2040 REGIONAL TRANSPORTATION PLAN (RTP) UPDATE EXECUTIVE SUMMARY

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MARICOPA ASSOCIATION of GOVERNMENTS

REGIONAL TRANSPORTATION PLAN

2040 REGIONAL TRANSPORTATION PLAN UPDATE EXECUTIVE SUMMARY

JANUARY 22, 2020

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INTRODUCTION

The MAG Regional Transportation Plan (RTP) Update 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), 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 and highways, streets, 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.

MAG 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, and the Arizona Department of Transportation (ADOT).

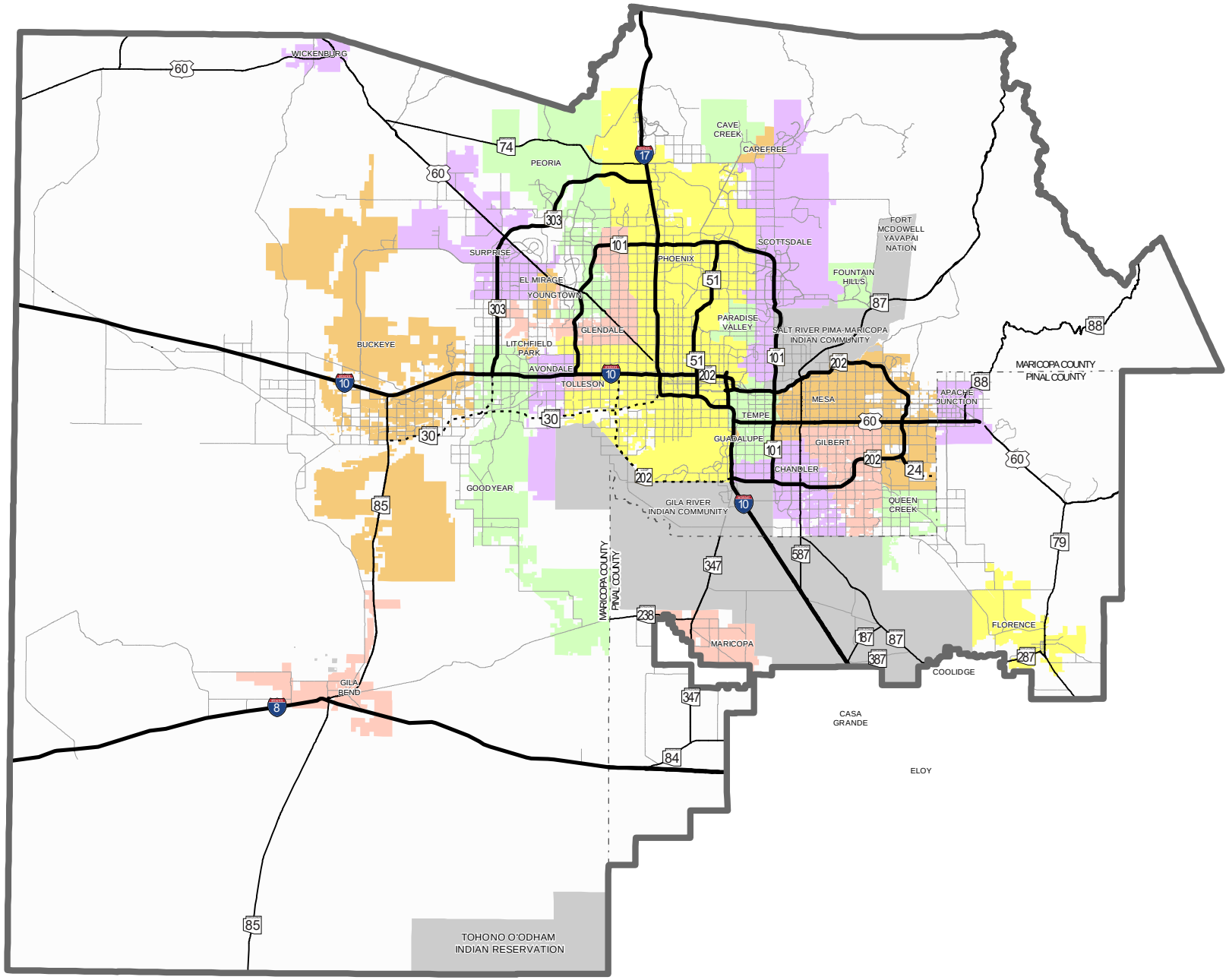
The RTP is developed under the direction of the Transportation Policy Committee (TPC). The TPC is a public/private partnership established by MAG and charged with finding solutions to the region's transportation challenges. The Committee consists of 23 members, including a cross-section of MAG member agencies, community business representatives, and representatives from transit, freight, 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. A Maricopa County representative from the State Transportation Board also sits on the Regional Council, but only votes on transportation-related issues. The MAG Regional Council is the ultimate approving body for the MAG RTP and MAG Transportation Improvement Program (TIP). Any changes to the MAG RTP, or the funded projects that affect the TIP must be approved by the MAG Regional Council.

The 2040 RTP Update was developed consistent with the regional transportation planning requirements of federal transportation legislation. It addresses key metropolitan transportation planning concepts identified in federal legislation, including: transportation facilities and planning factors; performance measures and targets; system performance reporting; mitigation activities; financial plans; operational and management strategies; capital investment and other strategies; and transportation enhancement activities.

Figure ES-1: MAG Region

MARICOPA ASSOCIATION of GOVERNMENTS



2040 Regional Transportation Plan Update

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

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REGIONAL TRANSPORTATION PLANNING PROCESS

The RTP Update 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 TPC 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 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 RTP Update 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 RTP 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, the 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. 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, MAG recognizes 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 Update 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 2020 through FY 2040, with fiscal years 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 2020 - FY 2024): Corresponds to the period covered by the MAG FY 2020 - FY 2024 TIP. Corridor discussions may refer to construction that is underway during this period but may have been programmed earlier.

- Group 2 (FY 2025 - FY 2026): Corresponds to the period beyond the TIP but within the Life Cycle Programs, which extends through FY 2026.

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

REGIONAL DEVELOPMENT OVERVIEW

The MAG 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 2018 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 updated the population count to provide estimates that correspond to a mid-2018 timeframe. During the 2000 to 2018 period, many of the fastest-growing cities in the MAG MPO showed increases greater than 25 percent. The Town of Queen Creek had the highest percentage increase of (86.9%), followed by the City of Buckeye (49.7%), the City of Goodyear (29.7%), and the City of Litchfield Park (22.2%) The City of Phoenix had the largest net increase in population, with an addition of 150,610 residents.

Population Forecasts

For the past several decades, the MAG MPO has been one of the fastest-growing metropolitan areas in the United States among those with populations of more than one million people. Population growth of approximately 28 percent was experienced in the decade from 2000 to 2010. MAG and Central Arizona Governments (CAG) Socioeconomic Projections indicate that this high growth rate is expected to continue. As calculated by the 2019 MAG and CAG Socioeconomic Projections, by 2040, the MAG Region population is projected to increase by more than 35.5 percent over the 2015 base population, an anticipated total of 6.2 million people. The Region will experience a growth of nearly 74,000 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), five MPAs are projected to grow by more than 100,000 persons: Phoenix, Buckeye, Surprise, Mesa, and Goodyear. Eight MPAs are projected to experience population growth greater than 50,000 persons: Glendale, Gilbert, Florence, Scottsdale, Queen Creek, Peoria, Chandler, and Tempe. Currently, six MPAs within the MAG Region have populations of over 200,000 persons: Phoenix, Mesa, Glendale, Chandler, Scottsdale, and Gilbert. By 2020, Peoria will nearly surpass 200,000 in population. By 2040, Phoenix, the largest MPA, will contain over 2 million persons, followed by Mesa at over 649,000, Surprise at over 307,000, Chandler at over 321,000, and Glendale at over 323,000.

TABLE ES-1
TOTAL RESIDENT POPULATION BY MPA, 2019 MAG & CAG PROJECTIONS
JULY 1, 2018 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	59,000	60,800	70,000	92,000
Avondale	84,200	86,700	101,800	111,900
Buckeye	89,000	97,700	186,600	305,400
Carefree	3,700	3,800	4,100	4,200
Cave Creek	5,900	6,000	6,500	7,000
Chandler	270,300	279,500	309,100	321,100
El Mirage	34,300	35,100	36,500	36,900
Florence	79,400	85,500	120,300	160,500
Fort McDowell Yavapai Native Nation	1,000	1,100	1,100	1,100
Fountain Hills	24,000	24,700	26,200	26,600
Gila Bend	2,500	2,700	3,700	3,700
Gila River Indian Native Nation	12,000	12,200	12,300	12,300
Gilbert	256,500	265,900	293,500	308,800
Glendale	272,200	279,100	306,400	323,400
Goodyear	87,300	92,100	140,300	192,200
Guadalupe	6,300	6,400	6,700	6,800
Litchfield Park	13,300	14,000	15,400	15,700
Maricopa	59,800	67,000	90,800	106,400
Mesa	533,400	552,800	607,500	649,400
Paradise Valley	14,000	14,100	14,700	15,100
Peoria	188,500	196,600	232,400	273,700
Phoenix	1,653,500	1,697,700	1,881,900	2,019,300
Queen Creek	58,700	65,000	90,900	109,000
Salt River Pima-Maricopa Native Nation	6,800	6,100	5,700	5,800
Scottsdale	245,500	253,800	281,900	299,400
Surprise	144,000	150,300	216,700	307,500
Tempe	185,300	190,000	217,100	247,000
Tolleson	7,000	7,100	8,600	10,300
Unincorporated Pinal County	66,800	68,600	79,100	93,700
Unincorporated Maricopa County	97,900	101,200	110,500	116,800
Wickenburg	8,200	8,500	9,400	9,500
Youngtown	6,600	6,800	7,300	7,700
Total MPO	**4,576,900**	**4,738,900**	**5,495,000**	**6,200,200**

Note: Rounded to the nearest 100. For Maricopa County only. Employment projections may show declines in future years because construction employment follows development.
Sources: Maricopa Association of Governments, Central Arizona Governments, Caveats for Socioeconomic Projections.

TRAVEL PATTERNS AND FORECASTS

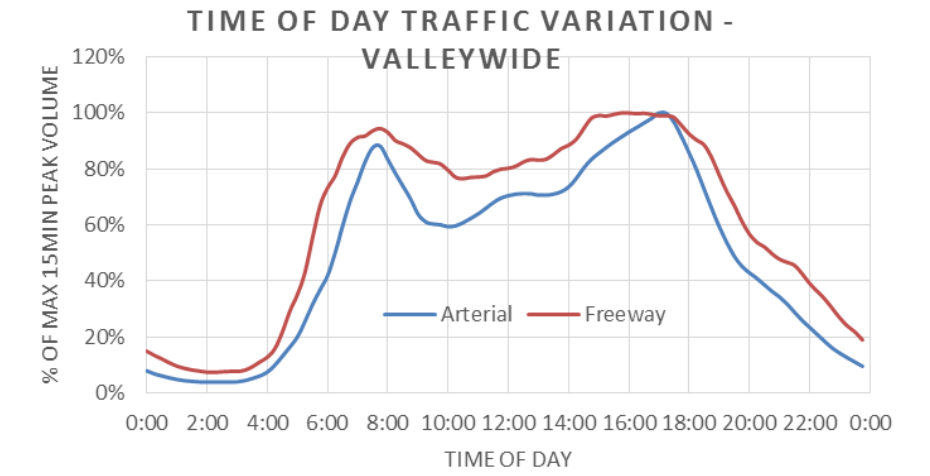
Transportation system analysis and forecasting are critical components in the regional transportation planning process, laying the foundation for identifying future transportation solutions, evaluating alternatives, and making infrastructure investment decisions. Regional household travel surveys are 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 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 peak periods of traffic volumes. 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
2018 TEMPORAL TRAVEL PATTERNS



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, which are projected to increase over 42 percent between 2018 and 2040. The percent of transit trips is forecasted to increase by 29 percent, with a corresponding increase in mode split from 1.4 percent in 2018 to 1.8 percent in 2040. The average auto occupancy rate is anticipated to remain at 1.3 persons per vehicle.

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

Mode	2018	2020	2025	2035	2040
Bus Person Trips	196.4	209.4	239.9	305.8	316.3
Light Rail Person Trips	57.1	66.6	93.4	141.3	154.4
Total Transit Person Trips	253.5	276.0	333.3	447.1	470.7
Total Vehicle Person Trips	15,817.1	16,360.5	17,843.5	20,580.0	22,109.3
Total Person Trips	**18,422.6**	**19,159.6**	**20,955.2**	**24,466.7**	**26,148.7**
Mode Split (% Transit)	1.4	1.4	1.6	1.8	1.8
Vehicle Occupancy Rate	1.3	1.3	1.3	1.3	1.3

Table ES-3 shows the anticipated growth in VMT and how it is distributed by facility type. Total VMT is expected to increase by 49 percent between 2018 and 2040, while the share of VMT carried by the freeway system, including high occupancy vehicle (HOV) lanes, remains at approximately 52 percent.

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

	Year									
Facility Type	**2018**	**%**	**2020**	**%**	**2025**	**%**	**2035**	**%**	**2040**	**%**
Freeway (1)	40.8	37.2	43.7	38.0	47.7	37.7	58.0	38.2	62.0	37.8
HOV (2)	4.8	4.4	5.1	4.5	5.6	4.4	7.0	4.6	7.2	4.4
Expressway (3)	3.1	2.9	3.2	2.8	3.9	3.1	4.8	3.2	5.2	3.2
Arterial/Local (4)	61.0	55.6	62.8	54.7	69.4	54.8	81.8	54.0	89.4	54.6
Total	**109.7**	**100.0**	**114.8**	**100.0**	**126.6**	**100.0**	**151.6**	**100.0**	**163.8**	**100.0**
Auto VMT	102.3	93.3	107.1	93.3	118.1	93.3	141.2	93.1	152.2	92.9
Truck VMT (5)	7.4	6.7	7.7	6.7	8.4	6.7	10.4	6.9	11.6	7.1
Total	**109.7**	**100.0**	**114.8**	**100.0**	**126.6**	**100.0**	**151.6**	**100.0**	**163.8**	**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, 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 2020 and FY 2040 are summarized in Table 8-5 (in YOE $'s). They include: the Proposition 400 half-cent sales tax extension ($17.8 billion); ADOT funds ($9.6 billion); Federal Transit funds ($4.6 billion); Federal Highway Surface Transportation Block Grant Program (STBGP) funds ($1.4 billion); Federal Highway Congestion Mitigation and Air Quality (CMAQ) funds ($1.3 billion); and other Federal Highway Funding ($126 million). The total of all these revenue sources is projected to amount to $34.8 billion between FY 2020 and FY 2040.

Table ES-4 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 the reflected project needs determined through the technical planning process. In addition, the distribution of regional revenues considers 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 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.

TABLE ES-4
SOURCE AND DISTRIBUTION OF REGIONAL REVENUES: FY 2020-2040
(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	10,039.7	1,875.8	5,948.8				17,864.3
ADOT Funds (Includes HURF and Federal Aid)	10,618.8						10,618.8
Federal Transit Funds			4606.0				4606.0
Federal Highway (MAG STBGP)		1,360.8					1,360.8
Federal Highway (MAG CMAQ)		176	471.6	223.3	191.8	250.9	1,313.7
Federal Highway (MAG Other)						126.0	126.0
Total	**20,658.5**	**3,412.5**	**11,026.4**	**223.3**	**191.8**	**376.9**	**35,889.4**

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, new interchanges with arterial streets on existing freeways, along with direct connections between high occupancy vehicle (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.

This system 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 ADOT. A total of 889 existing centerline miles are included in the freeway/highway network, and an additional 81 miles are planned for future development during the planning period. This leads to a system totaling 970 centerline miles in the year 2040.

Freeway/Highway Corridor Development

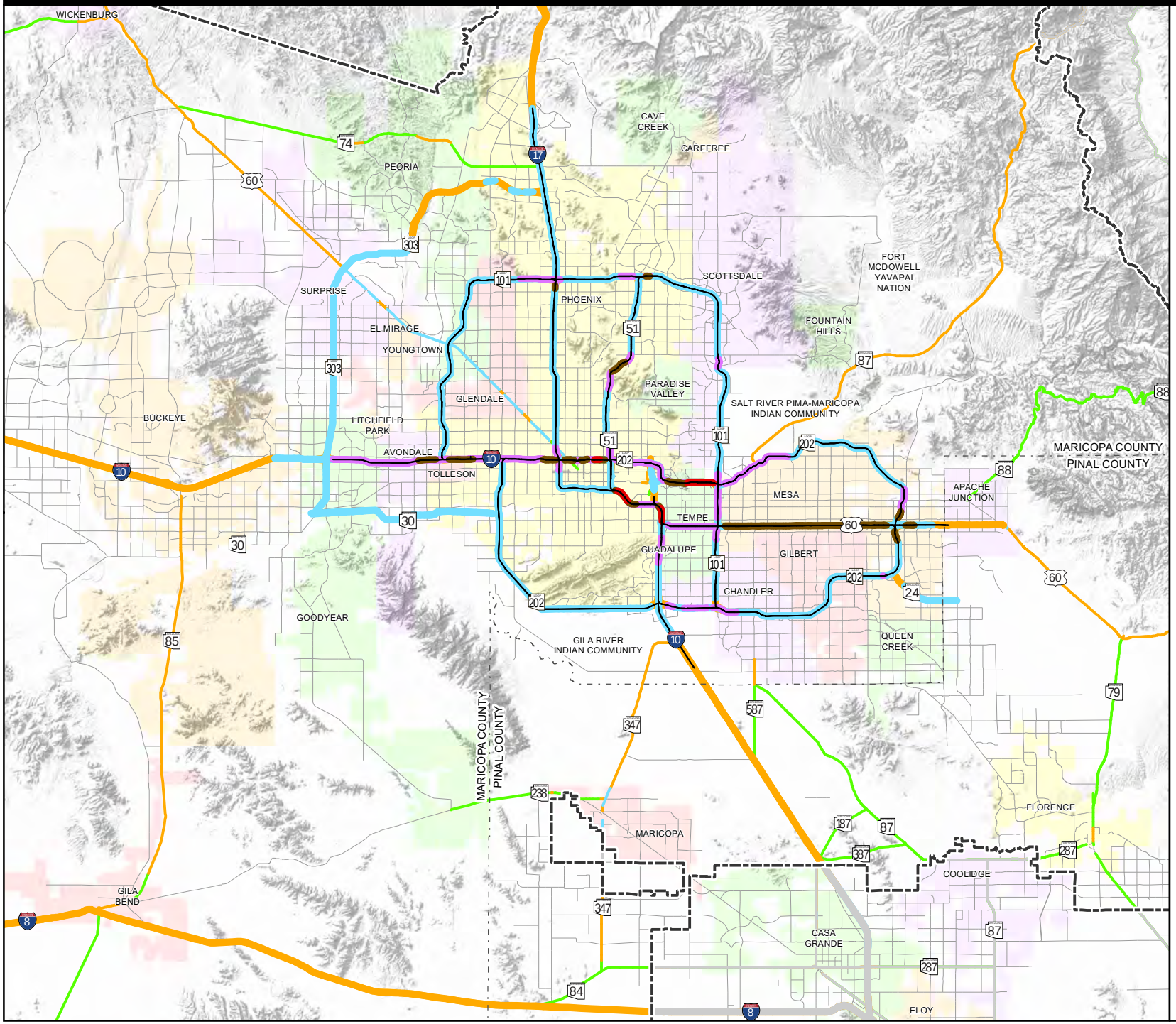
The freeway/highway element of the RTP includes both new facilities and improvements to the existing system. Operation and maintenance of the system are also addressed. Projects include new freeway corridors, additional lanes on existing facilities, new interchanges at arterial cross streets, HOV ramps at system interchanges, and maintenance and operations programs. The projected configuration of the future freeway/highway network in 2040 is depicted 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: (1) Estrella Freeway (303L), (2) Tres Rios (SR 30), (3) Gateway Freeway (SR 24), and (4) I-11 corridor.

- Widen Existing Facilities - General Purpose Lanes and HOV Lanes: In addition to new corridors, the RTP calls for additional general purpose and HOV lanes to 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.

- 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.

Figure ES-3: 2040 Freeway/Highway System Number of Lanes



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Freeway lanes are represented with thicker lines

- 2 General Use Lanes
- 3 - 4 General Use Lanes
- 5 - 6 General Use Lanes
- 7 - 8 General Use Lanes
- 9 - 10 General Use Lanes
- 11 - 12 General Use Lanes
- High Occupancy Vehicle (HOV) Lanes*
- Other Roads
- Metropolitan Planning Area
- County Boundary

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

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- 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 provides 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 reasonably available throughout the planning period, having had a long history of providing funding for the RTP. 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 for the freeway/highway element include the half-cent sales tax ($10.0 billion); MAG area ADOT funds ($10.6 billion); ADOT statewide funding ($1.8 billion); other funding ($285 million); bond proceeds ($240 million); federal and state discretionary funding ($3.2 billion); and an estimated available beginning cash balance of $789.7 million. Debt service and other expenses totaling $1.4 billion are deducted from these sources, yielding a net total of $25.5 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 $25.5 billion. This includes: $12.7 billion for construction of new corridors; $9.3 billion for construction of additional lanes and new interchanges on existing freeways; and $401 million for system-wide programs, such as preliminary engineering, right-of-way administration, and freeway system traffic management. A total of $3.0 billion is identified for roadway operations and maintenance functions, including routine roadway and right of way maintenance, pavement preservation, quiet pavement rehabilitation, and litter pick-up, sweeping and landscape maintenance. The remainder of $137 million 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 in the next few years.

TABLE ES-5

FREEWAY/HIGHWAY FUNDING PLAN FY 2020 - 2040

FUNDING (Year of Expenditure $'s in Millions)		
		Totals
Regional Funds		
MAG Half-Cent Sales Tax	10,039.7	
MAG Area ADOT Funds	10,618.8	
Other Income	284.9	
Beginning Available Cash	789.7	
Bond Proceeds	240.0	
Allowance for Debt Service and Other Expenses	(1,427.4)	
Total Regional Funds		20,545.7
Other Funding		
ADOT Statewide Funding	1,788.6	
Federal and State Discretionary	3,214.5	
Total Other Funding		5,003.1
Total Funding		**25,548.8**
EXPENDITURES (Year of Expenditure $'s in Millions)		
		Totals
Regionally Funded Projects		
New Corridors	12,681.7	
Improve Existing Facilities: General Lanes, HOV Lanes, Interchanges	9,284.9	
Freeway Management System, Freeway Safety Patrol	84.1	
Preliminary Engr., Risk Mgmt., ROW Management, Adv. ROW Acquis.	317.0	
Quiet Pavement Rehab.	241.25	
Litter Pick-Up, Sweeping, Landscaping	427.77	
Other Maintenance Programs	586.67	
Other Regionally Funded Projects	136.8	
Total Regionally Funded Projects		23,760.2
Other Funded Projects		
System Operation, Maintenance and Preservation		1,788.6
Total Expenditures		**25,548.8**

ARTERIAL STREETS

The arterial street grid system is a major component of the regional transportation system in the MAG area and is a key element of the Regional Transportation Plan (RTP). The 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 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 RTP identifies a long-range regional arterial grid system that provides for access to existing and newly developing areas in the region. This system is characterized by a one-mile grid network of streets and will be developed through a combination of public and private funding sources. 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 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 10-1 provides a summary of the funding scenario for the street 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 available funds 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, which include city/county highway user revenues ($14.7 billion); other local funding sources ($5.0 billion); and private funds ($4.2 billion). This represents a total of $27.6 billion available for use on arterial street projects and programs.

Figure ES-4: 2040 Arterial Street System Total Through Lanes

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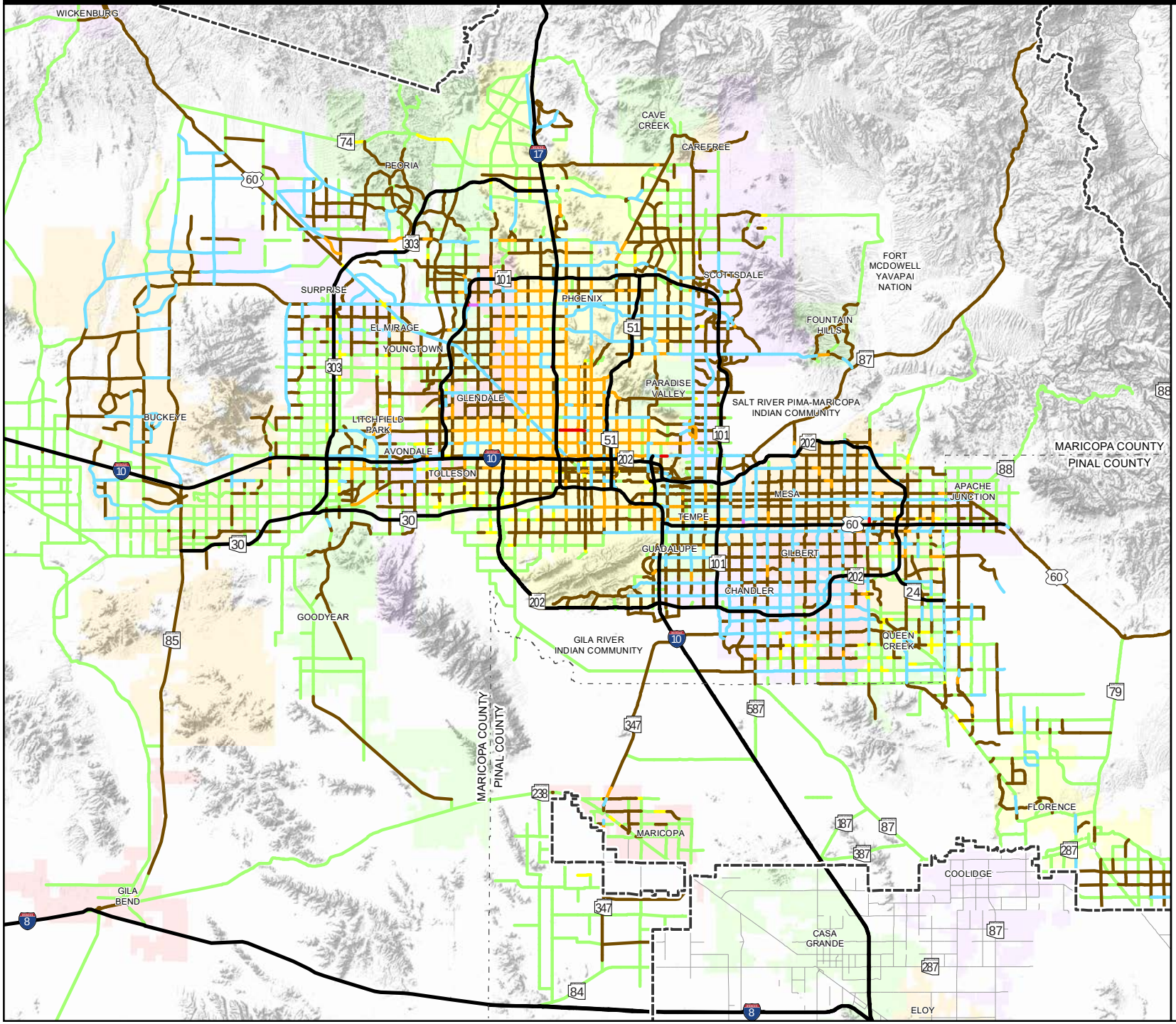

2040 Regional Transportation Plan Update

Arterial 2040 Lanes

- 2 Lanes
- 3 Lanes
- 4 Lanes
- 5 Lanes
- 6 Lanes
- 7 Lanes
- 8 Lanes

Other Features

- Freeways
- Other Roads
- Metropolitan Planning Area
- County Boundary

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TABLE ES-6
ARTERIAL STREET FUNDING PLAN FY 2020 - 2040

FUNDING (Year of Expenditure $'s in Millions)		
		Totals
Regional Funds		
MAG Half-Cent Sales Tax	1,875.8	
MAG Federal STP	1,360.8	
MAG Federal CMAQ (For arterial improvements)	176.0	
MAG Federal CMAQ (For PM-10 and other air quality programs)	191.8	
Beginning Balance (Regional Funds)	99.5	
Total Regional Funds		3,703.8
Local/Other Funds		
City/County Highway User Revenue Funds and County VLT	14,672.1	
Local Sources (General Funds, Local Sales Taxes, etc.)	5,023.2	
Private Funds (PAD Improvements, Developer Contributions, etc.)	4,230.9	
Total Local/Other Funds		23,926.2
Total Funding		**27,630.0**
EXPENDITURES (Year of Expenditure $'s in Millions)		
		Totals
Regionally Funded Projects		
Capacity/Intersection Improvements (ALCP)	936.4	
MAG Implementation Studies (ALCP)	12.7	
PM-10 and Other Air Quality Programs	191.8	
Other Arterial Grid Improvements	2,263.0	
Total Regionally Funded Projects		3,403.9
Local/Other Funded Projects		
Match for Regionally Funded Projects	1,829.4	
Future Arterial Grid Extensions, Widenings and Improvements	8,208.1	
System Operation, Maintenance and Preservation	14,188.6	
Total Local/Other Funded Projects		24,226.1
Total Expenditures		**27,630.0**

PUBLIC TRANSIT

The 2040 RTP Update includes a regional transit network that encompasses all transit modes in the region, includes a transit network that encompasses various transit modes in the region. The regional transit system is supported by federal, regional, and local funding sources. Regional funding sources include the Public Transportation Fund (PTF), also known as Proposition 400, which dedicates approximately one-third of the regional half-cent sales tax for transportation 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

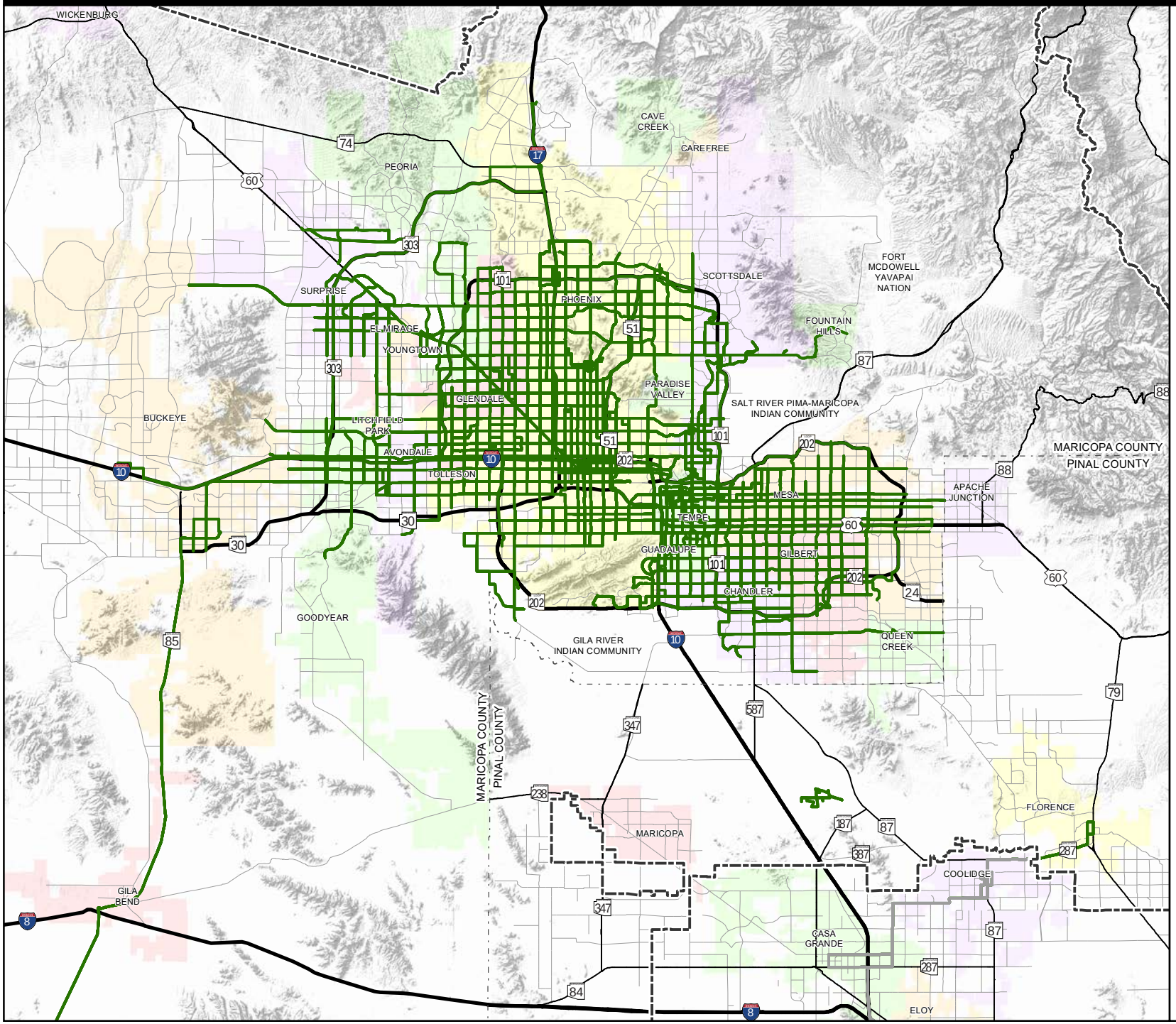
The 2040 RTP Update includes a broad vision for future transit facilities and services in the Region. Future bus service in the MAG Region will be a critical component of the planned regional transportation network. Paratransit services will also be essential, providing transportation for passengers 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: Future bus service in the MAG Region is an important component of the planned regional transportation network. Bus service operates 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, taxi subsidy programs, 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 28-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.

Figure ES-5: 2040 Bus Service Network



2040 Regional Transportation Plan Update

Bus Network

- 2040 Bus Network

Other Features

- Freeways
- Highways
- Other Roads
- Metropolitan Planning Area
- County Boundary

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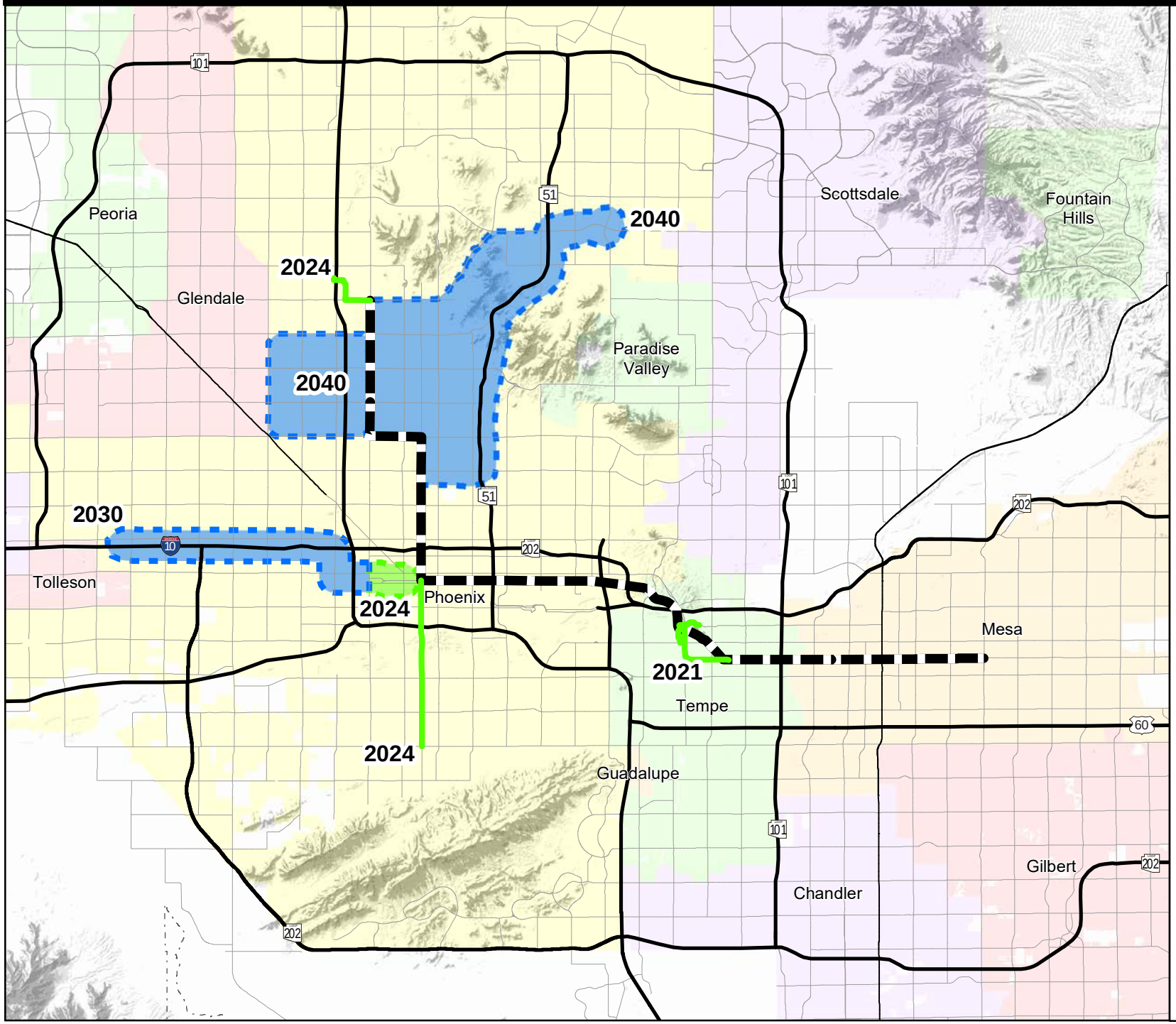
Figure ES-6: Regional Light Rail Transit (LRT)/High Capacity Transit Extensions



2040 Regional Transportation Plan Update

LRT/HTC Corridors

- Completed
- Group 1 (FY 2020 - FY 2024)
- Group 2 (FY 2025 - FY 2026)
- Group 3 (FY 2027 - FY 2040)

Other Features

- Freeways
- Highways
- Metropolitan Planning Area
- County Boundary

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

Extension Route Name (1)	Technology	Length (mi.)	Year Open
Tempe Streetcar, Tempe	Modern Streetcar	3.0	2021
Northwest Phoenix - Phase II, Phoenix	Light Rail Transit	1.7	2024
South Central, Phoenix	Light Rail Transit	5.0	2024
Capitol/I-10 West - Phase I (to 17th Ave./Jefferson), Phoenix	Light Rail Transit	1.4	2024
Capitol/I-10 West - Phase II (to 79th Ave./I-10), Phoenix	Light Rail Transit	9.6	2030
Northeast, Phoenix (3)	TBD (3)	12.0	2040
West Phoenix, Phoenix (2)	Light Rail Transit	3.0	2040

- 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 2020-2040 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 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: (1) $11.2 billion for fixed route bus capital and operating, including maintenance facilities and support services, (2) $2.1 billion for paratransit capital and operating, including vanpools, and (3) $8.5 billion for light rail transit/high capacity transit capital and operating.

TABLE ES-8
TRANSIT FUNDING PLAN: FY 2020 THROUGH FY 2040

FUNDING (Year of Expenditure $'s in Millions)	
	Totals
Regional Funds	
MAG Half-Cent Sales Tax	5,948.8
MAG Federal Transit Funds	4,464.7
MAG Federal CMAQ	553.7
Beginning Balance (Regional Funds)	67.9
Bond Proceeds	0.0
Allowance for Debt Service and Other Expenses	(247.8)
Total Regional Funds	10,787.3
Local / Other	
Fixed Route Bus Fares	1,593.8
Light Rail Transit/High Capacity Transit Fare Collections	653.3
Paratransit Vehicle Fares	110.6
Vanpool Fares	26.8
ALF Revenues	16.8
Local Funds	10,150.1
Total Local/Other Funds	12,551.4
Total Funding	**23,338.6**
EXPENDITURES (Year of Expenditure $'s in Millions)	
	Totals
Regionally Funded Projects	
Capital	
Regional Bus Fleet	1,215.0
Bus Maintenance and Passenger Facilities	419.2
Light Rail Transit/High Capacity Transit Regional Infrastructure	1,133.2
Light Rail Transit/High Capacity Transit Extensions	4,080.1
Paratransit (Americans with Disabilities Act, or ADA, compliant)	101.2
Vanpool	113.0
Rural/Non-Fixed Route Transit	10.7
Total Capital - Regionally Funded Projects	7,072.3
Operating	
Supergrid	1,516.2
Freeway Rapid Bus and Express Bus	278.8
LINK Service	58.2
Regional Passenger Support Services	213.2
Paratransit (ADA-compliant)	1,017.9
Light Rail Transit/High Capacity Transit	0.0
Rural/Non-Fixed Route Transit	11.5
Vanpool	26.8
Planning, Programming and Other Support	154.9
Total Operating - Regionally Funded Projects	3,277.5
FTA Funds Forecast Contingency	437.4
Total Regionally Funded Projects	10,787.3
Locally / Other Funded Projects	
Capital	
Fixed Route Bus Service	1,153.7
Paratransit	97.8
Light Rail Transit/High Capacity Transit	1,537.1
Total Capital - Locally/Other Funded Projects	2,788.5
Operating Costs	
Fixed Route Bus Service	6,103.1
Paratransit	772.3
Light Rail Transit/High Capacity Transit	3,096.5
Planning, Programming and Other Support	228.5
Total Operating - Locally/Other Funded Projects	10,200.3
FTA Funds Forecast Contingency	(437.4)
Total Locally/Other Funded Projects	12,551.4
Total Expenditures	**23,338.6**

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 projects 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 Plan for illustrative purposes only and are not included in the financial plan or air quality conformity determination.

An illustrative project may not be needed until after the planning horizon of the RTP. However, illustrative projects can be help guide transportation and land use planning efforts at both the regional and local level, even though funding for the projects has not yet been identified. An illustrative project must be identified through a transportation planning process such as a framework study, corridor or modal analysis. 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 RTP 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 TPC, can add or delete an illustrative project in the MAG RTP.

2040 RTP Update

The illustrative corridors/projects included in the 2040 RTP Update 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 RTP.

- 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 MAG 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.

- 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.
  - 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 Maricopa Association of Governments (MAG) region includes 16 airports, including: one major commercial facility, Phoenix Sky Harbor International Airport; one non-hub commercial airport, Phoenix-Mesa Gateway Airport; one Air Force Base; seven general aviation reliever airports; and six general aviation airports.

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. 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

MAG maintains an active role in promoting the establishment of improved travel opportunities for bicyclists and pedestrians. MAG is 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. The goal of the MAG Regional Bikeway Master Plan is to develop an inter-connected bikeway system of on-street and off-street facilities. 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 RTP. 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.

The MAG RTP and TIP include a strong commitment to implement bicycle facility improvements. Funding specifically for bicycle and pedestrian projects from regional sources totals approximately $340 million (year of expenditure, YOE $s). This funding is provided from MAG Congestion Mitigation Air Quality and Transportation Alternatives funds and requires a 5.7 percent local match. The FY 2021 MAG Unified Planning Work Program and Annual Budget included $500,000 for the Bicycle and Pedestrian Design Assistance program. The program allows MAG member agencies to apply for funding for the preliminary engineering portion of a bicycle or pedestrian project including shared-use pathways.

Freight

Freight transport involves a complex network of methods, modes, and equipment to move raw materials and processed goods through regional, national, and international markets for commerce. The movement of goods is conducted through multiple modes of transport, such as air, pipeline, water, truck, rail, and other non-traditional means. Freight issues are complex and often cross county or state borders. Supply chains, market demand, and competitive transportation corridors are continually changing. Therefore, neighboring regions and countries can benefit from the collaboration of plans to move freight efficiently and keep the Region globally competitive.

In 2012, MAG in cooperation with the Joint Planning Advisory Council 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. In 2016, MAG completed the MAG Freight Transportation Plan, which designated a forward-looking core roadway freight network for long-term protection and investment, to attract industry and support household needs through better performance in speed, reliability, cost, productivity, and safety. Current studies underway include the Southwest Freight Subarea Project Assessment and the MAG Truck Parking Study.

Special Needs Transportation

The Maricopa Association of Governments (MAG) recognizes that the transportation needs of special populations are of regional concern and importance. Limitations caused by age or disability complicate the process of accessing and securing transportation for a portion of our community members. Those with limited financial resources may find transportation options to employment or training activities out of their reach. In the MAG Region, human services transportation faces an increasing demand for services due to the estimated growth in population.

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 MAG Regional Council approved the first plan in 2007; subsequent updates were approved through 2019. 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 and funding. Subsequent efforts such as the SAFETEA-LU (Safe Accountable Flexible Efficient Transportation Equity Act – A Legacy for Users), MAP-21 (Moving Ahead for Progress in the 21st Century), and the FAST Act fund enhancements through the Federal Highway Administration's (FHWA) Transportation Alternatives as a sub-allocation of the Surface Transportation Block Grant 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

Planning for Systems Management and Operations (SM&O), in the context of surface transportation in large urban regions, refers to the regional approach for optimizing the operation and performance of the transportation system. This is accomplished through the coordination of multi-modal, cross-jurisdictional traffic management systems and related services that deliver positive outcomes for the region through improved safety and mobility. The full spectrum of transportation technology applications and related infrastructure, known as Intelligent Transportation Systems (ITS), together with effective practices in traffic management and operations, form the basis for all SM&O programs and services.

System Management and Operations / Intelligent Transportation Systems

In August 2016, MAG initiated a new study to develop an SM&O Plan to guide regional strategic investments to expand essential ITS infrastructure components and support a business model that addresses the staffing and resource needs for efficient management and operation of critical components of the regional transportation system. The SM&O Plan supersedes previous ITS strategic plans focused mostly on building infrastructure. The SM&O Plan identifies funding needs for a ten-year period (FY 2021 through FY 2030) with a focus on four priority areas: Integrated Corridor Management (ICM) freeways and adjacent arterials, regional priority arterial corridors, local arterial corridors, and enhanced operations and management. A key outcome from the SM&O Plan is the recommendation of an institutional framework and the funding support needed for the future management and operation of critical transportation facilities in the Region.

At the regional level, MAG is committed to supporting 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, on both the freeway and arterial systems. Most regional investments in ITS are directed at new infrastructure or technology upgrades. A fully integrated system of ITS infrastructure was funded by the RTP and implemented on the urban freeway network.

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.

Transportation Demand Management, or TDM, programs apply strategies and policies to reduce travel demand and encourage more efficient use of the transportation system. Strategies aim at

increasing travel choices and providing incentives to reduce single occupancy vehicles (SOVs) and promote alternatives such as carpooling, vanpooling, transit, walking, and bicycling. The goal is to reduce commuter or student trips during peak travel periods. Policies that reduce commuter trips include alternative work schedules, such as teleworking and compressed workweeks. MAG provides funding for TDM programs, which are implemented by the Regional Public Transportation Authority (Valley Metro/RPTA), the Arizona Department of Administration, and the Maricopa County Air Quality Department.

Transportation Demand Management programs will be funded by several revenue sources during the planning period. Regional funding sources and local transit funding sources contribute to rideshare, trip and travel reduction, and vanpool activities.

Congestion Management

The Congestion Management Process (CMP) is an objectives-driven, performance-based systematic approach to addressing traffic congestion problems and their effects throughout the MAG Transportation Management Area. The CMP is a requirement of states and metropolitan planning organizations (MPOs) and addresses congestion through effective development, management, and operation of transportation facilities and services, and implements effective strategies and solutions to reduce mobility problems in the Region.

MAG updated the CMP in collaboration with the MAG CMP Working Group. This effort relied on historical and current traffic data analysis and culminated in a CMP Report published in December of 2009. The CMP comprises two main criteria: (1) the establishment of a series of strategies to address congestion, and (2) the development and implementation of a CMP evaluative Sketch Tool. The elements considered include performance measures, data collection, and system monitoring, the identification and evaluation of proposed strategies, the implementation of those strategies, and the evaluation of their effectiveness.

Performance Monitoring

The Fixing America's Surface Transportation (FAST) Act, signed into law on December 4, 2015, introduced transformative transportation regulations mandating a performance-based management approach of states and metropolitan planning organizations (MPOs) across the country. Consistent with federal rulemaking and state legislation, the development of the MAG RTP includes a performance-based planning and programming process.

On September 26, 2017, and January 22, 2019 the MAG Transportation Safety Committee reviewed the proposed statewide safety performance targets for 2018 and 2019, unanimously recommending that MAG support them in compliance with FHWA rulemaking.

On May 20, 2017, the FHWA's final rules establishing performance measures for DOTs and MPOs took effect. The rule established performance measures for pavement and bridges on the National Highway System (NHS) and requires the development of targets that support the

management of this infrastructure in a state of good repair. ADOT established targets corresponding to the measures identified for interstate and non-interstate NHS pavement and bridge conditions throughout Arizona, including the locally owned NHS facilities in the MAG Region.

MAG and ADOT developed collaborative methodologies to calculate targets and continue to integrate technical data sources and analytic procedures supporting target setting and annual reporting. In compliance with reporting requirements, target calculation results were submitted to FHWA. In addition, MAG is developing performance reporting tools for required plans and web-portals to comply with FAST Act regulations.

Transportation Safety and Security

In September 2004, the Maricopa Association of Governments (MAG) formed a Transportation Safety Committee, establishing the intent to incorporate safety considerations in the metropolitan planning process. In October 2005, MAG adopted the Region's first Strategic Transportation Safety Plan (STSP) developed and recommended by the committee. The STSP was updated in 2015 and a comprehensive update of the STSP is in the process for 2020; oversight of the plan's update is provided by the Transportation Safety Committee. All planning activities related to transportation safety are performed in coordination with the Transportation Safety Committee.

In 2010, MAG developed a network screening methodology to identify and rank all intersections in the Region based on crash risk. The Network Screening Methodology for Intersections (NSM-I) screened over 20,000 intersection locations in the Region and ranked them by crash risk. The functionality of running a query utilizing NSM-I was added to the RTSIMS software. Utilizing the NSM-I functionality, MAG produces a high-level list of intersections for local agencies in a data-driven process to nominate road safety and project assessment locations. This crash risk screening functionality was a landmark accomplishment for the Region. It helped local agencies obtain Highway Safety Improvement Program funds from the state for road safety projects.

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 was conducted by MAG on the Draft FY 2020-2024 MAG Transportation Improvement Program (TIP) and the Draft 2040 MAG Regional Transportation Plan Update (RTP). 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.

Conformity Tests

The conformity tests specified in the federal transportation conformity rule are: (1) the emissions budget test, and (2) interim emissions tests. For the emissions budget test, projected emissions for the TIP and RTP must be less than or equal to the motor vehicle emissions budget specified in the approved air quality implementation plan or the emissions budget found by EPA to be adequate for transportation conformity purposes. If there is no approved air quality plan for a pollutant for which the region is in nonattainment or no emissions budget found to be adequate for transportation conformity purposes, interim emissions tests apply.

For the 2020 MAG Conformity Analysis, for carbon monoxide the emissions budget test was applied using the approved conformity budget from the MAG 2013 Carbon Monoxide Maintenance Plan. For eight-hour ozone, emission budget tests were applied using the approved conformity budgets from the MAG 2007 Eight-Hour Ozone Plan and MAG 2009 Eight-Hour Ozone Maintenance Plan. For PM-10, the emission budget test was applied using both the approved budget from the MAG 2012 Five Percent Plan for PM-10 and the approved budget from the Revised MAG 1999 Serious Area Particulate Plan for PM-10.

For the Pinal County nonattainment areas, there are no adequate or approved motor vehicle emissions budgets for conformity. Therefore, the conformity interim emissions tests were applied. The action/baseline tests were conducted for PM-10 for the West Pinal PM-10 Nonattainment Area and for PM-2.5 and NOx for the West Central Pinal PM-2.5 Nonattainment Area for the analysis years of 2020, 2025, 2035, and 2040.

Results of the Conformity Analysis

The conformity analysis demonstrates that the TIP and RTP are in conformance with regional air quality plans and will not contribute to air quality violations. The 2020 MAG Conformity Analysis supports a finding of conformity for the FY 2020-2024 MAG TIP and 2040 MAG RTP Update.

Appendix A

Regional Freeway/Highway Projects

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

PROJECT DESCRIPTION	COST FY 2020 - FY 2040 (2019 $'s in 1,000's)	PLAN GROUP *
I-10/Papago		
10 (Papago): SR85 to Verrado Way Construct general purpose lanes	118,200	1
10 (Papago): Fairway Dr (El Mirage Rd) TI Construct new traffic interchange	23,900	1
10 (Papago): Desert Creek/323rd Ave Construct new interchange ***	20,400	1
10 (Papago): 395th Ave Construct new interchange ***	20,020	1
Subtotal	182,520	
I-10/Maricopa		
10 (Maricopa): Sky Harbor West Airport Access Reconstruct traffic interchange (RFHP Map I.D. # 3)	100,000	2
10 (Maricopa): I-17 Split to SR-202L/Santan Construct lanes, rebuild interchanges, construct bike/ped overcrossings	681,000	1
10 (Maricopa): SR202L/Santan to Riggs Rd Construct HOV and general purpose lanes	129,100	2
10 (Maricopa): Chandler Heights Rd (Gila River Indian Community Access Imp.) Construct new traffic interchange	15,000	1
10 (Maricopa): Baseline Rd Reconstruct traffic Interchange	75,000	3
10 (Maricopa): Baseline Rd to Elliot Rd Construct collector-distributor lanes	145,000	3
10 (Maricopa): Riggs Rd to MPA Boundary Construct general purpose lanes**	296,800	3
Subtotal	1,441,900	
I-11		
11: Interstate 10 to US-93 Construct four-lane rural freeway	1,214,506	3
I-17/Black Canyon		
17: Central Ave Rebuild Overcrossing	31,600	1
17: I-10 Split to 19th Ave Construct Construct auxilary lanes	77,800	1
17: I-10 Split to 19th Ave Construct lanes & rebuild interchanges	276,900	3
17: Indian School Rd Rebuild traffic interchange	59,100	1

PROJECT DESCRIPTION	COST FY 2020 - FY 2040 (2019 $'s in 1,000's)	PLAN GROUP *
17: Camelback Rd Rebuild traffic interchange	85,900	2
17: Glendale Ave Rebuild traffic interchange	65,500	3
17: Northern Ave Rebuild traffic interchange	74,700	3
17: Peoria Ave to Greenway Rd Construct drainage improvements	36,200	1
17: Thunderbird Rd Rebuild traffic interchange	106,600	3
17: Bell Rd Rebuild traffic interchange	136,600	3
17: Pinnacle Peak Rd to Happy Valley Rd Rebuild traffic interchanges	44,000	1
17: Anthem Way to Yavapai County Line Construct general purpose lanes	50,000	1
17: SR-74 to Anthem Wy Construct HOV lanes	47,560	3
17: 19th Ave. to Indian School Reconstruct mainline and construct HOV lanes	462,375	3
17: Iindian School to Dunlap Reconstruct mainline and construct HOV lanes	437,625	3
17: Dunlap to SR-101L Reconstruct mainline and construct HOV lanes	220,440	3
17: US-60/Grand Ave Construct DHOV traffic interchange	150,000	3
17: SR-101L System interchange Construct DHOV freeway ramps	150,000	3
17: I-10/Maricopa (Split) Interchange Construct DHOV freeway ramps	200,000	3
17: Mores Gulch Replace bridge****	10,000	1
Subtotal	2,722,900	
SR-24/Gateway		
24 (Gateway): Ellsworth Rd to Ironwood Rd Construct new freeway - Phase 1 (RFHP Map I.D. # 33)	216,300	1
24 (Gateway): 202L to Meridian Rd (Ironwood Dr) Convert to full freeway	105,000	3
Subtotal	**321,300**	
SR-30/Tres Rios		
30 (I-10 Reliever): SR303L to SR202L Preserve R/W for a full freeway	464,600	1
30 (I-10 Reliever): SR303L to SR202L Construct full freeway	2,370,000	3
30 (I-10 Reliever): SR85 to SR303L Construct Phase 1 roadway & preserve R/W for a full freeway	350,000	3
30 (I-10 Reliever): SR85 to SR303L convert to full freeway, SR-85 system interchange	1,650,000	3

PROJECT DESCRIPTION	COST FY 2020 - FY 2040 (2019 $'s in 1,000's)	PLAN GROUP *
30 (I-10 Relever): SR 202L to I-17 Construct new freeway, including I-17 system interchange	1,500,000	3
Subtotal	6,334,600	
SR-51/Piestewa	N/A	N/A
US-60/Grand Ave		
60 (Grand Ave): 35th Ave/Indian School Rd Rebuild traffic interchange	162,700	2
60 (Grand) 101L to Van Buren St. Construct two traffic interchanges (locations to be determined)	250,000	3
Subtotal	412,700	
US-60/Superstition		
60 (Superstition): Crismon Rd to Meridian Rd Construct general purpose and HOV lanes	28,800	3
60 (Superstition): Crismon Rd to Idaho Rd Install FMS	4,300	3
60 (Superstition): Mountain Rd to Renaissance Festival Construct Arizona parkway **	28,800	3
Subtotal	61,900	
SR-74/Carefree Hwy		
74: US60 Grand Ave to SR-303 Protect R/W for future freeway corridor	42,500	3
SR-79		
79: Butte Ave to CAP (North of Florence) Construct general purpose lanes **	15,225	3
SR-85		
85: Warner Street Construction Bridge	5,500	1
SR-87	N/A	N/A
SR-88	N/A	N/A
US-93		

PROJECT DESCRIPTION	COST FY 2020 - FY 2040 (2019 $'s in 1,000's)	PLAN GROUP *
93: Tegner St to MPA Bndry. Construct general purpose lanes	26,000	1
SR-101L/Agua Fria		
101 (Agua Fria): I-10 System Interchange Construct interchange improvements	202,500	2
101 (Agua Fria): I-10 to US-60 Construct general purpose lanes	162,600	3
101 (Agua Fria): US-60 to 75th Ave Construct general purpose lanes	95,400	3
101 (Agua Fria): 75th Ave to I-17 Construct general purpose lanes	110,900	2
Subtotal	571,400	
SR-101L/Pima		
101 (Pima): I-17 to Pima Road Construct general purpose lanes	190,300	1
101 (Pima): Pima Rd to Shea Blvd Construct general purpose lanes	77,300	1
101 (Pima) Pima Rd Extension (JPA)	3,931	2
Subtotal	271,531	
SR-101L/Price		
101 (Price): Baseline Rd to SR-202L/Santan Construct general purpose lanes (RFHP Map I.D. # 27)	68,400	1
SR-143/Hohokam	N/A	N/A
SR-202L/Red Mountain		
202 (Red Mountain): Broadway Road to Gilbert Road/Santan Fwy Construct HOV lanes	89,500	3
202 (Red Mountain): Val Vista Dr to Higley Rd Construct general purpose lanes	51,900	3
202 (Red Mountain): Higley Rd to US-60 Construct general purpose lanes	108,300	3
202 (Red Mountain): US-60 Superstition TI Construct DHOV freeway ramps	138,900	3
Subtotal	388,600	
SR-202L/Santan		
202 (Santan): Lindsay Rd Construct new traffic interchange	26,900	1

PROJECT DESCRIPTION	COST FY 2020 - FY 2040 (2019 $'s in 1,000's)	PLAN GROUP *
202 (Santan): Val Vista Rd to SR-101 Construct general purpose lanes	166,400	2
202 (Santan): SR-101 to I-10 Construct general purpose lanes	52,000	3
202 (Santan): US-60 to Val Vista Rd Construct general purpose lanes	121,000	3
Subtotal	366,300	
SR-202L/South Mountain		
203 (South Mountain): P3 Maintenance Design, build, and maintain new freeway	6,072	1
Subtotal	6,072	
SR-238		
238: SR-347 to Warren Rd Construct general purpose lanes**	25,500	2
SR-287		
287: SR-79 to MPA Boundary Construct general purpose lanes **	15,225	3
SR-303L/Estrella		
303 (Estrella): MC 85 to Van Buren St Construct new freeway	303,200	3
303 (Estrella): Northern Ave/Olive Ave Construct traffic interchange improvements	21,500	3
303 (Estrella): Happy Valley Pkwy to Lake Pleasant Pkwy Construct general purpose lanes	37,500	1
303 (Estrella): Northern Ave to Clearview Blvd Install FMS	4,864	1
303 (Estrella): Lake Pleasant Rd to I-17 Install FMS	4,864	1
303 (Estrella): US60 Grand Ave Construct traffic interchange improvements	124,600	3
303 (Estrella): Northern Parkway Construct traffic interchange improvements	85,600	3
303 (Estrella): Lake Pleasant Pkwy to I-17 Construct ultimate freeway section & system interchange at I-17	255,500	3
303 (Estrella): Riggs Rd - SR-30 Protect R/W	100,000	3
Subtotal	937,629	
SR-347		
347: I-10 to SR-238 Construct general purpose lanes **	82,000	3

PROJECT DESCRIPTION	COST FY 2020 - FY 2040 (2019 $'s in 1,000's)	PLAN GROUP *
North-South Freeway		
North-South Freeway Protect R/W, including SR-24	69,000	3
System-wide Programs		
System-wide Preliminary Engineering	175,770	1-3
System-wide Freeway Management System	18,690	1-3
System-wide Maintenance	287,700	1-3
System-wide Freeway Service Patrol	21,000	1-3
System-wide Quiet Pavement	160,000	1-3
System-wide Right of Way Management	58,800	1-3
Subtotal	721,960	
TOTAL	**16,305,168**	

* Plan Groups:
Group 1 - (FY 2020 - FY 2024)
Group 2 - (FY 2024 - 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. It should be noted that the RTP presents the overall, long-range outlook for transportation improvements in the region, while the TIP provides project details.

Appendix B

Regional Arterial Street Projects

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

FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2020 - FY 2026 (2019 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2019 $'S in millions)	TOTAL PROJECT COST: FY 2020 - FY 2040 (2019 $'S in millions) *	PLAN GROUP**
CHANDLER				
Price Rd Substitute Projects				
Chandler Heights Rd: Arizona Avenue to McQueen Road	0.069	0.000	0.099	Group 1
Chandler Heights Road: McQueen Road to Gilbert Road	6.582	0.000	9.403	Group 1
Ocotillo Road: Cooper Road to Gilbert Road	4.999	0.000	7.142	Group 1
Chandler Heights Rd: Gilbert Rd to Val Vista Rd	2.587	0.000	9.388	Group 2
Ray Rd/Dobson Rd				
Ray Rd at Dobson Rd: Intersection Improvements Phase II	0.000	6.452	9.216	Group 3
Ray Rd at McClintock Rd: Intersection Improvements	0.000	3.775	8.511	Group 3
Ocotillo Rd: Gilbert Rd to 148th Street	2.358	0.000	6.767	Group 1
Cooper Rd: Alamosa Dr to Riggs Rd				
Cooper Rd: Alamosa Dr to Riggs Rd (ROW)	0.967	0.000	0.000	Group 1
Cooper Rd: Alamosa Dr to Riggs Rd (DES/CONST)	10.025	0.474	0.000	Group 1
Lindsay Rd: Ocotillo Rd to Hunt Hwy	7.451	0.211	23.832	Group 1
CHANDLER/GILBERT				
Queen Creek Rd: Arizona Ave to Higley Rd				
Queen Creek Rd: McQueen Rd to Gilbert Rd (CHN)	0.000	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)	2.363	0.000	3.375	Group 1
Thunderbird Rd: 127th Ave to Grand Ave (ELM)	3.344	0.000	0.000	Group 1
El Mirage Rd: Peoria Ave to Cactus Rd (ELM)	0.500	0.000	0.000	Group 1
El Mirage Rd: Northern Ave to Bell Rd (Phase II)				
El Mirage Rd: Cactus to Grand Avenue (ELM)	2.353	0.000	0.000	Group 1
Dysart Rd: Northern Ave to Peoria Ave	0.000	0.000	10.600	Group 1
FOUNTAIN HILLS				
Shea Blvd: Palisades Blvd to Cereus Wash				
Shea Blvd: Palisades Blvd to Technology Dr	2.172	0.692	5.442	Group 1
GILBERT				
Elliot Rd at Cooper Rd: Intersection Improvements	7.614	0.000	10.877	Group 1
Germann Rd: Gilbert Rd to Power Rd				
Germann Rd: Gilbert Rd to Val Vista Dr	15.501	0.000	23.170	Group 1

FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2020 - FY 2026 (2019 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2019 $'S in millions)	TOTAL PROJECT COST: FY 2020 - FY 2040 (2019 $'S in millions) *	PLAN GROUP**
Guadalupe Rd at Power Rd: Intersection Improvements	0.000	6.280	11.428	Group 2
Ray Rd at Gilbert Rd: Intersection Improvements	0.000	3.775	7.594	Group 3
Higley Rd at Baseline Rd: Intersection Improvements	3.364	0.000	4.806	Group 1
Lindsay Road/SR-202L Transportation Interchange and Corridor Improvements				
Lindsay Road/SR-202L Transportation Interchange & Frontage Road	2.225	0.000	26.120	Group 1
Lindsay Road: Pecos Road to Germann Road	7.608	0.000	10.426	Group 1
Mustang Drive: Rivulon Blvd to Germann Road	6.850	0.000	7.512	Group 2
Val Vista Dr: Appleby Rd to Riggs Rd	19.796	4.515	34.044	Group 1
McQueen Rd at Elliot Rd	2.992	1.919	10.384	Group 1
GILBERT/MESA/MARICOPA COUNTY				
Power Rd: Santan Fwy to Chandler Heights				
Power Rd: Pecos to Chandler Heights (GIL)	0.000	0.000	27.993	Group 2
Power Rd: Baseline Rd to Santan Fwy				
Power Rd: East Maricopa Floodway to Santan Fwy/Loop 202 (MES)	8.193	0.000	31.046	Group 1
MARICOPA COUNTY				
Dobson Rd: Bridge over Salt River	0.000	0.000	44.110	Group 3
El Mirage Rd: Bell Rd to Jomax Rd				
El Mirage Rd: Bell Rd to Deer Valley Dr	0.853	0.000	0.000	Project Complete
El Mirage Rd: L303 to Jomax	0.000	0.000	17.889	Group 3
Gilbert Rd: Bridge over Salt River	39.037	0.000	85.438	Group 2
McKellips Rd: Bridge over Salt River	0.000	14.005	72.925	Group 3
McKellips Rd: Loop 101 to SRP-MIC/Alma School Rd	11.948	14.567	10.807	Group 1
Northern Pkwy: Sarival to Grand (Phase II)				
Northern Pkwy: Dysart to 111th	24.504	0.000	31.239	Group 1
Northern Parkway: 99th Ave to 91st Ave	16.100	0.000	41.056	Group 1
Northern Pkwy: Dysart Overpass	0.000	0.000	0.050	Group 1
Northern Parkway: 111th Ave to Grand	0.000	0.000	1.250	--
Northern Parkway: Loop 101 to Grand Ave Scoping Assessment	0.000	0.000	0.235	--
Northern Parkway: Dysart and El Mirage Overpass	15.311	0.000	30.322	Group 1
Northern Pkwy: Sarival to Grand (Phase III)				
Northern Pkwy: El Mirage Alternative Access	3.199	0.000	4.560	Group 1
Northern Pkwy: El Mirage Overpass	0.000	0.000	0.050	--
Northern Pkwy: Agua Fria to 112th	12.460	0.000	19.400	Group 1
Northern Pkwy: 112th to 107th	15.820	0.000	20.346	Group 1
Northern Pkwy: 107th to 99th	31.571	0.000	29.289	Group 1
Northern Pkwy: Loop 101 to 91st	3.575	0.000	5.108	Group 2

FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2020 - FY 2026 (2019 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2019 $'S in millions)	TOTAL PROJECT COST: FY 2020 - FY 2040 (2019 $'S in millions) *	PLAN GROUP**
Northern Pkwy: 91st to Grand Intersection Improvements	0.000	0.000	9.939	Group 2
Northern Pkwy: ROW Protection	0.000	0.000	0.000	--
Northern Pkwy: Ultimate Construction	0.000	0.000	1.010	Group 2
Northern Pkwy: Agua Fria to 99th	2.169	0.000	3.100	--
MESA				
Broadway Rd: Country Club Dr to Stapley Dr				
Broadway Rd: Country Club Dr to Mesa Dr	5.640	0.000	12.555	Group 1
Broadway Rd: Mesa Dr to Stapley Dr	15.467	0.000	15.991	Group 1
Country Club Dr at University Dr: Intersection Improvements	0.000	8.325	25.268	Group 3
Crismon Rd: Broadway Rd to Germann Rd				
Crismon Rd: Broadway Rd to Guadalupe Rd	0.000	9.919	17.965	Group 3
Dobson Rd at University Dr: Intersection Improvements	0.000	4.921	8.224	Group 3
Elliot Rd: Power Rd to Meridian Rd				
Elliot Rd: Power Rd to Ellsworth Rd	12.423	5.063	15.947	Group 2
Elliot Rd: Ellsworth Rd to Signal Butte Rd	8.560	0.000	14.313	Group 1
Hawes Rd: Broadway Rd to Ray Rd				
Hawes Rd: Broadway Rd to US60	0.000	0.000	10.697	Group 2
Hawes Rd: Baseline Rd to Elliot Rd	7.108	0.000	10.368	Group 3
Hawes Rd: Elliot Rd to Santan Freeway	4.415	0.000	8.386	Group 3
McKellips Rd: East of Sossaman to Meridian				
McKellips Rd: East of Sossaman to Crismon Rd	12.283	0.000	17.440	Group 2
McKellips Rd: Crismon Rd to Meridian Rd	0.000	0.000	11.545	Group 3
Mesa Dr: Southern Ave to US60 and Mesa Dr to Broadway Rd				
Mesa Dr: US 60 to Southern Ave	0.053	0.000	0.076	Project Complete
Mesa Dr: 8th Ave to Main Street	9.870	0.000	14.100	Group 1
Pecos Rd: Ellsworth Rd to Meridian Rd				
Pecos Rd: Ellsworth Rd to Meridian Rd Phase I	6.985	0.000	9.979	Group 1
Pecos Rd: Ellsworth Rd to Meridian Rd Phase II	8.396	0.000	19.603	Group 2
Signal Butte Rd: Broadway to Pecos Rd				
Signal Butte Rd: Broadway Rd to Elliot Rd	11.693	0.000	18.151	Group 3
Signal Butte Rd: Williams Field Rd to Germann Rd	12.664	0.000	16.946	Group 1
Signal Butte Rd: Ray Rd to Williams Field Rd	0.000	0.000	8.000	Group 3
Southern Ave: Country Club Dr to Recker Rd				
Southern at Country Club Dr: Intersection Improvements	6.469	0.000	12.647	Group 1
Southern Ave at Stapley Dr: Intersection Improvements	10.952	0.000	16.097	Group 1
Southern Ave: Gilbert Rd to Val Vista Dr	4.715	0.000	11.590	Group 2

FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2020 - FY 2026 (2019 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2019 $'S in millions)	TOTAL PROJECT COST: FY 2020 - FY 2040 (2019 $'S in millions) *	PLAN GROUP**
Southern Ave: Greenfield Rd to Higley Rd	5.606	0.000	0.000	Group 1
Southern Ave: Sossaman Rd to Meridian Rd				
Southern Ave: Sossaman Rd to Crismon Rd	0.000	8.014	11.449	Group 3
Southern Ave: Crismon Rd to Meridian Rd	0.000	5.296	10.788	Group 3
Stapley Dr at University Dr: Intersection Improvements	7.785	6.585	5.448	Group 1
University Dr: Val Vista Dr to Hawes Rd				
University Dr: Val Vista Dr to Higley Rd	11.204	0.000	15.600	Group 3
University Dr: Higley Rd to Sossaman Rd	9.018	0.000	16.127	Group 3
Val Vista Dr: University Dr to Baseline Rd				
Val Vista Dr: Baseline Rd to US-60	3.416	4.722	4.880	Group 1
Val Vista Dr: US-60 to Pueblo	0.000	0.000	7.661	Group 2
Baseline Rd: 24th Sreet to Consolidated Canal	7.726	0.000	11.037	Group 1
Mesa Main Street: Mesa Dr to Gilbert Rd Light Rail Extension	15.476	0.000	16.411	Group 1
PEORIA				
Happy Valley Rd: L303 to 67th Avenue				
Happy Valley Rd: Agua Fria to Loop 303	0.000	0.000	5.383	Group 1
Happy Valley Rd: Lake Pleasant Pkwy to Agua Fria	0.700	11.114	20.070	Group 1
Lake Pleasant Pkwy: Union Hills to SR74				
Lake Pleasant Pkwy: Loop 303 to SR-74/Carefree Hwy	0.000	0.000	22.045	Group 3
Jomax Rd: SR-303L to Vistancia Blvd	6.830	17.761	7.000	Group 1
PHOENIX				
Avenida Rio Salado: 51st Ave. to 7th St.				
Avenida Rio Salado Phase II: 51st Ave to 35th Ave,7th Ave, and 7th St.	0.000	0.000	0.400	Group 1
Happy Valley Rd: 67th Ave to I-17				
Happy Valley Rd: I-17 to 35th Ave	0.000	0.078	0.000	Project Complete
Happy Valley Rd: 35th Ave to 43rd Ave	0.000	5.232	8.191	Group 3
Happy Valley: 43rd Ave to 55th Ave	0.000	4.671	9.497	Group 3
Happy Valley: 55th Ave to 67th Ave	0.000	3.310	10.124	Group 3
Happy Valley: I-17 to 35th Ave Scoping and Environmental Study	0.500	0.000	0.714	--
SCOTTSDALE/CAREFREE				
Pima Rd: SR101L to Happy Valley Rd and Dyn. Rd to Cave Creek				
Happy Valley Rd: Pima Rd to Alma School Rd	12.316	0.000	16.543	Group 1
Pima Rd: Pinnacle Peak to Happy Valley Rd (SCT)	15.199	0.000	4.664	Group 1
Pima Rd: Dynamite Blvd to Las Piedras (SCT)	14.130	0.000	20.186	Group 2

FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2020 - FY 2026 (2019 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2019 $'S in millions)	TOTAL PROJECT COST: FY 2020 - FY 2040 (2019 $'S in millions) *	PLAN GROUP**
Pima Rd: Las Piedras to Stagecoach Rd (SCT)	18.130	0.000	27.350	Group 2
Pima Rd: Stagecoach Rd to Cave Creek (CFR)	4.933	0.625	7.940	Group 2, 3
SCOTTSDALE				
Carefree Hwy: Cave Creek Rd to Scottsdale Rd	8.012	0.000	11.446	Group 2
SR-101L North Frontage Roads: Pima/Princess Dr to Scottsdale Rd				
SR-101L Frontage Rd: Pima Rd/Princess Dr to Hayden Rd	0.000	29.014	41.449	Group 3
Miller Rd/SR-101L Underpass				
Miller Rd/SR-101L Underpass	13.305	0.000	13.250	Group 1
Miller Road: Princess Blvd. to Legacy Blvd	0.000	0.000	9.000	Group 3
Pima Rd: Happy Valley Rd to Dynamite Blvd				
Pima Rd: Happy Valley Rd to Jomax Rd	15.546	0.000	29.059	Group 2
Pima Rd: Jomax Rd to Dynamite Blvd	8.202	0.000	4.867	Group 2
Pima Rd: McKellips Rd to Via Linda				
Pima Rd: Via Linda to Via De Ventura	1.237	0.000	1.410	Group 1
Pima Rd: Krail St to Chaparral Rd	13.751	0.000	7.759	Group 1
Pima Rd: Chaparral Rd to Thomas Rd	6.683	0.000	9.547	Group 2
Pima Rd: Thomas Rd to McDowell Rd	0.341	0.000	0.487	Group 3
Scottsdale Airport: Runway Tunnel				
Frank Lloyd Wright Blvd at Loop 101 Traffic Interchange	1.573	0.000	2.247	Group 1
Raintree Dr at Loop 101 Traffic Interchange	5.267	0.000	7.524	Group 1
Redfield Rd: Raintree Dr to Hayden Rd	1.500	0.000	2.143	Group 1
Raintree Drive: Scottsdale Rd to Hayden Rd	13.214	0.000	18.878	Group 1
Raintree Drive: Hayden to Loop 101	4.023	0.000	6.500	Group 1
Hayden Rd - Loop 101 Interchange Improvements	3.715	10.022	5.307	Group 3
Scottsdale Rd: Thompson Peak Pkwy to Jomax Rd				
Scottsdale Rd: Thompson Peak Pkwy to Pinnacle Peak Pkwy Phase II	6.128	0.000	8.754	Group 3
Scottsdale Rd: Pinnacle Peak Pkwy to Jomax Rd	1.800	0.000	2.571	Group 3
Scottsdale Rd: Jomax Rd to Carefree Hwy				
Scottsdale Rd: Jomax Rd to Dixileta Dr	16.659	0.000	23.799	Group 1
Scottsdale Rd: Dixileta Dr to Carefree Hwy	11.838	0.000	16.911	Group 2
Shea Blvd: SR-101L to SR-87				
Shea Auxiliary Lane from 90th St to Loop 101	3.760	0.000	5.397	Group 2
Shea Blvd Intersection Improvements	9.927	0.000	14.181	Group 1
Shea Blvd at 124th St: Intersection Improvements	0.428	0.000	0.000	Project Complete
Legacy Blvd: Hayden Rd to Pima Rd	19.840	0.000	28.350	Group 1

FACILITY/LOCATION	REGIONALLY FUNDED REIMBURSEMENTS: FY 2020 - FY 2026 (2019 $'S in millions)	REGIONALLY FUNDED REIMBURSEMENTS: FY 2026 - FY 2040 (2019 $'S in millions)	TOTAL PROJECT COST: FY 2020 - FY 2040 (2019 $'S in millions) *	PLAN GROUP**
Drinkwater Blvd Bridge	5.999	0.000	8.570	Group 1
TOTAL	**739.9**	**196.5**	**1,575.5**	

** Plan Groups:

Group 1 (FY 2020 - FY 2024)

Group 2 (FY 2025 - 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 2020. Reimbursements from regional funding sources for arterial projects may occur in later periods.

Appendix C

Regional Transit Projects

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

ROUTE		OPERATING COSTS FY 2020 - FY 2040 (2019 $'S in THOUSANDS)	PLAN GROUP *
Express and LINK			
511	Tempe/Scottsdale Airpark Express	0	NA
512	Scottsdale Express	0	NA
514	Scottsdale Express	5,299	Existing
520	Tempe Express	2,887	Existing
521	Tempe Express	5,358	Existing
522	Tempe Express SC	6,190	Existing
531	Mesa/Gilbert Express	11,529	Existing
533	Mesa Express	12,799	Existing
535	Northeast Mesa/Downtown Express	10,292	Existing
541	Chandler Express	7,912	Existing
542	Chandler/Downtown Express	10,315	Existing
562	Goodyear Express	4,652	Existing
563	Buckeye Express	3,603	Existing
571	Surprise Express	3,091	Existing
573	Northwest Valley/Downtown Express	9,688	Existing
575	Northwest Valley/Downtown Express	6,183	Existing
801	Ahwatukee Connector	2,747	Group 3
802	Anthem Express	7,468	Group 3
803	Apache Junction Express	7,882	Group 3
361	Arizona Ave/Country Club LINK	0	NA
560	Avondale Express	0	NA
805	Black Canyon Freeway Connector	4,488	Group 3
563	Buckeye Express	3,603	Existing
807	Chandler Blvd LINK	19,859	Group 3
371	Grand Ave Limited	2,788	Existing
808	Loop 303 Express	8,932	Group 3
351	Main St LINK	0	Existing
809	North I-17 Express	8,065	Group 3
810	Peoria Express	7,488	Group 3
811	Pima Express	6,517	Group 3
812	Red Mountain Freeway Connector	6,880	Group 3
813	San Tan Express	19,575	Group 3
814	Scottsdale/Rural Rd LINK	7,932	NA
816	South Central Express	0	NA
815	South Central LINK A	5,732	Group 3
819	South Central LINK B	6,012	Group 3
817	Superstition Freeway Connector	2,480	Group 3
818	Superstition Springs Express	10,445	Group 3
Sub-total		238,687	
Supergrid Routes			
3	Van Buren St	23,934	Existing
13	Buckeye Rd	7,456	Group 3
17	McDowell/McKellips	27,732	Existing
29	Thomas Rd	16,927	Existing
30	University Dr	44,775	Existing
40	Main St	55,776	Existing
41	Indian School Rd	15,617	Group 1

ROUTE		OPERATING COSTS FY 2020 - FY 2040 (2019 $'S in THOUSANDS)	PLAN GROUP
44	44th St/Tatum	1,276	Group 3
45	Broadway Rd	26,276	Existing
48	48th St/Rio Salado Pkwy	6,571	Existing
50	Camelback Rd	8,569	Existing
56	56th St	7,631	Existing
59	59th Ave	25,428	Existing
61	Southern Ave	81,565	Existing
66	Mill/Kyrene	6,894	Existing
70	Glendale Ave	41,033	Existing
72	Scottsdale/Rural	128,292	Existing
77	Baseline Rd	26,500	Group 1
81	Hayden/McClintock	79,856	Existing
83	83rd/75th Ave	5,299	Group 2
90	Dunlap/Olive	18,028	Group 3
96	Dobson Rd	42,510	Existing
99	99th Ave	25,456	Group 3
104	Alma School Rd	35,144	Group 1
106	Peoria/Shea	36,175	Existing
108	Elliot Rd	40,586	Existing
112	Arizona Ave/Country Club Dr	42,824	Existing
131	Dysart Rd	6,439	Group 3
136	Gilbert Rd	41,941	Existing
138	Wadell/Thunderbird	20,922	Existing
139	Litchfield Rd	25,609	Group 3
140	Ray Rd	2,639	Group 3
156	Chandler Blvd	67,408	Existing
160	Greenfield Rd	23,341	Group 3
170	Bell Rd	18,558	Group 1
184	Power Rd	42,576	Existing
204	Queen Creek Rd	6,323	Group 3
Sub-total		1,133,887	
Rural Service			
685	Gila Bend connector	8,839	Existing
660	Wickenburg connector	0	N/A
Sub-total		**8,839**	
Other Services			
	ADA Complementary Paratransit	778,802	Existing
	Regional Customer Services	163,959	Existing
	RPTA Planning and Administration	119,231	Existing
	Safety and Security Programs	14,318	Existing
	Vanpool Operations	21,774	Existing
Sub-total		1,098,084	
Total		**2,479,497**	

* Plan Groups: Group 1 (FY 2020 - FY 2024), Group 2 (FY 2024 - FY 2026), Group 3 (FY 2027 - FY 2040)
Existing (in operation and being funded prior to the "Group 1" period)

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.

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

PROJECT		CAPITAL COSTS FY 2020 - FY 2040 (2019 $'S in THOUSANDS)	PLAN GROUP *
Fleet			
	Fixed Route Buses	907,382	Group 1,2,3
	Rural Routes	7,868	Group 1,2,3
	Paratransit	75,334	Group 1,2,3
	Vanpool	84,270	Group 1,2,3
Total Fleet		1,074,853	
Park and Rides			
	Baseline/24th St	0	Group 1
	Camelback/101	6,683	Group 3
	Elliot/-I-10	6,703	Group 3
	Glendale Loop 101	2,646	Group 2
	Laveen/59th Ave	5,811	Group 1
	Peoria Grand	1,104	Group 1
Total Park and Rides		22,947	
Transit Centers			
	19thAveCamelback 6-bay	4,041	Group 3
	44th Cactus 6-bay	4,078	Group 3
	Arrowhead	0	Group 1
	Downtown Chandler 4-bay	2,815	Group 3
	Glendale/Grand 4-bay	2,828	Group 3
	Mesa Downtown 6-bay	0	Group 1
	Metrocenter TC Rehab	9,696	Group 3
	Peoria 4-bay	3,141	Group 1
	Scottsdale 4-bay	2,837	Group 3
	South Chandler	2,815	Group 3
	South Tempe 4-bay	2,811	Group 3
Total Transit Centers		35,062	
Operations and Maintenance Facilities			
	Heavy Maintenance	70,843	Group 3
	Mesa Rehab	14,457	Group 3
	Paratransit Phoenix	14,047	Group 3
	South Rehab	14,457	Group 3
Total O & M Facilities		113,804	
BRT Right-of-Way Improvements			
	Scottsdale/Rural Rd LINK	54,501	Group 1,3
	South Central LINK	24,540	Group 3
Total BRT ROW Improvements		79,041	
Other Capital Improvements			
	Bus Stop Improvements	0	N/A
	Vehicle Upgrades	3,623	Group 1
Total Other Capital		3,623	
TOTAL		**1,329,329**	

* Plan Groups: Group 1 (FY 2020 - FY 2024), Group 2 (FY 2024 - 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.

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

ROUTE		OPERATING COSTS FY 2020 - FY 2040 (2019 $'S in THOUSANDS)	PLAN GROUP *
LRT/HCT Segments			
	CP/EV	899,160	Existing
	Northwest Phase I	152,732	Existing
	Northwest Phase II	42,089	Group 2
	Central Mesa	130,846	Existing
	Tempe Streetcar	139,024	Group 1
	Capitol / I-10 West Phase I	71,095	Group 2
	Capitol / I-10 West Phase II	203,704	Group 3
	Northeast Phoenix	165,939	Group 3
	Gilbert Road Extension	80,218	Existing
	West Phoenix	126,077	Group 3
	South Central	472,530	Group 2
Total		**2,483,415**	

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

ROUTE		CAPITAL COSTS FY 2020 - FY 2040 (2019 $'S in THOUSANDS)	PLAN GROUP
LRT/HCT Segments			
	Northwest Phase I	0	Existing
	Central Mesa	4,012	Existing
	Tempe Streetcar	165,114	Group 1
	West Phoenix	478,116	Group 3
	Northwest Phase II	249,929	Group 2
	Capitol / I-10 West Phase I	164,512	Group 2
	Capitol / I-10 West Phase II	957,505	Group 3
	Northeast Phoenix	1,077,740	Group 3
	Gilbert Road Extension	74,982	Group 1
	South Central Extension	622,882	Group 2
Sub-total		3,794,792	
LRT Systemwide Support			
	Systemwide Support Infrastructure	337,404	Group 1,2,3
	Capital Project Development	22,368	Group 1,2,3
	System Planning and Design	134,848	Group 1,2,3
	Utility Reimbursements	0	NA
Sub-total		494,620	
TOTAL		**4,289,412**	

* Plan Groups:

Group 1 (FY 2020 - FY 2024)

Group 2 (FY 2024 - 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.