DRAFT 2040 REGIONAL TRANSPORTATION PLAN (RTP) EXECUTIVE SUMMARY

April 25, 2017

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MARICOPA ASSOCIATION of GOVERNMENTS

REGIONAL TRANSPORTATION PLAN

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2040 REGIONAL TRANSPORTATION PLAN

EXECUTIVE SUMMARY

April 25, 2017

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INTRODUCTION

The MAG Regional Transportation Plan (RTP) is a comprehensive, performance based, multi-modal and coordinated regional plan, extending through Fiscal Year (FY) 2040. The RTP was prepared and adopted by the Maricopa Association of Governments (MAG), which is the regional planning agency for the Phoenix metropolitan area. The RTP is developed through a cooperative effort among government, business and public interest groups, and includes an aggressive community outreach and public involvement program. The Plan covers all major modes of transportation from a regional perspective, including freeways/highways, streets, public mass transit, airports, bicycles and pedestrian facilities, goods movement and special needs transportation. In addition, key transportation related activities are addressed, such as transportation demand management, system management, safety, security and air quality conformity analysis.

The Maricopa Association of Governments was formed in 1967, as the designated Metropolitan Planning Organization (MPO) for transportation planning in Phoenix metropolitan area. On May 9, 2013, the Governor of Arizona approved an expanded metropolitan planning area (MPA) boundary for MAG, which extends significantly into Pinal County (see Figure ES-1). This boundary complies with federal regulations, which require that metropolitan planning areas encompass at least the existing urbanized area and the contiguous area expected to become urbanized within a 20-year forecast. MAG members include the region's 27 incorporated cities and towns, Maricopa County, Pinal County, the Gila River Indian Community, the Fort McDowell Yavapai Nation, the Salt River Pima-Maricopa Indian Community, the Citizens Transportation Oversight Committee (CTOC), and the Arizona Department of Transportation.

The RTP is developed under the direction of the Transportation Policy Committee (TPC). The TPC is a public/private partnership established by MAG and charged with finding solutions to the region's transportation challenges. The Committee consists of 23 members, including a cross-section of MAG member agencies, community business representatives, and representatives from transit, freight, the Citizens Transportation Oversight Committee, and ADOT. The Committee makes its recommendations to the MAG Regional Council, which adopts the final RTP.

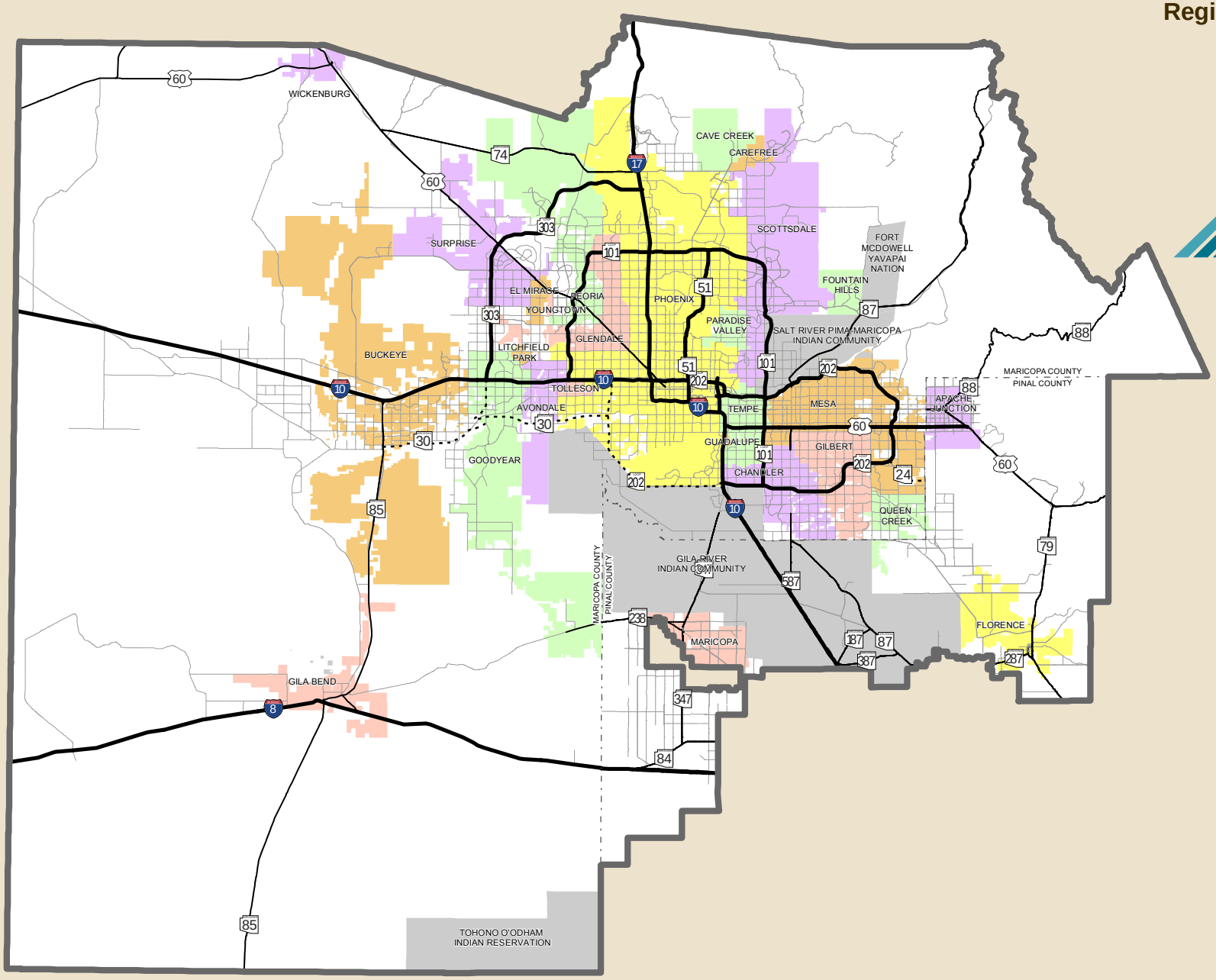
The MAG Regional Council is the final decision-making body of MAG. The Regional Council consists of elected officials from each member agency. The Chairman of CTOC and a Maricopa County representative from the State Transportation Board also sit on the Regional Council, but only vote on transportation-related issues. The MAG Regional Council is the ultimate approving body for the MAG RTP and MAG Transportation Improvement Program. Any changes to the MAG RTP, or the funded projects that affect the Transportation Improvement Program, including priorities, must be approved by the MAG Regional Council.

2040
Regional Transportation Plan

Fig. ES-1

REGIONAL TRANSPORTATION PLAN

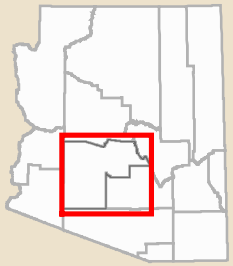
MARICOPA ASSOCIATION of GOVERNMENTS



MAG Region

- Metropolitan Planning Area Boundary
- County Boundary
- Indian Communities
- Existing Freeway
- Planned Freeway/Highway
- Highways
- Other Roads

MAP AREA



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REGIONAL TRANSPORTATION PLANNING PROCESS

The RTP is a comprehensive, performance based, multi-modal and coordinated regional plan, covering the period through FY 2040. The regional transportation planning process followed in developing the RTP is guided by a series of goals, objectives and priority criteria; responds to federal and state transportation planning requirements; and incorporates broad-based public input, which is received as the result of extensive public and agency involvement.

Goals, Objectives and Priority Criteria

Regional goals and objectives provide the planning process with a basis for identifying options, evaluating alternatives and making decisions on future transportation investments. The MAG Transportation Policy Committee has identified a total of four goals and 15 objectives, which were approved on February 19, 2003. The overall RTP goals are listed below:

- System Preservation and Safety: Transportation infrastructure that is properly maintained and safe, preserving past investments for the future.

- Access and Mobility: Transportation systems and services that provide accessibility, mobility and modal choices for residents, businesses and the economic development of the region.

- Sustaining the Environment: Transportation improvements that help sustain our environment and quality of life.

- Accountability and Planning: Transportation decisions that result in effective and efficient use of public resources and strong public support.

In addition, as called for in Arizona Revised Statute 28-6354.B, MAG has developed criteria to establish the priority of corridors, corridor segments, and other transportation projects. As part of the regional transportation planning process, MAG has applied these kinds of criteria for the development and implementation of the RTP.

Federal and State Regulations

On December 4, 2015, the President signed into law the Fixing America's Surface Transportation Act (FAST Act), which provides five years of federal funding for transportation. After numerous extensions of earlier federal legislation, it is the first law enacted in over ten years that provides long-term funding certainty for surface transportation. The FAST Act largely maintains the program structures and planning concepts contained in the previous transportation legislation -- the Moving Ahead for Progress in the 21st Century Act (MAP-21).

The 2040 Regional Transportation Plan has been developed consistent with the regional transportation planning requirements of federal transportation legislation. It addresses the key metropolitan transportation planning concepts identified in federal legislation, including considerations such as: (1) transportation facilities and planning factors, (2) performance measures and targets, (3) system performance reporting, (4) mitigation activities, (5) financial plans, (6) operational and management strategies, (7) capital investment and other strategies, and (8) transportation enhancement activities.

Arizona state legislation establishes guidelines and sets forth factors to be considered during the development of the RTP. Arizona Revised Statue 28-6308, in part, identifies features required in the regional transportation plan and addresses a range of planning considerations, such as a twenty-year planning horizon, the use of a performance-based planning approach, the allocation of funds between highways and transit, and priorities for expenditures. The RTP fully complies with the requirements of these statutes.

Public Involvement and Agency Consultation

The transportation planning process for the development of the RTP benefits greatly from incorporating broad-based public and agency input, which is received as the result of an extensive public involvement process. During the comprehensive update of the RTP in 2002 and 2003, MAG interacted with thousands of people in an effort to identify public issues and concerns regarding future transportation needs. Since that effort, MAG has pursued a continuing public involvement process to educate the public on the Plan and receive input on the future direction of the transportation planning process.

In response to requirements of SAFETEA-LU, in 2006 MAG adopted a new Public Participation Plan as outlined in Section 450.31: Interested parties, participation, and consultation. MAG's previous public involvement process was adopted in 1994 and enhanced in 1998, and was pivotal in obtaining ongoing input for the regional transportation planning process. As required under SAFETEA-LU, the purpose of the new MAG Public Participation Plan is to define a process for providing citizens, affected public agencies, and other interested parties with reasonable opportunities to be involved in the metropolitan transportation planning process. This plan also conforms to guidelines delineated in the most recent transportation legislation, Fixing America's Surface Transportation (FAST) Act. MAG continually reviews the plan to ensure it remains viable for the public and compliant with all federal regulations. Any changes made will follow the federal protocols.

MAG also recognizes the significance of transportation to all residents of the metropolitan area and the importance of Title VI/Environmental considerations in the transportation planning process. On June 22, 2016, the MAG Regional Council approved the MAG Title VI and Environmental Justice Program. This program reflects activities that fulfill the responsibilities set forth by the Federal Transit Administration, the Federal Highway Administration, and the U.S. Department of Justice. The program is reviewed annually, updated as needed, and is

developed at least every three years in accordance with federal regulations. Each new program is offered to the MAG Regional Council for approval. The Title VI and Environmental Justice Plan serves as an important element in the regional transportation planning process. MAG's adopted policy for public involvement identifies opportunities for public input early on in the process, during the planning process, and prior to final hearings. The process provides complete information on transportation plans, timely public notice, full public access to key decisions, and opportunities for early and continuing involvement in the process for all segments of the region's population, including Title VI and environmental justice communities.

Consistent with federal guidelines, MAG reached out to federal, state, tribal, regional, and local agencies to consult on environmental and resource issues and concerns, as part of the development of the 2040 RTP. The primary goal of this consultation effort is to make transportation planning decisions and prepare planning products that are sensitive to environmental mitigation and resource conservation considerations. It should also be noted that all MAG member cities and towns, Maricopa County, and ADOT are routinely involved in the RTP and its development. The overall approach to the consultation process has included an agency workshop, individual agency meetings, and participation in the MAG public involvement process.

Costs and Revenue Estimates

Throughout the transportation planning process, it has been recognized that periodic adjustments and updating of the RTP will be needed to respond to changing conditions and new information. Cost and revenues in the 2040 RTP have been updated to reflect the most recent estimates available. However, the long term outlook regarding a range of transportation costs, as well as transportation revenues, will be subject to continued adjustments in the future. Maintaining a balance between program costs and revenues represents an ongoing challenge.

RTP Planning Period

The planning period for the RTP covers FY 2018 through FY 2040, with fiscal years (FYs) ending on June 30th. To facilitate the discussion of plan concepts and project priorities, three project groupings associated with intervals in the overall planning period have been identified:

- Group 1 (FY 2018 - FY 2022): Corresponds to the period covered by the MAG FY 2018-2022 Transportation Improvement Program (TIP).

- Group 2 (FY 2023 - FY 2026): Corresponds to the period beyond the TIP but within the Life Cycle Programs (LCPs), which extends through FY 2026.

- Group 3 (FY 2027 - FY 2040): Corresponds to the period beyond the LCPs but within the RTP planning period, which extends through FY 2040.

REGIONAL DEVELOPMENT OVERVIEW

The MAG Metropolitan Planning Organization (MPO) is geographically situated in the south-central region of the State of Arizona, and encompasses an area of 10,654 square miles. The MAG MPO contains 27 incorporated cities and towns, three Native American Indian Communities and a large area of unincorporated land in both Maricopa County and Pinal County. The region is located in the Sonoran Desert with elevations generally ranging from 500 to 2,500 feet above sea level. In 2010, the MAG MPO contained approximately 63 percent of the population in Arizona, as well as nine of the ten cities in Arizona with populations greater than 100,000 people.

Census 2010 and 2015 Population Update

In April 2010 the US Census Bureau conducted Census 2010. The Census found an April 1, 2010 population for the MAG MPO at 4,055,276 people. This represented an increase of 864,874 people, or about 28 percent since Census 2000 found an April 1, 2000 population of 3,160,402. MAG has updated the population count to provide population estimates that correspond to a mid-2015 timeframe, with an estimate of 4,336,700 or an increase of nearly seven percent. During that time period, many of the fastest-growing cities in the MAG MPO showed percentage increases greater than 15 percent. The Town of Queen Creek had the highest percentage increase of 28.9 percent, followed by the City of Buckeye (20.2 percent), City of Goodyear (19.2 percent), and the Town of Gilbert (16.7 percent) The City of Phoenix had the largest net increase in population, with the addition of 80,381 residents.

Population Forecasts

As calculated by the 2016 MAG and CAG Socioeconomic Projections, by 2040, the MAG MPO is projected to increase its population by more than 51 percent over the 2015 base population, with an anticipated total of 6.5 million people. This means that the region will experience a growth of nearly 88,000 people annually through 2040.

Table ES-1 shows the total resident population for Municipal Planning Areas (MPAs) from July 1, 2015, to July 1, 2040. Over the 25-year period (2015-2040), six MPAs are projected to grow by more than 100,000 persons: Phoenix, Buckeye, Surprise, Mesa, Peoria, and Goodyear. Another seven MPAs are projected to experience population growth greater than 50,000 persons: Glendale, Gilbert, Florence, Scottsdale, Maricopa, Chandler, and Tempe.

Currently, there are six MPAs within the MAG Region with populations of over 200,000 persons: Phoenix, Mesa, Glendale, Chandler, Scottsdale, and Gilbert. By 2020, Peoria will surpass 200,000 in population. By 2040, the largest Municipal Planning Area, Phoenix, will contain over two million persons, followed by Mesa at over 660,000, Surprise at over 362,000, Chandler at over 327,000, and Glendale at over 323,000.

TABLE ES-1
TOTAL RESIDENT POPULATION BY MPA, 2016 MAG & CAG PROJECTIONS
JULY 1, 2015 and PROJECTIONS JULY 1, 2020 to JULY 1, 2040

MPA	Total Resident Population 2015	Total Resident Population 2020	Total Resident Population 2030	Total Resident Population 2040
Apache Junction	55,100	58,100	68,500	95,900
Avondale	80,500	86,800	95,600	112,400
Buckeye	72,900	87,700	147,600	310,800
Carefree	3,600	4,100	5,000	5,300
Cave Creek	5,600	6,400	7,400	8,800
Chandler	263,100	286,000	312,300	327,700
El Mirage	33,300	35,300	35,700	38,200
Florence	71,200	82,300	106,000	134,300
Fort McDowell	1,000	1,000	1,000	1,100
Fountain Hills	23,300	26,000	28,300	30,400
Gila Bend	2,400	2,900	3,500	4,500
Gila River	11,900	12,100	12,200	12,200
Gilbert	246,300	260,800	286,200	299,800
Glendale	262,600	282,800	305,600	323,900
Goodyear	80,200	98,600	154,200	207,400
Guadalupe	6,100	6,500	6,700	6,800
Litchfield Park	12,600	14,000	14,200	15,000
Maricopa	56,500	74,700	102,600	127,400
Mesa	505,200	555,000	620,100	661,200
Paradise Valley	13,700	14,200	14,900	15,100
Peoria *1	177,400	200,900	271,200	309,800
Phoenix	1,579,700	1,731,300	1,988,800	2,160,200
Queen Creek	45,500	57,500	83,000	92,700
Salt River	6,700	6,800	7,100	7,600
Scottsdale	231,300	255,000	290,800	308,700
Surprise	136,400	148,000	239,000	362,200
Tempe	172,100	188,100	222,800	255,500
Tolleson	6,800	7,600	10,800	14,000
Wickenburg *1	9,500	12,700	23,000	28,100
Youngtown	6,500	6,800	7,100	7,600
Unincorp Maricopa Co	96,200	105,100	115,000	141,800
Unincorp Pinal Co	60,700	64,300	75,500	97,800
TOTAL	4,335,900	4,779,400	5,661,700	6,524,200

Notes: Rounded to the nearest 100

*1 Maricopa County portion only.

Total resident population includes resident population in households and resident population in group quarters

TRAVEL PATTERNS AND FORECASTS

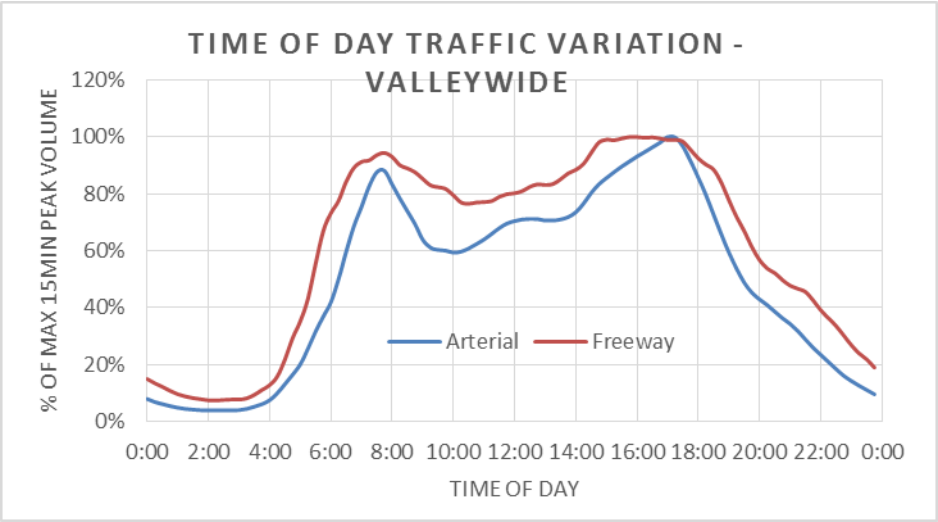
Transportation system analysis and forecasting are critical components in the regional transportation planning process, laying the foundation for identifying future transportation solutions, evaluating alternatives, and making infrastructure investment decisions. Regional household travel surveys are periodically conducted by MAG in order to collect information necessary for travel model development and transportation system analysis. As a part of the system analysis effort, MAG also continuously monitors and analyses travel patterns in the region. In addition, MAG develops and maintains state-of-the-practice and state-of-the-art transportation demand modeling tools used to forecast future travel demand.

Current Travel Patterns

MAG continuously monitors and analyses travel patterns in the region. Analysis of current travel patterns is based on observed travel data, traffic data and infrastructure data. Travel data includes passenger travel data and goods movement data, covering trip origins and destinations, mode of travel, time of travel, and numerous other travel characteristics. Traffic data provides information about vehicle or passenger flows on the transportation system in relation to various network characteristics such as facility type and time periods. Infrastructure data for the MAG region mainly includes descriptions of roads, transit routes, intersections, interchanges and various other network elements.

Figure ES-2 provides an example of the daily temporal patterns in traffic volumes, revealing the peaking of traffic volumes during peak periods. Over time, the afternoon peak has increased in duration, which is typical of large regions due to a broader range of trip purposes and departure times compared to the morning peak period. Both arterial and freeway regional traffic patterns exhibit similar time-of-day patterns.

FIGURE ES-2



Travel Forecasts

Forecasts of future travel demand in the region are an essential element of the transportation planning process, helping to guide decision-making regarding the need for operational and capital improvements to the transportation infrastructure in the region. Table ES-2 shows the pattern of future person trips in the region, with person trips projected to increase by over 51 percent between 2015 and 2040.

TABLE ES-2
PERSON TRIPS BY MODE (in thousands)

Mode	2015	2020	2030	2040
Bus Person Trips	166.1	203.3	254.0	278.4
Light Rail Person Trips	38.5	70.8	127.5	165.1
Total Transit Person Trips	204.6	274.1	381.5	443.5
Total Vehicle Person Trips	14,747.8	16,079.4	19,083.6	22,181.3
Total Person Trips	14,952.4	16,353.5	19,465.1	22,624.8
Mode Split (% Transit)	1.4	1.7	2.0	2.0
Vehicle Occupancy Rate	1.3	1.3	1.4	1.4

Table ES-3 shows the anticipated growth in vehicle miles of travel (VMT) and how it is distributed by facility type. Total VMT is expected to increase by 59 percent between 2015 and 2040, while the share of VMT carried by the freeway system, including HOV lanes, remains at approximately 41 percent.

TABLE ES-3
VEHICLE MILES OF TRAVEL BY FACILITY TYPE (in millions)

	Year							
Facility Type	2015	%	2020	%	2030	%	2040	%
Freeway (1)	38.3	36.9	43.4	37.8	52.6	37.7	61.3	37.1
HOV (2)	4.7	4.5	5.2	4.6	6.4	4.6	6.9	4.2
Expressway	3.1	3.0	3.4	3.0	4.5	3.2	5.6	3.4
Arterial/Local (3)	57.7	55.6	62.8	54.7	76.2	54.6	91.4	55.3
Total	103.8	100.0	114.9	100.0	139.6	100.0	165.2	100.0
Auto VMT	97.0	93.5	107.2	93.3	130.3	93.3	153.8	93.1
Truck VMT	6.8	6.5	7.7	6.7	9.3	6.7	11.4	6.9
Total	103.8	100.0	114.9	100.0	139.6	100.0	165.2	100.0

FINANCIAL PLAN

A variety of financial resources are devoted to implementing the RTP. These sources are considered to be reasonably available throughout the planning period, having had a long history of providing funding for the RTP. Major sources at the regional level include federal, state and county-wide revenues dedicated to the MAG region. In addition to regional level sources, the implementation of the RTP is accomplished through local funds and other state revenues.

Regional Revenue Sources

The major regional level funding sources for the (RTP) include: Half-cent Sales Tax, Arizona Department of Transportation (ADOT) Funds, and MAG Area Federal Transportation Funds.

- Half-Cent Sales Tax: On November 2, 2004, the voters of Maricopa County passed Proposition 400, which authorized the continuation of the existing half-cent sales tax for transportation in the region *(*also known as the *Maricopa County Transportation Excise Tax)*. This action provides a 20-year extension of the half-cent sales tax through calendar year 2025 to implement projects and programs identified in the MAG RTP. For purposes of the RTP, it was assumed that the tax would be renewed in January 2026.

- Arizona Department of Transportation Funds: ADOT relies on funding from two primary sources: the Arizona Highway User Revenue Fund (HURF) and Federal transportation funds. The MAG region receives annual funding from ADOT in the form of ADOT 15 Percent Funds, which are allocated from the Highway User Revenue Fund (HURF). In addition, a 37 percent share of ADOT Discretionary Funds is targeted to the MAG region.

- MAG Area Federal Transportation Funds: A number of Federal transportation funding sources are available for use in implementing projects in the MAG RTP. These sources include: Federal Transit Funds, Federal Highway Surface Transportation Funds and Congestion Mitigation and Air Quality Funds.

Revenue Summary

Regional revenue sources for the MAG RTP between FY 2018 and FY 2040 are summarized in Table ES-4 in "Year of Expenditure" dollars and include: the Proposition 400 half-cent sales tax extension ($17.2 billion); ADOT funds ($9.3 billion); Federal Transit funds ($4.0 billion); Federal Highway Surface Transportation Program (STP) funds ($1.4 billion); Federal Highway Congestion Mitigation and Air Quality (CMAQ) funds ($1.4 billion); and other Federal Highway Funding ($135 million). The total of all these revenue sources is projected to amount to $33.4 billion between FY 2018 and FY 2040.

Table ES-4 also indicates the distribution of regional revenues among the transportation modes and programs covered by the RTP. This funding is consistent with the allocation of revenues originally adopted by MAG in November 2003, as part of the major plan update that was prepared prior to the vote on Proposition 400. At that time, modal funding levels were established after the facility planning process was completed, and reflected project needs determined through the technical planning process. In addition, the distribution of regional revenues takes into account federal and state restrictions on how individual funding sources may be applied to specific program areas.

As indicated previously, the regional revenue forecasts are presented in terms of "Year of Expenditure" (YOE) dollars. YOE dollars reflect the actual number of dollars collected/expended in a given year, with no correction or discounting for inflation. Specific assumptions regarding bonding or other debt financing are included in the modal chapters.

In addition to the regional level sources summarized in Table ES-4, the implementation of the RTP is accomplished through local funds and other state revenues. Local resources provide funding for capital projects and maintenance/operations in the arterial street and transit programs; and, in the form of transit farebox receipts, contribute significant funding for transit operations. Local and private sources also provide funding for the expansion of street and transit networks throughout the region in parallel with new residential and commercial development. Other state revenues provide funding for the routine maintenance and operation of the regional freeway/highway system, as well as the pavement preservation program. Since local funds and other state revenue sources generally are program-specific, they are identified in the individual modal chapters.

TABLE ES-4
SOURCES AND DISTRIBUTION OF REGIONAL REVENUES: FY 2018-2040
(Year of Expenditure Dollars in Millions)

	Uses						
Sources	**Highways/ Freeways**	**Arterial Streets**	**Transit**	**Bicycle/ Ped.**	**Air Quality**	**Other Programs**	**Total**
Proposition 400: Half Cent Sales Tax Extension	9,661.5	1,805.1	5,724.7				17,191.3
ADOT Funds (Includes HURF and Federal Aid)	9,305.3						9,305.3
Federal Transit Funds			3,952.7				3,952.7
Federal Highway (MAG STP)		1,433.3					1,433.3
Federal Highway (MAG CMAQ)	265.3	186.2	498.7	236.2	223.3		1,409.7
Federal Highway (MAG Other)						135.4	135.4
Total	**19,567.1**	**3,424.6**	**10,176.1**	**236.2**	**223.3**	**135.4**	**33,427.7**

FREEWAYS AND HIGHWAYS

The freeway/highway system in the MAG area represents one of the major elements in the Regional Transportation Plan (RTP). The RTP calls for new freeway/highway corridors, as well as added travel lanes on existing facilities. In addition, a series of new interchanges with arterial streets on existing freeways, along with direct connections between HOV lanes at freeway-to-freeway interchanges, are included. The RTP also provides regional funding for maintenance on the freeway system, directed at litter pickup and landscaping. The need to keep traffic flowing smoothly is addressed through funding identified for freeway management functions.

The freeway/highway system currently serving the MAG area includes routes on the Interstate System, urban freeways and highways, and rural highway mileage. All the facilities in this system are on the State Highway System, which is constructed, maintained and operated by the Arizona Department of Transportation (ADOT). A total of 867 existing centerline miles are included in the freeway/highway network, and an additional 54 miles are planned for future development during the planning period. This leads to a system totaling 921 centerline miles in the year 2040.

Planned Freeway/Highway Corridors and Improvements

The Freeway/Highway Element of the RTP includes both new facilities and improvements to the existing system. Operation and maintenance of the system are also addressed. Projects include new freeway corridors, additional lanes on existing facilities, new interchanges at arterial cross streets, high occupancy vehicle (HOV) ramps at system interchanges, and maintenance and operations programs. The anticipated configuration of the freeway/highway system in 2040, including both new freeway corridors and improvements to existing freeway and highway facilities, is shown in Figure ES-3. A detailed listing of specific projects is provided in Appendix A.

- New Corridors: New freeway/highway corridors, or portions thereof, in the RTP include the South Mountain Freeway (202L), the Estrella Freeway (303L), the I-10 Reliever (SR 30), and the Gateway Freeway (SR 24).

- Widen Existing Facilities - General Purpose Lanes and HOV Lanes: In addition to new corridors, the RTP calls for additional general purpose and new high occupancy vehicle (HOV) lanes that will be added to the regional freeway/highway system. This includes additional lanes on I-10, I-17, 101L (the Agua Fria, Pima and Price Freeways), 202L (the Red Mountain and Santan Freeways), State Route 51 (Piestewa Freeway), and on US 60 (Grand Avenue and Superstition Freeway). Widening projects are also identified on State Routes in the Pinal County area.

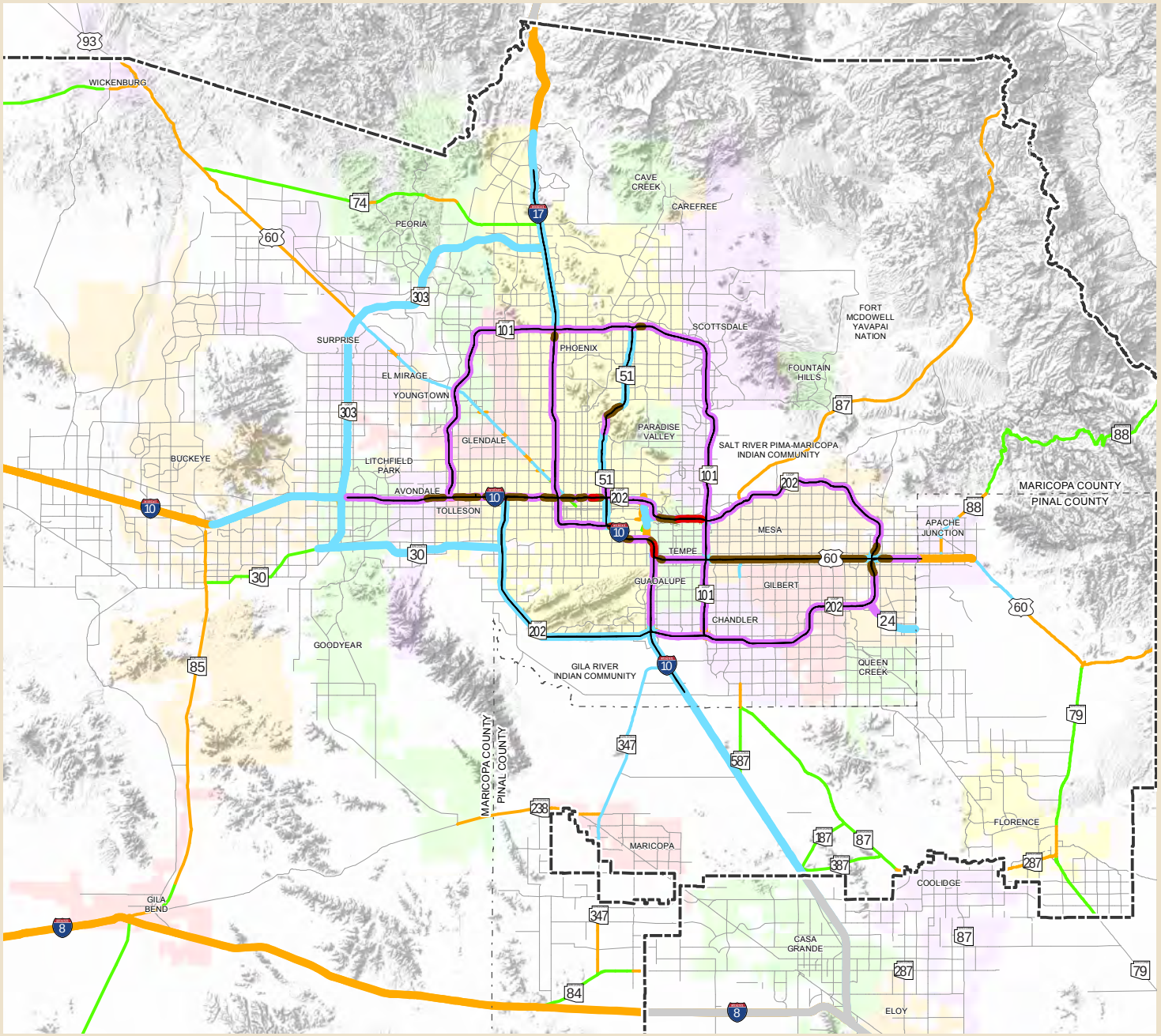
2040 Regional Transportation Plan

Fig. ES-3

REGIONAL TRANSPORTATION PLAN

MARICOPA ASSOCIATION of GOVERNMENTS

2040 Freeway/Highway System Number of Lanes



Freeway lanes are represented with thicker lines

- 2 General Use Lanes
- 4 General Use Lanes
- 6 General Use Lanes
- 8 General Use Lanes
- 10 General Use Lanes
- 12 General Use Lanes
- High Occupancy Vehicle (HOV) Lanes
- Other Roads
- County Boundary
- Metropolitan Planning Area Boundary

**The HOV line represents 1 lane in each direction*

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- New Interchanges and New HOV Ramps on Existing Facilities: In addition to new corridors and additional travel lanes, the RTP call for a number of new interchanges on existing freeways at arterial street crossings, as well as improvements at a freeway-to-freeway interchanges to provide direct connections between HOV lanes.

- System-wide Programs: The RTP also identifies programs that address needs throughout the regional freeway/highway system in the MAG area, such as noise mitigation, freeway system management, and freeway service patrol.

- System Operation, Maintenance and Preservation: The RTP includes a block of funding for maintenance of the regional freeway system in the MAG region. These regional resources are focused on litter pick-up, landscaping maintenance, landscaping restoration, and quiet pavements. Routine maintenance and operation of the regional freeway/highway network in the MAG area are accomplished by ADOT using state-level funding through its maintenance districts. Also, the ADOT Pavement Management Section has the responsibility to provide a cost effective pavement rehabilitation program.

Funding and Expenditure Summary

Table ES-5 has been prepared to provide an overview of the funding and expenditures for the freeway/highway element of the RTP. This table lists the reasonably available funding sources for the planning period and the uses of those funds. The revenue sources included in Table ES-5 are considered to be reasonably available throughout the planning period, having had a long history of providing funding for the RTP. As indicated, projected future funding is in balance with estimated future program expenditures, indicating that the freeway/highway element can be accomplished using reasonably available funding sources over the planning period.

Funding sources shown in Table ES-5 include the half-cent sales tax ($9.7 billion); MAG area ADOT funds ($9.3 billion); Federal Highway Congestion Mitigation/Air Quality funds ($265 million); ADOT statewide funding ($1.9 billion); other funding ($811 million); bond proceeds ($570 million); and an estimated available beginning cash balance of $583 million. Debt service and other expenses totaling $2.0 billion are deducted from these sources, yielding a net total of $21.1 billion (YOE $'s) for use on freeway/highway construction projects and programs.

Table ES-5 also lists estimated future costs for the freeway/highway element of the RTP, expressed in YOE $'s. Expected expenditures during the planning period also total $21.1billion. This includes: $4.0 billion for construction of new corridors; $6.1 billion for construction of additional lanes and new interchanges on existing freeways; and $570 million for system-wide programs. A total of $2.9 billion is identified for roadway operations and maintenance functions. The remainder of $7.6 billion in funding was not allocated to additional projects and programs as part of the 2040 RTP update process, since a comprehensive update of the RTP is anticipated within the next few years.

TABLE ES-5
FREEWAY/HIGHWAY FUNDING PLAN FY 2018 - 2040

FUNDING (Year of Expenditure $'s in Millions)		
		Totals
Regional Funds		
MAG Half-Cent Sales Tax	9,661.5	
MAG Area ADOT Funds	9,305.3	
MAG Federal CMAQ	265.3	
Other Income	810.6	
Beginning Available Cash	583.8	
Bond Proceeds	570.0	
Allowance for Debt Service and Other Expenses	(2,041.50)	
Total Regional Funds		19,155.0
Other Funding		
ADOT Statewide Funding	1,922.1	
Total Other Funding		1,922.1
Total Funding		**21,077.1**
EXPENDITURES (Year of Expenditure $'s in Millions)		
		Totals
Regionally Funded Projects		
New Corridors	3,938.8	
Improvements to Existing Facilities: General Purpose Lanes, HOV Lanes, Interchanges	6,098.6	
Freeway Management System, Freeway Safety Patrol	158.0	
Preliminary Engr., Risk Mgmt., R/W Management, Advance R/W Acquisition	412.0	
Quiet Pavement Rehab.	223.1	
Litter Pick-Up, Sweeping, Landscaping	460.8	
Other Maintenance Programs	272.1	
Other Regionally Funded Projects	7,591.6	
Total Regionally Funded Projects		19,155.0
Other Funded Projects		
System Operation, Maintenance and Preservation		1,922.1
Total Expenditures		**21,077.1**

ARTERIAL STREETS

The arterial street grid system is a vital component of the regional transportation system in the MAG area and is a key element of the Regional Transportation Plan (RTP). Development of this system is accomplished through regionally funded projects, as well as projects constructed through a combination of local government and private sources. Local jurisdictions are also responsible for the maintenance of these facilities.

Planned Arterial Facilities and Improvements

As the MAG area grows in the future, the continued expansion and improvement of the arterial street system will be vital to the functioning of the regional transportation system. The Regional Transportation Plan identifies a long-range regional arterial grid system that provides for access to existing and newly developing areas in the region. The RTP identifies regional funding for improving this grid system. A detailed listing of the specific projects covered by these improvements is provided in Appendix B**.** In addition, local government and private sources provide funding for a variety of projects for the construction of new arterial linkages, widening of existing streets, and improvement of intersections. The anticipated configuration of the arterial street system in 2040 is shown in Figure ES-4.

MAG member agencies also seek to maintain and operate the arterial street system in a way that preserves past investments and obtains the maximum capacity from existing facilities. To achieve this goal, agencies apply local funds and their share of State Highway User Revenue Funds to a range of expenditures, including street lighting, street sweeping, landscaping, sign maintenance, lane markings, pavement maintenance, storm drains, the operation of traffic signals, and other recurring costs necessary to maintain the arterial street network. A particularly important part of the maintenance effort involves the application of pavement management systems. MAG member agencies have developed a range of pavement management programs for roads within their jurisdictions.

Funding and Expenditure Summary

Table ES-6 has been prepared to provide a summary of the funding scenario for the streets element of the RTP. This table lists the reasonably available funding sources for the planning period and the uses of those funds. The balance between the funds that are available and the potential expenditures indicates that the arterial element of the RTP can be accomplished by using reasonably available funding sources over the planning period.

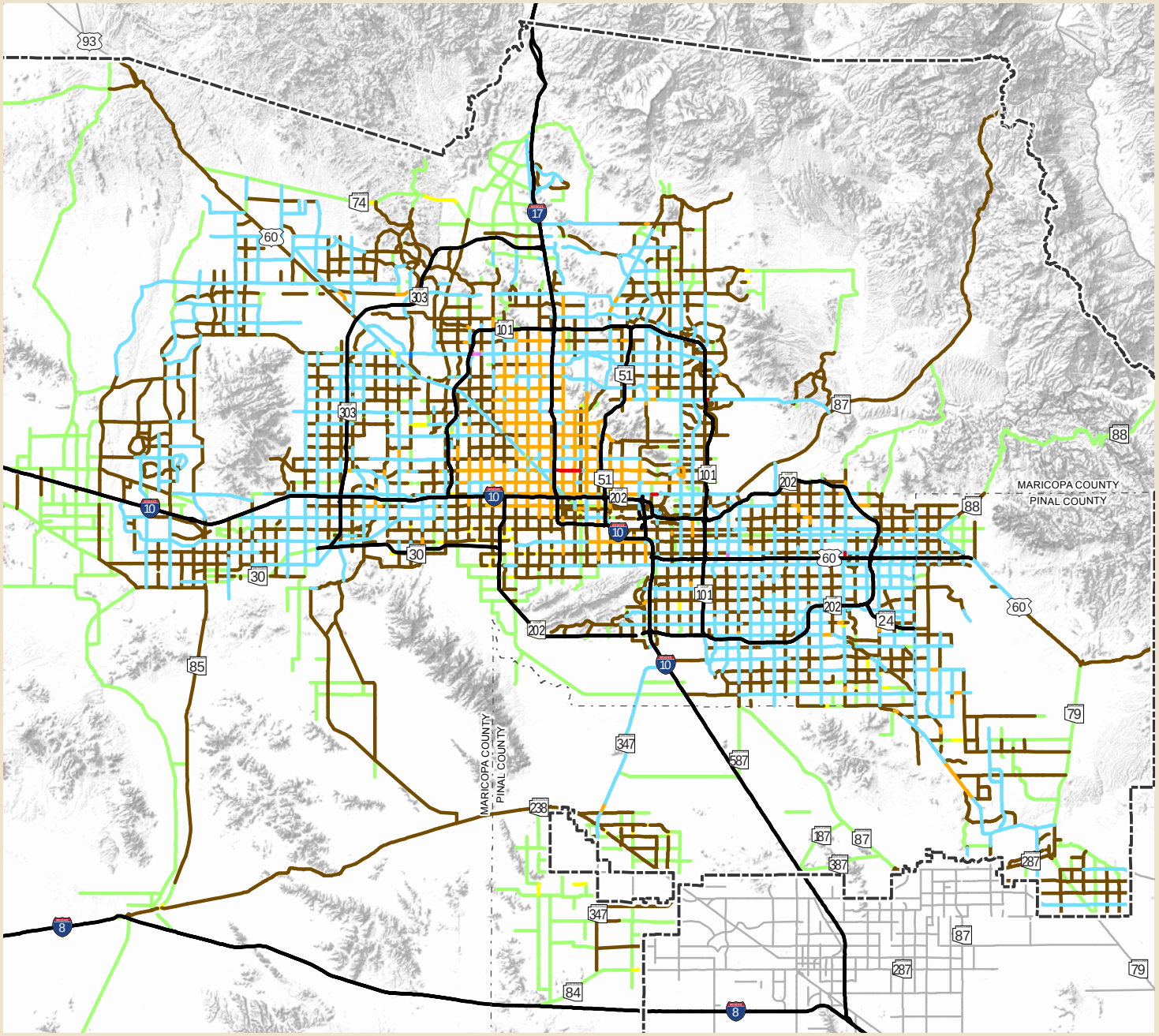
Regional funding sources for the arterial streets element of the RTP total $3.7 billion (YOE $'s). These regional funds are complemented by local/other sources totaling $20.4 billion, for a total of $24.1 billion for use on arterial street projects and programs. Estimated expenditures during the planning period also total $24.1 billion, including $9.4 billion for street improvements and $14.7 billion for operations, maintenance and preservation.

2040
Regional Transportation Plan
Fig. ES-4

REGIONAL TRANSPORTATION PLAN

MARICOPA ASSOCIATION of GOVERNMENTS

2040 Arterial Street System Total Through Lanes



- 2 Lanes
- 3 Lanes
- 4 Lanes
- 5 Lanes
- 6 Lanes
- 7 Lanes
- 8 Lanes
- 10 Lanes
- Freeways
- Other Roads
- County Boundary
- Metropolitan Planning Area Boundary

Regional transportation facilities in Pinal County are planned by the Central Arizona Association of Governments (CAAG).

Alignments for new freeway, highway, arterial, and light rail/high capacity transit facilities will be determined following the completion of appropriate design and environmental studies.

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TABLE ES-6
ARTERIAL STREET FUNDING PLAN FY 2018 - 2040

FUNDING (Year of Expenditure $'s in Millions)		
		Totals
Regional Funds		
MAG Half-Cent Sales Tax	1,805.1	
MAG Federal STP	1,433.3	
MAG Federal CMAQ (For arterial improvements)	186.2	
MAG Federal CMAQ (For PM-10 and other air quality programs)	223.3	
Beginning Balance (Regional Funds)	16.5	
Total Regional Funds		3,664.4
Local/Other Funds		
City/County Highway User Revenue Funds and County VLT	14,641.2	
Local Sources (General Funds, Local Sales Taxes, etc.)	3,459.7	
Private Funds (PAD Improvements, Developer Contributions, etc.)	2,295.5	
Total Local/Other Funds		20,396.4
Total Funding		**24,060.8**
EXPENDITURES (Year of Expenditure $'s in Millions)		
		Totals
Regionally Funded Projects		
Capacity/Intersection Improvements (ALCP)	1,030.2	
Intelligent Transportation Systems (ALCP)	7.4	
MAG Implementation Studies (ALCP)	15.6	
PM-10 and Other Air Quality Programs	223.3	
Other Arterial Grid Improvements	2,387.9	
Total Regionally Funded Projects		3,664.4
Local/Other Funded Projects		
Match for Regionally Funded Projects	2,299.7	
Future Arterial Grid Extensions, Widenings and Improvements	3,374.5	
System Operation, Maintenance and Preservation	14,722.2	
Total Local/Other Funded Projects		20,396.4
Total Expenditures		**24,060.8**

PUBLIC TRANSIT

The 2040 Regional Transportation Plan (RTP) includes a regional transit network that encompasses all transit modes in the region, including bus operations, paratransit, and light rail transit/high capacity transit. The regional transit system is supported by federal, regional, and local funding sources. With the passage of Proposition 400 in November 2004, approximately one-third of the regional half-cent sales tax for transportation is being devoted to mass transit. The RTP reflects transit plans and programs that provide for expanded regional bus service and new light rail transit/high capacity transit facilities throughout the region. A detailed listing of the timing and cost of planned transit services and capital improvements that are regionally funded is provided in Appendix C.

Planned Transit Facilities and Service Improvements

The 2040 Regional Transportation Plan includes a broad vision for future transit facilities and services in the region. Future bus service in the MAG Region will be a critical component of the planned regional transportation network. Paratransit services will also be essential, providing transportation for passengers unable to access conventional transit services. High capacity transit, which typically operates in an exclusive guideway, addresses higher volume transit needs and has demonstrated the ability to provide significant economic development benefits.

- Bus Service: Fixed route bus service in the MAG region represents an increasingly important component of the regional transportation network. These services operate on arterial streets, and in some cases on freeways, to serve a range of trip needs, including work, shopping, medical appointments and school trips. Types of bus services include: circulators/shuttles, local, regional super grid, rural/flex, limited routes, RAPID/express, and LINK. The anticipated configuration of the bus network in 2040 is shown in Figure ES-5.

- Paratransit Service: Paratransit service includes various types of passenger transportation that offers a shared-ride origin to destination service that provides transportation for passengers unable to access fixed route local bus service. It can also allow groups of employees to self-organize and operate a carpool service, providing a flexible transit solution for those trips not well served by more conventional fixed route service. Paratransit includes dial-a-ride (DAR)/demand response (DR) transportation services, shared-ride taxis, car-pooling and vanpooling.

- Light Rail Transit (LRT)/High Capacity Transit (HCT): LRT/HCT operates in an exclusive guideway, providing higher speed higher volume transit service. Typically passenger access is available at stations located approximately every half-mile to one-mile. The RTP includes a 66-mile HCT system, which incorporates existing 26-mile LRT system and eight future extensions. The anticipated configuration of the LRT/HCT network in 2040 is shown in Figure ES-6. Extensions are tabulated in Table ES-7.

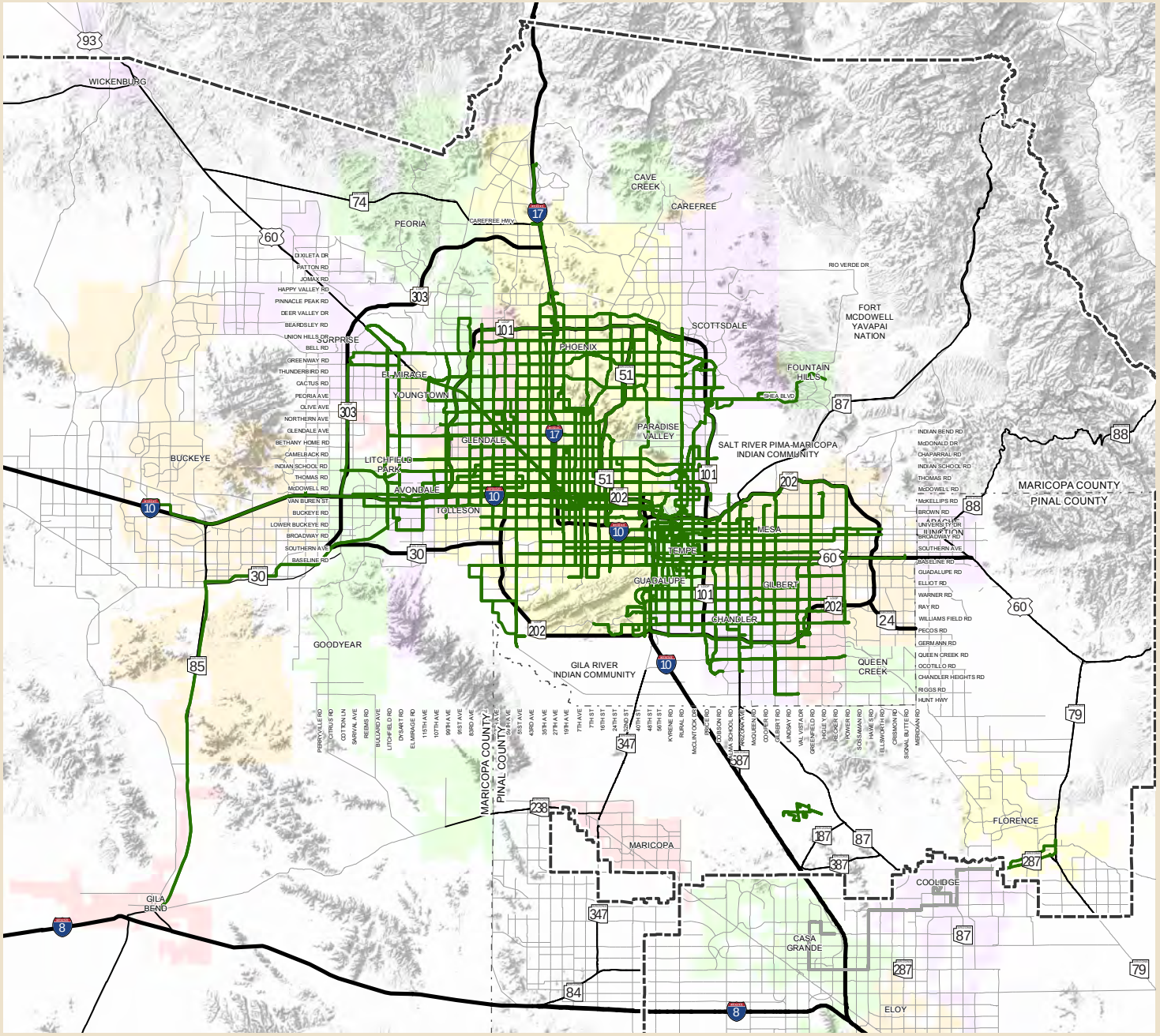
2040 Regional Transportation Plan

Fig. ES-5

REGIONAL TRANSPORTATION PLAN

MARICOPA ASSOCIATION of GOVERNMENTS

2040 Bus Service Network



Bus Network

Freeways

Highways

Other Roads

Metropolitan Planning Area Boundary

County Boundary

Alignments for new freeway, highway, arterial, and light rail/high capacity transit facilities will be determined following the completion of appropriate design and environmental studies.

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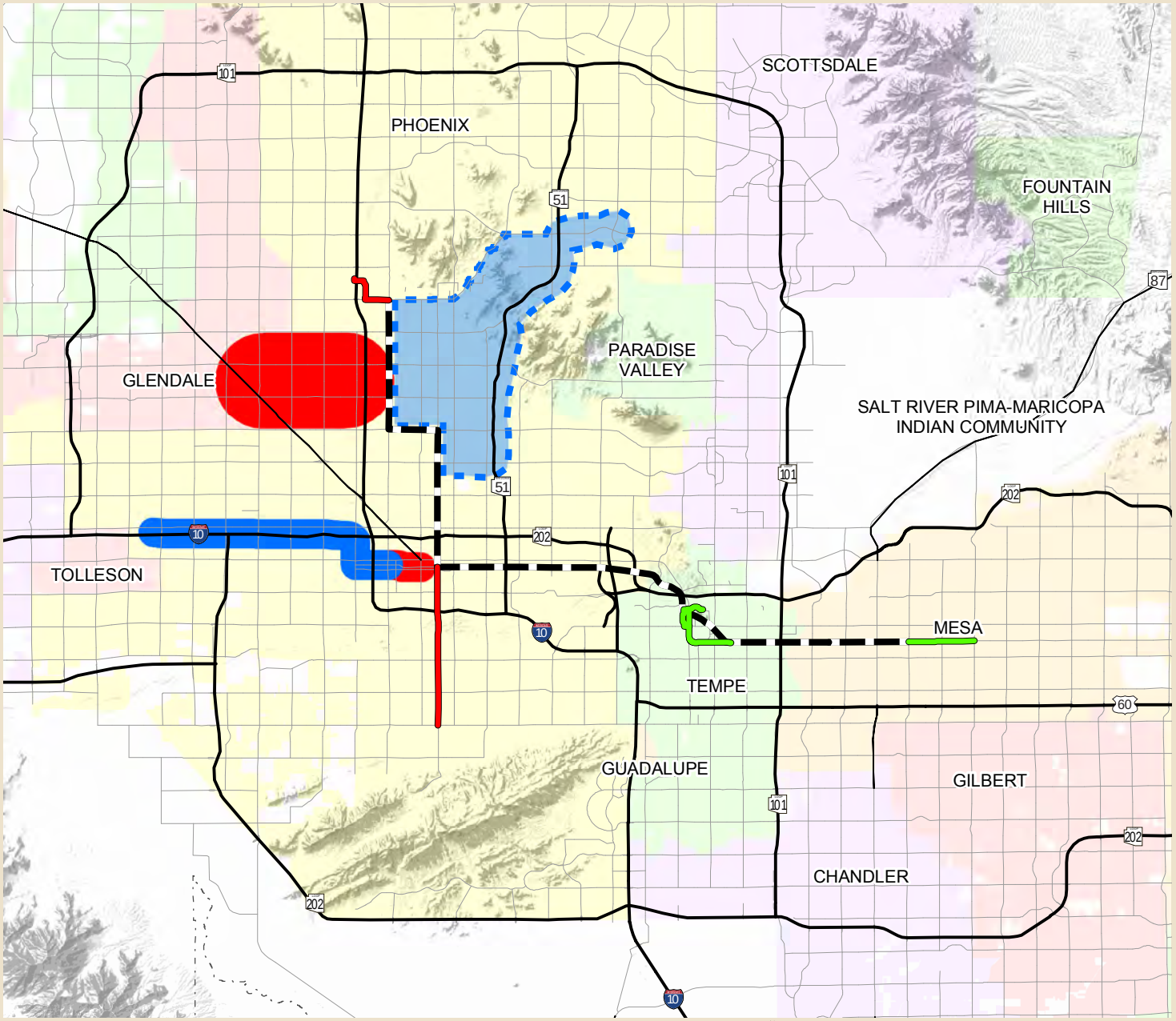
2040
Regional Transportation Plan
Fig. ES-6

REGIONAL TRANSPORTATION PLAN

MARICOPA ASSOCIATION of GOVERNMENTS

Regional Light Rail Transit (LRT)/ High Capacity Transit Extensions (FY 2018 - FY 2040)



- Group 1 (FY 2018 - FY 2022)
- Group 2 (FY 2023 - FY 2026)
- Group 3 (FY 2027 - FY 2040)
- Completed
- Freeways
- Highways
- Other Roads
- Metropolitan Planning Area Boundary
- County Boundary

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Alignments for new freeway, highway, arterial, and light rail/high capacity transit facilities will be determined following the completion of appropriate design and environmental studies.

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TABLE ES-7
HIGH CAPACITY TRANSIT/LIGHT RAIL - EXTENSIONS

Extension Route Name	Technology	Length (mi.)	Year Open
Gilbert Rd Ext., Mesa	Light Rail Transit	1.9	2019
Tempe Streetcar, Tempe	Modern Streetcar	3.0	2020
50th St./Wash. St. Station, Phoenix	Light Rail Transit	--	2019
Northwest Phoenix - Phase II, Phoenix	Light Rail Transit	1.7	2023
South Central, Phoenix	Light Rail Transit	5.0	2023
Capitol/I-10 West - Phase I (to 17th Ave./Jefferson), Phoenix	Light Rail Transit	1.4	2023
West Phoenix/Central Glendale, Phoenix and Glendale	Light Rail Transit	5.0	2026
Capitol/I-10 West - Phase II (to 79th Ave./I-10), Phoenix	Light Rail Transit	9.6	2030
Northeast, Phoenix	TBD	12.0	2034

- Commuter Rail: The RTP recognizes that commuter rail corridors may potentially serve a vital function in addressing future travel needs in the region, and commuter rail studies are being pursued for continuing development of commuter rail concepts for the region.

- Sky Harbor Automated Train System: The PHX Sky Train is a fully automated, nearly 2.5 mile grade- separated transit system that connects several major facilities at Sky Harbor International Airport with the Valley Metro bus and light rail system. The City of Phoenix approved full funding of Stage Two in October 2016, which will serve the Phoenix Sky Harbor Rental Car Center by 2021.

Funding and Expenditure Summary

Table ES-8 has been prepared to provide a summary of the funding plan for the transit element of the RTP. This table lists the reasonably available funding sources for the planning period and the uses of those funds. The balance between funds available and expended indicates that the transit element can be accomplished within reasonably available funding sources over the planning period.

Regional funding sources for transit for the period FY 2018-2040 total $9.8 billion in terms of YOE $'s. These regional funds are complemented by $12.0 billion from local/other sources, which include passenger fares, lottery transportation funds (LTAF), and local funding sources. This yields a net total of $21.8 billion (YOE $'s) for use on transit services and projects.

Table ES-8 also lists estimated future costs for the transit element of the RTP, expressed in YOE $'s. Expected expenditures during the planning period total $21.8 billion. This includes $13.4 billion for bus capital and operating (including vanpool, dial-a-ride and rideshare); and $8.4 billion for light rail transit capital and operating.

TABLE 11-2: TRANSIT FUNDING PLAN: FY 2018 through FY 2040

	SOURCE
FUNDING (Year of Expenditure $'s in Millions)	
Regional Funds	
(1) MAG Half-Cent Sales Tax	5,724.7
(2) MAG Federal Transit Funds	3,952.7
(3) MAG Federal CMAQ	498.7
(4) Beginning Balance (Regional Funds)	139.3
(5) Bond Proceeds	79.5
(6) Allowance for Debt Service and Other Expenses	(606.2)
Total Regional Funds	9,788.7
Local / Other	
(7) Fixed Route Bus Fares	1,756.4
(8) Light Rail Transit/High Capacity Transit Fare Collections	1,063.3
(9) Paratransit Vehicle Fares	140.8
(10) Vanpool Fares	29.5
(11) ALF Revenues	335.9
(12) Local Funds	8,661.5
Total Local/Other Funds	11,987.4
Total Funding	21,776.1
EXPENDITURES (Year of Expenditure $'s in Millions)	
Regionally Funded Projects	
Capital	
(13) Regional Bus Fleet	1,364.6
(14) Bus Maintenance and Passenger Facilities	347.1
(15) Light Rail Transit/High Capacity Transit Regional Infrastructure	590.5
(16) Light Rail Transit/High Capacity Transit Extensions	3,686.5
(17) Paratransit (Americans with Disabilities Act, or ADA, compliant)	104.5
(18) Vanpool	123.3
(19) Rural/Non-Fixed Route Transit	11.3
Total Capital - Regionally Funded Projects	6,227.8
Operating	
(20) Supergrid	1,900.5
(21) Freeway Rapid Bus and Express Bus	299.3
(22) LINK Service	47.3
(23) Regional Passenger Support Services	264.6
(24) Paratransit (ADA-compliant)	1,091.0
(25) Light Rail Transit/High Capacity Transit	0.0
(26) Rural/Non-Fixed Route Transit	12.2
(27) Vanpool	29.5
(28) Planning, Programming and Other Support	129.5
Total Operating - Regionally Funded Projects	3,773.9
(29) FTA Funds Forecast Contingency	(213.0)
Total Regionally Funded Projects	9,788.7
Locally / Other Funded Projects	
Capital	
(30) Fixed Route Bus Service	962.0
(31) Paratransit	90.9
(32) Light Rail Transit/High Capacity Transit	899.5
Total Capital - Locally/Other Funded Projects	1,952.4
Operating Costs	
(33) Fixed Route Bus Service	5,576.0
(34) Paratransit	667.4
(35) Light Rail Transit/High Capacity Transit	3,324.7
(36) Planning, Programming and Other Support	253.9
Total Operating - Locally/Other Funded Projects	9,822.0
(37) FTA Funds Forecast Contingency	213.0
Total Locally/Other Funded Projects	11,987.4
Total Expenditures	21,776.1

ILLUSTRATIVE CORRIDORS/PROJECTS

Long range, transportation studies represent collaborative efforts between MAG and other agencies, communities, counties and regions, and have implications for the extended planning effort beyond the currently adopted MAG RTP. An important aspect in identifying potential new corridors/projects or other transportation improvements that might be considered for inclusion in future updates of the RTP is the concept of illustrative projects.

Illustrative Corridor/Project Concept

Federal regulations for metropolitan transportation planning identify the concept of "illustrative projects" as an element of the planning process. These are projects that could potentially be included in the plan, if additional resources beyond the reasonably available financial resources identified in the plan were available. They are discussed in the metropolitan transportation plan for illustrative purposes only, and are not included in the financial plan or air quality conformity determination. There is no requirement to select any project from an illustrative list of projects in a metropolitan transportation plan at some future date, when funding might become available. In addition, no priorities are stated or implied by inclusion as an illustrative corridor.

An illustrative project may not be needed until after the planning horizon of the RTP. However, illustrative projects can be helpful in guiding transportation and land use planning efforts at both the regional and local level, and in seeking funding from other sources to implement the project, since the project has been vetted through a planning study or process and through MAG.

An illustrative project must be identified through a transportation planning process such as a framework study, corridor or modal analysis, or other similar transportation studies. The illustrative project must be for a regionally significant project and is a corridor or link in the regional transportation system that enhances mobility in the region. The inclusion of an illustrative project in the Regional Transportation Plan does not imply in any way that the project has priority for future funding over other illustrative projects in the RTP or future projects yet be identified. The MAG Regional Council, acting on a recommendation from the Transportation Policy Committee, can add or delete an illustrative project in the MAG Regional Transportation Plan.

2040 RTP

The illustrative corridors/projects included in the 2040 Regional Transportation Plan are listed below.

- Interstate 10/Hassayampa Valley Transportation Framework Study: On February 27,

2008, the MAG Regional Council accepted the findings and implementation strategies as described in the study for inclusion as illustrative corridors in the Regional Transportation Plan.

- Interstates 8 and 10/ Hidden Valley Transportation Framework Study: On September 30, 2009, the MAG Regional Council accepted the findings and implementation strategies as described in the study for inclusion as illustrative corridors in the Regional Transportation Plan.

- New River Corridor: On November 25, 2003, the Regional Council approved inclusion of a connection between Loop 303 and I-17 in the vicinity of New River Road as a corridor for further study.

- Regional Transit Framework Study: On March 31, 2010, the MAG Regional Council accepted the Illustrative Transit Corridors map for inclusion as unfunded regional transit illustrative corridors in the RTP, as well as the future planning actions identified in the study for consideration through the MAG Unified Planning Work Program process.

- Central Mesa Light Rail Transit - Phase II: On September 30, 2009, the Regional Council approved a recommendation to improve service frequency on the Main Street LINK Bus Rapid Transit to match the LRT, as an illustrative project in the RTP.

- Potential Improvements to the Existing Freeway/Highway System: Certain additional projects to improve the existing freeway/highway system have been identified as a result of various ADOT corridor and design concept studies. These illustrative projects are:

  - SR-85 (I-10 to I-8) - Upgrading SR-85 to a full freeway, including construction of a fully directional interchange at I-8.

  - SR-101L (Agua Fria Freeway) - Installation of direct HOV ramps at the system interchanges with I-17 and I-10.

  - I-10 / I-17 (System Interchange) - Possible enhancements to the I-10/I-17 “Stack”.

OTHER TRANSPORTATION MODES

The RTP includes a full range of transportation modes and transportation functions. In addition to freeways, streets and public transit, the Plan covers needs that address airport facilities, freight, bicycle and pedestrian travel, special transportation functions and transportation enhancement projects.

Aviation

The existing airport system in the MAG region consists of 16 airports, including one major commercial facility, Phoenix Sky Harbor International Airport, seven general aviation reliever airports and six additional general aviation airports. One of the airports, Phoenix-Mesa Gateway, is currently classified as a non-hub commercial airport, providing commercial flights around the United States that supplement Phoenix Sky Harbor International Airport.

In 2006 the MAG aviation planning program was completed. The program examined the future air transportation needs of the region with the aim of maximizing the transportation and economic benefits of airports which minimizing any adverse impacts related to congestion, the environment and airspace. The Federal Aviation Administration (FAA) is the agency responsible for the planning and management of airspace.

Future planning efforts will focus upon ground access needs to airports in terms of both highway and transit facilities, interacting with the region's airport personnel and exploring opportunities for improving the regional aviation system, and developing an aviation database that will support the MAG airport model that develops air pollutant emissions inventory for airports in Maricopa County.

Bicycle and Pedestrian Facilities

The Maricopa Association of Governments (MAG) has maintained an active role in promoting the establishment of improved travel opportunities for bicyclists and pedestrians for many years. MAG is also a leader in promoting improvement in the Valley's street-side environments to better accommodate pedestrian travel.

In 2007, MAG developed the MAG Regional Bikeway Master Plan, which provides a guide for the development of a convenient and efficient transportation system where people can bike safely to all destinations. MAG also develops and prints a regional bikeway map indicating bike lanes, shared use paths, off street trails, and canals. In 2012, MAG expanded the print version of the map to include an electronic version for the smart phone. In 2013, MAG piloted a regional bicycle counts program, coordinating with member jurisdictions to identify locations for counters. In 2016, MAG initiated development of the MAG Regional Active Transportation Plan, which will be a comprehensive regional bicycle and pedestrian plan that will feed into the next Regional Transportation Plan. An emphasis will be placed on providing a guide for developing the regional bicycle and pedestrian network and its connections to the regional

transit system.

In 2011 MAG, completed a Complete Streets Guide. The purpose of the Guide is to ensure that bicycle and pedestrian facilities are included in all street designs, to the greatest extent possible, and are ultimately being considered as integral to a street as a fundamental component of community mobility, health, and safety. The MAG Pedestrian Design Assistance Program encourages the development of designs for pedestrian facilities according to the MAG *Pedestrian Policies and Design Guidelines*. The intent of the program is to stimulate integration of pedestrian facilities into the planning and design of all types of infrastructure and development. Through the program, the design of pedestrian facilities that are compatible with existing land use and transportation practices is promoted.

Freight

Freight transport involves a complexity of networks and users who use a variety of methods, modes, and equipment to move raw materials, and processed goods through regional, national and international markets for the purpose of commerce. The movement of goods is conducted through the utilization of multiple modes of transport, such as air, pipeline, water, truck, rail, or other non-traditional means. Freight issues are very complex and usually are not restrained by a county border or to a state. Supply chains, market demand and competitive transportation corridors are constantly changing, requiring neighboring regions and countries to collaborate and create unified plans for moving freight efficiently and keeping the region globally competitive.

In 2012, MAG in cooperation with the Joint Planning Advisory Council (JPAC) completed the Freight Transportation Framework Study. The goal of the Freight Transportation Framework Study was to identify freight related economic development opportunities in the Arizona Sun Corridor. The framework study included an extensive freight survey that evaluated commodity flows, identified 16 freight focus areas, and analyzed transportation infrastructure and economic development incentives.

Building on the findings from the Freight Transportation Framework Study, in 2016 MAG initiated development of the MAG Freight Transportation Plan. The Plan will focus on designating a forward-looking, core roadway freight network for long-term protection and investment, with the goal of attracting industry and supporting household needs through better performance in terms of speed, reliability, cost, productivity, and safety. This network will be readily accessibile to major existing and future clusters of freight generation and consumption. It will also facilitate cross-town travel so that clusters and multimodal facilities are well connected and benefit from route redundancy, reducing the risk from delay and disruption.

To the extent possible, the network will also anticipate the introduction of new transportation technologies. Defining such a network will greatly facilitate freight planning in the region, particularly in establishing candidate facilities for designation as Critical Urban Freight Corridors under the Fixing America's Surface Transportation Act (FAST Act).

Special Needs Transportation

The transportation needs of special populations are a regional concern. Limitations caused by age or disability often complicate the process of securing transportation for a portion of the population. In addition, those who are seeking employment or training and those who lack financial resources, find limited transportation options available to reach second or third shifts and weekend employment. In the MAG region, human services transportation is facing increasing demand.

As part of the effort to plan and coordinate special needs transportation services, MAG has prepared a Public Transit/Human Services Transportation Plan. The plan is developed and updated through a process that includes representatives of the public and private sectors, non-profit transportation and human services providers, and members of the general public. The first plan was approved by the MAG Regional Council in 2007. Updates have been approved from 2008 through 2017. The plan seeks to provide a continuum of efforts to ensure the transportation needs of the vulnerable population that includes older adults, people with disabilities, and people with low-income are met.

The plan's strategies aim to: simplify customer access to transportation, reduce duplication of transportation services, streamline federal rules and regulations that may impede the coordinated delivery of services, and improve the efficiency of services using existing resources to provide more rides for the same or lower cost.

Transportation Enhancement Activities

The Transportation Enhancement Program was originally enacted by the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, and was created to improve surface transportation activities by developing projects that go "above and beyond" normal, or routine transportation activities. Subsequent federal transportation legislation continued funding the program. Most recently, the Fixing America's Surface Transportation Act (FAST Act) enacted in 2015 provides funding for enhancements through the Federal Highway Administration's Transportation Alternatives (TA) program.

Within the MAG Region, the majority of enhancement projects have focused on traditional uses of enhancement fund categories, which include items that are directed toward the provision of facilities for pedestrians, bicycles, and landscaping. Some enhancement projects are incorporated into larger construction projects, and some are completed as stand-alone projects that add to, improve, and expand the existing bicycle and pedestrian network. The majority of projects in the MAG Region have received funding to complete multi-use pathways, sidewalks, and bike-share facilities to support pedestrians and bicyclists. Many enhancement projects occur near transit centers, rail facilities, and bus stops, and provide safer pedestrian access through the construction of new paths and sidewalks, including ADA-compliant curb cuts and marked pedestrian walkways.

SYSTEM MANAGEMENT, OPERATIONS AND PERFORMANCE

The efficient operation of the transportation system is vital in the effort to obtain the maximum capacity from the region's investment in existing transportation facilities and services. This includes activities involving functions such as intelligent transportation system (ITS) management, demand management, congestion management, and transportation safety and security.

System Management / ITS Planning

Transportation System Management (TSM) programs provide for the safe and efficient movement of people and goods within the transportation system. The full spectrum of transportation technology applications, known as Intelligent Transportation Systems (ITS), now forms the basis for all of these programs. Since 1996, the Maricopa Association of Governments (MAG) has taken progressive steps toward mainstreaming the development of regional ITS within the transportation planning process. All planning activities for public sector owned, regional ITS infrastructure are currently coordinated and led by MAG.

In December 2012, a new ITS Strategic Plan was approved by MAG, which was focuses on providing guidance for arterial ITS infrastructure investments. The Plan recommended a shift from defining specific future projects to identifying programs or emphasis areas. The programming of all available RTP funds for arterial ITS infrastructure improvements through FY 2019 has been was guided by this plan. In August 2016, MAG initiated a new study to develop a Systems Management and Operations (SM&O) Plan that will help guide the region in making strategic investments needed to: (1) expand essential ITS infrastructure components, and (2) support a business model that would address the staffing and related resources essential for efficient management and operation of the most critical components of the regional transportation system.

MAG has made a firm commitment to support ITS applications and the solutions they provide to enhance the regional transportation system. The Regional Transportation Plan (RTP) has provided funds for systematic regional investments in ITS infrastructure, both on the freeway system and on the arterial system. A fully integrated system of ITS infrastructure on the urban freeway network has been funded by the RTP, and local agencies have utilized RTP funds to improve arterial traffic management systems.

Demand Management

The MAG Region benefits from a broad range of travel demand management (TDM) techniques and programs. These programs lessen vehicular congestion by helping to reduce the number of vehicles on the roadway network and making more efficient use of existing transportation facilities. This reduction in vehicle miles of travel also helps improve air quality by decreasing

the level of vehicular emissions that contribute to the total amount of pollutants in the air. A number of demand management activities are utilized throughout the MAG region.

TDM programs encourage reductions in travel demand within the transportation system. TDM activities generally focus on both improved travel choice and incentives to reduce driving alone. These programs promote alternatives to driving alone, including carpooling, vanpooling, transit, walking, and bicycling. TDM also encourages alternative work schedules that reduce trips, including teleworking and compressed work schedules. TDM activities generally focus on commute trips and student trips during peak travel periods. In this region, MAG provides funding for TDM activities conducted by the Regional Public Transportation Authority (Valley Metro/RPTA), the Arizona Department of Administration, and Maricopa County Air Quality Department.

One important program is the web-based trip matching service at ShareTheRide.com that provides online ride-matching and commute tracking. The service matches commuters based on proximity, destination and travel route, as well as schedules and preferences. The online tool connects commuters to a secure online matching program that displays carpooling, vanpooling, transit, and bicycle options. Share-The-Ride also calculates pollution savings from alternative mode usage on an individual or custom subsite basis, and also calculates gas savings and the financial savings associated with alternative mode usage.

Congestion Management and Performance Monitoring

MAG maintains an ongoing transportation system performance monitoring and assessment program. This program has developed various reporting methodologies and web-based components, allowing policymakers, technical users and the public in general easy access to performance data and visualization. MAG publishes performance reports in various formats including hard-copy, web-based, map and interactive dashboards. Recognizing the close relationship between performance monitoring and congestion management, key performance measurement indicators are aligned with the congestion management process.

As part of the regional transportation planning effort, MAG maintains a congestion management process (CMP) to improve traffic flow and mitigate congestion throughout the metropolitan area. The CMP makes use of the performance measurement systems that monitor and report on the status of the transportation network. These measures are an integral part of the CMP analysis process, which incorporates evaluative elements for each of the modes. The CMP provides input to the development of the Transportation Improvement Program (TIP), using quantitative and qualitative methods to assist MAG committees in considering the merits of proposed projects under consideration for competitive funding

The Fixing America's Surface Transportation Act (FAST Act) establishes performance-based programs and sets forth requirements for performance goals, outcomes and targets. The Federal Statewide and Metropolitan Planning Rule states that each MPO shall establish performance targets no later than 180 days after the date on which the relevant state and/or

provider of public transportation establishes performance targets. At the time of this writing, relevant state and/or transit provider performance targets have not been provided. While awaiting these targets, MAG efforts have proceeded at the technical committee level and proposed system congestion targets for the MAG region have been identified. However, they have not been established or approved by the MAG Regional Council. It is anticipated that when relevant state and/or provider targets become available, and subsequent consideration of targets through the MAG committee process has been completed, the RTP will be revised to include the appropriate performance targets and performance report.

Transportation Safety and Security

Transportation safety is addressed at two levels within the MAG planning process. The first involves the consideration of road safety as a criterion in comprehensive planning, such as the RTP. Decision-making is supported by an assessment of different regional transportation alternatives from a safety viewpoint. At the second level, transportation safety planning addresses short to medium-term needs, comprehensively described in the MAG Strategic Transportation Safety Plan. This Plan identifies general strategies and potential actions to be carried out with oversight provided by the MAG Transportation Safety Committee (TSC). All planning activities related to transportation safety are performed in close coordination with the TSC.

MAG adopted the region's first Strategic Transportation Safety Plan (STSP) in October 2005. In 2015, a comprehensive update of the STSP was completed, with guidance provided by the TSC. The transportation safety program utilizes the MAG website extensively for sharing information on the road safety performance in the region. Community stakeholders, citizens, public and private agencies and local media interested in road safety issues can refer to accurate safety information and indicators provided at the website.

In 2010, MAG developed a network screening methodology, to identify and rank all intersections in the region based on crash risk. This serves as a starting point in a data driven process to nominate road safety assessment and project assessment locations. Road safety assessments at high risk locations in the region are followed by project assessments that result in a road safety improvement projects, designed up to 15 percent completion. Projects with completed project assessments are well positioned to compete for federal road safety funds.

Safety can be described as the "freedom from danger," whereas security is the "freedom from *intentional* danger." Agencies in the MAG region that address transportation security issues include: Arizona Office of Homeland Security, Arizona Department of Public Safety, Arizona Department of Transportation, Maricopa County Department of Emergency Management, MAG 9-1-1 Emergency Telephone, Valley Metro/Regional Public Transportation Authority, and local municipalities. Although it does not currently have a direct role in transportation security policy decisions, MAG will work to coordinate activities with local, state and federal agencies, as appropriate, in order to provide a regional forum on security issues.

AIR QUALITY CONFORMITY

As required by the Clean Air Act, an air quality conformity analysis will be conducted on the MAG Transportation Improvement Program (TIP) and the Regional Transportation Plan (RTP) as a whole. For a finding of conformity, the analysis must demonstrate that the TIP and RTP are in conformance with regional air quality plans and will not contribute to air quality violations. The conformity analysis must also demonstrate that the criteria specified in the federal transportation conformity rule for a conformity determination are satisfied by the TIP and RTP. A description of the conformity tests and results of the conformity analysis will be provided upon completion of the 2017 Conformity Analysis.

The federal transportation conformity rule (40 Code of Federal Regulations Parts 51 and 93) specifies criteria and procedures for conformity determinations for transportation plans, programs, and projects and their respective amendments. Under the federal transportation conformity rule, the principal criteria for a determination of conformity for transportation plans and programs are:

- The TIP and RTP must pass an emissions budget test with a budget that has been found to be adequate or approved by EPA for transportation conformity purposes, or interim emissions tests.

- The latest planning assumptions and emission models in force at the time the conformity analysis begins must be employed.

- The TIP and RTP must provide for the timely implementation of transportation control measures (TCMs) specified in the applicable air quality implementation plans.

- Consultation generally occurs at the beginning of the conformity analysis process; on the proposed models, associated methods, and assumptions for the upcoming analysis and the projects to be assessed; and at the end of the process, on the draft conformity analysis report.

The final determination of conformity for the TIP and RTP is the responsibility of the Federal Highway Administration and the Federal Transit Administration.

Appendix A

Regional Freeway/Highway Projects

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TABLE A-1
2040 REGIONAL TRANSPORTATION PLAN
REGIONAL FREEWAY/ HIGHWAY PROJECTS

PROJECT DESCRIPTION	COST FY 2018- FY 2040 (2016 $'s in THOUSANDS)	PLAN GROUP *
I-10/Maricopa		
10 (Maricopa): Sky Harbor West Airport Access Reconstruction of interchange	30,000	Group 2
10 (Maricopa): SR-143 - 202 Santan NTIS Design Build Add general purpose lanes	161,300	Group 1
10 (Maricopa): I-10/I-17 (Split) to US-60 Construct improvements (Spine Opt. 2)	158,300	Group 2
10 (Maricopa): SR-143/Broadway TI Construct improvements (Spine Opt. 4)	273,500	Group 2
10 (Maricopa): Alameda Drive and Guadalupe Road Design and construct pedestrian bridges	9,100	Group 1
10 (Maricopa): Chandler Heights Rd TI Construct traffic interchange	22,900	Group 1
10 (Maricopa): SR-202 Santan - Riggs Rd Add one HOV and one general purpose lane in each direction	65,350	Group 2
10 (Maricopa): Riggs Rd to MPA Boundary Add one general purpose lane in each direction **	280,800	Group 3
Subtotal	1,001,250	
I-10/Papago		
10 (Papago): SR-85 - Verrado Way Add one general purpose lane in each direction	42,800	Group 3
10 (Papago):- Perryville Rd to Bullard Ave FMS	4,160	Group 1
10 (Papago): Fairway Dr (El Mirage Rd) TI New traffic interchange	15,560	Group 1
10 (Papago): SR-101 - I-17, Phase 2 Add one general purpose lane in each direction	278,200	Group 3
10 (Papago): Desert Creek/323rd Ave Construction new interchange ***	20,400	Group 3
10 (Papago): 395th Ave Construction new interchange ***	20,020	Group 3
10 (Papago): I-10/SR101L WN Ramp Restriping to change lane configuration	25	Group 1
10 (Papago): I-10/SR101L EN Ramp Restriping to change lane configuration	480	Group 1
10 (Papago): I-10/SR101L EN Ramp Restriping to include additional lane	3,500	Group 1
Subtotal	385,145	
I-17/Black Canyon		
17: Dunlap Ave - SR-101 Capacity improvements	219,000	Group 3
17: I-10/I-17 (Split) to Grand Ave. Add HOV lane and other capacity improvements (Includes Split HOV)	605,600	Group 2
17: SR-101 - I-10 Stack Interchange ITS improvements (Near-Term Improvement Strategy)	6,000	Group 1
17: Central Ave Reconstruct overpass	23,500	Group 1

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PROJECT DESCRIPTION	COST FY 2018- FY 2040 (2016 $'s in THOUSANDS)	PLAN GROUP *
17: Pinnacle Peak Rd to Happy Valley Rd Widen and reconstruct traffic interchanges	44,000	Group 1
17: Indian School Rd Reconstruct interchange	59,450	Group 2
17: Camelback Rd Reconstruct interchange	68,600	Group 1
17: Grand Ave - Dunlap Ave Capacity improvements	350,000	Group 3
17: Peoria Ave - Greenway Rd Drainage improvements	16,500	Group 2
17: SR-74 Carefree Highway - Anthem Way Add one HOV lane in each direction	89,500	Group 3
17: Anthem Way - New River Add one general purpose lane in each direction	57,400	Group 3
17: Mores Gulch Bridge replacement ****	5,900	Group 1
17: I-10/I-17 NW & SW Ramps Restriping to change lane configuration	40	Group 1
Subtotal	1,545,490	
SR-24/Gateway		
24 (Williams Gateway): SR-202 Santan - Ellsworth Rd, Phase 2 Construct ultimate freeway section	46,900	Group 3
24 (Williams Gateway): Ellsworth Rd - Meridian Rd Construct new freeway	212,600	Group 3
Subtotal	259,500	
SR-30/I-10 Reliever		
30 (I-10 Reliever): SR-85 - SR-303 Construct interim facility	192,700	Group 3
30 (I-10 Reliever): SR-303 - Estrella Pkwy Construct new freeway	279,400	Group 3
30 (I-10 Reliever): Dysart Rd - Avondale Blvd Construct new freeway	116,600	Group 3
30 (I-10 Reliever): Estrella Pkwy - Dysart Rd Construct new freeway	243,400	Group 3
30 (I-10 Reliever): SR-303 - SR-202 South Mountain Construct new freeway	55,900	Group 3
30 (I-10 Reliever): 67th Ave - SR-202 South Mountain Construct new freeway	278,500	Group 3
30 (I-10 Reliever): 97th Ave - 67th Ave Construct new freeway	223,200	Group 3
30 (I-10 Reliever): Avondale Blvd - 97th Ave Construct new freeway	148,900	Group 3
Subtotal	1,538,600	
SR-51/Piestewa		
US-60/Grand Ave		
60 (Grand Ave): Greenway Rd to Thompson Ranch TI Construct frontage road improvements	6,300	Group 1
60 (Grand Ave): SR-101 (Agua Fria Fwy) - Van Buren St, Phase 3 Construct three grade separated intersections	86,200	Group 3

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PROJECT DESCRIPTION	COST FY 2018- FY 2040 (2016 $'s in THOUSANDS)	PLAN GROUP *
Subtotal	92,500	
US-60/Superstition		
60 (Superstition) : Lindsay Rd Half TI Construct half traffic interchange	8,200	Group 3
60 (Superstition): Crismon Rd to Meridan Rd Add 1 HOV lane, 1 GP lane and FMS	28,400	Group 1
60 (Superstition): Crismon Rd - Idaho Rd FMS	4,400	Group 1
60 (Superstition): Kings Ranch Rd (EB) Left turn Construction left turn bay extension ****	270	Group 1
60 (Superstition): Mountain Rd to Renaissance Festival Construct Arizona Parkway (Widen to 6 GP lanes from 4 GP lanes) **	28,800	Group 3
Subtotal	70,070	
SR-74/Carefree Hwy		
74: US-60 Grand Ave - I-17 ROW Protection for Lake Pleasant Freeway corridor	40,100	Group 3
74: US-60 Grand Ave - SR-303 Estrella ROW Protection for Lake Pleasant Freeway corridor	1,860	Group 3
Subtotal	41,960	
SR-79		
79: Butte Ave to CAP (North of Florence) Widen from 2 GP Lanes to 4 GP lanes	14,400	Group 3
SR-85		
85: Warner Street Bridge Construction Bridge	5,300	Group 1
SR-87	0	
SR-88	0	
US-93	0	
93: Tegner St to Yavapai Co. line Construct two additional lanes	24,500	Group 1
SR-101L/Agua Fria		
101 (Agua Fria): I-10 - US60 Grand Ave Add one general purpose lane in each direction	116,400	Group 3
101 (Agua Fria): US60 Grand Ave - I-17 Add one general purpose lane in each direction	150,400	Group 3
Subtotal	266,800	
SR-101L/Pima		
101 (Pima): I-17 - SR-51 Piestewa Add one general purpose lane in each direction	103,425	Group 1
101 (Pima): SR-51 Piestewa - Pima Rd Add one general purpose lane in each direction	53,000	Group 1
101 (Pima):Pima Rd - Shea Blvd Add one general purpose lane in each direction	57,000	Group 1
101 (Pima): Pima Rd Extension Pima Rd Extension (JPA)	3,931	Group 1
Subtotal	217,356	

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PROJECT DESCRIPTION	COST FY 2018- FY 2040 (2016 $'s in THOUSANDS)	PLAN GROUP *
SR-101L/Price		
101 (Price): Baseline Rd - SR-202 Santan Add one general purpose lane in each direction	42,420	Group 2
SR-143/Hohokam	0	
SR-202L/Red Mountain		
202 (Red Mountain): Mesa Dr Ramps Construct freeway ramps	13,500	Group 3
202 (Red Mountain): Gilbert Rd - Higley Rd Add one general purpose lane in each direction	51,900	Group 3
202 (Red Mountain): Higley Rd - US60 Superstition Add one general purpose lane in each direction	108,300	Group 3
202 (Red Mountain): US-60 Superstition TI Construct DHOV freeway ramps	42,100	Group 3
202 (Red Mountain): Broadway Rd - US-60 Superstition Add one HOV lane in each direction	5,650	Group 2
Subtotal	221,450	
SR-202L/Santan		
202 (Santan): US-60 Superstition - Val Vista Dr Add one general purpose lane in each direction	104,000	Group 3
202 (Santan): US-60 Superstition - Gilbert Rd Add one HOV lane in each direction	50,200	Group 1
202 (Santan): Val Vista Dr - Dobson Rd Add one general purpose lane in each direction	83,500	Group 3
202 (Santan): Dobson Rd - I-10 Add one general purpose lane in each direction	50,300	Group 3
Subtotal	288,000	
SR-202L/South Mountain		
202 (South Mountain): I-10 Maricopa (MP 54) to I-10 Papago (MP 76) (Design-Build-Maintain) Design, build, and maintain new freeway	526,638	Group 1
SR-238		
238: SR-347 to Warren Rd Widen from 2 GP Lanes to 4 GP lanes **	24,000	Group 3
SR-287		
287: SR-79 to SR-87 Widen from 2 GP Lanes to 4 GP lanes **	14,400	Group 3
SR-303L/Estrella		
303 (Estrella): Riggs Rd - SR-30 (I-10 Reliever) Right-of-way protection for freeway extension	46,600	Group 3
303 (Estrella): MC-85 - Van Buren St, Phase 2 Construct new freeway	65,200	Group 3
303 (Estrella): MC-85 - Van Buren St, Phase 1 Construct new freeway	120,000	Group 1
303 (Estrella): Northern Parkway TI Construct final traffic interchange	85,600	Group 3
303 (Estrella): US-60 Grand Ave TI Construct final traffic interchange	124,600	Group 2

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PROJECT DESCRIPTION	COST FY 2018- FY 2040 (2016 $'s in THOUSANDS)	PLAN GROUP *
303 (Estrella): Northern Ave - Clearview Blvd FMS	4,260	Group 1
303 (Estrella): I-10/303 TI, Phase II Landscape	5,000	Group 1
303 (Estrella): I-10 - Northern Ave FMS	4,160	Group 1
303 (Estrella): Happy Valley Rd to I-17 Construct ultimate freeway section	227,400	Group 3
303 (Estrella): Lake Pleasant Rd - I-17 FMS	3,960	Group 1
Subtotal	686,780	
SR-347		
347: I-10 to SR-238 Widen from 4 GP Lanes to 6 GP lanes **	76,800	Group 3
North-South Freeway		
R/W Protection (Including SR-24 Corridor) **	65,000	Group 3
System-wide Preliminary Engineering	228,900	Group 1-3
System-wide Freeway Management System	86,368	Group 1-3
System-wide Freeway Service Patrol	29,000	Group 1-3
System-wide Maintenance (Landscape, litter, sweeping)	319,200	Group 1-3
System-wide Quiet Pavement	150,000	Group 3
System-wide Right of Way (R/W Management & Protection)	71,950	Group 1-3
TOTAL	**8,293,777**	

* Plan Groups:

Group 1 - (FY 2018 - FY 2022)

Group 2 - (FY 2023 - FY 2026)

Group 3 - (FY 2027 - FY 2040)

** Project is not part of Freeway/Highway Life Cycle Program. Cost covers MAG planning area portion only.

*** Privately funded.

****ADOT statewide funds.

For freeway/highway projects, the Plan Group generally indicates the period in which the majority of a project is programmed for construction activity. Projects may be programmed for design and/or right-of-way acquisition in earlier periods.

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Appendix B

Regional Arterial Street Projects

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TABLE B-1
2040 REGIONAL TRANSPORTATION PLAN
REGIONALLY FUNDED ARTERIAL STREET PROJECTS

FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2018 - FY 2026 (2016 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2016 $'S in millions)	TOTAL PROJECT COST: FY 2018 - FY 2040 (2016 $'S in millions) *	PLAN GROUP**
CHANDLER				
Chandler Blvd/Alma School Rd		0.942	0.100	Group 1
Price Rd Substitute Projects				
Chandler Heights Rd: Arizona Avenue to McQueen Road	6.037		8.676	Group 1
Chandler Heights Road: McQueen Road to Gilbert Road	3.634		13.956	Group 1
Ocotillo Road: Cooper Road to Gilbert Road	5.327		7.502	Group 1
Chandler Heights Rd: Gilbert Rd to Val Vista Rd	1.180		12.187	Group 2
Ray Rd/Dobson Rd				
Ray Rd at Dobson Rd: Intersection Improvements Phase II	6.452		17.490	Group 2
Ray Rd/McClintock Dr	3.775		8.511	Group 3
Ocotillo Rd: Gilbert Rd to 148th Street	2.358		6.712	Group 3
Cooper Rd: South of Queen Creek to Riggs Rd				
Cooper Rd: South of Queen Creek Rd to Chandler Heights	4.202		4.954	Group 1
Cooper Rd: Chandler Heights to Riggs Rd	3.022	3.776	7.598	Group 1
Lindsay Rd: Ocotillo Rd to Hunt Hwy	4.433	3.018	22.685	Group 2
CHANDLER/GILBERT				
Queen Creek Rd: Arizona Ave to Higley Rd				
CHANDLER Queen Creek Rd: McQueen Rd to Gilbert Rd	7.079	5.112	13.402	Group 1
EL MIRAGE/MARICOPA COUNTY				
El Mirage Rd: Northern Ave to Bell Rd (Phase I)				
El Mirage Rd: Northern Ave to Peoria Ave (MC)	3.789		8.531	Group 1
Thunderbird Rd: 127th Ave to Grand Ave (ELM)			3.440	Group 1
El Mirage Rd: Northern Ave to Bell Rd (Phase II)				
El Mirage Rd: Cactus to Grand Avenue (ELM)	6.146		1.556	Group 1
Dysart Rd: Northern Ave to Peoria Ave			11.100	Group1
FOUNTAIN HILLS				
Shea Blvd: Palisades Blvd to Cereus Wash				
Shea Blvd: Palisades Blvd to Technology Dr	2.172	0.692	8.327	Group 1
GILBERT				
Elliot Rd/Cooper Rd	4.140		14.453	Group 1

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FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2018 - FY 2026 (2016 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2016 $'S in millions)	TOTAL PROJECT COST: FY 2018 - FY 2040 (2016 $'S in millions) *	PLAN GROUP**
Elliot Rd/Gilbert Rd	3.775	3.600	13.774	Group 1
Elliot Rd/Greenfield Rd	3.774		12.582	Group 1
Elliot Rd/Higley Rd	3.775	1.137	11.497	Group 2
Elliot Rd/Val Vista Dr	3.775	0.669	15.081	Group 1
Germann Rd: GilbertRd to Power Rd				
Germann Rd: Gilbert Rd to Val Vista Dr	14.127	1.458	10.930	Group 1
Greenfield Rd: Elliot Rd to Ray Rd	3.775		5.254	Group 3
Guadalupe Rd/Greenfield Rd	2.992	1.919	10.646	Group 2
Guadalupe Rd/Power Rd	2.379	3.901	7.554	Group 2
Ray Rd/Gilbert Rd		3.775	7.744	Group 2
Higley Rd/Baseline Rd	3.775		4.919	Group 2
Lindsay Road/SR-202L Transportation Interchange and Corridor Improvements				
Lindsay Road/SR-202L Transportation Interchange & Frontage Road	2.225		23.086	Group 1
Lindsay Road: Pecos Road to Germann Road	7.608		8.492	Group 1
Mustang Drive: Rivulon Blvd to Germann Road	6.850		7.512	Group 1
GILBERT/MESA/MARICOPA COUNTY				
Power Rd: Santan Fwy to Chandler Heights				
Power Rd: Pecos to Chandler Heights (GIL)			27.993	Group 2
Power Rd: Baseline Rd to Santan Fwy				
Power Rd: East Maricopa Floodway to Santan Fwy/Loop 202 (MES)	8.193		31.571	Group 1
MARICOPA COUNTY				
Dobson Rd: Bridge over Salt River	0.000		1.000	Group 2
El Mirage Rd: Bell Rd to Jomax Rd				
El Mirage Rd: Bell Rd to Deer Valley Dr	0.853			Group 1
El Mirage Rd: L303 to Jomax			17.500	Group 3
Gilbert Rd: Bridge over Salt River	41.237		65.500	Group 1
Jomax Rd: SR-303L to Sun Valley Parkway	6.830	17.761	35.130	Group 3
McKellips Rd: Bridge over Salt River		14.005	72.925	Group 4
McKellips Rd: SR-101L to SRP-MIC/Alma School Rd	11.555	14.567	9.300	Group 1
Northern Pkwy: Sarival to Grand (Phase II)				
Northern Pkwy: Dysart to 111th	29.535		34.390	Group 1
Northern Parkway: 99th Ave to East Loop 101 Ramps	11.295		12.144	Group 1
Northern Pkwy: Dysart Overpass	0.783		0.883	Group 1

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FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2018 - FY 2026 (2016 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2016 $'S in millions)	TOTAL PROJECT COST: FY 2018 - FY 2040 (2016 $'S in millions) *	PLAN GROUP**
Northern Parkway: 111th Ave to Grand	4.779		5.068	Group 1
Northern Parkway: Loop 101 to Grand Ave Scoping Assessment				Group 1
Northern Parkway: Dysart and El Mirage Overpass	36.761		38.986	Group 1
Northern Pkwy: Sarival to Grand (Phase III)				
Northern Pkwy: El Mirage Alternative Access	2.915		3.182	Group 1
Northern Pkwy: El Mirage Overpass	0.943		1.000	Group 1
Northern Pkwy: Agua Fria to 111th	2.817		3.924	Group 2
Northern Pkwy: 111th to 107th	15.423		21.783	Group 2
Northern Pkwy: 107th to 99th	20.572		29.333	Group 2
Northern Pkwy: Loop 101 to 91st	3.575		4.536	Group 2
Northern Pkwy: 91st to Grand Intersection Improvements	5.907		7.229	Group 2
Northern Pkwy: ROW Protection	0.000		2.125	Group 2
Northern Pkwy: Ultimate Construction	15.840		18.812	Group 2
MESA				
Broadway Rd: Dobson Rd to Country Club	3.751	4.741	27.377	Group 1
Country Club/University Dr	8.325		25.268	Group 2
Crismon Rd: Broadway Rd to Germann Rd				
Crismon Rd: Broadway Rd to Guadalupe Rd		9.919	18.965	Group 3
Crismon Rd: Guadalupe Rd to Ray Rd	12.406		22.064	Group 2
Dobson Rd/University Dr		4.921	8.224	Group 3
Elliot Rd: Power Rd to Meridian Rd				
Elliot Rd: Power Rd to Ellsworth Rd	8.840	8.646	15.947	Group 1
Elliot Rd: Ellsworth Rd to Signal Butte Rd	11.560		18.383	Group 1
Elliot Rd: Signal Butte Rd to Meridian Rd	1.326		19.238	Group 1
Greenfield Rd: UniversityRd to Baseline Rd				
Greenfield Rd: Southern Ave to University Rd		6.585	10.316	Group 2
Hawes Rd: Broadway Rd to Ray Rd				
Hawes Rd: Broadway Rd to US60			10.697	Group 2
Hawes Rd: BaselineRd to Elliot Rd	7.108		10.368	Group 3
Hawes Rd: Elliot Rd to Santan Freeway	4.415		3.886	Group 4
Lindsay Rd/Brown Rd	3.919		7.867	Group 1
McKellips Rd: East of Sossaman to Meridian				
McKellips Rd: East of Sossaman to Crismon Rd	12.283		28.139	Group 2
McKellips Rd: Crismon Rd to Meridian Rd			13.545	Group 2

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FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2018 - FY 2026 (2016 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2016 $'S in millions)	TOTAL PROJECT COST: FY 2018 - FY 2040 (2016 $'S in millions) *	PLAN GROUP**
McKellips Rd: Gilbert Rd to Power Rd				
McKellips Rd/Lindsay Rd	6.137		10.668	Group 1
McKellips Rd/Greenfield Rd	2.630		3.897	Group 1
McKellips Rd/Higley Rd	6.310		10.993	Group 1
McKellips Rd/Recker Rd	3.393		7.210	Group 1
Mesa Dr: Southern Ave to US60 and Mesa Dr to Broadway Rd				
Mesa Dr: 8th Ave to Main Street	9.209		16.845	Group 1
Pecos Rd: Ellsworth Rd to Meridian Rd	10.381		25.186	Group 1
Signal Butte Rd: Broadway to Pecos Rd				
Signal Butte Rd: Broadway Rd to Elliot Rd	11.693		18.151	Group 2
Signal Butte Rd: Elliot Rd to Ray Rd	8.677			Group 1
Signal Butte Rd: Ray Rd to Pecos Rd	12.664		24.175	Group 2
Southern Ave: Country Club Dr to Recker Rd				
Southern/Country Club Dr	6.469		11.362	Group 1
Southern Ave/Stapley Dr	11.528		18.240	Group 1
Southern Ave: Gilbert Rd to Val Vista Dr	4.615		7.115	Group 1
Southern Ave: Greenfield Rd to Higley Rd	5.987		6.482	Group 1
Southern Ave: Sossaman Rd to Meridian Rd				
Southern Ave: Sossaman Rd to Crismon Rd		8.014	16.363	Group 2
Southern Ave: Crismon Rd to Meridian Rd		5.296	10.788	Group 2
Stapley Dr/University Dr	7.785			Group 2
University Dr: Val Vista Drto Hawes Rd				
University Dr:Val Vista Dr to Higley Rd	11.204		16.340	Group 2
University Dr:Higley Rd to Sossaman Rd	9.018		16.127	Group 2
University Dr:Sossaman Rd to 88th St	1.387		0.000	Group 1
Val Vista Dr: University Dr to Baseline Rd				
Val Vista Dr:Baseline Rd to US-60	0.607		0.000	Group 1
Val Vista Dr:US-60 to Pueblo	6.820		7.251	Group 1
Baseline Rd: 24th Sreet to Consolidated Canal	3.418	4.722	4.561	Group 1
Mesa Main Street: Mesa Dr to Gilbert Rd Light Rail Extension	42.236		148.773	Group 1
PEORIA				
Happy Valley Rd: L303 to 67th Avenue				
Happy Valley Rd:Agua Fria to Loop 303			3.115	Group 1

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FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2018 - FY 2026 (2016 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2016 $'S in millions)	TOTAL PROJECT COST: FY 2018 - FY 2040 (2016 $'S in millions) *	PLAN GROUP**
Happy Valley Rd: LakePleasant Pkwy to Agua Fria		11.114	16.635	Group 1
Lake Pleasant Pkwy: Union Hills to SR74				
Lake Pleasant Pkwy:Loop 303 to SR-74/Carefree Hwy			22.045	Group 3
PHOENIX				
Avenida Rio Salado: 51st Ave. to 7th St.				
Avenida Rio Salado Phase II: 51st Ave to 35th Ave,7th Ave, and 7th St.			2.395	Group 1
Happy Valley Rd: 67th Ave to I-17				
Happy Valley: 35th Ave to 43rd Ave		5.232	11.700	Group 2
Happy Valley: 43rd Ave to 55th Ave		4.671	9.497	Group 3
Happy Valley: 55th Ave to 67th Ave		3.310	10.124	Group 3
SCOTTSDALE/CAREFREE				
Pima Rd: SR101L to Happy Valley Rd and Dyn. Rd to Cave Creek				
Happy Valley Rd: Pima Rd to Alma School Rd	6.947		10.200	Group 2
Pima Rd: Pinnacle Peak to Happy Valley Rd (SCT)	14.645		19.002	Group 1
Pima Rd: Dynamite Blvd to Stagecoach Rd (SCT)	37.892		55.270	Group 2
Pima Rd: Stagecoach Rd to Cave Creek (CFR)	4.933	0.625	7.940	Group 2
SCOTTSDALE				
Carefree Hwy: Cave Creek Rd to Scottsdale Rd	8.012		14.344	Group 2
SR-101L North Frontage Roads: Pima/Princess Dr to Scottsdale Rd				
SR-101L Frontage Rd: Pima Rd/Princess Dr to Hayden Rd		29.014	41.449	Group 3
Miller Rd/SR-101L Underpass	13.305		19.007	Group 1
Pima Rd: Happy Valley Rd to Dynamite Blvd	23.747		33.925	Group 2
Pima Rd: McKellips Rd to Via Linda				Group 2
Pima Rd: Via Linda to Via De Ventura	0.986		2.166	Group 1
Pima Rd: Thomas Rd to McDowell Rd	9.463		12.491	Group 2
Pima Rd: Krail to Chaparral	5.826		16.192	Group 1
Pima Rd: Chaparral Rd to Thomas Rd	6.128		12.122	Group 2
Scottsdale Airport: Runway Tunnel				Group 2
Frank Lloyd Wright -Loop 101 Traffic Interchange	5.983		8.397	Group 2
Raintree -Loop 101 Traffic Interchange	3.167		4.524	Group 2
Frank Lloyd Wright Frontage Rd: Northsight to Greenway-Hayden Loop	7.746		11.065	Group 2
Redfield Rd: Raintree Dr to Hayden Rd	1.350		1.850	Group 1
Raintree Drive: Scottsdale Rd to Hayden Rd	13.476		27.162	Group 1

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FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2018 - FY 2026 (2016 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2016 $'S in millions)	TOTAL PROJECT COST: FY 2018 - FY 2040 (2016 $'S in millions) *	PLAN GROUP**
Raintree Drive: Hayden to Loop 101	6.304		9.098	Group 1
Southbound Loop 101 Frontage Road Connections	1.496		4.277	Group 1
Hayden Rd - Loop 101 Interchange Improvements	11.428		16.652	Group 2
Scottsdale Rd: Thompson Peak Pkwy to Jomax Rd				
Scottsdale Rd: Thompson Peak Pkwy to Pinnacle Peak Pkwy Phase II	6.128		18.000	Group 2
Scottsdale Rd: Pinnacle Peak Pkwy to Jomax Rd	1.800		36.937	Group 2
Scottsdale Rd: Jomax Rd to Carefree Hwy				
Scottsdale Rd: Jomax Rd to Dixileta Dr	9.499		18.082	Group 2
Scottsdale Rd: Dixileta Dr to Ashler Hills Dr	9.499		16.624	Group 2
Scottsdale Rd: Ashler Hills Dr to Carefree Highway	9.499		16.624	Group 2
Shea Blvd: SR-101L to SR-87				
Shea Auxiliary Lane from 90th St to Loop 101	6.390		9.129	Group 2
Shea Blvd at Via Linda (Phase 2)	2.086		2.980	Group 2
Shea Blvd: 96th St to 144th St, ITS Improvements	2.360		3.372	Group 2
Shea Blvd at Loop 101	3.688		5.270	Group 2
Shea Blvd at 110th St	0.266		0.350	Group 2
Shea Blvd at 114th St	0.266		0.250	Group 2
Shea Blvd at Frank Lloyd Wright Blvd	0.664		1.489	Group 2
Shea Blvd at 115th St	0.111		0.159	Group 2
Shea Blvd at 125th St	0.880		1.257	Group 2
Shea Blvd at 135th St	0.111		0.159	Group 2
Shea Blvd at 136th St	0.376		0.637	Group 2
Legacy Dr: Hayden Rd to 88th Street	2.073	10.021	17.297	Group 2
TOTAL	**837.0**	**193.2**	**1,926.6**	

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FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2018 - FY 2026 (2016 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2016 $'S in millions)	TOTAL PROJECT COST: FY 2018 - FY 2040 (2016 $'S in millions) *	PLAN GROUP**

* May include some FY 2017 expenditures for certain projects.

** Plan Groups:

Group 1 (FY 2018 - FY 2022)
Group 2 (FY 2023 - FY 2026)
Group 3 (FY 2027 - FY 2040)

For arterial projects, the Plan Group indicates the period in which a project is anticipated to be completed. Certain projects in Group 1 may have been completed before FY 2018. Reimbursements from regional funding sources for arterial projects may occur in later periods.

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Appendix C

Regional Transit Projects

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TABLE C-1
2040 REGIONAL TRANSPORTATION PLAN
REGIONAL BUS ROUTES - OPERATING

ROUTE		OPERATING COSTS FY 2018 - FY 2040 (2016 $'S in THOUSANDS)	PLAN GROUP *
Express and LINK			
511	Tempe/Scottsdale Airpark Express	0	NA
512	Scottsdale Express	0	NA
514	Scottsdale Express	5,540	Existing
520	Tempe Express	3,042	Existing
521	Tempe Express	5,646	Existing
522	Tempe Express SC	6,523	Existing
531	Mesa/Gilbert Express	12,144	Existing
533	Mesa Express	13,494	Existing
535	Northeast Mesa/Downtown Express	10,854	Existing
541	Chandler Express	8,337	Existing
542	Chandler/Downtown Express	10,867	Existing
562	Goodyear Express	5,872	Existing
563	Buckeye Express	6,753	Existing
571	Surprise Express	3,816	Existing
573	Northwest Valley/Downtown Express	10,369	Existing
575	Northwest Valley/Downtown Express	6,355	Existing
	Ahwatukee Connector	2,564	Group 3
	Anthem Express	6,970	Group 3
	Apache Junction Express	7,357	Group 3
	Arizona Ave/Country Club LINK	0	NA
	Avondale Express	0	NA
	Black Canyon Freeway Connector	4,189	Group 3
	Buckeye Express	6,753	Existing
	Chandler Blvd LINK	18,535	Group 3
	Grand Ave Limited	3,058	Existing
	Loop 303 Express	8,336	Group 3
	Main St LINK	0	Existing
	North I-17 Express	7,527	Group 3
	Peoria Express	6,989	Group 3
	Pima Express	6,082	Group 3
	Red Mountain Freeway Connector	6,422	Group 3
	San Tan Express	18,270	Group 3
	Scottsdale/Rural Rd LINK	0	NA
	South Central Express	0	NA
	South Central LINK A	5,350	Group 3
	South Central LINK B	5,611	Group 3
	Superstition Freeway Connector	2,314	Group 3
	Superstition Springs Express	9,748	Group 3
Sub-total		**235,690**	
Supergrid Routes			
3	Van Buren St	23,847	Existing
13	Buckeye Rd	6,959	Group 3
17	McDowell/McKellips	42,926	Existing
29	Thomas Rd	21,051	Existing
30	University Dr	58,465	Existing
40	Main St	75,745	Existing
41	Indian School Rd	11,957	Group 1

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ROUTE		OPERATING COSTS FY 2018 - FY 2040 (2016 $'S in THOUSANDS)	PLAN GROUP
44	44th St/Tatum	1,191	Group 3
45	Broadway Rd	51,789	Existing
48	48th St/Rio Salado Pkwy	3,126	Existing
50	Camelback Rd	4,608	Existing
56	56th St	7,113	Existing
59	59th Ave	26,736	Existing
61	Southern Ave	89,348	Existing
66	Mill/Kyrene	4,939	Existing
70	Glendale Ave	45,792	Existing
72	Scottsdale/Rural	163,650	Existing
77	Baseline Rd	23,912	Group 1
81	Hayden/McClintock	110,190	Existing
83	83rd/75th Ave	20,685	Group 2
90	Dunlap/Olive	16,826	Group 3
96	Dobson Rd	44,606	Existing
99	99th Ave	22,920	Group 3
104	Alma School Rd	30,940	Group 1
106	Peoria/Shea	30,528	Existing
108	Elliot Rd	44,797	Existing
112	Arizona Ave/Country Club Dr	69,421	Existing
131	Dysart Rd	6,010	Group 3
136	Gilbert Rd	60,035	Existing
138	Wadell/Thunderbird	24,285	Existing
139	Litchfield Rd	23,901	Group 3
140	Ray Rd	25,737	Group 3
156	Chandler Blvd	78,979	Existing
160	Greenfield Rd	21,785	Group 3
170	Bell Rd	18,783	Group 1
184	Power Rd	48,938	Existing
204	Queen Creek Rd	5,902	Group 3
Sub-total		**1,368,421**	
Rural Service			
	Gila Bend connector	8,957	Existing
	Wickenburg connector	0	N/A
Sub-total		**8,957**	
Other Services			
	ADA Complementary Paratransit	798,168	Existing
	Regional Customer Services	180,201	Existing
	RPTA Planning and Administration	95,323	Existing
	Safety and Security Programs	14,989	Existing
	Vanpool Operations	21,774	Existing
Sub-total		**1,110,455**	
Total		**2,723,524**	

* Plan Groups:

Group 1 (FY 2018 - FY 2022)

Group 2 (FY 2023 - FY 2026)

Group 3 (FY 2027 - FY 2040)

Existing (in operation and being funded prior to the "Group 1" period)

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For bus operations, the "Group" designations represents the first period in which at least some regional funding was provided for the route. Funding for these routes continues during subsequent periods, and service improvements on certain routes may also be provided in a later period. Operating costs reflect total costs and are not offset by farebox receipts. Routes designated as "Existing" may also receive service enhancements in later periods which are not specifically indicated. For detailed service enhancements please refer to the latest version of the Transit Life Cycle Program.

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TABLE C-2
2040 REGIONAL TRANSPORTATION PLAN
REGIONAL BUS ROUTES - CAPITAL

ROUTE		CAPITAL COSTS FY 2018 - FY 2040 (2016 $'S in THOUSANDS)	PLAN GROUP *
Fleet			
	Fixed Route Buses	969,751	Group 1,2,3
	Rural Routes	7,805	Group 1,2,3
	Paratransit	73,059	Group 1,2,3
	Vanpool	87,280	Group 1,2,3
Sub-total		**1,137,895**	
Park and Rides			
	Baseline/24th St	0	Group 1
	Camelback/101	6,181	Group 3
	Elliot/-I-10	128	Group 3
	Laveen/59th Ave	5,667	Group 1
	Peoria Grand	5,830	Group 1
Total Park and Rides		**17,807**	
Transit Centers			
	19thAveCamelback 6-bay	3,738	Group 3
	44th Cactus 6-bay	3,772	Group 3
	Arrowhead	0	Group 1
	Downtown Chandler 4-bay	2,604	Group 3
	Glendale/Grand 4-bay	2,616	Group 3
	Mesa Downtown 6-bay	0	Group 1
	Metrocenter TC Rehab	8,969	Group 3
	Peoria 4-bay	2,383	Group 1
	Scottsdale 4-bay	2,624	Group 3
	South Chandler	2,604	Group 3
	South Tempe 4-bay	2,600	Group 3
Total Transit Centers		**31,910**	
Operations and Maintenance Facilities			
	Heavy Maintenance	65,529	Group 3
	Mesa Rehab	13,372	Group 3
	Paratransit Phoenix	12,993	Group 3
	South Rehab	13,372	Group 3
Total O & M Facilities		**105,266**	
BRT Right-of-Way Improvements			
	Scottsdale/Rural Rd LINK	50,412	Group 1,3
	South Central LINK	22,699	Group 3
Total BRT ROW Improvements		**73,111**	

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ROUTE		CAPITAL COSTS FY 2018 - FY 2040 (2016 $'S in THOUSANDS)	PLAN GROUP *
Other Capital Improvements			
	Bus Stop Improvements	0	N/A
	Vehicle Upgrades	14,049	Group 1
Total Other Capital		**14,049**	
Contingency for Capital Projects		0	N/A
TOTAL		**1,380,039**	

* Plan Groups:

Group 1 (FY 2018 - FY 2022)
Group 2 (FY 2023 - FY 2026)
Group 3 (FY 2027 - FY 2040)

For transit capital expenditures, the group designation indicates the period when equipment or other capital items are acquired, or when construction of facilities is funded.

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TABLE C-3
2040 REGIONAL TRANSPORTATION PLAN
REGIONAL LIGHT RAIL TRANSIT/HIGH CAPACITY TRANSIT - OPERATING

ROUTE		OPERATING COSTS FY 2018 - FY 2040 (2016 $'S in THOUSANDS)	PLAN GROUP (1)
LRT/HCT Segments			
	CP/EV	836,428	Existing
	Northwest Phase I	142,076	Existing
	Northwest Phase II	39,153	Group 2
	Central Mesa	121,718	Existing
	Tempe Streetcar	129,325	Group 1
	Capitol / I-10 West Phase I	66,135	Group 2
	Capitol / I-10 West Phase II	189,492	Group 3
	Northeast Phoenix	154,362	Group 3
	Gilbert Road Extension	74,622	Group 1
	West Phoenix / Central Glendale	117,281	Group 2
	South Central	439,563	Group 2
Total		**2,310,154**	

TABLE C-4
2040 REGIONAL TRANSPORTATION PLAN
REGIONAL LIGHT RAIL TRANSIT/HIGH CAPACITY TRANSIT - CAPITAL

ROUTE		CAPITAL COSTS FY 2018 - FY 2040 (2016 $'S in THOUSANDS)	PLAN GROUP (1)
LRT/HCT Segments			
	Northwest Phase I	0	Existing
	Central Mesa	3,732	Existing
	Tempe Streetcar	153,594	Group 1
	West Phoenix / Central Glendale	444,759	Group 2
	Northwest Phase II	232,492	Group 2
	Capitol / I-10 West Phase I	153,034	Group 2
	Capitol / I-10 West Phase II	890,703	Group 3
	Northeast Phoenix	1,002,549	Group 3
	Gilbert Road Extension	69,750	Group 1
	South Central Extension	579,426	Group 2
Sub-total		**3,530,039**	
LRT Systemwide Support			
	Systemwide Support Infrastructure	313,864	Group 1,2,3
	Capital Project Development	20,807	Group 1,2,3
	System Planning and Design	125,440	Group 1,2,3
	Utility Reimbursements (2)	0	NA
Sub-total		**460,112**	
TOTAL		**3,990,151**	

(1) Plan Groups:

Group 1 (FY 2018 - FY 2022)
Group 2 (FY 2023 - FY 2026)
Group 3 (FY 2027 - FY 2040)

For transit capital expenditures, the group designation indicates the period when equipment or other capital items are acquired, or when construction of facilities is funded. For light rail transit/high capacity transit (LRT/HCT) operations, the group designation indicates the period when service is initiated. Funding continues during subsequent periods, and service improvements on certain routes may also be initiated in a later period. Operating costs reflect total costs and are not offset by farebox receipts. No regional funding is provided for LRT/HCT operating expenses.

(2) Included with project costs.

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