# CHAPTER 4

*Nevada Freight Rail Strategic Plan*

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# Chapter 4 The Nevada State Freight Rail Strategic Plan

Chapter 4 presents the Freight Rail Strategic Plan portion of the Nevada State Rail Plan. The 13 innovative approaches described in the Blueprint for Action are applied here to accelerate statewide freight rail development and funding.

## A. Meeting the Opportunity of Rail Development

The new Nevada State Rail Plan (NVSRP) is informed by a well-grounded perspective that there is ample private-sector capital available for good rail projects.[1] Unconstrained by the usual mindset that there is not enough money, the NVSRP moves the state into a proactive, and therefore cutting-edge relationship with its freight rail system and the marketplace. Nevada's abundant resources, particularly of land and its many above- and below-ground uses, present an ideal foundation for a rail-enabled economic and environmental improvement strategy. More than a rail plan, the NVSRP is designed to make a vital contribution to Nevada's recovery from the pandemic-induced economic crisis.

The NVSRP illuminates the path for sustainable growth of rail in Nevada and the United States. Historic shortsightedness in U.S. transportation policy and commerce has limited the high-return opportunity of using more rail to serve Nevada's burgeoning development. This service gap occurs in different manifestations across the country, not just in Nevada. As robust as the rail industry is in North America, there are significant benefits yet to be tapped from railroads' energy, capital, labor, and space efficiency for moving goods and people over land. Optimizing the use of the wheel is key to using land conscientiously, thereby capitalizing on efficiencies that will deliver a cascading array of benefits to Nevada's economy and environment.

United States freight railroads and services are some of the more stable and attractive investments in the world, yet the industry remains underutilized.[2] It *can* be supported in becoming a high-growth, high *social* return industry, if leaders within the industry itself and government act and invest in the best interests of current and future generations. In this critical moment of battered public-sector budgets, funding for freight rail projects is available from well-capitalized private-sector investors and lenders who are eager to invest in rail infrastructure. This Freight Rail Strategic Plan has been structured to attract and facilitate a surge of private-sector investment in Nevada's rail infrastructure to help the state's businesses grow rapidly and sustainably.

A clear-eyed awareness of current societal challenges is required to bring context to this opportunity. Innovation and collaboration are now strategic imperatives for businesspeople, citizens, and government staff to work together to solve major social issues. Transportation congestion, mounting costs for building and maintaining roads and highways, air quality challenges, and supply chain imperatives are some of the multifaceted infrastructural issues that can only be solved with the pragmatic collaboration that has been modeled during the development of the 2021 NVSRP.

Two hundred and thirty stakeholders, including many of the largest industrial land developers and shippers in the state, participated in the Nevada State Rail Plan process. These stakeholder's participation has been motivated by a shared interest in advancing "good rail projects." The Freight Rail

[1]Investable Universe, "Hot Rails: Private Equity's Boxcar Barons See Deals in U.S., Europe" article, source link, published August 12, 2020.
[2]Bezinga website, "Best Railroad Stocks" article, source link, published June 2, 2020.

Strategic Plan is designed to support those rail projects that expand access to the marketplace, improve operations, and contribute to the quality of community life. Nevada, working collaboratively among its many energized stakeholders can benefit greatly from an additional influx of private-sector capital for new infrastructure and commerce. The process of creating the NVSRP has established the system and tool set that empowers stakeholders to think and work together on this rail-enabled economic and environmental improvement strategy. The rest of this chapter illuminates the fundamentals of this strategy, with the next section highlighting the value of engagement with key stakeholder groups.

## B. Radical Inclusion Is a Fundamental Building Block

Recognizing rail opportunities, defusing problems, and identifying knowledge gaps statewide require a team of partners. A fundamental building block of NVSRP's success is its orientation toward including "All", rather than "Some" parts of a state in a rail plan. Planning efforts typically apply value assessments whereby only the "highest rated" regions and projects are funded and advanced. The NVSRP illustrates that *all* of the track miles of a state's railroads comprise a connected system. This aligns with the perspective that all communities make valuable contributions to a state's well-being. It is eminently practical and responsible to include all miles, and even feet, of track as well as all regions, towns, and projects. The NVSRP has advanced with radical inclusion in its outreach and coordination strategies. The following is an explanation of why such extensive engagement was conducted.

### B-1. Radical Inclusion Part 1: *Businesses and Industries*

The NVSRP has centered its outreach on the business community in Nevada in preparation for optimizing entire supply chains and transportation corridors. It is impractical and wasteful to advance rail plans on an individual project basis. The NVSRP deploys "Collaborative Infrastructure Development" that aggregates the logistical needs and opportunities of individual businesses into viable regional and corridor rail development plans. Projects and operating plans must be developed collaboratively to achieve the volume necessary to warrant rail infrastructure investment and Class I engagement.

Collaboration begins with engagement and dialogue. For example, business leaders throughout the state have been asked about sharing existing or new rail facilities, even proprietary facilities with businesses having complementary logistics needs. Their chorus of replies reflected a genuine intrigue with the concept. Aggregating shippers to share the use of rail facilities also establishes the critical mass of railcar volumes essential for railroads to justify new or improved rail service.

Establishing this degree of transparency and trust requires earnest and robust stakeholder engagement. Businesspeople are wary of sharing their plans unless they are engaged in interpersonal dialogues. Typical state rail plan stakeholder outreach is conducted through town hall meetings, poster presentations, surveys, and relatively few interviews. These methods provide a limited window through which one might see the rail growth opportunities in a state. The NVSRP incorporates a comprehensive communications strategy that includes email and telephone contact, knocking on doors, and meeting to connect *personally* with stakeholders. From the outset, stakeholders who have contributed to the NVSRP have not simply been surveyed for their input—they have been engaged in an ongoing partnership for rail development.

Even as the NVSRP goes to print, new stakeholders with roles in logistics-oriented commerce, development, and planning in Nevada continue to be brought into the effort. The most sustainable policies, programs, and strategies are developed from input that elevates and incorporates all

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perspectives. Throughout the state of Nevada, stakeholders have enthusiastically expressed appreciation for this opportunity to contribute and collaborate.

> "And most importantly, I want to say how much I appreciate that NNRDA has been allowed to provide so much input in this process."
>
> ~ Sheldon Mudd, Executive Director, Northeastern Nevada Regional Development Authority

### B-2. Radical Inclusion Part 2: *Key State Policy Makers & Private Sector Influencers*

Key Nevada policy makers and influencers, as well as business and community stakeholders collaborated to advance the likelihood that rail plan recommendations will be embraced and enacted. For example, support was gathered for the NVSRP's transportation and land use policies and plans through focused outreach to the Nevada State Land Use Planning Advisory Council, land developers throughout the state, local and county elected leaders, and professional urban and rural planners. Likewise, the NVSRP's Mining Materials Supply Chain Logistics Strategy has been discussed with the Nevada Division of Minerals, the Nevada Mining Association, The Mackay School of Earth Sciences, and many mining companies and suppliers.

### B-3. Radical Inclusion Part 3: *County Planners and Economic Development Agencies*

Regional, county, and local economic development and planning staff field many early-stage opportunities when rail logistics knowledge can inform a business's optimal choice of location and transport mode. Nationally, these key staff have a generalized belief that rail-based development is good for the economy and the environment. However, their understanding of many of the unique aspects of rail development is typically limited due to a dearth of academic and professional education in rail transportation. Rail planning depends on providing these participants with this relevant knowledge.

### B-4. Radical Inclusion Part 4: *Land Developers and Landowners*

The optimal use of freight railroads begins with informed conception of logistics services at each property. With land in Nevada undergoing rapid industrial development, there is a compelling and urgent call to engage with landowners on how freight and people will move to, from, and within their sites. The NVSRP team has met over the course of the last year with the largest landowners and developers in the state, including the developers of the 110,000-acre Tahoe-Reno Industrial Center in Sparks, the owners of the 70,000-acre planned Innovation Park, and the managers of Clark County's 17,000-acre Apex Industrial Park. The NVSRP team engaged with developers controlling over 650,000 acres who have stepped into ongoing dialogue for advancing rail-enabled development.

## C. Supply-Chain Infrastructure Planning

**Transportation Infrastructure Can Be Conceived to Support Whole Supply Chains**

The United States enjoys an abundance of natural resources and robust private-sector commerce, accompanied by an ongoing increase in truck activity. Consequently, transportation departments in every state are struggling to fund road construction and maintenance to keep up with growing road wear and congestion. Meanwhile, the country benefits from a freight rail system that is almost entirely funded and maintained by the private sector. Given the critical role of transportation infrastructure in our nation's most important supply chains, it is imperative that states lead the transition to a balanced

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use of roads and rail. Nevada's current surge of industrial development and its adjacency to California and west coast ports present a rich opportunity to plan infrastructure for supply chain optimization that minimizes the public costs and community impacts of this growth.

What is commonly called "supply chain optimization" has been narrowly focused on individual companies' material sourcing and product distribution. Consequently, in 21st century North America, neither the marketplace nor the public sector has been able to comprehensively plan infrastructure for efficient supply chain systems.[3] For example, in 2008 at the height of America's ethanol-production boom, hundreds of billions in investment capital poured into the ethanol industry to fund individual "competing" infrastructure projects. Ethanol production skyrocketed while the ad hoc transportation and distribution system remained inadequate for meeting the nation's important energy needs.

Nevada's long-standing mining industry presents a compelling opportunity to apply "whole systems" supply chain infrastructure planning. Section C.2 describes the NVSRP's *Mining Materials Supply Chain Logistics Strategy*. Nevada's mines in the 21st century have become a global provider of silver, gold, copper, and "strategic minerals" critically needed for electronics and alternative energy systems. Supply chain infrastructure planning will bring transportation efficiencies and enhanced market access to Nevada's mining industry. This opportunity has been well-received across the industry. During a NVSRP Regional Meeting, the North American head of logistics for a Nevada gold mining company expressed their company's "interest in connecting with their South American operations" via rail through west coast ports. Nevada has a timely opportunity to expand and diversify its commercial base by empowering its mining industry with a rail-enabled logistics system that connects producers, suppliers, and customers across the state and world. The logistics system to be forged by the *Mining Materials Supply Chain Logistics Strategy* would also allow Nevada to retain more value in the supply chain as it enables an expansion of in-state "Beneficiation." Beneficiation refers to the economic and environmental improvements experienced by natural resource-producing regions when moving up the mining value chain. Section C.2 provides a global perspective on Nevada's Beneficiation opportunity. First is an overview of the state's mining activity.

## C-1. Nevada's Mining Industry – Overview & Trends

Mining continues to be a major industry in the Nevada economy with an $8 billion gross value of produced minerals in 2018. [4] For the past 5 years, Nevada mining has consistently ranked in the top 10 in global investment attractiveness, including a 3rd place ranking in 2019.[5] The mining industry provides a fairly small share of overall Nevada employment (1.2% in 2016, predominantly in rural communities). However, the two major mining companies, Barrick Mining and Newmont Mining, both consistently rank in the top ten highest assessed taxpayers in the state. This speaks to the fact that the mining industry is a powerful economic contributor to Nevada.

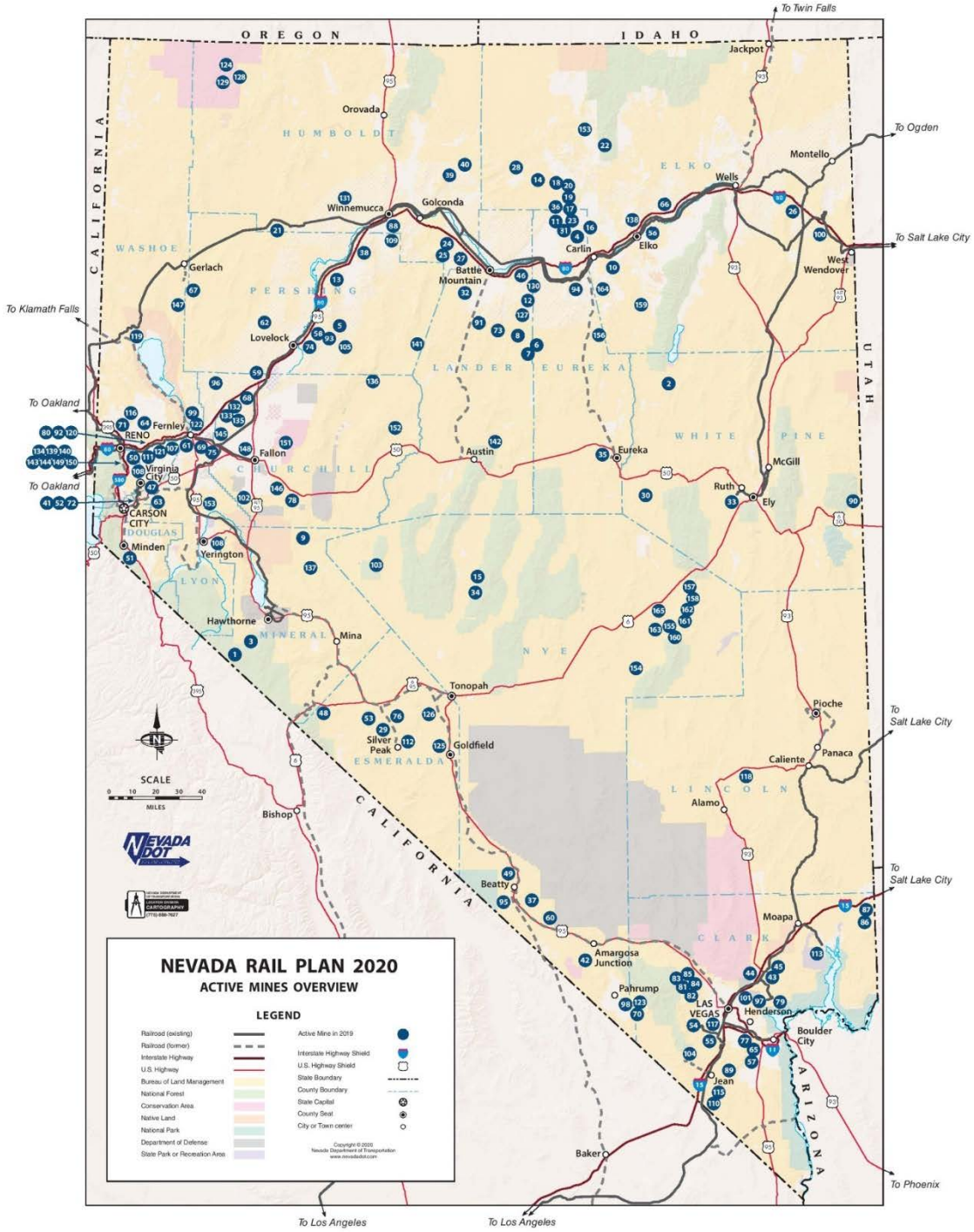
[3] Vimmerstedt, Laura J.; Bush, Brian & Peterson, Steve, "Ethanol Distribution, Dispensing, and Use: Analysis of a Portion of the Biomass-to-Biofuels Supply Chain Using System Dynamics", PLoS One Journal, source link, published May 2014.

[4] Nevada Commission on Mineral Resources – Division of Minerals, Report "Major Mines of 2018", source link, page 26.

[5] Fraser Institute Survey of Mining Companies, 2019 Annual Survey of Mining Companies, source link.

Currently there are 20 major minerals mined in Nevada with 103 active mining sites as of 2018, shown in the map below.[6]

### Figure 4-1: Nevada Active Mines Overview




[6] Nevada Mining Association website, source link, website accessed July 9, 2020.

Gold, silver, copper, barite, magnesium, and, increasingly, lithium are among the more important minerals mined, based on revenue and production. Nevada is the fifth largest gold producer in the world and is responsible for 83% of U.S. gold production.[7] Nevada ranks second in geothermal energy mined in the U.S. (California is the top producer).

Due to stable prices, conducive regulatory environment, and continued population growth, the Nevada mining industry in gold, silver, etc. is projected to continue to be strong for many years to come. The projected exponential demand in electric vehicles and batteries will require significant increases in lithium and copper production.[8] In 20 years, 56% of all light-duty commercial vehicles and 31% of all medium-duty commercial vehicles are projected to be electric. [9] Demand for copper in vehicles is expected to increase by 1,700 kilotons by 2027. Tesla operates their "Gigafactory", a lithium-ion battery and electric vehicle subassembly factory in Sparks. Nevada has the only mine producing lithium in the U.S., called the "Lithium Hub", located near the Tesla Gigafactory facility.

The Nevada Department of Employment, Training and Rehabilitation projects 2026 employment in the Natural Resources and Mining sector to be stable at a 1.1% employment share of the overall state workforce compared to a 1.2% share in 2016.[10]

**Table 4-1: Nevada Long-Term Industrial Employment Projection from 2016-2026**[11]

| Industry Title | 2016 Employment | 2016 Employment Share (to all NV Industries) | 2026 Employment | 2026 Employment Share (to all NV Industries) | 2016-2026 Total Change |
|---|---|---|---|---|---|
| **Natural Resources & Mining** | 16,671 | 1.2% | 18,345 | 1.1% | +1,674 |

## C-2. Mining Materials Supply Chain Logistics Strategy

Elevating the planning focus from individual projects to encompass the whole network of mining industry supply chains will deliver measurable financial, economic, environmental, and social benefits to Nevada's businesses and communities. The foundation for this supply chain strategy exists as Nevada already engages in vigorous cross-sector collaboration among its mining industry, government, and academia. The Nevada Mining Association, the Nevada Division of Minerals, the Nevada Bureau of Mines and Geology and the Mackay School of Geology and Earth Sciences collaborate with each other and with the many mining and mining supply companies in the state. Each of these organizations has provided input into the *Mining Materials Supply Chain Logistics Strategy*.

Following is an inquiry-based outline of the analytical process for "mapping" the Nevada mining industry and improving its supply chain efficiencies and opportunities. This supply chain mapping will guide

[7] Nevada Commission on Mineral Resources – Division of Minerals, Report "Major Mines of 2018", source link, page 23.
[8] Nevada Commission on Mineral Resources – Division of Minerals, Report "Major Mines of 2018", source link, page 26.
[9] Nevada Mining Association, Presentation "Mining Through Uncertainty", source link, page 98.
[10] Nevada Department of Employment, Training and Rehabilitation, 2016-2026 Long-Term Employment Projections, source link.

Nevada to a system for transporting and distributing mining materials before and after extraction and will inform the smartest siting of new processing and manufacturing facilities.

*Mapping the current mining materials and supply chain*

1. Where is each mine located in the state?
2. What company owns each mine?
3. What company operates each mine?
4. What activity is going on at each mine? What materials are mined?
5. What supplies in what quantities are brought into each mine?
6. Where do those supplies originate?
7. What transportation mode(s) and facilities are used for each supply item?
8. What ore elements and volumes are produced at each mine?
9. At which mines are the ores currently refined onsite?
10. If refined onsite, where and how are the refined minerals shipped?
11. Where are the in-state and out-of-state processing, refining, and smelting facilities?
12. Where and how is each ore element transported to offsite refining or smelting?
13. What quantity and type of byproducts are generated at each mine and where and how are they shipped?
14. What quantity and type of waste products are generated at each mine and how and where are they disposed?

*Mapping the materials and supply chain for mines in development*

15. Apply the same questions above to mining projects, proposed or in development

*Mapping current transportation, storage, and distribution facilities*

16. Where are the in-state rail- and truck-served mining supply warehouse and unloading facilities?
17. Where are the in-state rail- and truck-served mining materials distribution and storage facilities?

*Discerning the optimal mining materials and supply chain logistics system*

18. What are the requirements and metrics for mining supply provision?
19. What are the requirements and metrics for mining materials transportation?
20. What are the requirements and metrics for mining materials storage?
21. What are the requirements and metrics for mining materials distribution?
22. What is the competitive landscape of mines in the state?
23. What new supply chain developments would enhance mining operations?
24. Where can new rail line construction enhance mining operations and minimize transportation costs and impacts?
25. Where can new rail loading facilities enhance mining operations and minimize transportation costs and impacts?
26. Which communities and residents should be included in evaluation of siting new facilities and infrastructure?

*Diversification and Beneficiation—logistics for new processing and associated product manufacturing*

27. Where can new smelting, processing, or refining facilities be optimally located in relation to the needs, benefits, and impacts of transporting mining products, by-products, and waste streams?
28. What new associated product manufacturing facilities are made viable by Nevada's mining activity and location in the market?

29. Where can new associated product manufacturing facilities be optimally located in relation to the rest of the supply chain?

The *Mining Materials and Supply Chain Logistics Strategy* outlined above can be a collaborative effort among the University of Nevada-Reno, the Nevada Mining Association, and the Nevada Bureau of Mines. The Nevada Mining Association's co-sponsorship of the project will go a long way toward fast-tracking the effort and minimizing the staff time required to map out the entire mining supply chain system. Conversations in the state during the development of the NVSRP has provided early indications that the project is well-received by the association and its members. An efficient budget could be funded by a combination of potential sponsors such as the Governor's Office of Economic Development, the Nevada Mining Association, individual mining company sponsors, and Nevada charitable foundations. Several federal agencies that offer planning grants, such as the U.S. Department of Agriculture, particularly for rural areas, may be motivated to co-fund this innovative effort as well.

Rail lines and rail-served transload, storage, and distribution facilities conceived to improve efficiencies and expand opportunities for Nevada's entire mining industry will provide the infrastructure backbone for beneficiation, a transformational enhancement of the state's economic well-being.

### C-3. Beneficiation of Nevada's Natural Resource Economy

The western states of the U.S. are rich in primary mineral resources and thereby make a significant contribution to the wealth and economic security of the nation. These extractive resources are abundant and varied, ranging from volume aggregates to high value precious metals. Whereas the agricultural Mid-West and Great Plains are America's breadbasket providing food security for the nation, the western states provide a similarly important resource security. Thanks to this natural endowment the U.S. does not suffer the same vulnerability of other global economic powerhouses such as China, Japan, and India who are far more dependent on importing primary resources.

The value of extractive goods, especially the non-oil resources found in Nevada and other western states, goes beyond economic security and resource self-sufficiency. Materials from aggregates to copper to lithium to silver are crucial feedstocks to U.S. manufacturing, technology, and construction industries as well as a major revenue earning export.

Despite this disproportionate economic importance and value contributed by Nevada mining, the state is one of the lowest contributors to U.S. gross domestic product (GDP).[12] This dichotomy is partly explained by the methodology employed in GDP calculations, but it also reflects how the state is not taking full advantage of its significant natural resource endowment. The state has a strong mining focus concentrated on the initial stage of a four-phase value chain which starts with extraction and moves through processing to manufacturing and distribution. There are historic reasons why the development of Nevada focused on extraction but looking ahead there is a clear opportunity to change the dynamics of the resources supply chain, bringing more of the higher value activities into the state.

There are economic and environmental benefits for Nevada's embrace of higher value activities. This is referred to as "Beneficiation", an economic development term for a strategy that leverages an existing sector to create additional jobs and economic activity in subsequent stages of the value chain. In the

[12] Statista website, "Which States are Contributing the Most to U.S. GDP?" article, source link , published June 8, 2020.

resources sector, this often means creating new industries that process a region's resources locally rather than simply exporting raw materials. In the case of gems, this could involve cutting and polishing the stones. For metals, it could be building capacity in the refining and manufacturing processes. As highlighted by the Nevada Bureau of Mines 2018 report, "Opportunities for Precious Metals Toll Processing and Copper Concentrate Processing in Nevada"[13]…

> "…a case could be made for establishing a concentrate processing facility in Nevada, if production from other western states that is now exported and the potential production from undeveloped resources in Nevada and other states are considered along with the current Nevada production.
>
> "Development of a concentrate processing facility may attract downstream copper facilities such as rod plants, wire manufacturers, brass mills, and copper-alloy manufacturers."
>
> "Transportation of concentrate to a new processing facility requires accessibility to highway and rail systems."
>
> "Tentatively, a swath of potential locations along the I-80 corridor west from Wells west to about Fernley then south between highways US-95 and US-95A toward Yerington is initially proposed. At first look, this swath of land appears to provide access to transport and utilities required to support a processing facility. Potential areas for siting a concentrate processing facility are highlighted on the map on figure 1. These areas have access to highway and rail systems, the electrical grid, and natural gas pipelines as well as having no current sources of air emissions within the boundaries of the basin."

Although local beneficiation is often recommended in development strategies for resource rich but economically poor countries in Africa, Asia, and South America it is equally applicable to major economies such as Canada or Australia, and it is highly applicable to Nevada.

The state's rail strategy is key to realizing the economic development advantages of beneficiation. Advancing higher value industries requires an effective and reliable freight transportation network with sufficient capacity and scalability to support growth. This growth can only be served when Nevada's rail network is augmented to accommodate rail movement between in-state businesses. As pointed out in the freight data analysis reported in Chapter 2, the share of intra-state freight rail activity (originate and terminate the same railcar load of freight within the state) is currently about .25% of overall rail traffic in Nevada.

Fortunately, as described in Chapter 2, Nevada enjoys an existing core of rail infrastructure including operational and dormant freight lines and sidings, as well as relatively attractive topography for building new rail connections. Therefore, rail can be a powerful catalyst for a successful beneficiation program in Nevada, providing the robust freight infrastructure necessary to support inbound, outbound, and intra-state supply chain movements. Without rail, beneficiation will be limited by the constraints of road-based transport and its consequent environmental and congestion impacts.

[13] Nevada Bureau of Mines and Geology, Report 57: "Opportunities for Precious Metals Toll Processing and Copper Concentrate Processing in Nevada", source link, accessed August 26, 2020.

The economic benefits are significant for the state. By expanding up the mining value chain, Nevada will realize increased employment, a greater diversity of jobs, higher salaries, and increased state tax revenues from a growing business sector and expanding population. These benefits create a virtuous circle whereby greater state revenues fund improvements in infrastructure attracting even more businesses and residents.

The relative impacts of beneficiation differ by commodity but can bring substantial economic growth to all primary extractive resource sectors. Case studies, research, and analysis around the world demonstrate that any movement up the value chain generates economic benefit. The greatest economic benefits derive from the increased value of added-value processing and manufacturing. One example is when the Indonesian government restricted the export of raw nickel ore, bauxite, and tin in 2014 to encourage the development of local processing capacity. This resulted in exports of refined metals growing at an annual average rate of 9.2% over five years (to 2019), from $9.3 billion to $13.4 billion.[14] In 2019, China implemented policies to reduce exports of raw rare earth elements, triggering new economic development from downstream processing of products such as magnets, catalysts, alloys, and glass. South Africa has also attempted to develop a diamond cutting and polishing sector by restricting licenses for the sale of mined diamonds.

Examples of beneficiation are not limited to the developing world. In 2003 the Australian government sought to move up the extractive industry value chain to reduce commodity price volatility and over-dependence on the export of raw extracted materials to China. The country took creative steps to bring diversity and high value production into its mining states. One successful approach took advantage of mining industry clusters to create a Mining Equipment, Technology and Services (METS) sector. The METS sector has grown into a major economic contributor for Australia, growing at double the rate of the mining sector and contributing an equal share of GDP by 2012.[15] See the tables below from the International Mining Development Centre/World Bank.

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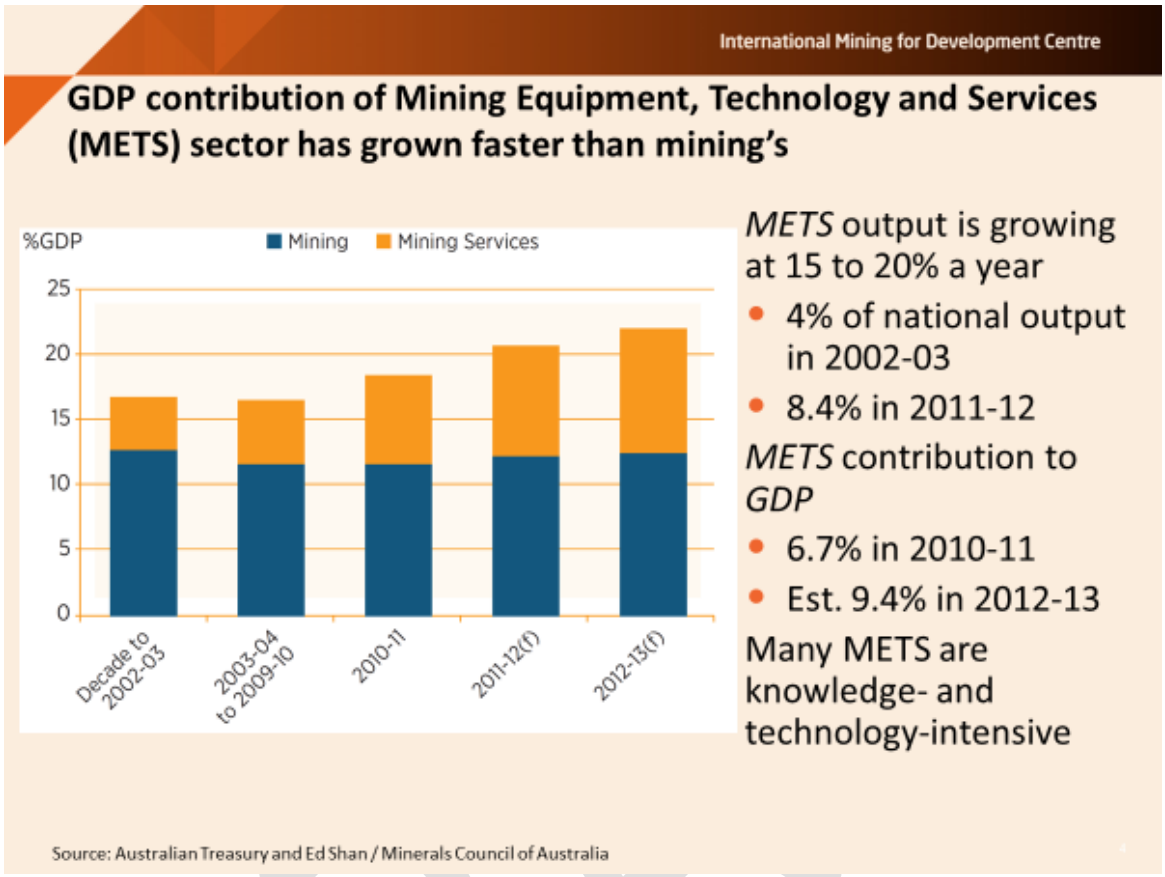
[14] Mining.com website, "Indonesia moving up the mining value chain – report", source link, published July 28, 2020.

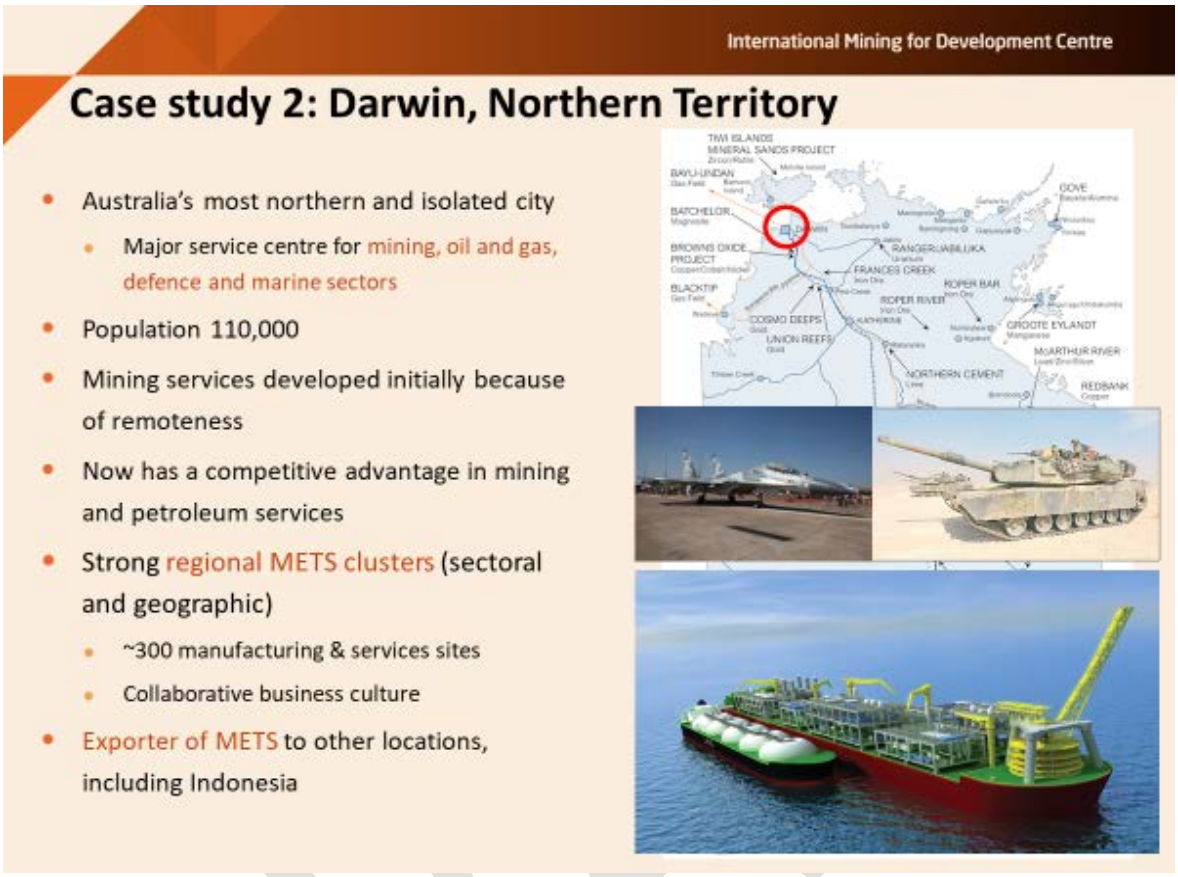
[15] International Mining for Development Centre/World Bank, Presentation: "Enabling the development of industrial capacity: Resource corridors, clusters and SEZs", source link, accessed August 26, 2020.

**Table 4-2: GDP contribution of Mining Equipment, Technology and Services Sector**[16]




[16] International Mining for Development Centre/World Bank, Presentation: "Enabling the development of industrial capacity: Resource corridors, clusters and SEZs", slide 4, source link, accessed August 26, 2020.

**Table 4-3: METS Case Study 2 – Darwin, Northern Territory**[17]




This Australian example shows that the opportunities for economic benefits from beneficiation expand to new and aligned industries in addition to direct downstream manufacturing. A further benefit is that diversifying economic activity up the mining value chain reduces the impact of fluctuating commodity prices on the state's economy. Having such downstream industries in-state provides diversity which reduces the proportion of output affected by often-volatile commodity prices in a global market.

Nevada is positioned to benefit substantially from beneficiation simply because it's location in the continental United States gives it direct access to North America, the world's largest economic zone. Having such a large market means Nevada depends far less on international exports than other developed, resource-rich countries such as Australia and Norway. A dependency on exports gives leverage to the importing nations who will seek to keep a greater share of economic value by importing raw materials rather than processed or manufactured product. For Nevada, a huge and free internal North American market, connected by transcontinental transportation corridors, removes this constraint, and clears a path for developing an economy which moves up the vertical value chain.

In addition to the economic factors, there are clear environmental benefits as well. Nevada's roads are increasingly congested, and air quality is suffering. High volume road movements of extracted materials trucked to out-of-state facilities, primarily in California is a prime cause of these impacts. These truck

[17] International Mining for Development Centre/World Bank, Presentation: "Enabling the development of industrial capacity: Resource corridors, clusters and SEZs", slide 8, source link, accessed August 26, 2020.

movements, in coordination with a robust expansion of the intra-state rail network, would be redirected to far shorter, less environmentally damaging local road and rail hauls to in-state facilities. Moreover, the additional revenues from beneficiation would fund investments that improve the road and highway network and its integration with rail.

### C-4. Nevada's Other Commodity Supply Chains

Mining, as Nevada's largest user and producer of materials that can be effectively carried by rail, should be the industry to focus on with this rail-enabled, supply chain improvement strategy. The lessons learned, including the rail expansion strategies identified can then be applied to other regional supply chains that are most active in Nevada:

- Food and beverage
- Building materials
- Chemicals
- Waste, scrap, and recycling[18]
- Manufacturing
- Agricultural products
- Energy

### C-5. Rail Electrification Addresses Nevada Governor's Executive Order on Climate Change

Rail electrification in Nevada harmonizes with Nevada Governor Steve Sisolak's 2019-22 Executive Order on Climate Change, which calls for, in Section 6: B. *"Support for transportation electrification and demand management, including infrastructure, fleet procurement, alternative funding mechanisms and other programs."*[19]

During the 20-year horizon of the NVSRP, Nevada transportation will likely follow the global transition to non-petroleum-based power for freight and passenger vehicles. Rail electrification would enable the replacement of diesel-burning internal combustion engines in locomotives with grid-supplied pure electric power.

Unlike many of the world region's where railway electrification has advanced (the Trans-Siberian Railway is electrified across Russia), North America has been challenged in dealing with its demographics, scale, geography, and decision making on appropriate technology. Along the way, the potential stranded costs of a mature diesel infrastructure need to be addressed.

This section discusses the potential benefits and issues of Nevada's transition to railway electrification and the parallel utilization of rail corridors for electric transmission. The following statement has been authored by the Rail Electrification Council.[20] The National Electrical Manufacturers Association

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[18] *A draft report on recycling in Nevada cites transportation as challenge in reaching Nevada's goal of recycling 25% of its waste. Economical rail transportation can be a key enabler of the hub-and spoke collection scheme envisioned by the report; pages 3, 21, and 26* – "2021 Waste Reduction and Recycling Report" - Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Sustainable Materials Management

[19] Nevada State Government Website, " Governor Sisolak Signs Executive Order Directing Administration to Collaborate on Achieving Nevada's Climate" article, source link, published November 22, 2019.

[20] For more information, please visit: https://www.nema.org/directory/products/rail-electrification-council

developed the Rail Electrification Council[21] (Council) to promote the adoption of electricity as the principal motive power of domestic railroad (freight and passenger) transportation and as an enabler of electric grid integration and innovation.

## Rail Electrification Council Statement on the Benefits of Rail Electrification for Nevada

### *I. Nevada and Rail Electrification*

The Rail Electrification Council ("REC") advocates that all state rail plans should begin an exploration of the prospects for, and barriers to, electrification of rail operations. Such an analysis would ensure that plans and state transportation departments anticipate and prepare for challenges on the horizon. Forward-looking planning can also avoid investments in outdated technologies and operations.

REC believes that Nevada's rail plan should inaugurate an examination of the economic, operational, and environmental benefits of an electrified rail system.

Rail electrification can contribute to:

(1) enhancing the efficiency of in-state and interstate supply chains.

(2) helping foster job creation, new freight transload facilities, warehousing, and industrial development, particularly at mineral extraction sites. Bringing electric power to rail lines could also provide power to mining operations.

(3) improving the health and environment of Nevadans by reducing diesel emissions and promoting investment in renewable energy resources.

(4) supporting the production and transmission of electricity, particularly of Nevada's renewable energy resources, over high-voltage direct current (HVDC) lines located in railroad rights of way.

Freight rail companies are investing in infrastructure modernization. While investment in rail electrification would come on the heels of the costly deployment of Positive Train Control, diesel locomotive retrofit to reduce emissions, and current experimentation in battery electric locomotion, REC considers changing the motive power of locomotives and the transformation of the rail system to be in the realm of the strategic and attainable.

The challenges to electrification include potential costs,[22] prioritization of passenger rail electrification over freight, the ability of electric utilities to meet capacity demands of electrified rail operations, and the ability of utilities and other industry players to finance and build the necessary delivery infrastructure. Meanwhile, utilization of railroad real estate assets (especially trackside rights-of-way) as sites for longitudinal electric transmission or renewable energy facilities will potentially generate fresh revenues for the railroads that could offset the expense of electrification.

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[21] For more information, please visit: https://www.nema.org

[22] *Estimates of the cost of installing catenary facilities (overhead lines) for freight railways vary widely, at $300,000 to $5.5million per mile. At $2 million/mile, a build out of the U.S. military's strategic rail corridor network ("STRACNET"), which is comprised of 36,000 miles of rail serving 170 installations, would require an investment of $70 billion, not necessarily counting scale economies. The U.S. rail network today consists of about 150,000 miles of existing and retired or disused railroads. At $2 million each, replacing the Class 1 diesel fleet (25,000 units) would require investment of another $50 billion, not including the electric power delivery infrastructure. Of course, once fully developed, durable battery technology installed in locomotives as a substitute or a hybrid collaborator with overhead lines and possibly charged by renewable energy, could affect those costs significantly.*

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In sum, privately-owned rail transportation companies should be supported in pursuing electrification as feasible, strategically smart, and in their long-term economic self-interest. The public's interest will be served by a more modern, competitive, flexible freight rail system, a reduction in its environmental impact, and a contribution to the delivery of clean energy in the West.

### *II. Trends That Support Rail Electrification*

Rail electrification appears with important questions of timing. The Federal Railroad Administration (FRA) believes that "rail will play a pivotal role in the Nation's transportation future." The 2021 Nevada State Rail Plan is being formulated in a transportation and energy environment that is increasingly transformational. Disruptive new technologies, changing demographics, and innovative public policies will make proper planning and strategic investment essential to maintaining economic competitiveness and quality of life.

The Council identifies three specific factors that call for a coordinated planning process among transportation providers, land and energy developers, and utility companies.

First, although FRA requires state-by-state rail plans, freight rail traffic is inherently **interstate**. Nowhere is that truer that in the Southwest. Nevada is becoming an industrial, commercial, and trans-shipment hub for commerce serving surrounding states. Just as Nevada's electric power industry must adapt to new technological, planning, and commercial developments, rail modernization in a potentially congested "megaregion" like the Southwest will require planning on a regional-wide as well as on a state-wide basis. The volume of truck movements between Nevada and California (over 70% of trucking in Nevada goes to or comes from California), regional air quality issues, the regional nature of electric transmission planning and development (e.g., TransWest Express Transmission Project would deliver 3000 MW of Wyoming wind to the Southwest)[23] all render the changes in the production and delivery of power as well as electrification inherently regional planning issues.

Second, Nevada will affect and be affected by **national** developments in technology and public policy.[24] Under the Passenger Rail Investment and Improvement Act of 2008, the FRA is developing a National Rail Plan. Just as the FRA intends to draw on state rail plans in that process, departments of transportation should consider important national trends such as the rising public policy focus on climate change, public health, air quality, electric grid integration, and the foreseeable electrification of highway transportation. The electric power industry and environmental interests are emphasizing the need for a national strategy to build-out the electric grid to permit delivery of location-constrained renewable resources to major power markets.[25] However, state facilities siting laws and land use restrictions often delay or reject major interstate electric transmission projects.[26] Although investment

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[23] *TransWest Express LLC, Critical grid infrastructure to connect the West, source link. For a broad perspective on the importance of national grid integration for renewable energy, see "Macro Grid Initiative Launches to Expand and Upgrade America's Transmission Network", Press Release, American Council on Renewable Energy (ACORE) and Americans for a Clean Energy Grid, June 17, 2020, available at: source link*

[24] The Brattle Group, The Coming Electrification of the North American Economy, at ii (Mar. 2019) source link.
*The Brattle Group found that increased electrification of the economy will require an investment of $3 – 7 Billion per year through 2030 (and far more annually through 2050 under some scenarios) to meet demand growth from electrification and integrate renewable energy resources.*

[25] *For example, Southwest Power Pool, The Benefits of a Transmission Superhighway, source link.*

[26] *Clean Line Energy's Grain Belt Express project and its Plains & Eastern projects would have crossed multiple jurisdictions in delivering remote renewable resources to load; they ultimately failed to get regulatory or legislative*

in high voltage transmission projects has increased in the past decade, driven by aging facilities and the desire to connect more low-cost renewable resources, major HVDC project proposals that would cross state, regional, or market boundaries have been denied approval due to state or landowner opposition during the permitting processes, disputes over the allocation of costs to state ratepayers, or lack of commitment by policy makers to the reliability and economic benefits of grid integration. Private transportation rights-of-way offer a significant potential pathway toward addressing this problem. Use of railroad networks can thereby help address the challenge of accessing renewable resources far from load as well as related issues like climate change. In other words, railroad rights-of-way should be part of the current effort to find attractive solutions to the intractable siting dilemma that inhibits or stops grid development.[27]

A third important variable is the advent of **new technologies** that will revolutionize the energy industry. Among those innovations are industrial-scale batteries (i.e., energy storage), distributed electric generation, high-voltage electric transmission facilities, fuel cells, and other improvements that will drive electrification in many industrial and transportation sectors.

### *III. Key Issues Analysis*

**Government Guidance and Support for Rail Electrification.** Railroads' pursuit of emerging technologies that increase fuel efficiency and reduce emissions must be supported by a comprehensive policy and planning approach with State and Federal support. Railroads are investing in technological advances in response to the Passenger Rail Investment and Improvement Act of 2008. Conversion of rail operations to electric power or the siting of transmission on rail rights-of-way have not been well-explored in North America. The REC commends Nevada Department of Transportation for raising this issue as a strategic consideration for the state's economy.

A recent report[28] to Congress by federal regulatory staffs discussing the need for investment in new high voltage transmission addresses the potential for siting those longitudinal facilities within transportation corridors. Although mentioning issues that commonly arise when co-locating energy facilities near highways or railroads, the report failed to fully explore the potential role that the railroad system could

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*approvals in the affected states.* Tomich, J., "*Battle reignites over $2.5B Midwest transmission line",* EnergyWire (Dec. 2019), source link; Postelwait, J., "*Grain Belt Express Transmission Line Moves Forward with Missouri Court Decision",* T&D World (Mar. 2020), source link. *Similarly, Eversource's Northern Pass project, designed to import Canadian hydroelectric power to the Eastern U.S., was essentially vetoed by one state siting regulator. See also*, e.g. POWERGRID International, July 19, 2019 "Eversource gives up on Northern Pass hydropower project". source link; *also*, e.g., American Society of Civil Engineers, Failure To Act: Electric Infrastructure Investment Gaps in a Rapidly Changing Environment (September 1, 2020), at p. 15. Also, Interviews with Jim Hoecker and Michael Skelly, "How Do We Accelerate Transmission Development," *Public Utilities Fortnightly* (December 2019), at 44, source link.

[27] *See generally Trans. Sec. Admin., Surface Transportation, source link (discussing the four general modes of land-based transportation as well as maritime transportation); Dept. of Homeland Sec., Transportation Systems, at 135-137 (May 2007), source link (providing a list of transportation assets broken down by sub-sector). See generally U.S. Government Accountability Office (GAO), Issues Associated with High-Voltage Direct-Current Transmission Lines Along Transportation Rights of Way, at 11 (February 2008), source link (refers to active transportation rights of way as railroads, highways, and pipelines).*

[28] *Staff report, Federal Energy Regulatory Commission, Report on Barriers and Opportunities for High Voltage Transmission: A Report to The Committees on Appropriations of Both Houses of Congress (June 2020).*

play in facilitating delivery of remotely located renewable energy resources to major load centers. Unfortunately, these two network industries are planned and built in separate silos, without coordination or collaboration. This may be due in part to the absence of either a sound national rail plan or a national policy of facilitating a stronger interstate grid and electrification of systems – both of which are historically dependent on fossil fuels. Nevada has both important renewable resources and rail and highway corridors that could be used to make transmission development more efficient and responsive to state and national policies governing future energy, freight transport, and climate mitigation needs.

**Supply Chain Disruption.** Replacement of the locomotive power system must occur with the least amount of disruption to existing supply chains. Planning for continuity and efficiency requires an extended multi-year horizon, akin to the mid-20th century transition from steam to diesel locomotion. What may be less clear is the effect on the diesel supply chain of a potential conversion of highway trucking to electricity or the electrification of passenger vehicles that could stimulate the deployment of electric charging technology more quickly than expected. It is likely that a new, agile electric supply chain will emerge as rail operations become more integrated into the grid. For example, grid-connected locomotives can provide ancillary power generation services and storage to adjacent producers and consumers of electric power.

**Interoperability**. Rail operators achieve significant efficiencies by sharing locomotives and track capacity. This inter-operation typically requires that all railroads adopt the same systems – catenary, advanced battery power, third rail, and/or other electric drive systems – at the same time. Such shared operations may render battery-electric or hydrogen fuel cell technologies the best current candidates to replace diesel-electric drives, given their portability. The search for such solutions will only accelerate when regional or national public policy solutions catch up to the possibility and benefits of electrification.

**Cost.** Estimates of the total cost of electrification vary tremendously, in part because the technologies that will support electrification are yet to be determined. Clearly, the cost could rise to the hundreds of billions. The conversion could also have a cost impact on states and localities as grade crossings and other facilities require modification. To our knowledge, neither the rail industry nor power suppliers have yet contemplated how these costs will be incurred, allocated, and recovered and over what time period. It is never too early to confront those issues. Regulated utilities, which may be the primary electric service providers, are used to recovering costs in regulated rates over long periods. Railroads that provide the use of their real estate for transmission will need to negotiate new ratemaking structures that similarly recover revenues from their assets over time. There is a significant opportunity in these complex arrangements for public-private partnerships to facilitate the necessary capital investment, provided that the state and the railroad and energy companies calculate and consider the long-term benefits to consumers, the economy, the environment, and their companies of advancing these fundamental changes in operations.

### *Concluding Statement*

The REC looks forward to supporting Nevada as it seeks to improve the Nevada's rail transportation, the State's commitment to the production of clean energy, and the state's economic development overall. The REC is a diverse coalition of manufacturers, electricity providers, and transportation firms that believes in a clean energy economy, a constructive approach to climate change mitigation, and economic development and job creation across North American economies. In seeking to anticipate,

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understand, and mold the likely economic and technological changes and new public policies that will affect the North American transportation and energy industries in the next two decades, the members of REC invite participation in a free exchange of information, data, and opinion about the future of our basic infrastructure.

Co-locating utilities harmoniously along rail lines reduces the land impact of development sprawl and the environmental impacts of utility corridors crisscrossing Nevada's pristine landscapes. It also gives Nevada another path to its climate goals by providing more cost-efficient access to carbon neutral power from wind and solar farms and geothermal sources whose rural locations are often uneconomic distances from electric grids.

Various utilities such as water, natural gas, and telecommunication lines can also be co-located with railroads in Nevada, facilitating lower-cost, lower impact development. The NVSRP team presented the benefits of utility and transportation corridor co-location to the leadership of the Nevada State Land Use Planning Advisory Council (SLUPAC). In response, discussions have ensued within SLUPAC on the rail development possibilities of NV Energy's Greenlink West[29] and Greenlink North[30] transmission projects. Shepherding this conversation between the literally parallel rail and electric power industries is one of the NVSRP recommendations.

## D. Funding Rail Development in Nevada

The freight railroad industry is, at the most fundamental level, a support industry – an industry that enables efficient operations of other industries, such as mining, energy, automotive, and agriculture. Diverse Nevada industries need better connections to Class I railroads via new and revitalized short lines, industry tracks and yards, transload facilities, and intermodal terminals. Other sections of this strategic plan list many of these needs and opportunities, of varied sizes, regions, and stages of development. While big railroads themselves do not need funding support, many of these customer projects do. Several will likely falter otherwise.

State government should not have to fund freight rail development, as railroads and shippers are engaged in private-sector, income-producing activity that can attract private-sector funding. This statement is true for large rail projects and smaller projects. This is not the same as saying that those projects do not need public support, a distinction explained in the Appendix Item, Funding Resources and Strategies. All other funding recommendations of the NVSRP can be found there.

## E. Stewarding Plans to Action

Focused action (not just static reports) begins with dynamic reformulation of plan documents. How are the multifaceted perspectives and collective intelligence of stakeholders catalogued and organized? Where and how will the documents be housed? Will they be in written and/or electronic interactive format to allow for ongoing stakeholder input? Is the content presented in a narrative and/or outline format? To provide for accessibility and collaboration, Nevada will host the 2021 rail plan on the NDOT website www.nevadadot.com/rail.

[29] State of Nevada Clearinghouse website, "Docket No. 20-07025: Notice of Application for Federal Approval to Construct a Utility Facility", source link, accessed September 8, 2020.
[30] State of Nevada Clearinghouse website, "Docket No. 20-07024: Notice of Application for Federal Approval to Construct a Utility Facility", source link, accessed September 8, 2020.

This interactive website database should have four sections:

- Asset Inventory = Data and maps at state, regional, corridor, property, and project levels
- Dialogues = A matrix of facilitated stakeholder discussions by region, industry, or topic
- Planning = Organized process for systematic advancement of each initiative
- Stewardship and Funding = Details of plan implementation from start to completion

Providing education, information, context for collaboration, and technical assistance to businesses is a proven recipe for success. Here are two analogous examples:

1. The nationwide network of extension offices sponsored by the U.S. Department of Agriculture spans the country and is often associated with states' university systems. Extension offices are run by employees and volunteers—teams of experts in crops, fertilizers, environmental sustainability, and economics relating to agriculture, animal husbandry, and landscaping. They provide locally relevant information to farmers, businesses, and residents—bringing agricultural expertise, training, and knowledge to those who need it.

2. The network of over 1,000 Small Business Development Centers across the United States are sponsored by the U.S. Small Business Administration and hosted by universities, state economic development agencies, and private sector partners. They provide educational assistance, professional business advice, counseling, and information to entrepreneurs and small/medium sized companies to support their growth and create jobs for long-term economic impact.

Unlike many business support programs, the proposed Nevada Freight Rail Development Fund could quickly transfer financial support from partner and sponsor seed funding sources to a conglomerated social enterprise that provides consulting services, site selection services, industry partnerships, and services.

In summary, NDOT's Rail Division (or a new purpose-built entity) can function as a clearinghouse for rail information, expertise, financing, and training, in order to:

- Support small shippers so they can flourish into the big rail users of tomorrow.
- Bring resources to small- and medium-sized rail infrastructure projects.
- Bring rail awareness to all large-lot shippers and receivers in Nevada.
- Encourage the sharing of tracks and facilities, particularly for new branch lines.
- Introduce shippers and receivers who would not normally interact or cooperate.
- Stimulate the reactivation of the Nevada Northern Railway and the creation of other short lines.
- Create a culture of collaboration among Nevada's shippers, receivers, transportation providers, developers, and public planners.

The next section identifies a comprehensive set of recommendations for expanding and improving Nevada's rail system, beginning with important background on Nevada's rail network and its opportunity.

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## F. Rail Service Expansion Recommendations

The NVSRP's recommendations for expanding rail service outlined in this section address these fundamental characteristics of the Nevada Rail System:

- Rail trackage consists of three east-west main lines
- There are few branch lines
- Rail service between Nevada and California is limited
- Rail service between Nevada and the rest of the country is limited
- Rail service in Nevada is oriented around a few large shippers
- Rail service between Nevada businesses is practically non-existent

### *Background for Expanding the Nevada Rail System*

Railroads arrived in Nevada during the continental drive to connect the rest of the country to California, most famously when the Central Pacific built across northern Nevada to connect with the Union Pacific at Promontory Point, Utah on May 10, 1869, marking the completion of the first transcontinental railroad. In 1905, a second main line was built through the state, this time across southern Nevada, by a Union Pacific subsidiary to connect the UP in northern Utah with Los Angeles. Between 1907 and 1909 the third and final main line across Nevada was built—the Western Pacific, which largely paralleled the Central Pacific (by then part of the Southern Pacific's vast rail system) across northern Nevada. All three main lines are now owned by the UP, which uses these lines primarily as connections between California and the rest of the nation.

The frenzy of railroad-building in Nevada during the first decade of the 20th century included the construction of 22 independent short lines, including the Nevada Northern Railway to Ely, the Eureka & Palisade Railroad to Eureka, the Nevada Central Railway to Austin, the Virginia & Truckee Railroad to Carson City and Virginia City, the Carson & Colorado to Keeler, CA, the Tonopah & Goldfield Railroad to Goldfield from the north, the Las Vegas & Tonopah Railroad to Goldfield from the south, and the Tonopah & Tidewater Railroad to Ludlow, CA. None of these 22 short lines have survived as a common carrier of freight, and almost all have long been abandoned and scrapped. Rail mileage in Nevada peaked in 1914 at 2,422 miles, diminishing over time to its current 1,193 active rail miles. There are currently 603 active freight short lines in the U.S., and Nevada is the only state in the Lower 48 without one. However, there are several large mining and industrial development projects in Nevada which would appear to be prime candidates for the construction of new short lines, and these should be encouraged for multiple reasons:

- To make these projects more economically viable in the long run,
- To reduce the impact of these projects on Nevada's road network and environment, and
- To spearhead the economic development of additional areas in the state.

Opportunities for rail service expansion abound, as there is currently negligible intrastate movement of freight by rail. That is, almost no Nevada shipper transports freight to a Nevada receiver by rail. However, there are numerous opportunities to save transportation expense, and reduce environmental impact and highway wear by using railroads for freight movements such as mined ores to in-state processing facilities or users, and municipal solid waste to processing facilities or disposal sites.

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As another example of the latent opportunity, there is only one warehouse or distribution center in Nevada that utilizes its sidetrack connection to the rail system. However, the reliability of railroad linehaul service has greatly improved with the recent advent of Precision Scheduled Railroading (PSR), which, by making similar improvements to local switching service, will bring rail service reliability in line with truck service. This potential service quality improvement will require local presence and attention.

In October of 1980, the United States Congress passed a body of federal legislation that eased regulations on the railroad industry. The new regulatory framework allowed large railroads (Class Is) to sell line segments to entrepreneurial rail operators better equipped to focus on local rail service and customer development. In addition to lower operating costs, these regional (Class II) and short line (Class III) operators initiated flexible hours and work assignments, all vital to the task of assisting shippers through start-up and ongoing use of rail transportation. Nevada has no such Class II or Class III rail operations, a limitation that must be addressed to advance many of the projects and strategies identified in Chapter 5's Rail Service and Investment Program.

This limitation has created a rail service gap that the state of Nevada should and can address. Simply spending more money or passing new legislation will not enable more rail service. Nevada needs a "shortline approach" to statewide rail business development, which can be accomplished in a number of ways. That approach must be co-created with Union Pacific Railroad and BNSF.

Transforming rail service in Nevada demands planning and development at the level of the logistics needs of individual shippers and receivers. There are many shippers and logistics-oriented land developers already active in the state. Fostering their expanded use of rail with targeted individual commercially relevant action is the way the NVSRP will deliver the most robust and expedited economic benefit to the state. A state's freight rail planning effort can deliver a measurable expansion and improvement in rail service when it coordinates engagement with shippers around their individual locations, specifically promoting aligned building design, site layout, volumes, destinations, timelines, and all the factors that go into modal choice. This degree of granularity and commercial interaction with the private sector must now become standard practice in public-sector infrastructure planning.

The success of this approach is eminently achievable with a commitment to inclusion and organization. The NVSRP's prior development of an accurate and organized database of all stakeholders and conversations renders ongoing collaborative dialogue with the state's approximately 1,100 shippers and property owners manageable. The tools and relationships created by the NVSRP have established a statewide system for this effort.

The NVSRP is designed to be implemented in its entirety, in a well-coordinated, integrated sequence. The following 18 Rail Service Recommendations comprise a systematic solution to the challenge of optimizing the use of rail for the economic expansion and environmental improvement within Nevada. 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.

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**Table 4-4: Freight Rail Service Recommendations**

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

The following sections cover recommendations 2, 3, 4, 6, 14, 16, 17. See chart above for coverage of the other recommendations. The Blueprint for Action describes Items 1, 5, 7, 11, 12, and 15.

### *Recommendation #2: Initiate and expand new intermodal services*

Akin to transloading service is rail intermodal service where containers are transferred between trucks and railcars. This allows shippers without onsite rail infrastructure to take advantage of rail savings on their long-distance containerload moves. There are two intermodal terminals in Nevada that are under-utilized and available for rapid growth. The Union Pacific has intermodal facilities in Sparks and North Las Vegas that are currently only used once per week to handle traffic to and from one destination—Chicago. However, the Ports of Oakland, Long Beach, and Los Angeles are all interested in handling international container traffic to and from Nevada. Adding frequency and new lanes, particularly lanes to ports in California, should be an objective for Nevada. Clearing the volume hurdle to justify that service will take a coordinated effort.

### *Recommendation #3: Facilitate shippers' early-stage use of the rail network*

Logistics plans and decision-making in the private sector, especially those that involve long-term investment in fixed assets like rail loading facilities and rail line construction must meet a high hurdle of shipper confidence in their modal choice. While rail service usually offers higher capacity with cost and labor savings, transit times are often longer and less predictable than trucking. Shippers will choose rail, but often need to start out with limited capital commitment and risk. The country's best rail operators overcome shipper skepticism in rail's reliability by offering flexible service and infrastructure options for shippers as they begin to use rail. Here are the critical characteristics of early-stage rail service delivery:

- test-runs of railcars to build shippers' confidence
- Incubation of new rail shippers via trucking to transloading sites
- New rail infrastructure scaled to lower the start-up capital costs
    - Creative approaches to new transload trackage and service
    - Lower cost, flexible approaches to interchange trackage
- Shared use of track and facilities among multiple shippers

### *Recommendation #4: Utilize existing rail Infrastructure*

Early benefits from rail service expansion in Nevada can be generated by utilizing what already exists. Out of 239 companies with private sidetracks in Nevada, 99 (or 41%) do not use them. Out of 83 Union Pacific sidetracks in Nevada that are not normally used for train operations, 80 (or 96%) are also not used as team tracks or transloading tracks by rail shippers. Many of the sidetracks that see traffic are underutilized. Rail shippers can be introduced to the opportunity of using existing infrastructure, if supported with the needed rail expertise. Here is a photo of one idle transload site in Innovation Park.

DRAFT

*Transloading Site Idle at Innovation Park*

Using existing infrastructure avoids or delays the cost of new construction as labor and materials for a new turnout cost $50,000+ and the track is $150-to-$200 per foot thereafter. Loading or unloading railcars requires dock space and possibly pneumatic and/or conveyor systems that are separate from truck loading infrastructure. Add to that $150,000 if the new turnout is along a main line requiring Positive Train Control hardware and labor. If a customer wants to locate on a main line designated as Restricted Access, then an additional $3 million is needed for two main line turnouts and enough running track to closet an entire local train.

With such a large initial cost for new rail infrastructure, it is difficult for shippers and receivers, particularly small ones, to test rail service or to justify rail investment without sharing costs of connectivity. This underscores the importance of using existing assets to incubate new rail shippers. In particular, rail/truck transloading can provide the economical introduction for new rail bulk shippers and receivers. There are already public transloading terminals in Sparks, Darwin, Elko, and North Las Vegas, with another on the way in Hawthorne. The 83 existing and underutilized UP sidetracks can serve as new transloading sites, particularly for accommodating early-stage rail shippers. The next photo shows one of these sidetracks in Winnemucca.

***Winnemucca House Tracks***

*Recommendation #6: Balance long-term planning of large projects with near-term improvements for existing shippers*

Decades of declining attention to rail service has led to many shippers having access to or being sited near a rail line yet not using rail. Reconnecting as many of these existing shippers to rail is the quickest path to improving Nevada's economy and environment. Existing rail shippers, as demonstrated by the data, are likely not using rail as robustly as they could. Engaging with these shippers at the outset of the NVSRP's implementation will deliver an early return on the plan's promise, at a very low cost. This near-term rail service expansion then forms a foundation of growing commercial activity making feasible development of more substantial rail infrastructure projects, such as intermodal terminals and industrial parks. Otherwise, the viability of these projects depends on a few large users, adding to project risk. Waiting to land the large rail users takes time that can be used to interact with existing businesses to increase their profitability, employment, and contribution to state revenue.

*Recommendation #14: Enact effective freight transportation land use strategies*

Nevada's land has been undergoing rapid development across its two primary metropolitan areas of Reno and Las Vegas. Commercial absorption rate in the Reno region in 2019 was 3.45MM sq. ft. of new

space leased or sold.[31] The commercial property absorption rate for Las Vegas in 2019 was 4.75MM sq. ft, outpacing both Los Angeles and San Francisco. [32]

This development pace must be met with the careful preservation of land along rail rights-of-way. Rail service requires access to rail lines. It is important to direct non-rail users away from rail adjacent property to optimize the productivity of Nevada's existing rail network. As the state embarks on facilitating the rail service expansion envisioned in the new NVSRP, it must recognize that effective freight transportation land use will be a critical element of attracting private-sector investment.

In the same way that communities preserve land along scenic lakefronts for low-impact, non-industrial uses, land adjacent to rail lines should be utilized as much as possible for rail-served industrial activities. Land is no longer so plentiful in Nevada that the state can afford to use it unwisely. There are a range of programs, protocols, laws, tax concepts, and regulations that can be evaluated by Nevada's governing and community leaders for effectuating the best use of its rail assets and related land.

***What sensible approaches should Nevada consider?***

- Support developers and shippers in designing sustainable logistics plans
- Preserve land along rail ROW's for rail-served development
- Create statewide rail-served property database
- Co-locate utility and transportation corridors
- Co-locate innovative passenger rail services on freight rail lines
- Offer property tax incentives to shippers using Nevada's rail system
- Establish low-interest, long-term financing for rail infrastructure
- Develop corridor rail development and operating plans
- Support real estate brokers to market properties as "rail access sites"

Land use planning is widely practiced in transit-oriented development, but rarely applied to logistics-oriented development. Given the important opportunity to optimize its use of rail transportation, Nevada has much to gain from a pragmatic, effective approach to *freight* transportation land use. Nevada, acting collaboratively among its public- and private-sector stakeholders can take the lead in modeling this approach for other states. The Nevada State Land Use Planning Advisory Council has expressed their interest in supporting a collaborative transportation land use planning process between local governments and private-sector stakeholders.

### *Recommendation #16: Support BNSF service in Nevada*

The only common carrier currently hauling rail freight in Nevada besides the Union Pacific is the BNSF Railway, which was awarded trackage rights on the two main lines across northern Nevada by the Surface Transportation Board as a condition to the Union Pacific's acquisition of the Southern Pacific in 1996. BNSF's rights include the ability to serve any private sidetrack between Winnemucca and Wells and to serve any new private sidetrack on a main line from Winnemucca west. Of 96 existing private sidings in Nevada that BNSF has the right to serve, it has only served 30 at one time or another.

[31] Kidder Matthews, "Market Trends Reno Industrial" Report, source link, accessed September 10, 2020.
[32] Statista website, "Absorption rate of industrial property in selected markets in the U.S. 2019" statistical report, source link, published March 23, 2020.

This traditional public policy and regulatory approach has not led to Nevada's shippers, and therefore the economy, having the benefit of the extensive market reach of these two carriers' combined network. Unpacking and addressing the commercial realities that have suppressed the opportunity of having two rail service providers is key to Nevada's economy. The NVSRP is designed to facilitate the expansion of both UP and BNSF service in Nevada. The United States has leaned on "competition" as an orienting principle for regulations concerning transportation. The NVSRP advocates that these competing Class I railroads evolve into a collaborative relationship focused on the best interests of the Nevada shipping community. The resulting expansion of market reach from having equitable and reliable access to both carriers' networks will raise the attractiveness of rail transportation for shippers. Both companies will enjoy an improved modal balance with trucks.

*Recommendation #17: Focus on fundamental performance measures for improving Nevada's rail system*

Here are three performance measures on which to focus stakeholders' efforts to generate a meaningful contribution to the state's businesses and communities.

**Table 4-5: Performance Measures**

| # | Performance Measurement | Data Point |
|---|---|---|
| 1 | Percent of truckload quantity shippers that are using rail | 140 out of 1,075 or 13% |
| 2 | Number of railcars moving interstate to and from Nevada Businesses | Baseline 2018: 113,020 |
| 3 | Number of railcars moving intrastate between Nevada businesses | Baseline 2018: 664 |

## G. Nevada State Rail Plan Regions

Nevada's resource-rich landscape, high industrial activity, long distances, and adjacency to California and West Coast ports present a potent opportunity for freight rail development. Developing a modern rail system that serves the state's unique industrial development calls for a similarly unique approach for each region of the state. Identifying a set of logical regions empowers stakeholders to collaborate around the strategies that are most applicable for their region.

Nevada's rail assets, development activity, and political jurisdictions point to the selection of eight regions on which to organize the implementation process.

- Region 1: Clark County
- Region 2: Lincoln County
- Region 3: Nevada Northern Railway
- Region 4: I-80 Corridor
- Region 5: Fernley/Hazen/Fallon/Silver Springs/Innovation Park
- Region 6: Reno/Sparks/Stead
- Region 7: Mina Branch
- Region 8: Beatty/Pahrump

The factors that were assessed in distinguishing each region were:

- Population density and distribution
- Existing and potential industrial activity
- Natural resources
- Physical rail assets
- Availability of developable land
- Relationship to the larger transportation network

Cataloguing stakeholders, industries, projects, and freight data for these eight distinct regions reflects a deep and worthwhile investment of resources. This positions the NVSRP for an amplified contribution to the state. In the face of strained budgets and environmental challenges, states need a system for coordinating policy development, community planning, and public and private investment in rail.

Each of the eight NVSRP Regions can support rail growth in Nevada. This potential stems from the state's surging economic and population growth, which in most regions includes the prevalence of mining, where bulk movements lend themselves to the efficiencies and environmental advantages of rail transportation.

The next section of the Freight Rail Strategic Plan introduces strategies for each region, along with its data and maps. These sections are designed to become Action Plans around which the stakeholders will coordinate their collective productivity in their region. As such, they are continually expanded and refined.

Each regions' data, as applicable, includes:

- Potential rail service growth projects-Listed for each region
- Major land developments-Listed for each region
- Active mines--Listed for each region
- Businesses with sidetracks and nearby truckload shippers (Appendix 1)
- Truckload shippers that are not located adjacent to a rail line (Appendix 2)

Next is a map of Nevada displaying the location of the eight Strategic Regions:

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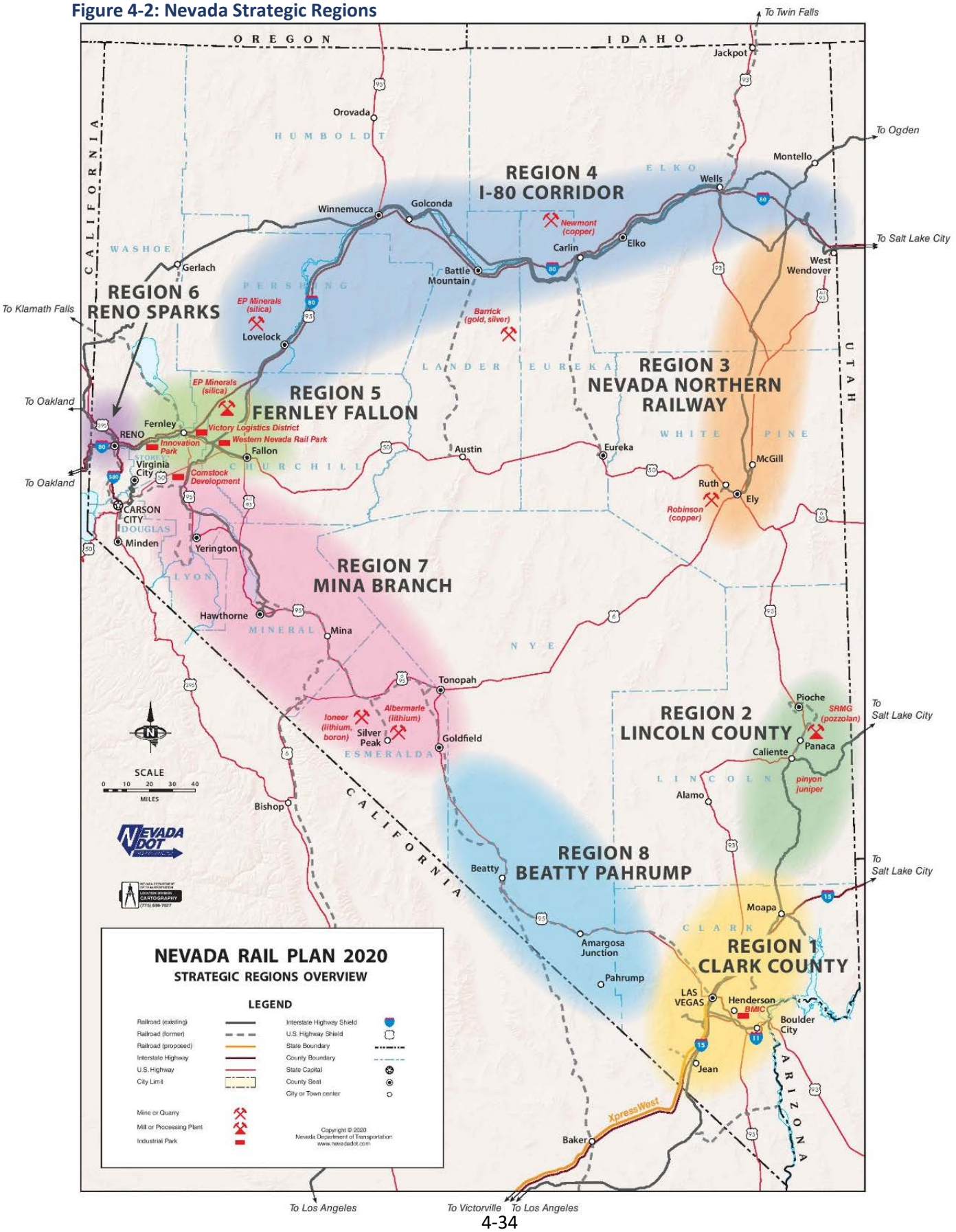
## Figure 4-2: Nevada Strategic Regions



## G-1. Region 1: Clark County

### *Overview*

Las Vegas is the youngest major metropolitan area in the United States, having grown from its founding in 1905 upon the completion of the San Pedro, Los Angeles, and Salt Lake Railroad to a metropolitan population of 2¼ million in 2020, making Las Vegas the 28th most populous city in the U.S. Las Vegas is experiencing significant industrial growth due to its large labor pool, low cost of electricity, zero personal income tax, zero franchise or inventory tax, favorable business climate, and proximity to California's huge consumption markets.

***Warehouses with Rail Across the Street***

The Union Pacific Railroad—heir to the San Pedro, Los Angeles, and Salt Lake Railroad—is the only railroad serving Region 1, but it has not shared in most of the area's phenomenal growth. Of 73 facilities in Region 1 with private sidetracks, 24 are inactive. Of 19 new $5 million+ manufacturing facilities built in the Las Vegas area since 2017, only one is planning on using UP (Ryze Renewables' $74 million biodiesel production plant on the Nellis Industrial Lead). In the 17,273 acres of the Apex Industrial Park in North Las Vegas, only two shippers have constructed rail sidings (Lhoist and Boral CM). Of Apex's

700,000 square feet of warehouse space with rail docks, only 100,000 square feet are in service. There have been an additional 6.4 million square feet of warehouse space built next to UP right-of-way in Region 1 without any rail sidetracks at all. UP currently offers limited intermodal service between its container-on-flat-car (COFC) yard in North Las Vegas and southern California. Service to and from Chicago once a week is the only intermodal lane operating to the east.

Nevada Division of State Lands statement recommending contruction of a crossing for the Floyd Edsall Traininng Complex [excerpted from 1/21/2021 letter in Appendix]:

> The Agency recommends that the project team consider amending the Region 1 Project List to add a rail crossing and rail connection near the Nevada National Guard's Floyd Edsall Training Complex (FETC) in North Las Vegas. The FETC is currently bisected by the Union Pacific rail line and lacks access to the rail line itself. The existing rail line provides challenges to the National Guard's mission capabilities by limiting access to portions of the FETC for training and other uses. Access across the railroad is needed on the FETC site to allow the National Guard to fully utilize this property for heavy vehicle training. Without a rail crossing near the FETC, the National Guard's and other heavy vehicles in the area are unable cross the railroad tracks due to weight restrictions imposed by Union Pacific.
>
> Additionally, the FETC site and other industrial developments in the area do not have access to the rail line. A new rail connection to the Union Pacific rail line near the FETC would benefit the National Guard's readiness to carry out its missions and response. Currently, the National Guard has equipment used to support readiness and response efforts stored off site FETC due of the lack of rail access. A rail connection near FETC would allow the National Guard to store its equipment onsite and transport this equipment more efficiency from the complex. Additionally, a new connection in this area would support the City of North Las Vegas' economic development efforts in this area by providing existing and planned industrial developments with new rail access. Before the plan is adopted, the Agency would like to set up a meeting with NDOT and the National Guard to explore these potential Region 1 rail projects in further detail.

### *Key Strategies*

- Develop rail-served industry southwest of the Las Vegas-Henderson metro area to increase economic development with less traffic impact on downtown Las Vegas
- Preserve as much as practical of remaining developable commercial land for rail-served industry
- Connect as many of the existing shippers to rail as possible
- Support developers and shippers in North Las Vegas with their rail planning efforts
- Redevelop Black Mountain Industrial Center for rail-served heavy industry
- Establish two-way intermodal service to San Pedro Bay, CA

The Region I map below is followed by Inset Maps for three areas of concentrated industrial activity.

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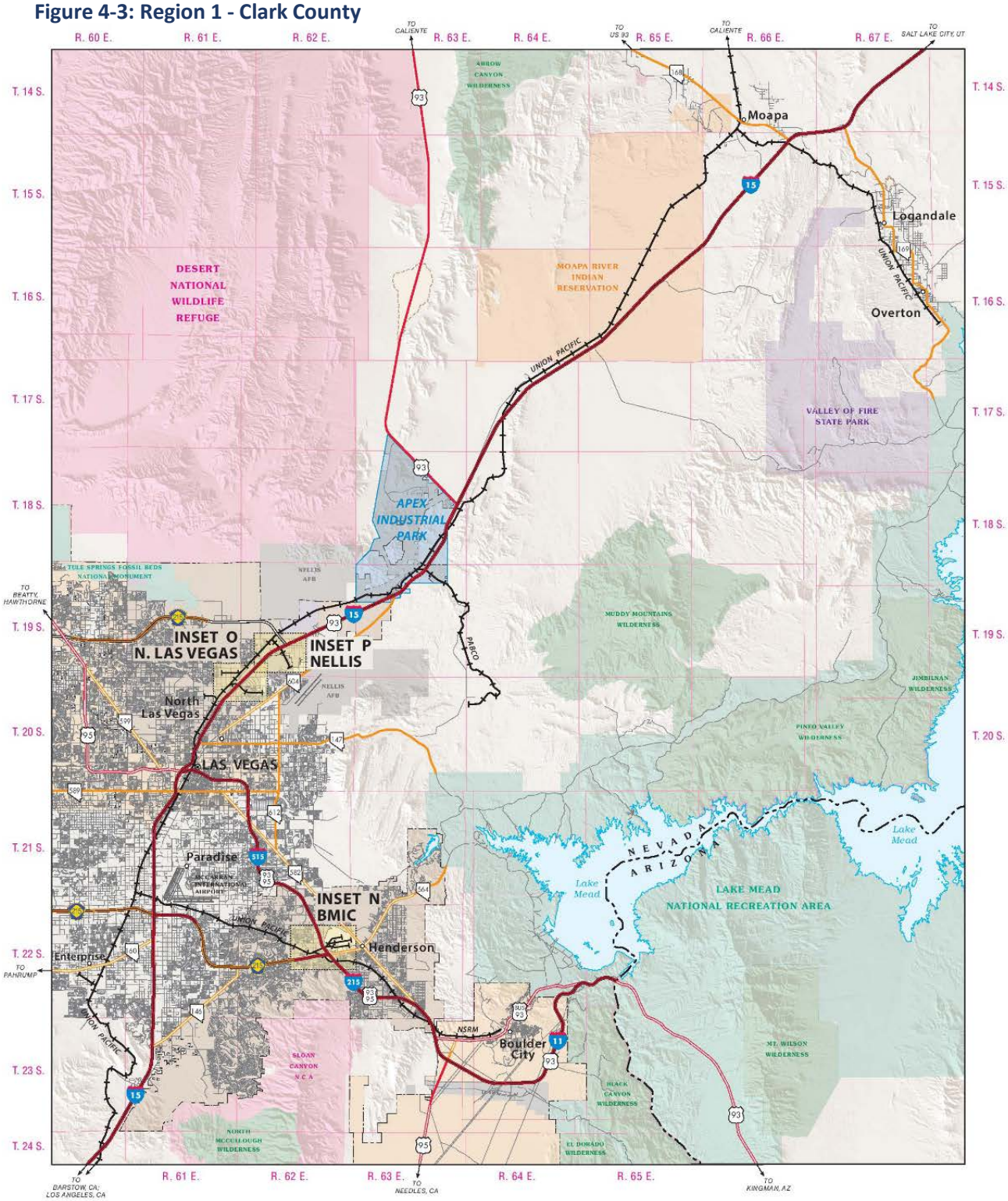
## Figure 4-3: Region 1 - Clark County




**LEGEND**

- Interstate Highway
- U.S. Divided Multilane
- U.S. Highway
- State Divided Multilane
- State Highway
- Other Road
- Railroad
- Inset Map Area
- Apex Industrial Park
- Interstate Highway Shield
- U.S. Highway Shield
- State Highway Shield
- State Boundary
- County Boundary
- City Limit
- County Seat
- City or Town center

# 2020 NEVADA STATE RAIL PLAN

**STRATEGIC REGION 1**
**CLARK COUNTY AREA**

MILES 0 5 10 15
KILOMETERS 0 5 10 15 20 25
To convert miles to kilometers multiply by 1.609

MAP AREA

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NDOT CARTOGRAPHY (775) 888-7627

Figure 4-4 presents an example of land well-positioned for new rail-served operations. The Black Mountain Industrial Complex is now owned by Olin Chlor-Alkali (214 acres), doing business as Pioneer Americas, which already leases space to Timet, Lhoist, and Borman with ample available acreage. Xtreme Manufacturing (20 acres) also has space available adjacent to existing rail. The highest and best use for these brownfield sites would be heavy industry.

The numbered and colored disks correspond to line items with details on each property that are catalogued in the NVSRP's statewide database presented in the Appendix as the ***Inventory of Nevada Industry: Businesses with sidetracks and nearby truckload shippers*** (black disks for businesses with active rail sidetracks, purple for those with inactive rail sidetracks, and red for those next to rail right-of-way that could build new sidetracks easily), and as Appendix Item ***Truckload Shipper Inventory*** (blue disks for truckload shippers farther away from rail right-of-way).

***Pioneer Americas' Tank Cars in BMI***

A Guide for Looking at Next Three Inset Maps

Inset maps, such as the three shown in Region 1 (Figures 4-4, 4-5, and 4-6), highlight dense concentrations of businesses with two characteristics: 1) proximity to active tracks, and 2) elevated shipping activity in truckload or carload lots. These areas are particularly intriguing due to their potential

for becoming centers of carload traffic growth with frequent and reliable switching service and localized solicitation effort. This is doubly true for the areas in Figures 4-5 and 4-6, which are within a mile of one another, making them a ready-made platform for carload initiatives.

**Figure 4-4: Region 1 – Black Mountain Industrial Complex Area**

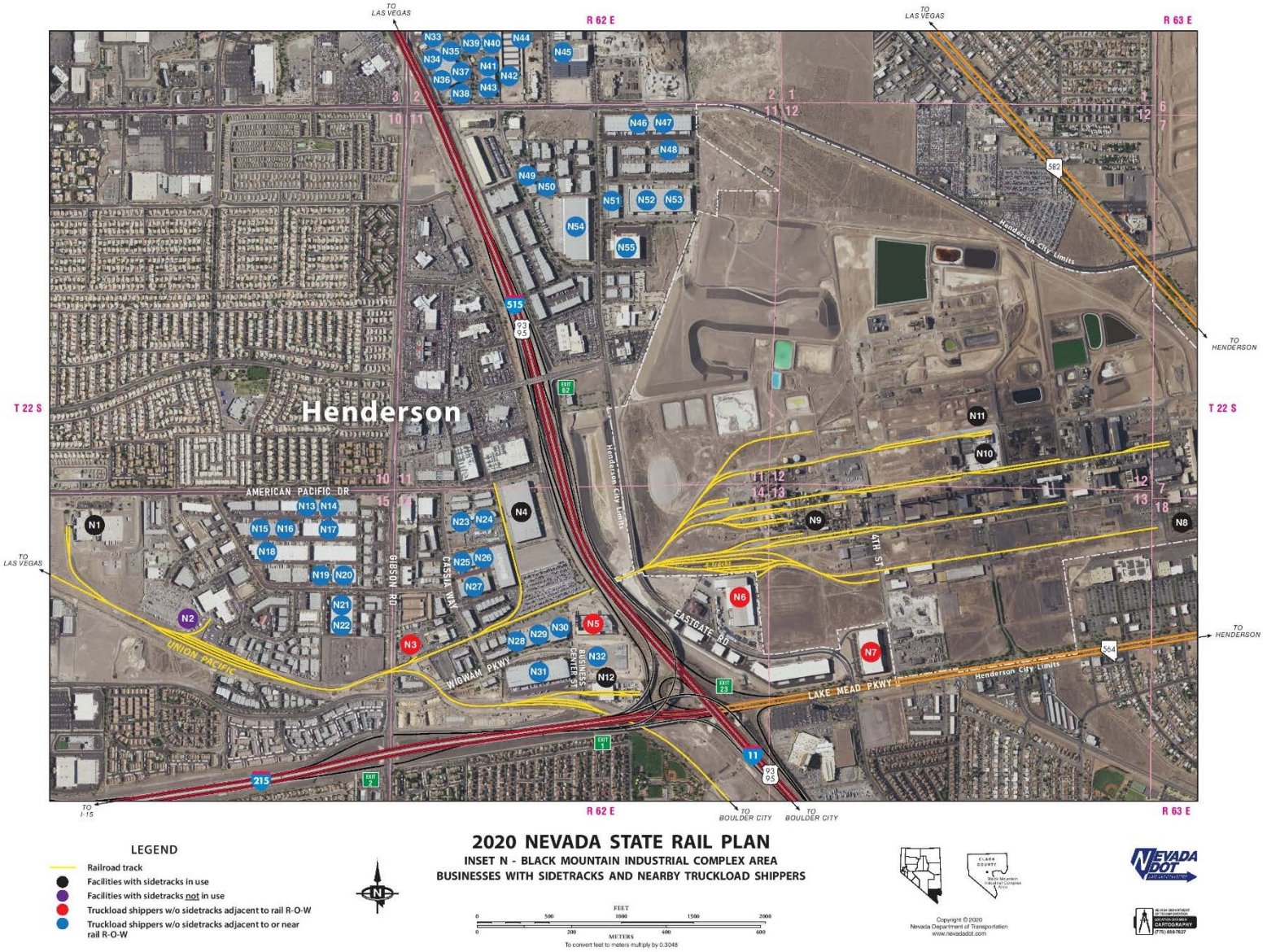
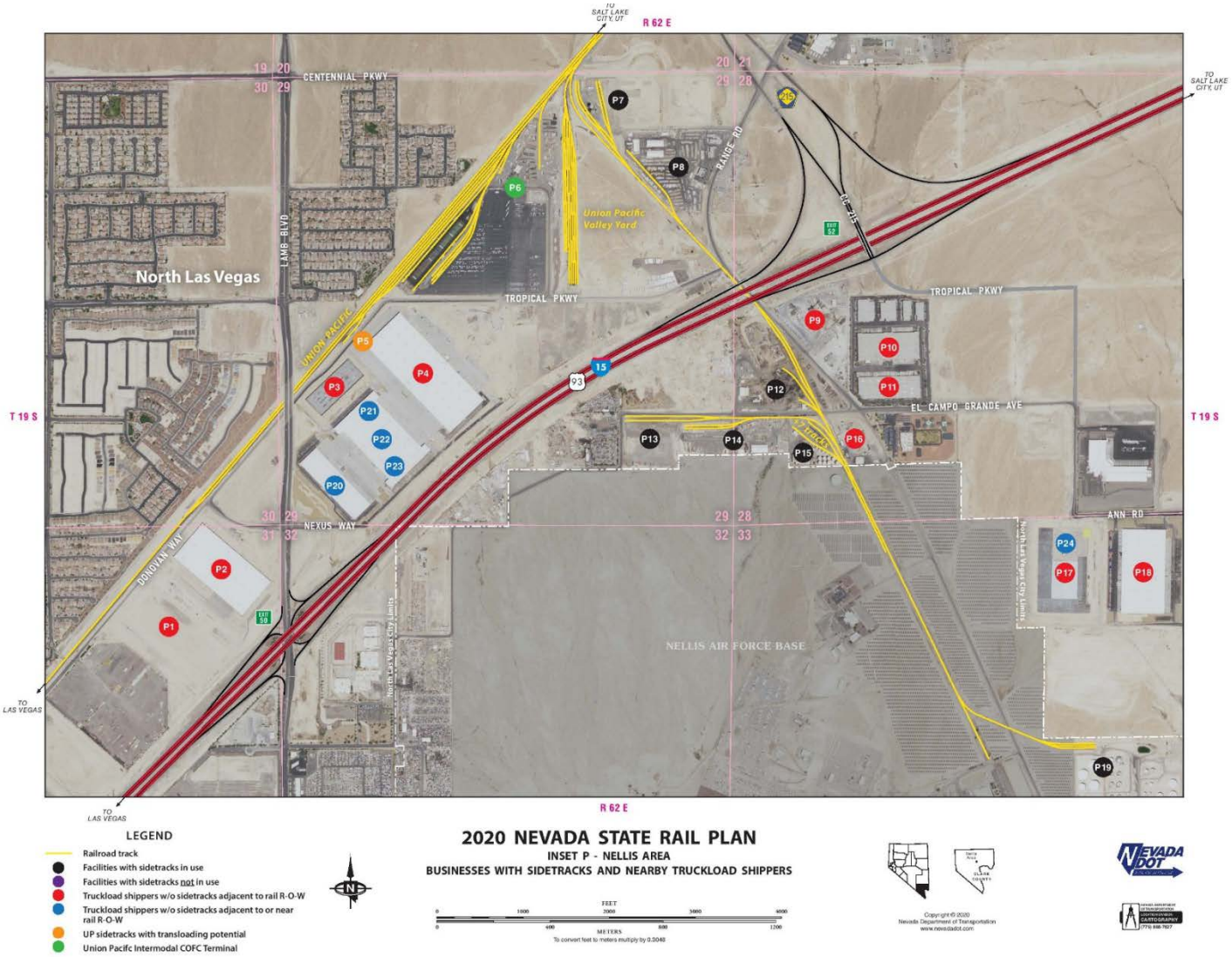


**Figure 4-5: Region 1 – North Las Vegas Area**


**Figures 4-5** and **4-6** show active and prospective rail customers that are clustered in North Las Vegas. In all, these maps show 21 businesses that use their sidetracks, 10 businesses that do not use their sidetracks, and 10 businesses located adjacent to UP right-of-way that could easily build sidetracks. Other businesses with blue tags are intermodal candidates that can also be reached with future sidetrack construction at moderate expense.

## Figure 4-5: Region 1 – Nellis Area




## Table 4-6: Region 1 – Project List

| Project Name | County | Description | Contracted Description | Commodities | Track Mi* | Cost | Company | Region | Horizon |
|---|---|---|---|---|---|---|---|---|---|
| **Blue Diamond property** | Clark | Development | Rail Connection | TBD | 0.1 | $250,000 | Blue Diamond Branch Line | 1 | 4 |
| **Ryze Renewables** | Clark | Expand rail terminal | Terminal Expansion | alternative fuel | 0.25 | $2,000,000 | Ryze Renewables | 1 | 4 |
| **Apex Industrial Park** | Clark | Connect to UP main line | Rail Connection | TBD | 4 | $5,000,000 | Land Development Associates | | |
| **Nevada National Guard's Floyd Edsall Training Complex (FETC)** | Clark | Add a rail crossing and rail connection | Rail Crossing | Material | NA | $250,000 | Nevada National Guard | | |

*miles to reach site, not including serving tracks at site

**Table 4-7: Region 1 – Active Mines**

| FID | ID # | Name | Operator | Commodity | County | Y_U83N | X_U83E |
|---|---|---|---|---|---|---|---|
| 42 | 43 | **Apex Landfill Pit** | Las Vegas Paving Corp. | Aggregate | Clark | 4027000 | 691000 |
| 43 | 44 | **Apex Lhoist Quarry** | Las Vegas Paving Corp. | Aggregate, sand | Clark | 4026900 | 687340 |
| 44 | 45 | **Apex Lhoist Quarry** | Lhoist North America | Limestone, dolomite | Clark | 4026900 | 687340 |
| 53 | 54 | **Blue Diamond Hill Mine** | Gypsum Resources, LLC | Gypsum, limestone | Clark | 3994300 | 643650 |
| 54 | 55 | **Blue Diamond Pit** | Las Vegas Paving Corp. | Sand, gravel | Clark | 3986500 | 659800 |
| 56 | 57 | **Boulder Ranch Quarry** | CTC Crushing LLC | Sand, gravel | Clark | 3978450 | 687100 |
| 64 | 65 | **El Dorado Quarry** | Portable Aggregate Producers, LLC | Sand, gravel | Clark | 3980374 | 687952 |
| 76 | 77 | **Henderson Community Pit** | Various (Bureau of Land Management manages pit) | Sand, gravel | Clark | 3980500 | 687800 |
| 78 | 79 | **Lima Nevada Gypsum Mine** | H. Lima Nevada LLC | Gypsum | Clark | 4006000 | 692840 |
| 80 | 81 | **Lone Mountain** | Las Vegas Paving Corp. | Aggregate | Clark | 4012520 | 648880 |
| 81 | 82 | **Lone Mountain** | Mel Clark, Inc. | Sand, gravel | Clark | 4008000 | 650340 |
| 82 | 83 | **Lone Mountain** | Nevada Ready Mix Corp. | Sand, gravel | Clark | 4013180 | 650790 |
| 83 | 84 | **Lone Mountain** | Wells Cargo, Inc. | Sand, gravel | Clark | 4013069 | 649060 |
| 84 | 85 | **Lone Mountain Community Pit** | Various (Bureau of Land Management manages pit) | Sand, gravel | Clark | 4013220 | 648880 |
| 85 | 86 | **Mesquite Community Pit** | BJ Rees's Enterprise | Sand, gravel | Clark | 4074700 | 760420 |
| 86 | 87 | **Mesquite Community Pit** | Various (Bureau of Land Management manages pit) | Sand, gravel | Clark | 4074700 | 760420 |
| 88 | 89 | **Money Pit** | Southern Nevada Liteweight, Inc. | Silica sand | Clark | 3961020 | 665500 |
| 96 | 97 | **PABCO Apex Quarry** | Pacific Coast Building Products, Inc. | Gypsum | Clark | 4009484 | 691057 |
| 100 | 101 | **Pole Line Pit** | Boulder Sand and Gravel, Inc. | Sand, gravel | Clark | 4009352 | 678819 |
| 103 | 104 | **Rainbow Quarries** | Las Vegas Rock, Inc. | Landscape rock, sand, gravel | Clark | 3974880 | 638780 |
| 109 | 110 | **Sierra Ready Mix Quarry** | Sierra Ready Mix, LLC | Sand, gravel | Clark | 3953030 | 653740 |
| 112 | 113 | **Simplot Silica Products Pit** | J. R. Simplot Co. | Silica sand | Clark | 4039110 | 727470 |
| 113 | 114 | **Sloan Quarry** | Aggregate Industries | Crushed stone | Clark | 3978918 | 661472 |
| 114 | 115 | **South Jean Pit** | Service Rock Products | Sand, gravel | Clark | 3955100 | 657120 |
| 116 | 117 | **Spring Mountain Pit** | Wells Cargo, Inc. | Sand, gravel | Clark | 3990171 | 657163 |

### *Regional Development Authority*

The regional Development Authority contact for this region is Perry Ursem of the Las Vegas Global Economic Alliance.

## G-2. Region 2: Lincoln County

### *Overview*

Lincoln County has a Union Pacific main line track that runs through the center of Caliente, but does not have scheduled local service, active sidings, or an operating transloading site, in spite of the presence of ample yard trackage in the center of town. Resumption of local freight train service and transloading

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activity at that location is not desired by citizens and leaders who are intent on preserving the ambience of the historic Caliente rail depot that sits alongside the yard.


**Caliente City Hall Station**

Lincoln County's low population of 5,345 residents renders each potential rail user as critical to the area's economy and the viability of renewed local rail service. Salt River Materials Group has contracted with the U.S. Bureau of Land Management (BLM) for access to the largest pozzolan deposit in the U.S., 15 miles north of Caliente. Pozzolan is used in concrete and fertilizer, instead of fly ash from coal-fired power plants, which is becoming scarce as those plants shutter. Beginning at 500 railcars per year, Salt River's growth plans would increase that volume to several thousand railcars per year, creating a solid base for the resumption of local rail service.

A Nevada bio-tech entrepreneur has been working with BLM on access to thousands of acres of invasive Pinon Pine and Juniper growth for harvesting and processing into a variety of fuels and valuable byproducts while removing a wildfire fuel. The county owns 320 acres near the state line at Crestline, alongside the UP main with available power and water. In combination with the development of local rail service, the county would like to construct a recycling facility there. Lincoln County's sparse rural

population demands that each potential industrial development opportunity be approached with multi-stakeholder creativity and collaboration.

### *Key Strategies*

- Establish truck to rail transloading site for pozzolan and future commodities
- Evaluate Crestline site for future rail-served industrial development
- Evaluate land south of Caliente town-center for future rail-served commercial development

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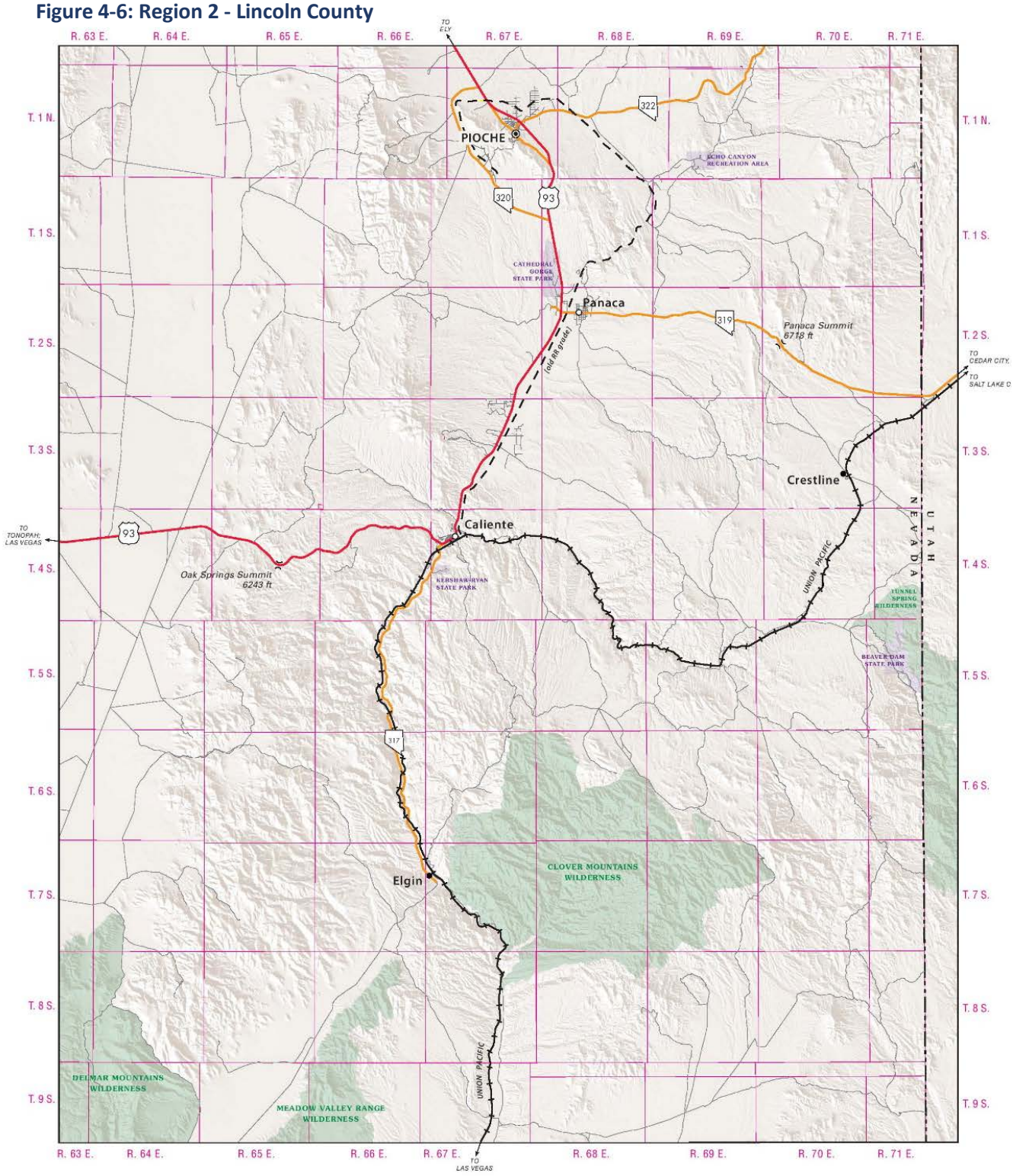
## Figure 4-6: Region 2 - Lincoln County




LEGEND

- U.S. Highway
- State Highway
- Other Road
- Railroad
- U.S. Highway Shield
- State Highway Shield
- State Boundary
- County Boundary
- City Limit
- County Seat
- City or Town center

**2020 NEVADA STATE RAIL PLAN**

**STRATEGIC REGION 2**

**LINCOLN COUNTY AREA**

MAP AREA

MILES 0 5 10 15

KILOMETERS 0 5 10 15 20 25

To convert miles to kilometers multiply by 1.609

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**Table 4-8: Region 2 – Project List**

| Project Name | County | Short Description | Contracted Description | Commodities | Track Mi* | Cost | Company | Region | Horizon |
|---|---|---|---|---|---|---|---|---|---|
| **Panaca Mines** | Lincoln | Connect to UP main line | Rail Connection | pozzolan | 15 | $22,000,000 | Salt River Materials Group | 2 | 20 |

*miles to reach site, not including serving tracks at site

**Table 4-9: Region 2 – Active Mines**

| FID | ID # | Name | Operator | Commodity | County | Y_U83N | X_U83E |
|---|---|---|---|---|---|---|---|
| 117 | 118 | **Tenacity Perlite Mine** | Wilkin Mining and Trucking Co., Inc. | Perlite | Lincoln | 4157600 | 675240 |

### *Regional Development Authority*

The regional Development Authority contact for this region is Jeff Fontaine, Lincoln County Regional Development Authority.

## G-3. Region 3: Nevada Northern Railway

### *Overview*

The Nevada Northern Railway (NNRY) is a 146-mile rail line built in 1905-06 from connections with the Southern Pacific Railroad (SP) and Western Pacific Railroad (WP) south to reach copper deposits west of Ely. The copper largely played out by 1978 and a copper smelter in McGill closed in 1983, when all railroad operations ceased. In 1986, the last operating owner, Kennecott Copper, transferred all rail assets to a non-profit, the White Pine Historical Railroad Foundation, which leases a short segment around Ely for a tourist rail operation. In 2009, White Pine Historical Railroad Foundation leased the northern 128.5 miles to a car storage operator, but that has not proven to be viable and a suit was initiated in 2015 to evict the operator from the property.


***Nevada Northern Boxcars***

***Nevada Northern Passenger Cars***

Because the original 60-pound rail (weight per 3-foot section) from 1905-06 was never upgraded for most of the NNRY's length, the resumption of standard operations with modern heavy cars and engines would require the replacement of most of NNRY'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. Promising prospects for expanded mining near the NNRY right-of-way include the Long Canyon gold mine (4 miles west of milepost 7), the Victoria copper & silver mine (8 miles west of MP 53), the Kinsley gold mine (21 miles east of MP 71), the Robinson copper mine (1-mile south of MP 145, which currently trucks copper ore to Wendover, UT for transloading into railcars), and the Pan gold mine and Gold Rock gold mine (40 miles west of MP 148). There are also expanding hemp operations now at 2,500 acres, and hay growing areas north of Ely, which consume much fuel and lime in bulk and ship all over the West.

*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 NNRY
- Proceed to structure a development, operating, and funding strategy that serves all stakeholders

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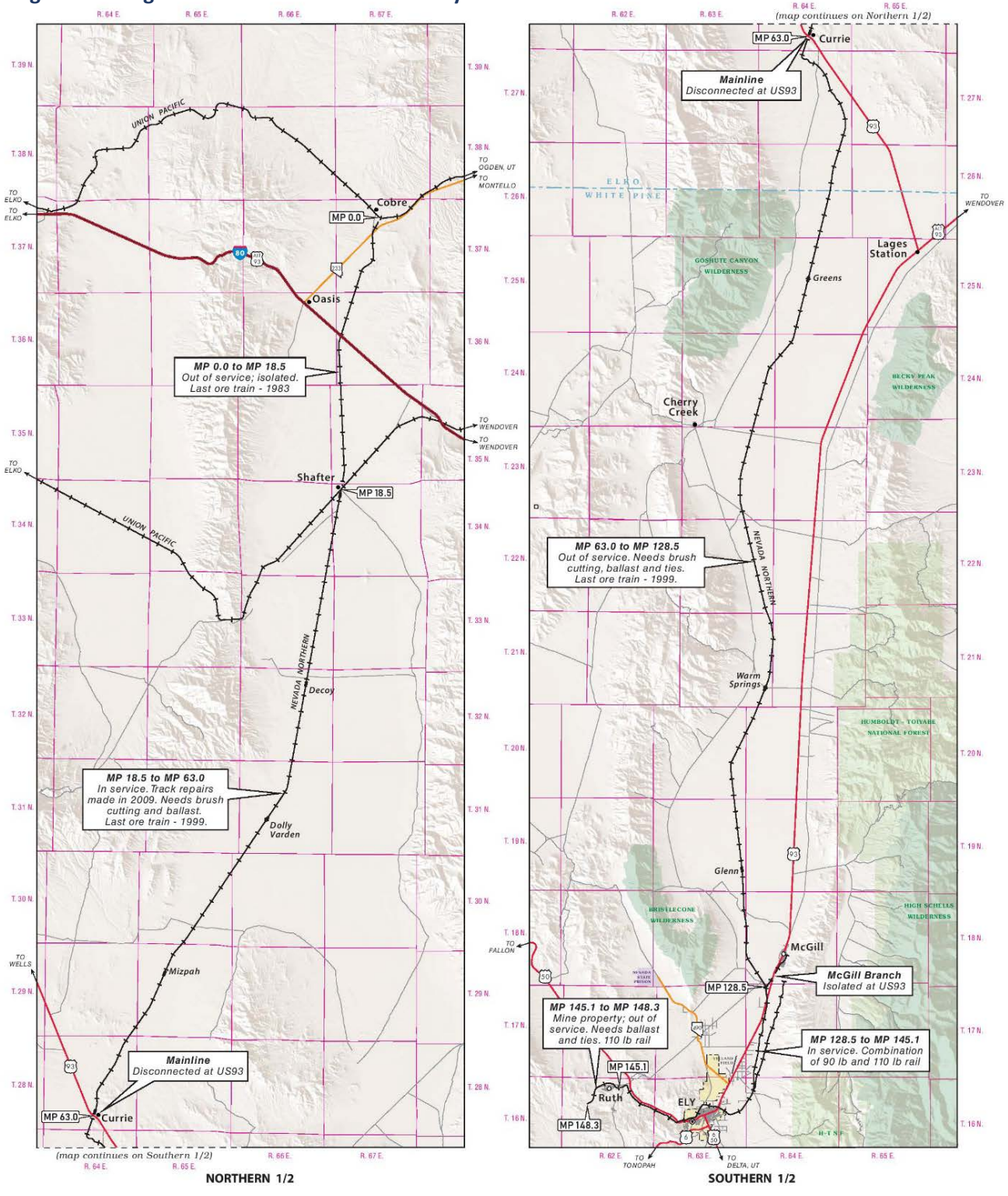
## Figure 4-7: Region 3 - Nevada Northern Railway



## Table 4-10: Region 3 – Project List

| Project Name | County | Short Description | Contracted Description | Commodities | Track Mi* | Cost | Company | Region | Horizon |
|---|---|---|---|---|---|---|---|---|---|
| **Victoria Mine** | Elko | Connect to Nevada Northern | Rail Connection | copper, silver, fuel, lime, etc. | 8 | $12,000,000 | US Mine Corporation | 3 | 4 |
| **Long Canyon Mine** | Elko | Connect to Nevada Northern | Rail Connection | refractory ore, I/B fuel, lime | 2 | $3,000,000 | Nevada Gold Mines | 3 | 4 |
| **Pan & Gold Rock Mines** | White Pine | Transloading on Nevada Northern | Transload | cyanide, sulfates | 0.1 | $200,000 | Kinross Gold | 3 | 4 |
| **Silver Lion Farms** | White Pine | Transloading on Nevada Northern | Transload | I/B fuel, fertilizer; O/B hemp | 0 | $200,000 | Silver Lion Farms | 3 | 4 |
| **Robinson Mine** | White Pine | Re-connect to Nevada Northern | Rail Connection | O/B copper concentrate; I/B fuel, lime, steel balls | 1 | $1,000,000 | Robinson Mine | 3 | 4 |
| **Kinsley Mine** | White Pine | Transloading on Nevada Northern | Transload | cyanide, sulfates | 0.1 | $200,000 | Liberty Gold | 3 | 4 |
| **Nevada Northern Railway** | White Pine | Rebuild track and Rt. 93 rail crossing | Track Rebuild | copper, hemp, fuel, tourists | 128 | $100,000,000 | Nevada Northern Railway | 3 | 4 |

*miles to reach site, not including serving tracks at site

## Table 4-11: Region 3 – Active Mines

| FID | ID # | Name | Operator | Commodity | County | Y_U83N | X_U83E |
|---|---|---|---|---|---|---|---|
| 9 | 10 | **Emigrant Mine (open pit)** | Newmont Mining Corp. | Gold, silver | Elko | 4496802 | 586981 |
| 13 | 14 | **Hollister Mine (underground mine)** | Hecla Mining Co. | Gold, silver | Elko | 4550620 | 536640 |
| 19 | 20 | **Goldstrike Meikle Mine (underground mine)** | Barrick Goldstrike Mines, Inc. | Gold, silver | Elko | 4539278 | 551865 |
| 21 | 22 | **Jerritt Canyon Mine (underground mines)** | Jerritt Canyon Gold LLC (joint venture with Sprott Mining Inc., 80%; Whitebox Asset Management, 20%) | Gold, silver | Elko | 4579621 | 583571 |
| 25 | 26 | **Long Canyon Mine (open pit)** | Newmont Mining Corp. | Gold | Elko | 4539742 | 708395 |
| 27 | 28 | **Midas Mine (underground mine)** | Hecla Mining Co. | Gold, silver | Elko | 4565942 | 518521 |
| 55 | 56 | **Boehler Pit** | Staker Parson Co. | Sand, gravel | Elko | 4522100 | 606780 |
| 65 | 66 | **Elburz Pit** | Vega Construction and Trucking Co. | Sand, gravel | Elko | 4533600 | 622900 |
| 99 | 100 | **Pilot Peak Quarry** | Graymont Western US., Inc. | Limestone | Elko | 4522627 | 731144 |
| 137 | 138 | **Elko Hot Springs** | Elko County School District | Space Heating | Elko | 4521706 | 604406 |
| 152 | 153 | **Tuscarora** | Ormat Nevada, Inc. | Electricity | Elko | 4590782 | 570913 |
| 158 | 159 | **Huntington** | Noble Energy, Inc. | Oil | Elko | 4474961 | 607223 |
| 1 | 2 | **Bald Mountain Mine (open pit)** | KG Mining (Bald Mountain), Inc. | Gold, silver | White Pine | 4422307 | 624496 |
| 29 | 30 | **Pan Mine (open pits)** | Fiore Gold, Ltd. | Gold, silver | White Pine | 4349710 | 609300 |
| 32 | 33 | **Robinson Mine (open pits)** | KGHM International, Ltd. | Copper, gold, molybdenum, silver | White Pine | 4347450 | 674222 |
| 89 | 90 | **Mount Moriah Quarry** | Mount Moriah Stone Quarries, LLC | Building stone, landscape rock | White Pine | 4343795 | 751603 |

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### *Regional Development Authority*

The regional Development Authority contact for this region is Sheldon Mudd, Northeastern Nevada Regional Development Authority.

## G-4. Region 4: I-80 Corridor

### *Overview*

The I-80 corridor from W. Wendover to Lovelock can benefit from a rail-enabled development strategy that embraces the potential connected nature of this corridor—towns connected with each other and the corridor connected with California, ocean ports, and points east. The counties and towns throughout this northern Nevada corridor share adjacency to the Interstate 80 Freeway and two UP main line tracks that traverse the entire state. Despite the presence of the physical infrastructure of these rail lines, limited local rail service and therefore limited connections east and west constrain the commercial opportunities for businesses and communities along this otherwise vital trade corridor.


***Trucks on Interstate 80***

This is an area of intense mining activity, where there are already 36 active private sidetracks that mostly support movement of mining materials. There are also 52 in-service sidetracks owned by UP that

would be suitable for rail/truck transloading. The construction of new branch lines to new mining areas is a growing possibility. For example, the impact of trucks using Highway 766 north out of Carlin to reach the Goldstrike gold processing facilities could be mitigated with a new branch line to Goldstrike. And the impact of trucks using U.S. 95 north out of Winnemucca to reach the pending Thacker Pass lithium mine and processing facility could be mitigated with a new branch line to Thacker Pass.

***Northeastern Nevada Regional Railport***

There are a multitude of idiosyncratic rail opportunities. For example, EP Minerals, which has three private sidetracks in Colado, loads 4500 containers of diatomaceous earth per year for export through the Port of Oakland. EP ships its containers to Oakland by truck. Baker Hughes Oilfield Operations operates a large barite mine in Argenta with two private sidetracks in use. Barite is used as a thickening agent in drilling mud. Most of the barite used in the Permian Basin, which produced 40% of the oil & gas in the U.S. in 2019, is trucked into Texas at great expense from Mexico. The common denominator of rail opportunities across Region 4 is the need for individual attention to unique circumstances.

Nevada's mining suppliers and mining producers, heavily concentrated in Region 4 can build new strategic supply partnerships around the intrastate transportation of material by rail.

### *Key Strategies*

- Initiate a rail-enabled, corridor-wide development strategy

  This strategy will provide a cohesive organizing principle around which stakeholders can plan land use and business attraction. The success of this strategy begins with two steps:

  a) Turning these two important rail line arteries toward *serving* the region, not just carrying freight *through* the region, and

b) Implement the NVSRP's comprehensive rail-centric supply chain strategy for the mining industry. *Read more about this strategy in C-2. Mining Materials Supply Chain Logistics Strategy.*

Attending initially to mining, the largest industry in the region, will enable the growth of local rail service that would then be in an ideal position to serve other commodities and economic development efforts.

Economic development leaders throughout the corridor shared these observations:

a) Approximately one-third of industrial prospects want access to rail service.
b) The real or perceived lack of rail-served properties handicaps their economic development efforts.

Sheldon Mudd, Executive Director of the Northeastern Nevada Regional Development Authority (NNRDA) reported that in the two years since he has been with NNRDA a total of 35 Requests for Information (RFI) or Company Leads have registered their interest in this region. Of those, 12 (or 34%) requested property with access to rail – most specifically requesting a spur line into their site.

The region has benefited from landing two of those companies resulting in $65MM worth of capital investment and approximately 40 new jobs. Another prospect is expected to yield up to $1B in capital investment and roughly 20 jobs. The rest have been lost meaning that the region missed out on $1.6B in capital investment and approximately 4,700 jobs, many due to shortcomings in the process of offering rail service. Improved awareness of and support for rail logistics decision-making will directly result in the development and enhancement of new and existing industry in the region.

There is an abundance of interest among Region 4 economic development and community leaders in rail-based activity. Their efforts will benefit from a deeper education on the commercial, operational, and physical characteristics of rail operations. This knowledge is critical to choosing properties that are conducive to efficient rail operations. Well-conceived land use decisions lead to local rail-served industrial development that undergirds a corridor-wide supply chain logistics strategy.

Here is an outline of the steps for establishing the foundation of an I-80 Corridor rail-enabled development strategy:

**A. Illuminate the Current Status of Rail**

a. Existing rail activity- (Partially Completed)
b. Existing rail track and facilities-(Completed)
c. Name and location of all rail shippers and receivers-(Completed)
d. Identification of all businesses that were shipping or receiving by rail and are not currently-(Completed)
e. Location and growth capacity of transloading operations-(Completed)
    i. Private facility only
    ii. Public service available
f. UP and BN service characteristics- (Partially Completed)

**B. Identify the Opportunities**

a. Pinpoint potential transloading sites-(Completed)

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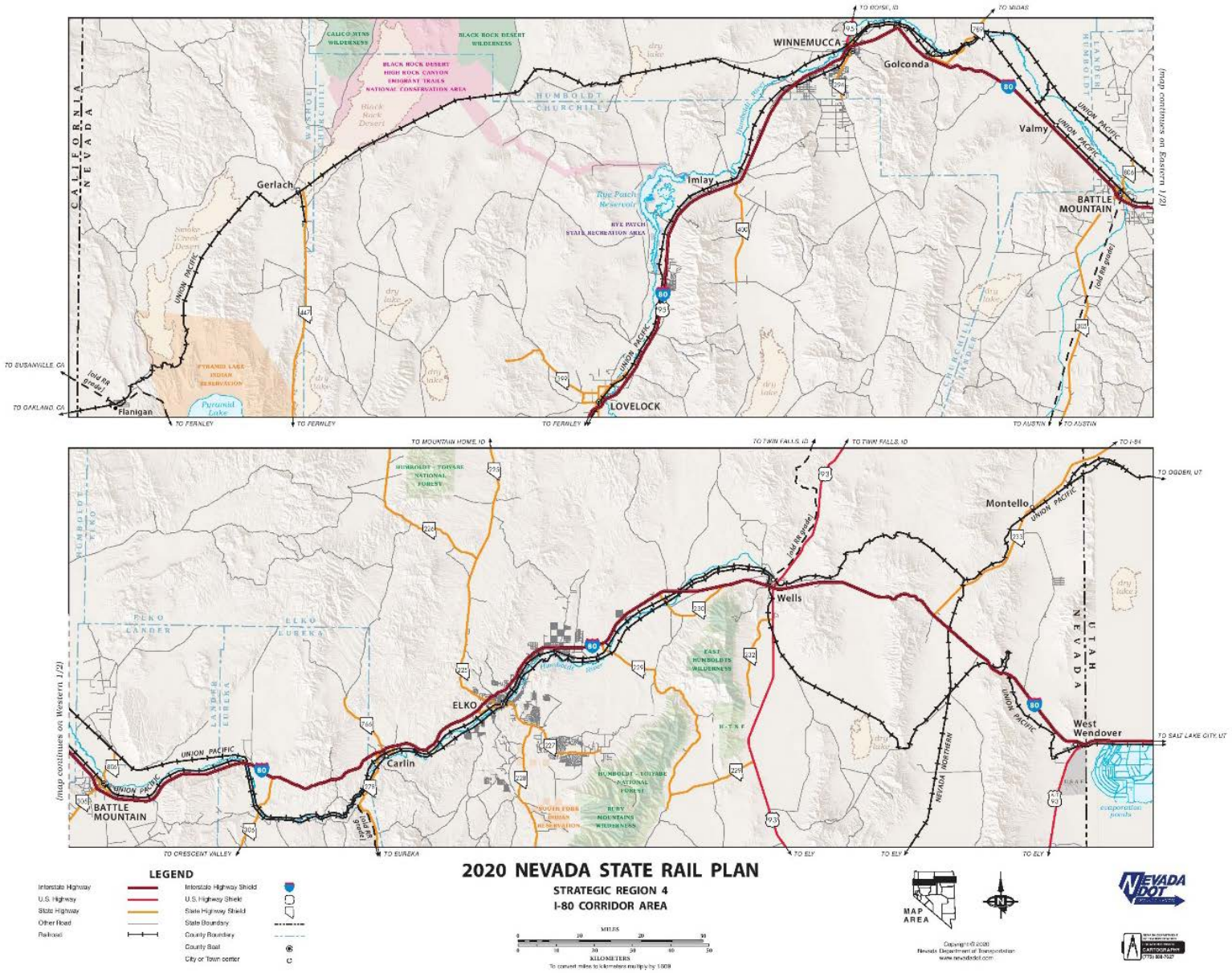
b. Identify shippers and receivers that should be contacted-(Completed)
c. List land that has been identified and invested in by local government for rail-served industry
d. Identify land that is attractive for rail service that has not been invested in by local government
e. Assess what will be required to provide rail service at each of these properties
f. Identify each of the major rail infrastructure projects under consideration- (Partially Completed)
g. Complete the *Mining Materials Supply Chain Logistics Strategy*-(Outlined)

**Figure 4-8: Region 4 - I-80 Corridor**



## Table 4-12: Region 4 – Project List

| Project Name | County | Short Description | Contracted Description | Commodities | Track Mi* | Cost | Company | Region | Horizon |
|---|---|---|---|---|---|---|---|---|---|
| **NGM Rail Connections** | Eureka & Lander | Connect Cortez & Goldrush mines to Goldstrike gold processing facilities | Rail Connection | refractory ore, I/B fuel, lime, ammonium nitrate, sulfuric, peroxide, cyanide, ash, etc. | 50+ | $100,000,000 | Nevada Gold Mines | 4 | 4 |
| **Midas Mine** | Humboldt | Connect to UP main line | Rail Connection | refractory ore, I/B fuel, lime | 30 | $60,000,000 | Hecla Mines | 4 | 4 |
| **Repurpose Sewer Treatment Property** | Humboldt | Build connection to UP | Rail Connection | TBD | 0.1 | $1,000,000 | City of Winnemucca | 4 | 4 |
| **Thacker Pass Project** | Humboldt | Connect to UP main line | Rail Connection | I/B molten sulfur, caustic soda, cyanide, soda ash, fuel | 50 | $100,000,000 | Lithium Nevada Corporation | 4 | 4 |
| **Fire Creek Mine** | Lander | Connect to UP main line | Rail Connection | refractory ore, I/B fuel, lime | 15 | $30,000,000 | Hecla Mines | 4 | 4 |
| **Wells Heavy Industrial Park** | **Elko** | Connect to UP main line | Rail Connection | TBD | .1 | $4,000,000 | City of Wells | **4** | **4** |
| **Lander County Railpark** | **Lander** | Connect to UP main line | Rail Connection | TBD | .1 | $2,000,000 | Lander County | **4** | **4** |

*miles to reach site, not including serving tracks at site

## Table 4-13: Region 4 – Active Mines

| FID | ID # | Name | Operator | Commodity | County | Y_U83N | X_U83E |
|---|---|---|---|---|---|---|---|
| 3 | 4 | **Chukar (underground mine)** | Newmont Mining Corp. | Gold, silver | Eureka | 4514625 | 565713 |
| 10 | 11 | **Exodus Mine (underground)** | Newmont Mining Corp. | Gold, silver | Eureka | 4530175 | 553868 |
| 15 | 16 | **Gold Quarry (open pit)** | Newmont Mining Corp. | Gold, silver | Eureka | 4515151 | 565991 |
| 16 | 17 | **Goldstar (formerly West Genesis) (open pit)** | Newmont Mining Corp. | Gold, silver | Eureka | 4533815 | 552725 |
| 17 | 18 | **Goldstrike Arturo Mine Project (open pit)** | Barrick Goldstrike Mines, Inc. (joint venture with Premier Mines Ltd., 40%) | Gold, silver | Eureka | 4543001 | 548221 |
| 18 | 19 | **Goldstrike Betze-Post (open pit)** | Barrick Goldstrike Mines, Inc. | Gold, silver | Eureka | 4537038 | 551878 |
| 22 | 23 | **Leeville Mine (underground mine)** | Newmont Mining Corp. | Gold, silver | Eureka | 4531532 | 556645 |
| 30 | 31 | **Pete-Bajo Mine (underground mine)** | Newmont Mining Corp. | Gold, silver | Eureka | 4528190 | 559441 |
| 34 | 35 | **Ruby Hill Mine (leaching old pads)** | Ruby Hill Mining Co., LLC | Gold, silver | Eureka | 4375649 | 587385 |
| 35 | 36 | **Silverstar (formerly Genesis) (open pit)** | Newmont Mining Corp. | Gold, silver | Eureka | 4533745 | 553720 |
| 93 | 94 | **Nevada Barth Iron Mine** | Saga Exploration Co. | Iron ore | Eureka | 4492240 | 562180 |
| 155 | 156 | **Blackburn** | Grant Canyon Oil and Gas, LLC | Oil | Eureka | 4453769 | 573200 |
| 163 | 164 | **Tomera Ranch** | Tomera Oil Fields, LLC | Oil | Eureka | 4485941 | 574331 |
| 20 | 21 | **Hycroft Mine (open pits)** | Hycroft Resources and Development, Inc. | Gold, silver | Humboldt | 4526602 | 358640 |

| FID | ID # | Name | Operator | Commodity | County | Y_U83N | X_U83E |
|---|---|---|---|---|---|---|---|
| 23 | 24 | **Lone Tree Complex (leaching old pads)** | Newmont Mining Corp. | Gold, silver | Humboldt | 4520101 | 482251 |
| 24 | 25 | **Lone Tree Mine (Brooks Pit) (open pit)** | Newmont Mining Corp. | Gold, silver | Humboldt | 4518782 | 479712.1 |
| 26 | 27 | **Marigold Mine (open pits)** | SSR Mining | Gold, silver | Humboldt | 4507224 | 485220 |
| 38 | 39 | **Turquoise Ridge Joint Venture (underground mine)** | Barrick Gold Corp. (joint venture with Newmont Mining Corp., 25%) | Gold | Humboldt | 4562779 | 479465 |
| 39 | 40 | **Twin Creeks Mine (open pit and underground mine)** | Newmont Mining Corp. | Gold, silver | Humboldt | 4566061 | 485471 |
| 87 | 88 | **MIN-AD Mine** | MIN-AD, Inc. | Dolomite | Humboldt | 4525800 | 440120 |
| 123 | 124 | **Bonanza Opal Mine** | Bonanza Opal Mines, Inc. | Precious opal | Humboldt | 4633240 | 327520 |
| 127 | 128 | **Rainbow Ridge Opal Mine** | Rainbow Ridge Opal Mines, Inc. | Opalized wood, precious opal | Humboldt | 4628820 | 332830 |
| 128 | 129 | **Royal Peacock Opal Mine** | Royal Peacock Opal Mine, Inc. | Precious opal | Humboldt | 4628180 | 326360 |
| 130 | 131 | **Blue Mountain** | AltaRock Energy | Electricity | Humboldt | 4538407 | 404447 |
| 5 | 6 | **Cortez Hills (open pit)** | Barrick Cortez, Inc. | Gold, silver | Lander | 4446701 | 533501 |
| 6 | 7 | **Cortez Hills (underground mine)** | Barrick Cortez, Inc. | Gold, silver | Lander | 4446420 | 533387 |
| 7 | 8 | **Cortez Pipeline Mine (open pit)** | Barrick Cortez, Inc. | Gold, silver | Lander | 4455317 | 524233 |
| 11 | 12 | **Fire Creek Mine (underground)** | Hecla Mining Co. | Gold, silver | Lander | 4479271 | 529591 |
| 31 | 32 | **Phoenix Mine (open pits)** | Newmont Mining Corp. | Gold, copper, silver | Lander | 4488081 | 488921 |
| 45 | 46 | **Argenta Mine** | Baker Hughes Oilfield Operations, Inc. | Barite | Lander | 4498100 | 523540 |
| 72 | 73 | **Greystone Mine** | M-I Swaco | Barite | Lander | 4457850 | 510540 |
| 90 | 91 | **Mountain Springs Mine** | M-I Swaco | Barite | Lander | 4462620 | 496480 |
| 126 | 127 | **May Turquoise Mine** | Red Widow Mine Co. | Turquoise | Lander | 4466496 | 527135 |
| 129 | 130 | **Beowawe** | Terra-Gen Power, LLC | Electricity | Lander | 4489415 | 532398 |
| 141 | 142 | **McGinness Hills, McGinness Hills II, III** | Ormat Nevada, Inc. | Electricity | Lander | 4382385 | 507530 |
| 4 | 5 | **Coeur Rochester Mine (open pit)** | Coeur Rochester, Inc. | Silver, gold | Pershing | 4460022 | 402550 |
| 12 | 13 | **Florida Canyon Mine (open pits)** | Alio Gold (US), Inc. | Gold, silver | Pershing | 4492602 | 395130 |
| 37 | 38 | **Sunrise Gold Placer Mine** | Sunrise Minerals LLC | Gold | Pershing | 4509602 | 419820 |
| 57 | 58 | **Buff-Satin Mine (stockpile)** | Vanderbilt Minerals Corp. | Clay | Pershing | 4454650 | 385140 |
| 61 | 62 | **Colado Mine** | EP Minerals, LLC | Diatomite, perlite | Pershing | 4460730 | 352910 |
| 66 | 67 | **Empire Mine** | Empire Mining Co. | Gypsum | Pershing | 4485750 | 304800 |
| 73 | 74 | **Gypsum Mountain Mine** | Silver State Minerals, LLC | Gypsum | Pershing | 4448381 | 382857 |
| 92 | 93 | **Nassau (Section 8) Mine (stockpile)** | American Colloid Co. | Clay | Pershing | 4453880 | 388920 |
| 104 | 105 | **Relief Canyon Quarry** | Nevada Cement Co. | Limestone | Pershing | 4449781 | 401478 |
| 108 | 109 | **Sexton Mine** | Nutritional Additives Corp. | Dolomite | Pershing | 4522140 | 438740 |
| 140 | 141 | **Jersey Valley** | Ormat Nevada, Inc. | Electricity | Pershing | 4448142 | 458876 |

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*Regional Development Authority*

The regional Development Authority contact for this region is Sheldon Mudd, Northeastern Nevada Regional Development Authority.

## G-5. Region 5: Fernley/Hazen/Fallon/Silver Springs/Innovation Park

*Overview*

The salient factor for Region 5 is intense interest in developing new industrial parks. The following new projects are in various stages of development.

**Table 4-14: Region 5 Industrial Parks Under Development**

| Industrial Parks in Fernley-Hazen-Fallon-Silver Springs-Sparks | | | |
|---|---|---|---|
| **Name** | **Acreage** | **Location** | **Distance from Rail** |
| Pyramid Commercial Center* | 3,333 | NW of Wadsworth | 2 mi., former R-O-W |
| Victory Logistics | 3,894 | NE of Fernley | Abuts 2 branch lines |
| Tahoe Reno Industrial II | 6,345 | SW of Fernley | 3 mi. to closest parcel |
| Northern Nevada Industrial Center | 20,251 | Stagecoach | 7 mi. to Mina Branch |
| Silver Springs Opportunity Fund | 2,746 | Silver Springs | ½ mi. to 4 parcels |
| Geothermal Rail/Dark Horse Rail | 3,177 | NW of Hazen | 2 parcels abut main line |
| Western Nevada Rail Park | 226 | NW of Hazen | In operation on main line |
| Churchill Hazen Industrial Park | 2,308 | S of Hazen | Abuts 2 branch lines |
| Lahontan Rail Industrial Park | 620 | NE of Silver Springs | Abuts Mina Branch |
| Tahoe-Reno Industrial Center | 19,749 | Storey County | Limited rail is present |
| Innovation Park | 67,000 | Storey County | Rail is adjacent |
| 40-Mile Desert Project | 25,000 | Churchill County | Abuts UP main east of Hazen |
| Unnamed project, City of Fallon* | 3,625 | NW of Fallon | 1 mi to Fallon Branch |
| Unnamed project, City of Fallon* | 3,070 | NE of Fallon | 1 mi to Fallon Branch |
| **Total** | **161,344** | **acres** | |

**land deals not finalized*

Integrating these Fernley area developments with rail infrastructure and service is important to the state as well as the country, given their size and location on the corridor to and from California. For reference, the entire land mass of Salt Lake City, UT is 70,000 acres and San Francisco, CA covers 71,000 acres.

While some land and economic development leaders do not consider rail service to be a salient selling point, most of the current project sponsors are working on rail-served industrial parks. Even those

developers that have been low-key about rail in the past are expressing their interest in providing rail service to enhance the attractiveness of their properties.

***Branch line in the Tahoe-Reno Industrial Center***

Innovation Park is the name for the 67,000-acre development planned by Blockchains, Inc. acquired from the developers of the Tahoe-Reno Industrial Center. The brand may be in the process of also being applied to the 20,000-acres remaining within the Tahoe-Reno Industrial Center. Its total land mass of 107,000 acres makes it one of the top three largest industrial parks in the world.[33] The Tahoe-Reno Industrial Center is a vibrant industrial park, yet largely dependent upon trucks for freight. Of its 35 tenants with shipping needs of at least truckload quantities only 6 (17%) use rail. Our analysis suggests only 2-4% of freight flowing into and out of this development utilizes rail. Tesla, for instance, ships an average of 52 truckloads of auto parts per night (round trip) from its Gigafactory in Innovation Park over the Donner Pass to its assembly plant in Fremont, CA. The Fremont facility already has adjacent rail, and a routing for a new 2.5-mile spur to connect the Gigafactory to rail has been identified. This one project would enable the elimination of 36,400 truck trips a year on I-80 through Sparks, Reno, and northern California.

[33] World Atlas website, "The World's Largest Industrial Areas" article, source link, published June 10, 2019.

### *Key Strategies*

- Support existing industrial parks and shippers in connecting to rail by attending to their specific logistics requirements and current rail infrastructure.

In our engagement with land developers some believed rail could not be constructed to their properties. Months of dialogue in the Region uncovered a series of conflicting beliefs about where in the Tahoe-Reno Industrial Center rail could and could not be constructed and used, due to possible steep grades, tight curves, or poor engineering and construction. However, track inspection has shown the existing track to be adequate for servicing the park's tenants located adjacent to the rail corridor and topographical analysis conducted by NDOT in 2020 has identified a viable route to connect the remainder of the park tenants to rail, including Tesla, as well as the nearby Innovation Park acreage.

- Support new land developers in the Fernley/Hazen/Fallon/Silver Springs corridor in their efforts to develop rail service.

The high number of vast land developments underway in Region 5 presents one of the state's most urgent opportunities to improve economic well-being and environmental sustainability through the logistics efficiencies of rail. Continuing the engagement with new land developers in this part of the region is needed to encourage their utilization and promotion of rail freight service in their industrial developments. It is crucial to continue to provide on-going support to these developers as they navigate the often-challenging process of dealing with railroads, tenants, federal government, state entities and other stakeholders when trying to enable rail service to their sites.

One 4,000-acre development in the region was operating under the misunderstanding that a viable rail connection could not be constructed to their property. NDOT's preliminary topographical analysis has established two rail right-of-way alignments that could be used to build in rail service.

This is a major opportunity for the region to secure rail freight service and address the current over-dependence on trucking freight because of the large scale of these new industrial sites. The largest land developers in Region 5 contacted by SRF have indicated they see rail as a core element of their land development. The developments that were accounted for via Land Development Project Assessment forms (Appendix Item) completed by developers include approximately 40,000 acres of land with 9,000 acres of industrial space being available in 2021 and 2022. All these developers are located aside or close to the UPRR Main line and 75% have industrial lead track status in place or accessible. The majority also have their industrial sites rail engineered with Union Pacific approval in place.

- Complete a detailed business case analysis of Fernley Multimodal Freight Facility.

In parallel to the NVSRP report SRF has also completed a feasibility study for the Northern Nevada Development Agency (NNDA) (Appendix Item) The study concluded that locating a new multimodal

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freight facility at Fernley is commercially feasible and will result in a significant conversion of truck freight to rail. The feasibility study identifies the potential for; 1) conversion of existing through-region truck freight, 2) conversion of existing truck freight out of the region, and 3) generation of new out of region freight flows.

The study proposes an Integrated Multimodal Cargo Transfer Facility (IMCTF) model for the Region to maximize the economic benefits of freight rail utilization. Unlike traditional multimodal terminals which are focused on container freight, the IMCTF model accommodates multiple freight types and a large land footprint. These aspects are important because the Fernley IMCTF will be able to capture the regional demand for mining and manufactured freight as well as containers. The additional land capacity of the Region is also a key factor as it enables the Fernley facility to offer extended freight services such as transloading and warehouse operations.

- Focus on rail development opportunities along the Fallon Branch, especially near the town of Fallon
- Reinstitute commercial service on the Mina Branch to Hawthorne, thereby stimulating rail activity that can utilize new logistics services in Fernley area
- Continue and expand stakeholder engagement and collaboration

This region is currently dominated by truck freight, accounting for 90% of all current freight flows. Although this report has identified major opportunities for increasing rail freight traffic, supported by land developers openly encouraging rail development, successfully achieving this potential will be dependent upon numerous stakeholders. Stakeholder engagement and collaboration is therefore of crucial importance.

A Guide to Region 5 Industrial Park Insets

The following nine maps, beginning with an overview map of all major industrial developments (Tim Tucker's planned 40-mile Desert Project is not shown) zoom in on the planned industrial parks listed previously. Region 5 is a hotbed of such activity due to the proximity of California and the lack of such large areas of developable land to the west in Region 6. Intense pressure on I-80 from traffic congestion, pavement degradation, and the incidence of truck accidents can be relieved through the proactive facilitation of rail service into these developments.

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## Figure 4-9: Region 5 – Industrial Parks

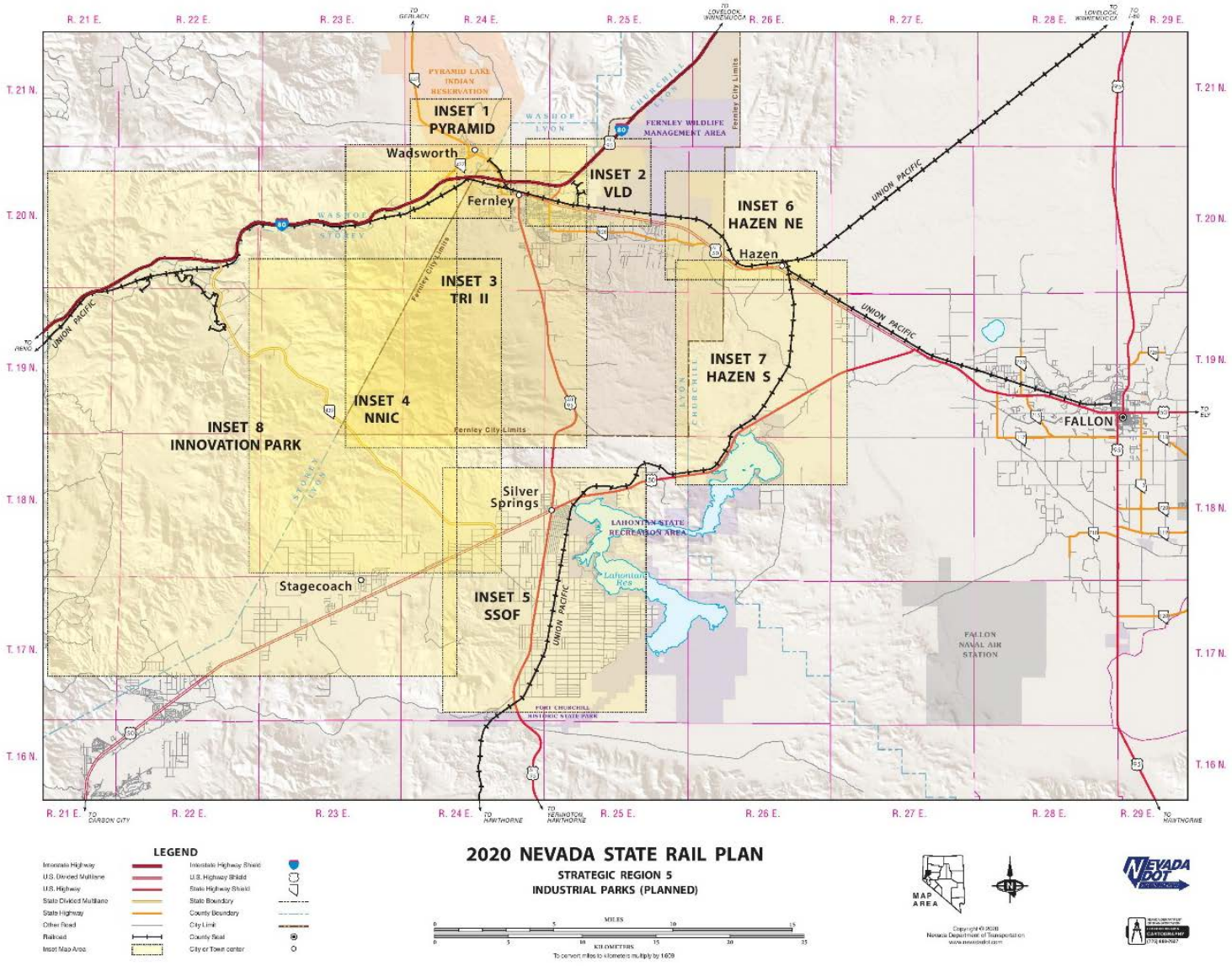
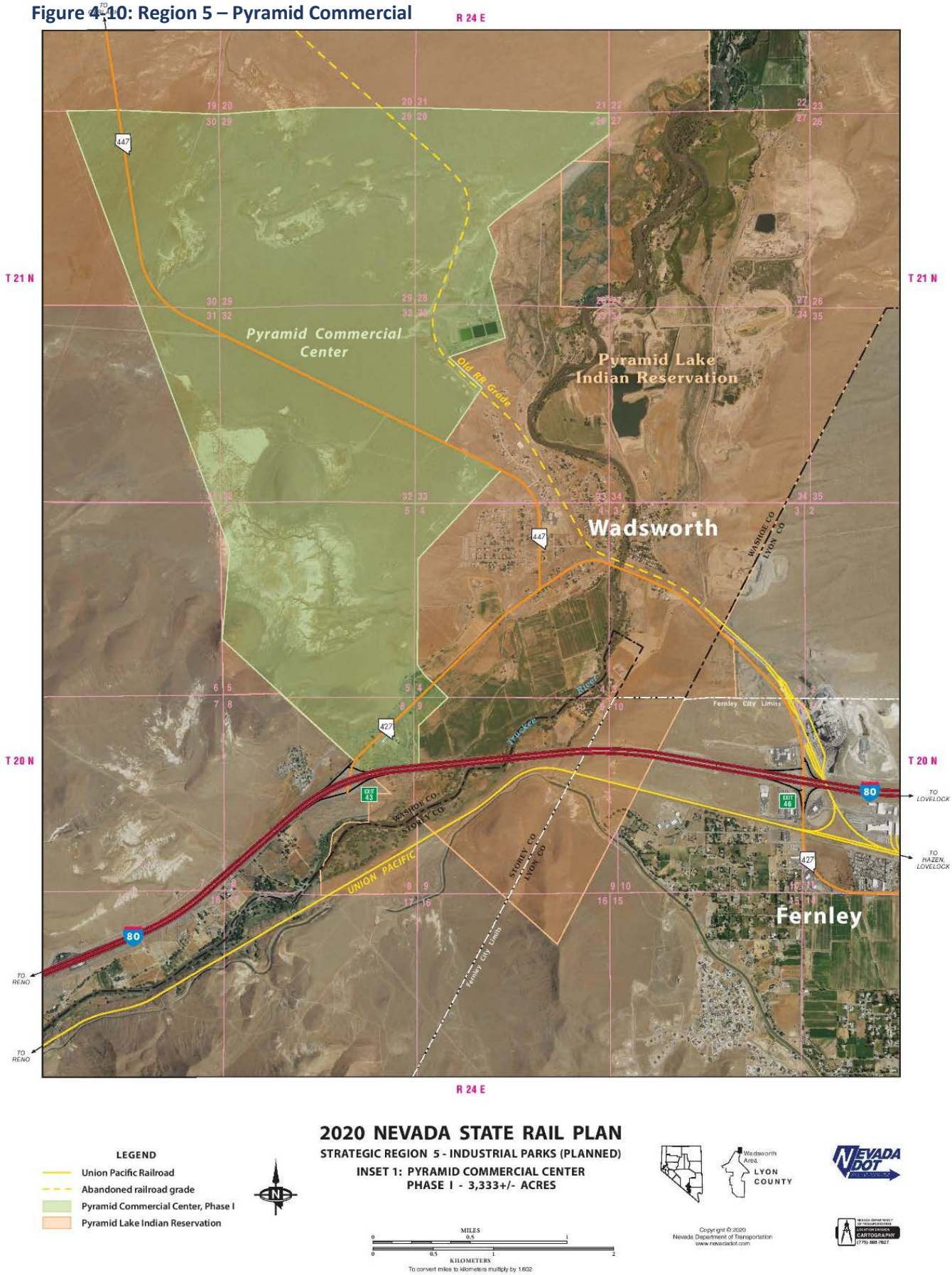
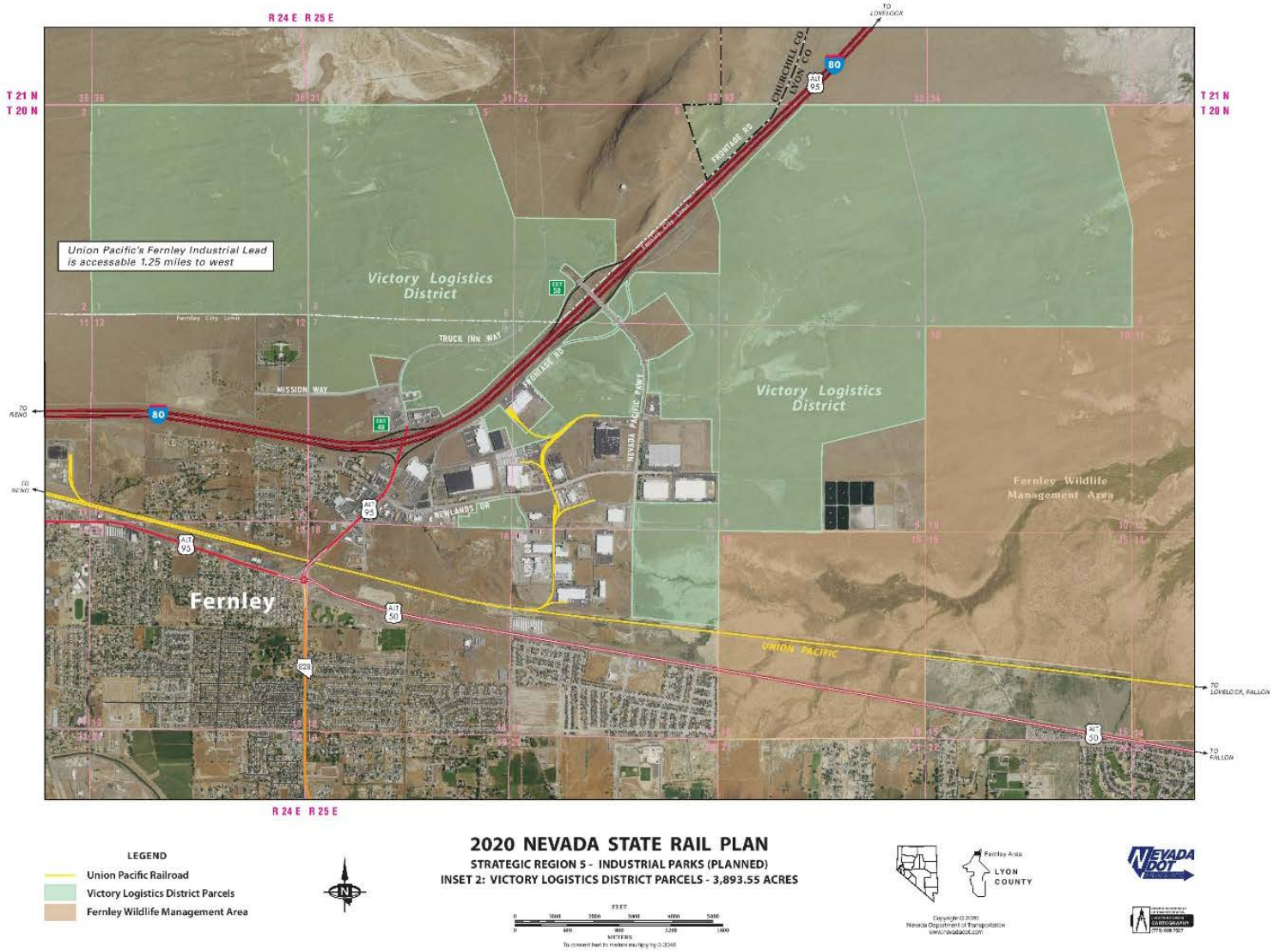


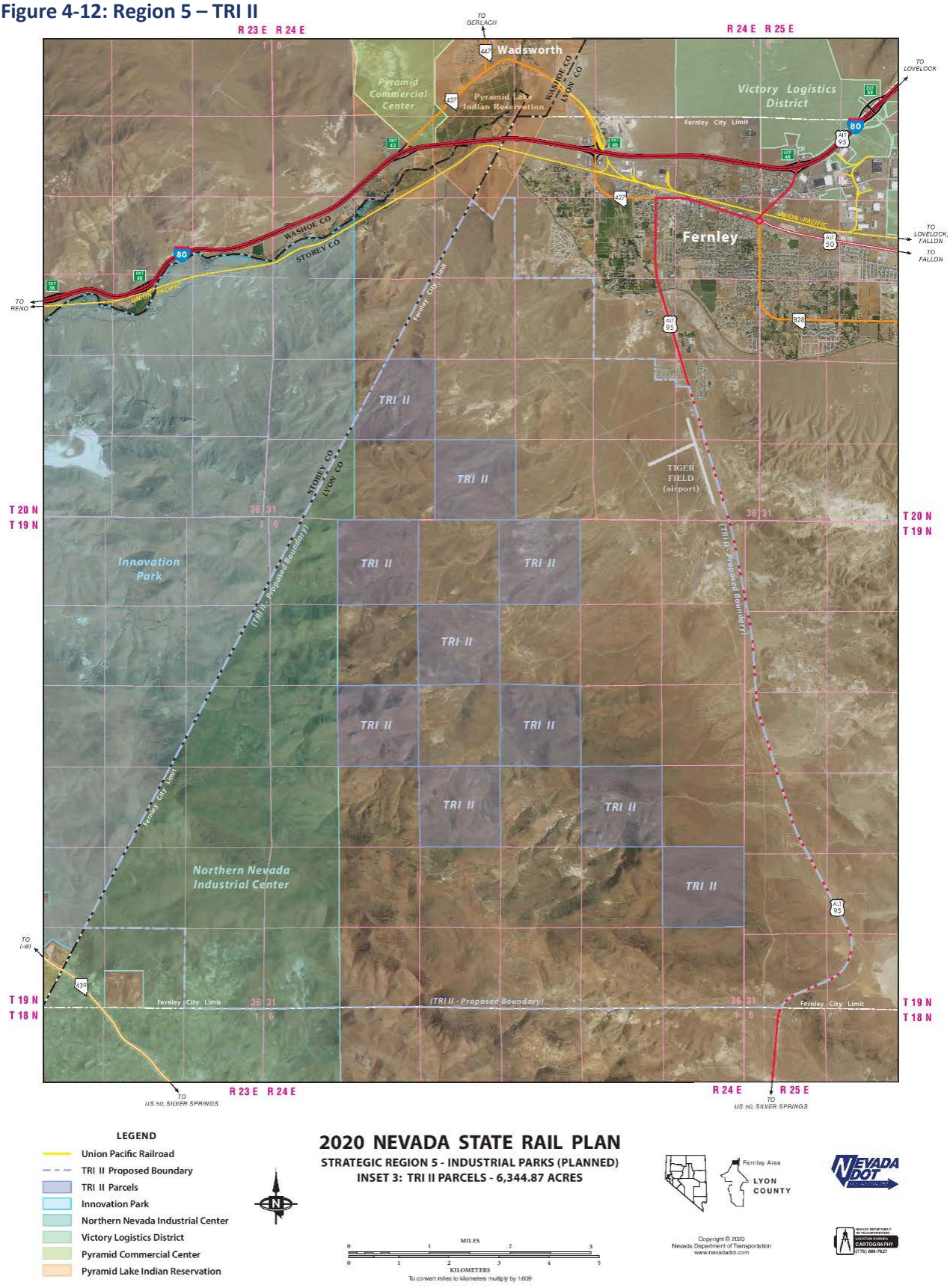
**Figure 4-10: Region 5 – Pyramid Commercial**



## Figure 4-11: Region 5 – Victory Logistics District



## Figure 4-12: Region 5 – TRI II




**LEGEND**

- Union Pacific Railroad
- TRI II Proposed Boundary
- TRI II Parcels
- Innovation Park
- Northern Nevada Industrial Center
- Victory Logistics District
- Pyramid Commercial Center
- Pyramid Lake Indian Reservation

**2020 NEVADA STATE RAIL PLAN**

**STRATEGIC REGION 5 - INDUSTRIAL PARKS (PLANNED)**

**INSET 3: TRI II PARCELS - 6,344.87 ACRES**

Ferrley Area

LYON COUNTY

MILES

KILOMETERS

To convert miles to kilometers multiply by 1.609

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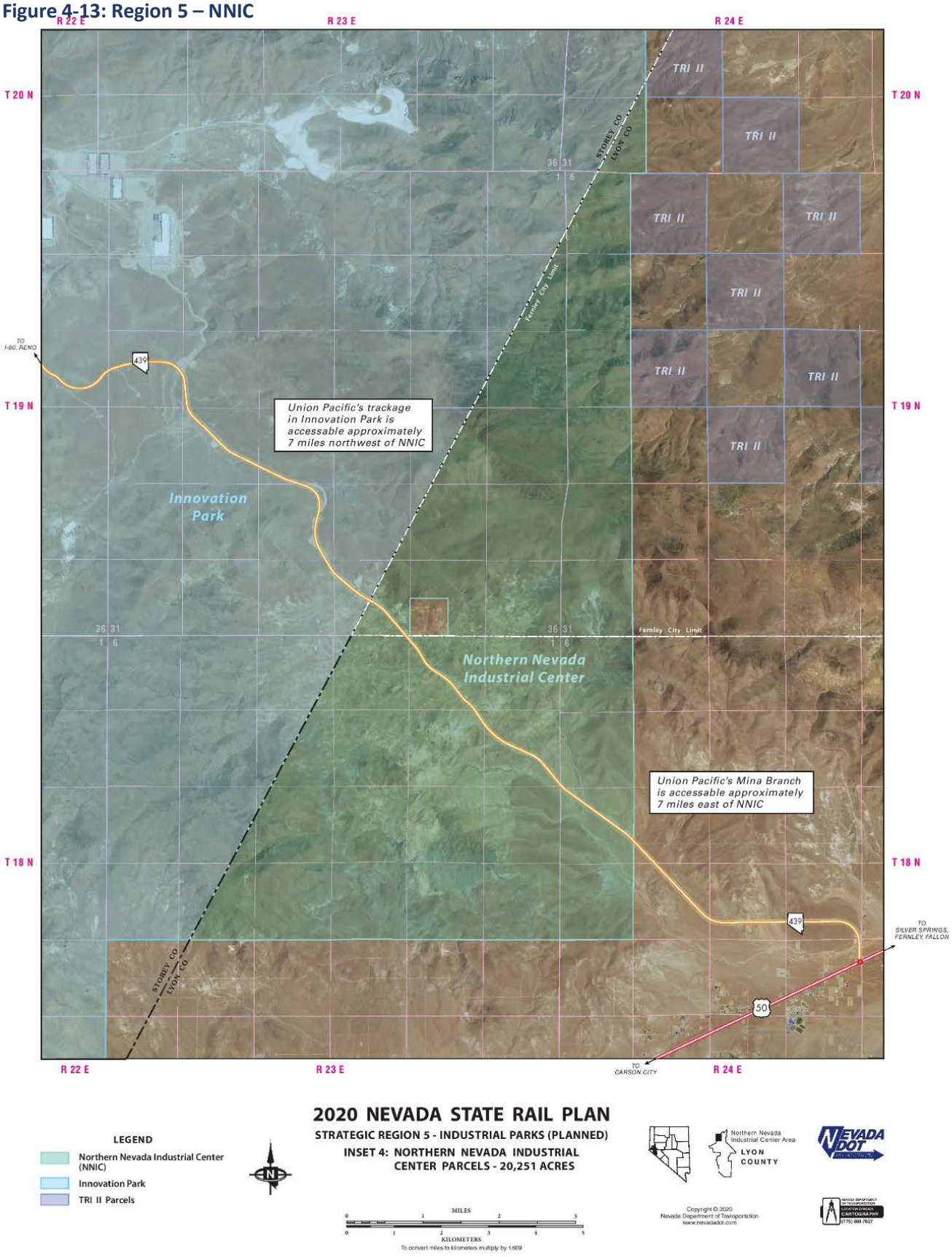
**Figure 4-13: Region 5 – NNIC**




## 2020 NEVADA STATE RAIL PLAN

**STRATEGIC REGION 5 - INDUSTRIAL PARKS (PLANNED)**

**INSET 4: NORTHERN NEVADA INDUSTRIAL CENTER PARCELS - 20,251 ACRES**

LEGEND

- Northern Nevada Industrial Center (NNIC)
- Innovation Park
- TRI II Parcels

Northern Nevada Industrial Center Area
LYON COUNTY

MILES 0 1 2 3
KILOMETERS 0 1 2 3 4 5
To convert miles to kilometers multiply by 1.609

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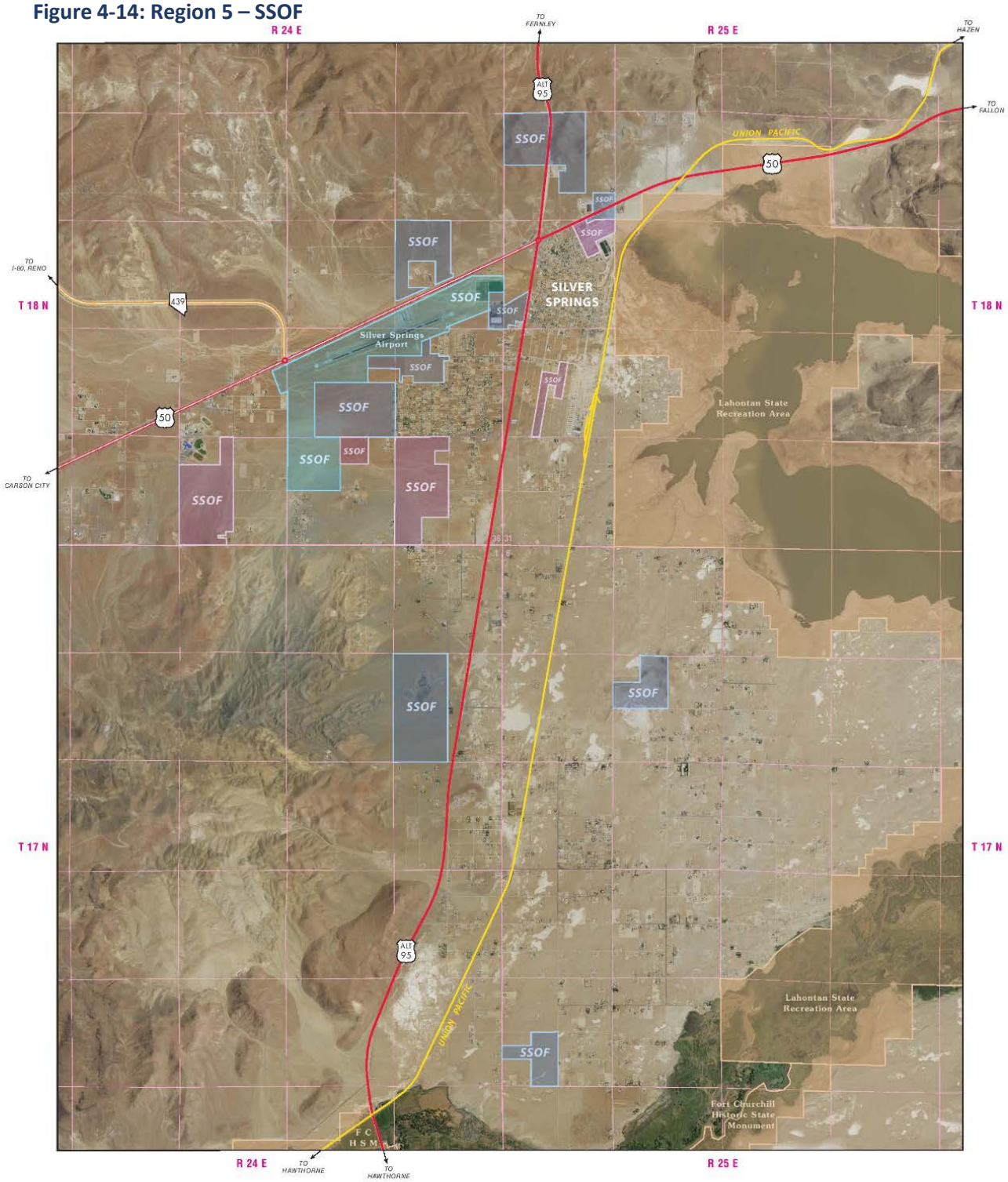
## Figure 4-14: Region 5 – SSOF




**LEGEND**

- Union Pacific Railroad
- SSOF - Industrial & undetermined
- SSOF - Airport & other commercial
- SSOF - Residential
- State Park or Recreation Area

**2020 NEVADA STATE RAIL PLAN**

**STRATEGIC REGION 5 - INDUSTRIAL PARKS (PLANNED)**

**INSET 5: SILVER SPRINGS OPPORTUNITY FUND PARCELS - 2,746 ACRES**

Silver Springs Area
LYON COUNTY

MILES 0 1 2 3
KILOMETERS 0 1 2 3 4 5
To convert miles to kilometers multiply by 1.609

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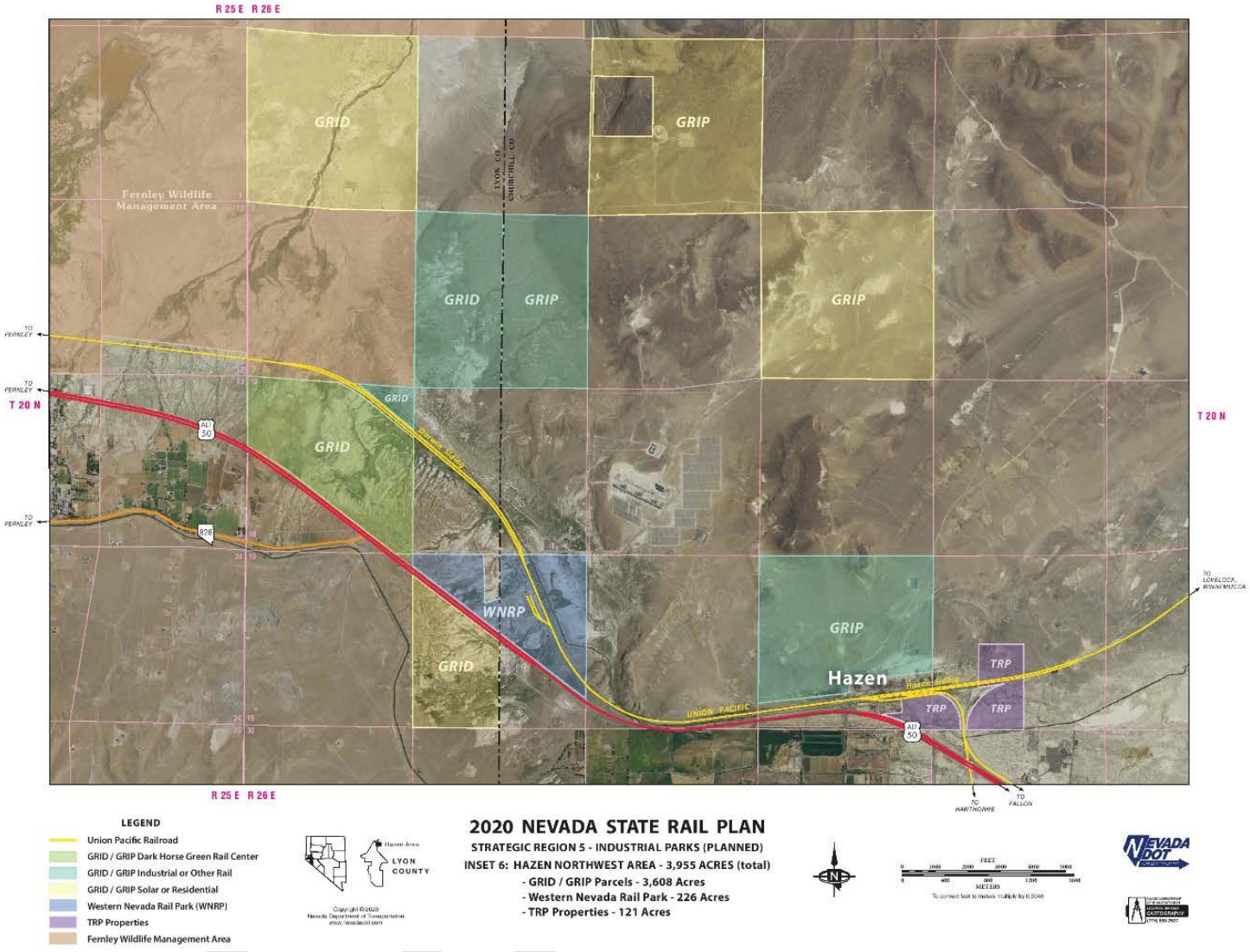
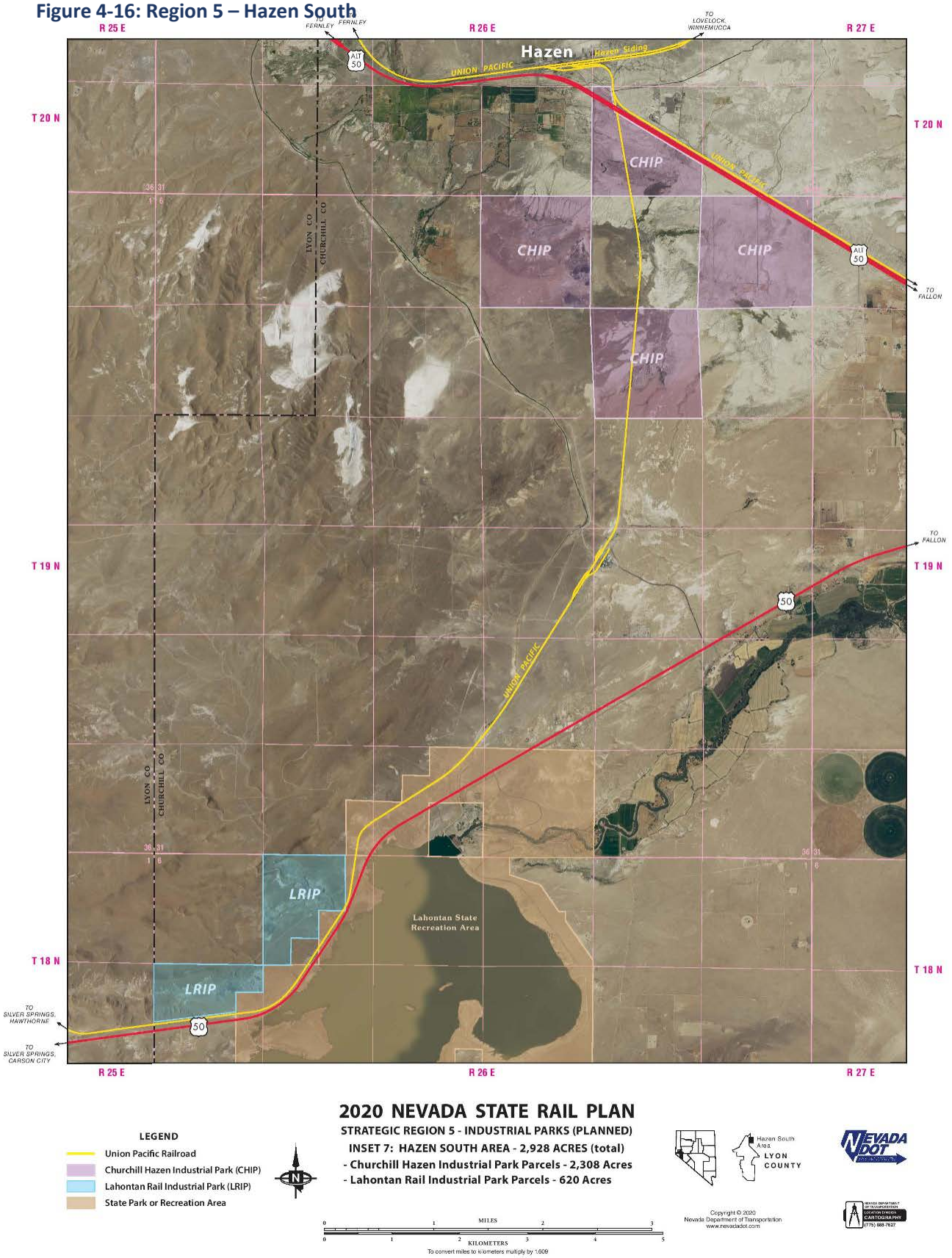
## Figure 4-15: Region 5 – Hazen NW



## Figure 4-16: Region 5 – Hazen South




**2020 NEVADA STATE RAIL PLAN**

**STRATEGIC REGION 5 - INDUSTRIAL PARKS (PLANNED)**

**INSET 7: HAZEN SOUTH AREA - 2,928 ACRES (total)**

- Churchill Hazen Industrial Park Parcels - 2,308 Acres
- Lahontan Rail Industrial Park Parcels - 620 Acres

**LEGEND**

- Union Pacific Railroad
- Churchill Hazen Industrial Park (CHIP)
- Lahontan Rail Industrial Park (LRIP)
- State Park or Recreation Area

Hazen South Area
LYON COUNTY

MILES 0 1 2 3
KILOMETERS 0 1 2 3 4 5
To convert miles to kilometers multiply by 1.609

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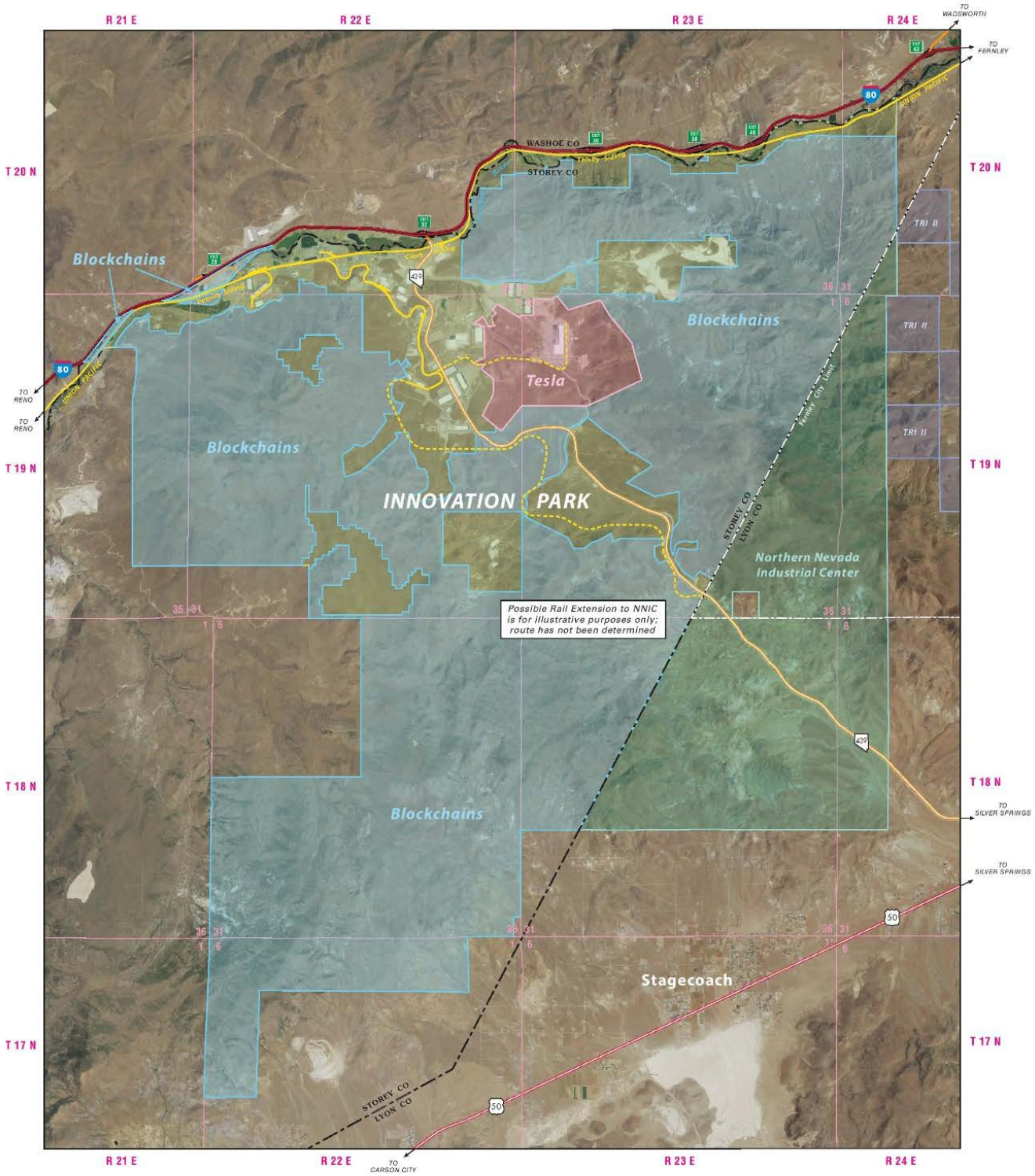
## Figure 4-17: Region 5 – Innovation Park




**LEGEND**

- Union Pacific Railroad
- Possible Rail Extensions
- Blockchains
- Tesla
- Other Owners
- Northern Nevada Industrial Center
- TRI II

### 2020 NEVADA STATE RAIL PLAN

**STRATEGIC REGION 5 - INDUSTRIAL PARKS (PLANNED)**

**INSET 8: INNOVATION PARK PARCELS - 86,750+/- ACRES (total)**

- Blockchains - 67,000+/- Acres
- Tesla - 3,200+/- Acres
- Other Owners - 16,550+/- Acres

MILES 0 1 2 3 4 5 6

KILOMETERS 0 2 4 6 8 10

To convert miles to kilometers multiply by 1.609

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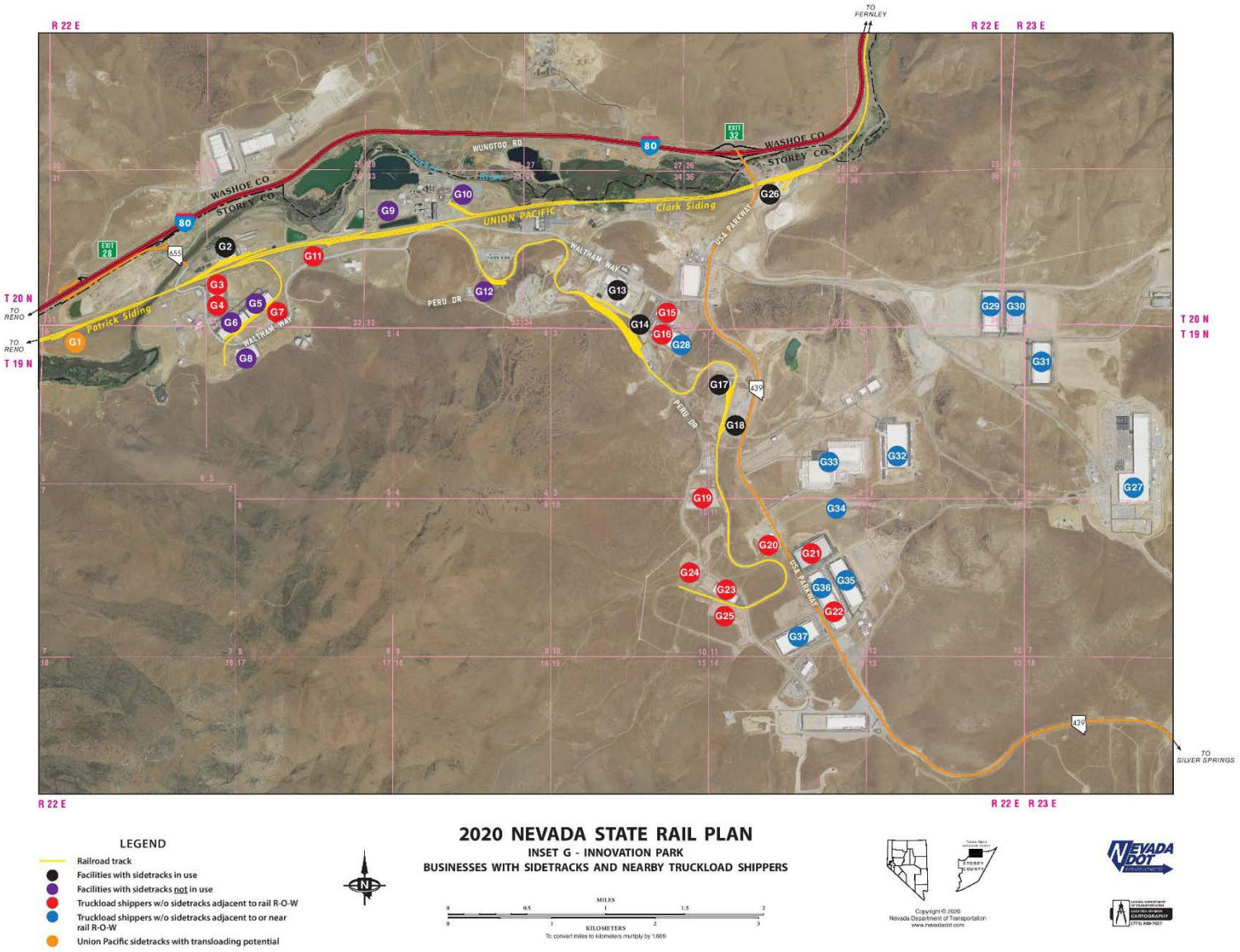
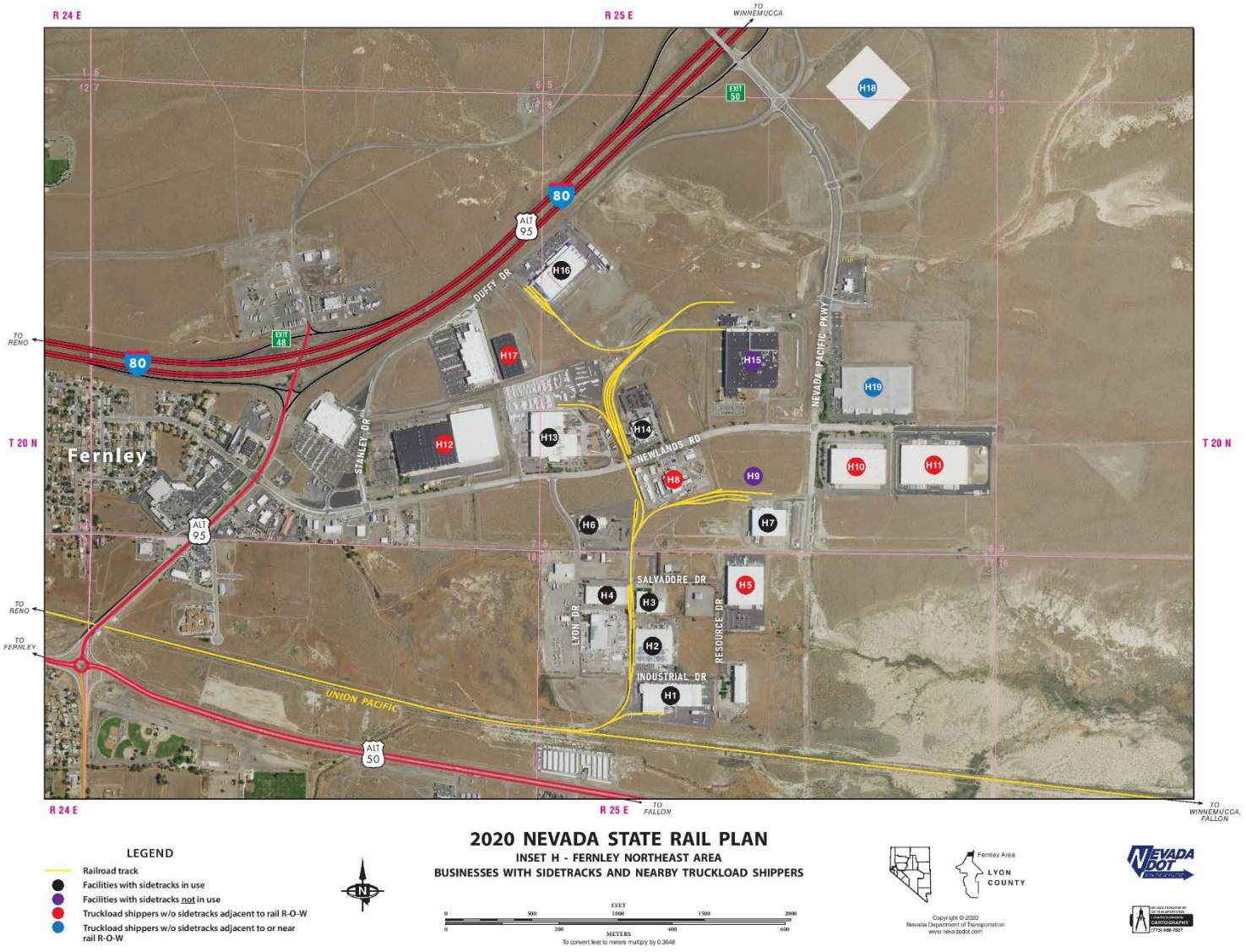
**Figure 4-18: Innovation Park (Inset)**




The above map and the following map show details of the existing rail infrastructure where existing and potential rail customers are clustered in Region 5. Notice that Tesla's Gigafactory (blue disk G27 in lower right), which ships an average of 52 truckloads per night via I-80 over the Donner Pass to Tesla's assembly plant in Fremont, CA, is only 2.5 miles away from an active branch line. The rail right-of-way for this connection (not shown) has already been set aside by the TRI General Improvement District and Tesla.

## Figure 4-19: Fernley Northeast Area




## Table 4-15: Region 5 Project List

| Project Name | County | Short Description | Contracted Description | Commodities | Track Mi* | Cost | Company | Region | Horizon |
|---|---|---|---|---|---|---|---|---|---|
| **40-Mile Desert Land Development** | Churchill | Connect to UP main line | Rail Connection | TBD | 0.1 | $4,000,000 | TOT, LLC | 5 | 4 |
| **Lahontan Rail Industrial Park** | Churchill | Connect to Mina Branch | Rail Connection | TBD | 0.2 | $400,000 | TOT, LLC | 5 | 4 |
| **Geothermal Resources Industrial Park** | Churchill | Connect to UP main line | Rail Connection | TBD | 0.1 | $4,000,000 | GRIP LLC | 5 | 4 |
| **Limestone Mine** | Churchill | Transloading site off main | Transload | specialized limestone | 0.2 | $4,000,000 | Advanced Carbonate Technologies, LLC | 5 | 4 |

| Project Name | County | Short Description | Contracted Description | Commodities | Track Mi* | Cost | Company | Region | Horizon |
|---|---|---|---|---|---|---|---|---|---|
| **Victory Logistics** | Churchill | Connect to Fernley Industrial Lead Connect to LA Pacific Lead | Rail Connection | TBD | 0.4 1.25 | $4,000,000 | Mark IV Capital | 5 | 4 |
| **TRP Properties** | Churchill | Connect to Fallon Branch | Rail Connection | TBD | 0.1 | $300,000 | Omaha Track Hazen Project | 5 | 4 |
| **Churchill Hazen Industrial Park** | Churchill | Connect to Fallon Branch | Rail Connection | TBD | 0.1 | $300,000 | TOT, LLC | 5 | 4 |
| **Northern Nevada Industrial Center** | Lyon | Connect to TRIC lead | Rail Connection | TBD | 7 | $14,000,000 | Reno Engineering | 5 | 4 |
| **Sierra Springs Opportunity Fund** | Lyon | Connect 15-591-09 (120 ac.) Connect 15-581-03 (91 ac.) | Rail Connection | TBD | 0.6 0.6 | $2,000,000 | Sierra Springs Opportunity Fund | 5 | 4 |
| **Geothermal Rail Industrial Development** | Lyon | Connect to UP main line | Rail Connection | TBD | 0.1 | $4,000,000 | GRID LLC | 5 | 4 |
| **Gigafactory Project** | Storey | Connect to TRIC lead | Rail Connection | battery packs, drivetrains | 2.5 | $5,000,000 | Tesla | 5 | 4 |
| **Sierra Biofuels Plant** | Storey | Connect to TRIC lead | Rail Connection | O/B syncrude feedstock | 0 | $0 | Fulcrum BioEnergy | 5 | 4 |
| **Innovation Park** | Storey | Industrial Park | Rail Connection | TBD | 0.1 | $4,000,000 | Blockchains, Inc. | 5 | 4 |
| **Pyramid Commercial Center** | Washoe | Connect to Fernley Industrial Lead | Rail Connection | TBD | 1.7 | $5,000,000 | Reno Engineering | 5 | 4 |

## Table 4-4: Region 5 – Active Mines

| FID | ID # | Name | Operator | Commodity | County | Y_U83N | X_U83E |
|---|---|---|---|---|---|---|---|
| 58 | 59 | **Churchill Mine** | Nevada Cement Co. | Limestone | Churchill | 4427500 | 349540 |
| 67 | 68 | **Fernley Operation Mine** | EP Minerals, LLC | Diatomite | Churchill | 4410158 | 332267 |
| 77 | 78 | **Huck Salt** | Huck Salt Co. | Salt | Churchill | 4346860 | 374550 |
| 95 | 96 | **Nightingale Pit** | Imerys Filtration Minerals, Inc. | Diatomite | Churchill | 4422800 | 321060 |
| 101 | 102 | **Popcorn Mine** | EP Minerals, LLC | Perlite | Churchill | 4344290 | 345870 |
| 131 | 132 | **Brady Hot Springs** | Ormat Nevada, Inc. | Electricity | Churchill | 4407088 | 327912 |
| 132 | 133 | **Brady Hot Springs** | Olam Spices and Vegetables, Inc. | Vegetable dehydration | Churchill | 4406553 | 327273 |
| 134 | 135 | **Desert Peak II** | Ormat Nevada, Inc. | Electricity | Churchill | 4402148 | 332634 |
| 135 | 136 | **Dixie Valley** | Terra-Gen Power, LLC | Electricity | Churchill | 4424433 | 426925 |
| 144 | 145 | **Patua** | Cyrq Energy | Electricity | Churchill | 4383471 | 321797 |
| 145 | 146 | **Salt Wells** | Enel North America, Inc. | Electricity | Churchill | 4352375 | 364296 |
| 147 | 148 | **Soda Lake Nos. 1, 2** | Cyrq Energy | Electricity | Churchill | 4380171 | 341112 |
| 150 | 151 | **Stillwater 2** | Enel Stillwater, LLC | Electricity | Churchill | 4378439 | 366194 |
| 151 | 152 | **Tungsten Mountain** | Ormat Nevada, Inc. | Electricity | Churchill | 4391619 | 440784 |
| 46 | 47 | **Basalite Dayton Pit** | Basalite Concrete Products, LLC | Sand, gravel | Storey | 4357606 | 282597 |
| 60 | 61 | **Clark Mine** | EP Minerals, LLC | Diatomite | Storey | 4381500 | 295120 |
| 106 | 107 | **River Canyon III** | Joy Engineering | Aggregate | Storey | 4379781 | 286375 |

| FID | ID # | Name | Operator | Commodity | County | Y_U83N | X_U83E |
|---|---|---|---|---|---|---|---|
| 110 | 111 | **Sierra Stone Quarry** | CEMEX Construction Materials Pacific, LLC | Aggregate | Storey | 4372283 | 274829 |
| 120 | 121 | **Trico Pit** | Gopher Construction Co. | Aggregate | Storey | 4382000 | 283800 |

### *Regional Development Authority*

The regional Development Authority contact for this region is Rob Hooper, Northern Nevada Development Authority.

## G-6. Region 6: Reno/Sparks/Stead

### *Overview*

Region 6 features extensive industrial spurs and branch line infrastructure that is greatly underutilized. There are 39 manufacturing and transloading facilities served by rail in Region 6, but 15 do not use their sidetracks. There are 37 warehouses and distribution centers served by rail in Region 6, with a cumulative total of just over 5 million square feet of space, and none of their sidetracks are being used. One of those warehouses is the moribund BNSF Quality Distribution Center in Sparks. There are also 53 facilities located adjacent to UP right-of-way that ship or receive in truckload lots, but none of which built a sidetrack. Thirty-six of those 53 facilities are warehouses with another 5+ million square feet of space. Here is one large distribution center building in Stead adjacent to the branch line that is not being used.

DRAFT


***Stead Warehouse near rail line that does not use rail***

UP and BNSF, which operates in Region 6 under rights granted by the Surface Transportation Board in 1996 from UP's merger with SP, do not provide intermodal service between the COFC terminal in Sparks and California. In fact, BNSF does not utilize its intermodal rights in Nevada at all. UP only handles containers to and from Chicago. However, the Port of Oakland has expressed an interest in activating intermodal service to and from Nevada.

Notice in the following Figures 4-21 through 4-26 that almost all of the sidetrack infrastructure in Region 6 is not served off of the UP's main line, but instead off of industrial spurs and branch lines, whose operation need not interfere with main line traffic, and whose proximity to truckload shippers opens up the potential for new sidetracks. This evidences an opportunity for UP to outsource local switching operations and business development to a locally focused subsidiary or independent rail operator.

### *Key Strategies*

- Co-create with UP a local rail service development effort
- Co-create with UP and BNSF a collaborative service development plan where BNSF has existing rights
- Gather the rail service case and operating plan for intermodal service with the Port of Oakland

- Conduct supply chain logistics analysis on the regions production and transportation of aggregates, sand, and non-metallic minerals to California
- Establish high-volume interaction with customers
- Establish collaboration with real estate community on awareness and promotion of rail access in sales and leasing of commercial property
- Establish collaboration with economic developers on rail-centric business attraction strategies

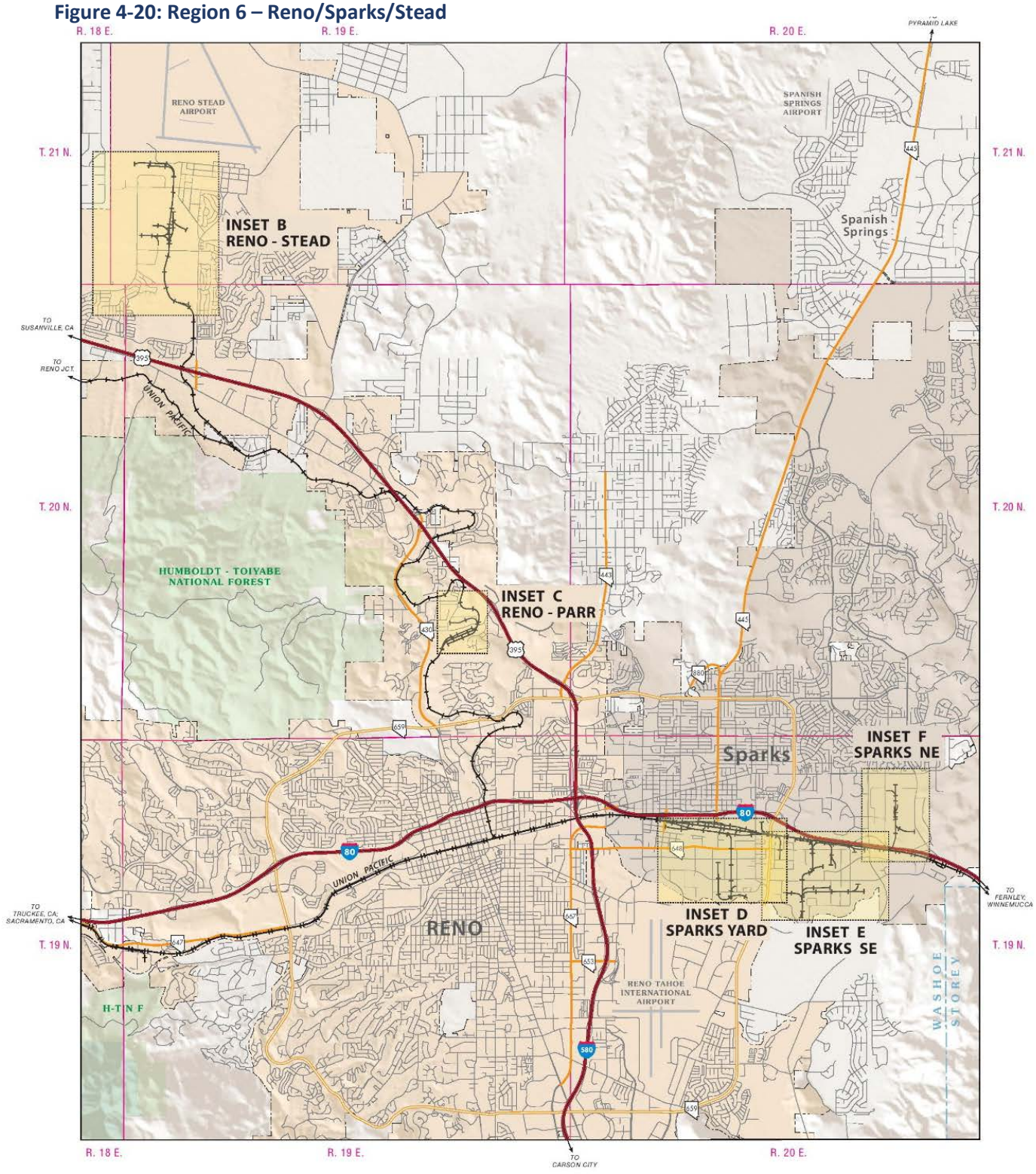
**A Guide for Looking at Next Six Maps**

The next map, Figure 4-21, is an overview of Region 6 that shows the location of five areas of dense concentrations of businesses that have two characteristics: 1) proximity to active tracks, and 2) elevated shipping activity in truckload or carload lots. The following five maps, Figures 4-22 through 4-26, zoom in on these dense concentrations, which are particularly intriguing due to their potential for becoming centers of carload traffic growth when supported by frequent and reliable switching service and localized solicitation effort. This is particularly true for Figures 4-24 through 4-26, which overlap one another, making them a ready-made platform for carload initiatives.

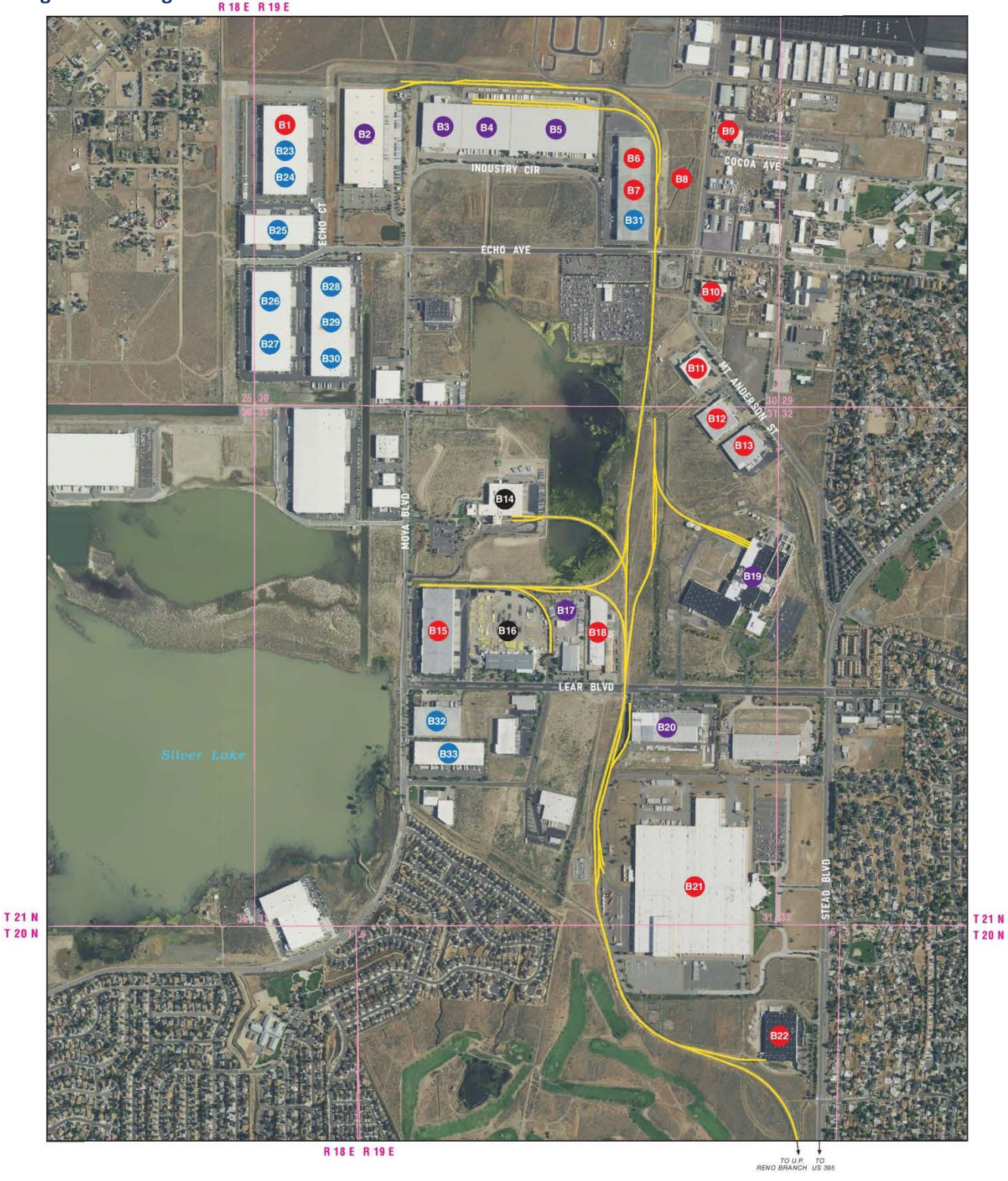
The numbered and colored disks in the inset maps correspond to line items with details on each property that are catalogued in the NVSRP's statewide database presented in the Appendix as the ***Inventory of Nevada Industry: Businesses with sidetracks and nearby truckload shippers*** (black disks for businesses with active rail sidetracks, purple for those with inactive rail sidetracks, and red for those next to rail right-of-way that could build new sidetracks easily), and as Appendix Item ***Truckload Shipper Inventory*** (blue disks for truckload shippers farther away from rail right-of-way).

DRAFT

## Figure 4-20: Region 6 – Reno/Sparks/Stead



## Figure 4-21: Region 6 – Reno Stead Area



## Figure 4-22: Region 6 – Reno Parr Area

## Figure 4-23: Region 6 – Sparks Yard Area


LEGEND

- Railroad track
- Facilities with sidetracks in use
- Facilities with sidetracks not in use
- Truckload shippers w/o sidetracks adjacent to rail R-O-W
- Truckload shippers w/o sidetracks adjacent to or near rail R-O-W
- UP sidetracks with transloading potential
- Union Pacifc Intermodal COFC Terminal

**2020 NEVADA STATE RAIL PLAN**

**INSET D - SPARKS YARD AREA**

**BUSINESSES WITH SIDETRACKS AND NEARBY TRUCKLOAD SHIPPERS**

FEET 0 500 1000 1500 2000

METERS 0 200 400 600

To convert feet to meters multiply by 0.3048

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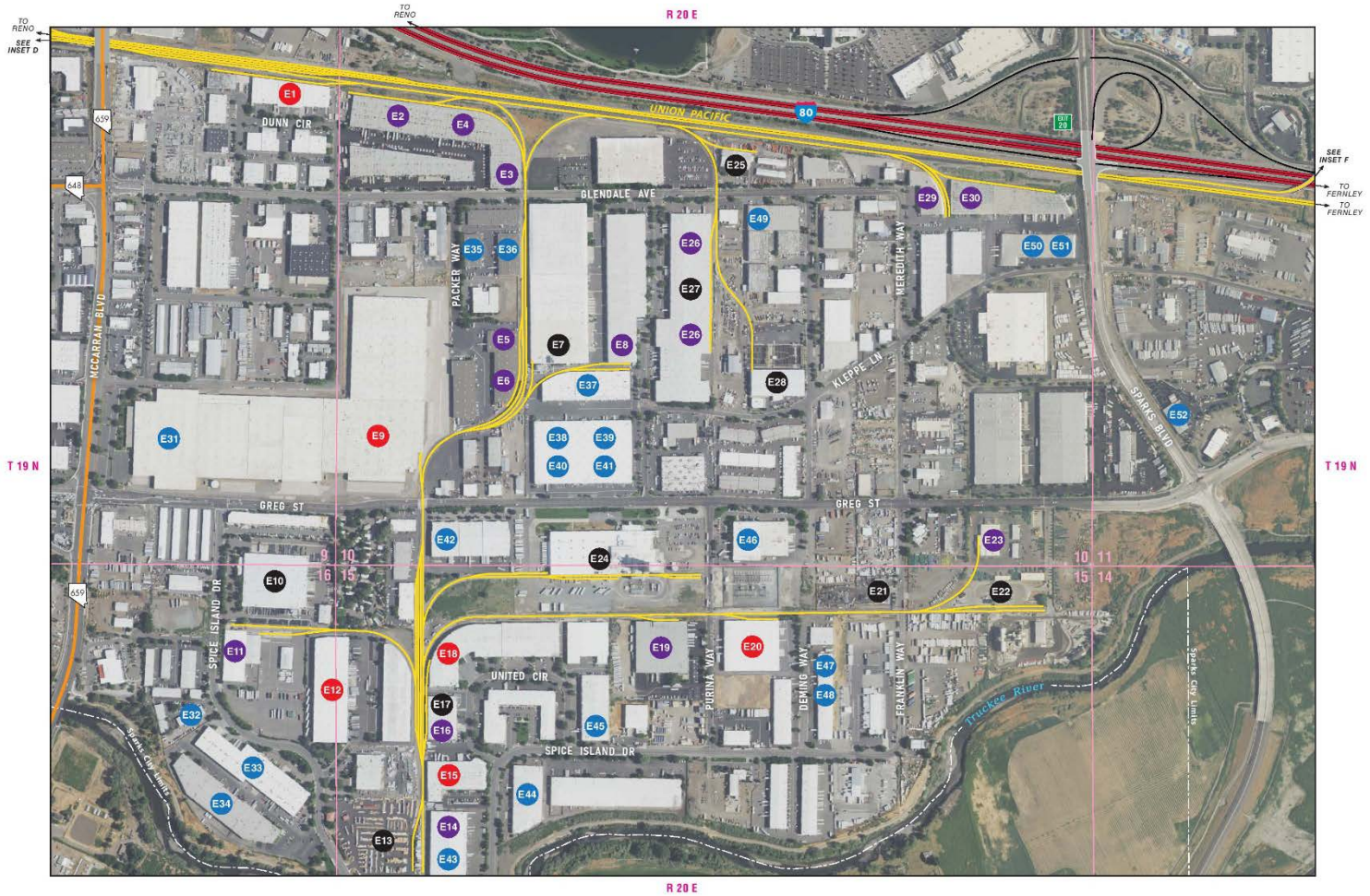
## Figure 4-24: Region 6 – Sparks Southeast Area




**LEGEND**

- Railroad track
- Facilities with sidetracks in use
- Facilities with sidetracks not in use
- Truckload shippers w/o sidetracks adjacent to rail R-O-W
- Truckload shippers w/o sidetracks adjacent to or near rail R-O-W

**2020 NEVADA STATE RAIL PLAN**

**INSET E - SPARKS SOUTHEAST AREA**

**BUSINESSES WITH SIDETRACKS AND NEARBY TRUCKLOAD SHIPPERS**

FEET 0 500 1000 1500 2000

METERS 0 200 400 600

To convert feet to meters multiply by 0.3048

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## Figure 4-25: Region 6 – Sparks Northeast Area

### Table 4-17: Region 6 – Project List

| Project Name | County | Short Description | Contracted Description | Commodities | Track Mi* | Cost | Company | Region | Horizon |
|---|---|---|---|---|---|---|---|---|---|
| **Lear Industrial Center** | Washoe | Connect to Leareno Industrial Lead | Rail Connection | to closest of 5 buildings: | 0.3 | $200,000 | Lear Industrial Center | 6 | 4 |
| **Pozzolan Transloading Site** | Washoe | Connect to Leareno Industrial Lead | Rail Connection | pozzolan | 0.1 | $100,000 | Geofortis Processing & Logistics LLC | 6 | 4 |

*miles to reach site, not including serving tracks at site

### Table 4-18: Region 6 – Active Mines

| FID | ID # | Name | Operator | Commodity | County | Y_U83N | X_U83E |
|---|---|---|---|---|---|---|---|
| 51 | 52 | **Black and Red Cinder Pits** | Cinderlite Trucking, Inc. | Cinder, landscape rock | Carson City | 4346880 | 264860 |
| 71 | 72 | **Goni Pit** | Cinderlite Trucking Corp. | Decomposed granite, sand, gravel | Carson City | 4344430 | 263820 |
| 50 | 51 | **Bing Materials Pit** | Bing Materials Co. | Sand, gravel | Douglas | 4308700 | 261500 |
| 49 | 50 | **Bella Vista Pit** | A and K Earthmovers | Rock, sand | Washoe | 4371320 | 265930 |
| 63 | 64 | **Donovan Pit** | R.T. Donovan Co., Inc. | Decomposed granite | Washoe | 4395000 | 270000 |
| 70 | 71 | **Golden Valley Pit** | A and K Earthmovers | Aggregate | Washoe | 4388960 | 259020 |
| 79 | 80 | **Lockwood Quarry** | Granite Construction Co. | Aggregate | Washoe | 4377267 | 271751 |
| 91 | 92 | **Mustang Quarry** | Sierra Nevada Construction, Inc. | Aggregate | Washoe | 4379650 | 273880 |
| 98 | 99 | **Paiute Pit** | CEMEX Construction Materials Pacific, LLC | Sand, gravel | Washoe | 4391040 | 304400 |
| 105 | 106 | **Rilite Aggregate** | Rilite Aggregate Co. | Sand, rock | Washoe | 4365881 | 266702 |
| 115 | 116 | **Spanish Springs Quarry** | Martin Marietta Materials, Inc. | Aggregate, decomposed granite | Washoe | 4395944 | 266114 |
| 118 | 119 | **Terraced Hill Clay (Flanigan) Mine** | Nevada Cement Co. | Clay | Washoe | 4455060 | 261500 |
| 119 | 120 | **Tracy Pit** | BJ Rees's Enterprise | Sand, gravel | Washoe | 4383361 | 284683 |
| 121 | 122 | **Wade Sand Pit** | Granite Construction Co. | Sand | Washoe | 4388890 | 305170 |
| 133 | 134 | **Burdette (Galena 3)** | Ormat Nevada, Inc. | Electricity | Washoe | 4363504 | 263276 |
| 138 | 139 | **Galena 1** | Ormat Nevada, Inc. | Electricity | Washoe | 4364213 | 263433 |
| 139 | 140 | **Galena 2** | Ormat Nevada, Inc. | Electricity | Washoe | 4361796 | 261800 |
| 142 | 143 | **Moana Hot Springs** | Avalon Geothermal, LLC | Space heating | Washoe | 4374819 | 258439 |
| 143 | 144 | **Moana Hot Springs** | Peppermill Casinos, Inc. | Space heating | Washoe | 4375822 | 258958 |
| 146 | 147 | **San Emidio** | Ormat Nevada, Inc. | Electricity | Washoe | 4472701 | 296269 |
| 148 | 149 | **Steamboat II, III** | Ormat Nevada, Inc. | Electricity | Washoe | 4363738 | 262756 |
| 149 | 150 | **Steamboat Hills** | Ormat Nevada, Inc. | Electricity | Washoe | 4361484 | 261630 |
| 49 | 50 | **Bella Vista Pit** | A and K Earthmovers | Rock, sand | Washoe | 4371320 | 265930 |

### *Regional Development Authority*

The regional Development Authority contact for this region is Nancy McCormick, Economic Development Authority of Western Nevada.

## G-7. Region 7: Mina Branch

### *Overview*

The Mina Branch Region includes the last 77 miles of a 97-mile branch line from Hazen that formerly went all the way to Mina, Nevada, but now ends at the Hawthorne Army Depot in Hawthorne. UP sold the last 54 miles to the U.S. Army, and it wishes the Army to subcontract with an independent rail operator for those 54 miles so that UP would only traverse 43 miles south from Hazen (which is in Region 5). The Army has agreed in principle to work with Top Rail Solutions of Pittsburg, Kansas to do this, but an interchange between UP and Top Rail remains to be agreed upon and funded.

***Hawthorne Army Depot***

There is only one active customer besides the Army on the Region 7 portion of the Mina Branch, a dairy that transloads animal feeds on a Union Pacific-owned sidetrack in Wabuska. However, there are strong prospects for additional rail traffic. First and foremost are the prospects for empty rail car storage on a

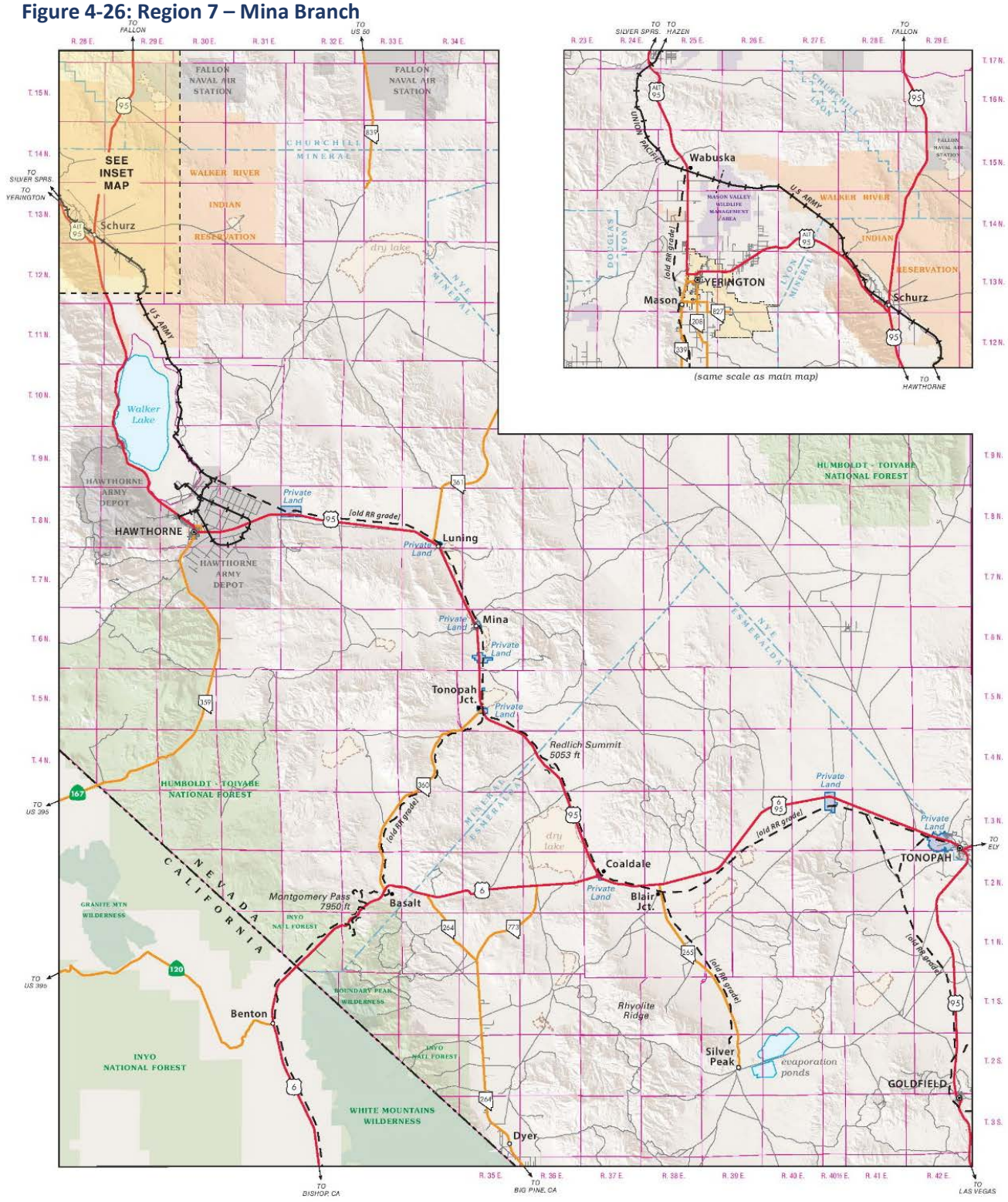
portion of the 252 miles of in-service sidetracks inside the Army Depot. There are also good prospects for Top Rail to operate a transloading site inside the Army Depot to handle bulk materials for mining and energy supplies.

### *Key Strategies*

- Explore opportunities to serve copper mines, molybdenum mines, and cattle lots in the Yerington area with a short branch line diverging south from the Union Pacific at Wabuska
- Collaborate with Union Pacific and the U.S. Army on an economical, near-term approach to constructing interchange trackage between UP and Top Rail at Fort Churchill
- Publicize and facilitate car storage and rail/truck transloading at the Hawthorne Army Depot
- Promote collaboration among mining and energy operations that would be better served by having the Mina Branch reconstructed back through Luning to Mina for rail/truck transloading there
- Eventually continue the process of reconstructing an active rail line in steps to Blair Junction and Goldfield Junction, to include stubs directly into nearby mines

***Roadbed of former Mina Branch east of Hawthorne***

## Figure 4-26: Region 7 – Mina Branch




**LEGEND**

U.S. Highway
State Highway
Other Road
Railroad (in service)
Railroad (out of service)
Private Land Parcels
Inset Map Area
U.S. Highway Shield
State Highway Shield
State Boundary
County Boundary
City Limit
County Seat
City or Town center
Site

# 2020 NEVADA STATE RAIL PLAN

**STRATEGIC REGION 7**
**MINA BRANCH AREA**

MILES 0 10 20 30
KILOMETERS 0 10 20 30 40 50
To convert miles to kilometers multiply by 1.609

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### Table 4-19: Region 7 – Project List – One to Four Year Horizon

| Project Name | County | Short Description | Contracted Description | Commodities | Track Mi* | Cost | Company | Region | Horizon |
|---|---|---|---|---|---|---|---|---|---|
| **Cattle Feed Project** | Lyon | Transloading on Mina Branch | Transload | various cattle feeds | 0.1 | $150,000 | Snyder Livestock Co Inc | 7 | 4 |
| **Ann Mason Project** | Lyon | Connect to Mina Branch | Rail Connection | copper & molybdenum ores | 8 | $16,000,000 | Hudbay Minerals | 7 | 4 |
| **Pumpkin Hollow** | Lyon | Connect to Mina Branch | Rail Connection | copper ores, I/B fuel, lime, etc | 8 | $16,000,000 | Nevada Copper, Inc. | 7 | 4 |
| **Hawthorne Army Depot Car Storage** | Mineral | Build interchange with UP | Interchange with UP | car storage, transloading bulk | 2 | $3,000,000 | Top Rail Solutions, Inc. | 7 | 4 |
| **Round Mountain Gold** | Nye | Transloading site at Hawthorne | Transload | ammonium nitr., lime, diesel | TL | $250,000 | Kinross Gold | 7 | 4 |
| **Bolo Project** | Nye | Transloading site at Hawthorne | Transload | ammonium nitr., lime, diesel | TL | $250,000 | Barrian Mining | 7 | 4 |
| **Gold Resources-Isabella Pearl Mine** | Mineral | Transloading site at Hawthorne | Transload | ammonium nitr., lime, diesel | TL | $250,000 | Gold Resources | 7 | 4 |
| **Extend Mina Branch, Hawthorne to Mina** | Mineral | Build on abandoned ROW on BLM | Rail Connection | N/A | 33 | $50,000,000 | Joint Venture | 7 | 4 |
| **Basalt Mine (Esmeralda County)** | Mineral | Transloading site in Mina | Transload | diatomaceous earth | TL | $250,000 | Dicalite Management Group, Inc. | 7 | 4 |

*miles to reach site, not including serving tracks at site

### Table 4-20: Region 7 - Project List – Five to Twenty Year Horizon

| Project Name | County | Short Description | Contracted Description | Commodities | Track Mi* | Cost | Company | Region | Horizon |
|---|---|---|---|---|---|---|---|---|---|
| **Extend Mina Br., Mina to Blair Jct.** | Esmeralda | Build on abandoned ROW on BLM | Rail Connection | N/A | 36 | $54,000,000 | Joint Venture | 7 | 5-20 |
| **Rhyolite Rid. Clayton Val. (Pure Engy.)** | Esmeralda | Connect to Mina Branch at Blair Jct. | Rail Connection | boron, lithium O/B, I/B various | 12 | $20,000,000 | Pioneer Ltd. | 7 | 5-20 |
| **Extend Mina Br., Blair to Goldfield Jct.** | Esmeralda | Build on abandoned ROW on BLM | Rail Connection | N/A | 23 | $35,000,000 | Joint Venture | 7 | 5-20 |
| **Crow Springs** | Esmeralda | Connect to Mina Branch SW of G Jct. | Rail Connection | open-pit perlite and pozzolan | 10 | $20,000,000 | SR Minerals, Inc. | 7 | 5-20 |
| **Tonopah Lithium Claims (Am. Lithium)** | Nye | Connect to Mina Br. at Goldfield Jct. | Rail Connection | I/B molten sulfur, caustic soda, cyanide, soda ash, fuel | 7 | $15,000,000 | American Lithium | 7 | 5-20 |
| **Liberty Project** | Nye | Connect to Crow Springs Branch | Rail Connection | Molybdenum, copper | 7 | $15,000,000 | General Moly, Inc. | 7 | 5-20 |
| **Gemfield Mine** | Esmeralda | Transloading site at Goldfield Jct. | Transload | ammonium nitr., lime, diesel | TL | $250,000 | Gemfield Resources | 7 | 5-20 |
| **Goldfield Bonanza Mine** | Esmeralda | Transloading site at Goldfield Jct. | Transload | ammonium nitr., lime, diesel | TL | $250,000 | Lode-Star Mining Inc. | 7 | 5-20 |

| Project Name | County | Short Description | Contracted Description | Commodities | Track Mi* | Cost | Company | Region | Horizon |
|---|---|---|---|---|---|---|---|---|---|
| **Hasbrouck Project** | Nye | Hasbrouck Project | Rail Connection | ammonium nitr., lime, diesel | TL | $250,000 | West Kirkland Mining Inc. | 7 | 5-20 |
| **Round Mountain Mine** | Nye | Round Mountain Mine | Rail Connection | ammonium nitr., lime, diesel | TL | $250,000 | Round Mountain Gold Corp. | 7 | 5-20 |

### Table 4-21: Region 7 – Active Mines

| FID | ID # | Name | Operator | Commodity | County | Y_U83N | X_U83E |
|---|---|---|---|---|---|---|---|
| 14 | 15 | Gold Hill Mine (open pit) | Round Mountain Gold Corp. | Gold, silver | Nye | 4291260 | 495570 |
| 33 | 34 | Round Mountain Mine (open pit) | Round Mountain Gold Corp. | Gold, silver | Nye | 4283750 | 493240 |
| 36 | 37 | Sterling Mine (permitted open pit) | Coeur Rochester, Inc. | Gold | Nye | 4075340 | 532100 |
| 41 | 42 | Amargosa Clay Operation (IMV Pits) | Lhoist North America of Arizona | Clay | Nye | 4034845 | 568580 |
| 48 | 49 | Beatty Quarry | Kalamazoo Materials, Inc. | Landscape rock | Nye | 4094750 | 521840 |
| 59 | 60 | Cinder Cone Pit | Allied Building Materials, Inc./Cind-R-Lite Co. | Cinder | Nye | 4060140 | 543740 |
| 69 | 70 | Gamebird Pit | Wulfenstein Construction Co., Inc. | Sand, gravel | Nye | 4001996 | 599697 |
| 94 | 95 | New Discovery Mine | Vanderbilt Minerals Corp. | Clay | Nye | 4081905 | 520520 |
| 97 | 98 | Pahrump Community Pit | Various (Bureau of Land Management manages pit) | Sand, gravel | Nye | 4004300 | 596780 |
| 102 | 103 | Premier Chemicals, LLC, Mine | Premier Chemicals, LLC | Magnesite | Nye | 4302120 | 422900 |
| 122 | 123 | Wulfenstein (BLM) Pit | Wulfenstein Construction Co., Inc. | Sand, gravel | Nye | 4004300 | 596800 |
| 154 | 155 | Bacon Flat | Grant Canyon Oil and Gas, LLC | Oil | Nye | 4258061 | 622592 |
| 156 | 157 | Eagle Springs | Kirkwood Oil and Gas, LLC | Oil | Nye | 4273541 | 627598 |
| 157 | 158 | Ghost Ranch | Kirkwood Oil and Gas, LLC/Makoil, Inc. | Oil | Nye | 4272319 | 627902 |
| 159 | 160 | Grant Canyon | Grant Canyon Oil and Gas, LLC | Oil | Nye | 4256983 | 624095 |
| 160 | 161 | Kate Spring | Western General/Makoil, Inc. | Oil, gas | Nye | 4271057 | 627115 |
| 161 | 162 | Sand Dune | Kirkwood Oil and Gas, LLC | Oil | Nye | 4272249 | 627722 |
| 162 | 163 | Sans Spring | Grant Canyon Oil and Gas, LLC | Oil | Nye | 4258648 | 617622 |

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| FID | ID # | Name | Operator | Commodity | County | Y_U83N | X_U83E |
|---|---|---|---|---|---|---|---|
| 14 | 15 | Gold Hill Mine (open pit) | Round Mountain Gold Corp. | Gold, silver | Nye | 4291260 | 495570 |
| 33 | 34 | Round Mountain Mine (open pit) | Round Mountain Gold Corp. | Gold, silver | Nye | 4283750 | 493240 |
| 36 | 37 | Sterling Mine (permitted open pit) | Coeur Rochester, Inc. | Gold | Nye | 4075340 | 532100 |
| 41 | 42 | Amargosa Clay Operation (IMV Pits) | Lhoist North America of Arizona | Clay | Nye | 4034845 | 568580 |
| 48 | 49 | Beatty Quarry | Kalamazoo Materials, Inc. | Landscape rock | Nye | 4094750 | 521840 |
| 59 | 60 | Cinder Cone Pit | Allied Building Materials, Inc./Cind-R-Lite Co. | Cinder | Nye | 4060140 | 543740 |
| 69 | 70 | Gamebird Pit | Wulfenstein Construction Co., Inc. | Sand, gravel | Nye | 4001996 | 599697 |
| 94 | 95 | New Discovery Mine | Vanderbilt Minerals Corp. | Clay | Nye | 4081905 | 520520 |
| 97 | 98 | Pahrump Community Pit | Various (Bureau of Land Management manages pit) | Sand, gravel | Nye | 4004300 | 596780 |
| 102 | 103 | Premier Chemicals, LLC, Mine | Premier Chemicals, LLC | Magnesite | Nye | 4302120 | 422900 |
| 122 | 123 | Wulfenstein (BLM) Pit | Wulfenstein Construction Co., Inc. | Sand, gravel | Nye | 4004300 | 596800 |
| 154 | 155 | Bacon Flat | Grant Canyon Oil and Gas, LLC | Oil | Nye | 4258061 | 622592 |
| 156 | 157 | Eagle Springs | Kirkwood Oil and Gas, LLC | Oil | Nye | 4273541 | 627598 |
| 157 | 158 | Ghost Ranch | Kirkwood Oil and Gas, LLC/Makoil, Inc. | Oil | Nye | 4272319 | 627902 |
| 159 | 160 | Grant Canyon | Grant Canyon Oil and Gas, LLC | Oil | Nye | 4256983 | 624095 |
| 160 | 161 | Kate Spring | Western General/Makoil, Inc. | Oil, gas | Nye | 4271057 | 627115 |
| 161 | 162 | Sand Dune | Kirkwood Oil and Gas, LLC | Oil | Nye | 4272249 | 627722 |
| 162 | 163 | Sans Spring | Grant Canyon Oil and Gas, LLC | Oil | Nye | 4258648 | 617622 |
| 164 | 165 | Trap Spring | Makoil, Inc./Frontier Exploration Co. | Oil | Nye | 4274130 | 617171 |
| 0 | 1 | Aurora Mine (reprocessing) | Hecla Mining Co. | Gold, silver | Esmeralda | 4240220 | 334720 |
| 2 | 3 | Borealis Mine (leaching old pads) | Borealis Mining Co., LLC | Gold, silver | Esmeralda | 4250000 | 347250 |
| | | | | | | | |
| 28 | 29 | Mineral Ridge Mine (open pits) | Mineral Ridge Gold LLC | Gold, silver | Esmeralda | 4183158 | 437800 |
| 47 | 48 | Basalt Mine | Grefco Minerals, Inc. | Diatomite | Esmeralda | 4205478 | 393380 |
| 52 | 53 | Blanco Mine | Vanderbilt Minerals Corp. | Clay | Esmeralda | 4196340 | 425740 |
| 75 | 76 | Heart of Nature | Heart of Nature, | Alum, sulfur | Esmeralda | 4195570 | 441510 |

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| FID | ID # | Name | Operator | Commodity | County | Y_U83N | X_U83E |
|---|---|---|---|---|---|---|---|
| 14 | 15 | Gold Hill Mine (open pit) | Round Mountain Gold Corp. | Gold, silver | Nye | 4291260 | 495570 |
| 33 | 34 | Round Mountain Mine (open pit) | Round Mountain Gold Corp. | Gold, silver | Nye | 4283750 | 493240 |
| 36 | 37 | Sterling Mine (permitted open pit) | Coeur Rochester, Inc. | Gold | Nye | 4075340 | 532100 |
| 41 | 42 | Amargosa Clay Operation (IMV Pits) | Lhoist North America of Arizona | Clay | Nye | 4034845 | 568580 |
| 48 | 49 | Beatty Quarry | Kalamazoo Materials, Inc. | Landscape rock | Nye | 4094750 | 521840 |
| 59 | 60 | Cinder Cone Pit | Allied Building Materials, Inc./Cind-R-Lite Co. | Cinder | Nye | 4060140 | 543740 |
| 69 | 70 | Gamebird Pit | Wulfenstein Construction Co., Inc. | Sand, gravel | Nye | 4001996 | 599697 |
| 94 | 95 | New Discovery Mine | Vanderbilt Minerals Corp. | Clay | Nye | 4081905 | 520520 |
| 97 | 98 | Pahrump Community Pit | Various (Bureau of Land Management manages pit) | Sand, gravel | Nye | 4004300 | 596780 |
| 102 | 103 | Premier Chemicals, LLC, Mine | Premier Chemicals, LLC | Magnesite | Nye | 4302120 | 422900 |
| 122 | 123 | Wulfenstein (BLM) Pit | Wulfenstein Construction Co., Inc. | Sand, gravel | Nye | 4004300 | 596800 |
| 154 | 155 | Bacon Flat | Grant Canyon Oil and Gas, LLC | Oil | Nye | 4258061 | 622592 |
| 156 | 157 | Eagle Springs | Kirkwood Oil and Gas, LLC | Oil | Nye | 4273541 | 627598 |
| 157 | 158 | Ghost Ranch | Kirkwood Oil and Gas, LLC/Makoil, Inc. | Oil | Nye | 4272319 | 627902 |
| 159 | 160 | Grant Canyon | Grant Canyon Oil and Gas, LLC | Oil | Nye | 4256983 | 624095 |
| 160 | 161 | Kate Spring | Western General/Makoil, Inc. | Oil, gas | Nye | 4271057 | 627115 |
| 161 | 162 | Sand Dune | Kirkwood Oil and Gas, LLC | Oil | Nye | 4272249 | 627722 |
| 162 | 163 | Sans Spring | Grant Canyon Oil and Gas, LLC | Oil | Nye | 4258648 | 617622 |
| | | Alum/Sulfur Mine | LLC | | | | |
| 111 | 112 | Silver Peak Operations | Rockwood Lithium, Inc. | Lithium carbonate | Esmeralda | 4178350 | 443700 |
| 124 | 125 | Gemfield Gems | Gemfield Gems | Chalcedony | Esmeralda | 4176832 | 474068 |
| 125 | 126 | Lone Mountain Turquoise Mine | Lone Mountain Mining, LLC | Turquoise | Esmeralda | 4201200 | 463200 |
| 8 | 9 | Denton-Rawhide Mine (open pit) | Rawhide Mining, LLC | Gold, silver | Mineral | 4319430 | 379657 |
| 136 | 137 | Don A. Campbell, Don A. Campbell II | Ormat Nevada, Inc. | Electricity | Mineral | 4299493 | 384894 |
| 40 | 41 | Adams Claim Gypsum Mine | Art Wilson Co. | Gypsum, limestone | Lyon | 4345271 | 267860 |
| 62 | 63 | Dayton Materials (Mustang Pit) | 3D Concrete, Inc. | Aggregate, sand | Lyon | 4346000 | 277000 |
| 68 | 69 | Fernley Quarry | Nevada Cement Co. | Limestone | Lyon | 4380020 | 310490 |
| 107 | 108 | Rocks Road Pit | Desert Engineering | Sand, gravel | Lyon | 4312626 | 316830 |

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| FID | ID # | Name | Operator | Commodity | County | Y_U83N | X_U83E |
|---|---|---|---|---|---|---|---|
| 14 | 15 | Gold Hill Mine (open pit) | Round Mountain Gold Corp. | Gold, silver | Nye | 4291260 | 495570 |
| 33 | 34 | Round Mountain Mine (open pit) | Round Mountain Gold Corp. | Gold, silver | Nye | 4283750 | 493240 |
| 36 | 37 | Sterling Mine (permitted open pit) | Coeur Rochester, Inc. | Gold | Nye | 4075340 | 532100 |
| 41 | 42 | Amargosa Clay Operation (IMV Pits) | Lhoist North America of Arizona | Clay | Nye | 4034845 | 568580 |
| 48 | 49 | Beatty Quarry | Kalamazoo Materials, Inc. | Landscape rock | Nye | 4094750 | 521840 |
| 59 | 60 | Cinder Cone Pit | Allied Building Materials, Inc./Cind-R-Lite Co. | Cinder | Nye | 4060140 | 543740 |
| 69 | 70 | Gamebird Pit | Wulfenstein Construction Co., Inc. | Sand, gravel | Nye | 4001996 | 599697 |
| 94 | 95 | New Discovery Mine | Vanderbilt Minerals Corp. | Clay | Nye | 4081905 | 520520 |
| 97 | 98 | Pahrump Community Pit | Various (Bureau of Land Management manages pit) | Sand, gravel | Nye | 4004300 | 596780 |
| 102 | 103 | Premier Chemicals, LLC, Mine | Premier Chemicals, LLC | Magnesite | Nye | 4302120 | 422900 |
| 122 | 123 | Wulfenstein (BLM) Pit | Wulfenstein Construction Co., Inc. | Sand, gravel | Nye | 4004300 | 596800 |
| 154 | 155 | Bacon Flat | Grant Canyon Oil and Gas, LLC | Oil | Nye | 4258061 | 622592 |
| 156 | 157 | Eagle Springs | Kirkwood Oil and Gas, LLC | Oil | Nye | 4273541 | 627598 |
| 157 | 158 | Ghost Ranch | Kirkwood Oil and Gas, LLC/Makoil, Inc. | Oil | Nye | 4272319 | 627902 |
| 159 | 160 | Grant Canyon | Grant Canyon Oil and Gas, LLC | Oil | Nye | 4256983 | 624095 |
| 160 | 161 | Kate Spring | Western General/Makoil, Inc. | Oil, gas | Nye | 4271057 | 627115 |
| 161 | 162 | Sand Dune | Kirkwood Oil and Gas, LLC | Oil | Nye | 4272249 | 627722 |
| 162 | 163 | Sans Spring | Grant Canyon Oil and Gas, LLC | Oil | Nye | 4258648 | 617622 |
| 153 | 154 | Wabuska | Open Mountain Energy | Electricity | Lyon | 4337262 | 311667 |
| 74 | 75 | Hazen Pit | EP Minerals, LLC | Diatomite | Lyon/Churchill | 4377320 | 320220 |

### *Regional Development Authority*

The regional Development Authority contact for this region is Sean Rowe, Mineral County District Attorney.

## G-8. Region 8: Beatty/Pahrump

### *Overview*

Region 8 was established in July after further thought regarding the opportunity of rebuilding a freight

rail line between Hawthorne and southern Nevada. An extension of the line southeast of Goldfield and through Nye County might be justified in the future by aggregating the logistics needs of mines and other bulk freight shippers between Goldfield south Nye County, such as the Sunrise Gold Placer gold mine near Beatty.

New mining discoveries and new players are common events in Nevada. In the long run, a pragmatic southern connection could be realized by constructing new track on the existing grade of the abandoned Tonopah & Tidewater RR between Beatty and a connection with the UP at Crucero, CA, and the BNSF at Ludlow, CA.

The long-term prospect for the Mina Branch to connect with southern Nevada should begin by reinstituting commercial rail service south of Wabuska to Hawthorne. Revitalizing the Mina Branch from Hazen to Hawthorne can form the economic and financial anchor for further extensions of the rail line south to Mina, and Esmeralda and Nye Counties, eventually extending further south to complete the long-sought reconnection of north and south Nevada.

There is also discussion of a new technology corridor on the western side of the state that will combine the transfer of utilities and rail to move both freight and people to intersect with the new high speed rail line and the new Ivanpah airport in Jean, NV located in southern Clark county. The citizens of this area need access to both technology and utilities such as a natural gas pipeline.

### *Key Strategies*

- The process of reconstructing a rail line south from Hawthorne to Luning to Mina to Blair Junction to Goldfield Junction can be continued south into Region 8 to Beatty and connections with UP and BNSF by continuing to promote collaboration among mining and energy companies to pool their efforts in the creation of economical direct rail service.
- Transportation opportunities unique to southern Nye County should be explored, such as the inbound movement of dairy feed, fertilizer made from waste recycling in the Los Angeles area, and general transloading near Pahrump to support a local surge in population.

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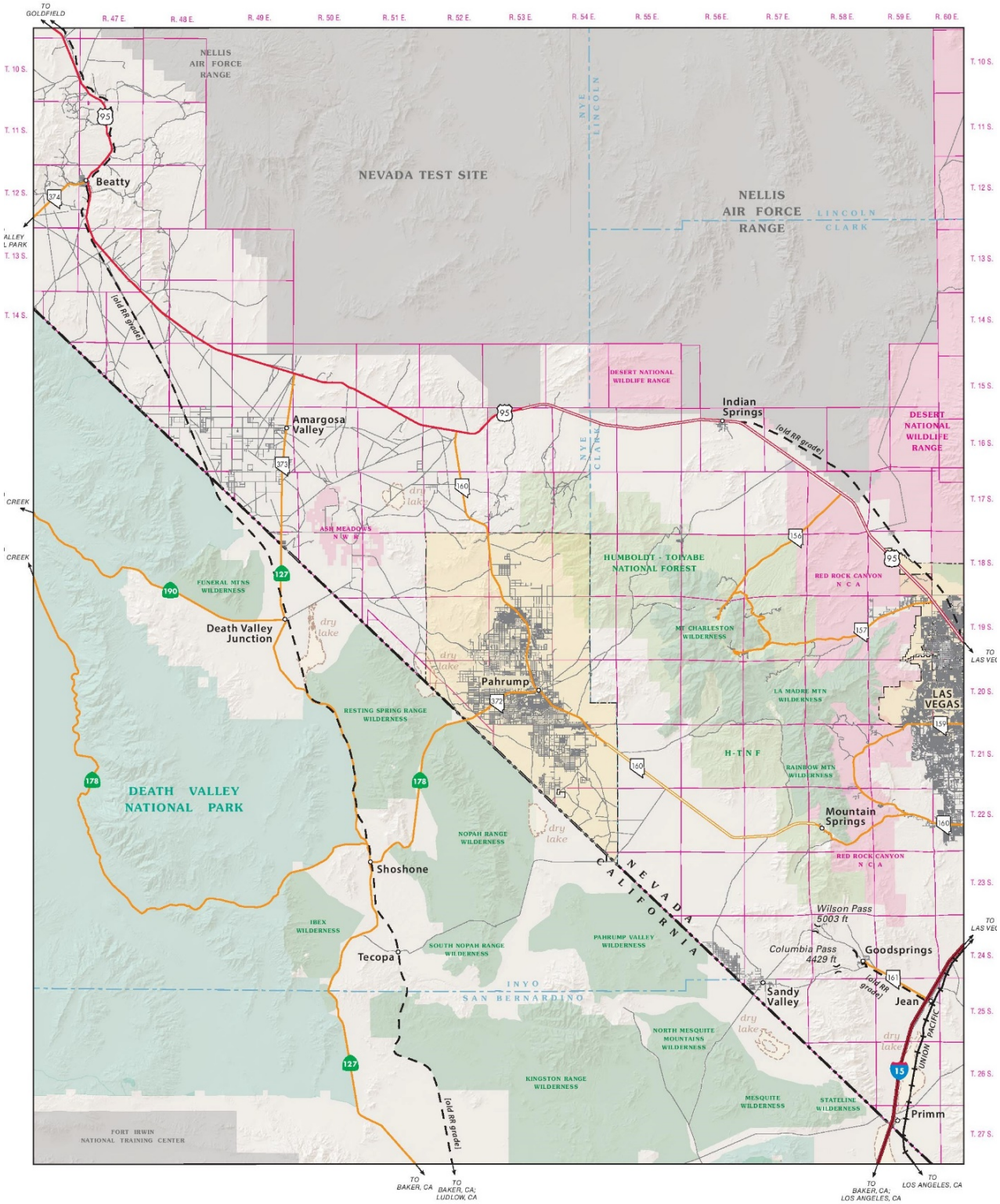
## Figure 4-27: Region 8 – Beatty/Pahrump Area



### *Regional Development Authority*

The regional Development Authority contact for this region is Paul Miller, Nye Co & Esmeralda Regional Economic Development Authority.

## Summary—Nevada Freight Rail Strategic Plan

An on-going entity could be established to triage and promote all the projects enumerated for the eight Regions above, providing a forum for their refinement and implementation.

That entity couple provide the path to the radical inclusion of all commercial decision-makers in Nevada: the mining, warehousing, and manufacturing industries; policy makers; economic development agencies; landowners and land developers; and the railroads. It could assist in the beneficiation of Nevada's natural resources and to the environmentally friendly expansion of Nevada's employment in industries that need to move large quantities of product.

Such an entity could be the clearinghouse for rail information, financing, expertise, and expertise-in-the-making by:

- Creating and managing a website and associated databases, such as continuously upgraded inventories of Nevada's existing sidetracks, high-potential sidetracks, and large-lot shippers
- Facilitating dialogues among Nevada's various commercial stakeholders
- Shepherding a Freight Rail Development Fund; and perhaps most importantly
- Cultivating partnership with Nevada's two rail freight carriers—Union Pacific and BNSF

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