Arizona Statewide Truck Parking Plan

Final Report

Truck Parking Implementation Plan

February 2024

Prepared For:
Arizona Department of Transportation

Prepared By:
Jacobs

Executive Summary

Truck parking is an essential component of freight infrastructure along the state highway system. With an increase in the number of trucks on the road, the demand for truck parking also has increased, leading to a shortage of safe and secure parking facilities for drivers. The increase in the need for truck parking is driven by multiple factors, including the need for truck drivers to take breaks during long trips, regulations that limit hours of operation, increasing industry reliance on truck deliveries, and consumers demanding faster delivery services. Consequently, there has been an increase in undesignated truck parking along on-/off-ramps, near rest areas, at private truck stops, and at last-mile connectors. Ensuring sufficient truck parking is crucial to reducing the risks posed by undesignated parking and enhancing overall efficiency in freight logistics.

In response to this increasing need for truck parking, the Arizona Department of Transportation (ADOT) developed the Arizona Statewide Truck Parking Implementation Plan. The study efforts, findings, and recommendations are based on a thorough analysis of existing parking inventory, undesignated parking analysis, safety analysis, and a benefit/cost analysis of different sites. A prioritization framework was developed to advance a list of projects for programming. Implementing the identified improvements will greatly benefit truck drivers and the trucking industry by providing much-needed public parking where it is most necessary.

This truck parking plan builds upon prior efforts undertaken by ADOT—specifically, the 2019 *Truck Parking Study*, 2022 *Arizona Freight Plan*, and the 2023 *Statewide Rest Area Study*. The study used the findings and recommendations from these prior efforts as a starting point and focused on identifying opportunities to expand truck parking along the state highway system.

The study goals and objectives are summarized in Table ES 1.

Table ES 1. Study Goals and Objectives

Goals & Objectives
1. Understand truck parking demand along the state highway system.
• Develop an inventory of existing truck parking facilities. • Identify existing truck parking deficiencies. • Determine truck parking demand peak.
2. Identify opportunities to increase truck parking.
• Identify areas of significant undesignated truck parking. • Determine use of existing parking facilities. • Identify opportunities to expand truck parking.
3. Develop a truck parking implementation plan for programming and construction.
• Identify near-term and long-term projects to expand truck parking.

Stakeholder Input

Central to formulating this plan was the initiation and coordination with key representatives from the trucking industry and public stakeholders. Representatives from public agencies included personnel from ADOT, the Federal Motor Carrier Safety Administration (FMCSA), the Federal Highway Administration (FHWA), Metropolitan Planning Organizations (MPOs), Councils of Government (COGs), and municipal and Tribal community representatives. Representatives for the Arizona Trucking Association (ATA), National Association of Truck Stop Operators (NATSO), and farming and mining concerns were included as private industry stakeholders. Through virtual and in-person meetings, the project team conducted informal polls and surveys to better understand and identify stakeholder needs, identify potential parking solutions, and obtain a consensus on the prioritization process.

Key Rules and Regulations Driving Parking Demand

Table ES 2 presents the key regulations that drive parking demand.

Table ES 2. Key Regulations Driving Parking Demand

Regulation	Explanation
Hours of Service (HOS)	"Hours of Service" (HOS), as defined by the FMCSA, outline the maximum time drivers can be on duty, including driving and rest periods, to ensure driver alertness. HOS rules aim to enhance road safety by limiting work hours and ensuring rest, but they can lead to challenges and fatigue from limited truck parking. Commercial motor vehicle (CMV) carriers and drivers must adhere to HOS regulations detailed in 49 *Code of Federal Regulations* 395. These rules allow a 14-hour work period, preceded by 10 hours of rest. Within the 14-hour work period, 11 hours can be used for driving, leaving 3 hours for tasks such as loading. A mandatory 30-minute break is required within the first 8 hours of driving.
Electronic Logging Device (ELD)	The Electronic Logging Device (ELD) mandate was initiated in December 2017 and required full compliance beginning December 2019. It had a notable impact on the trucking sector. The mandate primarily affects CMV drivers, encompassing vehicles engaged in interstate commerce meeting specific weight or passenger capacity criteria. The ELD requirement's core objective, according to the FMCSA, is to aid the motor carrier industry in adhering to critical HOS regulations, thus enhancing road safety by ensuring drivers take necessary breaks. The mandate aimed to bolster safety, HOS compliance, and technological advancement in trucking, leading to increased transparency, efficiency, and safety for drivers and road users. However, it also brought challenges such as heightened demand for truck parking, which prompted efforts to expand parking infrastructure and enforcement of parking regulations.

Parking Needs Analysis

Using Global Positioning System (GPS)-based truck parking data, the parking demand and utilization at existing parking facilities was determined. The data also were used to identify locations with high activity of undesignated parking. Undesignated parking intensity is an indicator of lack of parking in the vicinity. The analysis indicated that parking is needed mostly along Interstate I- 40 and I-10. Refer to Figure ES 1, Figure ES 2, and Figure ES 3.

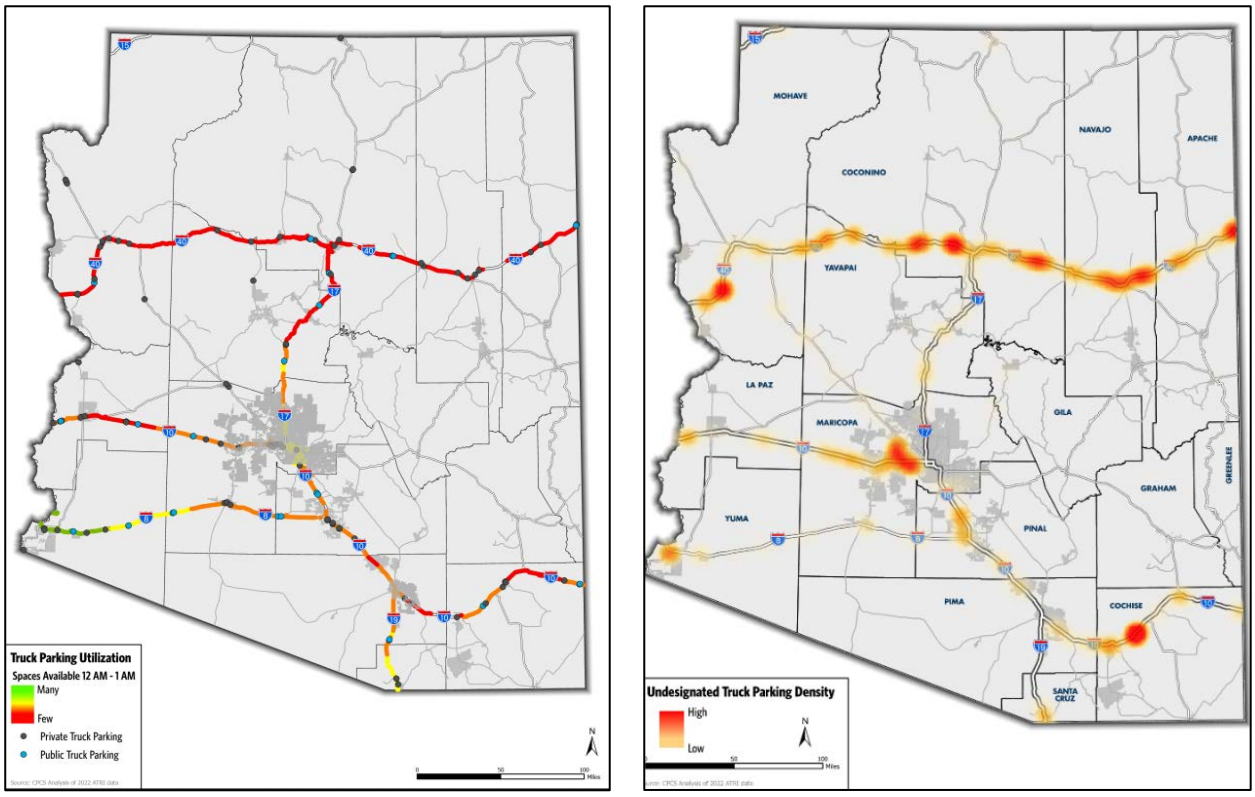


Figure ES 2. Parking Utilization at Peak Hour and Location of Undesignated Parking Clusters

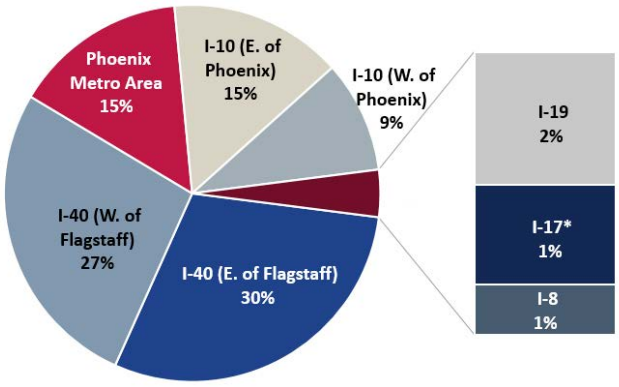


Figure ES 1. Undesignated Parking Location by Corridor

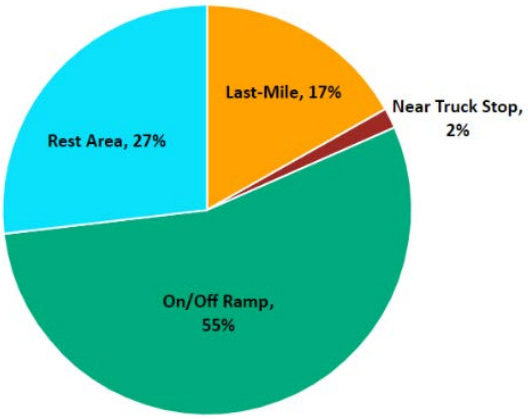


Figure ES 3. Undesignated Parking by Location

Parking Improvement Opportunities

Several sites along the state highway system were explored for parking expansion opportunities. The undesignated parking analysis and stakeholder input were used as a basis to identify these locations. Expansion opportunities were considered at existing rest areas and at alternate safe lot locations. A safe lot is a location along the state highway system that will be developed to accommodate truck parking and will include basic amenities such as waterless vaulted toilet systems and lighting. Safe lots will provide a cost-effective way to implement parking where it is needed the most. The locations were reviewed using different prioritization metrics identified in Table ES 3.

Table ES 3. Prioritization Framework Criteria and Weighted Factors

Prioritization Criteria	Description
Parking Demand	Improvements near high need for parking and high intensity of undesignated parking
Parking Need Met	Improvements will address the parking needs
Rest Area Truck Parking Expansion	Truck parking expansions are at a rest area
Economy	Truck VMT (per day) in 30-mile buffer
Benefit-Cost	Benefits—safety, travel time savings, emissions savings, initial cost, operations and maintenance cost
Project Readiness	Within ROW; power, water, and wastewater connectivity
Funding	Available and can be obligated within next 2 years

ROW = right-of-way; VMT = vehicle miles traveled

Recommended Projects and Actions

Based on the prioritization ranking criteria, the sites that would have the greatest impacts for truck parking expansion are as follows:

1. Burnt Well Rest Area
2. Meteor Crater Rest Area
3. B-10/SR 186 TI Safe Lot
4. Crazy Creek Safe Lot
5. Ehrenberg Rest Area
6. San Simon Rest Area
7. Bouse Wash Rest Area
8. Seligman Safe Lot
9. Sacaton Rest Area
10. Mohawk Rest Area

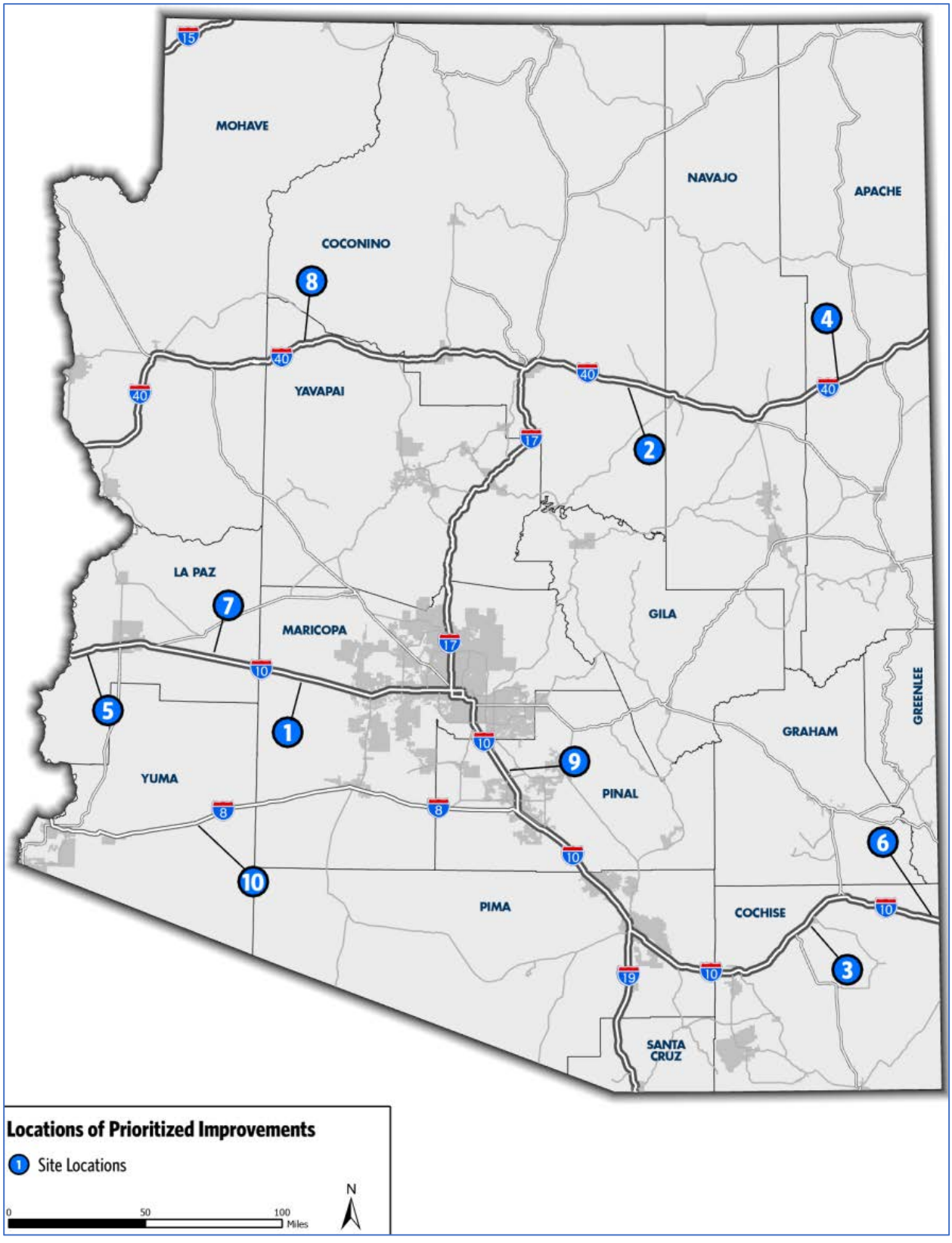
Spreading the investment by corridor and prioritizing Burnt Well Rest Area, Meteor Crater Rest Area, and B-10/State Route (SR) 186 Traffic Interchange (TI) Safe Lot will cost $28.95 million.

To effectively make use of truck parking expansion funding, the sites were prioritized based on the improvement across multiple corridors of need with a pragmatic parking prioritization and implementation. The National Highway Freight Program funding to the current truck parking expansion projects along I-17 (Christensen, McGuireville, and Sunset Point Rest Areas) amounts to $10.40 million and the current truck parking expansion project along I-40 at Haviland Rest Area amounts to $7.60 million. The remaining $32 million allotted to truck parking expansion may be distributed between Burnt Well Rest Area ($9.10 million), Meteor Crater Rest Area ($10.97 million), and at the B-10/SR 186 TI Safe lot ($8.88 million). These prioritized sites amount to a total of $28.95 million.

The prioritized truck parking implementation recommendations are summarized in Table ES 4 and on Figure ES 4.

Table ES 4. Prioritized Expansion Recommendations

Priority Rank	Site ID	Route	Travel Direction Served	Type of Parking Expansion	Number of Anticipated Truck Spaces Gained	Total Cost (in Million $)
1	Burnt Well Rest Area	I-10	Both	Expand truck parking by expanding rest area ROW and provide overflow alternate pavement lot in southeast corner of existing rest area. Provide overflow alternate pavement lot in northwest corner of existing rest area.	103	9.10
2	Meteor Crater Rest Area	I-40	Both	Provide overflow alternate pavement lot for truck parking area in the southwest corner of the existing rest area.	140	10.97
3	B-10/SR 186 Safe lot	I-10	Both	Expand truck parking within the existing ROW. Use existing ramps for minor realignment at traffic interchange. Provide alternate pavement in truck parking lot.	127	8.88
					Subtotal Parking Expansion Cost	28.95
4	Crazy Creek Safe lot	I-40	Both	Expand truck parking within the existing ROW. Provide new on-/off-ramps and alternate pavement in truck parking lot.	176	10.46
5	Ehrenberg Rest Area	I-10	Both	Expand truck parking within the existing ROW by relocating ramp along freeway with new ramp gore(s).	53	5.95
6	San Simon Rest Area	I-10	Both	Provide overflow gravel parking area.	80	7.85
7	Bouse Wash Rest Area	I-10	Both	Expand truck parking within the existing ROW using minor ramp realignments and provide overflow parking.	55	4.60
8	Seligman Safe lot	I-40	Both	Expand parking within the existing ROW by providing on-/off-ramps along freeway with new ramp gore(s).	72	8.28
9	Sacaton Rest Area	I-10	Both	Expand truck parking within the existing ROW using minor ramp realignment.	20	5.57
10	Mohawk Rest Area	I-8	EB	Expand truck parking within the existing ROW using minor ramp realignment.	16	2.36
					Total Parking Expansion Cost	74.02



Site Location numbers correspond to priority ranking in Table ES 4.

Figure ES 4. Prioritized Truck Parking Expansion Locations

Contents

List of Tables

List of Figures

Acronyms/Abbreviations

AADT	annual average daily traffic
AADTT	annual average daily truck traffic
ADOT	Arizona Department of Transportation
ATA	Arizona Trucking Association
ATRI	American Transportation Research Institute
BCA	Benefit-Cost Analysis
CMV	commercial motor vehicle
DMS	dynamic messaging sign
EB	eastbound
ELD	electronic logging device
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
GPS	global positioning system
HOS	Hours of Service
INDOT	Indiana Department of Transportation
NB	northbound
NDOT	Nebraska Department of Transportation
NHFP	National Highway Freight Program
NHS	National Highway System
O&M	operations and maintenance
ROW	right-of-way
SB	southbound
TI	Traffic Interchange
TAC	Technical Advisory Committee
TPA	Truck Parking Assessment
TPAS	Truck Parking Availability System
TPIMS	Truck Parking Information System
TxDOT	Texas Department of Transportation
VMT	Vehicle miles traveled
VHT	Vehicle hours of travel
WB	westbound
WIM	weigh-in-motion
WYDOT	Wyoming Department of Transportation

1 Introduction and Background

The Arizona Department of Transportation (ADOT) conducted a review and update of the truck parking supply and demand in the 2019 *Arizona Truck Parking Study*. The truck parking supply and demand also were discussed in the 2023 *Statewide Rest Area Study*, with additional truck parking identified since the 2019 Study. New regulations (Jason's Law, Hours of Service [HOS], and Electronic Logging Device [ELD] mandates), emerging truck traffic patterns, and the increased freight volume from the heightened demand for online purchasing, which accelerated during the COVID-19 pandemic, have exacerbated the shortage of available truck parking along interstate corridors. Consequently, there has been an increase in undesignated truck parking along on-/off-ramps, last-mile connectors, near rest areas, and at truck stops. Ensuring sufficient truck parking is crucial for reducing undesignated parking incidents and enhancing overall logistics efficiency.

This Arizona Statewide Truck Parking Study follows with a further inspection of the truck parking statewide in response to the increasing demand and subsequent need for safe and secure facilities for drivers to park. This update was conducted to identify locations for truck parking improvements and to plan for implementation based on need and best practices. Analyses were conducted to determine potential innovative technology and infrastructure solutions. A prioritization framework was developed for implementation of truck parking along key interstate corridors in Arizona.

1.1 Relevant ADOT Studies

ADOT conducted several studies to identify and enhance freight parking in the state. Key studies are summarized as follows:

- *Arizona Truck Parking Study* (2019): This study followed the 2017 *Arizona State Freight Plan* and identified gaps between truck parking supply and demand. It used a data-driven approach to identify parking demand and a framework to advance policies and projects to improve truck parking in the state.
- *Arizona State Freight Plan* (2022): This plan built on the 2017 *Arizona State Freight Plan* to ensure the state's freight system remains strong by providing an action plan to guide decisions and investments. The plan served as the guiding document for freight-related decision-making by providing a review of historical conditions, forecasting existing and emerging trends, and outlining the state's priorities for the future.
- *Statewide Rest Area Study* (2023): This study, an update to the 2011 *Rest Area Study*, provided an updated rest area guide for ADOT's use over the next 20 years. The study recognized changing demand characteristics from new regulations and identified rest area parking expansion opportunities.
- Truck Parking Availability System (TPAS): ADOT partnered with the neighboring states of Texas, California, and New Mexico as part of the I-10 Corridor Coalition to develop a system for collecting and disseminating real-time truck parking availability. The TPAS system will disseminate parking availability and is expected to go live in 2024.

1.2 Study Goals and Objectives

This study's goals and objectives will reflect and expand upon the recommendations made in previous transportation planning studies and plans, including the *Arizona Truck Parking Study* (2019), *Arizona State Freight Plan* (2022), and the *Statewide Rest Area Study* (2023). (Table 1-1)

Table 1-1. Study Goals and Objectives

Goals & Objectives
1. Understand truck parking demand along the state highway system.
• Develop an inventory of existing truck parking facilities. • Identify existing truck parking deficiencies. • Determine truck parking demand peak.
2. Identify opportunities to increase truck parking.
• Identify areas of significant undesignated truck parking. • Determine utilization of existing parking facilities. • Identify opportunities to expand truck parking.
3. Develop a truck parking implementation plan for programming and construction.
• Identify near-term and long-term projects to expand truck parking.

1.3 Study Process

This study updates and supersedes the 2019 *Arizona Truck Parking Study*. The study reviewed the applicable rules and regulations that impact truck parking and conducted an analysis of current truck parking demand and use of existing parking facilities. using American Transportation Research Institute (ATRI) data. Additionally, the study examined truck-related crashes over a 5-year period from 2017 to 2022 along the state highway system, with a particular focus on factors such as fatigued driving and parked trucks contributing to crashes.

Before identifying solutions specific to Arizona, the study explored truck parking solutions implemented by peer agencies. The identified Arizona-specific solutions were presented to the project's Technical Advisory Committee (TAC) and the stakeholder group. Following this, a prioritized list of projects for implementation was developed.

1.4 Project Stakeholders

The project team identified several stakeholders and included representatives from both public and private entities. Representatives from public agencies included personnel from ADOT, Federal Motor Carrier Safety Administration (FMCSA), Federal Highway Administration (FHWA), Metropolitan Planning Organizations (MPO), Councils of Government (COG), and municipal and tribal community representatives. Representatives for Arizona Trucking Association (ATA), National Association of Truck Stop Operators (NATSO), and farming and mining concerns were included as private industry stakeholders. Three separate stakeholder meetings were conducted: the first one presented the study goals and obtained input for the study, the second one summarized data analysis findings, and the third one discussed the study recommendations and implementation framework.

2 Data Collection

The evaluation of truck parking demand and utilization of existing parking facilities considered data aligned with the study's objectives. These goals included addressing both existing and future truck parking needs, reducing instances of undesignated truck parking, and formulating an implementation plan for truck parking. The data needs identified for this study included:

- Truck parking laws and regulations
- Truck parking availability at public and private truck stops
- Truck traffic demand along the state highway system
- Undesignated and designated truck parking locations
- ATRI truck global positioning system (GPS) database
- Annual operation and maintenance costs
- Innovative technology solutions at truck parking facilities
- Peer state truck parking programs and initiatives

The following sections discuss findings based on the data collected for the study.

2.1 Applicable Laws and Regulations

The trucking industry is primarily regulated by federal laws based on the interstate commerce clause of the U.S. Constitution. Key federal agencies overseeing this industry include the U.S. Department of Transportation (USDOT), the FMCSA, and the National Highway Traffic Safety Administration. During the past 15 years, various federal initiatives aimed at enhancing safety on the national highway system (NHS) have been introduced. These include Jason's Law, HOS regulations, and ELD mandates.

2.1.1 Jason's Law

Jason's Law, established in 2012 following the tragic death of truck driver Jason Rivenburg, empowers individual states to identify and finance additional secure truck parking. The law mandates the USDOT to collaborate with state motor carrier representatives, assess a state's ability to provide adequate parking for commercial vehicles, evaluate traffic volume, and establish metrics to measure parking facility sufficiency. Since its inception, two surveys were conducted in 2015 and 2019. As of May 2023, the FHWA plans to conduct future surveys on truck parking capacity and demand at regular intervals.

2.1.2 Hours of Service

HOS regulations, as defined by the FMCSA, outline the maximum time drivers can be on duty, including driving and rest periods, to ensure driver alertness. HOS rules aim to enhance road safety by limiting work hours and ensuring rest but can lead to challenges and fatigue from limited truck parking. Commercial motor vehicle (CMV) carriers and drivers must adhere to HOS regulations detailed in 49 *Code of Federal Regulations* 395. These rules allow a 14-hour work period, preceded by 10 hours of rest. Within the 14-hour work period, 11 hours can be used for driving, leaving 3 hours for tasks such as loading. A mandatory 30-minute break is required within the first 8 hours of driving. Exceptions include the sleep-berth provision, adverse driving conditions, and exemptions for short-distance drivers. The ELD mandate, discussed next, enforces accurate activity tracking.

2.1.3 Electronic Logging Device

The ELD mandate, initiated in December 2017, has had a notable impact on the trucking sector. The mandate primarily affects CMV drivers, encompassing vehicles engaged in interstate commerce meeting specific weight or passenger capacity criteria. The ELD requirement's core objective, according to the FMCSA, is to aid the motor carrier industry in adhering to critical HOS regulations, thus enhancing road safety by ensuring drivers take necessary breaks. An April 2023 report from the FMCSA acknowledged challenges in evaluating ELDs' safety impact because of external factors post-implementation. The mandate aimed to bolster safety, HOS compliance, and technological advancement in trucking, leading to increased transparency, efficiency, and safety for drivers and road users. However, it also brought challenges such as heightened demand for truck parking, which prompted efforts to expand parking infrastructure and enforcement of parking regulations. In essence, the ELD mandate improved HOS compliance and safety while spurring challenges related to truck parking and prompting innovative solutions.

2.2 Parking Availability

The truck parking locations across the state can be broken down into three categories: public parking facilities, private parking facilities, and undesignated parking locations. These truck parking locations are located along state roads, interstates, and other roads in all seven ADOT Districts.

2.2.1 Public Parking

The public truck parking facilities managed by ADOT include 19 rest areas (33 sites), overflow lots at 3 rest areas, and 2 parking-only locations. The 2019 *Arizona Truck Parking Study* identified 523 truck parking spaces at these sites. The number of spaces has since been increased, as noted by the 2023 *Statewide Rest Area Study*, to 638 truck parking spaces. The existing truck parking inventory at the rest areas is shown on Figure 2-1 and summarized in Table 2-1.

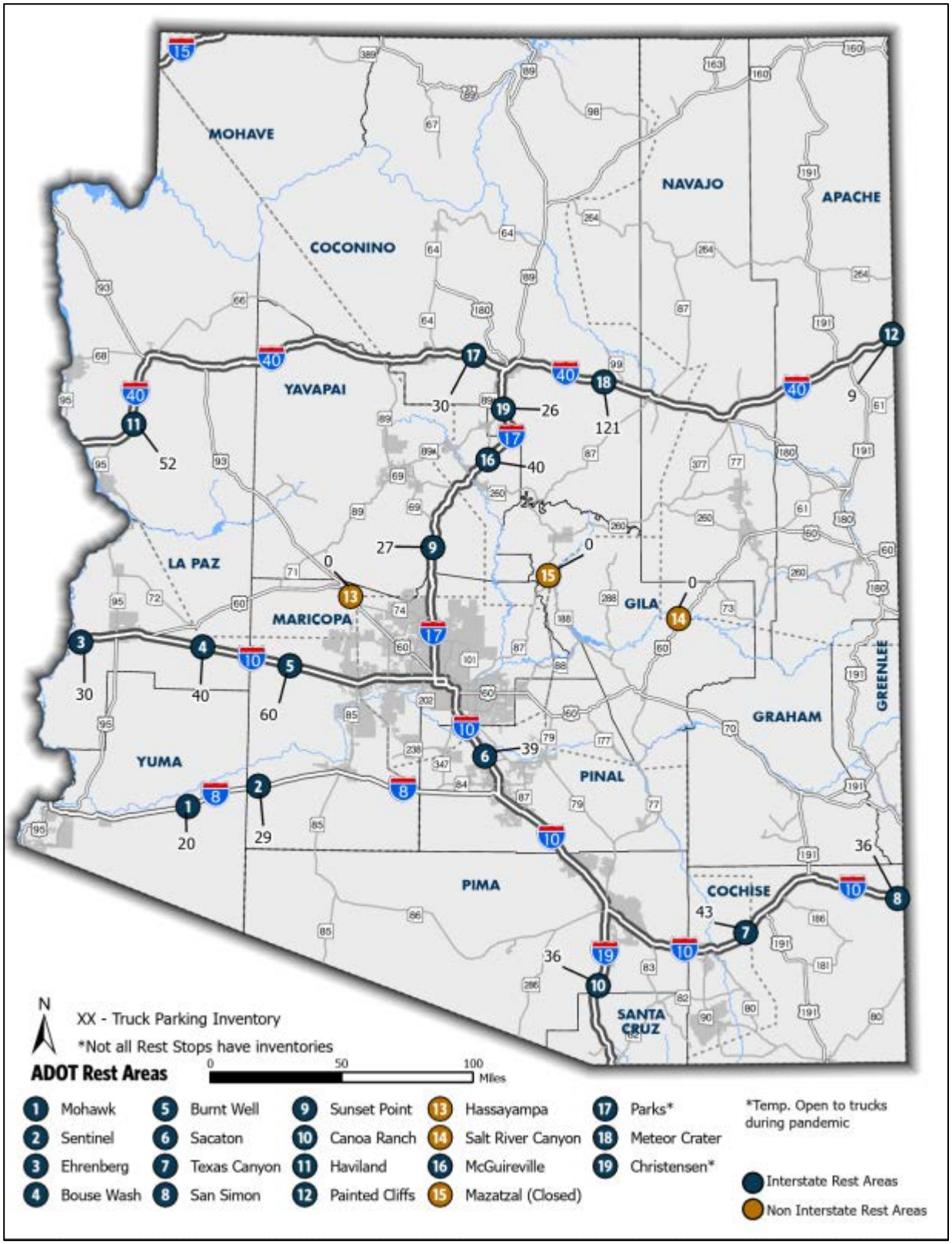


Figure 2-1. Public Rest Area Inventory

Table 2-1. Public Truck Parking Inventory

RA MAP No.[a]	REST AREA (RA)	ROUTE	TRAFFIC DIRECTION SERVED	DISTRICT	PARKING SPACES	
					CARS	TRUCKS
1	Mohawk	I-8	EB	Southwest	25	10
1	Mohawk	I-8	WB	Southwest	28	10
2	Sentinel	I-8	EB	Southwest	28	14
2	Sentinel	I-8	WB	Southwest	28	15
3	Ehrenberg	I-10	EB	Southwest	26	15
3	Ehrenberg	I-10	WB	Southwest	25	15
4	Bouse Wash	I-10	EB	Southwest	42	20
4	Bouse Wash	I-10	WB	Southwest	32	20
5	Burnt Well	I-10	EB	Southwest	50	30
5	Burnt Well	I-10	WB	Southwest	45	30
6	Sacaton	I-10	EB	Southcentral	56	21
6	Sacaton	I-10	WB	Southcentral	44	18
7	Texas Canyon	I-10	EB	Southcentral	35	21
7	Texas Canyon	I-10	WB	Southcentral	35	22
8	San Simon	I-10	EB	Southeast	32	18
8	San Simon	I-10	WB	Southeast	42	18
9	Sunset Point	I-17	Both	Northwest	56	27
10	Canoa Ranch	I-19	NB	Southcentral	44	18
10	Canoa Ranch	I-19	SB	Southcentral	53	18
11	Haviland	I-40	EB	Northwest	28	29
11	Haviland	I-40	WB	Northwest	26	23
12	Painted Cliffs	I-40	Both	Northeast	34	9
13	Hassayampa	US 60	Both	Northwest	27	0
14	Salt River Canyon	US 60	Both	Southeast	19	0
15	Mazatzal[b]	SR 87	Both	Southeast	--	--
16	McGuireville	I-17	NB	Northcentral	45	20
16	McGuireville	I-17	SB	Northcentral	45	20
17	Parks[c]	I-40	EB	Northcentral	--	15
17	Parks[c]	I-40	WB	Northcentral	--	15
18	Meteor Crater	I-40	EB	Northcentral	32	57
18	Meteor Crater	I-40	WB	Northcentral	31	64
19	Christensen[c]	I-17	NB	Northcentral	--	11
19	Christensen[c]	I-17	SB	Northcentral	--	15
Total Number of Spaces					1,013	638

[a] = Rest area number corresponding to Figure 2-1.
[b] = No data available, rest area is closed or under construction
[c] = Rest area temporarily open to trucks only

Additional truck parking is available at the Meteor Crater, Canoa Ranch, and Sentinel rest areas at overflow parking lots. The truck parking overflow lots at I-40 eastbound (EB) and westbound (WB) Meteor Crater Rest Area were paved following the 2019 *Arizona Truck Parking Study* and turned into marked formal overflow parking areas. These overflow lots provide about 20 additional spaces (Figure 2-2). The I-19 northbound (NB) and southbound (SB) Canoa Ranch Rest Area overflow lots accommodate an additional 12 spaces (Figure 2-3). The I-8 EB Sentinel overflow lot provides 15 additional spaces (Figure 2-4).

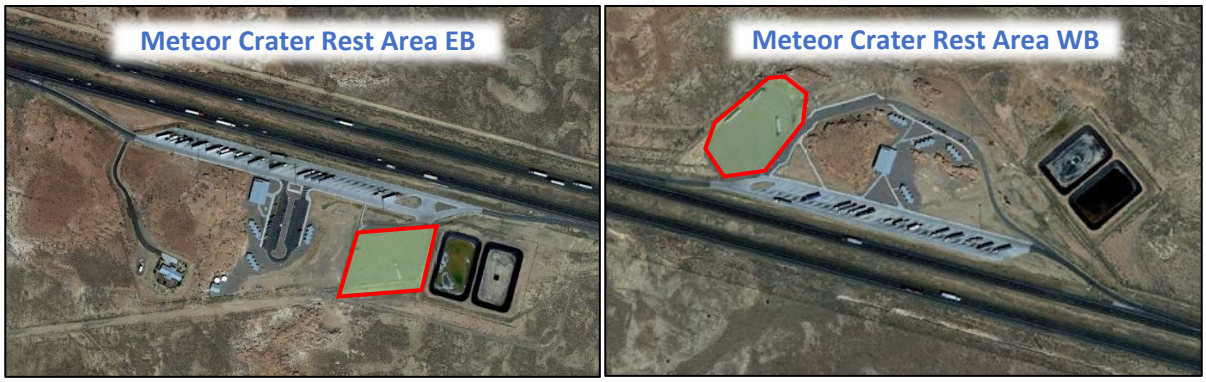


Figure 2-2. Meteor Crater Overflow Parking

Figure 2-3. Canoa Ranch Overflow Parking

Figure 2-4. Sentinel Overflow Parking

The two locations for truck-parking-only areas that ADOT owns, maintains, and manages include the Ligurta Parking Area and the Table Top Roadside Area on I-8. The Ligurta Parking Area does not appear on ADOT's rest area map and only includes garbage cans onsite alongside the 10 truck parking spaces (Figure 2-5). The Table Top site includes covered picnic table areas and garbage cans alongside the 12 truck parking spaces (Figure 2-6).

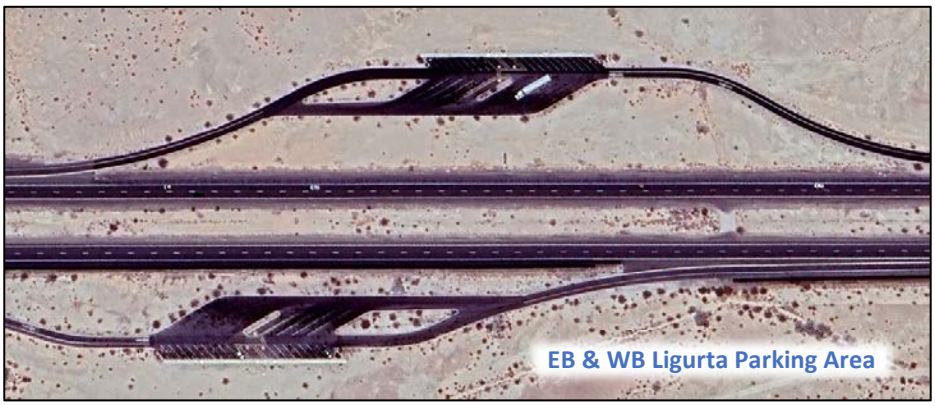
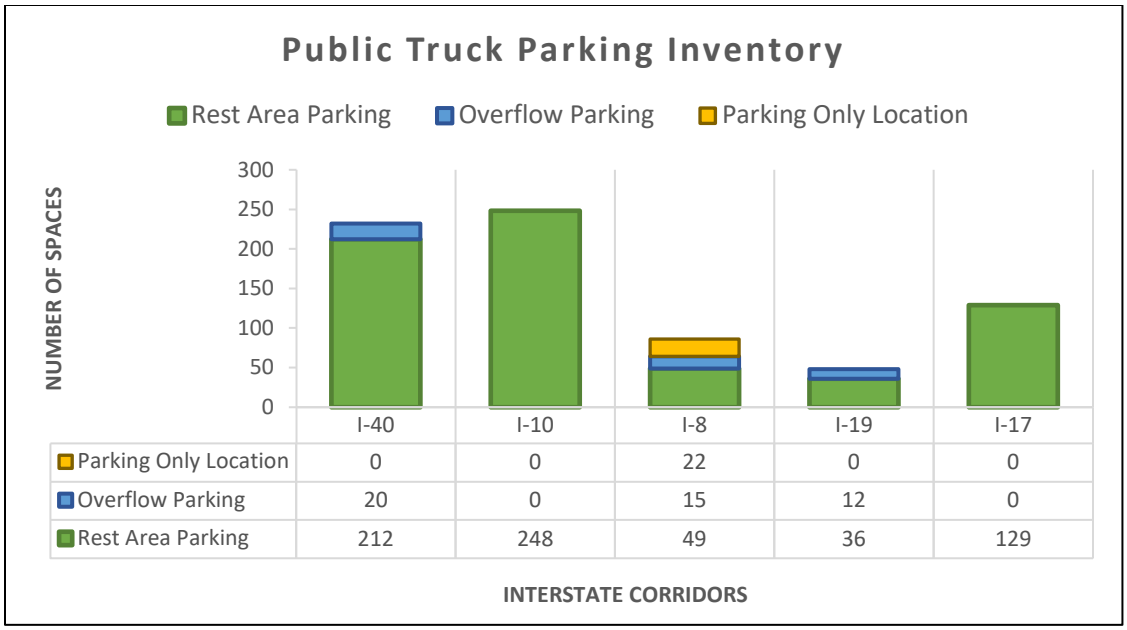


Figure 2-5. Ligurta Area Truck-Parking-Only Locations

Figure 2-6. Table Top Roadside Area Truck-Parking-Only Locations

The highest truck volume corridors, I-10 and I-40, include the greatest number of public truck spaces and make up nearly 68% of all public spaces (248 spaces and 232 spaces, respectively). The public truck parking inventory is summarized in Figure 2-7.



	I-40	I-10	I-8	I-19	I-17
Parking Only Location	0	0	22	0	0
Overflow Parking	20	0	15	12	0
Rest Area Parking	212	248	49	36	129

Figure 2-7. Public Truck Parking Inventory

2.2.2 Private Parking

Public parking statewide accounts for nearly 10% of overall designated parking while private parking accounts for the remaining majority. Private truck parking facilities were identified from GPS truck data and third-party parking availability apps such as Trucker Path. Private truck stops typically have more truck parking spaces as compared to public truck parking locations and some may offer reserved spots. The companies that provide the majority of private truck parking throughout Arizona are Pilot Flying J (1,940 spaces, 30%), TA & Petro (1,440 spaces, 22%), and Love's (880 spaces, 14%). Other parking providers include Shell, Pride, Roady's, Sun Mart, Conoco, Chevron, and others (2,230 spaces, 34%) (Figure 2-8).

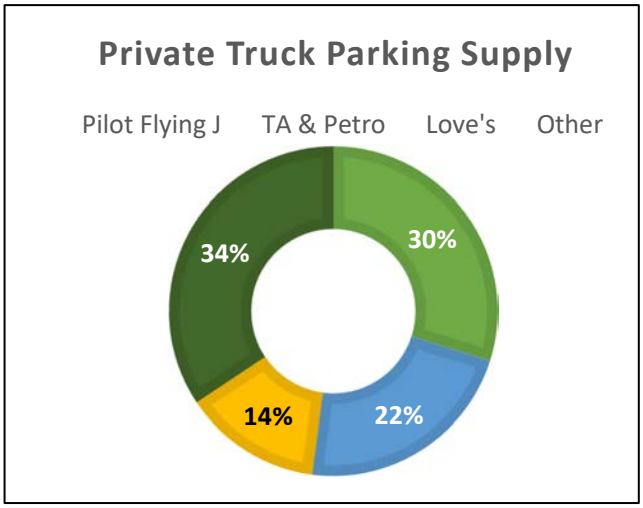


Figure 2-8. Private Truck Parking Supply

The geographic distribution of private parking facilities is shown in Figure 2-9.

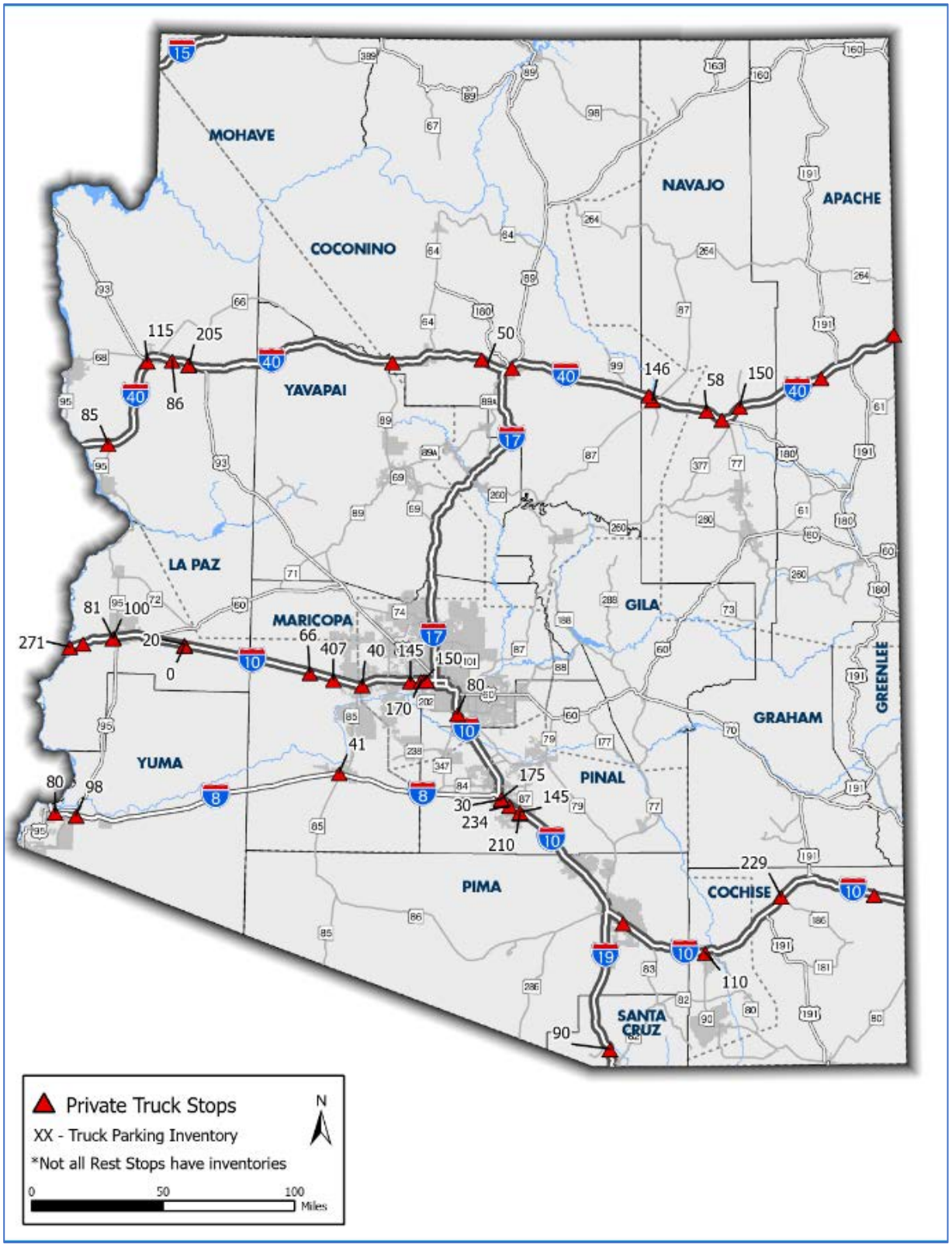


Figure 2-9. Private Truck Parking Inventory

The interstate system in Arizona accounts for more than 93% of all private parking spaces. The proportion of private truck parking among different corridors across the state varies. The corridor with the highest number of private truck parking spaces is I-10 (3,846 spaces, 59.1%). The corridor breakdown of private truck parking can be seen in Table 2-2.

Table 2-2. Private Truck Parking Supply by Corridor

	Corridor	Truck Parking Spaces	Proportion of Total Spaces	Total # Spaces	Total % Spaces
Interstates	I-10	3,846	59.1%	6,078	93.3%
	I-40	1,723	26.5%		
	I-8	329	5.1%		
	I-19	140	2.2%		
	I-17	40	0.6%		
U.S. Highways	US 89	37	0.6%	162	2.5%
	US 93	42	0.6%		
	US 160	30	0.5%		
	US 191	23	0.4%		
	US 60	10	0.2%		
	US 70	10	0.2%		
	US 95	10	0.2%		
State Routes	SR 89	5	0.1%	20	0.3%
	SR 95	15	0.2%		
Phoenix Metro	Phoenix	251	3.9%	251	3.9%
Total				6,511	100%

3 Truck Parking Analysis

The truck parking analysis included an overview of the traffic volume shift from 2019 to 2022 at each of the rest area locations. The undesignated parking analysis used truck GPS data from ATRI[1]. ATRI is a not-for-profit research organization that focuses on researching the congestion, mobility, and operations of the trucking industry by collecting commercial vehicle GPS data at millions of waypoints and thousands of stops. ATRI truck GPS data during two-week periods in February, May, August, and October of 2022 were used to conduct parking analysis at undesignated locations and utilization of designated parking locations. The top undesignated truck parking cluster locations were identified across the state. The designated parking utilization analysis then was conducted to identify the peak hours in which trucks were using parking for long periods of time.

3.1 Truck Volumes

There has been a consistent increase in freight volume in the state since the early 2000s. This trend took a steeper trajectory since 2020, with an increase in online shopping and related demand for delivery of goods. In addition to more truck traffic on the roadways, there also was an increase in the total annual average daily traffic (AADT) in Arizona from 2019 to 2022. These trends are illustrated on Figure 3-1 and in Table 3-1.

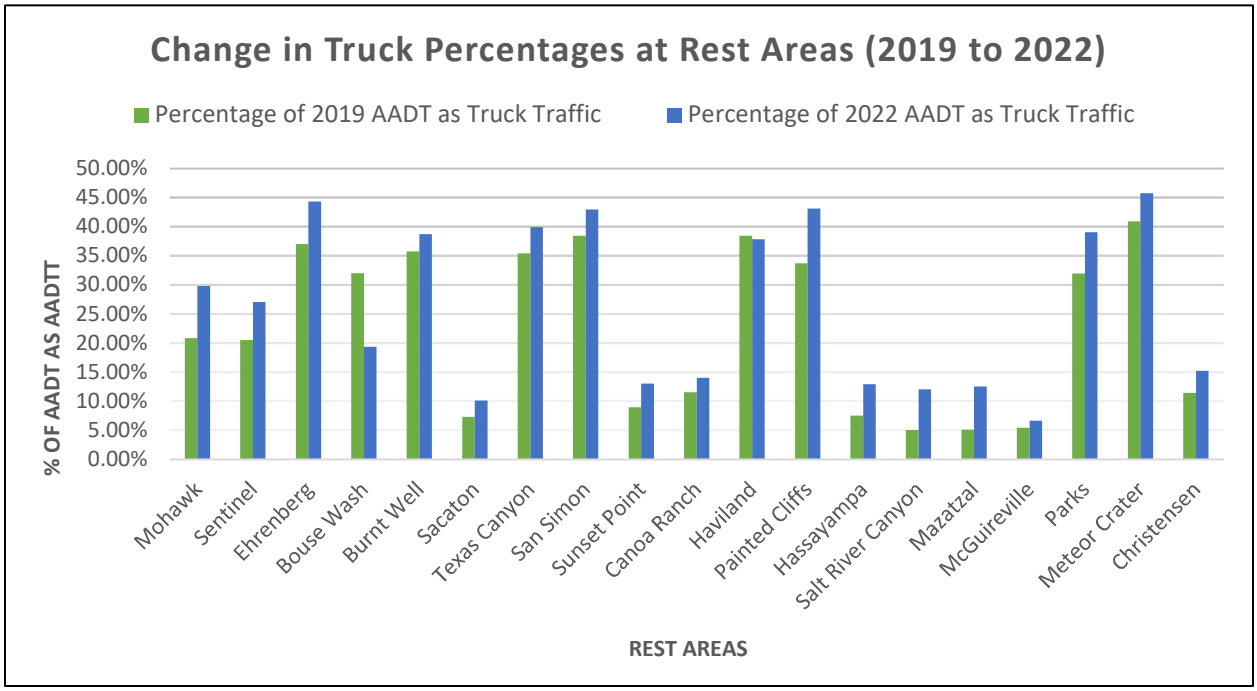


Figure 3-1. Change in Percentage of AADT as Truck Traffic, 2019 to 2022

[1] About ATRI – TruckingResearch.org

Table 3-1. Rest Area Traffic Demand Comparison, 2019 to 2022

RA No.[a]	Rest Area (RA)	Corridor	2019 AADT	2022 AADT	2019 AADTT[b]	2022 AADTT	2019 Proportion of Truck Traffic	2022 Proportion of Truck Traffic
1	Mohawk	I-8	10,620	9,590	2,209	2,855	20.8%	29.8%
2	Sentinel	I-8	10,500	13,859	2,152	3,751	20.5%	27.0%
3	Ehrenberg	I-10	27,286	27,198	10,097	12,056	37.0%	44.3%
4	Bouse Wash	I-10	26,339	27,354	8,421	5,282	32.0%	19.3%
5	Burnt Well	I-10	24,124	26,748	8,605	10,363	35.7%	38.7%
6	Sacaton	I-10	62,629	65,404	4,601	6,613	7.3%	10.1%
7	Texas Canyon	I-10	17,682	19,710	6,259	7,862	35.4%	39.9%
8	San Simon	I-10	14,118	15,737	5,421	6,748	38.4%	42.9%
9	Sunset Point	I-17	37,459	39,562	3,334	5,142	8.9%	13.0%
10	Canoa Ranch	I-19	17,314	22,443	1,999	3,153	11.5%	14.0%
11	Haviland	I-40	17,668	20,651	6,785	7,815	38.4%	37.8%
12	Painted Cliffs	I-40	23,129	22,251	7,806	9,588	33.7%	43.1%
13	Hassayampa	US 60	18,556	19,924	1,319	2,588	7.5%	12.9%
14	Salt River Canyon	US 60	2,788	3,569	139	429	5.0%	12.0%
15	Mazatzal[c]	SR 87	13,269	2,385	674	297	5.1%	12.5%
16	McGuireville	I-17	26,123	26,806	1,143	1,782	5.4%	6.6%
17	Parks[d]	I-40	20,316	21,738	6,481	8,480	31.9%	39.0%
18	Meteor Crater	I-40	19,820	21,929	8,100	10,018	40.9%	45.7%
19	Christensen[d]	I-17	23,237	24,542	2,649	3,729	11.4%	15.2%

Notes:
[a] = Rest Area number corresponding to Figure 2-1
[b] = Average Annual Daily Truck Traffic (FHWA C8-C13)
[c] = Permanently Closed
[d] = Permanently closed, temporarily open to truck parking

3.2 Undesignated Parking

Undesignated parking areas are locations that are not owned, operated, or maintained by either ADOT or private truck stops. Undesignated truck parking occurs most often along on-/off-ramps, at last-mile connectors, and near rest areas or truck stops. Areas of undesignated parking were identified based on ATRI truck GPS data collected in 2022. This process is detailed in the next section.

3.2.1 Undesignated Parking Identification

ATRI truck GPS data are collected from more than 1 million heavy-duty trucks and are translated into hundreds of thousands of stops. The undesignated truck parking data were collected in four separate two-week periods during February, May, August, and October of 2022. The undesignated parking analysis included the following steps:

1) Identifying trucks stopped for at least 30 minutes
2) Developing designated and undesignated parking polygons at rest area on-/off-ramps and buffers around roadways
3) Defining and validating clusters of undesignated truck parking
4) Combining and classifying undesignated truck parking clusters

Undesignated truck parking occurred across the state. Undesignated parking locations were grouped into clusters based on proximity. The total number of undesignated parking clusters was 39 (Table 3-2). The location of undesignated parking varied depending on the amount of truck parking available in the vicinity. The undesignated parking locations with the highest count of undesignated truck parking are identified in bold.

Table 3-2. Popular Undesignated Truck Parking Locations

ID	Corridor	Location Type	Location Description
1	I-10 (East of Tucson)	Rest Area	Texas Canyon Rest Area
2	Phoenix Metro Area	Last Mile	West Phoenix, south of I-10, east of SR 202, west of I-17
3	I-40 (West of Kingman)	Rest Area	Haviland Rest Area EB and WB
4	I-40 (East of Wilcox)	On-/Off-Ramp	At AZ/NM border, includes private stop, Painted Cliffs Rest Area, and ramps at Exit 357
5	I-40 (West of Flagstaff)	Rest Area	Parks Rest Area, Exit 185
6	I-10 (West of Phoenix)	On-/Off-Ramp	I-10 Exit 94, near Pilot
7	I-40 (East of Flagstaff)	On-/Off-Ramp	I-40 Exit 303, Exit 300
8	I-40 (West of Flagstaff)	On-/Off-Ramp	I-40 Exit 163, Exit 161, Near Love's
9	Phoenix Metro Area	Last Mile	Desert Cove Commercial Park
10	I-40 (East of Flagstaff)	On-/Off-Ramp	I-40 Exit 277, Near Love's
11	I-40 (East of Flagstaff)	On-/Off-Ramp	Exit 320
12	I-10 (East of Phoenix)	Rest Area	Sacaton Rest Area EB and WB
13	I-40 (West of Flagstaff)	On-/Off-Ramp	Exit 123 Near Johnsons Travel Center, Exit 121
14	I-40 (West of Flagstaff)	On-/Off-Ramp	Exit 146, Exit 144
15	I-40 (West of Flagstaff)	On-/Off-Ramp	Exit 9, Near 3 truck stops: CAT Scale, Love's, and Pilot
16	I-40 (East of Flagstaff)	On-/Off-Ramp	Exit 255, Near Flying J at Exit
17	I-40 (East of Flagstaff)	On-/Off-Ramp	Exit 292, Near Hopi Travel Plaza
18	I-10 (East of Phoenix)	Near Truck Stop	Mostly near Love's by Exit 302
19	I-10 (West of Phoenix)	On-/Off-Ramp	Exit 103, TA Travel Center nearby
20	I-40 (West of Flagstaff)	On-/Off-Ramp	Exit 109
21	Phoenix Metro Area	Last Mile	East of I-10, north of SR 202
22	I-40 (East of Flagstaff)	On-/Off-Ramp	Exit 283, TA Travel Center at Exit
23	I-40 (West of Flagstaff)	On-/Off-Ramp	Exit 103
24	I-40 (East of Flagstaff)	Rest Area	Meteor Crater Rest Area, Exit 233
25	I-17 (North of Phoenix)	Rest Area	Sunset Point Rest Area
26	I-10 (West of Phoenix)	Rest Area	Ehrenberg Rest Area
27	I-40 (East of Flagstaff)	On-/Off-Ramp	Exit 230, Exit 225
28	I-40 (East of Flagstaff)	On-/Off-Ramp	Exit 66, Petro at Exit
29	Phoenix Metro Area	Last Mile	West of SR 303
30	I-10 (East of Phoenix)	On-/Off-Ramp	Exit 219, Shell is at Exit
31	I-19 (North of Nogales)	Last Mile	Nogales Industrial Area
32	I-8 (West of Phoenix)	Rest Area	Ligurta Parking Area
33	I-10 (West of Phoenix)	Rest Area	Burnt Well Rest Area
34	I-40 (East of Flagstaff)	On-/Off-Ramp	Exit 269
35	I-10 (East of Phoenix)	On-/Off-Ramp	Exit 352, Exit 355
36	I-10 (East of Phoenix)	Rest Area	San Simon Rest Area, Exit 390
37	I-40 (West of Flagstaff)	On-/Off-Ramp	Exit 91, Exit 87
38	I-10 (West of Phoenix)	On-/Off-Ramp	West of Phoenix
39	Phoenix Metro Area	Last Mile	West Phoenix/Tolleson, south of I-10, west of SR 202L. Includes several private truck stops.

The 10 undesignated truck parking clusters with the highest number of undesignated trucks varied compared to the top clusters identified in the 2019 *Arizona Truck Parking Study*. Table 3-4 summarizes the current 2022 undesignated truck parking data as compared to Table 3-3, which details the previous ranking from data collected in 2017 and completed improvements since 2019.

Table 3-3. 2017 Undesignated Parking Clusters

Undesignated Parking Ranking	2017 Cluster Locations	Completed Improvements
1	East of Haviland Rest Area and I-40/US 95 Junction	July 2019—Truck parking expansion and site paving
2	West of Haviland Rest Area and I-40/US 95 Junction	July 2019—Truck parking expansion and site paving
3	West of Bouse Wash Rest Area off Exit 45 along I-10	April 2022—Truck parking expansion
4	Abandoned commercial parking lot in Winslow adjacent to I-40	2018—Landowner and Winslow Police barricaded entry to combat crime
5	I-8/I-10 junction near Casa Grande	No improvements
6	Quartz site near I-10 on-/off-ramp	No improvements
7	I-15 on-/off-ramp and adjacent vacant lot	No improvements
8	Roadside lot on the Shoulder of I-15	No improvements
9	I-17 Sunset Point Rest Area on-/off-ramps	February 2022—Truck parking expansion
10	I-10 Texas Canyon Rest Area on-/off-ramps	No improvements

Table 3-4. 2022 Undesignated Parking Top Clusters

Undesignated Parking Ranking	2022 Cluster Locations
1	West I-10 last mile in Phoenix
2	I-40 Parks Rest Area on-/off-ramps
3	I-10 Texas Canyon Rest Area on-/off-ramps
4	West I-10 last mile in Phoenix
5	Western I-40 near Winslow
6	Western I-40 near Painted Cliffs Rest Area
7	Haviland Rest Area on-/off-ramps
8	I-40 on/off-ramp near Flagstaff
9	Near Meteor Crater Rest Area along I-40
10	I-40 on-/off-ramp near Winslow

It can be observed from the table that the undesignated truck parking clusters have migrated slightly east across the state. Many of the 2017 clusters of high truck density were near the western corridors of I-10 and I-40 while the 2022 clusters of high undesignated parking density are more toward the center and east side of the state along I-10 and I-40.

The 2022 undesignated truck parking clusters occur primarily along on-/off-ramps (55%) for each corridor. Undesignated parking also was observed at rest areas (27%), last-mile connectors (17%), and near truck stops (2%) (Figure 3-2). These findings are consistent with the trends observed in the 2023 *Statewide Rest Area Study* and the 2019 *Arizona Truck Parking Study*.

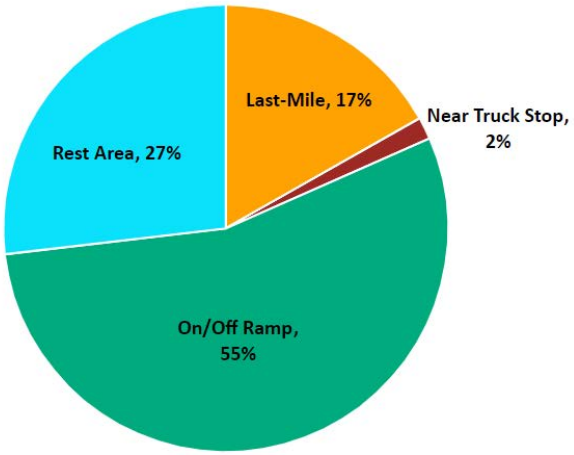


Figure 3-2. Undesignated Truck Parking Cluster by Type

The locations at which the undesignated parking is mostly taking place are along Arizona's highest truck volume corridors of I-10 and I-40 and in the Phoenix metro area (Figure 3-3). Undesignated truck parking along I-40 consists of 57% of the undesignated stops (27% along I-40 west of Flagstaff and 30% along I-40 east of Flagstaff). In addition, 15% of undesignated parking occurs in the Phoenix metro area as well as along I-10 east of Phoenix. The I-10 corridor, west of Phoenix, accounts for 9% of the undesignated parking incidents. Other undesignated parking was recorded along I-19 (2%), I-17 (1%), and I-8 (1%).

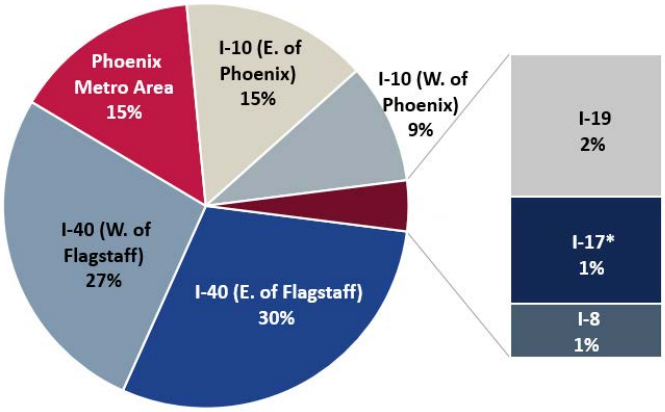


Figure 3-3. Undesignated Truck Parking Cluster by Location

More details and trends of the undesignated truck parking clusters can be seen on Figure 3-4, Figure 3-5, Figure 3-6, and Figure 3-7.

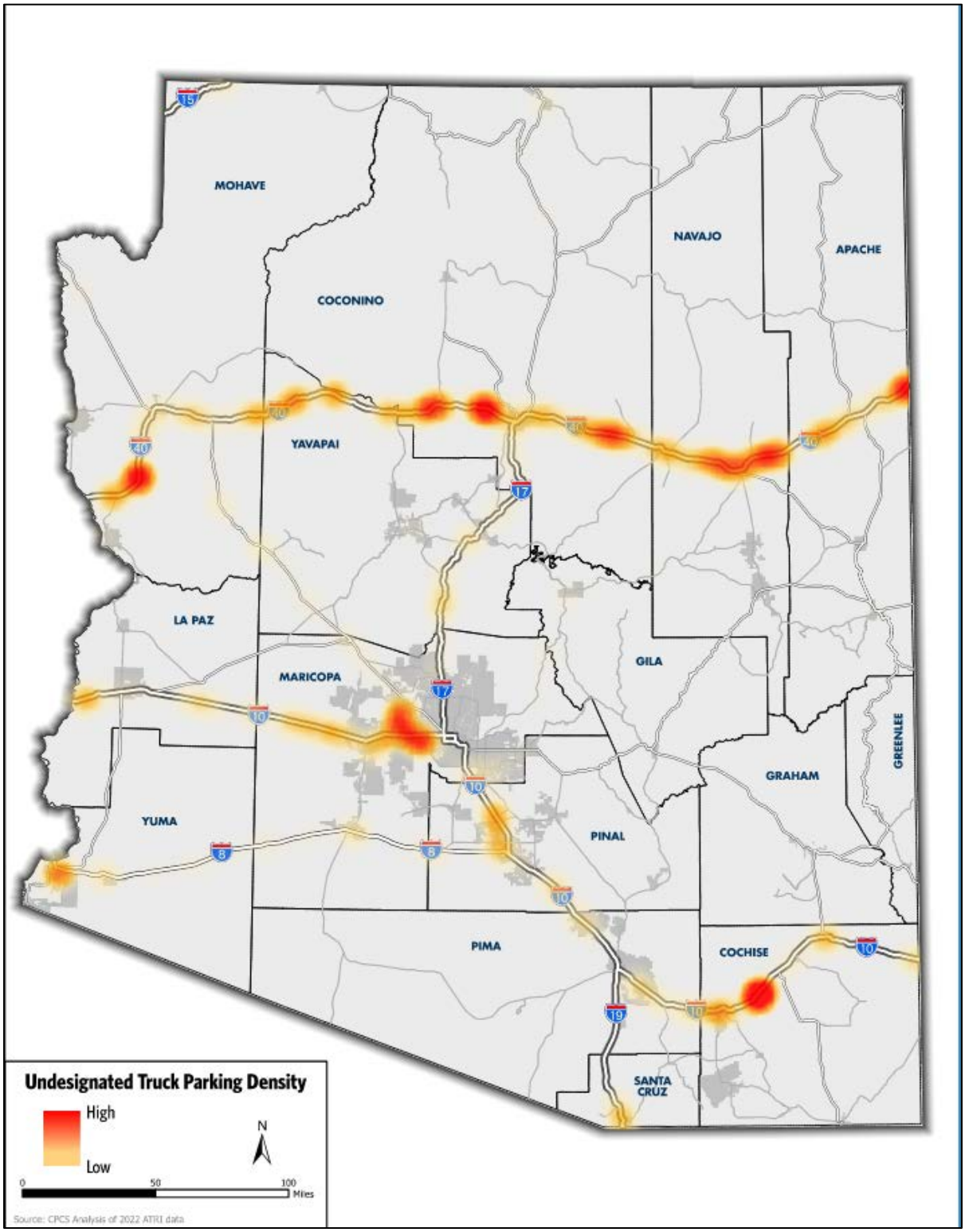


Figure 3-4. Undesignated Parking Density Heat Map

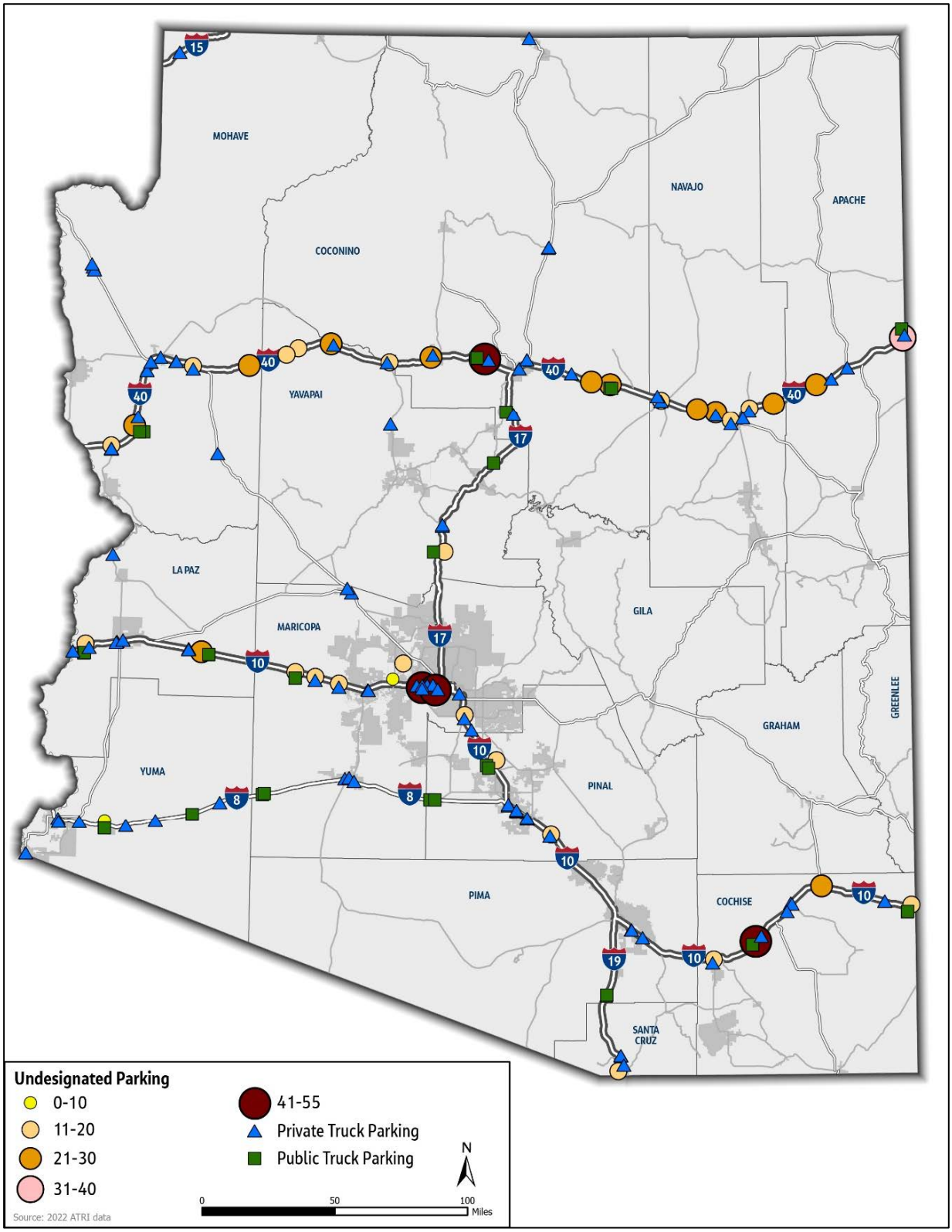


Figure 3-5. Undesignated Parking Activity Cluster Intervals

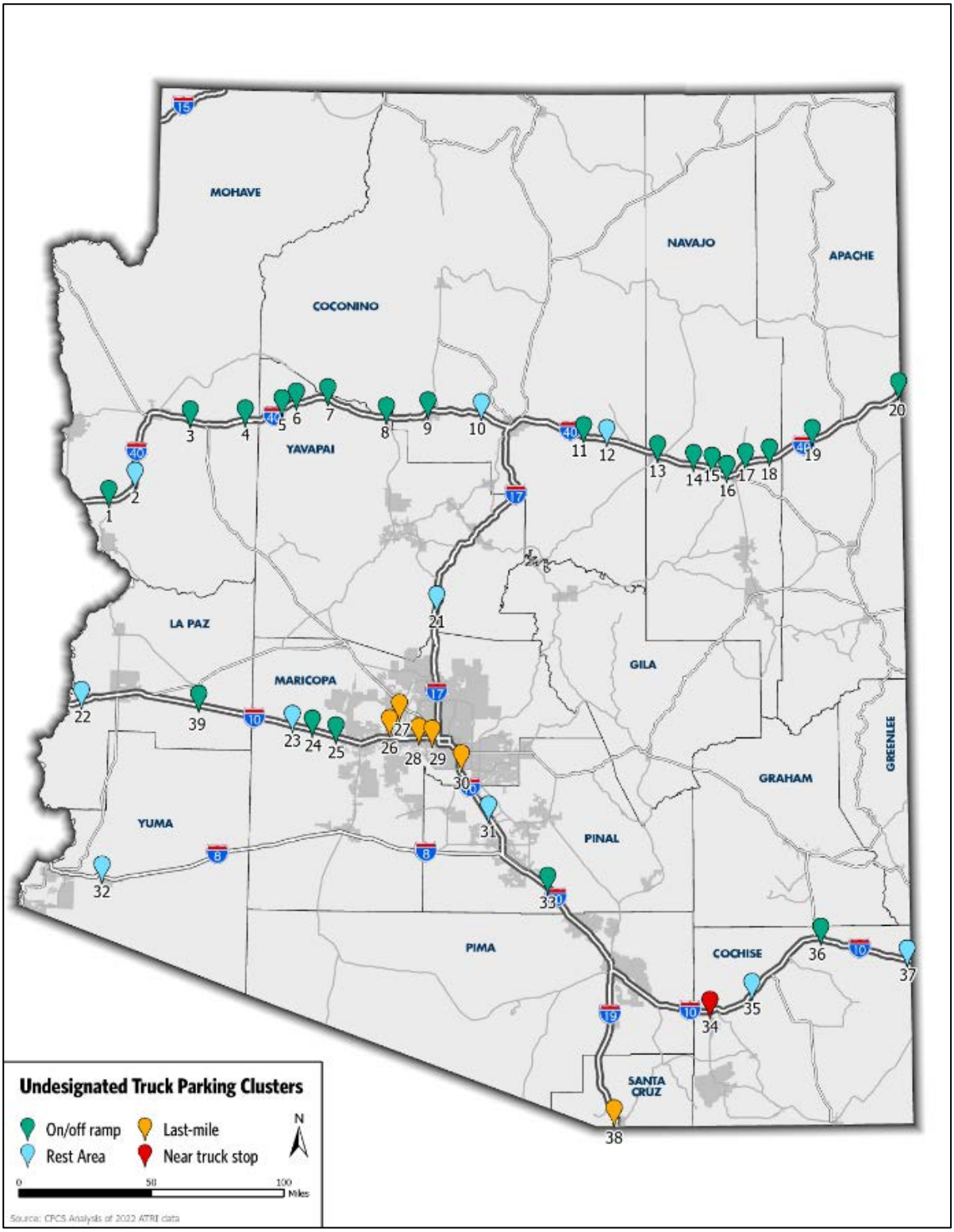


Figure 3-6. Undesignated Truck Parking Clusters

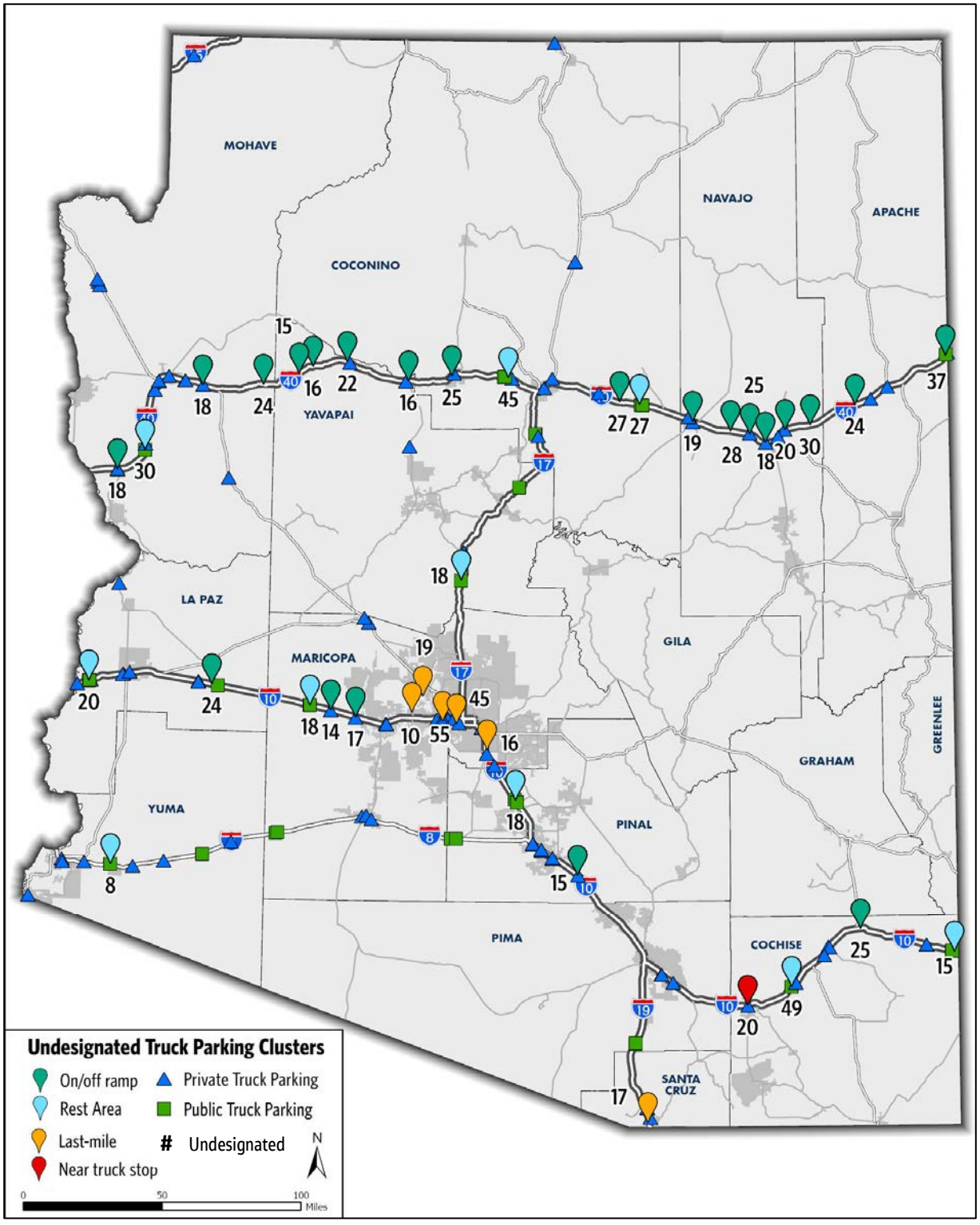


Figure 3-7. Undesignated Parking Intensity at Each Cluster

Table 3-5. Directional Undesignated Parking Intensity at Each Cluster

Map ID*	Total Undesignated	Eastbound	Westbound	Northbound	Southbound
1	18	10	8	-	-
2	30	20	10	-	-
3	18	9	9	-	-
4	24	12	12	-	-
5	15	7	8	-	-
6	16	7	8	-	-
7	22	10	12	-	-
8	16	9	7	-	-
9	25	14	11	-	-
10	45	25	20	-	-
11	27	14	13	-	-
12	27	16	11	-	-
13	19			-	-
14	28	15	13	-	-
15	25	12	13	-	-
16	18	9	9	-	-
17	20	8	12	-	-
18	30	16	14	-	-
19	24	11	13	-	-
20	37	16	21	-	-
21	18	-	-	2	16
22	20	11	9	-	-
23	18	10	8	-	-
24	14	7	7	-	-
25	17	10	7	-	-
26	10	8	2	-	-
27	19	14	5	-	-
28	55	38	17	-	-
29	45	20	25	-	-
30	16	10	6	-	-
31	18	10	8	-	-
32	8	2	6	-	-
33	15	8	7	-	-
34	20	11	9	-	-
35	49	25	24	-	-
36	25	12	13	-	-
37	15	6	9	-	-
38	17	-	-	14	3
39	24	10	14	-	-

*Map IDs correspond to those shown in Figure 3-6.

3.2.2 Proximity to Designated Truck Parking Locations

It is higher risk for truck drivers to park in undesignated parking areas, but they may have done so out of driver fatigue, as a last resort when their daily HOS came to a close, or because of a lack of available designated parking. The intensity of undesignated truck parking is shown on Figure 3-8. The top 10 undesignated parking clusters and their proximity to designated public rest area truck parking and private truck parking are examined in the following discussion.

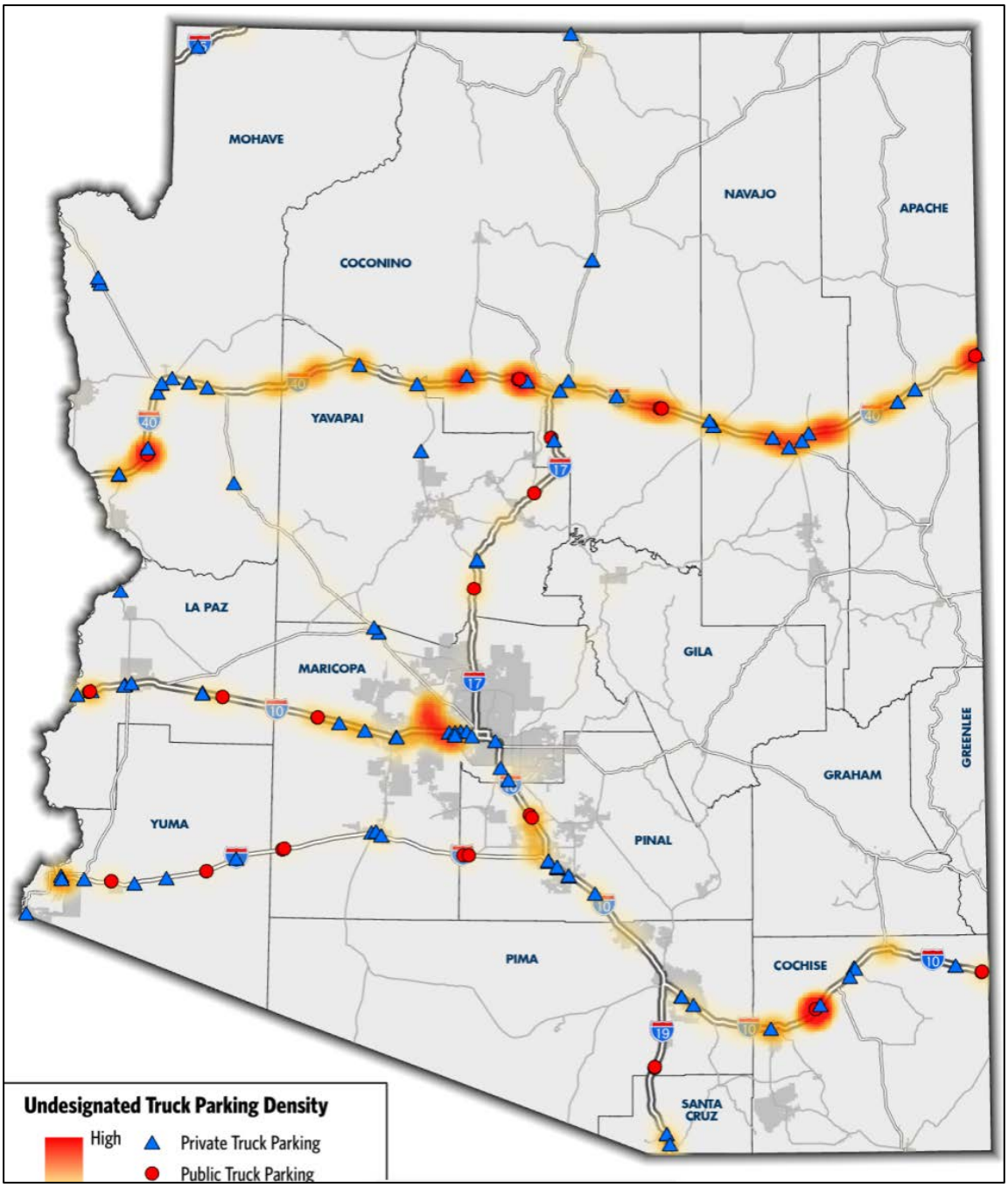
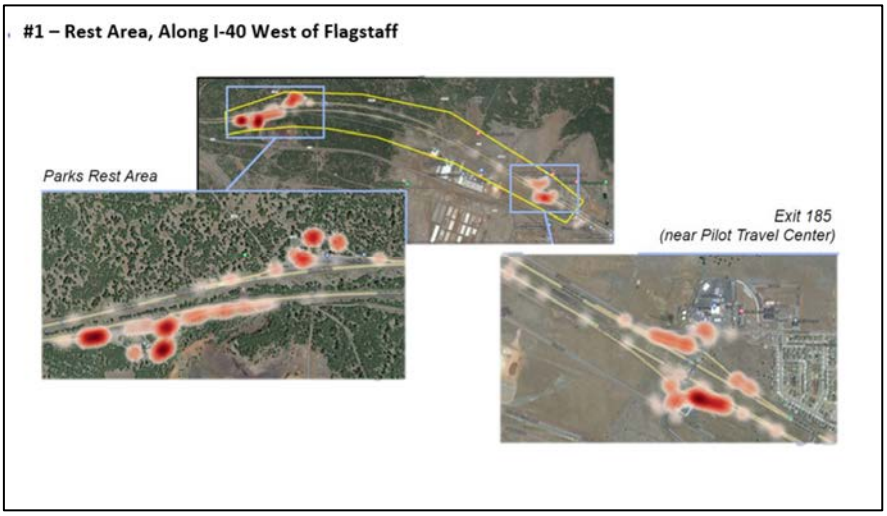
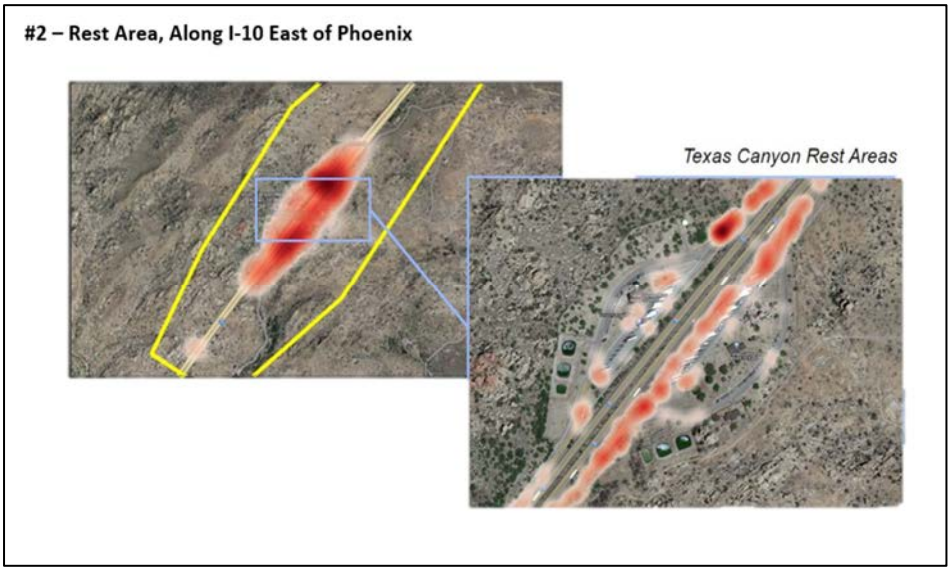


Figure 3-8. Undesignated Parking Areas and Nearby Public & Private Parking

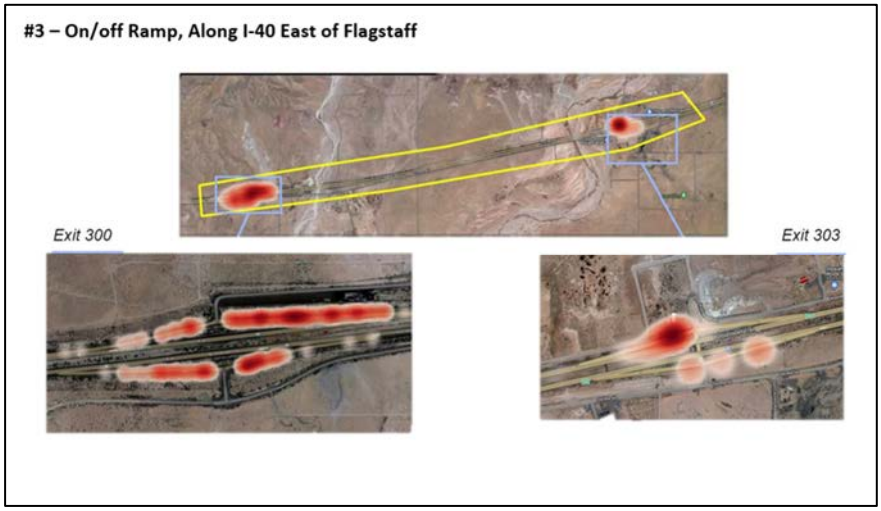
1. Rest area, along I-40 west of Flagstaff—This cluster is near two parking options: Pilot Travel Center off Exit 185 to the east, and the Parks Rest Area to the west. Undesignated parking is occurring on the on-/off-ramps to each of the locations and is occurring in the EB and WB directions.



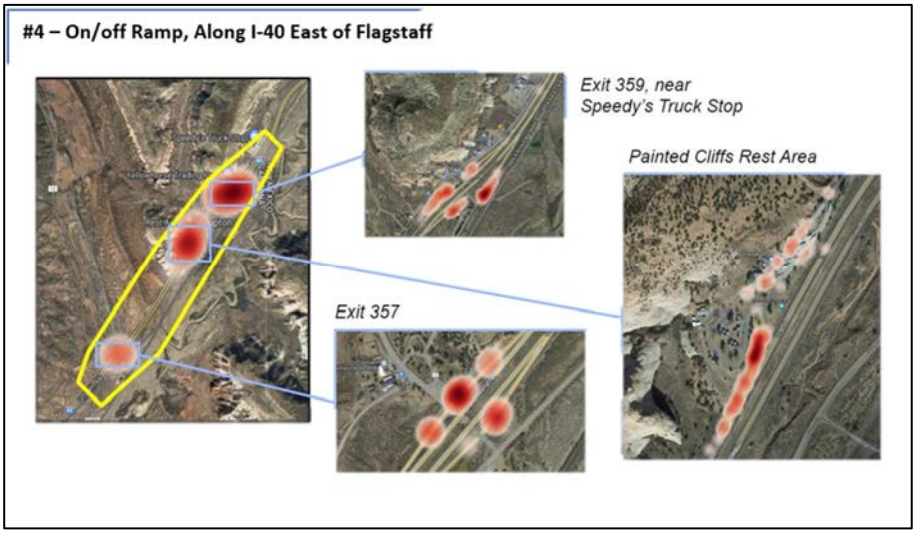
2. Rest area, along I-10 east of Phoenix—This cluster is centered at the Texas Canyon Rest Area with undesignated parking occurring along the on-/off-ramps to the rest area in both the WB and EB directions. The undesignated parking is slightly more prevalent in the EB direction.



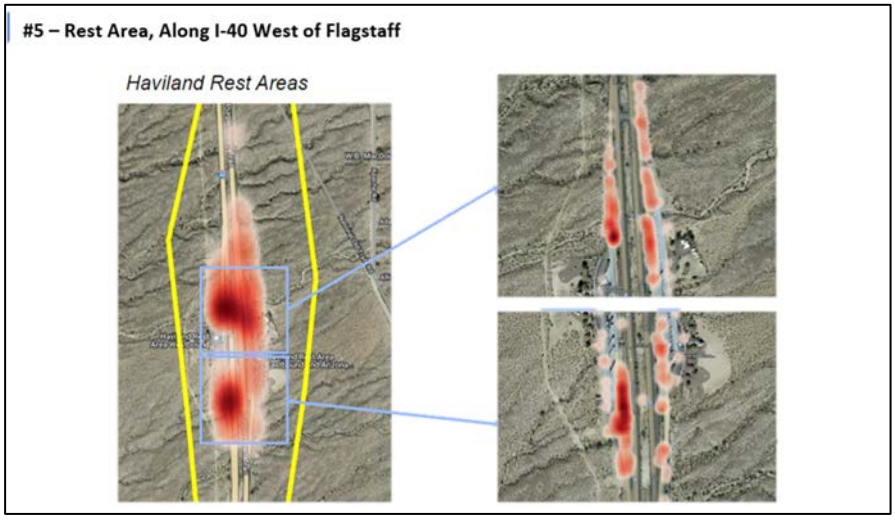
3. On-/off-ramp, along I-40 east of Flagstaff—This cluster includes Exit 300 to the west and Exit 303 to the east. The on-/off-ramps at Exit 300 have undesignated parking in the EB and WB directions. The undesignated parking at Exit 303 is most evident on the WB on-ramp to I-40. The nearest parking area to the east is 22 miles away at the Navajo Travel Center and the nearest parking area to the west is One9 Truck Stop 11 miles away.



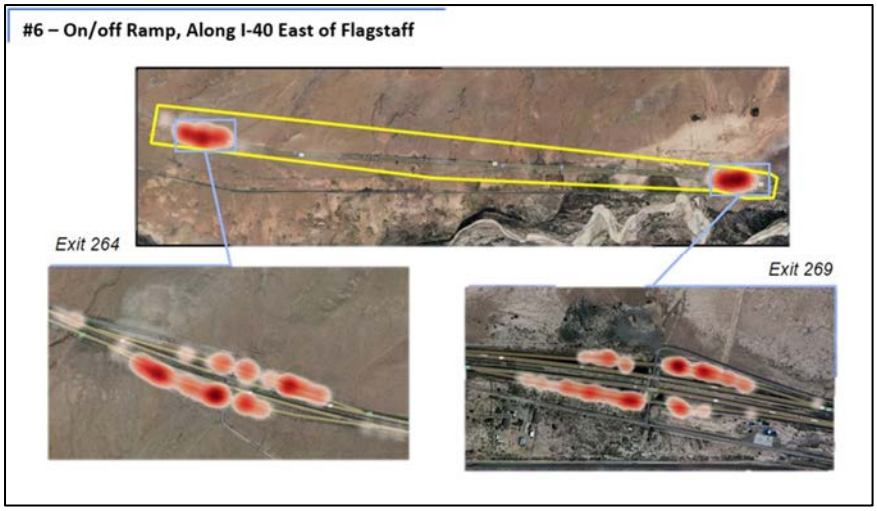
4. On-/off-ramp, along I-40 east of Flagstaff—This cluster includes three parking locations nearby: Exit 357 to the west, Exit 359 near Speedy's Truck Stop, and the Painted Cliffs Rest Area in between the two. Exit 357 experiences the most undesignated parking along the EB on-ramp and the WB off-ramp. The Painted Cliffs Rest Area primarily has undesignated parking occurring on the I-40 on-ramp. At Exit 359, undesignated parking occurs at the on-/off-ramps in both the EB and WB directions.



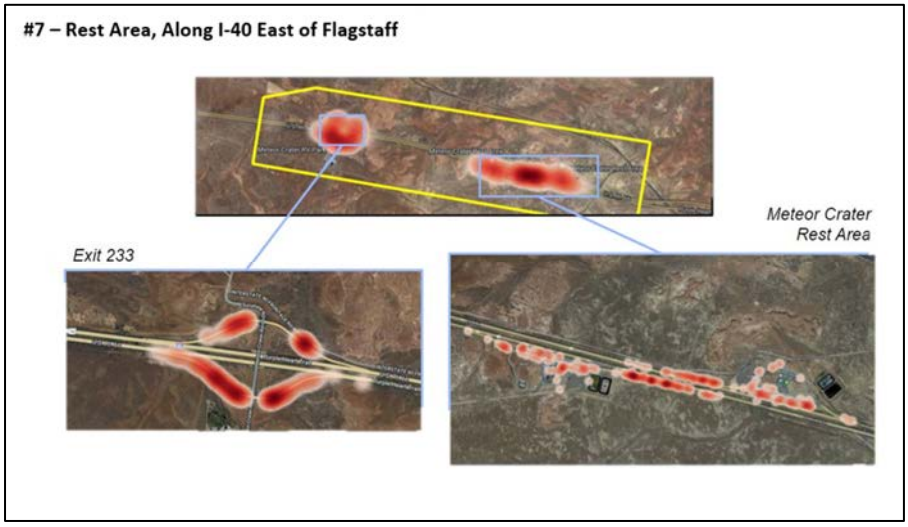
5. Rest area, along I-40 west of Flagstaff—This cluster is centered at the Haviland Rest Area. Undesignated parking occurs at the on-/off-ramps along the EB and WB directions. The WB direction experiences slightly more undesignated parking.



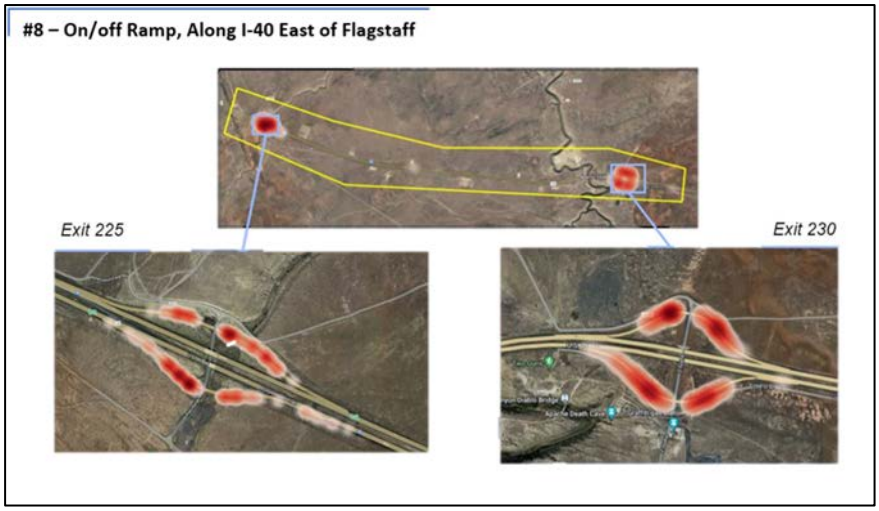
6. On-/off-ramp, along I-40 east of Flagstaff—This cluster features two locations of undesignated parking: Exit 264 to the west and Exit 269 to the east. At Exit 264, undesignated parking occurs at the on-/off-ramps in the EB and WB directions. The EB off-ramp experiences slightly more undesignated parking. Exit 269 experiences undesignated parking along the on-/off-ramps in the WB and EB directions. The off-ramps in either direction experience the most undesignated parking. The nearest parking facilities are Flying J Travel Center 8.5 miles to the west and Love's Truck Stop 6.5 miles to the east.



7. Rest area, along I-40 east of Flagstaff—This cluster includes two areas of undesignated parking: Exit 233 to the west and the Meteor Crater Rest Area to the east. The undesignated parking at Exit 233 occurs at the on-/off-ramps along the EB and WB directions, with greater instances along the EB direction. The Meteor Crater Rest Area experiences undesignated parking along the EB and WB on-/off-ramps, with the most instances occurring at the EB on-ramp and WB on-ramp locations.

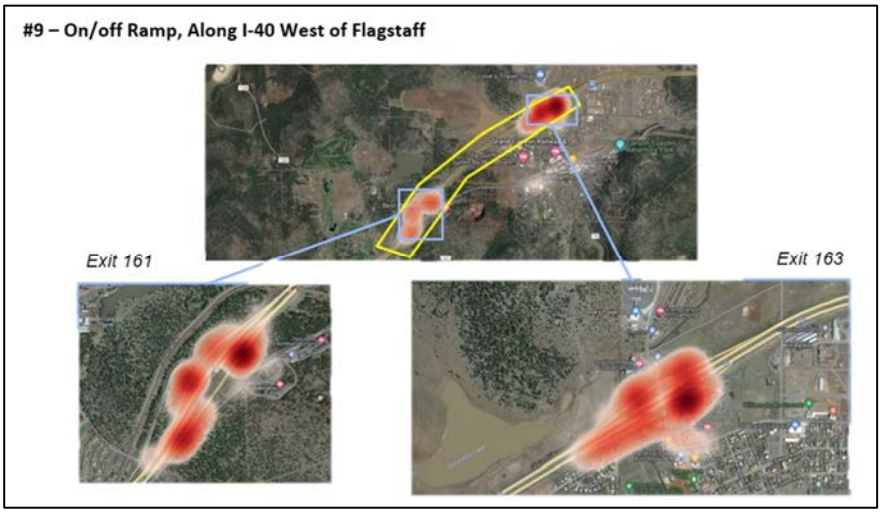


8. On-/off-ramp, along I-40 east of Flagstaff—This cluster includes two areas of undesignated parking: Exit 225 to the west and Exit 230 to the east. Undesignated parking is prevalent on the on-/off-ramps along the EB and WB directions at both exits. The nearest parking facility to the west is Navajo Blue Travel Plaza 5.5 miles away and to the east is Meteor Crater Rest Area 10.5 miles away.

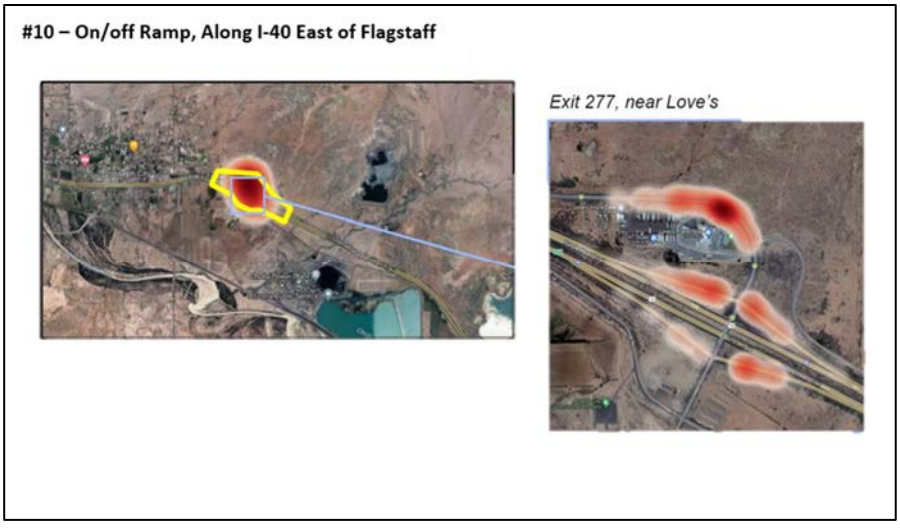


9. On-/off-ramp, along I-40 west of Flagstaff—This cluster includes two areas of undesignated parking: Exit 161 to the west and Exit 163 to the east. Undesignated parking is prevalent on the on-/off-ramps along the

EB and WB directions at both exits. The nearest parking facility to the west is 14.8 miles away at ONE9 Travel Center and to the east is Love's Travel Stop 2.5 miles away.



10. On-/off-ramp, along I-40 east of Flagstaff—This cluster is centered around Exit 277 near Love's Travel Stop. Undesignated parking occurs at the EB and WB on-/off-ramps, with more incidents along the EB direction. The highest undesignated parking occurs along the arterial next to the Love's Travel Stop.



3.3 Parking Utilization Analysis

The designated parking utilization analysis was conducted by comparing the ATRI truck GPS data with Arizona weigh-in-motion (WIM) stations to develop expansion factors. The trucks parked in designated parking spaces at public and private truck stops then were identified so that the expansion factor could be applied. The expansion factors were applied to each truck using the following prioritized rules:

1) The last WIM station a truck passed over within the last 11 hours
2) The expansion factor at WIM stations within 20 miles of where the truck stopped
3) According to the statewide average weighted by truck counts

The expanded truck counts during the 8-week data collection period were compared to the total number of designated spaces at each truck parking location. The truck parking demand was assessed by the time of day that trucks were parking at facilities, the locations at which they were parking, and the duration of time when the trucks were parked.

3.3.1 Parking Utilization by Time of Day

The weekday utilization for the statewide analysis peaks in the early morning hours with a high at 93% at midnight and 1:00 a.m. High truck parking utilization was recorded from 8:00 p.m. to 4:00 a.m. Medium utilization ranged from 56% to 75% and included the hours of 5:00 a.m., 6:00 a.m., 5:00 p.m., 6:00 p.m., and 7:00 p.m. The lowest utilization was recorded at 11:00 a.m. at 28%. The weekday truck parking time-of-day utilization is shown on Figure 3-9.

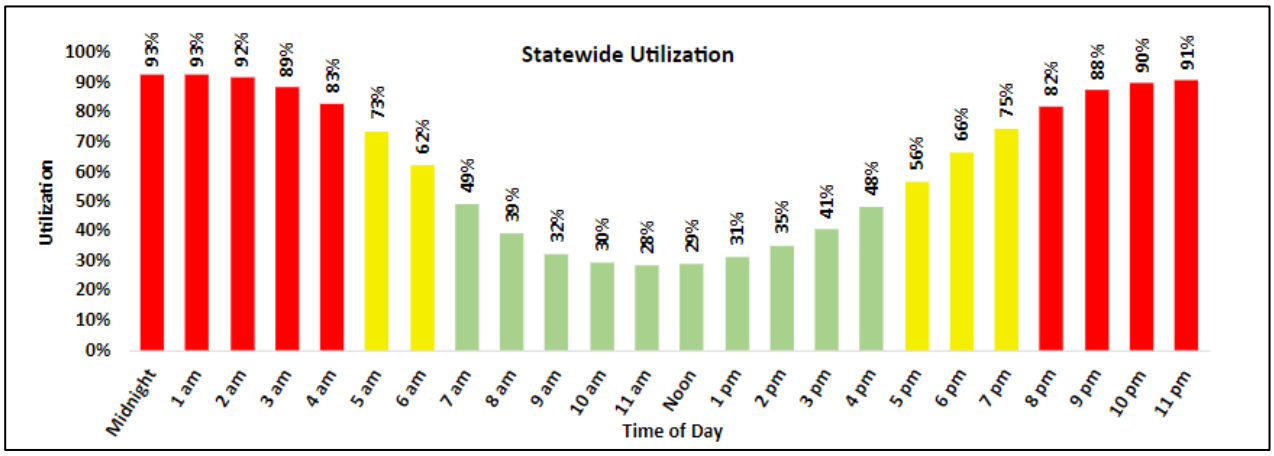


Figure 3-9. Weekday Truck Parking Utilization

3.3.2 Parking Utilization by Location

The truck parking utilization by location was conducted by connecting truck parking utilization to NHS roadway segments. The utilization was calculated for each segment according to public and private truck parking location within either (1) a 30-minute drive time from an urban segment, or (2) a 1-hour drive time from a rural segment. This analysis displays the utilization of all nearby truck parking spaces. For example, a truck driver operating in a rural area that is shown in red in the following maps would encounter little to no available truck parking spaces at all locations within an hour drive. Roadway segments shown in black have

zero truck parking locations within a 30-minute (urban segment) or 1-hour drive (rural segment). Roadway segments shown in black denote the equivalent of a truck parking desert, highlighting that there are no truck parking spaces nearby. The segment-based utilization for various times of the day can be seen in Figure 3-10, Figure 3-11, and Figure 3-12.

It was found that locations of regional and independent truck stops had a relatively lower truck parking utilization as compared to the larger private truck stops. As for locations of undesignated parking throughout varying times of day, the highest utilization is during the nighttime hours of 12:00 a.m. to 1:00 a.m. This peak period had few parking spaces available along all of I-40 and I-17, and the eastern portion of I-10 east of Tucson. Last-mile connectors near metro Phoenix and Tucson had medium to low parking availabilities and I-8 had medium parking availability. The medium availability of truck parking inside Phoenix is likely because of the presence of truck terminals in Phoenix providing a location to stop for trucks associated with large fleets. ATRI data tend to represent larger trucking fleets, which affects the number of trucks parked at truck stops versus truck terminals inside Phoenix. As shown in the statewide utilization, truck parking generally is available from 8:00 a.m. to 4:00 p.m. The evening and overnight peak utilization of truck parking stands in contrast to a.m. and p.m. peak volumes on roadways.

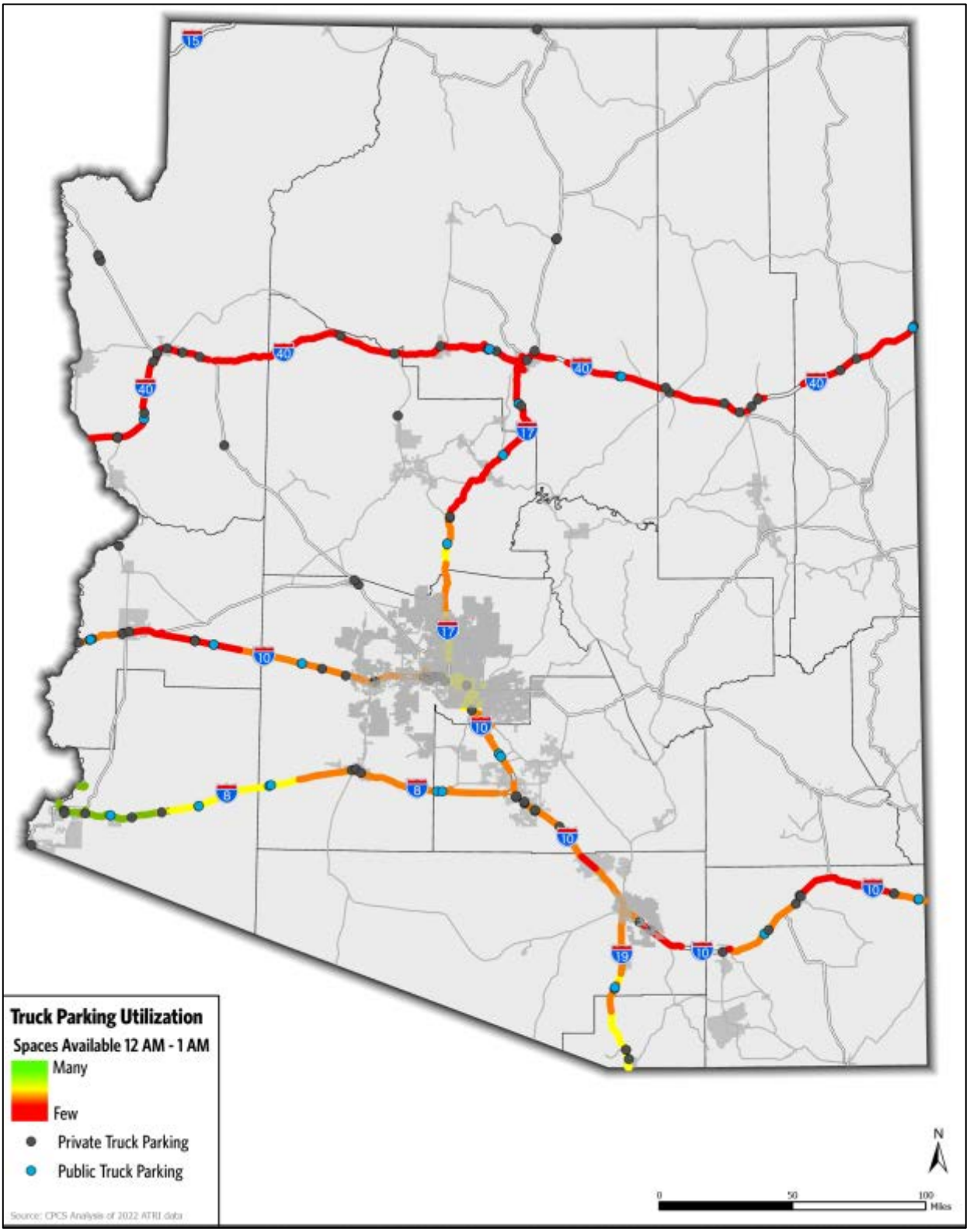


Figure 3-10. Truck Parking Utilization from 12:00 a.m. to 1:00 a.m.

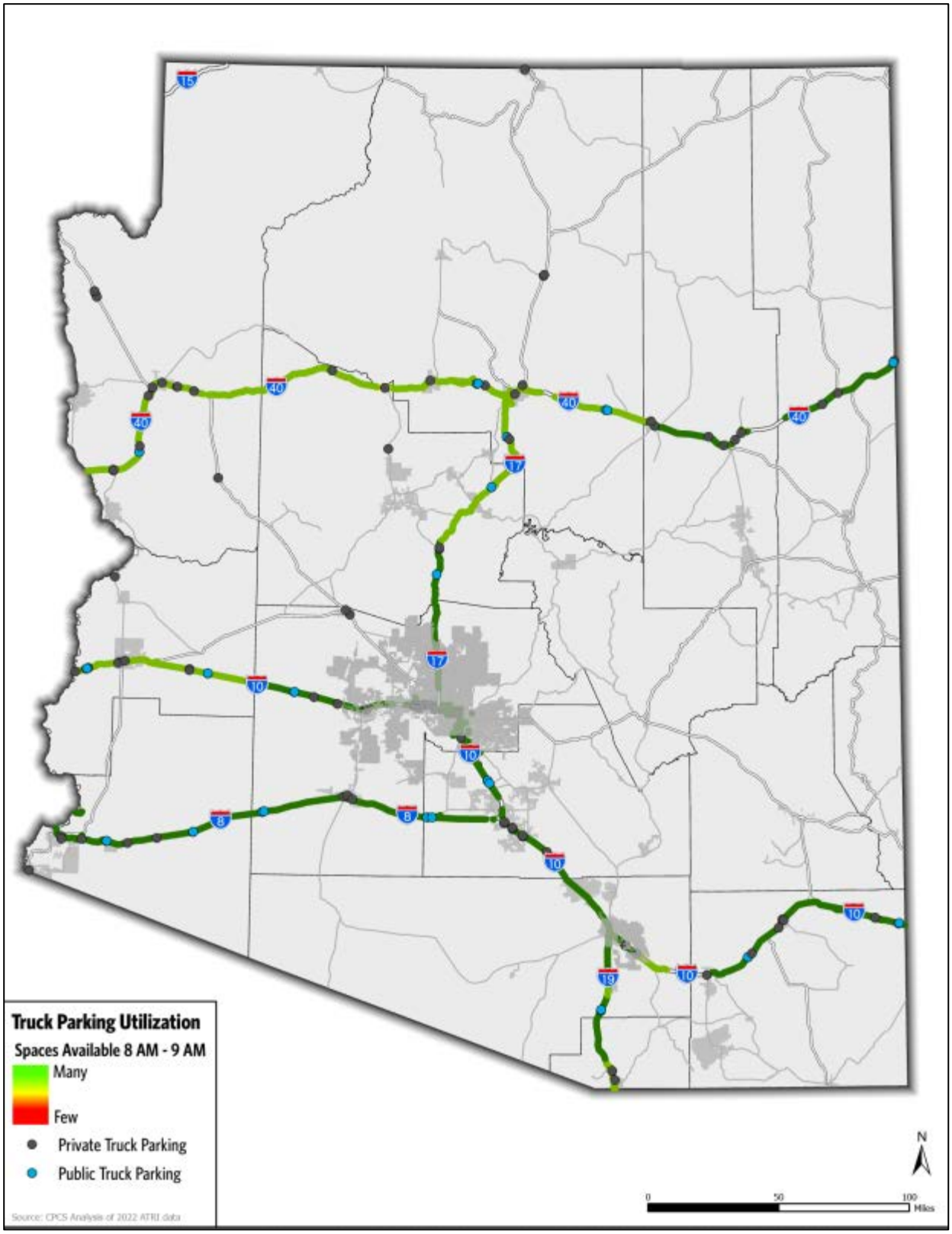


Figure 3-11. Truck Parking Utilization from 8:00 a.m. to 9:00 a.m.

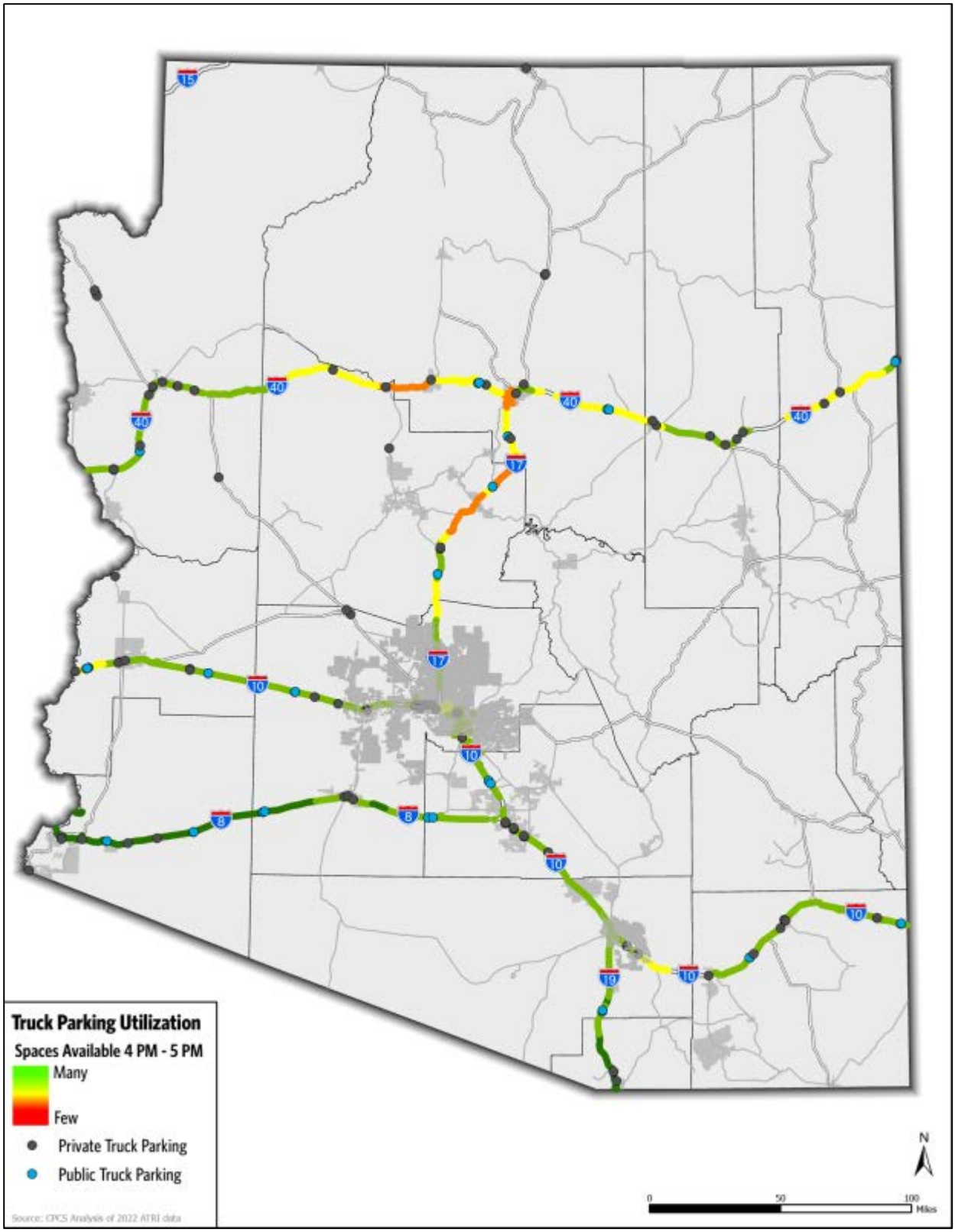


Figure 3-12. Truck Parking Utilization from 4:00 p.m. to 5:00 p.m.

4 Safety Overview

The lack of safe and secure public and private truck parking has led truck drivers to park in undesignated parking areas and at higher-risk locations, including on-/off-ramps, shoulders of highways, access roads, and along first-/last-mile connector roads. The shortage of parking spaces leads truck operators to drive beyond the permitted HOS as they search for parking, resulting in operating their vehicles while fatigued.

Roadway shoulders and interchange on- and off-ramps were identified as areas of high undesignated truck parking, which causes major safety concerns for both the parked truck drivers and the travelers along the roadways. The following section details further inspection of the past five years' truck crashes along the NHS throughout Arizona using the Accident Location Identification Surveillance System database. Truck-related crash incident reports were reviewed to identify crashes where driver fatigue, parking in undesignated areas, and lack of parking were listed as crash-contributing factors.

4.1 Crash Analysis

The truck crashes used in this analysis occurred between July 17, 2018, and July 17, 2023. During this period, a total of 11,541 truck-related crashes occurred. Figure 4-1 illustrates a crash map identifying injury severity.

It is important for this study to identify crashes that can be attributed to lack of parking along the state highway system. To identify these crashes, the crashes during the analysis period were filtered using attributes that identified the condition of the truck driver (whether fatigued) and the position of the truck (whether parked in an undesignated area) at the time of the crash. The fatigued-related and parked truck crashes along major corridors are summarized in Table 4-1 and mapped on Figure 4-2.

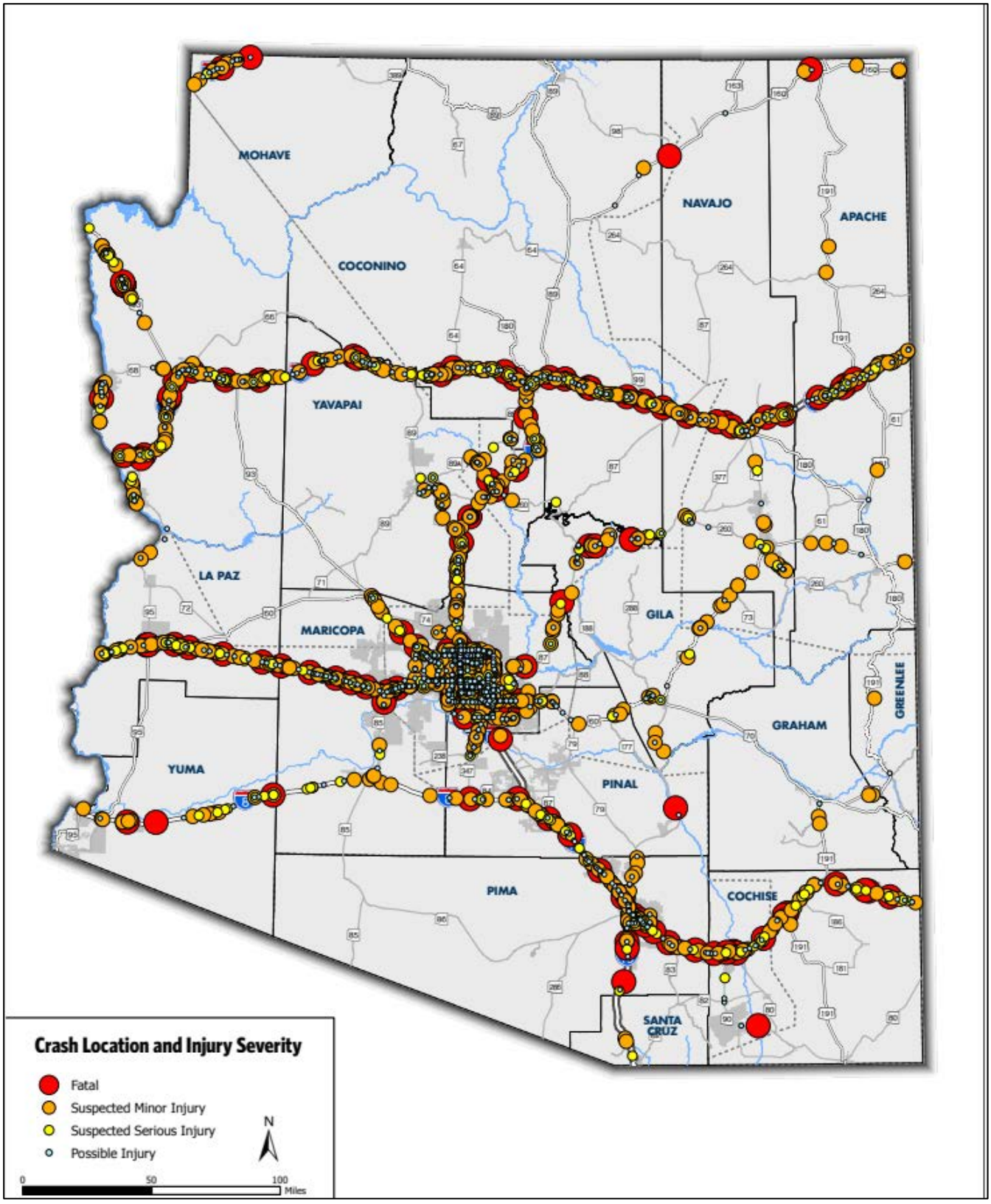


Figure 4-1. Crash Injury Severity

c

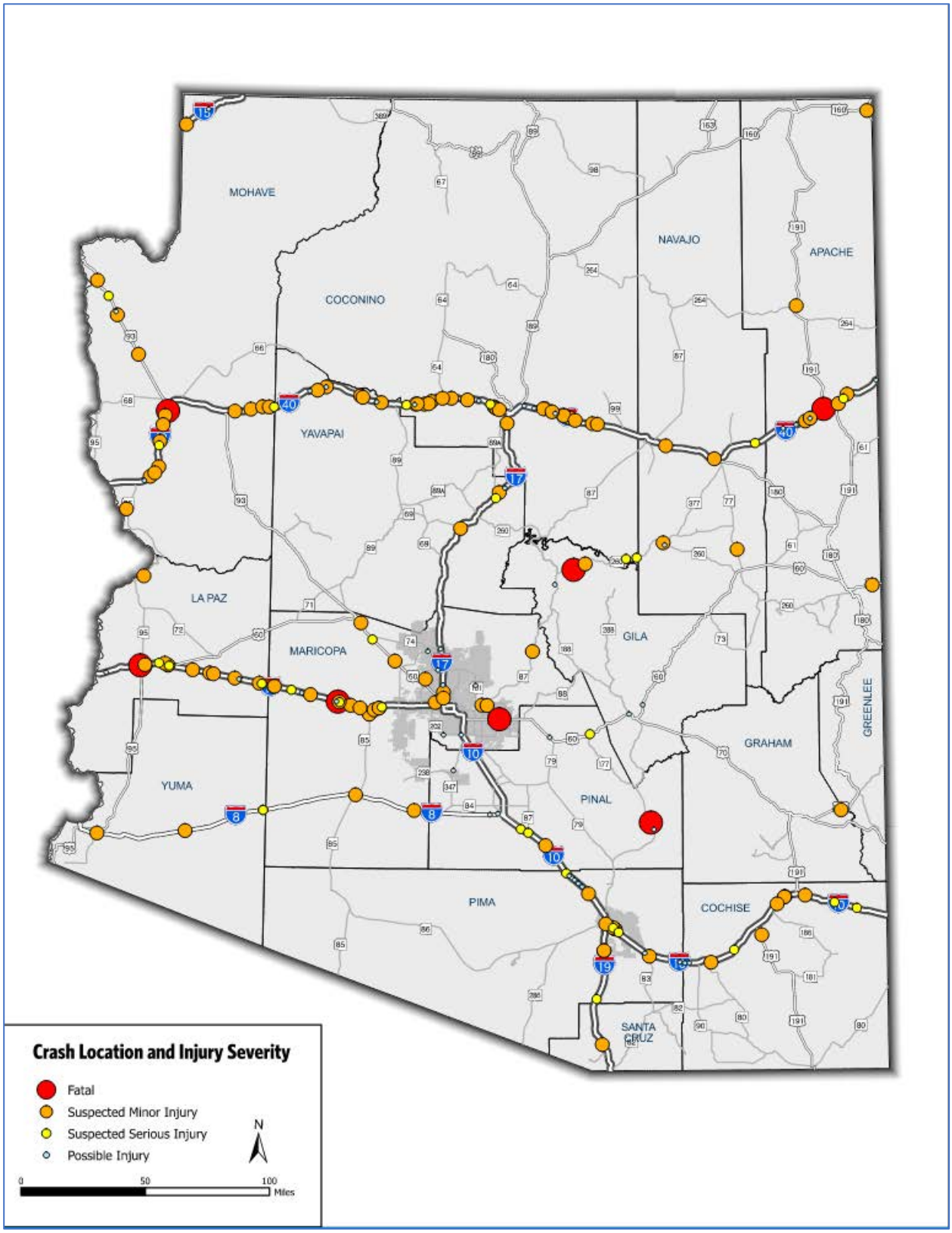


Figure 4-2: Driver Fatigue and Parked Truck Crashes

Table 4-1. Driver Fatigue and Parked Truck Crashes

Corridor	Crash Contributing Factors		Total Crashes
	Parked Vehicles	Driver Fatigue	
I-10	48	99	147
I-40	73	85	158
I-8	7	22	29
I-17	19	21	40
I-19	3	5	8
All Other Roads	48	79	127
Total	198	311	509

From Table 4-1, most of the driver fatigue and parked vehicle crashes occurred along I-40 (158 crashes, 32%). The I-10 corridor was a close second (147 crashes, 29%). Both corridors had high traffic volume and experienced parking deficiencies. The serious injury and fatal crashes with contributing factors of driver fatigue and parked vehicles were reviewed further to gather information from the crash incident reports. The detailed law enforcement narrative in the reports was examined to see if any additional factors were the primary reason for the incidents. After ensuring that no additional factors were the primary reason, the filtered crash data and undesignated parking densities were used in conjunction to identify potential locations for parking expansion.

5 Peer State Review

In addition, data were sourced from peer state truck parking programs to update the benchmarking process similar to the 2023 *Statewide Rest Area Study*, with the application to truck parking. The best practices and innovative technology trends for truck parking were determined from this process. Ten states were chosen based on their proximity to Arizona, ongoing truck parking initiatives, and input from the ADOT Project Management Team. The states selected for review are identified in Figure 5-1.

Figure 5-1. Peer States Reviewed for Truck Parking Best Practices

5.1 Peer States

New Mexico, California, and Texas were chosen based on their shared major freight corridors with Arizona of I-10 and I-40, as well as the I-10 Corridor Coalition agreement among the states. Nebraska was included because of its truck parking best practices in recognition of the FHWA Office of Freight Management and Operations' National Coalition on Truck Parking. Florida was chosen for its in-depth inspection of freight parking solutions from the recent Florida Department of Transportation (FDOT) *Statewide Truck Parking Study*. Nevada, Colorado, Missouri, and Indiana proved to have valuable case studies for truck parking availability by retrofitting and converting existing rest areas. Wyoming was chosen for its cost-effective solutions for providing buffered truck parking turnouts along major freight corridors.

Some general strategies for states' actions to increase truck parking availability include collaboration and partnerships, data collection and analysis, expansion and enhancement of rest areas, public-private partnerships, innovative funding mechanisms, technology solutions, and flexible zoning and regulations. These can be seen in the following examples for six states across the western U.S., two of which (New Mexico and California) are members of the I-10 Corridor Coalition. The truck parking initiatives in place for the

states of Wyoming, Nebraska, Colorado, New Mexico, California, and Washington are discussed in detail in the following section.

5.1.1 Wyoming

Wyoming hosts three major interstate highways (I-90, I-80, and I-25) crucial for transporting goods daily. Harsh weather conditions often heighten the need for truck parking, particularly on I-80. Wyoming employs technology to mitigate the parking shortage by offering advance weather notifications and dependable parking information during extreme conditions. The state recently released an updated truck parking map[2], listing various options such as truck stops, businesses, turnouts, and rest areas, detailing available amenities and space quantities. I-80 has approximately 3,000 parking spots, while I-25 and I-90 offer 1,300 spots combined.

5.1.2 Nebraska

Nebraska's freight plan[3] focuses on improving truck parking, especially along the I-80 corridor. Strategies include using Intelligent Transportation Systems, expanding existing spaces, and building designated spots along I-80. Currently, there are 116 truck parking facilities in Nebraska, with 330 spaces across 21 locations on I-80. A new parking lot near the I-80/US 138 interchange offers more than 100 additional parking spots, providing safe and accessible parking for truckers to meet HOS regulations. This initiative benefits both drivers and local economies. The state's approach aligns with Jason's Law, recognizing truck parking as a managed asset. These efforts have gained recognition as best practices and are contributing to national efforts to increase truck parking supply.

5.1.3 Colorado

Colorado's *Truck Parking Assessment* (TPA)[4] employs a thorough and forward-looking strategy to tackle truck parking challenges within the state. The process involves creating truck parking maps by updating existing Colorado Department of Transportation inventory through aerial photos, stakeholder input, and coordination. A truck travel pattern database is established using GPS-equipped trucks' location data. By merging the parking maps with this database, the utilization of parking facilities along TPA corridors is quantified. The TPA evaluates current and future truck parking requirements along these corridors, devising solutions based on parking availability. For private/public spots with adequate availability, the Truck Parking Information Management Systems is suggested. In areas with limited parking, possible solutions include constructing rest areas and turnouts near travel plazas and repurposing existing facilities, including weigh stations and park 'n ride lots along the NHS.

5.1.4 New Mexico

The New Mexico freight plan[5] provides a view of the current state of freight movement and offers a forecast for the next 25 years. The 2040 study plan includes evaluating truck parking issues and addressing capacity

[2] WYDOT TruckParking (state.wy.us)
[3] Nebraska State Freight Plan
[4] TPA 2019_Report_FINAL_reduced (1).pdf (colorado.gov)
[5] Technical and Freight Planning | NMDOT

concerns on key freight corridors. One proposed solution is enhancing truck parking facilities, which involves constructing additional rest areas with parking for trucks. Additionally, to alleviate congestion and counter limitations on parking, the plan suggests building bridges on major corridors.

5.1.5 California

California's statewide truck parking study[6] analyzes the state's truck parking needs and proposes effective solutions. The study begins by identifying truck parking supply through truck GPS data for both commercial and publicly owned spaces. Afterward, considering safety, stakeholder input, and demand data, specific truck parking needs are determined and quantified. This includes demand patterns in different locations, peak hours, 24-hour periods, and based on ownership.

The study suggests various strategies to address these needs. To enhance capacity, California plans to expand roadside rest areas, establish dedicated truck parking facilities near shippers and receivers, and incorporate parking spaces at new or existing commercial vehicle enforcement facilities. Additionally, maximizing existing infrastructure involves implementing smart curbside management tactics, promoting truck parking in unused industrial zones, allowing truck parking in certain auto-designated lots during off-hours, permitting emergency parking in underutilized lots, creating TPAS, and installing connected signage indicating nearby parking spaces for trucks.

5.1.6 Washington

In Washington, the state's Joint Transportation Committee released a *Truck Parking Action Plan*[7] in 2021. The plan recommends identifying the most feasible site for truck parking facilities, building smaller parking lots for short-term staging only, and building a new truck parking facility to accommodate roughly 50 trucks on/near I-5 near Seattle-Tacoma International Airport. Innovatively, the plan promotes "Airbnb" truck parking, stating, "mobile applications have been developed to allow property owners to market their available space, and truck drivers and companies to identify, reserve, and pay for parking at available locations, expanding the pool of inventory and providing a financial incentive for participating property owners. Truckers are directed to parking in existing lots which are already zoned for commercial or industrial use and permitted for truck activity. To date, these apps have primarily attracted local owner-operators or trucking companies who lease space for their fleet by the month." Additionally, the plan proposes tax incentives for shippers and receivers to provide truck parking onsite.

Key highlights from peer agency strategies discussed previously are described in the following sections.

5.2 Parking Expansion and Reconfiguration

5.2.1 Creative Use of Existing Right-of-Way

One agency that has been cited for best practices on the topic is the Nebraska Department of Transportation (NDOT) for using state right-of-way (ROW) to provide nearly 200 truck parking spaces along I-80 at the

[6] dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/freight-planning/plan-accordion/catrkpkgstdy-finalreport-a11y.pdf

[7] Joint Transportation Committee truckparking (wa.gov)

junction with US 138[8] (Figure 5-2). The lot was surfaced with leftover asphalt millings from prior projects and includes garbage dumpsters and lighting.

Figure 5-2. NDOT I-80/US 138 Interchange Parking Expansion

[8] NDOT's Innovation Brings Truck Parking to Big Springs – Benefits of Transportation

5.2.2 Upgrading Existing Rest Areas

Several states have included retrofitting rest area facilities to accommodate additional truck parking. The Indiana Department of Transportation (INDOT) published its *Rest Area & Welcome Center Improvement Plan* in 2020[9]. The plan aims to address truck parking deficiencies across the state's rest areas by modernizing and constructing new rest area facilities and improving truck parking by converting some existing car parking to commercial truck parking. INDOT's 10-year plan calls for adding more than 1,100 semitrailer parking spaces across the state by the end of fiscal year 2032 (Figure 5-3).

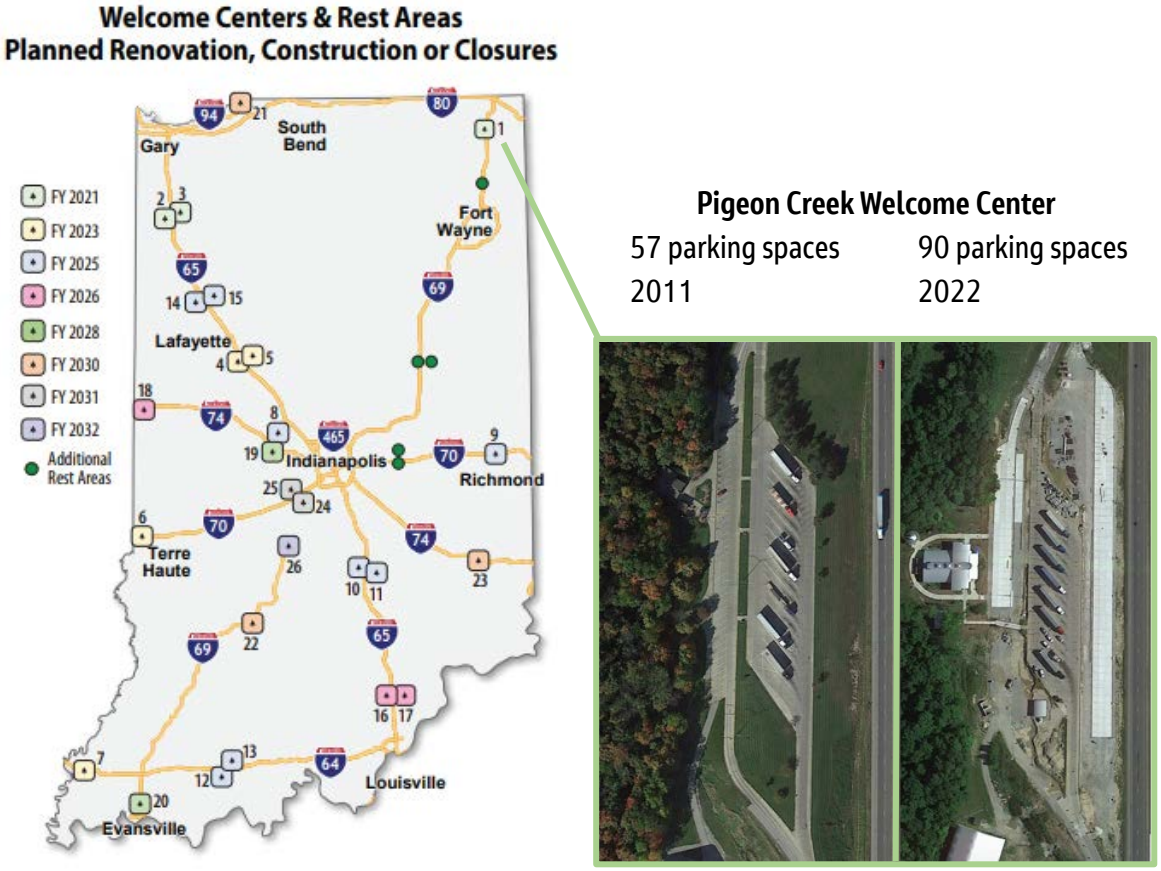


Figure 5-3. INDOT Welcome Centers and Rest Area Conversions

[9] https://www.in.gov/indot/files/Rest-Area-and-Welcome-Center-Improvement-Plan.pdf

The Missouri Department of Transportation (MoDOT)[10] has taken steps to retrofit its existing rest areas and has continued to convert unused rest areas into commercial truck parking facilities. Additional parking at existing rest areas is provided by expanding truck parking within existing ROW (Figure 5-4).

Figure 5-4. MoDOT Rest Area Conversions to Truck Parking Only

[10] https://www.modot.org/northwest-missouri-rest-area-modifications

5.2.3 Truck-Parking-Only Areas

The Wyoming Department of Transportation (WYDOT)[11] has added areas of "truck parking only" along major freight corridors to increase truck parking. These "turnouts" are a low-cost option that may help create a safe barrier between the parked semitrailers and the interstate, and offset incidents of undesignated parking along on- and off-ramps at various stopping points (Figure 5-5).

Figure 5-5. WYDOT Truck Parking Turnout Location along I-80

5.3 Commercial Parking Partnerships

Some states are exploring partnerships with private entities to supplement public truck parking with private facilities. The *FHWA Truck Parking Development Handbook* (2022)[12] details the public-private partnership (P3) opportunities and identities the benefits and challenges for implementing commercial parking through such partnerships (Table 5-1).

Table 5-1. FHWA Truck Parking P3 Benefits and Potential Barriers

Benefits	Potential Barriers to Implementation
Reduces public cost of development and maintenance of parking locations.	Identifying mutually beneficial terms to meet public and private needs can be challenging.
Distributes risk across multiple parties.	State law may prohibit or limit local authority to enter into P3s.
May provide additional amenities not typically present at public rest areas.	-

[11] https://www.dot.state.wy.us/news/new-truck-parking-map-available
[12] Truck Parking Development Handbook (dot.gov)

5.3.1 Private Partnership Use Cases

Washington's Joint Transportation Committee released a *Truck Parking Action Plan*[13] in 2021 that recommends that a partnership program be developed to provide commercial truck parking in underused infrastructure locations such as large retail or industrial parking lots. The plan also promotes "Airbnb" truck parking solutions in which property owners may rent their available lots to local owner-operators in areas permitted for commercial and industrial use. These sites may be less at risk than other undesignated parking areas, such as along interstate on- and off-ramps.

The Trucker Path app[14] is widely used by truck drivers across the country, and the app features Walmart as a host for commercial truck parking across Arizona and other states. The app features more than 76 Walmart locations that have truck parking availability in the state, with most of the stores in last-mile locations along major corridors (Figure 5-6). These agreements with commercial establishments are determined by local jurisdiction and are at the discretion of each property owner.

Figure 5-6. Walmart Commercial Truck Parking Opportunity

5.4 Emerging Technology Trends

Recognizing the need to optimize existing truck parking space utilization, several states are exploring technology solutions. Some solutions include the implementation of a detection technology, a communications system, and an information dissemination system. The following sections identify some of these emerging technology themes.

5.4.1 Truck Parking Availability System

In the previous 2019 *Arizona Truck Parking Study*, the Arizona Truck Parking Advisory Group ranked Truck Parking Information Management System (TPIMS) as a priority project. TPIMS operates by installing sensors and using radar camera detection for ingress and egress counts, with closed-circuit television (CCTV) cameras used in conjunction with third-party analytics for parking space updates on dynamic messaging signs (DMS).

[13] Final_TruckParkingActionPlan_2021.pdf (wa.gov)
[14] https://truckerpath.com/trucker-path-app/walmart-with-truck-parking/

The prioritization by the advisory group led to the three-phase implementation plan for TPIMS. Phase I included the TPIMS proof of concept, which compared the available technologies to use for the TPIMS; phase II continued to build on the work from phase I and additional funding resources for the TPIMS were identified for a corridor or statewide basis; and phase III considered branching out the TPIMS to additional locations.

Figure 5-7. I-10 Corridor Coalition Project Limits

The I-10 Corridor Coalition [15] built off of this proposed solution and started a pilot project with TPAS that spanned along I-10 with a partnership between the states of California, Arizona, New Mexico, and Texas (Figure 5-7). This pilot study integrated real-time truck parking availability data collected via CCTV cameras and radar sensors with connected DMS at 37 public truck parking locations, with 8 locations in Arizona along the eastbound and westbound directions at the rest areas of Ehrenberg, Bouse Wash, Texas Canyon, and San Simon (Figure 5-8). The project is expected to be fully operational by 2024.

[15] https://i10connects.com/sites/default/files/media/I-10_TPAS_ConOps.01.2022.pdf

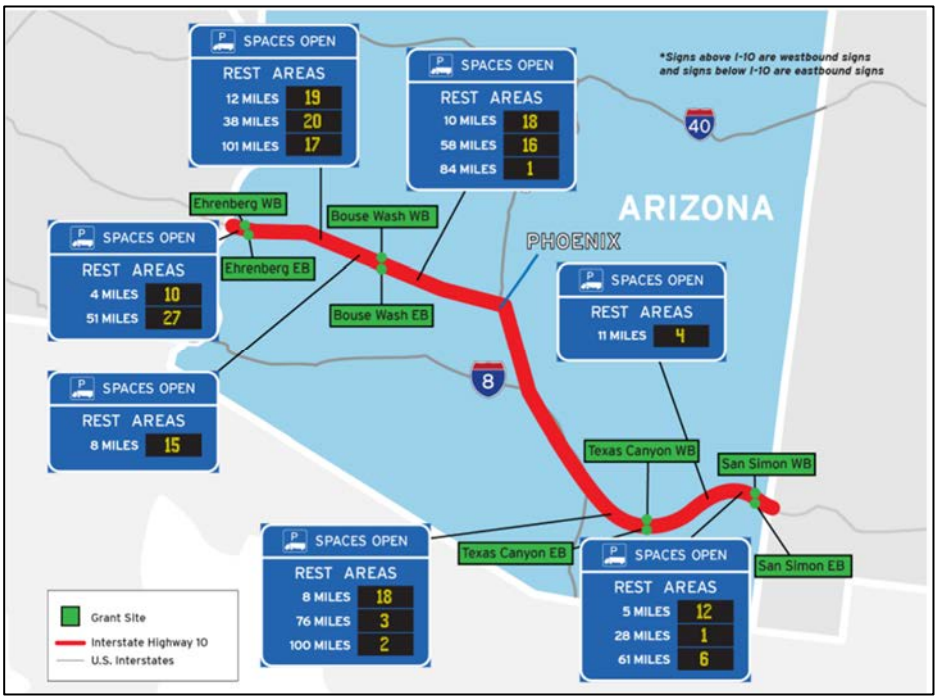


Figure 5-8. Arizona TPAS Implementation Sites

Additional truck parking solutions at a corridor-wide basis were developed by the Texas Department of Transportation (TxDOT) as a part of the 2020 *Texas Freight Network Technology and Operations Plan*[16]. Three potential strategies include the following:

- Freight Integrated Corridor Management: This strategy has high-level benefits of safety, mobility, and reduced emissions to improve freight flow through areas of high crash potential by rerouting trucks along parallel routes (Figure 5-9).
- High-resolution Advanced Freight Traveler Information System: This strategy provides benefits of reducing vehicle operating costs and increasing safety to provide real-time traffic updates using web and mobile apps for truck drivers to make informed decisions pre-trip and on-the-road for overall

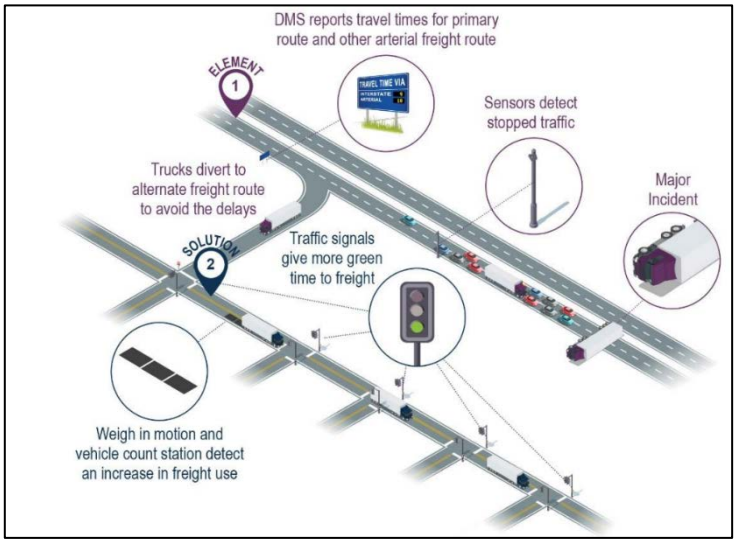


Figure 5-9. TxDOT Freight Integrated Corridor Management

[16] https://ftp.txdot.gov/pub/txdot/tpp/freight-planning/fntop/freight-network-technology-and-operations-plan.pdf

efficiency and reduced congestion (Figure 5-10).

- Automated Vehicle Infrastructure with Connected Signing and Data: The integration of automated vehicle infrastructure, connected signing, and data has high-level benefits for improving safety, mobility, and reducing emissions to help navigate atypical road geometries and construction zones for improved freight mobility with electronic connected signage (Figure 5-11).

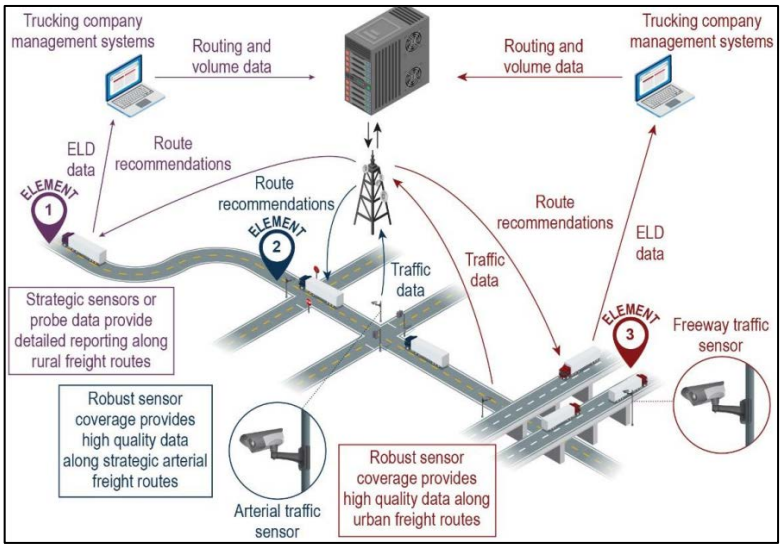


Figure 5-10. TxDOT High-Resolution Freight Traveler Information System

5.4.2 Detection Solutions

A Truck Parking Technology Assessment Survey was conducted in May 2023 by the Maryland Department of Transportation that obtained responses from various state and city departments of transportation across the country to determine the benefits and challenges of several truck parking data collection devices and their efficiency for improving parking availability. The survey found that in addition to the CCTV cameras and radar detection (Figure 5-12), pavement-embedded pucks used for measuring space occupancy and dual camera spectroscopy also were in use. The most effective solution was the combination of the radar detection systems with the CCTV cameras. The pucks were noted as ineffective, with one survey responding that they experienced a 70% failure rate within 2 years of deployment. All the survey respondents emphasized the importance of system design, construction, integration, and testing of the truck parking availability devices and systems.

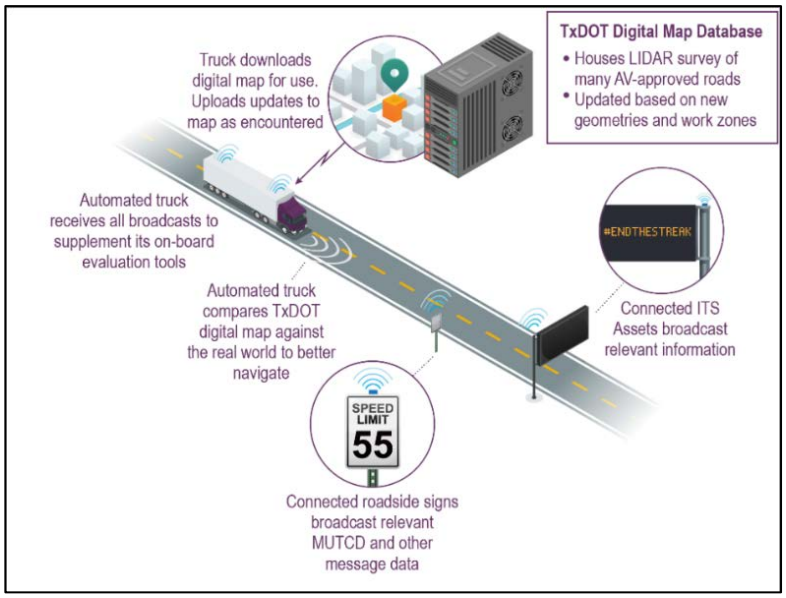


Figure 5-11. TxDOT AV Infrastructure, Connected Signage and Data

Figure 5-12. CCTV Camera and Radar Detection for TPAS

5.4.3 Information Dissemination

To inform drivers about truck parking availability, several departments of transportation updated their 511 websites for real-time traveler information. An example of the real-time truck parking availability website is the FDOT 511 Traffic Information Website[17]. The interactive site allows users to input their routes and see potential traffic speeds, alerts, and areas with truck parking availability (Figure 5-13). FDOT's 511 website with truck parking availability first became available following the release of FDOT's 2020 *Statewide Truck Parking Study*.

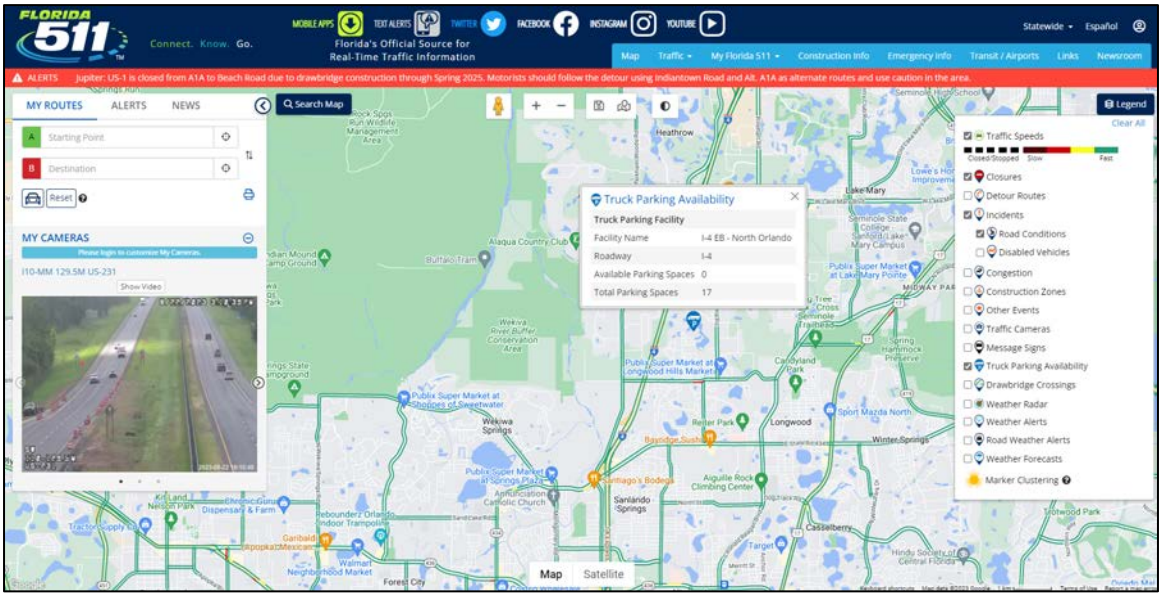


Figure 5-13. FDOT 511 Website Real-Time Truck Parking Availability

[17] https://www.fdot.gov/rail/studies/truck-parking

6 Truck Parking Solutions

Table 6-1 provides the different solutions as a toolbox aimed at improving truck parking in the state. The solutions are categorized into infrastructure improvements, technology solutions, and policy considerations. Table 6-1 also lists benefits and disadvantages of each category of solutions. Detailed descriptions of the solutions follow the table.

Table 6-1. Truck Parking Solutions Toolbox

Category	Location	Tools	Benefits	Challenges
Infrastructure	Existing rest areas	Expand parking within rest area footprint, improve amenities	Faster implementation, standard amenities already available, maintain current O&M	Limited expansion opportunities/Unmet parking demand
	Safe truck-only parking areas	Creative use of ROW, cost-effective solutions (alternate pavement materials, solar LED lights, large dumpsters, vaulted toilets)	Parking needs satisfied, stretch the available budget to meet needs at multiple locations	Need to develop ramp connections, guide signs, higher/newer O&M needs, some security concerns
	Private truck stops	Build new or expand current private stops	Low state investment	Needs coordination with private entities
Technology	Various	TPAS, TPIMS, DMS, Apps, and more	Optimal usage of existing spaces, may reduce uncertainty for truck drivers	Unmet parking demand, new investments in technology
Policy	Various	Public-private partnerships, competitive local grant programs, sponsorship of publicly owned facilities, enforcement, coalitions with neighboring states	Low investment needs, potential to reduce parking needs	Potentially slow to materialize

LED = light-emitting diode; O&M = operations and maintenance

6.1 Infrastructure Solutions

6.1.1 New Spaces at Existing Rest Area Sites

Improving the infrastructure for truck parking is essential to provide more efficient and safe operation for the trucking industry. One solution to address this challenge is the addition of new spaces at existing rest areas. Rest areas are often overcrowded, leading to issues with congestion and limited parking availability. By expanding these existing facilities, more spaces can be created to accommodate the growing number of trucks on the road. One advantage of adding additional spaces at existing rest areas is that standard amenities are readily available. Moreover, creating new spaces at existing rest area facilities results in minimal increase in O&M expenses. However, it is important to note that meeting the parking demand within the existing ROW is not possible at many rest areas. New ROW acquisition will be needed before adding truck spaces. Additionally, it is crucial to strategically plan parking expansion along a corridor at multiple sites to provide a balance between parking availability and HOS duration.

6.1.2 Safe Truck Parking Lots

Another cost-effective approach is to develop alternate sites with basic amenities specifically designed for truck parking. These sites can be strategically located along major transportation routes, offering a convenient and affordable option for truckers. By keeping the amenities basic but essential, costs can be minimized while still providing drivers with necessities like well-lit parking areas, restrooms, and security features to ensure their safety. These alternate sites can alleviate the pressure on rest areas and truck stops, reducing congestion and enhancing the overall experience for truck drivers.

Safe lots will be developed as cost-effective solutions allowing the state to provide more parking at a lower overall cost. Some cost-effective options include:

1. Use of alternate pavement materials: Several pavement materials were considered for parking lot facilities, including gravel, asphalt, concrete, permeable polymer-grid with gravel in-fill, soil cement, and roller-compacted concrete. Opting for gravel as a pavement material would lead to quicker implementation, but it comes with challenges such as susceptibility to shifting under the weight of trucks and difficulty in maintenance. Moreover, using gravel makes it impossible to delineate parking spaces. Although asphalt and concrete pavements avoid the drawbacks associated with gravel, they are comparatively expensive to construct. The ultimate decision on the choice of pavement material will be influenced by factors such as implementation feasibility, longevity, and maintenance requirements in diverse weather conditions. ADOT will conduct a thorough evaluation of these aspects before proceeding with implementation.
2. Waterless vaulted toilet facilities: Waterless vaulted toilet facilities offer a cost-effective alternative to traditional restroom facilities at truck stops. These facilities are designed with simplicity and efficiency in mind, typically consisting of a basic, odor-resistant structure built over a large underground vault to contain waste. Because they do not require a connection to sewage systems or extensive plumbing with running water, they can be installed at locations where running water is not accessible. As a result, the construction and maintenance costs of vault toilets are significantly

lower compared to conventional restrooms. This makes them an adequate choice at safe lots where budgets are limited. Despite their economical construction, vault toilets still provide essential restroom services, promoting sanitation and hygiene for visitors, and their design minimizes environmental impact while offering a sustainable and budget-friendly solution for maintaining public areas. Truck parking guidance from FHWA states that vault toilet systems at truck-only stops will need to be maintained and waste pumped out once a month, keeping the O&M expenses on the low end.

3. Solar on-demand LED lighting systems: Solar on-demand LED lighting systems have proven to be remarkably effective in remote areas without power line connectivity. These systems harness solar energy to generate clean and sustainable energy, making them an ideal solution for off-grid locations. By storing solar energy in batteries, these systems can provide reliable lighting during the night, enhancing safety and security in areas that would otherwise remain dark. Moreover, LED technology ensures energy efficiency and a longer lifespan for the lighting units, reducing the need for frequent maintenance or replacements. This not only contributes to cost savings but also minimizes the environmental impact. The adaptability and self-sufficiency of solar on-demand LED lighting systems make them a vital tool in bringing essential illumination to safe lots, improving their safety and security.
4. Large trash dumpsters for trash collection: Large dumpsters for trash collection in truck-only safe lots provide adequate capacity and cost efficiency. Their ability to hold a significant volume of waste reduces the frequency of emptying, lowering overall collection and disposal costs. These dumpsters streamline the collection process, maintain cleanliness by preventing litter and overflow, and accommodate various types of waste. They are also durable and built to withstand environmental conditions, reducing the need for frequent maintenance and replacement. While the initial cost may be higher, the long-term cost savings and effectiveness make large dumpsters a practical choice for managing waste in safe lot areas.

While safe lots can be developed using alternate pavement materials and cost-effective amenities, the ramp connections to the freeway mainline must be developed using traditional materials and designed to federal and state standards. To reduce the overall financial burden on the state, the costs associated with O&M of the safe lots may be shared with the trucking industry.

6.1.3 Private Truck Stops

Privately operated truck stops have become an integral part of the logistics and transportation industry, offering various advantages to public agencies when promoted and managed effectively. First, private truck stops can alleviate the financial burden on public agencies, as they are funded and operated by private entities, reducing the need for public investment in infrastructure development and maintenance. Furthermore, these facilities often provide truckers with a wider range of services, including restaurants, lodging, and maintenance shops, enhancing the overall quality of rest areas for drivers. This, in turn, contributes to improved safety and convenience on the roads. By promoting the expansion and operation of private truck stops, public agencies can optimize the use of available resources, increase economic activity,

and better cater to the needs of the trucking community while relieving some of the financial pressures associated with maintaining public rest areas and truck parking facilities.

6.2 Technology Strategies

In addition to creating new spaces and cost-effective alternate sites, leveraging technology can further optimize truck parking infrastructure. Implementing real-time parking availability systems or apps can provide truckers with real-time information about truck parking availability at various locations, allowing them to plan their stops more efficiently. It is important to note the technology solutions to truck parking will not increase the underlying capacity but will allow for the efficient use of existing parking spaces. ADOT will implement TPAS along I-10 in 2024. The I-10 TPAS will monitor parking availability at four rest area locations: Ehrenberg, Bouse Wash, Texas Canyon, and San Simon. ADOT's 511 system displays rest area status and number of overall spaces available for truck parking. There are several privately developed and maintained apps that provide information on truck parking availability at public and private truck stops; some apps even include the provision of reserving a spot at a specific location.

Figure 6-1. TPAS Implementation

Although technology solutions hold the potential for maximizing the use of current parking facilities, a concrete proof of concept has not yet been established.

6.3 Policy Considerations

6.3.1 Multi-Agency Collaboration

Collaboration between government agencies, private businesses, and industry stakeholders is essential in developing comprehensive solutions for truck parking infrastructure, ensuring that it meets the evolving needs of the trucking industry and enhances safety and efficiency on the road. One key benefit of such collaboration is the pooling of resources. By partnering with neighboring states, regional organizations, and private businesses, states can share the costs of infrastructure development, maintenance, and security, making it more cost effective to provide adequate truck parking. This not only conserves state resources but also promotes a more comprehensive and efficient network of truck parking facilities.

Close coordination with the Maricopa Association of Governments and the Pima Association of Governments will allow ADOT to develop and streamline solutions for truck parking in the Phoenix and Tucson metro areas. Developing adequate solutions in these two metro areas is vital to improving first-mile and last-mile truck parking needs in the state.

6.3.2 Prioritization Method Adjustments

ADOT also could refine the performance metrics outlined in the *State Freight Plan*[18] to reflect the adverse consequences resulting from inadequate truck parking and the advantages related to safety, economic viability, and infrastructure maintenance when adequate parking infrastructure is in place. This adjustment would enhance the competitiveness of truck parking projects when seeking funding against other infrastructure improvement projects.

6.3.3 Public Private Partnerships

Because of federal regulations on commercial activity within the interstate ROW, the use of a P3 mechanism to improve truck parking infrastructure will be limited to urban areas. ADOT can explore P3 opportunities in which private entities develop new truck parking facilities and collect a fee from users for an agreed upon time prior to transferring the facility to the state.

6.4 Truck Parking Solutions Considered

Among the various parking solutions mentioned previously, this study exclusively focused on exploring infrastructure improvements at existing rest areas and safe lots as viable options for enhancing truck parking facilities. While technology and policy-based strategies certainly have the potential to improve truck parking, they tend to have longer implementation timelines and may not fully address the immediate and substantial demand for truck parking on Arizona's extensive interstate system.

Infrastructure enhancements at existing rest areas and designated safe lots present a pragmatic approach. By expanding and modernizing rest areas and providing alternate safe lots, the state can swiftly alleviate some of the parking constraints faced by truckers while simultaneously enhancing the overall driver experience. These improvements encompass adding new parking spaces and updating amenities; Arizona can immediately contribute to safety, driver well-being, and operational efficiency by following through on this strategy, recognizing the immediate challenges that truck drivers face. While technology and policy-based solutions should remain under consideration for the future, infrastructure improvements provide a more tangible and expeditious response to the pressing truck parking needs along the state's vast interstate network.

[18] ADOT Freight Plan Final (azdot.gov)

7 Parking Opportunities

Undesignated parking analysis was conducted across the state to identify major clusters of undesignated truck parking due to parking deficiencies. Undesignated truck parking clusters were a determining factor for the selection of proposed parking expansion sites. Figure 7-1 and Table 7-1 show the top areas of undesignated truck parking across the state. ADOT ROW availability was assessed along the major corridors where the undesignated parking incidents were recorded. Proposed sites were identified within the existing ROW for parking expansion to meet the parking needs.

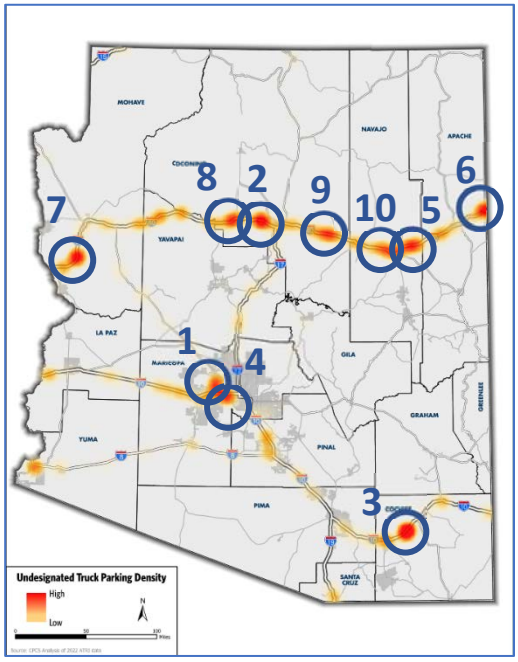


Figure 7-1. Top 10 Undesignated Parking Cluster Locations

Table 7-1. Top 10 Undesignated Parking Cluster Locations

Undesignated Parking Ranking	2022 Cluster Locations
1	I-10 MP 120, last mile west of Phoenix
2	I-40 MP 185, Parks Rest Area on-/off-ramps
3	I-10 MP 320, Texas Canyon Rest Area on-/off-ramps
4	I-10 MP 130, last mile west of Phoenix
5	I-40 MP 285, west of Holbrook
6	I-40 MP 356, west of Painted Cliffs Rest Area
7	I-40 MP 22, Haviland Rest Area on-/ off-ramps
8	I-40 MP 160, on-/off-ramp west of Flagstaff
9	Meteor Crater Rest Area at I-40 MP 236
10	I-40 MP 270, on-/off-ramp west of Winslow

Table 7-1 shows multiple undesignated parking clusters along I-40 and some along I-10. The intensity of undesignated parking was observed to be higher along I-40 (east of Flagstaff), I-10 (west of Phoenix), and I-10 (east of Tucson). While areas of parking deficiencies were observed near Haviland, Parks, Christensen, McGuireville, and Sunset Point Rest Areas, the truck parking expansions for these rest areas are part of an ongoing design-build project.

ADOT has ROW near major undesignated. This makes many options to expand parking viable. Parking expansion opportunities include existing rest areas and safe lots. Amenities such as restrooms, trash receptacles, and lighting are available at existing rest area locations, but new safe lot locations would require installation of amenities and may include solar-powered LED lighting, trash receptacles, and waterless vaulted toilets. The safe lot parking locations are designated for truck parking only, while the rest areas may serve all travelers.

7.1 Parking Expansion Locations

Several parking opportunities are described by location in the following sections. Table 7-2 lists the parking expansion opportunities and their expansion status.

Table 7-2. Truck Parking Expansion Opportunities

Parking Expansion Location	Corridor	Milepost	Traffic Directions Served	Expansion Status
Haviland Rest Area	I-40	23	Both	Ongoing
Parks Rest Area	I-40	185	Both	Ongoing
Sunset Point Rest Area	I-17	252	Both	Ongoing
Christensen Rest Area	I-17	324	Both	Ongoing
McGuireville Rest Area	I-17	296	Both	Ongoing
Ehrenberg Rest Area	I-10	5	Both	Evaluated
Bouse Wash Rest Area	I-10	53	Both	Evaluated
Burnt Well Rest Area	I-10	86	Both	Evaluated
Sacaton Rest Area	I-10	182	Both	Evaluated
Texas Canyon Rest Area	I-10	320	Both	Evaluated
San Simon Rest Area	I-10	388	Both	Evaluated
US 191 TI Safe Lot	I-10	332	WB Only	Evaluated
Sibyl Road TI Safe Lot	I-10	312	EB Only	Evaluated
B-10/SR 186 Safe Lot	I-10	337	Both	Evaluated
City Gate Mall Private Lot	I-10	198	Both	Evaluated
Meteor Crater Rest Area	I-40	235	EB Only	Evaluated
Painted Cliffs Rest Area[a]	I-40	359	WB Only	Improvements Not Possible
Hibbard Safe Lot	I-40	265	Both	Evaluated
Crazy Creek Safe Lot	I-40	320	Both	Evaluated
Dead River Safe Lot	I-40	316	Both	Evaluated
Seligman Safe Lot	I-40	98	Both	Evaluated
Mohawk Rest Area	I-8	56	Both	Evaluated
Sentinel Rest Area	I-8	83	Both	Good Parking Availability
US 93/SR 97 Safe Lot	US 93	155	Both	Evaluated
I-19 MP 30 Safe Lot	I-19	30	Both	Evaluated
Canoa Ranch Rest Area	I-19	32	Both	Good Parking Availability

[a] ROW, roadway geometry, and terrain constraints prevents parking expansion.

7.1.1 Parking Along I-10

The following sections describe the potential for additional parking along I-10. Table 7-3 summarizes these options.

7.1.1.1 Texas Canyon Rest Area, I-10 Milepost 320

Along the I-10 corridor at Milepost 320, Texas Canyon Rest Area was noted as having a major cluster of undesignated truck parking (Figure 7-2). The geography of the surrounding area and the existing ROW limited truck parking expansion at the rest area. Results from the undesignated truck parking analysis showed Texas Canyon may be deficient 135 spaces by 2032 and 186 spaces by 2042. Because of terrain and ROW constraints, an addition of only 17 spaces is possible. The nearest truck parking facilities to Texas Canyon are private truck stops located 15.1 miles east of Texas Canyon at Benson and 19.9 miles east at Wilcox, neither of which can accommodate the truck parking needs of the rest area.

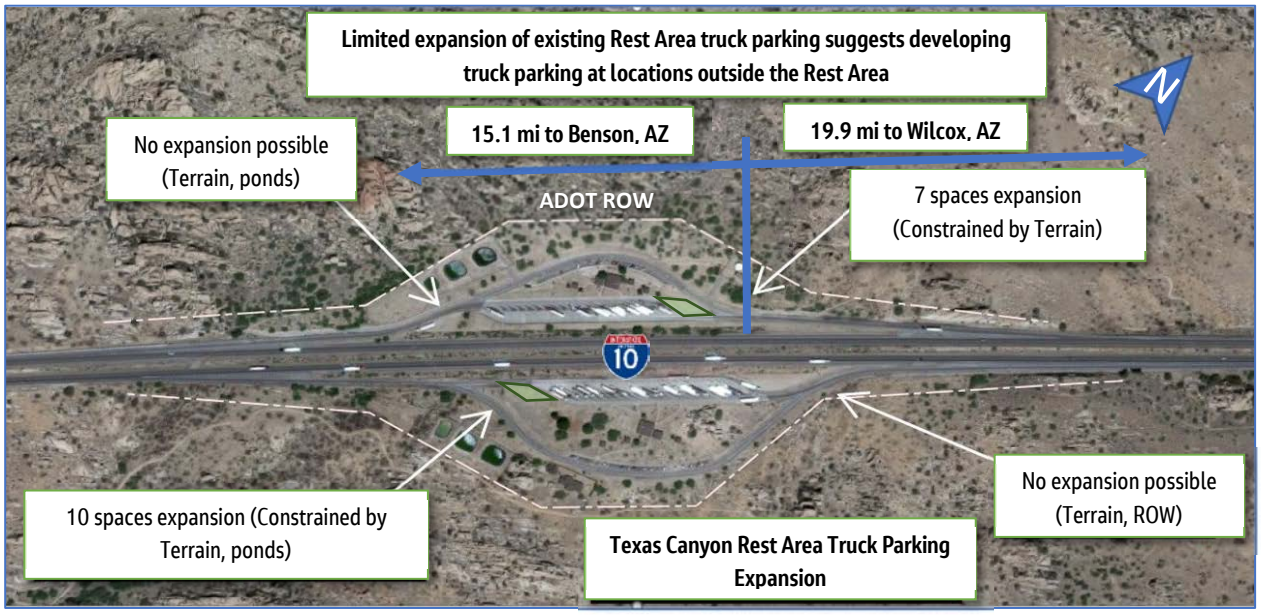


Figure 7-2. Texas Canyon Rest Area Expansion Opportunities

7.1.1.2 Sibyl Road Interchange, I-10 Milepost 312

A potential safe lot for additional truck parking expansion to meet the Texas Canyon Rest Area need was identified along I-10 at Milepost 312.8 and would serve eastbound traffic along I-10 (Figure 7-3). ROW acquisition is needed for this area to support the parking deficiencies since the safe lot can only accommodate 37 spaces. The 2032 truck parking deficiencies are 144 spaces, and 2042 truck parking deficiencies are 200 spaces for both directions. The westbound traffic faces a vertical clearance restriction of 13 feet, 9 inches for the overpass to Sibyl Road; therefore, this site would only alleviate parking deficiencies in the eastbound direction.

Figure 7-3. I-10 Milepost 312.8 Safe Lot Parking Opportunity

7.1.1.3 I-10 and US 191 Interchange, I-10 Milepost 332

Another safe lot location to meet Texas Canyon's deficiencies was identified at the junction of I-10 and US 191 (Figure 7-4). An access point is located along the westbound on-/off-ramps to the location adjacent to I-10. The westbound on-/off-ramps would need to be reconfigured for appropriate truck turning radius into the parking area to accommodate westbound traffic only. The parking area may include up to 85 spaces. The 2032 truck parking deficiencies are 72 spaces and the 2042 truck parking deficiencies are 100 spaces in both directions.

This parking layout would feature a left-in, right-out configuration for westbound truck traffic only. This parking expansion would be coupled with the parking expansion at the Sibyl Road safe lot to meet the anticipated 2042 parking demand at Texas Canyon Rest Area. Combined, the Sibyl safe lot and the I-10/US 191 safe lot would provide 122 truck parking spaces. This leaves a truck parking deficiency of 64 spaces, which may be accounted for by a new private truck parking facility at Love's Travel Center in Wilcox approximately 11 miles east of this potential safe lot. The new Love's Travel Center can accommodate 65 truck parking spaces.

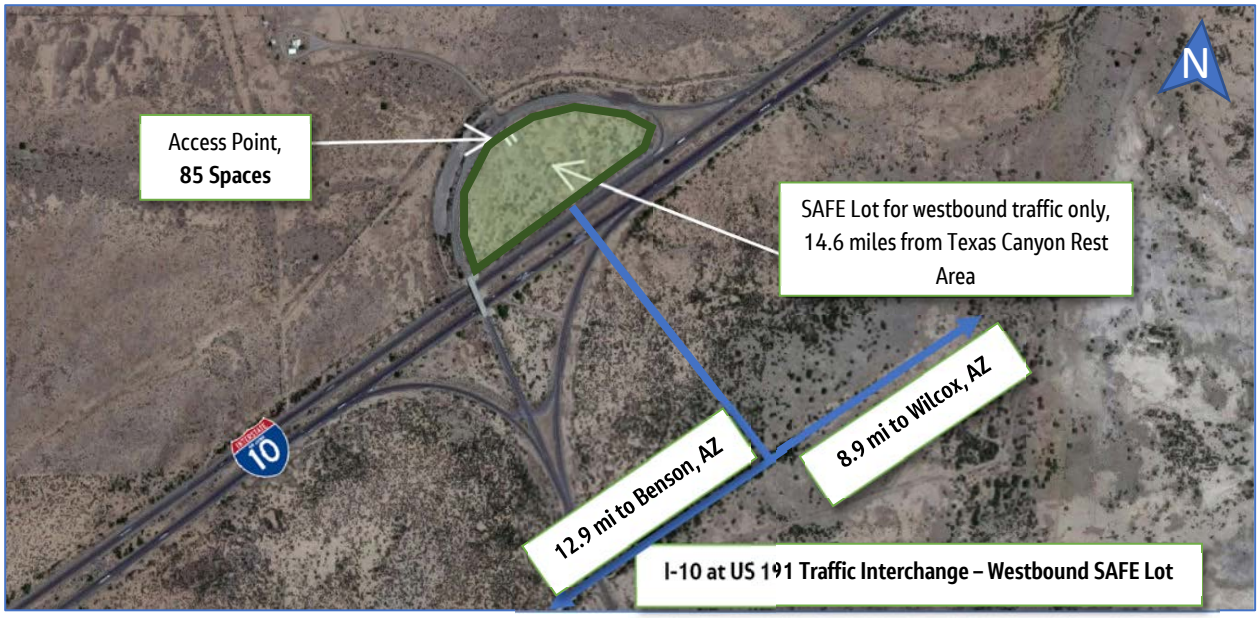


Figure 7-4. I-10 at US 191 Truck Parking Opportunity

7.1.1.4 B-10/SR186 TI, I-10 Milepost 336

A more feasible location to meet the parking needs near the Texas Canyon Rest Area was identified at the junction of I-10 and SR 186, located at I-10 Milepost 336 (Figure 7-5). The location could include safe lot parking inside the TI in the southeast quadrant. This site has the capacity to add 127 new truck parking spaces. The 2032 truck parking deficiencies are 72 spaces, and the 2042 truck parking deficiencies are 100 spaces for both directions. This site is more feasible than the locations at the Sibyl Road TI and US 191 TI because it can serve truck traffic on both directions of I-10.

Figure 7-5. B-10/SR 186 TI Truck Parking Opportunity

7.1.1.5 San Simon Rest Area, I-10 Milepost 388

The San Simon Rest Area is located at Milepost 388 along I-10 (Figure 7-6). The rest area is 75.7 miles east of the Texas Canyon Rest Area and 2.6 miles west of the Arizona-New Mexico state border. The San Simon Rest Area is anticipated to experience a truck parking deficiency of 134 spaces by 2032 and 186 spaces by 2042. The site has capacity for an additional 80 spaces within the existing ROW. The nearest truck parking facilities are 13.6 miles west at a private truck stop in San Simon, Arizona, and 8.9 miles east in Roadforks, New Mexico, at a private truck stop.

Figure 7-6. San Simon Rest Area Truck Parking Opportunity

7.1.1.6 Ehrenberg Rest Area, I-10 Milepost 5

At Milepost 5 along I-10, the Ehrenberg Rest Area site is expected to need 55 additional truck parking spaces by 2032 and 80 additional truck parking spaces by 2042 (Figure 7-7). The rest area has capacity to expand the truck parking by 53 spaces. Several private parking stops operate near the California state border, approximately 7 miles west of this site. The nearest parking opportunity east of this site is located in the town of Quartzite, approximately 13 miles to the east.

Figure 7-7. Ehrenberg Rest Area Truck Parking Opportunity

7.1.1.7 Bouse Wash Rest Area, I-10 Milepost 53

Along I-10 at Milepost 53 is the Bouse Wash Rest Area (Figure 7-8), which is expected to need an additional 48 truck parking spaces by 2032 and 74 truck parking spaces by 2042. The rest area has the capacity to expand truck parking by 55 spaces if additional ROW is acquired. The estimated ROW needed for the expansion is 17.0 acres at an approximate cost of $435,700. Truck parking facilities near the rest area include a private truck parking facility 7.6 miles to the west and the Burnt Well Rest Area 33 miles to the east.

Figure 7-8. Bouse Wash Rest Area Truck Parking Opportunity

7.1.1.8 Burnt Well Rest Area, I-10 Milepost 86

The Burnt Well Rest Area is located along I-10 at Milepost 86 (Figure 7-9). The rest area is expected to need an additional 74 truck parking spaces by 2032 and 125 truck parking spaces by 2042. With the acquisition of additional ROW, this location can accommodate an extra 103 parking spaces. The estimated ROW needed for the expansion is 12.0 acres at an approximate cost of $285,350. The Burnt Well Rest Area has parking facilities to the west at the Bouse Wash Rest Area 33 miles away, and a private truck parking facility 8.1 miles to the east in Tonopah.

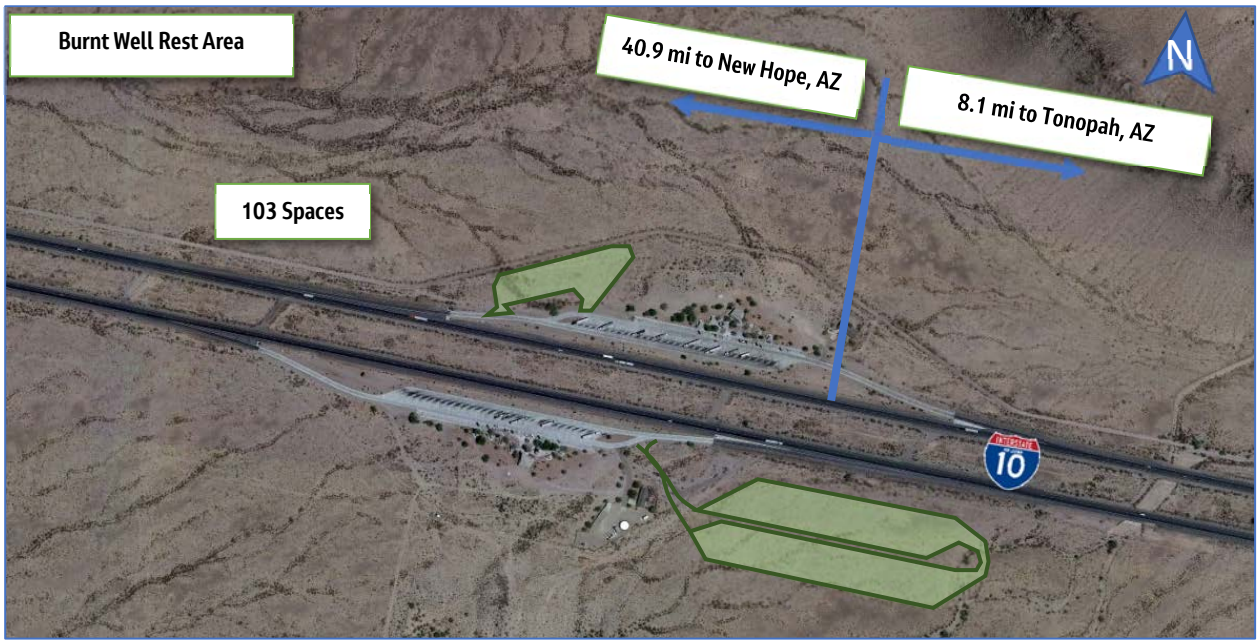


Figure 7-9. Burnt Well Rest Area Truck Parking Opportunity

7.1.1.9 Sacaton Rest Area, I-10 Milepost 182

Along I-10 at Milepost 182 is the Sacaton Rest Area (Figure 7-10). The rest area is expected to be deficient by 33 truck parking spaces by 2032 and 38 truck parking spaces by 2042. The site has area within the existing right of way to add 20 spaces. Nearby parking facilities include private truck stops 26.7 miles west of the rest area and private truck stops 18.6 miles to the east.

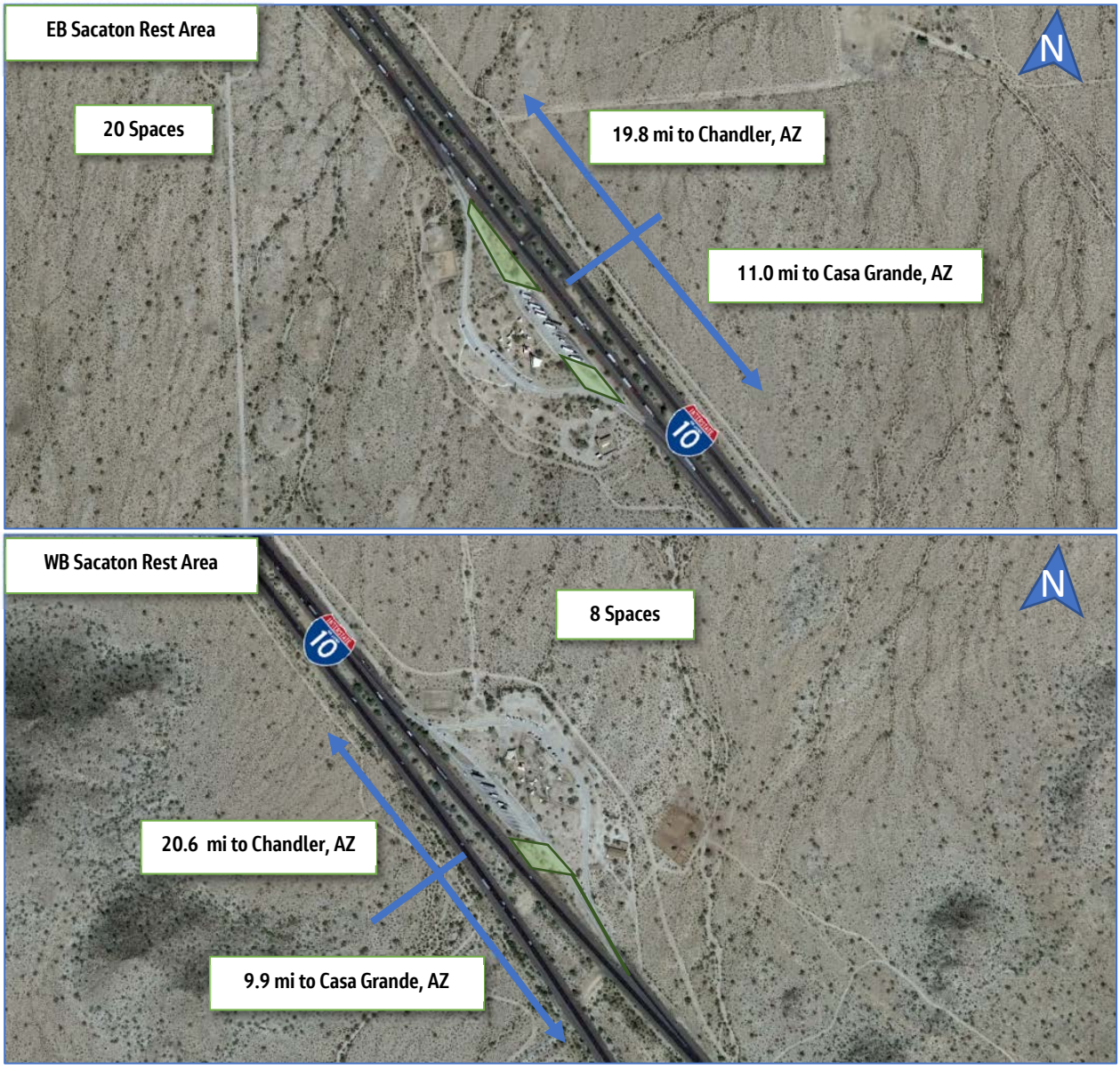


Figure 7-10. Sacaton Rest Area Truck Parking Opportunity

7.1.1.10 City Gate Mall Commercial Parking Opportunity, I-10 Milepost 198

A potential commercial truck parking P3 opportunity is present at the City Gate Mall at I-10 Milepost 198 (Figure 7-11). The site is currently for sale for $15 million and is 2.8 miles north of the I-8 connection to I-10. The site is connected to utilities and amenities of lighting, restrooms, and trash receptacles may be available. This site may be a viable P3 option for additional parking provided a detailed agreement between the site owners and ADOT could be developed. Based on the policy restraints at this private lot, expansion at this site is a future consideration not detailed in the parking expansion analysis.

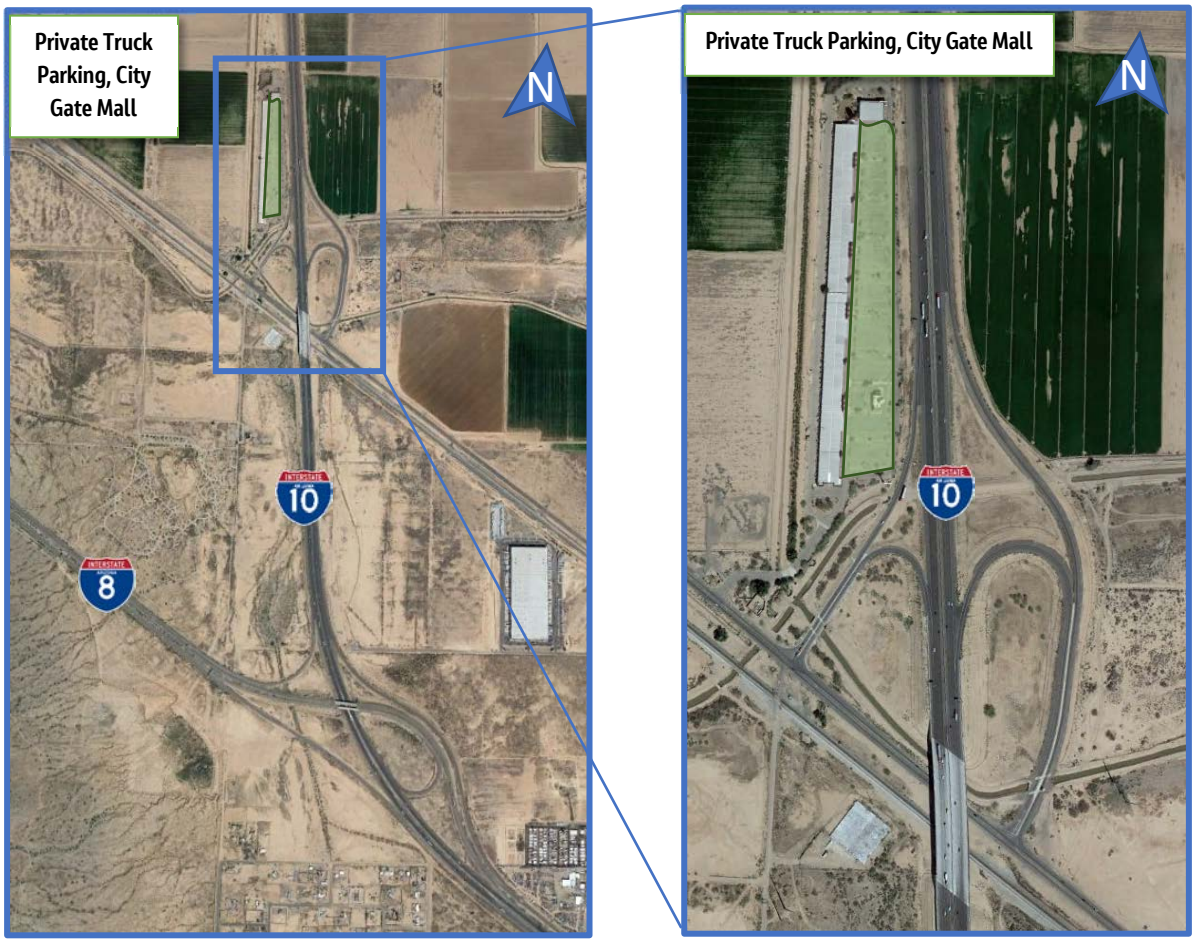


Figure 7-11. Casa Grande City Gate Mall Private Truck Parking Opportunity

Table 7-3. Truck Parking Expansion Opportunities Along I-10

	Location Along I-10	Milepost	Traffic Directions Served	Potential Truck Spaces	Truck Spaces Needed
Rest Areas	Ehrenberg	5	Both	53	80
	Bouse Wash[a]	53	Both	55	48
	Burnt Well[a]	86	Both	103	125
	Sacaton	182	Both	20	38
	Texas Canyon	320	Both	17	186
	San Simon[a]	388	Both	80	120
Safe lots	US 191 TI	332	WB Only	85	100
	Sibyl Road TI	312	EB Only	37	86
	B-10/SR186 TI	337	Both	127	186
Private Lot	City Gate Mall[b]	198	Both	N/A	N/A

[a] ROW is needed for parking expansion
[b] Public-Private Partnership to be determined

7.1.2 Parking Along I-40

The I-40 corridor experiences major truck parking deficiencies and large clusters of undesignated parking. The eastern stretch of I-40 includes many incidents of undesignated parking for more than 123 miles, starting at the Meteor Crater Rest Area and extending east to the state border with New Mexico. There are several private truck stops along this area but the parking needs are still not met. Potential truck parking expansion opportunities along I-40 are described in the following sections. Table 7-4 summarizes the expansion opportunities along I-40.

7.1.2.1 Painted Cliffs Rest Area, I-40 Milepost 359

Major parking deficiencies were recorded at the westbound Painted Cliffs Rest Area at Milepost 359 (Figure 7-12). The truck parking expansion at this location is infeasible based on terrain and ROW constraints at the existing rest area, as well as vertical clearance restrictions from an overpass over I-40. Truck parking is needed for both eastbound and westbound directions. The Painted Cliffs Rest Area is expected to need an additional 100 truck parking spaces by 2032 and 162 truck parking spaces by 2042. The nearest truck parking facilities are 4.5 miles east at the New Mexico eastbound rest area and 25.6 miles west at a private truck stop at the junction of I-40 and US 191.

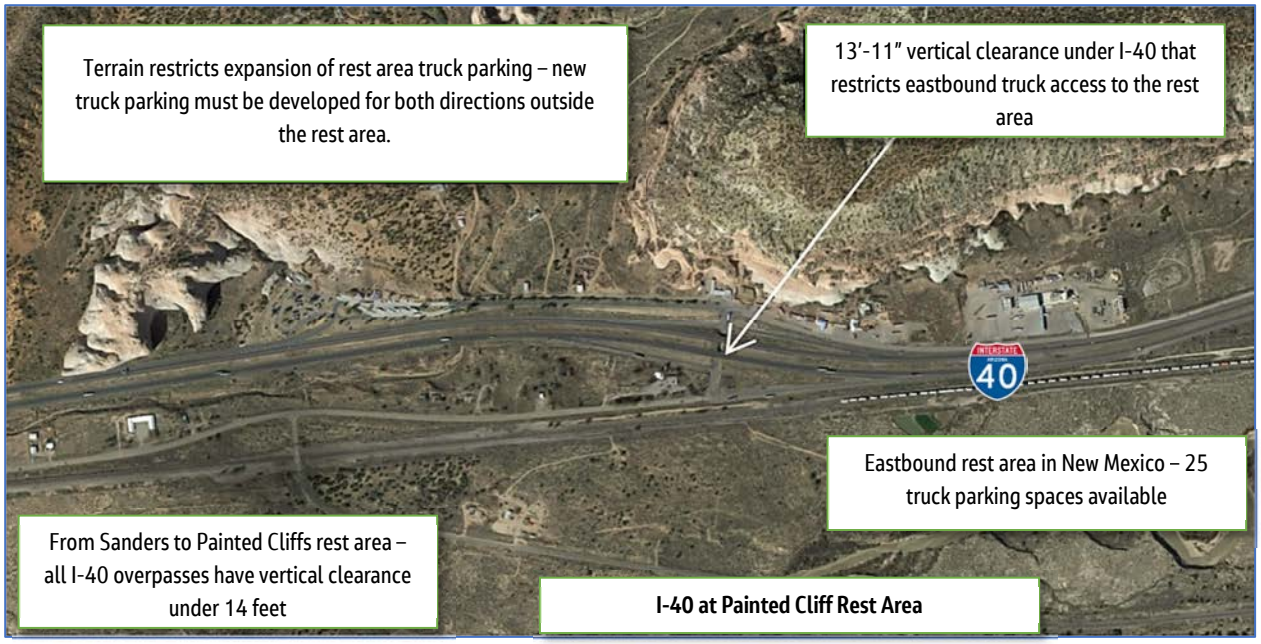


Figure 7-12. Painted Cliffs Rest Area Limited Expansion Opportunities

7.1.2.2 Meteor Crater Rest Area, I-40 Milepost 235

The Meteor Crater Rest Area marks the beginning of a notable increase in undesignated parking. Multiple undesignated parking clusters were identified in the vicinity of this rest area. It is anticipated that there will be a shortage of 68 truck parking spaces by 2032, and this deficiency is projected to grow to 122 spaces by 2042. The rest area is along I-40 at Milepost 235 and is 38.9 miles from Flagstaff to the west and 18.6 miles from Winslow in the east (Figure 7-13). Parking at this site can be expanded by developing overflow rights. With the acquisition of additional ROW, this location can accommodate an extra 70 spaces in each direction through such overflow lots.

Figure 7-13. Meteor Crater Rest Area Expansion Opportunity

7.1.2.3 Hibbard Safe Lot, I-40 Milepost 266

There is an opportunity to expand truck parking in the eastbound and westbound directions near the Meteor Crater Rest Area at the Hibbard safe lot location (Figure 7-14). The Meteor Crater Rest Area and surrounding location is expected to be deficient 88 truck parking spaces by 2032 and 158 truck parking spaces by 2042. This unutilized parking area can accommodate up to 158 spaces to meet parking needs. The area is 30.6 miles east of Meteor Crater Rest Area and 20 miles west of Holbrook, Arizona.

Figure 7-14. Hibbard Safe lot Expansion Opportunity

7.1.2.4 Joseph City Power Plant, I-40 Milepost 278

The Joseph City Power Plant, known as the Cholla Power Plant, was identified as a potential location for truck parking expansion along I-40 at Milepost 278. Arizona Public Service is considering closing the power plant in the future and Arizona State University, the owner of the land, has expressed interest in converting the land into a truck parking safe lot. Further investigation into the feasibility of this location for truck parking is needed; thus, this location was not considered for evaluation as part of this project.

7.1.2.5 Dead River Safe Lot, I-40 Milepost 315

Along I-40 at Milepost 315.5 is the Dead River safe lot (Figure 7-15). This area may be developed to provide parking in the eastbound direction for up to 31 spaces and in the westbound direction for up to 34 spaces. The location is 26 miles east of Holbrook and 24 miles west of Sanders.

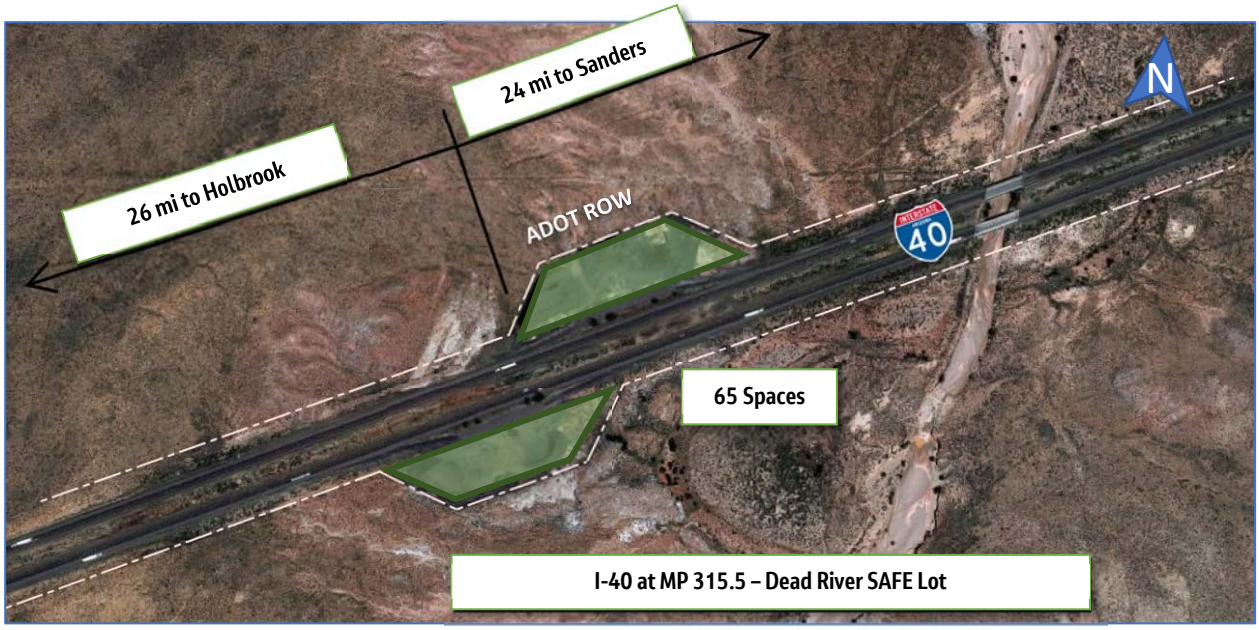


Figure 7-15. Dead River Safe lot Expansion Opportunity

There is an additional site 4 miles east of the Dead River site that has a much larger capacity for parking expansion and can accommodate the parking deficiencies at Painted Cliffs Rest Area. This site is the Crazy Creek safe lot at Milepost 320. Because of the more effective parking expansion possibilities at the Crazy Creek Site, the Dead River site was not considered for parking expansion in this study.

7.1.2.6 Crazy Creek Safe Lot, I-40 Milepost 320

East of the Dead River site is another potential parking site along I-40 at Milepost 320 (Figure 7-16). The 2032 truck parking need is 122 spaces, and the 2042 truck parking need is 162 spaces in both directions. The site is 4.5 miles east of the Pinta TI and can accommodate 176 spaces, which serves most parking deficiencies at Painted Cliffs Rest Area.

Figure 7-16. Crazy Creek Safe Lot Expansion Opportunity

7.1.2.7 Future Rest Area near Seligman, I-40 Milepost 98

Along I-40 at Milepost 98, a parking expansion opportunity is available near Seligman (Figure 7-17). ADOT obtained ROW at the site for a future rest area. The 2032 truck parking need is 78 spaces, and the 2042 truck parking need is 87 spaces in both directions The site can accommodate 72 truck parking spaces to serve the eastbound and westbound directions. The site is located 72.5 miles east of Kingman and 68.1 miles west of the Parks Rest Area. This site was examined for a future safe lot, but not considered for near-term improvements.

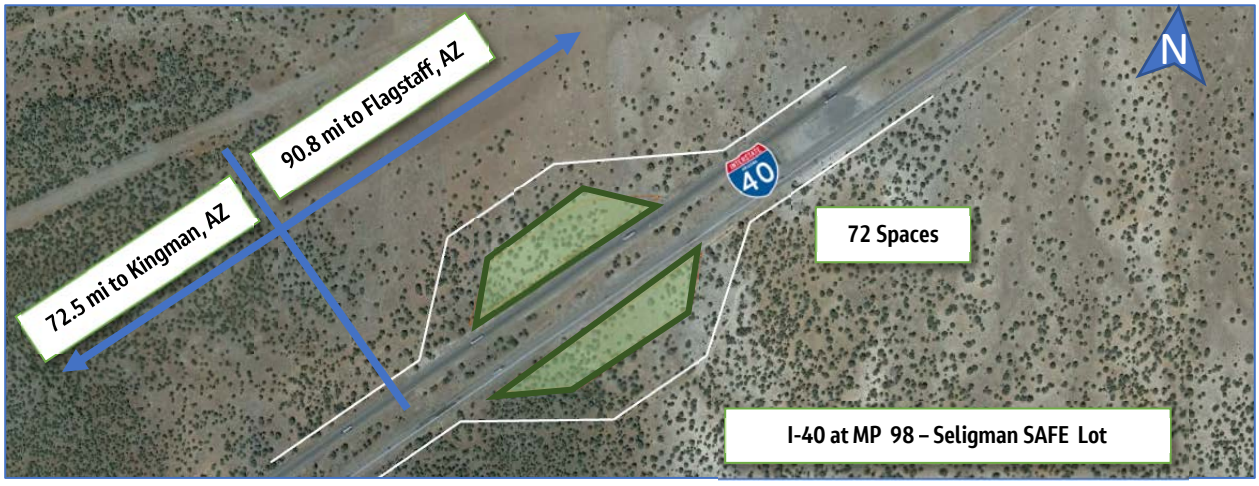


Figure 7-17. Seligman Safe Lot Expansion Opportunity

Table 7-4. Truck Parking Expansion Opportunities Along I-40

	Location Along I-40	Milepost	Traffic Directions Served	Potential Truck Spaces to be Added	Truck Spaces Needed
Rest Areas	Meteor Crater	235	Both	140	122
	Painted Cliffs[a]	359	WB Only	0	162
Safe lots	Hibbard	265	Both	158	158
	Crazy Creek	320	Both	176	162
	Dead River	316	Both	65	162
	Seligman	98	Both	72	87

[a] ROW and terrain constraints prevent parking expansion

7.1.3 Other Parking Areas

7.1.3.1 Mohawk Rest Area, I-8 Milepost 56

The Mohawk Rest Area is located along I-8 at Milepost 56 (Figure 7-18). The rest area serves both directions and is expected to be deficient by 16 truck spaces by 2032 and 25 truck parking spaces by 2042. This rest area has the capacity to expand truck parking by 16 spaces within the existing ROW. The undesignated truck parking analysis showed no clustering around Mohawk Rest Area. The nearest minor cluster located in Yuma, Arizona. The nearest truck parking facilities include the Sentinel Rest Area 36.6 miles to the east and a private truck parking facility 14.6 miles to the west.

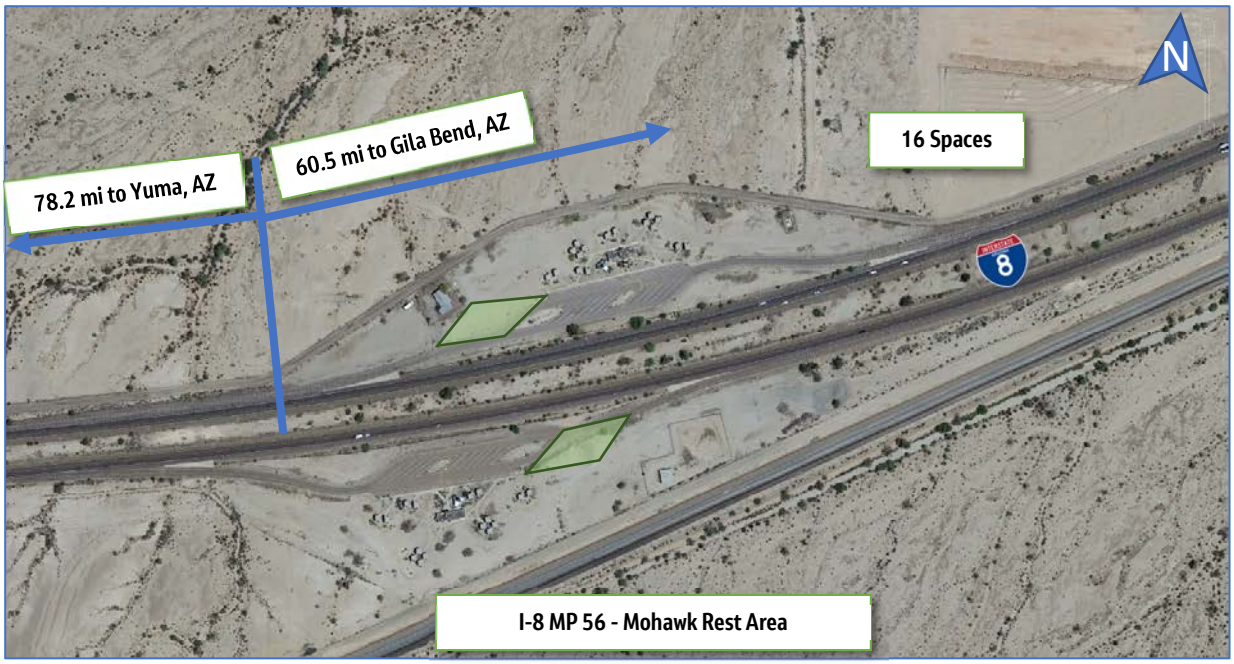


Figure 7-18. Mohawk Rest Area Expansion Opportunity

7.1.4 Other Parking Opportunities

The truck parking community cited areas near the ADOT Nogales Port of Entry near I-19 in Nogales, Arizona, and a location at the junction of US 93 at SR 97 near the Bagdad Mine. These locations had minor undesignated truck parking clusters. Considerations for parking along these routes are included below.

7.1.4.1 SR 97 at US 93 – Bagdad Mine, US 93 Milepost 155

The location at the junction of SR 97 and US 93 is near the Bagdad Mine and was evaluated based on the mining truck's staging and parking deficiencies (Figure 7-19). The area is along US 93 at Milepost 155 and can accommodate parking facilities.

Based on the low volume of trucks and the low undesignated parking intensity, the study team recommends this site or similar sites along US 93 be considered as part of the future I-11 program.

Figure 7-19. Bagdad Safe Lot Expansion Opportunity

7.1.4.2 I-19 Safe Lot, I-19 Milepost 30

The location near the ADOT Nogales Port of Entry for truck parking and staging was identified within the 25-mile radius that is restricted for international truckers to enter the country and transfer loads to the US truckers for delivery in the US. The site was selected along I-19 at milepost 30 in an area parallel to the frontage road between I-19 (Figure 7-20). This site has the potential to add 20 new truck parking spaces. The site is 16.9 miles from the U.S.-Mexico border to the south and 18.5 miles from Canoa Ranch Rest Area to the north. Developing this site will require ROW acquisition and extensive ground-leveling effort (excavation and flattening to develop the site). These limitations will necessitate extensive work to provide access to this site.

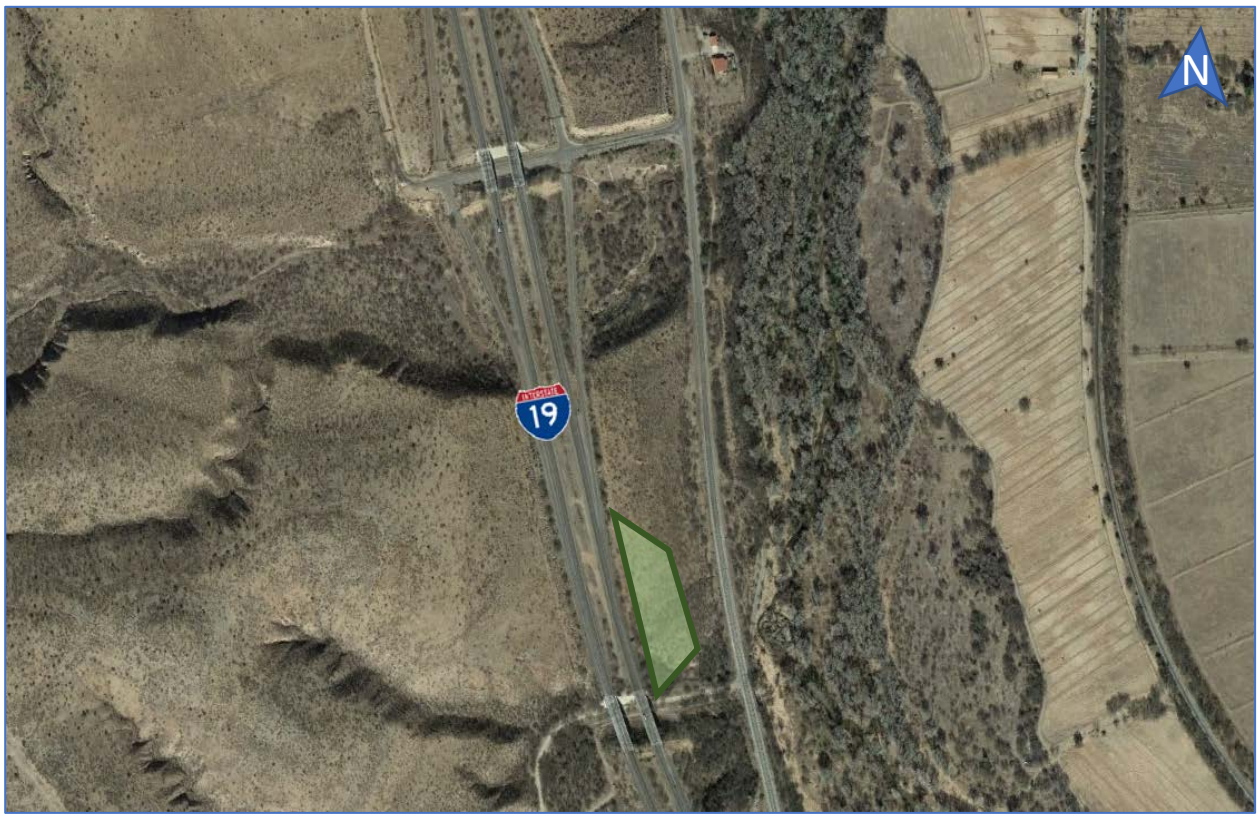


Figure 7-20. I-19 Frontage Road Expansion Opportunity

7.1.4.3 Other Rest Areas

The Sentinel Rest Area along I-8 and Canoa Ranch Rest Area along I-19 had sufficient truck parking as a result of the undesignated truck parking analysis. Therefore, these sites were not analyzed for truck parking expansion under this study. Table 7-5 lists the parking expansion considerations for the locations along I-8, I-19, and US 93.

Table 7-5. Other Corridor Locations for Truck Parking Expansion

	Site Location	Corridor/Milepost	Traffic Directions Served	Potential Truck Spaces	Truck Spaces Needed
Rest Areas	Mohawk	I-8 MP 56	Both	16	25
	Sentinel[a]	I-8 MP 83	Both	0	0
	Canoa Ranch[a]	I-19 MP 33	Both	0	0
Safe Lots	I-19 Safe lot[b]	I-19 MP 30	Both	N/A	N/A
	US 93/SR 97[c]	US 93 MP 155	Both	N/A	N/A

[a] Sufficient truck parking at site
[b] Roadway access and existing geometry constraints prevent parking expansion
[c] Future consideration as part of I-11 construction

8 Implementation Plan

The parking expansion prioritization framework considers the factors of parking demand, parking needs met, rest areas truck parking expansion, economy, benefit-cost ratio, project readiness, funding, and stakeholder input. These factors were selected based on review and inspection of peer state truck parking plans and discussions with project stakeholders. Each factor is individually scored based on its contribution to mitigate the truck parking need. The prioritization framework used in this analysis employs a weighting factor for each category. The weighted categories are shown in Table 8-1.

In addition, a post-processing stakeholder input factor is applied to the total weight for each site based on input from ADOT leadership and trucking community representatives. The scoring criteria and weighting factors used to prioritize truck parking expansion opportunities are summarized in Table 8-1.

Table 8-1. Prioritization Framework Criteria and Weighted Factors

Prioritization Criteria	Description	Scoring Criteria	Weighted Factor
Parking Demand	Improvements near high need for parking and high intensity of undesignated parking	Undesignated parking > 100 = 3 Undesignated parking > 50 but less than 100 = 2 Undesignated parking < 50 = 1	30%
Parking Need Met	Improvements will address the parking needs	2045 parking demand met = 1 2045 parking demand unmet = Ratio of provided/needed	15%
Rest Area Truck Parking Expansion	Truck parking expansions are at a rest area	Rest area parking demand met = 1 Rest area parking demand partially met = Ratio of provided/needed parking not at a rest area location = 0	5%
Economy	Truck VMT (per day) in 30-mile buffer	VMT>500,000 = 3 VMT between 500,000 and 250,000 = 2 VMT less than 250,000 =1	10%
Benefit-Cost	Benefits – safety, travel time savings, emissions savings, initial cost, operations and maintenance cost	B/C > 3 = 3 B/C between 3 and 2 = 2 B/C less than 2 = 1	20%
Project Readiness	Within ROW, power, water, wastewater connectivity	All conditions met = 2 Partial conditions met = 1 None = 0	10%
Funding	Available and can be obligated within next two years	Yes = 1 No = 0	10%
Stakeholder Input	Prioritized locations based on input from ADOT leadership and trucking community		

VMT = vehicle miles traveled

8.1 Parking Demand

The parking demand factor represented the need for truck parking based on the amount and intensity of undesignated parking. The number of trucks parked in undesignated locations was collected using ATRI truck GPS data, as described in *Working Paper 1: Existing Conditions Analysis*. The point values for the number of trucks parked in an undesignated area near a rest area or potential safe lot are shown in Table 8-2.

Table 8-2. Parking Demand Points Evaluation

	Site ID	Number of Trucks in Undesignated Parking	Points Value
Rest Areas	Mohawk	25	1
	Ehrenberg	80	2
	Bouse Wash	48	1
	Burnt Well	125	3
	Sacaton	38	1
	Texas Canyon	186	3
	San Simon	120	3
	Meteor Crater	122	3
Safe Lots	I-10 at US 191	100	2
	I-10 at Sibyl Rd	86	2
	B-10/SR 186 TI	186	3
	I-40 at Hibbard	158	3
	I-40 at Crazy Creek	162	3
	I-40 at Seligman	80	2

8.2 Parking Need Met

The parking need met factor considered how much of the parking deficiencies for a given location were met by the development of each potential site. If the site could completely accommodate the parking deficiencies, the score was 1. For sites that only met a portion of the truck parking deficiencies, the ratio of parking spaces added to parking spaces needed was used as the score. Table 8-3 shows the scores for each potential site.

Table 8-3. Parking Need Met Points Evaluation

	Site ID	Truck Spaces Added	Truck Spaces Needed	Points Value
Rest Areas	Mohawk	16	25	0.64
	Ehrenberg	53	80	0.66
	Bouse Wash	55	48	1.00
	Burnt Well	103	125	0.82
	Sacaton	20	38	0.53
	Texas Canyon	17	186	0.09
	San Simon	80	120	0.67
	Meteor Crater	140	122	1.00
Safe Lots	I-10 at US 191	85	100	0.85
	I-10 at Sibyl Rd	37	86	0.43
	B-10/SR186 TI	127	186	0.68
	I-40 at Hibbard	158	158	1.00
	I-40 at Crazy Creek	176	162	1.00
	I-40 at Seligman	72	80	0.90

8.3 Rest Area Truck Parking Expansions

The factor for rest area truck parking expansions considered the cost savings on amenities at rest areas as compared to safe lots. For example, the rest areas already included amenities, whereas the safe lots would need installation of new amenities and would have additional O&M costs. For expansions at existing rest areas, the ratio of parking spaces added to parking spaces needed was scored. The non-rest area locations scored zero points. The scoring results for the improvements at rest areas criterion are summarized in Table 8-4.

Table 8-4. Rest Area Truck Parking Expansions Points Evaluation

	Site ID	Located at a Rest Area	Points Value
Rest Areas	Mohawk	Yes	0.64
	Ehrenberg	Yes	0.66
	Bouse Wash	Yes	1.00
	Burnt Well	Yes	0.82
	Sacaton	Yes	0.53
	Texas Canyon	Yes	0.09
	San Simon	Yes	0.67
	Meteor Crater	Yes	1.00
Safe Lots	I-10 at US 191	No	0
	I-10 at Sibyl Rd	No	0
	B-10/SR186 TI	No	0
	I-40 at Hibbard	No	0
	I-40 at Crazy Creek	No	0
	I-40 at Seligman	No	0

8.4 Economy

The economy factor considered the truck VMT within a 30-mile buffer of each site. The sites with a truck VMT greater than 500,000 miles received a score of 3 points, sites with a truck VMT between 500,000 miles and 250,000 miles scored 2 points, and sites with a truck VMT less than 250,000 miles scored 1 point. The scoring results for the economy factor are summarized in Table 8-5.

Table 8-5. Economy Factor Site Evaluations

	Site ID	2022 Truck Vehicle Miles Traveled	Points Value
Rest Areas	Mohawk	250,472	2
	Ehrenberg	558,445	3
	Bouse Wash	556,841	3
	Burnt Well	675,373	3
	Sacaton	668,478	3
	Texas Canyon	370,628	2
	San Simon	453,592	2
	Meteor Crater	675,614	3
Safe Lots	I-10 at US 191	378,269	2
	I-10 at Sibyl Rd	335,188	2
	B-10/SR186 TI	370,628	2
	I-40 at Hibbard	583,520	3
	I-40 at Crazy Creek	617,581	3
	I-40 at Seligman	418,285	2

8.5 Project Readiness

The project readiness criterion considered whether each site was within ROW, including access to power, water, and sewer. The sites that could meet all of the project readiness needs received a score of 2 points. The sites that met some of the project readiness needs received a score of 1 point, and sites that did not have access to utilities and needed additional ROW scored zero points. The scoring results for the project readiness factor are summarized in Table 8-6.

Table 8-6. Project Readiness Factor Site Evaluation

	Site ID	Utilities Available	ROW	Points Value
Rest Areas	Mohawk	Yes	Yes	2
	Ehrenberg	Yes	Yes	2
	Bouse Wash	Yes	No	1
	Burnt Well	Yes	No	1
	Sacaton	Yes	Yes	2
	Texas Canyon	Yes	Yes	2
	San Simon	Yes	Yes	2
	Meteor Crater	Yes	No	1
Safe Lots	I-10 at US 191	No	Yes	1
	I-10 at Sibyl Rd	No	Yes	1
	B-10/SR186 TI	No	Yes	2
	I-40 at Hibbard	No	Yes	1
	I-40 at Crazy Creek	No	Yes	1
	I-40 at Seligman	No	Yes	1

8.6 Funding

The funding factor considered whether the funds for each project area were available and could be used to develop the site over the next 2 years. If yes, then the funding factor earned 1 point. If the funding was not available within the 2-year period, then zero points were awarded. At this stage, a score of 1 was assigned to all sites, as the funding availability was expected to change depending on how fast some sites could be advanced to implementation. Factors that played a key role in this decision included project bundling opportunities, environmental clearance requirements, and legislative needs. Additionally, the available funding was expected to change based on the availability of new federal grants through the infrastructure bill.

8.6.1 Funding Availability

ADOT allocated $50 million of National Highway Freight Program (NHFP) funding for truck parking. Of the $50 million, $18 million has been obligated to the ongoing truck parking expansions at Haviland, Parks, Christensen, McGuireville, and Sunset Point Rest Areas. This plan recommended truck parking expansion projects to program the remaining $32 Million.

Federal grants play a pivotal role in bolstering the development and enhancement of freight facilities within Arizona. These grants, often administered by agencies such as the USDOT, provide a vital source of financial support for projects aimed at improving transportation infrastructure. They help states address crucial challenges related to freight movement, such as capacity constraints, infrastructure maintenance, parking enhancement, and the implementation of innovative technologies. ADOT should explore options for funding through such federal grants. The availability of federal grants would allow ADOT to pursue some of the improvements to freight parking identified in this study.

Federal freight-related grants or grants that support innovative freight practices allocated to Arizona within the near term are summarized in Table 8-7.

Table 8-7. Funding Opportunities in Arizona for Freight-Related Projects

Grant Programs for Trucking Investments	Funding Agency	Funding Amount Allocated to Arizona	Impacts for Trucking Infrastructure
Infrastructure for Rebuilding America (INFRA) Funds	USDOT Office of the Secretary of Transportation	$32.6 million	• INFRA grants cover up to 60% of total freight project cost (freight projects on the National Highway Freight Network (NHFN), NHS and other intermodal projects) • Additional 20% of project cost maybe funded with other federal assistance
Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grant Funds	USDOT Office of Infrastructure Finance and Innovation	$60.8 million (as of 2023)	• RAISE discretionary grants help project sponsors at the state and local levels, including municipalities, Tribal governments, counties, and others complete critical freight and passenger transportation infrastructure projects • Covers 80% of total project cost
Carbon Reduction Funding (CRF)	USDOT FHWA	$117 million (through 2026)	• Infrastructure Improvements and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law, contains program targeted at mitigating the impacts of climate change and increasing the resilience of the surface transportation system • Advanced truck stop electrification systems are eligible for CRF funds
Infrastructure Improvements and Jobs Act (IIJA) National Highway Freight Program (NHFP) Funds	USDOT FHWA	$50 million (through 2026 – *specifically for truck parking*)	• NHFP funds are used to improve efficient movement of freight on the NHFN • Additional source of funding includes 5.7% state match • *About 90% of NHFP funds are available after 2025*
National Highway Performance Program (NHPP) Funds	USDOT FHWA	$2,700 million (through 2026)	• NHPP funds are eligible on a project 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
Surface Transportation Block Grant (STBG) Funds	USDOT FHWA	$1,300 million (through 2026)	• The STBG program provides specific eligibility for the construction of truck parking on federal-aid highways

Grant Programs for Trucking Investments	Funding Agency	Funding Amount Allocated to Arizona	Impacts for Trucking Infrastructure
Highway Safety Improvement Program (HSIP) Funds	USDOT FHWA	$290 million (through 2026)	• HSIP is a federal-aid program with a purpose to achieve a signficant reduction in traffic fatalities and serious injuries on all public roads, including non state-owned roads and roads on Tribal land • Truck parking facilities may be funded through this program provided the need for CMV parking is consistent with the State Strategic Highway Safety Plan
Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) Funds	USDOT FHWA	$133.4 million (through 2026)	• PROTECT apportioned funds could be used to make resilience improvements at existing truck parking facilities

8.7 Benefit-Cost Analysis

The benefit-cost analysis (BCA) generally was modeled after the USDOT 2023 Benefit-Cost Analysis Guidance for Discretionary Grant Programs[19]. The methodology is consistent for each of the sites analyzed and includes determining existing and future conditions, as well as the benefits and costs associated with the construction and operation throughout the 20-year life of the facility. The methodology also uses USDOT-recommended monetized values for travel time savings, emissions, reduced fatalities, injuries, and property damage. Other benefits are monetized from best practices and prior project cost comparisons. The dollar values represent 2021 dollars, while future benefits and costs are discounted with a rate of 7%, consistent with USDOT guidance. The following sections detail the costs and benefits of safety, travel time, emissions, and operations and maintenance considerations.

8.7.1 Safety Savings

The safety savings criterion considered the number of crashes related to parked trucks and truck driver fatigue over the past 5-year period. A 30-mile buffer around proposed parking expansion sites was used to identify crashes along each corridor. The crash rate for each injury severity category is determined by the number of crashes per 100 million miles traveled.

The safety savings by year then are calculated using the given savings by injury severity level per the 2023 BCA parameters (Table 8-8). The applied safety savings for each site can be seen in Table 8-9. The crash rates for each injury severity level were assessed for a no-build scenario and a build scenario, in which the build scenario had a crash reduction rate of 100% for parked vehicle crashes and 50% for fatigued driver crashes among all injury types. The safety savings are applied to the crash rates to determine the discounted savings for the project facility's 20-year lifespan. Additional factors are applied to safety benefits if the parking demand exceeds the benefits provided by expansion at a specific site; if parking demand in a 30-mile buffer is satisfied, then the safety benefits as computed are not reduced; if parking demand is more than the available spaces even after expansion, then the safety benefits are reduced by applying a multiplicative factor determined using the ratio of parking provided by parking needed.

Table 8-8. Safety Savings by Injury Severity

Injury Severity	Safety Savings per Incident ($)
O – No Injury	4,000
C – Possible Injury	78,500
B – Non-incapacitating	153,700
A – Incapacitating	564,300
K - Fatal	11,800,000

[19] Benefit Cost Analysis Guidance 2023 Update.pdf (transportation.gov)

Table 8-9. BCA Safety Savings Sites Evaluation

	Site ID	Fatigue Crash Rate	Parked Crash Rate	Total Undiscounted Savings (in Million $)	Total Discounted Savings (in Million $)
Rest Areas	Mohawk	1.25	1.25	2.01	0.85
	Ehrenberg	1.45	0.78	64.58	36.86
	Bouse Wash	2.92	0.56	10.41	5.70
	Burnt Well	1.20	0.65	73.89	39.22
	Sacaton	0.19	0.19	3.13	1.74
	Texas Canyon	2.87	1.01	0.50	0.28
	San Simon	0.41	0.83	2.96	1.68
	Meteor Crater	1.48	1.39	0.77	0.51
Safe Lots	I-10 at US 191	1.40	0.66	36.34	19.37
	I-10 at Sibyl Rd	1.96	1.68	0.29	0.17
	B-10/SR186 TI	2.87	1.52	12.20	6.35
	I-40 at Hibbard	0.32	1.55	35.78	18.76
	I-40 at Crazy Creek	1.52	1.42	76.49	40.05
	I-40 at Seligman	1.94	1.34	7.65	4.10

8.7.2 Travel Time Related Savings

The travel-time savings are based on the USDOT BCA value of travel time savings for trucks in 2021 dollars. A monetization factor of $31.90 is applied to the annual vehicle hours traveled (VHT) savings for the single truck driver occupant per truck. The VHT is derived by dividing the VMT by 60 miles per hour, which represents the average speed along the corridor. The VMT savings determines the VMT saved each day by adding truck spaces. A truck annualization factor of 320 (as per the USDOT BCA guidance) was used, as well as applying savings factors from fuel and driver time, noise, congestion reduction, and state of good repair (Table 8-10). The 7% discount factor is applied to the final travel time savings for each year of the project facility's 20-year lifespan. Table 8-11 details the travel time savings over the 20-year lifespan of each potential site.

Table 8-10. Travel Time Related Savings Factors

Travel Time Savings Factors	Monetized Savings ($) per Hour
Fuel Savings and Driver Time	1.1057
Noise	0.0223
Congestion Reduction	0.197
State of Good Repair	0.1057

Table 8-11. BCA Travel Time Savings Site Evaluation

	Site ID	Truck Spaces Added	Truck Spaces Needed	Total VMT Saved (in Millions)	Total VHT Saved (in Millions)	Total Undiscounted Savings (in Million $)	Total Discounted Savings (in Million $)
Rest Areas	Mohawk	16	25	1.84	0.03	3.62	1.06
	Ehrenberg	53	80	9.97	0.17	19.56	9.08
	Bouse Wash	55	48	9.43	0.16	18.51	8.26
	Burnt Well	103	125	15.70	0.26	30.80	11.70
	Sacaton	20	38	4.42	0.08	8.12	1.08
	Texas Canyon	17	186	3.43	0.05	6.73	2.83
	San Simon	80	120	16.1	0.27	31.65	15.26
	Meteor Crater	140	122	15.27	0.25	29.96	12.24
Safe Lots	I-10 at US 191	85	100	14.66	0.24	28.77	11.36
	I-10 at Sibyl Rd	37	86	7.46	0.12	14.64	5.83
	B-10/SR186 TI	127	186	15.29	0.25	30.01	13.32
	I-40 at Hibbard	158	158	20.16	0.34	39.56	16.66
	I-40 at Crazy Creek	176	162	16.13	0.27	31.65	15.26
	I-40 at Seligman	72	80	14.52	0.24	28.48	12.00

8.7.3 Environmental Benefits

The environmental benefits consider the tons of emissions avoided along each segment through the addition of a proposed parking expansion site. The analysis includes the number of metric tons avoided for emissions of nitrous oxide (N_2O), carbon dioxide (CO_2), and particulate matter of 2.5 micrometers or smaller ($PM_{2.5}$). The monetized value per metric ton for each of these emission types is a given parameter in the USDOT BCA. The emission rates in grams per hour (g/hr) for each of the emission types were sourced from studies conducted by the U.S. Environmental Protection Agency. Table 8-12 shows the parameters and assumptions used for the emissions savings analysis. The N_2O and $PM_{2.5}$ have discounted emission savings at 7% while the CO_2 has discounted emission savings at 3%. The emissions savings are applied to vehicle delay hours avoided, also known as the VHT value savings. The idling emissions savings for the sites over the 20-year lifespan of each facility is summarized in Table 8-13.

Table 8-12. Idling Emissions Factors

Pollutants	Emission Rates (g/hr)
Nitrous Oxide (N_2O)	3.6715
Carbon Dioxide (CO_2)	2443.925
Particulate Matter ($PM_{2.5}$)	0.02429

Table 8-13. BCA Idling Emissions Savings Sites Evaluation

	Site ID	VHT Savings (hr)	N_2O Avoided (metric tons)	CO_2 Avoided (metric tons)	$PM_{2.5}$ Avoided (metric tons)	Total Undiscounted Savings (in Thousand $)	Total Discounted Savings (in Thousand $)
Rest Areas	Mohawk	30,720	0.11	75.08	0.0007	8	4
	Ehrenberg	166,160	0.61	406.08	0.0040	44	27
	Bouse Wash	157,216	0.58	384.22	0.0038	40	30
	Burnt Well	261,584	0.96	639.29	0.0064	70	41
	Sacaton	73,600	0.25	164.23	0.0016	18	11
	Texas Canyon	57,120	0.21	139.60	0.0014	10	9
	San Simon	268,800	0.99	656.93	0.0065	70	40
	Meteor Crater	254,451	0.93	621.86	0.00262	69	39
Safe Lots	I-10 at US 191	244,384	0.90	597.26	0.0059	65	40
	I-10 at Sibyl Rd	124,320	0.46	303.83	0.0030	33	20
	B-10/SR186 TI	254,912	0.94	622.99	0.0062	70	40
	I-40 at Hibbard	336,000	1.23	821.16	0.0082	88	55
	I-40 at Crazy Creek	268,800	0.99	656.93	0.0065	70	44
	I-40 at Seligman	241,920	0.89	591.23	0.0059	64	40

8.7.4 Residual Benefits

The residual benefits of each site considers the costs savings associated with the project components that have a longer lifespan than the analysis period. These assets include highway and street components, as well as electric, light, and power components. The Bureau of Economic Analysis Rate of Depreciation, Service Lives, Declining-Balance Rates, and Hulten-Wykoff Categories[20] resource was used for determining the service life for the highway and streets, and power components. The alternative pavement lifespan was sourced from manufacturers of permeable grid polymer material (Table 8-14). The useful life is applied to the lifespan of the facilities and the 2021 dollar cost of construction to determine a percentage of useful life

[20] [PDF] The Measurement of Depreciation in the U.S. National Income and Product Accounts | Semantic Scholar

at the end of the analysis period and the value of remaining cost. The savings for each cost component at the potential sites after the 20-year lifespan of each facility are summarized in Table 8-15.

Table 8-14. Residual Savings Factors

Type of Asset	Service Life (Years)	Proportion of Useful Life Remaining
Alternative Pavement Material	40	50%
Telecommunications (Fencing, Poles)	40	50%
Highways and Streets (Ramp Improvements)	60	67%
Highway and Streets (Rest Area Pavement Material)	60	67%

Table 8-15. BCA Residual Savings Sites Evaluation

	Site ID	Ramp Improvements (in Million $)	Fencing, Poles (in Million $)	Alternative Pavement Material (in Million $)	Rest Area Pavement Material (in Million $)	Total Undiscounted Savings (in Million $)	Total Discounted Savings (in Million $)
Rest Areas	Mohawk	-	-	-	0.80	0.53	0.12
	Ehrenberg	1.09	-	-	1.33	1.25	0.28
	Bouse Wash	0.51	-	-	0.61	0.78	0.18
	Burnt Well	0.48	-	-	2.76	2.25	0.51
	Sacaton	0.89	-	-	1.05	0.44	0.13
	Texas Canyon	0.64	-	-	0.85	1.04	0.23
	San Simon	1.24	-	-	1.78	1.60	0.36
	Meteor Crater	0.83	-	-	4.13	1.95	0.44
Safe Lots	I-10 at US 191	0.62	0.08	3.26	-	1.70	0.38
	I-10 at Sibyl Rd	0.16	0.06	1.10	-	0.69	0.16
	B-10/SR186 TI	0.49	0.11	3.04	-	1.99	0.45
	I-40 at Hibbard	1.64	0.08	4.52	-	3.54	0.80
	I-40 at Crazy Creek	2.06	0.11	4.83	-	3.94	0.78
	I-40 at Seligman	1.46	0.10	1.70	-	1.96	0.44

8.7.5 Operations and Maintenance

The O&M costs are determined on a site-by-site basis. The cost difference between the annual O&M costs for each site in the no-build condition and the build condition was developed. The build operation and maintenance costs are based on the site-specific cost per parking space added. Rest areas have an adjusted operations and maintenance cost adjusted based on the ratio of added spaces to the total number of spaces at the facility, with the ratio applied to a flat O&M cost of $250,000 annually. The safe lot O&M costs are a flat fee of $180,000 annually. This value comes from an average O&M at each of the rest areas according to ADOT Facilities Management, with a cost deflation applied based on the waterless vaulted toilet installation with decreased maintenance costs. A deflation factor is added based on a best practices for gross domestic product and deflators, with fiscal year 2012 equal to 1.00 and estimates until 2027. The 7% discounted operations and maintenance costs for the 20-year lifespan of each facility are shown in Table 8-16.

Table 8-16. BCA Operations & Maintenance Savings Site Evaluation

	Site ID	Spaces Added	Total Spaces	O&M Annual Cost (in Millions $)	Total Undiscounted Cost (in Millions $)	Total Discounted Cost (in Millions $)
Rest Areas	Mohawk	16	31	0.12	2.55	1.23
	Ehrenberg	53	83	0.16	3.14	1.32
	Bouse Wash	55	95	0.13	4.89	4.34
	Burnt Well	103	163	0.16	3.09	1.49
	Sacaton	20	59	0.08	1.67	0.80
	Texas Canyon	17	60	0.07	1.37	0.66
	San Simon	80	116	0.16	3.38	1.63
	Meteor Crater	140	261	0.16	3.19	1.54
Safe Lots	I-10 at US 191	85	85	0.17	3.53	1.70
	I-10 at Sibyl Rd	37	37	0.17	3.53	1.70
	B-10/SR186 TI	127	127	0.17	3.53	1.70
	I-40 at Hibbard	158	158	0.17	3.53	1.70
	I-40 at Crazy Creek	176	176	0.17	3.53	1.70
	I-40 at Seligman	72	72	0.17	3.53	1.70

The prioritization scoring and BCA with weighted ranking of sites for truck parking implementation are summarized in Table 8-17.

Table 8-17. Truck Parking Implementation Overall Site Ranking

	Site ID	Prioritization Criteria								Potential Truck Spaces to be Added	Truck Spaces Needed	Ranking
		Parking Demand	Parking Need Met	Improvements at Rest Areas	Economy	Benefit-Cost	Project Readiness	Funding	Weighted Score			
Rest Areas	Mohawk	1	0.64	0.64	2	1	2	1	1.13	16	25	14
	Ehrenberg	2	0.66	0.66	3	3	2	1	1.93	53	80	4
	Bouse Wash	1	1.00	1.00	3	2	1	1	1.40	55	48	10
	Burnt Well	3	0.82	0.82	3	3	1	1	2.16	103	125	1
	Sacaton	1	0.53	0.53	3	1	2	1	1.21	20	38	13
	Texas Canyon	3	0.09	0.09	2	1	2	1	1.62	17	186	9
	San Simon	3	0.67	0.67	2	1	2	1	1.73	80	120	8
	Meteor Crater	3	1.00	1.00	3	1	1	1	1.8	140	122	6
Safe Lots	I-10 at US 191	2	0.85	0	2	3	1	1	1.73	85	100	7
	I-10 at Sibyl Rd	2	0.43	0	2	1	1	1	1.26	37	86	12
	B-10/SR186 TI	3	0.68	0	2	2	2	1	1.90	127	186	5
	I-40 at Hibbard	3	1.00	0	3	2	1	1	1.95	158	158	3
	I-40 at Crazy Creek	3	1.00	0	3	3	1	1	2.15	176	162	2
	I-40 at Seligman	2	0.90	0	2	1	1	1	1.34	72	80	11

8.8 Recommended Projects and Actions

Based on the prioritization ranking criteria, the sites that would have the greatest impacts for truck parking expansion are as follows:

1. Burnt Well Rest Area
2. Meteor Crater Rest Area
3. B-10/SR186 TI Safe lot
4. Crazy Creek Safe lot
5. Ehrenberg Rest Area
6. San Simon Rest Area
7. Bouse Wash Rest Area
8. Seligman Safe lot
9. Sacaton Rest Area
10. Mohawk Rest Area

Spreading the investment by corridor and prioritizing Burnt Well Rest Area, Meteor Crater Rest Area, and B-10/SR 186 TI safe lot will cost $28.95 million

To effectively make use of truck parking expansion funding, the sites were prioritized based on the improvement across multiple corridors of need with a pragmatic parking prioritization and implementation. The NHFP funding to the current truck parking expansion projects along I-17 (Christensen, McGuireville, and Sunset Point Rest Areas) amounts to $10.4 million and the current truck parking expansion project along I-40 at Haviland Rest Area amounts to $7.6 million. The remaining $32 million allotted to truck parking expansion may be distributed between sites at Burnt Well Rest Area ($9.1 million), Meteor Crater Rest Area ($10.97 million), and at B-10/SR 186 TI safe lot ($8.88 million). These prioritized sites amount to a total of $28.95 million.

The prioritized truck parking implementation recommendations are summarized in Table 8-18. Sites that were analyzed but not recommended for further consideration are summarized in Table 8-19.

Table 8-18. Truck Parking Expansion Prioritized Recommendations

Priority Rank	Site ID	Route	Travel Direction Served	Type of Parking Expansion	Number of Anticipated Truck Spaces Gained	Total Cost (in Million $)
1	Burnt Well Rest Area	I-10	Both	Expand truck parking by expanding rest area ROW and provide overflow alternate pavement lot in SE corner of existing rest area. Provide overflow alternate pavement lot in NW corner of existing rest area.	103	9.1
2	Meteor Crater Rest Area	I-40	Both	Provide overflow alternate pavement lot for truck parking area in the SW corner of the existing rest area.	140	10.97
3	B-10/SR186 TI Safe lot	I-10	Both	Expand truck parking within the existing ROW. Utilize existing ramps for minor realignment at traffic interchange. Provide alternative pavement in truck parking lot.	127	8.88
					Subtotal Parking Expansion Cost	28.95
4	Crazy Creek Safe lot	I-40	Both	Expand truck parking within the existing ROW. Provide new on/off ramps and alternative pavement in truck parking lot.	176	10.46
5	Ehrenberg Rest Area	I-10	Both	Expand truck parking within the existing ROW by relocating ramp along freeway with new ramp gore(s).	53	5.95
6	San Simon Rest Area	I-10	Both	Provide overflow gravel parking area.	80	7.85
7	Bouse Wash Rest Area	I-10	Both	Expand truck parking within the existing ROW using minor ramp realignments and provide overflow parking.	55	4.6
8	Seligman Safe lot	I-40	Both	Expand parking within the existing ROW by providing on/off ramps along freeway with new ramp gore(s).	72	8.28
9	Sacaton Rest Area	I-10	Both	Expand truck parking within the existing ROW using minor ramp realignment.	20	5.57
10	Mohawk Rest Area	I-8	EB	Expand truck parking within the existing ROW using minor ramp realignment.	16	2.36
					Total Parking Expansion Cost	74.02

Table 8-19. Other Truck Parking Sites Not Prioritized

Site ID	Route	Travel Direction Served	Reasoning for No Truck Parking Expansion	Number of Anticipated Truck Spaces Gained	Total Cost (in Million $)
Hibbard Safe Lot	I-40	Both	Close proximity to Meteor Crater Rest Area, which is developing additional truck parking spaces that meet the future demand in 2032	158	13.84
US 191 TI Safe Lot	I-10	WB	Close proximity to B-10/SR 186 safe lot, which is developing additional truck parking spaces that meet the future demand in 2032	85	7.37
Texas Canyon Rest Area	I-10	Both	Close proximity to B-10/SR 186 safe lot, which is developing additional truck parking spaces that meet the future demand in 2032	17	4.59
Sibyl Road TI Safe Lot	I-10	EB	Close proximity to B-10/SR 186 safe lot, which is developing additional truck parking spaces that meet the future demand in 2032	37	3.68

Appendices