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#### **Arizona State Freight Plan**

(ADOT MPD 085-14)

#### Strengths, Weaknesses and Policy Priorities

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Solutions for growing economies

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#### **Working Paper**

This working paper summarizes the strengths and weaknesses of Arizona's freight transportation system and presents possible policy responses and related project types.

#### **Acknowledgements**

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### **Executive Summary**

This working paper summarizes the strengths and weaknesses of Arizona's freight transportation system and presents possible policy responses and related project types.

#### Strengths of the Arizona Freight Transportation System

For the most part, the freight transportation system in Arizona has ample capacity and performs well. Arizona's network of freight transportation facilities is extensive, robust, and reliable—traits that are essential to maintaining Arizona's economic competiveness. The freight transportation system also provides relatively strong links with Arizona's principal trading partners: Mexico, California, and Texas.

#### Weaknesses of the Arizona Freight Transportation System

Notwithstanding these strengths, Arizona's freight transportation system also has weaknesses and opportunities for improvement. The extent to which the Arizona Department of Transportation (ADOT) can address these weaknesses depends largely on question of jurisdiction and ownership – material considerations in defining ADOT policy responses. Weaknesses are organized accordingly as follows:

#### Weaknesses that ADOT can address directly:

- Lack of passing/climbing lanes on Arizona's Key Commerce Corridors.
- Lack of safe truck parking across Arizona, and the relatively low axle-load restrictions.
- Lack of state-level freight-specific funding sources; current project prioritization process (P2P Link) uses largely non-freight evaluation criteria.

Weaknesses that ADOT can address through collaboration and partnerships with others:

- Recurring congestion and bottlenecks in and around urban centers, particularly Phoenix (including connections to the airport).
- Non-recurring congestion and bottlenecks in urban areas.
- Congestion at border crossings and on local roadways.

#### Weaknesses that ADOT has little or no control over:

- Rail, pipeline, and airport capacity constraints and service levels.
- Volume of freight traffic that simply passes through Arizona.

Many of the strengths and weaknesses of Arizona's freight transportation system – notably relating to the performance of the state's roadways and airports – are equally important for the mobility of people. Though not strictly within the scope of the Freight Plan, efficient people movement is also critical to Arizona's economic competitiveness and growth. Freight Plan considerations should not lose sight of this reality, particularly given the fact that highways and airports are used by both freight and passengers.



#### **Policy Responses**

ADOT policies can be effected through *planning*, *investments*, *operations* and *regulations*. In any case, policy responses and priorities for addressing Arizona freight transportation system weaknesses should be guided by the goals, objectives, and strategies of the Arizona Freight Plan.

Accordingly, the following table provides a summary of project types in line with the key weaknesses identified in the Arizona State Freight Plan's development. Importantly, ADOT should focus its policy responses on weaknesses falling within its mandate. Where it shares responsibility with other agencies or levels of government —in one way or another—policy responses should be closely coordinated and undertaken on a collaborative basis, as appropriate. Lastly, where ADOT has no direct mandate or jurisdiction – over rail infrastructure and service for example – it can most meaningfully respond by engaging regularly with the relevant stakeholders.

	Who's Mandate/Jurisdiction?				
Issue Types	ADOT	Federal	MPO/ Local	Private	ADOT Response Lever
Re-occurring urban congestion	<ul> <li>✓</li> </ul>		<b>~</b>		Planning, Operations, Investment
Improvements to maintenance and operations	$\checkmark$		$\checkmark$		Operations
Modernization of infrastructure, systems, operations (e.g. ITS)	<ul> <li>✓</li> </ul>		<b>√</b>		Operations, Investment
Expansion of physical capacity (e.g. additional lanes)	$\checkmark$		$\checkmark$		Planning, Investment
Re-occurring rural bottlenecks	$\checkmark$		<b>√</b>		Planning, Investment
Inadequate passing/climbing lanes on the highway system	$\checkmark$		$\checkmark$		Planning, Investment
Inadequate highway on/exit ramps for truck access	$\checkmark$				Planning, Investment
Border access	$\checkmark$	<ul> <li>Image: A start of the start of</li></ul>	$\checkmark$		Planning, Investment
Impediments to freight system resilience	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	Planning
Inadequate truck parking facilities	$\checkmark$		$\checkmark$	$\checkmark$	Planning, Investment
Restrictive axle loads on certain corridors	✓	<b>~</b>	<b>~</b>		Regulations, Engagement
Problematic at grade rail crossings	<ul> <li>✓</li> </ul>		<ul> <li>✓</li> </ul>	<b>√</b>	Engagement, Planning, Investment
Rail infrastructure/services				$\checkmark$	Engagement
Inadequate pipeline system storage capacity				$\checkmark$	Engagement
Inadequate international air service				<ul> <li>✓</li> </ul>	Engagement
Municipal by-laws that impede truck movements (off-peak noise, road geometry, etc.)			<b>√</b>		Engagement
Inadequate supply of truck drivers				$\checkmark$	Engagement

#### Figure ES-1: Types of Freight Projects by Mandate/Jurisdiction and ADOT Policy Response Levers



## **Acronyms and Abbreviations**

ADOT	ARIZONA DEPARTMENT OF TRANSPORTATION
BNSF	BURLINGTON NORTHERN SANTA FE RAILWAY
FAC	FREIGHT ADVISORY COMMITTEE
FAST ACT	FIXING AMERICA'S SURFACE TRANSPORTATION ACT
ITS	INTELLIGENT TRANSPORTATION SYSTEM
LOS	LEVEL OF SERVICE
MAG	MARICOPA ASSOCIATION OF GOVERNMENTS
MPD	MULTIMODAL PLANNING DIVISION
MPOs	METROPOLITAIN PLANNING ORGANIZATON
РНХ	PHOENIX SKY HARBOR INTERNATIONAL AIRPORT
P2P Link	PLANNING TO PROGRAMMING LINK
ТАС	TECHNICAL ADVISORY COMMITTEE
TUS	TUCSON INTERNATIONAL AIRPORT
UPRR	UNION PACIFIC RAILROAD
US	UNITED STATES



# Introduction

#### **Key Messages**

The Arizona Department of Transportation, Multimodal Planning Division, retained a team lead by CPCS Transcom Inc. to assist in the development of Arizona's State Freight Plan.

The State Freight Plan will define immediate and long-range investment priorities and policies that will generate the greatest return for Arizona's economy.

This working paper summarizes the strengths and weaknesses of Arizona's freight transportation system and presents possible policy responses and related project types.



#### 1.1 Introduction: Context

Arizona's economic potential is supported by the state's transportation infrastructure, which connects sources of production to markets.

When transportation infrastructure and related services are efficiently designed and competitively positioned, businesses benefit from lower transport costs, faster and better transportation services, and increased reliability; which in turn contribute to their own competitiveness and growth, and that of the broader region.

Effective freight planning and programming can help achieve these ends. Yet, fiscal realities are such that Arizona's Department of Transportation (ADOT) cannot address all transportation system needs and constraints. Rather, it must be strategic in defining and prioritizing its investments and system improvements.

To this end, ADOT's Multimodal Planning Division (MPD) is developing Arizona's State Freight Plan (Freight Plan, or Plan) which will provide strategic guidance to achieve its vision, goals and objectives.

Vision: Arizona's freight transportation system enhances economic competitiveness and quality growth through effective system performance and management.



Source: CPCS



#### 1.2 Project Objectives

The State Freight Plan will define immediate and long-range investment priorities and policies that will generate the greatest return for Arizona's economy, while also advancing other key transportation system goals, including national goals outlined in MAP-21. It will identify freight transportation facilities in Arizona that are critical to the State's economic growth and give appropriate priority to investments in such facilities.

The State Freight Plan will ultimately provide Arizona with a guide for assessing and making sound investment and policy decisions that will yield outcomes consistent with the State's visions, goals, and objectives, and notably, promote regional competitiveness and economic growth.

#### **1.3 Freight Plan Development Phases**

The State Freight Plan is being developed in 11 phases, organized under three overarching headings, as summarized below. The present working paper is an output of Phase 8.



Figure 1-2: Phased Approach to the Development of Arizona's State Freight Plan



#### 1.4 **Purpose of this Working Paper**

The aim of this working paper is to define the strengths, weaknesses and related policy responses to orient the State Freight Plan to enable regional economic competitiveness and growth. Specifically, this working paper addresses the following questions:

- What are the current and future strengths and weaknesses of Arizona's freight transportation system in light of forecasts and future scenarios?
- How do these relate to ADOT's freight transportation goals and objectives?
- What are the policy responses to leverage strengths and address weaknesses?

Leveraging strengths, while simultaneously managing and overcoming weaknesses, will help ensure that ADOT meets the key goals of enhancing economic competiveness, increasing system performance, and improving system management.

#### (This Phase 8 working paper corresponds with section 3.8 in the Scope of Services in the RFP.)

This working paper is submitted for review and comment by the Technical Advisory Committee (TAC) and Freight Advisory Committee (FAC). It will subsequently be revised or updated based on TAC and FAC comments, as appropriate.

#### 1.5 Limitations

This working paper provides a high level synthesis of strengths and weaknesses identified in previous Arizona State Freight Plan working papers and reports. It is not intended to be exhaustive as this would be redundant with prior work. Rather, it is focused on the broad strengths and weaknesses of the Arizona freight transportation system, and related policy responses to enable the goals and objectives of the Arizona State Freight Plan. Of note, most of the analysis in the context of the development of the Arizona State Freight Plan has focused on state-maintained assets. Metropolitan Planning Organizations (MPOs) more fully assess the urban freight system in their respective regions.



## Assessment of Strengths of Arizona's Freight System

#### **Key Messages**

For the most part, the freight transportation system in Arizona has ample capacity and performs well.

Arizona's network of freight transportation facilities is extensive, robust, and reliable—traits that are essential to maintaining Arizona's economic competiveness.



#### 2.1 Strengths of the Arizona Freight Transportation System

To a significant degree, the health of Arizona's economy depends on a high performing freight transportation system.

**For the most part, the freight transportation system in Arizona has ample capacity and performs well.** Stakeholders interviewed in the development of the Arizona State Freight Plan have confirmed that they are generally pleased with the way the freight system works and how it supports their own business goals. That is not to say there are no problems or deficiencies; these are addressed in Section 3 of this working paper. The capacity and performance of the freight transportation system is clearly a significant decisionmaking factor in business retention and in attracting new companies to Arizona – particularly in goods movement sectors. Ensuring an efficient freight transportation system is fundamental to any economic development marketing efforts that the state may want to implement.

Arizona's network of freight transportation facilities is extensive, robust, and reliable—traits that are essential to maintaining Arizona's economic competiveness. There are over 66,000 highway miles in Arizona. Highway level of service throughout the state can generally be described as high (LOS C or better).<sup>1</sup> Arizona's Department of Transportation can capitalize on this strength by ensuring that state highways continue to function well through ongoing maintenance and repair, and by implementing key capacity enhancements and operational improvements, where warranted.

Although ADOT has no responsibility for the rail network, Arizona's freight rail system is also quite extensive, covering nearly 2,000 route miles. Class I carriers BNSF Railway (BNSF) and Union Pacific Railroad (UPRR) operate 1,465 miles, or 73 percent of Arizona's rail network, and intermodal transfer facilities in Phoenix and Tucson. Short line carriers provide reliable local service to rail-dependent industries like mining and provide connections to the Class I network.

Arizona's two largest air cargo facilities at Phoenix Sky Harbor International Airport and Tucson International Airport are managed by municipal—rather than state—entities. These airports are nevertheless an important component of Arizona's multimodal freight transportation system. Phoenix Sky Harbor International Airport (PHX) moves nearly 90 percent of all air cargo originating or terminating in Arizona, and Tucson International Airport (TUS) handles nearly 10 percent of the state's air cargo.

Arizona's freight clusters, concentrations of freight distribution facilities, provide vital job opportunities for Arizona residents. Arizona's freight clusters are generally well connected to the multimodal transportation system.

The freight transportation system provides vital links with Arizona's principal trading partners: Mexico, California, and Texas. The I-10, I-19 and I-40 corridors and major border crossings are key components of Arizona's freight transportation system. They support inbound consumer goods and transportation and logistics sector flows from California, bi-directional manufacturing flows to and from Mexico and California, and bi-directional natural resources flows to and from Mexico.

<sup>&</sup>lt;sup>1</sup> Further detail on the performance of Arizona's highway system is provided in separate deliverables (Phase 5 Conditions and Performance Report; Phase 6 Forecasts Report).



#### I-10 Corridor Coalition

The voluntary I-10 Corridor Coalition was signed into effect by Arizona, California, New Mexico and Texas on June 2, 2016. The aim of the Coalition is to improve the efficiency and safety of transportation from East Texas to Southern California.

Border crossings provide a vital economic link to Mexico. Over 85 percent of exports and 88 percent of imports from or to Arizona use the Nogales border crossing. Over 10 percent of Arizona's exports and imports use the Douglas-Agua Prieta border crossing.

Many of the strengths (and weaknesses) of Arizona's freight transportation system – notably the performance of the state's roadways and airports – are equally important for the mobility of people. Though not strictly within the scope of the Freight Plan, efficient people movement is also critical to Arizona's economic competitiveness and growth. Freight Plan considerations should not lose sight of this reality, particularly given the fact that roads and airports are used by both freight and passengers.



## Assessment of Weaknesses of Arizona's Freight System

#### **Key Messages**

Weaknesses that ADOT can address directly:

- Lack of passing/climbing lanes on Arizona's Key Commerce Corridors, and Lack of safe truck parking across Arizona.
- Lack of freight-specific funding sources; project prioritization process uses largely non-freight evaluation criteria.

Weaknesses that ADOT can address through collaboration and partnerships with others:

- Recurring congestion and bottlenecks in and around urban centers, particularly Phoenix.
- Non-recurring congestion and bottlenecks in urban centers.
- Congestion at border crossings and on local roadways.
- Relatively low axle-load restrictions

Weaknesses that ADOT has little or no control over:

- Rail, pipeline, and airport capacity constraints and service levels.
- Volume of freight traffic that simply passes through Arizona.



#### 3.1 Top Weaknesses of the Arizona Freight Transportation System

The strengths of the Arizona's freight transportation system discussed in the previous section are tempered by its weaknesses. In this section weaknesses are organized into three major categories: 1) those that ADOT can address directly through its statutory or administrative authority, 2) those that it can address through collaboration with other parties, and 3) those that ADOT has little or no control over. Each is discussed separately.

#### 3.1.1 Weaknesses that ADOT Can Address Directly

There are certain weaknesses in the freight transportation system that fall under ADOT's purview.

The Arizona Department of Transportation has an important role in helping address the most significant weakness of **recurring congestion and bottlenecks in and around urban centers, particularly Phoenix** – particularly through funding. However related actions are likely best addressed in close coordination with the associated MPOs.

As warranted, ADOT has a more direct role in addressing the following weaknesses in the statemaintained freight transportation system.

**The lack of passing/climbing lanes on Arizona's Key Commerce Corridors** (e.g. along I-17, I-10, I-40, I-11 US 93), and the **lack of safe truck parking** across Arizona, especially on the I-17 corridor between Phoenix and Flagstaff and on I-10 between Tucson and Blythe, California.

**Funding, Advocacy, and Project Prioritization Issues.** Addressing the weaknesses in the Arizona freight transportation system will require substantial sums of money. For example, \$18.8 billion of funding is needed over the next 20 years to adequately operate and maintain the current transportation network in the state's Key Commerce Corridors. An additional \$800 million is needed for border crossing improvements and another \$400 million for bridge upgrades in the state.

Two impediments that could hinder improvements to the state-maintained freight transportation system are: 1) Arizona's Planning to Programming (P2P) Link prioritization process, which uses largely non-freight evaluation criteria, and 2) current lack of state dedicated sources of funding directly tied to freight in Arizona. These problems are exacerbated by the fact that there is no coherent national freight policy. Despite additional recognition for the concerns of the freight system in recent federal reauthorization legislation, there is still no consensus on how to supplement the federal Highway Trust Fund. Continuing gridlock in Washington, DC will only compound the problem.

Raising additional funds for freight will be difficult unless freight interest groups counter the perception among elected officials and funding agencies that passenger-related projects have a higher priority than freight projects. Another weakness is that there is often a lack of consensus on what freight projects to implement.

#### 3.1.2 Weaknesses that ADOT Can Help Address through Collaboration or in Partnership with Other Parties

ADOT has ongoing partnerships with other agencies and jurisdictions that are responsible for key elements of the freight transportation system. Coordination and achieving consensus with these



other parties on courses of action will be important to effectively addressing certain weaknesses that don't fall strictly within ADOT jurisdiction.

**Recurring congestion and bottlenecks in and around urban centers, particularly Phoenix**. During consultations with stakeholders, virtually all freight sectors identified peak-period congestion and associated bottlenecks in and around urban centers as problematic and a barrier to transportation system performance and sector competitiveness. Related improvements will need to be addressed in coordination with the relevant MPOs.

The current performance of the state highway system is fully explored in the Phase 5 report, *Performance and Condition of the Arizona Freight Transportation System*. Future conditions are reported in the Phase 6 report, *Future Scenarios and Implications for Freight Transportation*.

The figures below show the estimated 2014 Levels of Service (LOS) on the state highway system and compares this to the expected LOS on the same system in 2040. Clearly, the most significant weakness in the system in the future is the projected poor level of service in and around Phoenix.

**Non-recurring congestion and bottlenecks.** Although less frequently cited as an issue, several stakeholders across most sector groups noted non-recurring congestion and road closures as hindering the reliability of their transportation operations. Cited causes are many and include road construction-related lane closures, crashes, and weather events. These weaknesses should also be addressed in a coordinated fashion, to the extent that specific issues are located within MPO jurisdictions.

**Relatively low axle-load restrictions**. Arizona is already at the FHWA-imposed limit. Addressing this weakness would require federal engagement.



Figure 3-1: Current LOS Map

Arizona State Freight Plan (ADOT MPD 085-14)

#### CPCS Solutions for growing economies Arizona Transportation Infrastructure 91 89 89 Lake Powell 191 UT 163 NV 64 93 80 Lake Mead 95 64 64 180 99 68 95 Cit 95 96 CA NM 95 260 Scottsd 78 366 266 19 95 Yuma Tucson 86 MEXICO 386 Existing Level of Service Administrative Units LOS C or better (V/C <0.71) ----- United-States - Mexico Border LOS D (V/C 0.71-0.89) United-States Urban Area Centers Indian Reservations Populated Places LOS E (V/C 0.89-1.0) 289 LOS F (V/C >1.0) Z National Parks N 15 30 60 Notes: Worst peak period volume over capacity ratio is presented. Date Created: 7/29/2015. Source: ADOT Statewide Travel Demand Model, Second Generation, September 2011. Miles A

#### Figure 3-2: Future LOS Map for the Base-case 2040 Planning Horizon



Source: Arizona Department of Transportation (2011)

Source: Arizona State Freight Plan Phase 6 Forecast Report



**Congestion at Border Crossings and on Local Roadways.** Delays at the U.S.-Mexico border crossing in Nogales, and to a lesser extent at crossings at Yuma and Douglas, are common. This is a result of inefficient operations in facility design, security concepts and institutional issues, long-standing international agreements and laws, and intermodal conflicts (e.g., parking areas, waiting areas, security between trucks, personal autos, and pedestrians). In addition, these operational flaws are exacerbated by the general poor condition and limited capacity of road network leading to and from the border crossings. Stakeholders expect continued growth in border volumes, suggesting the need for continued planning and investment in border infrastructure to avoid unacceptable levels of delay. Any related actions to improve the performance of the border should be closely coordinate with the relevant federal agencies in the United States and Mexico.

**Local congestion affects highway movements of air cargo utilizing PHX.** While estimates suggest no new on-airport cargo infrastructure will be needed until 2031, highway access to air cargo facilities at PHX, especially the South Air Cargo complex, will need to be addressed. Likewise, some freight clusters experience congestion and delays on access roads leading to those facilities. As with urban congestion issues, related improvements should be closely coordinated with MAG.

#### 3.1.3 Weaknesses Over which ADOT has Little or No Control

Certain weaknesses identified in the development of the Arizona State Freight Plan fall entirely outside of ADOT's mandate or control. Beyond regular stakeholder engagement, ADOT, there is little ADOT can do directly to address these weaknesses.

**Trucking Issues.** There are key trucking issues that are beyond the Department's control, including the driver shortage challenge, local noise ordinances that restrict time of delivery, and inadequate parking facilities and curb returns for trucks in local jurisdictions. Equipment availability is also a concern in the trucking industry which ADOT can do little to address.

**Non-Highway Mode Issues.** The manufacturing sector has voiced concerns over the limited international air connections at PHX airport. Arizona's freight rail network is lacking in north-south infrastructure, including limits to rail capacity, intermodal facilities, classification yards, and logistics centers. The lack of storage capacity in Arizona's pipeline system provides little inventory and/or options to redistribute materials in the event of system disruptions. Capacity constraints with petroleum pipelines may result in additional shipments by rail and/or truck, which burdens the highway and rail systems and introduces safety concerns, especially with the potential shift of the movement of highly flammable materials to either truck or freight rail. While ADOT has no control over what transportation mode shippers choose, ADOT can to some extent influence how petroleum shipments by truck are regulated.

**Through Traffic.** Since shippers control the flow of cargo, ADOT has no control over the amount of cargo that simply passes through the state; e.g., interstate trucking between the West coast and Southeast region of the US, or container train volumes from California to the Midwest. Freight movements on the Arizona highway system are characterized by their high share of through traffic – that is, neither originating in or destined to Arizona – accounting for



39 percent of total flows by volume, and 64 percent of flows by value. Three-quarters of Arizona rail tonnage is moving through the state, mostly between southern California and major rail hubs in Chicago and Dallas over BNSF's Transcon and UPRR's Sunset Route. Through traffic generates fewer economic benefits than cargo consumed or produced within the state, use state freight transportation system capacity, and results in additional environmental impacts (highway congestion, emissions, and grade crossing delays).

## Policy Priorities and Project Types

#### **Key Messages**

ADOT policies can be effected largely through planning, investments, operations and regulations. In any case, policy responses and priorities for addressing Arizona freight transportation system weaknesses should be guided by the goals, objectives, and strategies of the Arizona Freight Plan.

This chapter provides a summary of project types in line with the key weaknesses identified in the Arizona State Freight Plan's development. Importantly, ADOT should focus its policy responses on weaknesses falling within its jurisdiction. Where it shares jurisdiction – in one way or another, policy responses should be closely coordinated and undertaken on a collaborative basis, as appropriate. Lastly, where ADOT has no direct jurisdiction, it can most meaningfully respond by engaging regularly with the relevant stakeholders.



Policies and programs should seek to capitalize on the freight transportation system's strengths and address its weaknesses – all with the overarching aim of enabling economic competitiveness and growth.

The foundation of these policy responses was established in earlier phases of the Arizona State Freight Plan. Specifically, policy responses should be in line with the goals and objectives of the Arizona State Freight Plan (Phase 1) and the associated Strategies of the Freight Plan (Phase 4).





#### 4.1 Policy Levers

ADOT policies can be effected largely through *planning*, *investments*, *operations* and *regulations*. Each lever is discussed briefly below.

#### 4.1.1 Planning

The Arizona State Freight Plan should be the guiding plan to make improvements to the Arizona's freight transportation system. Nevertheless, since Arizona's freight transportation system shares much of its lane capacity with passenger vehicles – notably the highway system, the Freight Plan should be closely coordinated with other planning initiatives, including in particular the update to Arizona's Long Range Transportation Plan, as well as regional transportation plans. It should also closely align and comply with the federal FAST Act requirement.

Although largely outside ADOT jurisdiction, any needs assessment relating to the rail system should also be closely coordinated with the Freight Plan given that the state's rail system largely serves freight markets.

Other planning considerations – directly linked to the goals and objectives of the Freight Plan, include:



**Link Transportation and Land-Use**: Achieve greater value from the State's freight transportation system by developing policies and partnerships that strengthen the coordination of transportation and land use planning and the implementation of associated policies and activities.

**Increase Effective Performance Monitoring**: Make informed decisions on the basis of sound performance monitoring and evaluation of the performance and needs of the freight transportation system, and in line with national freight transportation system performance measures.

**Work in Partnership**: Develop and nurture partnerships that support the coordination and integration of ADOT's investment in the State's transportation infrastructure with public and private organizations, tribal governments, and agencies responsible for transportation, land use, conservation and environmental planning, and freight infrastructure.

#### 4.1.2 Investment

Investments in the Freight Transportation System should also be guided by the Arizona State Freight Plan, and associated goals, objectives and strategies.

Of particular relevance are strategies 1, 2, 3, and 6, as below (and as detailed further in the Phase 4 Work Paper on Policy and Strategies).



#### Figure 4-2: Strategies to Guide ADOT Investment in the Arizona Freight Transportation System



## What remains unclear and critical is how a merit-based prioritization approach for freight (Strategy 1) would relate to the P2P Link prioritization process.

This question demands immediate attention if the Arizona State Freight Plan is to be effective directing freight projects investments.

#### 4.1.3 Operations

ADOT operations functions with respect to the transportation system could also help improve the performance of the freight transportation system. Perhaps most central are ADOT's functions with respect to freight transportation system preservation and maintenance – particularly with respect to the state's highway system. The further introduction of Intelligent Transportation System (ITS) to modernize the performance of the system is another example.



Policy responses that can help improve the state of performance monitoring and evaluation of the system's performance should would also be valuable.

#### 4.1.4 Regulations

There may be opportunities for ADOT to revise or streamline regulations to improve the performance of the freight transportation system. Axle-load restrictions are such an example, though this would require engagement with the federal government as Arizona is already at the federal limit. It is outside the scope of this Freight Plan to make specific recommendations with respect to regulatory change, as any such decisions would require further analysis (e.g. the impact of changes to axle loads on road condition and safety).

#### 4.2 Types of Freight Projects

To achieve the goals of State Freight Plan, specific initiatives must ultimately be identified and prioritized for action and funding. For simplicity and consistency with the Freight Plan goals and objectives, a "freight project" is defined as follows:

## A "freight project" improves the efficiency, reliability, accessibility and social/environmental sustainability of freight movement.



To be clear, a freight project could also result system performance improvements for nonfreight transportation system users. Likewise, investments in the passenger transportation system – for example in the highway system – can also benefit the performance of the freight system. In both cases, the improvement options should be considered in the broad context of total benefits to all transportation system users.



The follow table provides a summary of project types in line with the key weaknesses identified in the Arizona State Freight Plan's development. Importantly, ADOT should focus its policy responses on weaknesses falling within its jurisdiction. Where it shares jurisdiction – in one way or another, policy responses should be closely coordinated and undertaken on a collaborative basis, as appropriate. Lastly, where ADOT has no direct jurisdiction – over rail infrastructure and service for example – it can most meaningfully respond by engaging regularly with the relevant stakeholders.

	Who's Mandate/Jurisdiction?				
Issue Types	ADOT	Federal	MPO/ Local	Private	ADOT Response Lever
Re-occurring urban congestion	✓		~		Planning, Operations, Investment
Improvements to maintenance and operations	<b>√</b>		<ul> <li>✓</li> </ul>		Operations
Modernization of infrastructure, systems, operations (e.g. ITS)	✓		<ul> <li>✓</li> </ul>		Operations, Investment
Expansion of physical capacity (e.g. additional lanes)	$\checkmark$		$\checkmark$		Planning, Investment
Re-occurring rural bottlenecks	$\checkmark$		$\checkmark$		Planning, Investment
Inadequate passing/climbing lanes on the highway system	<ul> <li>✓</li> </ul>		$\checkmark$		Planning, Investment
Inadequate highway on/exit ramps for truck access	<ul> <li>✓</li> </ul>				Planning, Investment
Border access	<ul> <li>✓</li> </ul>	<ul> <li>✓</li> </ul>	$\checkmark$		Planning, Investment
Impediments to freight system resilience	$\checkmark$	<ul> <li>✓</li> </ul>	$\checkmark$	$\checkmark$	Planning
Inadequate truck parking facilities	$\checkmark$		$\checkmark$	$\checkmark$	Planning, Investment
Restrictive axle loads on certain corridors	✓	<ul> <li>✓</li> </ul>	✓		Regulations, Engagement
Problematic at grade rail crossings	<ul> <li>✓</li> </ul>		✓	<b>√</b>	Engagement, Planning, Investment
Rail infrastructure/services				$\checkmark$	Engagement
Inadequate pipeline system storage capacity				<ul> <li>✓</li> </ul>	Engagement
Inadequate international air service				<ul> <li>✓</li> </ul>	Engagement
Municipal by-laws that impede truck movements (off-peak noise, road geometry, etc.)			✓		Engagement
Inadequate supply of truck drivers				$\checkmark$	Engagement

#### Figure 4-4: Types of Freight Projects by Mandate/Jurisdiction and ADOT Policy Response Levers

