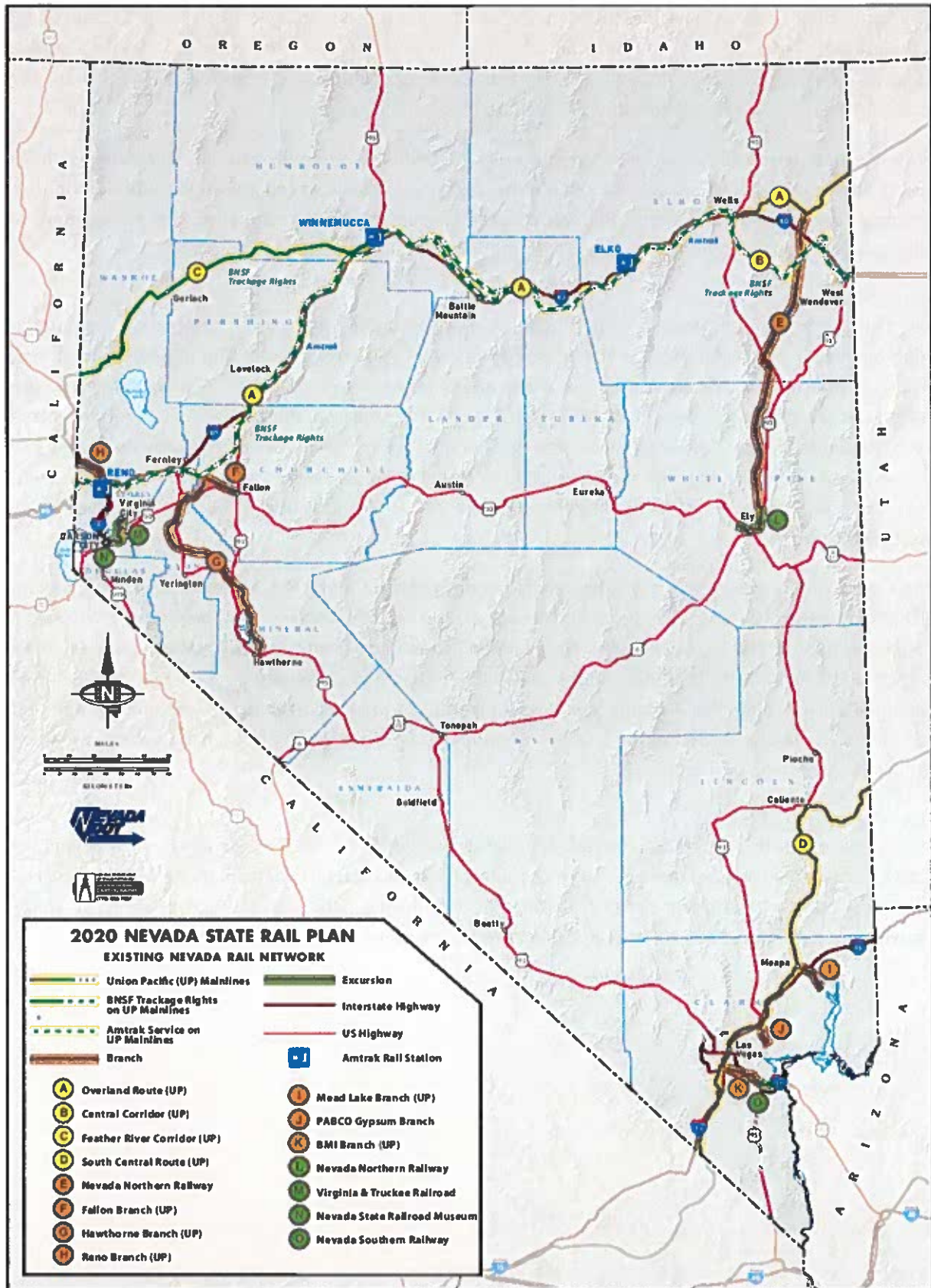
As a result of these constraints, new passenger rail development in the U.S., especially short- to medium-length intercity routes, has been primarily through private-sector initiatives. Examples include the existing Brightline (South Florida) service and the planned Texas Central and Brightline West services. These private initiatives are predicated on extensive publicly funded studies and research, such as the 2014 FRA's Southwest Multi-State Rail Planning Study, which identify attractive corridors for development and their commercial viability. States like Nevada with Brightline West, benefit from this private-sector investment in passenger rail infrastructure.

##### *Ownership and Access*

Every mile of existing rail track in Nevada is privately owned. There are four excursion railroads and one branch line owned and operated by Pabco Gypsum. Union Pacific Railroad, the nation's largest Class I rail company, owns all the main line routes crossing the state, including the path of the only existing passenger service, the *California Zephyr*. **Figure 3-15** illustrates the existing rail network in Nevada.



Figure 3-14: Existing Nevada Rail Network



and advance the climate goals of Governor Sisolak's Executive Order 2019-22. Section 6. B of the Governor's executive order specifically calls for projects which can provide "Support for transportation electrification..."

Service to the McCarran Airport terminals via zero-emission shuttle buses from the proposed monorail stop at the McCarran Car Rental Center would also significantly reduce Las Vegas traffic congestion and pollution for thousands of tourists travelling between the airport, hotels, the convention center, and the stadium.

In conjunction with the proposed Las Vegas-Primm Regional Rail service described above, the Las Vegas Monorail Extension would provide car-free flexibility, mobility, and accessibility for rail commuters to access major employment destinations along the monorail route such as the McCarran Airport, Allegiant Stadium, casinos, hotels, and the convention center. This would help diminish traffic congestion on I-15.

Since the Las Vegas Monorail extension would provide Brightline West significant value for its passengers to easily connect to Allegiant Stadium, Las Vegas resort hotels, the Convention Center, McCarran Airport, and ease of access to the rental car center, their private investment partners are potential sources to finance the extension. In fact, the monorail extension would also create additional value for the retail, residential, and commercial real estate development that Brightline West is planning on the station site because of direct monorail service to the airport and Las Vegas attractions.

The Las Vegas Monorail Extension would help fulfill the State Rail Plan vision for a safe, secure, attractive, energy-efficient, cost-effective, and reliable alternative to auto transportation, with intermodal connectivity that enhances economic and environmentally sustainable travel within the state. **Figure 3-14** illustrates the potential stops for extending the Las Vegas Monorail to the Brightline West Las Vegas Terminal.



Figure 3-13: Las Vegas Monorail Extension to Brightline West



All the proposals for passenger rail development in this report, except for Brightline West and the Las Vegas Monorail extension, utilize existing tracks. Therefore, permission and access to these privately owned rights of way is fundamental to the development of passenger rail in the state. Union Pacific is the host railroad in most passenger rail development projects listed in this report and is therefore a critical partner and factor in realizing these opportunities.

Negotiation with the host railroad encompasses capacity and access. In terms of capacity, existing infrastructure may require upgrades to support the passenger rail vehicles being proposed, the speeds envisaged, and the construction of stations on the host company's line. In terms of access, new passenger rail operation requires suitable paths to operate the service with the optimal schedule times. Detailed consideration must be given by the host railroad of their present and possible future access needs before committing to any developments that could affect their operations.

Even existing Amtrak services are subject to negotiation with Union Pacific, as sharing the rails has a direct impact on service performance. Amtrak's PRIIA-required study of its *California Zephyr* service found in 2010 that only 30 percent of this route's trains operated on schedule, a condition that continued until 2019, according to Amtrak's Host Railroad Reports. Amtrak's evaluation attributed delays on the route to speed restrictions, dispatching priorities, and right-of-way conditions. Single-track main line operations with existing sidings east of Elko between West Wendover and Wells and west of Winnemucca to Reno have historically resulted in freight-passenger congestion and delays.

Host railroad partnership is a crucial factor in passenger rail development in the state and resulting agreements on access and capacity investments will have a direct contribution to the benefit-cost analysis of the projects.

## B-5. Conclusion

The passenger rail service recommendations described in this chapter, and summarized in the table below, are designed to be implemented in collaboration with federal, state, local agencies, public stakeholders, and private interests such as Union Pacific as described throughout this chapter. Most of the recommendations focus on improving rail passenger service in Nevada by utilizing existing railroad infrastructure to the maximum extent possible. This will help minimize project costs and the lead time needed to implement recommendations.

### *Summary of Passenger Rail Service Recommendations*

Recommendation	Page Location
1. Utilize existing railroad infrastructure for expanded rail passenger service	Throughout Chapter 3
2. Initiate Reno/Sparks to Fernley commuter rail service along the I-80 corridor via Union Pacific	Chapter 3, page 29
3. Analyze the potential and develop Reno Area Transit routes as proposed by RailPac and the Sierra Club on Union Pacific mainlines and branch lines	Chapter 3, page 30



Recommendation	Page Location
4. Create additional Northern Nevada stops on Amtrak's California Zephyr to improve mobility for rural Nevada communities on Amtrak's Chicago – Oakland long distance service on the Union Pacific route	Chapter 3, page 5
5. Evaluate and develop the "C"-Route: Las Vegas to Reno via Central California utilizing existing UP, BNSF lines and in the future utilize the Brightline West and California High Speed Rail lines to speed up service	Chapter 3, page 16
6. Extend Amtrak service on the Capitol Corridor to Reno-Sparks via the Union Pacific Railroad	Chapter 3, page 10
7. Re-institute operation of Amtrak's Desert Wind: LA - Las Vegas – Salt Lake City on the Union Pacific	Chapter 3, page 20
8. Establish the Hoover Dam Limited: Las Vegas to Boulder City (Hoover Dam) on the Union Pacific and the Nevada Southern Railway	Chapter 3, page 26
9. Organize collaboration between NDOT and stakeholders: Union Pacific, Amtrak, RTC of Washoe County, RTC of Southern Nevada, RailPAC, Sierra Nevada, Brightline West, Nevada Southern Railway, Caltrans	Proposals throughout Chapter 3

The development of intercity and commuter rail would be a major contribution to meeting the state's environmental, economic, and quality-of-life goals. Although Nevada has a paucity of passenger rail service, this chapter highlighted multiple opportunities for expansion.

The state's existing rail footprint offers a firm foundation for cost-effective passenger rail projects. Existing tracks and rights of way mitigate the sizeable land acquisition and engineering costs that often thwart new service development.

The other area of great potential for increased passenger service is new private-sector development. The most prominent example is the Brightline West project. The idea of new, high-speed passenger rail into Las Vegas from Southern California is exciting for numerous reasons, one of which is not yet fully appreciated: The phalanx of new commuter rail options that could be available to Las Vegas and communities in Southern Nevada.

Nevada's existing Amtrak service spanning the north of the state is an established and core national route. There are multiple options to enhance and expand Nevada's existing intercity rail passenger service cost effectively through utilization of a service that is already subsidized by the federal government.





***Southbound Onboard the Las Vegas Monorail***

This proposed use of the Amtrak line exemplifies a running theme throughout this chapter. Expanding rail passenger service in Nevada is best achieved by leveraging the state's existing assets. In addition, the Brightline West project to construct new, high grade passenger rails into Las Vegas from Southern California is not only highly advantageous in its own right, but it opens the door to new commuter rail options.

Nevada is in a uniquely advantageous position to leverage these advantages and develop expanded rail passenger service in the state.

# CHAPTER 4

## *Nevada Freight Rail Strategic Plan*

