

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
V&T HISTORIC RAILWAY RECONSTRUCTION PROJECT

FHWA-NV-EA 10.01
PROJECT ID: 73619/DE-0025(018)

September 2011

FEDERAL HIGHWAY ADMINISTRATION
AND THE
NEVADA DEPARTMENT OF TRANSPORTATION



Drako Way Terminal



Interim Eastgate Station



Balloon Track

PREFERRED DRAKO WAY TERMINAL, 9,000 FOOT LINE CHANGE
INTERIM EASTGATE STATION AND BALLOON TRACK
CARSON CITY, NEVADA

Prepared in cooperation with the Carson City, District Office
Bureau of Land Management

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

for

**V&T Historic Railway Reconstruction Project:
Preferred Drako Way Terminal, 9,000 Foot Line Change,
Interim Eastgate Station and Balloon Track
Carson City, Nevada**

FHWA-NV-EA 10.01

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September 2011

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This Environmental Assessment has been prepared in accordance with the provisions and requirements of Chapter 1, Title 23, 23 CRF Part 771, relating to implementation of the National Environmental Policy Act of 1969 as amended.

Abstract

The Nevada Department of Transportation (NDOT) and the Federal Highway Administration (FHWA), in cooperation with the Nevada Commission for the Reconstruction of the V&T Railway (the Commission), and the Bureau of Land Management (BLM), have prepared this Supplemental Environmental Assessment which examines the potential environmental impacts of a new Carson City Terminal site, a new 9,000 foot alignment (H-1 Line) to that site, an optional balloon track, and an interim station site for the Virginia and Truckee (V&T) Railway Reconstruction Project. This document is considered supplemental to the original Environmental Assessment (EA) prepared by FHWA and NDOT in cooperation with the Commission and BLM in April 2003 and subsequent FHWA issued "Finding of no Significant Impact" (FONSI) on August 19, 2003 for the overall project.

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Glossary of Acronyms and Abbreviations

ACEC	Area of Critical Environmental Concern
ACOE	Army Corps of Engineers
APE	Area of Potential Effect
ATV	All Terrain Vehicle
AUM	Animal Unit Month
BGS	Below the Ground Surface
BLM	Bureau of Land Management (U.S. Department of the Interior)
BLVD	Boulevard
BMP	Best Management Practice
CAAA	Clean Air Act Amendments
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CFS	Cubic Feet Per Second
CO	Carbon Monoxide
Commission	Nevada Commission for the Reconstruction of the V&T Railway
dba	A-weighted sound level in decibels
EA	Environmental Assessment
EB	Eastbound
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRMS	Flood Insurance Rate Maps
FONSI	Finding of No Significant Impact
Kg	Kilogram
L_{Aeq1h}	Average decibels over one hour, A-weighted
L_{dn}	Day-night average sound level equal to the 24-hour average sound level with an adjustment of 10 decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m.
LUMOS	Lumos and Associates
mg/m^3	Milligrams Per Meter (cubed)
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NB	Northbound
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources
NEPA	National Environmental Policy Act (PL 91-190)
NNHP	Nevada Natural Heritage Program
NOI	Notice of Intent
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resource Conservation Service
NRS	Nevada Revised Statute
NWI	National Wetlands Inventory
OHV	Off-Highway Vehicle
PM_{10}	Particulate matter with an aerodynamic diameter less than ten micrometers
ppm	Parts Per Million
PSC	Public Service Commission
PUC	Public Utilities Commission
R/W	Right of Way

RCB	Reinforced Concrete Box
RCRA	Resource Conservation and Recovery Act
RR	Railroad
RTC	Regional Transportation Commission
RTP	Regional Transportation Plan
RV	Recreational Vehicle
SB	Southbound
SEA	Supplemental Environmental Assessment
SHPO	State Historic Preservation Office
SQG	Small Quantity Generator
SR	State Route
STOLPORT	Short Takeoff and Landing Airport
SWPPP	Storm Water Pollution Prevention Plan
TPH	Total Petroleum Hydrocarbons
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
V&T	Virginia and Truckee (Railroad or Railway)
VTPC	V&T Project Corridor
WB	Westbound

List of Mitigation Measures

The following list describes measures that would be implemented as part of the project to avoid, reduce, or otherwise mitigate environmental impacts associated with this project. The mitigation measures presented here are intended for the portion of the project considered herein and to supplement those contained in the April 2003 Environmental Assessment *V&T Historic Railroad Reconstruction, Carson City, Lyon County, and Gold Hill, Nevada*, FHWA-NV-EA 03.03, STP-0029(004).

Mitigation measures and actions to comply with federal, state, and local laws/regulations in the areas of noise, air quality, water quality, and hazardous materials as well as those listed below will be specified in the contract documents.

The following mitigation measures and commitments are not subject to change or modification without prior written approval from the Federal Highway Administration.

Nevada Commission for the Reconstruction of the V&T Railway and/or Project Contractor is responsible for implementing the following Mitigation Measures:

EA Page No. Reference	Mitigation Category	Description
10	Social/Business (Section 2.1.3)	<p>All relocations will be conducted in accordance with the Relocation Assistance and Real Property Acquisition Policy Act of 1970 (Uniform Act).</p> <p>Blasting required for the construction of the 9,000 foot alignment will be coordinated with nearby businesses in order not to impact any motion sensitive production periods. Surrounding business and/or residences that may be impacted by the blasting will receive adequate notification in advance of the blasting specifying days and times of proposed blasting. The blasting schedule will be determined in cooperation with those businesses engaged in high precision manufacturing to reduce any impact to production. All blasting will be conducted in compliance with state and local laws and be monitored. Maximum velocities for shock waves will be specified in the contract documents to minimize vibration impacts to structures or manufacturing processes.</p> <p>Should the Parker-Carson STOLPORT be listed as a public use airport on current aviation charts at the time of final design and construction then interim Eastgate Station improvements will be in conformance with FAA guidelines.</p>
10	Recreation (Section 2.1.3)	<p>A single railway crossing will be constructed just west of the proposed balloon track location that will maintain recreation access to this portion of the river and surrounding area. This crossing will be constructed regardless of the ultimate terminal location or balloon track construction. A second crossing on the 9,000 foot line change to provide 10access to the Carson City water tank above the intersection of Deer Run Road and Carson River Road will avoid any impact to recreational use of this area.</p>

EA Page No. Reference	Mitigation Category	Description
10	Utilities (Section 2.1.3)	Mitigation of existing utilities will consist primarily of raising power lines along the 9,000 foot line change and at the Drako Way Terminal site. Relocation of the water line to the Carson City water tank above Deer Run Road or relocation of a few power poles will be coordinated with the city and the utility company. Temporary utilities installed for the interim Eastgate Station, if constructed, will eventually be removed or abandoned in place as required by NDEP permits and in accordance with BLM right-of-way grant requirements. It is anticipated that all relocations will be within acquired or BLM granted right-of-way.
11	Traffic (Section 2.1.3)	Traffic studies would be conducted and traffic signage or signal systems will be upgraded or installed where Carson City or NDOT deem necessary. In addition, all railroad crossings will be designed and constructed to avoid automobile and pedestrian conflicts with train traffic.
12	Noise (Section 2.3.4)	<p>Construction noise would be temporary and limited to daytime operations in accordance with standard grading and other permits. Noise during construction of the 9,000 foot alignment and terminal site will temporarily increase to levels above the ambient levels. Blasting will be scheduled for daylight hours and vibration limited by project specifications which will also limit related noise levels. Stationary equipment will be placed as far away as practical from sensitive receptors.</p> <p>Proper maintenance of rail equipment and limited hours of operation would be used to maintain consistent noise levels during operation. As the project proceeds through the later design stages, if a vibration assessment is warranted and if it is determined that vibration levels would be excessive, then mitigation measures to reduce the levels of ground-borne vibration would be included into the final design. Such measures may include but are not limited to floating slabs, resiliently supported ties, high-resilience fasteners, and vibration reducing ballast mats. To be effective, any approved measure must be optimized for the frequency spectrum of the vibration in question.</p>
13	Air Quality (Section 2.4.4)	Contract documents will specify that the contractor must implement a dust control plan to address impacts. In addition, the contractor must comply with all federal, state, and local laws and regulations.
15	Surface Water (Section 2.5.3)	<p>Energy dissipaters and interceptor ditches will be constructed at the drainage structure outfalls to prevent down gradient scouring. Interceptor ditches will be constructed on the upstream side of the roadbed to carry storm runoff through the cut sections. They will discharge to natural channels on the upstream side in fill areas, or to small pipes crossing under the track bed. Embankment fill in the area of the low point of the project east of the Bertagnolli gravel pit will raise the track structure relative to the flood elevation.</p> <p>BMPs will be utilized to limit and control the potential for water quality impacts due to erosion of sediment from wind and water related forces as well as containing construction materials onsite during the construction and operation of the proposed project.</p>

EA Page No. Reference	Mitigation Category	Description
15	Surface Water (Section 2.5.3) continued	The contractor will be required to file a Notice of Intent (NOI) with the Nevada Division of Environmental Protection's Bureau of Water Pollution Control. This provides coverage under the General Permit for Storm Water Discharges Associated with Construction Activity (NVR100000) required by the National Pollutant Discharge Elimination System (NPDES) program pursuant to the Clean Water Act. A Storm Water Pollution Prevention Plan (SWPPP) must be developed prior to the NOI submittal. The SWPPP outlines temporary erosion and sediment controls incorporating BMPs, therefore reducing non-point source pollution that may be generated relative to the construction project.
15-16	Surface Water (Section 2.5.3) continued	<p>The following mitigation measures will be required at the Drako Way Terminal site and the interim Eastgate Station if constructed:</p> <p>Drains will be constructed inside the vehicle maintenance area. Flow from the drains will be treated prior to discharge into the local sanitary sewer system or offsite disposal in the event that the interim station is not served by sewer. A maintenance plan will be developed for the oil/water separator.</p> <p>Vehicles, equipment, and train rolling stock will be washed on a special wash pad at the Drako Way Terminal location. Flow from the wash pad will be treated prior to discharge into the local sanitary sewer system.</p> <p>Vehicles, equipment and train rolling stock will be washed on a special wash pad at the Interim Eastgate Station and the wash water disposed of by collection and offsite disposal or treated and discharged to the local sanitary sewer system when extended to the site.</p> <p>Wastewater from buildings or restrooms at the Drako Way Terminal will be connected to local sewer and water utilities. Train wastes will be stored on the train and properly disposed of at the depot or at the Eastgate Station.</p> <p>The interim Eastgate Station will be served by a holding tank, septic system or by a holding tank(s). Train wastes will be disposed of either on site to a holding tank, septic system or sewer as appropriate to the ultimate development of the site.</p> <p>Stormwater runoff from parking lots, rooftops, and maintenance areas will be treated to meet water quality standards prior to flowing into the local storm drain or drainage conveyance.</p>
17	Floodplain and Hydrologic Assessment (Section 2.6.3)	<p>Existing flow patterns and capacities for drainage features will be perpetuated in the railroad corridor. Minor drainages will be perpetuated and discharged into their historic drainage paths with minimal disturbance. The railroad grade will be raised a foot or more by design along the Bertagnolli gravel pit area.</p> <p>Impacts to upstream, downstream and adjacent properties and to the Carson River will be minimized by limiting encroachment into FEMA designated floodplain (100 and 500 year flood zones) and avoiding any construction within the ordinary high water mark of the Carson River.</p>

EA Page No. Reference	Mitigation Category	Description
19	Hazardous Materials Track Right-of-Way (Section 2.7.3)	<p>Mitigation for potentially mercury contaminated soils will consist of placing fill over the native soils. Embankment fills will be placed for a short distance near the Bertagnolli gravel pit and in the area of the balloon track which combined with dust control will help mitigate exposure to workers. Standards for safe handling of native soils with possible mercury contamination will be incorporated into the special provisions of the project contract. Close coordination with NDEP will be required of the design team including plan reviews.</p> <p>Soils excavated in the area of the Bertagnolli aggregate pit will be screened for hydrocarbon contamination (TPH). If contaminated soils are encountered during construction they will be disposed of in accordance with appropriate regulations. Current preliminary plans call for raising the grade in this area and little excavation is planned.</p> <p>No other constituents were discovered by NDOT which exceeded state action levels. However, if additional contamination is discovered during construction it will be reported to NDEP so necessary steps can be taken.</p> <p>The balloon track area will for the most part involve the placement of fill averaging three or more feet thick. The placement of a minimum of two feet of clean fill over hazardous metal contamination is a standard practice in the area recognized by NDEP for isolating heavy metals such as mercury and lead from public exposure. Proper handling and disposal methods as approved by NDEP will need to be specified in the Special Provisions for the project. It will be necessary to ensure that no excavated material is moved from this area without testing to determine the extent of any contamination.</p>
19	Hazardous Materials Depot and Interim Station Operations (Section 2.7.3)	<p>The impacts caused by hazardous waste generation and fuel storage at the depot or interim station sites will be mitigated by proper handling and spill prevention techniques. This will include following applicable Federal, State and local regulations. Federal RCRA regulations cover the storage and handling of hazardous waste. Carson City Fire Department regulations pertain to aboveground fuel storage tanks and Carson City Utility Department regulations cover the storage of hazardous material and waste. Special attention will be given to secondary containment for hazardous waste and fuel storage. A Spill Prevention Control and Countermeasure Plan (SPCC) will be developed for the terminal and interim station.</p>

EA Page No. Reference	Mitigation Category	Description
19	Hazardous Materials Depot and Interim Station Operations (Section 2.7.3) continued	<p>Wash water, generated by steam cleaning and washing of trains and maintenance vehicles, will be managed as wastewater and disposed of in the sanitary sewer or at an approved offsite disposal facility in the case of the interim station. The Carson City Utility Department regulates these discharges and requires some form of pretreatment prior to discharge to the sewer or at an approved disposal site. This and/or other regulations will be adhered to in the handling of wastewater.</p> <p>Over excavation and removal of the construction debris materials observed on the proposed Drako Way Terminal site will be necessary due to the need for track structures to pass over the area. Monitoring of the removal will be necessary to ensure no hazardous materials are present. If hazardous materials are encountered they will be properly handled and disposed of in accordance with state and local standards. Clean structural fill will need to be placed once the offensive materials have been completely removed.</p>
27-28	Biological Resources Vegetation (Section 2.8.3)	<p>A preconstruction survey of the project area will be necessary.</p> <p>Construction and associated activities will occur strictly within the limits of the Drako Way Terminal site, the Interim Eastgate Station site, the utility easement between Morgan Mill Road and Flint Drive and on the 9,000 foot alignment change with the exception of areas designated for avoidance. Avoidance areas shown on plans will include where necessary potential jurisdictional waters, cultural areas and if present sensitive vegetation areas. Clearing of vegetation will be limited to areas necessary for construction, future maintenance and where safety concerns exist.</p> <p>Topsoil will be stockpiled when appropriate and reused during reclamation. Vegetated areas disturbed outside of required maintenance zones will be graded, covered with reclaimed topsoil, and revegetated with native, certified weed-free seed mixes.</p> <p>The train operator and/or the Commission will remove debris from areas within the right-of-way. This will help restore habitat and make the ride more visually pleasing.</p> <p>An inadvertent discovery plan for sensitive species will be included in project documents to protect sensitive species should they be found. Permits if required will be obtained if plants need to be removed.</p>

EA Page No. Reference	Mitigation Category	Description
28	Biological Resources Noxious Weeds (Section 2.8.3)	<p>During construction, contract documents will specify a noxious weed management plan to control the invasion and/or spread of noxious weeds in the project area.</p> <p>To ensure noxious weeds do not become established subsequent to construction, a qualified biologist will monitor the site after reclamation activities have concluded on a yearly basis and the revegetation efforts have had an opportunity to become established. If field inspections show that noxious weeds are invading the reclaimed sites, biologists will consult with the BLM and/or the State Cooperative Extension weed program to determine and implement appropriate control measures. Abatement measures may include hand pulling, spraying, or mechanized methods of weed control.</p>
28	Biological Resources Wildlife (Section 2.8.3)	<p>Structures which inhibit large mammal movement, such as fencing, retaining walls, mesh netting (used for rock fall protection), will only be installed where safety concerns exist.</p> <p>To avoid direct and indirect impacts to migratory birds, removal of vegetation will occur outside the bird breeding season. If vegetation removal is scheduled to occur during the nesting season, then a qualified biologist would survey the area prior to initiation of construction. If active nests are located, then a buffer would be established around the nests and the area avoided until the nests are no longer active. The size of the buffer is dependant on the identified nesting species and would be determined by the biologist in consultation with the Nevada Department of Wildlife (NDOW).</p> <p>A pre-construction survey shall be conducted by a qualified biologist within 30 days prior to construction to identify special-status bats that may be located near any of the project features considered for construction here. If an existing roost or signs of an existing roost is found, avoidance of the roost is optimal and mitigation measures to ensure avoidance shall be implemented in conjunction with consultation(s) with NDOW. If avoidance is not possible, consultation with the NDOW is required prior to impacting the species.</p>
28-29	Biological Resources Wetlands/ Riparian/ Jurisdictional Waters (Section 2.8.3)	<p>Pursuant to the Clean Water Act: the project will prepare and submit a Pre-Construction Notification or permit application for the 9,000 foot alignment portion of the project prior to any construction.</p> <p>BMPs as determined by the appropriate agencies as included in an approved Storm Water Pollution Prevention Plan (SWPPP) will be followed when performing work in or near washes, wetlands, and perennial waters. Common BMPs include silt screens, hay bales, heavy equipment with non-metal tracks, and coffer dams.</p> <p>In the area adjacent to the Carson River at the east end of the proposed new alignment, flagging/stakes/fencing will be placed prior to any work to delineate wetland boundaries. The contractor will be required to avoid these areas.</p>

EA Page No. Reference	Mitigation Category	Description
29	Biological Resources Threatened and Endangered Species (Section 2.8.3)	No mitigation is required; however, in the unlikely event any threatened, endangered, species of concern, or sensitive species are encountered prior to or during construction and which may be impacted, the USFWS and/or NDOW shall first be consulted with to address the issue. If such species are encountered, the species and their habitats will be avoided via measures which have been approved by the resource agency where feasible. If avoidance is not possible, minimization measures shall be employed, and as a last resort, unavoidable impacts shall be mitigated as approved by USFWS and/or NDW as appropriate.
29	Biological Resources Range (Section 2.8.3)	Areas outside of the permanent construction zone and falling outside of maintenance zones will be revegetated. Fencing, which would limit open-range grazing, will be installed only in areas where safety concerns exist. Other appropriate mitigation measures as mentioned in the wild horse and burro sections also apply to livestock.
29	Biological Resources Wild Horse and Burro (Section 2.8.3)	Mitigation will be the same for these species (when appropriate) as listed above in the range and wildlife sections. The train operator will be prohibited from stopping the train for recreational purposes such as petting or feeding when herds or individuals are encountered. If the train stops for picture taking the passengers will be required to stay on board.
30	Cultural Resources (Section 2.9.3)	<p>Mitigation measures to avoid or minimize construction impacts to Cr 03-6984 will be developed and implemented in coordination with FHWA, BLM, SHPO and the Commission in accordance with the Section 106 programmatic agreement for the reconstruction of the V&T Railway. Feature 206 of Site Cr 03-4412 will be avoided.</p> <p>Monitoring of cultural resource sites would occur during construction and an inadvertent discovery plan will be in place prior to the commencement of construction. The plan will be similar to the plan used on earlier phases of the project. The plan requires the contractors' personnel and the owners' on-site representatives to be trained to recognize what types of items could be of historical significance. Procedures are established for the collection of artifacts by appropriate personnel and archiving of artifacts. Inadvertent discoveries will be handled in accordance set forth in the programmatic agreement entered into by FHWA, BLM, the Nevada State Historic Preservation Office, and the Commission.</p>

1.0 PROPOSED ACTION

1.1 Introduction

This Supplemental Environmental Assessment (SEA) addresses newly proposed elements for the completion of the V&T Historic Railway Reconstruction Project from Gold Hill to Carson City, Nevada. All of the proposed changes are located entirely within Carson City, Nevada as shown on the Vicinity Map, Figure 1. The overall project is administered by the Nevada Commission for the Reconstruction of the V&T Railway (the "Commission"). The original EA for the entire project was prepared by the Nevada Department of Transportation (NDOT) in cooperation with the Federal Highway Administration (FHWA), and the Bureau of Land Management (BLM), Carson City Field Office. The EA was issued in April 2003 followed by the lead agency, FHWA, issuing a "Finding of No Significant Impact" (FONSI) on August 19, 2003. Approximately 12.5 miles of the 17 mile overall project has been completed in the period from 2005 to 2010. Funding for the overall project has been obtained by the Commission over a protracted period of time from a number of mostly public sources. The Commission obtained funding in an incremental fashion which has resulted in the construction progressing in four separate phases.

The project, as now proposed includes two new permanent features; a new alternative terminal site referred to as the "Drako Way Terminal" and a new 9,000 foot segment of railway alignment to reach the new alternative terminal. In addition, possible interim facilities are being considered to support additional phasing of the project if deemed necessary by the Commission. The interim facilities would include a temporary station off of Flint Drive referred to as the "Interim Eastgate Station", a utility corridor extension from Morgan Mill Road to Flint Drive to provide sewer and perhaps other utility services to the temporary station; and a "balloon track" near the Carson River. These facilities may or may not be constructed based entirely on the amount and timing of funding received. The locations of the proposed facilities are shown on the Site Map, Figure 2.

The SEA is being prepared in cooperation with the Bureau of Land Management (BLM) Carson City Field Office to support future right-of-way authorizations from the BLM.

Throughout this document, the terms "V&T Railway" and "V&T Railroad" are used. The meaning of these names must be taken from the context in which they are presented. The historic V&T operation ran at different times under both of the names "Railroad" and "Railway". The "V&T Railway" as used herein is used to reference the title of the "Commission", a State of Nevada entity, charged with reconstructing the V&T and for the name for the track between Carson City and Gold Hill which is now officially recognized by the Federal Railroad Administration and Public Utilities Commission. The "V&T Railroad" is the trademarked name of the privately held Virginia & Truckee Railroad Corporation, Inc. This entity is currently under contract to provide train operations for 2010 on the portion of the completed portions of the V&T Railway project. In this document the term "V&T Railroad" is used both in reference to the Historic Railroad (1869 through 1951 which during part of the time was also referred to as V&T Railway) and to the privately owned present day corporation. The modern day V&T Railroad has no responsibility for the financing, construction, or permitting of the V&T Railway Project as administered by the Commission.

1.2 Description

This SEA addresses proposed actions consisting of the following new elements of the overall reconstruction project (totaling approximately 111 acres of land) which were previously not considered:

- Preferred alternative Drako Way Terminal consisting of approximately 17.2 acres of which 3.6 acres is owned by the Commission and the remaining 13.6 acres is privately owned.
- 9,000 feet of new alignment consisting of approximately 13.0 acres of which approximately 4.3 acres is BLM administered and the remaining 8.7 acres is privately owned.
- An optional segment of balloon track consisting of approximately 11.7 acres that are all privately owned. The balloon track would allow for turning the train around at the most logical location for the next possible phase of construction.
- An interim station facility off of Flint Drive consisting of approximately 61.8 acres of public land that is entirely BLM administered.

- Utility corridor for sewer and possibly other utilities to the Eastgate Interim Station. The corridor would nominally be 40 foot wide and cross both public and private land with an overall length of approximately 7,900 linear feet or 7.3 acres. Approximately 4,300 linear feet or 4.0 acres will require private land and approximately 3,600 feet or 3.3 acres will be on BLM administered public land.

The 2003 EA considered two alternative locations for a terminal site in Carson City. The terminal sites described in the 2003 EA were referred to as “Terminal A” located at US Highway 50 and Detroit Lane and “Terminal B” located at the intersection of Deer Run Road and the Carson River Road as shown on Figure 2. Due to the development of the Terminal B site in 2005, the construction of the Deer Run Road bridge approach across the proposed alignment, public safety concerns related to the interface of the route with automobile traffic along the Carson River Road, Deer Run Road and Morgan Mill Road, and environmental concerns due to wetlands, a new alternative terminal location is now proposed by the Commission as the preferred location just off of US Highway 50 in Carson City on Drako Way.

The determination of the Drako Way Terminal as the “preferred alternative” was made based on Commission action in September of 2005 in response to developments described above that were occurring along the project route as described in Section 1.4 Alternatives. The decision of the previously unconsidered site as the preferred alternative was made with the understanding that the full NEPA process is required to be completed prior to making the final depot site selection.

The proposed Drako Way Terminal is located between US Highway 50 and Morgan Mill Road. Access to the terminal site will be from the west by Morgan Mill Road via Deer Run Road and off of US Highway 50 via Drako Way. The proposed terminal site includes approximately 17.2 acres of private land. When completed the terminal facility is planned to consist of a minimum of four or five parallel tracks (mainline, fueling, siding, and house tracks), water tank or fill stand, above ground fuel tanks (or rail cars), a terminal building for ticket sales, a public restroom facility, a maintenance/office building, public parking and associated landscaping as shown in Figure 3. The 20,000 square foot maintenance/office building and associated equipment yard was purchased by the Commission in 2005 to provide a construction office and storage space for donated and purchased materials. If the Drako Way Terminal proves viable from a NEPA perspective, the existing building and associated parcel of land owned by the Commission would be a major component of the overall terminal facilities.

As shown on the Project Site Map, Figure 2, the 9,000 foot alignment change will leave the historic route along the north side of the Carson River at the location of the existing Bertagnolli gravel pit and traverse upslope towards the west. After approximately 6,000 feet, the proposed alignment will turn northward toward US Highway 50. The route will cross over Morgan Mill Road on a proposed bridge structure and then enter the train yard of the proposed Drako Way Terminal. The 9,000 foot alignment will require approximately 13.0 acres of which 8.7 acres is privately owned and 4.3 acres is BLM administered public land.

The interim Eastgate Station site would be located immediately south of US Highway 50 off of Flint Drive entirely on approximately 61.80 acres of BLM administered public land as shown on Figure 2. Facilities would include the interim station building, combined engine house and maintenance building, a parking area, yard tracks, wye track and associated utilities. The selection process for the planned improvement and utilities used will be driven by the V&T operations and specifically by the number of train passengers that are planned for and the length of time that the facility may be used. A conceptual layout for the interim facility is shown on Figure 4.

The station building would be less than 3,000 square feet and the engine shed/shop would be on the order of 9,000 square feet. Modular and or metal buildings are proposed for this site specifically so that they could be removed or reused at the Drako Way Terminal site when the project is completed.

If the interim Eastgate Station is constructed, a short term, on-site sanitary septic system, holding tank or connection to the Carson City sewer system would be proposed. Permitting would be subject to BLM approval and NDEP requirements. The sanitary sewer line if constructed would follow a new utility corridor from Morgan Mill Road to Drako Way and then continue directly adjacent to an existing NV Power Right-of-Way to Flint Drive. It would then follow Flint Drive north to the interim Eastgate Station site as shown on Figure 2. A 600 foot section of utility corridor from US 50 to the interim Eastgate Station is also included as an alternative utility route if needed. The need for this short section of corridor may be driven by development along US 50 prior to construction of the Eastgate

Station or if utilities need to be “looped”. Existing utilities in US 50 corridor include phone, high pressure gas, and fiber optic cable.

Electric service at the interim Eastgate Station may be provided by an off grid system or by connection to existing power lines. A solar system with backup propane powered generator may be used that the Commission already owns and is currently in use at the Eastgate siding. Power may be brought to the site along the utility corridor from Morgan Mill or from US 50 along Flint Drive.

Water service would most likely be extended from the Eastgate siding area where it was installed as part of the project construction in 2009 to support temporary operations at that location.

If utilized, the optional segment of balloon track will be located approximately 1 mile east of the Bertagnolli aggregate pit entirely on private land and consist of an approximately 800 foot diameter circle of track accessed directly from the historic alignment. This new segment of track will allow for the turnaround of trains. There will be no facilities built here other than the balloon track and track switches. This feature will serve as an interim terminus point for the railway.

Upon the completion of the project to the Drako Way Terminal, the interim facilities would be abandoned in accordance with any applicable federal, state, or local requirements. Any utility improvements to the site such would be likely to be maintained by Carson City to support future developments in the area.

1.3 Purpose and Need

The need for the project is both economic and cultural. Nevada has experienced over the past 20 years a decreasing tax base due to competing gambling across the country and particularly in the adjacent states. During the same time there has been a general decline in the public awareness of the role that Nevada played in building the nation and in particular the significance of the Comstock mining bonanza to that history.

The purpose of the Reconstruction of the V&T Railway addresses the needs described by creating a world class tourist attraction generating a broader tax base through the construction activities, operation of the railway, and community impacts from increased visitors. The historic aspects of the project are brought to light by the interpretive activities including oral history, brochures, meetings and symposia held by various historical societies.

The reconstruction of the V&T Railway is to recreate what is considered to be the most historic short line railroad of its day, create a world class tourist attraction, and bring economic benefits to the Northern Nevada region. The project is expected to have a positive economic impact to the combined areas of Carson City, Virginia City (Storey County), Reno-Sparks (Washoe County), Douglas County, and Lyon County. Construction of the project and the long-term operation of the railway are expected to benefit Northern Nevada by creating new jobs, stimulating tourism growth and generating additional revenues from sales, room taxes and gaming.

The project will also contribute to publicizing the historic cultural importance of the Comstock mines and the Virginia and Truckee Railroad to the development of the United States and the region. When completed, the railway will serve as a focal point for the surrounding communities to celebrate their historical significance and encourage further interpretive and educational historical endeavors in and around the project.

1.4 Alternatives

1.4.1 Alignment and Depot Alternatives

Since the 2003 EA was approved, a number of developments occurred requiring the Commission to reconsider the Carson City terminal location. In the 2003 EA, two sites were considered for the Carson City terminal; one on US 50 at Detroit Lane referred to in 2003 EA as Terminal A, and a second on Deer Run Road near the Carson River referred to in 2003 EA as Terminal B. In 2003 the Deer Run Road site was developed as the new US Geological Survey Carson City office. This construction eliminated the site from further consideration leaving only the Detroit Lane site. In addition, the Deer Run Road Bridge was reconstructed and the approaches built with superelevation. These developments led the Commission in September of 2005 to request the Manhard Consulting Design Team to reevaluate

all of the proposed permanent and temporary depots that had been considered during the life of the project and evaluate any other possible sites. Temporary depots and stations had been considered by the design team due to the uncertainties of the funding and the need to start interim operations. This was necessary to comply with the Federal Highway Administration (FHWA) requirement that each project have logical termini. This was accomplished by placing a siding (short passing track) near the end of each phase that could allow for the locomotive to run around the cars to be located at the head of the train. Through the evaluation process Manhard Consulting developed a previously unconsidered site at Drako Way that had the potential to meet the Commissions top criteria for terminal site selection.

1.4.2 No-Build

The No-Build Alternative for the proposed changes would be to construct the project elements as considered in the 2003 EA. Under the No-Build Alternative, the request for right-of-way authorizations before BLM would no longer be pursued.

1.4.3 Preferred Terminal Site

The Detroit Lane terminal site was a potentially viable alternative location for the Carson City terminus in the 2003 EA study. However, based on current design analysis, constructing a terminal at this location will result in substantial design difficulty, increased expenses and environmental impacts (see Tables 1.4.1 and Table 1.4.2 below). The longer route along Carson River road and two required additional public crossings will involve substantial impacts related to construction in the Carson River Mercury site as well as persistent safety concerns due to pedestrian/vehicle train conflicts. The Drako Way terminal site is now the preferred terminal site for the V&T Historic Railway Reconstruction Project.

Benefits of going to the Detroit Lane terminus would include more job creation, the depot being closer to the downtown corridor, greater visibility on US 50 and a slightly longer ride for passengers.

**Table 1.4.1
DETROIT LANE TERMINAL SITE ANALYSIS**

Pros	Cons
1. In Carson City	1. ACOE Permit likely to be required for site
2. At End of Line	2. ACOE Permit will be required for Carson River Floodway
3. Visible from US Highway 50	3. Site is in portion of historic town of Empire site
4. Room for Expansion	4. Conflicts with effluent line in Carson River Road
5. Closer to Downtown Carson City	5. Conflicts with truck traffic on Carson River Road
	6. Two public road crossing required
	7. High groundwater will impact utility construction
	8. Superfund site will require NDEP involvement
	9. Approximately one half of site is in Flood Zone
	10. May require traffic signal on US 50
	11. Reconstruction of Bridge approach at Deer Run Road

**Table 1.4.2
DRAKO WAY TERMINAL SITE ANALYSIS**

Pros	Cons
1. In Carson City	1. Requires additional EA
2. At End of Line	2. Requires 9,000 feet of new alignment with possible blasting
3. Visible from US Highway 50	3. Cultural impacts to historic retaining walls on wagon roads
4. Room for Expansion	4. Requires significant site grading
5. Existing Warehouse/Office Building and Storage Yard	5. May require traffic signal on US 50
6. Existing Road Access	6. Uncontrolled fill on portion of site will require mitigation
7. Avoids conflicts with traffic on Carson River Road	7. Further from downtown
8. Avoids conflicts with effluent line in Carson River Road	
9. Avoids two public road crossings	
10. Avoids Carson River floodway	

2.0 ENVIRONMENTAL IMPACTS AND MITIGATION

2.1 Social Considerations

2.1.1 Existing Conditions

A. Social

The Drako Way Terminal site is surrounded by several businesses and adjacent to a NV Energy Power Substation (see Figure 3). It consists of both private land and public land owned by the Commission and Carson City and is currently zoned as Mixed-Use Commercial in the Carson City Master Plan adopted on April 6, 2006. The 9,000 foot line change is mostly private land with a small amount (4.3 acres) of BLM ownership. The alignment traverses recreational areas of the Carson River Canyon and crosses adjacent to the Bertagnolli gravel pit operation. The entire area needed for the proposed balloon track is privately owned. The proposed interim Eastgate Station site is located off of Flint Drive near US Highway 50 and is adjacent to the dispersed Eagletec Industrial Park and Carson City’s organic materials handling/recycling facility (see Figure 4). The site is entirely on BLM land and currently zoned as Mixed-Use Commercial in the Carson City Master Plan. The site covers 61.8 acres of 64.7 acres of public land the majority of which is designated for disposal in the Omnibus Public Land Management Act of 2009. Of the land designated for disposal a small remainder of the property consisting of 2.9 acres as shown on Figure 4, is not included in the proposed interim Eastgate Station. This exclusion is due to a new access proposed by the Eagletech Industrial Park through the remainder parcel. Carson City has expressed their desire by letter to the BLM to grant the use of the land identified for the interim Eastgate Station to the Commission as their preferred use for the property at this time. When the project is completed to the Drako Way Terminal, the public lands that are no longer needed would be reclaimed and the right-of-way authorization from BLM would be terminated.

The Carson–Parker short take off and landing airport (STOLPORT) is a privately-owned public use facility located adjacent to the proposed Eastgate Station. The BLM issued a lease for the STOLPORT in 1977 which expired in 1997. Unauthorized use of public land by ultralight aircraft and single engine fixed-wing aircraft has continued. Only 815 feet of runway resides on private property. The BLM lands formerly used for the STOLPORT were designated for disposal in the Omnibus Public Land Management Act of 2009 as described above.

It is anticipated that this airport will be closed in the future and developed for other uses based on change of use applications that have been submitted to Carson City Planning by the property owner. Carson City maintains jurisdiction over the facility and its eventual disposition.

Areas of the Carson River Canyon considered in this document have been traditionally used for recreation. However, these areas are increasingly being used for nefarious activities including gang graffiti, illegal dumping of domestic and commercial refuse, abandonment of cars, and other similar activities.

B. Recreation

The Carson River Canyon where the balloon track and majority of the 9,000 foot alignment change would be located is accessed from Deer Run Road. The area is used for dispersed recreational purposes including equestrian, all terrain vehicles (ATVs), fishing, hiking, hunting, target shooting, bicycling, rafting and sight-seeing. Access to the area is by portions of the abandoned V&T alignment and various four-wheel drive roads. The historic V&T alignment was the primary through road access since the railroad was abandoned in 1938. Through access via the railroad grade was blocked by the construction of Phase 3A in August of 2009.

Approximately one third of the proposed Drako Way Terminal site is already developed. The developed area includes two commercial sites. The largest is the Commission owned building and storage yard. On the north side of the Commission property is an outdoor RV and boat storage lot with a small metal office building. The primary usage of the undeveloped, portions of the Drako Way Terminal site is for off road vehicles and occasional hiking.

The proposed interim Eastgate Station site located off of Flint Drive near US Highway 50 is on BLM land that is used for dispersed recreational purposes including all terrain vehicles, equestrian use and hiking. Most of the use is confined to the south side of the property within the 80 foot wide power line easement. Approximately one-quarter mile south east of the interim Eastgate Station site is an active remote control model aircraft field owned by Carson City.

C. Utilities

All of the existing utility easements are shown on the Site Plan Figure 2. All utility crossings and relocations will be coordinated with Carson City and the affected utility, and the BLM where appropriate. Existing easements are cited in the following discussion of the specific sites. Overhead power lines cross the proposed Drako Way Terminal site at several locations within BLM easements. Large transmission lines are found along the west side of the site and running across the site from the NV Energy Substation to the west. Phone and gas services enter the site from Drako Way. The existing Drako Way building owned by the Commission is on well water and has a commercial septic system.

The proposed 9,000 foot new line change would cross under overhead power lines as it climbs out of the Carson River Canyon and turns northward toward the terminal site. The alignment would also cross over a sewer effluent line located in a Carson City easement at the Bertagnolli gravel pit. In addition, sewer and water lines are found along Morgan Mill Road where the proposed bridge structure would be located. An additional water line would be crossed approximately 1,200 feet south of Morgan Mill Road along the access road to a Carson City water tank. Overhead power and phone lines would be crossed in the vicinity of the Bertagnolli aggregate pit and approaching Morgan Mill Road.

The interim station site has utilities along Flint Drive and Eastgate Road. Along Flint Drive underground telephone is located in a 5 foot wide easement on the east side of the road. A two pole overhead power line is located within an 80 foot wide easement along the north side of Eastgate Road. A 40 foot wide waterline easement (which includes Eastgate Road within it) is located on the south side of the power line easement. The phone line along Flint Drive will be crossed but no relocations are anticipated.

No utilities are located in the area of the proposed balloon track. A single power line is located a few hundred feet west of the proposed balloon track location within a Carson City easement.

D. Traffic

The proposed Drako Way Terminal site has several adjacent businesses that generate minimal traffic on a daily basis and nearly no traffic on weekends. The conceptual terminal layout, proposed and existing access routes are shown on Figure 4.

The proposed 9,000 foot line change would cross over Morgan Mill Road which presently does not extend as a developed road through to Drako Way. Utility service vehicle and off road vehicle traffic crosses the alignment at the

access road to the Carson City water tank which is located east of the intersection of Deer Run Road and Carson River Road. Traffic also crosses the alignment at the entrance to and east of the Bertagnolli aggregate operation.

The proposed interim Eastgate Station would be accessed by Flint Drive. Flint Drive is the primary access to the Carson City landfill and therefore subject to truck and automobile traffic. Eastgate Road provides access off of Flint Drive to the Carson City model airplane field, to the existing V&T Railway temporary depot and tracks on the west side of the Eastgate siding and for maintenance vehicles to the Carson City water tank located at the end of the road.

Traffic also crosses the northwest corner of the proposed Eastgate Station site to access a few residences, the Eagletec light industrial park and the STOLPORT. A few unimproved dirt roads cross onto or through the Eastgate site. One of the most prominent dirt roads on aerial photographs appears to have been intended as a “cross wind” landing strip for the STOLPORT but is being largely overgrown by vegetation due to lack of use (see Figure 2).

The optional balloon track is crossed by existing dirt roads including the old balloon track that serviced the historic Yerington Smelter. The use of the site for target shooting has resulted in a generally disturbed area for several hundred feet where vehicular traffic has randomly crossed the site.

2.1.2 Impacts

A. Social

When completed the V&T Reconstruction project would generate both positive and negative effects to the region and Carson City in particular. The positive effects would include increased tourism dollars and an educational component focusing on the historical setting and contributions of the surrounding communities to the growth of Nevada and the nation. Additional positive impacts include facilitated public access to remote natural areas and exposure to historical interpretive and educational displays and literature.

Seasonal and intermittent traffic increases would potentially create congestion. Negative impacts may consist of higher traffic, potentially creating congestion in the immediate vicinity of US Highway 50 and Drako Way or Detroit Lane. Similar impacts would be generated by the use of the interim Eastgate Station. The increased tourism would place pressure on public infrastructure including water, sewer, and other utilities, transportation, and local services such as police, fire, and medical.

Commercial and recreational access would be affected where the alignment crosses existing dirt roads and dirt trails. No public road accesses will be eliminated by the elements of the project considered in this Supplemental EA document. The 9,000 foot line change would reduce the amount of private dirt access road (historic V&T alignment) in the vicinity of the Bertagnolli aggregate pit by approximately 500 feet relative to the original 2003 EA.

A single building located at the north end of the proposed depot on property belonging to the Thomas Family Trust, APN 08-521-75, would be required to be relocated for construction of the Drako Way Terminal facility. A single office building, fencing, a fueling station and equipment parking would need to be moved and relocated at the Bertagnolli gravel pit operation to construct the 9,000 foot line change or to reach the Detroit Lane Depot site. Businesses in the vicinity of the depot would experience indirect impacts such as increased noise and traffic during the spring and summer months. Other businesses surrounding the depot site would experience either no impacts or indirect impacts. The primary impact to these businesses would be increased traffic congestion, litter and noise associated with the steam engine and train maintenance. Ground vibrations associated with the operation of the train would be negligible. Blasting will likely be required for the construction of the 9,000 foot alignment and the vibrations associated with this temporary activity may affect some of the businesses that engage in high precision manufacturing.

Businesses in the vicinity of the interim Eastgate Station would also experience increases noise and traffic, especially during the spring and summer months. No businesses would be relocated in order to construct this facility. The primary impact to these businesses would be increased traffic, litter and noise associated with the steam engine and train maintenance. Ground vibrations associated with the operation of the train would be negligible. Should the Eastgate Station need to be constructed, a new sewer line would be extended to the existing Carson City sewer system. Additional utilities might also be placed in this corridor if needed. This new infrastructure may facilitate future development of the Eagletec Industrial Park and the Eastgate Station site BLM lands when ultimately disposed of.

B. Recreation

The 9,000 foot new alignment to the Drako Way Terminal site would limit but not prohibit access to recreational areas of the Carson River Canyon by blocking the existing grade just past the current entry into the Bertagnolli operation. While limiting access for recreational uses, this action will also curtail undesirable activities such as gang graffiti, illegal dumping of refuse and cars and other criminal behavior.

Access to recreational areas in the Brunswick Canyon area near the proposed alignment change in the Carson River Canyon would not be significantly changed from what was originally considered in the 2003 EA. Access for motorized vehicles would be reduced east of the Bertagnolli gravel pit. Alternative vehicle access to the Balloon Track area is provided from the Carson Shooting Range Road via unimproved dirt roads.

The Carson City Parks and Recreation department has established an Aquatic Trail as shown on Figure 8 (Carson City Master Plan, April 2006). The Aquatic Trail is intended to support watercraft access to the river corridor only, however land acquisitions of large parcels along the V&T alignment are currently in progress. These acquisitions will allow for trail developments in the future. River access improvements including the proposed Aquatic Trail are located outside of the project limits. Through access for non-motorized boats will be facilitated by the proposed improvements and the experience made more aesthetically pleasing by the reduction of dumping and also limiting noise from vehicles and target shooting.

Recreational use of the Drako Way Terminal site is limited to the south and west unfenced portions of the site where occasional pedestrian traffic and all terrain vehicle use occur. This use would be curtailed by the construction of track in the south area if the site and potentially by rail yard security fencing. The remainder of the terminal site is occupied by businesses with fenced boundaries precluding public use.

Recreational use of the interim Eastgate Station site would be minimally affected. Current use is along existing roads and easements and would not be impacted except in the case of the Eastgate Road intersection with the proposed wye track. At the intersections of the existing road, railroad crossings will be provided. Recreation use of the proposed sewer corridor would remain unchanged once construction is complete. No impacts to the usage of the Model Airplane field are anticipated other than traffic increases on the access roads.

C. Emergency Access

Emergency access to the Carson River Canyon and other locations within the project limits will be planned and coordinated with local, state, and federal authorities to provide law enforcement, fire control, and emergency response (refer to Appendix B). The emergency access plan for the V&T Railway is currently being developed by the train operator and the emergency management personnel from the three affected counties. The complete plan is anticipated to be adopted by the current operator prior to the 2011 operating season. No new emergency access roads are planned at the balloon track or along the 9,000 foot line change. Access to the Drako Way Terminal site and the interim Eastgate Station site will be from existing roads. Equipment access roads along tracks and within yards will be present at each of these facilities and will provide ancillary emergency access to internal areas of each site.

D. Utilities: Power

Relocations are not anticipated to be conducted outside of the identified construction corridors. Utilities impacted for the remaining portions of the project include overhead power lines located between the Sierra Pacific Power substation and Carson River Canyon and between the Drako Way Terminal site and the interim Eastgate Station site. These relocations should have a minimal impact.

NV Energy has proposed to construct the 120 kV Blackhawk to Heybourne Transmission Line. As currently planned, a potential conflict exists between one of the proposed power line alignments with both the Drako Way Terminal and the 9,000 foot alignment. The Blackhawk to Heybourne Transmission Line project is currently on an indefinite hold by NV Energy. Close coordination during final design of the projects will allow for the construction of both with only minimal impacts to either.

E. Utilities: Sewer and Water

A buried high pressure 24 inch diameter treated effluent line would be crossed twice by the new 9,000 foot alignment in the area adjacent to the Bertagnolli gravel pit. One of the crossings is nearly parallel to the line and extends for approximately 600 linear feet. This conflict would have little impact other than the need to temporarily remove rail if a break should occur. This is a major reduction in the length of track that would conflict with the effluent line from what was proposed in the 2003 EA.

The two new road crossings required for the 9,000 foot alignment change are short and one is within the current roadbed very close to the location covered by the 2003 EA document. The road is subject to heavy truck traffic when the gravel pit is in operation. No adverse impacts to the underground effluent line are anticipated from the track construction, truck traffic or from the effects of train traffic. Relocation of the effluent line is not necessary.

The waterline to the Carson City Tank located east of the 9,000 foot alignment change would likely require relocation in depth and possibly alignment prior to construction to avoid any impact. A bridge will be constructed over Morgan Mill Road, therefore the sewer and water lines along the road will not be impacted and relocation is not necessary.

The April 2003 EA stated that “the additional water/sewer use generated by the proposed project will not adversely affect water/sewer services in either Carson City or Virginia City.” The proposed depot location and 9,000 foot alignment change would not affect the previous conclusions regarding impacts to community sewer or water.

The interim Eastgate Station off Flint Drive, if constructed, would have little impact on water usage in Carson City. Current plans for the Eastgate Station consider three alternatives at the site for handling sewage; a temporary holding tank, an onsite septic system or the extension of sewer to the site from Drako Way. Should the sewer line be extended to the Eastgate Station, a positive impact would be gained for the any future development surrounding the site. Specifically it would potentially benefit the Eagletec Industrial Park, BLM and other businesses along Highway 50 to the Lyon County line that are currently on septic systems. Based on published soil and groundwater depth data, no adverse impact to groundwater is anticipated from any of the alternatives.

F. Traffic

To assess impacts to traffic caused by the Drako Way Terminal and possible Interim Eastgate Station a preliminary traffic study was performed in July of 2009 and updated in December 2010 for the proposed facilities. The report titled Virginia & Truckee Railway Reconstruction Eastgate Station and Drako Way Terminal in Carson City, Traffic Impact Analysis was prepared by Jacobs (engineers) and is attached as Appendix C. The traffic study assumes three scenarios in the analysis. The first is for the interim Eastgate Station at a 90% of the peak ridership as has been projected. The second and third scenarios assume 100% of the projected ridership for both the interim Eastgate Station and the Drako Way Terminal. The proposed project is forecast to generate approximately 128 entering and 128 exiting peak hour trips for the interim Eastgate Station with an anticipated build-out year of 2011, and 144 entering and 144 exiting peak hour trips for the both the interim Eastgate and Drako Way Terminal with an anticipated build-out year of 2014. These traffic volumes are expected to occur May through September and on occasional weekends throughout the remainder of the year.

Currently, minor intersections in the project area operate with a reasonably free to stable flow of traffic in the morning peak hour and with an unstable to a breakdown in traffic flow in the evening peak hour.

Without the project trips and based on a background traffic growth rate of 4.18 percent per year, minor street approaches to intersections in the project area would operate with a reasonably free to stable flow of traffic in the morning peak hour and would suffer from a breakdown in traffic flow in the evening peak hour. Without any intersection improvements, at build-out, intersections in the project area would suffer from a breakdown in traffic flow in both the morning and evening peak hours, however access to the project areas can be expected to operate satisfactorily during both morning and evening peak hours.

The construction of the railway bridge over Morgan Mill Road will allow for the improvement of the roadway allowing greater public access to the area in general, provided an alternative emergency access and further reduce traffic congestion on US Highway 50.

G. Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by the President on February 11, 1994, directs Federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of Federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Based upon a review of available demographic information and the location of the project relative to commercial, open space, and undeveloped land uses, no minority or low-income populations have been identified that would be adversely impacted by the proposed project as determined above. Therefore, this project is not subject to the provisions of E.O. 12898.

2.1.3 Mitigation

A. Social

All relocations will be conducted in accordance with the Relocation Assistance and Real Property Acquisition Policy Act of 1970 (Uniform Act).

Blasting required for the construction of the 9,000 foot alignment will be coordinated with nearby businesses in order not to impact any motion sensitive production periods. Surrounding business and/or residences that may be impacted by the blasting will receive adequate notification in advance of the blasting specifying days and times of proposed blasting. The blasting schedule will be determined in cooperation with those businesses engaged in high precision manufacturing to reduce any impact to production. All blasting will be conducted in compliance with state and local laws and be monitored. Maximum velocities for shock waves will be specified in the contract documents to minimize vibration impacts to structures or manufacturing processes.

Should the Parker-Carson STOLPORT be listed as public use airport on current aviation charts at the time of final design and construction then interim Eastgate Station improvements will be in conformance with FAA guidelines.

B. Recreation

No significant change will occur to pedestrian or recreational vehicular use of the areas considered by this Supplemental EA.

A single railway crossing will be constructed just west of the proposed balloon track location that will maintain recreation access to this portion of the river and surrounding area. This crossing will be constructed regardless of the ultimate terminal location or balloon track construction. A second crossing on the 9,000 foot line change to provide access to the Carson City water tank above the intersection of Deer Run Road and Carson River Road will avoid any impact to recreational use of this area.

Efforts are currently underway by Carson City Parks and Recreation Department, Open Space Committee to purchase the Bently Family Trust and Serpa Properties that would allow for enhanced public access via trails into the Carson River corridor.

C. Utilities

Mitigation of existing utilities will consist primarily of raising power lines along the 9,000 foot line change and at the Drako Way Terminal site. Relocation of the water line to the Carson City water tank above Deer Run Road or relocation of a few power poles will be coordinated with the city and the utility company. Final utility locations would not be known until final design is complete and if any additional environmental compliance work is required it would be completed at that time. Temporary utilities installed for the interim Eastgate Station, if constructed, will eventually be removed or abandoned in place as required by NDEP permits and in accordance with BLM right-of-way grant requirements. Abandonment of the site would be dictated by the completion of the route and construction of the Drako Way Terminal. No other utility mitigation is anticipated to be necessary.

D. Traffic

A thorough traffic study of the selected terminal and if necessary the interim Eastgate Station would be required as part of the building permit process. Traffic studies would be conducted and traffic signage or signal systems will be upgraded or installed where Carson City or NDOT deem necessary. In addition, all railway crossings will be designed and constructed to avoid automobile and pedestrian conflicts with train traffic.

2.2 Economic Considerations

2.2.1 Existing Conditions

Beginning in August of 2009 the first revenue generating trains ran from the Eastgate Siding in Carson City to Virginia City. These trains were only operated on Saturday and Sunday on August 15 and August 16 and then for an additional 11 weeks on Saturday only. During the 2010 operating season trains operated from the end of May through October three days a week. All round trips were from the Carson City end at the Eastgate siding while the train storage facilities are in Virginia City. One round trip per day was the normal routine with “dead head” (one way) runs down from Virginia City in the morning and a return trip to Virginia City at the end of the day. This type of interim operations will likely continue seasonally and steadily increase in length until such time the project is complete. At that time actual revenue projections and operating costs can be evaluated. These operations are far below the projected numbers of riders when the project is completed and thus the related economic impacts are relatively modest.

If the project as discussed in this document is approved, the Commission will seek additional funding to complete construction of the 9,000 foot alignment, interim station, and balloon track from a variety of local, state, and federal funding sources.

2.2.2 Impacts

Economic impacts have now begun on an interim basis that will continue at least seasonally until the project is complete. Assuming that the train continues operating over a six-month period in the next year with two round trips a week at 75% capacity, at an average ticket price of \$40.00, the potential gross sales from tickets alone would conservatively be \$224,000. This estimate does not include any estimate of impacts from room nights, food, beverage and merchandise sales.

When the project is completed, economic impacts should remain as originally estimated after adjustment for inflation. The area would experience positive economic benefits that will be unaffected by the changes in the depot location and line change, interim station, or interim balloon track terminus.

Approximately 50.4 acres of taxable land will be needed for additional right-of-way if all elements considered herein are constructed. There will be no adverse impact to taxes when this land is taken off the tax rolls. Should the project be funded to completion at the Drako Way Terminal, the amount of taxable land will be reduced to approximately 25.9 acres.

2.2.3 Mitigation

No mitigation is required.

2.3 Noise

2.3.1 Existing Conditions

Measurements of ambient sound levels representing a typical daytime hour for the Deer Run Road area of the project were conducted by NDOT as part of the original EA as shown on Figure 5. The ambient sound for this area was measured at 46.8 dBA (average energy level in decibels).

2.3.2 Future Conditions

Increased noise will occur during construction of the various elements considered herein. The construction noise will be similar to grading projects in the area and consistent with previous construction. Blasting is likely to be necessary for portions of construction along and above the privately owned Carson River Road.

Railway operations will generally be limited to one to five roundtrips during the daytime with an occasional evening dinner train. Normal operations would be limited to 9:00 am to 6:00 pm. Train sound levels were monitored at the existing railroad between Virginia City and Gold Hill to determine future noise levels for the rest of the project area. The train produced momentary noise levels of up to 94 dBA at 15 meters (50 feet) from the track. Sound levels peaked at 117 dBA when the whistle blew at road crossings. These levels should be similar to noise generated at the proposed depot site, interim station and at the road crossings at the Bertagnolli gravel pit and at the Carson City waterline access road above Deer Run Road.

Four mobile home residences are located northwest of the end of the track at the Interim Eastgate Station. The nearest residences are located from two hundred to four hundred feet from the end of track as shown on the Site Plan, Figure 4.

2.3.3 Impacts

There are two road crossings planned for the 9,000 foot new alignment portion of the project; at the Bertagnolli gravel pit and at the Carson City waterline access above Deer Run Road. While a similar crossing was previously considered in the 2003 EA at the Bertagnolli gravel pit, the new alignment change would shift the crossing ten to twenty feet to the east. The train whistle will blow when approaching all of planned at grade crossings related to the 9,000 foot alignment change, interim Eastgate Station and Drako Way Terminal. A bridge will be built to cross over Morgan Mill Road avoiding an at-grade crossing which will not require a whistle. Normal operations require that the train whistle will be used for train movements or when leaving and arriving at the Drako Way Terminal or interim Eastgate Station.

2.3.4 Mitigation

A. Railroad/Construction Noise

Construction noise would be temporary and limited to daytime operations in accordance with standard grading and other permits. The increased noise levels due to train operation are short in duration and occur only a few times daily. Construction noise will be limited by contract documents to daytime operation. Noise during construction of the 9,000 foot alignment and terminal site will temporarily increase to levels above the ambient levels. Blasting will be scheduled for daylight hours and vibration limited by project specifications which will also limit related noise levels. Stationary equipment will be placed as far away as practical from sensitive receptors.

Ground-borne vibration is not as common a problem as environmental noise therefore mitigation approaches are not as well defined and developed. Proper maintenance of rail equipment and limited hours of operation would be used to maintain consistent noise levels during operation. As the project proceeds through the later design stages, if a vibration assessment is warranted and if it is determined that vibration levels would be excessive, then mitigation measures to reduce the levels of ground-borne vibration would be included into the final design. Such measures may include but are not limited to floating slabs, resiliently supported ties, high-resilience fasteners, and vibration reducing ballast mats. To be effective, any approved measure must be optimized for the frequency spectrum of the vibration in question.

2.4 Air Quality

2.4.1 Existing Conditions

A. Ambient Air Quality

The project is located within an area that is in attainment/unclassifiable of the National Ambient Air Quality Standards (NAAQS) for PM₁₀ and PM_{2.5} (Particulate Matter with an aerodynamic diameter less than 10 and 2.5 microns, respectively), Ozone, and Carbon Monoxide.

B. Air Receptor Locations

The proposed Drako Way Terminal will be located in an area of low density commercial and light industrial businesses. The new alignment to the Drako Way Terminal will traverse through or near three businesses. On the east end the alignment will pass through the southwest edge of the Bertagnolli gravel pit operation. On the west end of the alignment near the depot site the right-of-way is adjacent to two businesses, Taiyo America, Inc., a paint manufacturer and Triangle Labs, Inc., an electronics manufacturer (see Figure 3).

The proposed interim station site is also located in an area of low density residential, commercial and light industrial businesses that are part of the Eagletech Industrial Park. If the sewer line is constructed from near Drako Way to the interim station, it will pass a few hundred feet south of the Computer Corps buildings. There are no existing businesses or residences in the vicinity of the balloon track site.

Receptors that will be near the depot or the new alignment, the interim station, or the balloon track do not include any that would be considered sensitive (hospitals, schools, or senior citizen living facilities).

2.4.2 Impacts

A. Build Conditions

The project will not cause any violations of the NAAQS. Overall air quality impacts were considered in the 2003 EA. If all of the elements proposed and considered herein are constructed, the resulting length of the project will be essentially identical to the original plans that included the Detroit Lane Depot (Terminal A).

The primary fuel for steam train operations will be waste oil. The secondary fuel will be diesel for diesel electric operations. For the preparation of the 2003 EA, NDOT was unable to find any program or data that would provide a model for exhaust emissions from a steam-powered locomotive. Steam powered locomotives are rare and therefore not listed in the Clean Air Act Amendments (CAAA) 1990.

NDOT provided data for emissions on stationary rails. The data was intended to provide an estimate of emissions from a historic steam locomotive. The air quality in the Eagle Valley/Carson City area is in compliance with the NAAQS for Carbon Monoxide, Ozone and PM₁₀ and PM_{2.5}. This information was included in the previous EA resulting in the FONSI being issued. No differences in operations or equipment types are planned due to the new Drako Way depot site, the new 9,000 foot alignment, the interim Eastgate Station, or the balloon track.

2.4.3 Construction Impacts

Increased CO levels and fugitive dust levels will be generated during construction due to equipment operations. The increase in CO is temporary and will not cause long term effects.

2.4.4 Mitigation

A. PM₁₀

Contract documents will specify that the contractor must implement a dust control plan to address impacts. In addition, the contractor must comply with all federal, state, and local laws and regulations. With the implementation of an effective dust control program, the increase in PM₁₀ levels will not create adverse affects.

It is not anticipated that operation of the V&T Railway will have a measurable impact on the local or regional air quality.

2.5 Water Quality

2.5.1 Existing Conditions

A. Surface Water

The proposed project is located at the eastern edge of the Eagle Valley Basin, a portion of the Carson River Hydrographic Region. The Carson River flows from the Sierra Nevada Mountain Range to the east into Carson Valley and northward through Eagle Valley. The river turns eastward near Morgan Mill Road in Carson City and flows eastward through the Pine Nut Range to the town of Dayton. From Dayton the river flows farther east eventually terminating at the Carson Sink in Churchill County. Beneficial uses of the river include agricultural irrigation, waterfowl and fishery habitat, recreational use, municipal use and light industrial use. Most community water systems along the river use well water that draw from regional aquifers.

United States Geological Survey data show that the mean annual discharge for the Carson River as measured downstream from Deer Run Road (USGS Gauging Station 10311400) is 439 cubic feet per second (cfs) for the period from 1979 through 2005.

Water quality standards for the Carson River have been established by the Nevada Division of Environmental Protection (NDEP). The reach of the river potentially affected by the V&T construction is from New Empire to the Dayton Bridge. Water quality data for this reach is collected at monitoring location C11 located a few hundred feet east of the Deer Run Road Bridge on river right (Figure 2). Water quality data collected in 2000 at the C11 site indicates that total phosphates were exceeded, total suspended solids were exceeded during spring flows and mercury levels were exceeded in most years.

Since 1990, portions of the Carson River and surrounding low areas have been designated by USEPA as mercury contaminated Superfund site. The contamination traces back to the 1800's when mercury was used in the separation of precious metals from numerous mills related to the Comstock Mining District. The Superfund site extends from Carson City some 60 miles east to the Carson Sink. Geographically, the Carson River Superfund site is the largest in area of any USEPA identified Superfund site.

A small portion (approximately 500 feet) of the 9,000 foot line change adjacent to the Bertagnolli gravel pit is located in the FEMA-designated 100 year floodplain as shown on Figure 6.

The new 9,000 foot alignment change climbs up and away from the river to reach the proposed Drako Way Terminal site. This new alignment will result in eliminating approximately 1,500 feet of alignment that was considered in the 2003 EA that would be within both the Superfund site and Carson River floodplain west of the Deer Run Road Bridge.

The interim Eastgate Station site is not in any flood zones nor do any surface water courses cross the site.

Approximately two thirds of the balloon track will be located in the Carson River 100 year floodplain as mapped by FEMA in 2009. No surface watercourses are crossed by the proposed alignment of the balloon track.

B. Groundwater

Groundwater depths are anticipated to be at a minimum where the 9,000 foot alignment leaves the historic alignment on the south easterly side of the Bertagnolli gravel pit. At this location groundwater is about 10 feet below ground surface or near the level of the adjacent river flow line. This level fluctuates according to seasons and flood events. Groundwater levels increase relative to the ground surface as the alignment climbs out of the river canyon. The average depth to groundwater on the Drako Way Terminal site is greater than 60 feet below the existing ground surface. No springs are known or mapped near the new alignment or the proposed Drako Way Terminal site.

Groundwater at the interim Eastgate Station site and sewer utility route is anticipated to be located greater than 40 feet below the existing surface which is well below any potential construction depths.

Groundwater depths at the proposed balloon track location are anticipated to be greater than ten feet below the existing grade and also below any probable construction excavation depths.

2.5.2 Impacts

A. Surface Water

The Drako Way Terminal site, the 9,000 foot alignment change, the interim Eastgate Station and the balloon track are located in areas with established drainage pathways created by past runoff events and grading activities. New point source impacts will occur where the new alignment impacts channels or drainages. Best management practices (BMP's) will be incorporated into the alignment and depot drainage design and construction. Due to the deviation of the alignment (uphill) and placement of the terminal away from the river, a net decrease in potential effects to surface waters is anticipated relative to the alternatives described in the 2003 EA.

B. Groundwater

There are no impacts to groundwater for the proposed project. No domestic wells are located within the project area. Three municipal commercial wells are located on the Bertagnolli gravel pit property (see Appendix D). These wells are all located on the upper portions of the property several hundred feet away from the proposed alignment. A single municipal commercial well is located near the northeast corner of Astro Way and Drako Way. This well is located approximately 300 feet east of the Commission owned building on the proposed depot site. There are several domestic wells in the Eagletec Industrial Park. The elimination of the proposed Detroit Lane Terminal site will result in a reduction in the impact to groundwater due to the shallow groundwater known to exist on that site.

2.5.3 Mitigation

A. Surface Water

Natural drainages and channels will be returned to as near as possible their original condition to minimize erosion and sediment loss. Energy dissipaters and interceptor ditches will be constructed at the drainage structure outfalls to prevent down gradient scouring. Interceptor ditches will be constructed on the upstream side of the roadbed to carry storm runoff through the cut sections. They will discharge to natural channels on the upstream side in fill areas, or to small pipes crossing under the track bed. Embankment fill in the area of the low point of the project east of the Bertagnolli gravel pit will raise the track structure relative to the flood elevation. Fill depths will be a minimum of six to twelve inches above the existing grades. The ballast section will raise the track another 14 inches above the subgrade resulting in the bottom of rail being a minimum of from 20 inches to 26 inches above the existing grade. This will reduce the amount of track subject to flooding to less than 200 linear feet.

BMPs will be utilized to limit and control the potential for water quality impacts due to erosion of sediment from wind and water related forces as well as containing construction materials onsite during the construction and operation of the proposed project. BMPs are prescriptive construction methodologies and erosion control practices that taken together prevent or reduce the amount of impacts to water from non-point sources to levels that meet or exceed local, state and federal water quality goals.

Because the project will disturb more than one acre of land, the contractor will be required to file a Notice of Intent (NOI) with the Nevada Division of Environmental Protection's Bureau of Water Pollution Control. This provides coverage under the General Permit for Storm Water Discharges Associated with Construction Activity (NVR100000) required by the National Pollutant Discharge Elimination System (NPDES) program pursuant to the Clean Water Act. A Storm Water Pollution Prevention Plan (SWPPP) must be developed prior to the NOI submittal. The SWPPP outlines temporary erosion and sediment controls incorporating BMPs, therefore reducing non-point source pollution that may be generated relative to the construction project.

The following mitigation measures will be required at the Drako Way Terminal site and the interim Eastgate Station if constructed:

- Drains will be constructed inside the vehicle maintenance area. Flow from the drains will be treated prior to discharge into the local sanitary sewer system or offsite disposal in the event that the interim station is not served by sewer. A maintenance plan will be developed for the oil/water separator.
- Vehicles, equipment, and train rolling stock will be washed on a special wash pad at the Drako Way Terminal location. Flow from the wash pad will be treated prior to discharge into the local sanitary sewer system.
- Vehicles, equipment and train rolling stock will be washed on a special wash pad at the Interim Eastgate Station and the wash water disposed of by collection and offsite disposal or treated and discharged to the local sanitary sewer system when extended to the site.
- Wastewater from buildings or restrooms at the Drako Way Terminal will be connected to local sewer and water utilities. Train wastes will be stored on the train and properly disposed of at the depot or at the Eastgate Station.
- The interim Eastgate Station will be served by a holding tank, septic system or by a holding tank(s). Train wastes will be disposed of either on site to a holding tank, septic system or sewer as appropriate to the ultimate development of the site.
- Stormwater runoff from parking lots, rooftops, and maintenance areas will be treated to meet water quality standards prior to flowing into the local storm drain or drainage conveyance.
- The Drako Way Terminal and the interim Eastgate Station, if constructed, will need Storm Water National Pollutant Discharge Elimination Systems Permit (NPDES) to discharge water into the Carson River (SIC 40).

B. Groundwater

No impacts to groundwater are expected; therefore, mitigation will not be needed. However, if any unanticipated wells are encountered within project limits during construction, they must be properly abandoned by a Nevada-licensed driller. NDWR permits must be obtained prior to the abandonment.

2.6 Floodplain and Hydrological Assessment

2.6.1 Existing Conditions

Existing watersheds in this portion of the project include the Carson River with steep to moderately steep minor intermittent natural drainages that flow into the Carson River. The Carson River corridor consists of well developed wetlands and riparian areas. Runoff generated from storm events is conveyed through the intermittent minor drainages and crosses the original V&T alignment through primitive structures ranging from small steel pipes to box culverts constructed from native rock. The minor intermittent drainages are generally undeveloped and vegetated mainly with sagebrush and grasses. The watercourses are lined with vegetation on the sides and have gravelly bottoms that range from one to 15 feet wide.

The minor intermittent drainages that cross the 9,000 foot alignment are generally undeveloped and vegetated mainly with sagebrush and grasses. Intermittent drainages in this area are generally lined with vegetation on the sides and have sandy to gravelly bottoms that range from one to 15 feet wide. Two intermittent streams are shown to cross the 9,000 foot alignment change as shown on Figure 9. The northerly stream course located near the location of Morgan Mill Road has been obliterated by mass grading of the site and the road construction. The southerly drainage near Deer Run Road has been almost entirely blocked by grading but still flows during peak precipitation events.

Surface water on the proposed Drako Way Terminal site drains to the west and north as sheet flows that ultimately reach either the US Highway 50 road side ditch or Deer Run Road.

Surface water flows on the proposed interim Eastgate Station site flow to the southwest. These flows ultimately reach the US Highway 50 roadside ditch or the Carson River in the case of very large events. Most flows infiltrate into soils prior to reaching the Carson River.

Surface flows in the vicinity of the balloon track are impounded on the uphill side by the existing V&T embankment. Flows emanating to the downhill side of the existing V&T alignment flow southward towards the Carson River.

The Federal Emergency Management Agency (FEMA) FIRM map (Panel Numbers 320001 0104 E, 0110 E, 0112E and 0116 E) revised in January 2009, identify the portions of the 9,000 foot alignment change and the balloon track that are in the 100 year flood zone. Figure 7 is a composite drawing of the FIRM maps showing the project relationship to the 100 year flood zone.

Approximately 500 linear feet at the east end of the 9,000 foot alignment change is located within the 100 year flood zone of the Carson River. About two thirds or 1,600 linear feet of the balloon track will also be in the 100 year flood zone. Neither the interim station site nor the Drako Way Terminal site is in a FEMA-designated flood zone.

2.6.2 Impacts

Construction of the proposed project along the 9,000 foot alignment upslope from the Carson River will impact the single drainage located near Deer Run Road at a point approximately 400 feet south of the Morgan Mill Road. This drainage will be impacted by the proposed railroad embankment. The embankment at this location will be approximately 60 feet high. Existing flows (intermittent) will be accommodated in large culverts. The cut and fill construction will not create adverse hydraulic effects to upstream or downstream properties.

The Drako Way Terminal, the interim Eastgate Station, utility corridor and the balloon track will not impact any drainage.

The balloon track will have a minimal impact on flooding due to the shallow depth of flooding and the placement of cross culverts that will allow for water to flow to the Carson River and into higher areas where it has historically reached during flood events.

2.6.3 Mitigation

Existing flow patterns and capacities for drainage features will be perpetuated in the railroad corridor. Minor drainages will be perpetuated and discharged into their historic drainage paths with minimal disturbance. The railway grade will be raised a foot or more by design along the Bertagnolli gravel pit area.

Impacts to upstream, downstream and adjacent properties and to the Carson River will be minimized by limiting encroachment into FEMA designated floodplain (100 and 500 year flood zones) and avoiding any construction within the ordinary high water mark of the Carson River. No wetlands or watercourses will be impacted by construction.

2.7 Hazardous Materials

2.7.1 Existing Conditions

A short segment (approximately 1,000 linear feet) of the new 9,000 foot alignment is within the boundaries of the Carson River Mercury Site along the Carson River (see Figure 7). The Carson River Mercury Site is on the Environmental Protection Agency's (EPA) National Priorities List (NPL). The mercury contamination is the result of dumping into the drainage from the numerous ore processing mills that lined the Carson River and its tributaries during the late 1880's. The boundaries of the Carson River Mercury Site are defined as the bed and bank of the Carson River.

During the preparation of the 2003 EA, NDOT tested soils from two storm water drainages that cross the Bertagnolli Pit. The sample locations are described as the "south drainage" and the "east drainage". Only the south drainage crosses the proposed new alignment. The soils were tested for Total Petroleum Hydrocarbons (TPH). Per the 2003 EA, the test result in the south drainage reported TPH as oil range organics (C18 to C34) at levels of 800 ppm. This TPH value was above reporting levels (100 ppm) and was forwarded to Nevada Emergency Management per NAC 445.201.

A portion of the proposed Drako Way Terminal site along the western boundary has been observed to be the location of dumping of construction refuse consisting primarily of asphalt and concrete. The vertical extent of the dumping and nature of materials that may be buried within the uncontrolled fill is not known.

The balloon track will be located within a portion of the Carson River Mercury site and adjacent to and within the historic Yerington Smelter. The Yerington smelter has also been used as an unofficial target shooting range and lead

associated with that use is present. Considering that ore processing may have been conducted on the site, elevated levels of lead and other heavy metals may be present. Testing results are listed in Report 101356, 10-19-2009, Sierra Environmental Monitoring, and upon report review by NDOT, mitigation measures (Section 2.7.3) will be specified in the contract documents.

2.7.2 Impacts

A. Track Right-of-Way

Impacts of the Carson River Mercury site to the construction of the new 9,000 foot alignment near the river are minimal due to the short length involved and raised embankment construction in that area. No cuts within the Mercury site other than culvert pipes and those necessary to remove tanks or buildings at the Bergtagnolli Aggregate pit are planned. The balloon track will mostly be constructed on fill with only minimal cut areas. Contaminated areas along the balloon track, if any will only be disturbed during clearing and grubbing and in the minimal cut areas.

B. Terminal Site and Interim Station Site

The proposed Drako Way Terminal and interim Eastgate Station (if constructed) will have fueling areas as well as storage tanks. In addition, a wash rack will be necessary for cleaning rolling stock and maintenance equipment.

Conceptual plans for the proposed terminal site and interim station site include railroad and highway/off road vehicle maintenance facilities. The interim station site would by nature include temporary and less extensive facilities. Portable buildings and limited storage facilities would be constructed at this site.

Similar maintenance facilities use oils, grease, and solvents in their maintenance operations, which could generate hazardous wastes. According to the Resource Conservation and Recovery Act (RCRA), any facility that generates more than 220 pounds and less than 2,200 pounds of hazardous wastes in a month is classified as a Small Quantity Generator (SQG). The V&T maintenance shops have the potential to be SQGs.

If the shops are SQGs, they will be required to follow the RCRA regulations. According to RCRA, a SQG is required to have their waste transported from the site by an EPA-registered hazardous waste hauler. This would not impact the surrounding area unless there was an accident. If the amount of hazardous waste generated can be limited to less than 220 pounds it would be classified by RCRA as a Conditionally Exempt Small Quantity Generator (CESQG). Like SQGs, these hazardous wastes will be transported from the site by an EPA-registered hazardous waste hauler.

The Preliminary Design document by Lumos and Associates, 1998 indicates that a maximum of approximately 20,000 gallons of locomotive fuel oil will be stored at the terminal. Fuel oil would be stored in either tank cars or in above ground storage tanks. Based on recent discussions the Commission has had with potential operators, a diesel locomotive is also envisioned to be used on a limited basis. It is assumed that the quantity and storage vessel type for the diesel fuel will be similar to the requirements for the locomotive fuel oil.

Possible impacts of the diesel and fuel oil storage on the depot site could include fuel truck traffic (two semi loads per month), spills during loading and unloading of fuel, and spills from leaking tanks.

Wash racks will produce turbid waste water typically containing small amounts of hydrocarbons.

The presence of uncontrolled construction related debris fill on a portion of the proposed Drako Way Terminal site will possibly require exploration, testing, removal and monitoring.

2.7.3 Mitigation

A. Track Right-of-Way

Mitigation for potentially mercury contaminated soils will consist of placing fill over the native soils. Embankment fills will be placed for a short distance near the Bertagnolli gravel pit and in the area of the balloon track which

combined with dust control will help mitigate exposure to workers. Standards for safe handling of native soils with possible mercury contamination will be incorporated into the special provisions of the project contract. Close coordination with NDEP will be required of the design team including plan reviews. In addition, contractors will also be required to coordinate with NDEP during construction near the river or mill sites.

Soils excavated in the area of the Bertagnoli aggregate pit will be screened for hydrocarbon contamination (TPH). If contaminated soils are encountered during construction they will be disposed of in accordance with appropriate regulations. Current preliminary plans call for raising the grade in this area and little excavation is planned.

No other constituents were discovered by NDOT which exceeded state action levels. However, if additional contamination is discovered during construction it will be reported to NDEP so necessary steps can be taken.

The balloon track area will for the most part involve the placement of fill averaging three or more feet thick. The placement of a minimum of two feet of clean fill over hazardous metal contamination is a standard practice in the area recognized by NDEP for isolating heavy metals such as mercury and lead from public exposure. Proper handling and disposal methods as approved by NDEP will need to be specified in the Special Provisions for the project. It will be necessary to ensure that no excavated material is moved from this area without testing to determine the extent of any contamination.

B. Terminal and Interim Station Operations

The impacts caused by hazardous waste generation and fuel storage at the terminal or interim station sites will be mitigated by proper handling and spill prevention techniques. This will include following applicable Federal, State and local regulations. Federal RCRA regulations cover the storage and handling of hazardous waste. Carson City Fire Department regulations pertain to aboveground fuel storage tanks and Carson City Utility Department regulations cover the storage of hazardous material and waste. Special attention will be given to secondary containment for hazardous waste and fuel storage. A spill prevention plan will be developed for the terminal and station facilities.

Wash water, generated by steam cleaning and washing of trains and maintenance vehicles, will be managed as wastewater and disposed of in the sanitary sewer or at an approved offsite disposal facility in the case of the interim station. The Carson City Utility Department regulates these discharges and requires some form of pretreatment prior to discharge to the sewer or at an approved disposal site. This and/or other regulations will be adhered to in the handling of wastewater.

Over excavation and removal of the construction debris materials observed on the proposed Drako Way Terminal site will be necessary due to the need for track structures to pass over the area. Monitoring of the removal will be necessary to ensure no hazardous materials are present. If hazardous materials are encountered they will be properly handled and disposed of in accordance with state and local standards. Clean structural fill will need to be placed once the offensive materials have been completely removed.

2.8 Biological Resources

2.8.1 Existing Conditions

The Drako Way Terminal site is a relatively flat area that is located a short distance from the Carson River which is located southwest of the site. The area was formerly in an area of low hills that drained to the southwest toward the Carson River. Grading of the site and surrounding businesses resulted in leveling and clearing of much of the proposed terminal area. Sagebrush and other low shrubs are present on the proposed site from the Commission property for a few hundred feet south. Additional mass grading of the surrounding area to the south and east was completed in the early 1980's for planned future development. Approximately 400 feet south of Morgan Mill Road the fill reaches a maximum depth of approximately 120 feet. The area that has been mass graded is lacking in native vegetation except for moderate amounts of weeds and occasional low shrubs due to the mass grading described above and heavy use of the area by off road vehicles.

The new terminal site requires 9,000 linear feet of railway which will extend from the site south and east towards the Carson River as shown on Figure 2. The 9,000 foot alignment ranges from an elevation of 4,577 feet adjacent to the

Bertagnolli gravel pit to a maximum of 4,685 feet at the entry to the Drako Way Terminal site on the north side of Morgan Mill Road. North of Morgan Mill Road the fill transitions from about 15 feet thick to a cut slope about half of the distance to US Highway 50.

The interim Eastgate Station site is in an area that is gently sloping to the southwest at approximately one to three percent. The site ranges in elevation from approximately 4,920 feet to 5,000 feet. Vegetation is moderately dense sagebrush, native grasses and other low shrubs with a few pinyon and juniper trees scattered over the site. During 2009 the construction of the V&T Railway included placing up to twenty feet of fill along the east side of the proposed project site.

The utility corridor from Morgan Mill Road to the interim Eastgate Station crosses gently to moderately sloping west facing slopes. Much of the area along the corridor is or has been disturbed by the NV Energy power line construction and maintenance. The alignment follows Morgan Mill, Drako Way and Astro Way in the first about one third of its length. Vegetation ranges from sparse weeds to mature sagebrush scrub. The utility corridor ranges in elevation from approximately 4,680 feet to 4,920 feet.

The climate in the area of the project is typical of the Great Basin Desert, which is the mildest of the high elevation deserts or cold interior climates. Climate in the area is arid, with low rainfall (about 8 inches per year) and mean annual temperatures of 49 degrees to 51 degrees Fahrenheit.

A. Vegetation

Biological reviews of the various components of the project were conducted by NDOT, Quad Knopf, and Resource Concepts Inc. between 2003 and 2011. Table 2.8.1 shows the various project elements and species identified at each location. NDOT surveys were done as part of the 2003 EA and cover only the portions of the project where the main project alignment overlaps the proposed changes at the Balloon Track, the interim Eastgate Station and the east end of the 9,000 foot line change.

The following reports and responsible parties that performed the work are the basis for the following discussion and summary tables.

1. *Environmental Assessment FHWA-NV-EA-03.03*, Federal Highway Administration and the Nevada Department of Transportation, April 2003
2. *Reconnaissance-Level Biological Site Assessment and Special-Status Species plant Survey of V&T Railroad Project-Depot Site and 9,000 foot Re-Alignment*, Quad Knopf, May 2006 (Drako Way Terminal and Realignment)
3. *Reconnaissance-Level Biological Site Assessment for the V&T Railroad Revised Depot Site (Carson City Property)*, Quad Knopf, March 5, 2007
4. *V&T Railway Reconstruction, Interim Station and Balloon Track, Biological Review*, Resource Concepts Inc., July 2009 (Interim Eastgate Station)
5. *V&T Railway Reconstruction 2010 Addendum, Interim Station and Balloon Track, Biological Review*, Resource Concepts Inc., December 29, 2010
6. *V&T Railway Reconstruction, Phases 3A/3B Staging Areas and Access Road Biological Review*, Resource Concepts Inc., January 2009
7. *V&T Railway Reconstruction, Phases 3B & 3C, Jurisdictional Waters of the U.S.*, Resource Concepts Inc., December 4, 2009

The immediate areas adjacent to and near the proposed Drako Way depot site, interim Eastgate Station, balloon track and new 9,000 foot alignment are dominated by plant species characterized as Great Basin scrub and sagebrush scrub communities. The sagebrush scrub community is dominated by big sagebrush (*Artemisia tridentata v wyomingensis*), rabbitbrush (*Chrysothamnus nauseosus*), and antelope bitterbrush (*Purshia tridentata*). Other common shrubs include greasewood (*Sarcobates vermiculatus*), Mormon tea (*Ephedra nevadensis*), and shadscale (*Atriplex confertifolia*). The understory was dominated by grasses and forbs including Great Basin wildrye (*Leymus cinereus*), Indian ricegrass (*Acnatherum hymenoides*), wild buckwheat (*Eriogonum vimineum*), Chryptanthas (*Chryptantha spp.*) and Eriastrubm

(*Eriastrum* sp.) several weedy species, including cheatgrass (*Bromus tectorum*), skeletonweed (*Stephanomeria spinosa*), tansy mustard (*Descurainia incana*) and crane's bill (*Erodium cicutarium*). Tree species including juniper (*Juniperus utahensis*) and pinyon pine (*Pinus monophylla*) are also located in the area and adjacent to the proposed alignment.

**Table 2.8.1
Plants and Trees Observed in the Survey Area**

Plants and Trees Observed in the Survey Areas					
Scientific Name	Common Name	9,000 Ft. Alignment & Drako Way Terminal	Interim Station	Utility Line	Balloon Track
<i>Achnatherum hymenoides</i>	Indian ricegrass		X	X	X
<i>Achnatherum thurberanum</i>	Thurber needlegrass		X	X	X
<i>Ambrosia artemisifolia</i>	Annual ragweed		X	X	X
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	Common fiddleneck	X			
<i>Arabis</i> c.f. <i>pulchra</i>	Rock cress	X			
<i>Artemisia tridentata</i>	Big sagebrush	X			X
<i>Asclepias</i> sp.	non-specific Milkweed				X
<i>Astragalus purshii</i>	Pursh's mik-vetch	X			
<i>Atriplex confertifolia</i>	Salt Brush		X		X
<i>Bromus tectorum</i>	Cheatgrass	X	X		X
<i>Castilleja angustifolium</i>	Desert Indian-paintbrush	X			
<i>Chaenactis douglasii</i> v. <i>douglasii</i>	Douglas dustymaiden		X	X	
<i>Chrysantha</i> sp.	non-specific		X		X
<i>Chrysothamnus nauseosus</i>	Rabbitbrush		X		X
<i>Descurainia incana</i>	Mountain tansymustard		X	X	X
<i>Distichalis spicata</i>	Salt grass				X
<i>Elymus elymoides</i>	Squirreltail		X	X	
<i>Ephedra viridis</i>	Green ephedra	X	X		X
<i>Eriastrum</i> sp.	non-specific wollystar		X		
<i>Erodium cicutarium</i>	Redstem filaree Common Stork's-bill		X		X
<i>Erigeron aphanactis</i> v. <i>aphanactis</i>	Shaggy fleabane	X	X		
<i>Erigeron</i> sp.	Rayless sunflower	X			
<i>Erodium cicutarium</i>	Redstem filaree Common Stork's-bill		X		X

Scientific Name	Common Name	9,000 Ft. Alignment & Drako Way Terminal	Interim Station	Utility Line	Balloon Track
<i>Eriogonum c.f. thurberi</i>	Annual buckwheat, not matted	X			
<i>Eriogonum nimuloides</i>	Buckwheat	X		X	X
<i>Eriogonum vimineum</i>			X	X	X
<i>Grayia spinosa</i>	Hop sage	X			X
<i>Halogeton glomeratus</i>			X		X
<i>Juniperus osteosperma</i>	Utah Juniper		X	X	X
<i>Lepidium latifolium</i>			X	X	
<i>Lepidium perfoliatum</i> ¹			X		
<i>Leymus cinereus</i>	Basin wildrye				X
<i>Lomatium dissectum</i>	Fern-leaved lomatium	X			
<i>Lupinus c.f. lepidus</i>	Lupine	X			
<i>Lygodesmia sp.</i>				X	X
<i>Mentzelia laevicaulis</i>	Blazing Star				X
<i>Mirabilis bigelovii</i>	Bigelow's desert four-o'clock	X			
<i>Opuntia erinaceae</i>	Grizzlybear pricklypear	X			
<i>Phlox stansburyi</i>	Stansbury's phlox	X			
<i>Pinus monophylla</i>	Single-leaf pinyon pine	X		X	
<i>Poa secunda</i>	Sandberg bluegrass	X	X		X
<i>Polygonum prostrates</i>	Knotweed				X
<i>Populus fremontii</i>	Fremont Cottonwood		X		
<i>Prunus andersonii</i>	Desert peach	X	X		X
<i>Purshia tridentata</i>	Bitterbrush	X		X	X
<i>Salix exigua</i>	Narrowleaf Willow				X
<i>Salsola tragus</i>	Russian thistle	X			X
<i>Sarcobates vrrmiculates</i>	Greasewood				X
<i>Stephanomeria spinosa</i>	Thorn Skeltonweed		X		X
<i>Tetradymia canescens</i>	Gray horsebrush		X		X
<i>Verbascum blattaria</i>	Moth Mullein			X	

B. Noxious Weeds

As in many parts of Nevada that have been disturbed, noxious weeds are common. Several species of State listed noxious weeds exist along the alignment and at all of the sites considered here. Species known to occur include tall whitetop (perennial pepperweed, *Lepidium latifolium*), hoary cress (whitetop, *Cardaria draba*), and scotch thistle (*Onopordum acanthium*). These weeds are interspersed with native vegetation and occasionally dominate areas where past disturbance has occurred.

C. Wildlife Species

Wildlife species found in Nevada include twenty-five species of raptors, twenty-three species of bats, rodents, reptiles, amphibians and large and small mammals. A major raptor migratory corridor passes through the state, including species such as the bald eagle (*Haliaeetus leucocephalus*), Cooper's hawk (*Accipiter cooperii*), Swainson's hawk (*Buteo swainsoni*), and Prairie falcon (*Falco mexicanus*).

Fifty game bird species may be found in the state, many of which are introduced. Sixteen birds are classified as upland birds, of which eight are native to Nevada and eight are introduced. The native game birds include sage grouse (*Centrocercus sp.*), blue grouse (*Dendragapus obscurus*), sharp-tailed grouse (*Tympanuchus phasianellus*), mountain quail (*Oreortyx pictus*), and Gambel's quail (*Callipepla gambelii*).

Passerines (e.g., perching songbirds) such as warblers, sparrows, finches, and flycatchers comprise 60 percent of the non-game species. Water and shorebirds, cranes (*Grus spp.*), woodpeckers (*Family Picidae*), hummingbirds (*Family Trochilidae*), swifts (*Family Apodidae*), and kingfishers (*Family Alcedinidae*) are among the other groups represented in the state. All wild birds, with the exception of the starling (*Sturnus vulgaris*) and house sparrow (*Passer domesticus*), are covered by the Federal Migratory Bird Treaty Act (MBTA), and are further protected from shooting or capture by State wildlife regulations.

Mammal species found in Nevada include shrews (*Family Soricidae*) and jumping mice (*Family Zapusidae*), elk (*Cervus canadensis*), Mule deer (*Odocoileus hemionus*), bats, black bears (*Ursus americana*), snowshoe hare (*Lepus americanus*) and the pronghorn antelope (*Antilocapra americana*). Rodent species, which include desert dwelling kangaroo rats (*Dipodomys spp.*) and a variety of mice, rats, squirrels and ground squirrels (*Citellus spp.*), gophers (*Thomomys spp.*), and voles (*Family Cricetidae*), perform important ecological functions, such as seed dispersal and soil aeration.

One at-risk special-status species of mammal, Townsend's big-eared bat (*Corynorhinus townsendii*), was identified as having the potential to exist within three kilometers of the proposed project. Townsend's big-eared bat tolerates environmental conditions that vary from moist coastal forest to semi-desert scrublands, but its distribution in North America is probably determined more by the presence of cave-rich terrain than by vegetative communities. In summer, it forms maternity colonies of up to a thousand or more individuals. In winter, it hibernates in small numbers or alone in mines and caves not far from its summer roosts. Riparian habitats, wetlands and other moist places are important foraging sites for the bat. Summer day and night roosts include caves, old mines and buildings; these locations are also suitable hibernating sites. The bat is dependent on proximity of roosting and foraging sites. Summer maternity colonies and hibernation sites are usually within a few miles. They are more sensitive to human disturbance than other bat species. People going into mines where Townsend's big-eared bats live may cause bats to abandon that habitat. If this happens when bat pups are not old enough to fly, the pups will die if abandoned by their mothers. This species was not observed during the survey and it is not expected to occur on the depot site or re-alignment. However, riparian areas exist along the Carson River in proximity to the re-alignment and this general area may be used by this species as a foraging site. Extra noise, vibration, increased lights or the reconfiguration of large objects can lead to the disturbance of roosting bats which may have a negative impact on the animals. Human disturbance can also lead to a change in humidity, temperatures, or the approach to a roost that could force the animals to change their mode of egress and/or ingress to a roost. Although temporary, such disturbance can lead to the abandonment of a maternity roost, which in most cases would be considered a significant impact.

Reptiles and amphibians expected in this area of the project include Great Basin spadefoot (*Scaphiopus intermonyanus*), western toad (*Bufo boreas*), pacific treefrog (*Hyla regilla*), common kingsnake (*Lampropeltis getulus*), western rattlesnake (*Crotalus viridis*), gopher snake (*Pituophis melanoleucus*), coachwhip (*Masticophis*

flagellum), side-blotched lizard (*Uta stansburiana*), desert spiny lizard (*Sceloporus magister*), collared lizard (*Crotaphytus collaris*), western fence lizard (*Sceloporus occidentalis*), sagebrush lizard (*Sceloporus graciosus*), zebra-tailed lizard (*Callisaurus draconoides*), western whiptail (*Cnemidophorus tigris*), leopard lizard (*Gambellia wislizenii*), and desert horned lizard (*Phrynosoma platyrhinos*). Fish species expected in the Carson River include, but are not limited to, Sacramento perch (*Archoplites interruptus*), mosquito fish (*Gambusia affinis*), largemouth bass (*Micropterus salmoides*), black crappie (*Pomoxis nigromaculatus*), yellow perch (*Perca flavescens*), rainbow trout (*Salmo gairdneri*), brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), carp (*Cyprinus carpio*), speckled dace (*Rhinichthys osculus*), red-sided shiner (*Richardsonius balteata*), and black bullhead (*Ictalurus melas*).

**Table 2.8.2
Wildlife Observed in the Survey Area**

Wildlife Observed In the Survey Areas					
Scientific Name	Common Name	9,000 Ft. Alignment & Drako Way Terminal	Interim Station	Utility Line	Balloon Track*
<i>Buteo jamaicensis</i>	Red-tailed hawk	X			
<i>Callipepla californica</i>	California quail	X			
<i>Cathartes aura</i>	Turkey vulture	X			
<i>Crotalus viridis</i>	Western rattlesnake	X			
<i>Equus ferus sp.</i>	Wild horse			X	
<i>Lepus californicus</i>	Jackrabbit	X		X	
<i>Mephitis sp.</i>	Skunk	X			
<i>Sceloporus occidentalis</i>	Western fence lizard	X	X		
<i>Spermophilus sp.</i>	Squirrel	X			
<i>Sylvilagus nuttallii</i>	Mountain cottontail rabbit		X		
<i>Uta stansuriana</i>	Side-blotched lizard		X		

*** No wildlife was observed in the Balloon Track area**

D. Wetlands/Riparian/Jurisdictional Waters

There are no wetlands/riparian/jurisdictional waters on the Drako Way Terminal site, at the interim Eastgate Station site, or in the area of the balloon track. However, the area where the new 9,000 foot alignment parallels the Carson River it is adjacent to a well developed wetlands located within the riparian corridor. The Carson River is a perennial waterway that is relatively undisturbed beyond the existing dirt road fill slope. Cottonwoods, willows, wild rose and tall whitetop dominate the river edge. The National Wetlands Inventory (NWI) maps categorize this area as riverine, intermittent, streambed, seasonally flooded. The 9,000 foot alignment follows the existing dirt road along the river for a distance of approximately 1,100 linear feet beginning on the east side of the T.E. Bertagnolli and Assoc. yard and continuing east to the end of the alignment at the Bertagnolli property line (APN 08-531-44). The alignment follows the river within approximately 10 feet of the river high water mark at its closest point. Due to the steepness of the river bank, the edge of the track bed is approximately 5 feet vertically above the ordinary high water mark at its closest point(s). The portion of the 9,000 foot alignment to the north of the Bertagnolli facility quickly gains elevation and diverges away from the river riparian corridor.

Two “blue line” streams are shown crossing the proposed 9,000 foot alignment on the USGS New Empire Quadrangle (1994). A “Delineation of Jurisdictional Waters of the U.S”, for Phases 3B and 3C was prepared by Resource Concepts

Inc. (RCI) for a portion of the project including the 9,000 foot alignment and balloon track area and was submitted to the ACOE in December of 2009. Only one area was identified as an ephemeral stream that is considered jurisdictional waters of the U.S. on the 9,000 foot alignment with which the ACOE concurred on April 30, 2010. The area consists of 0.032 acres on the “blue line” stream located near Deer Run road. Pursuant to the Clean Water Act, the V&T Commission will prepare and submit a Pre-Construction Notification or permit application for the affected portions of the project prior to any construction.

E. Threatened and Endangered Species

The following lists and databases were reviewed to determine potential habitat requirements for threatened, endangered and special status species with potential to occur in the project area: BLM Sensitive Species, and Nevada Natural Heritage Database. Coordination with NDOW and USFWS also was performed in developing lists of species with potential to occur.

Based on the coordination with USFWS no federal-listed threatened or endangered species are known to exist within the project area boundaries. Systematic surveys of the project area identified no threatened, endangered, or special status species. Other plant species of concern include special-status cacti and yuccas species as they are protected by Nevada State law.

F. Wilderness/ACEC/Wild and Scenic Rivers

The project is outside any lands under wilderness review or designated as a Wilderness Study Area (WSA). No Areas of Critical Environmental Concern (ACEC) or Wild and Scenic Rivers are located near the project.

G. Range

The proposed depot and new alignment are located in the Carson Plain/Gold Hill Grazing Allotment. This is a sheep allotment that consists of 535 active animal unit months (AUMs). Generally the active season is from April 1 to May 31 each year. The permittee is Borda Land and Sheep.

H. Forestry

The area along the new alignment and proposed depot site is generally devoid of trees. Large cottonwoods are established along the river where the alignment deviates from the historic alignment. The BLM has noted that the cottonwood trees are under threat from beavers in the area and are not regenerating due to regulation of the Carson River upstream. Agricultural diversions are preventing spring runoff from achieving historical sustained high flows which are essential to cottonwood regeneration.

I. Wild Horse and Burro

No wild horses or burros were documented within the depot site or new alignment during the survey. The alignment is not located in a Wild Horse and Burro Management Area. However, these species frequent the general area. Horses are not often observed in the area of the depot site due to the commercial activities and traffic as well as fencing of much of the area. Horses north of the river in the Virginia Range are considered strays under the jurisdiction of the State Brand Inspector. Horses are occasionally observed along the river particularly near the Empire Ranch Golf Course approximately one mile west of the project along Morgan Mill Road.

2.8.2 Impacts

A. Vegetation

The Drako Way Terminal site is disturbed from past uses, including grading and vehicular traffic. Large areas within the terminal site are devoid of vegetation. This also applies to the new 9,000 foot alignment, portions of which are dirt roads or rock outcrops. The interim Eastgate Station area is largely undisturbed except along Flint Drive and where a few dirt roads cross the site.

All construction will occur within acquired right-of-way. Approximately 111.0 acres of land would be utilized for the proposed project if all of the proposed elements were constructed. Of the 111.0 acres, 69.4 acres are BLM land and 41.6 acres are state or privately owned land. Of the 69.4 acres of BLM land, approximately 1 to 2 acres are currently disturbed and it is assumed that the entire remaining area would be new disturbance. Of the 41.6 acres of state or privately owned land, approximately 21 acres are disturbed and the balance of the area would be new disturbance. Loss of existing vegetation will indirectly affect resident wildlife (e.g., small rodents, reptiles) that depends on it for forage and cover. Cleared areas will be subject to soil erosion.

B. Noxious Weeds

Disturbance to native soils and their associated vegetation allows noxious species to invade the area. In addition, invasive species may be introduced via vehicles driven into the area and by the nature of the urban/rural interface introducing non-native plant species into the native plant communities. If noxious weed species are not controlled, they may out-compete native species and prevent them from becoming reestablished in the area of disturbance, thereby altering habitat composition and value to support diverse species.

The likelihood of a noxious weed invasion is dependent upon many factors. The abundance of noxious weeds in the area of disturbance or the presence of a nearby seed source may dictate the severity of invasion. Because of past disturbance, the linear nature of the project, implementation of a noxious weeds management plan, and revegetation of disturbed areas, the potential for noxious weed invasion will be limited.

C. Wildlife Species

Since most of the railway right-of-way is located near existing roads, in areas of bedrock or passes through already disturbed sites, wildlife species especially sensitive to disturbances are not likely to be present and therefore will not be impacted. Due to common species composition, the presence of disturbed areas, and in the case of the interim station and terminal, the proximity of developments, impacts to wildlife, tolerant to disturbance, are expected to be minimal. Wildlife that occupies construction areas will be permanently impacted through loss of habitat. Direct mortality to some species with very small home ranges (burrowing animals in particular) may be caused by construction activities such as grading. Once the rail line is completed and operational, it is anticipated that wildlife kills from train animal encounters will only occur on rare occasions. The reduction of motorized traffic through approximately three miles of the Carson River Canyon should result in a net decrease in animal vehicle collisions. Project induced habitat disturbance and habitat loss will also cause indirect mortality by displacing animals now inhabiting the project area. Some individuals may succeed in relocating to adjacent lands, some may not.

The greatest impact will be to resident rodents and reptiles. These species have small ranges and the construction project may eliminate the entire home range of some, resulting in the eventual loss of individuals. Impacts to bird species will also occur due to the loss of nesting and roosting areas. The scarcity of trees on these portions of the project will result in only minimal losses primarily to birds that nest on the ground. The filling of washes and elimination of brush will also eliminate cover areas for larger mammals. Loss of vegetation will indirectly affect resident wildlife that depends on it for forage and cover. Overall, this loss of vegetation and cover should have a negligible impact, if any, on wildlife species.

D. Wetlands/Riparian/Jurisdictional Waters

There are no wetlands or riparian areas located with the project right of way areas and therefore, no impacts to wetlands or riparian areas will occur.

Approximately 0.032 acres of jurisdictional waters will be impacted on the 9,000 foot alignment change at the "blue line" stream located at the intersection of Deer Run Road and River Road. Fill and culverts will be installed within the drainage area to maintain the existing hydrology. Impacts to the drainage require authorization (permits) from the U. S. Army Corps of Engineers and from the Nevada Department of Environmental Protection.

E. Threatened and Endangered Species

No federally threatened or endangered species were identified on the Drako Way depot site, the Interim Eastgate Station Site, the utility easement between Morgan Mill Road and Flint Drive or on the 9,000 foot alignment change; therefore, there are no impacts.

Lavin's eggvetch (*Astragalus oophorus v. lavinii*), a BLM sensitive plant species, has potential to occur within the project area. The species occurs on open, dry relatively barren gravelly clay slopes, which can be found along the 9,000 linear feet of new alignment. Systematic surveys were completed on all of the project sites. No Lavin's eggvetch were observed under optimal conditions for sighting on the 9,000 foot alignment and Drako Way Terminal sites. There will be no impact to Lavin's eggvetch on these sites. The surveys on the Balloon Track and interim Eastgate Station sites were done at less than optimal times and further observations will be made prior to construction as described in 2.8.3.

A Grizzlybear pricklypear cactus was found within the 100-foot survey area located northeast of the 9,000 foot alignment near the depot site. This species is relatively common in the region, and although protected under State law, is not listed as a special-status species. The location will be marked and there will be no impact to the cactus on the site.

F. Wilderness/ACEC/Wild and Scenic Rivers

No impacts are anticipated as the terminal site, interim station and new alignment are outside any lands under wilderness review, designated as a WSA, ACEC or as a Wild and Scenic River.

G. Range

Grazing acreage in the area will be reduced as palatable vegetation will be permanently removed within portions of the project boundaries. However, due to the disturbed nature of much of the area of the project and the abundance of bedrock, the amount of vegetation affected is negligible relative to the area of the grazing allotment.

H. Forestry

Removal of juniper or pinyon pine trees in and around the depot site and new alignment are unnecessary due to the scarcity of trees in this area. No cottonwood trees are to be removed from this portion of the project.

I. Wild Horse and Burro

As with other wildlife, the new alignment and depot site is likely to have a negligible impact on wild horse and burro movement. There is the possibility of train/animal collisions due to the lack of fencing on the new alignment. Much of the depot area will likely be fenced. Forage and grazing areas will be reduced through the removal of habitat; however, this is expected to be negligible on the portions of the project considered herein. Dust, noise, and vibration caused by construction activities may temporarily affect these species. Noise and vibration may startle these species during train operation which will range from two to four trains per day through the tourist season (May through October).

2.8.3 Mitigation

A. Vegetation

To minimize disturbance to vegetation, the following mitigation measures will be implemented:

1. A preconstruction survey of the project area will be necessary.
2. Construction and associated activities will occur strictly within the limits of the Drako Way Terminal site, the Interim Eastgate Station site, the utility easement between Morgan Mill Road and Flint Drive and on the 9,000 foot alignment change with the exception of areas designated for avoidance. Avoidance areas shown on plans will include where necessary potential jurisdictional waters, cultural areas and if present

sensitive vegetation areas. Clearing of vegetation will be limited to areas necessary for construction, future maintenance and where safety concerns exist.

3. Topsoil will be stockpiled when appropriate and reused during reclamation. Vegetated areas disturbed outside of required maintenance zones will be graded, covered with reclaimed topsoil, and revegetated with native, certified weed-free seed mixes.
4. The train operator and/or the Commission will remove debris from areas within the right-of-way. This will help restore habitat and make the ride more visually pleasing.
5. An inadvertent discovery plan for sensitive species will be included in project documents to protect sensitive species should they be found. Permits if required will be obtained if plants need to be removed.

B. Noxious Weeds

During construction, contract documents will specify a noxious weed management plan to control the invasion and/or spread of noxious weeds in the project area.

To ensure noxious weeds do not become established subsequent to construction, a qualified biologist will monitor the site after reclamation activities have concluded and the revegetation efforts have had an opportunity to become established. If field inspections show that noxious weeds are invading the reclaimed sites, biologists will consult with the BLM and/or the State Cooperative Extension weed program to determine and implement appropriate control measures. Abatement measures may include hand pulling, spraying, or mechanized methods of weed control.

C. Wildlife Species

1. Structures which inhibit large mammal movement, such as fencing, retaining walls, mesh netting (used for rock fall protection), will only be installed where safety concerns exist.
2. To avoid direct and indirect impacts to migratory birds, removal of vegetation will occur outside the bird breeding season. If vegetation removal is scheduled to occur during the nesting season, then a qualified biologist would survey the area prior to initiation of construction. If active nests are located, then a buffer would be established around the nests and the area avoided until the nests are no longer active. The size of the buffer is dependant on the identified nesting species and would be determined by the biologist in consultation with the Nevada Department of Wildlife (NDOW).
3. A pre-construction survey shall be conducted by a qualified biologist within 30 days prior to construction to identify special-status bats that may be located near any of the project features considered for construction here. If an existing roost or signs of an existing roost is found, avoidance of the roost is optimal and mitigation measures to ensure avoidance shall be implemented in conjunction with consultation(s) with NDOW. If avoidance is not possible, consultation with the NDOW is required prior to impacting the species.

D. Wetlands/Riparian/Jurisdictional Waters

To minimize impacts to these lands, the following mitigation measures will be implemented:

1. Pursuant to the Clean Water Act: the project will prepare and submit a Pre-Construction Notification or permit application for the 9,000 foot alignment portion of the project prior to any construction.
2. BMPs as determined by the appropriate agencies as included in an approved Storm Water Pollution Prevention Plan (SWPPP) will be followed when performing work in or near washes, wetlands, and perennial waters. Common BMPs include silt screens, hay bales, heavy equipment with non-metal tracks, and coffer dams.

3. In the area adjacent to the Carson River at the east end of the proposed new alignment, flagging/stakes/fencing will be placed prior to any work to delineate wetland boundaries. The contractor will be required to avoid these areas.

E. Threatened and Endangered Species

No mitigation is required; however, in the unlikely event any threatened, endangered, species of concern, or sensitive species are encountered prior to or during construction and which may be impacted, the USFWS and/or NDOW shall first be consulted with to address the issue. If such species are encountered, the species and their habitats will be avoided via measures which have been approved by the resource agency where feasible. If avoidance is not possible, minimization measures shall be employed, and as a last resort, unavoidable impacts shall be mitigated as approved by USFWS and/or NDW as appropriate.

F. Wilderness/ACEC/Wild and Scenic Rivers

No mitigation is required.

G. Range

Areas outside of the permanent construction zone and falling outside of maintenance zones will be revegetated. Fencing, which would limit open-range grazing, will be installed only in areas where safety concerns exist. Other appropriate mitigation measures as mentioned in the wild horse and burro sections also apply to livestock.

H. Forestry

The NDF and/or BLM pre-construction salvage that allows woodcutting of all trees within the construction boundaries will not be necessary on this portion of the project due to the lack of trees.

Removal of cottonwood trees within the railroad right-of-way along the Carson River will be avoided if possible. If removal of cottonwood trees cannot be avoided, to prevent further stress on the cottonwood population in the Carson River Canyon, mitigation measures will include replacement of trees, protection of remaining trees from beavers, and removing Russian olive trees, which tend to out-compete cottonwood trees.

I. Wild Horse and Burro

Mitigation will be the same for these species (when appropriate) as listed above in the range and wildlife sections. The train operator will be prohibited from stopping the train for recreational purposes such as petting or feeding when herds or individuals are encountered. If the train stops for picture taking the passengers will be required to stay on board.

2.9 Cultural Resources

2.9.1 Existing Conditions

Cultural resource inventories have been conducted that address portions of the Virginia & Truckee Railway project corridor that make up the present proposed action. They include an inventory prepared by NDOT entitled An Archaeological Survey of the Virginia and Truckee Railroad Grade from Empire to Gold Hill (Matranga 2000; CRR 3-1597); a report entitled Virginia and Truckee Railway Reconstruction Project, H1 Line and Depot Cultural Resources Inventory Report (Zeier and Reno 2007; CRR 3-1597.3), a report entitled Virginia and Truckee Railway Reconstruction Project, Interim Depot and Balloon Track, Carson City County, Nevada, Cultural Resources Inventory Report (Zeier, Drews and Hall 2009; CRR 3-1597.6) and a report entitled Virginia and Truckee Railway Reconstruction Project, Phase 3, Lyon and Carson City Counties, Nevada, Cultural Resources Inventory Report (Zeier 2009; CRR 3-1597.4). The purpose of the inventories was to identify cultural resources located within the area of potential effect, to assess the National Register eligibility of any resources present, and to assess the project's potential to impact and National Register eligible sites present in the area. These actions are consistent with a programmatic

agreement entered into by FHWA, BLM, the Nevada State Historic Preservation Office and the Commission (Appendix D).

Native American consultation was initiated by FHWA on March 27, 2002. Based on that consultation, FHWA found that there are no Native American concerns associated with this project.

2.9.2 Impacts

Cultural resource surveys of the project area identified two sites; Site Cr 03-6984 and Site Cr 03-4412 Feature 206 that are potentially eligible to the National Register of Historic Places (NHRP) that may be impacted by the project construction activities (Appendix E). Site Cr 03-6984 is the old Empire to Brunswick Canyon Road located in the Carson River Canyon. Feature 206 is the remnants of a retaining wall along the V&T grade (Site Cr 03-4412) within the area of the Balloon Track.

2.9.3 Mitigation

A. Cr 03-6984 and Cr 03-4412 Feature 206

Mitigation measures to avoid or minimize construction impacts to Cr 03-6984 will be developed and implemented in coordination with FHWA, BLM, SHPO and the Commission in accordance with the Section 106 programmatic agreement for the reconstruction of the V&T Railway. Feature 206 of Site Cr 03-4412 will be avoided and therefore no mitigation is necessary.

B. Inadvertent Discoveries

Monitoring of cultural resource sites would occur during construction and an inadvertent discovery plan will be in place prior to the commencement of construction. The plan will be similar to the plan used on earlier phases of the project. The plan requires the contractors' personnel and the owners' on-site representatives to be trained to recognize what types of items could be of historical significance. Procedures are established for the collection of artifacts by appropriate personnel and archiving of artifacts. Inadvertent discoveries will be handled in accordance set forth in the programmatic agreement entered into by FHWA, BLM, the Nevada State Historic Preservation Office, and the Commission.

3.0 CUMULATIVE AND INDIRECT IMPACTS

3.1 Introduction

3.1.1 Purpose and Regulatory Basis

NEPA requires that the potential direct, indirect and cumulative impacts of a federally-funded or approved project be identified, evaluated, and mitigated as appropriate. Within the context of NEPA, indirect effects are defined by the Council on Environmental Quality (CEQ) as impacts that are "caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable" (40 CFR 1508.8). Cumulative effects are defined as "the impact on the environment which results from incremental impact of the action when added to other past, present, and reasonably foreseeable future actions..." (40 CFR 1508.7).

3.1.2 FHWA and CEQ Guidance

This analysis is conducted in accordance with FHWA and CEQ regulations and guidance documents, including the January 1997 CEQ handbook entitled *Considering Cumulative Effects Under the National Environmental Policy Act* (CEQ, 1997) and the April 1992 FHWA position paper entitled *Secondary and Cumulative Impact Assessment in the Highway Project Development Process* (USDOT, 1992).

3.1.3 Methodology

The regional context used for this analysis was the Northern Nevada region comprised of Washoe County, Douglas County, Storey County, Lyon County, and the incorporated city of Carson City, all of which with representation on the

Nevada Commission for the Reconstruction of the V&T Railway. The Regional Transportation Commissions of Washoe County and Carson City are federally-designated regional transportation planning Metropolitan Planning Organizations (MPOs). Since the project predominately follows the V&T's historic alignment in Storey County through a portion of Mound House (Lyon County) and Carson City, analysis is focused on those areas.

Data compiled for preparation of the EA was used for this analysis as well as information from land use planning and resource management documents.

3.2 Overview of Past, Existing, and Future Population and Land Use Conditions

3.2.1 Population

Several factors have impacted the overall growth in the region since the 1990s, including economic and job market growth in the gaming, housing, retail services, and construction industries, among others. While the current recession is having an adverse impact on economic development and employment in the region, slowing the rate of area growth, projections predict long term population growth to continue in the Northern Nevada region.

3.2.2 Land Use

A. Past and Existing Land Use

Growth in the Northern Nevada region has steadily converted predominately rural, open space, and agricultural land to urbanized land uses including a variety of commercial, industrial, retail facilities. It has created demand for housing which has and is being supplied with the development of master planned communities, subdivisions, and other types of residential housing. This demand has also placed pressure on the public infrastructure, particularly the need for new and improved transportation facilities and services (e.g., transit routes and pedestrian and bicycle facilities).

The I-580 and Carson City Bypass freeways are two such examples of major transportation facilities under construction having an impact on the region in terms of changing traffic patterns; commercial, business, and residential development; and impacts to natural resources. These impacts have been analyzed in the respective Environmental Impact Statements (EIS) and associated documents for these projects and are incorporated by reference.

Relative to the overall regional development, land uses along the V&T alignment have been far less intense. Much of the alignment is within the Comstock Historic District or is situated through the Carson River Canyon, both of which restrict development to preserve historic and natural resources and to maintain recreational and scenic values. Business and residential land uses are primarily concentrated in Virginia City, Gold Hill, and Mound House areas and along US 50.

B. Future Residential/Commercial Land Uses

The V&T is expected to have a positive economic regional impact as described in this document, but is not expected to largely affect future residential and commercial land uses other than what is envisioned in the affected communities' long-term comprehensive master plans.

The proposed Blackhawk to Heybourne Transmission Line Project includes the construction of approximately 34 miles of an electrical 120 kV transmission line through four counties in Nevada, beginning at the proposed new Blackhawk Substation in Storey County. The proposed transmission line runs parallel with existing transmission lines along all but the first four miles in Storey and Lyon Counties and three and a half miles in Douglas County. This proposed project would cross over the 9,000 foot alignment near the mouth of the Carson Canyon in Carson City.

A Chinese Workers Museum is in the early stages of development and currently planned for land southeast of Morgan Mill Road and Drako Way. The 9,000 foot alignment would run along the west edge of the proposed location overlooking the Carson Canyon. Co-location of the museum and the railroad would serve to enhance the visitor experience of either proposed project.

3.3 Analysis of Potential Impacts

Due to the temporary or short term impacts as described in the referenced sections, the proposed project would not contribute to long term indirect impacts or cumulative impacts on the following environmental resources:

- Noise
- Air Quality
- Floodplain and Hydrological Resources

The project will pose some direct impacts and therefore the potential for cumulative and indirect impacts is further discussed.

- Social/Economic
- Water Quality
- Hazardous Materials
- Biological Resources
- Cultural Resources

3.3.1 Social/Economic

Cumulative effects of this portion of the proposed project are expected to be traffic-related. More people coming to the area will add to the traffic volumes and congestion occurring as the overall local population growth in Carson City and nearby communities continues. Construction of roadway projects such as the Carson City Bypass, proposed widening of US 50 between Carson City and Silver Springs,, and the completion of the I-580 Freeway will help to relieve traffic pressures on local arterial streets. Traffic studies will be conducted at various locations as design progresses to address the need for traffic signals and/or other traffic operations/safety improvements to address congestion and safety concerns

The proposed project is expected to create a direct positive economic benefit for Carson City and Virginia City, as well as have an indirect positive impact in the surrounding communities. If maximum ridership goals are met, this project will generate higher numbers of people visiting the area who will spend money in different sectors of the economy. As is the case for Nevada's economy as a whole, it is expected that the greater tourist demand will encourage new business starts, particularly in the service industry.

The project will have a beneficial secondary impact by eliminating through traffic to the Carson River Canyon. The Carson City Parks and Recreation Department has expressed the belief that the restriction on traffic will reduce illegal dumping and vandalism, enhancing public safety, and encouraging recreational activities such as rafting in the river corridor.

However, in spite of the economic benefits of the project, other factors may contribute to the local community's perceptions of adverse effects attributed to growth. An indirect effect may be the local community's perception that any economic development project contributing to more development may be counter to "quality of life" planning goals. Areas considered to enhance quality-of-life that may be negatively impacted by growth include community safety (traffic, pedestrian, bicycle), ease of mobility, retention of open space, recreational development and "main street" redevelopment. It is not expected that the combined effects of potential "permanent" population growth tied to an increase in jobs and tourism growth generated from the proposed project will outpace the capacity of the public infrastructure or the ability of local communities to provide services in the long-term, and is consistent with long term local community plans.

3.3.2 Water Quality

Drainage facilities will be maintained in the project after condition to prevent or reduce impacts to water from non-point sources to levels that meet or exceed local, state, and federal water quality standards.

3.3.3 Hazardous Materials

Since it is possible mercury contaminated soils could be encountered during project construction, mitigation will likely consist of covering contaminated native soils with clean fill. Both design and project construction will be coordinated with NDEP to avoid disturbing contaminated soils. Soils to be excavated will be tested prior to excavation. Worker safety precautions will be specified in the contract documents.

3.3.4 Biological Resources

Cumulatively, implementation of the proposed project in areas that are relatively rural and/or undisturbed, may affect species distribution, movement patterns, reproduction, and habitat use among the various populations. Since this portion of the railroad will be primarily built on or adjacent to disturbed areas, the cumulative effect of habitat fragmentation is expected to be minimal.

3.4 Conclusion

Adverse indirect or cumulative impacts from the construction and operation of the project will be minimal with the implementation of the mitigation measures described in this document and adherence to ongoing operations and maintenance commitments. The project is expected to generate both short- and long-term economic benefits to the area and is consistent with local and community planning goals.

4.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

4.1 Informational Meetings

Informational meetings were held regarding the 9,000 foot line change and the Drako Way Terminal on the following dates and at the following locations:

- Tuesday, January 24, 2006, Carson City Community Center
- Wednesday, January 25, 2006, Dayton Library

Meeting notices were mailed to interested and affected agencies and individuals and advertisements were placed in the local adjudicated newspapers. The above locations were chosen so that the meetings would be held in each of the two counties most involved: Carson City Urban Area and Lyon County. Representatives from NDOT and the Capital Engineering Design Team (now Manhard Consulting Design Team) explained the proposed project at that time and invited comments from those who wished to make a statement which would then become part of the project record.

A total of thirty-two people attended the meetings. One statement indicating support of the project was provided to the court reporter.

A Location/Design hearing was held on June 2, 2010, at the Carson City Community Center as part of the public involvement process for an earlier approved draft of this SEA. Meeting notices were mailed to the agencies and individuals identified in Appendix F. In addition advertisements were placed in the local adjudicated newspapers. Six non-agency members of the public attended the hearing.

The BLM has participated in the development of this EA. Public involvement to date assists the BLM in fulfilling its obligations under 43 CFR Part 46. Upon conclusion of this process, if determined adequate, the BLM would adopt this EA. The BLM would then issue a FONSI and Decision Record, prior to issuing any right-of-way authorizations. Should any right-of-way authorization be needed for a project element which requires other federal permitting such as an ACOE 404 permit, the BLM would defer issuing its decision until such permit is first obtained.

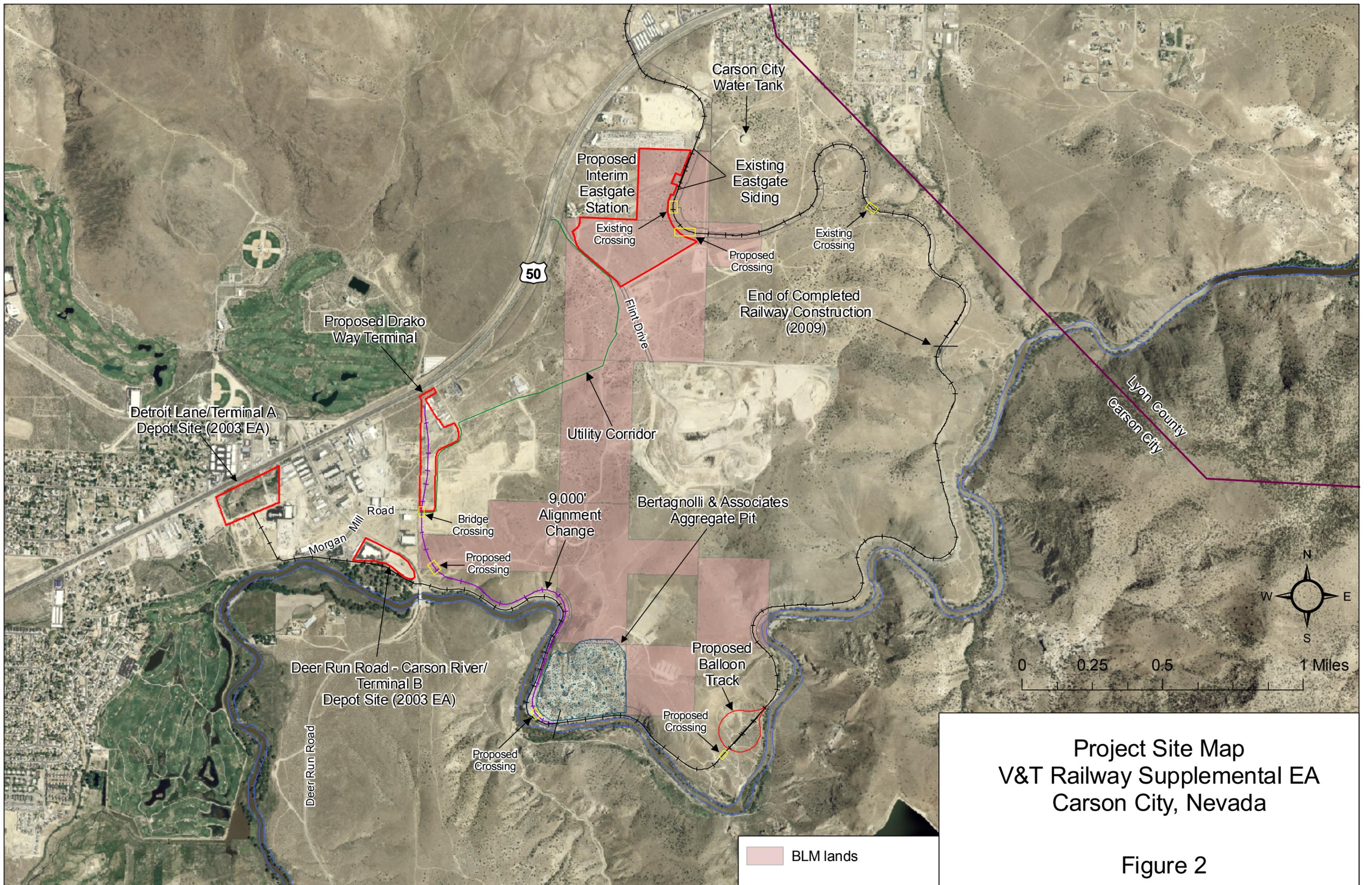
APPENDIX A

FIGURES



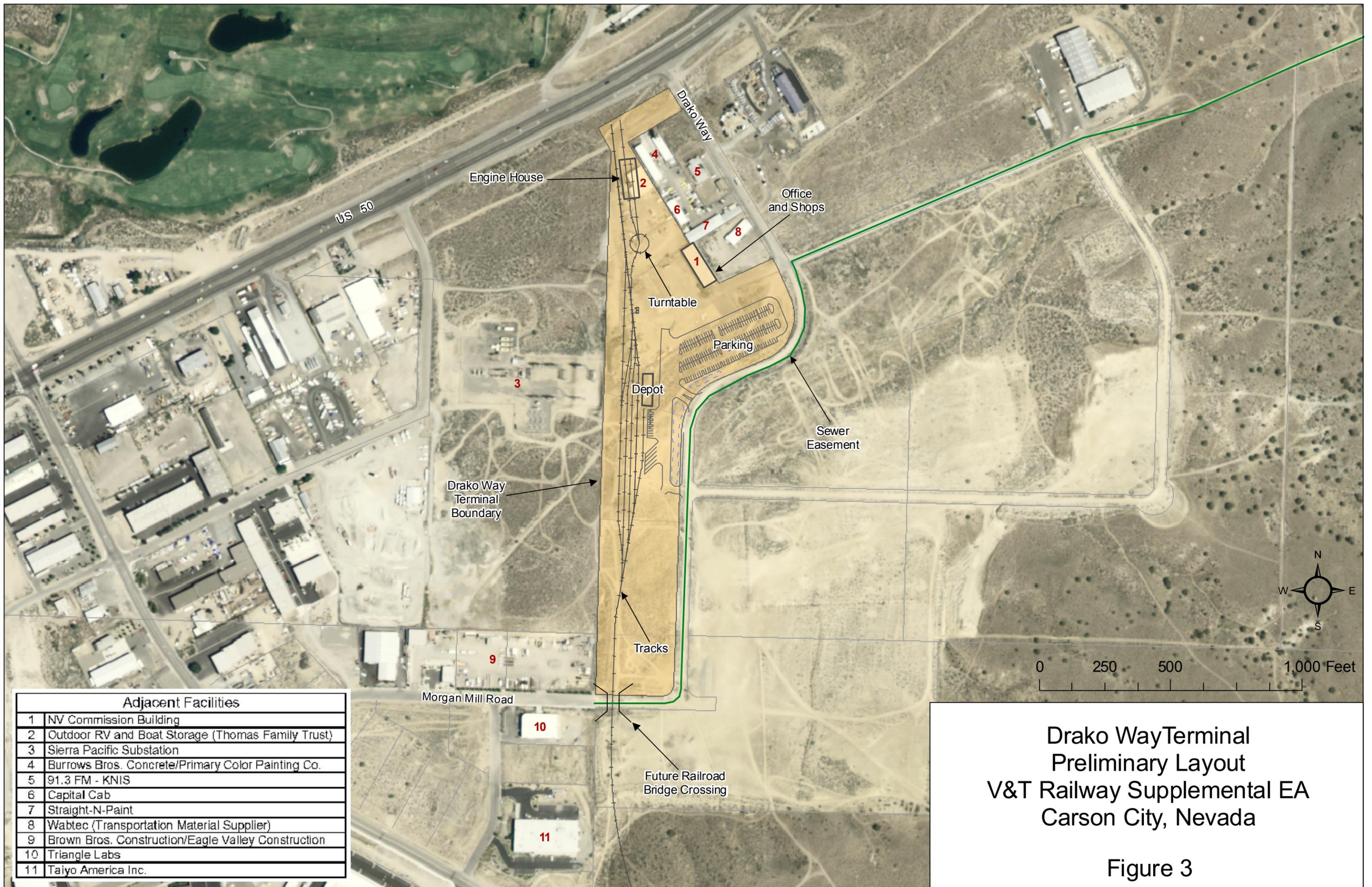
Project Vicinity Map
 V&T Railway Supplemental EA
 Carson City, Nevada

Figure 1

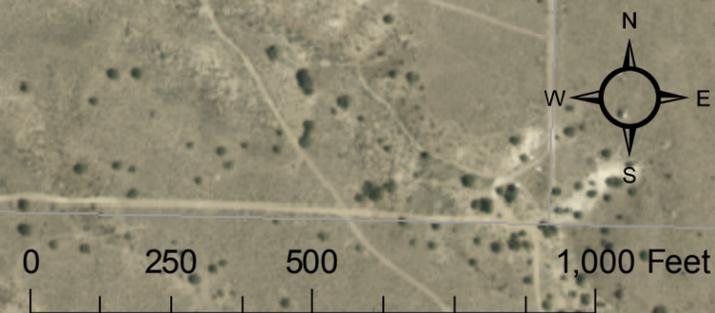


Project Site Map
 V&T Railway Supplemental EA
 Carson City, Nevada

Figure 2

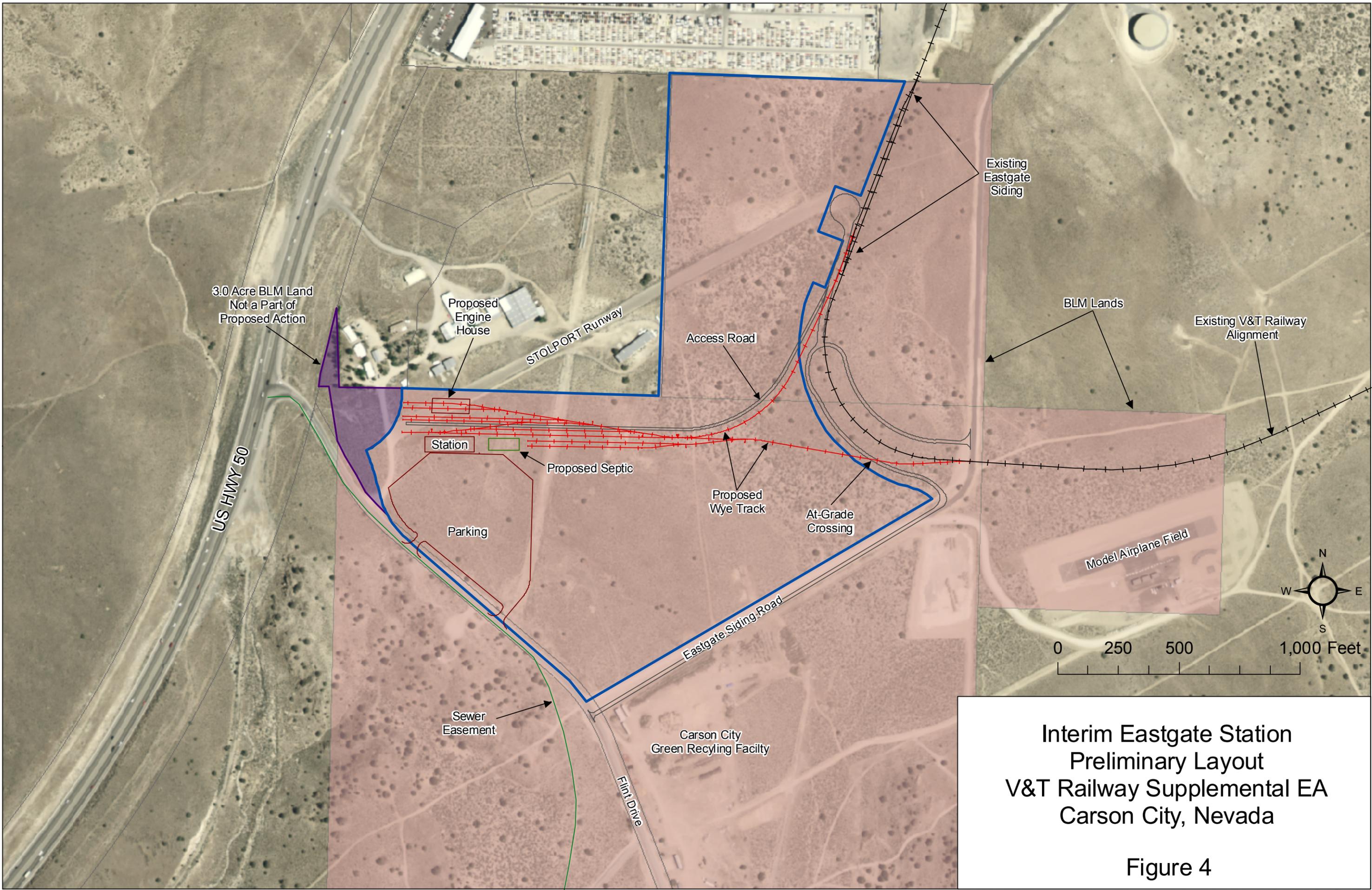


Adjacent Facilities	
1	NV Commission Building
2	Outdoor RV and Boat Storage (Thomas Family Trust)
3	Sierra Pacific Substation
4	Burrows Bros. Concrete/Primary Color Painting Co.
5	91.3 FM - KNIS
6	Capital Cab
7	Straight-N-Paint
8	Wabtec (Transportation Material Supplier)
9	Brown Bros. Construction/Eagle Valley Construction
10	Triangle Labs
11	Taiyo America Inc.



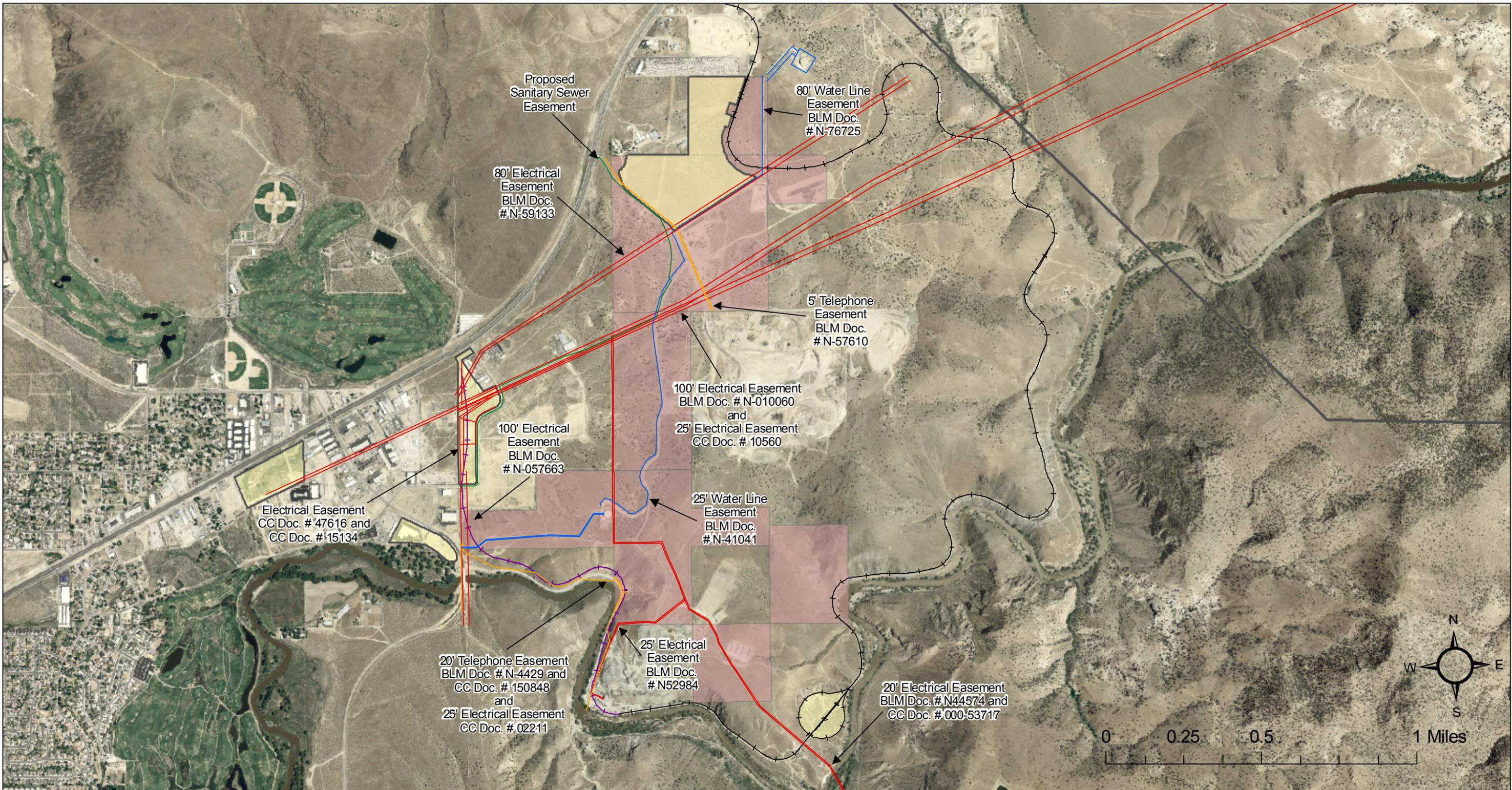
**Drako Way Terminal
 Preliminary Layout
 V&T Railway Supplemental EA
 Carson City, Nevada**

Figure 3



Interim Eastgate Station
 Preliminary Layout
 V&T Railway Supplemental EA
 Carson City, Nevada

Figure 4



Proposed Sanitary Sewer Easement

80' Water Line Easement
BLM Doc. # N-76725

80' Electrical Easement
BLM Doc. # N-59133

5' Telephone Easement
BLM Doc. # N-57610

100' Electrical Easement
BLM Doc. # N-010060
and
25' Electrical Easement
CC Doc. # 10560

100' Electrical Easement
BLM Doc. # N-057663

25' Water Line Easement
BLM Doc. # N-41041

Electrical Easement
CC Doc. # 47616 and
CC Doc. # 15134

20' Telephone Easement
BLM Doc. # N-4429 and
CC Doc. # 150848
and
25' Electrical Easement
CC Doc. # 02211

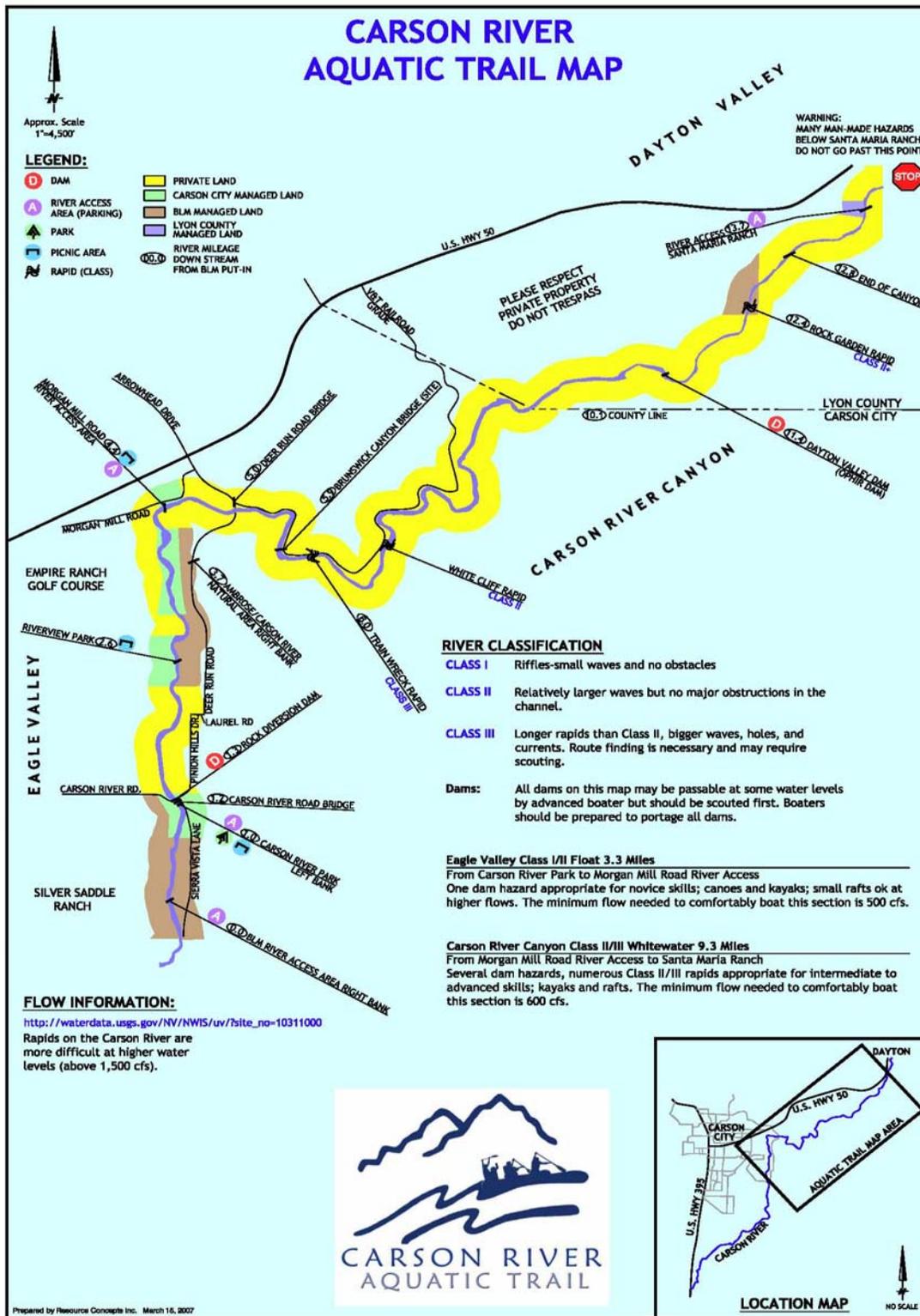
25' Electrical Easement
BLM Doc. # N52984

20' Electrical Easement
BLM Doc. # N44574 and
CC Doc. # 000-53717

- Water Line Easement
- Telephone Easement
- Sanitary Sewer Easement
- Electrical Easement
- + + 9,000' Alignment Change
- + + V&T Railway Alignment

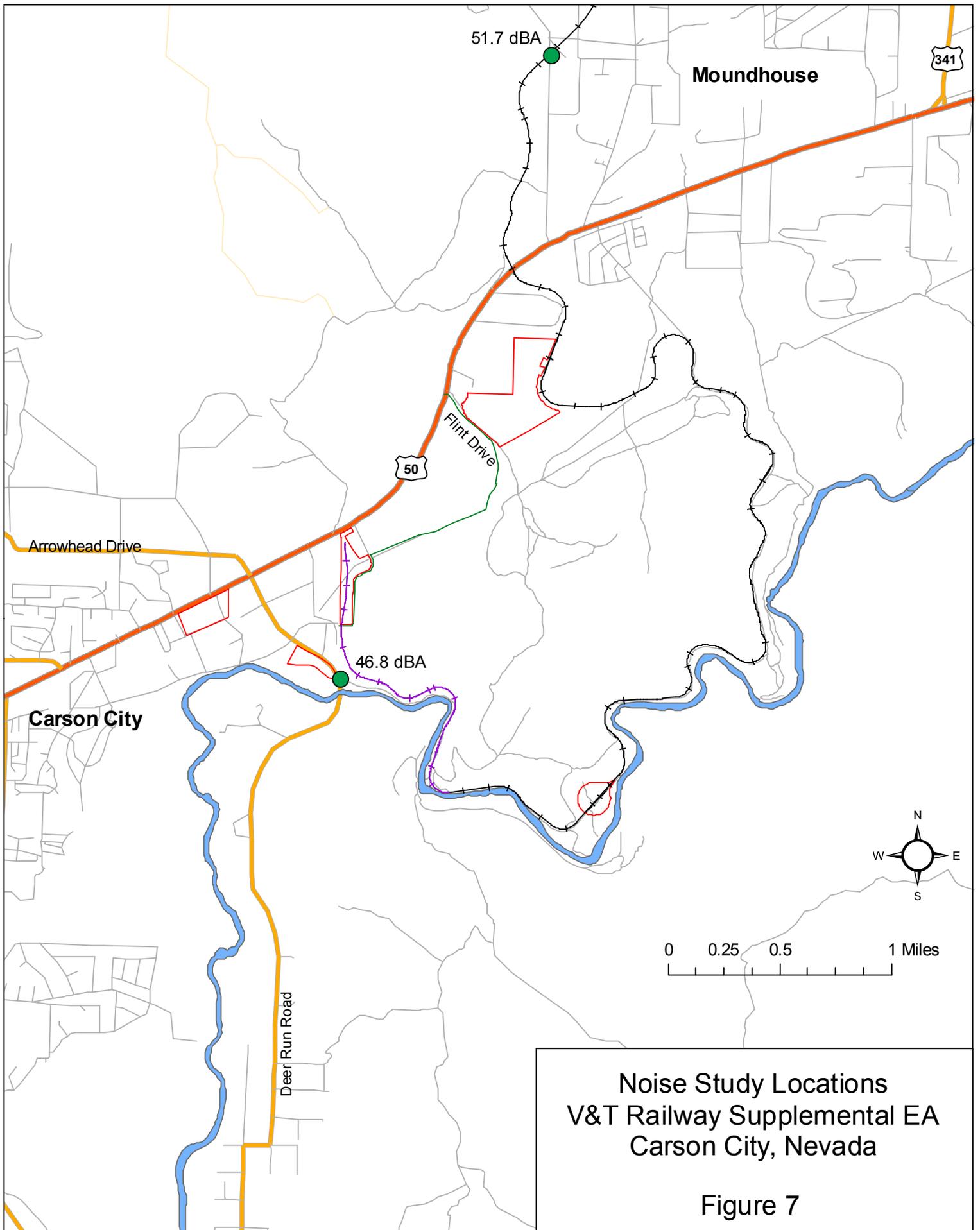
**Project Utility Easement Map
V&T Railway Supplemental EA
Carson City, Nevada**

Figure 5



V&T RECONSTRUCTION PROJECT
SUPPLEMENTAL EA

FIGURE 6



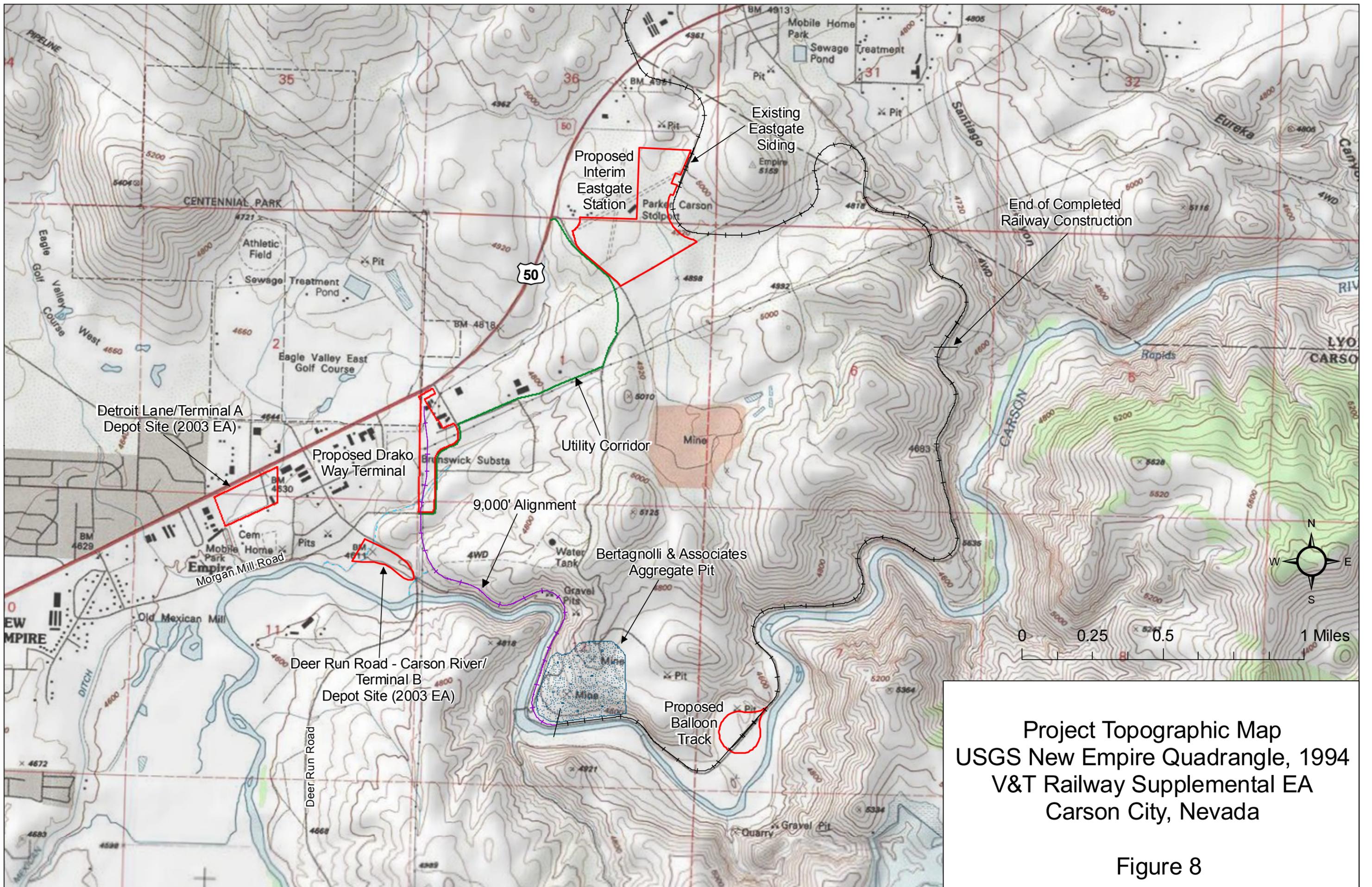
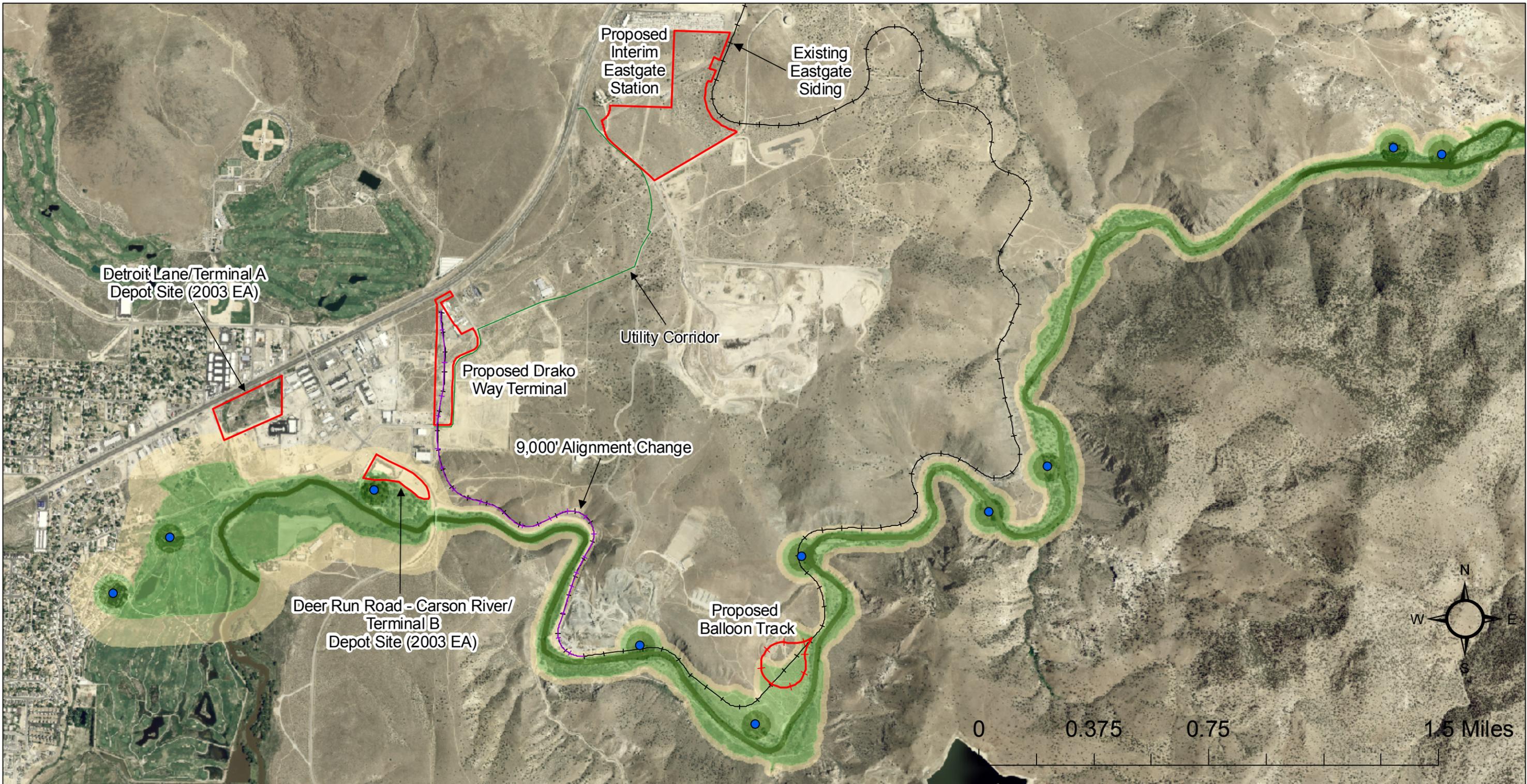


Figure 8

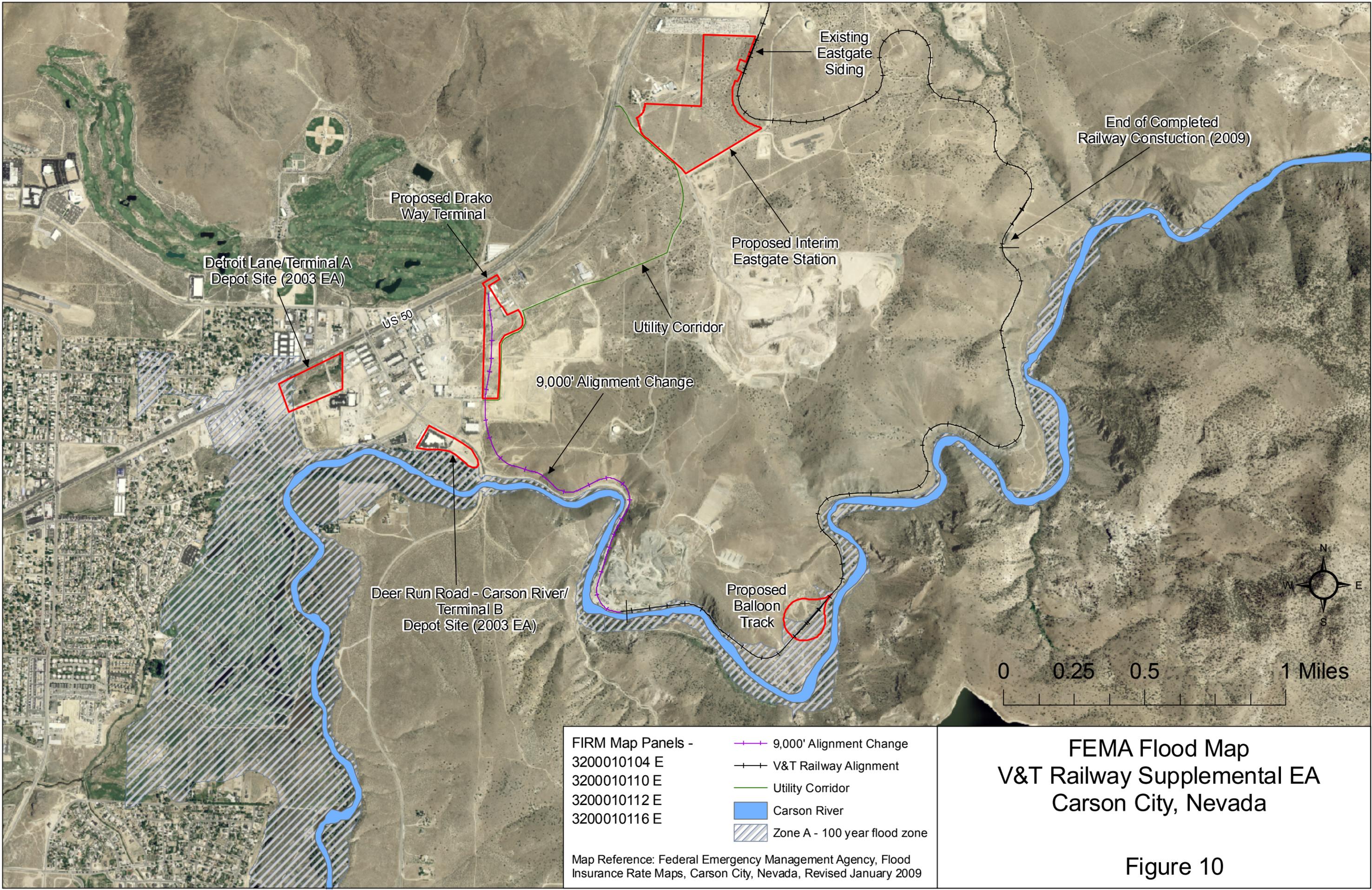


- Historic Mill Sites
- +— V&T Railway Alignment
- Superfund High Risk Areas
- Superfund Moderate Risk Areas
- Superfund Low Risk Areas

Reference: Carson River Superfund risk areas and historic mill locations provided by NDEP Bureau of Corrective Actions - unpublished map, 2009.

Carson River Mercury Site
V&T Railway Supplemental EA
Carson City, Nevada

Figure 9



FIRM Map Panels - 3200010104 E 3200010110 E 3200010112 E 3200010116 E	<ul style="list-style-type: none"> —+— 9,000' Alignment Change —+— V&T Railway Alignment — Utility Corridor █ Carson River Zone A - 100 year flood zone
<p>Map Reference: Federal Emergency Management Agency, Flood Insurance Rate Maps, Carson City, Nevada, Revised January 2009</p>	

FEMA Flood Map
V&T Railway Supplemental EA
Carson City, Nevada

Figure 10

APPENDIX B

DRAFT EMERGENCY MANAGEMENT PLAN

**INTERIM REPORT
NOVEMBER 2009**



**EMERGENCY PLANNING
AND
RECOMMENDATIONS**

**PREPARED BY
ALL CLEAR FIRE TRAINING AND CONSULTING**

**FOR
NEVADA COMMISSION FOR THE RECONSTRUCTION
OF THE V&T RAILWAY**

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INTRODUCTION

(11-2009)

All Clear Fire Training and Consulting developed a proposal of emergency response safety considerations and recommendations to the NEVADA COMMISSION for the RECONSTRUCTION of the V&T RAILWAY (the "COMMISSION"). All Clear is performing this work under contract to GEOCON Consultants Inc. who is under contract to Manhard Consulting the Project Engineer for the Commission. The scope of work in our proposal dated May 1, 2009 consisted of the following,

- A. Provide the COMMISSION with a document that details emergency response and safety considerations.
- B. Provide the COMMISSION with a template of what reasonable emergency response safety considerations they may wish to impose on future train operator(s).

The consultant tasks were determined by developing a Request for Proposal (RFP) dated 5-1-09 from GEOCON Consulting Inc. The resulting report and subsequent recommendations are listed in this document which **scope is limited to emergency response and emergency planning issues related to the use of the V&T Railway tourist railroad operation.**

This document should be considered a general overview or interim report and is not technically complete at this time. Our recommendations are based upon input from GEOCON Consultants and MANHARD Consulting, a review of regulatory documents, interviews with other train operators and feedback provided by affected local area emergency response agencies.

The listed proposals/recommendations are intended for the sole and exclusive use of the COMMISSION or their designated agents to make informed decisions concerning how emergencies may best be prevented or in the worst case handled by any future operator and how said operator will interface with emergency responders.

Since no permanent operator has been selected, we do not know what any future operator will bring to the table in terms of emergency response plans, procedures or equipment. The recommendations were based upon the fact that operator brings nothing to the table and the COMMISSION will have to set the terms of emergency plans/response and equipment.

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Every effort has been made to provide options or alternatives in the decision making process. All Clear cautions that the use of the “low bid is best approach” is inappropriate as we are dealing with life safety and survival as well as the future reputation of the V&T Railway COMMISSION.

GENERAL DISCUSSION/OVERVIEW

The following will be a general discussion that should provide the reader with an overview of the challenges that face the COMMISSION/operator and the obligations to protect the riding public as well as identify problems that emergency responders will be facing. Specific recommendations are listed at the conclusion of this general discussion.

One issue that will be cause for careful consideration is that the introduction of a railroad taking the place of a 4 Wheel Drive (4-WD) travel corridor where one has not existed since 1941. This will require a thoughtful approach by the COMMISSION as well as challenge the emergency response community.

Perhaps the biggest challenge will be to get first responders (Law Enforcement, Fire and Emergency Medical Services) to the location of an emergency in/on the rail corridor at those remote areas where slopping terrain and the lack of roads restrict access by conventional methods (vehicles). This access challenge particularly applies to the portions of the route in the Carson River Canyon and the American Flat areas.

Plausible scenarios requiring an emergency response in or around the rail corridor are:

- Emergency Rescue due to injury in, on or near the rail corridor.
- Wildland Fire caused by the train or wildland fire in or near the train corridor
- Train Fire
- On Board Medical Emergency (customer/employee/maintenance crew)
- Train/Vehicle collision at a crossing or in the rail corridor.
- Train Derailment with Mass Casualty Incident (MCI)
- Tunnel Issues
- Disabled Train-Remote area away from a crossing

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The COMMISSION must prepare and develop contingencies for getting first responders to any or all of these potential emergencies by gaining access to the rail corridor in some fashion.

A. Currently none of the response agencies have any equipment that can operate on the rail.

B. In many areas the rail corridor is not reachable by dirt or paved road.

Any of these scenarios will require emergency responders to either access the rail (if the train cannot move) or meet the train at a crossing in the case of an on board emergency medical emergency. Emergency Responders must be able to gain access to the rail in a timely fashion.

In the recommendation section we will address possible solutions to this access problem.

Response time to emergency incidents becomes critical as just a few minutes delay may determine survival when someone is critically injured. Along with access issues communications also becomes an integral part of the process and how the railroad employees will effectively communicate with three different 911 centers (Carson-Lyon and Storey).

The communication link between train dispatcher and the 911 centers is a must for factual and prompt early notifications during emergencies as well as basic monitoring of movement, equipment on the tracks. We envision a dispatcher in a **control center** at a fixed location (existing V&T shop Drako Way) with computerized map showing the Global Positioning System (GPS) tracking location of the trains (train movements) utilizing a fixed phone system where by the dispatcher could report emergencies. This is a must fill position and one that will be pivotal to over all successful outcomes of true medical or other emergencies.

It is our understanding that cell phones are expressly prohibited for train operations therefore that handicaps the train conductor for reporting emergencies. Public service agencies use radio's on a given band width regulated and approved by the federal government. Railroads also use radios on a different bandwidth as approved and regulated by the federal government. As mentioned previously in this document the recommended use of a **"control center"** as well as a **"trained dispatcher"** form a critical link for notifications to emergency responders.

The development and use of General Orders (written procedures) for the dispatcher to follow once again becomes paramount to meeting the communication and response

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challenges. Taking away the use of cell phones reduces the redundancy capability that is relied upon for backup and effective communications.

Another issue that must be addressed is that the train will be operating in three different counties and that translates into the reality that the train dispatcher will be dealing with three different 911 centers (or more) to report emergencies. Intimate knowledge of county boundaries and exactly in which jurisdiction the train is operating at a given time will be important to alerting the correct agency for response.

As mentioned there will be a need for a train dispatcher (Control Center) to be on duty anytime train or equipment is operating and the chief duty of the dispatcher will be train monitoring and will be the vital communications link from train to the 911 centers as well as for other train related communications. Since cell phones are not allowed to be used by train employees while on the train, the radio becomes the primary communication tool.

If the operating train were to encounter say an on board medical emergency then that incident would be reported by the conductor to the dispatcher in the control center and the dispatcher would alert via 911 the **correct agency** and report what the situation is and when (and what time) the train will arrive at the next crossing. The train by General Order would stop at the next closest crossing and allow the paramedics to tend to the ill or injured patient.

Added complexity to this problem may come in this fashion, say a medical emergency arises on the train while it is moving in Storey County (southbound) but the next road access or crossing is in Lyon County. The train dispatcher will have to notify the proper 911 center and provide the correct crossing location for responders to rendezvous with the train.

Partial solution would be to have the dispatcher monitor the train movement via Global Positioning System (GPS) locator in the engine. More discussion is provided in the section regarding communications issues.

RISK MANAGEMENT/FIRE PREVENTION

Trains and wildland fires have a long history so the operator and the COMMISSION must put forth a good faith effort in seeing to it that they are not the cause of accidental fires resulting from normal operations.

All Clear envisions a wildland fire resulting from an accident or negligence that could leave the operator and the COMMISSION potentially named as litigants and or under Nevada law be held responsible for suppression cost. Some consideration must be given

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to providing chase vehicles that will shadow the train when the wildland fire threat exceeds moderate.

The wildland fire agencies through the California Department of Forestry and Fire Protection have published a guide to train fire prevention and that guide can be found on the web at <http://cdfdata.fire.ca.gov/pub/fireplan/pupload/fppguidepdf100.pdf>

While this guide is intended for commercial application it does address diesel and steam powered locomotives fire prevention principles, techniques and shall/should be followed by the train the operator. Other valuable portions of this guide that should be considered and are found on pages 24-25 as well as Page 65.

It would be prudent that one senior member of the operators staff be assigned risk management duties to include accident/fire prevention for daily operations as well as track maintenance. In addition I would suggest that the operator and the immediate response agencies develop an operating agreement on how best to address the 911 issues and response, with the risk manager as the single point of contact for the train operator. The results of this effort can be rolled into the emergency plan.

A strong set of General Orders should be drafted utilizing proven risk management techniques for accident and fire prevention concerning daily operations.

We make the assumption those governmental regulators such as the Federal Bureau of Land Management (BLM), State and Local governments who utilize the National Fire Protection Associations (NFPA) life safety codes and ordinances under the “Authority Having Jurisdiction” clause will require the operator/COMMISSION to meet certain standards before trains are used for the intended purpose. Such details as the number and type of fire extinguishers and water cars (for firefighting), spark arresters and the like will most likely be mandated by those agencies.

Code of Federal Regulations (CFR)

CFR Title 49 deals with transportation safety and standards, while the V&T Railway would be considered in part a “insular railroad” (because it does not connect to any main line RR) it still must adhere to those portion of the CFRs that apply to tourist and steam engine railroads that cross an at grade highway crossing or go over a highway.

According to CFR 49 Part 238.3 and some portions of CFR 238 and 39 **do not apply** to a tourist, scenic, historic or excursion operations, CFR part 238 deals with passenger equipment safety and is applicable. The current understanding is that the railroad will not be transporting (for commerce) hazardous materials or freight at this time.

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The following statement is quoted from the Federal Railroad Administration (FRA).

“There are some FRA regulations that do not presently apply to tourist railroads that are not operated over a general system.”

However, FRA’s “Emergency Order Authority” permits it to address a true safety emergency arising from conditions (e.g., the proper functioning of air brakes) covered by those regulations or any other regulations (e.g., the track safety standards) that do not apply outside the general system. Thus, even insular or off the system tourist railroads should understand that the FRA has jurisdiction to inspect their operations and to take emergency action if those operations pose an imminent hazard to the public for injury or death.”

It seems from the language found in the above paragraph that while portions CFR 238-39 are not binding on the COMMISSION or its operator, **not to follow that part of the CFR would place all parties at considerable risk and perhaps create an unacceptable liability issues.**

Perhaps the glue that will bind all of these emergency response issues together will be the formal writing and adoption of an emergency response plan; said plan will be mentioned numerous times in this document and should be recognized and adopted by the COMMISSION as living document for the future operator.

To this point our focus has been on when the trains are running or active, one cannot assume that emergencies will not arise simply because the trains are inactive. Since the rail corridor interfaces with open spaces used by outdoor enthusiasts and off road vehicles there is always the chance there will be incidents. Because of the rail corridor being placed on what has been used as four wheel drive corridor the likelihood of vandalism as well as acts of domestic terrorism are a consideration.

The COMMISSION must consider how the Public Service Agencies can access the rail corridor to handle emergencies as they rise during periods of inactivity where off road access is not an option.

The question of how many hi-rail vehicles or combination of vehicles when addressed will also trigger the need for housing the vehicles. If multiple vehicles are selected then one could be placed in Virginia City and one at the Eastgate siding. Access to the rail and housing for these vehicles will no doubt become a future consideration.

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The following items are a list of proposals/recommendations, the first paragraph of each proposal will list the task (s) that the consultant was charged to address via the Request for Proposal (RFP).

Item 1

The RFP requires the consultant to arrange and conduct a meeting of the emergency response agencies with statutory response obligations and other governmental agencies that may be affected by the train corridor.

The meeting was conducted on 6-3-09 with discussion of the rail corridor impacts on emergency service delivery. In addition discussion was conducted on how these agencies may gain access to the rail corridor for emergencies related to the train or not.

Agencies represented were: Carson City, Storey County, Lyon County, Nevada Division of Forestry (NDF), Nevada Dept. of Wildlife (NDOW), and Bureau of Land Management (BLM), Emergency Managers, Fire, Law Enforcement, Carson City Parks, Emergency Medical Services (EMS) and Carson open space were in attendance.

Meeting Feedback from Response Agencies:

Managers in attendance were generally receptive to the project but expressed reservations about gaining access to the Carson River Canyon portion of the project for emergency law enforcement, medical and fire responses once the track is in place or the existing corridor access is shut down.

Carson Parks and NDOW expressed concern on how recreational enthusiasts could access the corridor once the track consumes the existing road way or access is denied.

Recommendation 1

Overview

All Clear is proposing a multiple vehicle approach as possible solution to the access question for all first responders.

As mentioned in the discussion portion a General Order would have to be prepared that would instruct/provide direction to train employees on what action to take during an on board medical emergency. The General Order may read something like the following:

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Upon determining that there is an on board medical situation that is deemed to be an emergency, the conductor will advise the dispatcher via radio of the situation and his/her location, direction of travel, nearest mile marker and GPS location. The Dispatcher will then activate the 911 system for that jurisdiction advising of the nature of the incident and request a response.

The dispatcher will determine from the conductor where the closest crossing is and have the proper jurisdiction respond to that crossing. Upon approaching the crossing the engineer will stop the train so that the first responders can gain access to the patient. The dispatcher will relay to the 911 center at which crossing the train will arrive. Once a determination on the patient (s) has been made the train can proceed on its schedule.

In the event of a derailment or an emergency where the train cannot move under its own power, the first responders challenge becomes how to get to the incident. The following are recommendations and options on how that may be accomplished.

Another issue that will have to be addressed is when the first responders may need access to the rail for emergencies on the rail corridor when the train is not be operating.

Possible Solutions

Vehicle One

Purchasing a hi-rail vehicle (s)* would be a consideration for gaining access to the rail corridor. We see a need for a chase vehicle when the train is running during periods of wildland fire danger.

*Hy rail or Hi rail vehicles are normal over the road vehicles that have been especially equipped with a flanged steel wheel system that allows them access and movement on the rail.

A 4 Wheel Drive $\frac{3}{4}$ ton 4 door short or long bed pick-up should be acquired and equipped with hi-rail gear. Additionally a skid mount firefighting package would need to be purchased consisting of fiber glass tank, pump and hose reel. The skid mount unit could be removed during the winter months and the pick-up could be used as a utility vehicle.

Additionally, specially trained personnel familiar with the V&T Railway safety protocols will be needed to man this equipment and respond in a timely fashion.

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Vehicle Two

A larger perhaps two ton flat bed stake side truck be purchased and equipped with hi-rail gear as well as emergency supplies such as stokes baskets, spinal back boards, neck braces, ropes, oxygen and other related first aid supplies. This vehicle would be operated by personnel supplied by the train operator during times of emergencies, and be used to ferry emergency paramedics and others to the scene as well as bring injured out in the event of a worst case scenario Mass Casualty Incident (MCI). Consideration should also be given to adding a pump, water tank and fire extinguishers for class C fires as well as firefighting foam.

All of the equipment could be stored and configured in a skid mount fashion so the vehicle could do other duty in the off season.

To bolster the argument for this vehicle, trains are heavy and the type of heavy duty rescue gear needed to perform victim extrication may require a large vehicle to get to the site of a derailment. Once again we do not know what equipment the operator may bring to the table but this is an issue that must be addressed.

Option One

In lieu of hi-rail equipped vehicles a lesser option may be to equip an A-4-A Fairmont 6 man Speeder that can pull a cart with the skid mount unit in it for responder access and fire prevention chase duties or perhaps taking first responders to the scene of a medical call on the tracks.

Option Two

No doubt that the train operator will have a diesel powered locomotive for miscellaneous track duty. During periods of high fire danger this locomotive should have a water car attached that has a pump capable of delivering 500 GPM @ 150 PSI with National Standard Threads both 1 1/2" and 2 1/2" discharge outlets.

In addition a box car could be used to house the skid mounted emergency medical supplies and the locomotive could be summoned during emergencies.

The draw back here is the start-up and response time and we still have to consider the need to get emergency responders to the scene as quickly as possible.

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Option Three

Petition the emergency response agencies to see if they have some older yet reliable equipment that they would be willing to donate to the cause and have the train operator equip that with hi-rail gear.

Option Four

Have two hi-rail response vehicles with redundant gear on them, one stationed in Virginia City and one located at the Eastgate siding.

Option Five

Ask the three counties if there is a flavor to submit a grant for a custom built emergency response hi-rail vehicle through the Federal Emergency Management Agency (FEMA) granting process. This should be viewed as long term and along wait solution as the process may take years and never be accepted by FEMA.

At this point I'm still concerned with gaps in these recommendations such as using the train emergency response equipment for off season responses that may come about especially in the Carson River corridor. Additional concerns that have not been adequately addressed are the fire response issue (equipment and personnel) and since this is the initial discussion and direction document I will defer until further comments can be obtained by the Fire Departments.

During periods when the wildland fire danger is above moderate a chase vehicle such as mentioned in option one must be deployed to shadow the train movement at a 10 minute delay to check and extinguish fires started by the train. A lesser but effective option may be to add a water car to the train equipped to lay down a stream of water near the tracks as the train moves through the corridor.

Although railroads are charged by the FRA to remove vegetation near tracks in the spring or the fall, we can still see wildland fires resulting from train operations. These fires may be started by hot wheels, poorly maintained exhaust manifolds or humans among others. A good recommendation for the COMMISSION would be to prohibit smoking on the train.

Conclusion

A combination of the above mentioned options may have to be utilized in order to meet the perceived and real threat posed by emergencies that may occur during times when trains are moving through the corridor.

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The ability to get first responders to the scene must always be a consideration when selecting an option or vehicle as mentioned above.

Training/Certifications

Operators of these vehicles would be required to have training commensurate with the level of expectations such as:

- Minimum of medical first responder, Emergency Medical Technician is better.
- Engineer's Card
- Wildland suppression classes at the incipient level or greater
- Communication Skills
- Understanding of the Emergency Response Plan and how to use it.

A determination may have to be made as to what level of training train employees must have in terms of providing emergency medical care. Basic first aid coupled with CPR would be the minimum; Emergency Medical Technician is the next level. Automatic Electric Defibrillators (AEDS) could play a positive role in cases where cardiac arrest may occur.

Item 2

All Clear will develop a preliminary list of recommendations for GEOCON Consultants Inc. and The V&T COMMISSION on what emergency response responsibilities the train operator must put in place prior to operation. This will include a preliminary draft of the train operator's obligations concerning emergency response plan overview and a written emergency response plan.

Recommendation 2

- A.** The operator and its employees must follow the provisions for Alcohol and Drug Testing as provided in the Code of Federal Regulations (CFR) 49-Part 219.
- B.** The operator either presents its own emergency response plan for review or adopts a written comprehensive emergency response plan similar to the one found at the Northern Nevada Railway or, Any plan shall include the following:
 - A comprehensive list of General Orders**

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- A List of Standard Operating Procedures/Guidelines**
- Table of Contents, Revision Log, Authority to Operate, Situation and Assumptions, Concept of Operation, Mission Assignments, Emergency Response, Support, Special Resources, Summary and Glossary of Terms.
- Under Concept of Operations it must include the following:
 - Preparedness/Pre/Fire and Emergency Plans
 - Emergency Response
 - Recovery Direction and Control
 - 24 hour/365 day Emergency Notification Phone Number for incidents that may involve railroad property.
- How the operator interfaces with the emergency response agencies.
- How the operator reports an emergency and what constitutes an emergency.
- Required Levels of Training*** and Annual Refresher Training.
- Annual Review, Testing The Plan and Exercises.

Additional Consideration is warranted and shall include the following:

- Railroad Time Table.
- List of the Mile Markers (and whose county the markers are in).
- A Control Point (Center) where the train dispatcher is located at.
- A list of all rail siding locations and how long they are.
- List of possible Landing Zones for helicopters and there GPS locations.
- General Code of Operating Rules with any Special Instructions such as speed restrictions, when the chase vehicle is required etc.
- Competencies and Procedures
- If the issue of the V&T railroad is not addressed and the Commission authorizes an operator then a Joint Railroad Agreement will be needed to include a notification of who is on who's track and when.
- Public Information Officer Role and Responsibilities.

** May be separate documents from the plan but still must include vital operating directions and procedures for employees to follow. General Orders are written for specific actions and not intended to allow the employee any while Standard Operating Procedures do allow for the employees to operate with in written boundaries with discretion.

*** It is strongly recommended that all train employees who have no National Incident Management System (NIMS) experience or training be instructed to take the FEMA On-line course known as ICS-100a. This on line class will take approximately three hours introduces the employee to terms that will be associated with emergency responders. This course can be found on the web at:

www.fema.gov/Emergency/nims/NIMSTrainingcourses.shtm

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It would be best to go on line and download the study material and then go back on line complete the required test and submit for your certificate all in one session.

Item 3

All Clear will explore communications issues relating to how the train operator will effectively report emergencies and then communicate with emergency responders. This effort will explore communications devices that the train operator can/will utilize and which may have interoperability with current emergency responder's communications systems.

Recommendation 3

Establishment of a 24 hour phone hotline be provided for the public to use in case of problems arising involving railroad right of way issues i.e. an off road vehicle becomes entangled or is blocking the rail line. This number would need to be posted along the right of way at periodic intervals. This number would have to be made available to the public services agencies as well.

The commission should/shall consider either providing or demanding that the train operator provide a communications platform to include the following:

According to the Motorola folks they have a **digital** communication platform that uses repeaters, hand helds, mobile and fixed radios. This system is known as MOTOTRBO and can be used in conjunction with computer, servers to allow for fleet GPS tracking.

It would appear at this time that there would be a need for two repeaters one near Virginia City and one near the mouth of the Carson River Canyon i.e. the existing commission building on Drako way. Testing would have to be conducted to determine if these two repeaters would adequately cover the rail corridor. In addition a location would be needed to mount the repeater and in Storey County that may put it in a historic district limiting height and location.

Each engine/hi-rail would have a mobile radio and employees could be equipped with hand-held units. The engine radios would deliver from 25-40 watts of transmitting power and the hand-held units around five watts of power.

The MOTOTRBO platform could provide location services and the ability to track people and assets, such as trains, speeders and hi-rails vehicles.

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This advanced approach takes advantage of the GPS modem and receiver integrated within both the portable and mobile radio's, combined with the MOTOTRBO location services software application.

The dispatcher will be attending a computer display that includes the GPS coordinates of anything on the rail that has a system radio in the on position; this would allow the dispatcher to have knowledge of movement on the rail, equipment location even without a radio transmission.

The text-ing portion of the system should not be purchased.

Application can be made to the FCC to operate this digital platform on 6.25 kHz narrowband. The system provider advises they will assist in the application process.

It remains to be seen if this platform can be configured so that train operators can speak directly to emergency responders those issues need to be worked out with further research and agreement with the response agencies once a radio system is purchased.

If this system was selected then a communication model would be formed and general orders written to address how, when and where emergency notifications would be made.

If the county line boundaries can be added to this system as to indicate which county the train was operating in then the dispatcher will have an easier time of identifying which 911 center to call. Each 911 center by law has to have an "inside number" that could be used to report emergencies and we will look into utilizing this for possible reporting.

The problem here will be if the "Control Center" and the dispatcher are based in Carson City for example and the train transmits an emergency call while in Lyon or Storey County and the dispatcher uses the local landline he/she will be routed into Carson City 911 center. This issue can be addressed with the input of the 911 center managers and the

writing of specific General Orders that mandate the dispatcher to follow a certain procedure.

SPOT is a device that pilots and hikers use and allows them to send four messages to a designated computer or web address via satellite. The messages the user can send are:

1. Ask for help non-emergency
2. Checking In (Gives GPS coordinates)
3. Tracking Progress (Indicates where the user has been and is now)
4. Calls 911 to a predetermined center and provides GPS coordinates and a request for help.

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The map overlay for this system is Google earth. These units are about \$150.00 but due carry a monthly subscriber fee. One of these could be used as part of the redundancy communications to alert the dispatcher if there is radio failure.

It is not known at this time how this unit may function in the Carson River Canyon area of the rail corridor.

Redundancy is the key here and what ever communication platform is decided upon it must include back-up systems so if one fails the other can be relied upon to transmit distress or emergency situations.

Conclusion

It would appear that at this time the most difficult challenge may be getting the emergency responders to the scene of an incident because there are areas of the rail corridor where no roads exist. This situation can be overcome with a combination of hi-rail vehicles or speeders and other equipment.

At this time it remains unclear just who would operate these vehicles (on the rail) and how fast they could respond to an incident. In the worst case scenario of derailment with a mass casualty incident getting emergency crews to the scene in a timely fashion will be paramount. Conversely getting the critically injured to a hospital in one hour (golden hour) will be a considerable challenge.

The commission the operator, and the response agencies all will have a major stake in how to adequately address this issue once a determination of equipment purchases are made.

There is no need to re-invent the wheel on the remaining issues as listed in the recommendations except to address the idiosyncrasies of this particular insular railroad system.

Employee and passenger safety cannot be compromised and strict adherence to the operating rules and General Orders with a proactive engagement in prevention and accident prevention will minimize risks to emergency incidents.

Finally, All Clear does not know as of this writing what the selected operator will bring to the table in terms of prior expertise equipment and the like. During the selection process discovery of what each operator may bring to the table can be crossed check against these recommendations.

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Public Service Agencies Comments

On 08-31-09 a final draft copy of the recommendations was sent to the following public service agencies for comment:

Carson Fire
Carson Sheriff
Carson City Parks
Lyon County Sheriff
Central Lyon County Fire
Storey County Fire
Storey County Sheriff
Bureau of Land Mgt Fire
NV Dept of Wildlife

Each agency was asked to return written comments no later than 09-15-09, because only two comments were returned by that date we extended the period to 10-01-09. Not receiving any further comments we then placed phone calls to the principles and inquired as to why they had not submitted comments.

The consensus seemed to be while they generally liked the recommendations they would rather defer comment until they saw which of the recommendations the Commission would adopt. The other comment was that while some agencies may have statutory authority they again wanted to see which recommendations were accepted prior to commenting.

The Storey County Fire Chief phoned and stated:

- The document was well prepared as written and they would have no further comment pending what the COMMISSION would adopt and impose on the train operator.

The Carson Fire Dept. submitted the following and includes our responses to there questions as well as comments.

Thanks for the opportunity to provide comments on this document. The whole thing is such a change for all of us that wrapping our hands around it is going to take some doing. We have specific comments and I'll refer to the page number and section relative to this - then some general comments. This entire document was run through our whole staff, so these comments are from several perspectives.

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Page 2 - Check boxes

Other issues that could be listed include; environmental emergencies (haz mat issues), train de-railment without injuries (unlikely, but possible), law enforcement issues

Page 4 - 4th paragraph

I think it bears mentioning in this section that things will be further complicated by the fact that people will be calling in an emergency via cell phone. In fact, I think it is more likely that the first anyone will hear about a medical emergency on the train it will be from a citizen and not a train employee. This can make things very complicated because the whole concept of managing the trains stopping point is contingent upon the train operator knowing that an emergency exists. I think this component of the process has the potential to get very complicated. A person calling 9-1-1 from a cell phone along the train route could end up in any of the four county PSAP, or could even end up on the Reno PSAP. Don't have a suggestion on how to deal with this, except that it probably needs to be discussed.

All Clear Comment: We have given that issue consideration and feel that those types of situations can be addressed to a degree by having train personnel instruct riders to inform the staff of an incident when it happens. Additionally the Public Safety dispatchers will need to confirm any situation with the train dispatcher to avoid further confusion.

Page 8 - 3rd paragraph

I think you addressed this later in the document, but at this point I made a note to ensure that the operator carries an AED and a basic first aid kit. I think they should also be required to have someone with CPR and maybe basic first aid on every run.

All Clear Comment: We gave consideration in addressing that issue such as back boards AEDs, O2 as well as staff training requirements but we do not know at this time what the future operator will bring to the table. Once we see what the operator brings to the table those concerns can be addressed along with fire extinguishers etc.

Page 8 - 7th paragraph

I made a note here regarding the train people and that they will be operating the vehicle. I do have concerns about civilians operating as firefighters. I don't know if your intention was that these people would just operate (as in drive) the hi-rail units, or if they would be responsible for actually extinguishing the fire. If they are extinguishing fires and are required to do so as part of their job - this implies a whole litany of requirements that the train operator would have to comply with (as you know). So, I just was wondering if that shouldn't be clarified or addressed.

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All Clear Comment: We are in concurrence with your comment and once again we must see what an experienced operator brings in terms of emergency plan and staff requirements. If the operator does not provide adequately trained staff members then the COMMISSION will have to mandate.

Page 9 - 4th paragraph

What is a "A-4-A Fairmont 6"????

All Clear Comment: The Fairmont is typically a unit equipped for rail use that is designed to haul workers and equipment for track maintenance. These units may be powered by a six or eight cylinder motor and usually carry a crew of four or six. Additional "cars" can be attached that would resemble the size of a pick truck bed.

Page 9 - 9th paragraph

In general, any of these options would require the development of interlocal agreements regarding operation, maintenance, and response. I think this bears mentioning at some point in the document.

All Clear Comment: We agree with this thought process but can only recommend at this time until the COMMISSION adopts the recommendations.

General Suggestions

1. A pre-plan book - similar to the wildland pre-plan document NDF (Jim Reinhardt) did years and years ago in Carson City would be a good idea. This pre-plan book should include siding locations, meeting points, access issues, maps, mile markers, helispots, jurisdictional boundaries, etc. I think a document like this will be very handy for each of the fire/law enforcement agencies, the train operator, and the comm centers.

All Clear Comment: As mentioned on page 12 in the bulleted items those issues would be addressed in the emergency plan.

2. Given that a hi-rail vehicle may be very expensive, maybe a small unit, such as a specially equipped ATV or Ranger (again, stationed at each end) may be a short term solution.

All Clear Comment: These issues must be worked out prior to the future operator starting operation, we suggested larger equipment do to MCI issues and the pure weight of the train may require heavy rescue equipment.

3. Do you have any ideas what other tourist railroad emergency response agencies are doing. Maybe we are making a bigger deal out of this then we need to. Might be interesting to see what is happening in other locations.

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All Clear Comment: Many of our recommendations are based upon what other tourist railroads are recommending as well as what may be imposed by the authority having jurisdiction.

4. Finally, and I'm probably sounding like a broken record here, but.....if the train's path is removing access into an area with already restricted access, they should be responsible for looking for alternative access routes and providing those for emergency response.

It should be noted that Mr. Tom Gray from the Virginia and Truckee Railroad was provided a copy of the recommendations and indicated that he wished to comment on the content. Unfortunately he had many scheduling conflicts and was unable to find the time to meet with us for discussion and inclusion into the comment section prior to the printing deadline.

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Executive Summary (11-2009)

INTRODUCTION

The NEVADA COMMISSION for the RECONSTRUCTION of the V&T RAILWAY is in the process of rebuilding the historic Virginia and Truckee rail line from Carson City to Virginia City. Sufficient track has been completed to begin limited operation.

The COMMISSION will be seeking a permanent operator to run the tourist rail line that will require an emergency response plan and procedures governing the rail line operation. GEOCON Consultants using All Clear Fire Training and Consulting has developed a list of recommendations for the COMMISSIONS consideration.

The above mentioned recommendations have been circulated to the Public Service Agencies with whom the train operator will have to develop a working relationship. It must be noted here as of this date the recommendations have **NOT** been acted upon by the COMMISSION at this time.

GOALS and OBJECTIVES

The goals are to proactively provide maximum safety for train passengers, employees the environment as well as the three counties the train will traverse through. The objectives will be the physical management and application of a comprehensive emergency and risk management plan coupled with the recommendations as detailed elsewhere in this document.

CHALLENGES

- The selection of a train operator, adopting fire and safety recommendations, as well as the subsequent development and application of an all hazard all risk plan is the first hurdle.
- Initial and continuing compliance with governmental regulations is absolute as well as continued oversight by the COMMISSION or its designee.
- Other major challenges will be in the area of getting first responders to the scene during times of critical need along with adequate equipment, effective wireless (legal) communications and a well trained and properly staffed work force.
- A critical component of the emergency plan must include the ability of the operator to track, locate, communicate with the train and then direct emergency crews to the scene of incident.

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CONCLUSION

The COMMISSION has a duty to insure that the riding public is afforded a safe and accident free tour via the train ride. Every effort must be made with a diligent proactive approach to safety. The use of applicable risk management techniques will take form as adopted by the COMMISSION and then applied by the train operator.

Continued safe and reliable train operations will go a long way to insuring that the riding public will return again and again to enjoy the areas rich history and cultural attractions.

Accidents are a fact of life, when and if one does occur the preparation and diligence put forth now will pay dividends later.

A through reading of the recommendations found else where in this document should be mandatory reading for those in a position of authority.

APPENDIX C

TRAFFIC IMPACT ANALYSIS

Virginia & Truckee Railway Reconstruction

Eastgate Station and Drako Way Terminal in

Carson City

Traffic Impact Analysis

December, 2010

Prepared For:

The Nevada Commission for the Reconstruction of the
V&T Railway

and



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VIRGINIA & TRUCKEE RAILWAY RECONSTRUCTION
EASTGATE STATION AND DRAKO WAY TERMINAL IN CARSON CITY
TRAFFIC IMPACT ANALYSIS

DECEMBER 2010

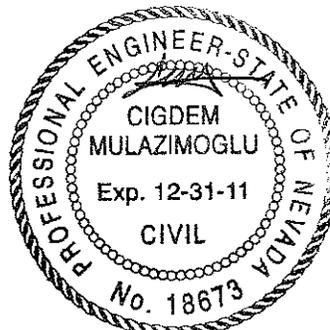
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THE NEVADA COMMISSION FOR THE RECONSTRUCTION OF THE V&T RAILWAY

PREPARED BY:



12.8.2010

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- Appendix A: Preliminary Site Plans
- Appendix B: Traffic Count and Crash Data
- Appendix C: Growth Rate Calculation Data
- Appendix D: Capacity Analysis Worksheets

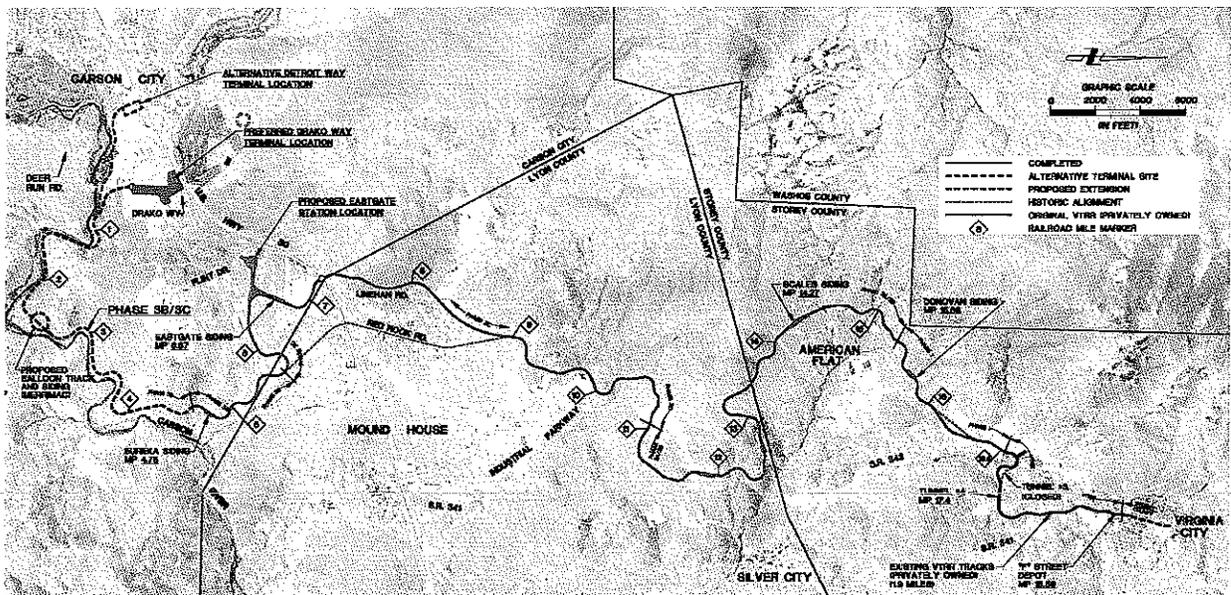
Virginia & Truckee Railway Reconstruction Eastgate Station and Drako Terminal Traffic Impact Analysis



1. Introduction

Virginia & Truckee Railroad (V&T Railroad) is an existing 1.8 mile long tourist railroad attraction operating between Virginia City and Gold Hill, Nevada. Currently, a project (V&T Railway Reconstruction) is underway to extend the railroad from Gold Hill to Carson City, an extension of 16.71 miles. Figure 1 shows the proposed route map.

Figure 1: Proposed Route Map for the V&T Railway Extension



Source: V&T Railway Reconstruction Project, November 2010

As a part of the V&T Railway Reconstruction project, a station will be constructed in Carson City. Jacobs Engineering was retained by Manhard Consulting to conduct a traffic impact analysis for the proposed V&T Railway Station in Carson City, Nevada. An initial station is proposed on Flint Drive south of US-50 (Initial Eastgate Station); and is anticipated to be completed in year 2011. A final facility will be located either on Flint Drive at the Initial Eastgate Station site (Final Eastgate Station); or on Drako Way south of US-50 (Final Drako Terminal). The proposed ultimate Terminal on Drako Way will be constructed if the funding allows for an extension of the railroad. Either of the proposed final facilities could feasibly be constructed in three years after opening of the initial station. Thus the anticipated build-out year for a final station or terminal is year 2014. There are therefore three scenarios; and this traffic impact analysis looks at all of them:

- ◆ *Initial Eastgate Station – Scenario 1*

**Virginia & Truckee Railway Reconstruction
Eastgate Station and Drako Terminal
Traffic Impact Analysis**



- ◆ *Final Eastgate Station* – Scenario 2
- ◆ *Final Drako Terminal* – Scenario 3

The purpose of this traffic impact analysis is to assess the project impacts on the surrounding roadway system. Project description, existing conditions, trip generation, trip distribution, trip assignment, future conditions, operational analysis, adequacy of planned access points and project mitigation are addressed.

Figure 2 shows the project site in relation to the region.

1.1 Project Site and Study Area Boundaries

Eastgate Station is proposed on the east side of Flint Drive just south of US-50. Drako Terminal is proposed on west side of Drako Way just south of US-50. Note that, despite the fact that US-50 runs northeast/southwest in the vicinity of the project, it is a major east-west route and generally runs east-west. For consistency, US-50 is assumed to run east-west and the intersecting roadways north-south throughout this study.

Preliminary site plans for both stations are included in Appendix A. Preliminary site plans show driveway openings, parking layouts and internal circulation roads. The number of provided parking spaces is also shown on the site plans. The parking calculations were performed by Manhard Consulting for Drako Terminal; and Lumos Engineering for Eastgate Station.

To determine the traffic impacts of the proposed project, the following two key study intersections were selected:

- ◆ US-50 and Flint Drive
- ◆ US-50 and Drako Way

US-50 and Flint Drive intersection will be analyzed for initial and final Eastgate Stations (Scenarios 1 and 2). The intersection of US-50 and Drako Way will be analyzed for Drako Terminal (Scenario 3).

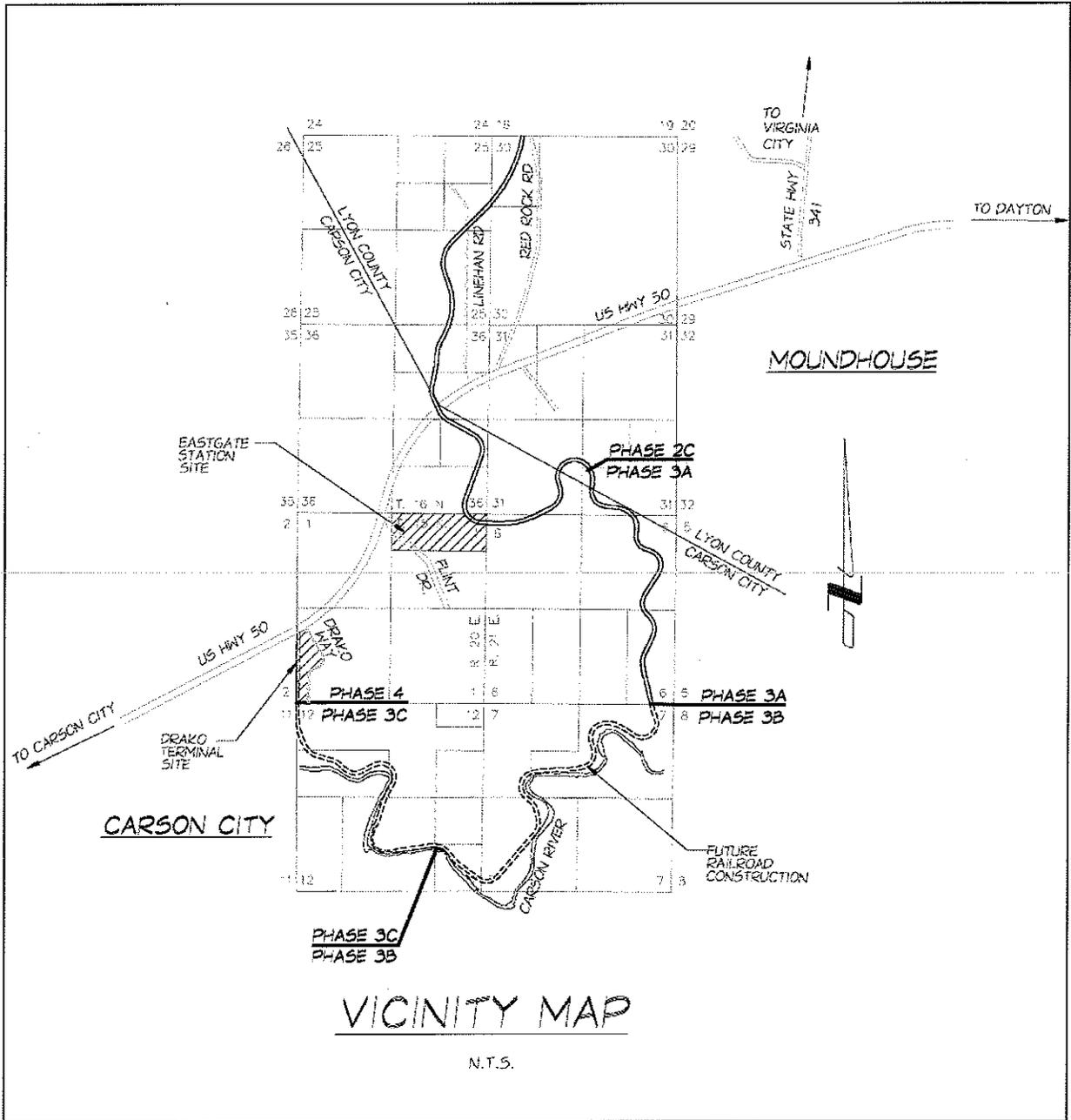
In addition to the above mentioned intersections, the proposed site access driveways located on Flint Drive and Drako Way have been included in the traffic analysis.

**Virginia & Truckee Railway Reconstruction
Eastgate Station and Drako Terminal
Traffic Impact Analysis**



Primary regional access to the project site will be provided by US-50. Direct access to the project will be provided by two access driveways located on Flint Drive for Initial/Final Eastgate Station; and three access driveways for the Drako Terminal.

Figure 2: Vicinity Map



1.2 Surrounding Area Land Uses

The land surrounding the proposed station sites is currently mostly vacant. An industrial park exists at the south side of US-50 just northeast of the proposed Eastgate Station (Eagletech Industrial Park, LLC). Remaining land in the proximity of the proposed Eastgate Station is vacant.

Some small business/office buildings exist on Drako Way at the southwest corner of the intersection of Drako Way and US-50. One of these existing buildings is currently being used as an office for the V&T project and is proposed to be an employee/personnel building for the proposed Drako Terminal. The existing driveway to this office building (across from Astro Drive) will be one of the access driveways to the proposed Drako Terminal site. Commercial developments exist on the east side of Drako Way on Astro Drive; and at the southeast corner of Drako Way and US-50. The remaining land in the proximity of the proposed Drako Terminal is vacant.

2. Existing Traffic and Safety Conditions

2.1 Study Roadways and Intersections

Study roadways and intersections are as follows:

US-50 is a major east-west route of the U.S. Highway System stretching from the west coast to the east coast. In the vicinity of the project, US-50 is an arterial under NDOT jurisdiction; and serves communities from Carson City to the east. US-50 will provide regional access to the proposed project. In the vicinity of the project, it consists of two lanes in each direction with a central left turn lane. The posted speed limit is 55 mph. NDOT functional classification for US-50 in the vicinity of the project is "Urban Other Principal Arterial". US-50 generally runs northeast/southwest in the vicinity of the project; however for the purposes of this study, and to be consistent with its general direction, it is assumed to run east-west. Signalized intersections exist on US-50 within the urban Carson City limits. The closest signalized intersection to the project is approximately one-half mile west of Drako Way at Deer Run Road.

Flint Drive is a local roadway under Carson City jurisdiction. It intersects US-50 in the vicinity of the project. Flint Drive will provide direct access to the proposed initial and final Eastgate Station. In the vicinity of the site; Flint Drive is a two lane minor roadway. Flint Drive generally runs north/south.

Drako Way is a local roadway under Carson City jurisdiction. Drako Way will provide direct access to the proposed final Drako Terminal. In the vicinity of the site; Drako Way is a two lane minor roadway. Drako Way generally runs north/south.

The US-50/Flint Drive intersection is a three leg unsignalized intersection. US-50 runs northeast/southwest (assumed to run east-west) at this location. The west leg on US-50 approaches with two through lanes and an exclusive right turn lane; the east leg approaches with an exclusive left turn lane and two through lanes; and the south leg on Flint Drive approaches with a shared left and right turn lane. There is a median acceleration lane on the west leg of the intersection to accept left turners from Flint Drive. The intersection of US-50 and Flint Drive (study intersection # 1) will be analyzed for initial and final Eastgate Stations (Scenarios 1 and 2).

The US-50/Drako Way intersection is a three leg unsignalized intersection. The west leg on US-50 approaches with two through lanes and an exclusive right turn lane; the east leg approaches with an exclusive left turn lane and two through lanes; and the south leg on Drako Way approaches with a shared left and right turn lane. The intersection of US-50 and Drako Way (study intersection # 2) will be analyzed for the Drako Terminal (Scenario 3).

Figure 3 is a sketch diagram that illustrates the location of stations, study intersections and the access locations. Figure 4 shows the lane configuration and traffic control at the study intersections.

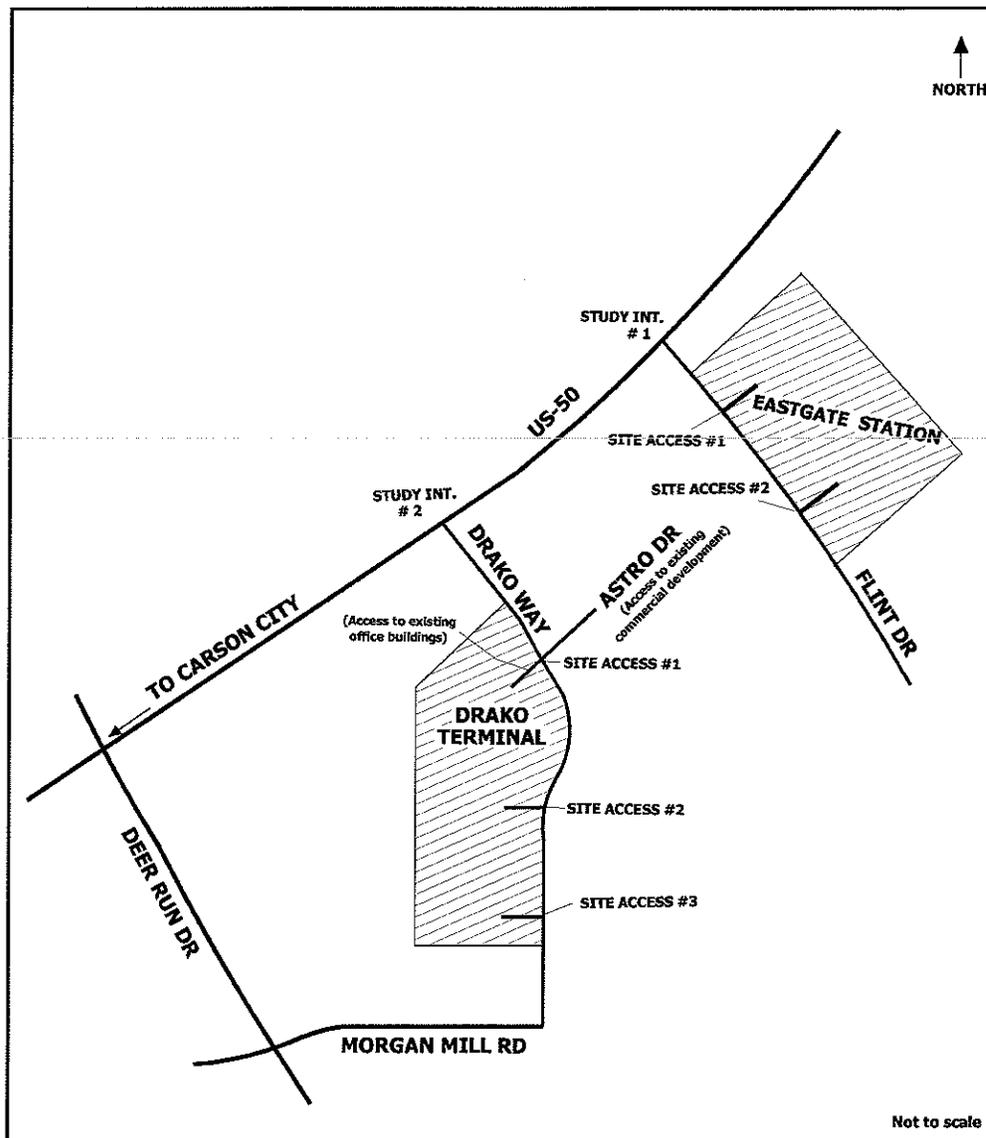
2.2 Existing Traffic Volumes

Turning movement counts (TMC) were collected at the study intersections of US-50 with Flint Drive and Drako Way. All volumes represent typical weekday peak hour conditions and were recorded in 15-minute intervals from 7:00 am to 9:00 am, and from 4:00 pm to 6:00 pm. The counts were conducted on Tuesday, June 30, 2009. TMC data indicate that the peak hours for the study intersections are 7:15 to 8:15 AM and 4:30 to 5:30 PM. Traffic count data is provided in Appendix B. A summary of existing volumes at study intersections is shown in Figure 4 along with the existing lane geometry and traffic control.

2.3 Existing Crash Data

NDOT safety division was contacted to obtain any available crash data for the most recent three year period for the study intersections. Only one crash was found in the database. This was a property damage only crash that occurred in 2006 at the US-50 Flint Drive intersection. No crash data was recorded for the US-50 and Drako Way intersection. Appendix B includes the crash data provided by NDOT.

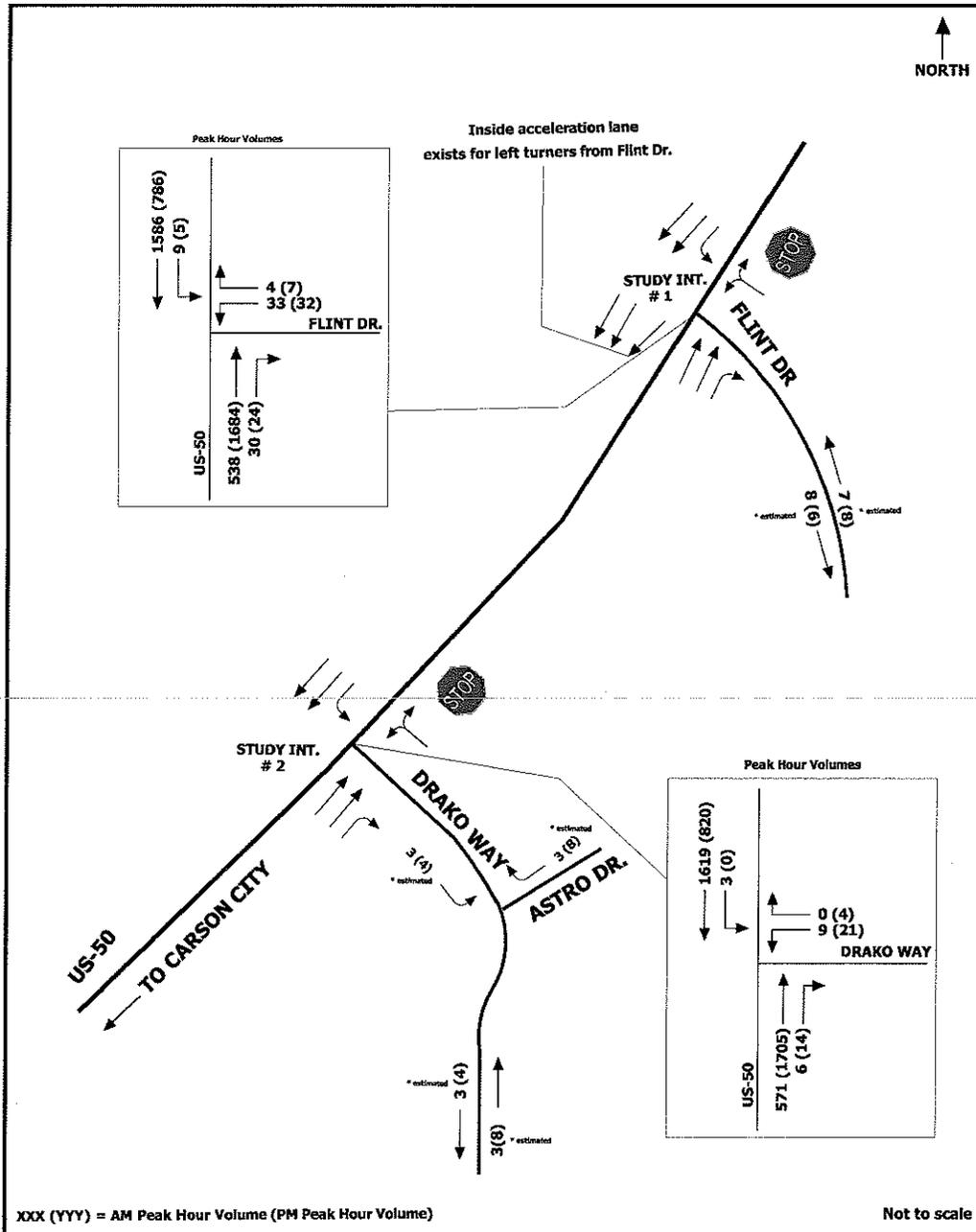
Figure 3: Project Study Area and Study Intersections



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Figure 4: Existing Intersection Lane Geometries and Traffic Volumes



3. Project Traffic Generation

3.1 Trip Generation

In order to assess the impacts of the proposed development on the study intersections, peak hour trip generation is determined for the project. The *Institute of Transportation Engineers (ITE) Trip Generation Manual* does not contain the trip generation rate information for the proposed land use category of tourist rail station. The following assumptions were therefore used to estimate the number of trips that the proposed project will generate during the peak hour:

1. An initial ridership of 120,000 passengers/year was assumed for the Initial Eastgate Station. This is an estimate that accommodates up to 90 percent of the ultimate ridership.
2. A maximum of 135,000 passengers/year (as stated in the *Update of Feasibility and Economic Impact Tables of the Expanded Virginia & Truckee Railroad, September 2008*) was assumed for the final Eastgate Station and the final Drako Terminal.
3. A five-month working schedule for the railroad was assumed (this is a conservative assumption because it does not consider “winter” excursions).
4. A maximum of 300 passengers / train was assumed.
5. Average vehicle occupancy of 2.5 passengers per vehicle was assumed.
6. A 20 percent peaking factor was used to reflect peak arrival rate.

Based on the above assumptions, peak hour trip generation is calculated as follows:

- ◆ Monthly ridership = $(135,000 \text{ passengers/year}) / (5 \text{ months/year}) = 27,000$ passengers/month
- ◆ Daily ridership = $(27,000 \text{ passengers/month}) / (30 \text{ days/month}) = 900$ passengers/day
- ◆ Number of trains/day = $(900 \text{ passengers/day}) / (300 \text{ passengers/train}) = 3$ trains/day
- ◆ Vehicles / train = $(300 \text{ passengers / train}) / (2.5 \text{ passengers/vehicle}) = 120$ vehicles/train
- ◆ With 20 percent peaking; vehicles per train = 144
- ◆ Assume 144 vehicles would enter and 144 vehicles would exit during the peak hour of the adjacent street traffic activity.
- ◆ *In initial conditions*, the monthly ridership = $120,000/5 = 24,000$. Daily ridership = $24,000/30 = 800$. This corresponds to $800/3 =$ approximately 267 passengers/train. With 2.5 persons vehicle occupancy, $267/2.5=107$ vehicles will enter and exit. With the 20 percent peaking, the resulting initial trip generation is 128 entering vehicles and 128

exiting vehicles.

The above calculations are summarized in Table 1 for each scenario. It should be noted that the peak hour of the proposed stations may not - and most probably will not - coincide with the peak hours of the study intersections, which are typical weekday AM and PM peak hours. However, to provide a conservative approach, the traffic operational analysis, which will be discussed later in the report, is conducted for typical weekday AM and PM peak hour conditions assuming that the peak hour of the proposed project coincides with the peak hour of the study intersections.

Table 1: Trip Generation Estimates

Scenario	Peak Hour Trip Generation	
	Enter	Exit
Initial Eastgate Station (Scenario 1)	128	128
Final Eastgate Station (Scenario 2)	144	144
Final Drako Terminal (Scenario 3)	144	144

Source: Jacobs, July 2009

4. Trip Distribution and Assignment

4.1 Trip Distribution

Trip distribution is the procedure to identify the roadways used in traveling to and from the project site and the percentage of site-related traffic that will use each roadway. Trip distribution at the study intersections was determined based on reasonable assumptions of possible trip origins and destinations for train riders. Based on discussions with NDOT staff, it is anticipated that 75 percent of the trips would be originating from the west (i.e. Carson City); and the remaining 25 percent would be originating from the east. For the Drako Terminal; some of the Carson City bound traffic would be using Morgan Mill Road, which is a two lane minor roadway connecting with Deer Run Road southwest of the proposed Drako Terminal. Traffic using Morgan Mill Road could turn right at Deer Run Road to utilize the existing traffic signal at the intersection of Deer Run Road with US-50 In order to analyze a conservative condition for US-50/Drako Way intersection; no trips were assigned to Morgan Mill Road.

Trip distribution at the site access driveways were determined based on the location of the main parking area shown on the preliminary site plans. Figure 5 shows the trip distribution for the Eastgate Station (both initial and final); and Figure 6 shows the trip distribution for the final Drako Terminal.

4.2 Trip Assignment

The projected trips were assigned to the study intersections and access driveways based on the trip distributions shown in Figures 5 and 6. Figures 7 and 8 show the assignment of the project traffic at initial and final Eastgate Station respectively. Figure 9 illustrates the assignment of the project traffic at the final Drako Terminal. It should be noted that Access # 1 at the Drako Terminal is a minor access point that is expected to primarily serve employees.

Figure 5: Project Trip Distribution – Initial/Final Eastgate Station

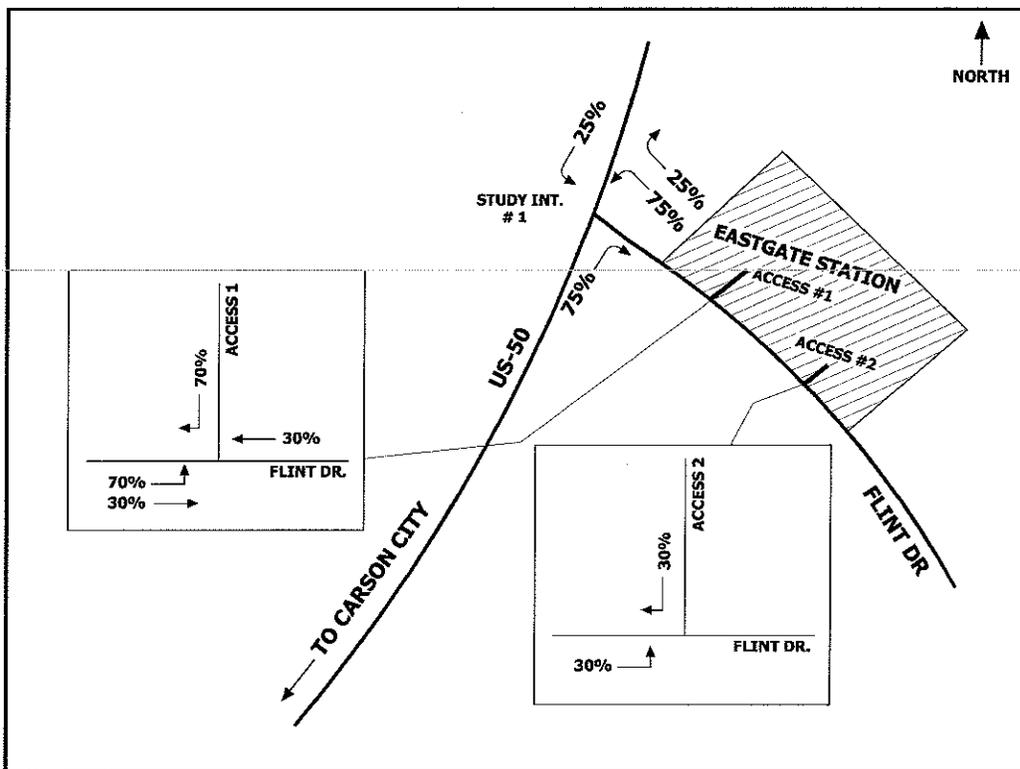


Figure 6: Project Trip Distribution - Drako Terminal

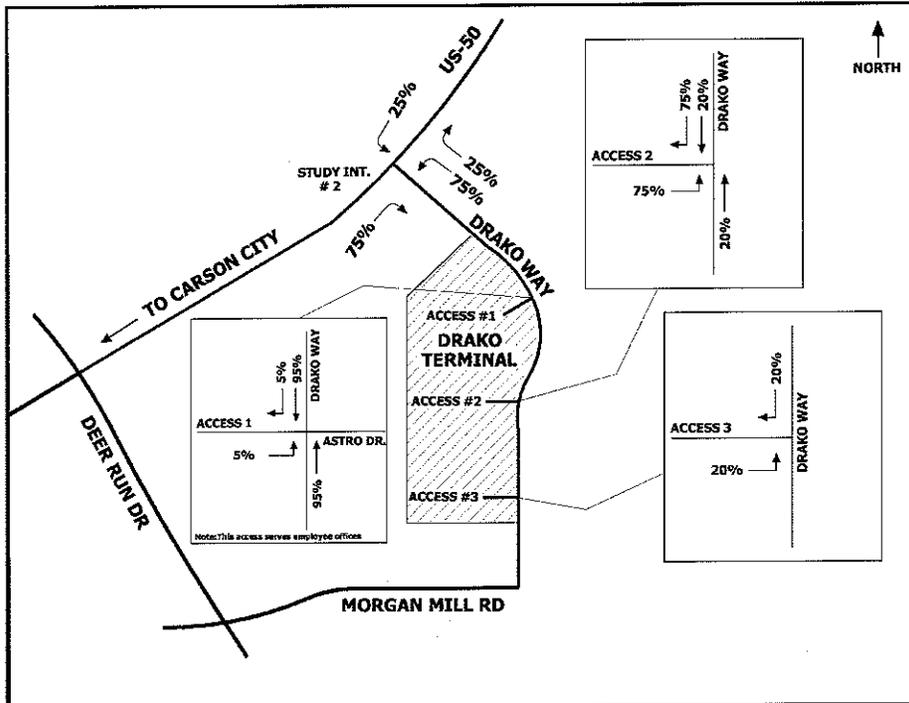
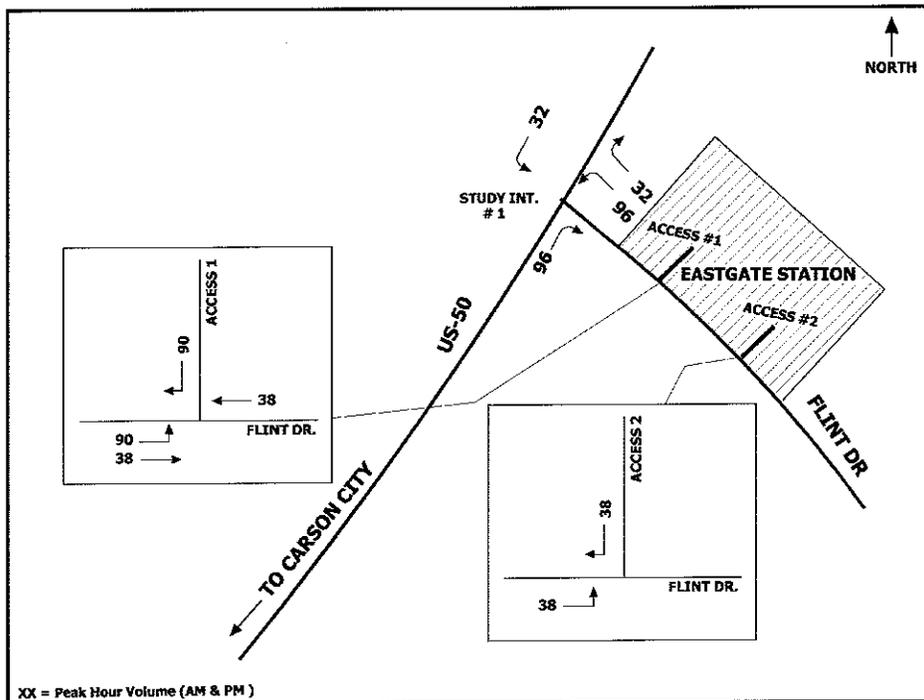


Figure 7: Project Trip Assignment – Initial Eastgate Station



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Figure 8: Project Trip Assignment – Final Eastgate Station

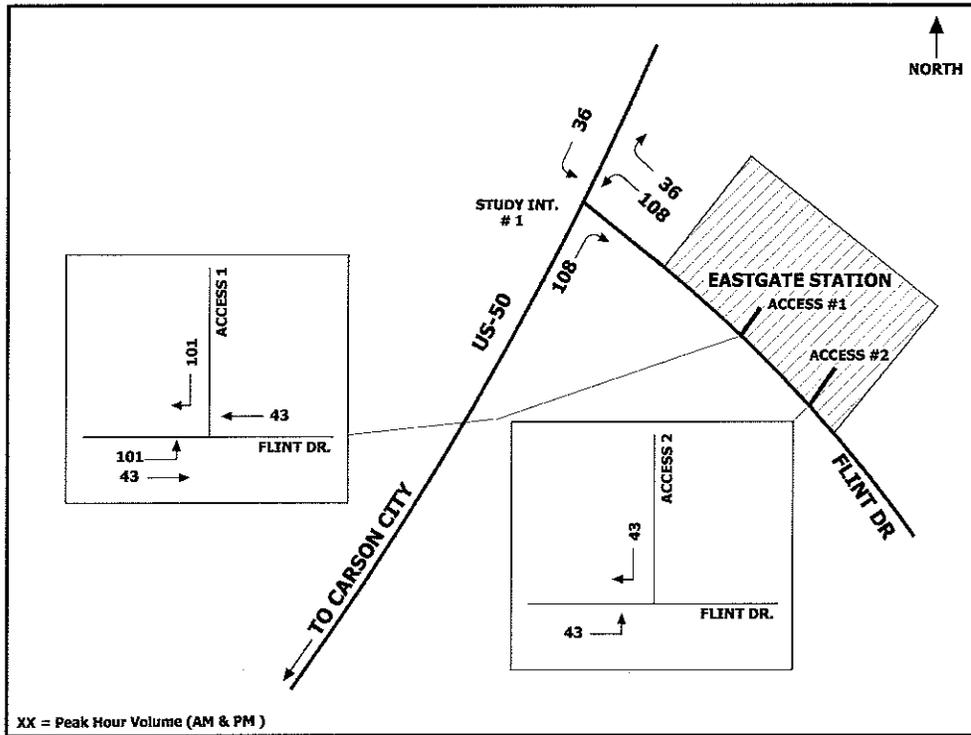
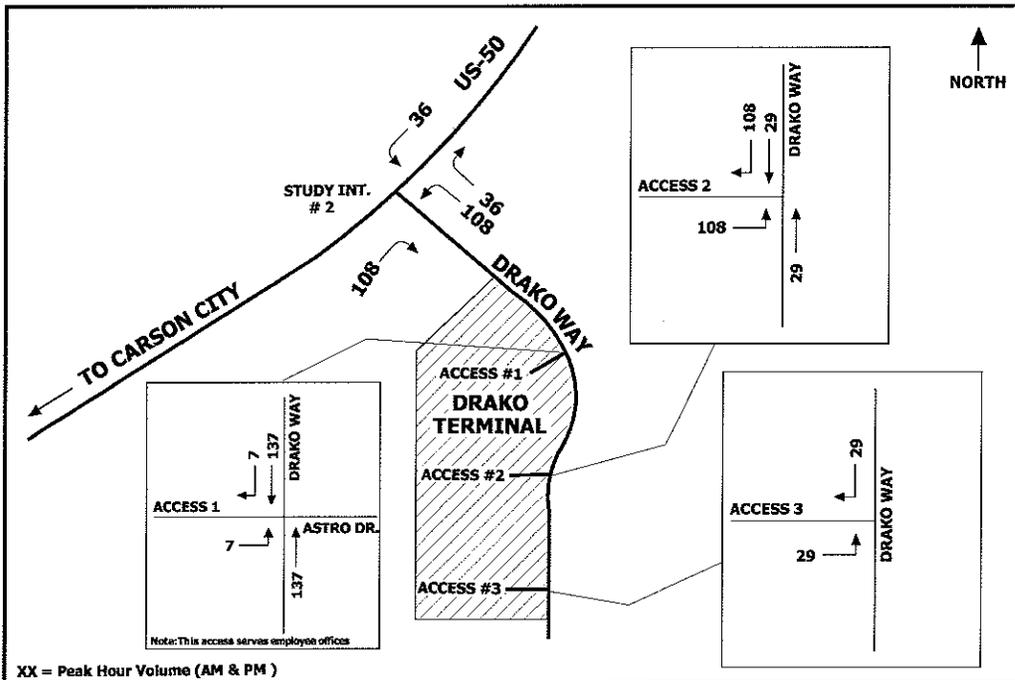


Figure 9: Project Trip Assignment – Drako Terminal



5. Future Traffic Conditions

5.1 Background Traffic Volumes

In order to determine the traffic impacts of the proposed development on the surrounding network, it is necessary to determine traffic that will already be on the network (background traffic) at the time this project begins to contribute traffic volumes to the street network. Initial Eastgate Station is proposed to be completed in year 2011. Either of the final stations (Final Eastgate Station or Final Drako Terminal) is anticipated to be completed in year 2014. The future background traffic was developed by applying an annual average growth rate of 4.18 percent to the existing traffic volumes. This growth rate was calculated as follows: NDOT's 2007 Annual Traffic Report was reviewed to identify a representative traffic count station to obtain historical volumes in the vicinity of the project. Portable traffic count station on US-50 at Carson/Lyon County Line (Station # 25-0044) was selected. Annual average daily traffic data (AADT) from year 1991 through 2007 at this Station (obtained from NDOT's Traffic Information Access - TRINA site) were used to calculate the annual average growth rate of 4.18 percent using trend analysis with exponential growth. Linear growth and decaying exponential growth options were also tested. Projected growth rate from decaying exponential analysis resulted in a negative value, which was determined to be unrealistic. Projected growth rate from linear growth method was calculated to be 2.86 percent; however the R² value was lower than the one from exponential growth rate analysis. Therefore, it was decided to use the growth rate calculated from the exponential growth analysis. Growth factor calculation along with the source data is included in Appendix C. Figure 10 presents estimated background traffic volumes for all three scenarios of:

- ◆ *Initial Eastgate Station* – build-out in year 2011 (Scenario 1)
- ◆ *Final Eastgate Station* – build-out in year 2014 (Scenario 2)
- ◆ *Final Drako Terminal* – build-out in year 2014 (Scenario 3)

As noted earlier; the intersection of US-50 with Flint Drive is analyzed for Scenarios 1 and 2 (i.e. Eastgate Station); and intersection of US-50 with Drako Way is analyzed for Scenario 3 only (Drako Terminal).

5.2 Build-out Traffic Volumes

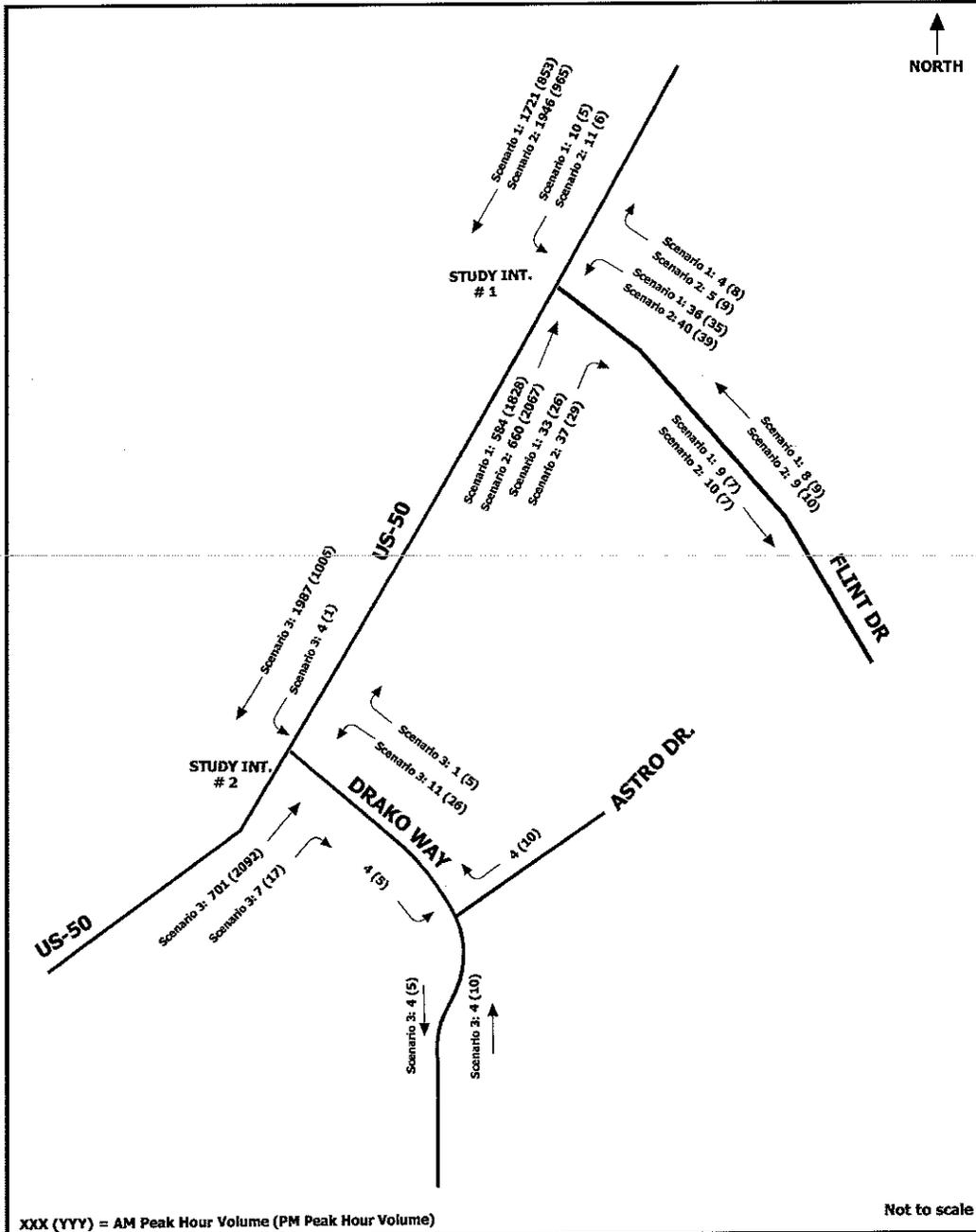
The project-generated trips were added to the future background traffic to forecast traffic conditions that would occur at the study intersections and access points when the project is build-out. Project

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traffic from Figures 7, 8 and 9 were added to the future background traffic in Figure 10. The resulting total traffic volumes (background plus project) for the AM and PM peak hours at the study intersections and access driveways are provided in Figures 11 and 12 for initial and final Eastgate Station respectively; and in Figure 13 for the final Drako Terminal.

Figure 10: Background Traffic Volumes – All Scenarios



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Figure 11: Build-out 2011 Traffic Volumes - Initial Eastgate Station

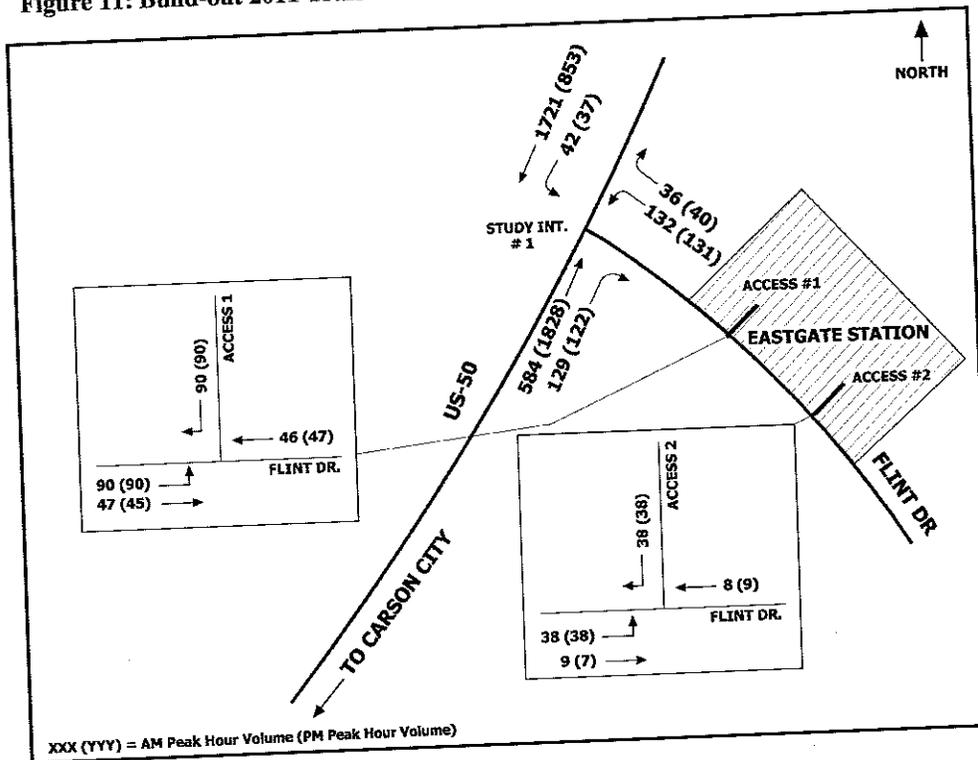


Figure 12: Build-out 2014 Traffic Volumes - Final Eastgate Station

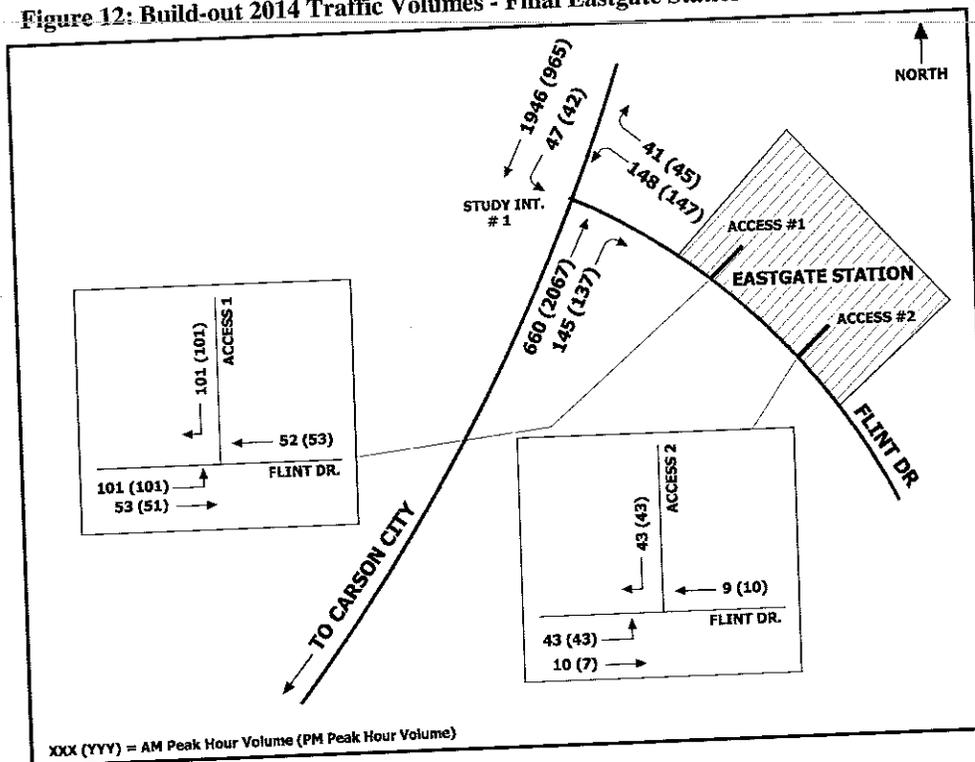
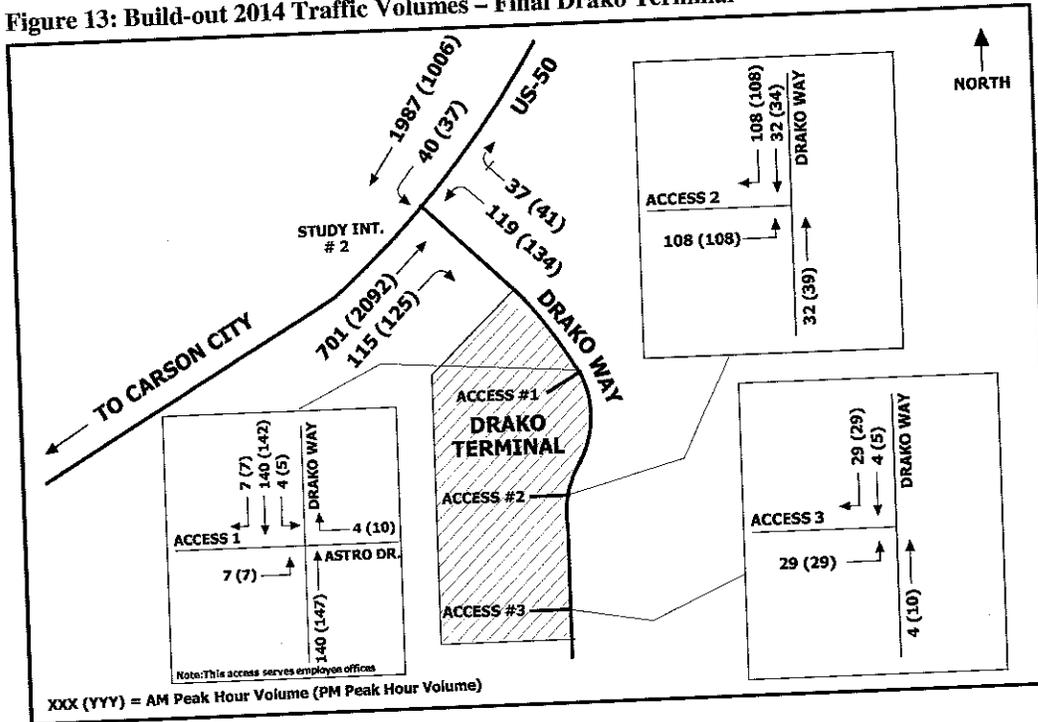


Figure 13: Build-out 2014 Traffic Volumes – Final Drako Terminal



6. Traffic Operational Analysis

The purpose of this task is to analyze traffic operations on the roadway network adjacent to the development, assess the impact of the proposed project and develop appropriate mitigation and traffic control strategies.

Traffic analyses for study intersections and access driveways were conducted according to the methodologies developed by the Transportation Research Board (TRB) and published in the Highway Capacity Manual (HCM), 2000 Edition. According to the HCM, the relative performance of an intersection depends on a number of factors including the Level of Service (LOS). Level of service (LOS) is a qualitative measure of the operating conditions experienced at an intersection when it is subject to varying traffic volumes. There are six LOS, A through F, which describes the traffic operating conditions from best to worst, respectively. In general terms, the capacity of a given roadway can be said to be reached at the threshold value where LOS E turns to LOS F. HCM defines LOS E conditions as “unstable flow”; hence LOS E or worse is usually considered as unsatisfactory operating conditions. For signalized and unsignalized intersections, each LOS corresponds to a range

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of delay. LOS worsens as delay increases. Table 2 shows the intersection level of service criteria defined by HCM.

Table 2: Level of Service Criteria for Intersections

LOS	Control Delay per Vehicle (in seconds)	
	Signalized Intersections	Unsignalized Intersections
A	0-10	0-10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

Source: Highway Capacity Manual 2000, Transportation Research Board

LOS calculations were conducted using the capacity analysis software Synchro 7.0. Synchro can calculate LOS according to HCM procedures. To determine intersection LOS for the study intersections, control delay for each intersection was extracted from Synchro's HCM reports and compared to the criteria shown in Table 2. Level of service of D or better was considered satisfactory/acceptable.

6.1 Existing Traffic Operational Analysis

Table 3 summarizes the existing AM and PM peak hour intersection LOS based on existing peak hour intersection volumes and existing intersection geometries and control.

Peak hour factors (PHF) of 0.88 and 0.92 based on field data are used for AM and PM peak hours respectively. Truck percentage of five percent (5%) was used for the US-50 approaches. This value is based on the 5.04 percent trucks reported by NDOT for roads of functional classification "Urban Other Principal Arterials". For Flint Drive and Drako Way approaches, nine percent (9%) was used as the truck percentage value. The detailed Synchro analysis sheets are provided in Appendix D.

As shown in Table 3, the minor street approaches (Flint Drive and Drako Way) of the study intersections currently operate at LOS B and C during the AM peak hour; and LOS F and E during the PM peak hour.

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Table 3: Intersection LOS Summary - Existing Conditions

Study Intersection	Control	AM Peak Hour		PM Peak Hour	
		Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS
US-50 and Flint Drive	TWSC	13.1	B	54.0	F
US-50 and Drako Way	TWSC	18.6	C	48.9	E

Note: LOS shown is for the minor street approach

TWSC = Two Way Stop Control

Source: Jacobs, July 2009

6.2 Background Traffic Operational Analysis

Table 4 summarizes the year 2011 and year 2014 background AM and PM peak hour intersection LOS based on projected background peak hour intersection volumes and existing intersection geometries and traffic control. Both year 2011 and year 2014 analysis is performed at US-50 and Flint Drive intersection (initial and final Eastgate Stations - Scenarios 1 and 2). For US-50 and Drako Way; year 2014 analysis is performed (Drako Terminal - Scenario 3).

Truck percentages and PHF are assumed to be the same as that used for existing conditions analysis. The detailed Synchro analysis sheets are provided in Appendix D.

Table 4: Intersection LOS Summary – Year 2011 and 2014 Background Conditions

Study Intersection	Control	AM Peak Hour		PM Peak Hour	
		Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS
US-50 and Flint Drive (Year 2011 - Scenario 1)	TWSC	13.7	B	95.7	F
US-50 and Flint Drive (Year 2014 - Scenario 2)	TWSC	14.9	B	152.3	F
US-50 and Drako Way (Year 2014 - Scenario 3)	TWSC	22.2	C	113.3	F

Note: LOS shown is for the minor street approach

TWSC = Two Way Stop Control

Source: Jacobs, July 2009

As shown in Table 4, minor street approaches of the study intersections (Flint Drive and Drako Way) are expected to operate at LOS B and C during AM peak hour; and LOS F during PM peak hour under background (i.e. without the project) conditions.

6.3 Build-out Traffic Operational Analysis

Background conditions analysis results show that, without the project trips, Flint Drive and Drako Way approaches of the study intersections will operate at LOS F. Without any intersection improvements, these approaches can be expected to continue to operate at LOS F (with worse delay than background conditions) with the addition of project trips.

As an initial mitigation, it is recommended that an exclusive right turn lane be built on Flint Drive at US-50. An exclusive right turn lane is recommended for the Drako Way approach at US-50, should the final station be constructed on Drako Way. With this improvement in place, intersection capacity analysis was performed for all scenarios using build-out volumes. The results indicated that:

- ◆ Flint Drive approach still operates at LOS F during the PM peak hour under initial conditions (i.e. Scenario 1).
- ◆ Flint Drive approach operates at LOS F with a very high delay during the PM peak hour under final conditions (i.e. Scenario 2).
- ◆ Drako Way approach operates at LOS E during the AM peak hour and at LOS F during the PM peak hour under final conditions (i.e. Scenario 3). The approach delay is very high during the PM peak hour. It should be noted that, to provide for a more conservative analysis at the Drako Way/US-50 intersection; the operational analysis for Scenario 3 did not assume any trips using Morgan Mill Road for traffic heading to Carson City. In reality, some trips would use Morgan Mill Road to utilize the existing signal at Deer Run Road/US-50. This would reduce the projected number of left turners at Drako Way, reducing the estimated delay at this intersection. The use of existing Deer Run Road/US-50 signal via Morgan Mill Road for Carson City bound trips should be encouraged by providing appropriate signing at the site exit intersections. Standard guide signs with arrows directing right for Carson City and left for US-50 are appropriate for this purpose. Similar signs should be provided at the intersection of Morgan Mill Road/Deer Run Road; and US-50/Deer Run Road to direct vehicles to the right direction.

For Initial Eastgate Station (Scenario 1); although the intersection of US-50 and Flint Drive operates at LOS F during PM peak hour with the projected build-out volumes; signalization is **not** recommended. The HCM states that, for a typical four-lane major street with peak hour volumes in the range of 1,500 to 2,000 vehicles per hour (such as the case for US-50); the delay equation will predict

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greater than 50 seconds of delay (LOS F threshold) for many TWSC intersections that allow minor left turn movement. The operational analysis performed in this study is consistent with this statement; as even under year 2009 existing conditions, the minor street approaches of both the study intersections operate at worse than LOS D conditions during the PM peak hour. Under background conditions (i.e. without the project); this LOS worsens to F for both study intersections during the PM peak hour. HCM further states that, even with an LOS F estimate, most low-volume minor street approaches would not meet any of the *Manual of Uniform Traffic Control Devices (MUTCD)* volume or delay warrants for signalization. As a result, it recommends that analysts who use the HCM LOS thresholds to determine the design adequacy of TWSC intersections should do so with caution. For this particular case, since the peak hour project volume estimates are conservative (as explained in Section 3.1); and since it is possible that the ultimate station be relocated to Drako Way (eliminating the Initial Eastgate Station); it is not recommended to signalize the intersection of US-50 and Flint Drive for initial conditions. If the actual volumes reach the projected levels; **and** if the Drako Terminal scenario is eliminated due to any possible reason; then signalization may be considered at this location. Nonetheless, an exclusive right turn lane on Flint Drive at the US-50 intersection should be built when the project opens. This would bring the delays to lower levels than that would occur without the right turn lane. The addition of an exclusive right turn lane will separate left and right turning vehicles; improving operations by reducing delays and queue lengths. It should also be noted that the existing acceleration lane on the south leg helps reduce delays at this intersection since the left turners from Flint Drive do not have to stop for westbound US-50 traffic.

For final stations (Scenarios 2 and 3); as described previously; the capacity analysis indicates very high approach delays at both Flint Drive and Drako Way, even with the addition of an exclusive right turn lane. Signalization was tested as a possible mitigation measure. Table 5 summarizes the capacity analysis results for the build-out scenarios for the study intersections. As shown for Scenarios 2 and 3; the LOS is improved to LOS B and C with the signalization at these intersections. It is recommended that the actual volumes be monitored at Flint Drive following the initial station opening to determine operational conditions. The decision to signalize the intersection of US-50 with Flint Drive or Drako Way if the ultimate terminal be built there should be made based on the actual amount of traffic experienced at these intersections. The signal (if and when warranted) should operate as semi-actuated (providing green to minor street approach only when left turn vehicles are detected); reducing the delay for US-50 through traffic.

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The recommended intersection lane configuration and traffic control at the study intersections and site access driveways are presented in Figure 14. An exclusive left turn lane is recommended on Flint Drive at the first access driveway (Access #1). An exclusive right turn lane is recommended on Drako Way (if the final station is located there) at the main access location (Access #2). Capacity analysis was performed for site access driveways with the proposed lane configuration and traffic control shown in Figure 14. As shown in Table 6, all access driveways are expected to operate at LOS A or B under all scenarios.

Assumptions for the build-out conditions capacity analysis were as follows:

For US-50 approaches of the study intersections, PHF and truck percentages are assumed to be the same in the future as that used for existing and background conditions analysis (PHF of 0.88 and 0.92 for AM and PM peak hours; and a truck percentage of five percent). For Flint Drive and Drako Way approaches of the study intersections; and for the access driveways, PHF was assumed to be 0.92 for both AM and PM peak hour conditions. Truck percentage is assumed to be two percent (2%) on Flint Drive and Drako Way. The LOS results for signalized intersections are based on optimized cycle lengths and splits using Synchro software’s default parameters for semi-actuated uncoordinated control. The LOS shown for the signalized intersections are for the overall intersection. The detailed Synchro analysis sheets are provided in Appendix D.

Table 5: Study Intersection LOS Summary – Year 2011 and 2014 Build-out Conditions

Study Intersection	Control	AM Peak Hour		PM Peak Hour	
		Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS
US-50 and Flint Drive (Year 2011 - Scenario 1)	TWSC	14.8	B	414.5	F
US-50 and Flint Drive (Year 2014 - Scenario 2) (If signalized)	TWSC (Signal)	17.9 (12.4)	C (B)	Overflow (23.5)	F (C)
US-50 and Drako Way (Year 2014 - Scenario 3) (If signalized)	TWSC (Signal)	45.7 (9.4)	E (A)	Overflow (19.3)	F (B)

Note: LOS shown is for the minor street approach

TWSC = Two Way Stop Control

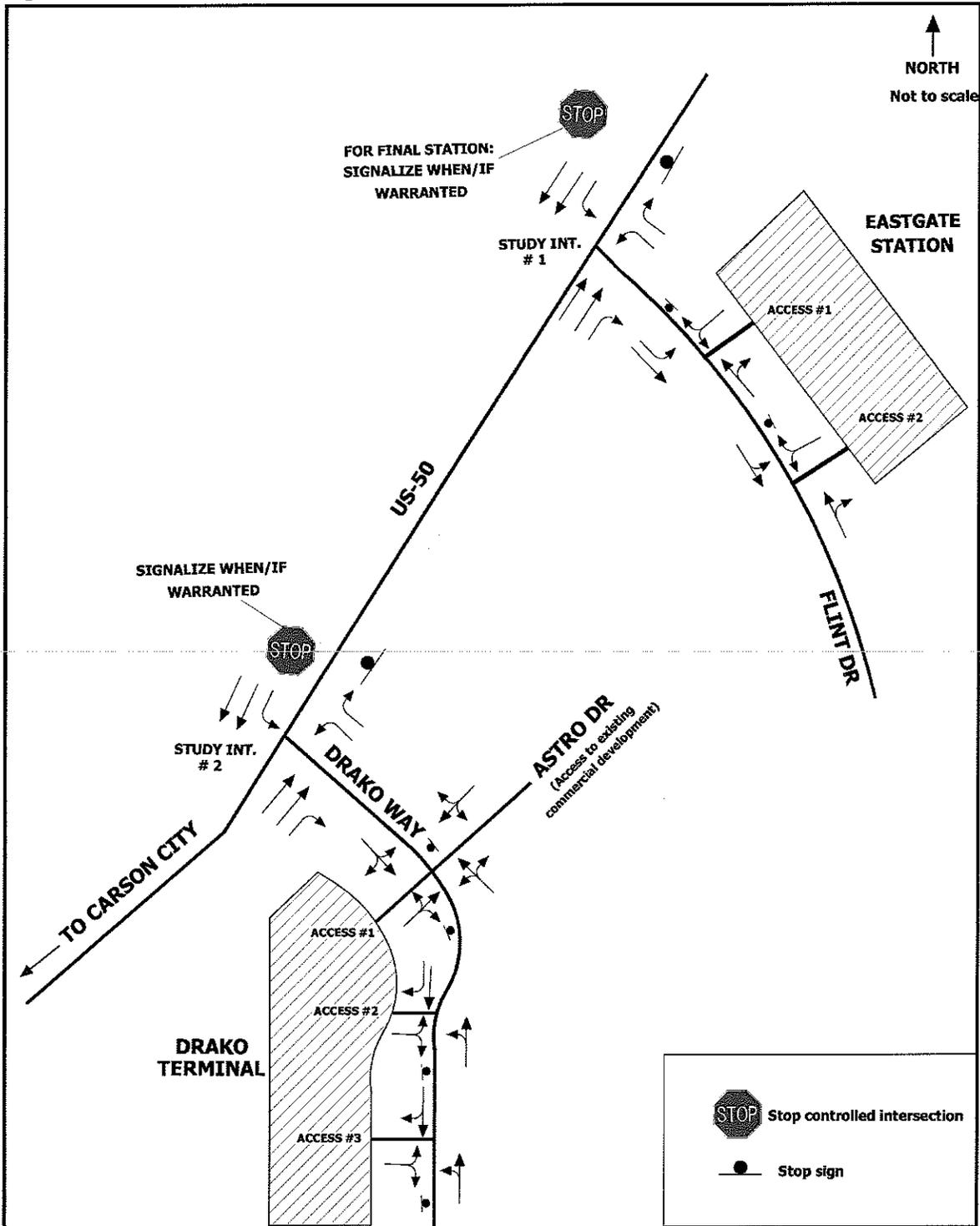
Overflow = The volume exceeds capacity. The delay is extremely high.

Source: Jacobs, July 2009

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Figure 14: Recommended Intersection Lane Geometry and Traffic Control



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Table 6: Access Driveway LOS Summary – Year 2011 and 2014 Build-out Conditions

Access Point Locations	Control	AM Peak Hour		PM Peak Hour	
		Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS
Flint Drive and Site Access 1 (Year 2011 - Scenario 1)	TWSC	8.9	A	9.0	A
Flint Drive and Site Access 2 (Year 2011 - Scenario 1)	TWSC	8.5	A	8.5	A
Flint Drive and Site Access 1 (Year 2014 - Scenario 2)	TWSC	9.1	A	9.1	A
Flint Drive and Site Access 2 (Year 2014 - Scenario 2)	TWSC	8.6	A	8.6	A
Drako Way and Site Access 1 (Year 2014 - Scenario 3)	TWSC	11.0	B	11.2	B
Drako Way and Site Access 2 (Year 2014 - Scenario 3)	TWSC	9.5	A	9.6	A
Drako Way and Site Access 3 (Year 2014 - Scenario 3)	TWSC	8.8	A	8.8	A

Note: LOS shown is for the approach with the greatest delay
 TWSC = Two Way Stop Control
 Source: Jacobs, July 2009

6.4 Turn Lane Evaluations

Left and right turn queue storage lengths were calculated for the proposed exclusive turn lanes at the study intersections and access driveways. Queue lengths for study intersections of US-50 with Flint Drive and Drako Way were based on a uniform arrival rate with 3 minute wait time. For access driveways, the wait time used for the queue length calculations was 2 minutes. Table 7 presents the queue demand estimates and proposed storage lane lengths for the proposed exclusive turn lanes. Deceleration lengths consistent with the American Association of State Highway and Transportation Officials (AASHTO) guidelines should be added to the recommended storage lengths.

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Table 7: Recommended Turn Lane Storage Lengths

Intersection	Movement	Year 2014 Peak Hour Volume	95% Desirable Design Queue Length (ft)	Recommended Storage Length (ft)
US-50 and Flint Drive	Northbound Right	45	56	100
US-50 and Drako Way	Northbound Right	41	51	100
Flint Drive and Access #1	Southbound Left	101	84	100
Drako Way and Access #2	Southbound Right	108	90	100

Design Queue = $[(\text{vehicle}/\text{interval}) + Z(\text{vehicle}/\text{interval})^{0.5}] * 25 \text{ ft/veh}$

where,

(vehicle/interval) = VPH/3600 sec/hr x 2 minute queuing interval for access driveways,

(vehicle/interval) = VPH/3600 sec/hr x 3 minute queuing interval for study intersections,

Z = 1.645 for 95% confidence level (one-tailed test),

25 feet = assumed vehicle length.

Source: Jacobs, July 2009

7. Summary and Recommendations

7.1 Summary

- ◆ This traffic impact study is performed for a proposed station in Carson City for the Virginia & Truckee Railway extension. An initial station is proposed on Flint Drive east of US-50 (Initial Eastgate Station). A final facility will be located either on Flint Drive at the Initial Eastgate Station site (Final Eastgate Station); or on Drako Way south of US-50 (Final Drako Terminal). This traffic impact study analyzes all three scenarios.
- ◆ Initial Eastgate Station is anticipated to be completed and operational in year 2011. Either of the final stations is anticipated to be complete by year 2014.
- ◆ This traffic impact analysis looks at the intersection of US-50 and Flint Drive for Initial/Final Eastgate Station; and US-50 and Drako Way for the Final Drako Terminal.
- ◆ The proposed project is forecast to generate approximately 128 entering and 128 exiting peak hour trips for the initial station in year 2011, and 144 entering and 144 exiting peak hour trips at the final station in year 2014.
- ◆ Trip distribution was determined based on assumptions of possible origins of train riders. 75 percent of V&T train riders were assumed to be originating from west.
- ◆ Background traffic growth was calculated to be 4.18 percent per year.
- ◆ Two site access driveways are proposed on Flint Drive for the Eastgate Station.
- ◆ Three site access driveways are proposed on Drako Way for the Drako Terminal.

- ◆ Traffic operational analysis was conducted using the procedures described in the HCM using Synchro 7.0 software.
- ◆ Minor street approaches of the study intersections operate at LOS E during PM peak hours under existing conditions.
- ◆ Minor street approaches of the study intersections operate at LOS F during PM peak hours under background conditions.
- ◆ At build-out, minor street approaches of the study intersections continue to operate at LOS F.
- ◆ The proposed site access driveways are expected to operate satisfactorily during both AM and PM peak hours.

7.2 Recommendations

- ◆ It is recommended that an exclusive right turn lane be built on Flint Drive at US-50 concurrent with the opening of the initial station. An exclusive right turn lane should be built on Drako Way at US-50 for a final Drako Terminal scenario. The lane configuration shown on Figure 14 should be constructed at access driveways.
- ◆ For a final Drako Terminal scenario, to encourage Carson City bound trips to utilize the existing traffic signal at US-50/Deer Run Road via Morgan Mill Road, appropriate signing is recommended at the site exit intersections as well as the intersections of Deer Run Road/Morgan Mill Road and Deer Run Road/US-50
- ◆ Depending on the location of the final station; and based on the actual observed traffic volumes; the intersection of US-50 with Flint Drive or Drako Way should be considered for signalization if/when warranted as per MUTCD.
- ◆ Provide safety lighting at the intersection of US-50 with Flint Drive; and at US-50 and Drako Way for the a final Drako Terminal scenario.
- ◆ All proposed project driveways should be constructed as per the Streets section of *Carson City Standards Details for Public Works Construction* and *Carson City Development Standards*.
- ◆ Parking lot layout should provide adequate parking for tour buses. Internal circulation should be designed to allow for maneuvering of a 40 foot bus.
- ◆ Turn lanes lengths should be provided as shown in Table 7.

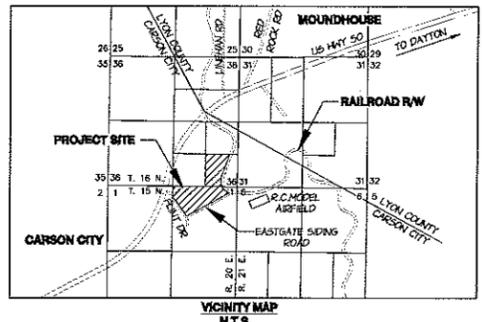
**Virginia & Truckee Railway Reconstruction
Eastgate Station and Drako Terminal
Traffic Impact Analysis**



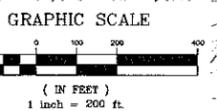
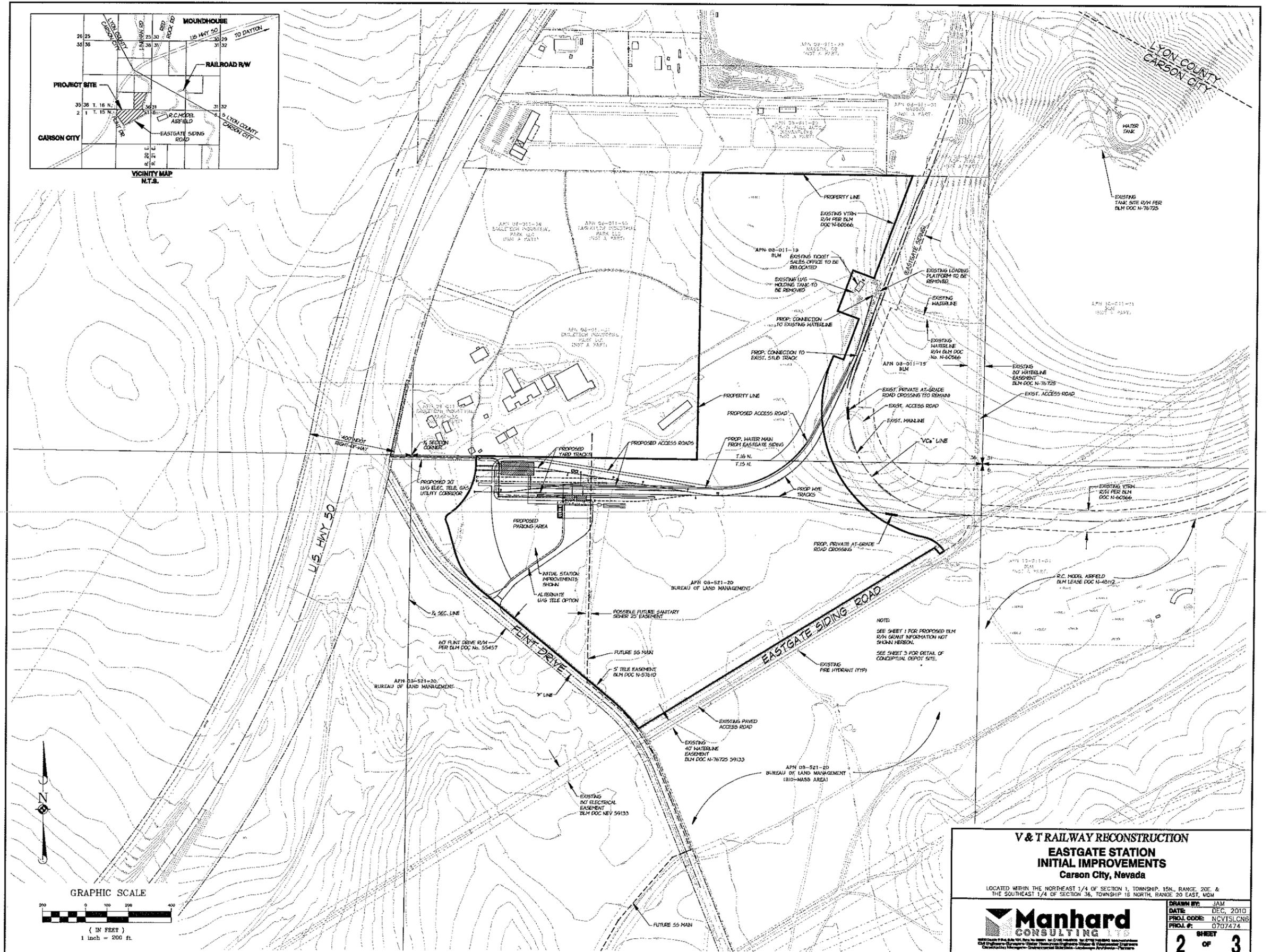
-
- ◆ Minimum sight distance requirements as per AASHTO must be met at all project driveways to ensure safety.
 - ◆ Flint Drive and Drako Way between US-50 and south end of the project should be posted “No parking” with R8-3A signs.

Appendix A:

Preliminary Site Plans



VICINITY MAP
N.T.S.



NOTE:
SEE SHEET 1 FOR PROPOSED BLM
R/W GRANT INFORMATION NOT
SHOWN HEREIN.
SEE SHEET 3 FOR DETAIL OF
CONCEPTUAL DEPOT SITE.

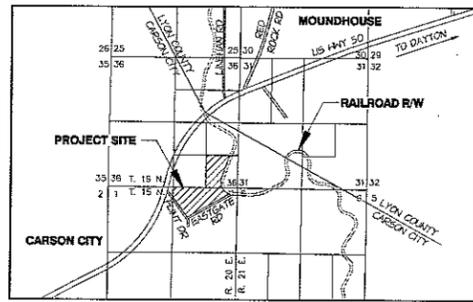
**V & T RAILWAY RECONSTRUCTION
EASTGATE STATION
INITIAL IMPROVEMENTS
Carson City, Nevada**

LOCATED WITHIN THE NORTHEAST 1/4 OF SECTION 1, TOWNSHIP 15N, RANGE 20E, &
THE SOUTHEAST 1/4 OF SECTION 36, TOWNSHIP 16 NORTH, RANGE 20 EAST, MDM

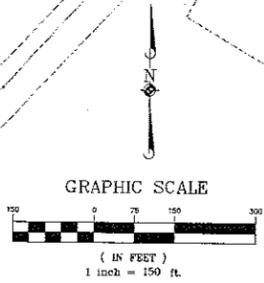
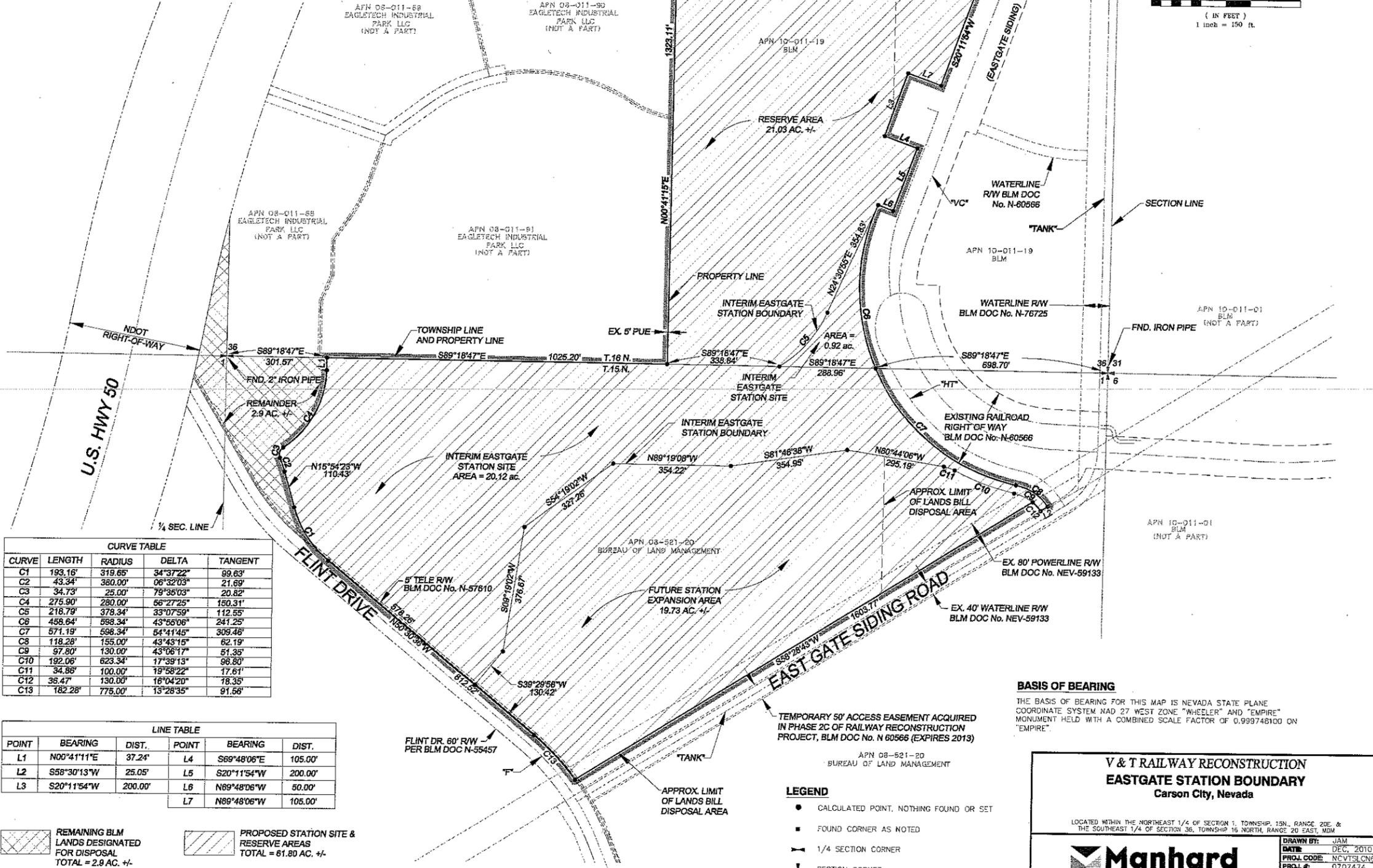


DRAWN BY: JAM
DATE: DEC, 2010
PROJ. CODE: NCVTSLCNS6
PROJ. #: 0707474

SHEET
2 OF **3**



VICINITY MAP
N.T.S.



CURVE TABLE				
CURVE	LENGTH	RADIUS	DELTA	TANGENT
C1	193.16'	319.65'	34°37'22"	99.83'
C2	43.34'	380.00'	06°32'03"	21.89'
C3	34.73'	25.00'	79°36'03"	20.82'
C4	275.90'	290.00'	56°27'25"	150.31'
C5	218.79'	378.34'	33°07'59"	112.55'
C6	458.64'	598.34'	43°55'06"	241.25'
C7	571.19'	598.34'	54°41'45"	309.48'
C8	118.28'	155.00'	43°43'15"	62.19'
C9	97.80'	130.00'	43°06'17"	51.35'
C10	192.06'	623.34'	17°39'13"	96.80'
C11	34.88'	100.00'	19°58'22"	17.61'
C12	36.47'	130.00'	16°04'20"	18.35'
C13	182.28'	775.00'	13°28'35"	91.66'

LINE TABLE					
POINT	BEARING	DIST.	POINT	BEARING	DIST.
L1	N00°41'11"E	37.24'	L4	S69°48'06"E	105.00'
L2	S58°30'13"W	25.05'	L5	S20°11'54"W	200.00'
L3	S20°11'54"W	200.00'	L6	N69°48'06"W	50.00'
			L7	N69°48'06"W	105.00'

REMAINING BLM LANDS DESIGNATED FOR DISPOSAL TOTAL = 2.9 AC. +/-
 PROPOSED STATION SITE & RESERVE AREAS TOTAL = 81.80 AC. +/-

TEMPORARY 50' ACCESS EASEMENT ACQUIRED IN PHASE 2C OF RAILWAY RECONSTRUCTION PROJECT, BLM DOC No. N 60566 (EXPIRES 2013)

- LEGEND**
- CALCULATED POINT, NOTHING FOUND OR SET
 - FOUND CORNER AS NOTED
 - ⊥ 1/4 SECTION CORNER
 - ⊕ SECTION CORNER
 - OVERALL BOUNDARY

BASIS OF BEARING
 THE BASIS OF BEARING FOR THIS MAP IS NEVADA STATE PLANE COORDINATE SYSTEM NAD 27 WEST ZONE "WHEELER" AND "EMPIRE" MONUMENT HELD WITH A COMBINED SCALE FACTOR OF 0.999748100 ON "EMPIRE".

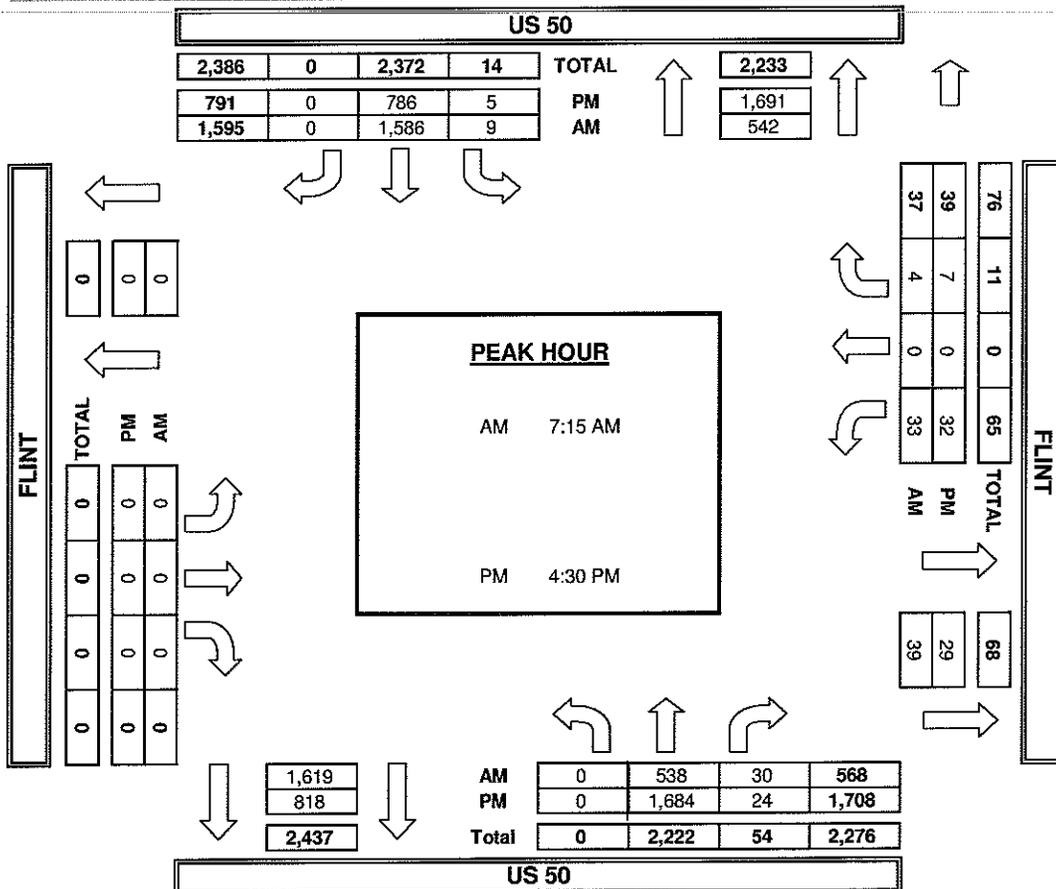
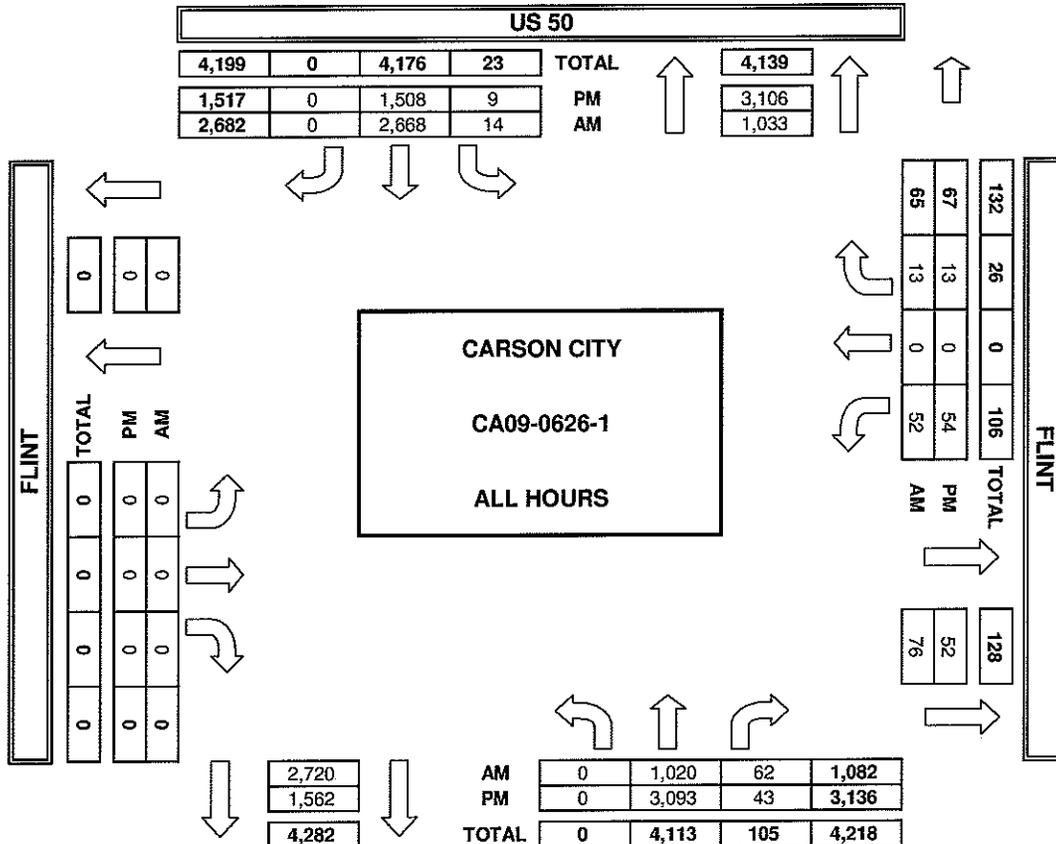
**V & T RAILWAY RECONSTRUCTION
 EASTGATE STATION BOUNDARY
 Carson City, Nevada**

LOCATED WITHIN THE NORTHEAST 1/4 OF SECTION 1, TOWNSHIP 15N., RANGE 20E. & THE SOUTHEAST 1/4 OF SECTION 36, TOWNSHIP 16 NORTH, RANGE 20 EAST, MDN

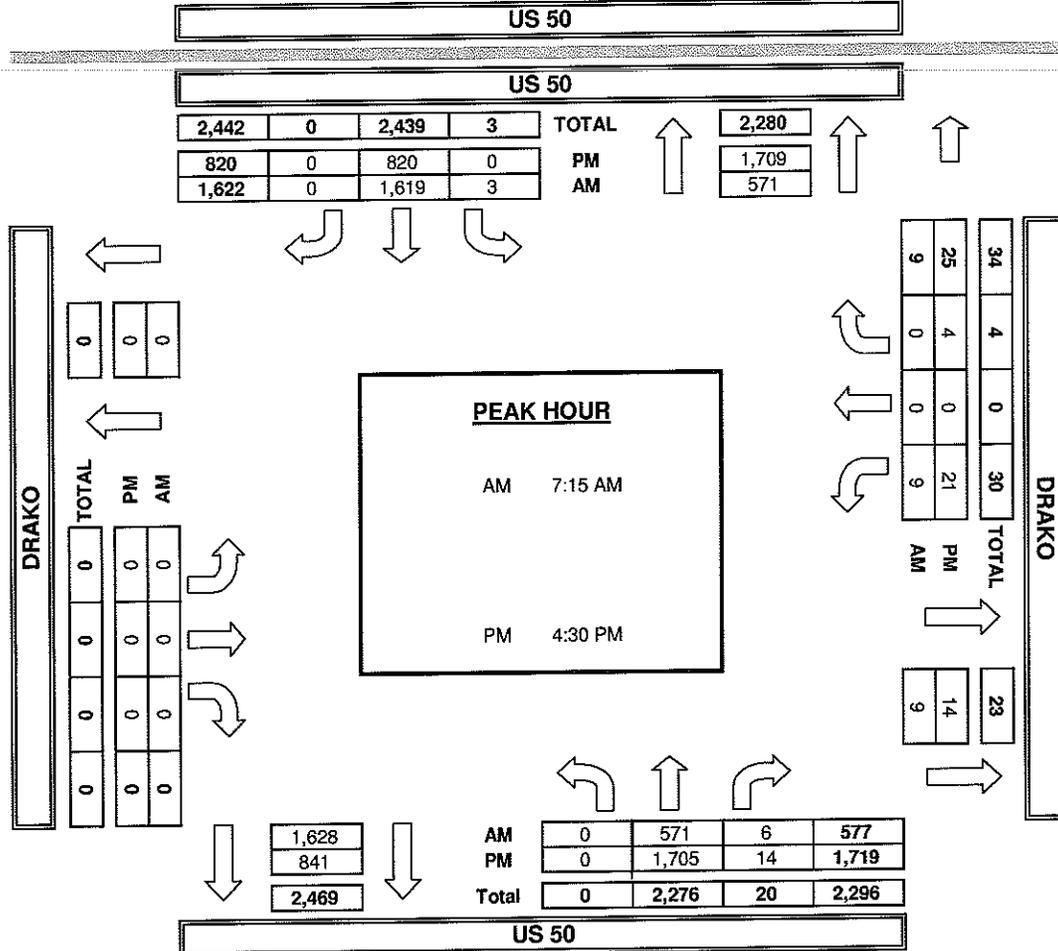
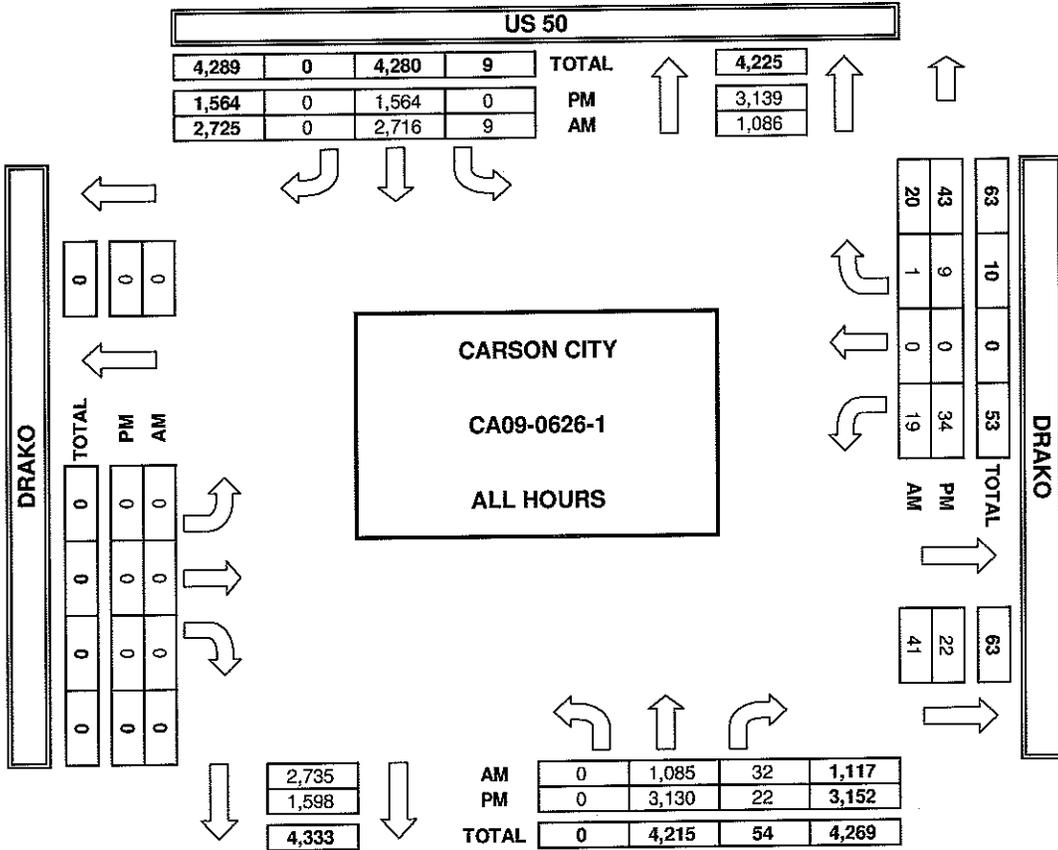
DRAWN BY: JAM
 DATE: DEC, 2010
 PROJ. CODE: NCVTSLCNS6
 PROJ. #: 0707474
1 SHEET **3**

Appendix B:
Traffic Count and Crash Data

PACIFIC TRAFFIC DATA SERVICES
TURNING MOVEMENT COUNTS



PACIFIC TRAFFIC DATA SERVICES
TURNING MOVEMENT COUNTS



**INTERSECTION DETAIL
US-50 @ FLINT DRIVE**

Beginning Crash Date : '01-Jan-2006' , Ending Crash Date : '01-Jan-2009'

County: CARSON CITY

Crash_Date	Crash_Year	Crash_Time	Primary_Street	Distance_Dir	Secondary_Street	Weather	Fatalities	Injured	Property_Damage_Only	Injury_Type
19-Jun-2006	2006	05:04 PM	7001 HWY 50 EAST	150 S	FLINT	Clear	0	0	PDO	
SUM							0	0		
TOTAL CRASHES							0	0	1	

Crash_Type	Total_Vehicles	Veh_1	V1_Type	V1_Dir_Num	V1_Lane_Num	V1_Action	V1_Driver_Factor	V1_Vehicle_Factor
Non-collision	1	1	Pickup	S	1	GOING STRAIGHT	Apparently normal	Mechanical Defects

V2_Type	V2_Dir	V2_Lane_Num	V2_Action	Factor_Nonmotor	Roadway_Factor	Lighting_Cond	Factors_Env	Accident_Num
					Dry	Daylight	None	CC20064175

NO DATA FOUND FOR US-50 @ DRAKO WAY

Appendix C:
Growth Rate Calculation Data

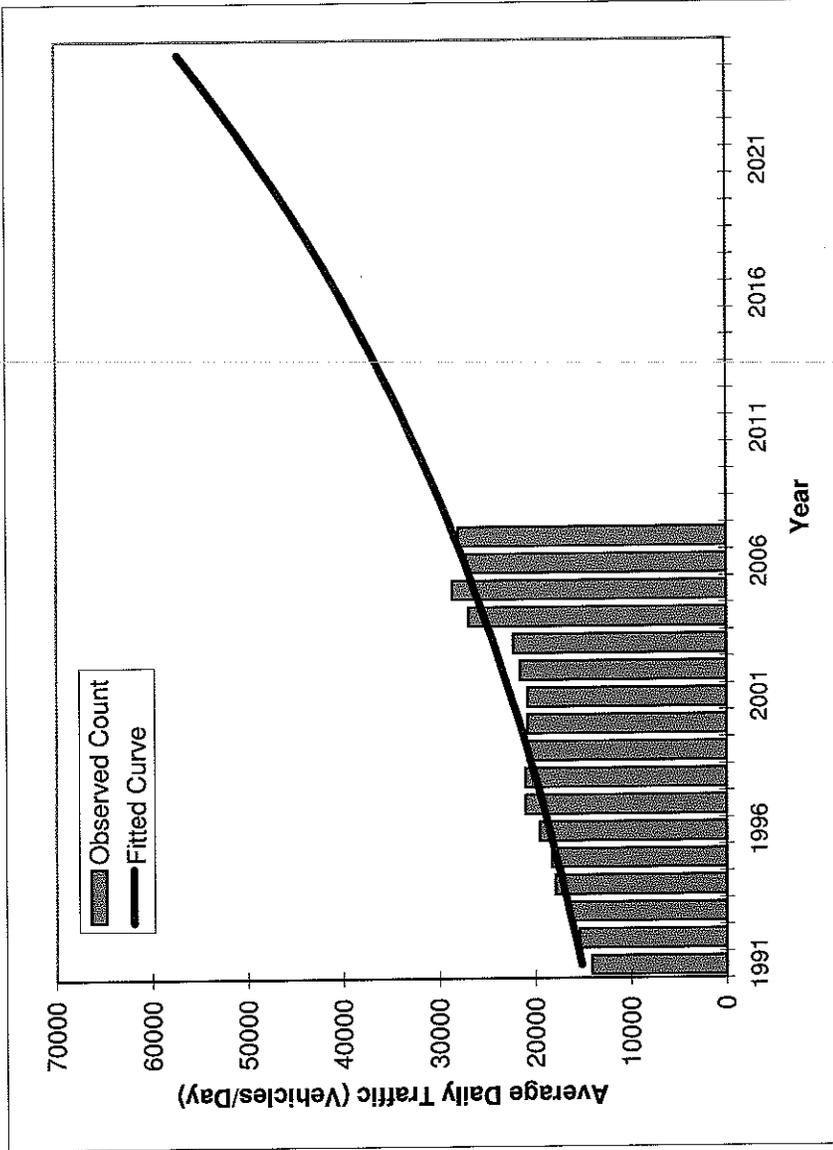
Table 3 - Annual Average Daily Traffic at Portable Traffic Count Station

Station	25-0044
County	Carson City
Location	US50, at the Carson-Lyon County line.
Hourly	
AADT	
1991	14050
1992	15400
1993	16545
1994	17900
1995	18330
1996	19500
1997	21000
1998	21000
1999	20800
2000	20800 *
2001	20800 *
2002	21600 *
2003	22300 *
2004	26900
2005	28600
2006	27200
2007	28000
Note: * = Data Adjusted or Estimated	

TRAFFIC TRENDS

US-50 -- Carson-Lyon County Line

County: Carson City
 Station #: 25-0044
 Highway: US-50



Year	Traffic (ADT/AADT)	
	Count*	Trend**
1991	14100	15200
1992	15400	15800
1993	16500	16500
1994	17900	17100
1995	18300	17800
1996	19500	18500
1997	21000	19200
1998	21000	20000
1999	20800	20800
2000	20800	21600
2001	20800	22500
2002	21600	23400
2003	22300	24300
2004	26900	25300
2005	28600	26300
2006	27200	27300
2007	28000	28400
2011 Opening Year Trend		
2011	N/A	33200
2012 Mid-Year Trend		
2012	N/A	34500
2014 Design Year Trend		
2014	N/A	37300
TRANPLAN Forecasts/Trends		

Trend R-squared: 91.9%
 Compounded Annual Historic Growth Rate: 4.40%
 Compounded Growth Rate (2007 to Design Year): 4.18%
 Printed: 08-Jul-09

Exponential Growth Option

*Axle-Adjusted

Appendix D:
Capacity Analyses Worksheets

1: Flint Dr. & US-50

HCM Unsignalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↑	↗	↖	↑↑
Volume (veh/h)	33	4	538	30	9	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	38	5	611	34	10	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLT		TWLT	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	632	306			645	
vC1, stage 1 conf vol	611					
vC2, stage 2 conf vol	20					
vCu, unblocked vol	632	306			645	
iC, single (s)	7.0	7.1			4.2	
iC, 2 stage (s)	6.0					
iF (s)	3.6	3.4			2.2	
p0 queue free %	92	99			99	
cM capacity (veh/h)	472	670			916	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	42	306	306	34	10	0	0
Volume Left	38	0	0	0	10	0	0
Volume Right	5	0	0	34	0	0	0
cSH	487	1700	1700	1700	916	1700	1700
Volume to Capacity	0.09	0.18	0.18	0.02	0.01	0.00	0.00
Queue Length 95th (ft)	7	0	0	0	1	0	0
Control Delay (s)	13.1	0.0	0.0	0.0	9.0	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	13.1	0.0			9.0		
Approach LOS	B						

Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization		24.9%	ICU Level of Service A
Analysis Period (min)		15	

2: Drako Way & US-50

HCM Unsignalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵		↑↑	↗	↵	↑↑
Volume (veh/h)	9	0	571	6	3	1619
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	10	0	649	7	3	1840
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLT		TWLT	
Median storage veh			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1576	324			656	
vC1, stage 1 conf vol	649					
vC2, stage 2 conf vol	927					
vCu, unblocked vol	1576	324			656	
tC, single (s)	7.0	7.1			4.2	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.2	
p0 queue free %	96	100			100	
cM capacity (veh/h)	275	651			908	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	10	324	324	7	3	920	920
Volume Left	10	0	0	0	3	0	0
Volume Right	0	0	0	7	0	0	0
cSH	275	1700	1700	1700	908	1700	1700
Volume to Capacity	0.04	0.19	0.19	0.00	0.00	0.54	0.54
Queue Length 95th (ft)	3	0	0	0	0	0	0
Control Delay (s)	18.6	0.0	0.0	0.0	9.0	0.0	0.0
Lane LOS	C				A		
Approach Delay (s)	18.6	0.0			0.0		
Approach LOS	C						

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		54.8%	ICU Level of Service A
Analysis Period (min)		15	

1: Flint Dr. & US-50

HCM Unsignalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔		↑↑	↔	↔	↑↑
Volume (veh/h)	32	7	1684	24	5	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	8	1830	26	5	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWTL		TWTL	
Median storage veh			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1841	915			1857	
vC1, stage 1 conf vol	1830					
vC2, stage 2 conf vol	11					
vCu, unblocked vol	1841	915			1857	
tC, single (s)	7.0	7.1			4.2	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.2	
p0 queue free %	66	97			98	
cM capacity (veh/h)	102	262			310	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	42	915	915	26	5	0	0
Volume Left	35	0	0	0	5	0	0
Volume Right	8	0	0	26	0	0	0
cSH	114	1700	1700	1700	310	1700	1700
Volume to Capacity	0.37	0.54	0.54	0.02	0.02	0.00	0.00
Queue Length 95th (ft)	38	0	0	0	1	0	0
Control Delay (s)	54.0	0.0	0.0	0.0	16.8	0.0	0.0
Lane LOS	F				C		
Approach Delay (s)	54.0	0.0			16.8		
Approach LOS	F						

Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization		56.6%	ICU Level of Service B
Analysis Period (min)		15	

2: Drako Way & US-50

HCM Unsignalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↑↑	↗	↘	↑↑
Volume (veh/h)	21	4	1705	14	0	820
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	4	1853	15	0	891
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2299	927			1868	
vC1, stage 1 conf vol	1853					
vC2, stage 2 conf vol	446					
vCu, unblocked vol	2299	927			1868	
tC, single (s)	7.0	7.1			4.2	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.2	
p0 queue free %	77	98			100	
cM capacity (veh/h)	98	257			307	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	27	927	927	15	0	446	446
Volume Left	23	0	0	0	0	0	0
Volume Right	4	0	0	15	0	0	0
cSH	109	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.25	0.55	0.55	0.01	0.00	0.26	0.26
Queue Length 95th (ft)	23	0	0	0	0	0	0
Control Delay (s)	48.9	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	E						
Approach Delay (s)	48.9	0.0			0.0		
Approach LOS	E						

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		57.1%	ICU Level of Service B
Analysis Period (min)		15	

1: Flint Dr. & US-50

HCM Unsignalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↑	↔	↔	↑↑
Volume (veh/h)	36	4	584	33	10	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	41	5	664	38	11	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage veh			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	686	332			701	
vC1, stage 1 conf vol	664					
vC2, stage 2 conf vol	23					
vCu, unblocked vol	686	332			701	
tC, single (s)	7.0	7.1			4.2	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.2	
p0 queue free %	91	99			99	
cM capacity (veh/h)	443	644			872	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	45	332	332	38	11	0	0
Volume Left	41	0	0	0	11	0	0
Volume Right	5	0	0	38	0	0	0
cSH	457	1700	1700	1700	872	1700	1700
Volume to Capacity	0.10	0.20	0.20	0.02	0.01	0.00	0.00
Queue Length 95th (ft)	8	0	0	0	1	0	0
Control Delay (s)	13.7	0.0	0.0	0.0	9.2	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	13.7	0.0			9.2		
Approach LOS	B						

Intersection Summary							
Average Delay			1.0				
Intersection Capacity Utilization			26.1%		ICU Level of Service		A
Analysis Period (min)			15				



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↘		↑↑	↗	↘↙	↑↑
Volume (veh/h)	40	5	660	37	11	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	45	6	750	42	12	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWTL		TWTL	
Median storage veh			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	775	375			792	
vC1, stage 1 conf vol	750					
vC2, stage 2 conf vol	25					
vCu, unblocked vol	775	375			792	
tC, single (s)	7.0	7.1			4.2	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.2	
p0 queue free %	89	99			98	
cM capacity (veh/h)	398	603			805	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	51	375	375	42	12	0	0
Volume Left	45	0	0	0	12	0	0
Volume Right	6	0	0	42	0	0	0
cSH	414	1700	1700	1700	805	1700	1700
Volume to Capacity	0.12	0.22	0.22	0.02	0.02	0.00	0.00
Queue Length 95th (ft)	10	0	0	0	1	0	0
Control Delay (s)	14.9	0.0	0.0	0.0	9.5	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	14.9	0.0			9.5		
Approach LOS	B						

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization	28.2%		ICU Level of Service A
Analysis Period (min)	15		

2: Drako Way & US-50

HCM Unsignalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘		↑↑	↗	↘	↑↑
Volume (veh/h)	11	1	701	7	4	1987
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	12	1	797	8	5	2258
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLT		TWLT	
Median storage veh			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1935	398			805	
vC1, stage 1 conf vol	797					
vC2, stage 2 conf vol	1138					
vCu, unblocked vol	1935	398			805	
tC, single (s)	7.0	7.1			4.2	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.2	
p0 queue free %	94	100			99	
cM capacity (veh/h)	211	582			796	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	14	398	398	8	5	1129	1129
Volume Left	12	0	0	0	5	0	0
Volume Right	1	0	0	8	0	0	0
cSH	222	1700	1700	1700	796	1700	1700
Volume to Capacity	0.06	0.23	0.23	0.00	0.01	0.66	0.66
Queue Length 95th (ft)	5	0	0	0	0	0	0
Control Delay (s)	22.2	0.0	0.0	0.0	9.5	0.0	0.0
Lane LOS	C				A		
Approach Delay (s)	22.2	0.0			0.0		
Approach LOS	C						

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		64.9%	ICU Level of Service C
Analysis Period (min)		15	



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↑	↗	↘	↑↑
Volume (veh/h)	35	8	1828	26	5	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	40	9	2077	30	6	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2089	1039			2107	
vC1, stage 1 conf vol	2077					
vC2, stage 2 conf vol	11					
vCu, unblocked vol	2089	1039			2107	
tC, single (s)	7.0	7.1			4.2	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.2	
p0 queue free %	46	96			98	
cM capacity (veh/h)	74	216			246	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	49	1039	1039	30	6	0	0
Volume Left	40	0	0	0	6	0	0
Volume Right	9	0	0	30	0	0	0
cSH	84	1700	1700	1700	246	1700	1700
Volume to Capacity	0.58	0.61	0.61	0.02	0.02	0.00	0.00
Queue Length 95th (ft)	66	0	0	0	2	0	0
Control Delay (s)	95.7	0.0	0.0	0.0	20.0	0.0	0.0
Lane LOS	F				C		
Approach Delay (s)	95.7	0.0			20.0		
Approach LOS	F						

Intersection Summary							
Average Delay			2.2				
Intersection Capacity Utilization			60.5%		ICU Level of Service		B
Analysis Period (min)			15				



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘		↑↑	↗	↘	↑↑
Volume (veh/h)	39	9	2067	29	6	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	10	2247	32	7	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWTL		TWTL	
Median storage veh			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2260	1123			2278	
vC1, stage 1 conf vol	2247					
vC2, stage 2 conf vol	13					
vCu, unblocked vol	2260	1123			2278	
tC, single (s)	7.0	7.1			4.2	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.2	
p0 queue free %	28	95			97	
cM capacity (veh/h)	59	189			210	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	52	1123	1123	32	7	0	0
Volume Left	42	0	0	0	7	0	0
Volume Right	10	0	0	32	0	0	0
cSH	67	1700	1700	1700	210	1700	1700
Volume to Capacity	0.77	0.66	0.66	0.02	0.03	0.00	0.00
Queue Length 95th (ft)	89	0	0	0	2	0	0
Control Delay (s)	152.9	0.0	0.0	0.0	22.7	0.0	0.0
Lane LOS	F				C		
Approach Delay (s)	152.9	0.0			22.7		
Approach LOS	F						

Intersection Summary	
Average Delay	3.5
Intersection Capacity Utilization	67.1% ICU Level of Service C
Analysis Period (min)	15

2: Drako Way & US-50

HCM Unsignalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↑	↗	↘	↑↑
Volume (veh/h)	26	5	2092	17	1	1006
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	5	2274	18	1	1093
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLT		TWLT	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2823	1137			2292	
vC1, stage 1 conf vol	2274					
vC2, stage 2 conf vol	549					
vCu, unblocked vol	2823	1137			2292	
tC, single (s)	7.0	7.1			4.2	
tC, 2 stage (s)	6.0					
tF (s)	3.6	3.4			2.2	
p0 queue free %	50	97			99	
cM capacity (veh/h)	56	185			208	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	34	1137	1137	18	1	547	547
Volume Left	28	0	0	0	1	0	0
Volume Right	5	0	0	18	0	0	0
cSH	63	1700	1700	1700	208	1700	1700
Volume to Capacity	0.53	0.67	0.67	0.01	0.01	0.32	0.32
Queue Length 95th (ft)	54	0	0	0	0	0	0
Control Delay (s)	113.3	0.0	0.0	0.0	22.4	0.0	0.0
Lane LOS	F				C		
Approach Delay (s)	113.3	0.0			0.0		
Approach LOS	F						

Intersection Summary							
Average Delay			1.1				
Intersection Capacity Utilization			67.8%		ICU Level of Service		C
Analysis Period (min)			15				

1: Flint Dr. & US-50

HCM Unsignalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↑↑	↗	↙	↑↑
Volume (veh/h)	132	36	584	129	42	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	143	39	635	140	46	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			TWLTL			TWLTL
Median storage (veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	726	317			775	
vC1, stage 1 conf vol	635					
vC2, stage 2 conf vol	91					
vCu, unblocked vol	726	317			775	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	94			94	
cM capacity (veh/h)	470	678			817	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	183	317	317	140	46	0	0
Volume Left	143	0	0	0	46	0	0
Volume Right	39	0	0	140	0	0	0
cSH	598	1700	1700	1700	817	1700	1700
Volume to Capacity	0.31	0.19	0.19	0.08	0.06	0.00	0.00
Queue Length 95th (ft)	32	0	0	0	4	0	0
Control Delay (s)	14.8	0.0	0.0	0.0	9.7	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	14.8	0.0			9.7		
Approach LOS	B						

Intersection Summary			
Average Delay		3.1	
Intersection Capacity Utilization		36.8%	ICU Level of Service A
Analysis Period (min)		15	

10: Flint Dr & Access # 1

HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↑	↷		↶	↷
Volume (veh/h)	90	47	46	0	0	90
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	51	50	0	0	98
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	50				297	50
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50				297	50
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	90
cM capacity (veh/h)	1537				644	1010

Direction Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	98	51	50	98
Volume Left	98	0	0	0
Volume Right	0	0	0	98
cSH	1537	1700	1700	1010
Volume to Capacity	0.06	0.03	0.03	0.10
Queue Length 95th (ft)	5	0	0	8
Control Delay (s)	7.5	0.0	0.0	8.9
Lane LOS	A			A
Approach Delay (s)	4.9		0.0	8.9
Approach LOS				A

Intersection Summary			
Average Delay		5.4	
Intersection Capacity Utilization		23.9%	ICU Level of Service A
Analysis Period (min)		15	

20: Flint Dr & Access # 2

HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↗		↘	
Volume (veh/h)	38	9	8	0	0	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	10	9	0	0	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	9				101	9
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	9				101	9
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	96
cM capacity (veh/h)	1592				867	1064

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	51	9	41
Volume Left	41	0	0
Volume Right	0	0	41
cSH	1592	1700	1064
Volume to Capacity	0.03	0.01	0.04
Queue Length 95th (ft)	2	0	3
Control Delay (s)	6.0	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	6.0	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay		6.5	
Intersection Capacity Utilization		19.2%	ICU Level of Service A
Analysis Period (min)		15	

1: Flint Dr. & US-50

HCM Unsignalized Intersection Capacity Analysis



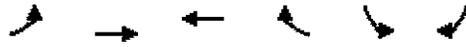
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↑↑	↗	↙	↑↑
Volume (veh/h)	131	40	1828	122	37	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	142	43	1987	133	40	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			TWLTL		TWLTL	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2067	993			2120	
vC1, stage 1 conf vol	1987					
vC2, stage 2 conf vol	80					
vCu, unblocked vol	2067	993			2120	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	82			83	
cM capacity (veh/h)	90	244			244	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	186	993	993	133	40	0	0
Volume Left	142	0	0	0	40	0	0
Volume Right	43	0	0	133	0	0	0
cSH	110	1700	1700	1700	244	1700	1700
Volume to Capacity	1.69	0.58	0.58	0.08	0.17	0.00	0.00
Queue Length 95th (ft)	359	0	0	0	15	0	0
Control Delay (s)	414.5	0.0	0.0	0.0	22.7	0.0	0.0
Lane LOS	F				C		
Approach Delay (s)	414.5	0.0			22.7		
Approach LOS	F						

Intersection Summary			
Average Delay		33.2	
Intersection Capacity Utilization		64.5%	ICU Level of Service C
Analysis Period (min)		15	

10: Flint Dr & Access # 1

HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷		↶	
Volume (veh/h)	90	45	47	0	0	90
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	49	51	0	0	98
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	51				296	51
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51				296	51
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	90
cM capacity (veh/h)	1536				645	1008

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	98	49	51	98
Volume Left	98	0	0	0
Volume Right	0	0	0	98
cSH	1536	1700	1700	1008
Volume to Capacity	0.06	0.03	0.03	0.10
Queue Length 95th (ft)	5	0	0	8
Control Delay (s)	7.5	0.0	0.0	9.0
Lane LOS	A			A
Approach Delay (s)	5.0		0.0	9.0
Approach LOS				A

Intersection Summary			
Average Delay		5.4	
Intersection Capacity Utilization		23.9%	ICU Level of Service A
Analysis Period (min)		15	

20: Flint Dr & Access # 2

HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Volume (veh/h)	38	7	9	0	0	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	8	10	0	0	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	10				100	10
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	10				100	10
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	96
cM capacity (veh/h)	1590				868	1063

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	49	10	41
Volume Left	41	0	0
Volume Right	0	0	41
cSH	1590	1700	1063
Volume to Capacity	0.03	0.01	0.04
Queue Length 95th (ft)	2	0	3
Control Delay (s)	6.2	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	6.2	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay		6.6	
Intersection Capacity Utilization		19.1%	ICU Level of Service A
Analysis Period (min)		15	

1: Flint Dr. & US-50

HCM Unsignalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↑↑	↶	↵	↑↑
Volume (veh/h)	148	41	660	145	47	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	168	47	750	165	53	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			TWLTL		TWLTL	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	857	375			915	
vC1, stage 1 conf vol	750					
vC2, stage 2 conf vol	107					
vCu, unblocked vol	857	375			915	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	59	93			93	
cM capacity (veh/h)	409	623			723	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	215	375	375	165	53	0	0
Volume Left	168	0	0	0	53	0	0
Volume Right	47	0	0	165	0	0	0
cSH	523	1700	1700	1700	723	1700	1700
Volume to Capacity	0.41	0.22	0.22	0.10	0.07	0.00	0.00
Queue Length 95th (ft)	50	0	0	0	6	0	0
Control Delay (s)	17.9	0.0	0.0	0.0	10.4	0.0	0.0
Lane LOS	C				B		
Approach Delay (s)	17.9	0.0			10.4		
Approach LOS	C						

Intersection Summary							
Average Delay		3.7					
Intersection Capacity Utilization		39.8%		ICU Level of Service		A	
Analysis Period (min)		15					

2: Drako Way & US-50

HCM Unsignalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↵	↑↑	↵	↵	↑↑
Volume (veh/h)	119	37	701	115	40	1987
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	135	42	797	131	45	2258
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			TWLTL			TWLTL
Median storage veh			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2016	398			927	
vC1, stage 1 conf vol	797					
vC2, stage 2 conf vol	1220					
vCu, unblocked vol	2016	398			927	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	31	93			94	
cM capacity (veh/h)	196	601			715	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	177	398	398	131	45	1129	1129
Volume Left	135	0	0	0	45	0	0
Volume Right	42	0	0	131	0	0	0
cSH	257	1700	1700	1700	715	1700	1700
Volume to Capacity	0.69	0.23	0.23	0.08	0.06	0.66	0.66
Queue Length 95th (ft)	114	0	0	0	5	0	0
Control Delay (s)	45.7	0.0	0.0	0.0	10.4	0.0	0.0
Lane LOS	E				B		
Approach Delay (s)	45.7	0.0			0.2		
Approach LOS	E						

Intersection Summary			
Average Delay		2.5	
Intersection Capacity Utilization	68.2%		ICU Level of Service C
Analysis Period (min)		15	

10: Flint Dr & Access # 1

HCM Unsignalized Intersection Capacity Analysis



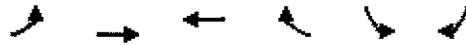
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	101	53	52	0	0	101
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	115	60	59	0	0	115
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	59				349	59
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	59				349	59
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				100	89
cM capacity (veh/h)	1526				594	998

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	115	60	59	115
Volume Left	115	0	0	0
Volume Right	0	0	0	115
cSH	1526	1700	1700	998
Volume to Capacity	0.08	0.04	0.03	0.11
Queue Length 95th (ft)	6	0	0	10
Control Delay (s)	7.6	0.0	0.0	9.1
Lane LOS	A			A
Approach Delay (s)	5.0		0.0	9.1
Approach LOS				A

Intersection Summary			
Average Delay		5.5	
Intersection Capacity Utilization		25.2%	ICU Level of Service: A
Analysis Period (min)		15	

20: Flint Dr & Access # 2

HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Volume (veh/h)	43	10	9	0	0	43
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	49	11	10	0	0	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	10				119	10
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	10				119	10
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	95
cM capacity (veh/h)	1590				842	1062

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	60	10	49
Volume Left	49	0	0
Volume Right	0	0	49
cSH	1590	1700	1062
Volume to Capacity	0.03	0.01	0.05
Queue Length 95th (ft)	2	0	4
Control Delay (s)	6.0	0.0	8.6
Lane LOS	A		A
Approach Delay (s)	6.0	0.0	8.6
Approach LOS			A

Intersection Summary			
Average Delay		6.5	
Intersection Capacity Utilization		19.6%	ICU Level of Service A
Analysis Period (min)		15	

100: Access # 1 & Drako Way

HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (veh/h)	7	0	0	0	0	4	0	140	0	4	140	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	8	0	0	0	0	5	0	159	0	5	159	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	336	331	163	331	335	159	167			159		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	336	331	163	331	335	159	167			159		
tC, single (s)	7.2	6.6	6.2	7.2	6.6	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	99	100			100		
cM capacity (veh/h)	607	581	874	615	579	878	1393			1402		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	5	159	172
Volume Left	8	0	0	5
Volume Right	0	5	0	8
cSH	607	878	1393	1402
Volume to Capacity	0.01	0.01	0.00	0.00
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	11.0	9.1	0.0	0.2
Lane LOS	B	A		A
Approach Delay (s)	11.0	9.1	0.0	0.2
Approach LOS	B	A		

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		23.5%	ICU Level of Service A
Analysis Period (min)		15	

200: Access # 2 & Drako Way

HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘			↑	↑	↗
Volume (veh/h)	108	0	0	32	32	108
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	123	0	0	36	36	123
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	73	36	159			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	73	36	159			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	100	100			
cM capacity (veh/h)	924	1028	1402			

Direction Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	123	36	36	123
Volume Left	123	0	0	0
Volume Right	0	0	0	123
cSH	924	1402	1700	1700
Volume to Capacity	0.13	0.00	0.02	0.07
Queue Length 95th (ft)	11	0	0	0
Control Delay (s)	9.5	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	9.5	0.0	0.0	
Approach LOS	A			

Intersection Summary			
Average Delay		3.7	
Intersection Capacity Utilization	16.7%		ICU Level of Service A
Analysis Period (min)	15		

300: Access # 3 & Drako Way

HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Volume (veh/h)	29	0	0	4	4	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	33	0	0	5	5	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	26	21	38			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	26	21	38			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	982	1048	1554			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	33	5	38
Volume Left	33	0	0
Volume Right	0	0	33
cSH	982	1554	1700
Volume to Capacity	0.03	0.00	0.02
Queue Length 95th (ft)	3	0	0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		3.9	
Intersection Capacity Utilization		13.3%	ICU Level of Service A
Analysis Period (min)		15	

1: Flint Dr. & US-50

HCM Unsignalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	147	45	2067	137	42	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	167	51	2349	156	48	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			TWLTTL		TWLTTL	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2444	1174			2505	
vC1, stage 1 conf vol	2349					
vC2, stage 2 conf vol	95					
vCu, unblocked vol	2444	1174			2505	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	72			72	
cM capacity (veh/h)	56	185			170	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	218	1174	1174	156	48	0	0
Volume Left	167	0	0	0	48	0	0
Volume Right	51	0	0	156	0	0	0
cSH	68	1700	1700	1700	170	1700	1700
Volume to Capacity	3.21	0.69	0.69	0.09	0.28	0.00	0.00
Queue Length 95th (ft)	Err	0	0	0	27	0	0
Control Delay (s)	Err	0.0	0.0	0.0	34.1	0.0	0.0
Lane LOS	F				D		
Approach Delay (s)	9999.0	0.0			34.1		
Approach LOS	F						

Intersection Summary			
Average Delay		788.0	
Intersection Capacity Utilization		71.9%	ICU Level of Service C
Analysis Period (min)		15	

2: Drako Way & US-50

HCM Unsignalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	134	41	2092	125	37	1006
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	152	47	2377	142	42	1143
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			TWTLT			TWTLT
Median storage veh			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3033	1189			2519	
vC1, stage 1 conf vol	2377					
vC2, stage 2 conf vol	656					
vCu, unblocked vol	3033	1189			2519	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	74			75	
cM capacity (veh/h)	54	181			168	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	199	1189	1189	142	42	572	572
Volume Left	152	0	0	0	42	0	0
Volume Right	47	0	0	142	0	0	0
cSH	65	1700	1700	1700	168	1700	1700
Volume to Capacity	3.06	0.70	0.70	0.08	0.25	0.34	0.34
Queue Length 95th (ft)	Err	0	0	0	24	0	0
Control Delay (s)	Err	0.0	0.0	0.0	33.4	0.0	0.0
Lane LOS	F				D		
Approach Delay (s)	Err	0.0			1.2		
Approach LOS	F						

Intersection Summary			
Average Delay		509.8	
Intersection Capacity Utilization		71.9%	ICU Level of Service C
Analysis Period (min)		15	

10: Flint Dr & Access # 1

HCM Unsignalized Intersection Capacity Analysis



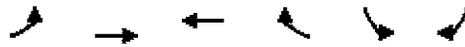
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	101	51	53	0	0	101
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	115	58	60	0	0	115
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	60				348	60
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60				348	60
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				100	88
cM capacity (veh/h)	1524				595	997

Direction/ Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	115	58	60	115
Volume Left	115	0	0	0
Volume Right	0	0	0	115
cSH	1524	1700	1700	997
Volume to Capacity	0.08	0.03	0.04	0.12
Queue Length 95th (ft)	6	0	0	10
Control Delay (s)	7.6	0.0	0.0	9.1
Lane LOS	A			A
Approach Delay (s)	5.0		0.0	9.1
Approach LOS				A

Intersection Summary			
Average Delay		5.5	
Intersection Capacity Utilization		25.2%	ICU Level of Service A
Analysis Period (min)		15	

20: Flint Dr & Access # 2

HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	43	7	10	0	0	43
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	49	8	11	0	0	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	11				117	11
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	11				117	11
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	95
cM capacity (veh/h)	1588				845	1061

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	57	11	49
Volume Left	49	0	0
Volume Right	0	0	49
cSH	1588	1700	1061
Volume to Capacity	0.03	0.01	0.05
Queue Length 95th (ft)	2	0	4
Control Delay (s)	6.3	0.0	8.6
Lane LOS	A		A
Approach Delay (s)	6.3	0.0	8.6
Approach LOS			A

Intersection Summary			
Average Delay		6.7	
Intersection Capacity Utilization		19.4%	ICU Level of Service A
Analysis Period (min)		15	

100: Access # 1 & Drako Way

HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	7	0	0	0	0	10	0	147	0	5	142	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	8	0	0	0	0	11	0	167	0	6	161	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	355	344	165	344	348	167	169			167		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	355	344	165	344	348	167	169			167		
tC, single (s)	7.2	6.6	6.2	7.2	6.6	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	99	100			100		
cM capacity (veh/h)	585	572	871	603	569	869	1390			1393		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	11	167	175
Volume Left	8	0	0	6
Volume Right	0	11	0	8
cSH	585	869	1390	1393
Volume to Capacity	0.01	0.01	0.00	0.00
Queue Length 95th (ft)	1	1	0	0
Control Delay (s)	11.2	9.2	0.0	0.3
Lane LOS	B	A		A
Approach Delay (s)	11.2	9.2	0.0	0.3
Approach LOS	B	A		

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		24.4%	ICU Level of Service A
Analysis Period (min)		15	

200: Access # 2 & Drako Way

HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	LT			TH	TH	RT
Volume (veh/h)	108	0	0	39	34	108
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	123	0	0	44	39	123
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	83	39	161			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	83	39	161			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	100	100			
cM capacity (veh/h)	911	1025	1399			

Direction - Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	123	44	39	123
Volume Left	123	0	0	0
Volume Right	0	0	0	123
cSH	911	1399	1700	1700
Volume to Capacity	0.13	0.00	0.02	0.07
Queue Length 95th (ft)	12	0	0	0
Control Delay (s)	9.6	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	9.6	0.0	0.0	
Approach LOS	A			

Intersection Summary			
Average Delay		3.6	
Intersection Capacity Utilization		16.7%	ICU Level of Service A
Analysis Period (min)		15	

300: Access # 3 & Drako Way

HCM Unsignalized Intersection Capacity Analysis



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	LT			TH	TH	RT
Volume (veh/h)	29	0	0	10	5	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	33	0	0	11	6	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	34	22	39			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	34	22	39			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	972	1046	1552			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	33	11	39
Volume Left	33	0	0
Volume Right	0	0	33
cSH	972	1552	1700
Volume to Capacity	0.03	0.00	0.02
Queue Length 95th (ft)	3	0	0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		3.5	
Intersection Capacity Utilization		13.3%	ICU Level of Service A
Analysis Period (min)		15	



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↑↑	↗	↙	↑↑
Volume (vph)	148	41	660	145	47	1946
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3438	1538	1719	3438
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	3438	1538	1719	3438
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	168	47	750	165	53	2211
RTOR Reduction (vph)	0	40	0	60	0	0
Lane Group Flow (vph)	168	7	750	105	53	2211
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Turn Type		Perm		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	12.1	12.1	48.8	48.8	3.7	56.5
Effective Green, g (s)	12.1	12.1	48.8	48.8	3.7	56.5
Actuated g/C Ratio	0.16	0.16	0.64	0.64	0.05	0.74
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	280	250	2190	980	83	2536
v/s Ratio Prot	c0.09		0.22		0.03	c0.64
v/s Ratio Perm		0.00		0.07		
v/c Ratio	0.60	0.03	0.34	0.11	0.64	0.87
Uniform Delay, d1	30.0	27.3	6.5	5.4	35.8	7.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	0.0	0.4	0.2	15.0	4.5
Delay (s)	33.6	27.3	6.9	5.6	50.8	11.9
Level of Service	C	C	A	A	D	B
Approach Delay (s)	32.2		6.7			12.8
Approach LOS	C		A			B

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

2: Drako Way & US-50

HCM Signalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↵	↕↕	↵	↵	↕↕
Volume (vph)	119	37	701	115	40	1987
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3438	1538	1719	3438
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	3438	1538	1719	3438
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	135	42	797	131	45	2258
RTOR Reduction (vph)	0	37	0	43	0	0
Lane Group Flow (vph)	135	5	797	88	45	2258
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Turn Type		Perm		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	9.1	9.1	51.0	51.0	3.4	58.4
Effective Green, g (s)	9.1	9.1	51.0	51.0	3.4	58.4
Actuated g/C Ratio	0.12	0.12	0.68	0.68	0.05	0.77
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	213	191	2322	1039	77	2659
v/s Ratio Prot	c0.08		0.23		0.03	c0.66
v/s Ratio Perm		0.00		0.06		
v/c Ratio	0.63	0.03	0.34	0.09	0.58	0.85
Uniform Delay, d1	31.6	29.3	5.2	4.2	35.4	5.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.0	0.1	0.1	0.0	10.8	2.7
Delay (s)	37.7	29.3	5.3	4.3	46.2	8.4
Level of Service	D	C	A	A	D	A
Approach Delay (s)	35.7		5.1			9.1
Approach LOS	D		A			A

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	75.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↑↑	↗	↙	↑↑
Volume (vph)	147	45	2067	137	42	965
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3438	1538	1719	3438
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	3438	1538	1719	3438
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	167	51	2349	156	48	1097
RTOR Reduction (vph)	0	44	0	46	0	0
Lane Group Flow (vph)	167	7	2349	110	48	1097
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Turn Type		Perm		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	13.2	13.2	63.8	63.8	3.7	71.5
Effective Green, g (s)	13.2	13.2	63.8	63.8	3.7	71.5
Actuated g/C Ratio	0.14	0.14	0.69	0.69	0.04	0.77
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	252	225	2366	1059	69	2652
v/s Ratio Prot	c0.09		c0.68		c0.03	0.32
v/s Ratio Perm		0.00		0.07		
v/c Ratio	0.66	0.03	0.99	0.10	0.70	0.41
Uniform Delay, d1	37.6	34.2	14.2	4.9	43.9	3.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	0.1	16.9	0.2	26.2	0.5
Delay (s)	44.1	34.3	31.1	5.0	70.2	4.0
Level of Service	D	C	C	A	E	A
Approach Delay (s)	41.8		29.5		6.8	
Approach LOS	D		C		A	

Intersection Summary			
HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	92.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

2: Drako Way & US-50

HCM Signalized Intersection Capacity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↑↑	↗	↙	↑↑
Volume (vph)	134	41	2092	125	37	1006
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3438	1538	1719	3438
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	3438	1538	1719	3438
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	152	47	2377	142	42	1143
RTOR Reduction (vph)	0	41	0	37	0	0
Lane Group Flow (vph)	152	6	2377	105	42	1143
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Turn Type		Perm		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	13.3	13.3	74.1	74.1	3.7	81.8
Effective Green, g (s)	13.3	13.3	74.1	74.1	3.7	81.8
Actuated g/C Ratio	0.13	0.13	0.72	0.72	0.04	0.79
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	228	204	2471	1105	62	2728
v/s Ratio Prot	c0.09		c0.69		c0.02	0.33
v/s Ratio Perm		0.00		0.07		
v/c Ratio	0.67	0.03	0.96	0.09	0.68	0.42
Uniform Delay, d1	42.8	39.3	13.2	4.4	49.1	3.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.2	0.1	11.2	0.2	25.5	0.5
Delay (s)	50.0	39.3	24.4	4.5	74.6	3.8
Level of Service	D	D	C	A	E	A
Approach Delay (s)	47.4		23.3			6.3
Approach LOS	D		C			A

Intersection Summary			
HCM Average Control Delay	19.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	103.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX D

PROGRAMMATIC AGREEMENT

**PROGRAMMATIC AGREEMENT AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
BUREAU OF LAND MANAGEMENT,
AND NEVADA STATE HISTORIC PRESERVATION OFFICE,
REGARDING RECONSTRUCTION OF THE V&T RAILWAY**

WHEREAS, the U. S. Department of Transportation, Federal Highway Administration (FHWA) proposes to provide financial assistance to the Nevada Department of Transportation (NDOT) for implementation of the Virginia and Truckee (V&T) Railway Reconstruction Project (the Undertaking), between Carson City and Gold Hill, Nevada; and,

WHEREAS, portions of the Undertaking will occur within a right of way issued by the Bureau of Land Management, Carson Field Office (BLM), or on public lands administered by the BLM; and,

WHEREAS, the FHWA and the BLM, federal agencies responsible for compliance with Section 106 of the National Historic Preservation Act (NHPA), as amended [16 U.S.C. Section 470 (f)], have determined that the Undertaking may have an effect on properties included in or eligible for inclusion in the National Register of Historic Places (NRHP), and have consulted with the Nevada SHPO pursuant to 36 CFR 800 regulations implementing Section 106 of the National Historic Preservation Act; and,

WHEREAS, this Agreement covers planning and construction of the Undertaking including, but not limited to, the railroad grade, depot sites, access roads, crossings, staging areas, lay down areas, and any and all ancillary facilities; and,

WHEREAS, the Advisory Council on Historic Preservation (ACHP), the NDOT, the certified local governments of Carson City and Storey County, and the Nevada Commission for the Reconstruction of the V&T Railway (the Applicant) have been invited to participate in this consultation and to concur in this Programmatic Agreement; and,

WHEREAS, the ACHP, Carson City, and Storey County have declined participation as concurring parties;

NOW, THEREFORE, the Consulting parties agree that the Undertaking shall be administered in accordance with the following stipulations to ensure that historic properties are treated so as to avoid or mitigate effects to the extent practicable, regardless of surface ownership, and to satisfy the FHWA, the BLM, and the SHPO that all aspects of the Undertaking shall be administered in accordance with stipulations that satisfy Section 106 responsibilities.

STIPULATIONS

A. DESCRIPTION OF THE UNDERTAKING

The Virginia & Truckee (V&T) Railroad was constructed in 1869 to serve the booming Comstock mining region and its towns of Virginia City, Gold Hill, and Silver City. Materials were shipped into the area via the railroad, and it was also used to ship ore to mills located along the Carson River. With a decline in mining activities, the V&T Railroad declined and the portion between Carson City and Virginia City eventually stopped running in the late 1930s. Track was removed during World War II.

The overall scope of the Virginia & Truckee Railway Reconstruction Project involves the phased rebuilding of approximately 17-miles of track and infrastructure from Gold Hill to eastern Carson City, Nevada (see Attachment A). When completed and linked to the existing 2-mile long railroad

running from Virginia City to Gold Hill (see Attachment B), the railroad will provide a 19-mile long tourist attraction to be enjoyed by visitors and Nevada residents alike.

B. AREA OF POTENTIAL EFFECT

1. An initial Area of Potential Effect (APE) shall be defined as a 200-foot wide corridor centered on the existing railroad grade. This is coincident with the area inventoried by NDOT in 2000 and documented in a report entitled "An Archaeological Survey of the Virginia and Truckee Railroad Grade from Empire to Gold Hill, Nevada" (NDOT Survey).
2. A phase-specific APE shall be defined that includes all potential direct and indirect effects to cultural resources from any activities associated with that phase of the Undertaking. When defining the phase-specific APE, the following matters shall be taken into consideration:
 - a. A 100-foot wide corridor centered on construction-related access roads leading to the railroad grade corridor shall be included in the APE.
 - b. Staging areas, equipment storage areas, material lay down areas, depot areas, and maintenance areas shall be included in the APE. These APE elements shall incorporate the area itself plus a buffer at least 100 feet wide around the perimeter of the area.
 - c. Should a project-related drainage improvement extend outside limits of the railroad grade corridor, then that extension shall be included in the APE. A 100-foot wide corridor centered on the drainage improvement extension will be so included.
 - d. The APE shall be extended outward in areas where new or substantially modified cut slopes, fill slopes, surface clearings, and/or other improvements would be clearly visible from nearby properties potentially eligible for listing on the National Register of Historic Places based on significance criteria A, B, or C. The extent of any such "bulges" will depend on the magnitude and visibility of the proposed improvement. Such bulges shall extend no further than one mile from the limit of the proposed improvement.
 - e. All areas where surface disturbance is proposed in association with the Undertaking will be included in the APE, regardless of surface ownership.
3. The FHWA and the BLM shall consult with the SHPO regarding the definition of a phase-specific APE.
4. At the discretion of the FHWA and the BLM, a phase-specific APE may be amended. Areas included by amendment will be addressed in a manner consistent with terms of this Agreement.

C. AGENCY RESPONSIBILITIES

1. The parties to this Agreement agree that the FHWA will be the Lead Federal Agency responsible for implementing the Agreement. In that capacity, the FHWA shall be responsible for ensuring that the consulting parties carry out their individual responsibilities; overseeing all cultural resources work; assembling all submissions to the SHPO, including reports, determinations of eligibility and effect, and treatment and data recovery plans; and for seeking SHPO concurrence in all compliance matters.
2. The FHWA, in consultation with the BLM, shall involve the public, identify other consulting parties and Tribes pursuant to 36 CFR 800.3(e) and (f), and involve them, as appropriate, in all activities associated with the Undertaking. FHWA, in consultation with BLM, shall consult with

Tribes to identify properties of religious and cultural importance located on lands that may be affected by the Undertaking. NDOT may assist FHWA in this activity.

3. The BLM shall make all decisions regarding activities that occur on BLM lands including, but not limited to, determining limits of the APE, inventory and resource recordation standards, determining the adequacy of inventories, developing National Register eligibility evaluations, assessing project effects, and determining the need for and nature of required treatment. The FHWA shall assume similar responsibilities for all non-BLM portions of the project area.
4. Federal funding provided by the FHWA will be administered through NDOT as a Stewardship Project. In such a project, the Applicant (a local governmental entity) assumes an increased role in the inception, coordination, and conduct of cultural resource activities. A Cultural Resource Consultant (CRC) often aids them in this effort. With regard to the Undertaking, the FHWA, the BLM, and the SHPO recognize that the applicant and their CRC will work closely with the FHWA and the BLM to determine phase-specific APE boundaries, determine the need for and extent of inventories, make determinations of eligibility, make determinations of effect, determine treatment needs, facilitate the coordination of cultural resource activities, distribute information and/or reports to reviewers, and other activities agreed upon by the signatories of this Agreement.
5. Any reference to ACHP regulation herein will be to 36 CFR 800 (effective August 5, 2004).

D. IDENTIFICATION

The NDOT prepared an inventory in 2000 entitled "An Archaeological Survey of the Virginia and Truckee Railroad Grade from Empire to Gold Hill, Nevada" (NDOT Survey). The NDOT Survey examined a 200-foot wide corridor centered on the existing railroad grade, a similar corridor along an alternate alignment in the Mound House area, and two alternate depot locations. The NDOT Survey also contained results of an archives search, a discussion of the environmental setting, and a historic context that addressed prehistoric, ethnographic, and historic periods.

1. The need for additional inventory level activities shall be assessed on a phase-specific basis. Factors taken into consideration when determining the need for additional inventory will include the following:
 - a. An archives search will be prepared for the phase-specific APE. This activity is intended to update the NDOT Survey. As necessary, the historic context contained in the NDOT Survey will be expanded to incorporate the types of resources encountered in a phase-specific inventory. Based on results of the archives search, the FHWA and BLM, in consultation with the SHPO, will determine phase-specific inventory needs.
 - b. All areas within a phase-specific APE that have not been inventoried previously will be the subject of an intensive pedestrian archaeological inventory conducted to current BLM and SHPO standards.
 - c. The need for an architectural inventory will be determined based on an examination of the APE, county assessor's data, and site reviews. The Applicant or their CRC will prepare documentation sufficient to determine the need for and extent of any such inventory. Based on review of that documentation, the FHWA and BLM, in consultation with the SHPO, will determine phase-specific inventory needs. If it is determined that such an inventory is needed, it will be conducted to current SHPO standards.
 - d. "Bulges" in the APE reflect areas in which historic property may experience visual impacts to integrity of setting. The phase-specific archives search will serve as the basis for determining whether any such properties are present within any given APE "bulge."

- e. Identification efforts will be completed regardless of ownership (public or private) of the lands involved and the Applicant shall be responsible for gaining access to privately held lands. The Applicant's failure to gain access to private lands will result in a determination of adverse effect for the Undertaking.
2. Documentation for previously recorded sites revisited during an inventory effort will be updated.
 3. Isolated artifacts and features will not be given site numbers. They will be assigned a sequential number, their location will be noted on a map, and they will be included in a table in the text of the report. Nevada short forms may be used to document non-diagnostic resources. A non-diagnostic resource may be a prehistoric or historic period resource that lacks depositional, temporal, or structural physical content such that its data content can be captured during initial recordation. All other resources will be recorded on IMACS long forms.
 4. Non-linear sites extending out of a prescribed survey area will be examined in their entirety with the exception of very large sites (greater than four acres in area) such as town sites, mining complexes, continuous stream terrace sites, or prehistoric quarries.
 5. Linear resources (i.e., road, trail, ditch, etc.) crossing and extending outside the APE will be divided into three groups:
 - a. Roads or linear features that are not mentioned in BLM Field Office records or included on General Land Office maps, that do not contain associated features or dateable artifacts, or that have lost all integrity through extensive blading. Linear features that fall into this category will not be recorded.
 - b. Roads, linear features or other resources mentioned on General Land Office maps but which are not associated with features or dateable artifacts and do not appear to be significant on the basis of known archival data will be treated as "isolated road segments." Linear features that fall into this category will be recorded in tabular form. Collected data will include at least two (2) GPS points, one at each end of the linear feature within the APE.
 - c. Roads or linear features mentioned on General Land Office maps (especially named roads) or known from other archival data to be potentially significant, or which have associated features or dateable artifacts will be recorded on short or long site forms depending on the complexity of the site.
 6. No artifact will be field collected during inventory unless it is an unusual artifact with individual intrinsic value. Collection from federal lands shall not occur without prior permission by the BLM. Any collected items will be cataloged and curated in an approved Nevada facility, in a manner consistent with Stipulation M(6) of this Agreement.

E. EVALUATION

1. The FHWA and the BLM, in consultation with the SHPO, shall ensure that all cultural resources located within the phase-specific APE are evaluated for eligibility to the National Register of Historic Places prior to the initiation of activities that may affect those cultural properties.
2. Portions of the Undertaking are located within the Virginia City National Historic Landmark. The state recognized Comstock State Historic District includes the Landmark and some additional areas. Finally, some portions of the Undertaking lie outside the boundaries of the Landmark and the state's historic district. Some cultural resources fall discretely into one of these spatial units.

Others, especially linear resources, can extend across one, two, or all three spatial units. For purposes of this Agreement, the following conditions shall apply:

- a. When a historic period resource is located within the Virginia City National Historic Landmark, emphasis will be placed on determining whether that resource is a contributing element to the Landmark at large.
 - b. When a historic period resource is located outside the Virginia City National Historic Landmark, emphasis will be placed on determining whether the resource is eligible to the National Register of Historic Places, individually or as part of a district.
 - c. When a linear historic period resource is located, parts of which are within and outside of the Virginia City National Historic Landmark, a determination will be made as to whether the resource relates to activities centrally associated with the Landmark. If so, emphasis will be placed on determining whether that resource is a contributing element to the Landmark at large. If such a determination cannot be made, emphasis will be placed on determining whether the resource is individually eligible to the National Register of Historic Places.
 - d. Regardless of where a prehistoric period resource is located, emphasis will be placed on determining whether the resource is eligible to the National Register of Historic Places, individually or as part of a district.
3. To the extent practicable, eligibility determinations will be based on inventory information. When the determination of a site's National Register eligibility is dependent upon intact subsurface deposits and eligibility cannot be determined without testing, auger and shovel tests may be employed during the inventory.
 4. If the information gathered during inventory (including probe data) is inadequate to determine eligibility, the Applicant, through its CRC may conduct limited subsurface testing, or employ other evaluative techniques, to determine eligibility. Subject to approval by the FHWA (non-BLM lands) or the BLM (agency-administered lands), and in consultation with the SHPO, evaluative testing is intended to provide the minimum data necessary to make final evaluations of eligibility, and to devise treatment options responsive to the information potential of the property. Any such testing shall be limited to disturbing no more than 20% of the surface area of the resource.
 5. Any items collected during site probing or subsurface testing will be cataloged and curated in an approved Nevada facility, in a manner consistent with Stipulation M(6) of this Agreement.

F. FHWA - SHPO CONSULTATION

1. Consultation regarding project effects is most likely to occur on a phase-specific basis. The FHWA shall be responsible for the submission of phase-specific consultation packages to the SHPO. Items to be addressed in a phase-specific consultation submittal include the following:
 - a. Description of all work scheduled to be completed as part of the phase, including the identification of access roads, staging areas, material and equipment storage areas, and any other disturbance areas incidental to that phase of the project.
 - b. Phase-specific APE delineation, including justification.
 - c. A listing of inventory work that has been completed that relates to that phase of the project.

- d. Copies of inventory reports not previously reviewed by the SHPO must be included as a part of the submittal.
 - e. The BLM shall make determinations of eligibility for all cultural resources located on agency-administered lands within the APE, to the extent that those resources have not been evaluated previously. The FHWA shall make determinations of eligibility for all cultural resources located on non-BLM administered lands within the APE, to the extent that those resources have not been evaluated previously.
 - f. A summary of contacts with the public, consulting parties, and Tribes carried out by the FHWA and the BLM as part of the phase-specific work.
 - g. The BLM shall make a determination of effect for portions of the APE located on agency-administered lands. The FHWA shall make a determination of effect for portions of the APE located on non-BLM administered lands.
 - h. As necessary, the FHWA and the BLM shall include a treatment plan, the purpose of which is to address project related impacts to historic properties.
2. The FHWA, the BLM, and the SHPO shall provide a copy of all consultation related correspondence to the other signatories.

G. TREATMENT OF HISTORIC PROPERTIES

1. To the extent practicable, the FHWA and the BLM, in consultation with the SHPO, will ensure that the Applicant avoids effects to historic properties through project design, redesign, relocation of facilities, or by other means.
2. When avoidance is not feasible, the FHWA and the BLM, in consultation with the SHPO, the Applicant, identified Tribes, and interested persons, shall ensure that the Applicant develops an appropriate treatment or data recovery plan designed to lessen or mitigate project-related effects to historic properties.
3. For properties eligible under Criteria (a) through (c) (36 CFR 60.4), mitigation other than data recovery may be considered in a treatment plan. That mitigation may include, but is not limited to, activities such as HABS/HAER recordation, oral histories, historic markers, exhibits, and/or interpretive brochures or publications.
4. When data recovery is proposed, the FHWA and the BLM, in consultation with the SHPO, shall ensure that a data recovery plan is developed and implemented that is consistent with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 CFR 44716-37) and *Treatment of Historic Properties: A Handbook* (ACHP 1980).
5. If engineering related historic properties located within the Virginia City National Historic Landmark that contribute to the significance of the Landmark will be impacted, the FHWA and BLM shall ensure that the SHPO and the National Park Service are consulted to determine the nature and level of treatment required. Those requirements will be incorporated into the phase-specific treatment plan.
6. Historic properties within the APE but outside of disturbance areas that are potentially eligible under criteria A, B, and/or C will be identified based on a review of existing literature. Where possible, visual impacts to identified properties will be mitigated to BLM Visual Resource Management (VRM) Class II standards (substantially unnoticeable). If this standard is achieved,

the effect will not be considered adverse. Treatment measures will be identified in the phase-specific treatment plan.

7. Upon completion of the consultation process, the FHWA and the BLM shall ensure that the Applicant, through its CRC, implements fieldwork portions of the treatment plan prior to initiating any activities that may affect historic properties scheduled for treatment.

H. REPORTING

1. The FHWA and the BLM shall ensure that the Applicant, through the CRC, produces all necessary reports. Several types of reports may be produced as a result of the Undertaking: cultural resource inventory reports, testing plans, discovery plans, and reports to document discovery situations, treatment plans, and reports that document results of treatment activities.
2. The Applicant shall prepare phase-specific treatment reports, and a summary report at the end of the Undertaking. A draft of each treatment report shall be provided to the FHWA, the BLM, and SHPO for their technical review. Reviewers shall have a 30-day period in which to provide comments on the draft report. FHWA may, at its discretion, provide a copy of the treatment plan to other agencies or consulting parties for their review. The FHWA and BLM will ensure that reviewer's comments are incorporated into the treatment report(s), as appropriate. The FHWA and BLM will determine the number of final treatment reports prepared for distribution.
3. The FHWA and BLM shall ensure that reports of mitigation efforts are completed in a timely manner and conform to the Department of Interior's Formal Standards for Final Reports of Data Recovery Program (42 CFR 5377-79).
4. The FHWA shall ensure that all final reports resulting from actions pursuant to this Agreement are provided to consulting parties, Tribes, and interested parties. All such reports shall be prepared consistent with contemporary professional standards, and the Secretary's Standards for Final Reports of Data Recovery Programs (48FR 44716-44740).

I. MONITORING

1. The FHWA, the BLM, and the SHPO may monitor activities carried out pursuant to this Agreement. The FHWA, the BLM, and SHPO may coordinate their monitoring and review responsibilities.
2. The Applicant's contractor and the NDOT will provide construction management during each phase of the Undertaking. Prior to initiating any activities within a phase-specific APE, the Applicant shall provide the FHWA, the BLM, the NDOT, and the contractor with a list of persons empowered to halt construction activities in a discovery situation, and the name of those responsible for notifying the FHWA and the BLM of any such discovery. Persons empowered to halt construction will be advised by the FHWA and the BLM as to what conditions would constitute a discovery and what areas have the highest sensitivity for such discoveries. The FHWA and the BLM shall ensure that persons empowered to halt construction are provided sufficient training to recognize resources and conditions that would constitute a discovery. If a discovery situation is determined to exist, compliance with Stipulation K of this Agreement shall be necessary.
3. A phase-specific treatment plan may identify the need for location specific monitoring. Location specific monitoring may take the following forms.
 - a. The placement of physical barriers (using flagging tape, paint, barriers and other forms) intended to protect a resource. Any such barrier shall be routinely monitored and repaired as

necessary. The condition of the resource also shall be monitored. If it is determined that the physical barriers are not providing sufficient protection, The FHWA or the BLM, depending on land status, shall ensure that work within 100 feet of the resource is halted, and that an appropriate treatment plan is developed and implemented.

- b. The presence of a monitor at specific locations during specified construction activities. It is understood by all parties to this Agreement that the monitor is empowered to stop all work at the specified location. No construction activities shall occur at the specified location unless the monitor is present. The designated monitor will be advised by the FHWA or the BLM, depending on land status, as to what conditions would justify issuance of a stop work order. If such an order is issued to the contractor, the monitor shall contact the FHWA or the BLM immediately. The FHWA or the BLM, depending on land status, shall ensure that work within 100 feet of the resource is halted, and that an appropriate treatment plan is developed and implemented.
4. Details regarding the location and type of monitoring activities will be provided as part of the phase-specific treatment plan. Results of monitoring activities will be presented as part of the phase-specific treatment report.

J. NOTICES TO PROCEED

1. Notices to Proceed (NTP) for activities on public lands will be issued by the BLM. NTPs for activities on non-BLM administered lands will be issued by the FHWA. An NTP will be issued to the Applicant for individual phases of the Undertaking under the following conditions:
 - a. The appropriate agency and the SHPO have determined that there are no cultural resources within the APE for the construction segment; or,
 - b. The appropriate agency and the SHPO have determined that there are no historic properties within the APE for the construction segment; or,
 - c. The appropriate agency, after consulting with the SHPO and interested persons, has implemented an adequate treatment plan for the construction segment; and,
 - 1) The fieldwork phase of the treatment plan has been completed;
 - 2) The appropriate agency has accepted a summary description of the fieldwork performed and a reporting schedule for that work; and,
 - 3) The Applicant has provided the appropriate agency with an assurance that sufficient funds have been allocated for post-fieldwork costs of the treatment plan.

K. DISCOVERY SITUATIONS

1. When previously unknown cultural resources are discovered, or known historic properties are affected in an unanticipated manner, Undertaking related activities within 100 feet of the discovery will cease immediately and the Applicant shall notify the appropriate land-managing agency (BLM or FHWA).
2. The contacted agency shall notify the SHPO, and shall consider their comments regarding the discovery. Within two working days of the discovery, the contacted agency shall notify the Applicant, the SHPO, identified Tribes, and identified interested persons of its decision to either allow Undertaking related activities to proceed or to require mitigation.

3. Communication regarding discovery situations can be facilitated through alternative means (fax transmittals, e-mail, telephone, and hand delivery of correspondence). Copies of original written documentation shall be included in the final report documenting the discovery situation.
4. If, in consultation with the SHPO, the contacted agency determines that mitigation is appropriate, that agency shall solicit comments from the SHPO regarding appropriate mitigating measures. The SHPO and other interested persons, as appropriate, will be allowed two working days to provide the contacted agency with comments to be considered when the agency makes a decision on the extent of mitigative efforts. The agency will determine the mitigation required within seven working days of notifying the Applicant of the need for mitigation. The agency shall notify the SHPO, identified Tribes, and interested persons of its decision and shall ensure that the mitigative actions are implemented.
5. The FHWA and the BLM shall ensure that reports of mitigation efforts for discovery situations are completed in a timely manner and conform to the Department of Interior's Formal Standards for Final Reports of Data Recovery Program (42 CFR 5377-79). Drafts of such reports shall be submitted to the SHPO for a 30-day review period. Final reports shall be submitted to the SHPO, land managing entities, and interested persons for informational purposes.
6. Applicant activities in the area of the discovery shall not resume until the Applicant is notified by the FHWA or the BLM that activities can resume.

L. HUMAN REMAINS

1. Human remains and associated artifacts may be discovered during construction or during controlled archaeological excavations. All parties to this Agreement shall ensure that any human remains, grave goods, items of cultural patrimony, and sacred objects encountered during the Undertaking are treated with the respect due such material.
2. If a contractor or a CRC encounters what appears to be human remains during construction or other project related activities, the contractor's designated representative shall halt all activity in the immediate vicinity of the discovery, and direct project related activities at least 200 feet away in all directions of the discovery.
 - a. The contractor's designated representative shall immediately notify the FHWA and the BLM of the find if the suspected burial is found on public land. If the find is on private land, the contractor's designated representative shall notify the FHWA and the SHPO.
 - b. The BLM and/or the FHWA shall inform and work with the county coroner (or another officer acting in that capacity) for the county in which the discovery was made.
 - c. Once the coroner has determined that the discovery is not a crime scene, the FHWA and/or the BLM shall comply with provisions of 43 CFR 10 if the remains are located on public land, and NRS 383 if the remains are on private or state administered land.
 - d. The human remains will be secured and protected until such time as the contacted agency has approved their planned disposition in accordance with applicable local, state, and Federal statutes. It may be necessary for the Applicant to provide 24-hour onsite security of such discoveries, as directed by the land managing entity.

M. OTHER CONSIDERATIONS

1. The FHWA and the BLM shall ensure that the Applicant and all of its personnel and contractors carry out all stipulations of this Agreement.

2. The FHWA and the BLM shall ensure that historic, architectural, and archaeological work conducted pursuant to this Agreement is carried out by, or under the direct supervision of persons meeting qualifications set forth in the Secretary of the Interior's Professional Qualification Standards (36 CFR 61) and who have been permitted to conduct such work. The CRC will secure necessary state permits for cultural resources work on state and private lands, and a permit from the BLM for any work on agency administered lands.
3. Stipulations I, K, and L of this Agreement dealing with monitoring, discoveries, and human remains will be included or referenced in any construction plan developed by the Applicant for the Undertaking. Project Managers will brief field personnel on stipulation requirements. All personnel involved in construction activities associated with the Undertaking will be instructed on site avoidance and protection measures, including information on statutes protecting cultural resources and how to identify cultural resources that would constitute a discovery.
4. The Applicant, in cooperation with the FHWA, the BLM, and the SHPO, shall ensure that all its personnel, and all the personnel of its contractors, are directed not to engage in the illegal collection of historic and prehistoric materials. The Applicant shall cooperate with the FHWA and the BLM to ensure compliance with the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470) on public lands and with applicable state law for state and private lands (NRS 381).
5. The Applicant shall bear the expense of identification, evaluation, and treatment of all cultural resource properties directly or indirectly affected by an Applicant-related activity. Such costs shall include, but not be limited to, pre-field planning, fieldwork, post-fieldwork analysis, research and report preparation, interim and summary report preparation, and the costs associated with the curation of project documentation and artifact collections.
6. All records, photographs, maps, field notes, artifacts, and other materials collected or developed during any identification, evaluation, or treatment activities conducted on land administered by a state or federal agency will be curated in a Nevada facility approved by the FHWA and the BLM at the time of the final report associated with that activity is accepted by the agency and are curated in accordance with 36 CFR 79. An exception to this stipulation would include collections (i.e., human remains, associated and unassociated funerary objects, sacred objects, and objects of cultural patrimony) that may be repatriated in accordance with provisions of the NAGPRA and applicable state laws. The Applicants' CRC will provide a written agreement with an approved curation facility for the curation of collections and associated records prior to treatment of historic properties. The CRC will provide copies of the original field documentation and recordation documents for curated materials. All costs of curation will be borne by the Applicant.
7. Records, photographs, maps, field notes, artifacts, and other materials collected or developed during any identification, evaluation, or treatment activities conducted on private land will, at private land owner's request, be returned to the private land owner. Until its return, the collection will be maintained in accordance with 36 CFR 79. At their discretion, the private land owner may transfer ownership of the records, photographs, maps, field notes, artifacts, and other materials collected or developed during any identification, evaluation, or treatment activities to an approved Nevada curation facility. In such cases, the material will be curated in accordance to conditions outlined in Stipulation M(6) of this Agreement.

N. TIME FRAMES

1. Unless stated otherwise elsewhere in this Agreement, the FHWA and the BLM shall review and comment on any draft report submitted by the Applicant within 30 calendar days of receipt.

2. Unless stated otherwise elsewhere in this Agreement, the FHWA shall submit the final consultation material to the SHPO within 30 calendar days of receipt from the Applicant.
3. Unless stated otherwise elsewhere in this Agreement, the SHPO shall respond to the FHWA within 30 calendar days of receipt from the FHWA.
4. Concurrent with SHPO review, the FHWA shall submit the results of identification and evaluation efforts, including discovery situations and treatment plans, to Tribes and interested parties for a 30 calendar-day review and comment period.
5. If a consulting party, Tribe, or interested party fails to respond to the FHWA within the 30 calendar day review period, the FHWA may presume concurrence with the findings and recommendations as detailed in the submission and shall proceed accordingly.

O. DISPUTE RESOLUTION

1. If any party to this Agreement, a Tribe, or an interested party disagrees regarding the National Register eligibility of a resource, the FHWA shall notify all parties of the dispute and shall seek to resolve the dispute among the parties. If the dispute cannot be resolved, the FHWA shall seek a formal determination of eligibility from the Keeper of the National Register in accordance with 36 CFR 800.4(c)(2). The Keeper's determination shall be considered final. If a Tribe that attaches religious and cultural significance to a property does not agree with an eligibility determination, it may ask the ACHP to request the agency to obtain a formal determination of eligibility.
2. If any party to this Agreement, a Tribe, or an interested party disagrees regarding the extent or nature of discovery situation activities, the FHWA shall notify all parties of the dispute and shall seek to resolve the dispute among the parties. If the dispute cannot be resolved, the FHWA, in consultation with the BLM and the SHPO, will request assistance from the ACHP in resolving the issue.
3. If any party to this Agreement, a Tribe, or an interested party disagrees regarding the extent or nature of activities associated with a Native American burial on federally administered land, the FHWA shall notify all parties of the dispute and shall seek to resolve the dispute among the parties. If the dispute cannot be resolved, the FHWA, in consultation with the BLM and the SHPO, will request assistance from the NAGPRA Review Committee in resolving the issue.
4. If any party to this Agreement objects to any other activity carried out under this Agreement, that party shall notify FHWA of their objection in writing. The FHWA will consult with the objecting party and other parties to the Agreement in an attempt to resolve the issue. If the issue cannot be resolved, the FHWA will request assistance of the ACHP in resolving the issue.
5. All signatories acknowledge that time is of the essence when resolving disputes. The following stipulations shall apply during the resolution of all disputes.
 - a. The Applicant may continue all approved actions under this Agreement, including those subject to dispute, unless directed otherwise by the FHWA or the BLM.
 - b. Consultation between the objecting and other parties shall be by the most expeditious means available, including telephone, e-mail, or fax.
 - c. If the consulted party(s) fails to respond within 10 calendar days of the receipt of a request, the FHWA may presume concurrence with the FHWA's findings and recommendations and proceed accordingly.

- d. Any comment provided by a consulted party will be taken into account by the FHWA, and the FHWA will notify the consulted party, the BLM, the SHPO, and objecting party of its resolution of the issue.

P. AMENDMENT

- 1. Any party to this Agreement may request that it be amended, whereupon the parties will consult to consider such amendment.

Q. TERMINATION

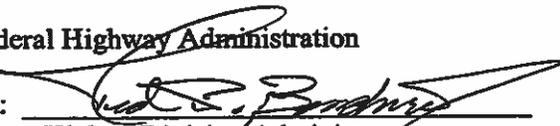
- 1. Any party to this Agreement may terminate the Agreement by providing thirty days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination.

R. EXECUTION

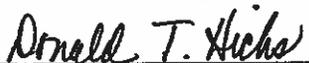
- 1. Execution and implementation of this Agreement evidences that the parties have satisfied their Section 106 responsibilities for all actions associated with the Undertaking.
- 2. In the event that the Parties do not carry out requirements of this Agreement, or it is terminated, the FHWA and the BLM will comply with provisions of 36 CFR 800 with regard to individual actions associated with the Undertaking.
- 3. Other concurring parties may become a party to this Agreement. Any party wanting to do so must contact the FHWA. The FHWA, in consultation with the BLM and the SHPO, shall review and, as appropriate, act on the party's request.
- 4. This Agreement shall become effective on the date of the last signature below, and shall remain in effect until terminated as provided in Stipulation Q, until the Undertaking is completed, or until ten years from the date of the last signature below, whichever occurs first.

SIGNATORIES:

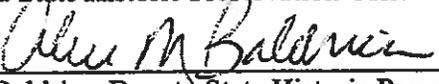
Federal Highway Administration

By:  Date: 1-18-2006
Foe Susan Klekar, Division Administrator

Bureau of Land Management, Carson City Field Office

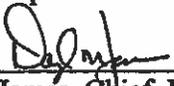
By:  Date: 1-18-2006
 Don Hicks, Field Manager

Nevada State Historic Preservation Office

By:  Date: 1-24-2006
 Alice Baldrice, Deputy State Historic Preservation Officer

CONCURRENCE:

Nevada Department of Transportation

By:  Date: 1/18/06
Daryl N. James, Chief, Environmental Services Division

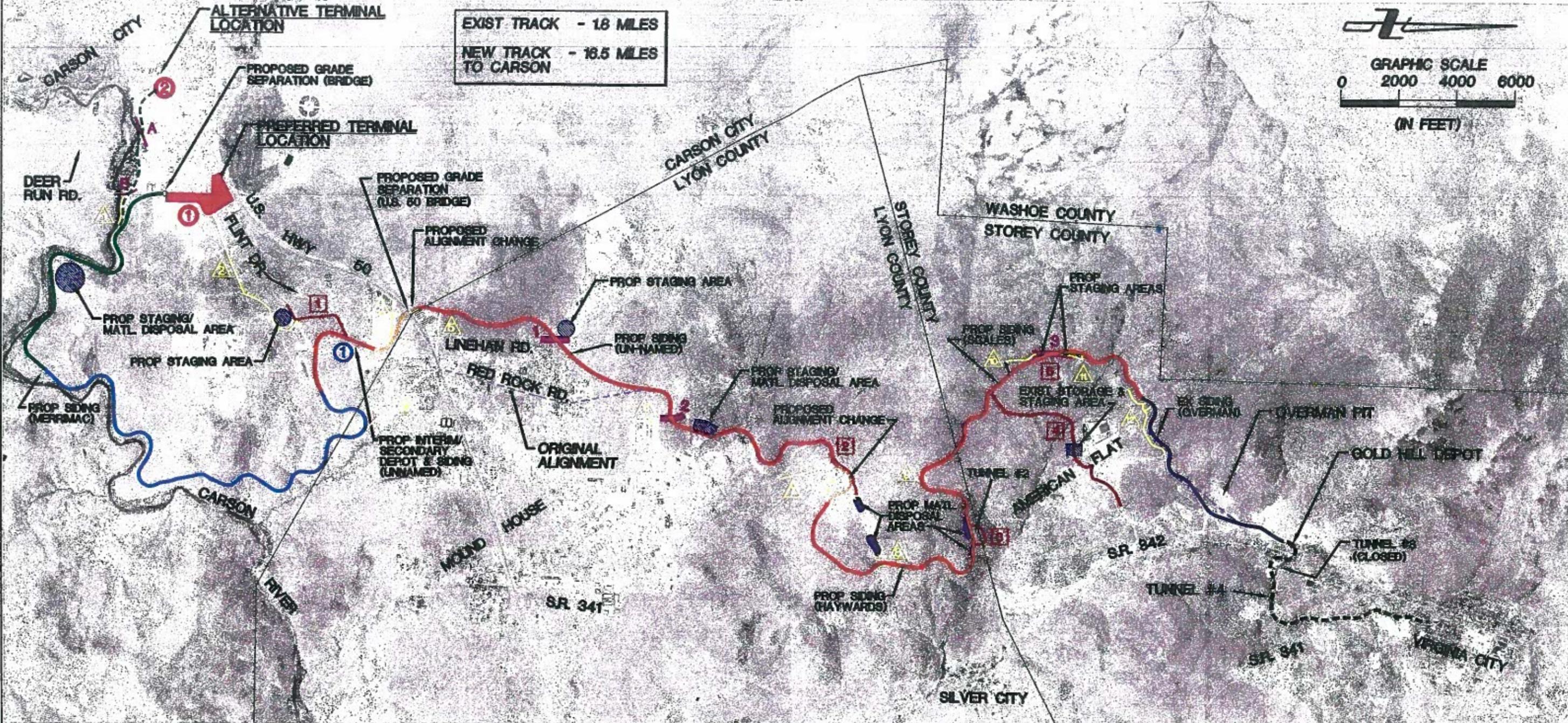
Nevada Commission for the Reconstruction of the V&T Railway

By:  Date: 1/25/06
Bob Hadfield, Chairman
"Bob"

ATTACHMENT A
PROJECT AREA MAP

V & T RAILWAY RECONSTRUCTION - PROJECT PHASING and SCOPE

JANUARY, 2006



CAPITAL ENGINEERING
 P.O. Box 5750
 Carson City, NV 89702
 (775) 682-6630

ATTACHMENT B
PROJECT COMPONENTS AND PROPOSED PROJECT SCHEDULE

PROJECT COMPONENTS

Railroad Grade Reconstruction – To the extent possible, the railway will be reconstructed atop the original grade. Reconstruction will occur in such a manner as to minimize new surface disturbance. It should be possible to reconstruct the remainder of the grade using a narrower cross section than was required during Phase 1.

Frehner Pit Alignment Change - An alignment change will be required in the vicinity of the Frehner Pit in Lyon County. This change is needed to avoid conflicts between the railroad and ongoing aggregate extraction/processing operations.

Hill Top Pit Alignment Change - An alignment change is also expected to be required in the location of the Hill Top Pit near the Carson City/Lyon County boundary.

Bridge Construction – Reestablishment of the V&T Railroad will require construction of a bridge over US 50 near the Carson City and Lyon County boundary.

Alternative Carson City Primary Depot Site Evaluation – Two possible depot locations have been identified that the Commission feels should be evaluated in detail. Each location will be studied in detail, including needed grade realignments, access roads, intersection improvements, parking areas, and depot related uses. The goal of those studies will be to identify the terminal location that best meets the project's purpose and need.

Interim and possible Secondary Depot Site Evaluation - With the anticipated project phasing, the Commission believes that a temporary depot may be required in the vicinity of the U.S. 50 crossing near the Carson City/Lyon County boundary. While this depot is expected to be temporary and of limited size, its function could be transformed to serve as a secondary or "Whistle Stop" depot when the full railroad is reconstructed.

Access Roads & Staging Areas - Temporary and permanent access roads and construction staging areas will be required. Access and staging areas will be identified on a phase-specific basis.

Sidings - Sidings will be constructed adjacent to the mainline. Sidings are expected to be about 600-feet in length and will be constructed adjacent to the railroad mainline within a common roadbed. The sidings will be constructed with a nominal 15-foot separation between centerlines of the siding and mainline. Anticipated siding locations include the "Scales" area in American Flat, near Linehan Road, and near the Carson City/Lyon County Line. In addition, "run-around" tracks will be provided near the end of each construction phase to allow locomotives to switch ends of the train.

PROPOSED PROJECT SCHEDULE

The project will be constructed over several phases. Phase 1, or the Overman Pit Project, provided for the 1.4-mile extension of the grade from Gold Hill towards Carson City. This phase is currently under construction and will be complete in September 2005. The remaining 15.6-mile reconstruction will be constructed in at least 3 phases. A summary of the individual reconstruction phases is provided below, along with proposed completion dates:

Phase 1 - Overman Pit extension	(1.4-miles):	September 2005
Phase 2 – U.S. 50 extension	(9.3-miles):	late 2006-2007
Phase 3 - Carson River extension	(3.7-miles):	late 2007-2008
Phase 4a - Carson City depot extension	(2.6-miles):	late 2008-2009
Phase 4b - Carson City depot construction	(2.6-miles):	late 2008-2009

January 26, 2006

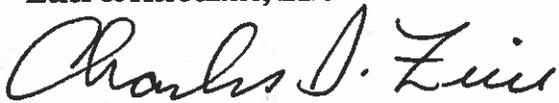
Mr. Ted Bendure
Federal Highways Administration
Nevada Division
705 North Plaza Street, Suite 220
Carson City, Nevada 89701

Subject: Executed V&T Project Programmatic Agreement

Dear Mr. Bendure:

Attached, please find the completely executed programmatic agreement for the V&T Reconstruction Project. This copy contains all of the "wet" signatures. By this transmittal, I am also providing copies of the signed agreement to all of the signatories and other interested parties.

Sincerely,
Zeier & Associates, LLC



Charles D. Zeier
Principal Researcher

cc: Charles Pope, BLM, Carson City
Pat Barker, BLM, NSO
Alice Baldrice, NV SHPO
Rebecca Palmer, NV SHPO
Daryl James, NDOT
Hal Turner, NDOT
Bob Hadfield, V&T Railway Commission

APPENDIX E

MARCH 31, 2010 CONCURRENCE LETTER
FROM SHPO TO FHWA



JIM GIBBONS
Governor

MICHAEL E. FISCHER
Department Director

STATE OF NEVADA
DEPARTMENT OF CULTURAL AFFAIRS

State Historic Preservation Office
100 N. Stewart Street
Carson City, Nevada 89701
(775) 684-3448 • Fax (775) 684-3442
www.nvshpo.org

RONALD M. JAMES
State Historic Preservation Officer

March 31, 2010

Abdelmoez Abdalla
Environmental Program Manager
Federal Highway Administration
705 North Plaza Street Suite 220
Carson City NV 89701

RE: Reconstruction of the Virginia and Truckee Railway, H1 Line, Drako Way Depot, Balloon Track, Interim Station, Carson City (Project STP-0029(004) EA: 72048) (Undertaking #2010-318).

Dear Mr. Abdalla:

The Nevada State Historic Preservation Office (SHPO) reviewed the subject portions of the undertaking. The SHPO concurs with the Federal Highway Administration's determination that following sites are not eligible for the National Register of Historic Places under any of the Secretary's criteria or are non-contributing elements:

26Or306 CRNV-03-1458	CrNV-03-1411	CrNV-03-1412
CrNV-03-6985	CrNV-03-6986	CrNV-03-6987
CrNV-03-7432	Modified house in H1 line	721

The SHPO concurs with the Federal Highway Administration's determination that the following historic property is eligible for the National Register of Historic Places under criterion c and the elements of the Virginia and Truckee Railroad contribute to the property's National Register eligibility:

CrNV-03-6984	CrNV-03-4412	CrNV-03-4412 Feature 206
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The SHPO concurs with the Federal Highway Administration's determination that the effect of the project for the segments (H1 Line, Drako Way Depot, Balloon Track, Interim Station) is adequately described on pages 5 and 6 of your letter of February 26, 2010 (received on March 1, 2010). The SHPO concurs with the Federal Highway Administration's determination that the treatment plans described in your letter (pages 6-7) are consistent with the existing Programmatic Agreement for the subject undertaking.

Abdelmoez Abdalla
March 31, 2010
Page 2 of 2

If you have any questions concerning this correspondence, please feel free to call Rebecca Palmer at (775) 684-3443 or by e-mail at Rebecca.Palmer@nevadaculture.org.

Sincerely,

A handwritten signature in black ink, appearing to read "Alice M. Baldrice". The signature is fluid and cursive, with a long horizontal stroke at the end.

Alice M. Baldrice, Deputy
State Historic Preservation Officer

APPENDIX F

AGENCY COORDINATION
AND
PUBLIC INVOLVEMENT

FEDERAL, STATE, AND LOCAL AGENCY
DISTRIBUTION LIST

SUSAN KLEKAR DIVISION ADMINISTRATOR
FEDERAL HIGHWAY ADMINISTRATION
705 NORTH PLAZA STREET STE 220
CARSON CITY NV 89701

REGIONAL DIRECTOR
FEDERAL EMERGENCY MANAGEMENT AGENCY
1111 BROADWAY STE 1200
OAKLAND CA 94607-4052

US DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
1201 TERMINAL WAY #222
RENO NV 89502

US DEPARTMENT OF THE INTERIOR
REGIONAL ENVIRONMENTAL OFFICER
PACIFIC SOUTHWEST REGION
1111 JACKSON ST STE 735
OAKLAND CA 94607-4807

US DEPARTMENT OF AGRICULTURE
REGIONAL FORESTER
FOREST SERVICE REGION 4
324 25TH STREET
OGDEN UT 84401

US DEPARTMENT OF THE INTERIOR
REGIONAL DIRECTOR REGION 1
FISH AND WILDLIFE SERVICE
911 NE 11TH AVENUE
PORTLAND OR 97232-4181

UNITED STATES FOREST SERVICE
1200 FRANKLIN WAY
SPARKS NV 89431

US GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
2730 N DEER RUN ROAD
CARSON CITY NV 89701

BUREAU OF LAND MANAGEMENT
PO BOX 12000
RENO NV 89520

US DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
1111 JACKSON ST STE 700
OAKLAND CA 94607-4807

BUREAU OF LAND MANAGEMENT
CARSON CITY DISTRICT
5665 MORGAN MILL ROAD
CARSON CITY NV 89701

BUREAU OF INDIAN AFFAIRS
WESTERN NEVADA AGENCY
311 EAST WASHINGTON ST
CARSON CITY NV 89701-4065

US ARMY CORPS OF ENGINEERS
SECTION CHIEF
1325 J STREET ROOM 1480
SACRAMENTO CA 95814

BUREAU OF RECLAMATION
705 NORTH PLAZA
CARSON CITY NV 89701

REGULATORY PROJECT MANAGER
US ARMY CORPS OF ENGINEERS
300 BOOTH ST ROOM 2103
RENO NV 89509

DEPARTMENT OF ENERGY
PO BOX 98518
LAS VEGAS NV 89193

FISH AND WILDLIFE SERVICE
1340 FINANCIAL BLVD #234
RENO NV 89502

DEPT OF HOUSING AND URBAN DEVELOPMENT
RENO FIELD OFFICE
745 WEST MOANA LANE SUITE 360
RENO NV 89509

US DEPARTMENT OF TRANSPORTATION
CHIEF AIRPORT DISTRICT OFFICE SSO-600
FEDERAL AVIATION ADMINISTRATION
831 MITTEN ROAD
BURLINGAME CA 94010

ROBERT W HALL
NEVADA ENVIRONMENTAL COALITION INC
10720 BUTTON WILLOW DR
LAS VEGAS NV 89134

D BRADFORD HARDENBROOK
REGIONAL SUPERVISORY BIOLOGIST - HABITAT
NEVADA DEPARTMENT OF WILDLIFE
1100 VALLEY ROAD
RENO NV 89512

JAMES D MOREFIELD
NEVADA STATE HERITAGE
DEPT OF CONSERVATION & NAT RESOURCES
901 S STEWART ST STE 5001
CARSON CITY NV 89701-5244

Prefer to receive notices, etc. via email
NEVADA STATE CLEARINGHOUSE
CAPITOL COMPLEX
CARSON CITY NV 89710
clearinghouse@budget.state.nv.us

DAVE AIAZZI CHAIR
REGIONAL TRANSPORTATION COMMISSION OF
WASHOE COUNTY
2050 VILLANOVA DRIVE
RENO NV 89502

NV ENERGY
C/O LAND DEPARTMENT
PO BOX 10100
RENO NV 89510

NEVADA BELL
PO BOX 11010
RENO NV 89520

CARSON CITY

BOB CROWELL
CARSON CITY MAYOR
201 N CARSON STREET SUITE 2
CARSON CITY NV 89701

SHELLY ALDEAN
CARSON CITY SUPERVISOR
201 N CARSON STREET SUITE 2
CARSON CITY NV 89701

MOLLY WALT
CARSON CITY SUPERVISOR
201 N CARSON STREET SUITE 2
CARSON CITY NV 89701

STATE NFIP COORDINATOR
NEVADA DIVISION OF WATER RESOURCES
901 S STEWART ST STE 2002
CARSON CITY NV 89701-5250

BRUCE MACKEY
DEPARTMENT OF MOTOR VEHICLES
OFFICE OF TRAFFIC SAFETY
555 WRIGHT WAY
CARSON CITY NV 89711-0999

LEE GIBSON EXECUTIVE DIRECTOR
REGIONAL TRANSPORTATION COMMISSION OF
WASHOE COUNTY
2050 VILLANOVA DRIVE
RENO NV 89502

SOUTHWEST GAS
ENGINEERING DEPARTMENT
PO BOX 1190
CARSON CITY NV 89702

SIERRA CLUB
PO BOX 8096
RENO NV 89507

NEWTON DEBARDELEBEN
ENVIRONMENTAL SERVICES
NV ENERGY
P.O. BOX 10100
RENO, NV 89520-0024

ROBIN WILLIAMSON
CARSON CITY SUPERVISOR
201 N CARSON STREET SUITE 2
CARSON CITY NV 89701

PETE LIVERMORE
CARSON CITY SUPERVISOR
201 N CARSON STREET SUITE 2
CARSON CITY NV 89701

LARRY WERNER
CARSON CITY MANAGER
201 N CARSON STREET SUITE 2
CARSON CITY NV 89701

ANDREW BURNHAM
DIRECTOR
CARSON CITY PUBLIC WORKS
3505 BUTTI WAY
CARSON CITY NV 89701

CARSON CITY PLANNING DIVISION
2621 NORTHGATE LANE
CARSON CITY NV 89706

LYON COUNTY

CHUCK ROBERTS
LYON COUNTY COMMISSIONER
P.O. BOX 498
CARSON CITY, NEVADA 89702

LARRY MCPHERSON
LYON COUNTY COMMISSIONER
2001 APACHE DRIVE
STAGECOACH, NEVADA 89429

DON TIBBALS
LYON COUNTY COMMISSIONER
56 HIGHWAY 339
YERINGTON, NV 89447

JOE MORTENSEN
LYON COUNTY COMMISSIONER
680 MILLER LANE
FERNLEY, NV 89408

PHYLLIS HUNEWILL
LYON COUNTY COMMISSIONER
30 DESERT CREEK
WELLINGTON, NEVADA 89444

ROB LOVEBERG
LYON COUNTY PLANNING DIRECTOR
801 OVERLAND LOOP, SUITE 201
DAYTON, NV 89403

GARY W. FRIED
LYON COUNTY ROAD MANAGER
3590 GRAHAM AVENUE
SILVER SPRINGS, NV 89429

FEDERALLY ELECTED

HARRY REID
US SENATOR
400 SOUTH VIRGINIA STREET SUITE 902
LAS VEGAS NV 89501

JOHN ENSIGN
US SENATOR
400 SOUTH VIRGINIA STREET SUITE 738
LAS VEGAS NV 89501

DEAN HELLER
US REPRESENTATIVE
400 SOUTH VIRGINIA STREET SUITE 502
RENO NV 89501

STATE ELECTED

ADDITIONAL NOTIFICATIONS

VERN KRAHN
CARSON CITY PARKS AND RECREATION
3303 BUTTI WAY BDLG #9
CARSON CITY, NV 89701

ROGER MOELLENDORF
CARSON CITY PARKS AND RECREATION
3303 BUTTI WAY BDLG #9
CARSON CITY, NV 89701

PAT WHITTEN, COUNTY MANAGER
STOREY COUNTY
PO BOX 176
VIRGINIA CITY, NV 89440

JOHN SERPA
PO BOX 1724
CARSON CITY, NV 89702

TE BERTAGNOLLI
PO BOX 2577
CARSON CITY, NV 89702

PRIVATE LAND HOLDERS
DESIGN LOCATION HEARING
DISTRIBUTION LIST

Design Location Hearing Distribution List- Private Land Holders

Land Owners Contacted			Adjacent Project Feature				
Parcel Number (s)	Owner Name	Owner Address	9,000 Ft. Align.	Drako Terminal	Utility Corridor	Interim Station	Balloon Track
008-531-44, 45	TE Bertagnolli & Assoc.	PO Box 2577, CC, NV 89702	X				
008-531-59,60	JC Serpa	PO Box 1724, CC, NV 89702	X	X	X		
008-531-39	JC Serpa	PO Box 1724, CC, NV 89702	X				
008-541-59,91,92	JC Serpa	PO Box 1724, CC, NV 89702	X				
008-521-89	JC Serpa	PO Box 1724, CC, NV 89702		X	X		
008-521-54,55	JC Serpa	PO Box 1724, CC, NV 89702			X		
008-522-18	JC Serpa	PO Box 1724, CC, NV 89702	X	X	X		
008-522-16,17	JC Serpa	PO Box 1724, CC, NV 89702		X	X		
008-611-31	JC Serpa	PO Box 1724, CC, NV 89702				X	
008-011-26,27	JC Serpa	PO Box 1724, CC, NV 89702					X
008-522-07	NV Energy	PO Box 11010 Reno, NV, 89520	X	X	X		
008-531-42,57	Taiyo America	2675 Antler Dr., Carson City, NV 89701	X	X	X		
008-531-58	Triangle Labs, Inc.	1601 Morgan Mill Road, Carson City, NV 89701	X	X	X		
008-531-27,28	B Maddox	5990 Morgan Mill Road, Carson City, NV 89701	X	X			
008-531-34	Sierra Clouds, Inc.	1673 Wellington West, Carson City, NV 89703	X	X	X		
008-522-12,13	Precise Recycling Services	2400 San Juan Rd. Hollister, CA 95203		X	X		
008-522-14	Cometco Resources	15232 Linden St Leawood, Kansas 66224		X	X		
008-522-10	Western Inspirational Broadcasting	6363 Hwy 50 E, Carson City, NV 89701		X	X		

Parcel Number (s)	Owner Name	Owner Address	9,000 Ft. Align.	Drako Terminal	Utility Corridor	Interim Station	Balloon Track
008-522-11	BEA Investments	312 W Fourth St. Carson City, NV 89703		X	X		
008-521-78	Shirley Oliver	6441 Hwy 50 E, Carson City, NV 89701		X	X		
008--521-45	RIDL	1250 Santa Barbara Minden, NV 89423		X	X		
008--521- 46,47,48,23,24	RIDL	1250 Santa Barbara Minden, NV 89423			X		
008-011-88,90,91	Eagletech Industrial Park, LLC	7201 Hwy 5 E., Carson City, NV 89701				X	
008-611-20	Pic-In-Pull Auto Dismantlers	1345 Airmotive Way, Reno, NV 89502				X	

PUBLIC MEETING TRANSCRIPTS

JUNE 2, 2010

1 THE STATE OF NEVADA
2 COMMISSION FOR THE RECONSTRUCTION
3 OF THE V&T RAILWAY

4 -oOo-

Copy

5
6 IN THE MATTER OF:
7 V & T RAILWAY RECONSTRUCTION PROJECT
8 PREFERRED DRAKO WAY DEPOT, 9000 FOOT LINE
9 CHANGE, INTERIM STATION, AND Balloon Track
10 CARSON CITY, NEVADA.

11 _____ /

12
13
14 -oOo-

15 TRANSCRIPT OF PROCEEDINGS
16 JUNE 2, 2010
17 CARSON CITY, NEVADA
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24 REPORTED BY: SUZANNE KUES ROWE, CCR, RPR
25 Nevada CCR #127

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APPEARANCES

-oOo-

For the Department of Transportation:

JULIE ANN MAXEY
HEARINGS OFFICER

DENNIS BAUGHMAN

CHRIS YOUNG

For Manhard Consulting:

KEN DORR

PEDRO RODRIGUEZ

For Geocon Consulting:

GARY LUCE

For the Federal Highway Commission:

ABDELMREZ ABDALLA

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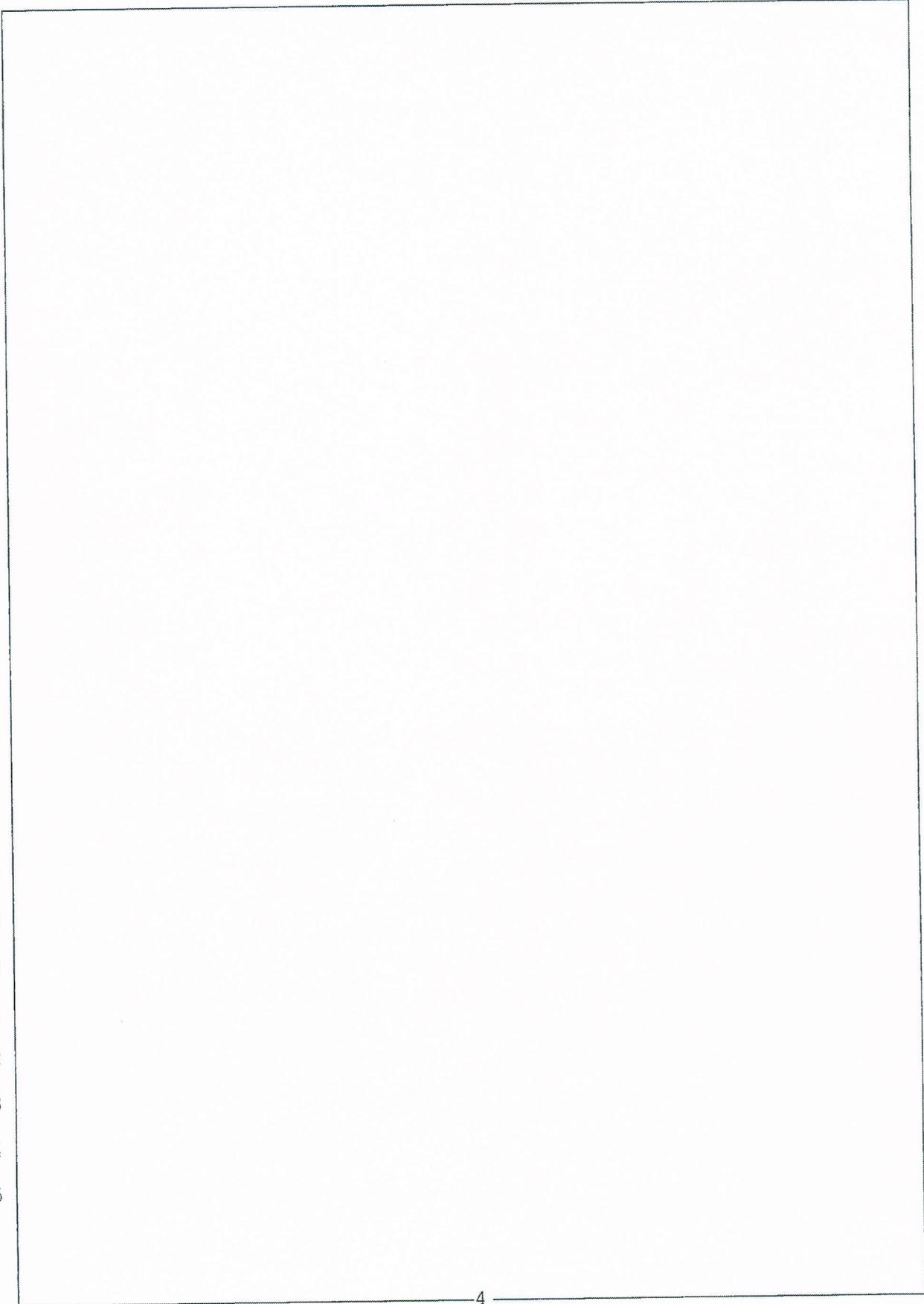
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1
2 WEDNESDAY, JUNE 2, 2010, CARSON CITY, NEVADA, 5:30 P.M.o

3 -oOo-

4 MR. YOUNG: Hi. My name is Chris Young. I'm
5 with NDOT's Environmental Services.

6 We are having this meeting here tonight as part
7 of our compliance with the National Environmental Policy
8 Act of 1969. You may be asking, why do we need to do
9 that?

10 Well, Federal agencies and Federal money, we need
11 to comply with the NEPA law, which is the acronym for
12 that. That's why the Federal Highway Administration is
13 involved, and that's why NDOT's involved, because we do
14 essentially the environmental work on behalf of the
15 Federal Highway Administration.

16 So, if you are wondering why things say Federal
17 Highway Administration, and, isn't this a train?
18 Shouldn't that be the Federal rail, so that's sort of why
19 we're here.

20 Again, if you have any comments, questions
21 concern, we're going to have a brief question and answer
22 session. I think there's only a couple of non-project
23 related folks here, but feel free to speak up. It will
24 end up getting recorded verbatim by our court reporter
25 here, if you want to sit down with her and give her a

1 specific comment or concern and make sure it gets
2 recorded, then you can do that as well.

3 And then also at the very back of the handout
4 booklet, there's a comment form there and you can write
5 that out and if you want to leave it in our comment books
6 up here, that will be another way to convey your thoughts,
7 concerns and questions to us.

8 Right now, I'll go ahead and introduce Gary Luce
9 with Geocon -- hey, there's our Federal representative
10 right now.

11 Gary Luce, with Geocon. He's a consultant on the
12 project, and he will go ahead and just talk briefly about
13 the four elements that are covered in the supplemental.
14 EA. Gary?

15 MR. LUCE: I'm just going to briefly go over the
16 reasons why we're here and what's involved in the what's
17 called the Supplemental Environmental document for the
18 project. This document is a second document for the V & T
19 project. The original environmental assessment was issued
20 in 2003. That document covered the entire alignment from
21 Virginia City, or I should say Gold Hill down to Deer Run
22 Road, and then a couple of depot sites, the Drako Way
23 site, which is shown on the figure back there, which was
24 approved at that time.

25 Since that time, the Commission has constructed

1 about two thirds of the project. And in that process,
2 some things have been changed in terms of thinking of
3 where we're going and how we're going to get there. And
4 so this document became necessary, due to those actions.

5 The most significant one was a change in depot
6 selection. A preferred alternative was chosen through a
7 selection process.

8 Originally there was something like nine sites
9 that were looked at in the reevaluation of depot
10 locations, and after elimination by a ranking process,
11 they, the Commission, chose the Drako Way site as the
12 preferred alternative.

13 That site is shown on the maps again, and if you
14 are following along, I'm referring to, there's four
15 figures in the handout tonight, and the site plan shows
16 all the features that we're looking at in these changes.

17 So, Drako was chosen as the alternative depot
18 site. That necessitated a line change of about nine
19 thousand feet that started near the Bertagnolli aggregate
20 pit and goes up the hill, the wall of the canyon, the
21 north wall up into the Drako Way site.

22 Due the to funding issues and not knowing when we
23 would have the funding to complete that, the Commission
24 also looked at to interim facilities. And the other
25 interim facilities are this Eastgate Station shown up by

1 Flint Drive that possibly could require a sewer extension
2 from Morgan Mill Road up to that site, through utility
3 easements that's on the figure number two. It's in green
4 on that map, so that is a possible extension.

5 There's also the chance of that site could be
6 serviced by either septic or a holding tank, depending on
7 permitting and the regulations on what happens and how
8 permanent the facility is.

9 And then the final element is the Balloon Track
10 down in the canyon that would allow us, if we weren't
11 funded to go all the way for an interim operation, the
12 next logical segment to build would be down to the river,
13 because there's really nowhere to turn a train going down
14 that slope until we get to the location of the Balloon
15 Track.

16 So, the Balloon Track creates a logical terminus
17 and a place to turn the train around and go back up the
18 hill with the train in front, which is the way we would
19 like to do it.

20 So, anyway, those are the four elements,
21 including the easement to the other side that necessitated
22 another environmental document.

23 The original grade that goes all the way to
24 Bertagnolli was covered under the 2003 document, so
25 there's, you know, most of what you're seeing on the

1 alignment is already covered. It's just the things in red
2 that we have shown on that figure number one, or two,
3 excuse me, the site plan that shows the things that are
4 different.

5 As part of the NEPA process, we've looked at the
6 cultural resources at all these sites, biology, including
7 the animal life, plant life, coordinated with the agencies
8 and all this, so all these sites have been looked at in
9 the full NEPA evaluation, and that's what the document is
10 now showing, is the results of those studies and
11 investigations, and then also the proposed mitigations.

12 So, I think to make a long story short, what we
13 have really learned is that this isn't having a large
14 impact in the mitigations that are proposed, we'll deal
15 with the majority of those and that, you know, basically
16 this is not a huge change to the overall project scope,
17 and that we can deal with the necessities of these
18 required elements.

19 MR. YOUNG: Right-of-way requirements, maybe?

20 MR. LUCE: Okay. Right-of-way. Right now, to
21 extend the track down the canyon, we have the, we have
22 done some initial work on the right-of-way, but there's
23 three remaining property owners to get to the Drako Way
24 site, which is the Bently Trust, the Serpa property and
25 Bertagnolli.

1 And those are the remaining ones to get to the
2 Drako Way site.

3 So, those are the primary acquisitions that we
4 would have to incur, and that would all be done under the
5 Relocation Act, so that it would be the normal process
6 that would be done for any Federal project.

7 The Eastgate facility would be all BLM land, and
8 we have started the process of submitting an application
9 to acquire that property, and so that process is, again, a
10 formal process that's under way.

11 The utility easements I think at this point are
12 just identified, they are existing easements. And as far
13 as I know, we're going to be within the easements that are
14 there already. Are we creating any new ones, Ken, on
15 that?

16 MR. DORR: For the record, Ken Dorr. The only
17 thing is on, from Bertagnolli up, there's quite a few
18 utility relocations that would have to occur, and so those
19 are going to require some replacement easements.

20 MR. LUCE: Right. And those are discussed in the
21 document. So, questions?

22 If you have any questions, please state your name
23 first so we can get it on the record, and we'll give you
24 an answer.

25 Dead silence.

1 MR. WEIDEMANN: I'm Tim Weidemann. What, in the
2 investigation, what were some of the biggest things you
3 found that needed mitigation?

4 MR. LUCE: I guess the largest one I can think of
5 is cultural resources along the Old 9,000 foot alignment
6 going up to the Drako Way site. It crosses an old wagon
7 road, and we've done a detailed evaluation of those
8 features, mainly rock retaining walls, and I think to
9 summarize, and maybe I should turn to Mike. Mike Drews
10 actually did that work, he's a project team archeologist.

11 Mike, do you want to describe what went on in
12 that process.

13 MR. DREWS: Mike Drews, for the record. We
14 basically did the whole cultural inventory of the grade
15 with this new alignment.

16 We did come across, after the railroad grade was
17 built, they built a road going from Empire that pretty
18 much took over the original road up towards Moundhouse,
19 and Virginia City was along the grade, so they built an
20 alternate route.

21 As you go out now, before you get to
22 Bertagnolli's up on the hill side there, there's a bunch
23 of rock retaining walls that are in that grade, and
24 that's, there's rock retaining walls, and then as part of
25 the original EA on the section just past the Balloon

1 Track, there's some old culverts that will have to be
2 documented and mitigated.

3 But, we've gone through State Historic
4 Preservation office, we have a plan in place, and we have
5 for the whole Railroad.

6 MR. WEIDEMANN: So, it's basically documentation
7 of the walls we're working toward.

8 MR. DORR: Ken Dorr. Gary, I'm going to
9 anticipate a question. Are we in the river within the
10 wetland area of the river at all with this project?

11 MR. LUCE: Not within the river. We've recently
12 done a delineation, and the Corps has concurred with the
13 delineation, and that included everything from the top of
14 the canyon, the end of the current phase, all the way down
15 to Drako, and we do cross two other waters of the U.S.
16 that we will need to permit in the future.

17 But, they are past the Balloon Track, so the
18 Balloon Track phase is ready to go and has no Corps permit
19 issues.

20 The Corps permit issues we are talking about, one
21 area, at the low point of the rail, we come close to the
22 river. We are not anticipating to do any construction
23 within the high water mark, but we are close to other
24 waters of the U.S. and we will have to permit to go
25 through a review, and it's the simplest Corps permit they

1 issue for a project. And that will also apply to the
2 drainage we cross.

3 As you come out of the canyon and turn north,
4 there's what's called a blue line drainage on the map that
5 shows a stream, the drainage has been heavily altered
6 up-gradient by grading, and it flows just in rare events.

7 But, rather than do a detailed study for a couple
8 of years to figure out if it actually could be not
9 jurisdictional, since we are going to need to do one
10 permit, it's a simpler process to just apply for the full
11 permit on both of those. And the Corps has indicated that
12 it's a simple linear permit again, so it should be a very
13 simple permit to obtain, and we would go forward, and we
14 are prepared to go forward with that as funding arrives.

15 MR. GRAY: John Michael Gray. How is the current
16 location determined? How was the current location of the
17 track determined for the overall preliminary design?

18 MR. LUCE: In regard to the 9,000 foot line
19 change, or for the whole project?

20 MR. GRAY: For the entire project.

21 MR. LUCE: Ken? I can answer that, but Ken's the
22 project designer.

23 MR. DORR: Again, for the record, Ken Dorr. By
24 magic, maybe? Actually, what we tried to do, we tried to
25 follow the most historic alignment wherever possible

1 between Gold Hill and Carson City.

2 We were successful pretty much in following that
3 alignment with some location changes. Overman Pit was an
4 alignment change we had to make because the Overman Pit
5 excavated a 400 foot deep hole where the old gate used to
6 be, so we had to skirt the edge of that and only had to
7 put in 120 foot of fill instead of 400 foot of fill.

8 The next alignment change we made was at the
9 Frehner Pit, it's actually Road, and Highway Builder's Pit
10 in upper Moundhouse at this point. We had to make a minor
11 alignment adjustment there to avoid some of the aggregate
12 extraction operations.

13 The biggest alignment change that occurred was in
14 the Red Rock Road/Highlands Drive area, where the old
15 historic alignment followed Highlands Drive and Red Rock
16 Road crossing, since we're right where Highlands Drive,
17 right where Highlands Drive intersects with that roadway.

18 We didn't really feel we could put that railroad
19 grade through residential and commercial development, so
20 hence we came up with the alignment change that
21 constructed the track over the top of the highway at the
22 county line, via the bridge.

23 After going across Highway 50, going around by
24 the model airplane field and dropping back down in towards
25 the Santiago Canyon, which is the canyon coming off of

1 Carson River below Moundhouse, we're back on to the old
2 grade again.

3 The concept there is following the old grade,
4 basically identically with that historic alignment all the
5 way down the Bertagnolli's gravel pit and then depending
6 on which way the ultimate alignment goes, if it goes to
7 the Detroit Way site, it will follow the historic grade
8 for a little bit longer, to at least to Deer Run Road.

9 If the alignment is selected to go to Drako Way,
10 then right at Bertagnolli's we'll start diverging from
11 that historic alignment.

12 MR. WEIDEMANN: Okay. Thank you.

13 MR. TOBACCO: My name is Tom Tobacco, and I have
14 a question. Have you addressed the construction air
15 quality and the operational air quality? What type of
16 fuels are you going to be burning?

17 MR. LUCE: Yes, it's addressed in the original
18 EA, and it's covered for these sites as well. And it's
19 pretty much the same that, the same issues that we've
20 dealt with in construction up to this point. So, we've
21 been going through, you know, normal permitting for
22 everything we've done.

23 There is an evaluation of the depot sites that
24 was in the original EA that talks about those issues.

25 MR. TOBACCO: The operation of the railroad after

1 all the construction is done?

2 MR. LUCE: Yes. That was a subject of the
3 original EA.

4 MR. TOBACCO: Okay.

5 MR. LUCE: If nothing else, we will close this
6 part of the meeting and you can stick around and talk to
7 anyone of the folks that are here, myself, Ken, Mike,
8 Pedro. You know, we're all here to help if you have any
9 more questions.

10 MR. YOUNG: Why don't we do this since some of
11 you know us and some of you don't. Let me just, while I'm
12 at the podium, introduce some of the people here so you
13 know who to talk to.

14 Ken Dorr is the project manager, with Manhard
15 Consulting, and Manhard has the contract with the
16 Commission.

17 And most of the other consultants work for
18 Manhard, in a direct contract with Manhard for the
19 Commission.

20 There are some Manhard folks here, Pedro. Pedro
21 was instrumental in Phase IIA-IIB and has been involved in
22 design under Ken. For a couple of years now anyway.

23 He was the assistant RE on the IIA-IIB phase of
24 the project.

25 Mike Drews, we just introduced, is a cultural

1 resources specialist that's been on the project and
2 working with Zeier and Associates.

3 Zeier was the principle investigator for the
4 alignments from IIA-B down and through the end of the
5 project, including these changes.

6 And Mike is basically with Gnomon and Associates,
7 which, is that right, Gnomon? And Mike has basically been
8 the feet on the ground for a lot of the monitoring and the
9 construction, and also then doing a lot of the field work
10 on these follow-ups for the supplemental EA.

11 Tom Young, Lumos and Associates, Lumos has been
12 involved in the project forever.

13 As a matter of fact, I was a Lumos employee, and
14 Ken was at one time, so the project really started with
15 Lumos years and years ago.

16 But, Tom has done all the hydrology and
17 essentially designed most of the drainage features, done
18 the evaluations of the drainages. And what am I missing?
19 Oh, the depot sites. They developed the depot site
20 layouts in the 2003 EA and worked on the ones in the Drako
21 Way site. Am I missing anything, Tom?

22 MR. TOM YOUNG: That's it.

23 MR. YOUNG: Okay. So, that's the team, other
24 than the public agencies that are here.

25 And then myself with NDOT, Ruth Borelli, she's a

1 right-of way agent with NDOT and Dell Abdalla, he's with
2 the Federal Highway Commission.

3 And last but not least, Vern Krahn and Ann
4 Bollinger with Carson City Parks and Recreation
5 Department.

6 And I missed one consultant. RCI has been doing
7 the biologic assessments, and they are not here tonight,
8 but I can answer questions or get you answers.

9 And Larry might as well be on the team; he's been
10 around forever.

11 If you can't think of anything right now, the
12 comment period on this closes on June 18th. Go home,
13 think about stuff. If you have a question or something
14 else pops up again, feel free.

15 On the welcome sheet in the front of your packet,
16 it tells you where to send any comments, questions,
17 concerns there. So. You don't need to think of it right
18 now.

19 All right.

20 MR. LUCE: Okay. Thank you.

21 (Whereupon proceedings concluded at 5:51 p.m.)
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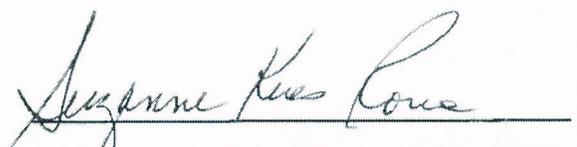
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STATE OF NEVADA }
COUNTY OF DOUGLAS } Ss.

I, SUZANNE KUES ROWE, Certified Court Reporter, licensed in the State of Nevada, License #127, and a Notary Public in and for the State of Nevada, County of Douglas, do hereby certify that the foregoing proceeding was reported by me and was thereafter transcribed under my direction into typewriting; that the foregoing is a full, complete and true record of said proceedings.

I further certify that I am not of counsel or attorney for either or any of the parties in the foregoing proceeding and caption named, or in any way interested in the outcome of the cause named in said caption.

Date: June 7, 2010


SUZANNE KUES ROWE, CCR #127

COMMENTS AND RESPONSES



Triangle Labs, Inc.
A Technology Company

6101 Morgan Mill Road, Carson City, NV 89701 • Ph.: (775) 887-1700 • Website: www.trilabs.net • E-mail: jm@trilabs.net

**County Board of Supervisors
City Offices
Carson City, NV 89701**

June 1, 2010

Re: V & T Railway Reconstruction Project

Dear County Board of Supervisors,

Triangle Labs is a precision electronics manufacturer of Aerospace technology, employing 10 people, located at 6101 Morgan Mill Rd. We have been at this location since 2004 and are a Nevada corporation. Our facility is located within 70 Feet of the proposed V & T railway tracks. Our precisely calibrated equipment will be disrupted by railcars traveling in close proximity to our facility, and this would compromise our ISO 9001:2008 Quality and Production standards. One of our primary, federally contracted customers has expressed concern over this proposed railway. Delivery disruptions to their facility would result in an inability to make final deliveries to the Department of Defense (DOD), and end users. As this decision on the location of the railway likely will disrupt our business, we kindly request a vote to deny this proposal, or request a bond in the minimum amount of \$2,000,000 to be taken out by the owners and or operators of this proposed railway, for any damage that may occur during its operation. We whole heartedly welcome all opportunities that allow for the economic stimulation of the surrounding area, but must contest the current location of this proposed railway. If we can provide you with any additional information, please let me know. Thank you.

Sincerely,


John-Michael Gray
VP of Operations



June 23, 2010

Mr. John-Michael Gray
VP of Operations
Triangle Labs, Inc.
6101 Morgan Mill Road
Carson City, NV 89701

Dear Mr. Gray,

This letter is to thank you for your comments regarding the V&T Supplemental Environmental Assessment received at the Location/Design Public Meeting held on June 2, 2010 at the Carson City Convention Center and to provide clarification to you. The project proponent is The Nevada Commission for the Reconstruction of the V&T Railway not the Carson City Board of Supervisors. The Board of Supervisors has no jurisdiction over the project due to the Federal Funding. The Federal funding mandates that NDOT be in a Stewardship role over the project and that is why NDOT produced the Environmental Assessment Document. Your concerns will be addressed as part of the established NDOT and Federal guidelines which will should be released in August of 2010.

If you should have any questions regarding the process please contact myself or Steve Cooke PE, Chief of the Environmental Services Division at NDOT (775 888-

Sincerely,

Gary Luce, PE
Geocon Consultants, Inc.
V&T Project Environmental Coordinator

JIM GIBBONS
Governor

STATE OF NEVADA

ANDREW K. CLINGER
Director



DEPARTMENT OF ADMINISTRATION

209 E. Musser Street, Room 200
Carson City, Nevada 89701-4298
(775) 684-0222
Fax (775) 684-0260
<http://www.budget.state.nv.us/>

June 18, 2010

Steve Cooke
Nevada Department of Transportation
Environmental Services Division
1263 South Stewart Street
Carson City, NV 89712

Re: SAI NV # **E2010-218**

Reference:

Project: **V&T railway reconstruction project, Carson City and Storey and Lyon Counties**

Dear Steve Cooke:

Enclosed are comments from the agencies listed below regarding the above referenced document. Please address these comments or concerns in your final decision.

Department of Wildlife, Director's Office

State Historic Preservation Office

The Nevada State Clearinghouse adds the following comment:

Please notify Clearinghouse of future projects via email.

This constitutes the State Clearinghouse review of this proposal as per Executive Order 12372. If you have questions, please contact me at (775) 684-0213.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Tietje".

R. Tietje
Nevada State Clearinghouse

Nevada State Clearinghouse

From: Steven Siegel
Sent: Thursday, June 17, 2010 7:32 AM
To: Nevada State Clearinghouse
Subject: RE: E2010-218 V&T railway reconstruction project, Carson City and Storey and Lyon Counties -

Steven Siegel
Wildlife Staff Specialist, Habitat
Nevada Department of Wildlife
1100 Valley Road
Reno, NV 89512
(775) 688-1561
ssiegel@ndow.org

“This message is intended only for the named recipient. If you are not the intended recipient you are notified that disclosing, copying, distributing or taking any action in reliance on the contents of this information is strictly prohibited.”

From: Nevada State Clearinghouse
Sent: Friday, May 21, 2010 1:59 PM
To: Steven Siegel
Subject: E2010-218 V&T railway reconstruction project, Carson City and Storey and Lyon Counties -



NEVADA STATE CLEARINGHOUSE

Department of Administration, Budget and Planning Division
209 East Musser Street, Room 200, Carson City, Nevada 89701-4298
(775) 684-0213 Fax (775) 684-0260

TRANSMISSION DATE: 5/21/2010

Department of Wildlife, Director's Office

Nevada SAI # E2010-218

Project: V&T railway reconstruction project, Carson City and Storey and Lyon Counties

Follow the link below to download an Adobe PDF document concerning the above-mentioned project for your review and comment.

[E2010-218](#)

Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than Thursday, June 17, 2010.

Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference.

Clearinghouse project archive

Questions? Reese Tietje, (775) 684-0213 or clearinghouse@state.nv.us

No comment on this project Proposal supported as written

AGENCY COMMENTS: The Nevada Department of Wildlife has reviewed The V&T Railway Reconstruction Project and finds that our concerns have been addressed in the attached document. Thank you for the opportunity to comment.

Signature: Steven Siegel- Habitat Staff Specialist

Date: June 17, 2010

6/10

Rebecca Palmer

From: Nevada State Clearinghouse
Sent: Friday, May 21, 2010 1:59 PM
To: Rebecca Palmer
Subject: E2010-218 V&T railway reconstruction project, Carson City and Storey and Lyon Counties -



NEVADA STATE CLEARINGHOUSE
Department of Administration, Budget and Planning Division
209 East Musser Street, Room 200, Carson City, Nevada 89701-4298
(775) 684-0213 Fax (775) 684-0260

TRANSMISSION DATE: 5/21/2010

State Historic Preservation Office

Nevada SAI # E2010-218

Project: V&T railway reconstruction project, Carson City and Storey and Lyon Counties

Follow the link below to download an Adobe PDF document concerning the above-mentioned project for your review and comment.

[E2010-218](#)

Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than Thursday, June 17, 2010.

Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference.

[Clearinghouse project archive](#)

Questions? Reese Tietje, (775) 684-0213 or clearinghouse@state.nv.us

No comment on this project Proposal supported as written

AGENCY COMMENTS:

The SHPO reviewed the subject document and requests that you remove the words "requested by SHPO" from the first sentence of 2.9.3.A to make it consistent with the existing regulations and the Programmatic Agreement for the subject undertaking. If you have any questions concerning this correspondence, please feel free to contact me at (775) 684-3443 or by e-mail at Rebecca.Palmer@nevadaculture.org.

Rebecca Palmer
6/10/10

Supplemental Environmental Assessment
FHWA-NV-EA 10.0
PROJECT ID: 60384

RESPONSE TO SHPO Comment:

Wording “requested by SHPO” deleted from section 2.9.3.A and Mitigation Measures Table, p. xiii.