

**ADOT**



# 2050 ARIZONA LONG-RANGE TRANSPORTATION PLAN

★  
FINAL DOCUMENT



2050 Long-Range Transportation Plan

# Director's Letter

September 2023

Transportation is what connects people, businesses, and our communities. Our transportation network in Arizona gets people safely where they need to go and empowers the state's economy. Transportation is vital to Arizonans' quality of life and our state's economic competitiveness as we continue to experience rapid growth in population and travel.

The Arizona Department of Transportation's (ADOT) 2050 Long Range Transportation Plan (L RTP) provides a vision and roadmap for how we will address the growing demands on Arizona's transportation system for the next 25 years. The unfortunate reality is that our state's transportation needs greatly outweigh our future projected funding.

Our statewide transportation needs through 2050 are \$231.4 billion, while our projected revenues are \$69.1 billion – a gap of \$162.3 billion. This gap has continued to widen since the last L RTP was developed, due in part to large increases in construction costs from inflation.

ADOT's L RTP recommends a "Preserve and Upgrade" investment scenario, which commits a higher level of funding priority to preserving existing infrastructure through activities like paving and bridge repairs. This scenario results in an improvement across the state in pavement, bridge and safety performance, with mobility and freight performance remaining essentially the same.

This L RTP is the culmination of a robust, year-long planning and public involvement process that included significant input from the public and involvement from Arizona's tribal nations, Metropolitan Planning Organizations and Councils of Governments, which oversee transportation planning in regions throughout Arizona.

Nearly 10,000 Arizonans took surveys, attended public meetings and sent us comments. A broad cross-section of Arizonans provided information about their transportation needs. You told us loud and clear that fixing roads and preserving and maintaining ADOT's existing infrastructure should be our top priority and to prioritize highway projects that address growth and improve highways in rural areas.

ADOT's 2050 L RTP provides a balanced approach that reflects the needs of our state and the priorities of our customers. While the L RTP isn't project specific, it will serve as a policy guide for how we prioritize projects and allocate funding in our program. We will continue efforts to focus on performance-based decision making, and we will work with our partners to deliver the best system performance possible with the available resources.

I am proud to share this plan with Arizona residents, businesses and visitors. I want to acknowledge the L RTP study team for their efforts preparing the plan and thank everyone who took the time to provide us their input on transportation priorities.

Jennifer Toth

ADOT Director



# Arizona State Transportation Board Letter

## ARIZONA STATE TRANSPORTATION BOARD

Katie Hobbs, Governor

Gary Knight, Chairman  
Richard Searle, Vice Chairman  
Jenn Daniels, Member  
Jackie Meck, Member  
Ted Maxwell, Member  
Jesse Thompson, Member  
Jenny L. Howard, Member

December 15, 2023

The Honorable Katie Hobbs, Governor of Arizona  
1700 W. Washington Street  
Phoenix, AZ 85007

The Honorable Warren Petersen Senate President  
Arizona State Senate  
1700 W. Washington Street  
Phoenix, AZ 85007

The Honorable Ben Toma, Speaker of the House  
Arizona House of Representatives  
1700 W. Washington Street  
Phoenix, AZ 85007

Subject: Adoption of Arizona Long Range Transportation Plan

Dear Governor Hobbs, President Petersen and Speaker Toma:

On October 20, 2023, the Arizona State Transportation Board adopted a new Arizona Long Range Transportation Plan. The Plan was recommended by the Arizona Department of Transportation (ADOT) and adopted by the Board pursuant to A.R.S. Section 28-307. The Plan also fulfills federal requirements (23 U.S.C. 135).

**Policy Plan:** It is important to note that the Long Range Transportation Plan (LRTP) is a policy plan; it is not project specific. In developing the Plan, ADOT and the Board have considered trends and issues affecting transportation in Arizona, assessed the performance of the state highway system, forecasted anticipated revenues over the 25-year period (2026 through 2050), and identified system needs. We have used this information to develop a Plan to guide us in allocating our limited transportation dollars among the areas of greatest need.

**Funding Shortage:** While the plan outlines needs, sufficient funding to meet those needs is not forecasted as available. The LRTP states that ADOT will need \$231.4 billion over the next 25 years to cover all needs for the transportation system. Of this total needs amount, \$174.4 billion is for infrastructure needs alone, which includes preservation (preserving current roadways and bridges), modernization (safety-focused projects and system upgrades) and expansion projects (new roads and added lanes) through all areas of Arizona. However, while \$231.4 billion is needed for transportation projects, only \$69.1 billion of revenue is forecasted to be available, leaving ADOT an expected 25-year funding gap of \$162.3 billion over the 25-year timeframe.





# Arizona State Transportation Board Letter Cont.

December 15, 2023

Subject: Adoption of Arizona Long Range Transportation Plan

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**Greater Arizona:** When accounting for the geographic distribution of revenue, considering limitations from MAG and PAG funding, the amount of investment available to Greater Arizona (areas outside the urban MAG and PAG areas) is \$29.7 billion. The \$29.7 billion is the amount of the Greater Arizona Recommendation Investment Choice (RIC), which serves as a guide for how available funding should be allocated across the Preservation, Modernization, and Expansion categories.

**State Transportation Board Comments:** As the State Transportation Board adopted the LRTP, the Board offered the following specific comments:

- It is well documented that the current state of Motor Fuel Tax revenues is inadequate and fails to capture the growing number of alternative and fuel-efficient vehicles. This results in increased pressure on state and local governments, severely limiting their ability to build, maintain and operate our critical transportation system. The inadequacy of transportation revenues has been a strong theme communicated to ADOT and the Board by the public and transportation stakeholders throughout our extensive public outreach activities. The Board cannot stress enough the need for a new dedicated revenue stream to supplement the existing HURF funding.
- The LRTP is a policy plan providing guidance to the Board. The Board recognizes that compelling highway system preservation and modernization/safety must be top priorities. However, there continue to be demands on our system that create the need for highway expansion in areas throughout the state. As the Board considers the Five-Year Program each year, the Board will exercise due diligence toward system preservation, modernization and safety. The Board may consider limited system expansion on a case-by-case basis.
- The Board recognizes there are also continuing discussions about infrastructure funding at the federal level. The Board will carefully observe and analyze these discussions and guide ADOT to be prepared and flexible to optimize benefits for Arizona based on any plan ultimately approved by the U.S. Congress.

The State Transportation Board values its critical role in serving the state of Arizona. Thank you for your consideration of the Long Range Transportation Plan and our additional, specific comments.

Respectfully,

A handwritten signature in blue ink, appearing to read 'Gary Knight', is written over a printed name.

Gary Knight, Chairman

# Introduction to the Plan

The Arizona Department of Transportation (ADOT) 2050 Long-Range Transportation Plan (LRTP) is a policy document that must be updated every five years to provide a current “roadmap” for the state transportation system over the next 25 years (2026-2050). The development of the LRTP included an extensive engagement process across a wide range of stakeholders, including Arizona residents and regional and local transportation leaders across the state. Feedback from the engagement process supported the creation of the vision, goals, objectives, and implementation strategies to support Arizona’s future transportation system. As part of the planning effort, an analysis was done to identify the gap between the projected transportation need and the projected transportation revenue. The transportation gap emphasizes the importance of strategically allocating ADOT’s limited resources as defined by the Recommended Investment Choice (RIC).

## Purpose of the Plan

The Purpose of the ADOT 2050 LRTP is to provide information regarding the existing and future condition of the state transportation system, and provide direction to the state, metropolitan planning organizations (MPOs) and councils of government (COGS), and Arizona residents about transportation needs, available revenues, and system performance over a 25-year period. The plan serves as a policy-based plan rather than a project-based plan, meaning that it establishes policy recommendations but does not recommend specific projects. The 2050 LRTP has two major policy outcomes. The first is a list of strategies, which provide recommendations for how future decisions and processes should align with the State’s Vision, Goals, and Objectives. The second is the RIC, which serves as a guide for how available funding should be allocated across the Preservation, Modernization, and Expansion categories.

## Plan Themes

- Revise the prior LRTP to reflect updated information on existing trends and stakeholder priorities.
- Engage with MPOs, COGs, Tribes, and other transportation stakeholders to define a vision for the future transportation system.
- Involve the public in the LRTP development process and incorporate public input into the plan.
- Focus on improvements and strategies that incorporate resiliency into the LRTP.
- Use updated and specific information to help the public and transportation decision-makers understand the implications of policies.
- Develop policies that are data-driven, performance-based, and consistent with ADOT responsibilities.

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## Supporting Documents (links below)

- [MAG and PAG Current Conditions Report](#)
- [IIJA/BIL Analysis](#)
- [Vision Report](#)
- [Multimodal Needs Analysis](#)
- [Baseline and Projected Revenue](#)
- [Gap Analysis](#)
- [Public Involvement Summary Report](#)
- [RIP Primer](#)



## Plan Development

The Arizona L RTP development process included multiple stages of development.

1st

The first stage of the L RTP included information-gathering on existing transportation trends, revenue sources for transportation infrastructure, and MAG and PAG\* current conditions.

Current Transportation Trends

MAG/PAG Current Conditions

IIJA/BIL Funding Analysis

2nd

The second stage included defining the direction of the 2050 L RTP through the Vision Report, identifying projected needs and revenue over a 25-year period, and scenario planning workshops.

Vision, Goals, and Objectives

Identified Needs and Revenue

Scenario Planning Workshops

3rd

The third and final stage involved RIC development workshops, developing the strategies for the L RTP, as well as establishing the final RIC.

RIC Development Workshops

Finalized RIC

Draft Report

\* MAG: Maricopa Association of Governments; PAG: Pima Associations of Governments

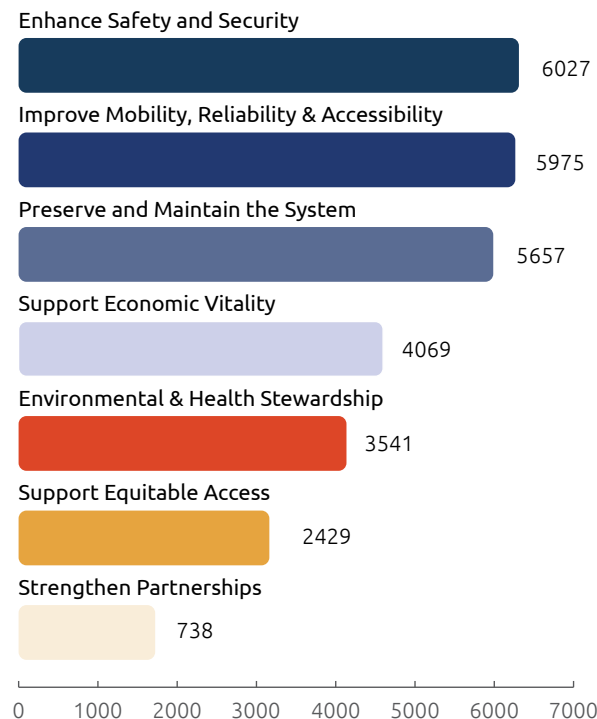
# Engagement Process

Throughout the development of the LRTP, ADOT met with, informed, and sought input from various stakeholders. These included COGs and MPOs, Arizona Tribes, and Arizona residents. Input from these stakeholders helped guide and shape the LRTP and was a significant consideration when formulating the RIC. At various points in the process, members of the public and stakeholders were able to provide their perspectives through surveys, public meetings, consultation sessions, and online comments.

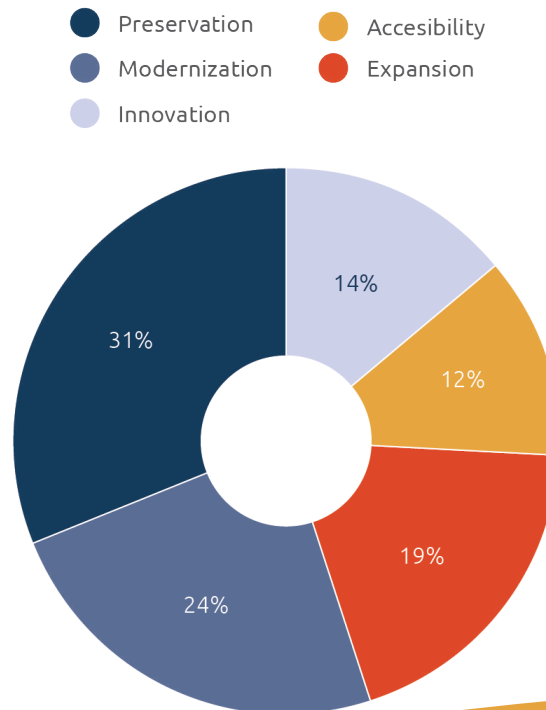
## Public Survey

From October 24, 2022, to January 4, 2023, a survey was available through the LRTP website using the MetroQuest platform. The purpose of this survey was to obtain the investment priorities and transportation goals of Arizona residents. A total of 7,862 people responded to the survey with 54% being from Maricopa County, 19% being from Pima County, and 27% being from the other counties in the state. Themes from the survey include:

### Public Ranking of Arizona Transportation Goals



### Public Investment Priorities



## Tribal Outreach

During the LRTP engagement process, ADOT reached out to all 22 tribes in the State of Arizona, with 10 of the 22 tribes requesting and receiving consultation sessions going over the ADOT “Planning to Programming” process, an overview of the LRTP development process, and Tribal transportation priorities. Key tribal priorities identified from these meetings include:

- ADOT district communication on projects
- Roadway lighting
- Pedestrian safety
- Widened shoulders
- Data sharing

## Statewide Public Meetings

During March 2023, ADOT held a series of three in-person public meetings, a telephone townhall, and a virtual meeting at which the purpose of the LRTP, vision, goals, projected needs and revenue were presented to the public. The public was able to comment during these events either through verbal comments, comment cards, or through the LRTP website/email. Overall, 593 people attended the public meetings. A majority participated virtually. A total of 391 comments were received by ADOT. Common themes of the comments included:

- Promoting bicycle infrastructure
- Expanding public transit
- Increasing safety
- Fixing roads in poor condition
- Prioritizing and expediting existing transportation projects.

# Vision and Goals

## ADOT Mission, Vision, and Values

The LRTP Vision, Goals, and Objectives closely align with the Departments Vision, Mission, and Values identified in ADOT's 2024 Strategic Plan;



## LRTP Vision

**Connecting Arizona.  
Better Lives Through Better Transportation.**

## LRTP Goals

The LRTP defined seven goals to support the vision and provide strategic priorities on how to implement the LRTP. The goals establish the path to achieve the vision and were formulated in consideration of department, stakeholder, and public priorities. Four of the goals address the State transportation system, while three of the goals address processes. All goals provide a guide for implementing existing and future decision-making and policies to ensure they align with the vision.





# Transportation Today

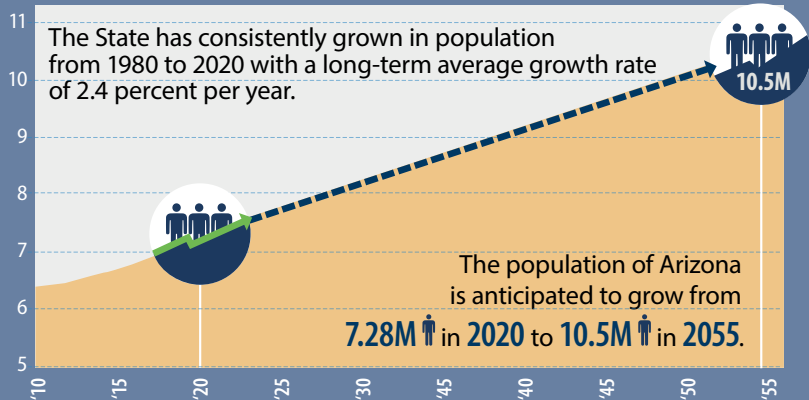
## L RTP Vision Report

The **Vision Report** provides an overview of the various transportation systems, typical users and how these will change over the next several decades. The report lays the foundation for the L RTP vision, goals, and objectives.

## STATE POPULATION GROWTH

### Arizona's statewide projected population growth

The State has consistently grown in population from 1980 to 2020 with a long-term average growth rate of 2.4 percent per year.



## FUTURE CHALLENGES



WATER



CLIMATE



TECHNOLOGY



SOCIAL EQUITY

By 2055, Pinal County is expected to significantly increase in population resulting in the MARICOPA/PIMA/PINAL COUNTIES holding nearly 85% of the state population.

### AZ POPULATION DISTRIBUTION

15%

85%

## TRANSPORTATION SYSTEMS

Arizona's transportation system encompasses:

7,000  
MILES OF

ADOT-OWNED ROADWAYS  
INTERSTATES, FREEWAYS  
& PRINCIPAL ARTERIALS

ACCOUNT FOR  
**5%** ROADWAY  
MILES

ACCOMMODATE  
**50%** OF VEHICLE  
MILES TRAVELED

### AVIATION

PUBLIC-USE  
AIRPORTS IN AZ

**67**  
OF TOTAL COMMERCIAL  
AIR TRAVEL ...

**88%**

PHOENIX  
SKY HARBOR

**7%**

TUCSON  
INTERNATIONAL

**5%**

OTHER AIRPORTS

### BRIDGES

APPROXIMATELY

**8,500**

BRIDGES  
STATEWIDE

**57%**

ADOT-OWNED

**<1%**

ARE IN POOR CONDITION

### RAIL



PROVIDES  
APPROXIMATELY

**30%**

OF TOTAL  
FREIGHT TRANSPORTED

### FREIGHT



**TRUCKS**

PROVIDE  
APPROXIMATELY

**70%**

OF TOTAL  
FREIGHT TRANSPORTED

### TRANSIT



**2** URBAN  
SYSTEMS

[PHOENIX & TUCSON]

**5** SMALL URBAN  
SYSTEMS

**29** RURAL  
SYSTEMS

### PORTS OF ENTRY (POE)



**9**

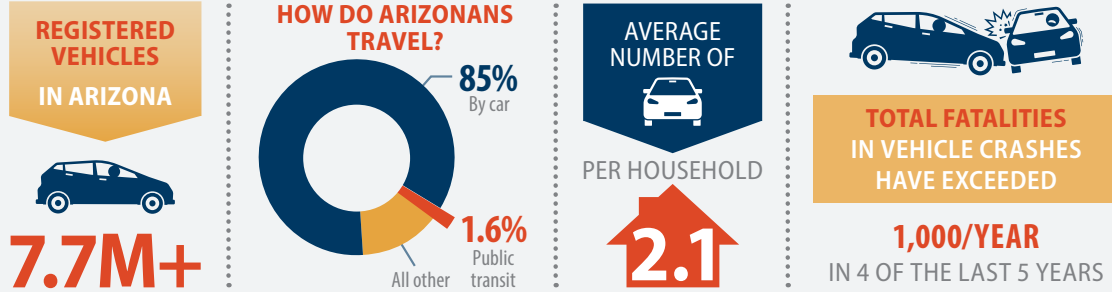
POE ALONG  
MEXICO BORDER

PROVIDING  
**\$30B**  
OF GOODS  
ANNUALLY



# Transportation Today (cont.)

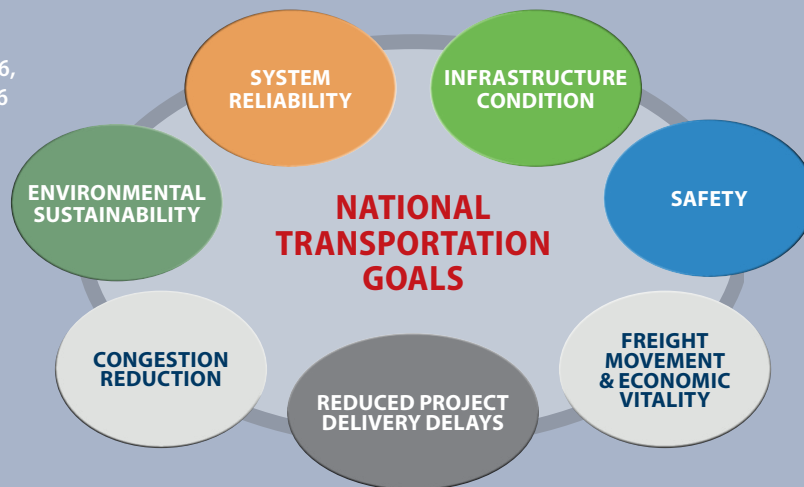
## TRAVEL PATTERNS



## POLICY GUIDANCE

**FEDERAL:**  
23 CFR 450.206,  
23 CFR 450.216

**STATE:**  
ARS 28-306,  
ARS 28-307,  
ARS 28-506



## VISION

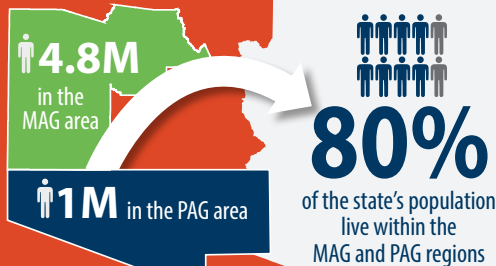


# Transportation Today: MAG/PAG

## MAG/PAG Current Conditions

The Maricopa Association of Governments (MAG) and Pima Association of Governments (PAG) are the two most populous areas of the state of Arizona and the two federally designated transportation management areas (TMA). *The Current Conditions Report of the MAG and PAG Regions (Report)* provides an overview of these important regions and highlights portions of their federally required long-range transportation plans which include portions of the state highway system (SHS).

## POPULATION



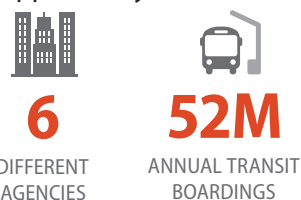
## INFRASTRUCTURE



Currently in the MAG region, there are over:

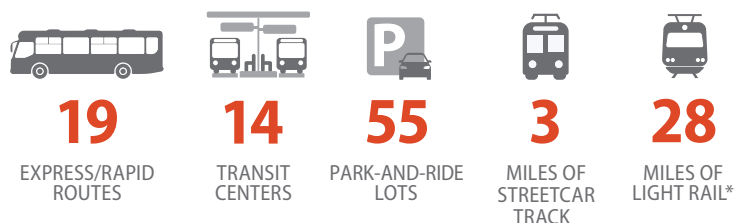


Public transit operations are supported by:



\*with 7.1 miles currently under construction

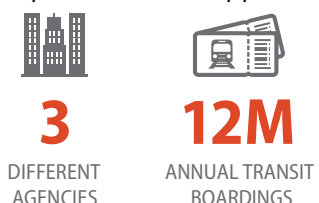
The transit system includes:



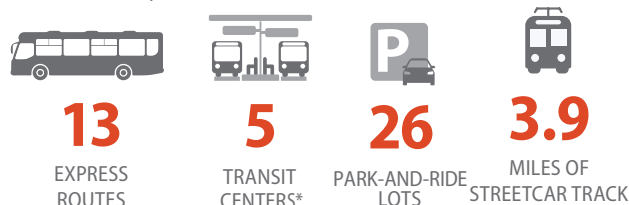
PAG's existing transportation system includes:



Public Transportation operations are supported by:



The transit system includes:



\*includes Amtrak and Greyhound



# Transportation Today: MAG/PAG (cont.)

## REGIONAL PLANNING



**THE REGIONAL TRANSPORTATION PLAN – MOMENTUM 2050** is the current long-range transportation plan for the MAG region that was adopted by its Regional Council on December 1, 2021.

**VISION:** Establish a sustainable, resilient, multi-modal transportation investment program that connects people with the opportunities to prosper and thrive.



**THE 2045 REGIONAL MOBILITY AND ACCESSIBILITY PLAN (RMAP) UPDATE** is the current long-range transportation plan that guides the PAG region that was recently updated on September 24, 2020.

**VISION:** A state-of-the-art, reliable, multimodal, and environmentally responsible regional transportation system that is continuously maintained, interconnected, and integrated with sustainable land use patterns to support a high quality of life and healthy, safe and economically vibrant region.

## FUTURE PROJECTS ON SHS



**THE MAG MOMENTUM 2050 PLAN** includes **\$16 billion for 88 specific projects** that support the **expansion (59%)** and **modernization (32%)** of the SHS system. While the plan specifies that maintenance of the freeway/highway system is the responsibility of ADOT, **there is \$1.4 billion allocated for preservation**, which includes the reconstruction of the I-10 Hance Park Tunnel.



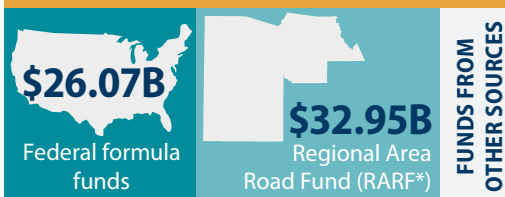
**THE PAG 2045 RMAP UPDATE** includes **\$2.2 billion for 28 highway projects** that support the **expansion (72%)** and **modernization (28%)** of the SHS system.

## FUNDING

### MOMENTUM 2050 ANTICIPATES

**\$69.8B**

in revenue over the 2022-2055 L RTP timeframe.



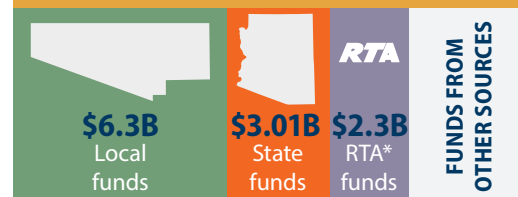
THE LARGEST SOURCES WILL BE FEDERAL FUNDS AND AN EXTENSION OF PROPOSITION 400, A LOCAL TRANSPORTATION EXCISE (SALES) TAX.

\* Assuming extension of current half-cent sales tax.

### 2045 RMAP UPDATE ANTICIPATES

**\$15.1B**

revenue over the 2015-2045 L RTP timeframe.



THE LARGEST SOURCES ARE LOCAL FUNDS, STATE FUNDS, AND A LOCAL VOTER-APPROVED TRANSPORTATION EXCISE (SALES) TAX.

\* Regional Transportation Authority local half-cent sales tax

Note: MAG Momentum and PAG RMAP Update numbers also include funding for Public Transit and Local Roadways.





# Multimodal Needs

## MULTIMODAL NEEDS Analysis

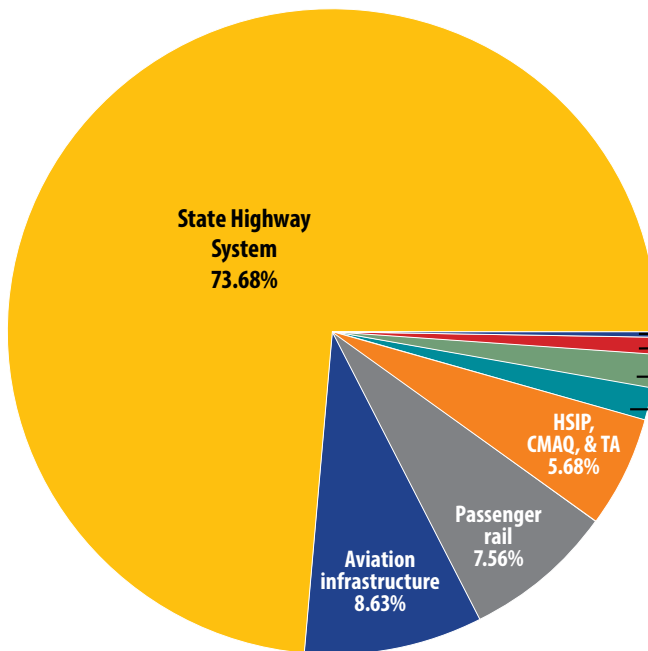
The **Multimodal Needs Analysis** provides an overview of the future needs within each transportation system to provide the desired level of performance.

### NEEDS DETERMINATION



## TRANSPORTATION FUNDING NEEDS

### FUNDING NEEDS (in percentages)



TRANSPORTATION SYSTEM COMPONENT	TOTAL NEEDS (2026 Dollars)
ADOT Infrastructure	\$174 Billion
ADOT Stewardship	\$57 Billion
Complementary Transportation Systems	Not Included
<b>Total</b>	<b>\$231 Billion</b>

The following elements and their respective percentages are too small to show in the graph:

EV and CRP	0.03%
Public at-grade rail crossing	0.13%
Non-SHS bridge	0.36%
Statewide planning	0.76%
Transit	1.49%
Other facilities	1.69%

CMAQ: Congestion Mitigation and Air Quality Improvement  
 HSIP: Highway Safety Improvement Program  
 TA: Transportation Alternatives  
 EV: Electric Vehicle  
 CRP: Carbon Reduction Program

## THE ARIZONA TRANSPORTATION SYSTEM

ADOT has varying levels of ownership and oversight of the following three major components of Arizona's transportation system:



**ADOT  
INFRASTRUCTURE**



**ADOT  
STEWARDSHIP**



**COMPLEMENTARY  
TRANSPORTATION SYSTEMS**  
*(not Included)*

# Multimodal Needs (cont.)

## THE ARIZONA TRANSPORTATION SYSTEM



State Highway System (SHS)	National Highway System (NHS)	Other Facilities	State Ports of Entry
	Non-NHS Facilities		Rest Areas/Truck Parking along SHS
			Grand Canyon Airport

NEED TYPE	DESCRIPTION OF NEED	2026–2050 NEED
PAVEMENT	ADOT owns and maintains approximately <b>7,000 centerline miles of roadway</b> . Acceptable long-term pavement conditions <b>assumes an 11% annual increase in spending</b> .	<b>\$63.3 B</b>
BRIDGE	ADOT owns and maintains approximately <b>4,800 bridges</b> on the SHS. Acceptable long-term bridge conditions <b>require an 11% annual increase in spending</b> .	<b>\$8.8 B</b>
MOBILITY	Current <b>mobility conditions</b> within the SHS meet performance measures but <b>future investments will likely be needed</b> to accommodate population growth.	<b>\$88.1 B</b>
SAFETY	While ADOT provides oversight on statewide safety, <b>ADOT only has ownership and control to make safety improvements</b> on the SHS.	<b>\$5.9 B</b>
FREIGHT	Current <b>freight conditions meet</b> all the Federal performance measures targets, but <b>future investments will likely be needed</b> to maintain this level of performance.	<b>\$4.4 B</b>



Public transit funding	Aviation infrastructure funding	Passenger rail funding	Non-NHS bridge inspections and funding
Statewide planning funding	HSIP, CMAQ, and TA funding	EV charging and CRP funding	Public at-grade highway–rail crossings safety funding

NEED TYPE	DESCRIPTION OF NEED	2026–2050 NEED
HSIP, CMAQ, AND TA	ADOT administers several federally funded programs available to both SHS facilities and Non-SHS facilities. These programs include the Highway Safety Improvement Program (HSIP), CMAQ and Transportation Alternatives (TA) programs.	<b>\$13.2 B</b>
PUBLIC TRANSIT	ADOT administers FTA programs used to fund “dial-a-ride” (5310) and fixed bus route programs (5311) in rural areas.	<b>\$3.5 B</b>
AVIATION INFRASTRUCTURE	ADOT distributes funds for airfield maintenance and pavement management, hangar construction, operation of state-owned aircraft and airports and grant-matching for 11 public airports and smaller general aviation airports.	<b>\$20.0 B</b>
PASSENGER RAIL	ADOT is responsible for the safety oversight for regional passenger rail services in the Phoenix and Tucson areas (light rail and streetcar) and the planning for future rail infrastructure, including a potential passenger rail alternative between Tucson and Phoenix.	<b>\$17.5 B</b>

# Revenue Projections

The *Baseline and Projected Revenues* provides an overview of transportation funding in Arizona. It analyzes future scenarios that may impact funding and highlights the projected future transportation funding available to ADOT over a 25-year period. This includes state and federal funding like the Infrastructure Investment and Jobs Act (IIJA), currently referred to as the Bipartisan Infrastructure Law (BIL), which establishes a number of programs for funding infrastructure.

## ADOT HISTORICAL FUNDING

### Highway User Revenue Fund (HURF)



The **Highway User Revenue Fund (HURF)**, a fund that includes fees and charges relating to the registration and operation of motor vehicles and a motor fuel tax, is the largest of the three transportation funding sources for ADOT. In FY2022, the HURF generated **\$1.73 billion** which is a **68% increase from FY2012 (\$1.03 billion)**, largely through strong economic growth in the state. While HURF revenues fluctuate from year to year, the distributions of HURF funds are based on a set distribution formula. ADOT discretionary funding equals approximately **43%** of the total HURF.

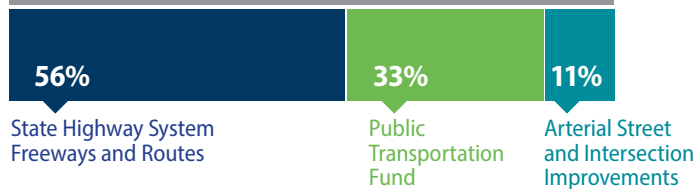
### Regional Area Road Fund (RARF)



Voters in Maricopa County passed a half-cent sales tax through Proposition 400 to fund transportation improvements within the county. Funds from this tax are deposited into a **Regional Area Road Fund (RARF)** and Public Transportation Fund.

The transportation tax expires in December 2025 and requires voter approval of a new funding measure to continue. The L RTP assumes the renewal of the half-cent sales tax (no cap) with the current distribution percentages.

#### 2006–2025 DISTRIBUTION OF COUNTY EXCISE TAX

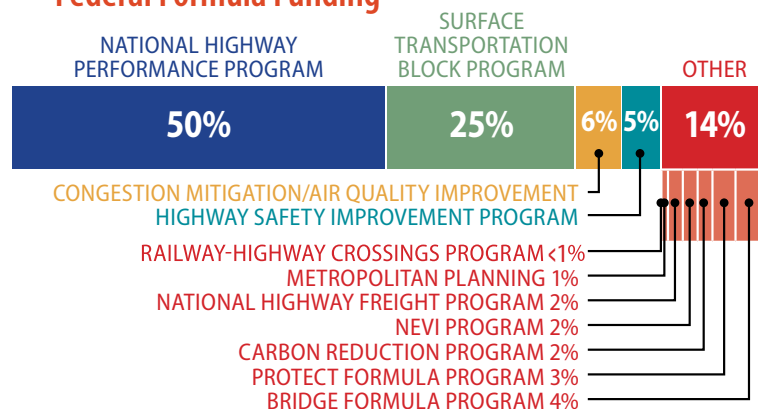


In 2022, Proposition 400  
**GENERATED**  
**\$664 M**

a **105%**  
**INCREASE from 2012**  
**(\$324 M)**  
Not Adjusted for Inflation

### Federal Formula Funding

Federal formula funding is determined based on allocations to the State of Arizona through the current IIJA/BIL 2022–2026. Under **IIJA/BIL**, federal funding to Arizona increases an anticipated average of **\$1 billion per year**. A large portion of the funds go to ADOT while a portion of funds is distributed to other agencies.



### Regional Transportation Authority (RTA) Funding

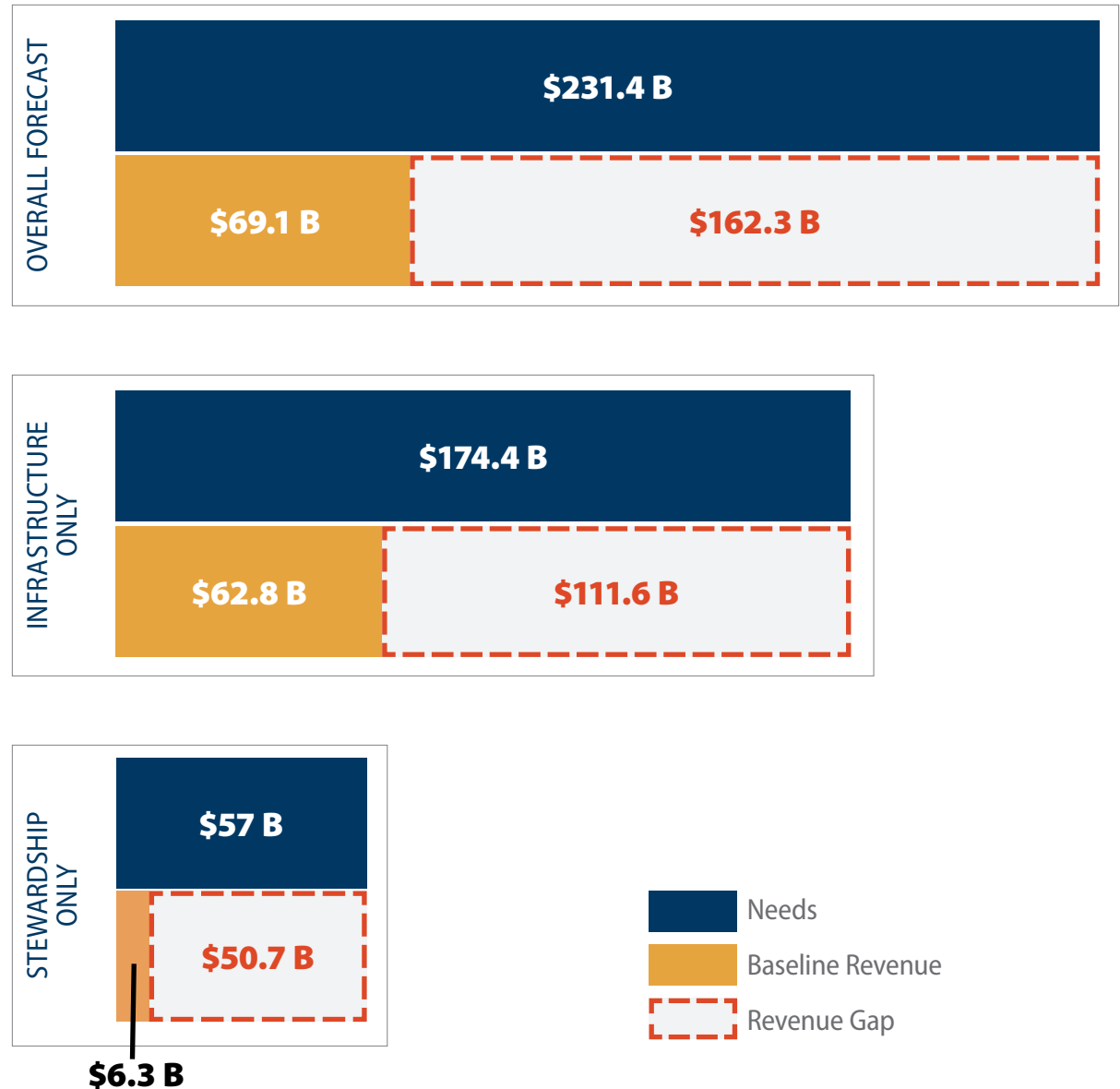
While not having dedicated distribution to ADOT Infrastructure, local and regional funding sources such as Regional Transportation Authority (RTA) funding in the PAG region have historically been used to contribute to ADOT projects. This funding was taken into account as part of the L RTP.



# Transportation Gap

The 2050 LRTP projected three revenue forecasts: a low forecast, a baseline forecast, and a high forecast. ADOT decided the baseline forecast would be the basis for the LRTP gap analysis. The anticipated revenue available over the 25-year period is \$69.1 billion, which includes ADOT's portion of the HURF, the freeways and highways portion of the MAG RARF funding, freeways and highways from PAG RTA funding, and ADOT funding from Federal Aid. It also includes ADOT stewardship programs such as federal transit funding, as well as federal and state aviation funding.

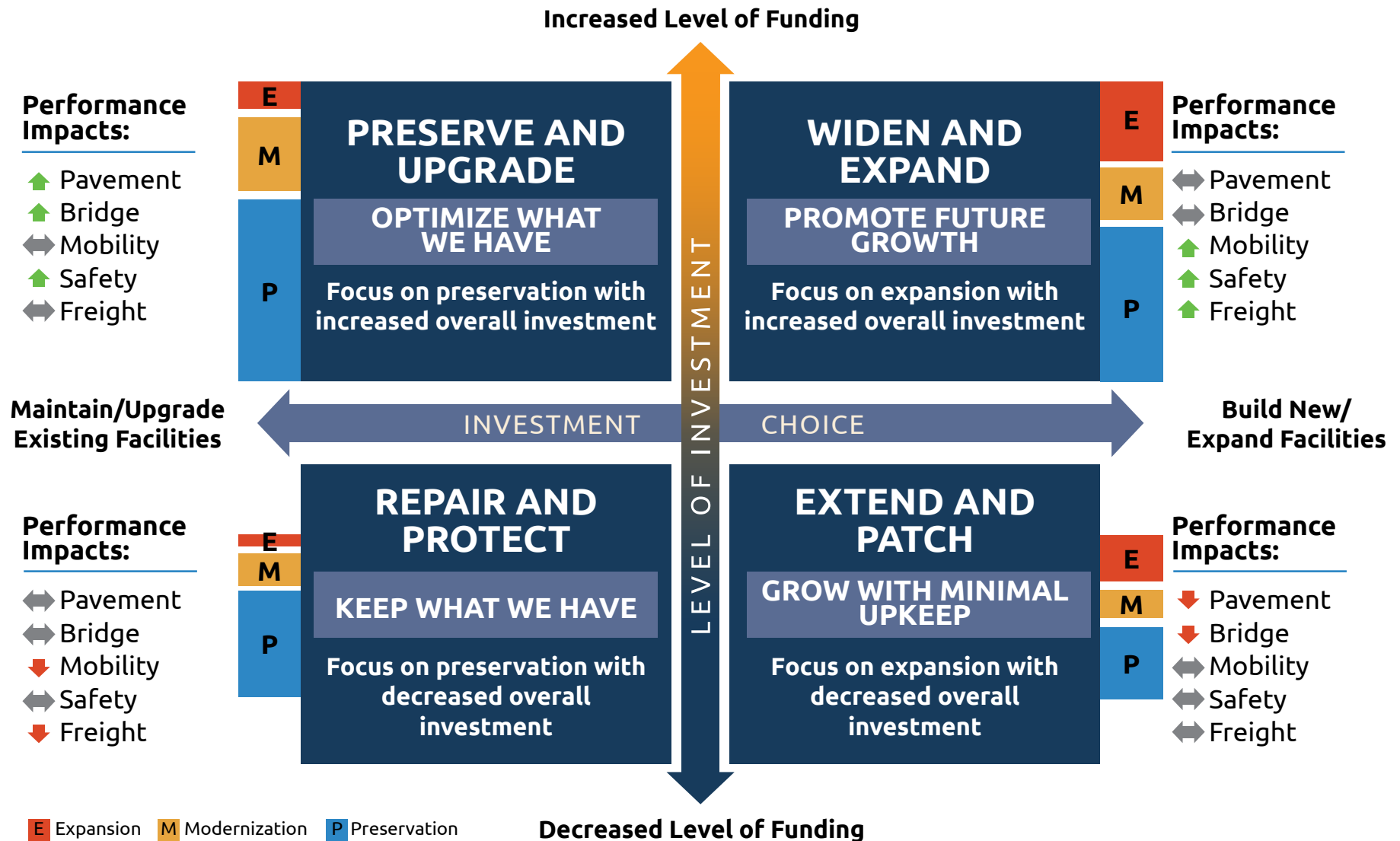
The funding gap represents the difference between the projected needs and ADOT's projected revenues. The 2050 LRTP reflects a transportation gap of \$162 billion. The gap is more than double the forecast revenue and emphasizes the need to prioritize strategic investments.





# Future Scenarios

During internal agency scenario planning workshops, four major investment scenarios based on different investment levels and investment choices were discussed. The preferred scenario was Preserve and Upgrade, which commits a higher level of funding and investment priority to Preservation. This scenario results in overall pavement, bridge, and safety performance improving across the state, with mobility and freight performance remaining essentially the same.



# Recommended Investment Choice

The final RIC represents the overall investment choice for ADOT infrastructure across the state. The RIC is defined by three investment categories.

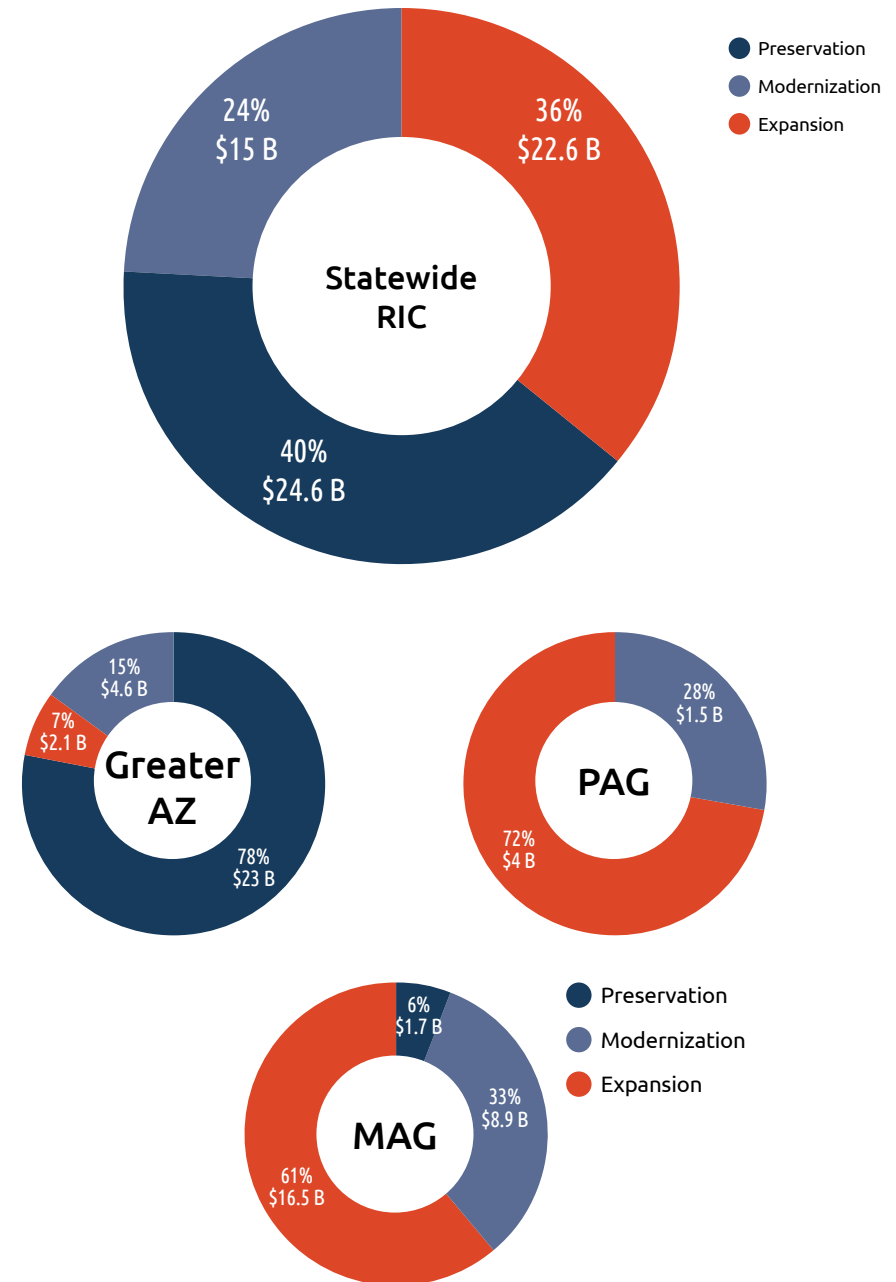
- *Preservation* – Activities that improve or sustain the condition of road pavement and bridge facilities to a state of good repair.
- *Modernization* – Improvements to the existing system that upgrade efficiency, functionality, and safety without adding capacity.
- *Expansion* – Improvements that add capacity through new roads, adding lanes to existing highways, new rail, and constructing new grade-separated overpasses/underpasses.

The RIC is not meant to be rigid but serves as a guideline for how future investment decisions should be made in each of the investment categories.

The RIC reflects difficult decisions among the three investment categories as a result of the large transportation gap. Different investment choices were analyzed for their performance impacts to pavement, bridge, safety, mobility, and freight with each investment choice reflecting tradeoffs. Ultimately, the 2050 RIC was developed from analyzing performance impacts in consideration of the priorities of the public, stakeholders, and ADOT.

## Recommended Investment Choice by Region

The graphics to the right provide a breakdown of the investment choice by region, including the MAG region, the PAG region, and the Greater Arizona region. The Greater Arizona region includes everything that is outside of MAG and PAG. The reason for this segregation is that MAG and PAG have dedicated transportation funding sources that they are responsible for programming within their respective regions. MAG and PAG investment choices primarily focus on Expansion and Modernization, while the Greater Arizona investment choice has a primary focus on Preservation. In the last LRTP there was no investment choice allocated to Expansion for Greater Arizona, however this plan recommends 7% in Expansion for Greater Arizona.





# Strategies

As part of the 2050 LRTP, ADOT also developed a list of strategies corresponding to the goals and objectives laid out in the Vision Report. These strategies, like the RIC, are not rigid but a guide for future decisions. ADOT has over 25 existing plans developed from programs, research, and guidebooks that include a variety of policies and strategies. These existing plans have been incorporated in the LRTP strategies by inclusion or by building on the recommendations made in the plans. Whether a strategy directly or indirectly supports the various State Highway categories of needs is also noted.

## D - Directly supports

## I - Indirectly Supports

Goal 1: Preserve and Maintain the System						
Objectives	Strategies	Applicability				
		State Highway Needs				
		Pavement	Bridge	Mobility	Safety	Freight
Achieve and maintain a state of good repair of transportation assets within available resources	<i>Maintain a state of good repair of transportation infrastructure assets, following the investment strategies in the Transportation Asset Management Plan.</i>	D	D	I	I	I
Cost-effectively maintain, operate, and upgrade assets to maximize useful life		D	D	I	I	I
Incorporate resiliency, adaptability, and redundancy in the transportation network, systems management, and operation	<i>Incorporate the strategies, policies, and procedures outlined and recommended in the ADOT Resiliency Plan</i>	I	I	I	I	I

## Goal 2: Enhance Safety and Security

Objectives	Strategies	Applicability				
		State Highway Needs				
		Pavement	Bridge	Mobility	Safety	Freight
Reduce the number of lives lost and injuries sustained on Arizona's transportation network, striving for zero	<i>Continue implementation, connect, and monitor strategies identified in the Strategic Highway Safety Plan, Bicyclist Safety Action Plan, Pedestrian Safety Action Plan, State Highway - Rail Grade Crossing Action Plan, Statewide Rest Area Study, Truck Parking Study, Climbing and Passing Lane Prioritization Study, and Arizona Statewide Wildlife-Vehicle Conflict Study, to reduce the number of lives lost and injuries, striving for zero.</i>	I	I	I	I	I
	<i>Identify and prioritize intersections and segments of state and local roadways (including tribal) with the highest number of pedestrian crashes that can be addressed through infrastructure improvements. Conduct RSAs at the locations to identify appropriate countermeasures. Develop and implement projects at the locations.</i>			I	D	
	<i>Support distracted driving education and awareness efforts, particularly of A.R.S. 28-914, with strong multiple-channel messaging and outreach to discourage distracted driving; may include an education video about A.R.S. 28-914. Consider collaborating with media Editorial Boards to provide information about the dangers of distracted driving, and the new distracted driving statute.</i>			I	D	
	<i>Rural Areas: Conduct diagnostic evaluations at high-risk railroad crossings, identify locations for unconventional highway-rail crossing countermeasures, and address rural railroad crossing needs</i>	I	I	I	D	I
Foster a community and workplace culture of safety first	<i>Incorporate regularly scheduled safety training with current employees, emphasize safety in new hire / orientation materials, and consider establishing safety messaging and moments in internal ADOT communication materials and meeting agendas.</i>				D	
Prepare for and implement efficient coordinated response and recovery to emergency and disaster events	<i>Continue and expand traffic incident management (TIM) training for all agencies— transportation</i>			I	D	I





### Goal 3: Improve Mobility, Reliability, and Accessibility

Objectives	Strategies	Applicability				
		State Highway Needs				
		Pavement	Bridge	Mobility	Safety	Freight
Advance access and connectivity between modes	<i>Using the Intelligent Transportation Systems (ITS) Master Plan and Transportation System Management and Operations (TSMO) program, incorporate adaptability, and redundancy in the transportation network, systems management, and operations.</i>			D	I	I
Support accessible and equitable modal options for the movement of people	<i>Re-evaluate, update the ADOT Complete Transportation Guidebook and Americans with Disabilities Act: FINAL Transition Plan for Public Rights of Way to align with current Federal requirements, and integrate and implement into ADOT project development process.</i>  <i>Complete and implement the Arizona Active Transportation Plan and consider creating a state transit plan to support non-highway system needs throughout Arizona.</i>			D	I	
Mitigate travel delays and alleviate congestion to provide predictable, reliable travel times	<i>Update the Travel Demand Management - A Toolbox of Strategies to Reduce Single-Occupancy Vehicle Trips and Increase Alternate Mode Usage in Arizona (2012) and implement suggestions therein at the state level.</i>	I	I	D	I	I
Leverage technology, communications, and management strategies to maximize safety and operational efficiency of existing systems and keep up with of major travel trends	<i>Continue to implement the strategies and recommendations outlined in the State highway Safety Plan including the collection of data on pedestrian volumes to help assess safety risk, and the creation of a statewide pedestrian data repository/online database. This may include before/ after pedestrian data at project improvement locations.</i>			D	I	I
Identify and close redundancy gaps in the network to support continued mobility in the event of disasters or other disruptions	<i>Incorporate the strategies, policies, and procedures outlined and recommended in the upcoming ADOT Resiliency Plan</i>			D	I	



## Goal 4: Environmental Health and Stewardship

Objectives	Strategies	Applicability				
		State Highway Needs				
		Pavement	Bridge	Mobility	Safety	Freight
Create opportunities for safe physical activity, equitable transportation choice, and community engagement	<i>Continue to implement and adopt the strategies and initiatives focused on pedestrian safety identified in the AZ Strategic Highway Safety Plan, ADOT Complete Transportation Guidebook, and the Pedestrian Safety Action Plan.</i>			D	D	
Support flexible and adaptable measures to the transportation system to accommodate anticipated climatic changes and potentially severe climatic events over time	<i>Incorporate the strategies, policies, and procedures outlined and recommended in the upcoming ADOT Resiliency Plan</i>			D	D	
Plan, develop, and maintain transportation facilities in a manner that protects the natural, historic, and cultural environment and avoids or minimizes adverse impacts	<i>Provide sufficient resources for ADOT's Environmental Planning Division to comprehensively assess and mitigate environmental impacts on all future ADOT Projects</i>	I	I	I	I	I
Pursue community-supportive transportation outcomes	<i>Continue to update and implement policies and procedures from the Arizona Public Involvement Plan to accurately and thoroughly understand the needs of each community a given project will impact.</i>	I	I	I	I	I
Strive for cleaner, more efficient, and sustainable energy sources for transportation operations and facilities	<i>Implement the recommendations from the Electric Vehicle Infrastructure Deployment Plan</i>	I	I	I	I	I



## Goal 5: Support Equitable Access to the State Highway System

Objectives	Strategies	Applicability				
		State Highway Needs				
		Pavement	Bridge	Mobility	Safety	Freight
Improve access and choices for all Arizona residents by supporting transportation system access to job opportunity and training, health care, food availability, and recreation	<i>Update and implement the Complete Transportation Guidebook into project development to identify transportation choices that provide mobility to connect communities and economic opportunity to maximize a limited set of resources, time, and money.</i>			<b>D</b>	<b>I</b>	
Support transportation system accessibility to underprivileged populations without damaging community culture or neighborhood integrity	<i>Through project development, ensure that the NEPA process is followed.</i>			<b>I</b>		
Identify & mitigate transportation burdens for low-income communities, communities of color, people with disabilities, and other disadvantaged groups	<i>Adopt the methodology from the Arizona Electric Vehicle Infrastructure Deployment Plan, to identify &amp; mitigate transportation burdens of disadvantaged communities (DACs) associated for equitable implementation of the L RTP by assessing impacts aligned with the USDOT categories and the interim Justice40 guidance.</i>			<b>I</b>		

## Goal 6: Strengthen Partnerships

Objectives	Strategies	Applicability				
		State Highway Needs				
		Pavement	Bridge	Mobility	Safety	Freight
Look for opportunities to partner with the private sector to stretch public funds through public-private partnerships or coordinated program development	<i>Evaluate, modify, and continue ADOT's partnership efforts that include: P3 Initiatives.</i>	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>
Work with appropriate specialists/ experts during project development, design, and construction to optimize safety, community health, and climate responsiveness	<i>Incorporate the recommendations and policies presented in the various tribal long range transportation plans to strengthen the ties between these nations/tribes and ADOT, and to optimize the delivery of future projects on tribal lands</i>	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>
Strengthen partnerships throughout the State to encourage and support existing and new opportunities as the demographic base expands	<i>Establish reoccurring meetings with COGs, MPOs, cities/towns to ensure coordination on major community, population, and residential &amp; commercial land use changes as they relate to the State transportation system.</i>	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>



## Goal 7 Support Economic Vitality

Objectives	Strategies	Applicability				
		State Highway Needs				
		Pavement	Bridge	Mobility	Safety	Freight
Pursue transportation asset and operational improvements that will expand access to economic opportunities, jobs, and core services	<i>Implement and update the infrastructure improvements identified in the AZ Key Commerce Corridor Report</i>	I	D			D
Improve transportation connectivity to established and emerging activity centers and tourist destinations	<i>Collaborate with AZ Office of Tourism to identify and promote travel, maintenance priorities, and overall connectivity to established and emerging activity centers and tourist destinations</i>	I	I	I		
Create and enlarge competitive advantage for Arizona supply chains through higher productivity and reliability in the state freight system, supporting economic growth, and strengthening economic resilience	<i>Continue to implement and enhance the strategies and improvements identified in the AZ State Freight Plan and continue coordination with the Arizona Commerce Authority</i>	I	I			D
Coordinate transportation systems with land use for efficient and sustainable use of resources	<i>Update and implement the Complete Transportation Guidebook into project development to identify transportation choices that provide mobility to connect communities and economic opportunity to maximize a limited set of resources, time, and money.</i>			I		





# Resilience Improvement Plan

Resilience is the ability to anticipate, prepare for, or adapt to conditions or withstand, respond to, or recover rapidly from disruptions, including the ability to:

- Resist or withstand impacts from weather events and natural hazards;
- Reduce the magnitude or duration of impacts of a disruptive weather event or natural hazards; and
- Have absorptive capacity, adaptive capacity, and recoverability to decrease project vulnerability to weather events or other natural hazards\*.

There are many natural hazards that affect Arizona transportation assets.

ADOT has been integrating resilience through policy and planning for several years and has taken critical steps to ensure resilience is a key consideration during capital programming and investments. To improve the understanding of resilience needs across Arizona's state transportation system, ADOT is developing a Resilience Improvement Plan (RIP). The RIP evaluates how weather events and natural hazards, exacerbated by climate change, may impact Arizona's state transportation system and their users.

Incorporating the RIP into the LRTP aligns the state's long-term transportation investment plans with identified climate hazards to ensure that the investments are safeguarded against future climate-related events and that investments are designed to address high-risk areas, where appropriate. Moreover, the current LRTP is a policy-based document, and as such, resilience is integrated throughout to embed existing policies, procedures, and plans that ADOT has developed around climate resilience. Similar to the LRTP, the RIP looks at the systemwide state transportation assets while focusing on systems under the direct responsibility of ADOT and considering interdependencies with other systems such as transit and active transportation. The RIP is incorporated into the LRTP administratively by reference in accordance with 23 U.S.C. 176(e)(1)(B)(ii).

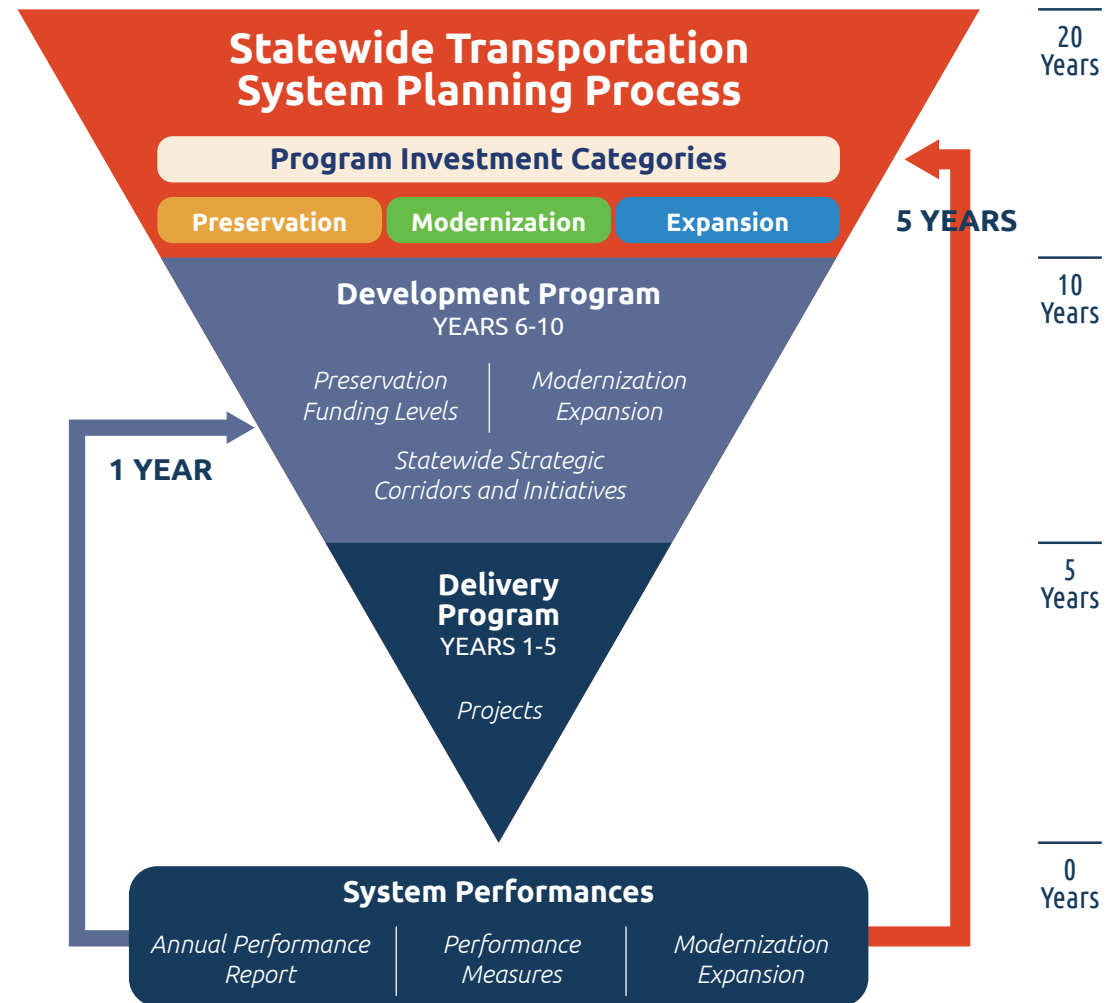
\* Federal Highway Administration. (n.d.). Resilience Definitions. <https://highways.dot.gov/research/infrastructure/resilient-pavements/definitions>



# Plan Implementation

The LRTP is a policy-based plan that does not identify specific projects but provides recommendations for policy and investment choices. Projects are programmed through ADOT's five-year construction program. ADOT has an internal process referred to as "Planning to Programming (P2P)" to link the LRTP to the Five-Year Construction Program. The P2P effort utilizes the RIC from the LRTP to prioritize investments within the three categories of Preservation, Modernization, and Expansion. The annual effort surrounding the P2P process is documented in the Linking the Long-Range Plan and Construction Program, P2P Link Methodologies and Implementation Plan (June 2014, ADOT). P2P is a "performance-based approach to planning, programming, and financial decision-making that ensures available funds are used in the most productive way to meet overall transportation system performance objectives." Furthermore, the objective of P2P is to provide "a transparent, logical, defensible, understandable, and reproducible methodology to efficiently preserve and improve the Arizona transportation system."

Currently, P2P has developed a structured evaluation process to prioritize project nominations by scoring technical, safety, policy, and district criteria. While the process starts with an open "call-for-projects", the evaluation process categorizes projects into the LRTP investment categories prior to evaluation. Any changes to the LRTP must consider potential impacts to the P2P process, particularly with the categorization of projects. Any new categories or significant changes to existing categories will require changes to the P2P scoring and evaluation framework and potentially new data or new weighting factors.



Connecting Arizona. Better Lives Through Better Transportation.

