Nevada Truck Parking Implementation Plan

August 22, 2019

final report

Nevada Truck Parking Implementation Plan

prepared for

Nevada Department of Transportation

prepared by

Cambridge Systematics, Inc.
515 S. Figueroa Street, Suite 1975
Los Angeles, CA 90071

with

American Transportation Research Institute
Horrocks Engineers
Silver State Traffic Data Collection

date

August 22, 2019

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Acronyms and Abbreviations

AADTT	Annual average daily truck traffic
ATRI	American Transportation Research Institute
BLM	Bureau of Land Management
CMV	commercial motor vehicle
DOT	Department of Transportation
ELD	electronic logging device
FAA	Federal Aviation Administration
FAC	Freight Advisory Committee
FMCSA	Federal Motor Carrier Safety Administration
FHWA	Federal Highway Administration
GPS	Global Positioning System
HOS	hours of service
ITS	Intelligent Transportation Systems
LVCVA	Las Vegas Convention and Visitors Authority
MAASTO	Mid America Association of State Transportation Officials
NATSO	National Association of Truck Stop Operators
NCTP	National Coalition on Truck Parking
NDOT	Nevada Department of Transportation
NHFP	National Highway Freight Program
NHP	Nevada Highway Patrol
NRS	Nevada Regulations and Statutes
OOIDA	Owner-Operator Independent Drivers Association
ROW	right-of-way
TPAS	Truck Parking Availability System
TSE	Truck Stop Electrification
TSPS	Truck Specialized Parking Services

1.0 Introduction

Safe and sufficient truck parking has long been a need in the United States. Whether for a quick stop near an urban area to wait for congestion to clear or a business' delivery window, or an overnight break to sleep in the middle of a long-haul trip, truck parking is a key concern for all commercial truck drivers. Since more than 80 percent of goods are transported to, from, and within Nevada by truck, the need for drivers to have safe and available parking options is critical to the State's economy, quality of life, and residents. Freight movement in Nevada and across the United States is projected to continue to grow, and trucks will play a large role in moving the additional goods.[1]

In response to this need, the Nevada Department of Transportation (NDOT) developed this Nevada Truck Parking Implementation Plan. This plan identifies opportunities to expand and improve existing facilities and integrate truck parking technology in response to rising demand, changing hours of service requirements and safety standards noted in Jason's Law, and rapid advancements in technology. When implemented, these improvements will help truck drivers by providing adequate and safe public truck parking where it is most needed and enhanced by real-time truck parking availability information.

Truck Parking is a key concern for:

- **Commercial Motor Vehicle** drivers
- **Industries** that rely on efficient truck-deliveries
- **Consumers** who increasingly order goods online and demand expedited delivery service
- **Residents and communities** along truck corridors
- **Government agencies** who regulate the industry, enforce statutes, pass zoning ordinances, and build and maintain highways and parking infrastructure

1.1 Organization of this Plan

This Final Report for the Nevada Truck Parking Implementation Plan is organized into the following sections:

- **Section 2** describes the stakeholder outreach and coordination used to develop the Plan.
- **Section 3** presents the factors influencing truck parking demand.
- **Section 4** summarizes the literature reviewed to help guide and inform the project methodologies and recommendations.
- **Section 5** defines the existing statewide parking supply and anticipated future parking supply along the State's most critical transportation corridors.
- **Section 6** identifies the long-haul truck parking demand, utilization, and gap by corridor.

[1] https://www.nevadadot.com/mobility/freight-planning.

- **Section 7** summarizes the prioritized recommendations and implementation strategy to meet the critical truck parking needs of the State.

An appendix to this report is provided at the end of the document that includes site designs and costs for the recommended projects. Six Technical Memoranda, incorporated by reference, also provide additional details and methodology behind the analysis conducted in this study, and are available on NDOT's Freight Planning website.

1.2 Project Approach

The Truck Parking Implementation Plan builds on previous work completed by the State of Nevada in assessing truck parking needs and solutions, particularly the One Nevada Plan[2] and the Nevada Statewide Freight Plan.[3] This plan was developed using a data-driven approach to assess parking demand. Through the use of a sample of Global Positioning System (GPS) truck parking data, the study identifies where trucks currently are parking, identifies the gap between supply and demand, and prioritizes infrastructure, policy, and technology solutions to close the gap. Projects were prioritized following a multi-objective decision-making process based on statewide goals and evaluation criteria modified from the One Nevada Plan.

Significant stakeholder involvement, including meetings and interviews with more than 50 participants from approximately 20 public agencies and private organizations and associations, provided important input during the development of this Plan.

2 https://www.nevadadot.com/projects-programs/road-projects/onenvplan/.

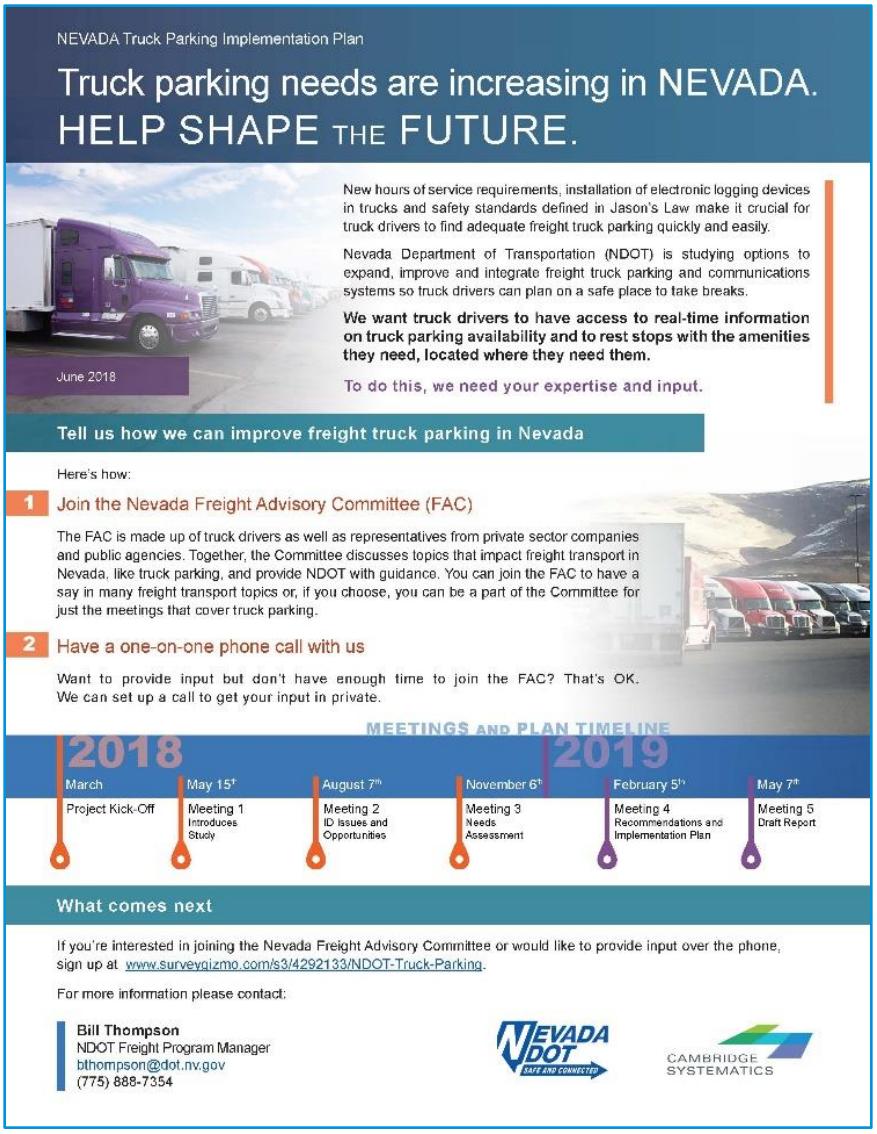
3 https://www.nevadadot.com/mobility/freight-planning/nevada-freight-plan.

2.0 Stakeholder Outreach

Integral to the development of this plan was the initiation of ongoing dialogue with key industry leaders and local and State agency stakeholders. In addition to monthly project calls between the project team and NDOT stakeholders, extensive outreach through project meetings, workshops, community events, surveys, and stakeholder interviews was used to:

- Identify stakeholder needs.
- Verify supply and demand.
- Generate potential truck parking solutions.
- Confirm prioritization process.

The input received was instrumental in fully understanding the issues that drivers face and in developing recommendations for moving forward. Key sources of input are briefly summarized in the following sections.



2.1 Freight Advisory Committee

The Freight Advisory Committee (FAC) is a group formed during the development of the Nevada State Freight Plan to provide NDOT with input from a range of public and private sector stakeholders. Topics related to the Truck Parking Implementation Plan discussed at each meeting included:

- April 2, 2018: An introduction to the project, including project goals, tasks, and schedule.
- August 7, 2018: Shared initial results from the ATRI survey (see below), progress on data collection and inventory of truck parking locations.
- November 6, 2018: Shared results of demand analysis, identified initial gap areas, and presented a range of potential solutions, including a possible truck parking information system approach. Received input on solutions from the FAC.
- February 5, 2019: Identified specific recommendations for long-haul (including preliminary site designs for projects), urban staging, and emergency parking needs.
- May 7, 2019: Discussed project prioritization approach, shared updated preliminary site designs, and discussed schedule and final report format and content.

A complete summary of each meeting can be found on NDOT's Freight Planning website.

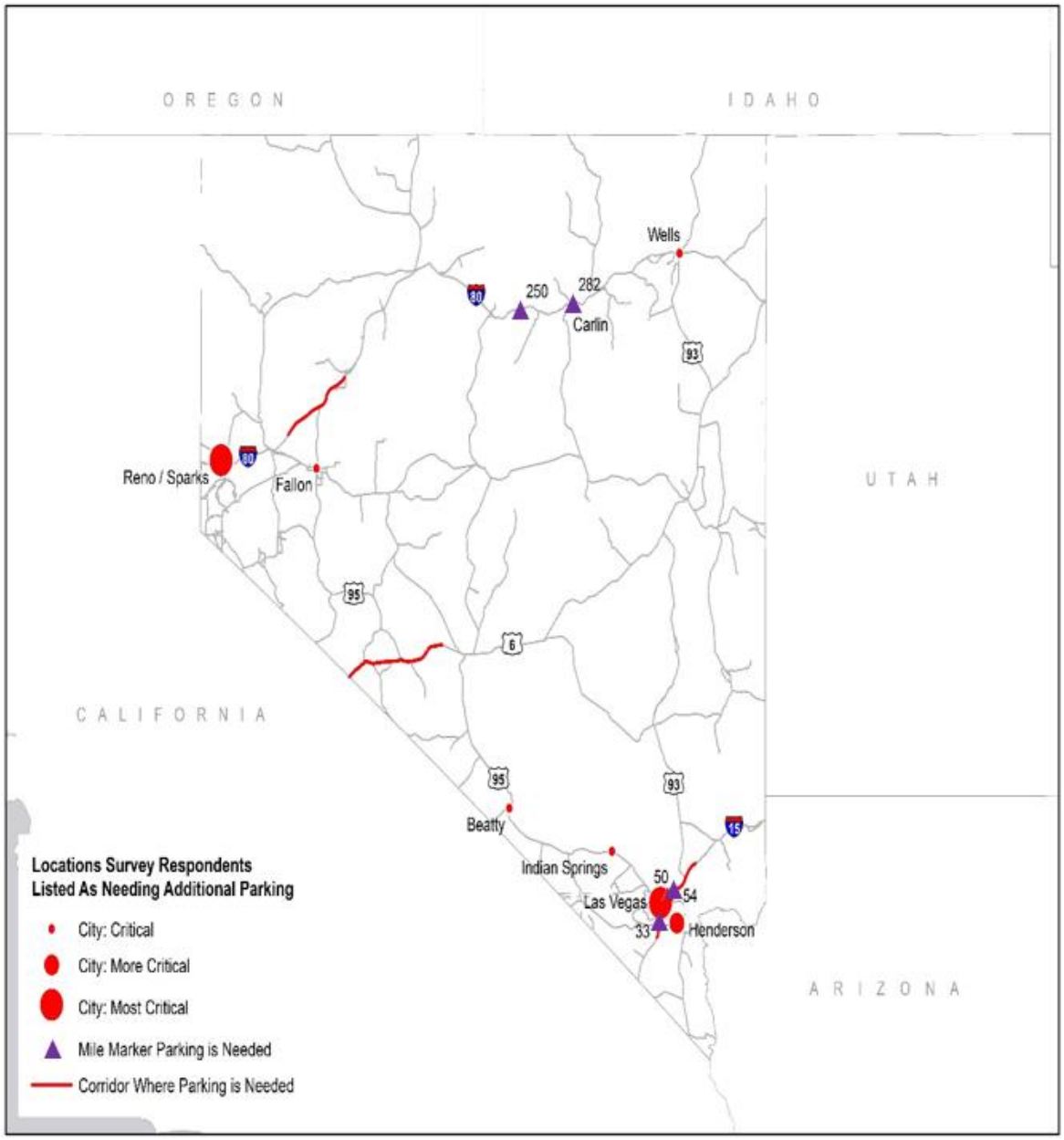
FAC Participants in Project

- Carson Area MPO
- Cast Transportation
- CBRE Brokerage Services
- Churchill County
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County
- Dielco Crane Service, Inc.
- National Association of Trucker Stop Operators
- NDOT District engineers and maintenance staff
- NDOT Planning and ITS
- Nevada Highway Patrol Commercial Enforcement Section
- Nevada Trucking Association
- Nye County
- RTC of Southern Nevada
- RTC of Washoe County
- Travel Centers of America
- Truck Specialized Parking Services
- DOT and enforcement personnel from California, Colorado, and Utah

2.2 ATRI Survey

As part of the outreach effort, ATRI conducted a truck driver survey in July 2018 which collected responses from 128 drivers. A majority of the drivers operate in the for-hire segment and deliver truckload shipments. Nearly 75 percent of drivers indicated that their average trip was 500 miles or longer, indicating that long-haul parking, including overnight rest breaks are commonly needed. Drivers also were asked to identify corridors or specific locations in Nevada where finding parking is difficult. I-15 was identified as the most difficult corridor to find parking, followed by I-80. A map of areas with a lack of truck parking is show in Figure 2.1. The full ATRI survey report is found on NDOT's Freight Planning website.

Figure 2.1 ATRI Survey—Locations with a Lack of Truck Parking



Source: ATRI.

2.3 Interviews and Briefings

Approximately 50 phone and in-person meetings and interviews were held with over 20 public and private agencies and organizations. Valuable input was gleaned early in the project regarding the demand for truck parking and issues surrounding it. Later in the study various strategies were explored with stakeholders for addressing the unmet demand.

NDOT staff met with drivers at a Driver Appreciation event on September 10, 2018 in the Reno area, and participated in a podcast—both hosted by the Nevada Trucking Association.

FHWA facilitated a one-day Truck Parking Workshop in Las Vegas on November 15, 2018, at which national and local needs were discussed. Action Items agreed upon in the workshop include:

- Present truck parking issues to the RTC of Southern Nevada's Executive Advisory Committee (EAC) to ensure committee members understand truck parking concerns and potential solutions.
- Educate local officials on truck parking issues by presenting to the RTC Board of Commissioners.
- Investigate ways to construct a new lot at the south end of the Las Vegas Valley.
- Identify a shortlist of most feasible locations for additional truck parking in the Metropolitan area.
- Develop truck parking availability information sharing network.
- Develop a marshalling yard to support the convention industry.

Agencies and Organizations Interviewed or Briefed

- Amazon Fulfillment Center
- CBRE Brokerage Services
- City of North Las Vegas
- Clark County Dept of Public Works
- Clark County Neighborhood Services
- DOT and enforcement personnel from California, Colorado, and Utah
- Freeman
- GES
- Las Vegas Convention and Visitors Authority
- Love's
- National Association of Trucker Stop Operators
- Nevada Highway Patrol Commercial Enforcement Section
- Nevada Trucking Association
- NDOT District engineers and maintenance staff
- NDOT Planning and ITS
- RTC of Southern Nevada
- RTC of Washoe County
- Travel Centers of America
- Truck Specialized Parking Services
- Trucker Depot
- Western States Freight Coalition

3.0 Truck Parking Basics

The demand for truck parking is based on a number of factors, including Federal legislation, State and municipal laws, driver preferences, and shipper/receiver demands.

Truck parking demand is influenced by:

- Hours of Service (HOS) regulations.
- Mandatory use of electronic logging devices (ELD).
- Shipper and receiver delivery needs.
- Driver preferences for stopping location and amenities.

Trucks typically need to park for one of four reasons, each of which comes with a challenge:

1. Long-haul: They are on a long-distance stretch of their trip, and need to find a parking location which maximizes their driving distance for the day, but will not be full when they arrive.
2. Staging: They are at an origin or destination and have to wait for access to facility where they are loading or unloading, and the facility does not provide a truck staging area.
3. Emergency: They are in the middle of their driving period but an incident in front of them has either closed or severely congested the highway, and they need a place to park for either a short period until the road opens, or longer if they need to reset their HOS status.
4. Time off: They are done with their work week and need a place to park their truck while off-duty, but do not have access to a lot (often impacts independent owner-operators).

3.1 Hours of Service Regulations

The Federal Motor Carrier Safety Administration (FMCSA) regulates HOS (see Table 3.1), which have a significant impact on truck parking because they require drivers to carefully time deliveries and schedule adequate rest, making sufficient parking critical on their routes and deliveries.[4]

[4] "Jason's Law Truck Parking Survey Results and Comparative Analysis." http://www.ops.fhwa.dot.gov/freight/infrastructure/truck_parking/jasons_law/truckparkingsurvey/ch1.htm.

Table 3.1 Summary of Federal HOS Regulations

HOS Provision	Description
11-Hour Driving Limit	Drivers may drive a maximum of 11 hours after 10 consecutive hours off duty. All time spent at the driving controls of a commercial motor vehicle (CMV) in operation is considered driving time.
14-Hour Driving Limit	Property-carrying drivers may not drive beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off duty.
Rest breaks	Drivers may drive only if eight hours or less have passed since the end of the driver's last off-duty or sleeper berth period of at least 30 minutes.
60-/70-Hour Limit	Drivers may not drive after 60/70 hours on duty in 7/8 consecutive dates. A driver may restart a 7/8 consecutive day period after taking 34 or more consecutive hours off duty.
Sleeper Berth Provision	Drivers using the sleeper berth provision must take at least eight consecutive hours in the sleeper berth, plus a separate two consecutive hours either in the sleeper berth or off duty.

Source: Federal Motor Carrier Safety Administration.

The HOS rules are designed to eliminate the type of drowsiness that can lead to crashes. HOS regulations are strongly enforced by State agencies, and fines for non-compliance can be high. To avoid the steep fines, drivers are under pressure to find parking as quickly and efficiently as possible to avoid violating HOS regulations while trying to meet stringent delivery schedules.

3.1.1 Electronic Logging Devices

The mandatory use of electronic logging devices (ELD) in most commercial vehicles as of April 2018 is adding to the parking demand concern.[5] The adoption of ELDs does not change any existing FMCSA regulations, but it does make it more difficult to "game the system." For example, with paper logs, drivers recorded their activities in 15-minute increments and were provided a grace period to find a parking space, once their HOS were up. The grace period did not count towards driving time. ELDs erase that grace period and can track a truck's location. This means that drivers either need to search for and find parking before their HOS are up (thus sacrificing driving time and decreasing productivity) or park immediately once their time is up, regardless of location.

3.2 Best Practices

A review of relevant Federal, State, and regional truck studies also was conducted to identify best practices from around the country. These studies provided input on national and regional truck parking issues,

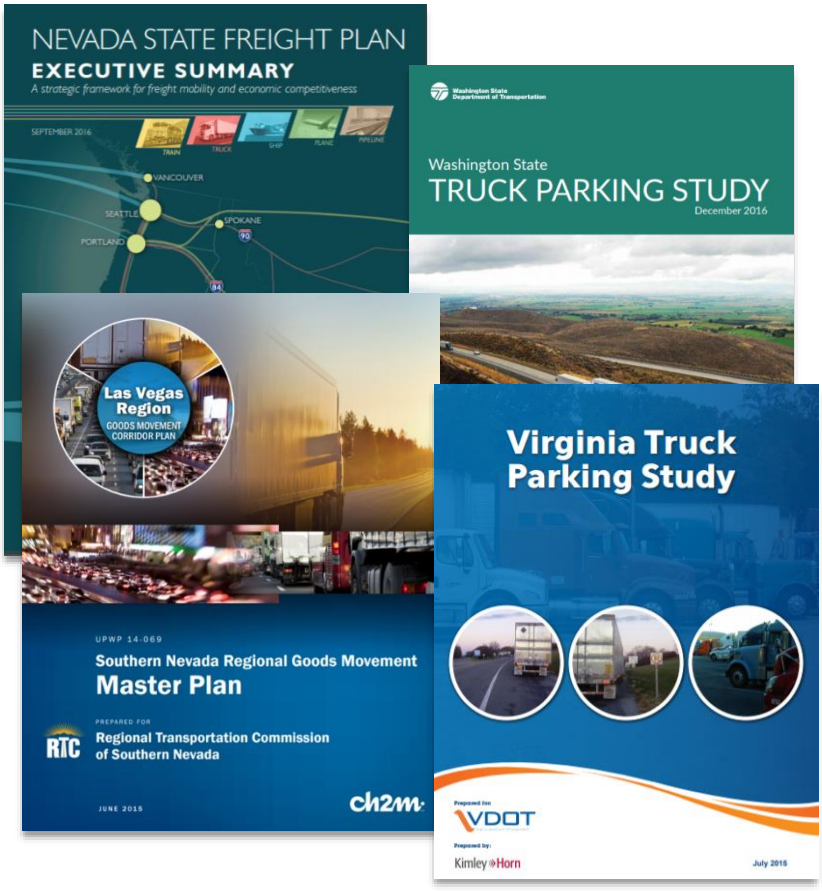
[5] Automatic On Board Recording Devices (AOBRD) satisfy the requirement for the December 2017 deadline. AOBRD will not be sufficient after December 2019. Certain other drivers are also exempt from this requirement including those that operate within a 100-mile radius of work and those that use paper records for less than 8 days in a 30-day period. See: https://www.fmcsa.dot.gov/hours-service/elds/implementation-timeline. Accessed May 24, 2018.

developing an initial methodology for determining truck parking demand, and identifying potential solutions. The full Literature Review can be found on NDOT's Freight Planning website.

3.2.1 Federal Truck Parking Studies

- **"Study of Adequacy of Commercial Truck Parking Facilities"(FHWA)** was prepared in 2002 in response to the Transportation Equity Act for the 21st Century, Section 4027. The report involved four major sections: 1) estimation of parking demand using a modeling approach; 2) inventory of public and commercial truck spaces; 3) identification of deficiencies, supply, and demand; and 4) recommendations. The first section formed the basis for the initial truck parking demand estimate developed for this report.

- **"Commercial Motor Vehicle Parking Shortage" (FHWA)** studied commercial motor vehicle parking shortages as it related to compliance with Federal safety requirements. This report, which was produced after "Study of Adequacy of Commercial Truck Parking Facilities," continued on these findings and provided updates on estimates and forecasts of long-distance trucking activity, information from the Truck Parking Pilot Grant Program, as well as observations from safety enforcement officers.



Other Studies Reviewed

- **The National Coalition on Truck Parking (U.S. DOT)** convened in August 2015 to address truck parking problems across the country. Four Working Groups, comprised of trucking industry, commercial vehicle safety officials, State Departments of Transportation, and the truck stop industry. In 2018, information was released showing ideas on improving truck parking through increased parking capacity, technology and data, funding, finance and regulations, and government coordination.[6]

3.2.2 Truck Parking Studies outside of Nevada

- Additional truck parking studies were reviewed and included the North Carolina Statewide Multimodal Freight Plan—Truck Parking Study (NCDOT); Washington State Truck Parking Study (WSDOT); Kansas Statewide Freight Network Truck Parking Plan (KDOT); Virginia Truck Parking Study (VDOT); Utah I-15 Truck Parking Study (Draft) (UDOT); Commercial Motor Vehicle Parking Trends at Rest Areas and

6 https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/workinggroups/index.htm.

Weigh Stations (FDOT); Gateway Cities Technology Plan for Goods Movement and Truck Parking Study: Phase 2 (MNDOT); Arizona Truck Parking Study (ADOT); and the Texas Truck Parking Study (TxDOT).

3.2.3 Truck Parking Technology Review

- Intelligent Transportation Systems (ITS) technology directed at providing information about truck parking availability is increasingly finding support and applications across the country. A review of the following studies was conducted: included I-15 Dynamic Mobility Project, Mid America Association of State Transportation Officials (MAASTO) Truck Parking Information Management Systems, Colorado Truck Parking Information Management System, Mid-America Freight Coalition Truck Parking Management Systems, I-95 Corridor Coalition Truck Parking Initiative, I-94 Truck Parking Information and Management System; and I-5 Smart Truck Parking in California.

4.0 Truck Parking Supply

Just like any other vehicle on the road, trucks need a safe, reliable place to park while waiting for a delivery bay to open, rush hour traffic to subside, a mountain pass to reopen after an incident, or shutting down for an overnight rest break to meet Federal requirements. Obtaining an accurate and complete inventory of truck parking locations and capacity is a critical first step to determining where gaps exist in the system. Data was obtained from a number of resources, including:

- A previously developed NDOT Truck Parking Inventory.[7]
- Nevada Rest Areas.[8]
- ALLSTAYS.[9]
- American Truck Parking.[10]
- Trucker Path.[11]
- Input from NDOT District engineers and maintenance staff; Nevada Highway Patrol Commercial Enforcement Section; and State Freight Advisory Committee.

Truck Parking near the Las Vegas Strip
Source: Cambridge Systematics.

7 https://www.nevadadot.com/doing-business/commercial-vehicles/truck-parking.

8 https://www.nevadadot.com/travel-info/rest-areas-welcome-centers.

9 https://allstays.com/.

10 http://www.americantruckparking.com/.

11 https://truckerpath.com/.

Locations were then corroborated using either Google Earth/Google Maps, or by field reviews conducted by the team. The following sections summarize the truck parking supply statewide, truck parking on each of the critical freight corridors in the State, and the potential future parking supply.

4.1 Statewide Parking Supply

The statewide truck parking survey identified private truck stops and other businesses that cater to truck drivers, public rest areas, and commonly used unauthorized locations, such as brake check areas, inspection sites, and roadside unpaved areas. There are approximately 4,777 authorized truck parking spaces at 104 locations in Nevada.[12] Figure 4.1 presents the breakdown of spaces by category.

Figure 4.1 Statewide Truck Parking by Category

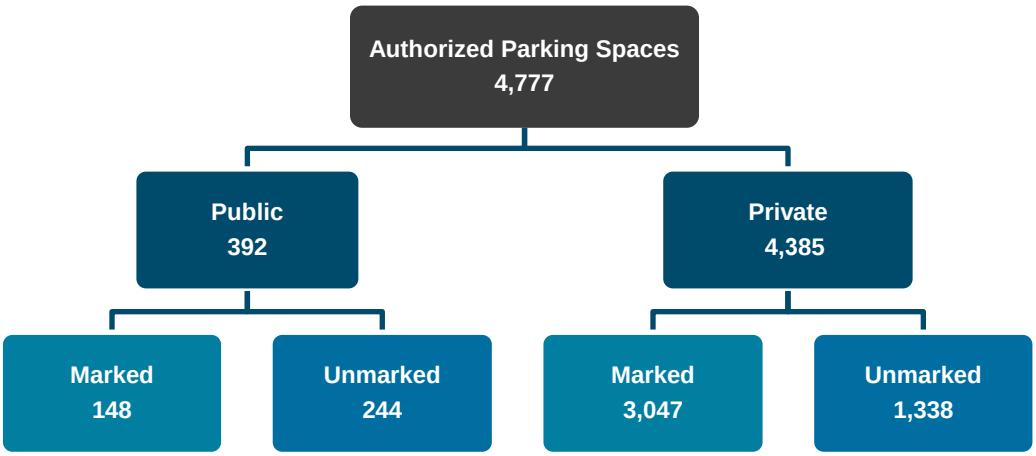


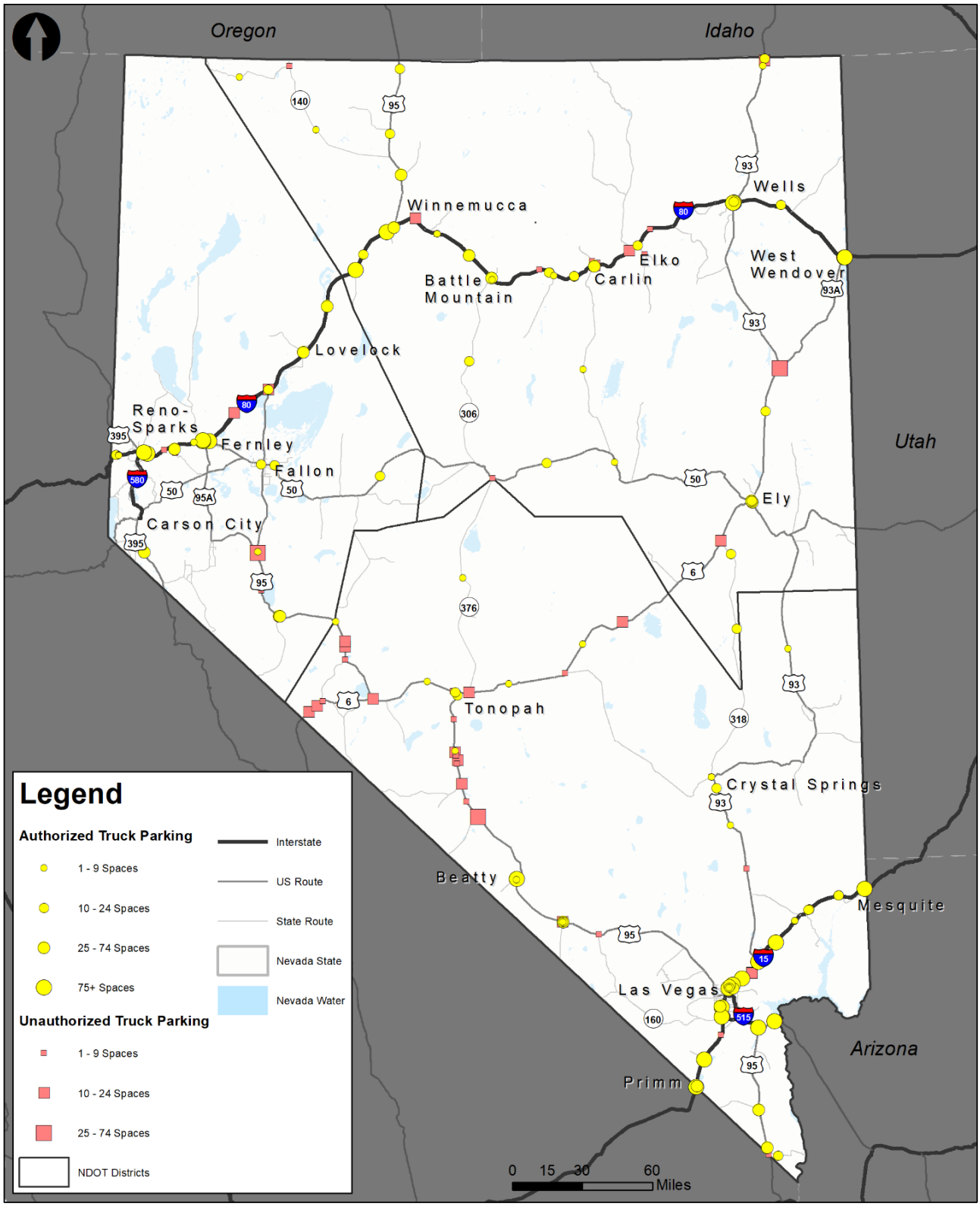
Figure 4.2 presents the truck parking locations throughout the State. This map includes both the authorized parking locations identified as well as approximately 587 spaces at 65 commonly used unauthorized parking locations.

The greatest concentrations of authorized parking are in the southern Nevada/Las Vegas and Northwest Nevada/Reno-Sparks-Carson City metropolitan areas. There are 20 private truck stops in the State with at least 100 parking spaces each which drives the large difference in parking spaces per location.[13] Marked spaces at privately operated, authorized truck parking locations comprise the greatest group, followed by a large number of unmarked spaces at privately operated, authorized locations. A list of all truck parking locations in the State is found in *Nevada Truck Parking: Draft Needs Assessment—Truck Parking Supply* available on NDOT's Freight Planning website.

[12] Note, this analysis generally treats parking on opposite sides of a divided highway as separate locations.

[13] 43.5 spaces/location for authorized parking, 8.1 spaces/location for unauthorized parking.

Figure 4.2 Nevada Truck Parking Locations



4.2 Truck Parking Supply on Key Freight Corridors

Based on the Nevada State Freight Plan and in consultation with NDOT, the supply and demand analysis was limited to critical freight corridors in Nevada. Table 4.1 provides an overview of parking in these corridors; a more detailed discussion of truck parking supply on four of the major corridors (I-15, I-80, U.S. 93, and U.S. 95) is provided below. Corridors often overlap, sharing a route for several miles. Parking located where two routes overlap or intersect may be counted in multiple corridors in the discussion below.

Table 4.1 Freight Corridor Truck Parking Supply Summary

Corridor	Direction	Corridor Length (mi)	Parking Locations	Authorized Spaces	Unauthorized Spaces	Total Spaces
I-15 (and I-215)	North-South	125	28	1,538	77	**1,615**
I-80	East-West	410	50	2,247	79	**2,326**
U.S. 6	East-West	306	20	164	95	**259**
U.S. 50	East-West	409	12	372	8	**380**
U.S. 93/93A and SR 318	North-South	520	33	1,178	115	**1,293**
U.S. 95/95A	North-South	647	54	1,156	266	**1,422**
U.S. 395 (and I-580)	North-South	85	5	30	16	**46**

Note: Parking within one mile of the corridor is included in the parking counts.

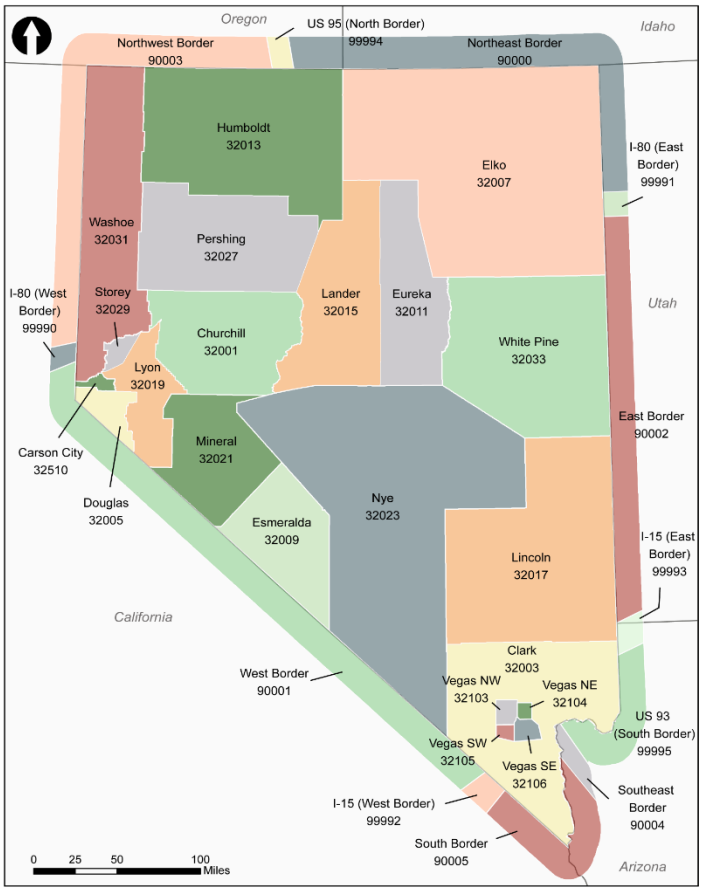
Source: NDOT, Analysis by Cambridge Systematics, 2018.

5.0 Long-Haul Truck Parking Demand, Utilization and Gap

This section quantifies the demand for truck parking in Nevada and calculates the gap between demand and supply. Refer to *Nevada Truck Parking: Draft Needs Assessment—Truck Parking Demand and Gap Analysis* for additional information, available on NDOT's Freight Planning website.

5.1 Long-Haul Truck Parking Demand by County

ATRI origin-destination data from October 2017 was used to estimate parking demand within each Nevada County. The approach divided the State into county zones (with the exception of Clark County which was split into four metro-Las Vegas zones and a "remainder" Clark County zone) and added a number of border zones which indicate when a truck enters or leaves the State boundary. Vehicles that entered or left the State through one of the border zones and trucks that stopped for four or more hours in one of the internal Nevada zones are included in the analysis. Since the focus of this analysis is on long-term, long-haul parking, stops less than four hours were not included.



Zones for origin-destination analysis

In addition, trips starting in the two biggest origin zones (Clark County and Washoe County) were examined to determine if trips originating in these locations should be distributed across the rest of the State similarly to trips originating from a bordering State. The analysis showed that, for trucks beginning a trip in Clark County, more than 99 percent either exited the State before stopping for four or more hours or their next stop also was in Clark County, indicating that any travel outside Clark County did not generate a demand for long-term parking. For Washoe County, over 96 percent of trips either exited the State or had their next long-term stop in Washoe County. This indicates that the vast majority of trips originating in Clark and Washoe counties are not requiring additional long-term parking in the State. For this reason, these trips were not distributed.

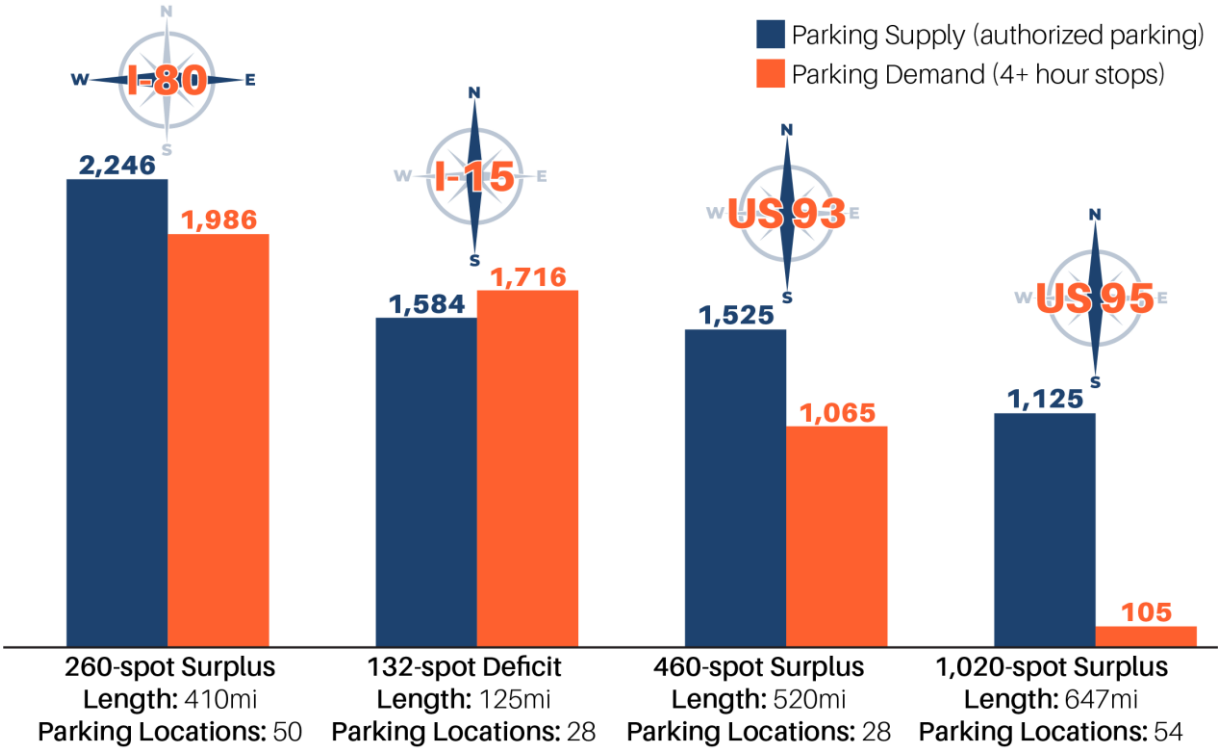
However, ATRI's GPS data does not cover every truck utilizing parking in Nevada. The ATRI database includes between approximately 15 percent and 50 percent of trucks, depending on roadway type with an emphasis on larger, multi-axle vehicles. In order to more accurately determine utilization, an expansion factor is needed to extrapolate the ATRI vehicle counts to an estimate of the full population of trucks in the study area. To calculate expansion factors, multi-unit (4+ axle) AADTT figures were collected from multiple NDOT count stations in proximity to the parking locations studied in this analysis. Values from the NDOT count stations were obtained for four two-week periods:

- December 3–16, 2017.
- March 16–30, 2018.
- May 6–19, 2018.
- September 9–22, 2018.

These dates were chosen to cover any seasonal swings and avoid major holidays which can skew travel patterns. ATRI compared the number of their vehicles passing these locations during the identified times to NDOT's counts, and developed an expansion factor. This expansion factor was then applied to the ATRI origin-destination analysis percent distribution of stops to calculate corridor and county demand totals.

Figure 5.1 shows the truck parking demand for stops of longer than four hours, supply, and gap by route for I-80, I-15, U.S. 93 (including SR 318) and U.S. 95. The only route with a gap using the ATRI data is I-15, with a deficit of approximately 130 truck parking spaces. This is consistent with stakeholder input indicating that I-15 is the most difficult route on which to locate parking. U.S. 95 has the largest parking surplus with over 1,000 vacant spaces across its length.

Figure 5.1 Truck Parking Gap by Corridor

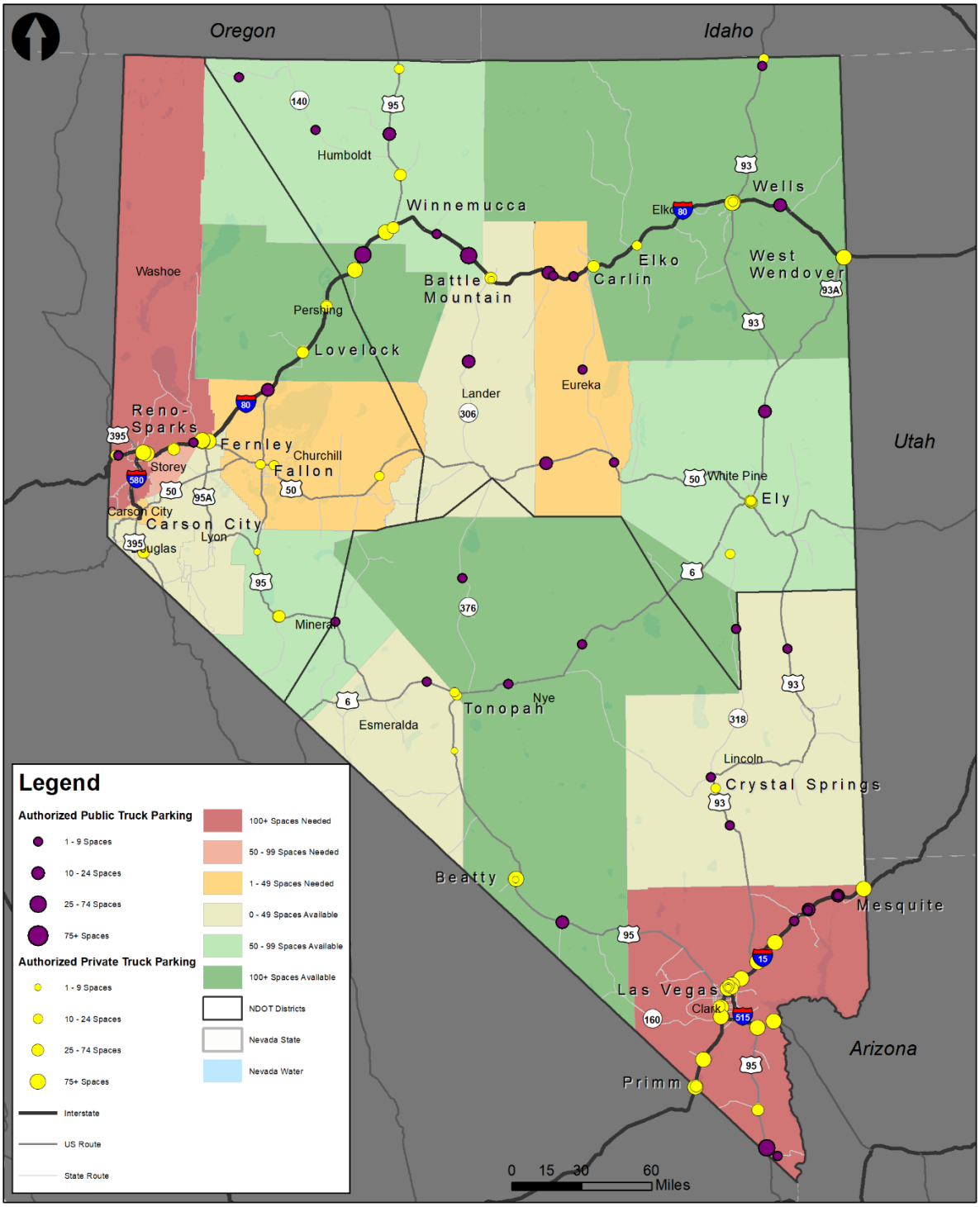


Source: NDOT, ATRI, Analysis by Cambridge Systematics, 2018.

At the county level, the largest truck parking gap occurs in Clark County with a deficit of more than 550 spaces (see Figure 5.2. This finding also matches stakeholder information which ranked I-15 as the most difficult corridor in which to find parking. The presence of U.S. 93 and U.S. 95 in the County also adds to the total demand. Washoe County has a deficit of approximately 250 spaces followed by Storey County (likely driven mostly by the Tahoe-Reno Industrial Center) with a deficit of approximately 90 spaces. Carson City, Churchill County, and Eureka County also show smaller deficits. In the remainder of the State, including most of the I-80, U.S. 93, and U.S. 95 corridors, aggregated supply at the county level is sufficient to meet

demand. Pershing, Elko, and Nye Counties, in particular, have a surplus of more than 100 truck parking spaces.

Figure 5.2 Truck Parking Gap by County



Source: NDOT, ATRI, Analysis by Cambridge Systematics, 2018.

5.2 Long-Haul Truck Parking Utilization at Sample Locations

An analysis of the actual utilization at truck parking areas was achieved in two ways. The first used ATRI truck GPS data to identify trucks parked at specific truck parking locations. The second used smartphone application data to validate parking at specific facilities. The results are described in the following sections.

5.2.1 ATRI Data

For this analysis data were collected from a sampling of 59 publicly and privately owned sites, located on all four of the major freight corridors in the State, during the four two-week periods used for the demand analysis. By applying the same expansion factor, the number of trucks parked at these facilities was estimated. Results of the ATRI utilization analysis identified 13 out of the 59 locations where the average parking demand exceeded capacity at some time during the day. The sites are listed below.

- Privately Owned Sites:
  - Petro Center/Speedway Boulevard (North Las Vegas)
  - Loves Travel Center (North Las Vegas)
  - TA Travel Center (Las Vegas)
  - Pilot Travel Center (Las Vegas)
  - Whiskey Pete's/Flying J (Primm)
  - Boomtown Hotel and Casino (Verdi)
  - Flying J (Fernley)
  - Loves (Fernley)
  - Pilot and Carlin Ramp (Carlin)
- Publicly Owned Sites:
  - Mormon Mesa (I-15)
  - Luning Rest Area (Luning)
  - Golconda (Roadside parking/sand-salt pad)
  - Beowawe Rest Area (Crescent Valley)

Some of these sites exhibit peak parking during the late evening and early morning hours with a decrease during the middle of the day. This type of parking pattern is often associated with long-haul drivers. However, this trend was not universal. For example, parking utilization at the Pilot in Carlin (which also includes trucks parked between Fir St. and the I-80 EB on-ramp) and the Pilot Travel Center off I-15 at Craig Road in

Las Vegas experience peak utilization during the middle of the day, with high volumes at the Pilot Travel Center in Las Vegas spanning a longer timeframe than the Carlin Pilot.

Pilot Travel Center (North Las Vegas)

Source: Cambridge Systematics.

Figure 5.3 illustrates an example of the ATRI findings for the Mormon Mesa Truck Parking Lot on I-15 west of Mesquite. The technical memorandum *Nevada Truck Parking: Draft Needs Assessment—Truck Parking Demand and Gap Analysis* includes a similar profile for each of the other 58 sites for which data are available (see NDOT's Freight Planning website).

Figure 5.3 Example Parking Analysis and Results

Mormon Mesa Truck Turnout (Mesquite)

I-15, MP 110

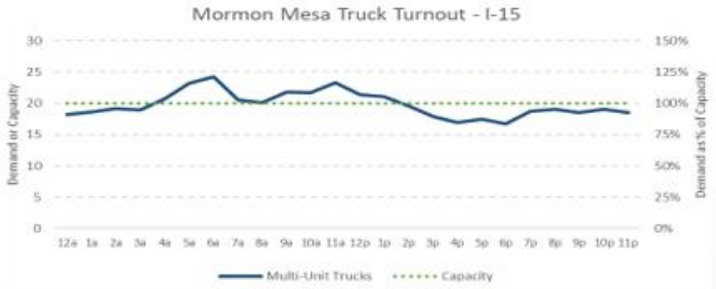
Google Earth Imagery

Key ATRI GPS Data

Spaces	20
Public or Private?	Public
Max Raw Truck GPS Count	10
Average Raw Truck GPS Count	7
Expansion Factor	2.689
Expanded Multi-Unit Parking Demand (Range)	17 - 24
Expanded Multi-Unit Parking Demand (Average)	18
Percent Utilization (Range)	84% - 121%
2045 Maximum Projected Demand	42

A sampling of mobile application data along with stakeholder input indicates this facility is commonly near or at capacity.

Source: Cambridge Systematics



Utilization Analysis

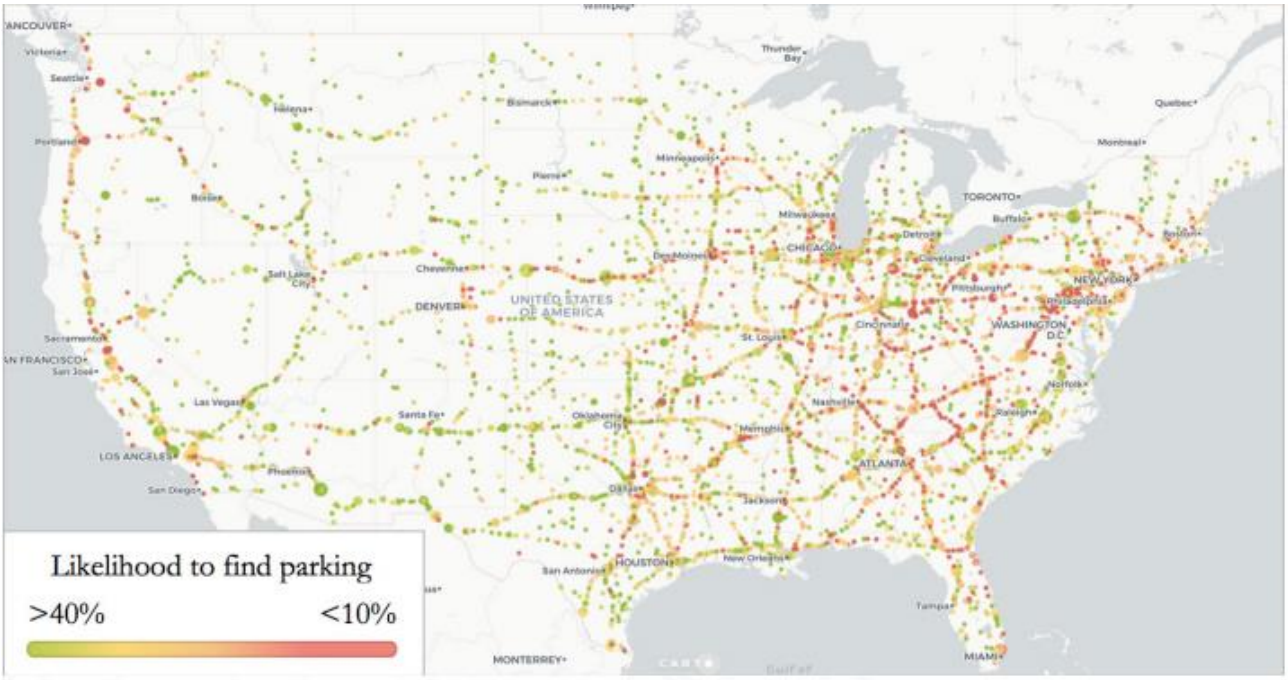
Amenities

Fuel	Restrooms	Showers	Food	Repairs	Scales	Laundry	Truck Wash	WiFi
No	No	No	No	No	No	No	No	No

5.2.2 Smartphone Application Data

The smartphone applications, Park My Truck and TruckerPath, were checked each evening between December 18 and December 21, 2018 to corroborate the ATRI utilization analysis. The Park My Truck application is developed by the National Association of Truck Stop Operators (NATSO) and updated periodically by staff at individual truck stops who record parking availability. The TruckerPath application is crowd-sourced and uses broad categories to indicate available parking, which reduces the accuracy.[14] The crowd-sourcing approach also means that there is no standard time when the data are updated, providing a much more random data set. However, the application has better coverage than Park My Truck which only reports availability at full-service truck stops. TruckerPath also produced an availability map for the U.S. based on data from May – August 2016 and 2017, as shown in Figure 5.4.

Figure 5.4 Truck Parking Availability Across the U.S. (as Reported by Trucker Path Users, May – August, 2016 and 2017, 11pm – 5am, Weekdays Only)



Source: Trucker Path Truck Parking Report—July 2018. http://files.truckerpath.com/web/trucker-path-parking-white-paper-2018.pdf.

5.3 Long-Haul Truck Parking Gap

Based on the above analysis and stakeholder outreach conducted for this study, the largest gaps in truck parking occur in the two major urban areas in Nevada—Las Vegas, and Reno/Sparks. Clark County has a gap of more than 550 truck parking spaces and Reno County is lacking approximately 250 truck parking spaces. Stakeholder input identified I-15 in the southwest portion of Las Vegas as an area of particular need given the origin-destination patterns in the region and the important trade ties to southern California. Beyond these two urban areas, truck parking gaps are limited and widely distributed across the remainder of the Interstate system with some limited need identified in Churchill County and near Carlin on I-80. On the U.S.

[14] "Lots of Spots" "Some Spots" and "Lot is Full."

route system, small gaps on U.S. 6 near the California border, on U.S. 95 near Indian Springs, and on U.S. 93 near the U.S. 93/93A split in Lincoln County exist. One additional gap—Storey County—is likely a combination of trucks on longer Interstate routes as well as trucks specifically serving the Tahoe-Reno Industrial Center which may make the need more closely related to staging parking concerns than long haul.

Figure 5.5 shows the existing gap at the county level as well as the gap at all authorized parking locations and the location of unauthorized public parking locations based on ATRI data. Note that the county-level gap is based on supply and demand on I-15, I-215, I-80, I-580, U.S. 93/SR 318, U.S. 95, and U.S. 395 only. The utilization gap (or surplus) includes additional sites beyond those routes and is based on data from ATRI with additional input from Park My Truck, TruckerPath, and stakeholders or field visits.

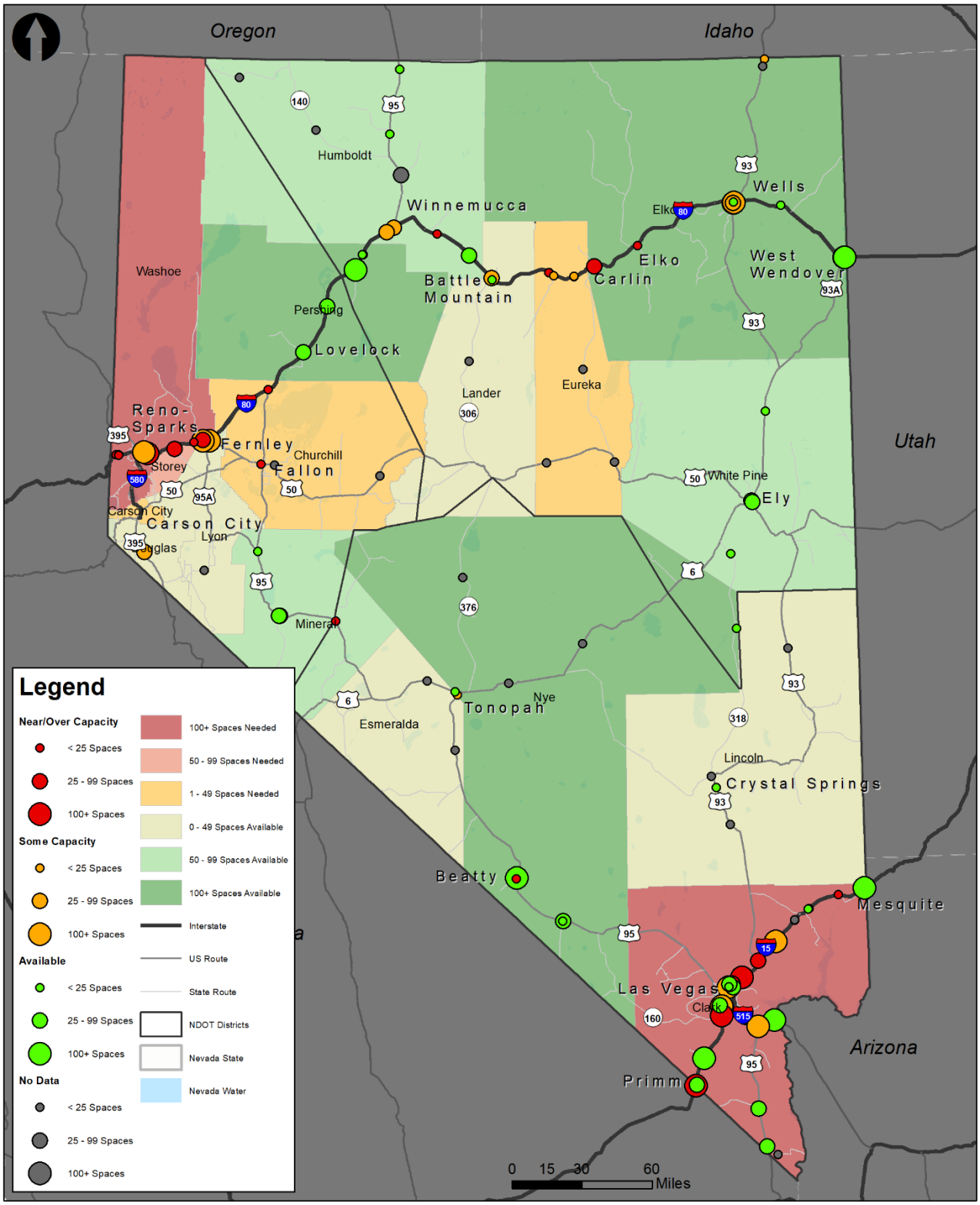
Beyond physical infrastructure, there also is a technology and information gap to assist long-haul drivers with finding parking. Of the nearly 4,400 authorized private parking spaces in Nevada, availability information for approximately half is maintained and updated by the parking facilities themselves by visual inspection and publicized through the "Park My Truck" application developed by NATSO.[15] These facilities include:

- Pilot Travel Center (West Wendover).
- Petro Wells (Wells).
- Flying J Travel Plaza (Wells).
- Petro Speedway (North Las Vegas).
- Pilot Travel Center (North Las Vegas).
- TA Las Vegas (@ Blue Diamond Road).
- Flying J Fuel Stop (Winnemucca).
- TA (Mill City).
- Pilot Travel Center (Fernley).
- Petro Sparks (Sparks).
- TA (Sparks).

None of the public parking locations in Nevada are equipped with truck counters or space detection technology which would notify drivers of available spaces.

[15] The TruckerPath application provides utilization data for a wider range of parking locations, but the data is based on crowd-sourced information, is not updated on a regular basis, and is much less accurate and detailed about the number of spaces available.

Figure 5.5 Truck Parking Gap by County and Composite Availability at Authorized Parking Sites



Source: NDOT, ATRI, Analysis by Cambridge Systematics, 2018.

5.4 Emergency Truck Parking Gap

The need to accommodate truck parking during unforeseen events—especially winter weather closures at Donner Pass on I-80 in California—was repeatedly mentioned by stakeholders during this study. The decision to close this vital artery is made by authorities in California and Nevada and impacts travelers in both States on either side of the pass. This is especially true for trucks as there are few if any authorized locations to park between Reno and Donner Pass, and the truck parking capacity in Washoe County already is reaching capacity during normal conditions.

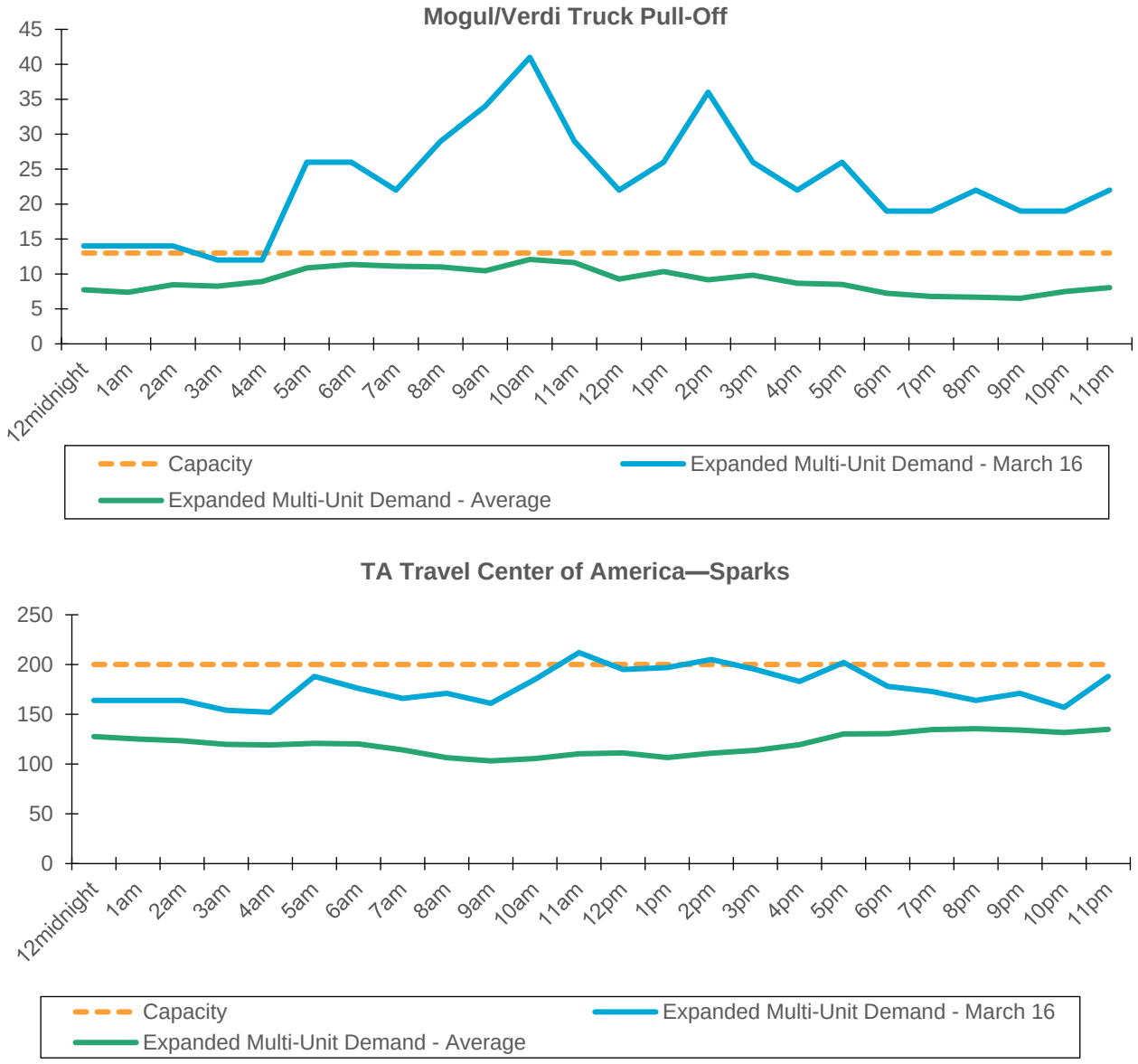
I-80 at Donner Pass during a closure
Source: NDOT.

To better assess the impact of a closure of I-80 on truck parking in Nevada, ATRI conducted an additional analysis using truck GPS data in northwest Nevada during a closure of Donner Pass on March 16, 2018.[16] Truck GPS data at parking locations in northwest Nevada on the 16th were compared to the average counts obtained during the ATRI Utilization Analysis which included March 17-30 as one of the two-week periods.

Sites on I-80 west of Sparks all saw a higher number of trucks parked using both ATRI raw truck GPS counts and the expanded multi-unit truck counts compared to days with regular operations on I-80. Figure 5.6 below shows an example of these higher utilization rates at Mogul/Verdi and TA Travel Centers in Sparks. Counts at these locations, along with Boomtown Hotel and Casino and Petro-Sparks were higher than average during every hour of the day with the exception of 9 p.m. at the Petro-Sparks. Sites further east on I-80 also saw increased demand, especially the Wadsworth Rest Area where estimated demand during the middle of the day on March 16th peaked at nearly three-times the site's capacity.

16 https://www.sacbee.com/news/weather/article205481994.html.

Figure 5.6 Utilization and Capacity—Select Truck Parking Locations (I-80) on March 16, 2018



Source: ATRI, Analysis by Cambridge Systematics, 2018.

6.0 Urban Parking Demand

As identified in the long-term parking needs analysis, the areas with the highest levels of demand are mainly in and around the urban centers of the State—Clark County in the south and Washoe and Storey Counties in the north. In addition to long-haul parking demand which is the primary focus of this study, these counties also are the primary generators of short-term staging demand due to higher concentrations of shippers and receivers, higher residential populations, and the higher cost of land which limits space to develop parking (either on-site or in nearby parking facilities) than in the rest of the State. These urban areas also generate a demand for longer-term parking for owner-operators—private contractors who own their vehicle and are not affiliated with a large company fleet. When at home, these drivers need a place to park their truck for a day or more, which is not allowed by major truck stops.

The location and demand for both longer-term parking and short-term staging are described below. NDOT may have a support role to play in addressing these needs, however, potential solutions to these issues mainly rests with private-sector businesses and local governments.

6.1 Longer-Term Parking Demand

The Owner-Operator Independent Drivers Association (OOIDA) is a trade association that represents independent owner-operator truck drivers. Owner-operator independent drivers own their own trucks instead of working for a company and driving a company vehicle. Since they do not have a warehouse or truck terminal to park their trucks at when off duty, they often park in residential areas between trips. Although parking of this type is different from other long-haul parking (e.g., there is no need for restrooms, trucks are not typically idling), this can become a source of conflict with neighboring residents and puts the owner-operator at risk of vehicle or cargo theft. As complaints mount, municipalities commonly post signs restricting truck parking in residential areas, but this just leads to parking in other undesirable areas, as the drivers must park somewhere, and does not solve the problem.

There are over 160,000 OOIDA members in the U.S. and Canada. In Nevada, OOIDA has 1,376 members, 68 percent of whom are located in the Las Vegas metropolitan area.[17] Even though OOIDA membership is not inclusive of all NV truck drivers, their membership reflects a particular type of truck parking need—long-term parking near residential areas. Within the Las Vegas Metro area, zip codes with the most OOIDA members (30 or more) are located near major highways (I-15, I-215, I-515, and U.S. 95) with the largest concentration in the 89031 zip code in the City of North Las Vegas. Within the Reno/Carson City area, the North Valleys area of Reno (zip code 89506, near I-80 and U.S. 395) has more than double the number of OOIDA members than the next highest zip codes. Additional truck parking in these areas would potentially benefit both owner-operator independent drivers as well as other truck drivers.

6.2 Short-Term Staging and Parking Demand

In addition to long-haul parking needs, stakeholders noted issues with short-term staging and parking, especially in industrial and commercial areas at the north and south ends of the Valley in North Las Vegas, and Clark County.

[17] https://www.ooida.com/WhoWeAre/.

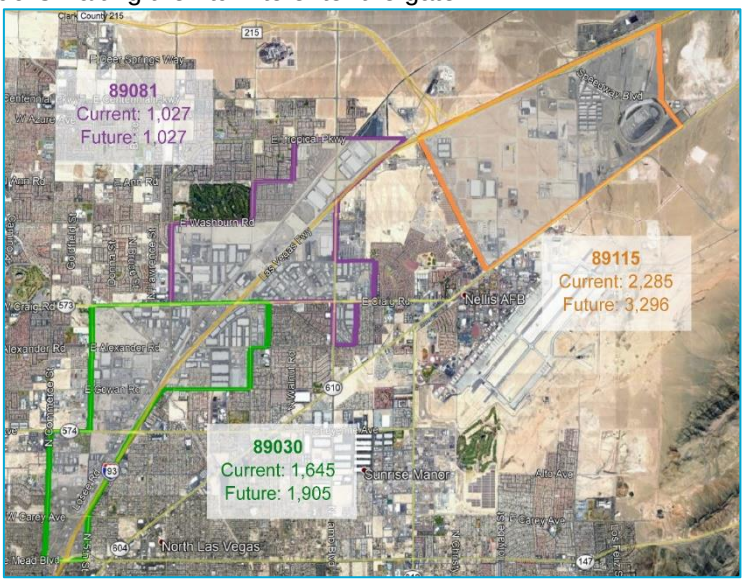
Short-term staging parking demand is different from long-haul demand in that trucks are parking while waiting to make a pickup or delivery instead of resting for a long period of time to satisfy FMCSA rest requirements. Therefore, trucks typically try to park as close to the loading/delivery location as possible and the short parking duration leads to more turnover at any single location. Additionally, drivers often need to rearrange their loads according to their delivery/pick-up appointments, termed cross-docking, so that pallets for the first appointment are at the end of the trailer, and so forth. Many commercial businesses have specific windows during which trucks can be on site to load or unload their goods. If drivers arrive before that time in order to guard against delays or other disruptions, they commonly are not allowed to park and wait on site. Without adequate short-term parking options near these industrial and commercial areas, trucks often park in unauthorized locations or on the street, leading to safety and maintenance issues.

Yard Hostler

Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Campbells_Shunt_Truck.JPG).

There is limited research on the amount of on-site parking required to support short-term staging parking at truck-reliant businesses. However, most of these facilities reserve all of the on-site parking spaces for internal operations. Outside companies are often allowed to drop trailers in the yard to be off-loaded at a later time when docks are available. The truck parking spaces on-site are reserved for those trailer drops, and then yard hostlers are used to shuttle trailers around the yard. There are no guidelines for the number of parking spaces needed outside the gate for trucks waiting their turn to enter the gate.

To approximate the areas where short-term staging and parking is most needed in the Las Vegas metropolitan region, this study used data from CBRE, a commercial real estate company, to map out concentrations of truck bays. CBRE provided data for the number of truck bays for all facilities at the zip code level. The current and future number of truck bays by zip code in the Las Vegas metropolitan area for facilities with five or more bays was identified. This study did not attempt to calculate the existing on-site truck parking capacity, which limits the ability to quantify potential gaps. The majority of warehouses are located in four zip codes (89030, 89081, 89115, and 89118) in North Las Vegas and Boulder Junction. Two-thirds of the planned growth in truck bays is occurring in North Las Vegas and Boulder Junction. Truck bays in these zip codes are expected to increase by 17 percent through 2020.



Number of Bays (Current and Planned 2020) at Facilities with 5+ Bays: Industrial and Commercial Concentrations—North Las Vegas

Source: CBRE, Google Earth.

6.3 Convention Marshalling Yard

The convention industry is a pillar of the Southern Nevada economy that brings in an average of $127 million per show and supports 65,000 jobs. In 2017, 6.6 million people visited Las Vegas for a convention, stayed longer and generally spent more money than leisure visitors. Current expansion projects will add more than three million square feet of meeting space to the Resort Corridor. This will add more trucks to the Resort Corridor, which already is congested with over 4,500 truck trips per day during the peak convention season.[18]

A marshalling yard is an off-site location that serves as the initial gathering place for exhibits en route to a tradeshow.[19] Having a permanent place to serve this purpose would enable congestion management strategies like reversible managed lanes, signal timing enhancements and special event coordination to be put in place. The goal of the marshalling yard in Las Vegas is to segregate and manage truck flows in the Resort Corridor and improve customer satisfaction with on-demand set-up and take-down.

Major competitors of the Las Vegas convention industry—convention centers in Chicago, Illinois and Orlando, Florida—provide onsite marshalling yards. In order to maintain its premier position in the industry and the economic benefits to the State, the Las Vegas Resort Corridor needs a convention marshalling yard.

Comparison of convention facilities

Source: Las Vegas Convention and Visitors Authority.

Representatives from the Las Vegas Convention and Visitors Authority (LVCVA) and the major convention service providers, Freeman and GES, have been trying to identify a location within the Resort Corridor for a consolidated marshalling yard for the use of all service providers. The most promising location is an unused 60-acre parcel of land at the end of one of the McCarran Airport runways at the Northwest corner of Tropicana Avenue and Swenson Street, and owned by the Clark County Department of Aviation. Because of Federal Aviation Administration (FAA) restrictions, most revenue generating uses are limited for this space. However, it is an ideal location for a marshalling yard because of its close proximity to the convention centers and meeting spaces and it is large enough to accommodate staging for many events at once by multiple management companies.

[18] Las Vegas Convention and Visitors Authority.

[19] Also commonly spelled “marshaling.”

7.0 Recommendations

Parking to satisfy HOS requirements is the key need area examined throughout the course of this study. This type of parking is found throughout Nevada, and the analysis conducted in this study identified a number of areas where additional investment—either public or private—would help improve conditions and support the operations of drivers across the State. The need for truck parking for long-haul trips in Nevada is greatest on the I-80 and I-15 corridors with smaller needs on U.S. 93 and U.S. 95. These are the main east-west and north-south corridors in the State supporting interstate commerce, typically requiring trips between origins and destinations further apart than the maximum daily driving limit. In addition, parking during emergency closures, especially in the western I-80 corridor, and parking for urban staging needs especially in the Las Vegas metro area also were identified as key concerns.

Long-haul truck parking in most of the rural areas of the State appears to be relatively well covered by existing public and private facilities, with known expansions of private parking facilities in a number of locations (including a new facility in Mesquite that opened during the course of this project). However, at the county level, demand still exceeds supply mostly near urban or industrial areas in Clark, Washoe, and Storey Counties, with limited gaps noted in other counties mainly along I-80 between Wells and Winnemucca. Using this information in combination with the input received from stakeholders, the following strategic implementation plan to address truck parking issues in the State has been developed. This includes a prioritized list of recommended solutions to best meet the parking needs of the State.

Additional information regarding the recommendations and implementation plan are available in technical memoranda *Nevada Truck Parking: Draft Recommendations*, and *Nevada Truck Parking: Draft Implementation Plan* on NDOT's Freight Planning website.

7.1 Toolbox of Truck Parking Solutions

A toolbox of potential solutions that could be applied in Nevada are summarized in Table 7.1 and briefly described in the sections below.

Table 7.1 Toolbox of Truck Parking Solutions

Category	Tools
Infrastructure	
Focus on the creation of new truck parking, expansion of existing truck parking capacity, conversion of other uses into truck parking, and addition of amenities.	• New Public Truck Parking—Truck Pull-Off/Turnout. • New Public Truck Parking—Inside Cloverleaf. • Expand Existing publicly owned truck parking facilities and Rest Areas. • Add Truck Parking to Weigh Stations. • Repurpose NDOT or NHP Facilities For Truck Parking. • Improve Amenities at Existing Truck Parking Locations.
Policy, Coordination, and Outreach	
Policy changes, education and outreach opportunities, and coordination efforts that can help close the truck parking gap in Nevada. Stakeholders within the truck stop industry commented that one of the best ways public agencies can support development of new or expanded facilities is not with financial support (which often comes with unwanted requirements), but help with local permitting requirements and fostering public support.	• Policy—Public-Private Partnerships (P3). • Policy—Competitive Loan/Grant Program. • Policy—Modify Freight Performance Measures. • Policy—Explore Sponsorship of publicly owned truck parking facilities and Rest Areas. • Policy and Coordination—Enforcement. • Policy and Coordination—Chain Up Areas, Inspection Sites, and Weigh Stations. • Coordination with regional coalitions, including the Western State Freight Coalition and the I-15 Dynamic Mobility Project can pool efforts to resolve truck parking issues and learn from best practices. Examples of multi-State coalitions include the I-10 Corridor Coalition (California, Arizona, New Mexico, and Texas) and the I-95 Corridor Coalition.
Urban Truck Parking Solutions	
Urban parking solutions must respond to Short-term staging parking, Long-term parking for independent owner-operators, and long-haul parking.	• Zoning. • Building Urban Truck Parking—Public Sector. • Building Urban Truck Parking—Private Sector. • Building Urban Truck Parking—P3 Approaches to Collective Staging Parking.
Technology and Data	
Technology and data solutions do not increase capacity, but can make finding parking easier and can reduce the impacts of idling (noise and air pollution) that are often the impetus behind community opposition to truck parking facilities.	• Truck Parking Availability System (TPAS). • Truck Stop Electrification (TSE).

7.1.1 Infrastructure

The first set of options involve building new or expanding existing public truck parking locations, or converting other facilities that are closed or will be closing to truck parking. Many of these ideas are derived from work conducted by the National Coalition on Truck Parking (NCTP) Working Groups.[20]

Figure 7.1 and Figure 7.2 offer examples of this approach. Figure 7.1 shows an existing truck Pull-off/ Turnout on I-15 that could be expanded to offer additional parking and potentially more amenities. Figure 7.2 shows a closed rest area on I-70 that was converted to just truck parking by the Missouri DOT (MoDOT), one of 23 such conversions in the State. These conversions supplement private parking facilities in locations with high demand and insufficient capacity and allow MoDOT to focus their limited resources on welcome centers and locations that are more remote and where private industry cannot operate profitably. Converting these locations to truck parking-only sites cost MoDOT approximately $1 million per site with a $2,000 per month operating cost. This saves MoDOT approximately $16,000 per month in reduced operating costs (covering the initial conversion cost in just over 5 years) and provides needed truck parking capacity.

Including minimal amenities at truck parking location makes the site more attractive to drivers, can help prevent environmental degradation, and helps States comply with Jason's Law which requires States to evaluate their capability to provide adequate truck parking and rest facilities for safe parking of commercial motor vehicles.[21] While there are no Federal guidelines or standards that define what must be included to qualify a truck parking location as safe, common low-cost amenities used at truck parking facilities are shown in Figure 7.3.

Figure 7.1 Mile Marker 110 (Mormon Mesa) Truck Pull-Off/Turnout
I-15 Southbound

Source: Cambridge Systematics, 2018.

[20] National Coalition on Truck Parking. Working Groups Products. Released December 6, 2018. Online at: https://www.overdriveonline.com/wp-content/uploads/sites/8/2018/12/NationalCoalitiononTruckParkingWorkingGroupsProducts-2018-12-10-15-45.pdf.

[21] https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/jasons_law/truckparkingsurvey/ch1.htm.

Figure 7.2 Missouri Converted Rest Area I-70

Source: MoDOT Presentation to the I-95 Corridor Coalition, May 1, 2018.

Figure 7.3 Low-Cost Truck Parking Facility Amenities

TRASH REMOVAL

Organizations looking to operate low-cost facilities should consider their methods of trash collection. Using dumpsters to collect trash requires less frequent emptying, which will reduce maintenance costs and responsibilities. Dumpsters need to be emptied approximately once a week at truck-only facilities. Regardless of the method used for trash collection, it is important to provide trash receptacles at any truck parking facility.

SURFACE MATERIAL

Low-cost paving material facilities could consider using is soil-cement, a highly compacted mixture of soil/aggregate, cement, and water. However, it is better suited to warm and dry climates because moisture, freezing, thawing, and plowing create a lot of wear and tear on the material. Gravel is another low-cost paving material that could be considered. Consider which materials would work best for the climate and amount of use of the facility.

TOILETS

Vault toilets (non-flush toilets with a sealed container, or vault, buried in the ground to collect waste) are a toilet option for low-cost truck parking facilities. At a truck-only facility, a vault toilet would need to be pumped out about once a month. Vault toilets are well-suited to lower-use facilities that cater to truck drivers. High-use facilities would require more frequent emptying of the vault, increasing operating costs. The cost of maintenance is less than portable toilets.

SAFETY AND SECURITY

When building additional truck parking capacity, organizations should consider security measures. Safety measures may include emergency phones, fire extinguishers, and access to a defibrillator. Security measures may include fencing and/or other barriers, security cameras, and lighting. Operators may consider solar for decreased maintenance costs. While implementing all of these ideas may not be low-cost, it is something operators should consider when adding parking capacity.

Source: National Coalition on Truck Parking Working Group Products.

7.1.2 Policy, Coordination, and Outreach

There are a number of policy changes, education and outreach opportunities, and coordination efforts that can help close the truck parking gap in Nevada. Some are simple and would require changes only within

NDOT. For example, NDOT could modify the performance measures developed in the State Freight Plan to better capture the negative impacts from the lack of truck parking and the benefits to safety, economic competitiveness, and infrastructure preservation from providing sufficient parking. This would help truck parking projects better compete against other funding options.

Multistate Coordination

NDOT also can continue its role as a partner with local municipalities, counties, and neighboring States to educate the public and find opportunities to work together to solve truck parking needs. Coordination with regional coalitions, including the Western Association of State Highway and Transportation Officials (WASHTO) Committee on Freight (which replaced the Western State Freight Coalition) and the I-15 Mobility Alliance can provide a way to pool efforts to resolve truck parking issues and learn from best practices in other States. A number of multi-State coalitions have sought funding for truck parking projects, including the I-10 Corridor Coalition (California, Arizona, New Mexico, and Texas), the I-95 Corridor Coalition, and several States within the Mid America Association of State Transportation Officials (MAASTO).

Convert Closed Facilities

NDOT also can identify and target closed facilities, whether owned by NDOT, the Nevada Highway Patrol (NHP), or another public agency, for potential conversion to truck parking-only facilities. As discussed above, MDOT is a leader in this area and have converted a number of former rest areas and weigh stations to truck parking. On a more temporary level, NDOT in partnership with NHP could explore allowing trucks to park at chain up areas or inspection sites that are not used on a consistent basis (especially chain up sites during non-winter months). Washington DOT made this recommendation in their 2016 Truck Parking Study.[22] This would be especially helpful in rural areas where chain up locations are often simple pull offs and do not require entry or exit ramps from a highway to be viable.

Mustang Inspection Site 0151—NHP facility that is no longer in use. Recommended for conversion to truck parking. I-80 westbound, Washoe County.
Source: Google Earth.

Public-Private Partnerships

More complicated policy options include the use of public-private partnerships (P3) or the development of a competitive grant or loan program. A P3 is an agreement between a Government agency and a private-sector company, or consortia, for the designing, building, financing, operating, and/or maintenance (or any combination) of a project and assets for a designated period of time, usually 25 to 30 years or longer. A P3 parking facility would likely be limited to urban parking lots which charge a fee for secure parking, and do not

[22] https://www.wsdot.wa.gov/NR/rdonlyres/A72C532D-B825-4757-B4BE-F00ABF93A6D6/0/TruckParkingStudyfFinal.pdf.

offer fuel and other amenities offered by truck stops. This would only be applicable to facilities outside of the Interstate right-of-way as Section 111, of Title 23, United States Code, and 23 CFR 752.5 prohibit commercial activity in rest areas located on the Interstate. During the 2017 Nevada Legislative Session, the State Senate (Senate Bill 448 (SB448)) updated language of Nevada Regulations and Statutes (NRS) 338.161–168 to allow for greater P3 usage on "Transportation Facilities" within the State. A transportation facility is classified as "a road, railroad, bridge, tunnel, overpass, airport, mass transit facility, parking facility for vehicles or similar commercial facility used for the support of or the transportation of persons or goods, including, without limitation, any other property that is needed to operate the facility.[23] Under SB448, the State is now authorized to use P3s to plan, finance, design, construct, improve, maintain, operate, or acquire the rights-of-way for a transportation facility. The legislation also states that related or ancillary facilities useful for providing, operating, maintaining, or generating revenue for a transportation facility also may be conducted or included under a P3. These ancillary facilities can include parking facilities and rights-of-way as deemed needed. Although SB448 expands P3s usage within the State, the scope of the P3 authorization is limited to Nevada counties with a population of 700,000+ residents (currently only Clark County).

Competitive Loan or Grant Program

Instead of spending money directly on public truck parking infrastructure, another potential avenue to help address truck parking needs in Nevada is to establish a competitive loan or grant program. This model would allow NDOT to respond to future changes in needs or demand more easily than having a specific set of scheduled projects. Funding could be open to both public- and private-sector applicants, with application rules that control the locations or types of projects that can be funded to meet NDOT needs. Competitive grant or loan programs are commonly used in States across the United States, especially for industrial rail or shortline freight railroad operations and capital projects. Minnesota, Oregon, Iowa, Wisconsin, Virginia, Washington, North Dakota, and Pennsylvania are States with well-developed programs that could serve as a guide.

A competitive grant program could be modified and administered by individual counties as a means of attracting private investment and extending revenues generated by SB 48 (described in Section 8.2.2) or other local taxes.

Enforcement

Finally, as NDOT, its partner agencies and municipalities, and the private sector continue to add parking capacity and information systems in Nevada, enforcement should become more active in enforcing HOS regulations in areas with viable, authorized, alternatives. Truck drivers often push their HOS to the limit, trying to gain every mile possible on a route before stopping to rest. With limited risk of enforcement, there is less incentive for drivers to stop at an authorized location before they run out of time. More supply and better access to information about that supply, combined with increased enforcement in those areas will help reduce instances of unauthorized parking and limit the safety, environmental, and infrastructure challenges associated with it.

7.1.3 Urban Truck Parking Solutions

Solutions for urban truck parking needs can take a number of forms. However, due to land use authority and limited publicly available land, NDOT's role in many of these solutions may be as a supporting, rather than a

[23] NRS 338.161 (https://www.leg.state.nv.us/NRS/NRS-338.html#NRS338Sec142).

lead, agency. Urban These solutions may occur in the future and are typically determined by local planning processes.

Public or Private Sector Build New Parking

The City of Weed, CA is one that has taken the lead at building public parking in a (small) urban environment (see sidebar). On the private side, several Nevada truck stop owners and operators were interviewed about the possibility of expanding truck parking specifically to address short-term and staging parking needs. Because these truck stops operate as a business, expansion is most likely in markets where the owner already does not have a presence and where there is a business case that makes expansion financially viable. In large urban areas where a national chain already has a truck stop focusing mainly on long-haul trips and overnight parking, many do not feel a second facility will generate sufficient revenue to justify the expense. Expanding the number of parking spaces at existing locations was greeted with more enthusiasm, but is limited by the availability and overall price of adjacent land.

There are, however, some examples of the private sector fully providing parking and staging areas. Truck Specialized Parking Services (TSPS) is a private operator of secure truck parking locations.[24] These facilities were developed through private-land acquisition and have no public-sector involvement, though the public sector can play a role through education and outreach to local municipalities where such facilities are planned.

The City of Weed, CA approached truck parking as an **economic development opportunity**. After providing free municipal truck parking adjacent to an existing Pilot Travel Center, additional investment has followed including plans for a new Love's Travel Stop with 97 additional truck parking spaces. The 12 existing business in South Weed (including multiple hotels, food stores, and a Chevron) near the truck parking area generate $1.8 million in sales tax revenue, 84% of the total revenue for this City of 3,000.

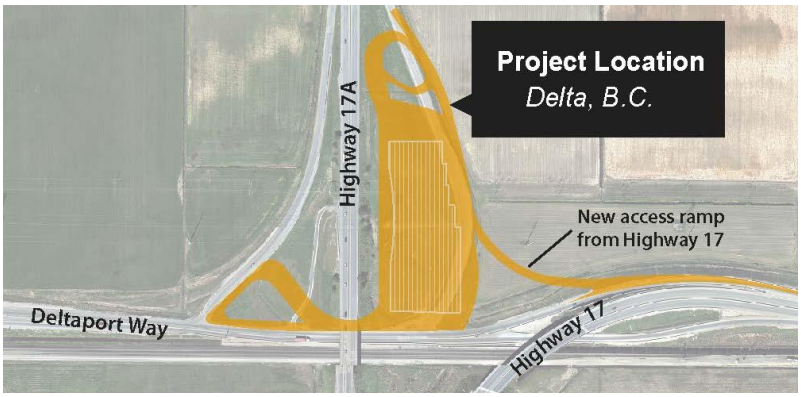
Source: I-95 Corridor Coalition.

Zoning

Another approach where the public sector can have a direct impact is through zoning. Zoning can be used to help locate freight facilities closer to more efficient truck routes. With better location and planning of freight routes, drivers would be able to park at designated parking areas further from a delivery point, with less concerns of traffic congestion or missing their assigned timings. Alternatively, municipalities could require new industrial or warehousing uses to build staging truck parking, especially those in a business park or other grouped setting. Although there are potential economic competitiveness issues, in rapidly growing areas or areas where many municipalities adopt such an approach, this strategy can help solve the staging parking issue at its source.

[24] http://www.tsps.io/.

In 2017, the Township of Upper Macungie in the Lehigh Valley of Pennsylvania passed a new zoning requirement which requires one (1) off-street truck parking space for every loading dock at a new warehouse or distribution facility.[25] The new zoning regulations also mandated one (1) truck staging space (with a 10-feet x 80-feet dimensions) for every two (2) loading spaces at a distribution or warehouse facility.[26] The new zoning requirements specifies that "*the applicant shall present credible evidence that the number of "oversized" off-street parking spaces provided for trucks will be adequate to accommodate the expected demand generated by the warehouse activities.*"



Shared staging parking. Port of Vancouver.
Source: Vancouver Frasier Port Authority.

Public-private Partnership

In addition, P3s can be an effective tool for sharing the costs and benefits in order to facilitate development of urban parking. An example of a short-term, shared, staging facility created through a P3 can be seen at the Canadian Port of Vancouver. The specific aid that NDOT or any other public entity could offer will vary depending on the specific project location and need. Public agencies can enter directly into a P3 arrangement. Alternatively, urban parking projects could benefit from a competitive grant/loan program similar to that discussed for long-haul parking.

Convention Marshalling Yard

Major competitors of the Las Vegas convention industry—convention centers in Chicago, Illinois and Orlando, Florida—provide onsite marshalling yards. In order to maintain its premier position in the industry and the economic benefits to the State, the Las Vegas Resort Corridor needs a convention marshalling yard. Clark County, the RTC of Southern Nevada, LVCVA, and major convention service providers should work together to identify a location within the Resort Corridor for a consolidated marshalling yard for the use of all service providers.

Technology and Data

The final set of tools to solve truck parking issues are the use of technology and data. Truck stop electrification (TSE) is an option, especially in areas near sensitive populations or with air quality concerns, to help alleviate issues with engine idling. TSE provides electrical outlets that trucks can use to power heating and cooling and use electronics while stopped instead of running their engines. The technology must be paid for and there are limits to deployment (e.g., cannot be used at public rest areas on the Interstate system).

Truck parking availability systems (TPAS) are a type of Intelligent Transportation Systems (ITS). TPAS makes finding a truck parking space easier and less stressful for drivers by accurately counting and disseminating the number of available spaces at connected facilities. This increases the efficient use of

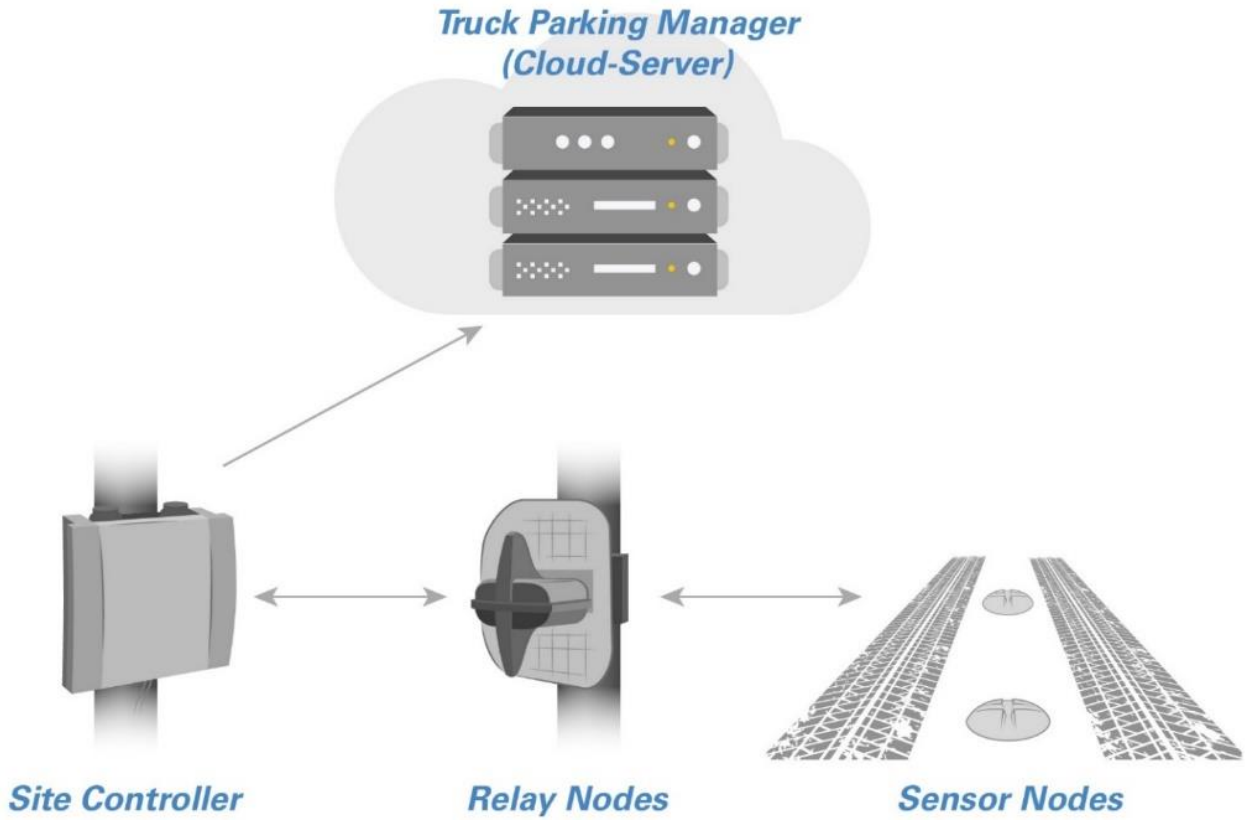
[25] Township of Upper Macungie Municipal Code § 27-605. https://ecode360.com/14517379.

[26] Township of Upper Macungie Municipal Code § 27-601. https://ecode360.com/14517379.

existing capacity and more advanced analysis such as predictive analytics can help predict the future supply of truck parking, providing drivers and dispatchers with even more information. Sites can be outfitted with a number of different types of sensors to identify the number of spaces available in real-time, and transmit this information to signs, websites, or smartphone applications. The links between these component pieces are shown in Figure 7.4.

While mostly targeted to public rest areas in rural locations, a modified TPAS could help urban areas with staging parking. One difference between the approaches is information dissemination in urban areas may focus more on an application or web service rather than message signs, as the distribution of origins/ destinations, parking options, and routes available makes it more difficult to inform drivers of options and conditions via a limited number of signs. A second difference is that NDOT does not own parking facilities in the urban areas of Nevada. Instead of a public rest area, some form of a P3 or even a strictly private truck parking facility may be required. It also is desirable to tie urban truck parking, especially short-term staging parking, with changes in zoning or land use development which is outside of direct NDOT control.

Figure 7.4 In-Ground Sensor Node Truck Detection System



Source: Derived from Cambridge Systematics work in support of the I-10 Corridor Coalition.

7.2 Recommendations

Based on the entire toolbox of potential ideas, recommendations for potential projects, policies, and outreach/coordination improvements were identified. After discussion with NDOT and other stakeholders, 20 infrastructure recommendations were advanced to the Implementation analysis. This list focuses on projects that NDOT can lead, which necessarily limits the projects to those proposed in rural areas where

NDOT has right-of-way (ROW) or access to U.S. Bureau of Land Management (BLM) land. Policy and outreach/coordination recommendations are not included in this list, although they are included in the overall Implementation approach discussed in the following section.

Figure 7.5 and Table 7.2 provide an overview of the projects advanced. As part of this process, preliminary site designs were developed for each of the recommended projects.
Figure 7.6 presents an example concept drawing of the Trinity Rest Area, 1 of the 15 projects identified. Planning level concept drawings and cost estimates for the recommended projects are included in Appendix A.

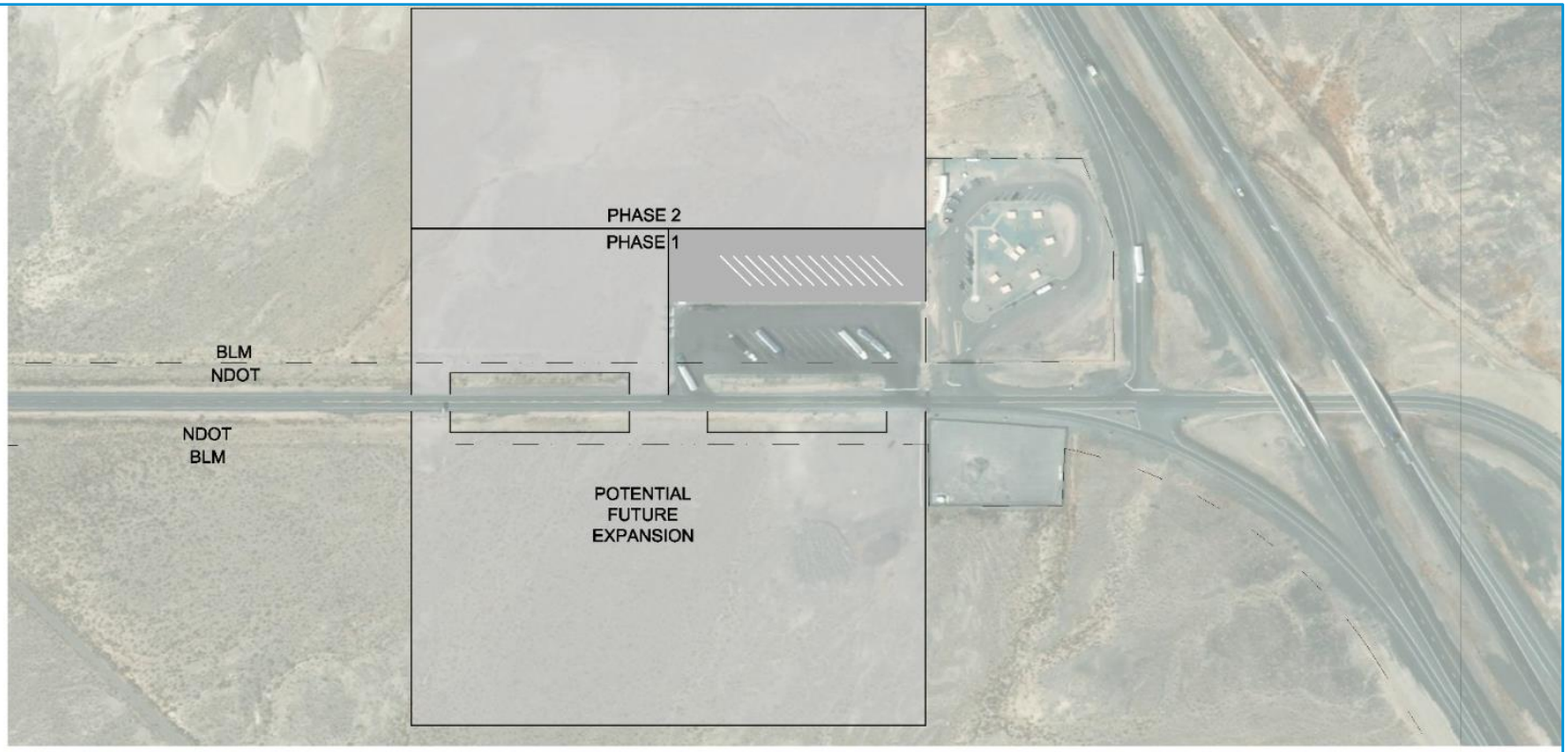
Figure 7.5 Recommended Projects

Table 7.2 Nevada Truck Parking—Recommended Projects Included in Implementation Analysis

Map No.#	Project	Parking Type	Location	Description
1.1	Mustang Check Station Conversion	Regular	I-80 WB	• Convert and expand to include 51 truck parking spaces • Restripe existing paved areas to create 10 spaces, as a no-/low-cost early action item
2.2	Mustang Check Station Conversion	Emergency	I-80 EB	• Add 50 unpaved truck parking spaces on south side of I-80 from the Mustang Check Station
2.1	Wadsworth Rest Area Expansion	Regular	I-80 WB	• Expand to add 10 new truck parking spaces. Maintains existing rest area/vehicle parking facilities.
2.2	Wadsworth Rest Area Expansion	Emergency	I-80 WB	• Add emergency parking area at Wadsworth Rest Area with 41 truck parking spaces
3.1	Trinity/Fallon Rest Area Expansion—Phase 1	Both	I-80 EB/WB and U.S. 95	• Add 36 truck parking spaces: 12 paved spaces for regular use (for a total of 24), and 24 gravel spaces for regular overflow and/or emergency parking
3.26	Trinity/Fallon Rest Area Expansion—Phase 2	Both	I-80 EB/WB and U.S. 95	• Add 24 (for a total of 48) paved truck parking spaces for regular use, and 24 (for a total of 48) gravel spaces for emergency parking • Secure additional right-of-way east of U.S. 95 for a mirror of west-side parking in case of future demand for additional emergency parking
4	Golconda Summit Truck Turnout Expansion	Regular	I-80 EB and WB	• Add 19 truck parking spaces (13 WB, 6 EB)
5	Beowawe Rest Area Expansion	Regular	I-80 EB and WB	• Add 32 truck parking spaces (16 EB, 16 WB)
6	SR 306 @ I-80 New Parking	Regular	SR 306 @ I-80	• Add 14 truck parking spaces
7	I-15 MP 110 (Mormon Mesa) Expansion	Regular	I-15 NB and SB	• Add 41 truck parking spaces (29 SB, 12 NB) for regular use
8	I-15 MP 96 Expansion	Regular	I-15 NB and SB	• Add 276 truck parking spaces (SB and NB) • Phase 1 adds 20 spaces and extended ramps for future, incremental additions as demand increases
9	I-15 MP 88 Expansion	Regular	I-15 NB and SB	• Add 26 truck parking spaces (13 SB, 13 NB) for regular use
10	I-15 MP 84 New Parking	Regular	I-15 NB and SB	• Construct a new truck parking lot with 54 paved spaces for regular use
11	New lot adjacent to Loves	Regular	I-15/U.S. 93 Interchange	• Relocate Las Vegas Blvd, and construct a new lot with 116 spaces
12	I-15 South Check Station	Check station	I-15 NB	• Include 20 truck parking spaces when a new weigh station on I-15 NB is built (anticipated location—near Primm)

Map No.#	Project	Parking Type	Location	Description
13	SR 360 @ U.S. 6	Regular	SR 360 and U.S. 6	• Add 14 gravel truck parking spaces for regular use when the brake check site is not being utilized for enforcement purposes. Can be expanded if future demand increases
14	Luning Rest Area Expansion	Regular	U.S. 95 NB and SB	• Stripe the existing lot to accommodate an additional 4 truck parking spaces for regular use
15.1	Truck Parking Availability System (TPAS) Phase I	TPAS	I-80 and I-15 (all public sites)	• Install TPAS at 6 priority locations (3 truck turnouts on I-15, 3 locations on I-80 to be determined) and complete all necessary data integration and system engineering work
15.2	Truck Parking Availability System (TPAS) Phase II	TPAS	I-80 and I-15 (all public sites)	• Install TPAS at all remaining public rest areas on I-15 and I-80 (15 additional locations, not including MP 84 new truck parking on I-15)

Figure 7.6 Concept Design—Trinity Rest Area



8.0 Funding and Financing Options

Construction of a new truck parking facility or expansion of existing facilities not entirely within the private sector will require local, State, and/or Federal funding resources. Although traditional procurement mechanisms and funding sources can be used for such investments, available public financial resources may not always be adequate. Therefore, consideration of new revenues sources and use of innovative financing mechanisms may be necessary for these types of investments. Most truck parking funding comes from Federal sources in addition to a limited number of local programs.

8.1 Federal Funding Programs and Grants Available

Section 1401 of Public Law 112-141 (MAP-21), commonly referred to as "Jason's Law," established eligibility for a range of facilities to provide for commercial motor vehicle parking. These facilities, located on the National Highway System (NHS), provide safe parking for truck drivers enhances public safety by ensuring drivers are well rested. Prior research by the Federal Motor Carrier Administration indicates that fatigue is a factor in approximately 13 percent of large truck involved crashes.[27] Eligible activities under Jason's Law include:

1. Constructing safety rest areas with truck parking.
2. Constructing public truck parking facilities adjacent to truck stops and travel plazas.
3. Opening existing facilities such as inspection and weigh stations and park-and-ride facilities to accommodate truck parking.
4. Promoting the availability of publicly or privately provided truck parking on the NHS using ITS or other means.
5. Constructing turnouts along the NHS for truck parking.
6. Making capital improvements to seasonal public truck parking facilities to allow the facilities to remain open year round.
7. Improving the geometric design of interchanges on the NHS to improve access to truck parking facilities.

A number of Federal formula fund programs listed below may be used to support the above truck parking projects. A description of each can be found in *Nevada Truck Parking: Draft Recommendations* available on NDOT's Freight Planning website.

- Surface Transportation Block Grant Program (STBG).
- National Highway Freight Program (NHFP).
- Highway Safety Improvement Program (HSIP).

[27] https://www.fmcsa.dot.gov/safety/research-and-analysis/large-truck-crash-causation-study-analysis-brief.

- National Highway Performance Program (NHPP).
- Congestion Mitigation and Air Quality (CMAQ).

In addition to formula funding programs, there also are several grant opportunities for truck parking projects listed below. A description of each can be found in *Nevada Truck Parking: Draft Recommendations* available on NDOT's Freight Planning website.

FDOT FASTLANE Application

- Infrastructure for Rebuilding America (INFRA).
- Better Utilizing Investments to Leverage Development (BUILD).
- Innovative Technology Deployment (ITD).
- Accelerated Innovation Deployment (AID).
- Diesel Emissions Reductions Act (DERA).
- Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD).
- Volkswagen (VW) settlement payments.[28]


Truck Stop Electrification
Source: Boston Metropolitan Planning Organization

8.2 State and Local Funding Programs

Nevada currently has a wide variety of transportation funding sources at the State and local level including:

- State gas taxes.
- State special fuel taxes.
- Motor vehicle registration taxes.
- Driver's license fees.
- Motor carrier fees.
- Formula and discretionary Federal transportation funds (primarily derived from Federal fuel taxes).
- Local gas taxes.
- Local special fuel taxes.
- Sales and use taxes.

[28] More information about the settlements between the U.S. EPA and Volkswagen and its entities is available here: https://www.epa.gov/enforcement/volkswagen-clean-air-act-civil-settlement.

- Property taxes.
- Impact fees.
- Assessments through improvement districts.
- Development tax.
- Government services tax supplemental.

8.2.1 Fuel Revenue Indexing

Fuel Revenue Indexing (FRI) in Clark County is an example of a local fee used to fund road transportation projects. This approach ties fuel taxes to the inflation rate, dedicating a portion of the additional revenue raised on each gallon of gas purchased to road construction, maintenance, and repair. FRI is anticipated to generate $3 billion between 2016 and 2026.[29] Washoe County has had a similar system in place since 2003 and had raised approximately $302.5 million through December 2017.[30]

8.2.2 SB 48 Rural Diesel Tax Bill

Another example of a local fee used to fund road transportation projects, and specifically truck parking projects, is SB 48 passed by the Nevada Legislature and signed by the Governor in 2019. SB 48 enables a rural Board of County Commissioners the ability to enact up to a 5 cent diesel tax by a 2/3rds majority vote of their members, or to decide to take the diesel tax to a vote of the people at a general election. Rural counties which implement the 5 cent tax and have more than 10 million gallons of diesel sales annually will be required to contribute up to 10% of the proceeds of the tax to NDOT for truck parking projects within the county. It is believed this will set a national precedent for local governments to assist in funding truck parking.

Currently, only four rural counties meet the 10 million gallon threshold. Those counties and the estimated annual proceeds from the fuel tax earmarked for truck parking are:

- Elko $211,000
- Humbolt $109,000
- Lyon $260,000
- Pershing $60,000

8.3 Other Funding Options

8.3.1 Direct User Fees

Pay-for-use truck parking is relatively rare in the United States. Some truck parking facilities do offer reservation systems where a space can be reserved for a fee, but few charge a “use” fee for all vehicles entering the lot. However, a limited number of public and private examples exist. A public parking lot off I-86

[29] https://www.rtcsnv.com/fri/docs/FRI_FAQs.pdf.

[30] https://www.rtcwashoe.com/wp-content/uploads/2018/04/Item-3.2-Indexed-Fuel-Taxes-Report-FY-19.pdf.

in Elmira, NY, and a short-term parking facility operated by TSPS in Detroit, MI, are two examples explored in further detail in Sections 4.2.3 and 4.2.4 of the *Nevada Truck Parking: Draft Recommendations*.

User fees can help projects fund operations and maintenance costs and potentially generate a profit to help cover initial capital costs. The fee structure would need to be organized to establish usage type: short-term, overnight, or long-term local parking due to the different parking patterns with each. For example, a lot aimed at short-term staging parking would expect a higher truck turnover rate than a lot designed to accommodate overnight parking. Within an urban staging area, the direct user fees could be collected from the individual driver, or through a space licensing agreement with their delivery location.

Funding could also be directed from existing taxes and fees, including Truck and Trailer Sales Tax, Heavy Vehicle Use Tax, and Truck Tire Tax. These taxes currently are deposited in the Highway Trust Fund,[31] but could be earmarked or partially isolated for truck parking specific projects. This would, in essence, be creating a truck parking user fee through this tax revenue, while also directly giving needed services back to the truckers who pay the tax.

8.3.2 P3

P3s are an alternative financing and risk transfer tool used by governments for large projects, as opposed to a standard public procurement. A P3 is an agreement between a Government agency and a private-sector company, or consortia, for the designing, building, financing, operating, and/or maintenance (or any combination) of a project and assets for a designated period of time, usually 25 to 30 years or longer.

There are risks and benefits to organizing a potential truck parking solution under a P3 arrangement. Since the agreement may encompass many decades and various parties, the long-term usage patterns have to be well understood and all parties clear on their responsibilities and expectations. Even with the inherent risk, P3s can be seen as attractive alternative to traditional procurements as Government agencies can allow for new methods of innovative financing for parking projects and financial risk on the project can be shared with or fully transferred to the private sector. A well-developed P3 can also have the benefit of incentivizing the use of the parking area by freight facilities directly involved in the building, operations, and/or maintenance of the new truck parking area.

P3s can be used to develop both new facilities or expanding existing ones. New facilities allow for the greatest flexibility in the project development and P3 structuring. In cases where the P3 is expanding or revitalizing existing assets, the private sector may seek higher compensation for taking on the additional risk of assets which they did not have control of during its initial planning, construction, or prior maintenance.

8.3.3 Design-Build-Finance-Operate-Maintain (DBFOM)

P3s under a DBFOM arrangement or concession transfer to a private-sector partner full responsibility for the design, construction, finance, and long-term operations and maintenance of a facility or asset over a set period of time. In almost all cases, the public entity retains overall ownership of the facility throughout, and has responsibility transferred back at the end of the contractual period. During the time the private sector is responsible for the facility or asset, they will be compensated through availability payments (contractually set

[31] FHWA. “Funding Federal-aid Highways, Section 07—The Highway Trust Fund.” Office of Policy and Government Affairs. January 2017. https://www.fhwa.dot.gov/policy/olsp/fundingfederalaid/07.cfm.

annual payments from the public sector with level-of-service requirements), through a collection of tolls or direct user fees, or an agreed combination of both.

8.3.4 Sponsorships

A final P3 approach involves obtaining private-sector sponsorships for signage. For example, Florida DOT currently is looking for a sponsor to support its statewide TPAS signage after receiving FHWA approval in February 2018. There are 72 signs in advance of 67 Weigh Station, Rest Area, and Welcome Center facilities available for sponsorship although the initial sponsorship locations will be fewer due to site work in some locations. FDOT would ideally like a single sponsor but is open to regional sponsors. FDOT anticipates gross annual sales between $226,000 and $407,000 for a statewide sponsor, between $158,000 and $271,000 for a regional sponsorship based on selling 50 percent of the available inventory, and more than $500,000 for a regional approach with 100 percent of inventory sold. Prospective sponsors include recruiting and training companies, trucking companies, service providers (tires, navigation, etc.), manufacturers, insurance companies, and trucking associations.[32,33] Revenue will be used for O&M costs associated with the truck parking program and emphasizing the link between sponsor, O&M, and the safety benefits provided by the TPAS was a key strategy in getting the program approved.[34]

GEICO-Sponsored Rest Area
Source: New Jersey DOT.

Beyond truck parking, FDOT also partnered with GEICO to sponsor its “safe phone zone” signs, which are aimed at curbing distracted driving. Signage encourages drivers to pull over into these “safe phone zones” to use their cellphones for calling, texting, and accessing mobile apps while on a break from driving. Although GEICO no longer sponsors these zones in Florida, it continues to support similar efforts in New Jersey, New York, Virginia, Arizona, Illinois, North Carolina, and Texas.[35] These efforts helps bring in additional revenue to each State’s highway system for reinvestment in rest areas and other highway operational needs, while also reducing instances of distracted driving.

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32 FDOT letter to James Christian, Division Administrator—FHWA. “Florida—Truck Parking Availability System Sponsorship Program.” January 24, 2018.

33 FHWA blocked a request from Texas Department of Transportation in 2017 to display commercial logos on electronic message signs. Note that the FDOT sponsorship panels will be separate from the TPAS sign. For further information, see: https://www.natso.com/articles/articles/view/fhwa-blocks-commercialization-of-signs-on-the-public-right-of-way.

34 Email from Marsha Johnson, Strategic Initiatives Office, FDOT. November 28, 2018.

35 http://www.safephonezone.com/index.html.

(Footnote continued on next page...)

8.3.5 Tax Incentives

To encourage more truck parking development at private facilities or in a collective joint-use area, a tax incentive program may be developed.[36] This program could be focused on the preservation of industrial activity in the area in conjunction with truck parking requirements. The State or municipality taxing authority could enact an incentive program, establish an industrial tax district, or pooled funding mechanism for the development of greater off-street truck parking on individual facilities or at a joint-use staging area. The State of New York had previously explored a tax incentive program for new truck parking under MAP-21 and Jason's Law, but the bill made it no further than State's Senate Transportation Committee.[37]

Tax incentives or low-interest State or municipal loans could also be created to support expansion of truck parking at private-sector areas, such as truck stops or shopping centers. These incentives and loans may also encourage individual freight facilities to establish more onsite parking. Using public finance, right-of-way authority, or taxing structure to support private sector development, could also be translated into an overall P3 agreement.

[36] FHWA, National Coalition on Truck Parking. "Activity Report 2015-2016." https://ops.fhwa.dot.gov/publications/fhwahop17026/fhwahop17026.pdf.

[37] New York Senate Bill S.3773 https://trackbill.com/bill/new-york-senate-bill-3773-creates-various-programs-to-protect-safety-of-truck-drivers/393441/.

9.0 Implementation Plan

9.1 Project Prioritization Process

The recommended projects were prioritized following a multi-objective decision-making process. Projects received points based on evaluation criteria developed and modified from the One Nevada Plan (see Figure 9.1). However, unlike ranking projects in a statewide plan, all of the proposed projects in the Nevada Truck Parking Implementation Plan address a similar concern—adding capacity or improving efficiency and reliability of truck parking. Differentiating the level of benefit across the project categories in order to rank projects is the critical path for this Implementation Plan.

One Nevada Plan Planning Goals

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

While the criteria used follow the spirit of those used in the One Nevada Plan, they were modified to better focus on the goals and potential impacts of truck parking projects. The six goals identified in the One Nevada Plan (shown to the right) form the basis for the evaluation criteria.

Figure 9.1 Project Prioritization; Scoring Criteria

Improves Emergency Parking (0-6 points)	• Improves a "County" gap in parking (0-3 points). • Improves a "Site" gap in parking (0-3 points).
Safety (0-3 points)	• Reduces distance between sites with authorized truck parking. The bigger the gap reduced (based on drive time), the higher the score.
Economy (0-3 points)	• Based on AADTT past the site.
Connect Communities (0-3 points)	• Landscaping and aesthetics.
Foster Sustainability (0-3 points)	• Environmental sustainability (0-1 point) • Fiscal sustainability (0-2 points)
Preservation (0-3 points)	• Based on amount of new construction. Reuse of existing facility scores best, big new construction worst.
Project Readiness (0-3 points)	• Within NDOT ROW. • Can be obligated within 2 years. • Not inconsistent with other plans.

By awarding projects points within these goal categories, projects across a wide range of geographies, modes, and costs are assessed a “benefit” score. Projects are then ranked by benefit, cost, or benefit/cost to identify projects that provide the greatest value.

Ranking projects by benefit score or benefit score divided by cost-per-space provided a starting point to identify priority projects. However, a strict ranking by these methods does not produce a short-list of projects for immediate implementation. Some projects, such as the I-15 South Check Station, could not be ready for implementation within a short period of time, regardless of where it was ranked. As the goals of this Implementation Plan are to identify projects that are highly beneficial and that can be deployed in the near-term, two factors are of critical importance:

- Ability to obligate project by September 2020.
- Ability to integrate work with adjacent projects.

The initial pool of money to fund truck parking projects comes from the National Highway Freight Program (NHFP) formula funds. These funds must be obligated by September of 2020. Only projects that can meet this deadline are considered for immediate implementation. Projects that can be integrated with adjacent projects can typically be completed with fewer resources—staff and financial—and therefore should be considered for joint implementation. In other cases, adjacent projects might conflict, therefore delaying one project until both can be constructed concurrently can save costly rework.

9.2 Projects to be Implemented

Table 9.1 presents the timing for project implementation based on its priority score (benefit score or benefit score divided by cost-per-space), ability to be obligated by September 2020, and the timing of adjacent projects. Eight projects with a combined capital cost of $10,727,000 are proposed for immediate action utilizing NHFP formula funds. Six projects with a combined capital cost of $4,825,000 are proposed for implementation by 2024. Two projects valued at $2,860,000 are proposed for implementation by 2030, and four projects valued at $8,800,000 are proposed for implementation by 2040. The total cost of all projects in present day value is $27,212,000. Changes in demand for parking could advance or slow the timing of these projects.

Table 9.1 Implementation Schedule for Recommended Projects

ID	Route	Project	# Spaces Add	Estimated Capital Cost	Benefit Score	Benefit Score/Cost per Space (* 10,000)	Packaged with Other Projects		Can Obligate by Sept 2020	Proposed Timing
							Adjacent Projects	Date		
1.1	I-80	Mustang Check Station—WB, Regular Parking	51	$1,400,000	15	5.46	I-80 Widening	2030	Yes	By 9/2020
1.2	I-80	Mustang Check Station—EB, Emergency	51	$1,500,000	13	4.42	I-80 Widening	2030	Yes	By 9/2020
2.1	I-80	Wadsworth Rest Area Expansion—Reg	10	$646,000	20	3.10		2021	Yes	By 9/2020
2.2	I-80	Wadsworth Rest Area Expansion—Emergency	41	$581,000	13	9.17		2021	No	By 9/2020
7	I-15	I-15, MP 110 (NB and SB)	41	$1,600,000	14	3.59	SB Site Expansion	2021	Yes	By 9/2020
8.1	I-15	1-15, MP 96 (NB and SB), Phase 1	20	$2,740,000	18	1.31			Yes	By 9/2020
14	U.S. 95	Luning Rest Area Expansion (in-house striping)	1	$ –	17	Max			Yes	By 9/2020
15.1	All	TPAS—Phase I (6 sites + Backbone)	125	$2,260,000	22	12.17			Yes	By 9/2020
3.1	I-80 & U.S. 95	Trinity Rest Area Expansion—Phase 1 (Reg + Emergency)	36	$765,000	22	10.35	RE Upgrade and 3R on U.S. 95	2022	Yes	2020–2024
5	I-80	Beowawe Rest Area Expansion	32	$1,200,000	18	4.80	RE Upgrade	2023	No	2020–2024
6	I-80	SR 306 @ I-80	14	$414,000	16	5.41	Interchange Upgrade	2021	Yes	2020–2024
11	I-15 & U.S. 93	Relocate Las Vegas Blvd. and add parking @ Loves	116	$ –	16	Max	City of North LV Relocate LVB		No	2020–2024
13	U.S. 6	SR 360 @ U.S. 6 Expansion (gravel)	14	$226,000	17	10.53	3R	2021 or 2022	Yes	2020–2024
15.2	All	TPAS—Phase II (all NDOT sites on Interstates)	175	$2,220,000	22	17.34		2022	Yes	2020–2024
3.2	I-80 & U.S. 95	Trinity Rest Area Expansion—Phase 2 (Reg + Emergency)	48	$1,860,000	17	4.39	RE Upgrade and 3R on U.S. 95	TBD	Yes	2025–2030
12	I-15	I-15 South Check Station	20	$1,000,000	10	2.00	New Check Station		No	2025–2030
4	I-80	Golconda Summit Expansion	19	$1,600,000	16	1.90			Yes	2031–2040
8.2	I-15	I-15, MP 96 (NB and SB), Phase 2	256	$4,730,000	18	9.74			Yes	2031–2040
9	I_15	I-15, MP 88	26	$1,150,000	16	3.62			Yes	2031–2040
10	I-15	I-15, MP 84	54	$1,320,000	11	4.50			Yes	2031–2040
Total				**$ 27,212,000**						

9.3 Recommended Policies and Other Actions

There are a number of policy changes, education and outreach opportunities, and coordination efforts that can help close the truck parking gap in Nevada. The actions, timeframe, lead agency, and partnerships recommended to implement these policies are described in Table 9.2.

Table 9.2 Recommended Policy and Program Actions

Policy/Program	Action	Timeframe	Lead Agency	Partner(s)
Expand existing publicly owned truck parking facilities and rest areas	• Consider expansion with any rest area upgrade.	Ongoing	NDOT	
Sponsorship of publicly owned truck parking facilities and rest areas	• Monitor FDOT's efforts and consider for future inclusion in any truck parking system designs.	1-5 years	NDOT	FAC, FHWA
Add truck parking to weigh stations	• Consider adding truck parking to any new or renovated weigh station.	Ongoing	NDOT	NHP
Repurpose NDOT or NHP facilities for truck parking	• All rest areas and weigh stations that are planned to be closed should be considered for conversion to truck parking.	Ongoing	NDOT	NHP, FHWA
Allow parking at chain-up, brake check, inspection sites during off season	• Conduct a safety assessment of all subject locations to determine if allowing overnight parking would be safe and operationally feasible.	1-5 years	NDOT	NHP
Add truck parking to rural highways	• Adding simple truck parking areas, such as a truck pull-off/turnout, should be considered with highway expansion or improvement projects. These sites should be added in locations where NDOT has sufficient ROW along critical corridors to help close gaps between existing truck parking facilities. Ideally, small truck parking facilities should be located every 20–30 miles to provide drivers with authorized parking options. Key corridors that should be targeted include: – U.S. 95 between Las Vegas and Amargosa Valley. – U.S. 95 between Beatty and Tonopah. – U.S. 95 between Tonopah and Luning. – U.S. 93 between I-15 and Alamo/Crystal Springs. – SR 318 between Crystal Springs and Sunny Side Rest Area. – U.S. 93 between U.S. 93/93A junction and Wells. – U.S. 93A between U.S. 93/93A junction and West Wendover. – U.S. 93 between Wells and Jackpot.	Ongoing	NDOT	

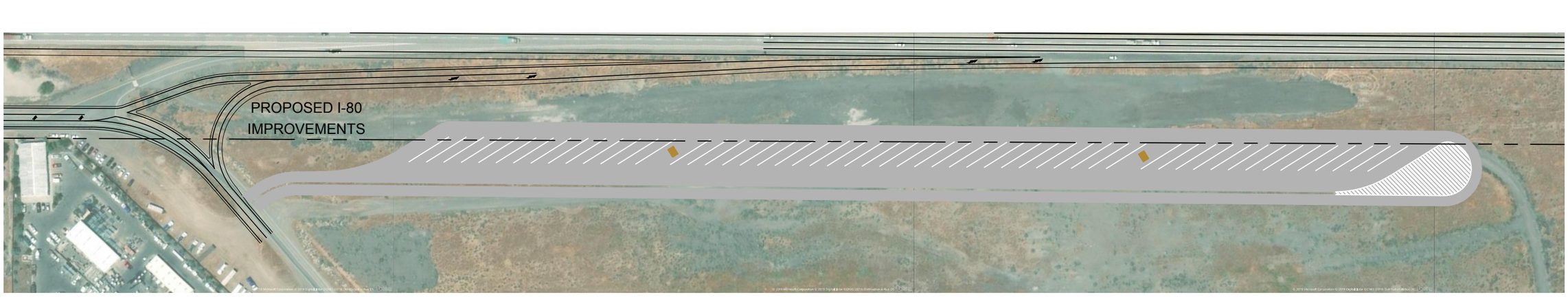
Policy/Program	Action	Timeframe	Lead Agency	Partner(s)
Enforcement	• As NDOT, its partner agencies and municipalities, and the private sector continue to add parking capacity and information systems in Nevada, law enforcement agencies should become more active in enforcing HOS regulations in areas with viable, authorized, alternatives. Reevaluate in future after immediate and short-term projects have been implemented.	2025	NHP	Local law enforcement, NDOT, FAC
Modify freight performance measures	• Consider modifying freight performance measures during the next update of the Nevada State Freight Plan.	1–5 years	NDOT	FAC
Multistate coordination	• Continue multistate coordination, in particular with the Western States Freight Coalition, the I-15 Mobility Alliance, and the recent National Economic Partnerships grant award for the I-15 Freight Mobility Enhancement Plan.	Ongoing	NDOT	
Public-private partnerships (P3)	• By providing funding, land, access, or other benefits, public investment may be able to induce private-sector investment in truck parking in areas where high costs would otherwise discourage private investment. This is particularly applicable in urban areas where the demand for parking and values are the highest. • Identify a P3 pilot project, secure funding commitments from public and private partners, and request U.S. DOT funding support via BUILD or INFRA grants. Such a project would be highly competitive for U.S. DOT funding under the current criteria for these grants.	1–5 years	NDOT	Applicable local jurisdiction
Truck parking ordinance	• Require facilities that receive and dispatch large numbers of trucks to provide onsite and/or contribute to the construction, operations, and maintenance of common staging/parking areas. • A common staging/parking facility would likely be developed as a P3 as described above.	1–5 years	Urban cities and counties	NDOT
Public urban truck parking facility	• No action required at this time. It is recommended that a P3 urban truck parking facility, described above, be investigated first.	N/A		
Convention Marshalling Yard	• Identify and develop a location within the Las Vegas Resort Corridor for a consolidated marshalling yard for the use of all service providers.	1–5 years	TBD	Clark County, RTCSNV, LVCVA, major convention service providers
Competitive loan/grant program.	• No action recommended at this time. Reevaluate in future.	2025	NDOT	FAC
Statewide TPAS deployment.	• Implement phased approach as identified in the implementation schedule for recommended projects. Phase 2 would be a good candidate project for a multistate BUILD or INFRA grant.	2019–2025	NDOT	FAST

Appendix A. Site Designs/Costs

I-80 WESTBOUND

CHARACTERISTICS:
51 STALLS
8 RESTROOMS

ESTIMATED CONSTRUCTION COSTS:
$ 1.4 M



I-80 EASTBOUND

CHARACTERISTICS:
51 STALLS
8 RESTROOMS
REQUIRES ADDITIONAL ROW

ESTIMATED CONSTRUCTION COSTS:
$ 1.5 M

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL 1" = 200'
VERTICAL N/A

WARNING
0 0.5 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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WADSWORTH

CHARACTERISTICS:
20 STALLS (PAVED)
41 STALLS (GRAVEL)

ESTIMATED CONSTRUCTION COSTS:
$ 1.23 M

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL: 1" = 200'
VERTICAL: N/A

WARNING
0 0.5 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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WADSWORTH

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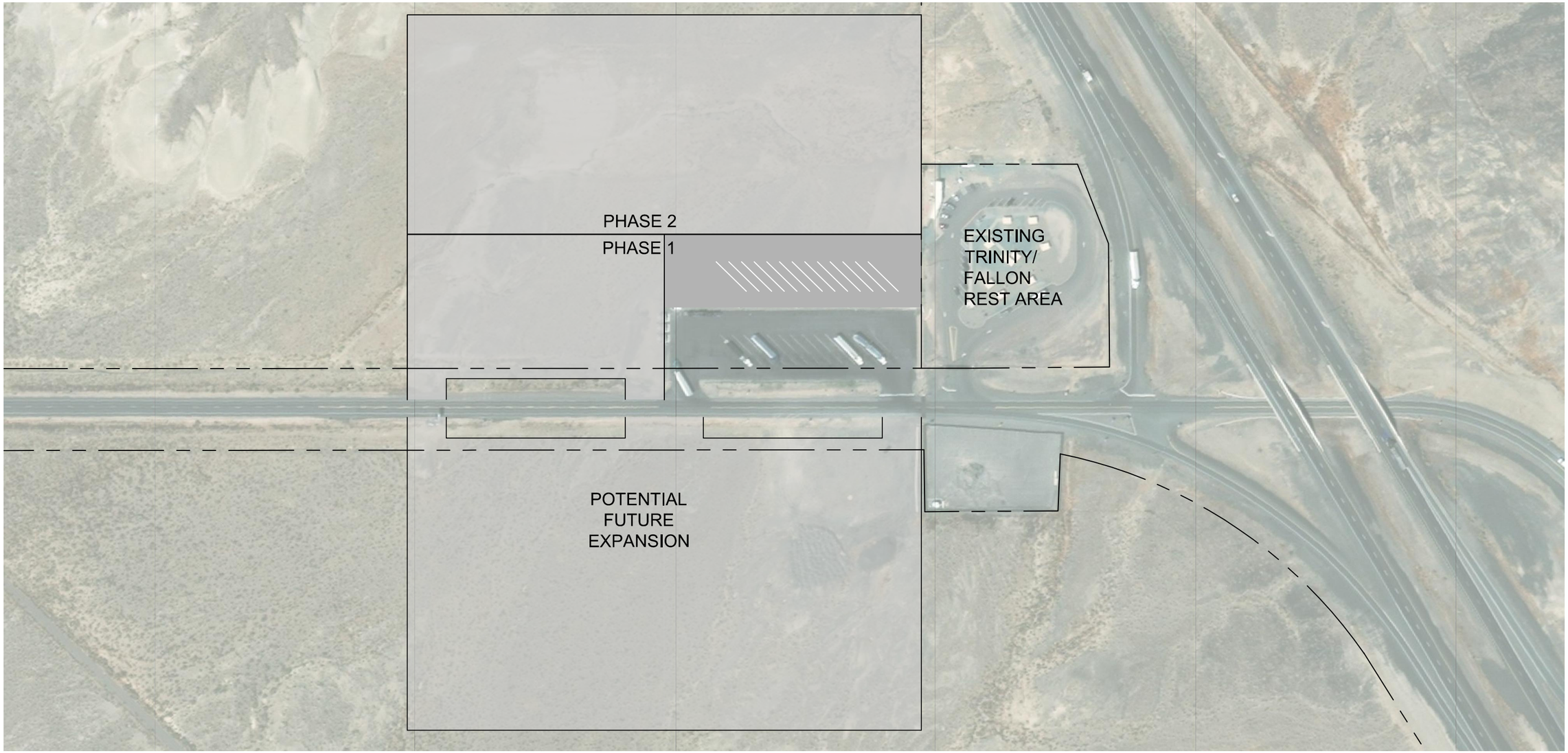

US 95 & I 80

PHASE 1

CHARACTERISTICS:
24 STALLS (PAVED, 12 NEW)
24 STALLS (GRAVEL)
3 EXISTING BATHROOMS
NEEDS ADDITIONAL ROW FROM BLM

ESTIMATED COST:
$ 765,000

PHASE 2

CHARACTERISTICS:
48 STALLS (PAVED, 24 NEW)
48 STALLS (GRAVEL)
6 BATHROOMS (3 NEW)
NEEDS ADDITIONAL ROW FROM BLM

ESTIMATED COST:
$ 1.86 M

HORROCKS

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL 1" = 200'
VERTICAL N/A

WARNING
0 0.5 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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TRINITY/FALLON

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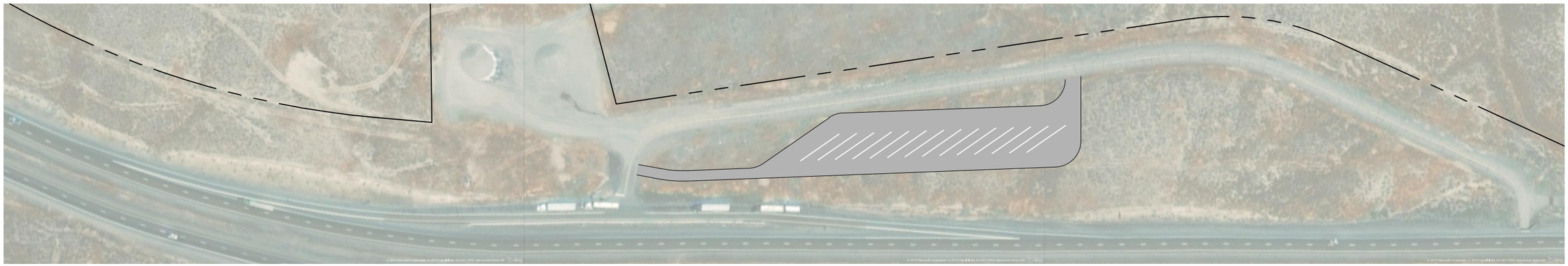
CHECKED B. COLTON	DATE	DRAWING NO. FAL EXH



I-80 WESTBOUND

CHARACTERISTICS:
13 STALLS
EXPANDABLE

ESTIMATED CONSTRUCTION COSTS:
$ 400,000

I-80 EASTBOUND

CHARACTERISTICS:
6 STALLS
REQUIRES BRIDGE EXPANSION

ESTIMATED CONSTRUCTION COSTS:
$ 1.2 M

N

HORROCKS

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL: 1" = 200'
VERTICAL: N/A

WARNING
0 0.5 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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GOLCONDA

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CHECKED: B. COLTON	DATE:	DRAWING NO.: GO EXH

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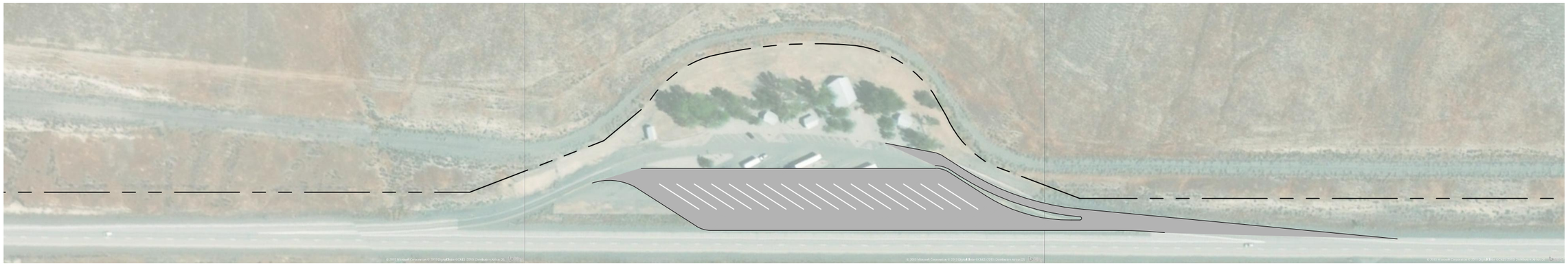

I-80 WESTBOUND

CHARACTERISTICS:
16 STALLS (10 NET)

ESTIMATED CONSTRUCTION COSTS:
$ 500,000

I-80 EASTBOUND

CHARACTERISTICS:
16 STALLS
EXPANDABLE
REQUIRES NEW OFF RAMP

ESTIMATED CONSTRUCTION COSTS:
$ 700,000

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL 1" = 200'
VERTICAL N/A

WARNING
0 0.5 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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BEOWAWE

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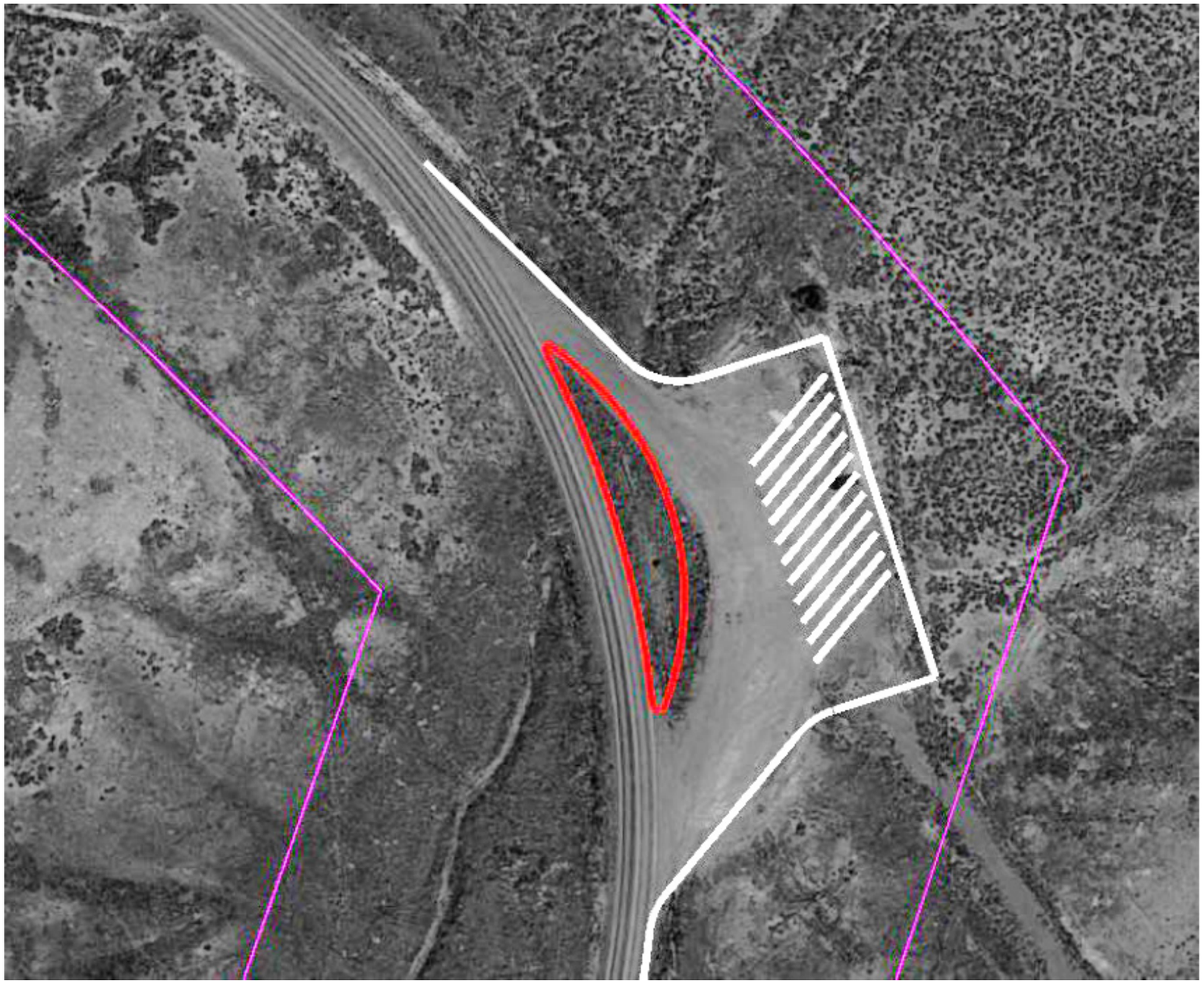
CHECKED B. COLTON	DATE	DRAWING NO. BE EXH

SR 306, South of I-80

14 spaces

$414,000

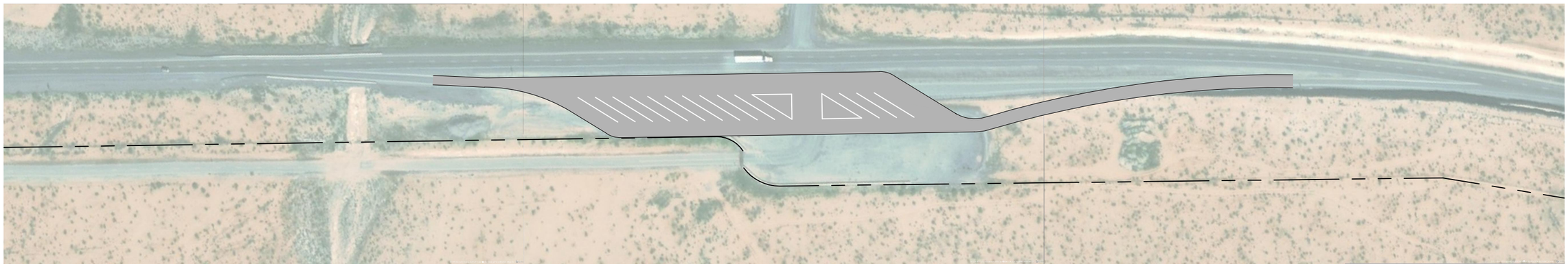


Source: NDOT

I-15 SOUTHBOUND

CHARACTERISTICS:
29 STALLS
REQUIRES NEW OFF RAMP

ESTIMATED CONSTRUCTION COSTS:
$ 1.0 M



I-15 NORTHBOUND

CHARACTERISTICS:
12 STALLS
REQUIRES NEW ON RAMP

ESTIMATED CONSTRUCTION COSTS:
$ 600,000

N

HORROCKS

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL: 1" = 200'
VERTICAL: N/A

WARNING
0 0.5 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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MP 110

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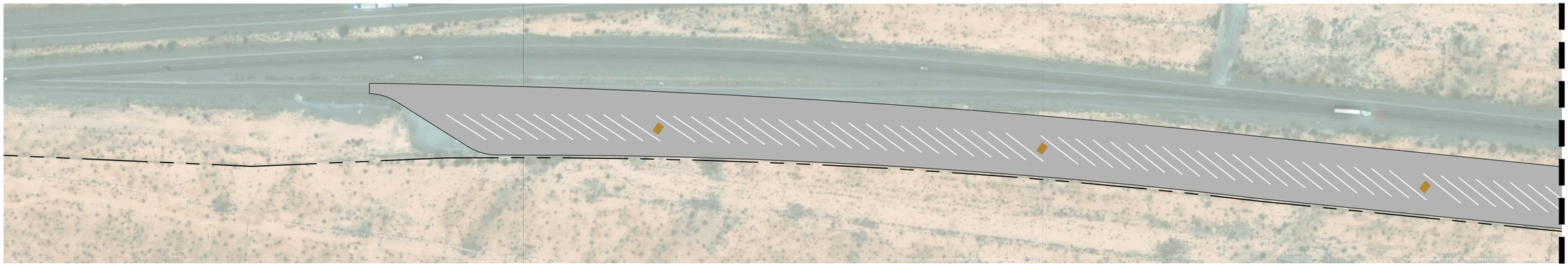
CHECKED: B. COLTON	DATE:	DRAWING NO.: MM EXH



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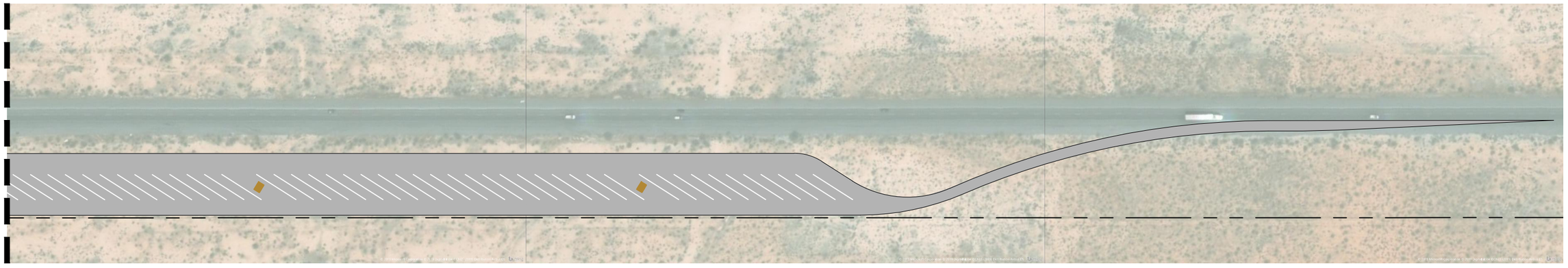
SEE BELOW LEFT



MATCHLINE
SEE ABOVE RIGHT

I-15 NORTHBOUND

CHARACTERISTICS:
100 STALLS
10 RESTROOMS

ESTIMATED CONSTRUCTION COSTS:
$ 3.8 M

N

HORROCKS

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL 1" = 200'
VERTICAL N/A

WARNING
0 0.5 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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MP 96 NORTHBOUND

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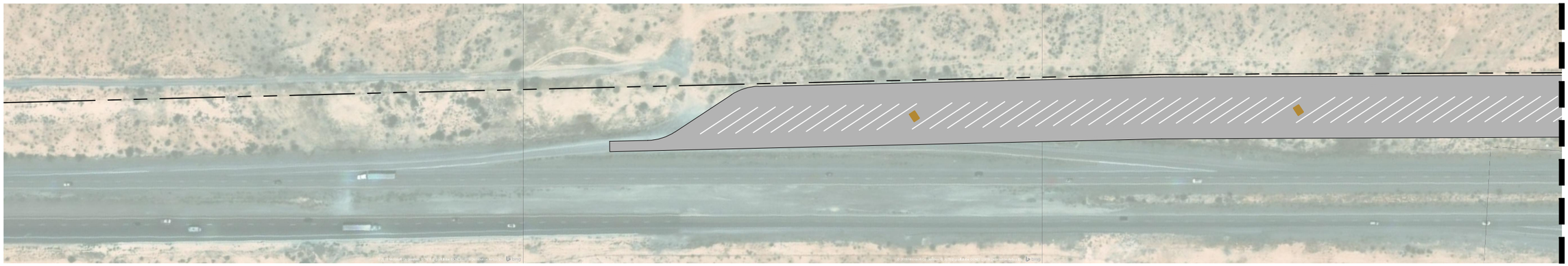

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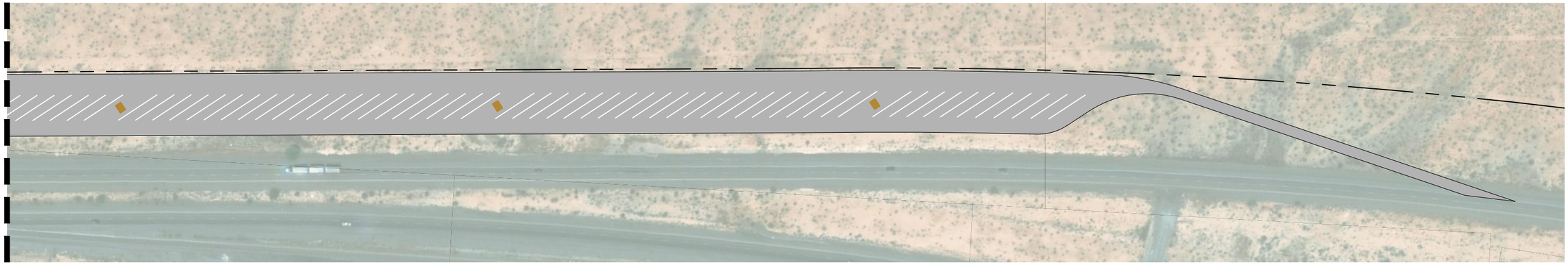

MATCHLINE
SEE ABOVE RIGHT

I-15 SOUTHBOUND

CHARACTERISTICS:
100 STALLS
10 RESTROOMS

ESTIMATED CONSTRUCTION COSTS:
$ 3.6 M

N

HORROCKS

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL 1" = 200'
VERTICAL N/A

WARNING
0 0.5 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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MP 96 SOUTHBOUND

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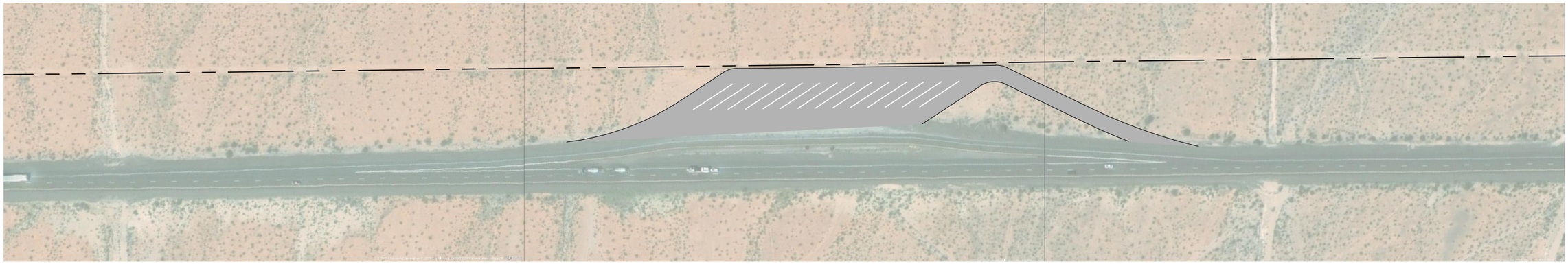

I-15 SOUTHBOUND

CHARACTERISTICS:
13 STALLS
EXPANDABLE
REQUIRES NEW OFF RAMP

ESTIMATED CONSTRUCTION COSTS:
$ 600,000

I-15 NORTHBOUND

CHARACTERISTICS:
13 STALLS
EXPANDABLE
REQUIRES NEW OFF RAMP

ESTIMATED CONSTRUCTION COSTS:
$ 550,000

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL: 1" = 200'
VERTICAL: N/A

WARNING
0 0.5 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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MP 88

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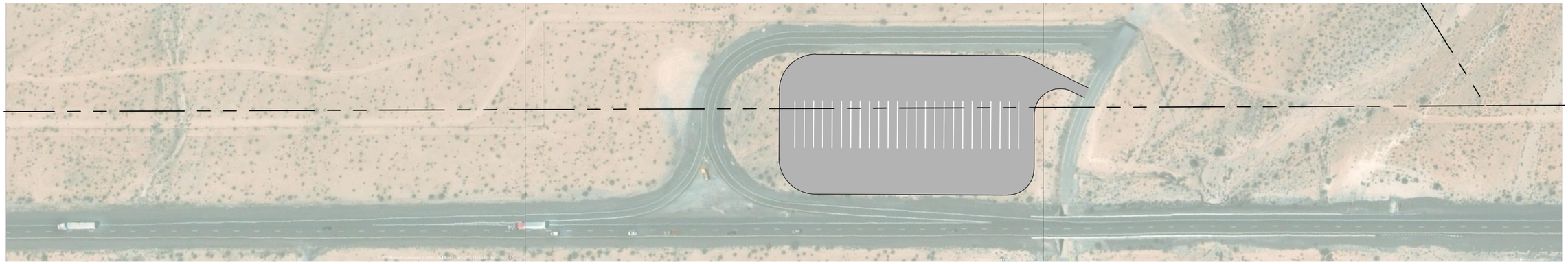
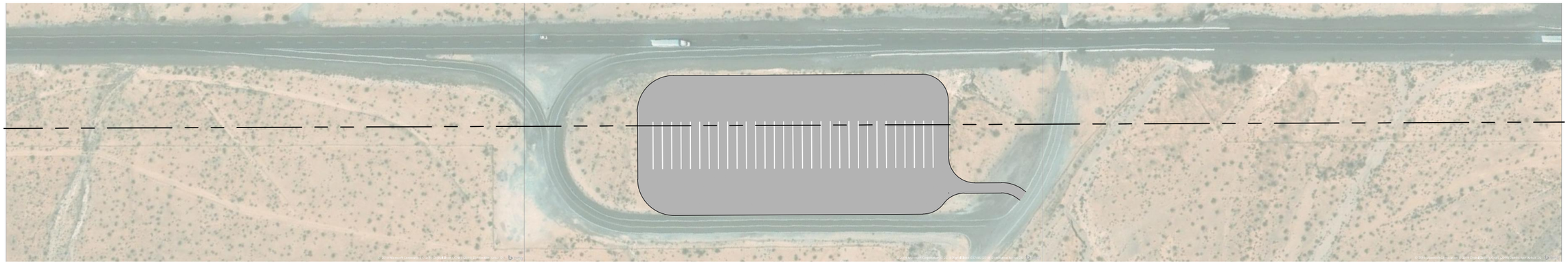


I-15 SOUTHBOUND



I-15 NORTHBOUND

CHARACTERISTICS:
54 STALLS
REQUIRES ADDITIONAL ROW

ESTIMATED CONSTRUCTION COSTS:
$ 1.32 M

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL 1" = 200'
VERTICAL N/A

WARNING
0 0.5 1
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EXIT 84

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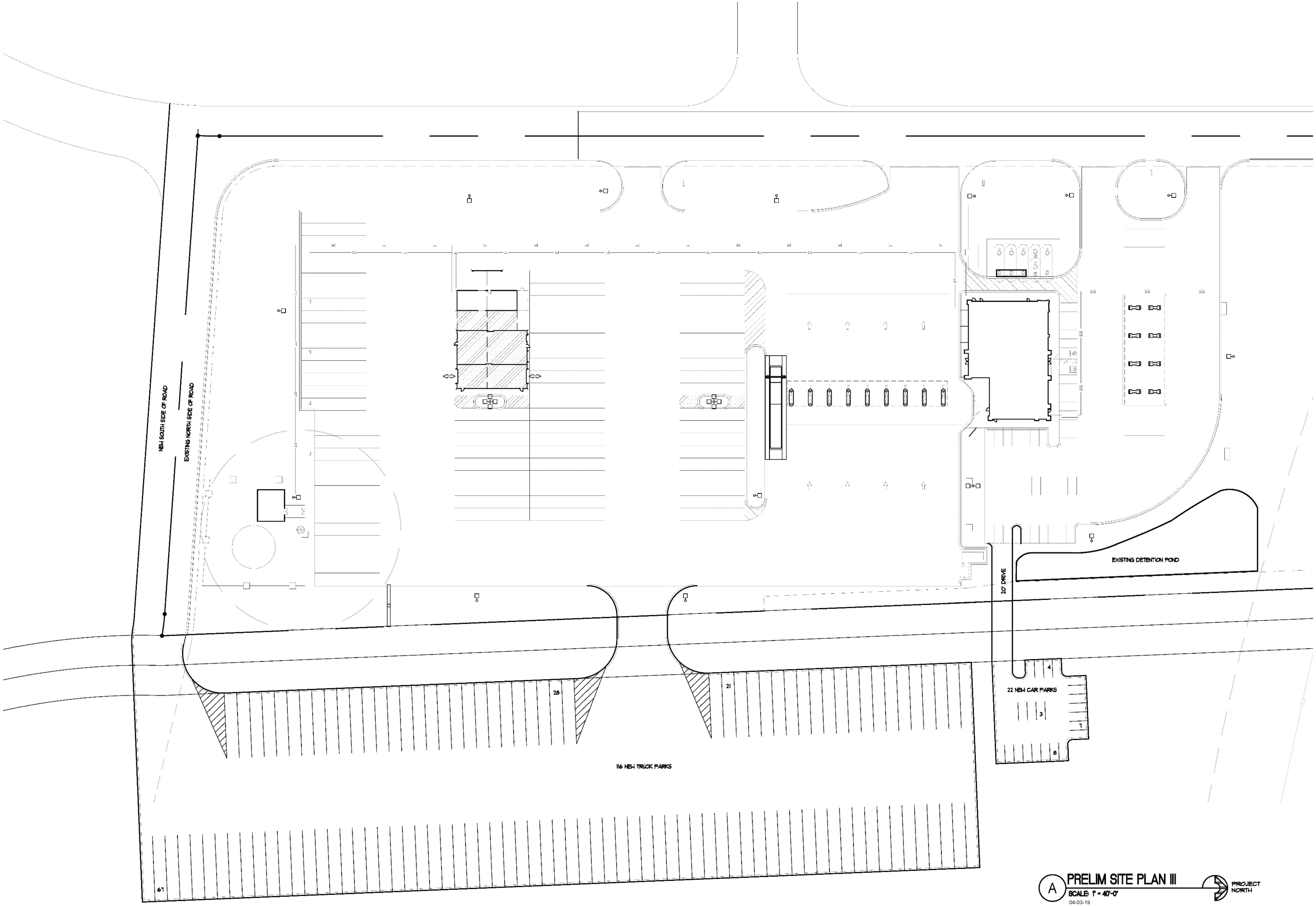

Pascal Aughtry & Associates, PC
405.463.3494
Fax 405.463.3493
937 East Britton Road
Oklahoma City, OK 73114
pascalarch.com

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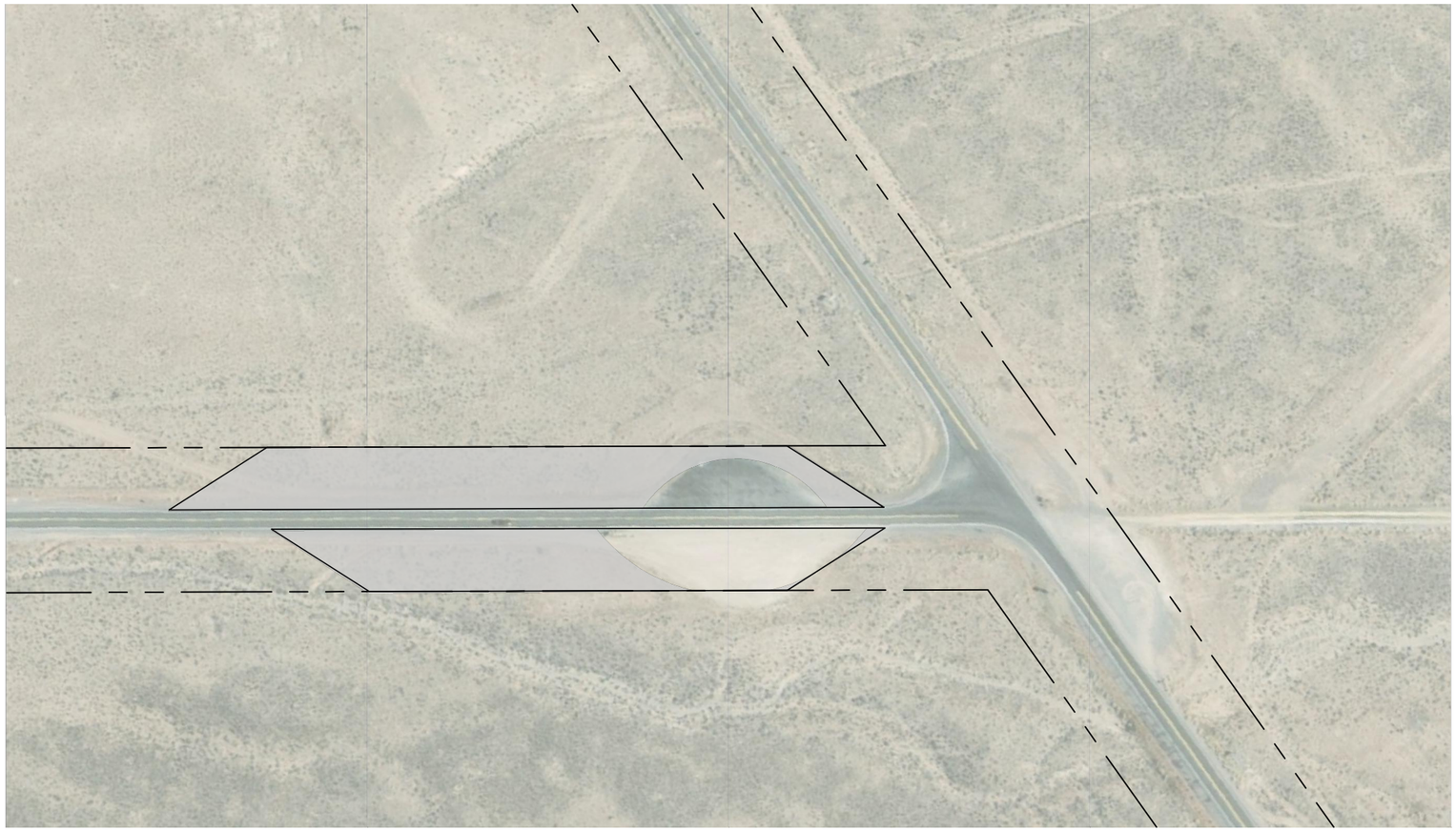
PARKING ADDITION
STORE No. 340
CLARK COUNTY, NV

Love's Travel Stops

Revisions:	
No.	Date

Project No.: LVS----
Date: --/--/--
Sheet No.:
A-X
OF: XX



SR 360 & US 6

CHARACTERISTICS:
CLEAR & GRUB
20 STALLS (GRAVEL)
WITHIN NDOT ROW

ESTIMATED COST:
$ 226,000

NORTH

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL
1" = 200'
VERTICAL
N/A

WARNING
0 0.5 1
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SR 360 & US 6
PHASE 1

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J. HORLACHER		8 OF
CHECKED	DATE	DRAWING NO.
B. COLTON		US6 EXH

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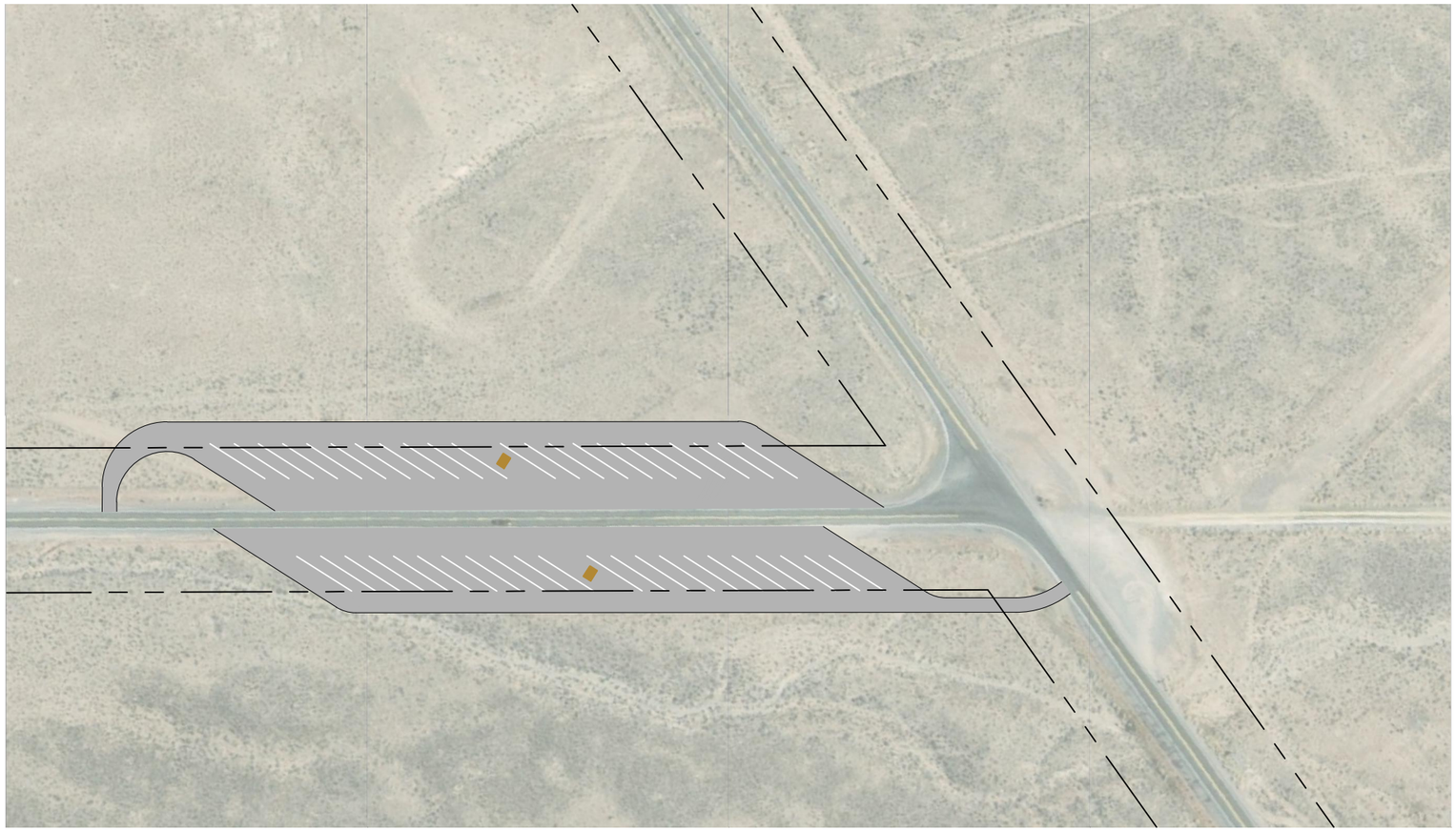

SR 360 & US 6

CHARACTERISTICS:
40 STALLS (PAVED)
4 RESTROOMS
NEEDS ADDITIONAL ROW FROM BLM

ESTIMATED CONSTRUCTION COSTS:
$ 1 M

N
HORROCKS

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL 1" = 200'
VERTICAL N/A

WARNING
0 0.5 1
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SR 360 & US 6
PHASE 2

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CHECKED B. COLTON	DATE	DRAWING NO. US6 EXH

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LUNING

CHARACTERISTICS:
7 STALLS (STRIPING ONLY)

ESTIMATED CONSTRUCTION COSTS:
$0 (can be completed by NDOT Maintenance Staff)

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE
HORIZONTAL 1" = 100'
VERTICAL N/A

WARNING
0 0.5 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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LUNING

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CHECKED B. COLTON	DATE 2/19/19	DRAWING NO. LUN EXH


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