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I. Introduction

Background
The Department of Energy considered the suitability of the Yucca Mountain, Nevada site as a repository under the Nuclear Waste Policy Act of 1982. Transportation of materials for disposal at the site via rail has been studied as one consideration in evaluating the use of the Yucca Mountain site. Use of the Caliente Route for rail transport has been considered in the past. Along the Caliente Route, the track passes near Salt Lake City and Las Vegas. Subsequently, use of the Mina Route has been considered as an option for rail transport. Through Churchill County, the proposed Mina Route makes use of existing Union Pacific Railroad track from Pershing County near Toulon; running south past the west side of the Stillwater Wildlife Management area; toward Hazen; south along the west side of the Lahontan Reservoir into Lyon County; then heads southeast to Mineral County east of Walker Lake toward Hawthorne. The southern portion of the route, in the southern part of Churchill County and through Mineral County, runs along the west edge of the Walker River Indian Reservation. If the Mina Route were used, the majority of shipments passing through Churchill County would follow this route. Additional shipments would originate west of Churchill County and be transported via Fernley to Hazen, then continue to the south on the aforementioned route. One advantage in the Department of Energy’s consideration of the Mina Route is that it requires less new track construction at the south end of the line near Yucca Mountain. Additionally, the Mina Route allows freight to be transported on an alignment that is not proximate to Salt Lake City and Las Vegas.

A series of previous studies related to the Yucca Mountain project, conducted both by Lander County and the DOE, provide important background information for this project. The Lander County Rail Impact Assessment dated January 8, 2004 studies numerous corridors to the Yucca Mountain repository site including the Carlin route. No insurmountable physical barriers to construction have been identified for this route however, it was suggested that additional technical studies and preliminary engineering be initiated to support continuation of corridor selection.

A January 1990 DOE report, Preliminary Rail Access Study, determined that the three routes with the least potential for substantial land use conflicts were the Carlin, Caliente and Jean routes. These routes were recommended for further study. The Caliente and Jean corridors both originate in southern Nevada and are described as having no known conflicts with existing or planned land use activities. The Carlin route was characterized as having minimal conflict with Bureau of Land Management land use plans and would require acquisition of private property along approximately five miles of the alignment's length. The following routes were also studied in the November 1994 Alternative Rail Corridor Study by Lander County:

- Antelope Valley
- Carico Lake Valley
- Carlin
- Crescent Valley
- Grass Valley
- Hickson Summit
- Reese River Valley/Indian Valley

The report concluded that topography constraints would not prohibit further consideration of any of these alternatives.

It is anticipated that about 20,000 rail shipments of spent nuclear rods and other nuclear waste in specially designed steel transport canisters would occur over a 24 year period if the Yucca Mountain site is used. About two shipments per week would be anticipated.
Purpose of This Study
As the Mina Route was being explored and investigated and the EIS prepared, Churchill County was interested in characterizing current and proposed rail operations along the Union Pacific main line through west central Nevada and in identifying possible impacts and mitigations that would result if the Mina Route was selected.

Studying existing and proposed conditions will assist the County in various ways, such as to:

- Assist the County in implementing a land use plan consistent with plans for rail transportation within the County.
- Identify possible impacts and mitigations.
- Provide information on issues that could be of concern to local authorities, agencies and the public.
- Identify issues to be resolved through infrastructure or operational modifications.
- Provide information on approximate rail infrastructure costs.

Scope of This Study
In this study, TranSystems completed the tasks listed below. The first phase of the project was to create a baseline and inventory of current information and data relevant to rail transport associated with the Yucca Mountain project.

- Phase 1: Establish Baseline Information
  - Task 1: Collect and Review Data. In this task, we collected data that was relevant to the issues regarding rail transport through Churchill County. This included the following:
    - Collecting and reviewing data related to the Yucca Mountain shipment campaign.
    - Identifying and describing the generator facilities and the associated number of spent fuel and high-level nuclear waste shipments likely to occur based on input from the County, railroad or public information sources.
    - Collecting information from Union Pacific Railroad (UP), as available, to describe the current operating characteristics and condition of UP rail lines through Churchill County.
    - Collecting data from Nevada Department of Transportation (NDOT) regarding their plans for the U.S. 50 rail crossing (underpass) at Hazen and how that highway widening/new grade separation project might impact planned rail operations and material transport.
    - Collecting other relevant available data such as review of Public Utilities Commission-Nevada (PUCN), U.S. Department of Transportation and/or Federal Railroad Administration (FRA) public highway-rail at-grade crossing information. Status of crossings, crossing widths, and current crossing protection will be assessed. This information will assist in later evaluating any possible upgrades to crossings.
- Collecting information available from the County, County GIS, or other local agency stakeholders, describing surrounding land uses within five miles of either side of the rail corridor, including:
  - Identifying public and private lands.
  - Identifying current land uses along the rail corridor.
  - Identifying potential existing and future conflicts that may expose local residents to the risk of spent nuclear fuel and high-level nuclear waste shipments.
  - Identifying areas of current and future commercial and residential development.
  
  o Task 2: Site Review. In this task, we collected data that is relevant to the issues regarding rail transport through Churchill County.
  
  o Task 3: Periodic Meetings. At various points during the project, meetings and conference calls were conducted.
  
  ▪ Phase 2: Identify Issues and Mitigations: In Phase 2, we identified issues associated with the proposed use of the Mina Route and identified associated mitigation requirements which would improve safety and reduce risk.
    
    o Task 4: Analysis and Preparation of Draft and Final Reports. Based upon the information collected in the earlier tasks, we analyzed the data with the objective of assessing what impacts could be realized by Churchill County if the Mina Route were to be used. This included:
      - Identifying potential issues, concerns, implications, outcomes and risks to the County. Associated with each potential issue, we will identify potential mitigation measures to reduce risk and to improve safety.
      - Identifying users in the region and inventorying crossing type and condition.
      - Describing switching and other train movements in the rail corridor.
      - Identifying information on possible new users.
      - Identifying potential impacts to the County or its residents and businesses resulting from high-level rail operations.
      - Considering locations and characteristics of “safe haven” areas or secured sidings for Yucca Mountain Project shipments.
      - Participating in project update meetings as required.
      - Preparing Draft Report summarizing all findings and including exhibits and graphics to illustrate and explain data.
      - Preparing Final Report importing County or other stakeholder comments as required.
      - Making a final presentation to the County Board of County Commissioners is envisioned as the final step.
Previous Studies

Previous studies relevant to this work include:

- Additional reference documents and information sources are listed under Section VII of this report.

II. Existing Conditions and Facilities

Churchill County

Churchill County, located in central Western Nevada is comprised of 3,144,320 acres (4,900 square miles) and is bound by Pershing County to the north, Lander County to the east, Mineral County to the south and Lyon County to the west. The County population in 2006 was 27,371 and the population of the City of Fallon was 8,299 as stated from the Nevada State Demographer. The U.S. Department of Housing and Urban Development states the 2006 median household income as $53,700. State of Nevada and Churchill County maps are included as Figure 1.

Description of the Proposed Rail Transport Route

Rail transport of spent nuclear materials to the Yucca Mountain repository is the subject of this study. Alternative rail corridors have been the subject of previous studies. Within Nevada, the proposed rail transport route that includes the Mina Rail Corridor uses the existing Union Pacific railroad track from Elko to Winnemucca, south into Pershing County near Toulon; running south past the west side of the Stillwater Wildlife Management area; toward Hazen; then south along the west side of the Lahontan Reservoir into Lyon County; then heading southeast to Mineral County east of Walker Lake toward Hawthorne. South of Hawthorne, about 280 miles of track would need to be constructed in the Mina Rail Corridor and would extend generally southeast, in proximity to Luning, Mina, Sodaville, Blair Junction, Lida Junction, east of Beatty and approaching Yucca Mountain from the south. The exact track alignment in the Mina corridor is subject to on-going study. The preliminary Mina corridor alternatives alignments were based upon initial design and U. S. Geological Survey (USGS) mapping data. Overall, through Nevada, the proposed route passes through Elko, Eureka, Lander, Humboldt, Pershing, Churchill, Lyon, Mineral and Esmerelda Counties, and ultimately into Nye County where Yucca Mountain is located. A map illustrating the existing rail line and proposed alignments titled “Supplemental Yucca Mountain Rail Corridor and Rail Alignment EIS Scoping” is included as Figure 2.

Existing Track Infrastructure

Union Pacific owns the track of the proposed rail route through Nevada. The existing track is primarily single track based on Union Pacific’s typical cross section for main line track. Due to the requirement that Class 1 railroads, such as Union Pacific, must maintain their track in strict compliance with Federal Railroad Administration (FRA) guidelines and to the fact that regular maintenance is required, the track remains in good running condition at all times. FRA guidelines strictly prescribe specific requirements about the full track roadbed section (such as rail, tie, ballast parameters, numbers of spikes, etc. for the running speeds, which typically run to a maximum of about 70 mph). The main line track profiles (slope along the length of
Track horizontal curvature conforms to typical Union Pacific main line design criteria.

Appendix A includes photographs along the alignment and also includes photographs of some of the existing rail served industries in the Fallon area. While the Mina Route does not pass through or near Fallon in the long term, it is likely that Churchill County industrial development will move from Fallon to areas west of Fallon. Exploring the compatibility of this strategy for any synergies or conflicts with the possible Yucca Mountain rail transport is part of this study. Photos 1 through 13 show the existing rail alignment northeast of Hazen. Photos 14 through 58 show existing industrial development areas in Fallon including the track from the Hazen area to Fallon. Photos 59 through 74 show areas west of downtown Fallon which could be among some of the more appropriate areas for future industrial development in Churchill County.

Existing Sidings

There are several sidings of parallel track along the main line in Churchill County. They are used for car storage, passing and other temporary means. The sidings would remain available for Union Pacific use. It is doubtful the Department of Energy would request using any Union Pacific sidings as they would need to be reserved for Union Pacific. The sidings are detailed in the table below and maps of these sidings are located in Figure 3.1. In particular, Figure 3.2 represents the Hazen Siding.

<table>
<thead>
<tr>
<th>Name of Siding</th>
<th>Tangents</th>
<th>Length in Feet</th>
<th>Length in Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miriam</td>
<td>2</td>
<td>7084</td>
<td>1.34</td>
</tr>
<tr>
<td>Ocala</td>
<td>2</td>
<td>8524</td>
<td>1.61</td>
</tr>
<tr>
<td>Huxley</td>
<td>1</td>
<td>4095</td>
<td>0.78</td>
</tr>
<tr>
<td>Parran</td>
<td>1</td>
<td>4347</td>
<td>0.82</td>
</tr>
<tr>
<td>Desert</td>
<td>2</td>
<td>6470</td>
<td>1.23</td>
</tr>
<tr>
<td>Upsal</td>
<td>1</td>
<td>5636</td>
<td>1.07</td>
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<tr>
<td>Falais</td>
<td>1</td>
<td>4506</td>
<td>0.85</td>
</tr>
<tr>
<td>Massie</td>
<td>2</td>
<td>12347</td>
<td>2.34</td>
</tr>
<tr>
<td>Hazen</td>
<td>2</td>
<td>10781</td>
<td>2.04</td>
</tr>
</tbody>
</table>

Union Pacific Railroad's Right-of-Way

Union Pacific owns the property under its main line track. Typically, the track is centered in the railroad right-of-way and the right-of-way appears to be approximately 100' wide, although that width may vary along the length of the line and could possibly be 200' wide at some locations. No public or public agency access onto railroad right-of-way is legally allowed without written permission from the railroad. Any personnel or equipment access within 25' of the center line of the track is not legally allowed unless a railroad safety course has been completed.

Existing At-Grade Crossings

Seven at-grade crossings exist where public roads cross the main line. The three major crossings include:

- UP main line crossing U.S. 95
- UP branch line crossing U.S. 50
- UP branch line crossing Bango Road

Figure 4 depicts the crossings along the Mina Route in Churchill County. At-grade crossings are regulated by the Nevada Public Utilities Commission. The railroad is responsible for construction and maintenance of
track, surface crossing panels and signalization at all at-grade crossings and also is liable for safety at crossings. Crossing improvements or modifications can only be made by joint approval and consent of the railroad, the Public Utilities Commission and the local agency that has jurisdiction over the road. Appendix B includes detailed U.S. Department of Transportation information on the Churchill County crossings along the proposed route, including:

- Detailed map of crossing
- Location and classification of crossing
- Railroad information
- Traffic control device information
- Physical characteristics
- Highway information
- Traffic data

As information only, Appendix C includes data on the Fallon area at-grade crossings. While these are not affected by the proposed rail transport, this does illustrate that the majority of at-grade crossings in the County are not along the Mina route.

**Lahontan Reservoir**

The Lahontan Dam and Reservoir are located partly in Churchill County and partly in Lyon County. The project diverts and stores water from the Truckee and Carson River Basins to irrigate lands near Fallon and to produce hydroelectric power. Drainage water from the irrigated lands flows into the Stillwater Wildlife Management Area. The dam, completed in 1915, is 162 feet high and 1,700 feet long at the top. The reservoir has a storage capacity of 274,000 acre-feet when full. The reservoir is 17 miles long and has 69 miles of shoreline. Lahontan also serves as a state recreation area and is an important recreational resource in Churchill County. The recreation area is open all year with maximum use during the late spring and through summer. Figure 5 is a map of the Lahontan State Recreation Area. U.S. 50 runs along the northwest edge of the reservoir and in this area, the main line track runs parallel to and northwest of U.S. 50. At this location the track comes within closest proximity to a major waterway.

**III. Existing Rail Operations**

**Transportation via Rail**

Railroads offer an extremely attractive freight transportation alternative in terms of cost, safety and environmental impact. Rail transport costs are most cost effective (compared to truck transport) when pulling long blocks of cars from one distant point to another. Cost effectiveness diminishes drastically:

- For short distance hauls. (For hauls less than 500 miles, transportation by truck is almost always a less costly option than transportation by rail.)

- For small volume users or for infrequent users. (When railroads have to pull, switch, and keep track of one and two rail cars at a time, the challenges, costs, and ability to provide good customer service rapidly diminish.)
• When delivering small numbers of rail cars to remote destinations. (When the number of interchange and switching points is reduced, the freight rates can be reduced.)

Figure 6 illustrates existing U.S. sites where radioactive waste is currently located. The distances of these points of origin from Yucca Mountain suggest the obvious desirability of use of rail transport over truck transport.

Appendix D includes a glossary of terms relating to railroad infrastructure and railroad operations.

Appendix E includes the Union Pacific's Guidelines for Rail Service to New Industry Locations and includes a current map. Union Pacific’s Industrial Development Department provides these guidelines as information for local industries that may be looking for new facility locations on Union Pacific’s main line across the United States. The map uses a color code to illustrate the relative congestion of main line traffic along Union Pacific main lines. Red depicts restricted access indicating lines that are most operationally challenged based on line density, service sensitivity and lack of surplus capacity. Yellow depicts controlled access indicating a varying degree of existing operational challenges based on line density, premium product mix, slack capacity and directional operations. Green depicts allowable access which suggests relatively low density lines and some slack capacity such that the main line has capacity sufficient to support the development of new business. The map indicates that most of Nevada is considered “Controlled Access” indicating that the existing main lines have some existing operational challenges, without the addition of future added rail traffic such as the Yucca Mountain transport. However, in such controlled access corridors, Union Pacific might still consider allowing new rail-served industries along that line.

Existing Use of Union Pacific's Main Line Track through Churchill County
Presently, Union Pacific uses its main line to transport intermodal trains and manifest trains between eastern and western points of origin and destination. Union Pacific's main line track running east and west through Nevada carries an estimated 16 to 24 trains per day with a maximum running speed of about 60 to 79 miles per hour. These trains are between 80 and 150 cars each and carry a variety of commodities including but limited to: coal, lumber, auto parts, finished automobile products, propane, ethanol, and ammonia. The portion of the track south of Hazen, the Mina Branch line, carries about two trains per day with maximum running speed of about 20 to 25 miles per hour. Amtrak also utilizes this track running one passenger train each way per day at approximately 70 miles per hour.

Rail Facilities Operations and Maintenance
As a Class 1 railroad, Union Pacific’s core business is in long distance, high volume freight moves. Historically, Class 1 railroads serve a significant number of small industrial users and shorter trains. Over the years, rising labor, construction, maintenance, equipment and fuel costs have changed the business of Class 1 railroads to one that needs to focus on high volume and long distance. Business is thriving because of the use of a strategy which aggregates the business of smaller users into unit trains (a full train of 40 to 48 cars) traveling from one location to another distant location whenever possible.

IV. Proposed Road and Rail Infrastructure Modifications

Rail Infrastructure Modifications
If nuclear materials are not transported via the Mina Route, future modifications along this rail corridor would be planned, paid for and constructed by Union Pacific only at the point in time when the existing capacity of the line is unable to meet transportation demands. Other very high volume rail corridors are double- or triple-tracked to provide extra capacity at the time such capacity is needed. Union Pacific has no current plans for double-tracking along this corridor in the near future although they are pursuing such initiatives in other locations in the western United States.
Union Pacific’s revenues last year were about $13.5 billion with a total number of rail car loads transported at about 9,544,000. If nuclear materials are to be transported via rail on the Mina Route, the total increase in numbers of trains through the corridor would only amount to about a one-tenth percent increase in total freight volumes for Union Pacific and would not necessitate the addition of a second main line track. However, strict FRA guidelines will continue to govern all track infrastructure maintenance or improvements. For the segment of new track that would need to be constructed, it is anticipated that the Department of Energy would take the lead in having this track constructed per current U.S. railroad standards.

Some preliminary consideration was given to whether track re-routing around the Walker River reservation would be advantageous. Various alternative track alignments were considered. Figure 7 shows the location of the Walker River reservation and some of the alignments that had been explored. Re-routing of the track around the north and east side of the reservation is probably not feasible due to the topography of the area.

Nevada Department of Transportation Modifications
Currently and not related to the possible transport of nuclear materials, the Nevada Department of Transportation is planning for one of the existing at-grade crossings be grade-separated for improved safety and transportation efficiency. The average daily traffic (ADT) count along US 50A from the Leapville Junction to Fernley is 7,700. The projected ADT in 2027 is 10,600. About 10% of this count allows for trucks.

This project, a $36 million project, is underway. The project will provide a new bridge structure over the existing main line track. Appendix F shows the current proposed structure plans, elevations and cross section of the U.S. 50 Grade Separation. Union Pacific is not aware of any current discussions or plans for other new grade separations in Churchill County. Grade separations are typically funded by local Department of Transportation or local agencies with the railroad making about a five percent contribution toward the costs.

V. Proposed Road and Rail Future Operations

Anticipated Future Growth in Intermodal Service
All U.S. railroads are noting that intermodal freight volume is on the rise and, accordingly, expect a continued growth of over five percent per year for the coming years. The main line through Churchill County is a primary east – west corridor from Northern California and Pacific Northwest Ports to the east and provides a vital link between Asia and the west to the Midwest and to the east.

Anticipated Future Growth in Manifest Service
Similar to the growth in intermodal rail traffic, manifest service (such as boxcars and bulk materials cars) is also experiencing significant growth of similar magnitude. Union Pacific’s Industrial Development Department manages this portion of the freight business. A strategy toward increasing the number of dedicated trains (trains that carry a single product between one point of origin and a final destination) will likely result in more unit train freight in the future.

Rail Transport of Nuclear Materials
Union Pacific anticipates that by the time the Department of Energy begins to transport nuclear materials, possibly around the year 2017, many factors could change, such as freight volumes, land development and even precise methods of hauling materials. For this reason, projections of conditions should be reviewed, revisited and confirmed as time passes. When railroads transport nuclear materials, that material is transported in special casks that are specifically designed against damage from accidental mishaps. Figure 8 illustrates the containers used for transport.
Union Pacific has handled the transportation of nuclear waste materials in the past including transportation for the Navy and transportation associated with Three Mile Island.

**Proposed Future Operations Associated with Yucca Mountain Transport**
Because Union Pacific is a common carrier, if the Department of Energy asks UP to handle rail transport over the proposed Mina Route, UP would be required to do so. As such, UP is not able to pursue the business nor able to refuse the freight, and UP would act as a contractor for the DOE. All parameters, processes, security procedures and operational requirements would be dictated by DOE and UP would comply with these requirements.

The DOE would be responsible for determining whether or not dedicated trains would be used for nuclear materials transport. In general, dedicated trains cost more to run.

**Other Industrial Development Projects in Nevada**
Future rail traffic in Nevada will increase in the future due to current and on-going industrial development along the I-80 corridor. To respond to market needs, availability of land and close proximity to transportation infrastructure, industrial development is on the rise in Nevada. Figure 9 illustrates some of the current development that is underway or planned. These developments include:

- **Geothermal Rail Industrial Development (GRID)** – commenced planning the nation’s largest renewable energy commercial and industrial park at Hazen. The park is about 4,500 acres in size.
- **Winnemucca, Nevada** – A possible unit train rail facility to accommodate approximately 45 railcars is under consideration at a site west of Winnemucca.
- **Gerlach** – Union Pacific is expanding an existing yard in the Gerlach area to accommodate local industry expansion.
- **Lakemont** - Lakemont Communities has developed a Rail Master plan for the expansion of approximately 1300 acres of the Crossroads Commerce Center Industrial Park, east of Nevada Pacific Parkway. The Rail Master Plan evaluated two primary options for rail service into the propose expansion area. The approximate 1300 acre portion of the industrial park can be rail-served via a second drill track off of the existing industrial park drill track within the Union Pacific right-of-way. According to Union Pacific, this proposed second drill track would extend to the east, parallel the existing Union Pacific main line and cross under the future Nevada Pacific Parkway overpass. Union Pacific has indicated that they would not be amenable to a new main line turnout in such close proximity to the existing main line turnout.
- **Black Butte** – This 118 acre parcel offers rail served industrial parcels from 5 to 100 acre in size. The parcels are not “fixed” in size. The size of the parcels can be tailored to meet the needs of a specific business.
- **Churchill Industrial Development** – Churchill County’s future industrial development is envisioned to be west of Fallon along or near the proposed Mina route.
- **Nevada Cement** - Nevada Cement is developing their existing plant in Fernley, Nevada to accommodate new inbound unit trains of coal from Utah to fuel their existing plant operations. The rail facility will accommodate approximately 95 coal rail cars.
Patrick Team Track – Union Pacific is developing a team track facility to accommodate six rail cars for shared industrial use.

TRI - A lead track extension and three yard tracks at the Tahoe Reno Industrial Center are planned. The track extension includes approximately 10,750 track feet over six box culverts.

Elko - Elko County is considering a master plan and comprehensive site design for the new Northeastern Nevada Regional Railport Multi-Modal Transload Facility, located on a portion of the approximately 800 acres of public lands in Osino, east of Elko, Nevada.

Great Basin Industrial Park – This project contains approximately 2,304 acres of developable land with a potential additional 640 acres being considered for purchase. Approximately 640 acres is designated for residential use. The remaining 1,664 acres is designated as industrial/commercial use.

VI. Issues and Mitigations

Considering transport of nuclear materials could impose various impacts in Churchill County. To assess these, both current and future project conditions in the County should be assessed.

Current Conditions

Figures 10 through 23 illustrate current conditions along the portion of the track that is being considered for use in transporting nuclear materials. For purposes of this discussion, the segments of track will be referred to as:

- North Segment: Main line track from Pershing County to Hazen
- West Segment: Lyon County to Hazen
- South Segment: Branch line south of Hazen

Highlighting some of these current conditions:

- Roads: Roads and their proximity to the Mina Route are illustrated in the Roads Map in Figure 10.
- Land Status: For all segments, properties abutting the Union Pacific right-of-way are a checkerboard including privately owned land and Bureau of Land Management property. See Figure 11.
- Parcels: For all segments, properties abutting the Union Pacific right-of-way are large parcels with public and private ownership as shown on the spreadsheet in Figure 12.
- Zoning: The North Segment is mostly unzoned and is currently undeveloped. The West Segment is zoned commercial on the south side of the track and industrial on the north side of the track. The South Segment has some commercial and industrial zoning and a small amount of residential. See Figure 13.
- Planning Boundaries: Churchill County has done some general land use planning for the future. The North Segment is envisioned to include an industrial area just northeast of Hazen and another industrial area in the northern part of the County. The West Segment is already seeing industrial and commercial development. The South Segment is also envisioned for future industrial use. An airport is being considered in the Hazen area, north of the railroad track. The Fallon area is
envisioned to continue urbanizing and the area surrounding Fallon is planned for agricultural use. See Figure 14.

- **Contours:** All three segments have generally flat topography. See Figure 15.
- **Water Courses:** The North Segment has no significant water courses. The West Segment has some drains in the vicinity. The South Segment has canals and is in proximity to the reservoir, a prime recreational facility in the County. The Carson River is located southwest of the track in the South Segment. See Figure 16.
- **Flood Zones:** The North Segment runs through some areas subject to the 100 year flood, particularly in the northern part of the County. The West Segment abuts no noted flood zones; and the South Segment abuts some 100 year flood zones near the reservoir. See Figure 17.
- **Soils:** Soil types vary along all segments as shown in Figure 18.
- **Grazing Allotments:** Grazing allotments are illustrated in Figure 19.
- **Census Tract-Block:** Census tract-block information is shown in Figure 20.
- **Age of Population by Census Block:** Throughout the County the age of population is generally diverse. See Figure 21.
- **Gender of Population by Census Block:** Gender of population is about evenly split between male and female throughout the County. See Figure 22.
- **Ethnicity of Population by Census Block:** The population throughout the County is primarily Caucasian with a smaller Asian and Hispanic population. The Native American population resides primarily in the tribal lands area. See Figure 23.
- **Biological Data:** Biological species data is currently being compiled for areas within Churchill County.

**Current Developments**

In a June 20, 2007 article in the *ReviewJournal*, “aging pads” were outlined for surface storage planned at the repository. Nuclear waste would accumulate on the surface of Yucca Mountain at a rate of 800 to 1,200 tons annually. Much of the arriving material would be stored in reinforced containers on above ground “aging pads” where it would cool while waiting its turn for emplacement. The pads would be designed to hold up to 15,000 metric tons of waste. DOE officials say aging pads are an element of a “thermal loading” strategy to manage the intense heat generated by decaying nuclear fuel as it would be placed in Yucca Mountain. The DOE is computer modeling the aging pads and has finalized specifications for the canisters. The canisters would be used to ship waste assemblies, store them at the site and bury them underground. The containers are nicknamed “TAD” canisters, an acronym for “transport, aging, disposal”. They would be constructed of borated stainless steel, would be between 15.5 feet and 17.5 feet long with a diameter of 66.5 inches. They would weigh 54.25 tons fully loaded. The canisters are expected to be available by 2012.

In a June 16, 2007 article in the *ReviewJournal*, experts feel fuel can stay secured safely above ground until the new schedule for Yucca Mountain is carved. There are many controversial elements surrounding the project at Yucca Mountain. Under the latest Department of Energy “best achievable” timeline, the repository could begin receiving waste in 2017, although DOE officials concede that 2020 or 2021 is more likely.

In a July 6, 2007 article from the *Pahrump Valley Times*, Nye County introduced The Gateway Center, a conceptual, multi-phased plan for encouraging industrial and commercial development at the entrance to the Yucca Mountain repository site. It includes proposed office parks, research parks, a 435 acre contractors lay down yard, warehousing space, visitors center, a renewable energy park, and 1,375 acres of...
development reserves at the southernmost part that are excluded from residential development. The business opportunities can mitigate impacts of the expanding population and improve schools, medical facilities, recreation opportunities even entertainment venues, the report says. Nye County believes that a number of industrial and commercial opportunities will emerge as a result of repository development and that a certain percentage of people working either directly or indirectly on the Yucca Mountain Project will choose to live in the surrounding area.

**Possible Impacts**

Possible impacts resulting from the proposed Yucca Mountain transport, categorized by type, are as noted below:

**Economic Impacts / Future Industrial Development Impacts**

- Regular freight is currently being transported on the existing Union Pacific line. Any restrictions that would be imposed on commercial uses of the track during the approximate 24 year period when radioactive materials shipments are envisioned could affect future industrial development in the County. Assurances from the DOE and UP can be provided to local industries stating that existing or future rail shipments will not be delayed if trains carrying radioactive waste are given priority or are guaranteed expedited service. Future industrial development off of the UP line in Churchill County will require the addition of new main line turnouts and the concern is there could be reluctance by the railroad to take on additional industrial switching, as it will become more critical than ever to reduce rail traffic and switching moves from the main line.

- There is a potential that the railroad's freight rates will be increased if the radioactive transport trains run through Churchill County, meaning the operational challenges to handle regular freight concurrently may make the railroad less inclined to provide service to new customers in this corridor.

- If facilities need to be constructed, rehabilitated, maintained or inspected during the period of use, local civilian jobs could be created which would be a benefit to the County. It would be important to understand the DOE's intent to set local business hiring goals or set-asides to benefit the County.

- There are areas planned for future commercial / industrial development that will be under development during the time period the route would be used for radioactive material transport. In DOE's assessment of impacts and mitigations, these planned areas need to be given consideration even though they are not developed at the time the supplementary EIS investigation is done. The County has expended planning and marketing resources to lay the groundwork, and it is crucial that this effort is not wasted and future development comes to fruition.

- The Hazen area is planned for continued industrial growth stemming from its location, close proximity to transportation infrastructure, and local geothermal resources. It will be important to the County that rail access be preserved to access new industries and new industrial parks without impacts from the possible nuclear materials transport. Future users may have varying needs for rail service. Some may need just a few rail cars delivered on an infrequent basis and others may require more frequent delivery of a greater number of rail cars and possibly even have need for unit train service. Service to all types of potential users will need to be provided without impacts from the transport of radioactive materials.

- The County has a growing workforce and needs to develop new jobs. Transport through the County creates traffic without local economic gain. If radioactive material was transported through the County, an investment in infrastructure to create jobs and to provide training opportunities to the citizens would be necessary to the extent possible. Projecting the number of local jobs, average pay scale and duration of jobs during construction of new facilities will assist in understanding the extent to which the project will offer employment benefit to the local community.
Planning requirements that encourage the use of the local workforce, training opportunities and union versus non-union jobs is of interest as well. Developing an approach which would use the local community college as a resource for a skill base of personnel for infrastructure work (which would result if rail transport on the Mina Route is ultimately implemented) would be desirable.

- An estimate of secondary employment (offering local services and goods during the 24 year period of possible use of the Mina Route) could benefit the County and could be the subject of a separate study.
- Property values, the ability to attract visitors, and protecting and enhancing property tax revenues are critical issues in counties along the Mina Route. Nuclear transport through the County could provide a negative impact on these issues if mitigations are not provided.
- The local community could be subject to additional costs, such as costs to pay for emergency response professionals who may be needed if the Mina Route is selected. Information from the DOE on the DOE’s approach to emergency response will be necessary to understand local expenses and staffing. Any local community requirement to provide emergency response personnel or facilities would be a negative impact unless DOE funding for this is provided.
- Some concerns have been voiced by local agricultural businesses, in particular an organic dairy farmer, that worries his product will no longer be considered organic if nuclear waste is transported in the general vicinity of the farm.

Railroad / Traffic / Safety

- Safety impacts will be influenced by operating parameters that will be imposed on the railroad handling the transportation. Information on limitations and requirements will be necessary regarding train operating speed, total timeframes for transport, and dwell time in yards or on sidings. This information will be required to assess potential County impacts. There is a possible safety trade-off between using slower operating speeds (and having prolonged exposure times to radioactive materials) versus faster operating speeds (and shorter exposure times). Understanding how operating parameters imposed by the Department of Energy on the hauling railroad would be monitored and enforced for compliance will also affect potential impacts as will penalties imposed for non-compliance.
- The number of existing intermodal trains, manifest trains, chemical trains and auto trains could provide a cumulative impact on the County. Projected regular manifest, intermodal, auto and chemical train trips need to be reviewed separately from the additional train trips which will result from the transport of radioactive materials by rail. Similarly, truck (hazardous materials and non-hazardous materials, separately) and auto breakdowns need to be reviewed during the investigation of traffic impacts. Loaded and empty trains should be considered separately.
- Nationwide, existing railroad main lines are operating at maximum capacity with many corridors being double- and triple-tracked by the Class 1 railroads. Any future double tracking in portions of the Mina Route is not expected, but if done, could provide both positive and negative impacts to the County. As a positive, double-tracking could assist in providing safe train passing and not impede existing and projected regular railroad freight transport. A negative could be a slight increase in noise and additional safety risk at at-grade crossings.
- Various at-grade crossings are present along the Mina Route where railroad track and public or private roads cross. One existing crossing (the Highway 50/railroad crossing) is currently slated for grade separation. Grade separating the other crossings and grade separating future road crossings as the County develops would be an important safety mitigation. This would reduce risk...
of at-grade crossing incidents between trains and commercial vehicles, hazardous materials trucks, bikes and pedestrians.

- For existing or future at-grade crossings not warranting grade separation, additional or upgraded at-grade crossing protection (signalization, signage, crossing panel improvements, driving surface improvements, striping, and line-of-sight improvements) would be an important means to enhance safety for the local citizenry.

- A detailed assessment of the existing track will be required. This assessment will need to identify where modifications will be made to the track in order to meet FRA criteria established for the FRA track class and running speed. Those plans for modifications could pose some impacts to the County.

- If the Mina Route is used and new rail transport support facilities are anticipated, they will need to be assessed for any impacts they may pose to the County. Such facilities could include new crew change facilities, fueling facilities, special security facilities or other facilities apart from new track infrastructure. These facilities could have positive or negative impacts, possibly providing new employment opportunities or, in the case of a fueling facility, could provide negative impacts.

- Approximately 130 train shipments per year are anticipated for 24 years. The timing and frequency of these shipments could create new safety risks if train crossings coincide with daily, weekly and seasonal peak vehicular traffic volumes at the crossings.

- In the previous EIS study of alternative rail alignments, there is little detail about the specifics of the proposed track geometry, layout and profile. Additional field surveys and environmental and engineering analysis would be required in order to evaluate the specific alignment. For alternatives evaluated along the Mina Route, the results of these field surveys and environmental and engineering analyses (which dictate parameters as feasible) dictate the maximum profile slopes, degrees of curvature and track geometry and would need to be reviewed for possible impacts to the County.

- Churchill County's Land Use Plan has identified and designated bike routes in the area of possible impact. Mitigations to protect the safety of the biking public, in light of rail safety issues at crossings, could reduce new safety risks.

- Some portions of the existing railroad right-of-way serve dual purposes, such as pipeline rights-of-way for jet fuel to Fallon Naval Air Station, gas transmission and fiber optics, and similar underground infrastructure. Any impacts to the ability to maintain or repair these facilities imposed by radioactive material transport could pose negative impacts for the County. For example, contingency plans would need to be put in place to handle a fuel leak concurrent with rail traffic. Special provisions or easements may need to be maintained for public safety and serviceable infrastructure.

- In past investigations of alternative routes, analysis of worst case mishap scenarios was completed. Similar scenarios with consideration of conditions on alternative alignments on the Mina Route should be included as an assurance to the County regarding impacts.

- Past studies have included radiation exposure calculations. Similar scenarios should be analyzed especially given the proximity of existing and planned commercial/residential development on the Mina Route. The results should be included as an assurance to the County when considering impacts. If assurances are not adequate, future commercial and residential growth in the County will be affected.

- The DOE will need to address the process for funding all of the required infrastructure modifications. The local community has no excess funds available to take on infrastructure improvements associated with transportation of hazardous materials.
A significant portion of the existing and projected truck traffic in the area involves transport of fuel and flammable or otherwise hazardous materials. Due to concern over increased train traffic interfacing with hazardous truck traffic, there is a greater potential for accidents. In this case, grade separations would help mitigate this impact.

Security / Safety

- There is a risk of conflicts or schedule impacts to train transport of commercial or radioactive loads. Providing new sidings adjacent to the mainline could help mitigate this risk. Sidings would need to be secured and/or guarded and the locations and lengths be defined. While use of existing sidings is not likely, any use of existing unsecured sidings could provide negative impacts to the County.
- Final design, construction and maintenance of security infrastructure, hardware, facilities, surveillance and security staffing during and between shipments of radioactive materials would need to be assessed for impacts to the County.
- The final planning, design and location of safe havens would also need to be assessed for impacts to the County.
- Any incidents (threat, spill, or derailment) could cause economic and physical damage to the County. Assessment of the DOE’s anticipated funding, training or other expectations from local agency/emergency response officials needs to be made. Specific mitigations to deal with evacuations or loss of use of facilities for false alarms should be considered. The costs for potential evacuations whether resulting from actual mishap or concern of mishap could be significant. Defining a fair means to reimburse the County for costs due to incidents or threats would be an important mitigation.

Operations Impacts

- In the past several years, significant weather related damage (floods, landslides, etc.) plagued the railroads and as a result train traffic nationwide was slowed and in some cases completely stopped. In the event of a track outage in the U.S. rail system (not on the Mina Route) requiring trains to be re-routed to the Mina Route, the numbers of trains per day would increase causing traffic and potential rail service impacts to the County. In the event of a track outage outside of Churchill County, trains could be stranded in Churchill County creating an impact of greater potential for exposure or security breach.
- The number of trains per day carrying one or more railcars of radioactive waste will be greatly impacted by the choice of whether or not dedicated trains are used. Traffic impacts in the County will vary depending on this decision. The maximum and minimum numbers of railcars of radioactive materials per train and the maximum and minimum train lengths could provide varying impacts.
- Hazen, Nevada is located such that radioactive waste from western points of origin will mix with radioactive waste from eastern and Midwestern points of origin. Where this interchange point occurs could introduce varying impacts to the County.
- From a nationwide transportation perspective, the requirements for interchanging the freight from the east coast railroads to the west coast railroads is critical in terms of reducing dwell time and thus the time that people might be in proximity or be exposed to the radioactive freight, whether inside or outside the bounds of Churchill County itself. This would be a point where human exposure to freight could occur, posing associated risks.
The planned process for providing advance notice to the County regarding the schedule for rail shipments of radioactive waste could pose some impact. Verifying the method and timing of this advance notification would be needed to assess this potential impact.

Water Resources / Flood / Drainage / Irrigation

- There are multiple drainage and water courses crossing and in proximity to the existing main line. Lahontan Reservoir is an important recreational and water resource in the area. Railroad track alignment changes may be necessary near the Lahontan Reservoir and water course or other water facility modifications could be needed. Emergency spill response procedures will need to be implemented for accidental spills near water courses if track re-alignment is not done. Particularly critical would be any potential incident in the immediate vicinity of Lahontan Reservoir.

- Floodplain areas are prevalent along the Mina Route. Consideration of track re-routing or raising the track above flood levels would be possible mitigations. Both new infrastructure and on-going maintenance issues to protect against flooding need to be addressed.

Natural Resources / Agriculture / Grazing / Biological

- Impacts on grazing and any secondary impacts of exposure of radioactive materials to agriculture/cattle/food sources over short- and long-term should be assessed.

- Agricultural resources are a valuable asset in Churchill County. Measures that will be provided to maintain safe access to and protection of this resource would need to be assessed.

- Approximately 2000 archeological sites are present in Churchill County. The proposed transport could affect access to and safety of these resources. Mitigations for impacts to these resources would need to be assessed for those sites in proximity to the track.

- Local natural resources include geothermal resources, mining and other underground natural resources. Any impacts to accessing land containing underground natural resources will need to be mitigated.

- Impacts on biological resources and endangered species shall be investigated and mitigations suggested.

Social Justice

- Unemployment in Churchill County is about 6.9%, slightly above the State level of 5.4%. Local per capita income of $23,888 in 2001 matched a historic level of about 80% of the statewide level. The DOE should compare issues of social/economic justice of alignments within Churchill County and compare the Mina Route to other routes previously investigated.

Land Use

- There is concern over the procurement of properties via eminent domain in order to control and secure buffer zones on both sides of the alternative rail alignments. Using eminent domain could financially impact local residents and property owners. Similarly, if new easements need to be created, the locations, widths and methods for procurement need to be explored and assessed.
- Planned additional railroad right-of-ways need to be identified. Identification of right-of-ways to be acquired, ownership, and/or any relinquishment of existing rail right-of-ways should be reviewed in detail for assessment of impacts.

- The planned alignments could affect existing and planned residential and commercial facilities in Churchill County. Where alignments are within general proximity to existing and planned residential and commercial facilities, re-routing of the track would be a possible mitigation.

- The local community has aggressively worked to develop and enhance recreational assets such as parks, community centers, trails and bike paths. The proposed transport could affect use of these assets. The desired mitigation would be to provide a safe distance from transportation facilities.

VII. References and Information Sources
The various references used in the course of this study included documents, reports and data provided by:

- Churchill County.
- Union Pacific Railroad’s Technical Standards.
- Nevada Department of Transportation.
- Nevada Public Utilities Commission.
- Department of Energy.
Appendix A: Photographs
Appendix A: Photographs
Appendix A: Photographs
Appendix A: Photographs
Appendix A: Photographs

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Appendix A: Photographs

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Appendix A: Photographs
Appendix A: Photographs
Current Record
U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 8/21/2007
Crossing No.: 740765S
Update Reason: Changed Crossing
Effective Begin-Date of Record: 03/10/03
Railroad: UP Union Pacific RR Co. [UP ]
Initiating Agency State Type and Position: Public At Grade

Part I Location and Classification of Crossing

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<th>NV</th>
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<td>Public Access:</td>
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Private Crossing Information:

Category: Specify Signs: ST/RR A
Specify Signals: ST/RR B
Railroad Use: ST/RR C
State Use: ST/RR D
Narrative:

Emergency Contact: (800)848-8715 Railroad Contact: State Contact: (775)888-7462

Part II Railroad Information

Number of Daily Train Movements:

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Less Than One Movement Per Day: No
Typical Speed Range Over Crossing: From 10 to 79 mph
Maximum Time Table Speed: 79
Type and Number of Tracks: Main: 1 Other 0

Does Another RR Operate a Separate Track at Crossing? No
Does Another RR Operate Over Your Track at Crossing? Yes: UP BN ATK

Specify:
Part III: Traffic Control Device Information

Signs:
- Crossbucks: 0
- Advanced Warning: Yes
- Pavement Markings: Stop Lines and RR Xing Symbols
- Highway Stop Signs: 0
- Hump Crossing Sign: No
- Other Signs: 0

Train Activated Devices:
- Gates: 2
- Mast Mounted FL: 0
- Cantilevered FL (Over): 2
- Other Flashing Lights: 0
- Highway Traffic Signals: 0
- Other Train Activated Warning Devices: None
- Channelization: None
- Track Equipped with Train Signals?: Yes
- 4 Quad or Full Barrier: 0
- Total Number FL Pairs: 0
- Cantilevered FL (Not over): 2
- Specify Other Flashing Lights: 0
- Wigwags: 0
- Bells: 2
- Type of Train Detection: Constant Warning Time
- Interconnection/Preemption: N/A

Part IV: Physical Characteristics

Type of Development: Open Space
Smallest Crossing Angle: 30 to 59 Degrees
Number of Traffic Lanes: 2
Are Truck Pullout Lanes Present?: No
Is Highway Paved?: Yes
Rubber
Cantilevered FL (Over): 2
Specify Other Flashing Lights: 0
Cantilevered FL (Not over): 2
Traffic Light Interconnection/Preemption: N/A
Is Crossing Illuminated?: No
If Other:
Nearby Intersecting Highway?: N/A
Is it Signalized?: No
Does Track Run Down a Street?: No
Is Commercial Power Available?: Yes

Part V: Highway Information

Highway Information: Other National Highway
Additional Highway Information: Rural Other Principal Arterial
Is Crossing on State Highway System?: Yes
Annual Average Daily Traffic (AADT): 000920
AADT Year: 2001
Estimated Percent Trucks: 21
Avg. No of School Buses per Day: 0
Posted Highway Speed: 70
U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 8/21/2007

Crossing No.: 740764K  Update Reason: Changed Crossing  Effective Begin-Date of Record: 03/19/03
Railroad: UP Union Pacific RR Co. [UP ]  Current Record
Initiating Agency State Type and Position: Private At Grade

Part I Location and Classification of Crossing

Division: ROSEVILLE  State: NV
Subdivision: NEVADA  County: CHURCHILL
Branch or Line Name: OVERLAND ROUTE  City: Near LOVELOCK
Railroad Milepost: 0313.00  Street or Road Name: NEAR PARRAN
RailRoad I.D. No.:  5-10
Nearest RR Timetable Stn: PARRAN  HSR Corridor ID:
Parent Railroad: UP Union Pacific RR Co. [UP ]  County Map Ref. No.: 5-10
Crossing Owner:
ENS Sign Installed: Yes  Lat/Long Source: Actual
Passenger Service: AMTRAK
Avg Passenger Train Count: 2  Quiet Zone: No
Adjacent Crossing with Separate Number:

Private Crossing Information:
Category:  Public Access:
Signs Specify Signs: RR PVT & STOP Specify Signals:
               ST/RR A   ST/RR B   ST/RR C   ST/RR D
Railroad Use:
State Use:

Narrative:

Emergency Contact: (800)848-8715  Railroad Contact:  State Contact: (775)888-7462

Part II Railroad Information

Number of Daily Train Movements:
Less Than One Movement Per Day: Yes
Total Trains: 0  Total Switching: 0  Day Thru: 0
Typical Speed Range Over Crossing: From 0 to 0 mph  Maximum Time Table Speed: 0
Type and Number of Tracks: Main: 0  Other: 0  Specify:
Does Another RR Operate a Separate Track at Crossing?
Does Another RR Operate Over Your Track at Crossing?
Part III: Traffic Control Device Information

Signs:
- Crossbucks: 0
- Advanced Warning: 
- Pavement Markings:
- Highway Stop Signs: 0
- Hump Crossing Sign:
- Other Signs: 0
- Specify:

Train Activated Devices:
- Gates: 0
- Mast Mounted FL: 0
- Cantilevered FL (Over): 0
- Other Flashing Lights: 0
- Highway Traffic Signals: 0
- Other Train Activated Warning Devices:
- Special Warning Devices Not Train Activated:
- Type of Train Detection:
- 4 Quad or Full Barrier:
- Total Number FL Pairs: 0
- Cantilevered FL (Not over): 0
- Specify Other Flashing Lights:
- Wigwags: 0
- Bells: 0

Part IV: Physical Characteristics

Type of Development: Smallest Crossing Angle:
Number of Traffic Lanes Are Truck Pullout Lanes Present?
Crossing Railroad:
Is Highway Paved? If Other:
Crossing Surface:
Nearby Intersecting Highway:
Does Track Run Down a Street?
Is Commercial Power Available?

Part V: Highway Information

Highway System: Functional Classification of Road at Crossing:
Is Crossing on State Highway System:
Annual Average Daily Traffic (AADT): AADT Year: 1970
Estimated Percent Trucks: Avg. No of School Buses per Day: 0
Posted Highway Speed: 0
U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 8/21/2007

Crossing No.: 740976N  Update Reason: Changed Crossing  Effective Begin-Date of Record: 09/24/02
Railroad: UP Union Pacific RR Co. [UP ]  Current Record
Initiating Agency State  Type and Position: Private At Grade

Part I Location and Classification of Crossing

Division: ROSEVILLE  State: NV
Subdivision: FALLOM  County: CHURCHILL
Branch or Line Name: FALLOM BRANCH  City: Near FALLOM
Railroad Milepost: 0293.15  Street or Road Name: EAST OF HAZEN
RailRoad I.D. No.: 09/24/02  County Map Ref. No.: 5-10
Nearest RR Timetable Stn: HAZEN  HSR Corridor ID:
Parent Railroad: UP Union Pacific RR Co. [UP ]  County Map Ref. No.: 5-10
Crossing Owner:
ENS Sign Installed: Yes  Latitude: 39.5014190
Passenger Service: None  Longitude: -119.0399250
Avg Passenger Train Count: 0  Lat/Long Source: Estimate
Adjacent Crossing with Separate Number: No

Private Crossing Information:
Category:  Public Access:
Signs  Specify Signs: RR PVT & STOP  Specify Signals:
ST/RR A  ST/RR B  ST/RR C  ST/RR D

Railroad Use:
State Use:

Narrative:

Emergency Contact: (800)848-8715  Railroad Contact: State Contact: (775)888-7462

Part II Railroad Information

Number of Daily Train Movements: Less Than One Movement Per Day: Yes
Total Trains: 0  Total Switching: 0  Day Thru: 0
Typical Speed Range Over Crossing: From 0 to 0 mph  Maximum Time Table Speed: 0
Type and Number of Tracks:
  Main: 0  Other: 0

Does Another RR Operate a Separate Track at Crossing?
Does Another RR Operate Over Your Track at Crossing?
Part III: Traffic Control Device Information

Signs:
- Crossbucks: 0
- Advanced Warning: 0
- Pavement Markings: 0
- Highway Stop Signs: 0
- Hump Crossing Sign: 0
- Other Signs: 0

Train Activated Devices:
- Gates: 0
- Mast Mounted FL: 0
- Cantilevered FL (Over): 0
- Other Flashing Lights: 0
- Highway Traffic Signals: 0
- Special Warning Devices Not Train Activated:
- Other Train Activated Warning Devices: 0
- Channelization: 0
- Track Equipped with Train Signals?: 0
- Type of Train Detection: 0
- Traffic Light Interconnection/Preemption: 0

Part IV: Physical Characteristics

Type of Development: Smallest Crossing Angle:
- Number of Traffic Lanes Are Truck Pullout Lanes Present?
- Crossing Railroad: 0
- Is Highway Paved? If Other:
- Crossing Surface: 0
- Nearby Intersecting Highway: Is it Signalized?
- Does Track Run Down a Street? Is Crossing Illuminated?
- Is Commercial Power Available?

Part V: Highway Information

Highway System: Functional Classification of Road at Crossing:
- Is Crossing on State Highway System: 0
- Annual Average Daily Traffic (AADT): AADT Year: 1970
- Estimated Percent Trucks: Avg. No of School Buses per Day: 0
- Posted Highway Speed: 0
**U.S. DOT - CROSSING INVENTORY INFORMATION**  
**AS OF  8/21/2007**

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### Part I  Location and Classification of Crossing

- **Division:** ROSEVILLE
- **Subdivision:** MINA
- **Branch or Line Name:** MINA BRANCH
- **Railroad Milepost:** 0292.70
- **RailRoad I.D. No.:**
- **Nearest RR Timetable Strn:** HAZEN
- **Parent Railroad:** UP Union Pacific RR Co. [UP ]
- **Crossing Owner:**
- **ENS Sign Installed:** Yes
- **Passenger Service:** None
- **Avg Passenger Train Count:** 0
- **Adjacent Crossing with Separate Number:** No

#### Private Crossing Information:

- **Category:**
- **Specify Signs:**
  
  - ST/RR A
  - ST/RR B
  - ST/RR C
  - ST/RR D

- **Railroad Use:**
- **State Use:**
- **Narrative:**

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- **Emergency Contact:** (800)848-8715  
  
  - State Contact: (775)888-7462

### Part II  Railroad Information

- **Number of Daily Train Movements:**
  
  - **Total Trains:** 2
  - **Total Switching:** 0
  - **Day Thru:** 1
- **Typical Speed Range Over Crossing:** From 10 to 25 mph
- **Type and Number of Tracks:**
  
  - **Main:** 0
  - **Other:** 1
- **Does Another RR Operate a Separate Track at Crossing?** No
- **Does Another RR Operate Over Your Track at Crossing?** No
- **Less Than One Movement Per Day:** No
- **Maximum Time Table Speed:** 25
- **Specify:** BRANCHLINE
Part III: Traffic Control Device Information

<table>
<thead>
<tr>
<th>Signs</th>
<th>Traffic Control Device Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crossbucks:</td>
<td>2</td>
</tr>
<tr>
<td>Advanced Warning:</td>
<td>No</td>
</tr>
<tr>
<td>Pavement Markings:</td>
<td>No Markings</td>
</tr>
<tr>
<td>Type of Development:</td>
<td>Smallest Crossing Angle: 60 to 90 Degrees</td>
</tr>
<tr>
<td>Number of Traffic Lanes:</td>
<td>1</td>
</tr>
<tr>
<td>Crossing Railroad:</td>
<td>Are Truck Pullout Lanes Present? No</td>
</tr>
<tr>
<td>Is Highway Paved?</td>
<td>No</td>
</tr>
<tr>
<td>Crossing Surface:</td>
<td>Smallest Crossing Angle: 60 to 90 Degrees</td>
</tr>
<tr>
<td>Nearby Intersecting Highway?</td>
<td>N/A</td>
</tr>
<tr>
<td>Does Track Run Down a Street?</td>
<td>No</td>
</tr>
<tr>
<td>Is Commercial Power Available?</td>
<td>No</td>
</tr>
</tbody>
</table>

Part IV: Physical Characteristics

<table>
<thead>
<tr>
<th>Physical Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Development:</td>
</tr>
<tr>
<td>Number of Traffic Lanes:</td>
</tr>
<tr>
<td>Crossing Railroad:</td>
</tr>
<tr>
<td>Is Highway Paved?</td>
</tr>
<tr>
<td>Crossing Surface:</td>
</tr>
<tr>
<td>Nearby Intersecting Highway?</td>
</tr>
<tr>
<td>Does Track Run Down a Street?</td>
</tr>
<tr>
<td>Is Commercial Power Available?</td>
</tr>
</tbody>
</table>

Part V: Highway Information

<table>
<thead>
<tr>
<th>Highway Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway System:</td>
</tr>
<tr>
<td>Is Crossing on State Highway System:</td>
</tr>
<tr>
<td>Annual Average Daily Traffic (AADT):</td>
</tr>
<tr>
<td>Estimated Percent Trucks:</td>
</tr>
<tr>
<td>Posted Highway Speed:</td>
</tr>
</tbody>
</table>

Effective Begin-Date of Record: 09/23/03
U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF  8/21/2007

Crossing No.:  740974A  
Update Reason:  Changed Crossing  
Effective Begin-Date of Record:  12/03/98  
Railroad:  UP  Union Pacific RR Co. [UP ]
Initiating Agency State  
Type and Position:  Public At Grade

Part I  Location and Classification of Crossing

<table>
<thead>
<tr>
<th>Division:</th>
<th>SACRAMENTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subdivision:</td>
<td>SALT LAKE</td>
</tr>
<tr>
<td>Branch or Line Name:</td>
<td>BR-FALLON</td>
</tr>
<tr>
<td>Railroad Milepost:</td>
<td>0289.60</td>
</tr>
<tr>
<td>RailRoad I.D. No.:</td>
<td></td>
</tr>
<tr>
<td>Nearest RR Timetable Stn.:</td>
<td>HAZEN</td>
</tr>
<tr>
<td>Parent Railroad:</td>
<td></td>
</tr>
<tr>
<td>Crossing Owner:</td>
<td></td>
</tr>
<tr>
<td>ENS Sign Installed:</td>
<td></td>
</tr>
<tr>
<td>Passenger Service:</td>
<td></td>
</tr>
<tr>
<td>Avg Passenger Train Count:</td>
<td>0</td>
</tr>
<tr>
<td>Adjacent Crossing with Separate Number:</td>
<td></td>
</tr>
</tbody>
</table>

Private Crossing Information:

Category:  
Specify Signs:  
ST/RR A  ST/RR B  ST/RR C  ST/RR D

Railroad Use:  
State Use:  
Narrative:  

Emergency Contact:  (800)848-8715  
Railroad Contact:  
State Contact:

Part II  Railroad Information

Number of Daily Train Movements:  
Less Than One Movement Per Day:  No  
Total Trains:  2  
Total Switching:  0  
Day Thru:  1  
Typical Speed Range Over Crossing:  From 5 mph to 10 mph  
Maximum Time Table Speed:  79  
Type and Number of Tracks:  Main:  1  
Specify:  Other  0  
Does Another RR Operate a Separate Track at Crossing?  No  
Does Another RR Operate Over Your Track at Crossing?  No
**Part III: Traffic Control Device Information**

**Signs:**
- Crossbucks: 0
- Advanced Warning: No
- Pavement Markings: No Markings
- Highway Stop Signs: 2

**Train Activated Devices:**
- Gates: 0
- Mast Mounted FL: 0
- Cantilevered FL (Over): 0
- Other Flashing Lights: 0
- Highway Traffic Signals: 0
- Special Warning Devices Not Train Activated: None
- Type of Train Detection: None
- Interconnection/Preemption: None

**Part IV: Physical Characteristics**

- Type of Development: Open Space
- Smallest Crossing Angle: 60 to 90 Degrees
- Number of Traffic Lanes: 1
- Are Truck Pullout Lanes Present? No
- Is Highway Paved? No
- UnConsolidated
- Is it Signalized? No
- Is Crossing Illuminated? No
- Is Commercial Power Available? No

**Part V: Highway Information**

- Highway System: Non-Federal-aid
- Is Crossing on State Highway System: No
- Functional Classification of Road at Crossing: Rural Local
- Annual Average Daily Traffic (AADT): 000001
- AADT Year: 1995
- Estimated Percent Trucks: 20
- Avg. No of School Buses per Day: 0
- Posted Highway Speed: 0
U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 8/21/2007

Crossing No.: 740905S  Update Reason: Changed Crossing  Effective Begin-Date of Record: 09/23/03
Railroad: UP  Union Pacific RR Co. [UP ]  Current Record
Initiating Agency State  Type and Position: Public At Grade

Part I Location and Classification of Crossing

<table>
<thead>
<tr>
<th>Division: ROSEVILLE</th>
<th>State: NV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subdivision: MINA</td>
<td>County: CHURCHILL</td>
</tr>
<tr>
<td>Branch or Line Name: MINA BRANCH</td>
<td>City: Near SILVER SPRINGS</td>
</tr>
<tr>
<td>Railroad Milepost: 0288.80</td>
<td>Street or Road Name: US 50 ALTERNATE</td>
</tr>
<tr>
<td>RailRoad I.D. No.: AN288.8</td>
<td>Highway Type &amp; No.: US 50A</td>
</tr>
<tr>
<td>Nearest RR Timetable Stn: HAZEN</td>
<td>HSR Corridor ID:</td>
</tr>
<tr>
<td>Parent Railroad: UP Union Pacific RR Co. [UP ]</td>
<td></td>
</tr>
<tr>
<td>Crossing Owner:</td>
<td></td>
</tr>
<tr>
<td>ENS Sign Installed: Yes</td>
<td></td>
</tr>
<tr>
<td>Passenger Service: None</td>
<td></td>
</tr>
<tr>
<td>Avg Passenger Train Count: 0</td>
<td></td>
</tr>
<tr>
<td>Adjacent Crossing with Separate Number: No</td>
<td></td>
</tr>
</tbody>
</table>

Private Crossing Information:

| Category: |
| Specify Signs: |

| Railroad Use: |
| State Use: |

| Narrative: |

Emergency Contact: (800)848-8715  Railroad Contact:  State Contact: (775)888-7462

Part II Railroad Information

Number of Daily Train Movements: 2  Less Than One Movement Per Day: No
Total Trains: 2  Total Switching: 0  Day Thru: 1
Typical Speed Range Over Crossing: From 5 to 20 mph  Maximum Time Table Speed: 20
Type and Number of Tracks: Main: 0  Other: 1  Specify: BRANCHLINE

Does Another RR Operate a Separate Track at Crossing? No
Does Another RR Operate Over Your Track at Crossing? No
Part III: Traffic Control Device Information

**Signs:**
- Crossbucks: 0
- Advanced Warning: Yes
- Pavement Markings: Stop Lines and RR Xing Symbols
- Highway Stop Signs: 0
- Hump Crossing Sign: No
- Other Signs: Specify: 0

**Train Activated Devices:**
- Gates: 2
- Mast Mounted FL: 2
- Cantilevered FL (Over): 0
- Other Flashing Lights: 0
- Highway Traffic Signals: 0
- Other Train Activated Warning Devices: None
- Track Equipped with Train Signals?: No
- 4 Quad or Full Barrier: 2
- Total Number FL Pairs: 2
- Cantilevered FL (Not over): 0
- Specify Other Flashing Lights: 0
- Wigwags: 0
- Bell: 2
- Type of Train Detection: Constant Warning Time
- Traffic Light Interconnection/Preemption: N/A

Part IV: Physical Characteristics

**Type of Development:** Open Space

**Number of Traffic Lanes:** 2

**Crossing Railroad:** Yes

**Crossing Surface:** Rubber

**Are Truck Pullout Lanes Present?** No

**If Other:** N/A

**Smallest Crossing Angle:** 30 to 59 Degrees

**Does Track Run Down a Street?** No

**Is it Signalized?** No

**Is Commercial Power Available?** Yes

**Is Crossing Illuminated?** No

Part V: Highway Information

**Highway System:** Other National Highway

**Is Crossing on State Highway System:** Yes

**Annual Average Daily Traffic (AADT):** 006600

**AADT Year:** 2001

**Estimated Percent Trucks:** 21

**Avg. No of School Buses per Day:** 8

**Posted Highway Speed:** 65
### Part I  Location and Classification of Crossing

<table>
<thead>
<tr>
<th>Division:</th>
<th>ROSEVILLE</th>
<th>State:</th>
<th>NV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subdivision:</td>
<td>NEVADA</td>
<td>County:</td>
<td>CHURCHILL</td>
</tr>
<tr>
<td>Branch or Line Name:</td>
<td>OVERLAND ROUTE</td>
<td>City:</td>
<td>HAZEN</td>
</tr>
<tr>
<td>Railroad Milepost:</td>
<td>0287.90</td>
<td>Street or Road Name:</td>
<td>CALIFORNIA ROAD</td>
</tr>
<tr>
<td>RailRoad I.D. No.:</td>
<td>A-287.90</td>
<td>Highway Type &amp; No.:</td>
<td></td>
</tr>
<tr>
<td>Nearest RR Timetable Stn:</td>
<td>HAZEN</td>
<td>HSR Corridor ID:</td>
<td></td>
</tr>
<tr>
<td>Parent Railroad:</td>
<td>Union Pacific RR Co. [UP ]</td>
<td>County Map Ref. No.:</td>
<td>5-11</td>
</tr>
<tr>
<td>Crossing Owner:</td>
<td>Union Pacific RR Co. [UP ]</td>
<td>Latitude:</td>
<td>39.4543190</td>
</tr>
<tr>
<td>ENS Sign Installed:</td>
<td>Yes</td>
<td>Longitude:</td>
<td>-119.0839610</td>
</tr>
<tr>
<td>Passenger Service:</td>
<td>AMTRAK</td>
<td>Lat/Long Source:</td>
<td>Estimate</td>
</tr>
<tr>
<td>Avg Passenger Train Count:</td>
<td>2</td>
<td>Quiet Zone:</td>
<td>No</td>
</tr>
<tr>
<td>Adjacent Crossing with Separate Number:</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Private Crossing Information:

- **Category:**
- **Specify Signs:**
  - ST/RR A
  - ST/RR B
  - ST/RR C
  - ST/RR D
- **Public Access:**
  - Specify Signals:
- **Railroad Use:**
- **State Use:**
- **Narrative:**

**Emergency Contact:** (800)848-8715  
**Railroad Contact:** 
**State Contact:** (775)888-7462

### Part II  Railroad Information

- **Number of Daily Train Movements:**
- **Less Than One Movement Per Day:** No
- **Total Trains:** 20  
  - **Total Switching:** 4  
  - **Day Thru:** 8
- **Typical Speed Range Over Crossing:** From 10 to 79 mph
- **Maximum Time Table Speed:** 79
- **Type and Number of Tracks:**
  - **Main:** 1  
  - **Other:** 0
  - **Specify:**
- **Does Another RR Operate a Separate Track at Crossing?** No
- **Does Another RR Operate Over Your Track at Crossing?** Yes: BN  UP  ATK
Part III: Traffic Control Device Information

<table>
<thead>
<tr>
<th>Signs:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Crossbucks</td>
<td>2</td>
</tr>
<tr>
<td>Advanced Warning</td>
<td>Yes</td>
</tr>
<tr>
<td>Pavement Markings</td>
<td>No Markings</td>
</tr>
<tr>
<td>Highway Stop Signs</td>
<td>2</td>
</tr>
<tr>
<td>Hump Crossing Sign</td>
<td>No</td>
</tr>
<tr>
<td>Other Signs</td>
<td>0 Specify: 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Train Activated Devices:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gates</td>
<td>0</td>
</tr>
<tr>
<td>Mast Mounted FL</td>
<td>0</td>
</tr>
<tr>
<td>Cantilevered FL (Over)</td>
<td>0</td>
</tr>
<tr>
<td>Other Flashing Lights</td>
<td>0</td>
</tr>
<tr>
<td>Highway Traffic Signals</td>
<td>0</td>
</tr>
<tr>
<td>Other Train Activated Warning Devices:</td>
<td></td>
</tr>
<tr>
<td>Channelization:</td>
<td>None</td>
</tr>
<tr>
<td>Track Equipped with Train Signals?</td>
<td>Yes</td>
</tr>
<tr>
<td>4 Quad or Full Barrier:</td>
<td></td>
</tr>
<tr>
<td>Total Number FL Pairs:</td>
<td>0</td>
</tr>
<tr>
<td>Cantilevered FL (Not over):</td>
<td>0</td>
</tr>
<tr>
<td>Specify Other Flashing Lights:</td>
<td></td>
</tr>
<tr>
<td>Type of Train Detection:</td>
<td>None</td>
</tr>
<tr>
<td>Traffic Light Interconnection/Preemption:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Part IV: Physical Characteristics

| Type of Development: | Open Space |
| Number of Traffic Lanes Crossing Railroad: | 2 |
| Is Highway Paved? | Yes |
| Crossing Surface: | Timber |
| Nearby Intersecting Highway? | N/A |
| Does Track Run Down a Street? | No |
| Is Commercial Power Available? | Yes |
| Smallest Crossing Angle: | 60 to 90 Degrees |
| Are Truck Pullout Lanes Present? | No |
| If Other: |       |
| Is it Signalized? | No |
| Is Crossing Illuminated? | No |

Part V: Highway Information

| Highway System: | Non-Federal-aid |
| Is Crossing on State Highway System: | No |
| Annual Average Daily Traffic (AADT): | 000010 |
| Estimated Percent Trucks: | 06 |
| Posted Highway Speed: | 25 |
| Functional Classification of Road at Crossing: | Rural Local |
| AADT Year: | 2001 |
| Avg. No of School Buses per Day: | 8 |
## Appendix D
### Glossary of Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAR</td>
<td>Association of American Railroads.</td>
</tr>
<tr>
<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials.</td>
</tr>
<tr>
<td>ADA</td>
<td>Americans with Disabilities Act.</td>
</tr>
<tr>
<td>Air Brake</td>
<td>All of the devices and parts included in making an air brake for controlling the speed and stopping a locomotive or train. It is made up of operating devices, pipes, fittings, and foundation brake gear.</td>
</tr>
<tr>
<td>Air Test</td>
<td>The act of operating the brake valve to determine that the air brake system was operating correctly and could stop the train if necessary.</td>
</tr>
<tr>
<td>AREMA</td>
<td>American Railway Engineering and Maintenance-of-Way Association.</td>
</tr>
<tr>
<td>Bad Order</td>
<td>Equipment (trains, trucks, containers) in need of repair.</td>
</tr>
<tr>
<td>Balloon Track</td>
<td>Railroad track in the shape of a teardrop used to reverse the direction of a train.</td>
</tr>
<tr>
<td>Blue Flag</td>
<td>A blue flag or signal that is placed on a car or locomotive when workers are around or under it. When a car or locomotive is blue-flagged, then it must not be coupled to or moved in any manner.</td>
</tr>
<tr>
<td>CADD</td>
<td>Computer-Aided Drafting and Design.</td>
</tr>
<tr>
<td>CMP</td>
<td>Corrugated metal pipe.</td>
</tr>
<tr>
<td>CPM Schedule</td>
<td>Critical Path Method Schedule. An automated method of planning that uses a computer program to sequence and reflect the interdependence of the &quot;critical&quot; tasks in a design or construction project.</td>
</tr>
<tr>
<td>County</td>
<td>Churchill County.</td>
</tr>
<tr>
<td>Crossover</td>
<td>Two turnouts with a short-track segment between them, forming a passage between two parallel railroad tracks.</td>
</tr>
<tr>
<td>Cut</td>
<td>Group of rail cars coupled together.</td>
</tr>
<tr>
<td>Dead Load</td>
<td>A constant load that is due to the weight of a structure, as permanent attachments and accessories.</td>
</tr>
<tr>
<td>Derail</td>
<td>A device placed short of clearing point on a track to prevent a car or engine from fouling main track, derailing said car or engine if not removed to permit safe passage.</td>
</tr>
<tr>
<td>Diamond</td>
<td>A special track work item that allows two railroad tracks to cross each other at grade.</td>
</tr>
<tr>
<td>Double Track</td>
<td>Two main tracks, on one of which the current of traffic is in a specified direction, and on the other in the opposite direction.</td>
</tr>
<tr>
<td>Drill Track</td>
<td>A rail track connecting with a lead or ladder track, over which locomotives and cars move back and forth in switching.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>Escape Track</td>
<td>Also known as a Runaround Track. Used to allow road engines (locomotives) which pull trains to connect and &quot;escape&quot; from the rail yard or terminal.</td>
</tr>
<tr>
<td>FRA</td>
<td>Federal Railway Administration.</td>
</tr>
<tr>
<td>Freeboard</td>
<td>The distance between the bottom of a bridge deck and water level at a river bridge.</td>
</tr>
<tr>
<td>Frog</td>
<td>The intersection of two rails of a switch.</td>
</tr>
<tr>
<td>GDM</td>
<td>General Design Memorandum.</td>
</tr>
<tr>
<td>GO</td>
<td>State of California Public Utilities Commission General Order.</td>
</tr>
<tr>
<td>Gauge</td>
<td>The distance between the rails of a railroad track. For heavy railroad track, the gauge is 4′-8½″ between rails.</td>
</tr>
<tr>
<td>Hump</td>
<td>A rail yard with a slight hill. Cars are cut off in motion at the top of the hump and gravity pulls the cars to classification tracks.</td>
</tr>
<tr>
<td>Industrial Lead</td>
<td>A railroad track serving an industrial area, with numerous branch tracks.</td>
</tr>
<tr>
<td>Interchange Point</td>
<td>The point at which two or more railroads join. Traffic is passed from one road (railroad) to another at interchange points.</td>
</tr>
<tr>
<td>Interlocking</td>
<td>An arrangement of signals and special track work where rail routes meet, including turnouts and crossovers (as the case may be), and connected such that movements from one track to another can only be made safely and in the proper sequence, preventing opposing or conflicting train movements. Interlockings occur at the crossing of two railroads, at junctions or upon entering or leaving terminals or yards.</td>
</tr>
<tr>
<td>Intermodal</td>
<td>Carriage by more than a single mode of transport. In some segments of the freight transportation industry, &quot;intermodal&quot; is defined as the transfer of containers from ship to rail. Its definition includes transfers between all freight modes involved in general cargo transportation (ship, rail and truck), taken as a system for moving freight from origin to destination by its most efficient means. In some usage, the meaning includes passenger trips involving more than one mode.</td>
</tr>
<tr>
<td>Kip</td>
<td>Kilopound (1,000 lbs. of force).</td>
</tr>
<tr>
<td>Ladder Track</td>
<td>A track with a series of turnouts leading to parallel yard tracks. Often, a yard will have ladder tracks at both ends for improved access.</td>
</tr>
<tr>
<td>Lead Rail</td>
<td>Rail between the frog and the switch.</td>
</tr>
<tr>
<td>Line Haul Road</td>
<td>A railroad that handles freight over a medium to long distance.</td>
</tr>
<tr>
<td>Live Load</td>
<td>A nonpermanent vertical load to which a structure is subjected, such as movable equipment or stored materials.</td>
</tr>
<tr>
<td>Load Center</td>
<td>Railroad and marine transportation term for concentrating cargo in one location for distribution to other locations. Similar to airline “hubs”.</td>
</tr>
<tr>
<td>Loading Platform</td>
<td>Sidewalk/platform adjacent to passenger train where passengers board and disembark.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Locomotive</td>
<td>Locomotives are units propelled by any form of energy, or a combination of such units operated from a single control station, used in train or yard service.</td>
</tr>
<tr>
<td>MOW</td>
<td>Maintenance of Way.</td>
</tr>
<tr>
<td>Main Line</td>
<td>A track extending through yards and between stations which must not be occupied without authority or protection.</td>
</tr>
<tr>
<td>Mile Post</td>
<td>A post or sign on pole each mile along the track that shows the distance from a predefined location such as a major rail terminal.</td>
</tr>
<tr>
<td>NDOT</td>
<td>State of Nevada Department of Transportation.</td>
</tr>
<tr>
<td>NGVD</td>
<td>National Geodetic Vertical Datum.</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Act.</td>
</tr>
<tr>
<td>OTM</td>
<td>Other Track material – materials other than ties and rails; generally refers to spikes, tie plates, and rail anchors.</td>
</tr>
<tr>
<td>Over-the-Road</td>
<td>A term used, principally in the U.S., for the road freight carrier or vehicle's over-the-road operation. Describes equipment meeting safety and operational requirements for utilization of public access roads, which is specifically licensed to do so.</td>
</tr>
<tr>
<td>Planimetrics</td>
<td>A measurement of a flat or level surface by means of an instrument that measures the area by tracing its boundary line.</td>
</tr>
<tr>
<td>Power</td>
<td>A name used to mention the engine units or locomotives on a train.</td>
</tr>
<tr>
<td>Profile</td>
<td>A representation of the slope of the top of pavement along the center line of a road or railroad track rail, running longitudinally with the along the road or top of railroad track rail.</td>
</tr>
<tr>
<td>PUCN</td>
<td>Public Utilities Commission, State of Nevada.</td>
</tr>
<tr>
<td>RCP</td>
<td>Reinforced concrete pipe.</td>
</tr>
<tr>
<td>Rail Weight</td>
<td>The number of pounds per yard that rail weighs. Rail is typically rolled at 112 to 145 pounds per one yard length.</td>
</tr>
<tr>
<td>Rail Yard</td>
<td>A rail terminal at which occur traditional railroad activities for sorting and redistribution of railcars and cargo.</td>
</tr>
<tr>
<td>Rip Track</td>
<td>A small car repair facility, often a single track in a small yard. Name derived from “Repair, Inspect and Paint”.</td>
</tr>
<tr>
<td>Road Engine</td>
<td>A locomotive used by the railroads to haul cargo long distances over the main line trackage.</td>
</tr>
<tr>
<td>Road Switcher</td>
<td>A locomotive used for through or main line movements, often in multiple with other similar units. Road switchers may also be used to do work along branch lines.</td>
</tr>
<tr>
<td><strong>Runaround Track</strong></td>
<td>A running track kept clear to allow the movement of equipment from one end of a rail yard or intermodal transfer facility to the other.</td>
</tr>
<tr>
<td><strong>Shoo Fly Track</strong></td>
<td>A temporary track built around the main track as a bypass.</td>
</tr>
<tr>
<td><strong>Shunting Movements</strong></td>
<td>Movements inside of stations and yards for making up trains, moving cars between different tracks and similar purposes.</td>
</tr>
<tr>
<td><strong>Side Track</strong></td>
<td>A track auxiliary to the main track.</td>
</tr>
<tr>
<td><strong>Siding</strong></td>
<td>A track auxiliary to the main railroad track to allow the meeting or passing of trains.</td>
</tr>
<tr>
<td><strong>Signage</strong></td>
<td>Refers to the total of all signs with writing and symbols denoting directions and destinations within a terminal.</td>
</tr>
<tr>
<td><strong>Single Track</strong></td>
<td>A main line track upon which trains are operated in both directions.</td>
</tr>
<tr>
<td><strong>Slack</strong></td>
<td>The motion, forward or back, that one or more cars, locomotives, or parts of a train has without moving other coupled cars, locomotives, or parts of the train.</td>
</tr>
<tr>
<td><strong>Spotting</strong></td>
<td>The placement of a railroad car where required, so that it is accessible for loading/unloading.</td>
</tr>
<tr>
<td><strong>Spur</strong></td>
<td>A section of track connected only at one end to a main track, i.e., a stub-ended siding.</td>
</tr>
<tr>
<td><strong>Spring Switch</strong></td>
<td>A switch equipped with a spring mechanism to restore the switch points to original position after having been trailed through.</td>
</tr>
<tr>
<td><strong>Storage Track</strong></td>
<td>A track on which railroad cars are placed when not in service.</td>
</tr>
<tr>
<td><strong>Stub Track</strong></td>
<td>A form of side track connected to a running track at one only and protected at the other end by a bumping post or other obstruction.</td>
</tr>
<tr>
<td><strong>Subdivision</strong></td>
<td>A portion of a division.</td>
</tr>
<tr>
<td><strong>Super Elevation</strong></td>
<td>The banked cross slope of the top of pavement of a road running transverse to the direction of the road. The top of banked cross slope across the pair of rails in a railroad track running transverse to the direction of the track.</td>
</tr>
<tr>
<td><strong>Superior Train</strong></td>
<td>A train having precedence over another train.</td>
</tr>
<tr>
<td><strong>Tail Track</strong></td>
<td>A stub-end track, usually at the end of a yard, kept clear of standing cars to allow space for rail equipment to switch or to exit from a ladder or yard track.</td>
</tr>
<tr>
<td><strong>Tangent Track</strong></td>
<td>Straight track.</td>
</tr>
<tr>
<td><strong>Tare Weight</strong></td>
<td>The weight of an empty car.</td>
</tr>
<tr>
<td><strong>Team Track</strong></td>
<td>A track on which rail cars are placed for the use of the public in loading or unloading freight.</td>
</tr>
<tr>
<td><strong>Topographic</strong></td>
<td>Graphic delineation of man-made and natural features of a site, showing relative location and elevation on a map or chart.</td>
</tr>
<tr>
<td><strong>Track Gauge</strong></td>
<td>The distance between the inner faces of the track heads. Nominally, 4’-8.5”.</td>
</tr>
<tr>
<td><strong>Track Head</strong></td>
<td>The top of the track on which the wheels roll.</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td><strong>Trackage Rights</strong></td>
<td>An agreement between two railroads according to which, one railroad buys the right to run its trains on the tracks of the other, and usually pays a toll for the privilege. That toll is called a “wheelage” charge.</td>
</tr>
<tr>
<td><strong>Turnout</strong></td>
<td>A switch and accompanying section of track allowing the diversion of rolling stock from one track to another.</td>
</tr>
<tr>
<td><strong>Turnout Number</strong></td>
<td>The ratio of the length of the tangent track to an equal unit of space between the tangent track and a point on the branch track.</td>
</tr>
</tbody>
</table>