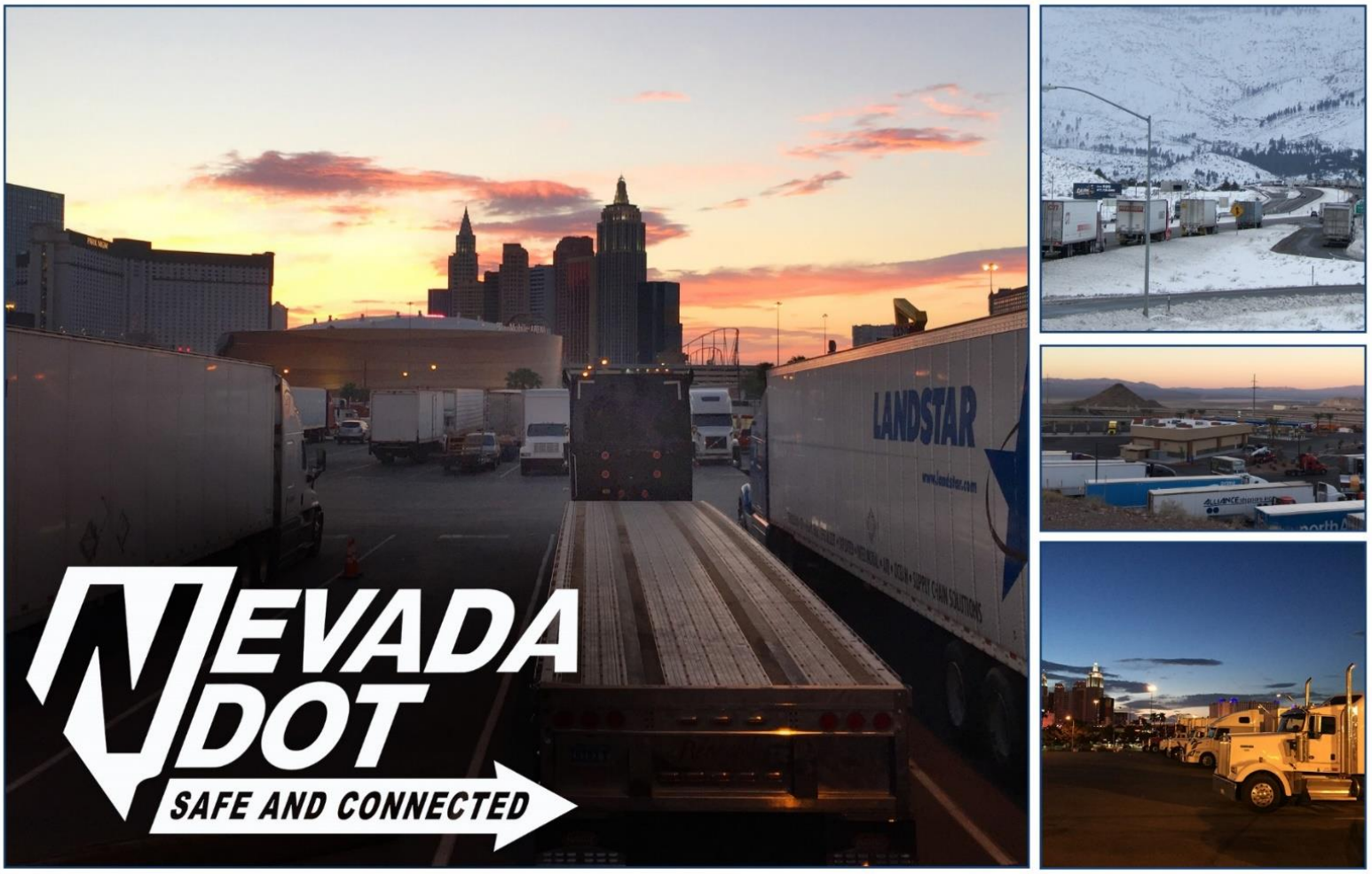
Nevada Truck Parking Implementation Plan

Task 5: Draft Recommendations



prepared for

Nevada Department of Transportation

prepared by

Cambridge Systematics, Inc.

with

American Transportation Research Institute
Horrocks Engineers
Silver State Traffic Data Collection

July 30, 2019

draft report

Nevada Truck Parking Implementation Plan

Task 5: Draft Recommendations

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

July 30, 2019

Table of Contents

List of Tables

List of Figures

Acronyms and Abbreviations

AADT	Average Annual Daily Traffic
ATRI	American Transportation Research Institute
BUILD	Better Utilizing Investments to Leverage Development
CMAQ	Congestion Mitigation and Air Quality
DBFOM	Design-Build-Finance-Operate-Maintain
DERA	Diesel Emissions Reductions Act
DMS	Dynamic Message Sign
DOT	Department of Transportation
DPCS	Dynamic Parking Capacity Sign
ELD	Electronic Logging Device
EPS	Electrified Parking Spaces
FAF	Freight Analysis Framework
FAST Act	Fixing America Surface Transportation Act
FASTLANE	Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRI	Fuel Revenue Indexing
GES	General Estimate System
GPS	Global Positioning System
HOS	Hours of Service
HSIP	Highway Safety Improvement Program
HTEC	Harbor Performance Enhancement Center
HTF	Highway Trust Fund
IEEE	Institute of Electrical and Electronics Engineers
INFRA	Infrastructure for Rebuilding America
ITD	Innovative Technology Deployment (Program)
ITS	Intelligent Transportation Systems
LVCVA	Las Vegas Convention and Visitors Authority
MAASTO	Mid-American Association of Transportation Officials
MCOM	Multistate Corridor Operations and Management

MoDOT	Missouri Department of Transportation
NATSO	National Association of Truck Stop Operators
NCTP	National Coalition on Truck Parking
NDOT	Nevada Department of Transportation
NHFN	National Highway Freight Network
NHFP	National Highway Freight Program
NHP	Nevada Highway Patrol
NHPP	National Highway Performance Program
NHS	National Highway System
NRS	Nevada Regulations and Statutes
O&M	Operations and Maintenance
OOIDA	Owner-Operator Independent Drivers Association
P3	Public-Private Partnership
RFI	Request for Information
RFID	Radio-Frequency Identification
ROW	Right-of-Way
SB448	Senate Bill 448
SHSP	State Strategic Highway Safety Plan
STBG	Surface Transportation Block Grant Program
TEU	Twenty-Foot Equivalent Units
TPAS	Truck Parking Availability System
TPIMS	Truck Parking Information Management System
TSE	Truck Stop Electrification
TSPS	Truck Specialized Parking Services
UAG	User Advisory Group
U.S. BLM	United States Bureau of Land Management
U.S. EPA	United State Environmental Protection Agency
VMS	Variable Message Signs
WSFC	Western States Freight Coalition
ZEV	Zero-Emission Vehicle

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 to open or an overnight break to sleep in the middle of a cross-country trip, 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.
- Government agencies who regulate the industry, enforce statutes, pass zoning ordinances, and build and maintain highways and parking infrastructure.

In response to this need, the Nevada Department of Transportation (NDOT) is conducting The Nevada Truck Parking Implementation Plan which will develop a plan for expanding, improving, and integrating freight truck parking and truck parking communications systems in response to rising demand, changing hours of service requirements, and safety standards defined in Jason's Law. When implemented, these improvements will provide adequate and safe public truck parking where it is most needed, full-service private truck facilities, and real-time truck parking availability information.

This Plan consists of the following key tasks:

- Stakeholder Outreach and Coordination.
- Data Collection.
- Needs Assessment.
- Recommendations.
- Implementation Plan.
- Final Report.

This technical memo fulfils the Recommendations task and is focused on identifying a wide range of potential solutions to needs identified in prior work and recommending specific actions. Details, including responsible agencies, scheduling, and cost will be explored in detail in the Implementation Plan. The remainder of this document consists of the following sections:

- Statewide Parking Background, Solutions, and Recommendations.
- Urban Parking Background, Solutions, and Recommendations.
- Technology and Data Background and Recommendations.
- Special Cases (Emergency Parking and Convention Marshalling) Recommendations.
- Funding Options.

2.0 Statewide Parking

Parking to satisfy hours-of-service (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. Most of the issues, potential solutions, and recommendations presented in this Section are applicable throughout the State. Additional emphasis on urban area needs are presented in Section 3.0.

This section is presented in three pieces:

- The first provides background on the issue and includes a brief overview of future needs based on projected increases in truck volumes in the State.
- The second identifies a range of potential solutions, including infrastructure, policy, and coordination/outreach themes.
- The third section provides specific recommendations expanded on in the next Task for this project (Implementation Plan).

2.1 Issue Background

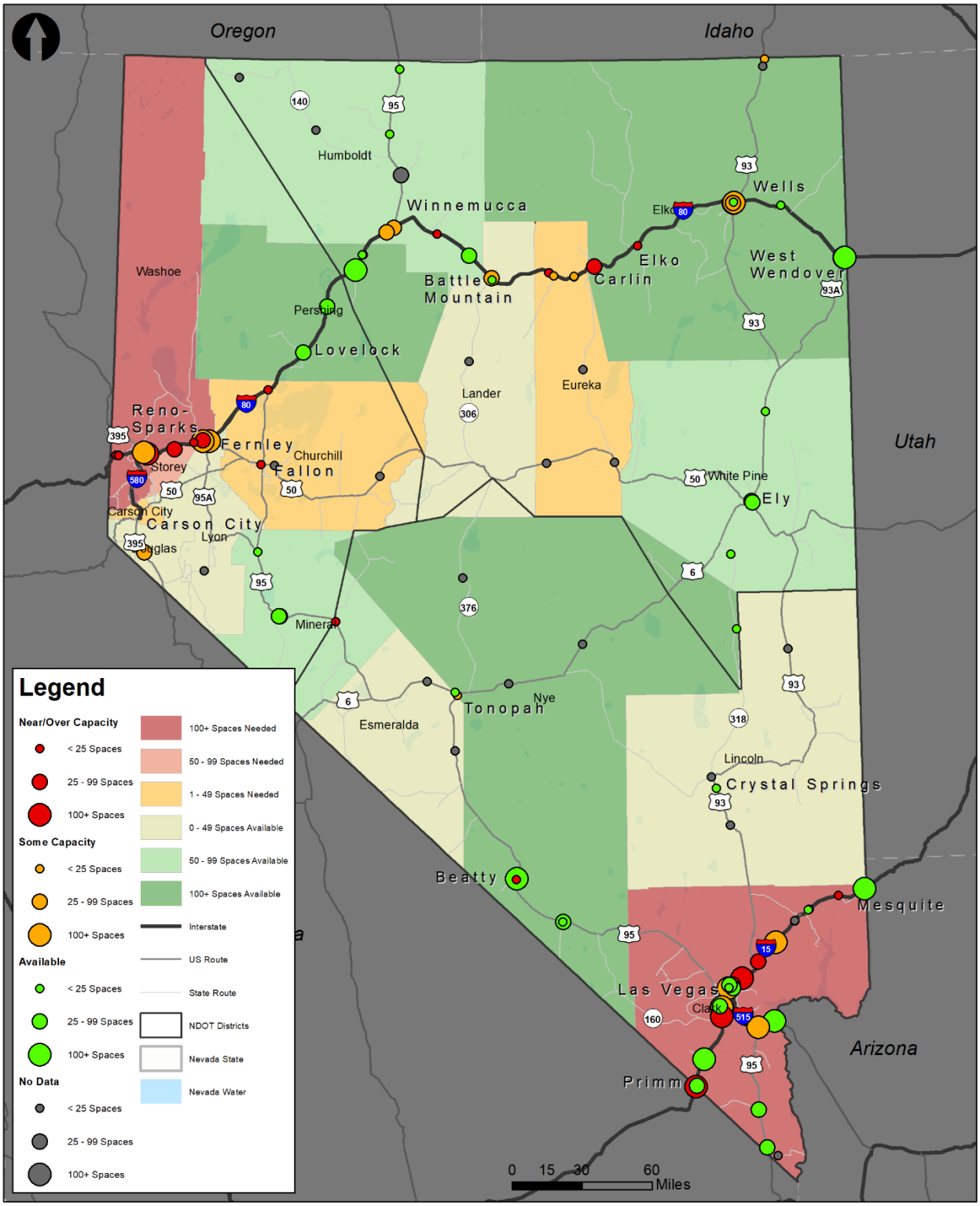
2.1.1 Current Demand

The need for truck parking for long-haul trips in Nevada is mainly focused on the I-80 and I-15 corridors with smaller needs on US 93 and US 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 (11 hours).

Based on the current needs analysis conducted in Task 4 of this study, long-haul truck parking in most of the State appears to be relatively well covered by existing public and private facilities. At the County level, demand exceeds supply mostly near urban areas in Clark, Washoe, and Storey counties, with limited gaps noted in other counties mainly along I-80 between Wells and Winnemucca. Figure 2.1 shows the existing gap at the County level as well as utilization at all authorized parking locations. The utilization gap (or surplus) is based on data from the American Transportation Research Institute (ATRI) with additional input from Park My Truck, TruckerPath, and stakeholders or field visits.

Figure 2.1 Current Truck Parking Gap

Site Specific and County



Source: NDOT, ATRI, Analysis by Cambridge Systematics, 2019.

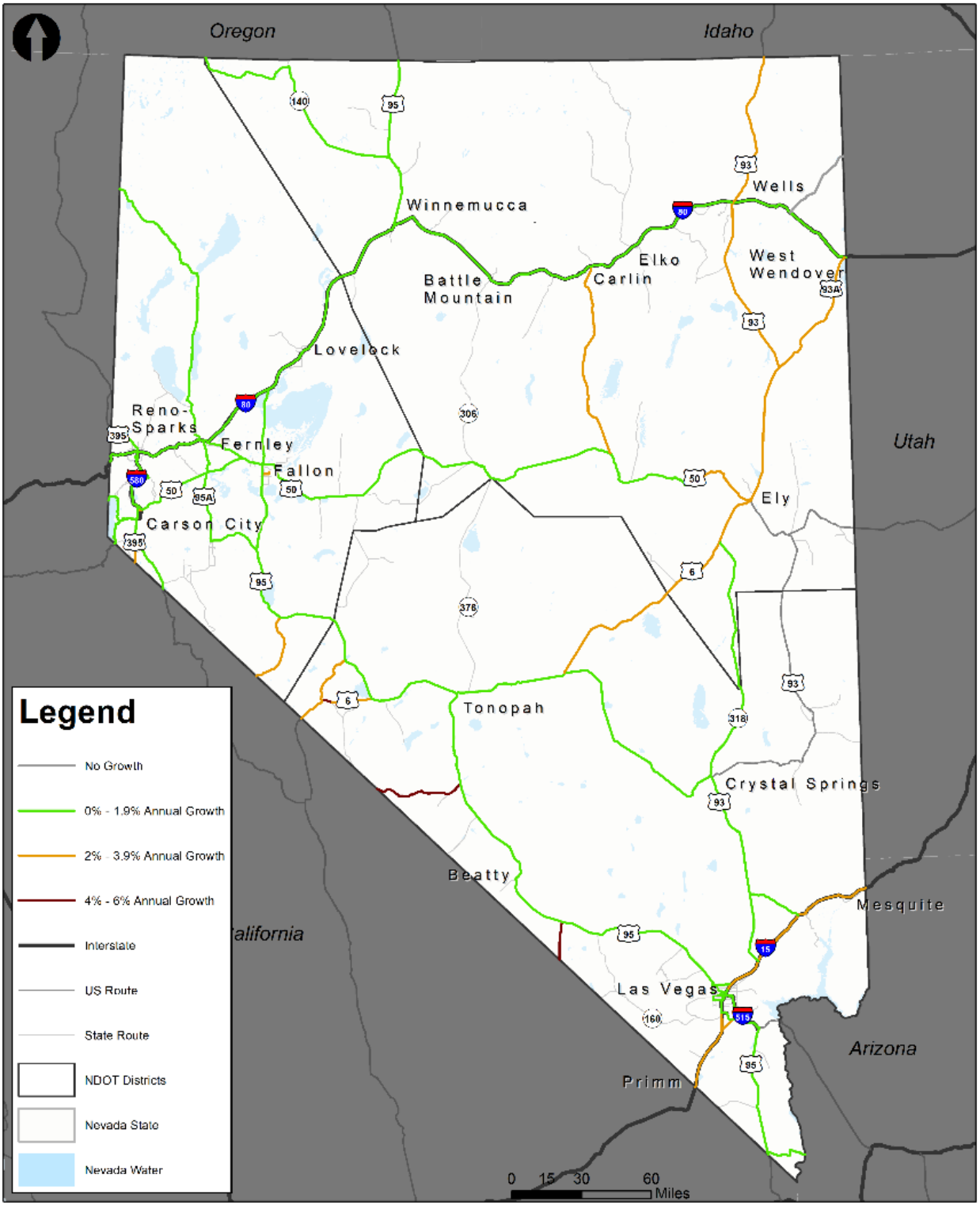
2.1.2 Future Demand

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. Figure 2.2 shows the anticipated percent annual growth in truck traffic based on Freight Analysis Framework (FAF) data developed by the Federal Highway Administration (FHWA) between 2012 and 2045.[1] I-15, US 93 north of Ely, and US 6 from US 95 west to California are identified as areas with the highest growth rates. Current large truck volumes on those segments of US 93 below 800 per day, with multiple sections below 500 vehicles. Volumes on US 6 west of US 95 are below 100 large trucks per day, limiting the overall impact of the higher annual growth rates. However, the higher volumes on I-15 (above 10,000 large trucks per day in Las Vegas) are a cause for concern and emphasize the need to continue adding capacity in Clark County. Figure 2.3 shows the impact that growth will have on parking capacity at authorized parking locations but does not include county-level future projections.

[1] FAF Truck Volumes from 2012 and projected for 2045 were used to calculate percent annual growth instead of overall truck annual average daily traffic (AADT), which was derived from the total AADTs and truck percents reported by States to the Highway Performance Management System. FAF trucks have a higher probability of generating demand for truck parking based on the distances carried in transporting commodities than the overall truck volumes.

Figure 2.2 Percent Annual Growth—FAF Truck Volumes

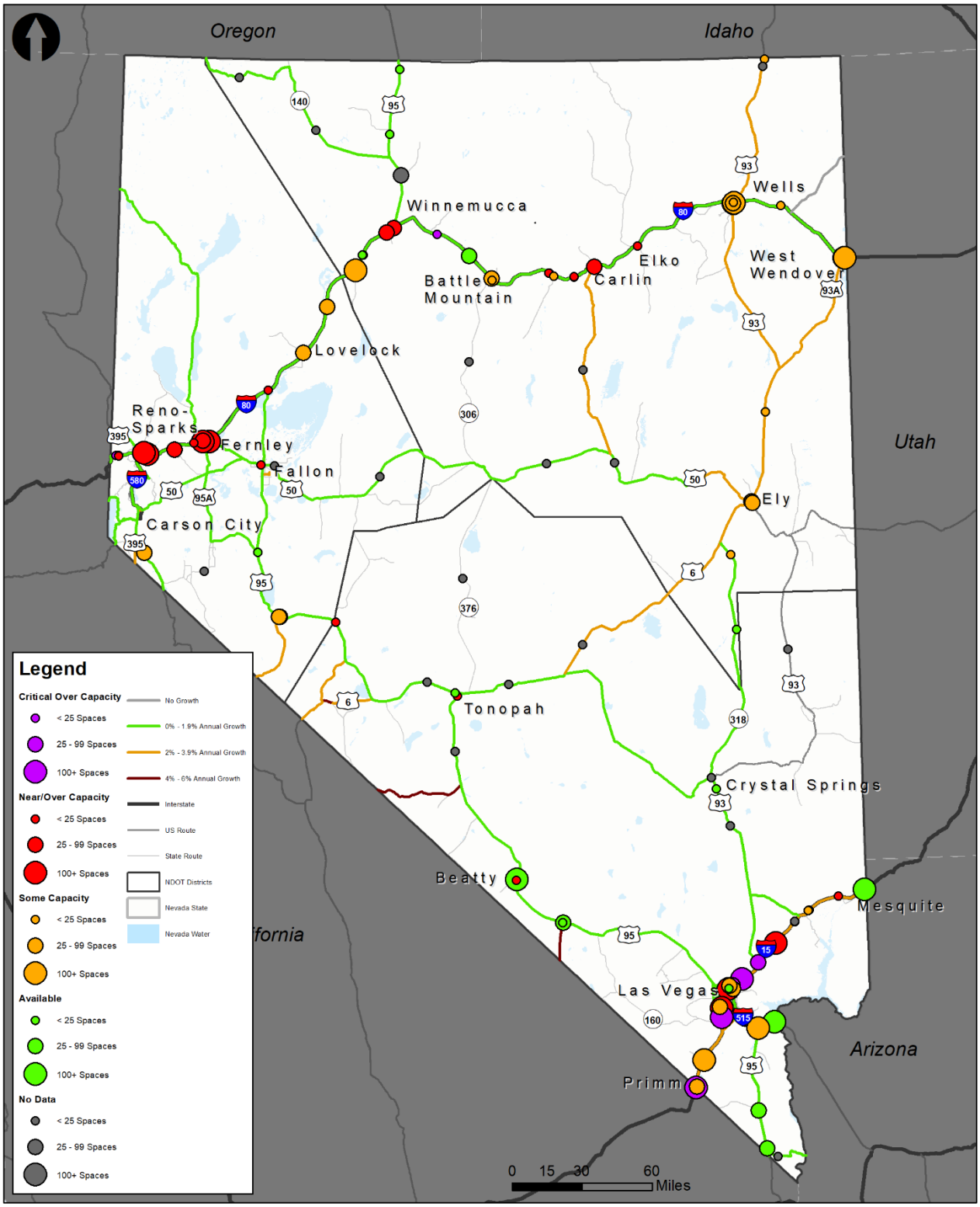
2012 to 2045



Source: FHWA Freight Analysis Framework 4, Analysis by Cambridge Systematics, 2019.

Figure 2.3 Future Truck Parking Availability

Site Specific



Source: FHWA Freight Analysis Framework 4, Analysis by Cambridge Systematics, 2019.

2.2 Toolbox of Statewide Truck Parking Solutions

With existing capacity needs and growing truck traffic, the private sector is responding to the need for more long-haul truck parking with three new facilities recently opened, under construction, or in planning:

- Eagles Landing Travel Center—I-15 at Lower Flat Top Drive (west side of Mesquite). This facility includes a Pilot Flying J truck stop and has added 69 public and 15 reserved truck parking spaces to the I-15 corridor since opening.[2]
- Golden Gate Travel Plaza—on SR 535 at Exit 298 of I-80 (west side of Elko. There are approximately 7.8 acres designated for the truck stop facility.[3] The project currently is under construction.
- Loves Travel Stop—Proposed construction on SR 289 at exit 176 of I-80 (west side of Winnemucca). Details about this project are unknown.

Private-sector operators contacted during the course of this study have expressed interest in expanding existing parking facilities or adding new parking, especially on the fringes of urban areas. These areas present the biggest challenge to expanding capacity in Nevada, as competing interests create higher land prices and more populated areas raise environmental and zoning/land use requirements.

The following sections outline a number of potential solutions that NDOT, partner agencies, and local municipalities can take to help improve truck parking serving long-haul drivers in the State. Specific recommendations are provided in Section 2.3.

2.2.1 Infrastructure

Infrastructure approaches 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. Potential options are identified below. Many of these ideas are further detailed in the recent National Coalition on Truck Parking (NCTP) Working Group Products.[4]

New Public Truck Parking—Truck Pull-Off/Turnout

Truck pull-off or turnout areas are a common, low-cost approach to expanding truck parking capacity. This approach is especially suited for rural areas with even topography, good visibility, and space between interchanges. The NCTP recommends between 270 and 300 feet of right of way (ROW) for such facilities. There are a number of these facilities already present in Nevada such as Mormon Mesa on I-15, shown in

[2] This site became operational during the course of this study. It is not included in the estimates of supply and demand as these were developed prior to the site entering service. However, estimates of truck parking demand in Clark County are still well above identified supply. See: https://pilotflyingj.com/stores/1171/.

[3] https://elkodaily.com/news/local/golden-gate-plans-elko-truck-stop-with-small-casino/article_efbeda5d-244d-5c6d-9819-cc953cb33034.html.

[4] 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.

Figure 2.4 below). These types of parking facilities typically have few amenities and can be paved or not, providing flexibility in capital and operating costs.

Figure 2.4 Mile Marker 110 (Mormon Mesa) Truck Pull Off/Turnout
I-15 Southbound

Source: Cambridge Systematics, 2018.

New Public Truck Parking—Cloverleaf

A less commonly deployed option for creating new truck parking is to utilize existing department of transportation (DOT) ROW inside of a half cloverleaf interchange. Nebraska DOT created truck parking inside a half cloverleaf interchange where I-80 and US 138 merge, shown in Figure 2.5. This approach works best in locations where the Interstate passes over the intersecting road, providing easier access to the new parking facility (no issue with a bridge or other grade). They are best located in rural areas with no nearby amenities that would entice drivers to unsafely walk across freeway ramps to access services on the other side. Between 100 to 200 trucks park in this interchange each night, although there are no facilities or services except garbage bins which keeps operations and maintenance (O&M) costs low. Property inside a cloverleaf is typically already owned by the DOT and has limited commercial potential or value. This project utilized asphalt millings for a surface which reduces cost and allows for re-use of the material if the parking facility was not used. The rural nature of the Nebraska project limited community opposition—something that may be applicable to many locations in Nevada as well. This approach also is easily scalable, providing DOTs with the flexibility to reduce costs initially and/or grow the facility as demand warrants.

Figure 2.5 Truck Parking Inside Interchange Half Cloverleaf
I-80, Big Springs, NE

Source: NCTP, Working Group Products.

Expand Existing Public Truck Stops and Rest Areas

In addition to new facilities, existing facilities in areas with high demand could be expanded or modified to increase capacity. Striping and site flow patterns at these facilities could be examined to determine if there are ways to improve truck circulation and add space without increasing the site. In other areas, excess NDOT ROW or other public land may present opportunities to grow the existing site.

Add Truck Parking to Weigh Stations

Weigh stations (also called inspection stations) are a tool used in a number of States to help identify, inspect, and stop vehicles that are traveling in violation of State or Federal weight and safety regulations. The design and approach used for this enforcement activity varies widely. Weigh stations that are permanently (or nearly permanently) staffed and located on the inbound side of a highway near a State border are a common approach in many western States, including Nevada's neighboring States of California, Oregon, Idaho, Utah, and Arizona. Nevada has historically approached commercial vehicle enforcement using a mobile approach with limited investment in permanent, fixed facilities. The Nevada Highway Patrol (NHP) does utilize some fixed locations for enforcement, but these are not permanently staffed and have less infrastructure and technology than comparable sites in other States. Figure 2.6 compares the Sloan inspection site on I-15 southwest of Las Vegas to the St. George Port of Entry on I-15 in Utah (just north of the Arizona border) which includes a large truck parking area.

Figure 2.6 Sloan Inspection Site, NV (Left) and St. George Port of Entry, UT (Right)

Source: Google Maps. North is to the top of both images.

Repurpose NDOT or NHP Facilities For Truck Parking

Related to the above, NDOT rest areas or NHP weigh stations or inspection sites that are targeted for closure should be examined to identify their potential use as truck parking sites. If other existing NDOT facilities such as salt and sad pads or maintenance buildings are identified for closure, those locations may be additional targets for conversion.

Missouri DOT (MoDOT) is a leader in this area, converting 23 obsolete and expensive rest areas and weigh stations to parking spaces for trucks. An example location on I-70 is shown in Figure 2.7. 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. South Dakota DOT has undertaken similar conversions of rest areas on I-29 and I-90.

This topic may also fall under the “Policy, Coordination, and Outreach” recommendations as internal coordination between NDOT departments to identify these properties and ensure that truck parking needs are considered before property is offered for sale is a key component.

Figure 2.7 Missouri Converted Rest Area I-70

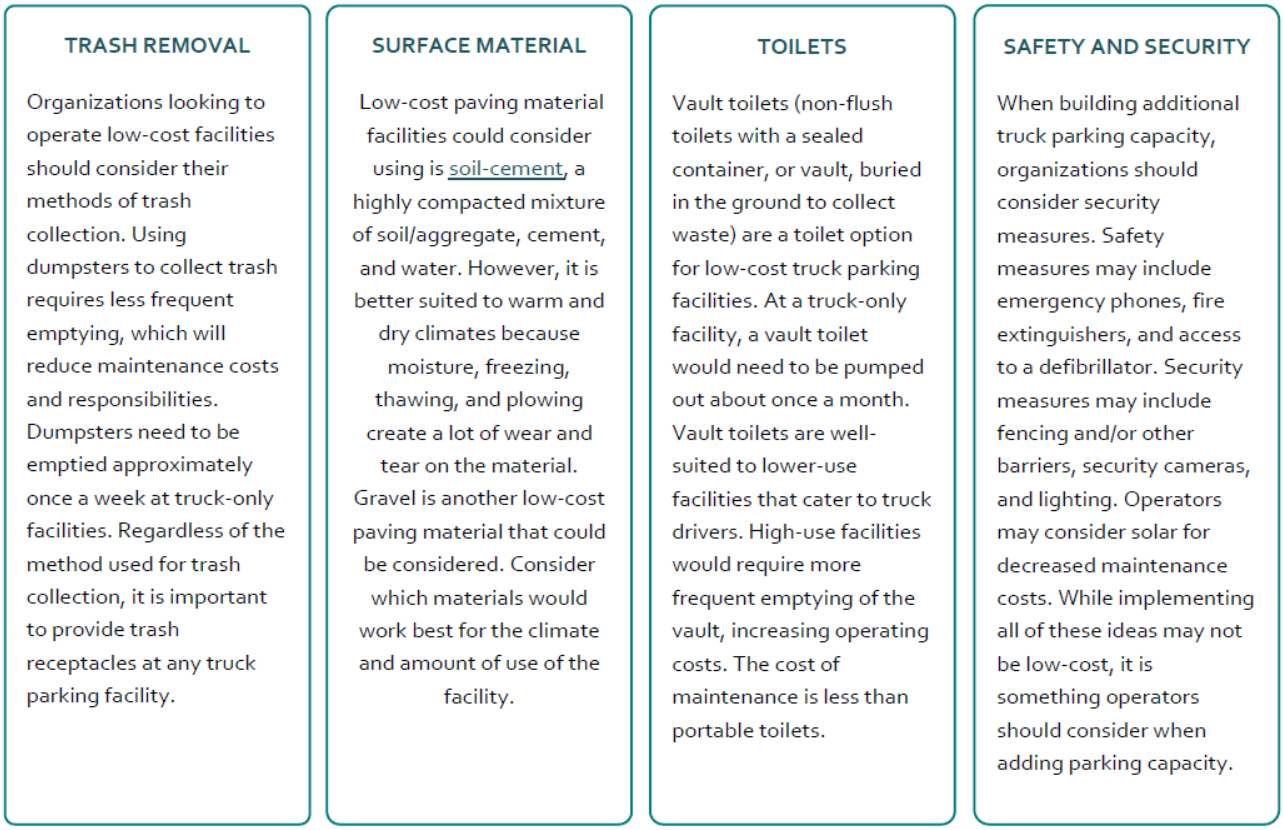
Source: MoDOT Presentation to the I-95 Corridor Coalition, May 1, 2018.

Improve Amenities at Existing Truck Parking Locations

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.[5] 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 2.8.

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

Figure 2.8 Low-Cost Truck Parking Facility Amenities



Source: National Coalition on Truck Parking Working Group Products.

2.2.2 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. Ideas in these categories are described below.

Policy—Public-Private Partnerships (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.

The use of P3s have grown in the U.S. over the last 2 decades, with 35 U.S. States, the District of Columbia, and Puerto Rico all having enabling legislation for varying degrees. Some States have allowed full P3 projects where deemed available, while other States, including Nevada, only allows P3s under specific guidelines and circumstances.

Under 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.[6]

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 may also 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).

Policy—Competitive Loan/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. By developing a competitive program, NDOT would provide an opportunity to all interested parties in the State who have ideas that can help address identified concerns. This model would also allow the State to respond to future changes in needs or demand more easily than having a specific set of projects scheduled. Candidate projects for this program might include:

- Truck stop electrification (private-sector applicant).
- Parking lot expansion (private-sector applicant).
- Urban parking lot development (local municipality applicant).
- Truck Parking Availability System (TPAS) sensors that would tie into a State or multistate system (public or private applicant).

Competitive grant or loan programs are commonly used in States across the United States. For example, both California and Iowa are using a competitive grant program to distribute funds from the national freight program. Another common program supports industrial rail or shortline freight railroad operations and capital project needs and is linked with economic development objectives. Minnesota, Oregon, Iowa, Wisconsin, Virginia, Washington, North Dakota, and Pennsylvania are only some of the States with well-developed programs. Appendix D contains a table comparing key pieces of these programs, including funding sources and levels, eligibility requirements, project categories, and organizing agency.

Minnesota's Railroad Service Improvement Program provides both 10-year loans and direct grant support for "railroads, rail users and political subdivisions of Minnesota and the Federal Government that seek to complete a major improvement or rehabilitation of railroad rights of way or other railroad facilities." Money is provided through general obligation funds and funding request are not capped (other than by the total amount of funds in the program). Projects are submitted via completion of a word document and scored by a committee with points allocated based on a set of criteria, including rail service impacts, economic impacts,

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

(Footnote continued on next page...)

budget, and project readiness. This Program (both loan and grant) has funded more than $56 million in projects since its inception in 1976. Applications for the last round of funding were due in November 2018 with up to $1 million available.[7]

Policy—Modify Freight Performance Measures

Projects are often chosen for funding based on their ability to meet and improve performance across a wide range of metrics. The more metrics a project can meet and the higher the impact, the better chance that project will be approved. Truck parking projects can meet a number of performance measures often found in State freight plans or transportation plans, but can struggle when competing for funding with other projects that more directly "check a box."

Figure 2.9 Nevada Freight Plan Strategic Goals

Source: Nevada State Freight Plan, 2016.

Freight performance measures identified in the Nevada State Freight Plan that can be positively influenced by truck parking projects include:

- Safety—Number of fatal motor-vehicle crashes involving trucks.
- Pavement Condition—Percentage of State-maintained pavements in fair or better condition.
- Collaboration, Land Use, and Community Values—Establish and meet regularly with the Freight Advisory Committee.

The environmental sustainability and livability measure could be expanded or modified to include benefits obtained from truck stop electrification projects in order to allow truck parking projects to be even more

[7] For more information on the grant program application process, see: https://www.dot.state.mn.us/ofrw/railroad/mrsi.html.

competitive. In addition, the existing mobility and reliability performance measure relies on truck speed as a metric which truck parking projects do not directly impact even though truck parking does play a role in ensuring trucks can park where they need to (both for long-haul and staging parking), thus reducing delay and improving the reliability of the freight system.

Policy—Explore Sponsorship of Public Truck Stops and Rest Areas

A number of States have obtained sponsors for rest area signage to help defray operations and maintenance costs. Florida DOT (FDOT) is seeking to obtain sponsors for 72 truck parking message signs as part of its TPAS program and other States have obtained sponsors for rest areas. Section 6.3.3 contains further details on these programs. NDOT should monitor FDOT's efforts and consider for future inclusion in any truck parking system designs.

Policy and Coordination – Enforcement

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.

Policy and Coordination—Chain Up Areas, Inspection Sites, and Weigh Stations

Chain up areas are found throughout Nevada and provide locations for vehicles to pull off the highway and comply with Nevada and municipal traction device regulations.[8] Device regulations in Nevada are summarized in Figure 2.10.

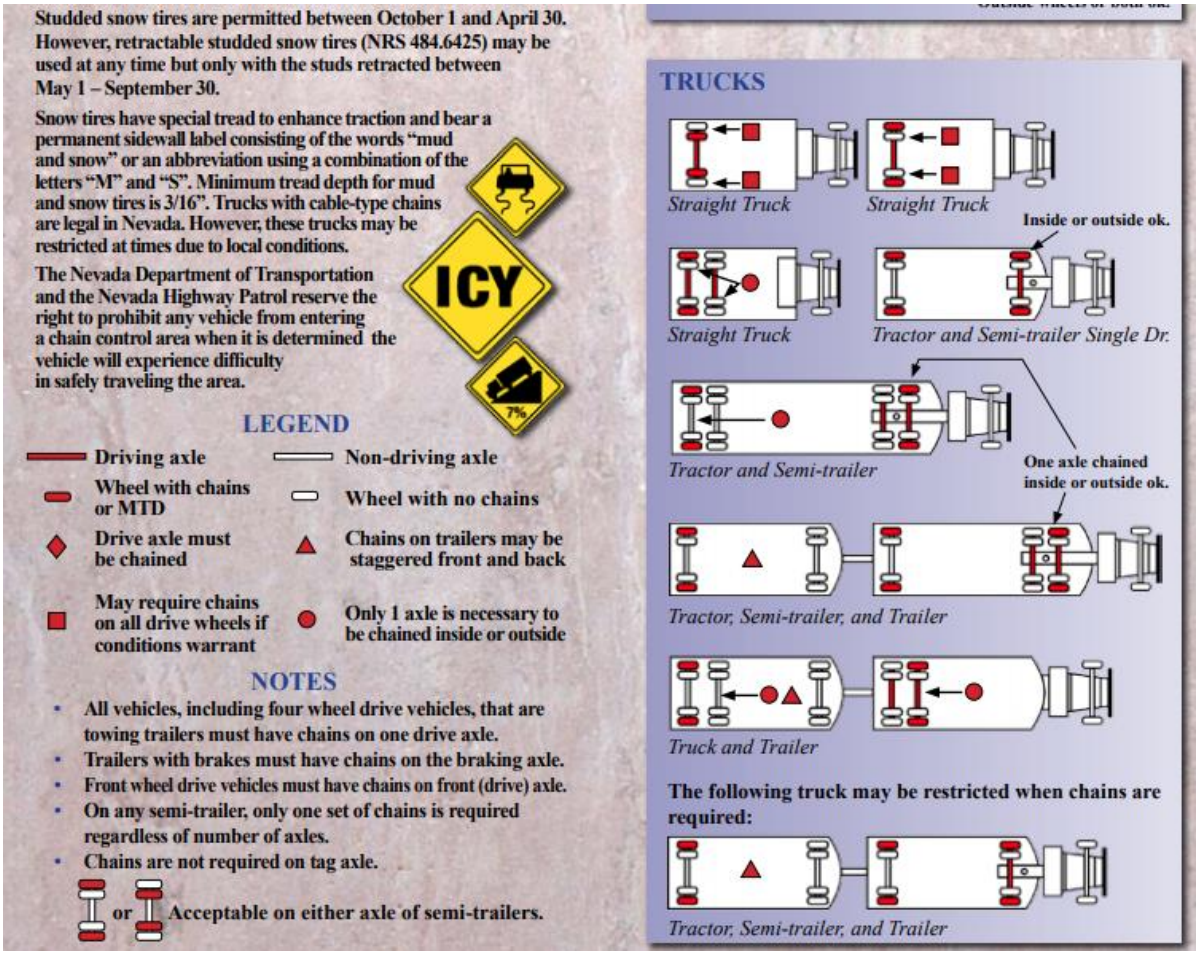
Allowing parking at these locations during times when chains are not necessary would expand the authorized truck parking capacity in the State without adding new facilities. Washington DOT made this recommendation in their 2016 Truck Parking Study.[9] This would be especially helpful in rural areas where chain up locations are often simple pull offs and do not require entry or exit ramps from a highway to be viable.

Brake check and inspection sites also are sometimes utilized by trucks to park. Authorizing parking at these locations may be more complicated because enforcement patterns are more random and not constrained to a specific season of the year. In addition, Nevada is evaluating adding larger, more permanent weigh station/inspection stations as discussed in Section 3.1.1.

8 Found in NRS 484.643 and NRS 484.6432.

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

Figure 2.10 Nevada Traction Control Devices Regulations



Source: http://www.clarkcountynv.gov/public-works/traffic-mgmt/Forms/NDOT%20Chain%20requirements%20-%202007.pdf.

Coordination and Outreach

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. NDOT can play a role by supporting municipalities and MPOs that want to add truck parking by coordinating outreach, providing data about the important role trucks play in the local and regional economy, and spreading best practices.

Coordination with regional coalitions, including the Western State Freight Coalition and the I-15 Dynamic Mobility Project can also 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).

2.3 Recommendations

For long-haul truck parking needs, the following recommendations will be advanced to the Implementation Planning technical memo which will identify lead agencies, timing, and cost estimates.

2.3.1 Expand and/or Enhance Existing Public Truck Parking Facilities

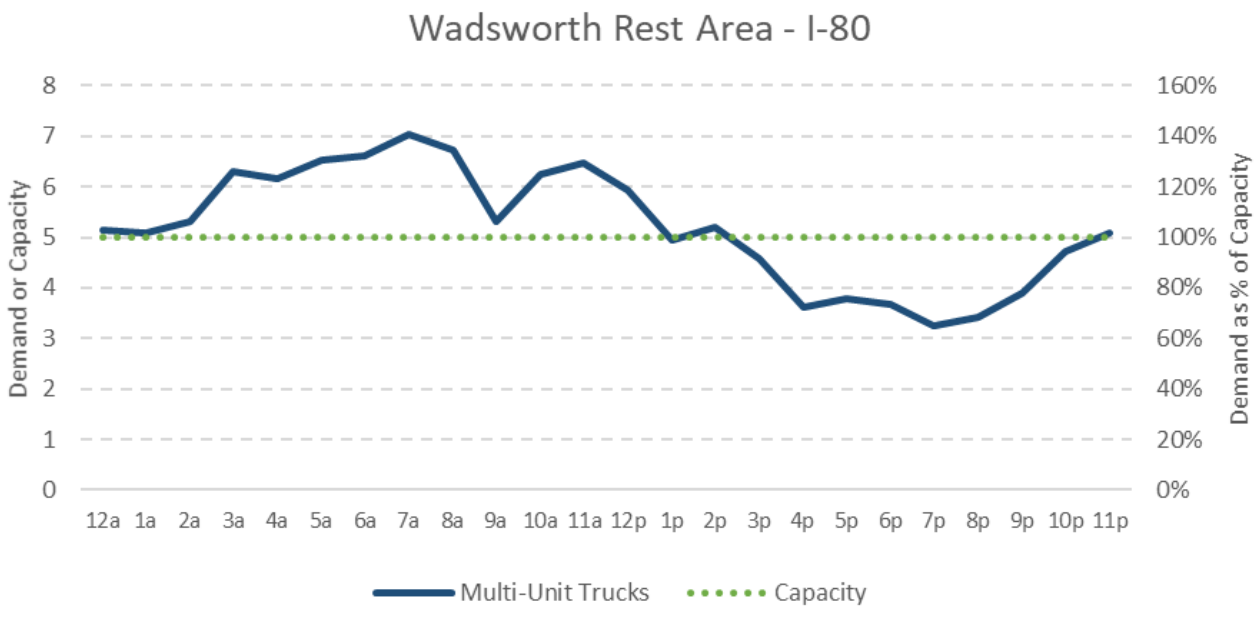
Based on the needs analysis conducted for this study, the following locations should be targeted for expansion of truck parking capacity and/or enhancement of existing amenities. Specific recommendations by site are included below. In addition, recommended sites on I-15 and I-80 are included in the proposed truck TPAS, described in Section 4.0.

Wadsworth Rest Area

The Wadsworth Rest Area is located on I-80 westbound between Fernley and Clark. The site can hold approximately a half-dozen trucks. From the ATRI utilization analysis, Wadsworth Rest Area is overcapacity between approximately 11:00 p.m. and 2:00 p.m. (see Figure 2.11) and Washoe County has a significant gap in truck parking capacity based on the origin-destination analysis.

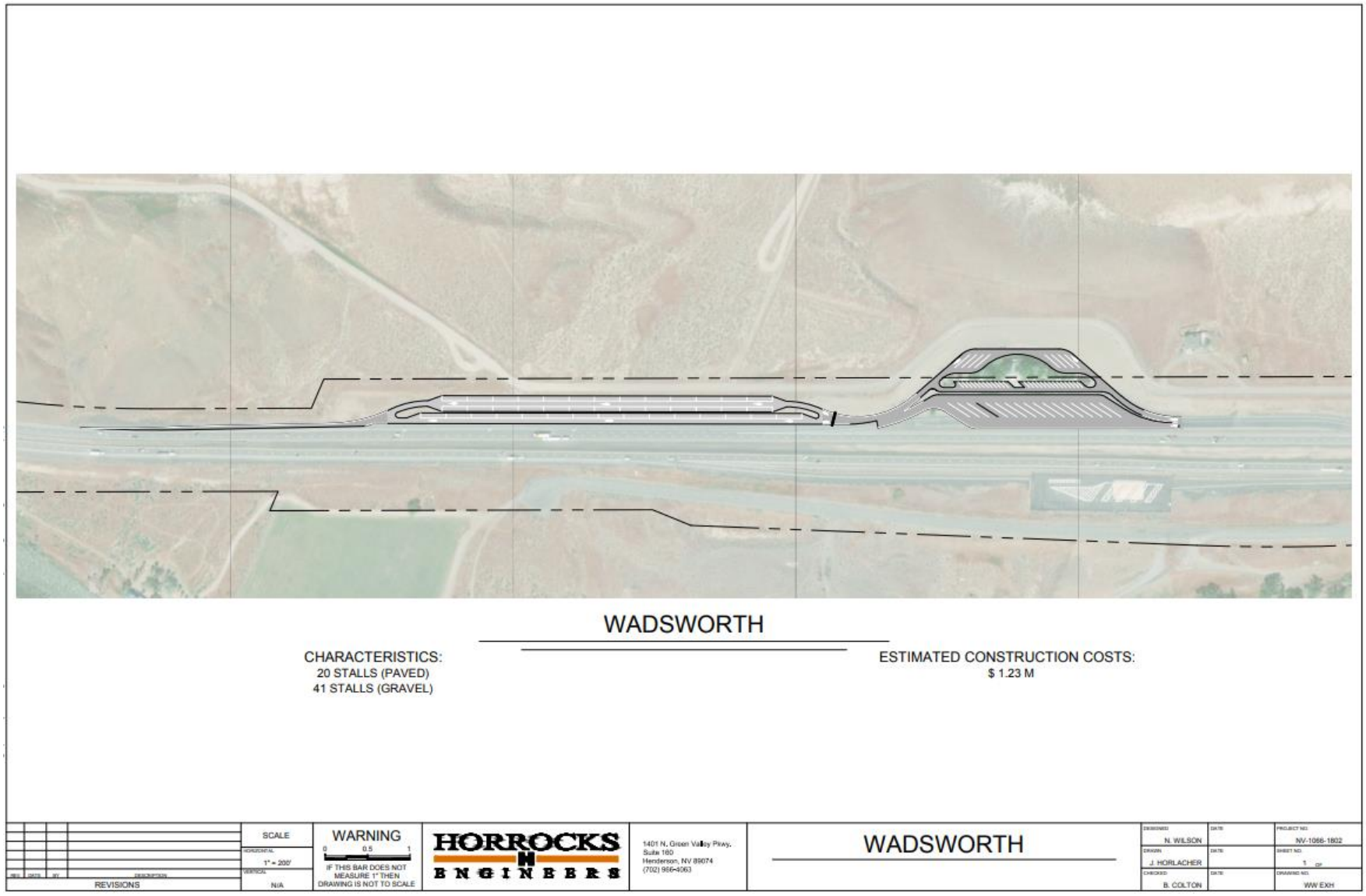
A conceptual design to expand the Wadsworth Rest Area is shown in Figure 2.12. This new site would add 10 paved truck parking spaces (20 total, 10 already at site) to the existing Rest Area and create an overflow lot with an additional 41 gravel spaces. The overflow lot could include an access control gate and would require a new on ramp to I-80. The total cost for these changes is approximately $1.23 million.

Figure 2.11 Wadsworth Rest Area (I-80) Utilization Analysis



Source: ATRI, Analysis by Cambridge Systematics, 2019.

Figure 2.12 Wadsworth Rest Area Expansion Conceptual Design, I-80



Source: Horrocks Engineers, 2019.

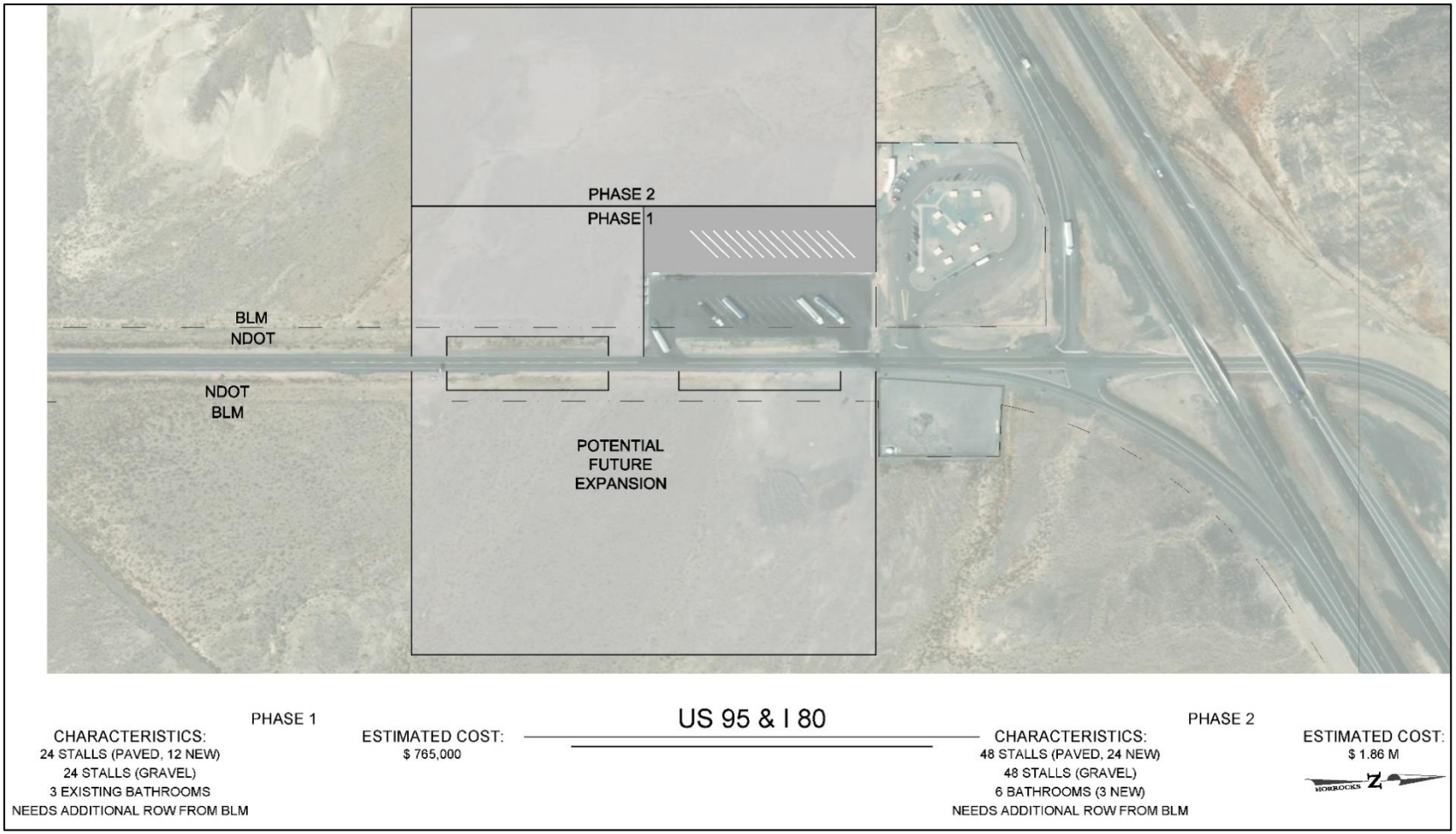
Trinity/Fallon Rest Area

Located at the intersection of I-80 and US 95, this rest area has striped parking for approximately 13 trucks and an unauthorized gravel area across the street that can hold approximately 10 vehicles. Stakeholders and Google Maps imagery indicate the overflow lot is commonly used. Although the ATRI utilization analysis did not indicate a gap at the location, the maximum and average “raw” pings from ATRI global positioning system (GPS)-equipped vehicles was higher at Trinity/Fallon Rest Area than any other public rest area sampled. In addition, the FHWA demand analysis indicated high demand on both US 95 and I-80 and the origin-destination truck demand analysis identified Churchill County as having an overall gap in truck parking spaces. The strategic location of this site on both I-80 and US 95 as well as its ability to provide spaces during emergency closures of I-80 make expansion here desirable.

NDOT has identified this location for expansion and enhancement to a welcome center which would include a number of upgrades to amenities which could include running water, better toilet facilities, and wireless Internet. Improved amenities will likely make this location a larger draw for both truck drivers and other motorists, increasing the need to add truck parking.

Figure 2.13 shows a conceptual design that includes both an expansion of regular truck parking (approximately 12 additional paved spaces) as well as an overflow gravel lot that would be open to use during emergencies with space for approximately 24 trucks. The initial expansion is estimated to cost $765,000. An optional Phase II would pave the 24 gravel spaces in the overflow lot from Phase I and add 48 additional gravel spaces as emergency parking for an estimated $1.86 million.

Figure 2.13 Trinity/Fallon Rest Area Expansion Conceptual Design, I-80/US 95



Source: Horrocks Engineers, 2019.

Beowawe Rest Area

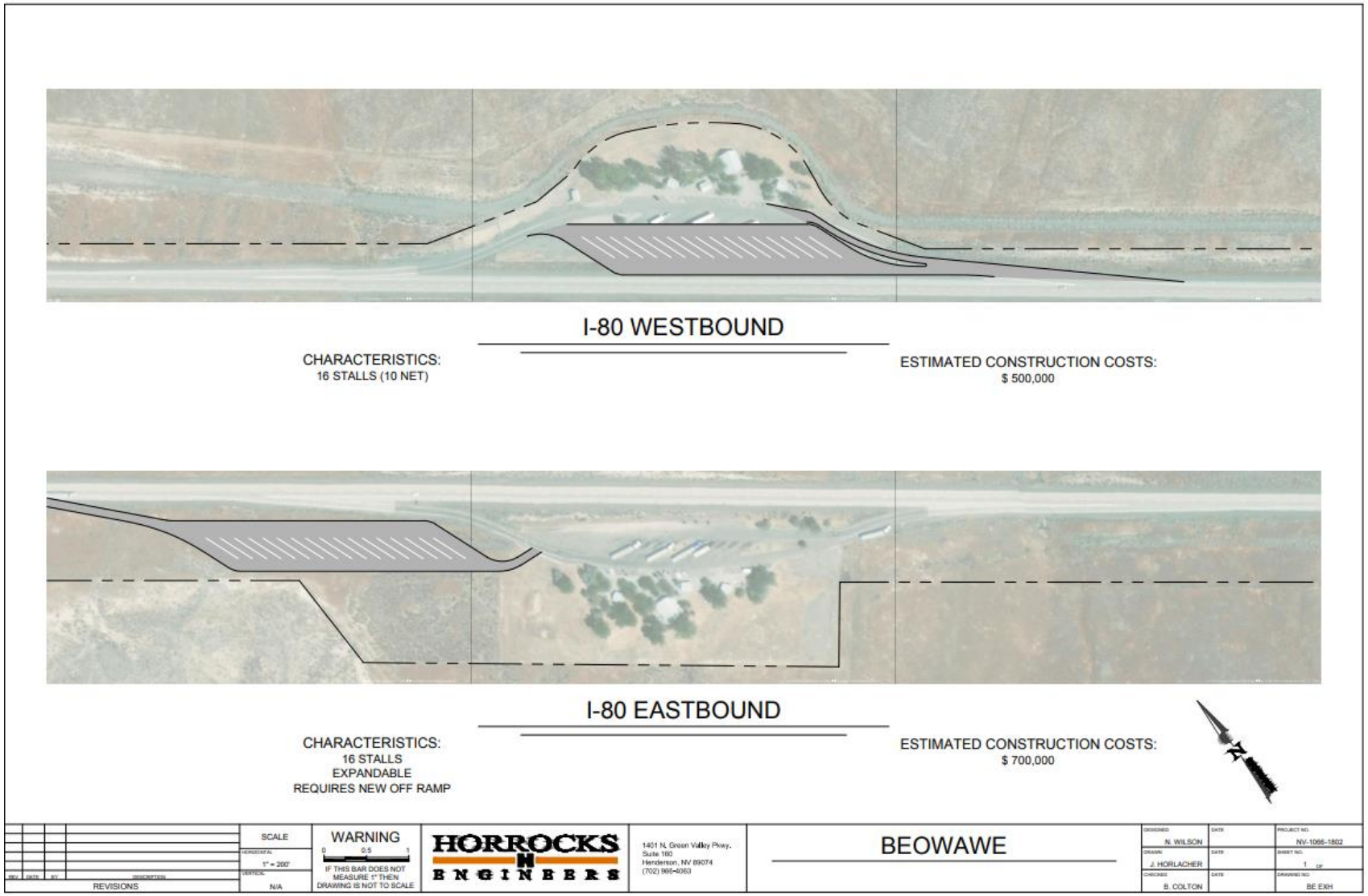
Located approximately 30 minutes east of Battle Mountain and 30 minutes west of Carlin on I-80, the Beowawe Rest Area (eastbound and westbound) offers approximately 17 truck parking spaces that are near or at capacity based on the utilization analysis conducted for this project. At the County level, Eureka County has a deficit of approximately 45 spaces based on the origin-destination analysis. The facility already is paved, marked, lighted, and provides rest rooms.

NDOT already has identified the Beowawe Rest Area for expansion based on motorist use. Expansion of the facility should include additional truck parking capacity. Figure 2.15 shows a conceptual drawing that would increase the number of truck parking spaces at both eastbound and westbound facilities. The westbound side would add approximately 10 spaces and the eastbound side would add 16 spaces with more land available if demand increased. The eastbound expansion would require a new off ramp from I-80 and would cost approximately $700,000. The westbound expansion would cost approximately $500,000.

New Lot at I-80/SR 306

The Nevada State Freight Plan identified a need to improve the I-80/SR 306 Interchange, shown in Figure 2.15. Scoping for the project revealed a small dirt lot occasionally used by trucks for parking, and this study revealed a need for additional parking in this area. Therefore, as part of this project, NDOT is able to create 14 truck parking spaces along SR 306, south of I-80 on a 1-acre area, shown in Figure 2.16. This area will be upgraded with paving and lighting, and all work will be done within current right of way. NDOT Scoping estimates this lot to cost $414,000.

Figure 2.14 Beowawe Rest Area Expansion Conceptual Design, I-80



Source: Horrocks Engineers, 2019.

Figure 2.15 I-80/SR 306 Interchange Improvement Project

Source: NDOT—Beowawe Interchange DRAFT Scoping Report, January 2019.

Figure 2.16 New Truck Parking Lot on SR 306

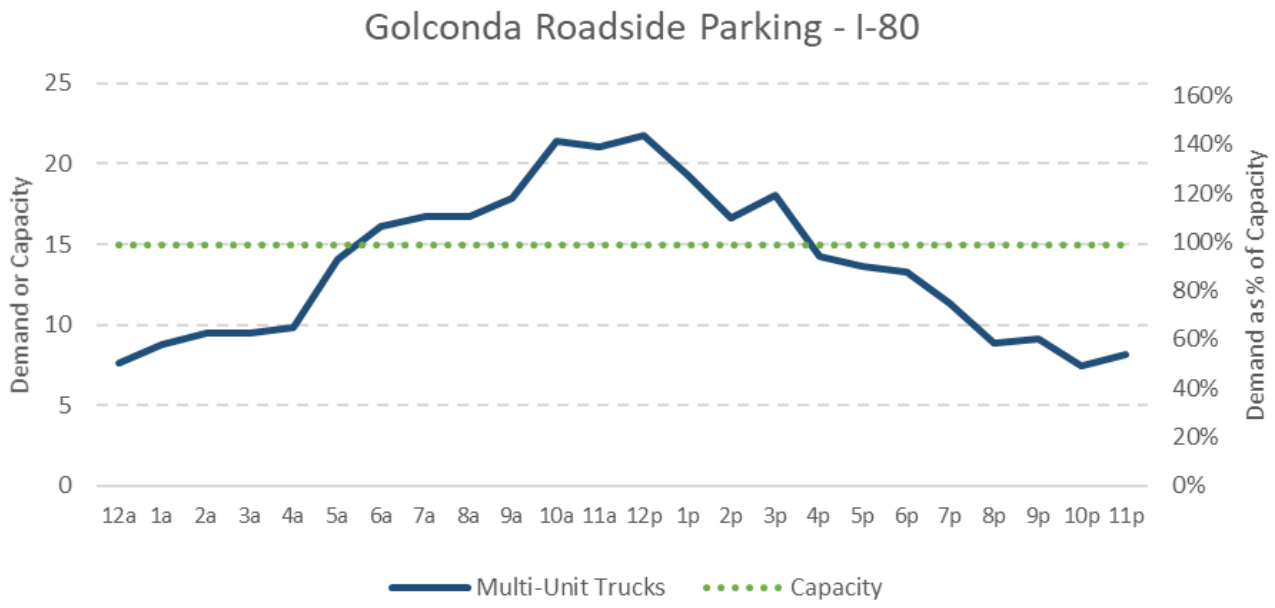
Source: NDOT—Beowawe Interchange DRAFT Scoping Report, January 2019.

Golconda Summit Truck Turnout

There are truck turnout areas on both the eastbound and westbound side of I-80 at Golconda Summit. Stakeholder input indicates that additional truck parking is needed in the area and the ATRI utilization analysis (Figure 2.17) shows that the location is above capacity during the middle of the day, although the origin-destination analysis identified a surplus of parking spaces in Humboldt County. Expanding the parking area with low-cost material could increase the capacity at the location with minimal costs. In addition, adding basic amenities such as trash receptacles would help make the site more attractive to drivers.

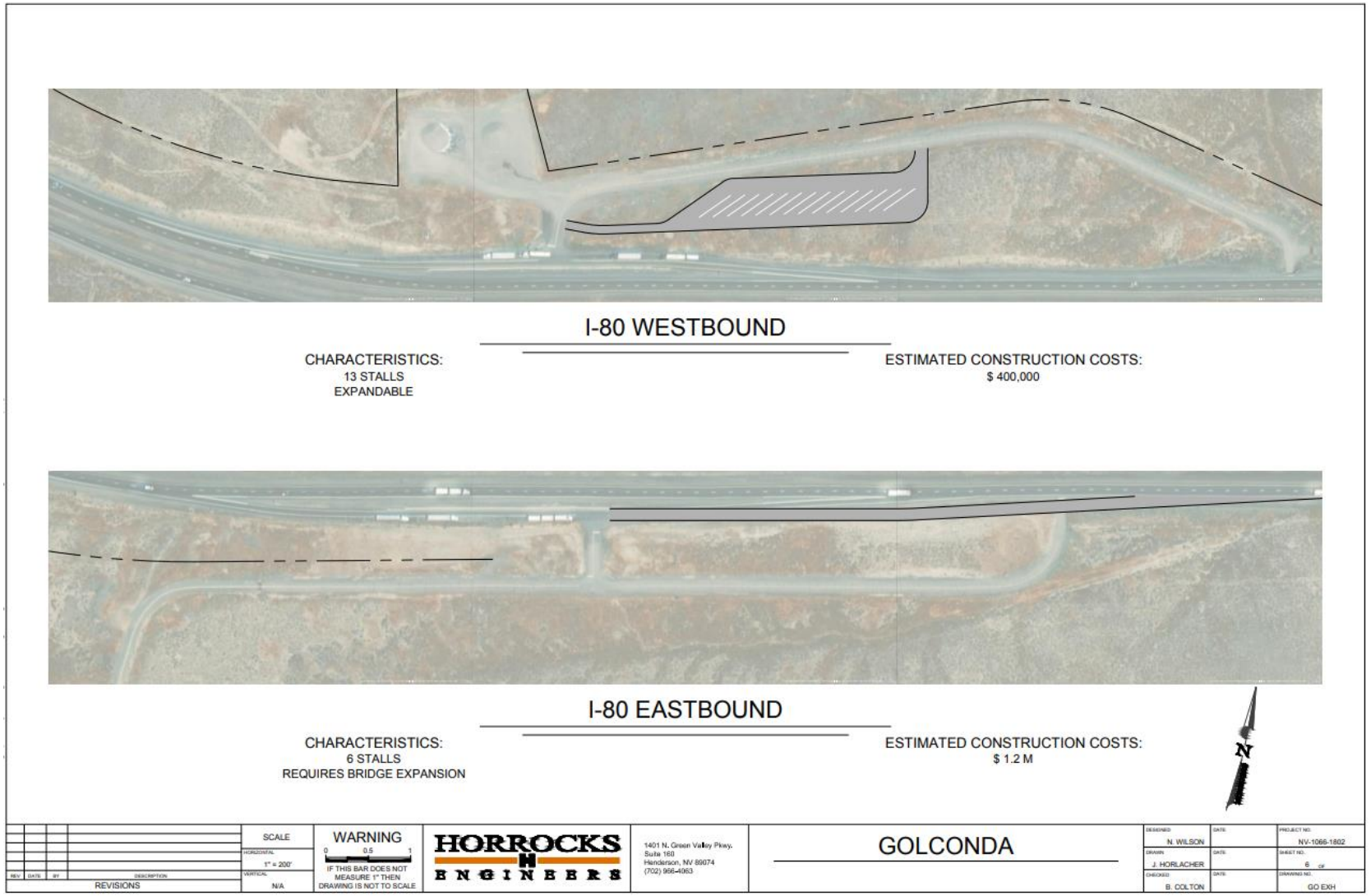
A more extensive project would include expansion of both the eastbound and westbound parking capacity. The westbound side could add approximately 13 paved, marked spaces behind the existing turn out for approximately $400,000. The eastbound side would require an extension of the existing lane for approximately 2,000 feet. This would add 6 spaces at a cost of approximately $1.2 million. Figure 2.18 provides an overview of the conceptual site designs.

Figure 2.17 Golconda Truck Turnout Utilization Analysis



Source: ATRI, Analysis by Cambridge Systematics, 2019.

Figure 2.18 Golconda Truck Turnout Expansion, I-80



Source: Horrocks Engineers, 2019.

I-15 Truck Pull-Offs/Turnouts

There are three truck pull-offs or truck turnouts located on I-15 northeast of Las Vegas. They are located at Milepost 88, Milepost 96, and Milepost 110 (Mormon Mesa). All provide space for trucks to park in both directions but have no amenities for drivers. The ATRI GPS utilization analysis indicates that Mormon Mesa (see Figure 2.19) is near or above capacity and the MP 96 location is above 50 percent utilization at most times of the day although does not commonly reach capacity. A sampling of mobile application data indicates that the Milepost 88 and Milepost 96 locations have a lower utilization rate than Mormon Mesa.

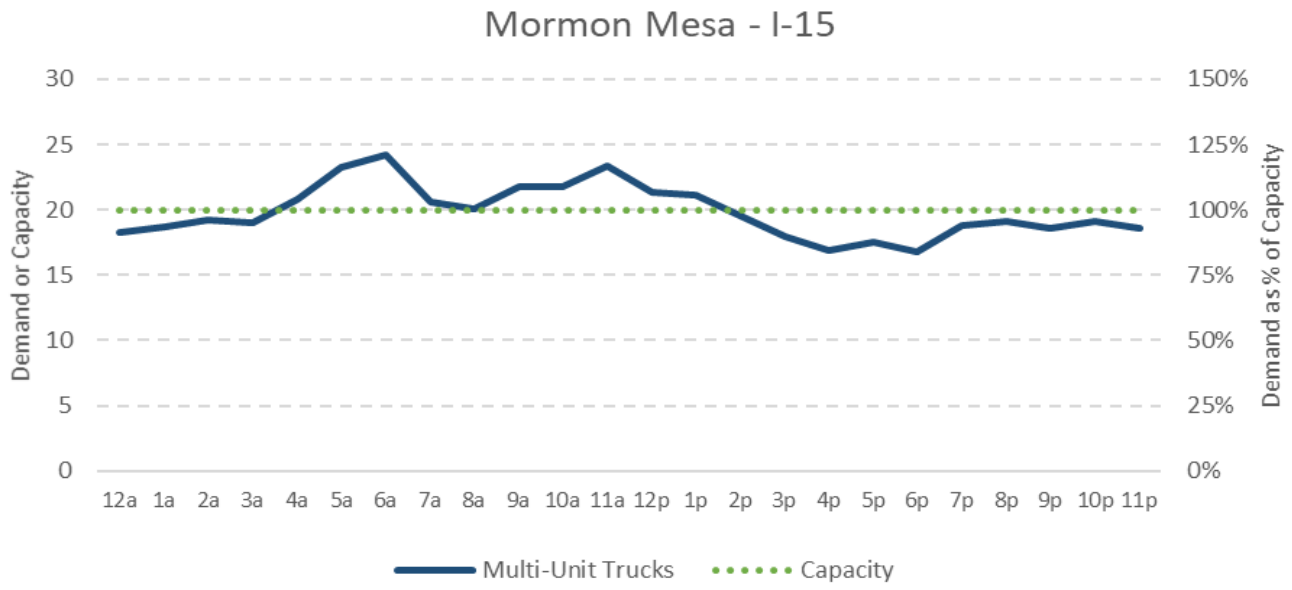
A number of enhancements at these locations would help improve conditions. First, amenities such as trash receptacles and a vault toilet should be considered. Second, adding stripping (either on existing surface or through paving and stripping) could increase the capacity of the lot by reducing confusion and make it easier to accurately identify capacity. These lots also are prime locations for technology implementation described in Section 4.

Conditions at these sites should continue to be monitored to gauge any increases in demand as amenities are added and future expansion of one or more of the sites may be necessary. Since all 3 locations are within approximately 20 miles, the specific site expanded can to some extent be based on construction and ROW needs. Recent private sector development in the corridor (Pilot/Flying J in Mesquite) indicates that the private sector recognizes a need to provide more capacity.

In addition, the Mormon Mesa southbound site and Exit 100 Northbound (NB) off Carp Elgin Road have non-obligated freight funds tentatively scheduled to complete truck parking expansion projects in 2021.[10] Details of these projects are not available at this time and could be modified in the future to best fit noted needs.

[10] Money for these projects could potentially be used at a different site on I-15. The parking area off Exit 100 is on the west side of I-15.

Figure 2.19 MP 110 Mormon Mesa (I-15) Utilization Analysis



Source: ATRI, Analysis by Cambridge Systematics, 2019.

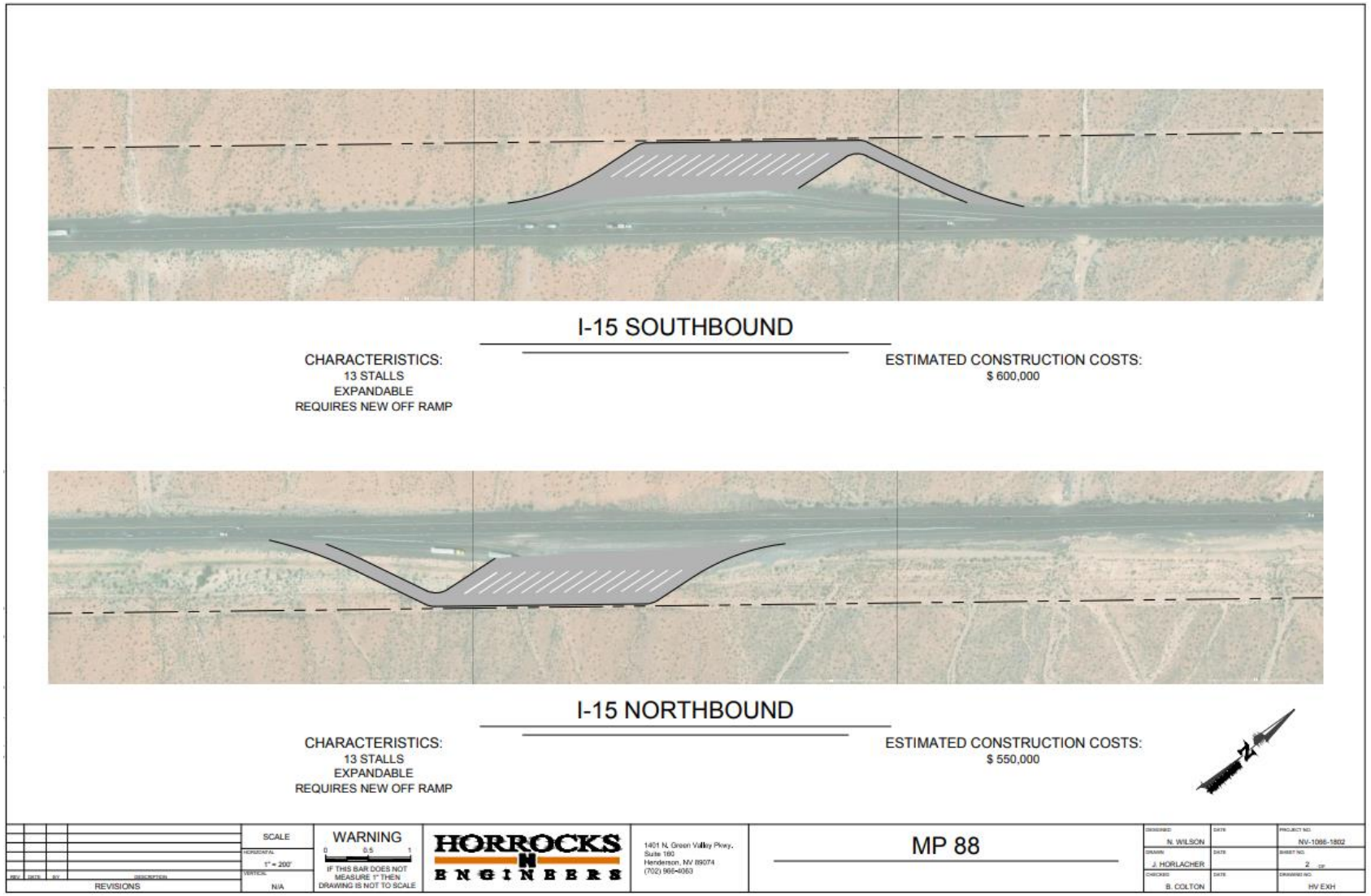
Figure 2.20 through Figure 2.23 provide conceptual designs for expansion of truck parking at these three sites. Costs are outlined below:

- MP 88: Southbound would cost approximately $600,000 to add 13 spaces and would include a new off ramp. Northbound would cost approximately $550,000 to add 13 spaces and would include a new off ramp. Both sites would be expandable in the future.
- MP 96: Southbound would cost approximately $3.6 million to add 100 spaces and would require a new off ramp. The site would be expandable to meet future need. Northbound would cost approximately $3.8 million to add 100 spaces and require a new on ramp.
- MP 110: Southbound would cost approximately $1 million to add 29 spaces and would require a new off ramp. Northbound would cost approximately $600,000 to add 12 spaces and would require a new on ramp.

There is a potential location for a new truck parking facility at Exit 84. This is closer to Las Vegas than the 3 sites identified above. Property needed for truck parking is owned by either NDOT or by the BLM. A narrow culvert underpass under I-15 is not large enough for trucks to pass through, so the conceptual design shown in Figure 2.24 includes separate northbound and southbound facilities. The cost to add 54 total spaces, split between the northbound and southbound ramps would cost approximately $1.32 million total.

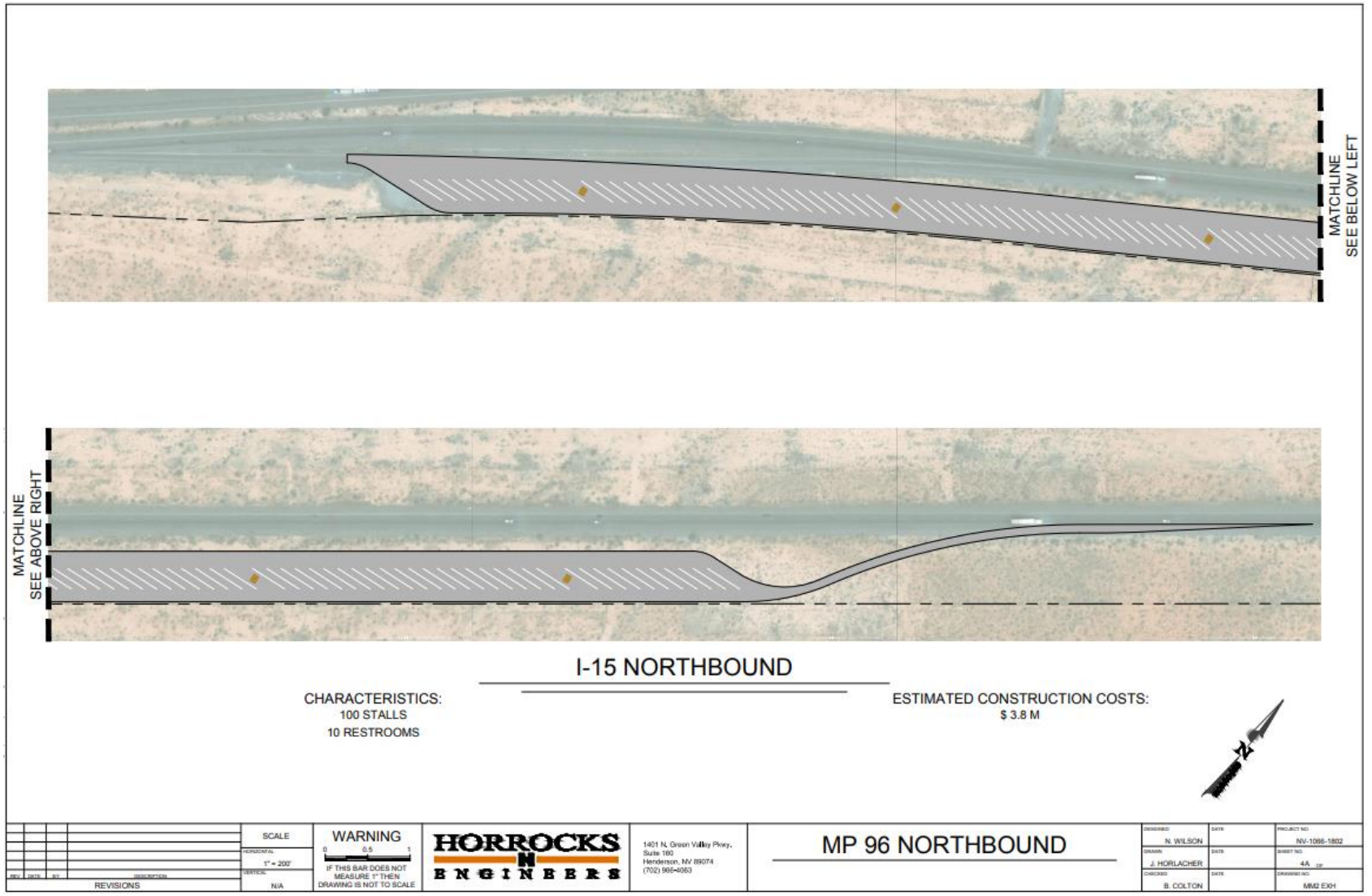
Finally, NDOT is considering transferring ownership of Las Vegas Boulevard North to the City of North Las Vegas. Under terms of the agreement the City would relocate Las Vegas Boulevard North and construct a truck parking lot within the utility corridor adjacent to the Love's at US 93; and in return, NDOT would pay for construction of the street relocation and parking lot. As of this writing the feasibility of constructing a parking lot within the utility corridor has not been determined. Conceptual drawings of the relocation and parking lot are shown in Figure 2.25 and Figure 2.26.

Figure 2.20 MP 88 Truck Turnout Expansion Conceptual Design



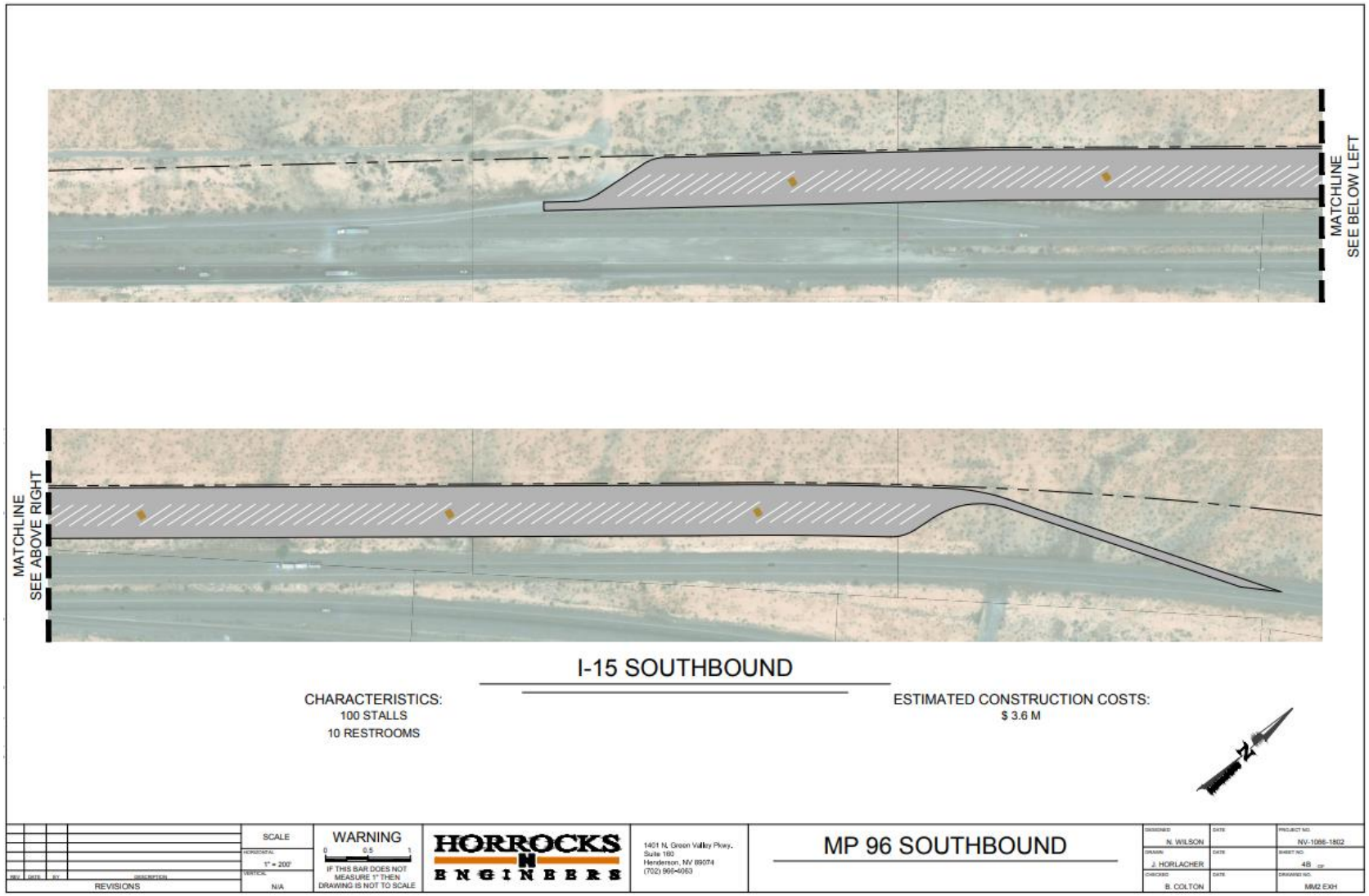
Source: Horrocks Engineers, 2019.

Figure 2.21 MP 96 Northbound Truck Turnout Expansion Conceptual Design



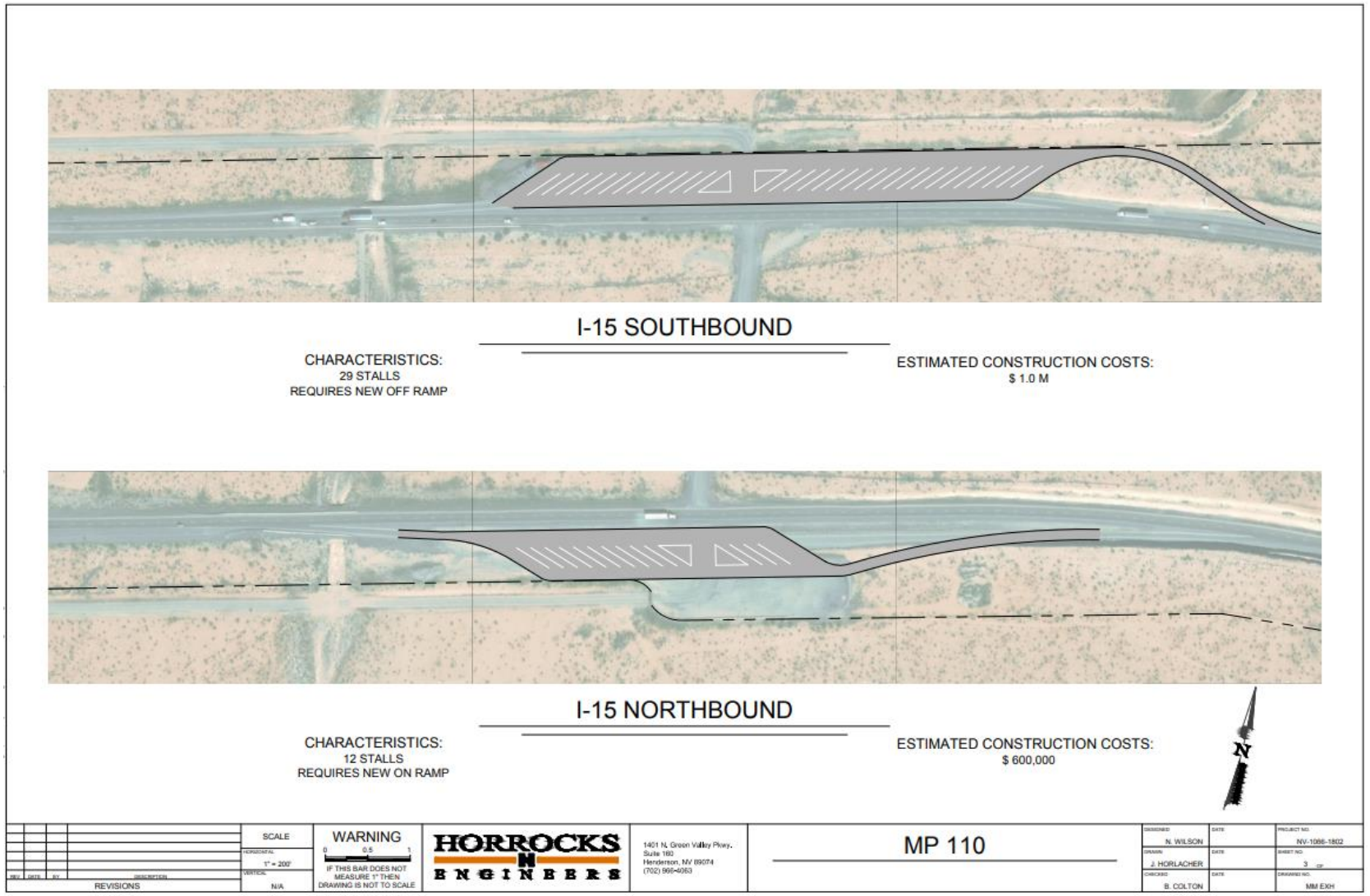
Source: Horrocks Engineers, 2019.

Figure 2.22 MP 96 Southbound Truck Turnout Expansion Conceptual Design



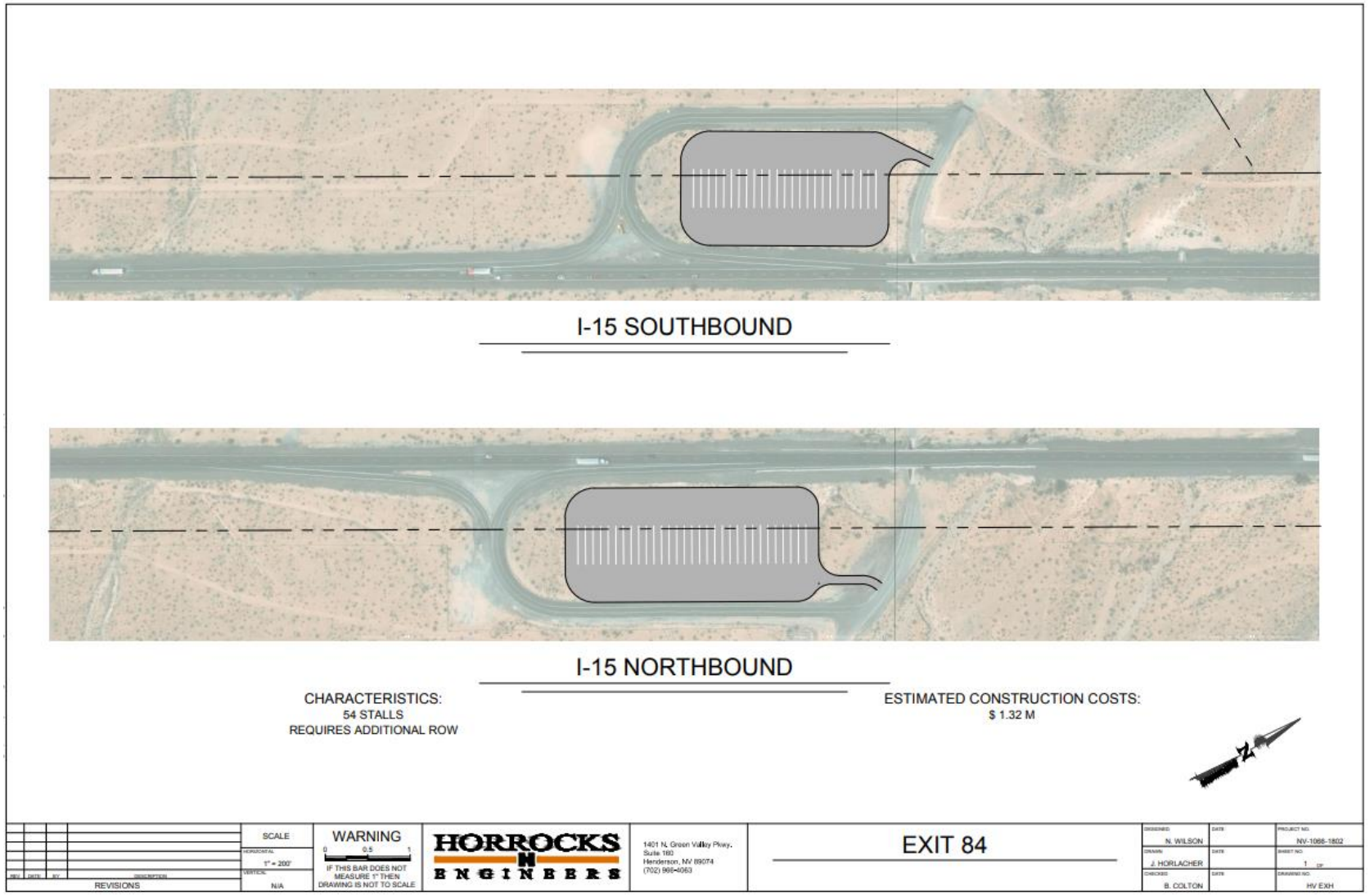
Source: Horrocks Engineers, 2019.

Figure 2.23 MP 110 (Mormon Mesa)Truck Turnout Expansion Conceptual Design



Source: Horrocks Engineers, 2019.

Figure 2.24 Exit 84 New Truck Parking Conceptual Design

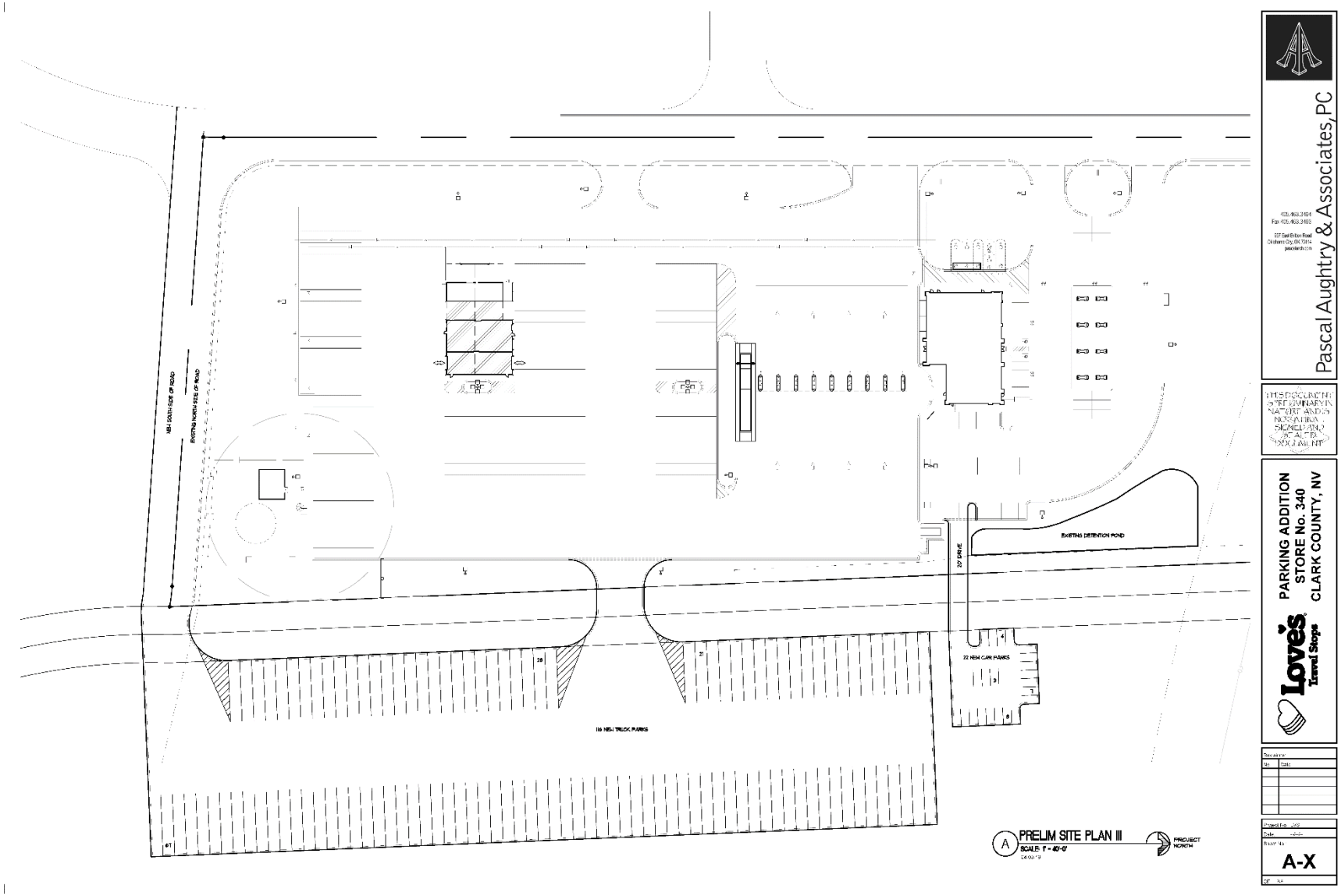


Source: Horrocks Engineers, 2019.

Figure 2.25 Las Vegas Boulevard North Relocation

Source: City of North Las Vegas.

Figure 2.26 Conceptual Design of New Truck Parking Lot Adjacent to Love's, Las Vegas Blvd and US 93



Source: City of North Las Vegas.

SR 360 at US 6 Truck Parking

Stakeholders identified the stretch of US 6 west of US 95 as an area in need of additional truck parking opportunities. This stretch is isolated from any other authorized parking opportunities and is unlikely to draw attention from a private operator due to the remoteness of the area. An ongoing truck parking study in California[11] also identified US 6 between US 395 and the California/Nevada border as a location with a lack of truck parking. Unauthorized parking already is occurring in the corridor with three small pull-out areas located near the intersection of US 6 and SR 360.

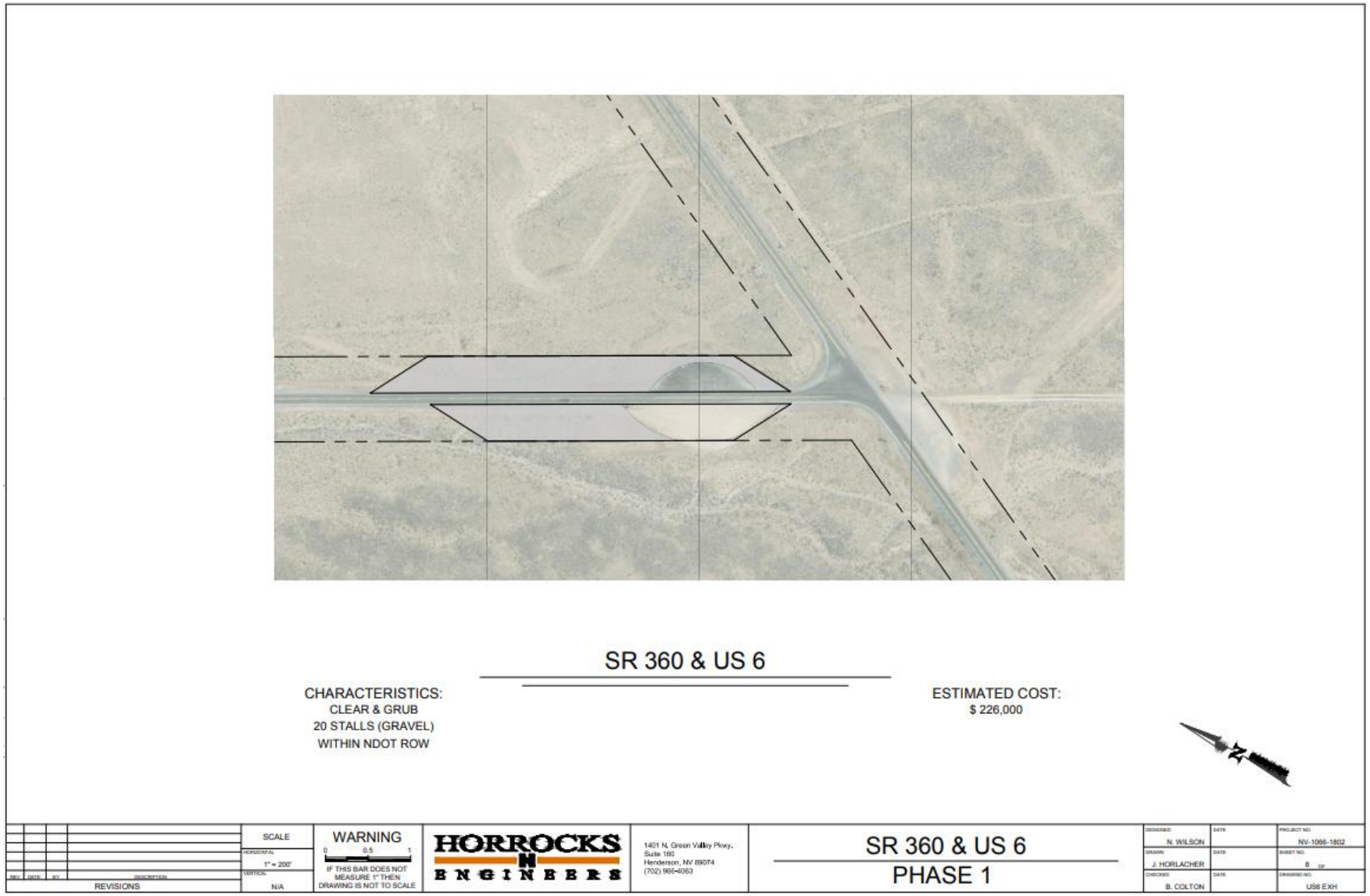
Making parking at the two small lots on either side of SR 360 authorized and adding minimal amenities (such as a trash receptacle) may be sufficient to address needs in the corridor. Since traffic volumes on SR 360 are lower than on US 6 and vehicles must slow down as they approach the stop sign at US 6, these chain up lots are safer to expand than the one on US 6.

This project can be developed in two Phases. In Phase I, the existing parking areas would be expanded but remain gravel and unlined. This would created approximately 20 parking spaces total at the location for a cost of approximately $226,000. This preliminary site design is shown in Figure 2.27.

If demand warrants additional work at this site, Phase II would expand the location to 40 paved spaces, add restroom facilities, and add a separate entry/exit. This would require expansion on to land currently owned by the U.S. Bureau of Land Management (BLM). Phase II is estimated to cost approximately $1 million and a conceptual design is shown in Figure 2.28.

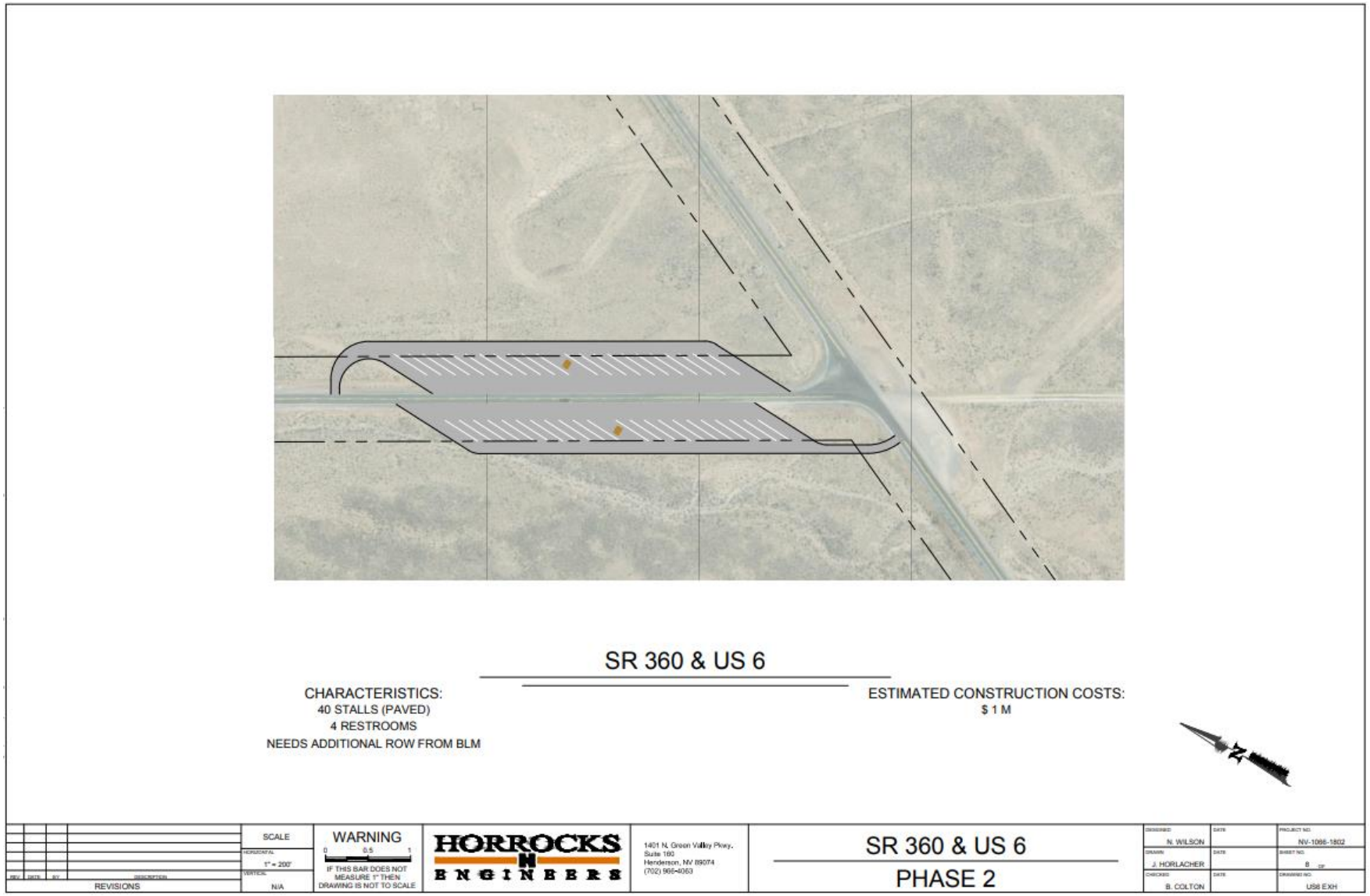
[11] Eastern Sierra Corridor Freight Study.

Figure 2.27 SR 360 at US 6 Truck Parking Expansion Conceptual Design – Phase I



Source: Horrocks Engineers, 2019.

Figure 2.28 SR 360 at US 6 Truck Parking Expansion Conceptual Design – Phase II



Source: Horrocks Engineers, 2019.

Additional Locations for Expansion and/or Enhancements for Consideration

US 395 at North Virginia Avenue and White Lake Parkway Park and Ride

The US 395 corridor was identified using the FHWA model as a corridor with a truck parking gap. In addition, the origin-destination analysis identified a gap in truck parking spaces in Washoe County. Finally, new warehousing/distribution businesses on North Virginia Avenue south of US 395 between approximately Snead Boulevard and Lemmon Avenue have increased the number of truck trips in the area. These conditions combined with the periodic strong winds in the corridor which can shut down this segment of US 395 or cause trucks to flip over shows a need for additional truck parking capacity.[12]

Making the existing Park and Ride at North Virginia Avenue/White Lake Parkway (Exit 80), shown in Figure 2.29, an authorized location and expanding it to provide additional spaces for trucks would help alleviate the issue and provide additional staging parking for trucks in the region. A variable message sign is deployed on US 395 southbound in advance of the exit and could be used to provide parking information during weather events. Additional warning signs for northbound traffic and static signage notifying drivers of the truck parking location should be considered.

Figure 2.29 US 395 at North Virginia Ave/White Lake Parkway.

Source: Google Earth.

Luning Rest Area

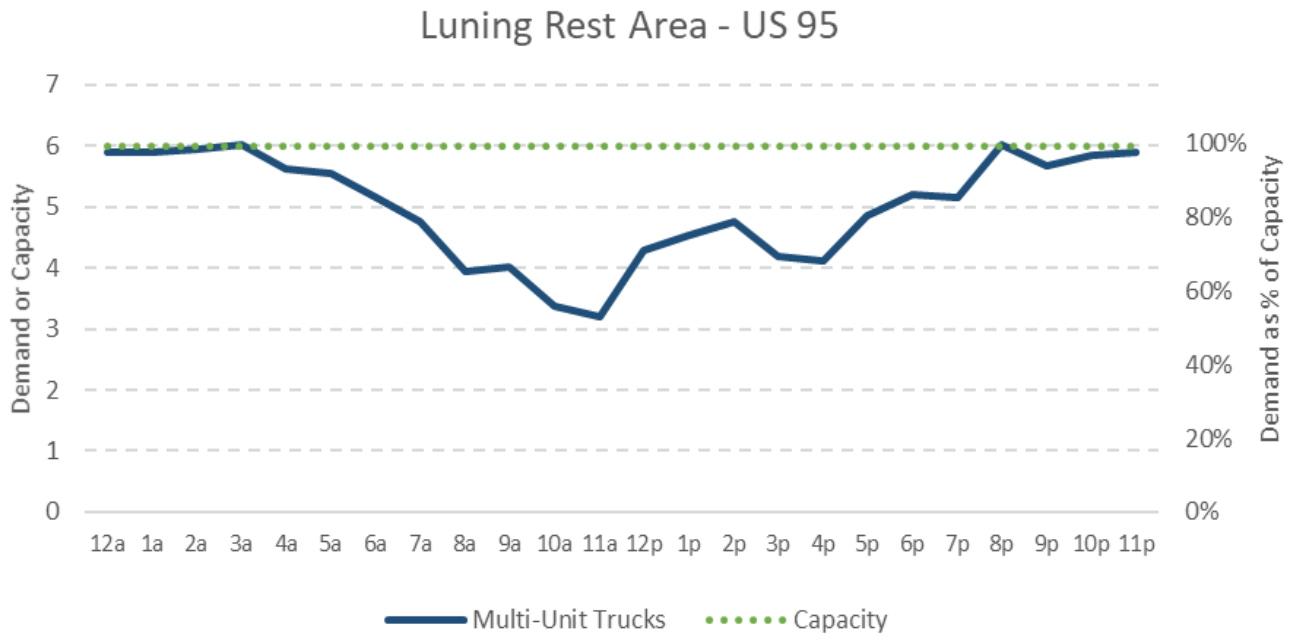
Luning Rest area on US 95 in Luning (Mineral County) has space for approximately 6 vehicles and is at or near capacity based on ATRI GPS utilization data (Figure 2.30). It is one of the few authorized places to park between Hawthorne (25 miles northwest) and Tonopah (75 miles southeast). Expansion at this location would provide additional parking at a facility with a restroom on this otherwise very rural stretch of highway.

Verdi/Mogul Truck Turnouts

Providing additional parking near the California border on I-80, especially during closures, has been noted by stakeholders as a key concern. In addition, ATRI utilization data indicates that the existing truck turnouts near Verdi between Exit 5 and Exit 7 of I-80 are approaching capacity. However, difficult terrain, limited public ROW, and other factors make expansion of this site difficult. NDOT should continue to monitor the situation and be alert for any truck parking opportunities on this difficult stretch of highway.

[12] US 395 reopened to trucks in Reno area; high winds had closed road. KOLO 8. February 18, 2018. Online at: https://www.kolotv.com/content/news/High-wind-shuts-down-truck-traffic-on-U.S.-395-in-Reno-area-474424753.html.

Figure 2.30 Luning Rest Area Utilization Analysis



Source: ATRI, Analysis by Cambridge Systematics, 2019.

2.3.2 Truck Parking at New Weigh Stations

NDOT is planning an expansion of I-15 between Speedway Boulevard and US 93 north of downtown Las Vegas. This area also is being examined through the ongoing Commercial Vehicle Safety, Size and Weigh Regulation and Enforcement Study for potential deployment of a new weigh/inspection site. If a facility is developed, the design should include space for truck parking and NHP should re-assure drivers that trucks parked at these facilities will not be targeted for additional inspections or other enforcement actions unless absolutely necessary.[13]

Additional new weigh stations are likely to be situated on the main corridors through Nevada (I-15 and I-80) and are typically located near a State's borders in order to screen traffic as it arrives. Any facility on I-80's western end would be of particular interest for joint enforcement/parking as space constraints in the area limit development opportunities for either type of facility.

2.3.3 Allow Parking at Chain-Up/Brake Check/Inspection Sites Areas During Off Season

Existing chain-up areas, especially in rural areas of Nevada, appear to be common locations for unauthorized truck parking. These sites are generally not used by enforcement personnel for mobile truck size and weigh enforcement. Since chain up areas have more predictable use patterns (seasonal) than brake check or inspection sites, allowing parking at locations where there is sufficient space to maintain safety and when chains are not necessary may be a viable initial step. Expanding this concept to other facilities such as scenic pull-offs (at night) or brake check and mobile inspection sites will require additional coordination with NHP or other local municipality police forces who utilize these sites in order to effectively manage their use.

[13] This is often cited by drivers as a reason they are reluctant to park at weigh stations.

2.3.4 Convert Closed NDOT or NHP Facilities

NDOT rest areas or NHP weigh stations or inspection sites that are targeted for closure should be examined to identify their potential use to serve as truck parking-only sites. Button Point Rest Area on I-80 is one known location that should be examined for feasibility as a truck-only parking area. The site is located at Exit 187 between Winnemucca and Golconda and could serve traffic in both directions. The site would require a new well and Americans with Disability Act enhancements to re-open to the public, and NDOT is exploring the possibility of closing the site permanently. Instead of a complete closure, NDOT should consider closing the facility and converting the parking lot to a truck parking area only with minimal amenities such as trash receptacles and vault toilets.

Other facilities that may be available in the near future for conversion include the Mustang inspection site on I-80 westbound just prior to Exit 23 and the Wadsworth inspection site on I-80 eastbound, opposite the Wadsworth Rest Area.

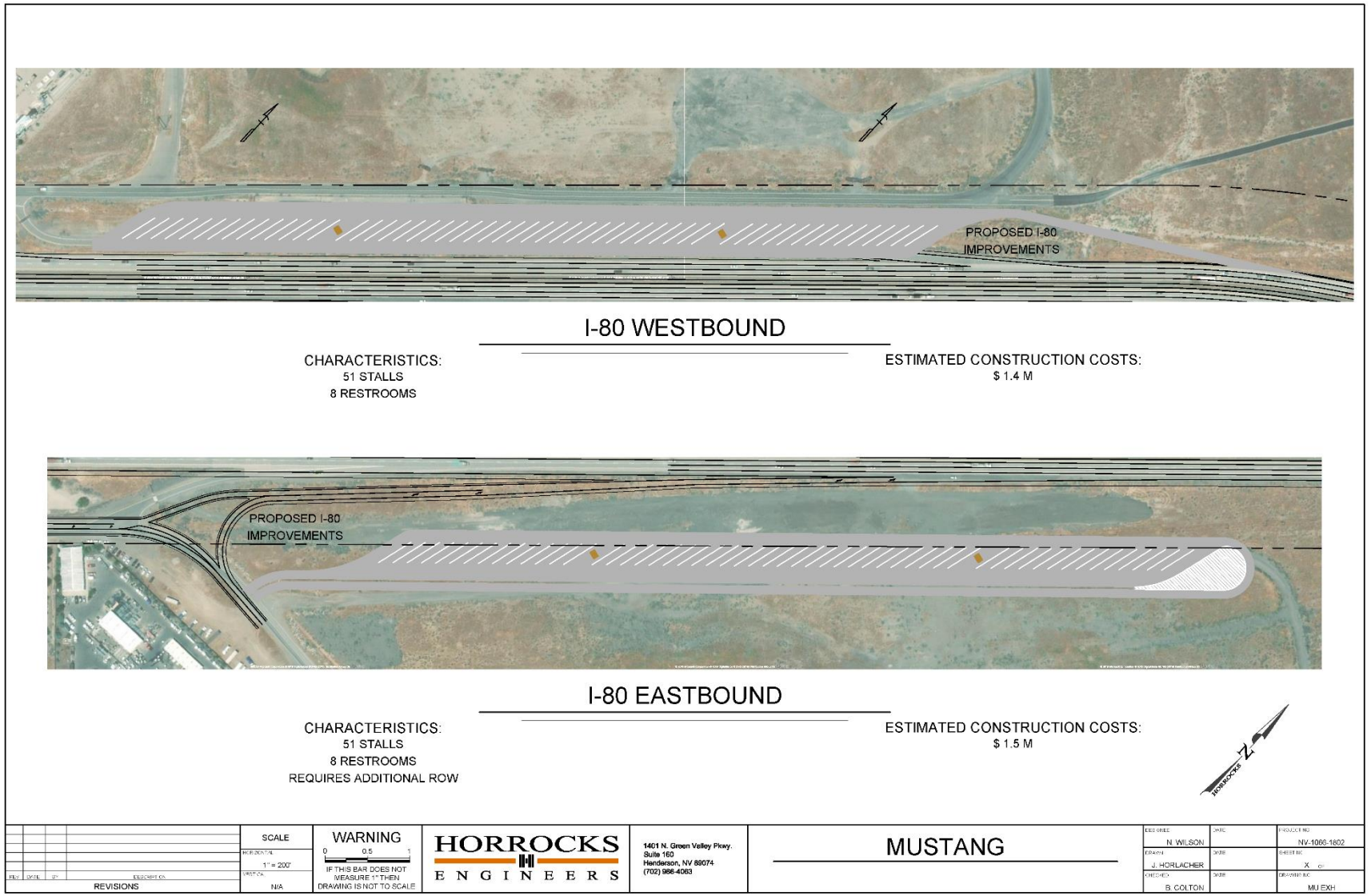
Mustang in particular is intriguing due to its westbound orientation and location just east of Sparks. This site could serve both regular parking needs as well as provide capacity for emergency parking during closures of I-80. Figure 2.31 shows a conceptual design for this site which could add 34 paved, striped spaces for a cost of approximately $1.2 million, including the cost of a new off ramp to access the site. An alternate design utilizing the existing on ramp and exiting directly onto Frontage Road may also be possible and will be explored further in the Implementation Plan technical memo. In addition, during emergencies, NDOT may consider parking trucks along the .5 miles of Frontage Road between the exit from the Mustang Check Station and the I-80 on ramp at milepost 23.

2.3.5 Add Truck Parking During Highway Improvements

As shown in Figure 2.2, a number of rural highway segments are expected to see an increase in truck traffic in the next decades. As highway expansion or improvement projects are planned, adding simple truck parking areas such as a truck pull-off/turnout should be considered. 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:

- US 95 between Las Vegas and Amargosa Valley.
- US 95 between Beatty and Tonopah.
- US 95 between Tonopah and Luning.
- US 93 between I-15 and Alamo/Crystal Springs.
- SR 318 between Crystal Springs and Sunny Side Rest Area.
- US 93 between US 93/93A junction and Wells.
- US 93A between US 93/93A junction and West Wendover.
- US 93 between Wells and Jackpot.

Figure 2.31 Mustang Check Station Conversion, I-80



Source: Horrocks Engineers, 2019

2.3.6 Multistate Coordination

Truck parking is a national issue, making multi-State efforts to address it particularly effective. Two groups that NDOT should continue to coordinate with to identify and address truck parking issues in the State are the Western States Freight Coalition (WSFC) and the I-15 Mobility Alliance.

Western States Freight Coalition

The WSFC is a voluntary partnership of State DOTs, which are committed to multijurisdictional coordination, organized around a common agenda and facilitated through a cooperative support structure. The WSFC seeks to minimize or eliminate inefficiencies in the Western supply chain and optimize freight flows through multistate and multimodal coordination, P3s, and emerging technological solutions. Stronger solutions may be found when addressed at a regional or multi-State level, especially applicable for TPAS. Truck drivers benefit from a single, national source for locating available parking, and NDOT has an opportunity to be at the forefront of implementing one by promoting and supporting a Western system that can be connected to other regional systems.

I-15 Mobility Alliance

The I-15 Mobility Alliance is a coalition of local, regional, and State public transportation agencies, and private partners, along the I-15 Corridor through California, Nevada, Arizona, and Utah. The Alliance was awarded a U.S. DOT Multistate Corridor Operations and Management grant to develop the I-15 Dynamic Mobility Project which seeks to provide real-time information on a number of topics (truck parking, road closures, weigh station operations, delays, etc.) through multiple channels to a wide range of public- and private-sector stakeholders along the corridor in California, Nevada, Arizona, and Utah. The freight component of this project includes identifying and testing outreach methods to truck drivers with a number of pieces of information, including truck parking occupancy, emergency weather bulletins, traffic delays, etc. NDOT should remain involved in the I-15 effort and coordinate any efforts to implement real-time truck parking detection systems and information dissemination systems with fellow project members.

2.3.7 Develop a P3 Model and a Competitive Grant or Loan Program

While this Truck Parking Implementation Plan includes a number of recommendations for direct investment in public truck parking capacity and technology, the creation of a competitive grant or loan program to elicit project ideas from the private sector provides a mechanism to support the private sector and adapt to changing future needs. By providing funding, land, access, or other benefits in response to requests, public investment may be able to induce private-sector investment in truck parking in areas that otherwise would not receive any investment unless directly from the public sector and avoid excess public-sector funding in areas where the private sector already has an interest.

Initial conversations with stakeholders already have identified potential opportunities to utilize this approach including:

- Fifteen to 20 acres in the vicinity of the Speedway Industrial Park and Apex for a parking facility to serve the HOS needs for long-haul drivers, long-term parking for owner-operators, and short-term parking and cross-docking services for urban deliveries/pickups.

- Convention Marshalling Yard within the Las Vegas Resort Corridor—land and access control for a potential convention staging area north of McCarran International Airport at the northwest corner of Tropicana Avenue and Paradise Road.

- Development of additional parking and a location to allow cross-docking of freight in Carlin. This is a halfway point between Reno and Salt Lake City, and is sometimes used as a transfer point for goods on the I-80 corridor.

- TA at Blue Diamond Road/I-15 in Las Vegas has expressed interest in several parcels adjacent to their current truck parking area owned by NDOT (outlined in red on Figure 2.32) and Clark County (outlined in blue).

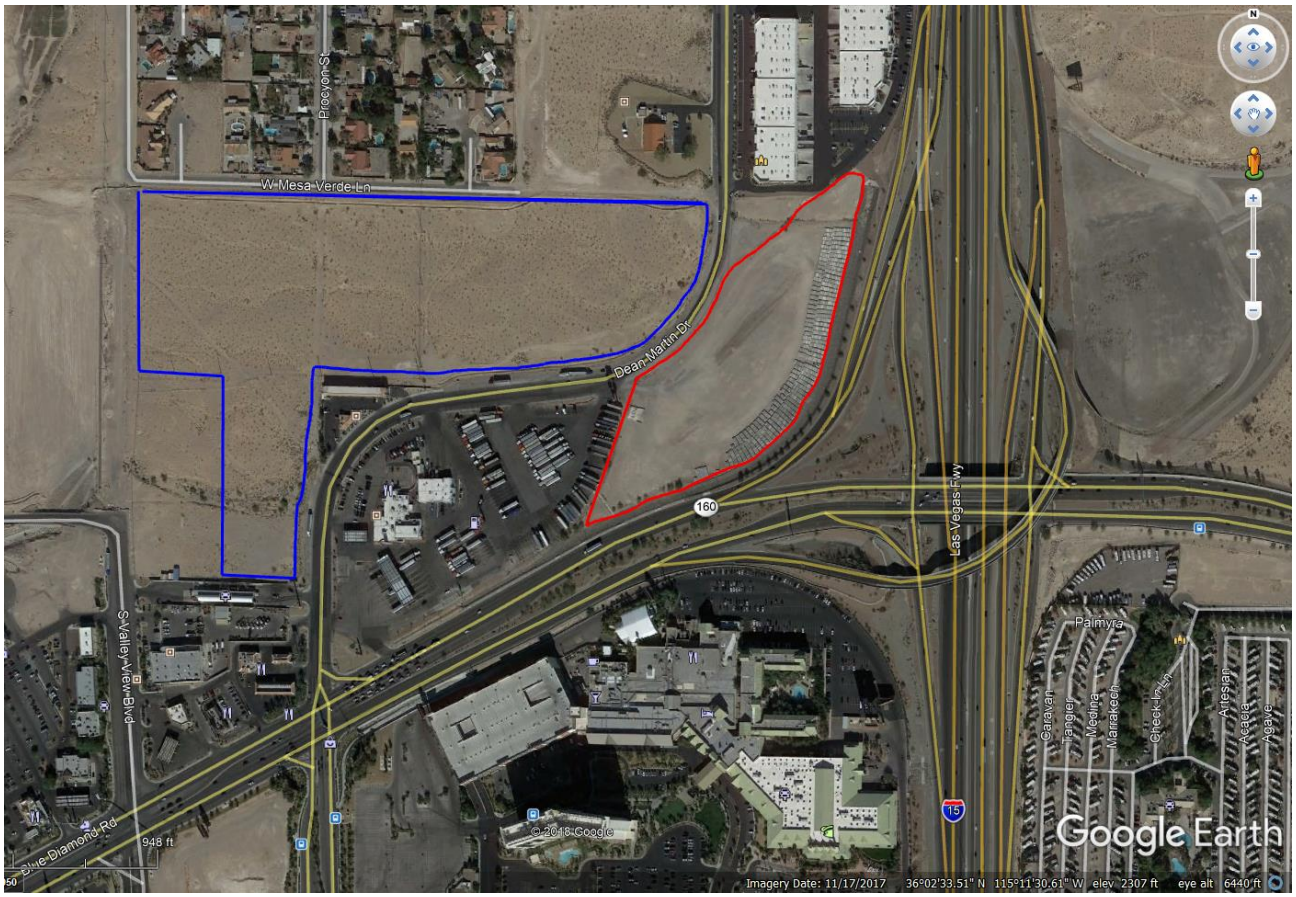
Other potential areas with noted needs and existing truck parking infrastructure that could be expanded include I-80 west of Reno/Sparks to the California border (needed for both emergency and regular long-haul truck parking), and the Flying J/Whiskey Pete's facility in Primm (shown in Figure 2.33). Other general areas of need where investment could be considered include Clark County, Washoe County, and I-80 between approximately Beowawe and Elko. Truck stop electrification projects could also be considered within this framework. Since initial funding for any grant or loan program is likely to come from the National Highway Freight Program (NHFP) funding (see Section 6.0), projects would need to be located on or improve travel on the National Highway Freight Network (NHFN)[14] (of which both I-15 and I-80 are part). Further details on this program will be provided in Implementation Plan of this project.

Finally, while truck parking can be pursued as a P3 opportunity, P3 authorization is currently limited to counties with a population of 700,000 or more (Clark County). This authorization should be expanded to include all counties within the State to ensure future P3 truck parking projects in other areas (especially along the I-80 corridor) can move forward.

[14] https://ops.fhwa.dot.gov/freight/infrastructure/nfn/index.htm.

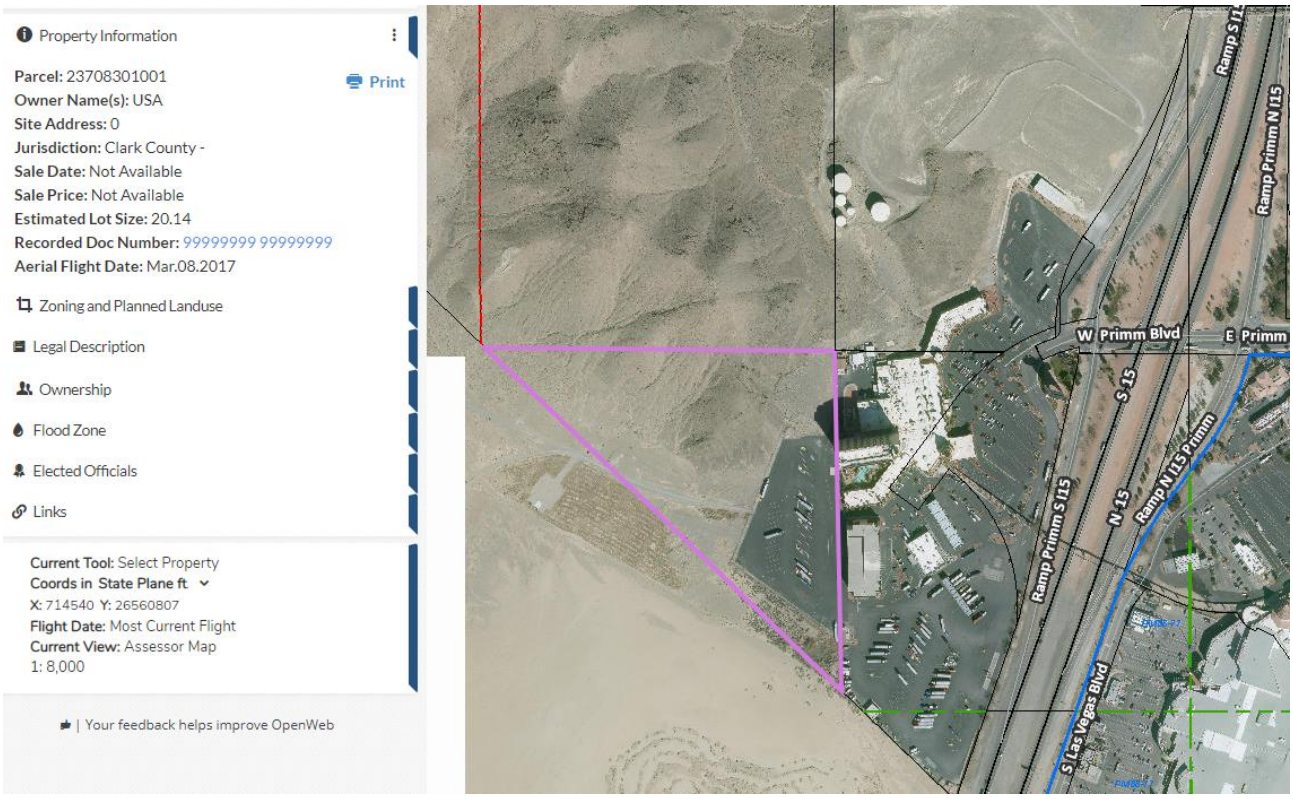
Figure 2.32 Property Adjacent to TA

At I-15/Blue Diamond Road



Source: Google Earth.

Figure 2.33 Property Adjacent to Flying J/Whiskey Pete's *Primm*



Source: Clark County GIS.

3.0 Urban Parking

As urban areas continue to attract and develop manufacturing, distribution, and warehousing services to meet growing customer needs and demands, and affordable available land decreases, the availability of truck parking for short-term staging will decrease. Recent changes to the HOS requirements and mandated electronic logging devices (ELD) may also contribute to more unauthorized truck parking in urban areas.

This section includes three pieces. The first identifies the main causes of urban parking and some of the issues presented. The second identifies a range of possible solutions to address the issue, and the third presents recommendations for NDOT to pursue.

3.1 Issue Background

Urban parking needs are generally more difficult to address than rural long-haul parking needs because the variance in the reasons drivers are parking is higher. Urban parking often occurs for one of three reasons:

- **Short-term staging parking** where vehicles are waiting to make a pickup or delivery at a specific location and often need cross-docking services. Trucks are not stopped for the full 10 hours needed to reset HOS.
- **Long-term parking for independent owner-operators** who park their vehicles while at home. These drivers typically do not have a company yard or other facility to park their vehicle at when not in use.
- **Long-haul parking** for drivers traveling interstate who need to reset their HOS. Depending on route, traffic and weather conditions, and personal preferences, some long-haul drivers will need to stop in urban areas.

Truck staging parking is the most visible to residents. The FHWA has outlined the need for urban freight staging and short-term truck parking under their 2012 *Freight and Land Use Handbook*.[15] Trucks arriving early for expected deliveries must park along the side of curb, in parking lots, on the side of the highway, or on local residential streets, which impedes overall traffic flow, and causes unsafe conditions for the drivers themselves and other vehicles.

This problem has developed due to a series of factors. Drivers must manage and account for inbound traffic and congestion on roads and highways around their delivery/pickup point. This can encourage drivers to choose travel and arrival times with less traffic, sometimes during hours when their destination facility is closed. Distribution and warehouse facilities want to maintain the most efficient truck delivery schedule possible to maximize onsite labor and resources, and therefore may add penalties to trucks arriving late for deliveries or pickups. Large retail shippers, such as Walmart, levied penalties on tardy delivers (including drivers), a punishment which has become more common in the industry.[16] These factors, along with HOS

[15] FHWA. *Freight and Land Use Hand*book. 2012. https://ops.fhwa.dot.gov/publications/fhwahop12006/fhwahop12006.pdf.

[16] Jaillet, James. “New Walmart policy dings truckers, shippers for late loads—and early ones.” *Overdrive Online*. 01 August 2017. https://www.overdriveonline.com/new-walmart-policy-dings-truckers-shippers-for-late-loads-and-early-ones/.

regulations mandating a maximum of 14 duty hours, only 11 of which is allowed for driving, puts more incentive on drivers to show up early and wait in the surrounding area for their assigned dock time.

Most facilities do not provide additional short-term parking for trucks, leaving drivers to find their own parking where they can. This lack of onsite parking is likely due to wanting to maximize land use for direct business activities and minimize safety and security risks created by additional truck and pedestrian activity inside very busy dock areas, and the expenses and liability incurred for overnight or pre-business hours truck parking. Drivers often attempt to find parking in nearby areas where available, including residential neighborhoods, shopping complexes, or abandoned facilities.

In addition, urban areas also serve as home base for a large number of independent owner-operators. These drivers own their vehicles and must find parking for them when they are not working. Ordinances often disallow parking trucks in residential neighborhoods and the higher land costs makes finding a cheap parking alternative difficult. Nevada is home to approximately 1,376 members of the Owner-Operator Independent Drivers Association (OOIDA), of which 68 percent live in the Las Vegas metropolitan area. Figure 3.1 below shows the home zip codes of these members and indicates where parking to serve this demand is needed.

Finally, long-haul drivers also stop in urban areas. These drivers need access to food, fuel, and other amenities found in most truck stops and either due to HOS limits, routing needs, or personal preference choose to make their stop in an urban area.

This parking activity not only impacts the local residents who do not want to have large tractor trailers traveling through their neighborhood or parking outside their home, but also puts the drivers themselves at risk for theft of cargo/loads or physical harm and assault due to minimum security present in many urban freight and industrial areas. Many cities and communities across the country have sought to prohibit or ban truck parking on public streets. Cities can also add landscaping or beautification requirements to projects which raise the price and can make a truck parking project unfeasible. However, if an authorized alternative is not available, these prohibitions typically only result in transferring unauthorized parking to a different location.

The below is a list known municipal regulations that restrict truck parking in Nevada:

- **Battle Mountain—**It is unlawful to park overnight any truck/trailer, loaded or unloaded, with or without a trailer on any street or highway in the town of Battle Mountain except as set forth within ordinance.[17]

- **Boulder City—**Parking or standing a commercial vehicle with a gross weight of 15,000 pounds or more or any truck tractor in a residentially zoned area is prohibited except for use during the normal course of business for loading, unloading, or deliveries.[18]

- **Clark County—**Commercial vehicles cannot park overnight on a residential street. A residential area is defined, per Clark County 12.46.060 as the entire right-of-way width of a public highway, road or alley, and shall also include the entire right-of-way width of a public highway, road or alley bounding a

[17] Battle Mountain Code of Ordinances, 10.12.050. For a list of roads where trucks/trailers are allowed, see 10.12.030.

[18] Boulder City Municipal Code, 10-6-6 (H).

(Footnote continued on next page...)

residential or apartment zoning district. Again, this restriction does not apply to loading, unloading, or parking for services, repair, construction, etc.[19]

In addition, parking by any vehicle on an unimproved or landscaped area is prohibited. All parking areas must be paved and striped unless otherwise specified.[20]

- **Fallon—**It is unlawful for the driver of any vehicle having a gross weight in excess of 16,000 pounds or of any vehicle or vehicle and trailer or semitrailer having an overall length in excess of 40 feet to stand or park the same at any time on any street, highway, or alley in a residential area except for local delivery or by permission issued by the chief of police.[21]

- **Fernley—**It is unlawful to park or leave running any truck or commercial vehicle on any residential street except for loading, unloading, or if the vehicle is used in conjunction with the performance of a service, repair, construction or similar use. It also is unlawful for a commercial trailer or semitrailer not attached to a tractor or other motor vehicle to be parked on a public street, highway, alley, parking lot, or park within a residential area.[22]

- **Las Vegas—**Commercial vehicles over 24 feet or with an unladen weight in excess of 8,000 pounds cannot stand or park "upon any street adjacent to a residence district, public school or public park." A residence district is defined as the territory contiguous to a street, not comprising a business district, in which the parcels abutting such street for a distance of 300 feet or more are mainly dwellings or buildings in use for residence.[23] This restriction does not apply if the vehicle is loading or unloading or being used in the performance of a service, repair, construction, or other similar essential use within the neighborhood.

- **North Las Vegas—**Oversized vehicles (including commercial trailers) cannot park in residential areas for more than 48 hours.[24]

- **Sparks—**Trucks or commercial vehicles in excess of 4,000 pounds per axle unladen weight to 12,000 pounds unladed weight may not park in any residential district, with exceptions for loading, unloading, and service, repair, construction or similar uses.[25] A separate restriction applies to vehicles or vehicle/trailer/semitrailer combinations carrying more than 2,000 gallons of gasoline. Drivers of these vehicles may not stand or park the vehicle, trailer, or semitrailer on any street, highway, or alley for any purpose except to avoid conflict with other traffic or comply with directions of a police officer or traffic control signal.[26]

19 http://www.clarkcountynv.gov/public-works/traffic-mgmt/Forms/Commercial%20Vehicles.120428.pdf.

20 http://www.clarkcountynv.gov/comprehensive-planning/zoning/Documents/3060.pdf Section 30.60.020 (c, d, and e).

21 Falon Code of Ordinances, 10.24.060.

22 Fernley Municipal Code. 7.04.10 (B). http://www.cityoffernley.org/DocumentCenter/View/18940.

23 Las Vegas Municipal Code, 11.52.310.

24 https://www.reviewjournal.com/local/north-las-vegas/north-las-vegas-limits-oversized-vehicle-parking/.

25 Sparks Municipal Code, 10.48.035.

26 Sparks Municipal Code, 10.48.040.

(Footnote continued on next page...)

- **Winnemucca—**It is unlawful for the driver of any vehicle, vehicle and trailer, or semitrailer having an overall length of more than 21 feet to stand or park the same within any area bounded by signs placed by order of the City council and designated as "No Truck Parking." In addition, the City council may by resolution, designate areas of the City where it shall be unlawful to park a truck, semitrailer, or trailer with an operating device emitting noises used for the purpose of cooling, ventilation, or heating, during certain hours of the day or night, such times to be designated by resolution of the City council. [27]

Trucks move the majority of goods in Nevada, accounting for approximately 78 percent of goods by value and 83 percent by weight.[28] Growth of new distribution networks, such as the third and largest Amazon fulfillment center in North Las Vegas, will require more drivers to arrive at facilities in dense urban areas. This, along with the new HOS and ELD requirements, means the issue of unauthorized truck parking is unlikely to subside on its own.

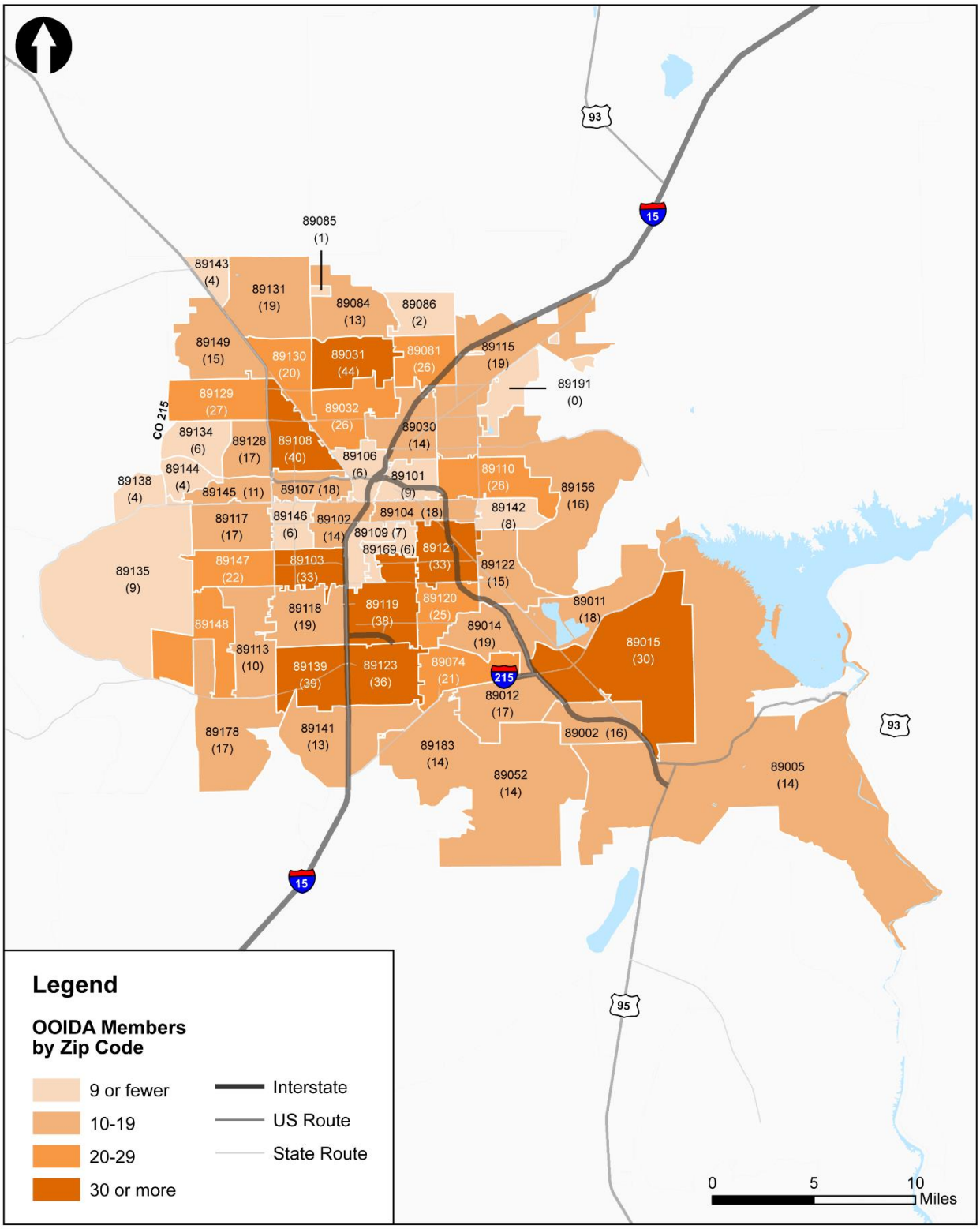
Unlike in rural areas, State DOTs may have limited options to help directly support this type of parking. More intense and complicated land ownership issues (and more constrained ROW), zoning challenges, community opposition, and higher land prices all make construction of public facilities more difficult. For that reason, most of the solutions discussed in this section focus on policy approaches rather than direct investment in infrastructure by NDOT.

[27] Winnemucca Code of Ordinances, 10.24.050 and 10.24.090.

[28] Nevada Freight Plan, 2017.

Figure 3.1 OOIDA Membership

Las Vegas Valley



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

3.2 Toolbox of Urban Truck Parking Solutions

This section identifies a range of potential options to address urban truck parking issues in Nevada.

3.2.1 Zoning

As outlined by FHWA in their *Freight and Land Use Handbook,* a long-term solution is for municipalities and other zoning authorities to require onsite and/or off-street staging areas or parking at facilities that receive larger amounts of freight shipments:

> "Establish staging areas for freight delivery. Many stores and other facilities receiving shipments do not have staging areas or freight loading docks. Trucks making deliveries must park along the curb or in a parking lot, which can impede traffic flow and cause congestion on the streets around the store. One solution calls for municipalities and other zoning authorities to require onsite, and, preferably, off-street staging areas for facilities and businesses that regularly receive freight shipments. In some cases there may not be sufficient space for onsite loading docks or parking areas. The establishment of common loading areas in multiple-tenant facilities, and/or regulations to effectively manage curbside truck parking may be more suitable solutions."[29]

Some areas within the U.S. have taken this step. In 2017, the Township of Upper Macungie in the Lehigh Valley passed new zoning requirement which requires one (1) off-street truck parking space for every loading dock at a new warehouse or distribution facility.[30] 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.[31] 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."* Legal text from the zoning changes in Township of Upper Macungie can be found in Appendix A.

Zoning can also 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. Layton City, UT, has an example of this type of zoning, and its code describes the necessary zoning characteristics as:

> "The 'M' (Manufacturing/Industrial) zoning districts are intended to provide areas for manufacturing and industrial uses, where they will have the necessary services and facilities, and minimize obtrusions by adjoining uses and districts. These districts shall be located near rail lines and shall be near interstate highway interchanges for ease of transportation of goods. In order to minimize conflict among incompatible uses, most nonindustrial uses are not allowed in the 'M' zoning districts."[32]

Private companies that offer truck parking provide a significant service to local communities by creating alternatives for drivers in need of a secure place to park with goods and services they need, so that they do

---

29 FHWA. *Freight and Land Use Handbook.* 2012 https://ops.fhwa.dot.gov/publications/fhwahop12006/fhwahop12006.pdf.

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

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

32 Layton City Municipal Code § 19.04.020, https://www.laytoncity.org/LC/PlanningZoning/ Verse/19/4/020.

not have to park in neighborhoods or other undesirable locations. Lack of truck parking also creates friction in the supply chain, resulting in higher costs for goods we all rely on. Therefore, it is in the best interest of local municipalities to assist private companies find suitable land for truck parking facilities that is consistent with land use and zoning ordinances and to assist these companies in negotiating local zoning requirements.

3.2.2 Building Urban Truck Parking—Public Sector

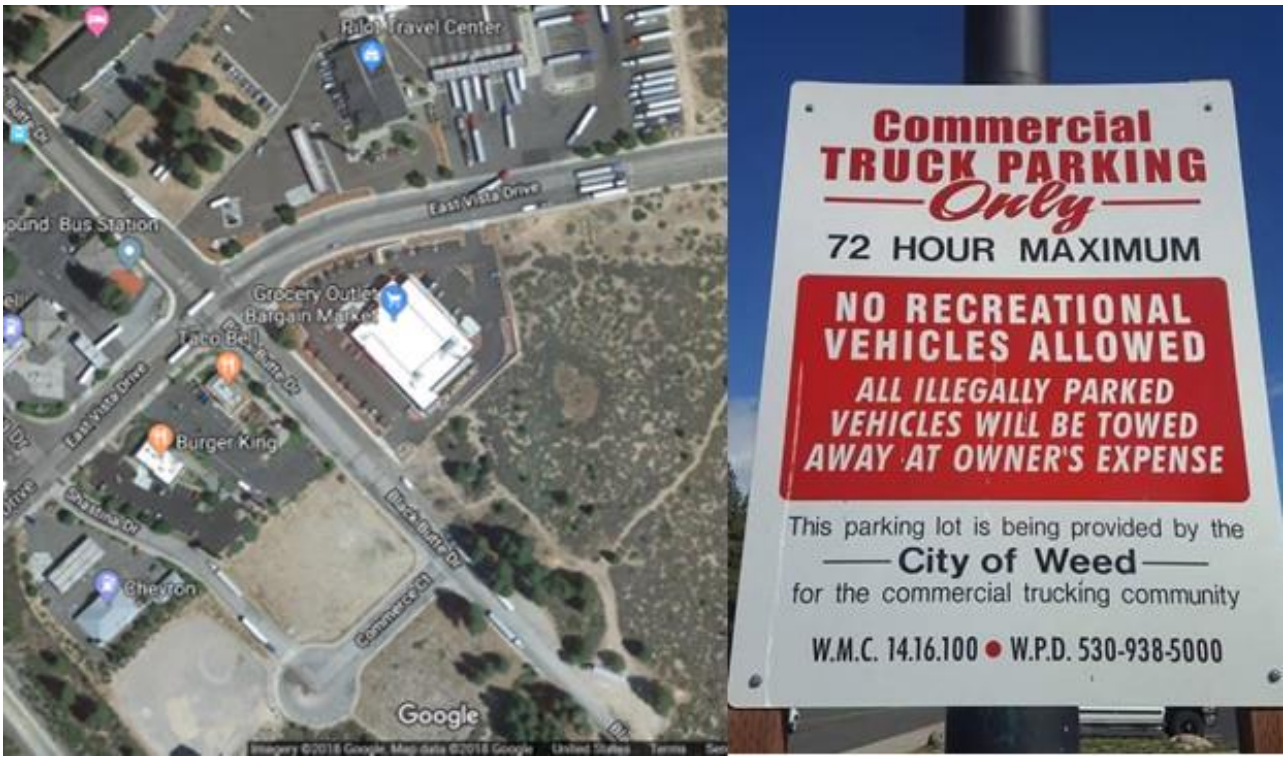
The need for urban truck parking and freight staging, especially through a collective or multi-facility parking area has been raised in many State Freight Plans, including North Carolina, Colorado, Texas, Kansas, and others—as well as highlighted by cities such as Cincinnati, Atlanta, and Denver. Research and interviews for this study revealed no major urban area with an actionable and replicable effort to provide a facility in line with Nevada's needs. However, several smaller cities are experimenting with different methods of providing collective short-term parking or staging. Two current examples are Weed, California, and Elmira, NY.

Weed, CA, is located near Mount Shasta on Interstate 5. The area is home to large lumber mills and a Crystal Geyser Alpine Spring water bottling plant. Residents within the town were complaining of large trucks parking in residential neighborhoods and on city streets while they waited to make deliveries or take rest breaks.[33] To alleviate this problem, the City used local tax dollars to pave an area near an existing Pilot Travel Center with lodging and food options close by.[34] The space has been designated for truck parking only with personal vehicles and RV's prohibited. To ensure the availability of parking spaces, trucks are given a 72-hour maximum period for parking. There is no fee charged for parking at the facility. The parking location and relevant signage are shown in Figure 3.2. Weed also required new development (especially retail food) in the area to include truck parking, and an agreement that trucks may use their parking area and bathroom facilities even if they are not customers, as part of planning approvals.

[33] Fisher, Tyler. "Weed, Calif., is high on trucks" Land Line—OOIDA Magazine. 17 May 2016. https://tandemthoughts.landlinemag.com/.

[34] Kahaner, Larry. "Truckers love Weed; Weed loves truckers" *FleetOwner.com*. 17 June 2016. https://www.fleetowner.com/driver-management-resource-center/truckers-love-weed-weed-loves-truckers

Figure 3.2 Truck Parking Facilities in Weed, CA (Left), Signage At Facility (Right)



Source: Google Maps and OOIDA.

Elmira, NY, about 10 miles from the Pennsylvania border and located just off I-86, took a similar approach. Following complaints from residents of trucks parking in residential neighborhoods and creating noise disruption early in the morning or late in the evening, city officials created a truck parking lot with 30 spaces. A fee is assessed to offset the City's initial cost and maintenance: $5 each day, $30 weekly and $50 monthly, but is based on the honor system for fee collection.[35] The weekly and monthly fee serves the needs of owner-operator drivers who need a place to park their truck when they are home. The facility also contains parking spaces for drivers to park their personal vehicles while they are out on a delivery. Two satellite images of the parking location are shown in Both Weed, CA, and Elmira, NY, provide examples of the public sector providing additional truck parking in more urban environments. However, neither facility provides security infrastructure such as fencing, a building to facilitate cross-docking or other transfer of goods, or has a system for measuring and broadcasting truck parking availability.

Both Weed, CA, and Elmira, NY, provide examples of the public sector providing additional truck parking in more urban environments. However, neither facility provides security infrastructure such as fencing, a building to facilitate cross-docking or other transfer of goods, or has a system for measuring and broadcasting truck parking availability.

[35] Fisher, Tyler. "City of Elmira, N.Y., solves truck parking problem" *Land Line—OOIDA Magazine.* 6 May 2016. https://tandemthoughts.landlinemag.com/.

Figure 3.3 Municipal Truck Parking in Elmira, NY

Source: Google Maps.

3.2.3 Building Urban Truck Parking—Private Sector

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 does not already 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.

Other private-sector truck parking availability exists in Nevada, specifically around hotels, casinos, and large box stores (e.g., Walmart). In interview discussions with hotel facilities, they stated that most of their parking spaces are reserved for truckers who are physically staying or dining within the hotel, rather than sleeping in their vehicles or just looking for short-term parking.[36] Large box stores have parking policies that vary depending on the local store manager and municipal laws, making developing any coordinated policy difficult.

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 in the Detroit, MI area.[37] Their yards allow for short-term parking near Detroit International Intermodal Terminals, as well as large auto manufacturing plants such as Ford Motor Company.[38] The facilities also work with local freight centers to assist with the dispatch of truck to their final delivery points. These facilities were developed through private-land acquisition and have no public-sector involvement. All TSPS facilities in the Detroit area have security personnel, guarded entry and exit points, high fences, and are connected to the TSPS' proprietary truck parking notification system and mobile reservation system. TSPS' approach to short-term

[36] Phone interviews April to May 2018.

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

[38] In-person interview with TSPS on 11 October 2018.

parking is based on generating revenue through user fees. This approach is different from most long-term parking facilities (TA/Petro, Flying J, etc.) that typically generate revenue by selling food, fuel, and other commodities on site.

Truck Depot LLC is another company that operates secure truck parking facilities in urban areas and sites near distribution centers.[39] The company provides long-term parking (rented for 30 days at a time) which can provide space for owner-operators, short-term parking for a set fee, and provides space for trucks to cross dock (shift loads within a vehicle or between vehicles).

3.2.4 Building Urban Truck Parking—P3 Approaches to Collective Staging Parking

As described in Section 2.2.2 above, P3s can be an effective tool for sharing the costs and benefits in order to facilitate development of urban parking. Examples of short-term parking and staging facilities created through P3s can be seen at the Port of Los Angeles and the Canadian Port of Vancouver.

1. The Port of Los Angeles has recently begun building a facility called the Harbor Performance Enhancement Center (HTEC). The $130 million, 110-acre facility will help alleviate freight bottlenecks around the port.[40] The project is being funded through a public-private partnership, with a majority of the funding coming from an Australian financing firm, Macquarie Principal Finance. This container staging area would see shipments being on-loaded and off-loaded to waiting trucks, eliminating more than 3,500 truckloads a day from the nearby container terminals, by using a hub-and-spoke approach.[41] The expectation is that all container terminals will use the facility as a staging ground in order to better maximize truck traffic in and out of the port area, as well as lessen the likelihood of drivers blocking traffic while waiting for delivery times. While this example shows some benefits of what a collective staging area may provide, the overall goal is the more efficient movement of cargo containers, rather than dealing directly with truck parking.

2. The Vancouver Frasier Port Authority recently broke ground on a new P3 with the explicit purpose of providing short-term parking and staging areas for trucks arriving early to the port facility. Currently, many of these trucks park on the side of the local Interstate, creating unsafe traffic patterns. The $18 million (CAD) project would be funded through a joint effort of Transport Canada, the British Columbia Ministry of Transportation and Infrastructure and the Vancouver Port Authority.[42] The planned staging area will be built on land-owned by the Providence of British Columbia and leased back to the port and developer for staging purposes. Only trucks which have been precleared for port entry will be allowed to use the facility. The impact of the staging area, along with other road improvements, is expected to decrease congestion and increase port productivity by over 600,000 twenty-foot equivalent units (TEU) annually. A schematic of the parking location is shown in Figure 3.4.[43]

---

39 https://www.truckdepotllc.com/about/.

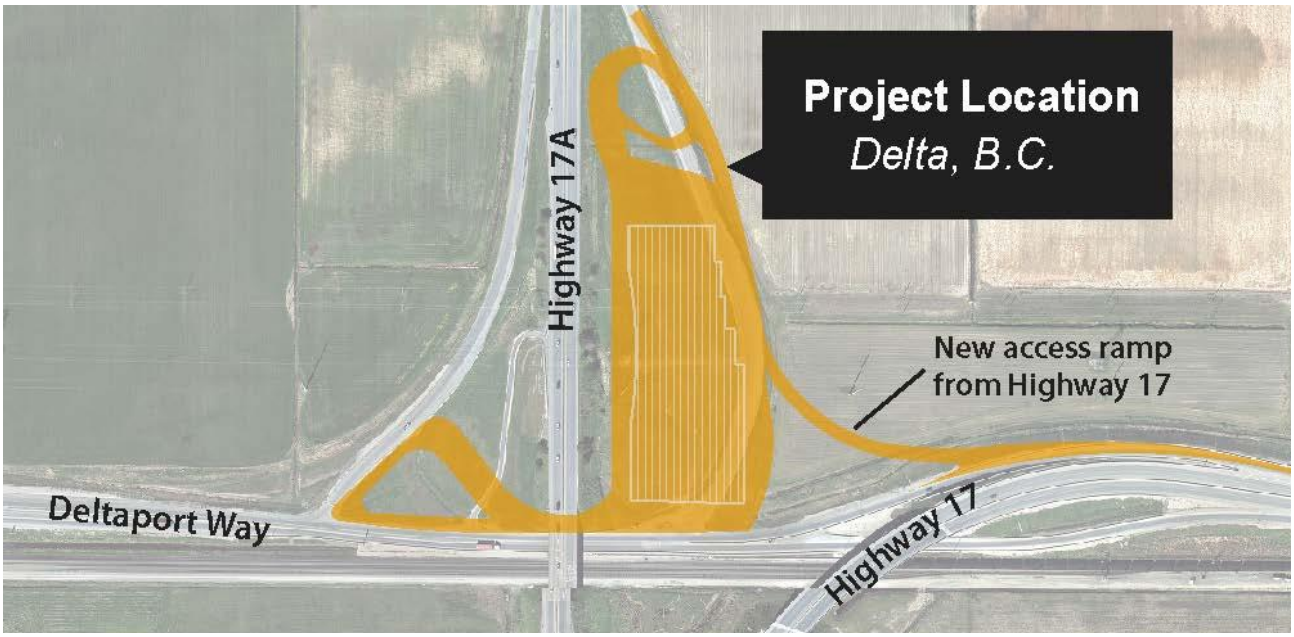
40 Smith, Kevin. “$130 million Port of LA container staging facility promises to boost productivity, create jobs, ease congestion” *The Daily Breeze*; 30 March 2018. https://www.dailybreeze.com/2018/03/30/150-million-port-of-la-container-staging-facility-promises-to-boost-productivity-create-jobs-ease-congestion/.

41 HPEC. Press Release; 02 April 2018. https://globenewswire.com/news-release/2018/04/02/ 1458593/0/en/LA-Port-s-Container-Staging-Facility-Will-Boost-Productivity.html.

42 Gyarmati, Sandor. “Staging area to keep trucks off side of roads.” *The Delta Optimist*. 30 June 2017. https://www.delta-optimist.com/news/staging-area-to-keep-trucks-off-side-of-roads-1.20844661.

43 “Box growth buoys Canadian hubs” *Port Strategy*. 01 October 2018. https://www.portstrategy.com/news101/world/americas/Box-growth-buoys-Canadian-hubs.

Figure 3.4 New Truck Parking and Staging
Near Port of Vancouver, British Columbia



Source: Vancouver Frasier Port Authority.

Both the Port of Los Angeles and Port of Vancouver illustrate potential methods of using P3s to develop new facilities that either directly or tangentially address unauthorized truck parking.

The City of Philadelphia also is exploring a number of different options to address issues with unauthorized truck parking in urban areas.[44] City officials stated that their ideal situation would be to link up available land, either publicly or privately owned, with a private-sector developer and operator who could run a collective truck parking and staging facility to solve the short-term parking needs, as well as have longer-term spaces for local owner operators to securely store their trucks while they are home. If the land used was from a public entity, they would be looking at a long-term lease to the private sector. They also have had discussions with the Philadelphia Port Authority, that has a 15-acre vacant distribution area which could be used for parking, if developed and operated by a private-sector partner. The City of Philadelphia recently issued a Request for Information for short-term parking solutions. The initial Request for Information (RFI) and summary of responses are provided in the Appendix B and C.

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, described in further detail in the following section. Alternatively, urban parking projects could benefit from a competitive grant/loan program similar to that discussed for long-haul parking in Section 3.1.2 above.

[44] Phone interview with Elizabeth H. Lankenau, AICP, Director—Infrastructure Program Coordination, City of Philadelphia. 11 October 2018.

Examples of Parking Facilities from Other Industries

A P3 may be a useful manner in which the public sector can be involved in the development of a multi-facility parking area. Urban car parking lots and garages may provide useful examples of the interplay between municipalities and private industry. Municipal parking can be expensive, with the cost of installing individual parking spaces ranging from $2,000 for surface parking to upwards of $40,000 per space in a building or underground structure.[45] In many areas, this cost will often dissuade the private sector due to the small margins of return that can be collected on parking rates.

The City of Las Vegas indicated that developers often approach the City looking for assistance developing parking structures needed for redevelopment projects that are important to economic development. The City has two general P3 formats for parking facilities:

1. In the first instance, the City will build a garage and then transfer management (including security and maintenance) for a defined period of time to a private entity, in return the City receives a set monthly rent payment. These types of agreements were common in the 1980/90s but are less frequent now.

2. The more prevalent option now is for the City to provide funding, build, operate and maintain the garage, and a private developer will lease (via easement agreement) a set number of parking spaces within the facility. In one case, the developer builds the necessary garage as a part of the development complex using city funding. A garage of this type has 675 spaces total; 433 spaces are directly leased to the private developer and tenants and the remaining spaces are for-pay public parking. The leasing agreement mandates that the spaces are allocated only to the building and its current occupants, regardless of building ownership.

In both of these examples, a local contractor is used to provide day-to-day operations and security.

More broad examples of public-private funded parking facilities can be found on university and college campuses.[46] Academic institutions are large facilities with variable parking needs. Long-term parking must be supplied for students living on campus, while adequate short-term or hourly parking must also be available for staff and commuting (off-campus) students. Constrained by budgets and limited useful land availability, universities have begun to provide parking through arrangements with the private sector. The State of Georgia has been at the forefront of public-private development for parking at universities with Kennesaw State University, Valdosta State University, and the University of Georgia providing new parking under the arrangement. In most cases, the university will provide land for the project, and the private sector will design, finance, and build the facility. The university will then lease back parking within the facility either through a direct pay-for-parking model or annual lease payments.

3.3 Recommendations

Recommendations for NDOT within this realm focus on education and playing a supporting role for local efforts to improve or expand truck parking. NDOT can play a larger role through the deployment of technology, which is further discussed in Section 4.0.

---

[45] Phone interview with Brandy Stanley, Parking Services Manager, City of Las Vegas. 27 September 2018.

[46] Martindill, Michael D. “P3 as an alternate approach to financing parking structures.” International Parking Institute. June 2012. https://www.parking.org/wp-content/uploads/2016/01/TPP-2012-06-Getting-Your-Ps-in-a-Row.pdf.

3.3.1 Support Efforts to Change Zoning

The urban areas in Clark and Washoe Counties are most in need of additional, authorized truck parking capacity to support the industrial, commercial, and retail businesses and large population centers present. Warehousing/distribution uses in particular generate large amounts of truck traffic and are continuing to expand in both counties, with more than 1,700 additional truck bays in construction, development or planning through 2020 in the Las Vegas metropolitan area alone.

Most of these facilities reserve all of the on-site parking spaces for internal operations and limit drivers within their gates to back into a bay, load/unload, and leave. There are no guidelines for the number of parking spaces needed outside the gate for trucks waiting their turn to enter the gate which often leaves vehicles waiting on the shoulders of nearby streets. While new zoning regulations will have limited impact on existing businesses, it can help slow the growth of this unmet need by requiring new development to address this issue. Zoning language from the Township of Upper Macungie in the Lehigh Valley in Pennsylvania (Appendix A) can provide guidance for any potential new language.

The counties and municipalities that are impacted by this need for urban truck parking should also help evaluate land for its potential use as truck parking, as described in Section 3.3.3 below. Land use and zoning is one of the screening criteria that will help identify suitable parcels for development. If suitable land is available, the municipalities should assist private companies in negotiating local zoning requirements.

3.3.2 P3 and Competitive Grant/Loan Program

Described in detail in Section 2.3.7 above, NDOT can play a role in urban truck parking through a P3 or competitive grant/loan program.

3.3.3 Evaluation of Available Land for Truck Parking

An evaluation of available land for truck parking should be conducted to identify a short list of candidate lots within the Las Vegas metropolitan area for possible public, private, or P3 investment. Screening criteria for the evaluation could include the following characteristics:

- Fifteen to 20 acres.
- Vacant.
- Within 10 miles of I-15/Speedway Boulevard, or I-15/Southern Beltway interchanges.
- Ownership (public or private).
- Appropriate land use/zoning.
- Within one mile of freeway and with direct access.
- Cost/acre.
- Access to utility service.
- Social impacts (qualitative assessment).

Requirements and cost estimates for acquiring and developing the most feasible sites should be documented. Once the costs and requirements for building and operating a truck parking facility are known, private investors can determine how much, if any, public support would be needed. The findings could also help to frame a competitive grant program.

4.0 Technology and Data

This section describes two technology-focused solutions that can help with truck parking issues in Nevada—a TPAs and truck stop electrification (TSE). This section also provides an overview of an envisioned TPAS system in Nevada which will be explored in further detail in the Implementation Technical Memorandum. Although these approaches will not increase capacity, they 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.

4.1 Issue Background

4.1.1 Truck Parking Availability 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 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.

Data Collection

A TPAS relies on accurate and timely collection of truck parking availability and the ability to disseminate that information to users. Crowdsourcing and reporting by private-lot owners are two approaches currently in use to collect parking information. For example, the TruckerPath application relies on drivers to report the number of spaces available at a parking location using a scale ranging from “Lots of Spots” to “Some Spots” to “Lot is Full.” This system, while low cost, relies on each driver’s interpretation of capacity and the updates can be infrequent. The Park My Truck application run by National Association of Truck Stop Operators (NATSO) shows the total number of spaces at each facility and the number of open spaces based on time-stamped inputs from the truck stop operators. In Nevada, the parking availability at the following facilities is updated regularly: [47]

- Pilot Travel Center #147—West Wendover.
- Petro Wells—Wells.
- Flying J Travel Plaza #692—Wells.
- Petro North Las Vegas (Speedway Boulevard)—Las Vegas.
- Pilot Travel Center #341—North Las Vegas.
- TA Las Vegas (Blue Diamond Road)—Las Vegas.
- Flying J Fuel Stop #770—Winnemucca.

[47] Parking availability was checked using the application on December 5–7, 2018 and December 18–21, 2018.

- TA Mill City—Mill City.
- Pilot Travel Center #340—Fernley.
- Petro Sparks—Sparks.

While more precise than the TruckerPath data, this information is typically updated hourly and can have gaps. A fully developed TPAS system provides better accuracy, real-time updates, and allows for public control of data.

Additional methods to collect parking availability information vary widely. Two common approaches used in other deployments around the U.S. are 1) a site volume approach to measure truck volume entering and leaving a site; and 2) a vehicle occupancy approach which detects if a vehicle is in a particular parking space to determine availability.

Site Volume Approach

The first approach to determining truck parking availability measures site volume or the number of vehicles entering and leaving the site. By comparing this to the overall number of spaces, an occupancy rate can be calculated. This approach works best at sites with a single truck ingress point and a single truck egress point separated from other traffic types to avoid counting other vehicles.

In-pavement systems can take many forms, including pneumatic road tubes, inductive loop detectors, and piezoelectric sensors. Pneumatic road tubes are the cheapest option, but lack accuracy and have a higher rate of wear from truck tires. Inductive loop detectors consist of insulated wires buried in the road that detect a vehicle by means of the electric signals induced when a vehicle passes over or stops within the loop. The technology is widely deployed for various highway uses and is relatively low cost, but does require more intrusive installation and higher maintenance costs. Piezoelectric sensors are more commonly used in weigh-in-motion applications tied to commercial vehicle enforcement, but can be used to detect trucks for parking utilization. An electrostatic charge is generated when a vehicle passes over the system, with the charge proportional to the input force or weight of the vehicle. These systems are highly accurate and can provide more detailed information than just parking utilization, but can be expensive, require a considerable amount of calibration, and have maintenance concerns.

A site volume approach can be very cost effective, especially at larger sites where the cost to install a vehicle detection system rises in proportion to the number of truck parking spaces. However, accuracy can be an issue with this approach as there is no way to verify if trucks are actually parking in spaces (if spaces are striped) as opposed to open ground elsewhere in the lot. Additionally, there is limited ability to gather more detailed data, such as the average length of stay, that allows for predictive analytics of truck parking needs. A closed-circuit television (CCTV) feed can be used to baseline the system and check for accuracy but this raises the cost and requires additional human resources to operate.

Figure 4.1 Installing In-Pavement Traffic Counter

Source: Washington State DOT.

Other site volume approaches considered include laser detection, Radio-frequency identification (RFID) transponders, and Commercial Mobile Radio Services (CMRS) wireless communication technology. Laser systems are mounted at the entrance and exit to a facility and track volume by counting the number of times the laser beam is broken. Although these systems are highly accurate at tracking vehicles, they are less capable of classifying vehicles. Light and laser detection systems also are capital intensive and vulnerable to vandalism and weather conditions such as dust, rain, fog, snow, and ice which can disrupt the laser beam and lead to a false count. To increase accuracy, light, and laser detection systems may also work alongside Doppler radar and video feeds, but this again increases cost. RFID transponders are highly accurate, but only a subset (between 10 and 20 percent) of the national trucking fleet has transponders as of 2018, so obtaining a reliable count is difficult unless the technology is more widely adopted. CMRS tracks trucks as they enter a location virtually delineated using GPS technology (geofenced). Similar to RFID, this approach requires trucks be equipped with CMRS. As of this report, the technology is not utilized widely enough to be viable.

Vehicle Occupancy Detection Approach

The second approach to determining truck parking availability determines occupancy by detecting if a space is occupied. Within this approach there are a number of available technologies, each with their own strengths and weaknesses, as shown in Table 4.1.

Table 4.1 Truck Parking Occupancy Detection Systems

System Name	Strengths	Weaknesses
Video Detection	• Flexible. • Easy to configure or reprogram remotely. • Low installation and maintenance costs.	• Accuracy issues in inclement weather (snow, rain) and vulnerable to the elements (wind, sun, etc.). • Privacy concerns. • Require interpretation to be effective.
In-Pavement Sensors	• Widely tested and deployed. • Relatively low cost.	• Accuracy concerns. • Requires facility closure for installation and maintenance.

Source: North Carolina Statewide Multimodal Freight Plan—Truck Parking Study (2017).

Camera-based video-detection systems are widely available and have been deployed in a number of locations.[48] They offer a cost effective and easily reprogrammable approach to identifying truck parking capacity. However, camera systems can have accuracy issues in inclement weather (both visually from the camera and being able to identify parking spaces). In addition, drivers have raised privacy concerns due to the constant monitoring. Finally, and tied to the issue of privacy, the camera feed may require interpretation in order to provide accurate information. The actual image of the parking area could be made public and drivers would need to interpret the number of available spaces or someone would need to view the image and input the number of available spaces to database or display system to provide that information to drivers. An alternative developed in Minnesota used a multicamera view approach to develop a 3D computer model of the parking areas which allowed a computer program to monitor utilization and automatically send updates to the various communication systems being tested with an overall 98 percent accuracy rate.[49]

The in-pavement sensor node vehicle detection method is well tested and used in deployments throughout the country and in nontruck parking facilities such as mall parking garages and airport parking lots. Compared to the other vehicle occupancy detection methods, the costs are relatively low. Reliability concerns can be minimized with the deployment of multiple sensors per space (for accuracy weakness) and with planning and public information campaigns (for facility closure). Resulting information, including average length of truck parking occupancy and peak hours, can be used to develop predictive analytics. This in-ground sensor method requires four key pieces of technology:

- **In-Ground Sensor Nodes—**Wireless, lithium battery (with a life of 7 to 10 years) powered in-ground sensors to determine space occupancy. Two deployed per truck parking space to improve accuracy in detecting smaller trucks.
- **Relay Nodes—**Wireless, lithium battery powered. Attached to poles at site to collect data from sensors. The number required depends onsite layout.
- **Data Collector—**Powered, one per site. Aggregates all data from relay nodes and transmits to a central location for processing.

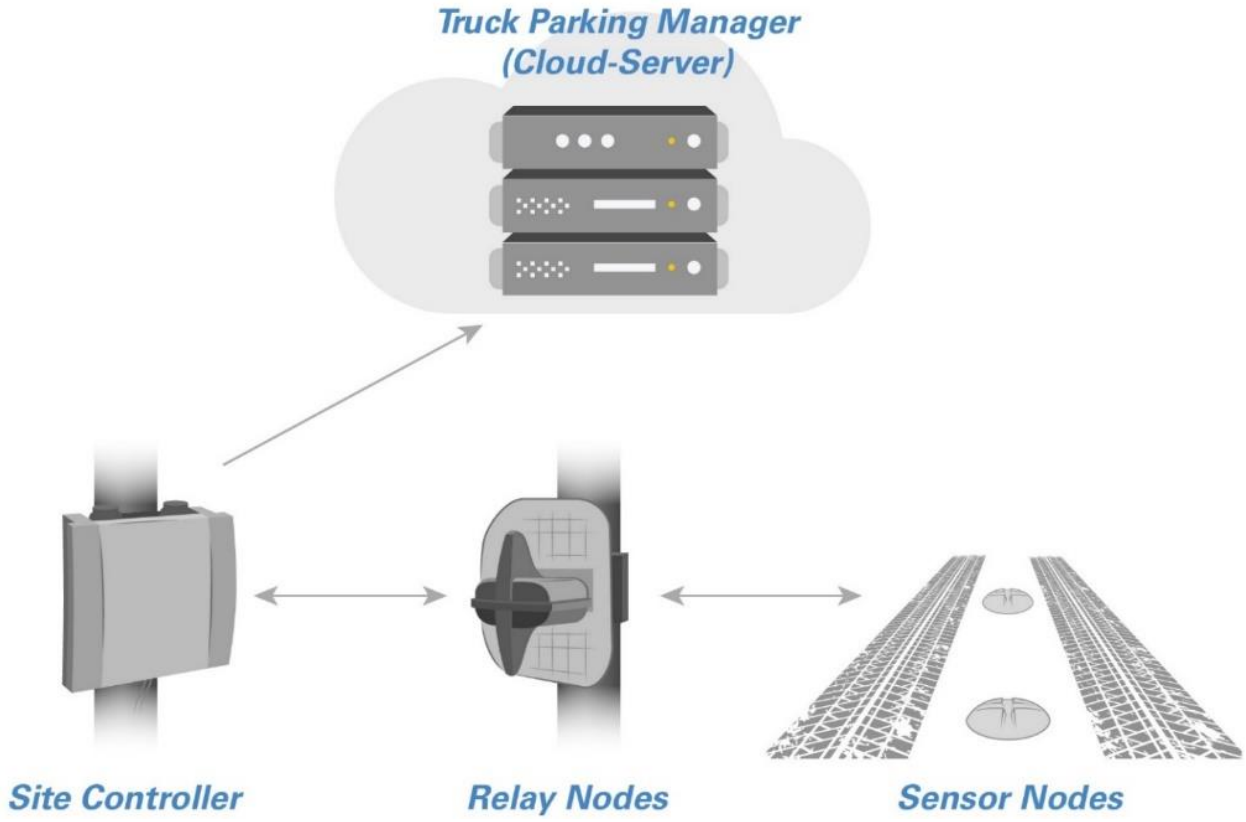
[48] See Cambridge Systematics, Port of Oakland GoPort! Freight Intelligent Transportation Systems Project for details on current vendors and models.

[49] http://www.dot.state.mn.us/ofrw/PDF/assessing-truck-parking.pdf.

- **Truck Parking Management System—**Off site. Data processing, performance and system management, and connection to information dissemination system.

The links between these component pieces are shown in Figure 4.2.

Figure 4.2 In-Ground Sensor Node Truck Detection System

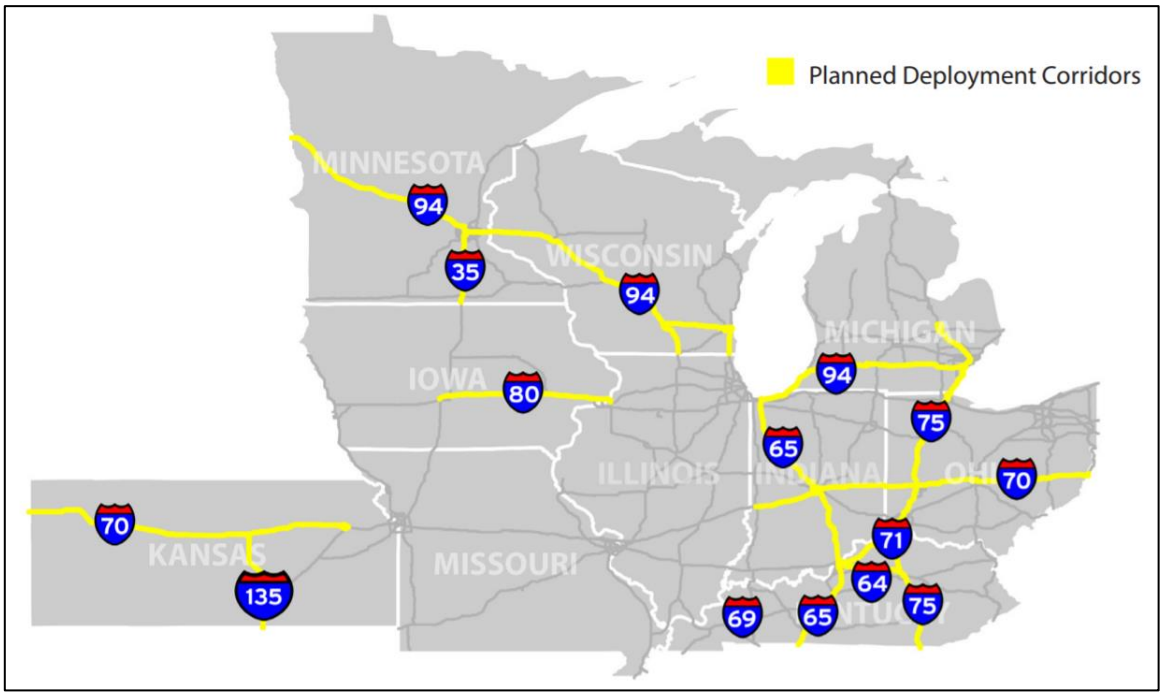


Source: Derived from Cambridge Systematics work in support of the I-10 Corridor Coalition.

Information Dissemination and Use

Communicating parking availability at useful times to drivers can greatly alleviate the stress many drivers experience in finding parking, as well as ensure better utilization of available spaces. One of the most developed systems is the Regional Truck Parking Information and Management System (TPIMS), which has been developed by the State of Kansas in partnership with Wisconsin, Minnesota, Michigan, Ohio, Indiana, Iowa, and Kentucky—all members of the Mid-America Association of State Transportation Officials (MAASTO). Figure 4.3 below shows the planned deployment corridors proposed under this TPIMS system. This regional system will hopefully allow drivers traveling through the region to increase productivity and safety by giving them better and timely information. Florida and Colorado also are actively deploying truck parking availability systems, and other States and coalitions have applied for funding, such as the 1-10 Corridor Coalition (California, Arizona, New Mexico, and Texas).

Figure 4.3 MAASTO TPIMs Planned Deployment Corridors



Source: MAASTO.[50]

Message signs and web-based information systems and smartphone applications are common methods of disseminating the information. These solutions are briefly described below.

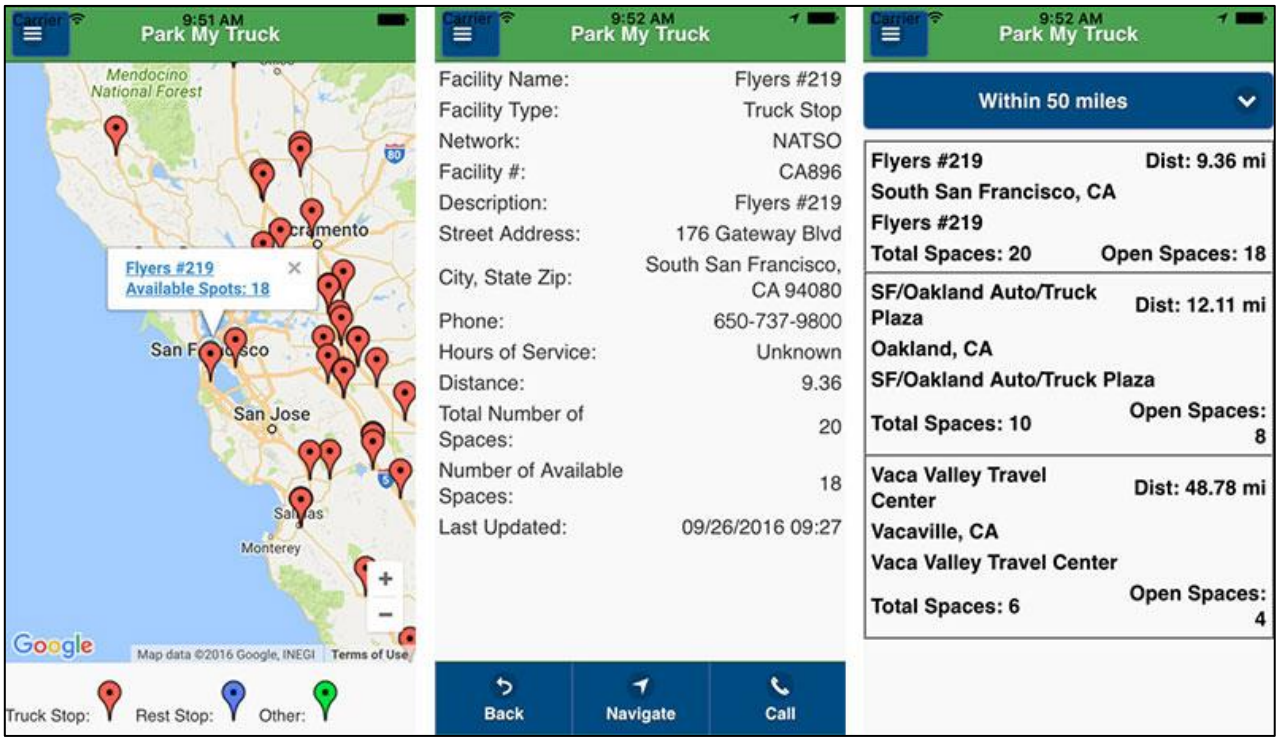
1. **Dynamic Parking Capacity Signs (DPCS)**—Also called variable message signs (VMS), Dynamic Parking Message Signs (DPMS), or Dynamic Message Signs (DMS). Permanent or temporary signs can provide drivers with valuable information such as available spaces and distances and driving times associated with each parking area, allowing drivers to better evaluate where parking will be the most useful to their delivery times and remaining HOS requirements. This would allow drivers to adequately evaluate remaining travel times to delivery locations and assess traffic congestion when making a decision on where to short-term park or rest. Information provided on these signs can take many forms. For example, the sign can include static information such as the exit or parking location name and distance and a variable light to indicate availability (green, yellow, red). The sign could also show the number of available spaces instead of a color-coded approach. More advanced models could operate like traditional highway message signs and display fully customizable messages.

Example Dynamic Parking Capacity Sign

[50] MAASTO. "MAASTO Regional TPIMS at a Glance." http://www.maasto.net/documents/TPIMS-Summary.pdf.

2. **Web-Based Information Systems—**For long-haul trucking moving between multiple States, nationwide, and web-based or mobile applications can be useful to drivers planning routes, driving times, or rest locations. ATRI recently did surveys of truckers to find the method they most used for locating parking along their route and over half (55.5 percent) stated they relied on website, corporate applications, or general TPAS information alone.[51] The private sector has begun to provide new parking applications, such as Trucker Path and the NATSO's "Park My Truck" mobile app (shown in Figure 4.4), although the ability of these existing sites to integrate public-sector data obtained through a TPAS system is unknown. Some States have considered creating mobile apps specifically for a TPAS system, but at the current time, most are provided through the private sector. Another option is to utilize Nevada's existing 511 website and application to add a truck parking information component while also integrating existing traffic, weather, and road condition data.

Figure 4.4 NATSO "Park My Truck" Mobile Application Screenshot



Source: Park My Truck

4.1.2 Truck Stop Electrification

The Las Vegas metropolitan area of Clark County is a nonattainment (marginal) area for 8-Hour Ozone (2015).[52] Trucks, especially those that are idling engines to provide electricity, heating, or cooling while stopped, are a persistent source of air pollution. Clark County Air Quality Regulations, Section 45 prohibits

[51] American Transportation Research Institute. *An Analysis of the Operational Costs of Trucking: 2017 Update.* October 2017. http://atri-online.org/wp-content/uploads/2017/10/ATRI-Operational-Costs-of-Trucking-2017-10-2017.pdf.

[52] https://www3.epa.gov/airquality/greenbook/ancl.html.

(Footnote continued on next page...)

idling of diesel-powered trucks for more than 15 consecutive minutes.[53] Washoe County also prohibits the idling of diesel truck or bus engines for more than 15 minutes.[54]

Trucks can install onboard idle reduction technologies such as auxiliary power units and generator sets, fuel operated heaters, battery air-conditioning systems, and thermal storage systems.[55] Alternatively, truck stop operators can install TSE and electrified parking spaces (EPS) technology that uses electricity supplied by the facility instead of the truck's main engine to power systems. In areas with very warm or very cold climates and air quality concerns, these systems can help keep drivers comfortable while also improving air quality. Truck stop electrification projects that include the installation of verified technologies as defined by the U.S. Environmental Protection Agency are eligible for a number of Federal grant programs, including Congestion Mitigation and Air Quality (CMAQ) and Diesel Emissions Reduction Act (DERA) which are further described in Section 6.1.[56] Clark County and Washoe County are both eligible for CMAQ funding.

4.2 Recommendations

Developing a TPAS system for Nevada that covers all existing public authorized parking areas will help provide information to truck drivers about space availability. The sections below provide an overview of what a "fully developed" system would include, split into rural and urban segments. The envisioned TPAS deployment on I-15 and I-80 can begin as soon as funding is secured and requires limited coordination outside of NDOT. The urban TPAS deployment will require interaction with local municipalities and some policy changes to meet the envisioned use case and so is described separately. The full system is intended to include both components.

4.2.1 Statewide TPAS Deployment

Deployment of a TPAS system on I-80 and I-15 would include the 20 public sites shown in Figure 4.5 (counting eastbound/westbound and northbound/southbound sites separately if they are accessible from that direction only). There are a total of approximately 215 spaces currently available at these sites. In addition, there are a number of planned or recommended expansions at these locations that could substantially increase the impact of a TPAS.

Detection systems for the TPAS could include either site vehicle occupancy detection (pucks) or volume detection (pneumatic tubes, sensor loops, etc.) with an associated CCTV to allow recalibration of the volume count. A schematic of these two approaches is shown in Figure 4.6.

DPCS signs with printed parking location names/exits and distances and a dynamic message indicating the number of available spaces would be deployed in advance of each parking location—one approximately 20 miles before the site and one within 2 to 3 miles prior to the site. This provides drivers time to identify alternative options if a site is listed as full, and also provides up-to-date information as they approach the site

[53] http://www.clarkcountynv.gov/airquality/regulations/Documents/SECT45_07-01-04.pdf.

[54] Washoe County District Board of Health Regulations Governing Air Quality Management. Section 040.200. Online at: https://www.washoecounty.us/health/files/air-quality/regulations/040.000%20Prohibited%20Emissions_May%202016.pdf.

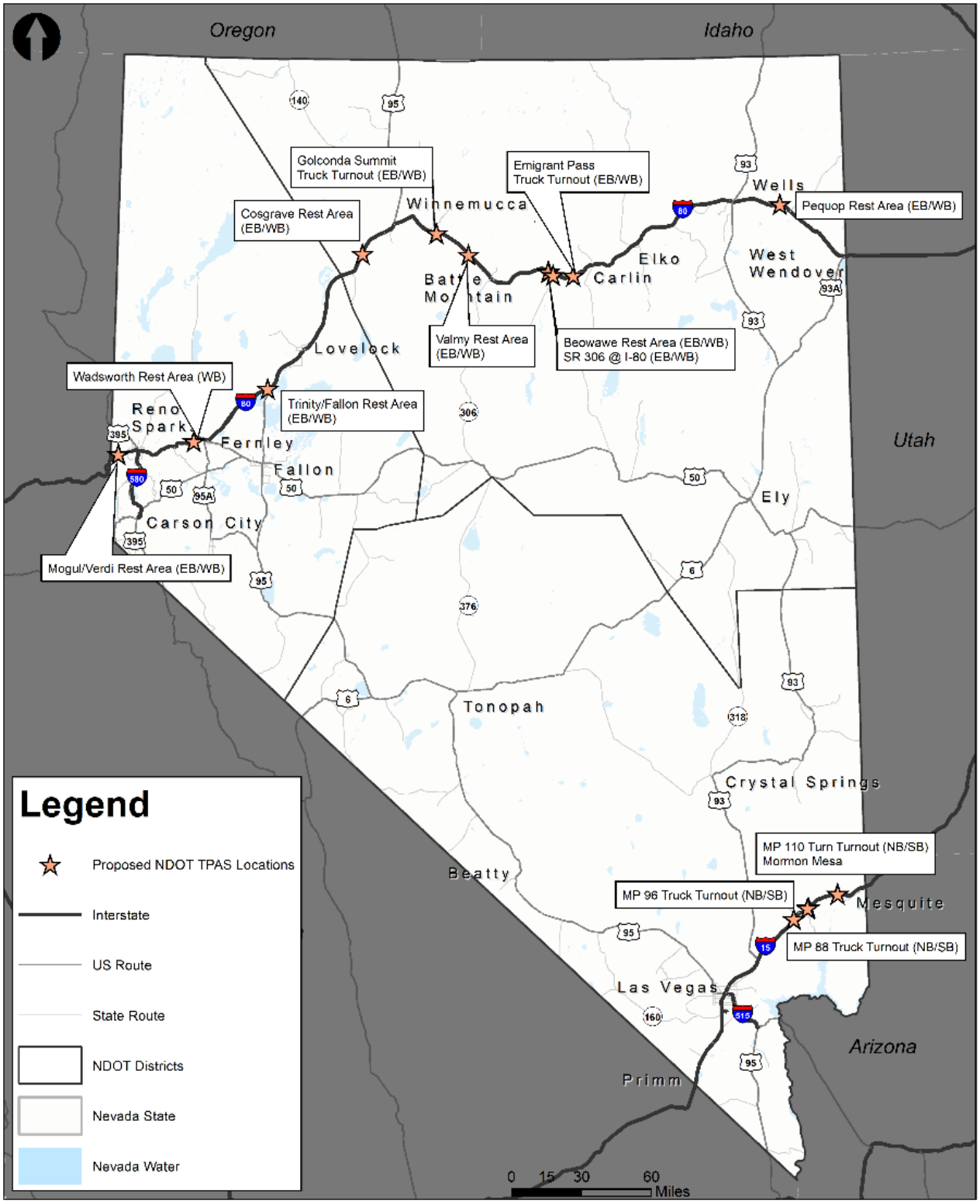
[55] For further information, see the National Coalition on Truck Parking Working Group Products—Emissions Reduction Grant Programs Fact Sheet.

[56] The U.S. Environmental Protection Agency list of verified technology can be found at: https://www.epa.gov/verified-diesel-tech/idling-reduction-technologies-irts-trucks-and-school-buses.

itself since capacity may have changed in the time needed to reach the site. Due to the spacing between some locations, one sign can serve multiple purposes. For example, moving westbound on I-80, a DPCS could be located approximately 20 miles east of the Emigrant Pass truck turnout and include information for that site. A second DPCS located approximately 3 miles east of Emigrant Pass could display information for both Emigrant Pass and for Beowawe at SR 306 and Beowawe Rest Area (westbound). Similar synergies can be used between the three truck turnouts on I-15, and between the Golconda truck turnouts and Valmy Rest Area. In total, this approach requires 39 DPCS signs.

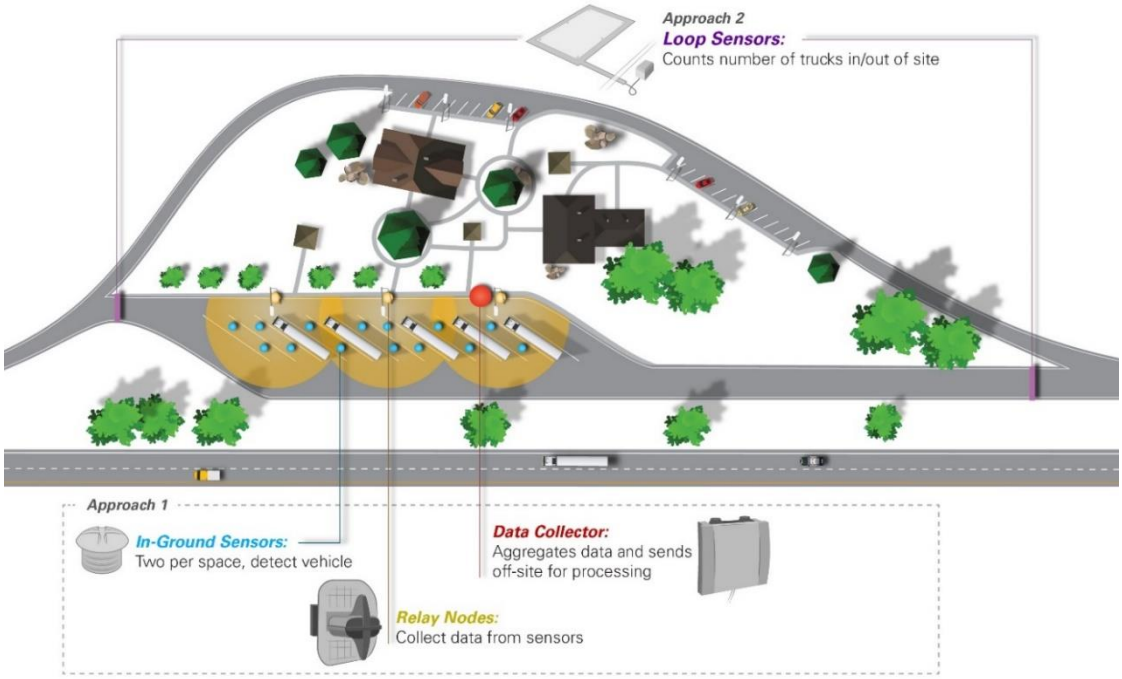
In the full build-out of the system, information would also be made available on the NDOT 511 website and would be available to private smartphone application developers who could integrate the information with their own systems. A possible concept of operations is shown in Figure 4.7.

Figure 4.5 Proposed Nevada TPAS Truck Parking Locations



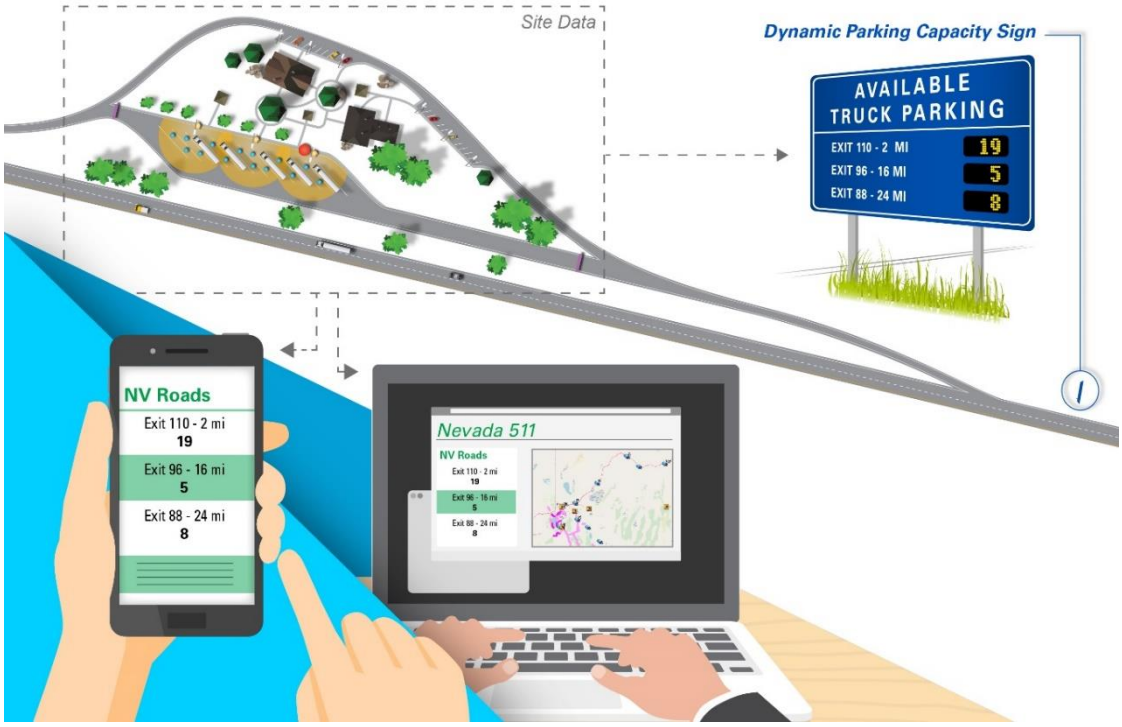
Source: NDOT, Analysis by Cambridge Systematics, 2019.

Figure 4.6 TPAS Space Utilization Detection Approaches



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

Figure 4.7 TPAS Concept of Operations



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

Cost Estimate

Because site design influences the type of technology that can be deployed to determine availability (e.g., site volume detection requires a distinct entry/exit location for trucks only), this recommendations memo estimates costs using both approaches. Because some expansion of truck parking already is planned (Beowawe at SR 306, Mormon Mesa SB, etc.), this cost estimate assumes a total of 300 spaces across the 20 sites, with an average of 15 spaces per site. Cost estimates for priority sites will be further refined in the Implementation Plan.

Costs for CCTV poles are included as applicable. Additional site work, including paving and striping are not included in these estimates. Striping a site is helpful to accurately fix the number of available spaces, direct trucks to park in a way that maximizes efficiency, and is required for the proposed site occupancy detection approach in order to ensure vehicles are parked over the sensors. The vehicle occupancy detectors "pucks" must be immobilized in the ground in order to stay calibrated so paving is the best option for sites that utilize this approach. Since many of these rest areas and truck turnouts are not paved or striped, the vehicle occupancy approach may require more funding to complete the requisite site improvements. Those potential costs are not included in this memo.

Table 4.2 below provides preliminary cost estimates for capital and annual O&M. These estimates will be updated and refined in later work including the Implementation Plan technical memo and, if advanced, the systems engineering phase. All costs are in 2018 dollars.

Table 4.2 Nevada TPAS Cost Estimates

Technology	Component	Capital Costs	O&M (Annual)
TPAS System Engineering, Design and Architecture	System Design	$250,000	Not applicable
Site Volume Detection	Vehicle counter	$50,000 per site	$540 per space (300 spaces)
	CCTV	$27,600 per site	$4,840 per site
	Integration, software, etc.	$260,000 for entire system	$12,943 for entire system
Vehicle Occupancy Detection	Hardware "pucks"	$3,500 per space (300 spaces)	$540 per space (300 spaces)
	System integration and data hosting	Included in above cost	$30,000 for entire system
DPCS	Signs	$55,500 per sign (38 signs)	$3,000 per sign
	Software and system integration	$120,500 for entire system	$6,300 for entire system
Data Integration	Include TPAS data in Nevada 511 website and application	$50,000	$10,000

Source: FHWA ITS Costs Database, Industry Estimates, Analysis by Cambridge Systematics, 2019.

Systems Engineering, Design, Architecture and Implementation Planning

The first step in developing a TPAS is to complete an FHWA/Institute of Electrical and Electronics Engineers (IEEE)-compliant Concept of Operations and System Requirements Specification. This document should be prepared with involvement from a small group of NDOT staff and several voluntary trucking industry members recommended by the Nevada Trucking Association as part of a "User Advisory Group" (UAG). From this process, a Detailed Design document would be developed, again with review from the UAG. Additionally, vendor information is expected to be collected from either vendor interviews or through an Request for Information (RFI). Finally, a scope would be prepared which will support NDOT in proceeding with procurement for a System Integrator vendor – this vendor would then be expected to develop and deploy the hardware and software to implement the overall TPAS as outlined in the three areas covered below (Site Volume Detection, Vehicle Occupancy Detection, Information Dissemination). The cost of these activities is estimated at $250,000.

Site Volume Detection

Technology to accurately track the number of trucks entering and exiting a site is estimated at $50,000 per site, with an additional cost of approximately $27,600 per site to install a CCTV in order to accurately recalibrate the volume counts on a regular basis. CCTV integration will cost approximately $260,000 total for the entire system. The Implementation Plan will further explore these costs and identify sites that can or cannot be equipped with this technology (conceptual designs for some site expansions are not currently known). If all 20 sites can be equipped with this technology, the total cost for deployment is approximately $1.81 million with an additional cost of $271,740 annually for O&M on the entire system (using 300 spaces as an estimate to account for potential expansion and 15 spaces per site). With a 30 percent contingency included, the total capital cost for this approach is approximately $2.35 million.

Vehicle Occupancy Detection

A vehicle occupancy detection approach is based on an estimated cost of $3,500 for installation per truck parking space. This installation cost varies based on the size of the site and could be slightly lower per space if a site like Trinity/Fallon Rest Area is substantially expanded.[57] Using an estimate of 15 spaces per site for a total of 300 spaces, the vehicle occupancy detection approach is estimated to cost approximately $1.05 million. Hosting the data would cost an additional $30,000 per year for the entire system. O&M costs are estimated between $30 and $60 per space, per month for a total cost of $162,000 annually (using $45 as an average). This cost is likely to drop as the technology and processes are tested and improved around the country. With a 30 percent contingency included, the total capital cost for this approach is approximately $1.365 million. However, this cost does not include paving, which would be required at some of the sites to properly bury the data collection "pucks."

The breakeven point in capital costs between the two approaches is approximately 22 spaces per site. Above that, the site volume detection approach becomes more cost effective than the vehicle occupancy approach if the site geometry is conducive. As this initial cost estimate uses an average of 15 spaces per site, the vehicle occupancy detection approach has a lower capital cost.

[57] The cost per space for installation drops when a lot reaches approximately 120 spaces and drops again for lots with more than 200 spaces.

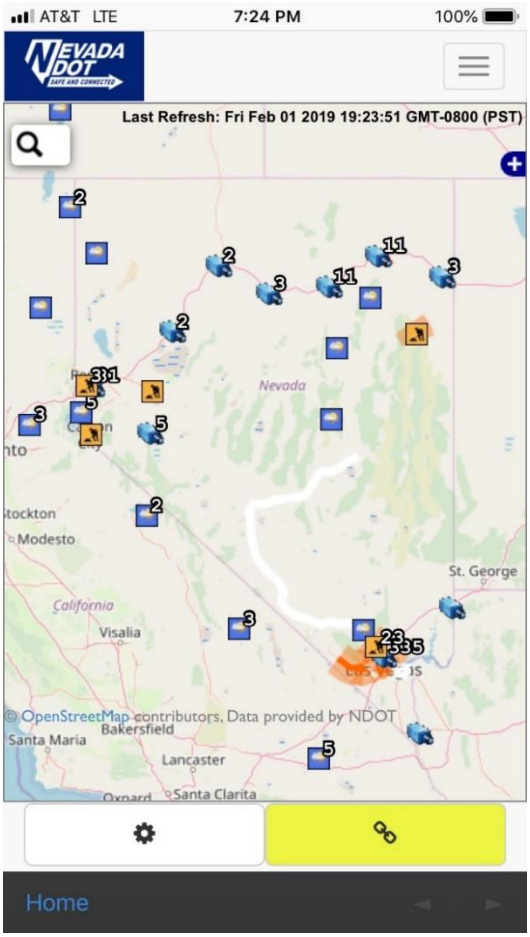
Information Dissemination

Information can be shared in two ways—DPCS located on the highway and through integration of the data with the existing Nevada 511 website and smartphone application.

A single DPCS plus the associated communications system costs approximately $55,500 per sign, with a total cost for all 39 signs of approximately $2.16 million. Hardware, software, and system integration is estimated to cost approximately $120,500 for the entire system. Annual O&M costs are estimated at approximately $3,000 per sign and $6,300 total for the software and system integration for a total annual O&M cost of approximately $120,300.

Second, information will be available to drivers through the State's existing 511 website and smartphone application (Figure 4.8). The website and application already provides road conditions, traffic alerts, construction notices, and other pertinent information and is available as a smartphone application. The cost to integrate the new TPAS with the existing 511 system is approximately $50,000 with an annual O&M cost of approximately $10,000. Collected data will also be made available to any private-sector application developers to incorporate into their application through the Nevada Data Exchange ITS data warehouse.

Figure 4.8 Nevada 511 Site
Smartphone View



Source: https://www.nvroads.com.

4.2.2 Phased Approach

As will be explored further in the Implementation Plan, these projects and costs can be deployed in phases, helping to reduce immediate capital expenditures.

For example, a pilot program could deploy data collection and information dissemination technology (DPCS) at sites identified in the Implementation Plan as priorities. Data collection approaches can be further refined once the priority sites are identified. Collected data would be displayed on DPCS signs at each location and added to the State's 511 system including the existing mobile application, and would be made available to the private sector for their use in trucking applications or information sharing.

Phase II would expand the system to the remaining public truck parking facilities on I-80 and I-15 across the State, and ultimately connect to a wider Western States TPAS. Future enhancements could introduce the ability to perform predictive analytics. For example, the system would be able to predict the number of spaces available at Wadsworth Rest Area on a Tuesday night at 6:00 p.m. based on historic data, current weather conditions, and other factors. This level of projection would be especially helpful during severe weather events that close I-80.

4.2.3 Urban TPAS Deployment

Technology solutions to urban truck parking issues are similar to those deployed for rural long-haul truck parking needs and focus on information collection and dissemination using a variety of methods. One difference is information dissemination may focus more on an application or web service rather than DPCS, as the distribution of origins/destinations, parking options, and routes available in an urban setting 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. NDOT can still play a role in this situation, however, through the deployment and integration of the TPAS.

In the urban TPAS scenario, each private or public-private parking facility would be access-controlled via a gate and require a pin number to enter. These sites would likely include CCTV in order to provide security. This means that a site volume approach with a CCTV "ground-truth" option is likely viable. Total cost per site for detection equipment and a CCTV (including camera pole) is approximately $77,600 per site plus $260,000 to integrate the entire system (if the rural TPAS is built first, this cost would not apply). Annual O&M costs are estimated at approximately $4,840 per site for the CCTV and $540 per space. An additional $13,000 in O&M is associated with the system integration, but if paid as part of the rural TPAS would not be included here.

Occupancy detection equipment "pucks" average approximately $3,500 per truck parking space for sites with less than approximately 120 spaces. The cost per space drops to approximately $2,200 for lots with up to 200 spaces and is less than $2,000 per space at larger lots. With land prices in urban areas as a constraint,

the higher cost estimates for smaller lots is more reasonable as finding a location to fit more than 120 spaces is unlikely. Annual O&M estimates are approximately $540 per space.

It also is desirable to tie urban truck parking, especially short-term staging parking, with changes in zoning or land use development. Drivers arriving before scheduled pickup or delivery times in order to guard against delays or other disruptions 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. To resolve this issue, industrial, warehousing, and commercial clusters or development parks could be required to provide additional limited off-street spaces, contribute towards a shared lot near the facilities, or reimburse the municipality in which they are located the cost of providing adequate off-street parking.

Hypothetical Urban Truck Parking Operational Scenario

As John heads south on I-15 from Mesquite towards Las Vegas, he is getting concerned about making his 7:00 p.m. delivery at Good Buys Distribution Center (DC) near Hacienda Avenue and Arville Street. With only 2.5 hours left in his HOS and the DC closing at 9:00 p.m., he is worried about making his appointment and finding a safe place to park for the night.

John is using an application that integrates truck parking and traffic management information which allows him to easily reroute around an incident in Las Vegas and make his delivery time, but he has little opportunity to find overnight parking. Knowing John's location, the app provides John with an audible alert directing him to a secure parking lot with availability following his Good Buys delivery and at John's voice command, reserves a space.

John unloads his goods at the DC, follows the directions to his parking lot and enters a 4-digit pin sent through the app to open the gate. He parks his truck, accesses the onsite vending machine and restrooms, then goes to sleep in his cab.

In an automated back-office transaction, the system knows that John has made a delivery to Good Buys and also accessed the nearby automated trucking parking facility. Based on this, the app bills Good Buys $25 for John's use of the overnight facility because Good Buys is subject to the new local ordinance that requires warehouses and freight facilities with over 10 truck deliveries per day to either provide adequate overnight and staging truck parking and minimal rest facilities, or to pay the local municipality $25 which it then uses to set up a number of unmanned, automated satellite lots integrated with the app.

5.0 Special Cases

5.1 Emergency Parking

Providing truck parking on an emergency basis during closures of I-80 in California is a critical concern for northwestern Nevada. These closures can lead to hundreds or thousands of trucks backed up on the Interstate in Nevada for hours with few parking options as existing truck parking areas fill up or trucks are beyond existing sites (there are limited parking options west of I-580). Expanding parking and deploying a TPAS solution on I-80 at existing rest areas east of Sparks would help address this issue. In addition, utilizing already existing DMS such as one in advance of the Exit 83 (Fallon) shown in Figure 5.1 would provide additional information to drivers during inclement weather. Signs similar to a chain warning sign could also be placed in advance of rest areas to inform drivers that I-80 is closed and parking should be sought.

Chain Up Sign

Figure 5.1 Dynamic Message Sign (I-80 westbound) Near Exit 83 (Fallon)

Source: Google Maps.

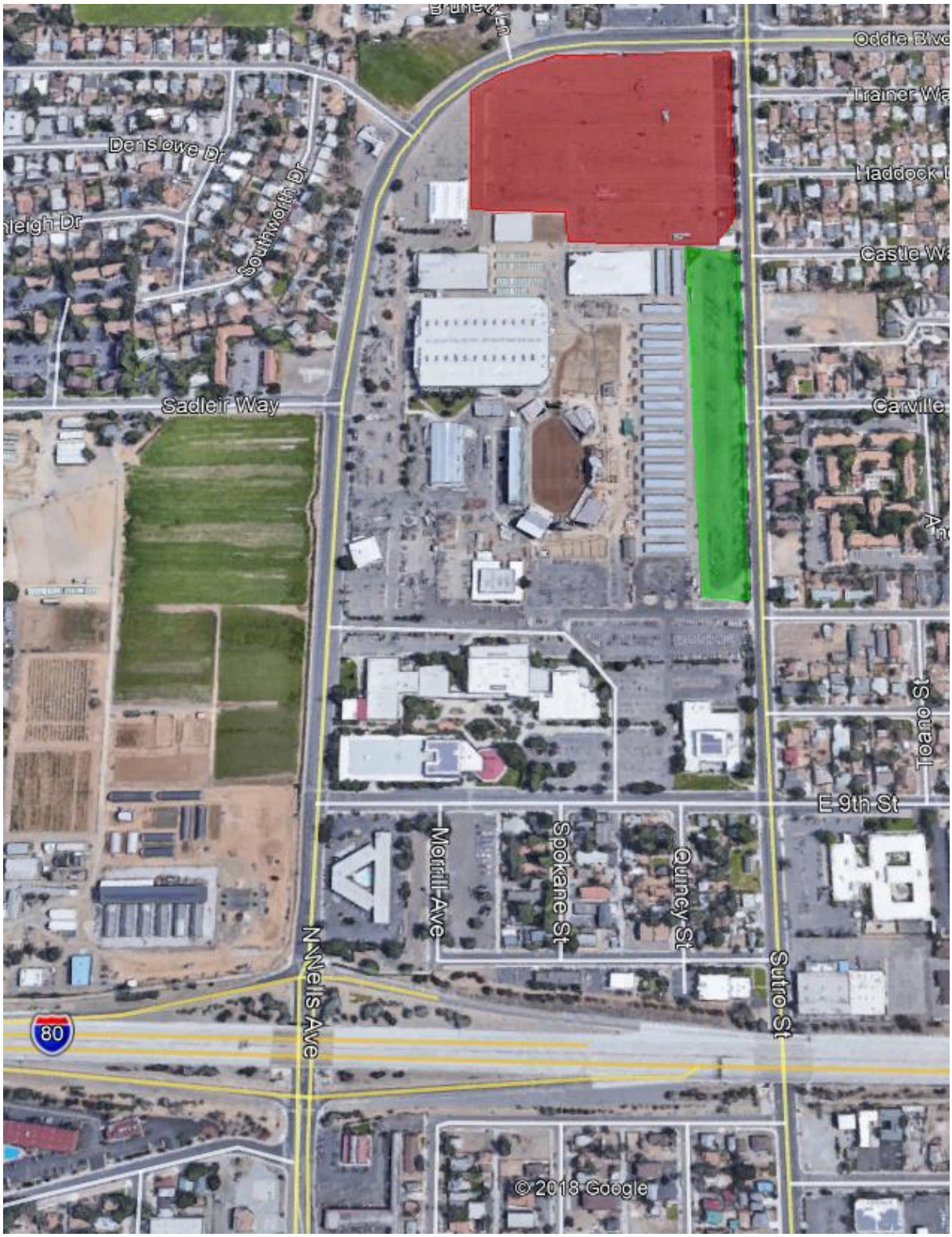
One additional option to increase capacity during these infrequent events is to identify a facility such as a sports arena or convention center that has parking space available when not being used for an event and allow trucks to park at that facility only during emergency closures. On the California side of Donner Pass, Caltrans has an arrangement with the Auburn Fairgrounds to allow truck parking during closures, and with the Boreal Ski Resort after 11:00 p.m.

An example on the Nevada side is the Reno Sparks Livestock Events Center shown in Figure 5.2, just a few blocks off of I-80 at Wells Avenue. The site has 2 areas (shown in green and red) that could accommodate trucks with one already striped for trucks/recreational vehicles (in green).[58] Another example in the same area is vacant land on the west side of Wells Avenue (south of Sadleir Way) owned by the University of Nevada—Reno. Any development projects at that site—especially parking—should include consideration of emergency truck parking needs.

[58] The northern parking area (in red) is approximately 11 acres, the southern parking area (in green) is approximately 4 acres. The southern parking area is stripped for more than 100 trucks/recreational vehicles.

Figure 5.2 Example Area for Emergency Parking

Reno Sparks Livestock Events Center



Source: Google Earth. Analysis by Cambridge Systematics, 2019. North is to the top of the image.

5.2 Convention Marshalling Yard

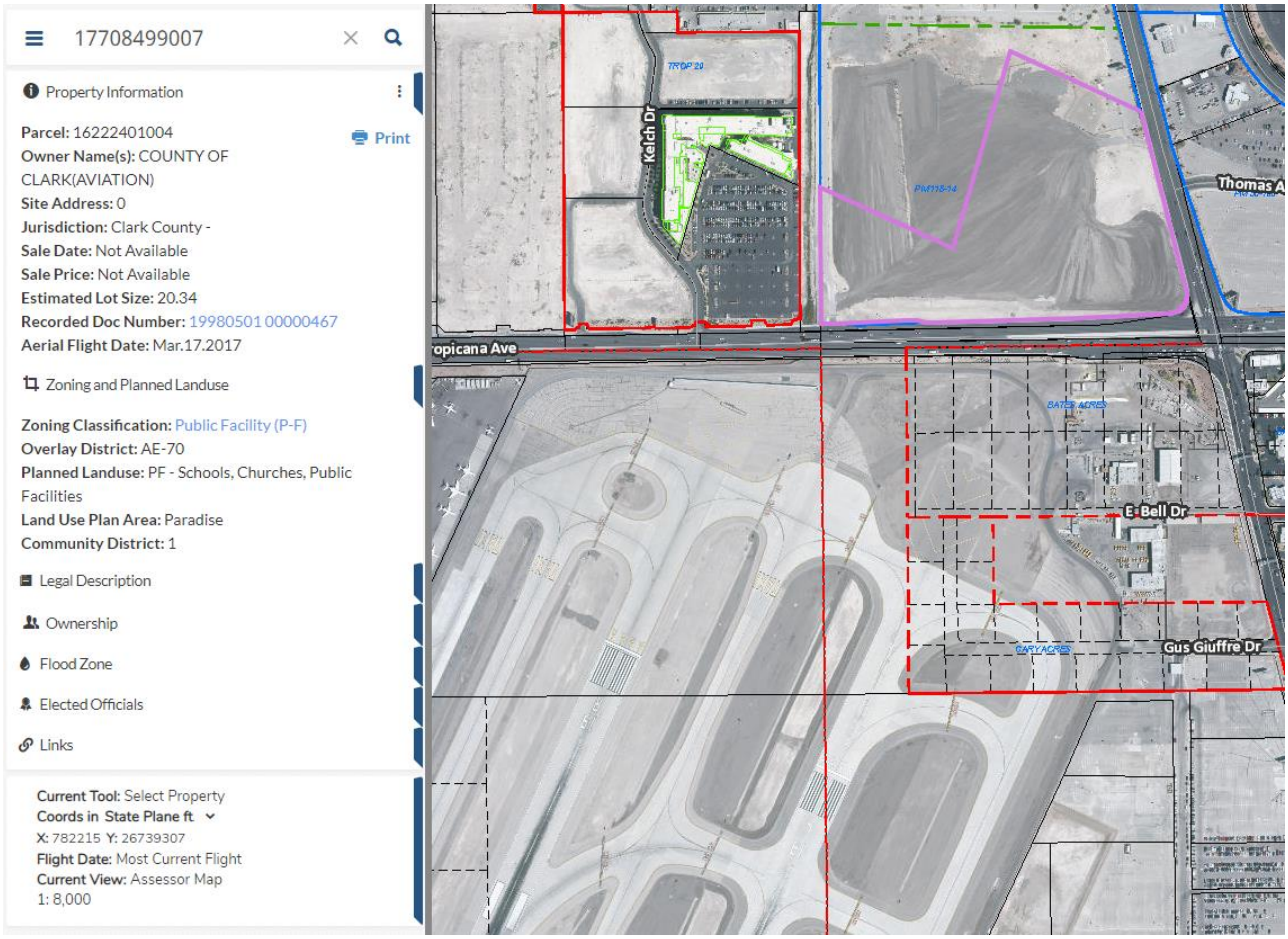
The convention industry is a pillar of the Southern Nevada economy that brings in an average of $127 million per show and supports 65,000 jobs. In 2017, 6.6 million people visited Las Vegas for a convention, stayed longer and generally spent more money than leisure visitors. Current expansion projects will add more than 3 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.[59]

Representatives from the Las Vegas Convention and Visitors Authority (LVCVA) and the major convention service providers, Freeman and General Estimate System (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 parcel (Figure 5.3) 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 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. A detention basin will be constructed on part of this site, but there will still be sufficient acreage for a marshalling yard, and if needed, trucks could occupy the basin during dry days.

No direct NDOT action is required at this time, but the agency should continue to monitor progress and offer support for development of this marshalling yard.

[59] Las Vegas Convention and Visitors Authority.

Figure 5.3 Potential Las Vegas Convention Marshalling Yard Location



Source: Clark County GISMO.

6.0 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.

6.1 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.[60] 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.

There are a number of Federal formula fund programs which may be used to support the above truck parking projects:

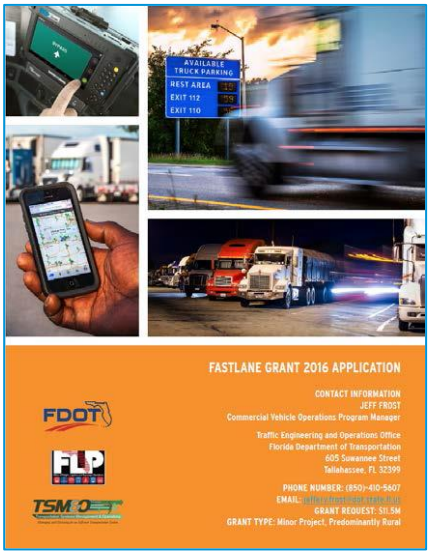
- **Surface Transportation Block Grant Program** (STBG) provides funding for truck parking facilities eligible under Section 1401 (Jason's Law) in MAP-21.
- **National Highway Freight Program** (NHFP) provides formula funds to States to improve the condition and performance of the National Highway Freight Network under 23 U.S.C. 167(i). Eligible activities include truck parking facilities and real-time traffic, roadway condition, and multimodal transportation information systems. The NHFP funds are eligible for use on the Primary Highway Freight System or NHFP, or for projects that improve safety, mobility, or efficiency on those systems.

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

- **Highway Safety Improvement Program** (HSIP) provides funding for truck parking, provided the need for truck parking is consistent with the State Strategic Highway Safety Plan (SHSP) developed under 23 U.S.C. 148 and the project corrects or improves a roadway feature that constitutes a hazard to road users or addresses a highway safety problem.

- **National Highway Performance Program** (NHPP) funds may be obligated for a project on an eligible facility that supports progress toward the achievement of national performance goals for improving infrastructure condition, safety, congestion reduction, system reliability, or freight movement on the NHS. Eligible projects include highway safety improvements on the NHS, which may include truck parking per 23 U.S.C. 148.

- **Congestion Mitigation and Air Quality** (CMAQ) funds may be eligible for the construction of truck stop electrification systems that reduce the need for trucks to idle under 23 U.S.C. 149, but is not eligible for construction of truck parking. Eligibility must be determined in consultation with the U.S. Environmental Protection Agency (U.S. EPA) based upon the likelihood that the associated emissions reduction would benefit a nonattainment or maintenance area.



FDOT FASTLANE Application

In addition to formula funding programs, there also are several grant opportunities for truck parking projects, including the following:

- **Infrastructure for Rebuilding America** (INFRA) Grant program is a multiyear discretionary grant program in the Fixing America's Surface Transportation (FAST) Act to fund critical freight and highway projects. Eligible projects include highway freight projects on the National Highway Freight Network, highway projects on the NHS and other specified intermodal freight projects. The INFRA Grant can cover up to 60 percent of the total project cost. Formerly known as the Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies (FASTLANE) Grant. Florida DOT received funding for its TPAS, which detects available truck parking and collects data at over 70 public facilities in Florida, via a $10.8 million FASTLANE grant in 2016. Florida DOT's TPAS project is the only truck parking project that has received FASTLANE/INFRA grant funding.

- **Better Utilizing Investments to Leverage Development** (BUILD) Transportation Discretionary grants program (formerly known as the TIGER grant program) provides capital funding directly to any public entity, including municipalities, counties, port authorities, Tribal governments, and metropolitan planning organizations, including multimodal and multijurisdictional projects that are difficult to fund through traditional Federal programs. These grants are intended to support innovative projects that generate economic development and improve access to reliable, safe, and affordable transportation and are not specifically focused to freight needs. FY2018 awards have not been released. TIGER funds have been used in the past to support truck parking projects, most notably the 2015 award of $25 million to the DOTs of Kansas, Indiana, Iowa, Kentucky, Michigan, Minnesota, Ohio, and Wisconsin for a Regional TPIMS. The system had a soft launch in the fall of 2018 and is scheduled to cover more than 150

parking sites on 9 high-volume corridors starting in the summer of 2019.[61] Funding can be used for 100 percent of project costs in rural areas and for up to 80 percent of costs in urban areas.[62]

- **Innovative Technology Deployment** (ITD) Program (formerly known as CVISN) provides an additional funding source for truck parking projects through the Federal Motor Carrier Safety Administration (FMCSA) High-Priority—ITD Grant. Historically, the ITD Program has focused on commercial vehicle enforcement with funds supporting three deployment areas: electronic credentialing, safety information exchange, and electronic screening. The FY2018 grant cycle highlighted truck parking as a priority project area for States that have achieved Core Compliance in the program.[63] Projects should demonstrate real-time truck parking availability information dissemination to drivers using dynamic message signs, interactive voice recognition, smartphone applications, or other proven technology. Projects are funded at an 85 percent Federal/15 percent State match level. Nevada is not yet Core Compliant and so cannot currently seek funding for truck parking information technology projects under this Program.

- **Accelerated Innovation Deployment** (AID) Demonstration program provides funding as an incentive for eligible entities to accelerate the implementation and adoption of innovation in highway transportation. The AID Demonstration program is one initiative under the FHWA Technology and Innovation Deployment Program providing funding and other resources to offset the risk of trying an innovation. Approximately $10 million in funding is available from FY2016 through FY2020. Projects must involve any phase of a highway transportation project between project planning and project delivery, including planning, financing, operation, structures, materials, pavements, environment, and construction. In addition to the FASTLANE grant award, Florida DOT was awarded an AID grant for $1 million in 2015 to deploy its real-time TPAS.

- **Diesel Emissions Reductions Act** (DERA) Clean Diesel Funding Assistance Program provides approximately $40 million in competitive grant funding through the U.S. EPA. The Program solicits proposals nationwide for projects that achieve significant reductions in diesel emissions in terms of tons of pollution produced and exposure, particularly from fleets operating in areas designated by the Administrator as poor air quality areas. Grant funds may be used for clean diesel projects, including EPA-verified technologies, California Air Resources Board verified technologies, idle-reduction technologies, aerodynamic technologies and low rolling resistance tires, and early engine, vehicle, or equipment replacements.

Truck Stop Electrification
Source:
Boston Metropolitan Planning Organization

61 https://www.fleetowner.com/driver-management/real-time-truck-parking-data-aims-strengthen-midwest-freight-corridors.

62 Rural areas are those outside of a U.S. Census defined “Urbanized Area” which consists of a densely settled territory with a population of 50,000 people or more.

63 As of April 2018, all states in the I-95 Corridor Coalition are Core Compliant with the exception of the District of Columbia, New Hampshire, Pennsylvania, Rhode Island, and Vermont. https://www.fmcsa.dot.gov/information-systems/itd/itd-current-status.

Historically, this grant funding has been used for truck parking activities, including truck stop electrification, truck fleet replacement, and other truck parking activities.

- **Advanced Transportation and Congestion Management Technologies Deployment** (ATCMTD) program provides up to $60 million in Federal Funding (50/50 match) to eligible entities to develop model deployment sites for large scale installation and operation of advanced transportation technologies to improve safety, efficiency, system performance, and infrastructure return on investment. Though truck parking is not explicitly stated as an eligible activity, the funds may be used towards transportation management technologies, data collection systems, pricing/payment systems, or other technologies that support truck parking activities. Funds for FY2018 have not been awarded as of October 2018.

- **Volkswagen (VW) settlement payments**[64] totaling $4.7 billion will be split into 2 distinct funds: (1) $2.7 billion will go towards an Environmental Mitigation Trust to fund projects that reduce nitrogen oxide (NO_x) emissions where VW diesel 2.0 liter vehicles were, are, or will be operated; and (2) the remaining $2 billion will go toward zero emissions vehicle investments to improve infrastructure, access, and education to advance zero emission vehicles. States will determine how the Environmental Mitigation Trust funds will be spent. VW will determine how the zero-emission vehicle (ZEV)[65] funds will be spent, subject to approval of the U.S. EPA and the California Air Resources Board. Eligible activities for ZEV infrastructure investments include designing, planning, constructing, installing, operating and maintaining infrastructure. Infrastructure designations include shared Level 2 charging stations, public DC fast charging stations that use nonproprietary connections, ZEV fueling stations, and next-generation public ZEV charging infrastructure. VW has stated an interest in installing chargers in approximately 15 metro areas and developing a cross-country network of 200+ fast-charging stations during the first investment cycle.[66] Truck parking projects that are eligible under DERA (including truck stop electrification) are eligible.[67]

6.2 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.

---

64 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.

65 ZEVs include light duty trucks, medium duty vehicles, or heavy duty vehicles that produces zero exhaust emissions, as well as plug-in hybrid electric trucks.

66 www.electrifyamerica.com.

67 https://www.epa.gov/sites/production/files/2017-10/documents/faq-ben.pdf.

- Local special fuel taxes.
- Sales and use taxes.
- Property taxes.
- Impact fees.
- Assessments through improvement districts.
- Development tax.
- Government services tax supplemental

While the majority of current Federal, State, and local transportation funding in Nevada is generated by fuel taxes, Nevada should pursue an "all-of-the-above" strategy. Having a variety of funding sources can improve revenue stability and increase overall funding while providing the means to distribute the burden of paying for transportation investments among the beneficiaries in a reasonably equitable manner. Because eligible uses and administrative processes vary from funding source to funding source, having multiple funding sources can provide flexibility and enhance the efficiency of project delivery.

The State's existing funding sources could be expanded along two dimensions: first by annually or biannually adjusting rates of the sources to address inflationary pressures and stabilize the purchasing power of these revenues, where this is not already in place; and second by increasing the rates to generate the new revenue needed to meet the growing needs of our residents, businesses, and visitors.

Improvement districts and impact fees have potential for generating considerable revenue for improvements in defined geographies within the State. One existing source that currently plays a relatively minor role in transportation funding, but has potential to generate significant revenue throughout the State is the property tax.

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.[68] Washoe County has had a similar system in place since 2003 and had raised approximately $302.5 million through December 2017.[69]

6.3 Other Funding Options

6.3.1 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 in Elmira, NY and a short-term parking facility operated by TSPS in Detroit, MI are 2 examples explored in further detail in Section 4.2.3 and 4.2.4.

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,

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

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

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, Truck Tire Tax. These taxes currently are deposited in the Highway Trust Fund[70] 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.

6.3.2 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.

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 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.

[70] 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.

P3 Structures

Should a P3 model of project delivery be chosen, there are several different ways in which a P3 can structured:

1. **Condominium—**Useful to maintain separate ownership of any multi-facility parking area, or serving a variety of users. Within the condominium approach, both public and private partners would own and maintain defined sections of the overall parking area. The agreement would need to outline overall facility maintenance/security costs, but individual parking spaces would be designated to specific users. This structure could be organized after a facility has been built, either fully by the public sector, the private sector, or through a mixed funding source. Users would be able to then use their designated and managed spaces for individual operations, or lease/rent them to other users as needed.

2. **Lease or Leaseback—**Usually the public entity, as the owner of the property, will enter into a long-term lease agreement with a developer or consortium who then designs, finances, and builds the facility on behalf of the public entity. The lease is focused on the land on which the facility sits, and the public entity can lease back the completed facility for their own use, or allow the facility to be leased to others (i.e., local freight centers). The private developer will structure the facility use cost/lease to cover operating expenses, service debt costs, and brings some set return on investment. At the end of the set lease period, the public entity receives the land and built facility back from the original developer or current owner for a previously agreed fee in the lease contract (often in the industry only $1).

3. **Concessionaire Agreement—**Similar to aforementioned Lease or Leaseback, except in this case, the developer is actually both the builder and operator of the facility. Within a concession agreement, the private-sector developer or consortium will operate and maintain the facility throughout the set life of the project, and at the end transfer all operations back to the public entity (again, usually for $1). During the time of operations, the developer will organize usage of the facility, and charge appropriate costs to cover operating expenses, service debt costs, and bring in a return on investment.

4. **Long-Term Lease Structure—**Very similar to the other agreements, but in this case, the land is being transferred for around 99 years. The private developer will also take on tax considerations of the land and the facility.

In all of these structures, the public entity does not always have to be initial land owner. Through tax incentives, zoning procedures or transportation planning, the public entity could help to facilitate an agreement between a developer and a private landowner.

A potential project on I-91 in New Hampshire between Concord and Plymouth could provide an example P3 with a truck parking element. This project would create a new full-service rest area off Exit 23 in New Hampton as a replacement or complement to two existing State-owned and operated service rest areas (Canterbury and Sanbornton exits). This public-private partnership would have a private entity own the land and operate concessions and other services and lease space to the State for rest area facilities and information kiosks. The plan also seeks State involvement for ramp/road changes to facilitate access to the new site. Although not specific to truck parking, the new facility would serve multiple interests, including "truckers driving between Canada and metro Boston and other east coast destinations."[71]

[71] NHDOT, Public-Private Partnership (P3)—Call For Projects 2017/2018. Online at: https://www.nh.gov/dot/programs/public-private-partnership/documents/i93-exit-23-application.pdf.

6.3.3 Sponsorships

GEICO Sponsored Rest Area
Source: New Jersey DOT

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.[72,73] 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.[74]

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.[75] 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.

6.3.4 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.[76] 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

---

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

73 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.

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

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

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

(Footnote continued on next page...)

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.[77]

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.

[77] 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/.

Appendix A. Zoning Regulations on Truck Parking at New Warehouse and Distribution Facilities (Upper Macungie, PA)

TOWNSHIP OF UPPER MACUNGIE
LEHIGH COUNTY, PENNSYLVANIA

ORDINANCE No. 2017-04
[Duly Adopted June 1, 2017]

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE TOWNSHIP OF UPPER MACUNGIE, LEHIGH COUNTY, PENNSYLVANIA, AMENDING CHAPTER 27 (ZONING) OF THE CODE OF THE TOWNSHIP OF UPPER MACUNGIE, KNOWN AS THE UPPER MACUNGIE TOWNSHIP ZONING ORDINANCE AND THE SECTIONS OF CHAPTER 27 AS HEREINAFTER SET FORTH. SPECIFICALLY, THIS ORDINANCE AMENDS;

SECTION §27-118.	CONDITIONAL USE PROCESS
SECTION §27-202.	TERMS DEFINED
SECTION §27-306	TABLE OF PERMITTED USES BY DISTRICT
SECTION 97-402.000.	WAREHOUSE OR WHOLESALE SALES
SECTION §27-601.	REQUIRED NUMBER OF OFF-STREET PARKING
SECTION §27-605.	OFF-STREET LOADING

ALL OF WHICH ARE FULLY SET FORTH IN THE BODY OF THIS ORDINANCE AND ALL OF WHICH ARE IN ACCORDANCE WITH THE PENNSYLVANIA MUNICIPALITIES PLANNING CODE, ACT 247 OF 1968, P.L. 805, NO. 247, AS REENACTED AND AMENDED, 53 P.S. § 10609.

WHEREAS, Section 27-108 of the Upper Macungie Township Zoning Ordinance provides that "the Board of Supervisors may amend, challenge or repeal any or all portions of this Chapter on its own motion or upon agreeing to hear a written request for any person, entity or the Planning Commission."; and

WHEREAS, the Upper Macungie Township Board of Supervisors has identified certain procedural matters; certain definitions; certain uses and certain requirements related in whole, or in part, to Conditional Use applications; warehousing and truck tractor trailers which are in need of amending and/or updating; and

WHEREAS, the Upper Macungie Township Board of Supervisors finds that the proposed amendments will promote, protect and facilitate the public health, safety and welfare; and

WHEREAS, pursuant to Section 609 of the Municipalities Planning code, 53 P.S. § 10609, the Township of Upper Macungie is authorized and empowered to enact amendments to the Upper Macungie Township Zoning Ordinance after public hearing thereon pursuant to public notice; and

WHEREAS, the Board of Supervisors of the Township of Upper Macungie has conducted a public hearing pursuant to public notice concerning the following amendments to the Upper Macungie Township Zoning Ordinance; and,

WHEREAS, after public hearing pursuant to public notice, the Board of Supervisors of the Township of Upper Macungie desires to ordain and enact the amendments to the Upper Macungie Township Zoning Ordinance set forth hereinafter.

NOW THEREFORE, BE IT ORDAINED AND ENACTED by the Board of Supervisors of the Township of Upper Macungie, County of Lehigh, Commonwealth of Pennsylvania, as follows:

SECTION 1. DELETIONS, AMENDMENTS, INSERTIONS AND CHANGES

The following Sections denoted by Section numbers are amended, with such amendments being denoted by bold underlining. (bold underlining)

The following Sections or parts thereof denoted by Section numbers are added, with such additions being denoted by the word "NEW" preceding the addition which shall be denoted by bold text (bold text).

The following Sections or parts thereof denoted by Section numbers are deleted, with such deletions being denoted by brackets and strikethrough ([~~strikethrough~~]).

For purposes of Codification, all Sections noted herein follow the Sections as set forth in the Code of Ordinance of the Township of Upper Macungie, revised through October I, 2009.

SECTION 2. BODY OF THE ORDINANCE

A. 27-118. Conditional Use Process.

lord. 9-94, 4/7/1994, § 1181

~~1. Applicability. Certain uses that are permitted by this Chapter as conditional uses shall be required to follow the review and zoning approval procedures described in this Section.~~

~~2. Procedure.~~

~~A. A conditional use submission shall not be considered officially accepted for review until any needed zoning variance(s) or special exception approval that is directly relevant to the site layout and nature of the use is granted. The applicant may request an informal review by the Planning Commission of a site plan prior to requesting variances or a special exception.~~

~~B. Submission. A minimum of three complete copies of any required site plan meeting the requirements of § **27-117** shall be submitted to the Township. The Zoning Officer shall refuse to accept an incomplete application which does not provide sufficient information to determine compliance with this Chapter.~~

~~C. Applicant's Distribution.~~

~~(1) Prior or within three working days after submittal to the Township, the applicant shall submit one copy to each of the following, as applicable, unless waived by the Zoning Officer:~~

(a) The Township Engineer.
(b) The Sewage Authority Engineer.
(c) The County Conservation District.
(d) The Lehigh Valley Planning Commission (if required under the Regional Stormwater Ordinance).
(e) The Lehigh County Authority (if intended to be served by water service by such agency).

(2) The applicant shall notify the Township in writing that such submittals were completed.

D. Township Distribution. The Township shall distribute copies of the site plan to the Planning Commission and the Board of Supervisors. A minimum of one copy shall be retained in the Township files. The Township fire services should be given an opportunity for a review, if deemed appropriate by the Zoning Officer.

E. Zoning Officer Review. The Zoning Officer shall report in writing or in person to the Planning Commission or Board of Supervisors stating whether the proposal complies with this Chapter. The Zoning Officer may request a review by the Township Engineer.

F. Planning Commission. The Planning Commission has been designated by the Board of Supervisors as the entity that will conduct the required public hearing on the conditional use application. The Planning Commission shall submit a recommendation to the Board of Supervisors. **[Amended by Ord. 2010-6, 8/19/2010]**

G. The Board of Supervisors shall not act to approve or deny a conditional use application unless the Supervisors have received the reports of the Zoning Officer and the Planning Commission or unless a period of 60 days has passed from the date of the application.

H. The Board of Supervisors shall approve, conditionally approve or disapprove the conditional use submission within a maximum of 90 days from the date of the first scheduled Planning Commission regular meeting following the submission of a complete and proper application, unless the applicant has agreed to a written time extension. In granting a conditional use, the Board of Supervisors may require such reasonable conditions and safeguards (in addition to those expressed in this Chapter) as it determines are necessary to implement the purposes of this Chapter.

I. The decision of the Board of Supervisors shall be in writing and shall be directly communicated to, delivered to or mailed to the last known address of the applicant or his/her representative.

3. Approval of Conditional Uses. The Board of Supervisors shall approve any proposed conditional use if it finds adequate evidence that the proposed use will meet:

A. Any specific standards for the proposed use listed in § **27-402** or **27-403**.
B. Other applicable Sections of this Chapter.

C. Comply with the Subdivision and Land Development Ordinance (Chapter **22**) as applicable. Engineering details regarding compliance with such ordinance may be addressed as part of a subsequent approval under such ordinance.

D. Comply with all of the following standards:

(1) Other Laws. Will not clearly be in conflict with other Township ordinances or state or federal laws or regulations known to the Township.

(2) Traffic. The applicant shall show that the use will not result in or add to a significant traffic hazard or significant traffic congestion (based upon a reduction in overall levels of service at the nearest intersection in all compass directions.) **[Amended by Ord. 2010-6, 8/19/2010]**

(3) Safety. The applicant shall show that the use will not create a significant public safety hazard, including fire, toxic or explosive hazards.

(4) Stormwater Management. Will follow adequate, professionally accepted engineering methods to manage stormwater. Stormwater shall not be a criteria of a decision under this Chapter if the application clearly would be subject to a separate engineering review and an approval of stormwater management by the Board of Supervisors under the Subdivision and Land Development Ordinance (Chapter **22**) and under plans adopted pursuant to the Pennsylvania Stormwater Management Act. *Editor's Note: See Ch. **17**, Stormwater Management.*

(5) Neighborhood. Will not significantly/negatively affect the desirable character of an existing residential neighborhood, such as causing heavy truck traffic through a residential neighborhood or a significant odor or noise nuisance or very late night/early morning hours of operation.

(6) Site Planning. Will involve adequate site design methods, including plant screening and setbacks as needed, to avoid significant negative impacts on adjacent uses. The use shall meet the landscaping and buffer requirements of the Subdivision and Land Development Ordinance (Chapter **22**).

(7) Performance Standards. The applicant shall show that the use will not have a serious threat of inability to comply with the performance standards of this Chapter, as stated in Part 5.

B. NEW Section §27-118. Conditional Use:

1. Purpose. Before zoning approval is granted for any Use listed as a Conditional Use in this Ordinance, a site plan shall be reviewed by the Township Planning Commission and approved by the Township Board of Supervisors.

2. Approval of Conditional Uses.

A. The Board of Supervisors shall approve any proposed Conditional Use only if they find sufficient evidence that any proposed Use will meet:

(1) All of the Additional Requirements for Specific Principal and Specific Accessory Uses found in Part 4,

(2) All of the General Requirements found in Part 8;

B. The Board of Supervisors shall hold hearings on and decide requests for such Conditional Uses in accordance with such Specific Standards in Section §27-402 and Section §27-403, as applicable. The hearing shall be conducted by the Board of Supervisors or the Board of Supervisors may appoint any member or an independent attorney as a hearing officer. The decision or, where no decision is called for, the findings shall be made by the Board of Supervisors.

However, the appellant or the applicant, as the case may be, in addition to the Township, may prior to the decision of the hearing, waive decision or findings by the Board of Supervisors and accept the decision or findings of the hearing officer as final.

C. In granting a Conditional Use, the Board of Supervisors may attach such reasonable conditions and safeguards, in addition to those expressed in this ordinance, as it may deem necessary to implement the purposes of this Ordinance.

3. Administration.

A. The Zoning Officer shall deny a zoning permit for the proposed development until written approval of the Township Board of Supervisors is obtained.

B. All applicants for Conditional Use shall submit five (5) sets of site plans sealed by a Pennsylvania licensed design professional.

C. All site plans shall contain information otherwise required by the Township Subdivision and Land Development Regulations for a Sketch Plan, and in addition thereto, all site plans, shall contain the following information as it pertains to the subject Lot(s):

(1) The location of public and private water lines, supplies, wells, springs, streams, swamps, rivers and other bodies of water, and public and private sewer lines and septic systems;

(2) The location of high-tension power line right-of-ways;

(3) The location of pipeline right-of-ways,

(4) The location of geologic and hydrologic features;

(5) The Flood plain and location of the site or facility within that Flood plain, and storm water runoffs;

(6) The location of public and private recreational areas;

(7) A soils, geologic and groundwater report of the characteristics of the area where the proposed site or facility will be located;

(8) The location of significant historical and architectural sites; and;

(9) Any other information needed in order to review compliance with the following;

(a) Part 4: Additional Requirements for Specific Uses;

(b) Part 5.• Environmental Protection;

(c) Part 6: Off-Street Parking and Loading and;

(d) Part 8.• General Requirements;

D. The Board of Supervisors, within ten (10) days of receipt of a completed submission, shall forward one copy of the site plan to the Zoning Officer, one copy to the Township Engineer, and one copy to the Director of Planning and Zoning for review by the Township Planning Commission. Owners of real property situated within three hundred (300) feet of the proposed site or facility shall be sent a notice of the Planning Commission's review meeting not less than ten (10) days prior to the date fixed for review.

E. The Zoning Officer shall, within thirty (30) days of receipt of a completed submission by the Township, review the plan and submission to determine compliance with this Ordinance, and submit a written recommendation to the Board of Supervisors.

F. The Planning Commission shall, within thirty (30) days of receipt of a completed submission by the Township, review the plan and submission to determine compliance with this Ordinance, and submit a written recommendation to the Board of Supervisors.

G. Failure of the Zoning Officer or the Planning Commission to submit a written report in a timely fashion shall not prevent the Board of Supervisors from hearing and deciding the request.

4. Referral to the Planning Commission,

A. The Board of Supervisors shall refer to the Township Planning Commission all applications for Conditional Uses.

B. In its review of the Conditional Use, the Township Planning Commission shall determine compliance with the standards and criteria set forth in this Ordinance.

C. In all cases the Township Planning Commission shall report in writing its findings and recommendations to the Board of Supervisors within thirty (30) days of receipt of a completed submission by the Township.

D. The Board of Supervisors and Planning Commission shall establish mutually acceptable procedures to assure that the review is accomplished in time to permit the Board of Supervisors to make its required decision.

5. Decision Findings.

A. The Board of Supervisors shall render a written decision or make written findings (when no decision is called for) on the application within forty-five (45) days after the last hearing before the Board of

Supervisors. Where the application is contested or denied, the decision shall be accompanied by findings of fact and conclusions based thereon, together with the reasons therefore. Any conclusion based on any provision of Act 170, as amended, or of this Ordinance, or of any other Ordinance, rule or regulation, shall contain a reference to the provision relied on and the reasons why the conclusion is deemed appropriate in light of the facts found.

B. Where the Board of Supervisors fails to render the decision within the period required in paragraph A of this subsection (5) or fails to commence, conduct, or complete the required hearing as provided in Section 908(1.2) of the
Pennsylvania Municipalities Planning Code (MPC), the decision shall be deemed to have been rendered in favor of the applicant, unless the applicant has agreed in writing or on the record to an extension of time. When a decision has been rendered in favor of the applicant because of the failure of the governing body to meet or render a decision as hereinabove provided, the Board of Supervisors shall give Public Notice of the decision within ten (10) days from the last day it could have met to render a decision in the same manner as required by the Public Notice requirements of the MPC. If the Board of Supervisors shall fail to provide such notice, the applicant may do so.

C. A copy of the final decision or a copy of the finding (when no decision is called for) shall be delivered to the applicant. The Board of Supervisors shall provide (by mail or otherwise) a brief notice of the decision or findings and the statement of the place where the full decision findings may examined to all other persons who have filed their names and addresses with the Board of Supervisors.

6. Appeals. In general, all appeals for securing a review of this Ordinance or any decision, determination, order of the Board of Supervisors, its agencies or officers issued pursuant to this Ordinance, shall be in conformance with Article X-A of, the Municipalities Planning Code as amended.

B. Section 27-202. Terms Defined.

~~**Distribution.** The processing of materials so as to sort out which finished goods are to be transported to different locations, and the loading and unloading of such goods. This use usually involves inventory control, material handling, order administration and packaging. This term shall not include a trucking company terminal.~~

"NEW" Land Development. The improvement of one lot or two or more contiguous lots, tracts or parcels of land for any purpose involving; a group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively or; a single nonresidential building on a lot or lots regardless of the number of occupants or tenure; or the division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups or other features or; a subdivision of land.

"NEW" Loading Dock. An area of a building, specifically an opening up to ten (10) feet wide in an exterior wall where goods are loaded or unloaded.

"NEW" Tractor Trailer Truck Semi-Truck. A truck, truck tractor or combination having a gross vehicle weight rating, gross combination weight rating, registered gross weight, registered combination weight or actual gross weight of 17,001 pounds or more; or A truck, truck tractor or combination engaged in interstate commerce and having a gross vehicle weight rating, gross combination weight rating, registered gross weight, registered combination weight or actual gross weight of 10,001 pounds or more.

~~**Trucking Company Terminal.** A use involving a large variety of materials, including materials owned by numerous corporations, being transported to a site to be unloaded primarily from tractor-trailer trucks and reloaded onto tractor-trailer trucks.~~

"NEW' Truck Terminal. An area or structure where trucks load and unload goods, products, cargo, materials and/or freight and where the same may be broken down or aggregated into smaller or larger loads for transfer to other motor vehicles or modes of transportation or to other points of junctions.

Motor Freight Terminal. See "Truck -Trucking—Company Terminal."

~~**Warehouse.** A building or group of buildings primarily used for the indoor storage, transfer and distribution of products and materials, but not including retail uses or a truck terminal, unless such uses are specifically permitted in that zoning district.~~

"NEW" Warehouse/Distribution. A building or group of buildings primarily used for the unloading and indoor storage, transfer, and distribution of products and materials with a use of the processing of materials so as to sort out which finished goods are to be transported to different locations, and the loading and unloading of such goods. This use usually involves inventory control, material handling, order administration and packaging. This term shall not include a trucking company terminal.

The remainder of this page is left blank intentionally.

C. Section §27-306 Table of Permitted Uses by District.

Types of Uses	Business Districts					
(See definitions in Part 2)	**NC**	**HC**	**LI**	**LI(L)**	**GI**	**RT**
Industrial Uses						
~~Distribution as a principal use (other than trucking company terminal)~~	~~N~~	~~N~~	~~C~~	~~C[8]~~	~~C~~	~~N~~
Warehousing**, Distribution** (other than truck terminal) (§ 27-402), not including storage of explosives, fireworks, ammunition or gunpowder, except within a government-owned facility	N	N	~~C~~ **SE**	~~C[8]~~ **SE[8]**	C	N

KEY:

P = Permitted by right (zoning decision by Zoning Officer)

C = Conditional use (decision by the Board of Supervisors with review by Planning Commission)

SE = Special exception use (decision by Zoning Hearing Board)

N = Not permitted

(§ 27—402) = See additional requirements in § 27-402

(§27-403) = See additional requirements in § 27-403

(SW) = Public sewer and public water service both required

D. Section §27-402.000. Warehouse, Distribution or Wholesale Sales.

(l) See off-street loading requirements in § 27-605.

(2) No storage of garbage (other than is routinely produced on site and awaiting regular collection) shall be permitted. See the Township Fire Protection Ordinance.

(3) Uses that would involve the entrance to the use of an average of more than 100 tractor trailers per weekday shall be required to meet the additional site development standards in this § 27-402 for a trucking company terminal.

(4) See requirements in § 27-403 for "outdoor storage or display."

(5) "NEW" When permitted as a Special Exception, the applicant shall provide a detailed description of the proposed use in each of the following topics:

(a) The nature of the onsite activities and operations, the types of materials stored the frequency of distribution and restocking, the duration period of storage of materials, and the methods for disposal of any surplus or damaged materials. In addition, the applicant shall furnish evidence that the disposal of materials will be accomplished in a manner that complies with State and Federal regulations;

(b) The general scale of the operation, in terms of its market area, specific floor space requirements for each activity, the total number of employees on each shift, and an overall needed site size;

(c) Any environmental impacts that are likely to be generated (e.g., odor, noise, smoke, dust, litter, glare, vibration, electrical disturbance, wastewater, storm water, solid waste, etc.) and specific measures employed to mitigate or eliminate any negative impacts. The applicant shall further furnish evidence that the impacts generated by the proposed use fall within acceptable levels, as regulated by applicable laws and ordinance, including but not limited to those listed in Part 5 of this Ordinance;

(d) 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.

6) A traffic study prepared by a professional traffic engineer, according to Section §27812.

E. Part 6. Off-Street Parking and Loading:

Section §27-601.

Table 6.1

Off-Street Parking Requirements
(See definition of "employee" in Part 2)

Use	Number of Off-Street Parking Spaces Required	Plus 1 Off-Street Parking Space for Each:
E. Industrial Uses: All industrial uses (including warehousing, distribution truck terminals and manufacturing)	1 per 1.2 per employee, based upon the maximum number of employees on site at peak period of times (including any overlapping shifts) plus 10' x 80' truck staging parking space per each 1/2 of a required loading spaces	1 visitor space for every 10 managers on the site

Section §27-605 Off-Street Loading.

2. Design and Layout of Loading Facilities. Off-street loading facilities shall meet the following requirements:

A. Each off-street loading space shall be at least (in feet):

Largest Type of Truck Intended Minimum Width	Minimum Width	Minimum Depth
Tractor-trailer	~~12 (except 11if more than 10 such spaces on a lot)~~ **10**	80
Trucks other than tractor-trailers, pickups or vans	10	25
Pickup truck or van	9	18

"NEW." Each proposed use shall provide for the minimum number of off-street loading spaces;

Use	Gross Floor Area Square Feet	Minimum Number of Spaces
Retail, manufacturing, wholesaling, commercial, institutional, personal services, funeral homes and similar uses	Under 8,000	1

	8,000 to 40,000	2
	40,000 to 100,000	3
	100,000 to 250,000	4
	Each additional 200,000	1
Office buildings, hotels, motels and similar uses	Under 100,000	1
	100,000 to 300,000	2
	Over 300,000	3
Warehouse, Distribution, Truck Terminals, and similar uses	per Loading Dock	1

SECTION 3. EFFECTIVE DATE

This Ordinance shall become effective five (5) calendar days after the date of enactment.

SECTION 4. SEVERABILITY

In the event that any provision, section, sentence, clause or part of this ordinance shall be held to be invalid, such invalidity shall not affect or impair any remaining provision, section, sentence, clause or part of this ordinance, it being the intent of this Township that such remainder shall be and shall remain in full force and effect.

SECTION 5. REPEALER

All other Ordinances or parts of Ordinances inconsistent herewith shall be and the same expressly are repealed.

ENACTED AND ORDAINED the day of June, 2017 by the Board of Supervisors of the Township of Upper Macungie, Lehigh County, Pennsylvania, in a lawful session duly assembled.

Appendix B. Request for Information (RFI) on Tractor Trailer Parking Options (*City of Philadelphia, PA*)

REQUEST FOR INFORMATION
for
Tractor Trailer Truck Parking Options in the City of Philadelphia

Issued by:
THE CITY OF PHILADELPHIA ("City")
Managing Director's Office of Transportation and Infrastructure Systems ("OTIS")

This document contains a Request for Information (RFI) about options to provide long-haul and local-serving tractor trailer truck parking in the City of Philadelphia. The information obtained from this RFI will inform City policies, future actions, and potential contracting opportunities related to truck parking facilities in Philadelphia. Respondents to this RFI should follow the enclosed guidance when responding.

Responses must be received no later than 5:00 p.m., Eastern Standard time, on Friday, June 29, 2018.

Submit responses to:
Elizabeth H. Lankenau, AICP
Office of Transportation and Infrastructure Systems elizabeth.lankenau@phila.gov

---

James F. Kenney, Mayor
Michael A. Carroll, Deputy Managing Director, Office of Transportation and Infrastructure Systems

REQUEST FOR INFOMRATION: TRACTOR TRAILER TRUCK PARKING OPTIONS IN THE CITY OF PHILADELPHIA

RESPONSE CALENDAR

RFI release date Monday, May 14, 2018

Deadline for questions, requests for clarification, or additional information Friday, May 25, 2018

RFI response due date Friday, June 29, 2018

RFI CONTACT INFORMATION FOR REQUESTS

All questions concerning this RFI must be submitted via email **no later than 5:00 PM, Eastern Standard time, on Friday, June 29, 2018**, and directed to:

Elizabeth H. Lankenau, AICP
Office of Transportation and Infrastructure Systems elizabeth.lankenau@phila.gov

Responses to such questions and requests shall be at the City's sole discretion and nothing in the RFI shall create an obligation for the City to respond to the submitting party or at all. At the City's sole discretion, **responses may be posted on the City's website** (https://bigideasphl.com/) without formal notification to prospective respondents.

The City, at its sole discretion, may issue addenda to this RFI containing responses to questions and requests for information, clarifications of the RFI, revisions to the RFI, or any other matters that the City deems appropriate. Addenda, if issued, will be posted on the City's website at: https://bigideasphl.com/. It is the Respondent's responsibility to monitor the site for Addenda and to comply with its terms.

Oral responses by any City employee or agent of the City are not binding and shall not in any way be considered as a commitment by the City.

If a Respondent finds any inconsistency or ambiguity in the RFI or an addendum to the RFI issued by the City, the Respondent is requested to notify the City in writing.

UNDERSTANDING OF THE PROBLEM

Philadelphia and its surrounding region lack adequate facilities and resources for truck parking. This is documented in national, State, and regional studies, and is true for long-haul drivers as well as local owner-operators. The lack of parking is more than just an inconvenience; it is a matter of public health and safety for truckers and all of the people who share the roads with them.

The National Coalition on Truck Parking was formed in response to the Federal Highway Administration's Jason's Law. Passed in 2012, this law is named in honor of Mr. Jason Rivenburg, a truck driver who, unable to find a truck facility, was murdered while sleeping in his truck at an abandoned gas station. He was waiting for a delivery location to open. Addressing the shortage of truck parking has since become a national priority, and the United States Department of Transportation is required to conduct a survey of States to: 1) evaluate their capacity to provide adequate parking and rest facilities; 2) assess the volume of commercial motor vehicle traffic; and 3) develop a system of metrics to measure the adequacy of motor vehicle parking facilities.

Even before Jason's Law, the Pennsylvania State Transportation Advisory Committee prepared a report, *Truck Parking in Pennsylvania* (2007). It summarizes the main parking issues for the Commonwealth, which remain true more than a decade since its publication (pages 37-38):

There is a shortage of truck parking in Pennsylvania.
A shortage of truck parking compromises safety and contributes to other problems, such as environmental impacts and congestion issues.

The causes of the truck parking problem are complex, including Federal hours-of-service regulations, Pennsylvania's proximity to major consumer markets, increasing truck volumes, and continuous movement of goods.

Enforcement alone is not the answer. Enforcement officials are attuned to the Federal hours-of-service regulations imposed on drivers, and if there are no safe places for truck drivers to park, they may not want to wake a tired driver, which would create another safety hazard.

Truck parking demand will continue to grow. The Statewide Freight model predicted a 50 percent increase by 2030, and greater increases along major truck routes. Given this growth, and changes in hours of service regulations, maintaining the status quo will only exacerbate potentially unsafe conditions affecting all users of our streets and highways.

In urban areas, this problem is especially complex. There is likely no "one size fits all" approach to alleviate the problem, and although attention is growing, there are still no clear champions to solve the problem.

The Delaware Valley Regional Planning Commission (DVRPC) published its *Regional Truck Parking Study* in 2011. Like the aforementioned studies, it focused on overnight truck parking; however, it also looked at short-term parking needs. It acknowledges that drivers may need to wait for a distribution center to open, or wait for a local business to accept a delivery. Drivers need down time to get instructions for their next job, or simply to eat lunch. Absent parking options, some drivers may exacerbate traffic congestion by pulling over in shoulders or double parking. While limiting hours of delivery may address the congestion issue, it does nothing to provide an option to the truck drivers for their short-term needs.

This RFI asks that respondents join the City to seek adequate parking solutions for truck drivers in Philadelphia. The City seeks innovative ideas from all segments of the motor freight industry, understanding that the industry representatives best know the industry's various needs.

BACKGROUND

Leaders in the City of Philadelphia recognize the vital role of the trucking industry to the Philadelphia of today and tomorrow, and seek to provide safe, convenient, and affordable parking options for long-haul and locally based tractor trailer truck drivers. With trends showing that the trucking industry is growing, the need for parking options in the City is more than one of convenience for drivers, or solving a local land use problem, it is a public safety issue for all modes of transportation. Indeed, before the City can adequately enforce or restrict truck parking within the City, safe and legal parking options should be explored and communicated.

In 2017, the City of Philadelphia formed a Truck Circulation and Delivery Management Working Group to focus on issues related to goods movement. Most relevant to this RFI, the Working Group seeks to identify strategies, business models, and locations for tractor trailer parking to meet the needs of long-haul and owner-operator truck drivers.

As discussed above, robust documentation exists in national, State, and regional studies about the dearth of overnight parking facilities, including in southeastern Pennsylvania (*see Relevant References section*). Locally, however, only anecdotally has the City received complaints about tractor trailers parking overnight in residential areas and in unsafe locations, such as along roadway shoulders. While strong documentation of problem locations does not exist, DVRPC, the expert agency on truck issues in the region, has noted the following through the course of its ongoing research on the subject in Philadelphia:
Truck parking in residential neighborhoods does not appear to be a citywide problem, but is restricted to certain neighborhoods.

The toleration and perception of truck parking may vary from location to location.

Comprehensive data on truck parking violations is not readily available, something that is true of many aspects of truck activity in Philadelphia.

People generally grasp the gravity of the truck parking issue in a short conversation, but translating that to action has been difficult.

GOALS

Through this RFI, the City seeks input about how it can work with the trucking industry as well as related businesses and entities to safely and reliably present affordable parking options for tractor trailer drivers whose needs may vary.

Three (3) goals have been identified.

Goal 1: Identify opportunities and interest in establishing a full-service truck stop in Philadelphia, primarily for the use of long-haul truck drivers. The purpose would be to close the gap of parking spaces and services needed in the region for long-haul truck drivers.

Goal 2: Identify opportunities to establish safe, affordable, and convenient parking options for locally based tractor trailer drivers to park their vehicles when not in use, such as in a secured lot that leases spaces. The purpose would be to encourage truck drivers to park legally and away from areas deemed sensitive, such as residential areas, schools, parks, and recreation centers.

Goal 3: Identify short-term parking options for any trucker who needs to wait before making a pick up or drop off. The purpose would be to encourage drivers to park in safe locations while waiting or resting, but who may not need the services provided, or the expense incurred, at a full-service truck stop.

A series of questions appears in Appendix A, but broadly, this RFI seeks to understand the range of feasible facility types, to match these to our truck parking goals, and identify barriers that can be overcome to expand feasible options.

Ultimately, the City wishes to provide reasonable options to encourage truck drivers to park safely, affordably, and legally in appropriate locations as conveniently as possible. However, if respondents have suggestions about associated enforcement tactics to make the use of parking options more appealing, those ideas would be appropriate to raise in a Response.

Definitions

The following terms appear in this RFI and/or Appendix A, and for the purposes of this RFI are defined as follows:

Distribution Center—A warehouse facility that holds inventory pending distribution to the appropriate stores.

Local-Serving Truck Parking Facility—A simple parking lot facility. Could be made available to an owner-operator and/or private carrier who lives in the Philadelphia area and wants to rent a space, on a long-term basis, to store their vehicle overnight. Could be used for short-term waiting to make a drop off or pick up when a full-service truck stop is not needed or conveniently located.

Long-Haul Truck Drivers—Drivers of tractor trailers with delivery routes requiring drivers to sleep away from home for days or weeks at a time.

Owner-Operator—Truck operation in which the owner of the truck also is a driver.

Private Carrier—A carrier that provides transportation service to the firm that owns or leases the vehicles.

Queuing (or Standing)—Typically, onsite (or offsite) gathering of a number of trucks awaiting final delivery. For the purposes of this RFI, queuing is the term used for both types of gathering.

Trucks—The focus of this RFI is primarily large, tractor trailer type commercial vehicles. It includes unattended trucks, i.e., tractor trailers or their components (tractors, trailers, or chassis) that are not in use.

Truck Stop—A commercial facility, generally proximate to a major roadway network, that provides refueling, rest (parking), and often ready-made food and other services to motorists, especially truck drivers.

RELEVANT REFERENCES

Studies

Delaware Valley Regional Planning Commission. *Regional Truck Parking Study*. Philadelphia, PA: April 2011.

Federal Highway Administration: *National Coalition on Truck Parking: Activity Report, 2015-2016*. Washington, DC: June 2017.

Pennsylvania State Transportation Advisory Committee. *Truck Parking in Pennsylvania*: Final Report. Harrisburg, PA: December 2017.

Websites

Delaware Valley Regional Planning Commission. Philly Freight Finder: https://www.dvrpc.org/webmaps/phillyfreightfinder/.

Delaware Valley Regional Planning Commission. Delaware Valley Goods Movement Task Force: https://www.dvrpc.org/Freight/DVGMTF/.

WHO SHOULD RESPOND

The City seeks responses from truck service and parking providers; parking management companies with an understanding of the needs, risks, and liabilities associated with truck parking facilities, or that of a similar industry; distribution centers; local labor organizations; and associations or other organizations with specific knowledge of truck parking needs in Philadelphia. Respondents may work independently or partner with other professionals to develop a Response.

HOW TO SUBMIT

One (1) electronic copy in machine-readable format (PDF preferred, MS Word format also accepted) should be sent via email to elizabeth.lankenau@phila.gov with the subject line: **"RFI Submission: [Firm Name]—Tractor Trailer Parking Options."**

Please use the RFI Response Template provided in Appendix A for the Response. It is requested that, to the best of your ability, you use the numbering system in your format; if you choose to not respond to a question, please insert "N/A" to the corresponding number. If you group any questions into an answer, please indicate what numbers are being grouped. Email attachments should not exceed 10MB in total size. If large attachments are required, please use a file sharing service.

Respondents need not address every subject listed in the Response Template to respond to this RFI, but should identify the subject areas to be addressed, and describe the approach for each. Respondents may identify subject matter that is not listed, but in addition to the foregoing information, should explain why the subject matter is important to consider about truck parking options in Philadelphia.

Your submission shall include:

A cover letter that identifies the type of organization or business of the Respondent, summarizes the key portions of the response, and indicates if supporting documentation is included in the response. Cover letters shall not exceed two pages and should provide clear primary contact information for the Respondent.
The completed response itself, which should follow the format outlined in Appendix A, covering any or all of the areas of information requested by this RFI.

It is requested that you limit the size of your response to be no more than 25 pages (1" margin, 12 pt. font), including supporting documentation. The two-page cover letter is not included in this total. Reponses must be received no later than, **Friday, June 29, 2018, 5:00 PM, Eastern Standard time**.

Questions regarding this RFI are to be submitted to https://bigideasphl.com/. You will need to register on https://bigideasphl.com/to post your question(s). Only questions posted using the comment tool on https://bigideasphl.com/ will be answered.

The RFI review team will include City staff from OTIS and other City departments and applicable regional organizations. The review team will NOT include representatives of any firms or organizations contracted by the City of Philadelphia that provide truck parking operations in the City.

CONDITIONS REGARDING RESPONSES

The Respondent shall be fully responsible for all costs associated with the development, preparation, transmittal, and submission of any Response or material submitted in response to this RFI. The City assumes no contractual or other obligations as a result of the issuance of this RFI, the preparation or submission of a Response by a Respondent, the evaluation of Responses, or the selection of any Respondent for further discussions.

It shall be the Respondent's responsibility to ensure that its Response is complete, accurate, and submitted by the Submission Date and Time.

No oral response by any employee or agent of the City shall be binding on the City, or shall in any way constitute a commitment by the City.

Upon submission, a Respondent's Response shall be the property of the City and will not be returned.

USE OF RESPONSES

The Responses submitted by Respondents to this RFI may be used by the City in the process of preparing a contract opportunity. A contract opportunity may be proposed if the City determines that it would meet the goal of providing long-haul and/or local-serving truck parking options within the City of Philadelphia. A Response to this RFI is not a requirement to submit a proposal for a contract opportunity.

CONFIDENTIALITY AND PUBLIC DISCLOSURE

Respondents shall treat all information obtained from the City that is not generally available to the public as confidential and/or proprietary to the City. Respondents shall exercise all reasonable precautions to prevent any information derived from such sources from being disclosed to any other person. No other party, including any Respondent, is intended to be granted any rights hereunder. Respondents agree to indemnify and hold harmless the City, its officials and employees, from and against all liability, demands, claims, suits, losses, damages, causes of action, fines and judgments (including attorney's fees) resulting from any use or disclosure of such confidential and/or proprietary information by any Respondent or any person acquiring such information, directly or indirectly, from any Respondent.

RIGHTS AND OPTIONS RESERVED

In addition to the rights reserved elsewhere in this RFI, the City reserves and may, at its sole discretion, exercise any or more of the following rights and options with respect to this RFI if the City determines that doing so is in the best interest of the City:

To reject, or decline to consider, any Response or all Responses; to cancel the RFI at any time; to elect not to proceed with further discussions with a Respondent or with any Respondent; or to reissue the RFI, or to issue a new RFI (with the same, similar, or different terms).

To waive, for any Response, any defect, deficiency, or failure to comply with the RFI (collectively, “Defect”) if, in the City’s sole judgment, the defect is not material to the response.

To extend the Submission Date/Time and/or to supplement, amend, substitute, or otherwise modify the RFI at any time prior to the Submission Date/Time, by posting notice thereof on the City webpage(s) where the RFI is posted.

To require permit, or reject amendments (including, without limitation, submitting information omitted), modifications, clarifying information, and/or corrections to Responses by some or all
Respondents at any time before or after the Submission Date/Time.

To require, request, or permit, in discussion with any Respondent, any information relating to the subject of this RFI that the City deems appropriate, whether or not it was included, described, identified, or otherwise reflected in the Response.

At any time determined by the City, to discontinue discussions with any Respondent or all Respondents regarding the subject matter of this RFI, and/or initiate truck parking options with any other Respondent or with entities that did not respond to the RFI.

To do any of the foregoing without notice to Respondents or others, except such notice as the City, in its sole and absolute discretion, elects to post on the City webpage(s) where this RFI is posted.

This RFI, and the process described, are proprietary to the City, and are for exclusive benefit of the City. Upon submission, Responses to this RFI shall become the property of the City, which shall have unrestricted use thereof. The City will not accept any information considered as confidential or proprietary information. Responses may be subject to public disclosure under the Pennsylvania Right-to-Know Law.

By submission of a Response, Respondent acknowledges and agrees that the City, as a municipal corporation, is subject to State and local public disclosure laws and, as such, is legally obligated to disclose to the public documents, including any response, the extent required thereunder. Without limiting the foregoing sentence, the City’s legal obligations shall not be limited or expanded in any way by a Respondent’s assertion of confidentiality and/or proprietary data.

APPENDIX A: RFI RESPONSE TEMPLATE

1. GENERAL INFORMATION		
1.1	Organization Name:	
1.2	Street Address:	
1.3	City, State, Zip:	
1.4	Primary Business:	
1.5	Point of Contact Name:	
1.6	Title:	
1.7	Phone:	
1.8	Email:	
1.9	Organization Web Address:	
2. PROPOSAL INTRODUCTION		
2.1	Provide a profile of your company/organization's operations, including the number of years the company/organization has been in business; number of full-time employees; and brief description of the services or products offered. If your response represents collaboration, please describe the type of subcontractors or partners with whom you are responding. Résumés need not be included.	
2.2	Describe your company/organization's relevant experience (and that of partners, when applicable) in Philadelphia and/or elsewhere.	
3. PROPOSAL BODY		
GENERAL QUESTIONS		
3.1.1	Given its diverse economy and the large geographic area it serves, how much overnight truck parking should be located within the City of Philadelphia? Please differentiate between traditional truck stops and parking serving locally based owner operators.	
3.1.2	What are the major distinctions between parking facilities for long-haul versus locally based needs? How are those needs similar and different?	
3.1.3	Could a hybrid model affordably, safely, and conveniently support both long-haul and locally based parking needs? If so, how might this operation work?	
3.1.4	What is the best way to inform truck drivers of available spaces at truck parking facilities?	
3.1.5	Are you aware of what incentives other cities have provided to encourage truck parking facilities, either truck stops and/or locally based owner-operator options, to open within their boundaries (e.g., tax incentives, favorable lease agreements, expedited permitting, etc.)?	
3.1.6	What successful enforcement practices have you seen in other cities to encourage drivers to make use of the legal parking options available to them?	
LONG-HAUL TRUCK PARKING OPTIONS **Goal 1: Provide a full-service truck stop in Philadelphia, primarily to serve the needs of long-haul truck drivers.**		
3.2.1	Where would full-service, amenity-driven truck stops be most appropriately located in Philadelphia? What parts of the City are in most need? Near what roadway network(s)?	

3.2.2	Would one, large, strategically located truck stop be preferable to a few smaller Truck Stops located in key areas of the City?
3.2.3	What types of services and amenities are needed in the Philadelphia area for long-haul truckers?

3.2.4	What is the minimum size parcel (and/or number of parking spaces) that a truck stop operator would require to open a business in Philadelphia?
3.2.5	Would a truck stop operator prefer to own land or enter into a long-term agreement with the City? If an agreement is acceptable, what is the minimum term needed?
3.2.6	What major obstacles exist to operating a truck stop in Philadelphia? Examples might include: perception that no land is available or too expensive, the cost of doing this type of business is too expensive in Philadelphia, unclear point of contact on proposing this use to the City, neighborhood opposition, etc.
3.2.7	What incentives would you recommend that the City consider to create a new a truck stop in Philadelphia?
LOCAL-SERVING TRACTOR TRAILER TRUCK PARKING OPTIONS **Goal 2: Provide safe, affordable, and convenient parking options for Philadelphia-based tractor trailer drivers to park their vehicles when not in use, such as in a secured lot that leases parking spaces.** **Goal 3: Provide short-term parking options for any trucker who needs to wait (or rest) before making a pick up or drop off in Philadelphia.**	
	Leased Parking and Queuing
3.3.1.a	For leased parking spaces and/or queuing, are there basic site needs that would be required versus preferred? Examples may include fencing, lighting, bathrooms, electronic access, other types of security, regular cleaning service, etc.
3.3.1.b	Are there other services or amenities that are desirable (e.g., repair station, small convenience shop, etc.)?
3.3.1.c	What is the minimum size parcel that would make a truck parking facility operationally efficient and convenient?
3.3.1.d	When considering the need for leased parking spaces and/or queuing, would distribution centers in a concentrated area be willing to consider pooling their parking resources for maximum benefit? If not, why not?
3.3.1.e	What are the hours of operation that would make a local serving truck parking facility most effective? Should this be a 24-hour accessible facility?
3.3.1.f	Do you know of any formal or informal agreements with big box stores, self-storage sites, shopping centers, and/or private distribution centers for local owner-operators to use the lots for parking vehicles to queue while they wait or overnight?
3.3.1.g	If so, how well has this shared use arrangement worked for both parties? What improvements are needed? How might this model be strategically expanded so that more options are available where needed?
3.3.1.h	If not, would this type of shared use agreement be preferable to opening a lot dedicated to the needs of local owner-operators?
	Leased Parking

3.3.2.a	Is there a business case to be made that local-serving, lease arrangement, truck parking facilities would be well used in Philadelphia? If so, this is based on what market research? How might increased enforcement, or added restrictions, affect this demand?
3.3.2.b	What might the price range be for leased truck parking rates for local owner-operators (weekly, monthly, yearly)?
3.3.2.c	For a lease-arrangement parking lot, would a local-serving truck parking facility provider prefer to own land or enter into a long-term agreement with the City? If an agreement is acceptable, what is the minimum term needed?
3.3.2.d	If leasing land from the City, what are the general risks and liabilities that the City should consider when contemplating working with a local-serving truck parking facility provider or parking management company?
	Queuing
3.3.3.a	Where in Philadelphia is there a need for short-term truck parking to minimize the need for queuing in roadway shoulders or other types of illegal parking?
	OTHER
3.3.4	Please use this section to include information or recommendations that have not been addressed elsewhere in your response. Respondents are encouraged to present any truck parking options that may not have been prompted by the questions proposed in this RFI.

Appendix C. Summary of Responses from RFI on Tractor Trailer Parking Options (*City of Philadelphia, PA*)

CITY OF PHILADELPHIA
otis
MANAGING DIRECTOR'S OFFICE OF TRANSPORTATION & INFRASTRUCTURE SYSTEMS

Memorandum

TO: Michael A. Carroll, Deputy Managing Director
Office of Transportation and Infrastructure Systems

FR: Liz Lankenau, Director, Infrastructure Program Coordination

DT: July 9, 2018

RE: Summary of Responses
RFI: Tractor Trailer Truck Parking Options in the City of Philadelphia

Purpose

The Managing Director's Office of Transportation and Infrastructure Systems issued a Request for Information (RFI) to seek professional guidance on the factors to consider to increase the legal supply of tractor trailer truck parking in the City of Philadelphia. The information obtained from this RFI will inform City policies, future actions, and potential contracting opportunities related to truck parking facilities in Philadelphia. The RFI was issued on Monday, May 14, 2018, and closed on Friday, June 29, 2018.

Summary

Three companies responded, in whole or in part, to the questions in the RFI.

One company focused narrowly on its hardware and software systems to provide real-time truck parking data through roadway dynamic message signs; this company has worked with several State departments of transportation and with major national truck stop operations.

Two respondents addressed the RFI completely.

One respondent is based in the Philadelphia region. The company operates an 8acre tractor trailer body shop with rentals and sales in Philadelphia as well as a private, 100-acre truck parking facility in Bensalem. The other respondent comprises a team of technology, planning, and facility management firms. The prime is headquartered in Detroit, MI. The team offers a hardware and software package to monitor and manage real-time truck parking availability, including the ability for truckers to make reservations at some locations. It has contracts in five States with public and private truck parking facilities and, by the end of 2018, it will operate and maintain approximately 100 truck parking facilities.

A fourth company, based in Philadelphia, called stating that it has a nine-acre lot near the airport that could be made available for truck parking. This opportunity is being explored further.

Responses to Key Issues

Rather than differentiating parking needs between long-haul and local owner operators as presented in the RFI, the respondents agreed that hybrid facilities to accommodate both types of parking needs are not only feasible on one site but may be a more efficient use of space.

Rather than one, large, full-amenity truck stop facility, smaller “truck yard” facilities located near destinations are preferred. As a guideline, a 10-acre minimum is preferred; however, a site could be smaller depending on its configuration. Sites proximate to I-95 and the port facilities were noted as potentially ideal locations.

Both respondents stated that the preference to own or lease land would depend on the its price. If leasing, the Detroit respondent said a minimum 20-year lease term would be needed to recoup build-out costs. The local owner operator reported that truckers would pay $100/wk, $250/mo, or $2400/yr to rent a space in a secure facility.

While the local respondent believes that Philadelphia could support a truck parking facility that offers repair and small convenience store services, the Detroit respondent believes that the demand in the City is for basic but secure overnight parking and longer-term storage with minimal amenities. Basic amenities would include: fencing, lighting bathrooms, electronic access, security cameras, regular cleaning service, WiFi, snow removal, and lot maintenance and repair.

Parking facilities must operate 365/24/7. All truckers, whether long-haul or locally based, require safe and secure parking. Ideally, truckers should be able to easily find out where parking is available through real-time roadway signs or hand-held technology.

With proper technology, it is possible to have safe and secure—and unmanned—parking facilities. In addition to driver safety, it is important to secure cargo.

Available truck parking is best made known through: 1) installing roadway dynamic message signs at specified distances from each parking facility showing real-time status and the availability trend, 2) posting the same information on a website, or 3) leveraging real-time data sharing so third parties can access it and deliver that information to carriers via in-cab service devices. Reliable information is key to the success of dynamic systems.

Local municipalities can assist parking facility companies through favorable tax incentives, long-term agreements, reduced utility rates, introduction to State and/or local grants, acceleration of permits, and/or assistance with construction permit requirements. Physical installation could take as little as 60 days, or beyond 240 days, depending on some of the aforementioned factors, such as how long it takes to secure a permit.

Large venues that are empty much of the time, such as sports arenas on nonevent days, could be used for parking with the assistance of a parking management company.

Co-locating parking at distribution facilities may not be desirable to the distribution facility owner for numerous reasons; however, the Detroit respondent is expecting to demonstrate a solution that is feasible for distribution center parking before the end of the year.

Agreements with big box stores, shopping centers, and self-storage sites have been informal, based on trial-and-error, and many have been discontinued. Informal agreements do not address safety and security for the driver or cargo.

As new parking options are added to the inventory, illegal parking is greatly reduced. During the marketing/awareness period, enforcement officers can provide truckers with a warning and advertising brochure rather than a ticket.

Next Steps

- Consult with the Philadelphia Parking Authority about their ability to operate sites for leasing. The preference is to provide some legal parking options prior to towing; however, once a legal supply of parking is provided, lots for towing will be needed.
- Using clearly defined criteria, continue working with the Planning Commission and the Commerce Department to identify and map potential public and private sites that could be available for truck parking.
- During the duration of this RFI posting, two sites have been identified in southwest Philadelphia. The suitability of these sites for a truck parking use need to be confirmed, and the mechanism to using them for parking must be determined (lease through PPA or another party, such as one of the respondents).

Appendix D. Comparison of Competitive Rail Grant/Loan Programs

Table D.1 Comparison of State Rail Assistance Programs

Name of Project:	Minnesota Railroad Service Improvement Program	Connect Oregon	Short Line Credit Premium Account	Industrial Rail Spur Fund	Railroad Revolving Loan and Grant Program	Freight Railroad Preservation Program	Freight Railroad Infrastructure Improvement Program	Shortline Railway Preservation and Development Fund	Rail Enhancement Fund	Freight Rail Investment Bank	Freight Rail Assistance Program	Freight Rail Improvement Program	Rail Freight Assistance Program
Abbreviation:	MRSI	CO			RRLG	FRPP	FRIIP		REF	FRIB	FRAP	FRIP	RFAP
Website:	https://www.dot.state.mn.us/ofrw/railroad/mrsi.html	https://www.oregon.gov/odot/programs/pages/connectoregon.aspx			https://iowadot.gov/iowarail/financial-assistance/rrlgp	http://www.dot.wisconsin.gov/localgov/aid/frpp.htm	http://www.dot.wisconsin.gov/localgov/aid/friip.htm			https://www.wsdot.wa.gov/Freight/Rail/GrantandLoanPrograms.htm	https://www.wsdot.wa.gov/Freight/Rail/GrantandLoanPrograms.htm	http://1.usa.gov/1zMznP2	http://www.dot.state.pa.us/Internet/Bureaus/pdBRF.nsf/RailFreightHomepage?OpenFrameSet&frame=main&src=RailPlan2035?OpenForm
State:	Minnesota	Oregon	Oregon	Oregon	Iowa	Wisconsin	Wisconsin	Virginia	Virginia	Washington	Washington	North Dakota	Pennsylvania
Agency/ Department that runs the program:	MNDOT	ODOT	ODOT	ODOT	Office of Rail Transportation at the Iowa Department of Transportation	WIDOT Railroads and Harbors Section	WIDOT Railroads and Harbors Section			WSDOT	WSDOT	NDDOT	
Grant and/or Loan Program?	Loan/Grant	Grant	Loan/Grant	Loan/Grant	Loan/Grant	Grants	Loans	Grants	Grants	Loan	Grant	Loan	Grant
Established by:	State Legislation (MN Statute 222.50) 222.46-222.54 cited as the Minnesota Rail Service Improvement Act.	HB 2017. Oregon Revised Statutes 367.080—367.089 and Oregon Administrative Rules Chapter 735, Division 35.	ORS 367.067	Chapter 741, Oregon Laws 2003	Iowa Code section 327H.20A	Wis Stats 85.08 and 85.09	Wis Stats 85.08 and 85.09			Washington State law (RCW 47.76)	Washington State law (RCW 47.76)		
Eligible Applicants:	Railroads, rail users, and political subdivisions of Minnesota and the Federal Government that seek to complete a major improvement or rehabilitation of railroad rights of way or other railroad facilities.	Public Body or Person within the State of Oregon. If applicable, current on all State and local taxes, fees and assessments, with sufficient management and financial capacity to complete the Project. Without limitation, has the ability to contribute 30 percent of the Recipient's Total Project Cost Not a railroad owner that operates a railroad wholly within the boundaries of Benton and Linn counties that neither charges landowners a fee for an easement to cross a railroad that is necessary for the landowner to access the landowner's property; nor has imposed or collected fees for such an easement on or after January 1, 2013.	Class II or III railroads. The applicant is a short line railroad. The Project will not require or rely upon continuing subsidies from the Department. The applicant is current on all State and local taxes, fees and assessments.		Eligible applicants are cities, counties, development organizations, businesses, rail companies, and alliances of such organizations.	Local units of Government, industries, railroads "An eligible applicant must be a county, municipality, town or agency thereof, a railroad, a current or potential user of freight railroad service or a transit commission."	Railroads, rail service customers, and units of Government	"Shortline Railroads operating in the Commonwealth of Virginia—as recognized by the Surface Transportation Board."	"Shortline Railroads operating in the Commonwealth of Virginia—as recognized by the Surface Transportation Board."	Open to organizations in the public sector only, as loans to the private sector are outside the constitution of the State.	Open to applicants in both the public and private sector. Open to cities, county rail districts, counties, economic development councils, port districts, and privately or publicly owned railroads.	Cities, counties, railroads, rail authorities, and other current or potential users of freight railroad service.	Financial assistance is available on a matching grant basis to railroad companies, transportation organizations, municipalities, municipal authorities and users of rail freight infrastructure whose proposals, at a minimum, meet certain project eligibility requirements.
Eligible Projects:	Varies by project category.	The Connect Oregon program funds critical nonhighway infrastructure in the State with following eligibility: • Transportation Project as in a project or undertaking for transit, rail, marine, aviation and bicycle, and pedestrian capital infrastructure, including bridges, paths and ways, or a project that facilitates the transportation of materials, animals or people. • Will assist in developing a multimodal transportation system that supports State and local Government efforts to attract new businesses to Oregon or	Repair and refurbishment of trackage, right of way, structures or appurtenances of a shortline railroad's rail line for the purpose of either restoring the line to rail service or upgrading infrastructure to meet Legislative criteria set forth in OAR 741-025-0040.	"Project" means installation and/or upgrading of industrial spur track. A Project may also include the upgrade of trackage at an industrial facility to handle 286,000-pound GWR rail car shipments or the installation and/or upgrade of trackage that is adjacent to the project and is necessary for the proposed project to function properly. "Industrial Spur Track" means a segment of trackage used for the rail	The program provides financial assistance to improve rail facilities that will create jobs, spur economic activity and improve the rail transportation system in Iowa in three separate categories: • Targeted job creation. These rail projects are those that provide immediate, direct job opportunities. • Loans and grants are available. Grant funding is contingent on job creation and retention commitments by the applicant and loans can supplement grants if the project cost exceeds that available in grant funding. A local	Preserving essential rail lines and rehabilitation following purchase.	Improvements to rail system and other rail-related projects such as loading and transloading facilities.			Directed toward larger projects where it is difficult to gain a contribution and where the rail location or the project is of strategic importance to the local community and the State.	System Critical, Infrastructure improvements or Economic Development projects.	The intent of the program is to: 1. Preserve essential rail freight service where economically feasible. 2. Preserve or stimulate economic development through the generation of new or

Name of Project:	Minnesota Railroad Service Improvement Program	Connect Oregon	Short Line Credit Premium Account	Industrial Rail Spur Fund	Railroad Revolving Loan and Grant Program	Freight Railroad Preservation Program	Freight Railroad Infrastructure Improvement Program	Shortline Railway Preservation and Development Fund	Rail Enhancement Fund	Freight Rail Investment Bank	Freight Rail Assistance Program	Freight Rail Improvement Program	Rail Freight Assistance Program
		that keeps and encourages expansion of existing businesses. • Eligible for funding with lottery bond proceeds under the Oregon Constitution and laws of the State of Oregon. • Will not require or rely upon continuing subsidies from the Department for ongoing operations. • The Project is feasible, including the estimated cost of the Project, the expected results from the proposed Project for each of the considerations as prescribed in 731-035-0060, the Project schedule, and all applicable and required permits may be obtained within the Project schedule.		transportation of raw materials and finished products between manufacturing facilities and mail line rails or that serves a transloading, reloading and teaming facility."	match is required for both grants and loans. • Rail network improvement. These rail projects are those that support existing rail lines and service or improve industrial access when no direct job creation is involved. Only loans are available in this category. Loans will be offered at 0% for a 10-year term. Loan requests require a 20% matching contribution. • Rail Port Planning and Development. Grants of up to $100,000 are available for planning studies that enable a community, county, or region to make fact-based decisions concerning the location, design, or funding requirements for a rail port facility. The end result of a planning study should help decision-makers evaluate rail development options that support industrial and business progress and economic growth in the community and region. Grant requests require a 20% matching contribution.								expanded rail freight service.
Ineligibility:		• Projects eligible for funding from highway fund revenues that come primarily from State fuel taxes, vehicle title and registration fees, and heavy truck fees (section 3a, Article IX of the Oregon Constitution, the Highway Trust Fund), are not eligible for Connect Oregon funding. • Public transit projects are no longer included in Connect Oregon.											
Project Categories:	1. Capital improvements (loan). 2. Rail line rehabilitation (loan). 3. Rail purchase assistance (loan). 4. Freight Rail Economic Development (grant). 5. State rail bank. 6. Rail user and rail carrier loan guarantee.	Connect Oregon Part One Transportation projects that involve one or more of the following modes of transportation: • Air. • Marine. • Rail. • Bicycle and pedestrian. Connect Oregon Part Two Transportation projects that: • Are transportation projects of statewide significance. • Enhance or maintain one or more of the following modes of transportation: Air; Marine; Class I railroads; Class II railroads; or Class III railroads.			• Job creation. • Rail spur construction service specific industrial development projects. • Rail network improvement. • Projects support the sustainability of the existing rail system. • Rail Port Planning and Development (Fig. 29, FRED). • Rail port planning/development studies that collect info and create databases that enable a community, county, or region to make fact-based decisions concerning the location, design, or funding requirements for a rail port facility.	"The program provides grants up to 80% of the cost: 1) to purchase abandoned rail lines in an effort to continue freight service, or for the preservation of the opportunity for future rail service; and 2) to rehabilitate facilities, such as tracks or bridges, on publicly owned rail lines."	"The FRIIP provides up to 100% loans for rail projects that: connect an industry to the national railroad system; make improvements to enhance transportation efficiency, safety, and intermodal freight movement; accomplish line rehabilitation; and develop the economy."	"Funds capital improvements on shortline networks. Typical projects include programmatic tie upgrades, rail upgrades and replacement (jointed and welded rail), signal system improvements, yard improvements, construction of sidings and upgrade of road crossings."					
Project Funding Cap:	Depends on project category.[78] 1. $200k max. 10-year repayment. 2. 70–80% of total project cost to rail carrier. Rail users must loan a minimum of 10% of the	Up to 70% of project costs. A minimum 30% cash match is required from the recipient for all grant-funded projects (except Class I Railroads which now have a 50% match).	1. Grants shall cover 100% of any Credit Risk Premiums set forth in the granting of a Federal RRIF loan. 2. No one Project shall receive more than 30% of the funds available to the Program outside of projects for RRIF financing.		• Max $6,000 per job for job creation grants, 50% match. Max $12,000 per job for job creation loans, 20% match. • 20% match for rail network improvement.	80% (100% of real estate acquisition costs) of project costs max funding.	$3 million ($1.5 million limit for nonrail purposes such as loading equipment, grain bins, warehousing),		"Requires achievement of carload volumes over 15 years. Non-achievement results in payback with interest."	Loan maximum is $250,000, but could be higher depending on the amount of qualifying	Not restricted.	The maximum State funding for a RFAP project is 70% of the total project costs, not to exceed $700,000. The funding for the construction portion

Name of Project:	Minnesota Railroad Service Improvement Program	Connect Oregon	Short Line Credit Premium Account	Industrial Rail Spur Fund	Railroad Revolving Loan and Grant Program	Freight Railroad Preservation Program	Freight Railroad Infrastructure Improvement Program	Shortline Railway Preservation and Development Fund	Rail Enhancement Fund	Freight Rail Investment Bank	Freight Rail Assistance Program	Freight Rail Improvement Program	Rail Freight Assistance Program
	project cost to the rail carrier. Rail carrier must provide 20% minimum of the project cost. 10–15 year repayment. 3. 50% of property value maximum. 4. No cap. Limited only by funding availability. 5. N/A. 6. Guarantees up to 90% of the loan.		3. Any railroad and/or shipper contributions can be cash, or a combination of cash and in-kind services. 4. Grants and loans will be awarded only when there are sufficient funds available to cover the costs of the loans and grants.		• $100,000 max for Rail Port Planning and Development, 20% match.		and 100% of project costs max funding.		"Funding requires a 30% match by the applicant, from sources other than REF funds."	applications received and the caliber of proposed projects. Additionally, all applicants must provide a minimum 20% match.			of any project is up to $250,000 for the "new" construction portion of the project. The final grant award will be based upon actual bid costs or agreed upon prices if work is to be performed by your own labor forces. Because the dollar value of requests for State financial assistance usually exceeds available funding, not all grant applications can receive funding assistance or the full amount requested.
Total Funds Available:	$56 million since 1976	$0. All of the fund has been distributed to four projects by the legislature.			Loans will be offered for a maximum term of 10 years at 0% interest. Both grants and loans require the applicant to provide a local match as detailed for each type of award.	"The 2013–2015 State budget provides $52 million for the biennium in bonding authority for the program."	"Since 1992, $123 million in FRIIP loans have been awarded. Today's available funding is from the repayment of prior loans."	"Grant funding varies and projects are evaluated on an annual bases for public benefit."	"Grant funding varies and projects are evaluated on an annual bases for public benefit."	2019–2021 biennium, $7 million is available.	2019–2021 biennium, a total of $7.6 million is available for Freight.	Up to $5 million, depending on funding availability.	
Average Annual Amounts Add to Program:	~$2 million	$427 million over 6 cycles until 2017. (44% used for rail projects).			$2–$3 million (Fig. 29, FRED) Min. $200,000 set aside, up to 10% (Fig. 29, FRED)								
Funding Sources:	State general obligation bond funds	• Tax-exempt lottery-backed bonds, authorized by the legislature. • Moneys transferred to the fund under ORS 320.435 and 320.440. • Moneys appropriated to the fund by the Legislative Assembly. • Earnings on moneys in the fund. • Lottery bond proceeds. • Moneys from any other source.	Amount of money appropriated by the Legislature to the Short Line Credit Premium Account.	Lottery bonds.	"Appropriations (Rebuild Iowa's Infrastructure Fund or General Fund) and loan repayment; Special appropriation in 2011." (Fig. 29, FRED)	Bonding authority.	Currently by revolving loan funds.						
Funding Schedule:	Quarterly	No competitive process at this time. Because available funds must first go to the projects listed below, there will not be funding available in the 2017–2019 biennium for a competitive Connect Oregon program like the ones in the previous 6 versions of the program. After the 4 projects listed above have been funded, and if funding is available, ODOT will announce next steps, such as for a competitive grant process that may occur in 2019–2021 or 2021–2023 biennia. The Oregon Transportation Commission is directed to distribute Connect Oregon funds to 4 specific projects:	The Department will announce periods for submitting applications for funding from the Short Line Credit Premium Account, as funding is available. "This is a program established as an account in the Oregon Transportation Infrastructure Fund. Funds in the Short Line Credit Premium Account are continuously appropriated to ODOT to provide funding in the form of grants for shortline operators to enable them to receive a loan under RRIF.28. "https://www.oregon.gov/ODOT/Planning/Documents/OSRP_TechMemo_InvestmentProgramTechnicalReport.pdf page A-10.	"In 2003, the Oregon Legislature authorized $4 million for the issuance of lottery bonds for the purpose of financing grants and loans to fund industrial rail spurs. No further funding has been authorized for the program. Funding may become available as loans are repaid. This authorized program could be a mechanism for future rail funding, should the Oregon Legislature recapitalize the fund." https://www.oregon.gov/OD	Applications accepted anytime. Reviewed typically one time per year when funds are available—usually following the adjournment of the State legislature.						The legislature determines how those funds will be spent based upon the applications submitted through WSDOT. The legislature may choose to increase or decrease the actual funding made available.

Name of Project:	Minnesota Railroad Service Improvement Program	Connect Oregon	Short Line Credit Premium Account	Industrial Rail Spur Fund	Railroad Revolving Loan and Grant Program	Freight Railroad Preservation Program	Freight Railroad Infrastructure Improvement Program	Shortline Railway Preservation and Development Fund	Rail Enhancement Fund	Freight Rail Investment Bank	Freight Rail Assistance Program	Freight Rail Improvement Program	Rail Freight Assistance Program
		• Treasure Valley Intermodal Facility ($26 million). • Rail expansion in East Beach Industrial Park at the Port of Morrow ($6.55 million). • Brooks rail siding extension ($2.6 million). • Mid-Willamette Valley Intermodal Facility ($25 million).		OT/Planning/Documents/OSRP_TechMemo_InvestmentProgramTechnicalReport.pdf page A-10.									
Scoring Criteria:	• Eligibility • Project information (15%) • Rail service impacts (30%) • Economic impacts (30%) • Project readiness (5%) • Project funding (20%)	Connect Oregon Part One • Reduction in transportation costs for Oregon businesses or improved access to jobs and labor sources. • Economic benefit to State. • Critical links connecting Oregon transportation system that will improve utilization and efficiency. • Percent match. • Ready for construction. • Useful life expectancy with maximum benefit to State. • Near aggregate mining or processing. Connect Oregon Part Two Class II or III railroad enhancement transportation projects: • Allows a Class II or III railroad to transport a substantial volume or value of freight in relation to other Class II or III railroads. • Connects a Class II or III railroad to a deepwater port. • Improves efficiency of the line. • Improves capacity of the line. • Connects to new or expanding businesses requiring rail service. • Improves connectivity with Class I railroads. Class II or III railroad maintenance transportation projects: • Maintains or increases functionality of the railroad. • Maintains or improves a critical bridge, tunnel, or other structure necessary to maintain rail service. • Provides jobs to economically disadvantaged areas, as determined by the Oregon Business Development Department by rule. • Helps protect critical rail infrastructure from seismic vulnerability. • Improves railroads that serve industries that are important to this State. • Increases the volume or value of freight. • Improves connections to highways or intermodal terminals.	1. In evaluating eligible Projects to determine which shall receive infrastructure assistance, the Department shall consider: a. The amount of funds available in the Short Line Credit Premium Account. b. Whether the Project has a demonstrable public benefit. c. Whether the Project leverages railroad and shipper contributions. d. (d) Whether the Project regains or creates jobs in economically distressed areas of the State. 2. In evaluating eligible projects to determine which shall receive infrastructure assistance, the department shall give priority to eligible Projects that: a. Enhance public safety. b. Enhance the environment. c. Appear creditworthy, providing financially secure sources of repayment to secure a Federal credit instrument. d. Promote rural economic development. e. Reduce demand for expansion of highway capacity. f. Enable Oregon companies to be more competitive in regional, national, and international markets. g. Preserve or enhance rail or intermodal service to small communities or rail areas. h. Will be operated by a short line railroad with Federal credit assistance under the RRIFP.		"Proposed projects receive a rating that generates a point score for the purpose of establishing a project's qualification for funding and the rank of individual qualified projects for funding priority. A score of 30 points or greater is required for a proposed project to qualify for assistance."		"In order to evaluate proposed projects, ten criteria are used. Proposed projects are rated on each criterion. The rating system generates a point score for the purpose of establishing project qualification for funding and the rank of individual proposed projects from most to least points scored."				Projects must be shown to maintain or improve the freight rail system in the State and benefit the State's interests. Require the applicants to provide a business plan for the project as well as and a benefit/cost calculation to ensure they are generating public benefits.	The six criteria are: 1. Benefit/cost ratio. 2. Line traffic density (same as LRFA). 3. System connectivity enhancement. 4. Enhancement to North Dakota's economy. 5. Safety and security enhancement of the ND rail system. 6. Environmental and community impacts. More detailed application information is in the application instructions.	

Name of Project:	Minnesota Railroad Service Improvement Program	Connect Oregon	Short Line Credit Premium Account	Industrial Rail Spur Fund	Railroad Revolving Loan and Grant Program	Freight Railroad Preservation Program	Freight Railroad Infrastructure Improvement Program	Shortline Railway Preservation and Development Fund	Rail Enhancement Fund	Freight Rail Investment Bank	Freight Rail Assistance Program	Freight Rail Improvement Program	Rail Freight Assistance Program
Data sources:	• Minnesota Comprehensive Statewide Freight and Passenger Rail Plan. Institutional Relationships. 2010. Section 2.3 and 3.0 • Minnesota—mrsi-grant-application-2018 • FRED, 2013 Draft	• Website. • Funded Project Lists. • Modal Allocation. • Connect Oregon VI Administrative Rules. • Connect Oregon Fund Statute ORS 367.080.	https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=3502	https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=3501	• Website • https://iowadot.gov/iowarail/assistance/documents/RRLGProgramGuidelines.pdf • https://iowadot.gov/pol_leg_services/Funding-Guide.pdf	http://sp.rail.transportation.org/Documents/WI2%20SLR%20Financing%20Program%20Profile.pdf	http://sp.rail.transportation.org/Documents/WI1%20SLR%20Financing%20Program%20Profile.pdf	http://sp.rail.transportation.org/Documents/VA1%20SLR%20Financing%20Program%20Profile.pdf	• http://sp.rail.transportation.org/Documents/VA2%20SLR%20Financing%20Program%20Profile.pdf • http://www.drpt.virginia.gov/rail/grants/	https://www.wsdot.wa.gov/NR/rdonlyres/B2D64F76-7595-4DB5-9447-77C338949947/0/FRIBFRAPApplicationPacket2018FINAL.pdf	https://www.wsdot.wa.gov/NR/rdonlyres/B2D64F76-7595-4DB5-9447-77C338949947/0/FRIBFRAPApplicationPacket2018FINAL.pdf	http://sp.rail.transportation.org/Documents/ND%20SLR%20Financing%20Program%20Profile.pdf	

78 List aligns with project categories list.