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Working Paper

Arizona State Freight Plan

(ADOT MPD 085-14)

Phase 11 Funding/Financing Options

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Working Paper

This working paper outlines funding and financing options to advance the Arizona freight transportation system improvement strategy and related considerations.

Acknowledgements

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Opinions

Unless otherwise indicated, the opinions herein are those of the author and do not necessarily reflect the views of ADOT, the TAC, the FAC, or the State of Arizona.

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Executive Summary

Arizona's freight transportation system improvement strategy and related freight improvement priorities were defined during an earlier phase of work in the development of the Arizona State Freight Plan.

Funding Needs

The estimated capital cost of the top 20 identified priority freight improvement projects is over $3.7 billion. This does not include projects in the Maricopa Association of Governments region or illustrative projects. These other projects, although not yet fully defined, are expected to cost several billions of dollars more.

Two projects among the top 20 priority list have received FASTLANE grant funding, reducing the funding needs by just over 3 percent, to approximately $3.55 billion, assuming that these two FASTLANE grant projects are fully funded.

Among the remaining 18 identified priority projects, two projects account for two-thirds of the estimated planning-level cost of all identified freight improvement projects.

Funding Sources

Arizona's apportionment of dedicated federal Fixing America's Surface Transportation Act (FAST) Act freight funds ($117 million over five years) can be used to fund three identified freight improvement projects (total estimated cost of $103 million)[1], leaving $14 million for small-scale freight improvement initiatives that directly benefit freight. These FAST Act funds, however, address only about 3 percent of the funding needs associated with the identified top priority freight improvements.

Traditional sources of funding for freight improvements include: the Arizona Highway Revenue Fund, the Arizona Regional Road Fund, and the Federal Highway Program. Use of these funds is not dedicated to freight, and so freight improvements would be considered against non-freight priorities in the context of Arizona's Five-Year Transportation Facilities Construction Program.

Discretionary funding programs, such as the FASTLANE and TIGER Grant Programs, may help raise funding for freight priorities, although these programs are very competitive.

Alternative funding mechanisms—including heavy goods vehicle charges, transportation-dedicated sales taxes on motor vehicles and tires, tolls, and vehicle miles traveled fees—have been used in other jurisdictions to help fund transportation projects and may warrant consideration. The magnitude of potential funding from these approaches can be significant.

[1] Arizona's Department of Transportation (ADOT) will have to provide a funding match of approximately 4% of the FAST Act apportionment of dedicated freight funds for freight projects.

It is, however, beyond the scope of this paper to assess the appropriateness of these mechanisms for Arizona.

Financing Sources

Traditional sources of financing for Arizona Department of Transportation (ADOT) transportation projects include bonds (Highway Revenue Bonds, Transportation Excise Tax Revenue Bonds, and Grant Application Notes). ADOT also has access to loans and credit instruments under federal programs, such as the Transportation Infrastructure Finance and Innovation Act program and Private Activity Bonds through the Build America Bureau of the U.S. Department of Transportation (USDOT).

Nevertheless, it is critical to note that financing cannot address a funding gap. Financing merely helps raise money to pay for projects, and funds raised through financing must be repaid, with interest.

Public-private partnerships, or P3s, are project delivery mechanisms that often include a financing component. Arizona has very effective P3-enabling legislation, and P3 project delivery is available to ADOT as a tool in its toolbox. The Loop 202 South Mountain Freeway, for example, is currently under construction and is being undertaken as a P3. It is, however, the only P3 project in the transportation realm that is under construction, besides the State Safety Rest Areas maintenance, which is in operation (all others are at various stages of consideration/procurement).

This working paper proposes a P3 Screen for identifying the potential applicability of P3s for delivering freight improvement priorities in Arizona. In some cases, we would not recommend using P3s. Nevertheless, of the top identified freight improvement projects, it is likely that the US 60 Access Controlled Freeway Extension project (project reference: 61) is the best short-term candidate project for further P3 consideration. It is not currently on ADOT's list of planned P3 projects.

Conclusion

Arizona's apportionment of FAST Act dedicated freight funds is currently the only dedicated sources of freight funds that can be used to advance Arizona's freight improvement priorities. All other Arizona freight improvement priorities will have to compete for funding—whether through the prioritization process associated with Arizona's Five-Year Transportation Facilities Construction Program or through federal discretionary grant programs such as FASTLANE and TIGER.

Financing mechanisms, such as bonds and federal loans or credit facilities, can help raise capital for projects in the short term, but would ultimately need to be repaid, and so they do not increase the pot of funding for freight projects.

As many as five identified freight improvement projects have the potential to be implemented using public private partnership (P3) approaches. One is a controlled access highway (US 60 Access Controlled Freeway Extension), and the others are road widening projects that could potentially lend themselves to managed lanes. P3 projects could also be used for smaller-scale

commercial ventures, such as truck rest stop facility projects, asset management, rest area maintenance, freeway lighting upgrades, electronic truck screening, port-of-entry development, traffic data management, compressed natural gas facilities, managed lanes, and others. In all cases, further analysis would be required to assess the potential feasibility and value of implementing these projects as P3s.

Nevertheless, no "silver bullet" solution exists for funding all of Arizona's freight improvement priorities. Beyond using FAST Act dedicated freight funds, the best funding strategy is likely to work within the constraints of Arizona's transportation system funding programs and discretionary funding programs.

Acronyms and Abbreviations

ADOT	Arizona Department of Transportation
AZ	Arizona
ADOT	Arizona Department of Transportation
COGs	Councils of Governments
CPCS	CPCS Transcom Ltd.
DBF	Design-build-finance
DBFOM	Design-build-finance-operate-maintain
DBOM	Design-build-operate-maintain
DOT	Department of Transportation
FAC	Freight Advisory Committee
FAHP	Federal Aid Highway Program
FAST Act	Fixing America's Surface Transportation Act
FASTLANE	The Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FY	Fiscal Year
GAN	Grant Anticipation Notes
HGV	Heavy Goods Vehicle
HURF	Arizona Highway User Revenue Fund
ITS	Intelligent Transportation System
LRTP	Long Range Transportation Plan
MAG	Maricopa Association of Governments
MPD	Multimodal Planning Division
MPOs	Metropolitan Planning Organizations
MTI	Mineta Transport Institute
NCFRP	National Cooperative Freight Research Program
NCRRP	National Cooperative Rail Research Program
PAC	PPP Advisory Committee
PAG	Pima Association of Governments
POE	Port of Entry
PPP	Public-Private Partnerships
RR	Railroad
SADs	Special Assessment Districts

TAC	Technical Advisory Committee
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIGER	Transportation Investment Generating Economic Recovery
US	United States
VMT	Vehicle Miles Travelled

1 Introduction

Key Messages

The Arizona State Freight Plan will define immediate and long-range investment priorities for the state's freight transportation system.

This working paper outlines funding and financing options to advance the Arizona freight transportation system improvement strategy, as well as related considerations.

1.1 Introduction and 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 the Arizona 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 is developing Arizona's State Freight Plan (Freight Plan), which will guide freight improvements in the state.

1.2 Project Objectives

The 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 the Fixing America's Surface Transportation (FAST) Act. 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, given fiscal constraints.

The 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 vision, goals, and objectives and will promote regional competitiveness and economic growth.

1.3 Purpose of Working Paper

This working paper is an output of Phase 11 (Implementation Plan) in the development of the Arizona State Freight Plan. It outlines funding and financing options to advance the Arizona freight transportation system improvement strategy and related considerations.

This working paper will also inform the Arizona Freight Improvement Strategy Implementation Plan itself, as appropriate.

2 Funding Needs

Key Messages

The estimated capital cost of the top 20 identified priority freight improvement projects is over $3.7 billion. This does not include projects in the Maricopa Association of Governments (MAG) region or illustrative projects. These other projects, although not yet fully defined and lacking cost estimates, are expected to cost several billions of dollars more.

Two projects among the top 20 priority list have received FASTLANE Grant funding, reducing the funding needs by just over 3 percent, to approximately $3.55 billion, assuming that these two FASTLANE Grant projects are fully funded.

Among the remaining 18 identified priority projects, 2 projects account for two-thirds of the estimated planning-level cost of all identified freight improvement projects.

2.1 Funding Needs

The estimated capital cost of the top 20 identified priority freight improvement projects is over $3.7 billion (see Figure 2-1). This excludes projects currently being studied in more detail by MAG within Maricopa County and illustrative projects such as the Sonoran Freeway and the Interstate 11 Intermountain West Corridor, which together would cost billions more (e.g., the current MAG Regional Transportation Plan allocates $1.47 billion for the "Spine" Corridor which encompasses portions of the I-10 and I-17 in the metropolitan Phoenix area).

Figure 2-1: Top 20 Identified Freight Improvement Projects (Excluding MAG Projects and Illustrative Projects)

Prioritization Rank	Ref.	Route	Issue Segment	Project Option(s)	Planning-level Project Cost $ million
1	7	I-10	I-10 between SR 85 to Loop 303	I-10 West of Phoenix General Purpose Lane	$61.3
2	81	I-10	From SR 202L to east of SR 387	I-10 Gila River Indian Community Area Widening	$189.0
3	1	I-10	I-10 at I-19 Traffic System Interchange	I-10/I-19 System Interchange Improvements	$83.0
4	6	I-10	East of I-19	Tucson Area I-10 Widening Project	$1,860.0
5	5a	I-10	I-10 at US 191 (Cochise Traffic Interchange)	I-10/US 191 System Interchange Improvements (interim)	$2.7**
6	9*	I-10	East of Phoenix	I-10 Picacho Area Roadway Widening	$85.0
7	8*	I-10	I-10 Main Line and Traffic Interchange at I-8	Earley Road to I-8 Widening and Traffic Interchange Improvements on I-10	$40.0
8	25	I-19	I-19 between I-10 and Valencia Road (south of Tucson)	I-19 Tucson Area Widening and Traffic Interchange Improvements	$625.0
9	67	US 89	US 89 in Flagstaff, north of I-40	SR 89/I-40 System Interchange Improvements	$29.0
10	39	SR 69	SR 69, East of Prescott area	SR 69 East of Prescott ITS Improvements	$3.3
11	29	I-40	I-40 at US 93 Junction in Kingman area	I-40/US 93 System Interchange Improvements	$86.5
12	5b	I-10	I-10 at US 191 (Cochise Traffic Interchange)	I-10/US 191 System Interchange Improvements (interchange and railroad underpass)	$15.6**
13	26	I-40	I-40 (EB to NB system ramp at I-40/I-17/SR 89 interchange)	I-40/I-17 System Interchange Improvements	$82.0
14	62	US 60	US 60 in Globe area	Globe Area Freight Improvements	$6.8
15	33a	SR 189	SR 189 between Mariposa POE and I-19	SR 189 Traffic Flow Improvements (interim)	$70.0
16	33b	SR 189	SR-189 between Mariposa POE and I-19	SR 189 Traffic Flow Improvements (ultimate)	$161.0
17	18	I-17	I-17 between SR 179 and Stoneman Lake Road	I-17 Stoneman Lake Area Climbing Lane and ITS Improvements	$23.1
18	35	SR 260	SR 260, West of Show Low to East of SR 73	SR 260 Show Low Area Intersection Improvements	$8.0
19	61	US 60	US 60 between SR 88 and SR 79	US 60 Access Controlled Freeway Extension	$245.0
20	63	US 60	US 60 Passing Lane: Westbound	US 60 Passing Lane	$5.1
				Total	**$3,679.6**

Source: Results of prioritization process. *Projects recently received funding under FASTLANE grant ($54 million). An intelligent transportation system (ITS) project for early dust storm warning was also included in this grant. **Revised amounts from Phase 10.

2.1.1 Funded Projects

Two projects recently received funding under a Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies (FASTLANE) grant:

- Interstate 10 (I-10) Picacho Area Roadway Widening – project reference: 9, ranked 6, estimated cost of $85 million
- Earley Road to Interstate 8 (I-8) Widening and Traffic Interchange Improvements on I-10 – project reference: 8, ranked 7, estimated cost of $40 million

Assuming these projects are now fully funded (combining FASTLANE grant funding and ADOT funding), this reduces the total funding needs for the top 20 identified freight improvement projects by $125 million, or just over 3 percent of the total cost of identified freight improvement priorities.

2.1.2 Two Projects Account for Two-thirds of Funding Needs

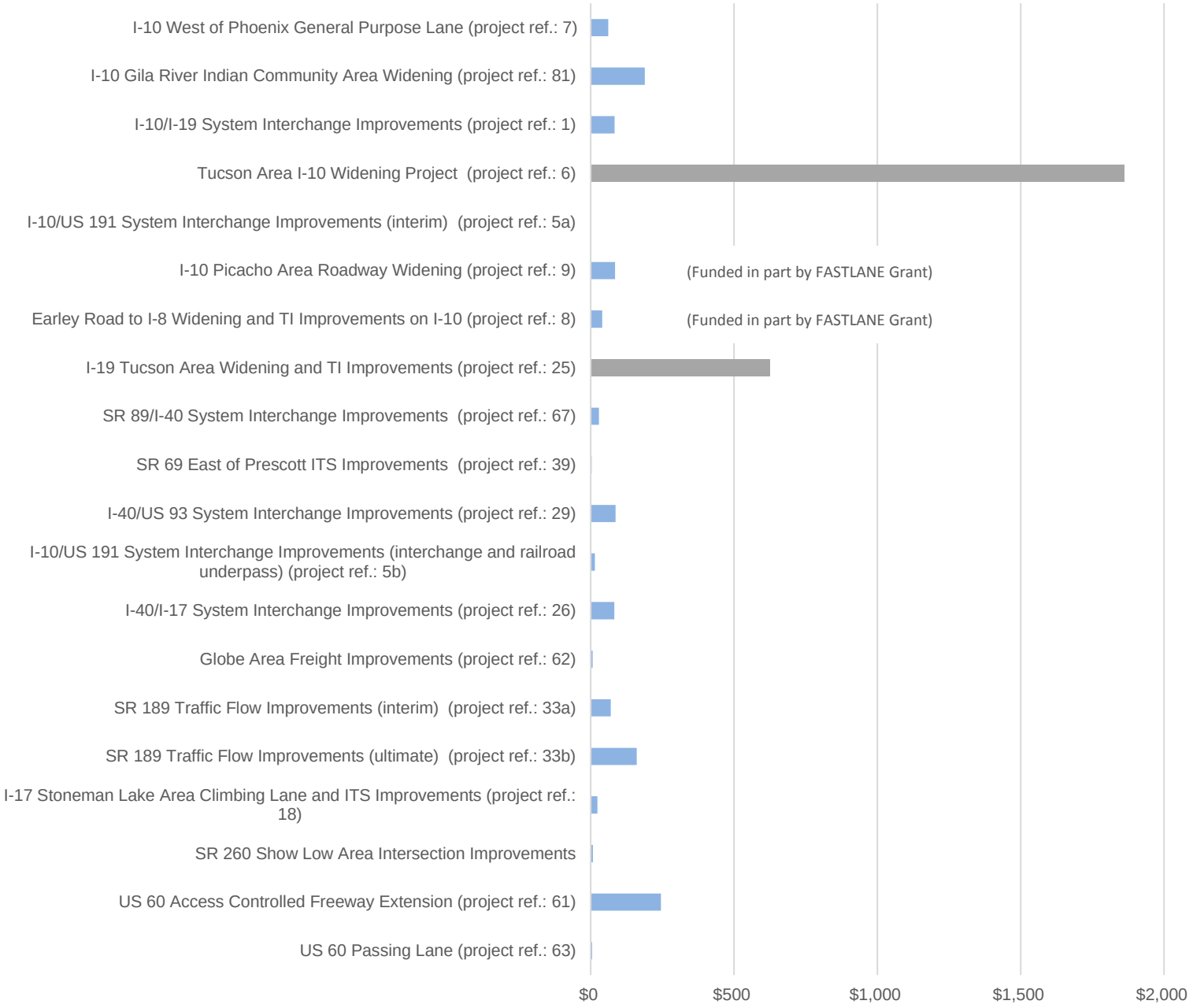
Of the remaining top 20 identified freight improvement projects, 2 projects account for roughly two-thirds of the estimated total planning-level costs:

- Tucson Area I-10 Widening Project – project reference: 6, ranked 4, estimated cost of $1.86 billion
- Interstate 19 (I-19) Tucson Area Widening and Traffic Interchange Improvements – project reference: 25, ranked 8, estimated cost of $625 million

The larger capital cost of these projects may make them better candidates for using public-private partnership (P3) approaches (discussed in greater detail in Chapter 4). When effectively executed as a P3, the potential cost savings on large projects can be significant. Also, large projects have the ability to absorb the expense of P3 procurements and take advantage of more P3 tools than some smaller projects.

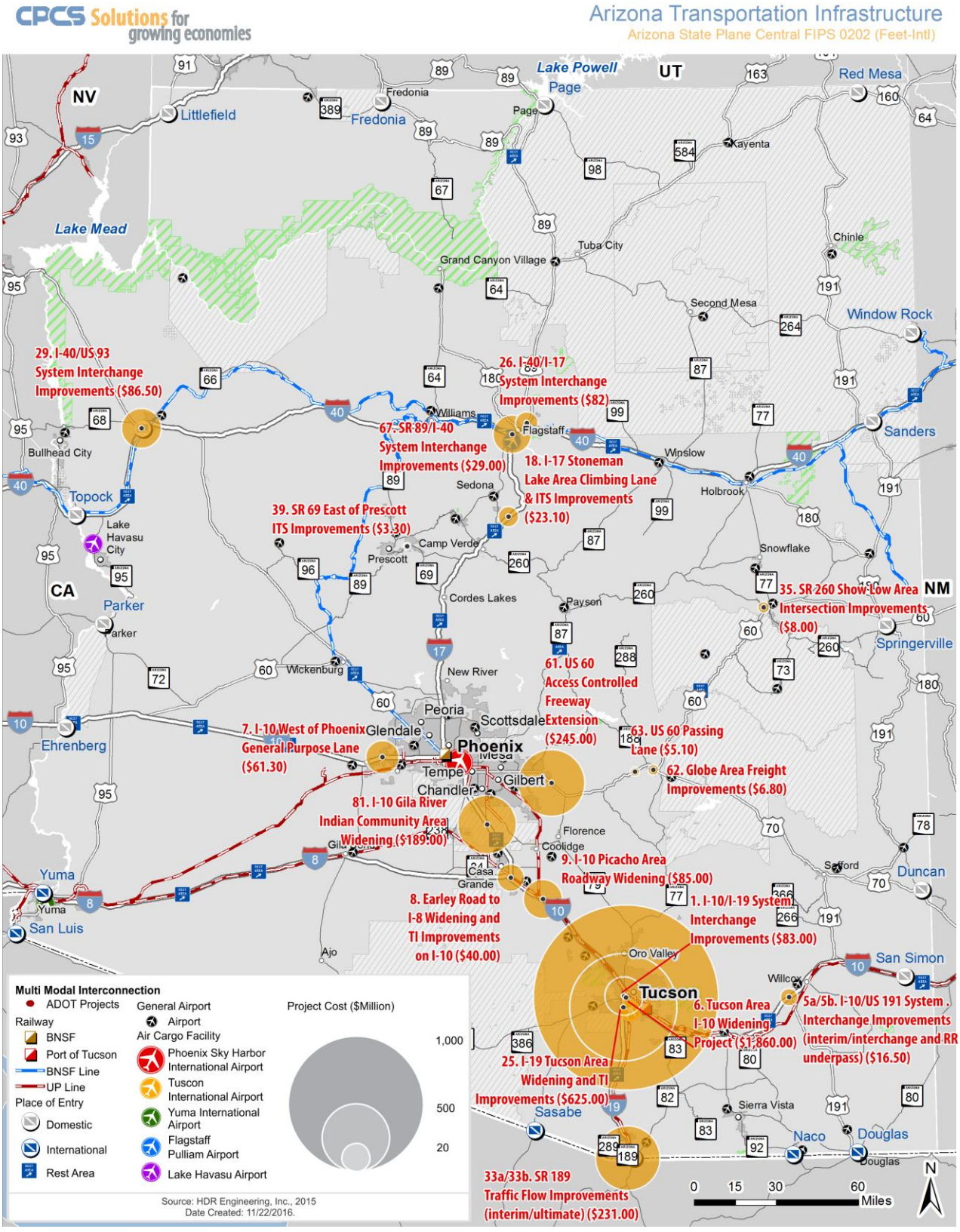
Excluding the cost of these two projects, the estimated planning-level cost of the top 20 identified freight improvement projects is roughly $1.1 billion, with no single project estimated to cost over $250 million (see Figure 2-2). Figure 2-3 shows the locations of the projects in the state.

Figure 2-2: Top 20 Identified Freight Improvement Projects and their Estimated Planning-level Cost



Source: CPCS analysis

Figure 2-3: Locations of Top 20 Identified Freight Improvement Projects



2.1.3 Balance of Funding Needs

Assuming that the two noted FASTLANE grant awarded projects are fully funded, the balance of the funding needs for the top 20 identified freight improvement projects is approximately $3.55 billion.

The balance of the funding needs for the remaining top 20 identified freight improvement projects is approximately $3.55 billion.

3 Funding Sources

Key Messages

Arizona's apportionment of dedicated federal FAST Act freight funds ($117 million over 5 years) can be used to fund three identified freight improvement priority projects (total estimated cost of $103 million), leaving $14 million for small-scale freight improvement initiatives that directly benefit freight. These FAST Act funds, however, address only about 3 percent of the funding needs associated with the identified top priority freight improvements.

Traditional sources of funding for freight improvements include the Arizona Highway Revenue Fund, the Arizona Regional Road Fund, and the Federal Highway Program. These funds are not dedicated to freight, so freight improvements would be considered against non-freight priorities.

Discretionary funding programs, such as the FASTLANE and TIGER Grant Programs, may help raise funding for freight priorities, although these programs are very competitive.

Alternative funding mechanisms—including heavy goods vehicle charges, transportation-dedicated sales taxes on motor vehicles and tires, tolls, and vehicle miles traveled fees—have been used in other jurisdictions to help fund transportation projects and may warrant consideration. It is, however, beyond the scope of this working paper to assess the appropriateness of these mechanisms for Arizona.

3.1 Overview of Funding Sources

Funding sources that can be used to fund Arizona freight transportation system improvements include:

- Arizona's apportionment of FAST Act dedicated federal freight funds
- ADOT general transportation funds
- Federal grant program (discretionary)
- Alternative funding sources

Each of these sources is discussed further below, with specific implications for the funding of Arizona's priority freight improvement projects.

Note that financing (as distinct from funding) approaches that can be used help implement Arizona's freight improvement priorities are discussed in Chapter 4.

Funding vs. Financing: Two Different Concepts

The terms *funding* and *financing* are often confused. Funding refers to the sources of revenue that can be used to pay for a project or service. Sources of funding include but are not limited to user fees, taxes, and other levies, as well as grants and other revenue sources. Financing refers to financial mechanisms or tools to access money *when it is needed*—often before a project is in operation—including various forms of debt, equity, etc.

Importantly, there is no such thing as a financing solution to a funding problem.

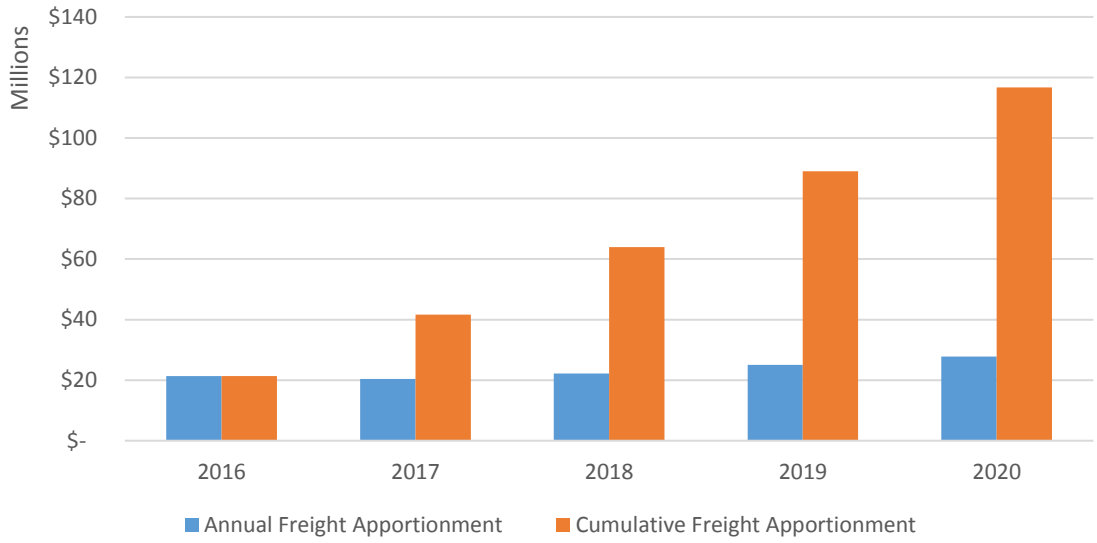
Rather, short of reducing the cost of a project or service, the only possible solution to a funding gap is to find other sources of revenue.[2]

[2] CPCS, NCRRP Report 1, Alternative Funding and Financing Arrangements for Rail Projects

3.2 Arizona's Apportionment of FAST Act Dedicated Federal Freight Funds

Provided it can demonstrate a federally compliant Freight Plan, Arizona's apportionment of dedicated federal (that is, FAST Act) freight funds ranges from approximately $21 million per year in 2016 to close to $28 million per year in 2020, or close to $117 million in nominal dollars (that is, not adjusted for inflation) until 2020 (see Figure 3-1).

Figure 3-1: FAST Act Apportioned Freight Funds for Arizona (Expected) (2016-2020)



Source: CPCS analysis of FAST Act summary of estimated apportionments

It is not clear whether funding dedicated for freight will continue beyond 2020.

ADOT will have to provide a funding match of approximately 4% of the FAST Act apportionment of dedicated freight funds for freight projects.

The proposed approach put forward in the Arizona Freight Improvement Strategy (Phase 10) is to prioritize three projects among the list of top identified priorities that disproportionately benefit freight[3] and that could be funded within the available FAST Act apportioned dedicated freight funds over the next five years. Those priorities are below in Figure 3-2. The total cost of these three projects is estimated to be $105 million.

[3] Projects that disproportionately benefit freight (i.e. relative to passenger benefits) were identified through analysis of the benefit cost analysis results for the projects that provided the greatest proportion of benefits to freight.

Figure 3-2: Identified Freight Improvement Priority Projects with a Disproportionate Benefit to Freight

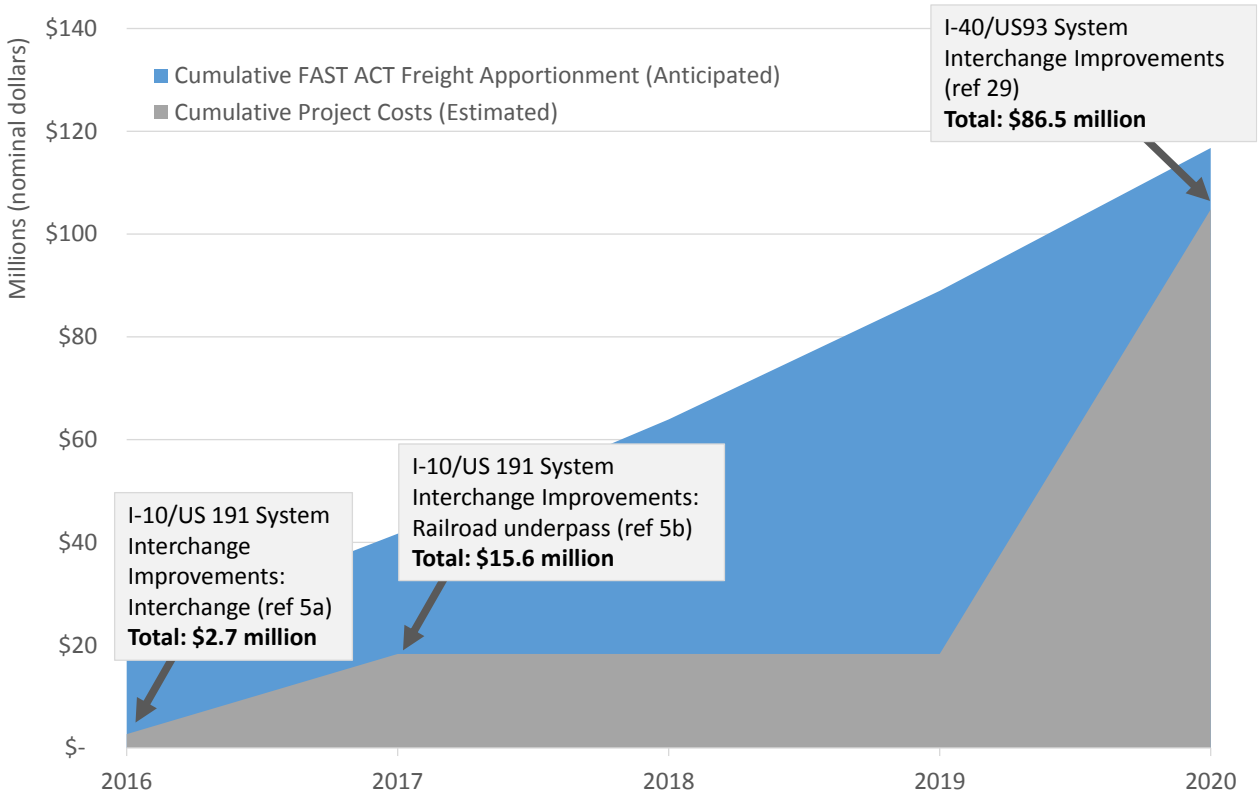
Prioritization Rank by Freight Benefit	Ref.	Route (Area)	Issue Segment	Project Option(s)	Planning-level Project Cost $ million	Freight Benefits Share
1	29	I-40	I-40 at US 93 Junction within Kingman area	I-40/US 93 System Interchange Improvements	$86.5	55%
2	5a	I-10	I-10 at US 191 (Cochise TI)	I-10/US 191 System Interchange Improvements	$2.7*	54%
3	5b	I-10	I-10 at US 191 (Cochise TI)	I-10/US 191 System Interchange Improvements (railroad underpass)	$15.6*	52%

Source: HDR, analysis of prioritization ranking analysis

* Note that the estimated cost of these projects has been revised upwards, further to more detailed cost estimates undertaking since the submission of the Phase 9 and 10 Working Papers.

A fiscally constrained funding plan to realize these projects with Arizona apportioned FAST Act dedicated freight funds is provided in Figure 3-3 below. This figure does not reflect the 4% ADOT funding match.

Figure 3-3: Fiscally Constrained Freight Project Priorities to be Funded using Dedicated FAST Act Freight Funds



Source: CPCS, analysis of prioritization ranking analysis

Financing Option and Timing

Although the above figure assumes that these three projects are funded as/when dedicated federal freight funds are available, financing (for example, debt backed by expected federal freight funds) can presumably be used to undertake these projects sooner, or in a different order, than presented in the above figure.

ADOT typically advances projects programmatically, so that projects may advance concurrently and in phases, before dedicated funding streams are available to fully realize project costs.

3.2.1 Funding Projects and Initiatives Beyond Those That Can Be Funded with FAST Act Freight Dollars

Although Arizona's apportionment of dedicated federal freight funds is helpful in realizing identified priority freight projects, the reality is that these funds address only about 3 percent of the funding needs associated with the identified top 20 priority freight projects. In short, other sources of funds are needed to advance Arizona's freight improvement strategy.

Beyond FAST Act apportioned freight funds, Arizona has no other source of dedicated freight funding.

It would likely be impractical to develop a dedicated source of freight funding in Arizona because virtually all identified freight improvement priorities are not strictly freight projects. That is, the project needs and associated expected benefits relate to both passenger and freight traffic (and, in most cases, the largest benefit would accrue to passenger vehicles).

3.3 Arizona Department of Transportation General Transportation Funds

Arizona general transportation funds derive from three primary sources:

- Arizona Highway User Revenue Fund (HURF)
- Arizona Regional Area Road Fund
- Federal-aid Highway Program (FAHP)

Each of these sources is described below.

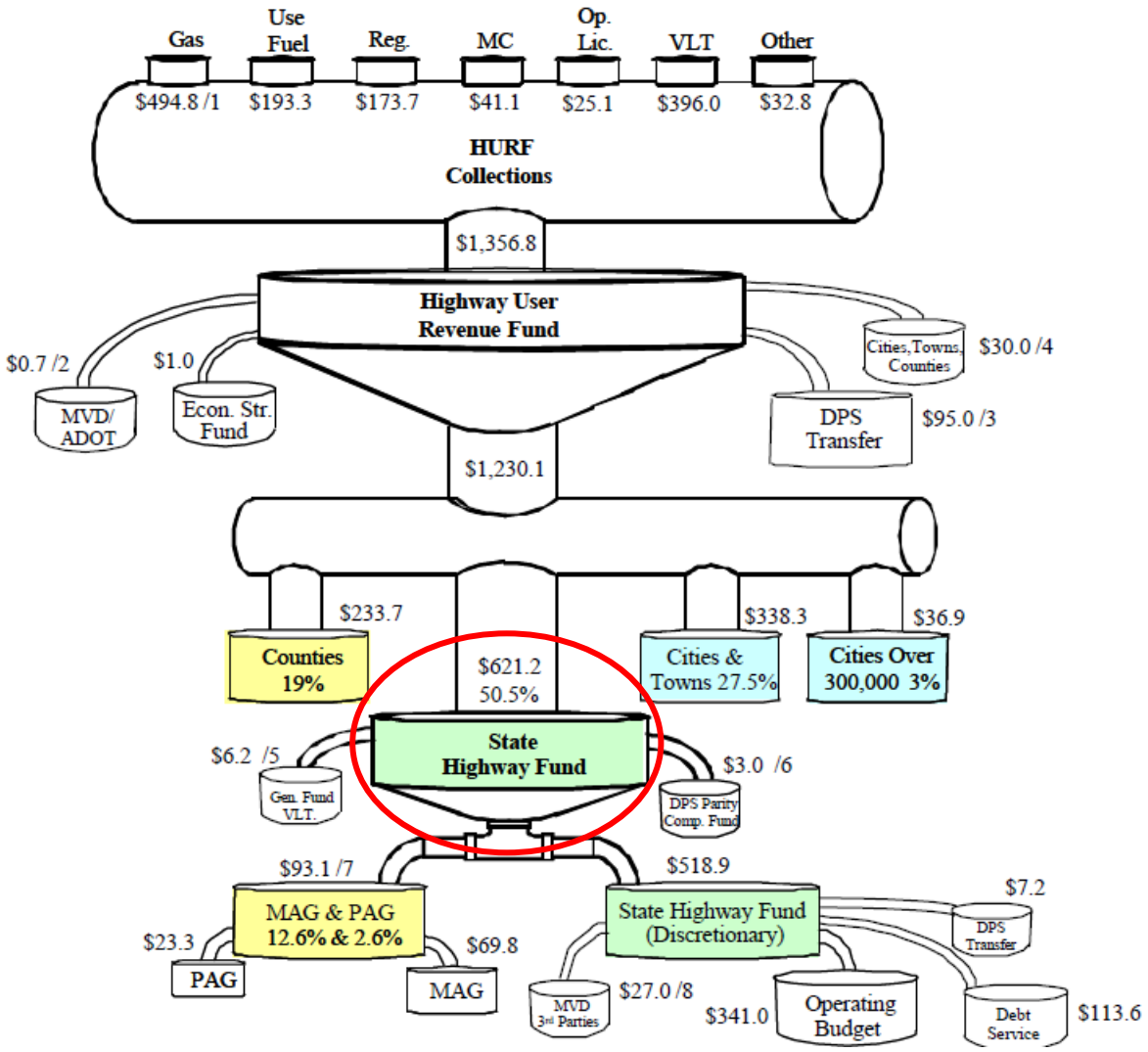
3.3.1 Arizona Highway User Revenue Fund

The Arizona HURF is funded through fuel taxes and a variety of fees and charges relating to the registration and operation of motor vehicles in Arizona.[4] The HURF represents the primary source of revenues for highway construction, improvements, and related expenses. This fund is also distributed to cities, towns, counties, and the State Highway Fund.

The primary source of funding from HURF that can be directed by ADOT for freight improvement projects is through the State Highway Fund ($621.2 million in fiscal year 2016), as shown in Figure 3-4.

[4] Arizona Department of Transportation website, Highway User Revenue Fund, accessed November 21, 2016

Figure 3-4: ADOT Fiscal Year 2016 HURF Actual Revenue Distribiution Flows



Source: Arizona Department of Transportation, CPCS (red circle added for emphasis)

ADOT's official forecast for HURF revenues for fiscal year 2017 to 2026 totals $16.68 billion, and an annual average growth rate of 3.5 percent.[5] These HURF forecasts are not broken down by specific area of funding.

3.3.2 Arizona Regional Area Road Fund

In November 2004, the voters of Maricopa County approved the extension of the levy of the Maricopa County Transportation Excise Tax (ending in 2025). The tax is levied upon business activities in Maricopa County, including retail sales, contracting, utilities, rental of real and personal property, restaurant and bar receipts, and other activities.

[5] Arizona Highway User Revenue Fund, Forecasting Process & Results, FY, 2017, 2026 (September 2016)

The tax revenues are collected by the Arizona Department of Revenue and transferred as follows: 66.7 percent goes into the Maricopa County Regional Area Road Fund (RARF) consisting of 56.2 percent for freeways and routes on the state highway system, including design, right of way, construction, maintenance and debt service for projects included in the Regional Transportation Plan for Maricopa County. 10.5 percent to the Maricopa County RARF for major arterial streets and intersection improvements, including debt service, capital expense and implementation studies. 33.3 percent goes to a public-transportation fund to be used solely for capital costs, maintenance and operation of public transportation classifications along with capital costs and utility relocation costs associated with a light-rail public transit system.

ADOT administers the RARF, and the Maricopa County Regional Public Transportation Authority is responsible for administering the public transportation fund.

3.3.3 Federal-aid Highway Program

The FAHP is another primary source of funding for ADOT projects. The FAHP is funded through Arizona's apportionment from the federal Highway Trust Fund, which itself is funded by federal excise taxes on motor fuels along with excise taxes on tires, trucks, and trailers and truck-use taxes.[6] Project costs are reimbursed by the federal government at 94.3 percent (the state/local match is 5.7 percent).

No freight-specific funding is provided through the FAHP. Freight projects compete with other highway infrastructure investment projects when states select project funding priorities.

3.3.4 Use of General Transportation Funds for Priority Projects

ADOT's planning efforts include developing a Five-Year Transportation Facilities Construction Program, which is revised annually and funded using general transportation funds (including from the referenced sources) for preservation, modernization, and expansion projects.

The 2017–2021 Five-Year Transportation Facilities Construction Program has a statewide total planned cost of $2.2 billion, plus $1.8 billion for MAG projects, $383 million for Pima Association of Governments projects, and an additional $101 million for airport projects (for a total of $4.5 billion for all projects in the program)

As outlined in the most recent (2017–2021) Five-Year Transportation Facilities Construction Program report, ADOT is in the process of updating its Long-Range Transportation Plan, which will guide future investments in transportation through the *Recommended Investment Choice*.[7] The same report goes on to note that:

[6] Arizona Department of Transportation website, Federal Aid Highway Program, accessed November 21, 2016
[7] (2017–2021) Five-Year Transportation Facilities Construction Program Report

> ADOT has decided to assess its current programming policies and practices. This assessment will provide a direct connection between the plan's Recommended Investment Choice and ADOT's programming process. The primary objective of this assessment is to ensure the alignment of decision-making with the plan's goals, objectives, performance measures, and policies, including an opportunity to improve its transparency, credibility, understandability, and effectiveness. The outcome will be a strategy that links long-range transportation planning to the state's Five-Year Transportation Facilities Construction Program. [8]

In short, the planning to programming approach, and the approach to allocating general transportation funds to specific projects, is evolving.

Beyond the planning process, the Governor-appointed, senate-confirmed State Transportation Board ultimately approves funding for the Five-Year Transportation Facilities Construction Program and related construction contracts.[9]

3.4 Discretionary Funding Programs (Relevant to Freight)

The federal government has a number of discretionary funding programs that could be accessed to help fund some of the identified freight transportation improvement priorities in Arizona. These are competitive programs—meaning that funding is not certain. A brief summary of these federal discretionary funding programs follows.

3.4.1 FASTLANE Grants

The FASTLANE grants program provides discretionary funding for projects that address critical freight issues on highways and bridges. This is a competitive, application-based program.

The FAST Act authorized the program at $4.5 billion for fiscal years 2016 to 2020, including $850 million for fiscal year 2017 to be awarded by the Secretary of Transportation.

As noted, Arizona was successful in receiving funding pursuant to the first round of FASTLANE grants. A second call for FASTLANE grants is open with a submission deadline of December 15, 2016.

3.4.2 TIGER Grants

The federal Transportation Investment Generating Economic Recovery (TIGER) grant program allows for funding of highway, port, and rail multimodal infrastructure that is difficult to fund through traditional funding sources. The emphasis is on multimodal, multijurisdictional projects that are not eligible for the sector-focused state department of

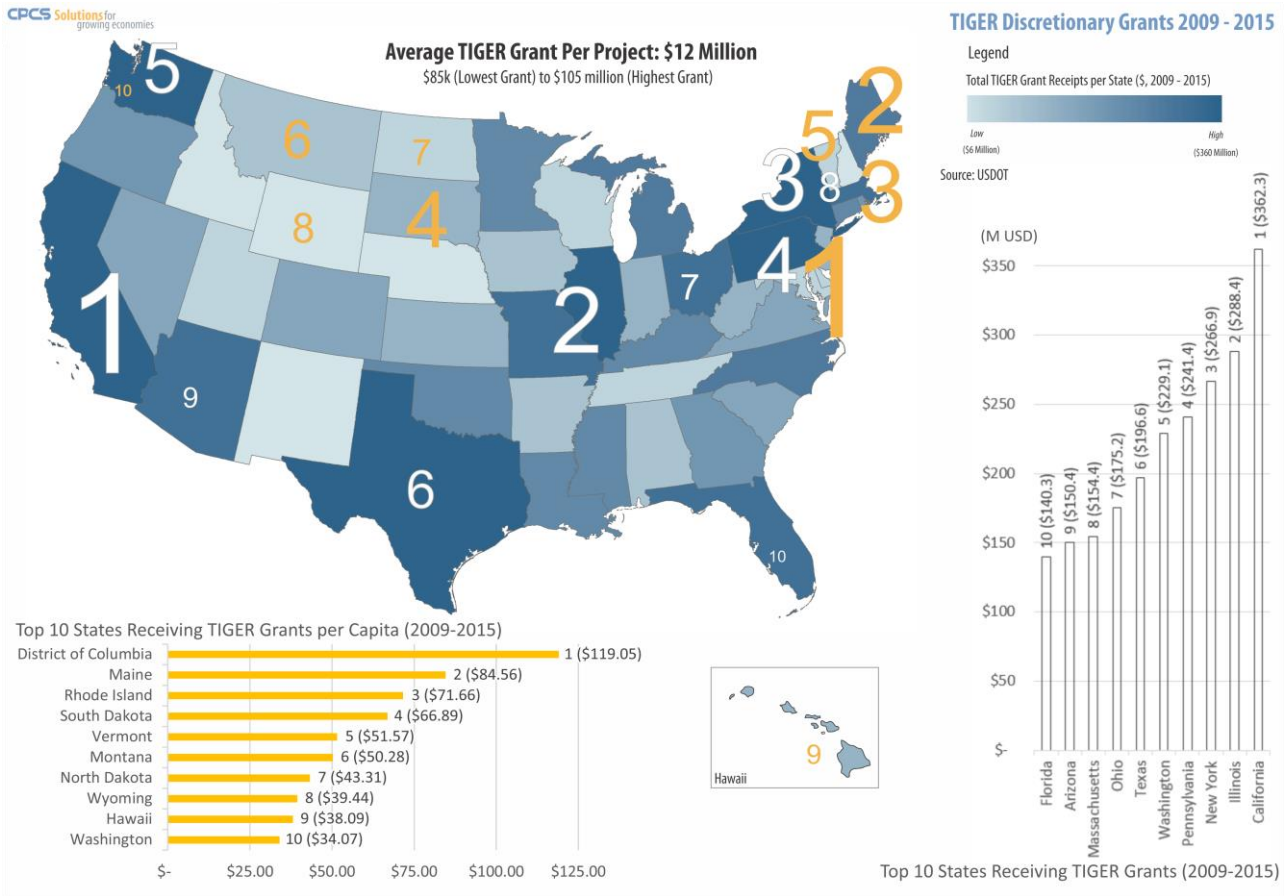
[8] Ibid.
[9] Arizona Department of Transportation website, Arizona State Transportation Board, accessed November 21, 2016

transportation programs. TIGER can, therefore, also fund port and freight rail projects, which otherwise have limited sources of federal funds.

TIGER can provide capital funding directly to any public entity, including municipalities, counties, port authorities, tribal governments, MPOs, or others. State and local entities can thus collaborate to obtain funds; however, this increases the pool of applicants vying for funds.

Since 2009, the TIGER grant program has provided a combined $5.1 billion to 421 projects in all 50 states, the District of Columbia, Puerto Rico, Guam, the Virgin Islands, and tribal communities (see Figure 3-5).[10]

Figure 3-5: TIGER Grants (2009–2015)



Source: CPCS Analysis of TIGER grant data

Funding applications for TIGER grants are highly competitive because applications far exceed available funds. For example, in 2016, the program received over $9.3 billion in funding requests, although only approximately $500 million in funding was awarded.

[10] USDOT website, accessed November 21, 2016

As Figure 3-6 shows, Arizona entities received a total of over $150 million in TIGER grants between 2009 and 2016. Arizona ranked ninth in states receiving the highest amount in TIGER awards. The grants covered a number of modes including road, rail, and transit. Of these awards, ADOT has been successful only twice, first in 2012 and then in 2015. Both these awards were for rural road projects, totaling over $36 million. Arizona entities did not receive any funds in 2016, the most recent award cycle.

Figure 3-6: Arizona Recipients of TIGER Grant Awards (2009 to 2016)

Year	Recipient	Project Description	Modal Governance	Density	Sector	Grant Amount ($ M)
2009	Navajo Division of Transportation	US 491 Safety Improvements	FHWA	Rural	Road	31.0
2009	City of Tucson	Tucson Modern Streetcar	FTA	Urban	Transit	63.0
2012	Arizona Department of Transportation	I-15 Virgin River Gorge Bridge	FHWA	Rural	Road	21.6
2013	Pima County	Port of Tucson – Container Export Rail Facility	FRA	Rural	Rail	5.0
2014	City of Phoenix	Central Phoenix Multimodal Transportation Improvement Plan	FTA	Urban	Transit	1.6
2014	The Hopi Tribe	Tawa'ovi Community Streets and Infrastructure Project	FHWA	Rural	Road	2.9
2015	City of Phoenix	Grand Canal Bike and Pedestrian Improvements	FHWA	Urban	Bicycle-Pedestrian	10.3
2015	Arizona Department of Transportation	SR 347 Grade Separation Project	FHWA	Rural	Road	15.0
					Total	**150.4**

It is important to note that awarded projects leverage local funds as well as federal awards. According to USDOT, while TIGER can fund projects that have a local match as low as 20 percent of the total project costs, TIGER projects have historically achieved, on average, co-investment of $3.50 (including other federal, state, local, private, and philanthropic funds) for every TIGER dollar invested. The implication for Arizona freight projects is that a large fraction of the funding for future freight projects may have to be sourced locally, whereas TIGER awards may help offset the requirement.

3.5 Alternative Sources of Funding

Beyond the sources of funding identified in the previous section, many potential alternative means of increasing funding exist. Those that relate specifically to freight are somewhat fewer. Many of these models are described in National Cooperative Freight Research Program (NCFRP) Report 15, entitled *New Dedicated Revenue Mechanisms for Freight Transportation Investment*.

One of the contextual challenges is that most freight priority improvement projects are in fact projects that would benefit passengers in addition to freight. The implication is that alternative revenue sources relating to freight would likely represent a relatively small share of funds that could be raised from passengers (for example, through tolls) and the benefits of these projects would, in most cases, disproportionately benefit passengers.

Nevertheless, and although it is premature to estimate their funding potential, outlined below are example alternative funding mechanisms that could be leveraged to generate additional funds to pay for freight improvement projects. These are presented for consideration and discussion and do not imply recommendations. It is beyond the scope of this Freight Plan to assess the appropriateness of these mechanisms for Arizona.

3.5.1 Heavy Goods Vehicle Charges

Heavy goods vehicle (HGV) charges are supplementary charges (in additional to vehicle registration or excise duties, fuel taxes, and tolls) for HGVs to use highways. The funds can be placed in a fund such as the HURF, or potentially in a dedicated freight fund.

The purpose of the fee, as used in certain other jurisdictions, is to charge actual road users for the cost of highway maintenance and emissions. The funding potential depends on level of charges and amount of traffic to which it applies. It can be very considerable, as demonstrated by the international examples below:

- In Switzerland (population 8 million), distance-based HGV charges provides nearly $1 billion for financing other transportation projects per year.
- In Germany (population 82 million), where HGVs over 12 tons are subject to a distance-based charge for the use of motorways and four-lane roads, annual revenues have been as high as $6 billion.[11]

Although implementing such fees can be politically challenging, international experience demonstrates that the magnitude of this funding mechanism can be significant.

3.5.2 Special Assessment Districts (for example, as related to Logistics Parks)

Special Assessment Districts, or SADs, are a traditional method of funding local improvements whereby individuals in a special "district" pay a distinct levy, tax, or fee for local infrastructure investments that will directly benefit them (and typically only them).[12] In the context of freight specifically, designated SADs could be logistics or industrial parks. This would likely only make sense if the tenants or owners in these logistics or industrial parks directly benefit from the use of the SAD-generated funds (for example, for improved accesses).

3.5.3 Truck Registration Fees

Most states set motor vehicle registration fees at a level that covers the cost of administration. However, much higher charges can be levied on trucks (and for that matter passenger vehicles) to raise funds for freight/highway investment.

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[11] VIFG, 2012, *PPPs for Transport in Germany: Present and Future Dealing with PPPs for Transport in Times of Economic Uncertainty*

[12] Shishir Mathur and Adam Smith, "A Decision-Support Framework for Using Value Capture to Fund Public Transit: Lessons from Project-Specific Analysis," May 2012, Mineta Transportation Institute MTI Report 11-14

Arizona may want to consider reviewing the level of motor carrier fees (which in 2016 are expected to generate $41.1 million).[13]

3.5.4 Sales Tax on Motor Vehicles, Tires, etc.

In most contexts, including in Arizona, motor vehicles sales taxes are directed to general funds, along with tax revenues from other, non-transportation-related transactions.

Arizona may wish to consider dedicating sales taxes on motor vehicles to the HURF or another transportation-specific fund, as is done in some other states, such as Minnesota (see text box).

It could also consider sales taxes on truck/trailer tires, trailer sales, and other transportation-related goods, equipment, and services.

Minnesota Motor Vehicle Sales Tax

Minnesota imposes a 6.5 percent tax on the sale of new and used motor vehicles, in lieu of the state general sales tax. Related revenues are collected by auto dealers at the time of the sale and are remitted to the state for use for transportation investments. Since 2012, 60 percent of these revenues are used for highway-related projects, and the balance is used for transit and investments in the Twin Cities area.

3.5.5 Tolls

Many state agencies use tolling as a means of raising revenues to address funding gaps. Tolling has the additional advantage of presenting an attractive revenue stream for private capital investment in infrastructure projects, leveraging public transportation dollars. Tolling can also be used to influence demand (congestion pricing), among other benefits. Tolling is a true user fee for a provided service because it represents a choice to pay a toll for a more reliable or quicker route or to avoid the toll on a lower service facility.

The applicability of tolls as a means of generating revenues for freight projects in Arizona would need to go beyond charging tolls for freight, specifically (that is, passenger vehicles would also need to pay tolls).

3.5.6 Vehicle-miles Traveled Fee

An alternative to tolls is the use of a vehicle-miles traveled fee. These are distanced-based fees levied on vehicle use within a particular road network within a particular jurisdiction. This model is being piloted in Oregon (see text box) and other locations in the United States, but is already widely used in many international jurisdictions—including specifically for trucks.

[13] Arizona Department of Transportation FY 2016 HURF Actual Revenue Distribution Flow

Oregon's Use of Vehicle-miles Traveled Fees

Oregon has established a voluntary program for up to 5,000 motorists who pay 1.5-cents for every mile they drive instead of the 30-cent state fuel excise tax.[14]

3.6 Conclusion with Respect to Funding for Freight Improvement Priorities

Arizona's apportionment of FAST Act dedicated freight funds can fund only about 3 percent of all identified freight improvement priorities. In short, other funding sources would be required to advance these other Arizona freight improvement priorities. Traditional funding sources, including Arizona's general transportation fund, have much greater levels of funding, although use of these funds is subject to a prioritization process that weighs all Arizona transportation system improvement needs (that is, not strictly freight priorities). Discretionary grant programs relevant to freight can go part of the way in helping fund identified freight improvement priorities, but these programs are highly competitive and would be, on their own, insufficient to pay for all identified Arizona freight improvement priorities. Arizona may want to consider alternative funding mechanisms as a means of generating additional funding for freight and other transportation projects in the state.

[14] Planetizen website, Nation's First VMT Fee Bill Passed By Oregon Legislature, accessed November 21, 2016

4 Financing Arrangements

Key Messages

Traditional sources of financing for ADOT transportation projects include bonds (Highway Revenue Bonds, Transportation Excise Tax Revenue Bonds, and Grant Application Notes). ADOT also has access to loans and credit instruments under federal programs, such as the TIFIA program.

Nevertheless, it is critical to note that financing cannot address a funding gap. Financing merely helps raise money to pay for projects, and funds raised through financing must be repaid, with interest.

P3s are project delivery mechanisms that typically include a financing component. Arizona has P3-enabling legislation and is at an early stage of P3 project delivery. The Loop 202 South Mountain Freeway, for example, is currently under construction and is being undertaken as a P3. It is, however, the only P3 project in the transportation arena that is under construction (all others are at various stages of consideration/ procurement, or are on hold).

This working paper proposes a P3 Screen for identifying the potential applicability of P3s for the delivery of freight improvement priorities in Arizona.

Of the top identified freight improvement projects, the US 60 Access Controlled Freeway Extension project (reference: 61) is the best short-term candidate project for further P3 consideration. It is not currently on the list of ADOT's planned P3 projects.

Financing cannot address a funding gap. Financing merely helps provide capital to pay for projects, and funds raised through financing must be repaid, with interest.

4.1 Sources of Financing

The primary sources of financing that could be used by Arizona to pay for freight improvement priorities are bonds and federal loans.

4.1.1 Arizona Bonds

Arizona issues two types of bonds to help raise capital for transportation projects, as discussed below.

Highway Revenue Bonds

Arizona's State Transportation Board issues Highway Revenue Bonds to raise capital to pay for right-of-way acquisition, infrastructure facility design, and construction, including those projects in the Five-Year Transportation Facilities Construction Program.

The balance of Highway Revenue Bonds issued in prior years and outstanding at the start of the fiscal year was $1.7 million. These bond issues are backed by future HURF revenues.[15]

Transportation Excise Tax Revenue Bonds

Arizona's State Transportation Board also issues Transportation Excise Tax Revenue Bonds. These funds can only be used for projects within Maricopa County. The bonds are secured by a portion of transportation excise taxes collected by the Arizona Department of Revenue on behalf of Maricopa County.

Grant Anticipation Notes

The State Transportation Board also issues Grant Anticipation Notes to pay for Arizona projects funded using federal aid.

Bottom Line: These financing mechanisms, although useful for raising capital to pay for projects, ultimately require repayment from future revenues. They cannot, in other words, generate new funds to help pay for freight improvement priorities.

[15] Arizona Department of Transportation website, Outstanding Debt and Long Term Obligations, accessed November 22, 2016

4.2 Federal Loan and Credit Assistance Programs through USDOT's Build America Bureau

4.2.1 Transportation Infrastructure Finance and Innovation Act

The FAST Act continues the TIFIA program, which provides federal credit assistance to eligible surface transportation projects, including highway.[16] The TIFIA program provides a number of different products that could be used to help pay for Arizona freight improvement priorities:[17]

- *Secured loans (up to 49 percent of a project's eligible costs)*: direct federal loans to project sponsors offering flexible repayment terms and providing combined construction and permanent financing of capital costs.
- *Lines of credit (up to 33 percent of a project's eligible costs)*: contingent sources of funding in the form of federal loans that may be drawn upon to supplement project revenues, if needed, during the first 10 years of project operations.
- *Loan guarantees:* provide full-faith-and-credit guarantees by the federal government to institutional investors that make loans for projects (that is, reducing the cost of capital).

4.2.2 Private Activity Bonds

Private Activity Bonds (PABs) are debt instruments issued by state or local governments whose proceeds are used to construct projects with significant private involvement. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) amended Section 142 of the Internal Revenue Code to add highway and freight transfer facilities to the types of privately developed and operated projects for which PABs may be issued. This change allows private activity on these types of projects, while maintaining the tax-exempt status of the bonds. According to the USDOT, no substantive changes have been made to the PAB program by the Moving Ahead for Progress in the 21st Century Act (MAP-21) or any other legislation.

The law limits the total amount of such bonds to $15 billion and directs the Secretary of Transportation to allocate this amount among qualified facilities. The $15 billion in exempt facility bonds is not subject to the state volume caps.

Passage of the private activity bond legislation reflects the federal government's desire to increase private-sector investment in U.S. transportation infrastructure. Providing private developers and operators with access to tax-exempt interest rates lowers the cost of capital significantly, enhancing investment prospects. Increasing the involvement of private

[16] FHWA website, accessed November 22, 2016
[17] FHWA website, accessed November 22, 2016

investors in highway and freight projects generates new sources of money, ideas, and efficiency.

4.3 Public-private Partnerships

The term *P3* is very broad, but typically refers to a cooperative and legally binding contract between the public and private sector that allocates responsibilities, risks, and rewards in the delivery of an infrastructure project to the private sector that the government would traditionally retain.

A P3 can have financing features, but it is more than a financing mechanism. It is a project and service delivery mechanism. Basically, in a P3, the public sector defines the specific output and/or service level it is seeking (performance provisions). It then contracts with the private sector through a competitive procurement process to deliver a solution that meets those performance requirements. P3 contracts take advantage of private-sector innovation and efficiency and competition to deliver the infrastructure.[18] In return for the service provided, the private sector receives compensation, either through payments provided by the public sector (availability payments, or charges levied on the consumers of the service as a revenue concession). These funds are used to pay debt service and cost of capital in addition to compensating the private sector partner for the availability of the project at compliant performance levels, including the risk borne.

P3s in Arizona

ADOT already uses P3s. The Loop 202 South Mountain Freeway, for example, is currently under construction and being undertaken as a P3. It is, however, the only P3 project in the transportation arena that is under construction (all others are at various stages of consideration/procurement or are on hold).[19]

4.3.1 P3 Models

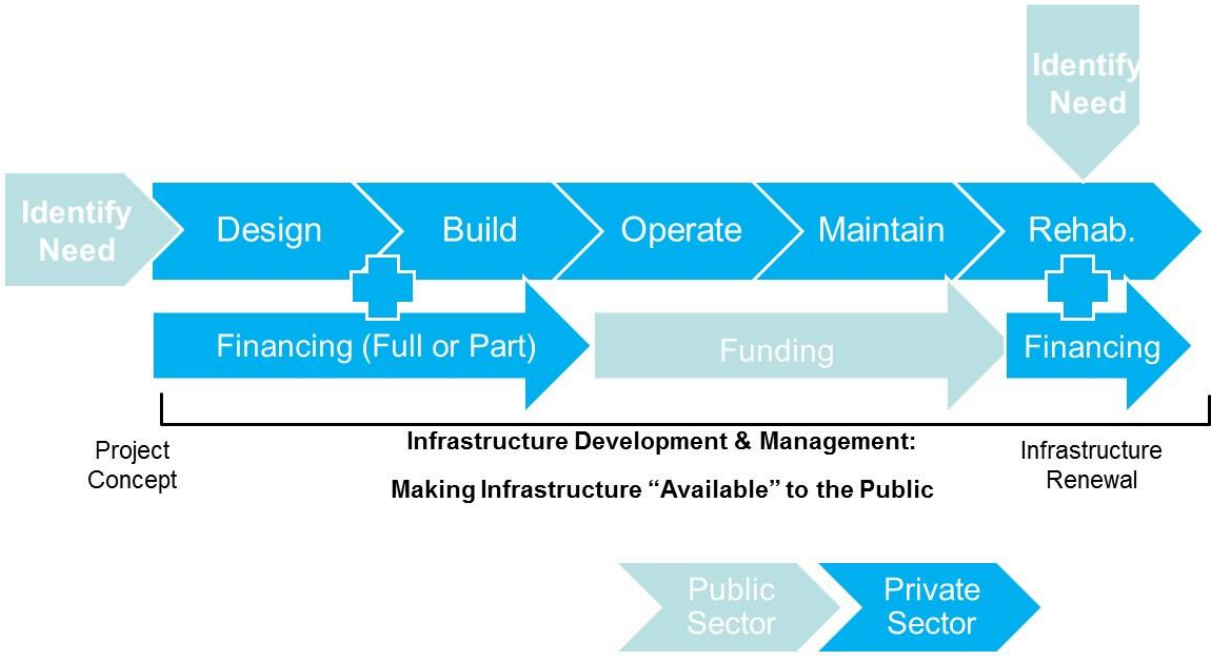
P3s can take many different forms and include private-sector involvement in different elements of a project's life cycle (Figure 4-1), including:

- Design-build-finance (DBF)
- Design-build-operate-maintain (DBOM)
- Design-Build-Maintain (DBM)
- Design-build-finance-operate-maintain (DBFOM)

[18] NCRRP, Report 1, Alternating Funding and Financing Arrangements for Rail Projects
[19] Arizona Department of Transportation website, Arizona PPP Initiatives, accessed November 22, 2016

DBFOM can be a preferred model because it maximizes risk transfer and, therefore, holds the best potential for innovation capture and cost savings.

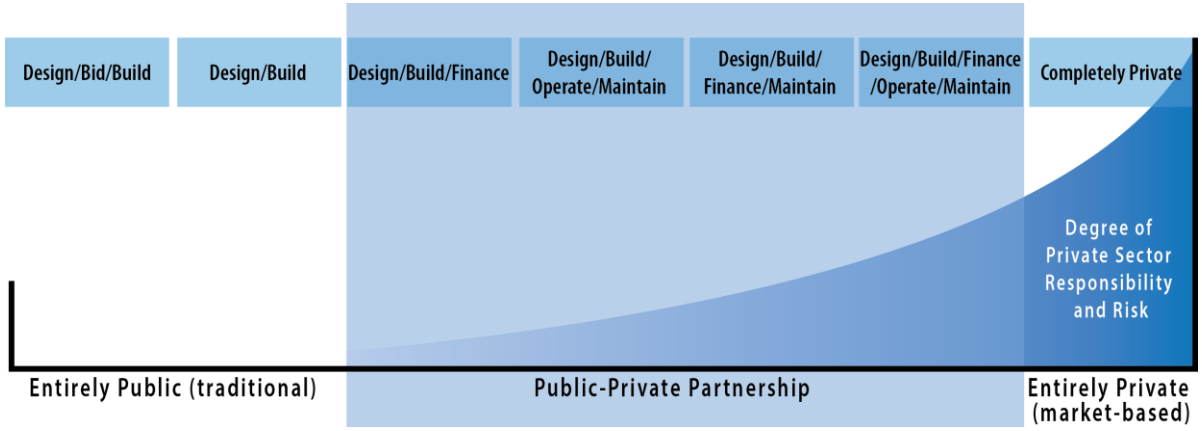
Figure 4-1: Private-sector Involvement in P3s across the Project Life Cycle



Source: CPCS

Central to the P3 approach is the private sector having "skin in the game" in the project life cycle, beyond the project's design and construction phases. Risk transfer and alignment of incentives, coupled with the competitive environment, maximize the public-sector value for money. As private-sector responsibility increases, so too does the degree of infrastructure project risks assumed by the private sector (risks traditionally borne by the public sector) (see Figure 4-2).

Figure 4-2: Project and Associated Risk Spectrum: Public to Private



Source: CPCS, HDR, PPP Canada

From Arizona's perspective, the benefits and risks of P3s as a project financing and delivery mechanisms are shown in Figure 4-3.

Figure 4-3: Benefits and Costs of P3s

Benefits	Costs
Risk transfer to the private sector reduces risks to public sector	Private-sector capital (more expensive)
On-time and on-budget delivery (contractual requirement)	Transaction costs (consultants, lawyers, financial analysts)
Assets (better) maintained with life-cycle view (life-cycle costing)	Public sector institutional costs (P3s are complex)
Fiscal planning certainty – P3s often contractually predefine the level of funding to be provided by the public sector to a project (e.g. using availability payments)	
Expertise and innovation. The competitive process used in procuring P3s often increases project innovation	
"Value for money" from P3. The savings in project costs (including cost of risks) in delivering a project using a P3 vs. a traditional procurement	

Source: CPCS

4.3.2 Arizona's Enabling P3 Legislation

In 2009, the State of Arizona enacted legislation that enables certain entities to enter into P3 contracts.

Figure 4-4 summarizes key provisions of the legislation. The statute comprehensively governs P3s in transportation at both the state and local level. In other words, ADOT is fully authorized to enter into P3 arrangements. Further, ADOT can approve the participation of any other state or local unit of government in Arizona in a P3.

Figure 4-4: Key Aspects of Arizona's Enabling Legislation for Transportation P3s

Attribute	Provision
Statutory Citation	Ariz. Rev. Stat. Ann. §§ 28-7701 to 7710
Year of Enactment	2009
Scope	Comprehensive state and local transportation
Entities	ADOT; other agencies, offices, and departments of Arizona; or a city, county, district, port, or other such entity, as defined in § 28-7701 (4)
Project Types	Development or operation of an eligible facility through any method approved by the department of transportation, including design-build. Eligible facilities are those developed or operated after 2009, including existing, enhanced, upgraded, or new facilities.
Term Length	Maximum 50 years in initial arrangement, but can be extended

Source: ADOT, CPCS analysis

The legislation includes a wide range of eligible facilities in its scope of project types and does not restrict the procurement or operating contract method. Existing facilities would also be considered eligible for modification, upgrade, or redevelopment under a P3, in addition to new facilities.

Two features in ADOT's enabling P3 legislation indirectly limit the freight user-fee revenue that can be captured through freight improvement projects. The first is that existing roads cannot be fully converted to toll roads, which eliminates the possibility of a separate charge on trucks through tolling mechanism on existing facilities, for example. However, this does not limit other charging or revenue capture mechanisms. The second restrictive feature is that an alternate route (that is, non-tolled road) must be available, thereby reducing the freight user base that could be charged at any specific facility.

P3 Implementation

ADOT has established an Office of P3 Initiatives to support and help administer P3 arrangements. This Office reports to the Executive Director for Planning and Policy. There is also a P3 Advisory Committee (PAC) whose role is to advise the Office of P3 Initiatives regarding issues associated with proposed P3 projects. The P3 PAC is a standing committee consisting of up to 11 members, appointed by and serving at the pleasure of the ADOT Director.

In addition, the P3 Steering Committee is a standing committee consisting of senior ADOT personnel who oversee the P3 program.

4.3.3 P3 Screen

In considering the appropriateness of using P3s to finance and deliver identified freight improvements in Arizona, ADOT may wish to use consider using a P3 Screen. We note that it already has "Project Evaluation Criteria," as reported on ADOT's website, but note that P3 evaluation criteria are evolving and will continue to evolve.

Figure 4-5 outlines proposed P3 Screen key questions, based on best international practices.[20] Note that the number of questions has been limited and these are relatively simple given that many priority freight improvement projects are not yet fully defined.

Figure 4-5: Proposed Arizona P3 Screen

Key Questions	Considerations
1. Is the project large enough?	Because of the complexity of P3 projects and associated higher transaction costs, P3s tend to be more appropriate for projects with total capital and operating costs above $100 million.
2. Does the project-related asset have a long life cycle?	Project-related assets with a long service life (for example, over 20 years) tend to be better P3 projects than projects with shorter service lives. A longer asset life is more conducive to realizing life cycle cost savings from P3 approaches.
3. Does the project have a clear and predictable revenue stream?	Private partners will look to recoup their investments, plus a cost of capital (for example, interest, return on equity). To be viable, P3 projects need a clear and predictable revenue stream. This could be from government availability payments, user charges, or some combination of the two.
4. Can the project's performance specification be clearly defined?	ADOT needs a clear basis to evaluate whether P3 project expectations are being met (particularly when paying an availability payment). To do this, it needs a clear basis for establishing infrastructure service specifications.

Figure 4-6 applies these key questions/criteria to the list of identified Arizona freight improvement priorities.

[20] The following criteria in particular draw from the Canadian PPP Screen, advanced and used by PPP Canada. It is generally regarded as one of the better PPP Screens.

Figure 4-6: Proposed P3 Screen Applied to Priority Freight Improvement Projects

Priority Freight Improvement Project	Planning-level Project Cost ($ M)	1. Is the project > $100M?	2. Asset life over 20 years?	3. Clear and predictable revenue stream?	4. Can performance specs be easily defined?
US 60 Passing Lane (project ref.: 63)	$5.1	✗	✓	✗	✓
US 60 Access Controlled Freeway Extension (project ref.: 61)	$245.0	✓	✓	?	✓
SR 260 Show Low Area Intersection Improvements	$8.0	✗	✓	?	✓
I-17 Stoneman Lake Area Climbing Lane and ITS Improvements (project ref.: 18)	$23.1	✗	✗	✗	✗
SR 189 Traffic Flow Improvements (ultimate) (project ref.: 33b)	$161.0	✓	✓	?	✓
SR 189 Traffic Flow Improvements (interim) (project ref.: 33a)	$70.0	✗	✓	?	✓
Globe Area Freight Improvements (project ref.: 62)	$6.8	✗	✓	✗	✓
I-40/I-17 System Interchange Improvements (project ref.: 26)	$82.0	✗	✓	?	✓
I-10/US 191 System Interchange Improvements (interchange and railroad underpass) (project ref.: 5b)	$15.0	✗	✓	?	✓
I-40/US 93 System Interchange Improvements (project ref.: 29)	$86.5	✗	✓	?	✓
SR 69 East of Prescott ITS Improvements (project ref.: 39)	$3.3	✗	✗	✗	✗
SR 89/I-40 System Interchange Improvements (project ref.: 67)	$29.0	✗	✓	?	✓
I-19 Tucson Area Widening and TI Improvements (project ref.: 25)	$625.0	✓	✓	?	✓
Earley Road to I-8 Widening and TI Improvements on I-10 (project ref.: 8) (funded in part with FASTLANE grant)	$40.0	✗	✓	?	✓
I-10 Picacho Area Roadway Widening (project ref.: 9) (funded in part with FASTLANE grant)	$85.0	✗	✓	?	✓
I-10/US 191 System Interchange Improvements (interim) (project ref.: 5a)	$1.5	✗	✓	?	✓
Tucson Area I-10 Widening Project (project ref.: 6)	$1,860.0	✓	✓	?	✓
I-10/I-19 System Interchange Improvements (project ref.: 1)	$83.0	✗	✓	?	✓
I-10 Gila River Indian Community Area Widening (project ref.: 81)	$189.0	✓	✓	?	✓
I-10 West of Phoenix General Purpose Lane (project ref.: 7)	$61.3	✗	✓	?	✓

Source: CPCS analysis, based on value judgements

The initial assessment reveals the following:

- Only 5 of the top 20 freight improvement projects meet the project size criterion of $100 million
- In almost every case, the revenue stream structure (that is, availability of payment vs. user charge) would need to be defined and remains a critical question mark until this questions can be resolved.
- There is only one access-controlled project, the US 60 Access Controlled Freeway Extension (project reference: 61). Such projects facilitate the use of tolling models (that is, revenue stream) and also tend to be better understood by potential bidders for highway P3 projects (because limited-access tollways are generally more common for P3 projects). However, tolling is not critical to having a good P3; the key to a successful P3 project is a reliable revenue stream, which could be any revenue stream committed to the project, from taxes to shadow tolls.
- Four large (over $100 million) road widening projects also have potential to be implemented as P3s. These could also lend themselves to managed lanes which could lead to revenue generation.
    - SR 189 Traffic Flow Improvements (ultimate) (project ref.: 33b)
    - I-19 Tucson Area Widening and TI Improvements (project ref.: 25)
    - Tucson Area I-10 Widening Project (project ref.: 6)
    - I-10 Gila River Indian Community Area Widening (project ref.: 81)

In short, of the top identified freight improvement projects, it is likely that the US 60 Access Controlled Freeway Extension project (reference: 61) is the best short-term candidate project for further P3 consideration. ADOT maintains a list of projects currently in consideration for P3s, and this project is not currently on the list.

In all cases, further analysis would be required to assess the potential feasibility and value of implementing these projects as P3s.

4.3.4 Other P3 Project Opportunities

Today, ADOT is exploring various P3 initiatives. These projects are at different stages of development, from current operation to conceptually proposed. In 2013, ADOT entered into a contract with ICA to manage all 25 of the state's safety rest areas. In 2014, ADOT announced selection of a P3 DBM delivery approach for construction of the South Mountain Freeway, a 22-mile greenfield freeway project that will be procured as a single project and will include a long-term maintenance component.

Proposed P3 concepts include traffic data management; compressed natural gas facilities; port-of-entry development; expansion freeway projects including the Sonoran Parkway,

I-11, and the North-South Corridor (all of which were included in the list of freight illustrative projects); the MAG "Spine" project (also included in the list of freight projects); and fiber-optic cable.

Projects currently under consideration by ADOT include improvements at the San Luis port-of-entry and managed lanes as part of the Spine project in the Phoenix metropolitan area.

4.4 Conclusion with Respect to Financing Freight Improvement Priorities

Unless new clear and predictable future revenues streams or other funding sources can be identified for freight improvement projects, financing mechanisms or P3s are unlikely to be the answer to realizing priority freight projects. A related critical consideration is that identified freight improvement projects are, in fact, largely highway or roadway improvement projects, which would benefit passenger traffic as much, if not more, than freight traffic. This means that considerations beyond freight are critical to assessing financing options for the projects identified as priorities in the Arizona Freight Improvement Strategy.

5 Conclusions and Next Steps

5.1 Conclusion

Arizona's apportionment of FAST Act dedicated freight funds is the only currently dedicated source of freight funds that can be used to advance Arizona freight improvement priorities. All other Arizona freight improvement priorities will have to compete for funding—whether through the prioritization process associated with the Arizona's Five-Year Transportation Facilities Construction Program or through federal discretionary grant programs such as FASTLANE and TIGER.

Financing mechanisms, such as bonds and federal loans or credit facilities, can help raise capital for projects in the short term, but would ultimately need to be repaid. They do not increase the pot of funding for freight projects.

Five identified freight improvement projects have potential to be implemented using public-private partnership (P3) approaches. One is a controlled access highway (US 60 Access Controlled Freeway Extension), and the other three are road widening projects that could lend themselves to managed lanes. P3 projects could also potentially be used for smaller-scale commercial ventures, such as truck rest stop facility projects, asset management, rest area maintenance, freeway lighting upgrades, electronic truck screening, port-of-entry development, traffic data management, compressed natural gas facilities, managed lanes, and others. In all cases, further analysis would be required to assess the potential feasibility and value of implementing these projects as P3s.

Nevertheless, no "silver bullet" solution exists for funding all of Arizona's freight improvement priorities. Beyond using FAST Act dedicated freight funds, the best funding strategy is likely to work within the constraints of Arizona's transportation system funding programs and discretionary funding programs.

5.2 Next Steps

The next component of Phase 11 is developing an Implementation Plan for the freight improvement strategy.

This Implementation Plan will define a specific action plan for moving the Arizona freight improvement strategy forward. It will be informed by this working paper on funding/financing options, as appropriate.