

September 24, 2015

TO: Members of the MAG Transportation Review Committee

FROM: David Fitzhugh, City of Avondale, Chair

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Thursday, October 1, 2015, 10:00 a.m.  
MAG Office, Suite 200, Saguaro Room  
302 North 1st Avenue, Phoenix

A meeting of the MAG Transportation Review Committee (TRC) will be held at the time and place noted above. **Please park in the garage under the building. Bring your ticket to the meeting as parking will be validated. Bicycles can be locked in the rack at the entrance to the parking garage.**

The next meeting of the MAG Transportation Review Committee will be held at the time and place noted above. Committee members or their proxies may attend **in person, via videoconference or by telephone conference call**. Those attending video conference must notify the MAG site three business days prior to the meeting. Those attending by telephone conference call, please contact MAG offices for conference call instructions.

Pursuant to Title II of the Americans with Disabilities Act (ADA), MAG does not discriminate on the basis of disability in admissions to or participation in its public meetings. Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting David Massey or Jason Stephens at the MAG Office. Requests should be made as early as possible to allow time to arrange the accommodation.

Please be advised that under procedures adopted by the MAG Regional Council on August 21, 2013 all MAG committees need to have a quorum in order to conduct business. A quorum is a simple majority of the membership based on the attendance of the three (3) previous MAG TRC meetings. If the Transportation Review Committee does not meet the quorum requirement, members who have arrived at the meeting will be instructed a legal meeting cannot occur and subsequently be dismissed. Your attendance at the meeting is strongly encouraged. If you are unable to attend the meeting, please make arrangements for a proxy from your jurisdiction to represent you. Please contact Eric Anderson or David Massey at (602) 254-6300 if you have any questions or need additional information.

## TENTATIVE AGENDA

	COMMITTEE ACTION REQUESTED
<p>1.     <u>Call to Order</u></p> <p>For the October 1, 2015 meeting, the quorum requirement is 13 committee members.</p>	
<p>2.     <u>Approval of Draft August 27, 2015 Minutes</u></p>	2.     Approve Draft minutes of the August 27, 2015 meeting.
<p>3.     <u>Call to the Audience</u></p> <p>An opportunity will be provided to members of the public to address the Transportation Review Committee on items not scheduled on the agenda that fall under the jurisdiction of MAG, or on items on the agenda for discussion but not for action. Citizens will be requested not to exceed a three minute time period for their comments. A total of 15 minutes will be provided for the Call to the Audience agenda item, unless the Transportation Review Committee requests an exception to this limit.</p>	3.     For information and discussion.
<p>4.     <u>Transportation Director's Report</u></p> <p>Recent transportation planning activities and upcoming agenda items for the MAG Management Committee will be reviewed by the Transportation Director.</p>	4.     For information.
<p>5.     <u>Consent Agenda</u></p> <p>Consent items are marked with an asterisk (*). Committee members may request that an item be removed from the consent agenda to be heard.</p>	5.     Recommend approval of the Consent Agenda.

CONSENT AGENDA\*

- \*5A. Project Changes - Amendment and Administrative Modification to the FY 2014-2018 MAG Transportation Improvement Program, Fiscal Year 2016 Arterial Life Cycle Program, and as appropriate, to the 2035 Regional Transportation Plan

The Fiscal Year (FY) 2014-2018 Transportation Improvement Program (TIP) and 2035 Regional Transportation Plan (RTP) were approved by the MAG Regional Council on January 29, 2014. The new requested project additions and changes include Arterial Life Cycle Program (ALCP), Rail Safety, and Road Safety Projects funded through the Highway Safety Improvement Program (HSIP), Transportation Alternatives (TAP-MAG) Safe Routes to School eligible activities, Transit project changes related to final apportionment announcements, and general project changes. Project listing changes and additions included are not contingent on a new finding of conformity. Please refer to the enclosed materials.

- \*5B. Project Changes Report on September Activities - Amendment and Administrative Modification to the FY 2014-2018 MAG Transportation Improvement Program, and as needed, to the 2035 Regional Transportation Plan submitted to ADOT on September 3, 2015 and September 17, 2015

Due to the late announcement of Federal Transit Administration (FTA) and Federal Highway Administration (FHWA) regional allocations, the Regional Council at the August 26, 2015 meeting granted approval to make modifications to work years to advance previously approved projects, to provide detailed TIP listings for prioritized projects to ensure that all Federal Highway Administration obligation authority and Federal Transit Administration apportionments are

- 5A. Recommend approval of amendments and administrative modifications to the FY 2014-2018 MAG Transportation Improvement Program, Fiscal Year 2016 Arterial Life Cycle Program, and as appropriate, to the 2035 Regional Transportation Plan.

- 5B. For information.

utilized for Federal Fiscal Year 2015, and related work phase changes. Project changes and additions were submitted to ADOT for approval and inclusion in the State Transportation Improvement Program (STIP) on September 3, 2015 that addressed FTA Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities Transportation Program and general FY2015 needed changes. The September 17, 2015 submittal was redistributed work phase funding to save some prospective financing charges estimated at \$2.9 million. Please see attachments.

\*5C. Multimodal Level of Service (MMLOS) Study Workshop Information

Neighborhoods that are walkable and bikable have been shown to benefit from increased property values, decreased injury crashes, and higher retail sales. MMLOS measures how street design and operations meet the needs of all modes of travel by presenting a segment-based A to F score. The study deliverables will include an active propensity model to help guide decision-makers with infrastructure investments, an analysis of the MMLOS tool on pilot sites in the MAG region, and two workshops to train member agency staff on the concepts and tools being developed.

The first workshop will be held on October 13 from 8:30 AM to 12:30 PM at the MAG offices. All member agency staff, elected officials, commission boards and members are invited to participate. Please refer to the attached material.

5C. For information.

## ITEMS TO BE HEARD

6. Southeast Valley Transit System Study

The Southeast Valley Transit System Study (SEVTSS), a joint study effort between the Maricopa Association of Governments (MAG) and Valley Metro, was launched in January 2014 to analyze transit services and ridership demand in transit-established and transit-aspiring communities within a multi-jurisdictional subarea of the MAG region. The study is the third in a series of sub-regional transit studies undertaken in the region and its result is a tool to help in future system planning.

The study area encompasses the cities of Tempe, Mesa, Chandler, Apache Junction, and the towns of Guadalupe, Gilbert and Queen Creek. The study area also includes portions of the City of Phoenix (Village of Ahwatukee) and Unincorporated Maricopa County. In addition, the study also includes members of the expanded MAG boundary, which are Pinal County, the City of Maricopa, the Town of Florence and the Pinal County portion of the Gila River Indian Community. This study also included input from the City of Coolidge, a transit partner that operates within the study area.

The study had two purposes. The first was to identify potential efficiencies in the current service. The second was to identify an effective, market-defined, efficient and performance-driven transit system that meets the internal mobility needs of the subarea and ties the subarea to the overall regional transit system. Please refer to Attachments #6A - #6C for additional information.

7. Strategic Transportation Safety Plan 2016-2025

In July 2013, MAG initiated a project to develop a Strategic Transportation Safety Plan (STSP). The Plan establishes the

6. For information, discussion and possible action to recommend acceptance of the Southeast Valley Transit System Study findings and conceptual recommendations.

7. For information, discussion, and possible action to recommend approval of the MAG Strategic Transportation Plan 2016-2025

regional vision, goals, objectives, strategies, countermeasures, and performance measures for making systematic improvements necessary to improve road safety in the region. A consultant team lead by Lee Engineering LLC provided technical assistance and helped develop the Draft Plan (See Attachment X). Oversight was provided by the MAG Transportation Safety Committee and a Safety Stakeholder Group established for this project. The project was closely coordinated to be consistent with the state's Strategic Highway Safety Plan developed in 2014.

The Draft Plan includes an Implementation Plan that has estimated the cost to implement the STSP at \$7.8 million per year. Federal HSIP funds, administered by ADOT, is currently the only available funding source in the region for road safety improvements, other than local agency funds. In April 2015, the Draft Plan was presented to the Transportation Policy Committee and Regional Council. In May 2015, ADOT announced a new process for programming federal HSIP funds for safety projects starting in FY2019. The Draft Plan has since been revised to be consistent with the new ADOT HSIP process and related guidance. A brief presentation will be provided on the Draft Plan.

8. Interstate 10/Interstate 17 - "the Spine" - Corridor Master Plan Project Update

On January 29, 2015, the Transportation Review Committee received a presentation on the public outreach process, both in-person and on-line, for the Interstate 10/Interstate 17 Corridor Master Plan. The project team has used the outcomes from this process to create guiding principles for establishing the corridor master plan alternatives. An update on this process, as well as the status for the Spine Corridor's Near Term Improvement Strategy, will be provided in this briefing.

8. For information and discussion.

9. Regional Freeway and Highway Program Update

At the February 2015 meeting of the Transportation Review Committee, a briefing was provided on the continuing effort for reconciling the Regional Freeway and Highway Program revenues with expenditures, the Cost Risk Analysis program for analyzing project expenditures, and the potential for further refinement to the Program's project scheduling and funding. Since this presentation, varying activities have occurred to provide new information about the Regional Freeway and Highway Program health and status. A briefing will be provided on this continuing effort and the re-balancing schedule anticipated for refining the Program's project funding and programming anticipated for Spring 2016.

10. Request for Future Agenda Items

Topics or issues of interest that the Transportation Review Committee would like to have considered for discussion at a future meeting will be requested.

11. Member Agency Update

This section of the Agenda will provide Committee members with an opportunity to share information regarding a variety of transportation-related issues within their respective communities.

12. Next Meeting Date

The next regular Transportation Review Committee meeting will be scheduled Thursday, October 29, 2015 at 10:00 a.m. in the MAG Office, Saguaro Room.

9. For information and discussion.

10. For information and discussion.

11. For information.

12. For information.

DRAFT MINUTES OF THE  
MARICOPA ASSOCIATION OF GOVERNMENTS  
TRANSPORTATION REVIEW COMMITTEE

August 27, 2015

Maricopa Association of Governments Office  
302 North First Avenue, Suite 200, Saguaro Room  
Phoenix, Arizona

MEMBERS ATTENDING

Avondale: Jessica Blazina for David Fitzhugh  
\*ADOT: Brent Cain  
\*Apache Junction: Giao Pham  
#Buckeye: Scott Lowe  
\*Cave Creek: Ian Cordwell  
Chandler: Dan Cook, Vice Chair  
El Mirage: Jorge Gastelum  
\*Fountain Hills: Randy Harrel  
\*Gila Bend: Ernie Rubi  
Gila River Indian Community: Tim Oliver  
Gilbert: Leah Hubbard  
Glendale: Debbie Albert  
\*Goodyear: Cato Esquivel  
Litchfield Park: Woody Scoutten

Maricopa (City): Paul Jepson  
Maricopa County: Clem Ligocki for Jennifer Toth  
#Mesa: Jeff Martin for Scott Butler  
\*Paradise Valley: Jim Shano  
\*Peoria: Andrew Granger  
Phoenix: Ray Dovalina  
#Pinal County: Louis Andersen  
Queen Creek: Mohamed Youssef  
Scottsdale: Paul Basha  
Surprise: Mike Gent  
Tempe: Shelly Seyler  
Valley Metro: Abhi Dayal for John Farry  
\*Wickenburg: Vince Lorefice  
#Youngtown: Grant Anderson

EX-OFFICIO MEMBERS ATTENDING

\*Street Committee: Maria Deeb, City of Mesa  
\*ITS Committee: Marshall Riegel, City of Phoenix  
\*FHWA: Ed Stillings  
\* Members neither present nor represented by proxy.

\* Bicycle/Pedestrian Committee: Jim Hash, City of Mesa  
\* Transportation Safety Committee: Renate Ehm, City of Mesa

+ - Attended by Videoconference  
# - Attended by Audioconference

OTHERS PRESENT

John Bullen, MAG  
Bob Hazlett, MAG  
Chaun Hill, MAG  
Teri Kennedy, MAG  
David Massey, MAG  
Marc Pearsall, MAG  
Nathan Pryor, MAG  
Brian Rubin, MAG  
Amy St. Peter, MAG  
Stephen Tate, MAG

Jenny Bixey, Jacobs  
Tony Humphrey, Phoenix  
Carlos Lopez, ADOT  
Dan Marum, Wilson & Company  
Randall Overmyer, The CK Group, Inc.  
Brent Stoddard, Glendale  
Todd Taylor, Scottsdale  
Chris Turner-Noteware, Phoenix  
Paul Waung, POINT Engineers  
Heather Wilkey, Gilbert  
George Williams, Scottsdale  
Vamshi Yellisetty, Jacobs

1. Call to Order

Vice Chair Dan Cook called the meeting to order at 10:00 a.m. Vice Chair Cook noted that the quorum requirement for the August 27, 2015 Transportation Review Committee meeting was 13 committee members. Vice Chair Cook informed the committee that there were two handouts at the table.

2. Approval of Draft July 23, 2015 Minutes

Vice Chair Cook asked the committee if there were any comments on the draft July 23, 2015, meeting minutes. Mr. Scott Lowe noted that Mr. Jose Heredia had been present in person at the July meeting as his proxy and requested the attendance be corrected to reflect this. Mr. Mohamed Youssef moved to approve the minutes as amended. Mr. Mike Gent seconded the motion. The motion carried unanimously.

3. Call to the Audience

There were no public comments from the audience.

4. Transportation Director's Report

Vice Chair Cook invited Mr. Eric Anderson, MAG Transportation Director, to provide the Transportation Director's Report.

Mr. Anderson congratulated Phoenix on the passage of Proposition 104 and noted that it will provide a major source of revenue.

Mr. Anderson stated that Regional Area Road Fund (RARF) revenues for June were up 4.8% compared to the previous year, which corresponds to an increase of 3.7% over what was estimated. He noted that revenues have still not returned to 2007 levels, but are close. He stated that revenues were \$391 million in 2007 and \$382 million this year, and that he expects revenues to exceed 2007 levels next year.

Mr. Anderson stated that Highway User Revenue Fund (HURF) revenues were up 4% compared to the previous year. He stated that total revenue was \$1.2 billion and noted that 4% growth compares favorably to the estimated 1.6% growth projected by ADOT. He noted that increased revenues are fueled by lower gas prices and higher levels of travel. He stated that oil is around \$40 per barrel and that the price of gas may be down to \$2 per gallon by September.

Mr. Anderson stated that he participated in the East Valley Partnership discussion recently. He stated that negotiations on education funding fell apart on Tuesday. He stated that the chair of the Senate Transportation Committee spoke, who said that all currently available revenue will be allocated to education. He stated that there is no inclination to raise taxes, but that given where gas prices are, there may be an opportunity to extend the sales tax to gasoline at the wholesale level. He stated that if that does happen, how it will be allocated is yet to be worked out, but that revenue would be limited to roads and streets purposes under

the state constitution. He stated that he has heard about something in the works from the Governor's office and that there may be news next month, but he does not know what is being discussed.

Mr. Anderson stated that PARC in Ahwatukee and the Gila River Indian Community have filed suit to stop the South Mountain Freeway. He stated that in the court session the previous day, a schedule was laid out that should yield a decision in April or May 2016. He noted that construction is currently scheduled to begin in May 2016. He stated that right-of-way acquisition is continuing and that demolition has begun on homes owned by ADOT.

Mr. Anderson stated that MAG staff are continuing to work on the Regional Freeway and Highway Program rebalancing. He stated that new revenue forecasts should be available from ADOT in October and a new cash flow model should be available in November incorporating corrections to errors and the closeout of projects which had been maintained in the cash flow model despite being completed. He noted that revised budgets based on the cost risk assessment process will be incorporated, which have provided a couple hundred million dollars in savings. He stated that the final piece is the guaranteed maximum price on the South Mountain Freeway project. He stated that hopefully there will be a revised program in place for consideration by MAG committees in spring of 2016.

Mr. Anderson stated that nominations for the vice chair of the Transportation Review Committee will be opening up. He noted that Mr. David Fitzhugh will be stepping down as chair and Vice Chair Dan Cook will become the new chair. He stated that a notice would be sent to the Committee members.

Vice Chair Cook thanked Mr. Anderson for his report.

5. Consent Agenda

Vice Chair Cook directed the Committee's attention to the consent agenda items.

Vice Chair Cook asked the Committee if there were any questions or comments. Mr. Grant Anderson requested that in the future the Committee be provided with a list of the projects which did not receive funding as part of the memorandum. Mr. Eric Anderson responded that this will be provided in the future.

Mr. Grant Anderson moved to approve the consent agenda. Mr. Jorge Gastelum seconded the motion. The motion carried unanimously.

5A – MAG Pedestrian and Bicycle Facilities Design Assistance Program

The MAG Transportation Review Committee, by consent, recommended funding the seven top ranked projects for the Design Assistance Program.

6. Request for 2nd Deferral of the City of Phoenix Multiuse Path Project at Indian School Road and the Grand Canal

Vice Chair Cook invited Ms. Teri Kennedy to introduce and Mr. Tony Humphrey of the City of Phoenix to present this item.

Ms. Kennedy stated that there are four items in the MAG policies and procedures that must be met for a request for a second deferral. She stated that the agency must specifically address the problems with the project that were outside of the agency's control, demonstrate commitment to the project, provide a revised schedule, and address how the revised schedule will address the problem.

Mr. Tony Humphrey stated that he is the engineering supervisor for design and construction management for the City of Phoenix, and that he was present to discuss the second deferral process. He stated that his goals were to discuss the importance of the project and to briefly discuss what happened and what the City plans to do to move forward.

Mr. Humphrey stated that the importance of this project is safety and connectivity for the Grand Canal project. He stated that it is vital to provide a safe crossing at 16th Street and Indian School Road. He stated that currently there is funding available from SRP for aesthetic improvements.

Mr. Humphrey stated that the Grand Canal is a unique corridor for recreational users and commuters. He noted that the canal overlaps the major arterial network and light rail system. He noted in his presentation the connectivity point to provide a safe crossing at that location.

Mr. Humphrey provided an overview of the amenities surrounding the intersection. He noted on the southwest corner there is a park and a recreation center, Madison Middle School and the Phoenix Indian Medical Center on the northwest corner, and that a shopping center and a charter school are also nearby. He stated that there is a lot of pedestrian activity at the intersection.

Mr. Humphrey presented some images of the roads and noted that traffic volumes are around 40,000 vehicles per day on Indian School Road and around 28,000 vehicles per day on 16th Street.

Mr. Humphrey stated that the City considered a HAWK signal crossing but that this did not meet guidelines due to the proximity of the intersection.

Mr. Humphrey presented a picture of Indian School Road looking eastbound and noted the presence of a bus bay and a heavily used transit stop. He stated that at peak boarding times there is a queue and with the existing design the queue would create problems for users of the Grand Canal trail. He presented an image of 16th Street looking west and noted there is limited space to add amenities within the existing right-of-way. He stated that they would like to provide landscaping to show the distinction between the trail and space for the bus stop.

Mr. Humphrey presented a plan of the right of way location, highlighting the location of the planned 10-foot pathway with a 4 foot separation. He noted that they would be acquiring right of way from the Phoenix Indian Medical Center. He stated that they initially received

notice to proceed in 2012 and that the first deferral occurred from 2014 to 2015 because the City did not do the required public outreach. He stated that as the project work proceeded, they realized the difficulty in acquiring right of way from the hospital. He stated that since the first deferral, the City has done public outreach and gained the support of the community for the project.

Mr. Humphrey stated that they have made contact with private property owners and Indian Health Services (IHS). He stated that IHS has unique procedures and they are not often approached for acquiring land, so there is a learning curve for both sides.

Mr. Humphrey presented a new timeframe for the project showing the anticipated completion of right of way acquisition in March 2017 with 100% plans by April 2017 and a contract awarded by September 15, 2017. He presented the project funding for each phase, showing locally funded design and right-of-way acquisition and CMAQ funded construction.

Mr. Humphrey summarized his presentation, noting the major issue of the right-of-way acquisition process on Indian lands and the City's objective to meet with the Indian Community to meet the new timeline. He stated that the City is committed to the project and has local funding available as identified. He added that there is neighborhood and community support for this project. He stated that they are asking for a two year deferral.

Mr. Scott Lowe moved to recommend approval of a second deferral by the City of Phoenix to FY 2017 for the Multiuse Path project at Indian School Road and the Grand Canal. Mr. Ray Dovalina seconded the motion. The motion carried unanimously.

7. Valley Path Brand & Wayfinding Signage Guidelines

Vice Chair Cook invited Mr. Alex Oreschak to present this item.

Mr. Oreschak stated that in November 2012, the Bicycle and Pedestrian Committee requested a project to identify regional wayfinding guidelines and identify a brand for the off-street network. In May 2013, Regional Council approved a work program which included this project. In November 2013, the Regional Council Executive Committee approved Alta Planning as the consultant. The study was a 14 month study which reviewed best practices and national standards, inventoried existing local ordinances and Salt River Project policies regarding canals, developed regional wayfinding sign guidelines and a brand for the regional off-street path network, and created an implementation plan.

Mr. Oreschak stated that the consultant did extensive outreach with MAG member agencies on brand development, including field visits, existing conditions and signage, and determination of current challenges to navigating the system. He presented an example of a brand identity activity which the Bicycle and Pedestrian Committee participated in.

Mr. Oreschak stated that the consultant presented five initial brand concepts, which the Bicycle and Pedestrian Committee initially narrowed to three, and then chose the "Valley Path" brand with Arizona colors and a silhouette of Camelback Mountain.

Mr. Oreschak stated that the Committee requested the consultant provide guidelines showing the purpose of different types of signage, what the signs would look like, and where they would be placed. He presented various examples of signs from the guidelines. He stated that a logo panel was developed to integrate the brand into existing wayfinding signage being used by member agencies.

Mr. Oreschak presented some examples of pedestrian-oriented signage for trailheads and neighborhood access to paths. He stated that each sign has standard details available for height, colors, text, and materials so that it will be easy for sign shops to reproduce signs to standard specifications. He stated that the guidelines include the usage of standard signage materials in use by member agencies but also provide for optional enhancements to the signage.

Mr. Oreschak stated that the consultant developed situational diagrams with six examples in the guide. He presented an example situation of a gap in the network. He showed where decision signs, turn signs, and confirmation signs could be placed. He noted that there is a common situation where a path that follows a canal or a wash needs to go above or below the street level with a spur connecting to the street itself. He presented locations and designs for signage on the bridge and at the street.

Mr. Oreschak presented an overview of the implementation plan as prepared by the consultant. Jurisdictions would develop wayfinding master plans, including an inventory of the network, signage, and destinations, placement of signs, cost estimates, and phasing. He added that near-term pilot projects are another option for implementation.

Vice Chair Cook asked if the final report will be available for jurisdictions. Mr. Oreschak responded that the draft report is available on the Bicycle and Pedestrian Committee's website and that the final report will be sent out once final approval is received from Regional Council.

Vice Chair Cook stated that many cities have their own sign shops and computerized design work. He asked if computer graphics will be available so each jurisdiction is able to develop the same brand. Mr. Oreschak responded that each of the standard details in the report will be made available in digital form. He stated that he did not know which specific format would be used but that this information will be provided.

Mr. Mike Gent moved to recommend acceptance of the Valley Path Brand & Wayfinding Signage Guidelines final report. Ms. Leah Hubbard seconded the motion. The motion carried unanimously.

8. ADOT Passenger Rail Study: Tucson To Phoenix Update

Vice Chair Cook invited Mr. Carlos Lopez of ADOT to present this item.

Mr. Lopez provided some background on how the passenger rail study was developed. He stated that in 2010, the Building a Quality Arizona (BQAZ) transportation framework identified transportation needs out to the year 2050, and the tone of the major findings was

the need for transportation alternatives, especially in the Sun Corridor. He stated that one of the main products was a state rail plan identifying a vision for passenger rail in the state.

Mr. Lopez presented a map identifying a passenger rail corridor linking Nogales to Tucson to Phoenix along with connections to neighboring states. He stated that the state rail plan identified Tucson-Phoenix as the first portion to be implemented and that they are studying a 120 mile corridor in Maricopa, Pinal, and Pima Counties. He stated that the study is being led by the Federal Railroad Administration and that the Federal Transit Administration and Federal Highway Administration are also working closely on this study. He stated that a Tier 1 Environmental Impact Statement (EIS) is the main product of this study and presented differences between a Tier 1 EIS and a project level document.

Mr. Lopez stated that the first goal in the Tier 1 EIS effort was to identify the purpose and need of the project. He stated that from BQAZ, transportation alternatives were identified as a need due to anticipated growth in population and employment, which would lead to travel demand. He stated that currently it takes about 2 hours to travel from downtown, which is projected to increase to 2.5 hours by 2035 and over 3 hours in 2050 with all currently planned projects. He noted that the only high capacity facility between Phoenix and Tucson currently is Interstate 10, and that to provide an efficient and reliable transportation system, this study looks at working with I-10 to provide other alternatives for travel within the corridor.

Mr. Lopez presented three final corridor alternatives as determined in the study. He stated that the study is looking at a blend between regional and interregional service. He presented slides comparing the three alternates on projected ridership and cost. He stated that there is a need to provide a route that blends and balances travel time and access to activity centers such as airports, universities, and major downtown areas. He stated that service would be broken down into commuter service, which would access all stations, and intercity service, which would skip some stations.

Mr. Lopez stated that for public outreach they have collected surveys from the public and attended events asking for input from the public. He stated that the yellow alternative has been identified as the preferred alternative between Phoenix and Tucson, and that close to half of surveys received identified the yellow route as preferred.

Mr. Lopez stated that the schedule and next steps include publishing the draft environmental study for public review pending federal approval. He noted that this would include the process, feedback received, and recommendation for input. He stated that there are public hearings planned in Phoenix, Tucson, and Coolidge which would occur in September pending Federal approval. If there are delays in receiving Federal approval, the hearings would be pushed to October. He stated that the goal is to conclude the final environmental study this year with a recommended corridor and implementation plan.

Mr. Lopez stated that there is no funding identified for future studies. He stated that the next step is to do a project specific environmental study that would include exact alignments and station locations, and that this step is pending the identification of funding for the study.

Mr. Paul Jepson stated that ADOT had done a lot of outreach, and a route serving the City of Maricopa was not chosen. Mr. Lopez responded that ADOT had received input from the Gila River Indian Community and that there were many challenges on the green alternative. He noted that the existing right of way does not provide enough room for a passenger rail system. He stated that the vision for the system was to be located adjacent to the existing right of way, which would include many challenges with impacts to cultural properties and allotted parcels. He stated that while nothing had been finalized from the federal agency standpoint, the green alternative has a low likelihood of being selected due to the challenges.

Mr. Jepson stated that the yellow alternative also has right of way challenges. Mr. Lopez responded that it follows an existing corridor owned by the Union Pacific Railroad and that future studies would have to identify opportunities to lease or purchase right of way or build adjacent to the existing railroad.

Ms. Debbie Albert asked how the alternatives had been narrowed to three. Mr. Lopez responded that the effort had included public outreach, a technical analysis including cost and projected ridership, and a high level environmental analysis. He stated that the other alternatives were eliminated due to low support from the public and low support from the technical analysis. He stated that the three alternatives that were carried forward showed an advantage in terms of travel time, projected ridership, and support from the public.

Mr. Jeff Martin asked about the next steps and whether it will include a recommendation to study airport connections, noting that both Sky Harbor and Mesa Gateway airports have asked for a study. Mr. Lopez responded that airport connections will be studied in the next steps. He noted that FRA has strongly encouraged multimodal connections, and that a passenger rail system will link to airports, light rail, streetcar, and bus routes.

Mr. Mohamed Youssef asked whether the yellow route would be a new rail line located next to the Union Pacific rail line and if there was any possibility of using the Union Pacific line, noting major cost savings versus a projected \$5 billion cost. Mr. Lopez responded that there is the option of a future passenger rail system on existing freight tracks. He noted that there are challenges. Union Pacific has developed commuter rail policies for working with passenger rail agencies stating that passenger rail systems would be separate from freight tracks. He stated that the justification includes conflicts with serving freight customers, and that separate from the policies, conflicts with freight traffic would impact efficient operation. He added that nothing has been determined whether passenger rail would be separate from the freight tracks or not. He stated that the corridor itself has been identified but not the specific details.

Vice Chair Cook thanked Mr. Lopez for his presentation.

9. Scottsdale's Northsight Roundabout

Vice Chair Cook invited Mr. George Williams of the City of Scottsdale to present this item.

Mr. Williams stated that he is providing an overview of the Northsight roundabout, which is Scottsdale's first arterial roundabout and has been open for the last year and a half. He

stated that the roundabout is located in the Scottsdale airpark near the northeast corner of Loop 101. He stated that the City started out with a lot of options, which were narrowed down to two: the Northsight extension versus the Hayden Boulevard realignment. He stated that the City moved forward with the Northsight extension due to a lower cost and smaller impact.

Mr. Williams presented the alignment of the Northsight extension, noting the addition of a signalized intersection at Frank Lloyd Wright Boulevard and the Northsight Boulevard extension. He noted that the intersection of Hayden and Northsight was a critical decision point for northbound traffic.

Mr. Williams stated that they thought a roundabout would work much better in that location and that they had to explain to the public what a roundabout is and compare it to older style rotaries and traffic circles. He presented an example of a roundabout replacing an old rotary, noting the removal of high speed weaving areas in favor of slower speeds. He stated that with signalized intersections there are 32 conflict points where roundabouts have only eight. He added that signalized intersections have conflict speeds of 30-50 miles per hour with higher crash severities at those speeds. He stated that they discussed a number of studies showing reductions in collisions and significant reductions in fatalities and injuries. He noted that there are fewer conflict points for pedestrians, and that the lower speeds decreases pedestrian accident severity.

Mr. Williams stated that as they were looking at the design, they determined a signalized intersection would require more right of way than a roundabout. He stated that they initially presented the project to the City Council as an informational item with no voting and it seemed to do well. He stated that they returned a couple months later for a vote on the design contract and the wife of a nearby property owner had organized a campaign against the roundabout and the council voted to remove the roundabout from the project.

Mr. Williams stated that at a later meeting a council member who had voted against the roundabout wished to bring it back for discussion, and the council then voted to return the roundabout to the project. He added that a third vote to remove the roundabout failed.

Mr. Williams presented some before and after views of the intersection. He stated that they only have a year and a half of data for performance. He stated that there has been a slight increase in crashes and a 28 percent increase in vehicles per day. He noted that there has been a 79% increase in the overall injury rate at the intersection, with an 84% decrease in the injury rate by volume.

Mr. Williams stated that the real goal of the project was to reduce the number of left turns at Hayden and Frank Lloyd Wright. He stated that they hoped to split this traffic to allow for more green time on Frank Lloyd Wright to help with the progression at the Loop 101 interchange. He presented peak volumes and before and after comparison of travel times.

Mr. Eric Anderson stated that he was skeptical, but the results speak for themselves. He congratulated Scottsdale and stated that the project demonstrated the benefit of a properly

designed, properly located roundabout. He noted the improvement of safety with a reduction in injuries.

Mr. Ray Dovalina asked what Mr. Williams would change about the public outreach process. Mr. Williams responded that he would make sure that all nearby owners or partial owners are involved. He suggested having a study session with the city council to find out what their concerns were. He stated that an expert consultant presented to the transportation commission and that after the presentation, the members with concerns were almost silent. He stated that it is important to have an expert come in and that the project should be designed right the first time. He encouraged any municipality to bring in an expert to help them through the process.

Mr. Paul Jepson stated that the roundabout appears to have a large diameter and asked how it compares to the roundabouts at I-17 and Happy Valley Road. Mr. Williams responded that the Northsight roundabout is about 185 feet in diameter. He stated that he was not sure about the Happy Valley Road roundabouts and added that that area has a lot of challenges, as there was originally a two lane frontage road in an area with a population unfamiliar with roundabouts. He stated that speeds coming into those roundabouts are not as slow as they should be so people are making decisions at higher speeds than they should be. He added that he likes to provide a visual obstruction so people do not see through the middle of the roundabout and focus on the left or right.

Mr. Woody Scoutten stated that roundabouts are usually pretty pedestrian unfriendly and asked how this was dealt with. Mr. Williams responded that there is that perception and concern. He stated that pedestrians do well when traffic speeds are low. He stated that speeds should be down to 20 miles per hour. He noted that pedestrians are crossing two legs of the roundabout at the most, whereas at traditional signals pedestrians have to cross the full width of the road and deal with right turns and left turns. He added that he has talked to business owners in the area who have told him that their employees will cross the street for lunch in that area.

Mr. Mohamed Youssef stated that the contractor pictures showed a level of service A with the roundabout and level of service F with the signal. Mr. Williams responded that there was not a formal level of service study, but that they predicted A or B with the roundabout compared to E before the project.

Vice Chair Cook thanked Mr. Williams for his presentation.

10. Request for Future Agenda Items

There were no requests for future agenda items.

11. Member Agency Update

There were no updates from member agencies.

12. Next Meeting Date

The next regular Transportation Review Committee meeting will be scheduled for Thursday, October 1, 2015 at 10:00 a.m. in the MAG Office, Saguaro Room.

The meeting was adjourned at 11:21 a.m.

# **ATTACHMENT #1**

**Agenda #5A**

# MARICOPA ASSOCIATION OF GOVERNMENTS

## INFORMATION SUMMARY... for your review

**DATE:**

September 24, 2015

**SUBJECT:**

Project Changes – Amendments and Administrative Modifications to the Fiscal Year 2014-2018 MAG Transportation Improvement Program, Fiscal Year 2016 Arterial Life Cycle Program, and as Appropriate, to the 2035 Regional Transportation Plan.

**SUMMARY:**

The Fiscal Year (FY) 2014-2018 Transportation Improvement Program (TIP) and 2035 Regional Transportation Plan (RTP) were approved by the MAG Regional Council on January 29, 2014. The new requested project additions and changes include Arterial Life cycle Program, Rail Safety, Road Safety Projects funded through the Highway Safety Improvement Program (HSIP), Transportation Alternatives (TAP-MAG) Safe Routes to School eligible activities, Transit project changes related to final apportionment announcements, and general project changes. Project listing changes and additions are not contingent on a new finding of conformity, please refer to the enclosed materials.

Changes to the Arterial Life Cycle Program that are within the TIP window are included in Table A. These changes provide funding for a new Southern Avenue corridor design concept report and do not impact the fiscal balance of the ALCP.

General highway listing changes and additions are included in Table B. ADOT has included a request to for Rail Safety project additions. The MAG road safety projects being added to the TIP are contingent on a finding of eligibility from the Arizona Department of Transportation. Project additions for both the road safety projects and the Safe Routes to School eligible activities are included based on the August 26, 2015 Regional Council approval of the priority listing of projects. On September 15, 2015, the Bicycle and Pedestrian Committee recommended a request from the City of Buckeye to combine three adjacent work segments (TIP IDs BKY17-401, BKY17-402, BKY17-403) into a single work segment to reduce design and construction costs to the region and to the city.

The FY 2015 Program of Projects (POP) is listed for approval in Table C. On June 24, 2015, the MAG Regional Council approved the draft FY 2015 POP with provisions to finalize the TIP listings as full fiscal year apportionment becomes available. Federal apportionment was released on August 26, 2015. Changes to the POP includes updates to the Section 5307, 5307-JARC, 5307-AVNGDY, 5337, 5339 and STP-flex funds. Projects affected include Preventive Maintenance funding region-wide, 5307-JARC, 5307-AVN and the advancement of bus purchases for the City of Phoenix.

**PUBLIC INPUT:**

None.

**PROS & CONS:**

PROS: Approval of this TIP amendment and administrative modification will allow the projects to proceed in a timely manner.

CONS: Project funding is still estimated and additional changes may be required.

**TECHNICAL & POLICY IMPLICATIONS:**

TECHNICAL: Projects that wish to utilize transportation federal funds need to be shown in the TIP in the year that they expect to commence and may need to undergo an air quality conformity analysis or consultation. All projects that are programmed with Federal Highway Administration Federal Fiscal Year 2016 funds must submit their project for obligation at the Arizona Department of Transportation no later than June 1, 2016, or funding may be lost from the project and from the region.

POLICY: This amendment and administrative modification request is in accord with MAG guidelines.

**ACTION NEEDED:**

Approval of amendments and administrative modifications to the FY 2014-2018 MAG Transportation Improvement Program, Fiscal Year 2016 Arterial Life Cycle Program, and as appropriate, to the 2035 Regional Transportation Plan.

**PRIOR COMMITTEE ACTIONS:**

On September 15, 2015, the MAG Bicycle and Pedestrian Committee recommended approval of the combination of three construction work segments on Lower Buckeye Road, Watson Road, and Rainbow Road in the City of Buckeye into one work segment.

**MEMBERS ATTENDING**

- |  |   |
|--|---|
| Jim Hash, Mesa, Chair of Bicycle and Pedestrian Committee                | Steve Careccia, Goodyear                            |
| # Jose Macias, El Mirage, Vice-Chair of Bicycle and Pedestrian Committee | Mike Gillespie for Julius Diogenes, Litchfield Park |
| Michael Sanders, ADOT  | * Ryan Wozniak, Maricopa                            |
| # Raquel Schatz, Apache Junction   | * Denise Lacey, Maricopa County                     |
| Alison Rondone for Christina Underhill, Avondale                         | # Brandon Forrey, Peoria                            |
| Phil Reimer, Buckeye   | Joseph Perez for Katherine Coles, Phoenix           |
| # Stacy Bridge-Denzak, Carefree  | # Sidney Urias, Queen Creek                         |
| # Ian Cordwell, Cave Creek   | Susan Conklu, Scottsdale                            |
| Jason Crampton, Chandler   | * Stephen Chang, Surprise                           |
| # Leslie Bubke for Kristin Myers, Gilbert                                | # Robert Yabes for Eric Iwersen, Tempe              |
| # Purab Adabala, Glendale  | Amanda Leuker, Valley Metro                         |
|  | * Robert Carmona, Wickenburg                        |
|  | # Grant Anderson, Youngtown                         |

\*Members neither present nor represented by proxy

#Attended via audio-conference

On August 25, 2015, the MAG Regional Council approved the priority listings for the Road Safety Projects, and the Safe Routes to School eligible project activities.

**MEMBERS ATTENDING**

- Mayor W.J. "Jim" Lane, Scottsdale, Chair
- \* Mayor Greg Stanton, Phoenix, Vice Chair
- Vice Mayor Robin Barker, Apache Junction
- # Mayor Kenneth Weise, Avondale
- Mayor Jackie Meck, Buckeye
- Councilmember Mike Farrar, Carefree
- Councilmember Dick Esser, Cave Creek
- # Mayor Jay Tibshraeny, Chandler
- Mayor Lana Mook, El Mirage
- Mayor Tom Rankin, Florence
- \* President Ruben Balderas, Fort McDowell Yavapai Nation
- Mayor Linda Kavanagh, Fountain Hills
- Mayor Chuck Turner, Gila Bend
- \* Governor Stephen Roe Lewis, Gila River Indian Community
- Mayor John Lewis, Gilbert
- Mayor Jerry Weiers, Glendale
- Mayor Georgia Lord, Goodyear
- # Mayor Rebecca Jimenez, Guadalupe
- # Mayor Thomas Schoaf, Litchfield Park
- # Mayor Christian Price, City of Maricopa
- Supervisor Denny Barney, Maricopa County
- Mayor John Giles, Mesa
- \* Mayor Michael Collins, Paradise Valley
- Mayor Cathy Carlat, Peoria
- \* Supervisor Todd House, Pinal County
- # Mayor Gail Barney, Queen Creek
- \* President Delbert Ray, Salt River Pima-Maricopa Indian Community
- Mayor Sharon Wolcott, Surprise
- # Mayor Mark Mitchell, Tempe
- \* Mayor Adolfo Gamez, Tolleson
- Mayor John Cook, Wickenburg
- Mayor Michael LeVault, Youngtown
- Mr. Roc Arnett, Citizens Transportation Oversight Committee
- Mr. Joseph La Rue, State Transportation Board
- Mr. Jack Sellers, State Transportation Board

\* Those members neither present nor represented by proxy.

# Attended by telephone conference call.

**CONTACT PERSON:**

Teri Kennedy, Transportation Improvement Program Manager, or David Massey, Transportation Planner (602) 254-6300.

**Table A. ALCP Project Changes to the Fiscal Year 2014-2018 MAG Transportation Improvement Program and the FY 2016 Arterial Life Cycle Program<sup>1</sup>**

9/21/2015

ALCP - IN TIP																		
TIP #	Agency	Project Location	Project Description	Fiscal Year	Est. Date Open	Length (miles)	Lanes Before	Lanes After	Fund Type	Local Cost	Federal Cost	Regional Cost	Total Cost	Reimb. Fiscal Year	Fund Type	Regional Reimb.	Notes:	RTP ID
MES22-134DRB	Mesa	Southern Ave at Lindsay Rd	Design Intersection Improvement	2018	Jun-19	0.5	4	6	RARF	(247,500)	-	247,500	-	2018	RARF	247,500	Amend: Transfer \$52,500 of project design phase reimbursement to new predesign phase, ACI-SOU-10-03-E.	ACI-SOU-10-03-C
MES18-135DRB	Mesa	Southern Ave at Higley Rd	Design Intersection Improvement	2018	Jun-21	0.5	4	6	RARF	(247,500)	-	247,500	-	2018	RARF	247,500	Amend: Transfer \$52,500 of project design phase reimbursement to new predesign phase, ACI-SOU-10-03-E.	ACI-SOU-10-03-D
MES16-150PDZ	Mesa	Southern Avenue Area	Southern Avenue Area Design Concept Report	2015	--	--	--	--	Local	150,000	-	-	150,000	--	--	--	Amend: New TIP listing. Add new project segment for Southern Avenue area DCR.	ACI-SOU-10-03-E
MES16-150PDRB	Mesa	Southern Avenue Area	Southern Avenue Area Design Concept Report	2016	--	--	--	--	RARF	(105,000)	-	105,000	-	2016	RARF	105,000	Amend: New TIP listing. Add new project segment for Southern Avenue area DCR. Add project funding from ACI-SOU-10-03-C and ACI-SOU-10-03-D design phases. Advance funding to FY 2016 and defer a portion of ACI-VAL-10-03-A funding from FY16 to FY18.	ACI-SOU-10-03-E
MES16-136PDRB	Mesa	Val Vista Dr: Baseline Rd to Southern Ave	Predesign roadway widening	2016	Jun-18	1	4	6	RARF	(295,000)	-	295,000	-	2016	RARF	295,000	Amend: Defer \$105,000 of project design phase funding from FY16 to FY18 to swap with ACI-SOU-10-03-E.	ACI-VAL-10-03-A
MES18-136PDRB	Mesa	Val Vista Dr: Baseline Rd to Southern Ave	Predesign roadway widening	2018	Jun-18	1	4	6	RARF	(105,000)	-	105,000	-	2018	RARF	105,000	Amend: New TIP listing. Defer \$105,000 of project design phase funding from FY16 to FY18 to swap with ACI-SOU-10-03-E.	ACI-VAL-10-03-A
MES16-137PDZ	Mesa	Elliot Rd: Ellsworth to Meridian	Predesign roadway widening	2016	Jun-25	3	2	6	Local	150,000	-	-	150,000	---	---	---	Amend: New TIP listing. Create locally funded pre-design phase.	ACI-ELT-10-03-B

1. Rows in the report are sorted in order by the following columns: Agency, RTP ID, Project Description, Fiscal Year, and Fund Type. Changes are in red font. Deletions are show in strike through font.

**TABLE B: Requested amendments and administrative modifications to the  
FY 2014-2018 MAG Transportation Improvement Program (TIP), and the 2035 Regional Transportation Plan<sup>1</sup>, TIP AMENDMENT #15**

Sort: Section, Agency, Location, Work Year

TIP Amendment #15																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	Federal ID/ALI	In Life Cycle Program	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>3</sup>	Federal	Regional	Local	Total	TIP Change Request
ADOT	Highway	2016	DOT16-472	NEW	35th Ave, north of Buckeye Rd. @ UPRR 741-448R, Phx, AZ	Design for Rail Safety Project	0.1	5	5	-----	5-year	SR234	Safety	STP-RGC	2016	66,466	-	3,534	70,000	Amend: Add new rail safety project.
ADOT	Highway	2016	DOT16-473	NEW	35th Ave, north of Buckeye Rd. @ UPRR 741-448R, Phx, AZ	ROW Acquisition	0.1	5	5	-----	5-year	SR234	Safety	STP-RGC	2016	14,145	-	855	15,000	Amend: Add new rail safety project.
ADOT	Highway	2016	DOT16-474	NEW	35th Ave, north of Buckeye Rd. @ UPRR 741-448R, Phx, AZ	Construction of Rail Safety Project	0.1	5	5	-----	5-year	SR234	Safety	STP-RGC	2016	647,165	-	11,011	658,176	Amend: Add new rail safety project.
ADOT	Highway	2016	DOT16-470	NEW	Alma School Rd @ UPRR 741-650B, Mesa, AZ	ROW Acquisition	0.1	6	6	-----	5-year	SR231	Safety	STP-RGC	2016	780,199	-	17,168	797,367	Amend: Add new rail safety project.
ADOT	Highway	2016	DOT16-475	NEW	Eagle Eye Rd., north of US60, Aguila, AZ @ Arizona California RR 025-904P	Design for Rail Safety Project	0.1	2	2	-----	5-year	T0018	Safety	STP-RGC	2016	61,694	-	3,306	65,000	Amend: Add new rail safety project.
ADOT	Highway	2016	DOT16-476	NEW	Eagle Eye Rd., north of US60, Aguila, AZ @ Arizona California RR 025-904P	Railroad Only Construction of Rail Safety Project	0.1	2	2	-----	5-year	T0018	Safety	STP-RGC	2016	118,648	-	5,963	124,611	Amend: Add new rail safety project.
ADOT	Highway	2016	DOT16-471	NEW	Various UPRR crossings across Maricopa County	Design for Upgrading Railroad Signals to LED	0	0	0	-----	5-year	T0015	Safety	STP-RGC	2016	30,000	-	-	30,000	Amend: Add new rail safety project.
Buckeye	Highway	2017	BKY17-403	1532	Lower Buckeye Rd- Watson Rd to Sundance Park	Construct multiuse-path	0.9	0	0	-----	None	-----	Bike/Ped	CMAQ	2017	<del>388,930</del>	-----	<del>33,503</del>	<del>422,333</del>	Amend: Delete project. Project combined with BKY17-401.
Buckeye	Highway	2017	BKY17-401	27041	Rainbow Rd: Durango St to Lower Buckeye Rd; Lower Buckeye Rd: Rainbow Rd to Watson Rd; Watson Rd to Durango St.	Construct multiuse path	2	0	0	-----	None	-----	Bike/Ped	CMAQ	2017	1,083,628	-	110,500	1,194,128	Amend: Combine BKY17-401, BKY17-402, and BKY17-403 into one project. Update location and length to reflect combined project.
Buckeye	Highway	2017	BKY17-402	25439	Watson Road, Durango St to Lower Buckeye Rd	Construct multiuse-path	0.5	0	0	-----	None	-----	Bike/Ped	CMAQ	2017	<del>302,206</del>	-----	<del>28,267</del>	<del>330,473</del>	Amend: Delete project. Project combined with BKY17-401.

**TABLE B: Requested amendments and administrative modifications to the  
FY 2014-2018 MAG Transportation Improvement Program (TIP), and the 2035 Regional Transportation Plan<sup>1</sup>, TIP AMENDMENT #15**

Sort: Section, Agency, Location, Work Year

TIP Amendment #15																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	Federal ID/ALI	In Life Cycle Program	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>3</sup>	Federal	Regional	Local	Total	TIP Change Request
Glendale	Highway	2016	GLN16-407	NEW	Citywide	Design Flashing Yellow Arrows with Geometric Modifications at 12 Arterial-Arterial Intersections	0	0	0	-----	None	-----	Safety	HSIP-MAG	2016	174,309	-	1,949	176,258	Amend: Add new project.
Glendale	Highway	2016	GLN16-408	NEW	Citywide	Update Safe Routes to School Maps	0	0	0	-----	None	-----	Safety	TAP-MAG	2016	75,346	-	4,554	79,900	Amend: Add new Safe Routes to School project.
Glendale	Highway	2018	GLN18-401	NEW	Citywide	Construct Flashing Yellow Arrows with Geometric Modifications at 12 Arterial-Arterial Intersections	0	0	0	-----	None	-----	Safety	HSIP-MAG	2018	702,776	-	8,131	710,907	Amend: Add new project.
Glendale	Highway	2019	GLN19-401	NEW	Citywide	Design Flashing Yellow Arrows with Geometric Modifications at 22 Intersections	0	0	0	-----	None	-----	Safety	Local	2019	-	-	322,515	322,515	Amend: Add new project.
Glendale	Highway	2020	GLN20-401	NEW	Citywide	Construct Flashing Yellow Arrows with Geometric Modifications at 22 Arterial-Arterial Intersections	0	0	0	-----	None	-----	Safety	Local	2020	-	-	1,300,807	1,300,807	Amend: Add new project.
Maricopa (City)	Highway	2016	MAR16-402	NEW	Porter Road	Safe Routes to School Study and Maps	0	0	0	-----	None	-----	Safety	TAP-MAG	2016	75,440	-	4,560	80,000	Amend: Add new Safe Routes to School project.
Phoenix	Highway	2016	PHX16-435	NEW	Eagle College Prep: South Mountain, Harmony, Mesa, Maryvale	Safe Routes to School Support Activity project: Eagles Quest for Safety Vest	0	0	0	-----	None	-----	Safety	TAP-MAG	2016	28,997	-	1,753	30,750	Amend: Add new Safe Routes to School project.
Phoenix	Highway	2017	PHX17-421	NEW	Eagle College Prep: South Mountain, Harmony, Mesa, Maryvale	Safe Routes to School Support Activity project: Eagles Quest for Safety Vest	0	0	0	-----	None	-----	Safety	TAP-MAG	2017	47,150	-	2,850	50,000	Amend: Add new Safe Routes to School project.
Surprise	Highway	2016	SUR16-404	NEW	Dysart Elementary School District: Citywide	Safe Routes to School Support Activity project: Crosswalk Safety Equipment	0	0	0	-----	None	-----	Safety	TAP-MAG	2016	10,373	-	627	11,000	Amend: Add new Safe Routes to School project.

**TABLE B: Requested amendments and administrative modifications to the  
FY 2014-2018 MAG Transportation Improvement Program (TIP), and the 2035 Regional Transportation Plan<sup>1</sup>, TIP AMENDMENT #15**

Sort: Section, Agency, Location, Work Year

TIP Amendment #15																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	Federal ID/ALI	In Life Cycle Program	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>3</sup>	Federal	Regional	Local	Total	TIP Change Request
Surprise	Highway	2016	SUR16-403	NEW	Marley Park and Rancho Gabriela Elementary Schools	Safe Routes to School Study and Maps	0	0	0	-----	None	-----	Safety	TAP-MAG	2016	39,606	-	2,394	42,000	Amend: Add new Safe Routes to School project.
Surprise	Highway	2016	SUR16-402	NEW	Parkview, Countryside and Ashton Ranch Elementary Schools	Safe Routes to School Study and Maps	0	0	0	-----	None	-----	Safety	TAP-MAG	2016	58,466	-	3,534	62,000	Amend: Add new Safe Routes to School project.
Tempe	Highway	2016	TMP16-406	NEW	Rural Road and Southern Avenue	Phase I Design: Traffic Signal Improvements	0	0	0	-----	None	-----	Safety	HSIP-MAG	2016	30,000	-	135,000	165,000	Amend: Add new safety project.
Tempe	Highway	2017	TMP17-405	NEW	Rural Road and Southern Avenue	Phase II ROW: Traffic Signal Improvements	0	0	0	-----	None	-----	Safety	HSIP-MAG	2017	30,000	-	-	30,000	Amend: Add new safety project.
Tempe	Highway	2018	TMP18-402	NEW	Rural Road and Southern Avenue	Phase III Construction: Traffic Signal Improvements	0	0	0	-----	None	-----	Safety	HSIP-MAG	2018	675,324	-	-	675,324	Amend: Add new safety project.

**Notes**

1. Rows in the report are sorted in order by the following columns: Section, Agency, Year and TIP ID. Changes are in red font. Deletions are shown in strike through font.

2. The following are used to indicate MAG Committees reviewing these TIP listings for amendment: TRC = Transportation Committee, MC = Management Committee, TPC = Transportation Review Committee, RC = Regional Council

3. The year the federal funds (if any) were apportioned by Congress. This item is included only for informational purposes.

4. For federal projects this is the year the project will authorize. For transit this is the year the project will appear in a grant.

5. Changes are in red font. Deletions are shown in strike through font.

**TABLE C: Requested amendments and administrative modifications to the  
FY 2014-2018 MAG Transportation Improvement Program (TIP), and the 2035 Long Range Plan<sup>1</sup>, TIP AMENDMENT #15**

Sort: Section, Agency, Location, Work Year

TIP Amendment #15																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	ALI	In Life Cycle Program <sup>5</sup>	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>3</sup>	Federal	Regional	Local	Total	TIP Change Request
Glendale	Transit	2015	GLN13-111T	42528	North of Union Hills Dr and West of 101L	Construct regional park and ride/transit center	0	0	0	-----	TLCP	-----	Transit Bus	5307	2015	3,676,966	919,242	-	4,596,208	For information only. 2015 Program of Projects
Glendale	Transit	2015	GLN13-903T	27692	Regionwide	Purchase bus: < 30 foot-3 replace (dial-a-ride)	0	0	0	11.12.04	TLCP	-----	Transit Bus	5307	2015	214,689	37,887	-	252,576	For information only. 2015 Program of Projects
Glendale	Transit	2015	GLN15-406T	37858	Regionwide	Preventive Maintenance	0	0	0	-----	None	-----	Transit Bus	5307	2015	106,843	-	26,711	133,553	Amend: Update funding amounts based on final apportionments. 2015 Program of Projects
MAG	Transit	2015	MAG15-406T	37858	Regionwide	Preventive Maintenance	0	0	0	11.7A.00	None	-----	Transit Bus	5307	2015	11,120,429	-----	2,780,107	13,900,536	For information only. 2015 Program of Projects. RC approved deletion June 24, 2015.
Peoria	Transit	2015	PEO10-802T	246	Grand/Peoria	Pre-design regional park-and-ride (Grand/Peoria)	0	0	0	11.31.04	TLCP	-----	Transit Bus	5307	2015	103,653	25,913	-	129,566	For information only. 2015 Program of Projects
Peoria	Transit	2015	PEO15-102T	46687	Regionwide	Purchase bus: < 30 foot-2 replace (dial-a-ride)	0	0	0	11.12.04	TLCP	-----	Transit Bus	5307	2015	143,126	25,258	-	168,384	For information only. 2015 Program of Projects
Peoria	Transit	2015	PEO15-401T	37858	Regionwide	ADA Complementary Paratransit	0	0	0	-----	None	-----	Transit Bus	5307	2015	20,439	-	5,110	25,549	Amend: Update funding amounts based on final apportionments. 2015 Program of Projects
Phoenix	Transit	2015	PHX15-102T	12809	Citywide	Associated Transit Improvements (1% enhancement)	0	0	0	11.92.02	None	-----	Transit Bus	5307	2015	492,963	-	123,241	616,204	Amend: Update funding amounts based on final apportionments. 2015 Program of Projects
Phoenix	Transit	2016	PHX14-107T	39152	Laveen/59th Avenue	Pre-Design regional park-and-ride (Laveen/59th Avenue)	0	0	0	11.31.04	TLCP	-----	Transit Bus	5307	2016	104,503	26,126	-	130,629	Amend: Change work and apportionment year from 2015 to 2016. 2015 Program of Projects
Phoenix	Transit	2015	PHX14-108T	39152	Laveen/59th Avenue	Land regional park-and-ride (Laveen/59th Avenue)	0	0	0	11.32.04	TLCP	-----	Transit Bus	5307	2015	1,612,725	403,181	-----	2,015,906	For information only. 2015 Program of Projects. RC approved deletion June 24, 2015.
Phoenix	Transit	2015	PHX15-103T	32671	Regionwide	Support Services for Grant Management	0	0	0	11.72.03	None	-----	Transit Bus	5307	2015	40,000	-	10,000	50,000	For information only. 2015 Program of Projects

**TABLE C: Requested amendments and administrative modifications to the  
FY 2014-2018 MAG Transportation Improvement Program (TIP), and the 2035 Long Range Plan<sup>1</sup>, TIP AMENDMENT #15**

Sort: Section, Agency, Location, Work Year

TIP Amendment #15																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	ALI	In Life Cycle Program <sup>5</sup>	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>3</sup>	Federal	Regional	Local	Total	TIP Change Request
Phoenix	Transit	2015	PHX15-105T	8434	Regionwide	Purchase bus: < 30 foot - 21 replace (dial-a-ride)	0	0	0	11.12.04	TLCP	-----	Transit Bus	5307	2015	1,178,100	207,900	-	1,386,000	For information only. 2015 Program of Projects
Phoenix	Transit	2015	PHX15-421T	8434	Regionwide	Purchase bus: standard 40 foot - 4 replace	0	0	0	11.12.01	None	-----	Transit Bus	5307	2015	1,819,000	321,000	-	2,140,000	For information only. 2015 Program of Projects
Phoenix	Transit	2015	PHX15-435T	8434	Regionwide	Purchase bus: Articulated - 5 replace	0	0	0	-----	None	-----	Transit Bus	5307	2015	3,523,250	621,750	-	4,145,000	For information only. 2015 Program of Projects
Phoenix	Transit	2015	PHX15-436T	8434	Regionwide	Purchase bus: Articulated - 3 replace (RAPID)	0	0	0	-----	None	-----	Transit Bus	5307	2015	2,261,850	399,150	-	2,661,000	For information only. 2015 Program of Projects
Phoenix	Transit	2015	PHX15-425T	8434	Regionwide	Purchase bus: < 30 foot - 3 replace (circulator)	0	0	0	11.12.04	None	-----	Transit Bus	5307	2015	234,600	41,400	-	276,000	For information only. 2015 Program of Projects
Phoenix	Transit	2015	PHX16-427T	8434	Regionwide	Purchase bus: Articulated - 5 replace	0	0	0	11.12.06	None	-----	Transit Bus	5307	2015	3,769,750	665,250	-	4,435,000	For information only. 2015 Program of Projects
Phoenix	Transit	2015	PHX15-437T	NEW	Regionwide	700 MHz Transit Communications Upgrade	0	0	0	-----	TLCP	-----	Transit Bus	5307	2015	5,633,809	1,408,452	-	7,042,261	For information only. 2015 Program of Projects
Phoenix	Transit	2015	PHX15-438T	37858	Regionwide	Preventive Maintenance	0	0	0	-----	None	-----	Transit Bus	5307	2015	4,340,136	-	1,085,034	5,425,170	Amend: Update funding amounts based on final apportionments. 2015 Program of Projects
Scottsdale	Transit	2015	SCT15-403T	37858	Regionwide	Preventive Maintenance	0	0	0	-----	None	-----	Transit Bus	5307	2015	168,236	-	42,059	210,295	Amend: Update funding amounts based on final apportionments. 2015 Program of Projects
Scottsdale	Transit	2015	SCT15-404T	28971	Scottsdale Road/Rural Road corridor Capacity Improvement	Associated Transit Investments (ATI) Design	0	0	0	-----	TLCP	-----	Transit Bus	5307	2015	220,411	55,103	-	275,514	Amend: Update funding amounts based on final apportionments. Update work description to reflect project split into design, right of way, and construction. 2015 Program of Projects
Scottsdale	Transit	2015	SCT15-404RWT	28971	Scottsdale Road/Rural Road corridor Capacity Improvement	Associated Transit Improvements (ATI) Right of Way	0	0	0	-----	TLCP	-----	Transit Bus	5307	2015	211,120	52,780	-	263,900	Amend: Add new project. 2015 Program of Projects

**TABLE C: Requested amendments and administrative modifications to the  
FY 2014-2018 MAG Transportation Improvement Program (TIP), and the 2035 Long Range Plan<sup>1</sup>, TIP AMENDMENT #15**

Sort: Section, Agency, Location, Work Year

TIP Amendment #15																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	ALI	In Life Cycle Program <sup>5</sup>	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>3</sup>	Federal	Regional	Local	Total	TIP Change Request
Scottsdale	Transit	2015	SCT15-404CT	28971	Scottsdale Road/Rural Road corridor Capacity Improvement	Associated Transit Improvements (ATI) Construction	0	0	0	-----	TLCP	-----	Transit Bus	5307	2015	523,120	130,780	-	653,900	Amend: Add new project. 2015 Program of Projects
Surprise	Transit	2015	SUR15-102T	48702	Regionwide	Purchase bus: < 30 foot 2 Replace (dial-a-ride)	0	0	0	11.12.04	TLCP	-----	Transit Bus	5307	2015	112,200	19,800	-----	132,000	For information only. 2015 Program of Projects. RC approved deletion June 24, 2015.
Valley Metro Rail	Transit	2015	VMR15-433T	14195	Main Street/Gilbert Road Bus Turn-Around (Construct)	Main Street/Gilbert Road bus turn-around (construct)	0	0	0	-----	TLCP	-----	Transit Rail	5307	2015	2,519,790	629,948	-	3,149,738	For information only. 2015 Program of Projects
Valley Metro Rail	Transit	2015	VMR15-409T	37858	Regionwide	Preventive Maintenance	0	0	0	-----	None	-----	Transit Bus	5307	2015	1,196,097	-	299,024	1,495,122	Amend: Update funding amounts based on final apportionments. 2015 Program of Projects
Valley Metro/RPTA	Transit	2016	PEO13-101T	6338	Peoria	Design regional transit center (4-bay) Peoria	0	0	0	11.31.02	TLCP	-----	Transit Bus	5307	2016	125,260	31,315	-	156,575	Amend: Change apportionment year from 2015 to 2016. 2015 Program of Projects
Valley Metro/RPTA	Transit	2016	PEO13-102T	6338	Peoria	Land regional transit center (4-bay) Peoria	0	0	0	11.32.02	TLCP	-----	Transit Bus	5307	2016	626,300	156,576	-	782,876	For information only. 2015 Program of Projects
Valley Metro/RPTA	Transit	2015	TMP15-102T	2333	Regionwide	Purchase bus: standard 40 foot - 2 replace (Tempe)	0	0	0	11.12.01	TLCP	-----	Transit Bus	5307	2015	983,404	173,543	-	1,156,947	For information only. 2015 Program of Projects
Valley Metro/RPTA	Transit	2015	VMR15-400T	21692	Regionwide	Purchase bus: standard 40 foot - 8 replace	0	0	0	-----	None	-----	Transit Bus	5307	2015	3,963,913	699,514	-	4,663,427	For information only. 2015 Program of Projects
Valley Metro/RPTA	Transit	2015	VMT14-105T	22488	Regionwide	Purchase bus: standard 40 ft - 11 expand (Scottsdale/Rural BRT)	0	0	0	11.13.01	TLCP	-----	Transit Bus	5307	2015	5,142,500	907,500	-	6,050,000	For information only. 2015 Program of Projects
Valley Metro/RPTA	Transit	2015	VMT15-401T	NEW	Regionwide	Regional ADA Bus Stop Accessibility Standards and Inventory	0	0	0	-----	None	-----	Transit Bus	5307	2015	200,000	50,000	-	250,000	For information only. 2015 Program of Projects
Valley Metro/RPTA	Transit	2015	TMP15-404T	37858	Regionwide	Preventive Maintenance	0	0	0	-----	None	-----	Transit Bus	5307	2015	1,527,427	-	381,857	1,909,284	Amend: Update funding amounts based on final apportionments. 2015 Program of Projects

**TABLE C: Requested amendments and administrative modifications to the  
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Sort: Section, Agency, Location, Work Year

TIP Amendment #15																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	ALI	In Life Cycle Program <sup>5</sup>	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>3</sup>	Federal	Regional	Local	Total	TIP Change Request
Valley Metro/RPTA	Transit	2015	VMT15-402T	37858	Regionwide	Preventive Maintenance	0	0	0	-----	None	-----	Transit Bus	5307	2015	2,438,583	-	609,646	3,048,229	Amend: Update funding amounts based on final apportionments. 2015 Program of Projects
Valley Metro/RPTA	Transit	2015	VMT15-408T	28971	Scottsdale Road/Rural Road corridor	Scottsdale Rural Road-BRT (Phase II)	0	0	0	11.32.02	TLCP	-----	Transit Bus	5307	2015	11,206,242	11,206,242	-----	22,412,484	For information only. 2015 Program of Projects. RC approved deletion June 24, 2015.
Valley Metro/RPTA	Transit	2015	VMT15-405T	28971	Scottsdale Road/Rural Road corridor Capacity Improvement	Transit signal priority (TSP)	0	0	0	-----	TLCP	-----	Transit Bus	5307	2015	763,360	190,840	-	954,200	For information only. 2015 Program of Projects
Valley Metro/RPTA	Transit	2015	TMP15-401T	6633	Tempe: Fixed Route	Preventive Maintenance	0	0	0	-----	None	-----	Transit Bus	5307	2015	1,935,755	-----	483,939	2,419,694	For information only. 2015 Program of Projects. RC approved deletion June 24, 2015.
<b>5307 Total:</b>																<b>48,273,199</b>	<b>7,777,227</b>	<b>2,582,681</b>	<b>58,633,108</b>	
Buckeye	Transit	2015	BKY15-403T	NEW	Citywide	Transit Security	0	0	0	-----	None	-----	Transit Bus	5307-AVN UZA	2015	18,710	-	4,677	23,387	For information only. 2015 Program of Projects
Buckeye	Transit	2015	AVN15-414T	40195	Regionwide	Transit Security	0	0	0	57.20.40	None	-----	Transit Bus	5307-AVN UZA	2015	28,807	-----	7,202	36,009	For information only. 2015 Program of Projects. RC approved deletion June 24, 2015.
Glendale	Transit	2015	GLN15-407T	NEW	Citywide	Transit Security	0	0	0	-----	None	-----	Transit Bus	5307-AVN UZA	2015	11,135	-	2,784	13,919	Amend: Update funding amounts based on final apportionments. 2015 Program of Projects
Phoenix	Transit	2015	PHX15-422T	8434	Regionwide	Purchase bus: standard 40 foot - 1 replace	0	0	0	11.12.01	None	-----	Transit Bus	5307-AVN UZA	2015	442,000	78,000	-	520,000	For information only. 2015 Program of Projects
Valley Metro/RPTA	Transit	2015	VMT15-413T	4760	Regionwide	Operating:Operating Assistance TBD	0	0	0	30.09.01	None	-----	Transit Bus	5307-AVN UZA	2015	2,112,622	2,112,622	-	4,225,244	Amend: Update funding amounts based on final apportionments. 2015 Program of Projects
Valley Metro/RPTA	Transit	2015	VMT15-403T	4760	Regionwide: Avondale-Goodyear UZA	Associated Transit Improvements	0	0	0	-----	None	-----	Transit Bus	5307-AVN UZA	2015	400,000	-	100,000	500,000	For information only. 2015 Program of Projects
<b>5307-AVN UZA Total:</b>																<b>2,984,467</b>	<b>2,190,622</b>	<b>107,461</b>	<b>5,282,550</b>	

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Sort: Section, Agency, Location, Work Year

TIP Amendment #15																					
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	ALI	In Life Cycle Program <sup>5</sup>	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>3</sup>	Federal	Regional	Local	Total	TIP Change Request	
Glendale	Transit	2015	GLN15-403T	1944	Citywide: Glendale	Operating: Route 59	0	0	0	30.09.01	None	-----	Transit Bus	5307-JARC	2015	200,000	-	220,000	420,000	For information only. 2015 Program of Projects	
Glendale	Transit	2015	GLN15-404T	8708	Citywide: Phoenix and Glendale	Route Operating: Route 60	0	0	0	-----	None	-----	Transit Bus	5307-JARC	2015	150,325	-	209,675	360,000	Amend: Update funding amounts based on final apportionments. 2015 Program of Projects	
MAG	Transit	2015	MAG15-402T	5800	Regionwide	JARC apportionment	0	0	0	30.09.01	None	-----	Transit Bus	5307-JARC	2015	<del>1,815,300</del>	<del>363,060</del>	<del>-----</del>	<del>2,178,360</del>	For information only. 2015 Program of Projects. RC approved deletion June 24, 2015.	
Phoenix	Transit	2015	PHX15-428T	16380	Citywide: Phoenix	Operating: Route 17 with increased frequencies	0	0	0	30.09.01	None	-----	Transit Bus	5307-JARC	2015	400,000	-	3,790,545	4,190,545	For information only. 2015 Program of Projects	
Phoenix	Transit	2015	PHX15-429T	16380	Citywide: Phoenix	Operating: Extension of Route 10	0	0	0	-----	None	-----	Transit Bus	5307-JARC	2015	200,000	-	1,782,513	1,982,513	For information only. 2015 Program of Projects	
Phoenix	Transit	2015	PHX15-430T	31355	Citywide: Phoenix and Scottsdale	Operating: Route 29 with increased frequencies	0	0	0	30.09.01	None	-----	Transit Bus	5307-JARC	2015	400,000	-	3,770,899	4,170,899	For information only. 2015 Program of Projects	
Phoenix	Transit	2015	PHX15-432T	16167	Citywide: Phoenix and Tolleson	Operating: Route 3 with increased frequencies	0	0	0	30.09.01	None	-----	Transit Bus	5307-JARC	2015	400,000	-	2,752,070	3,152,070	For information only. 2015 Program of Projects	
Tolleson	Transit	2015	TOL15-401T	31482	Citywide: Tolleson	Operating: Zoom	0	0	0	30.09.01	None	-----	Transit Bus	5307-JARC	2015	128,870	-	128,870	257,740	For information only. 2015 Program of Projects	
																<b>5307-JARC Total:</b>	<b>1,879,195</b>	<b>-</b>	<b>12,654,572</b>	<b>14,533,767</b>	
Valley Metro Rail	Transit	2015	VMR15-405T	23739	Regionwide	Overhaul Brake resistors	0	0	0	-----	TLCP	-----	Transit Rail	5337-FGM	2015	342,076	557,753	-	899,829	Amend: Update funding amounts based on final apportionments. 2015 Program of Projects	
																<b>5337-FGM Total:</b>	<b>342,076</b>	<b>557,753</b>	<b>-</b>	<b>899,829</b>	
MAG	Transit	2015	MAG15-408T	32858	Regionwide	Preventive-Maintenance	0	0	0	11.7A.00	None	---	Transit-Bus	5337-HI	2015	<del>557,261</del>	<del>-----</del>	<del>139,315</del>	<del>696,576</del>	Amend: Delete placeholder project. Replaced by PHX15-442T. 2015 Program of Projects	

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FY 2014-2018 MAG Transportation Improvement Program (TIP), and the 2035 Long Range Plan<sup>1</sup>, TIP AMENDMENT #15**

Sort: Section, Agency, Location, Work Year

TIP Amendment #15																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	ALI	In Life Cycle Program <sup>5</sup>	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>3</sup>	Federal	Regional	Local	Total	TIP Change Request
Phoenix	Transit	2015	PHX15-443T	37858	Regionwide	Preventive Maintenance	0	0	0	11.7A.00	None	-----	Transit Bus	5337-HI	2015	972,095	-	243,024	1,215,119	Amend: Add new project. 2015 Program of Projects.
Valley Metro/RPTA	Transit	2015	VMR15-392T	19422	Regionwide	Purchase bus: standard 40 foot - 2 replace (Tempe)	0	0	0	-----	None	-----	Transit Bus	5337-HI	2015	983,404	173,543	-	1,156,947	For information only. 2015 Program of Projects
														5337-HI Total:		1,955,499	173,543	243,024	2,372,066	
MAG	Transit	2015	MAG15-407T	37858	Regionwide	Preventive Maintenance	0	0	0	11.7A.00	None	-----	Transit Bus	5339	2015	<del>201,311</del>	<del>-----</del>	<del>50,328</del>	<del>251,639</del>	Amend: Delete placeholder project. Replaced by PHX15-442T. 2015 Program of Projects
Phoenix	Transit	2015	PHX15-442T	37858	Regionwide	Preventive Maintenance	0	0	0	11.7A.00	None	-----	Transit Bus	5339	2015	1,025,224	-	256,306	1,281,530	Amend: Add new project. 2015 Program of Projects.
Phoenix	Transit	2015	PHX15-423T	8434	Regionwide	Purchase bus: standard 40 foot - 9 replace	0	0	0	11.12.01	None	-----	Transit Bus	5339	2015	3,978,000	702,000	-	4,680,000	For information only. 2015 Program of Projects
Phoenix	Transit	2015	PHX15-426T	8434	Regionwide	Purchase bus: < 30 foot - 1 replace (dial-a-ride)	0	0	0	-----	None	-----	Transit Bus	5339	2015	56,100	9,900	-	66,000	For information only. 2015 Program of Projects
														5339 Total:		5,059,324	711,900	256,306	6,027,530	
Phoenix	Transit	2016	PHX15-101T	39152	Laveen/59th Avenue	Design and Construct regional park-and-ride (59th Ave/Laveen)	0	0	0	11.33.04	TLCP	-----	Transit Bus	CMAQ-Flex	2016	2,800,710	169,290	-	2,970,000	For information only. 2015 Program of Projects
														CMAQ-Flex Total:		2,800,710	169,290	-	2,970,000	
Glendale	Transit	2016	GLN15-408T	18357	Regionwide	Preventive Maintenance	0	0	0	11.7A.00	None	-----	Transit Bus	Federal Interest	2015	43,826	-	10,957	54,783	Amend: Reduce local match to 20%. Change work year to 2016. 2015 Program of Projects
Peoria	Transit	2016	PEO15-402T	20226	Regionwide	ADA Complementary Paratransit	0	0	0	11.7A.00	None	-----	Transit Bus	Federal Interest	2015	17,115	-	17,115	34,231	Amend: Change work year to 2016. 2015 Program of Projects

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FY 2014-2018 MAG Transportation Improvement Program (TIP), and the 2035 Long Range Plan<sup>1</sup>, TIP AMENDMENT #15**

Sort: Section, Agency, Location, Work Year

TIP Amendment #15																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	ALI	In Life Cycle Program <sup>5</sup>	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>3</sup>	Federal	Regional	Local	Total	TIP Change Request
Phoenix	Transit	2016	PHX15-437T	23260	Regionwide	700 MHz Transit Communications Upgrade	0	0	0	998-00	TLCP	-----	Transit Bus	Federal Interest	2015	1,166,191	291,548	-	1,457,739	Amend: Change TIP ID from PHX15-433T to PHX15-437T to eliminate duplication. Change work year to 2016. 2015 Program of Projects
Phoenix	Transit	2016	PHX15-434T	44311	Regionwide	Preventive maintenance	0	0	0	11.7A.00	None	-----	Transit Bus	Federal Interest	2015	411,458	-	102,864	514,322	For information only. 2015 Program of Projects
Scottsdale	Transit	2016	SCT15-403T	NEW	Regionwide	Preventive Maintenance	0	0	0	11.7A.00	None	-----	Transit Bus	Federal Interest	2015	238,000	-	59,500	297,500	Amend: Reduce local match to 20%. Change work year to 2016. 2015 Program of Projects
<b>Fed. Interest Total:</b>																<b>1,876,590</b>	<b>291,548</b>	<b>190,436</b>	<b>2,358,574</b>	

Phoenix	Transit	2015	PHX15-444T	44311	Regionwide	Preventive Maintenance	0	0	0	11.7A.00	None	-----	Transit Bus	STP-AZ-Flex	2015	52,442	-	13,111	65,553	Amend: Add new project. 2015 Program of Projects
Phoenix	Transit	2015	PHX15-424T	8434	Regionwide	Purchase bus: standard 40 foot - 1 replace	0	0	0	11.12.01	None	-----	Transit Bus	STP-AZ-Flex	2015	442,000	78,000	-	520,000	For information only. 2015 Program of Projects
Valley Metro/RPTA	Transit	2015	VMT15-106T	29444	Regionwide	Purchase vanpools: 45 replace	0	0	0	11.12.15	TLCP	-----	Transit Bus	STP-AZ-Flex	2015	1,575,000	-	-	1,575,000	For information only. 2015 Program of Projects
Valley Metro/RPTA	Transit	2015	VMT15-107T	16655	Regionwide	Purchase vanpools: 25 expand	0	0	0	11.13.15	TLCP	-----	Transit Bus	STP-AZ-Flex	2015	950,325	-	-	950,325	For information only. 2015 Program of Projects
<b>STP-AZ-Flex Total:</b>																<b>3,019,767</b>	<b>78,000</b>	<b>13,111</b>	<b>3,110,878</b>	

**Notes**

1. Rows in the report are sorted in order by the following columns: Section, Agency, Year and TIP ID. Changes are in red font. Deletions are shown in strike through font.
2. The following are used to indicate MAG Committees reviewing these TIP listings for amendment: TRC = Transportation Committee, MC = Management Committee, TPC = Transportation Review Committee, RC = Regional Council
3. The year the funds were apportioned by Congress. This item is included only for informational purposes.
4. For federal projects this is the year the project will authorize. For transit this is the year the project will appear in a grant.
5. Life Cycle Programs:
6. Changes are in red font. Deletions are shown in strike through font.

# **ATTACHMENT #2**

**Agenda Item #5B**

# MARICOPA ASSOCIATION OF GOVERNMENTS

## INFORMATION SUMMARY... for your review

**DATE:**

September 23, 2015

**SUBJECT:**

Project Changes Report on September Activities - Amendment and Administrative Modification to the FY 2014-2018 MAG Transportation Improvement Program, and as needed, to the 2035 Regional Transportation Plan submitted to ADOT on September 3, 2015, and on September 17, 2015.

**SUMMARY:**

The Fiscal Year (FY) 2014-2018 MAG Transportation Improvement Program (TIP) and 2035 Regional Transportation Plan (RTP) were approved by the MAG Regional Council on January 29, 2014. Since then, there was a need to make project changes. Project changes and additions were submitted to ADOT on September 3, 2015.

Due to the late announcement of Federal Transit Administration (FTA) and Federal Highway Administration (FHWA) regional allocations, the Regional Council at the August 26, 2015 meeting granted approval to make modifications to work years to advance previously approved projects and to provide detailed TIP listings for prioritized projects to ensure that all Federal Highway Administration obligation authority and Federal Transit Administration apportionments are utilized for Federal Fiscal Year 2015.

The prioritized list of projects for the for the FTA Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities Transportation Program for the Phoenix/Mesa urbanized area were approved by Regional Council on June 24, 2015. Detailed transit project listings were generated for the Phoenix/Mesa urbanized area from the approved prioritized list, and ADOT submitted the Statewide program listings; all listings for the projects are included in TIP Amendment 14, Table A.

TIP listings requested from the Arizona Department of Transportation were completed to address changes needed on projects that are underway and are utilizing or effect FY2015 funding, are included in TIP Amendment 14, Table B. Further changes including work phase funding redistribution within the project or corridor of the SR-202L, which are a result of right of way cost savings and updates to the work location based on updated engineering estimates are included in TIP Amendment 15, Table A. Redistributing the work phase funding may save an estimated \$2.9 million of the prospective financing charges. The Project Initiation Pool listing has been added for MAG funded Congestion Mitigation and Air Quality Improvement Program (CMAQ), Surface Transportation Program (STP-MAG), Transportation Alternatives Program (TAP-MAG), and Highway Safety Improvement Program (HSIP-MAG) projects for FY2016 for immediate request. The Project Initiation Pool program was approved by Regional council on June 24, 2015, eligible projects have been posted to the MAG website. Please see attachments.

**PUBLIC INPUT:**

None has been received.

**PROS & CONS:**

PROS: Approval of this TIP amendment and administrative modification will allow the projects to proceed in a timely manner, address current year funding that may be at risk, and may provide overall project cost savings.

CONS: None.

**TECHNICAL & POLICY IMPLICATIONS:**

TECHNICAL: Projects that wish to utilize transportation federal funds need to be shown in the TIP in the year that they expect to commence and may need to undergo an air quality conformity analysis or consultation. FTA section 5310 projects that wish to utilize FY2015 pre-award authority on October 1, 2015, must be included in a TIP and be issued an award letter by the Designated Recipient, the City of Phoenix.

POLICY: This amendment and administrative modification request is in accord with MAG guidelines and Regional Council prior approval. The modified action is non-typical and is due to the late congressional approval for federal funding, compounded by the end of the fiscal year financial accounting shutdowns occurring prior to the next approval cycle.

**ACTION NEEDED:**

For information and discussion.

**PRIOR COMMITTEE ACTIONS:**

On August 26, 2015, the Regional Council approved the project amendments and administrative modifications to the FY 2014-2018 MAG Transportation Improvement Program, FY 2016 Arterial Life Cycle Program, and as appropriate, to the 2035 Regional Transportation Plan, and necessary project advancement modifications, detailed TIP listings for previously approved priority ordered projects related to apportioned federal fiscal year 2015 funding, based on the forthcoming final apportionment and obligation authority distributions from Federal Highway Administration and funding notices from Federal Transit Administration.

MEMBERS ATTENDING

- Mayor W.J. "Jim" Lane, Scottsdale, Chair
- \* Mayor Greg Stanton, Phoenix, Vice Chair
- Vice Mayor Robin Barker, Apache Junction
- # Mayor Kenneth Weise, Avondale
- Mayor Jackie Meck, Buckeye
- Councilmember Mike Farrar, Carefree
- Councilmember Dick Esser, Cave Creek
- # Mayor Jay Tibshraeny, Chandler
- Mayor Lana Mook, El Mirage
- Mayor Tom Rankin, Florence
- \* President Ruben Balderas, Fort McDowell Yavapai Nation
- Mayor Linda Kavanagh, Fountain Hills
- Mayor Chuck Turner, Gila Bend
- \* Governor Stephen Roe Lewis, Gila River Indian Community
- Mayor John Lewis, Gilbert
- Mayor Jerry Weiers, Glendale
- Mayor Georgia Lord, Goodyear
- # Mayor Rebecca Jimenez, Guadalupe
- # Mayor Thomas Schoaf, Litchfield Park
- # Mayor Christian Price, City of Maricopa
- Supervisor Denny Barney, Maricopa County
- Mayor John Giles, Mesa
- \* Mayor Michael Collins, Paradise Valley
- Mayor Cathy Carlat, Peoria
- \* Supervisor Todd House, Pinal County
- # Mayor Gail Barney, Queen Creek
- \* President Delbert Ray, Salt River Pima-Maricopa Indian Community
- Mayor Sharon Wolcott, Surprise
- # Mayor Mark Mitchell, Tempe
- \* Mayor Adolfo Gamez, Tolleson
- Mayor John Cook, Wickenburg
- Mayor Michael LeVault, Youngtown
- Mr. Roc Arnett, Citizens Transportation Oversight Committee
- Mr. Joseph La Rue, State Transportation Board

Councilmember Jack Sellers, State

Transportation Board

\* Those members neither present nor represented by proxy.

# Attended by telephone conference call.

+ Attended by videoconference

On June 24, 2015, the Regional Council approved the Project Implementation Pool, and the Priority listing of FTA Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities Transportation Program for the Phoenix/Mesa urbanized area.

**MEMBERS ATTENDING**

- Mayor Michael LeVault, Youngtown, Chair
- Mayor W.J. "Jim" Lane, Scottsdale, Vice Chair
- Vice Mayor Robin Barker, Apache Junction
- \* Mayor Kenneth Weise, Avondale
- \* Mayor Jackie Meck, Buckeye
- \* Councilmember Mike Farrar, Carefree
- Councilmember Dick Esser, Cave Creek
- Mayor Jay Tibshraeny, Chandler
- \* Mayor Lana Mook, El Mirage
- \* Mayor Tom Rankin, Florence
- \* President Ruben Balderas, Fort McDowell Yavapai Nation
- Councilmember Nick DePorter for Mayor Linda Kavanagh, Fountain Hills
- \* Mayor Chuck Turner, Gila Bend
- \* Governor Stephen Roe Lewis, Gila River Indian Community
- Mayor John Lewis, Gilbert
- Mayor Jerry Weiers, Glendale
- Mayor Georgia Lord, Goodyear
- Mayor Rebecca Jimenez, Guadalupe
- Mayor Thomas Schoaf, Litchfield Park

- Mayor Christian Price, City of Maricopa
- Supervisor Denny Barney, Maricopa County
- Mayor John Giles, Mesa
- \* Mayor Michael Collins, Paradise Valley
- Mayor Cathy Carlat, Peoria
- \* Mayor Greg Stanton, Phoenix
- \* Supervisor Todd House, Pinal County
- Mayor Gail Barney, Queen Creek
- \* President Delbert Ray, Salt River Pima-Maricopa Indian Community
- Councilmember Roland Winters for Mayor Sharon Wolcott, Surprise
- Mayor Mark Mitchell, Tempe
- \* Mayor Adolfo Gamez, Tolleson
- Mayor John Cook, Wickenburg
- Mr. Roc Arnett, Citizens Transportation Oversight Committee
- Mr. Joseph La Rue, State Transportation Board
- Mr. Jack Sellers, State Transportation Board

\* Those members neither present nor represented by proxy.

# Attended by telephone conference call.

+ Attended by videoconference

**CONTACT PERSON:**

Teri Kennedy, Transportation Improvement Program Manager, (602) 254-6300.

September 18, 2015

Ms. Karla S. Petty  
Division Administrator  
Federal Highway Administration  
4000 North Central Avenue Suite1500  
Phoenix, Arizona 85012-1906Mr. Leslie T. Rogers  
Regional Administrator  
Federal Transit Administration  
201 Mission Street, Suite1650  
San Francisco, California 94105-1839

RE: FY 2015 - 2019 State Transportation Improvement Program (STIP), Amendment Number 44

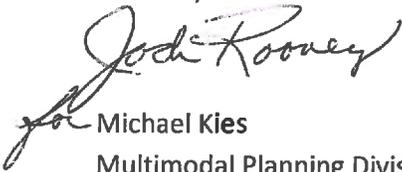
Dear Ms. Petty and Mr. Rogers:

As the Governor's designee, I approve the Transportation Improvement Program (TIP) Amendments Number 13 and 14 requested by the Maricopa Associations of Governments (MAG) as approved by their Regional Council on August 26, 2015 as part of agenda item 7 to amend its FY 2014 - 2018 TIP. I cordially request Amendment Number 44 of the FY 2015 - 2019 State Transportation Improvement Program (STIP) to reflect the changes.

This amendment is in accordance with 23 CFR 450 and was developed based on a continuing, cooperative, and comprehensive transportation planning process in accordance with 23 USC 134 and Section 5303 of the Federal Transit Act (49 USC 53). The changes made to the program, by these amendments as shown in Tables A and B, are either exempt or are regarded as minor project revisions that do not require conformity determination [40 CFR §93.126]. The funding for these projects in this amendment will not adversely impact the STIP Financial Plan.

Your prompt approval of this request will be greatly appreciated.

Sincerely

  
Michael Kies  
Multimodal Planning Divisioncc: Ed Stillings, FHWA  
Eric Boyles, ADOT  
Mike Normand, ADOTDominique Paukowits, FTA  
Patrick Stone, ADOT  
Teri Kennedy, MAG

Enclosures (1)



**MARICOPA  
ASSOCIATION of  
GOVERNMENTS**

302 North 1st Avenue, Suite 300 • Phoenix, Arizona 85003  
Phone (602) 254-6300 • FAX (602) 254-6490  
E-mail: mag@azmag.gov • Web site: www.azmag.gov

September 16, 2015

Mr. Michael Kies, P.E.  
Director, Multimodal Planning Division  
Arizona Department of Transportation  
206 South 17th Avenue, MD 310B  
Phoenix, Arizona 85007

*Mik*  
Dear Mr. Kies:

The Maricopa Association of Governments' (MAG) Fiscal Year (FY) 2014-2018 Transportation Improvement Program (TIP), approved by the MAG Regional Council on January 29, 2014, requires amendments and administrative project modifications which are included in Table A. These amendments and administrative modifications serve as necessary project advancement modifications and detailed TIP listings for obligation authority distributions from Federal Highway Administration and related work phase changes. This action was approved by the MAG Regional Council as part of agenda item 7 on August 26, 2015. As the Governor's designee, the Arizona Department of Transportation (ADOT), Multimodal Planning Division is responsible for approval of TIPs and TIP amendments in the State of Arizona. MAG requests your approval of the amendment and modification of the TIP, which is necessary to ensure the continuation of the projects involved. In addition to approval of the MAG TIP amendment and modification, we also request that Arizona Department of Transportation process the necessary amendment to the relevant STIP as soon as possible to meet the current federal fiscal year requirements.

The approved listings and administrative adjustment for the modification to the FY 2014-2018 MAG TIP and the amendment to the Statewide Transportation Improvement Program (STIP) are included in the attached table. This will be the fourteenth request to amend the FY 2014-2018 TIP. All of the above mentioned projects are regarded as either exempt for air quality purposes or are regarded as minor project revisions that do not require conformity determinations.

Your support and the assistance of your staff in ensuring the timely progression of these projects are appreciated. We look forward to a continuing close relationship with the State in meeting the transportation needs of our region. Please contact Teri Kennedy or me if you need any clarification regarding these amendments.

Sincerely,

Dennis Smith  
Executive Director

cc: Ed Stillings, FHWA  
Dominique Paukowits, FTA  
Dallas Hammit, ADOT  
Anson Gock, ADOT

Bret Anderson, ADOT  
Denise Scafide, ADOT  
Patrick Stone, ADOT  
Eric Boyles, ADOT

A Voluntary Association of Local Governments in the Maricopa Region

City of Apache Junction • Arizona Department of Transportation • City of Avondale • City of Buckeye • Town of Carefree • Town of Cave Creek • City of Chandler • Citizens Transportation Oversight Committee  
City of El Mirage • Town of Florence • Fort McDowell Yavapai Nation • Town of Fountain Hills • Town of Gila Bend • Gila River Indian Community • Town of Gilbert • City of Glendale • City of Goodyear  
Town of Guadalupe • City of Litchfield Park • City of Maricopa • Maricopa County • City of Mesa • Town of Paradise Valley • City of Peoria • City of Phoenix • Pinal County • Town of Queen Creek  
Salt River Pima-Maricopa Indian Community • City of Scottsdale • City of Surprise • City of Tempe • City of Tolleson • Town of Wickenburg • Town of Youngtown

**TABLE A: Requested amendments and administrative modifications to the  
FY 2014-2018 MAG Transportation Improvement Program (TIP), and the 2035 Regional Transportation Plan<sup>1</sup>, TIP AMENDMENT #14**

Sort: Section, Agency, Location, Work Year

TIP Amendment #14																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	Federal ID/ALI	In Life Cycle Program	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>3</sup>	Federal	Regional	Local	Total	TIF Change Request
ADOT	Highway	2015	DOT15-492	46948	202 (South Mountain): I-10 Maricopa (MP 54) to I-10 Papago (MP 76) (Design-Build-Maintain)	Design, Construct and Maintain	22	0	8	---	RFHP	---	Freeway	NHPP	2015-2019	394,139,000	679,584,000	-	1,073,723,000	Amendment: Match with approved program amounts. This item was inadvertently not updated. Increase RARF-HURF cost by \$14,400,000.
ADOT	Highway	2015	DOT15-493	46948	202 (South Mountain): I-10 Maricopa (MP 54) to I-10 Papago (MP 76) (Design-Build-Maintain)	Conversion for Advance Preliminary Engineering	22	0	8	---	RFHP	---	Freeway	RARF-HURF	2015	-	14,900,000	-	14,900,000	Amendment: Decrease NHPP by \$8.1M and increase RARF-HURF by \$8.1M.
ADOT	Highway	2015	DOT15-494	46948	202 (South Mountain): I-10 Maricopa (MP 54) to I-10 Papago (MP 76) (Design-Build-Maintain)	Conversion for Advance RW Acquisition	22	0	8	---	RFHP	---	Freeway	NHPP	2015	182,387,000	72,613,000	-	255,000,000	Amendment: Increase NHPP by \$8.1M and decrease RARF-HURF by \$8.1M.
ADOT	Highway	2015	DOT16-490	46948	202 (South Mountain): I-10 Maricopa (MP 54) to I-10 Papago (MP 76) (Design-Build-Maintain)	Conversion for Advance Preliminary Engineering	22	0	8	---	RFHP	---	Freeway	NHPP	2016	-	37,983,562	-	37,983,562	Amendment: Increase project cost by \$32,883,562.
ADOT	Highway	2015	DOT16-491	46948	202 (South Mountain): I-10 Maricopa (MP 54) to I-10 Papago (MP 76) (Design-Build-Maintain)	Conversion for Advance RW Acquisition	22	0	8	---	RFHP	---	Freeway	NHPP	2016	120,236,000	148,468,240	-	268,704,240	Amendment: Decrease project cost by \$73,229,760.
ADOT	Highway	2015	DOT16-492	46948	202 (South Mountain): I-10 Maricopa (MP 54) to I-10 Papago (MP 76) (Design-Build-Maintain)	Conversion for Advance Design, Construct and Maintain	22	0	8	---	RFHP	---	Freeway	NHPP	2016	54,561,000	152,846,198	-	207,407,198	Amendment: Increase regional cost by \$40,346,198. Clerical: Change Apportionment year from FY 2015 to FY 2016.
<del>ADOT</del>	<del>Highway</del>	<del>2015</del>	<del>DOT18-481</del>	<del>46948</del>	<del>202 (South Mountain): I-10 Maricopa (MP 54) to I-10 Papago (MP 76) (Design-Build-Maintain)</del>	<del>Conversion for Advance RW Acquisition</del>	<del>22</del>	<del>0</del>	<del>8</del>	<del>---</del>	<del>RFHP</del>	<del>---</del>	<del>Freeway</del>	<del>RARF-HURF</del>	<del>2018</del>	<del>---</del>	<del>17,096,000</del>	<del>---</del>	<del>17,096,000</del>	Amendment: Delete project listing.
ADOT	Highway	2015	DOT18-492	46948	202 (South Mountain): I-10 Maricopa (MP 54) to I-10 Papago (MP 76) (Design-Build-Maintain)	Conversion for Advance Design, Construct and Maintain	22	0	8	---	RFHP	---	Freeway	NHPP	2018	143,635,000	242,031,000	-	385,666,000	Amendment: Increase regional cost by \$17,096,000. Clerical: Change Apportionment year from FY 2015 to FY 2018.
ADOT	Highway	2015	DOT19-490	46948	202 (South Mountain): I-10 Maricopa (MP 54) to I-10 Papago (MP 76) (Design-Build-Maintain)	Conversion for Advance Design, Construct and Maintain	22	0	8	---	RFHP	---	Freeway	NHPP	2019	9,647,000	126,325,000	-	135,972,000	Clerical: Change Apportionment year from FY 2015 to FY 2019.

**Notes**

1. Rows in the report are sorted in order by the following columns: Section, Agency, Year and TIP ID. Changes are in red font. Deletions are shown in strike through font.

2. The following are used to indicate MAG Committees reviewing these TIP listings for amendment: TRC = Transportation Committee, MC = Management Committee, TPC = Transportation Review Committee, RC = Regional Council

3. The year the federal funds (if any) were apportioned by Congress. This item is included only for informational purposes.

4. For federal projects this is the year the project will authorize. For transit this is the year the project will appear in a grant.

5. Changes are in red font. Deletions are shown in strike through font.



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September 3, 2015

Mr. Michael Kies, P.E.  
Director, Multimodal Planning Division  
Arizona Department of Transportation  
206 South 17th Avenue, MD 310B  
Phoenix, Arizona 85007

Dear *Miky* Mr. Kies:

The Maricopa Association of Governments' (MAG) Fiscal Year (FY) 2014-2018 Transportation Improvement Program (TIP), approved by the MAG Regional Council on January 29, 2014, requires amendments and administrative project modifications which are included in Tables A and B. These amendments and administrative modifications serve as necessary project advancement modifications and detailed TIP listings for previously approved priority ordered projects related to apportioned Federal fiscal year 2015 funding based on final apportionment and obligation authority distributions from Federal Highway Administration and funding notices from Federal Transit Administration. This action was approved by the MAG Regional Council as part of agenda item 7 on August 26, 2015. As the Governor's designee, the Arizona Department of Transportation (ADOT), Multimodal Planning Division is responsible for approval of TIPs and TIP amendments in the State of Arizona. MAG requests your approval of the amendment and modification of the TIP, which is necessary to ensure the continuation of the projects involved. In addition to approval of the MAG TIP amendment and modification, we also request that Arizona Department of Transportation process the necessary amendment to the relevant STIP as soon as possible to meet the current federal fiscal year requirements.

The approved listings and administrative adjustment for the modification to the FY 2014-2018 MAG TIP and the amendment to the Statewide Transportation Improvement Program (STIP) are included in the attached tables. This will be the thirteenth request to amend the FY 2014-2018 TIP. All of the above mentioned projects are regarded as either exempt for air quality purposes or are regarded as minor project revisions that do not require conformity determinations.

Your support and the assistance of your staff in ensuring the timely progression of these projects are appreciated. We look forward to a continuing close relationship with the State in meeting the transportation needs of our region. Please contact Teri Kennedy or me if you need any clarification regarding these amendments.

Sincerely,

Dennis Smith  
Executive Director

cc: Ed Stillings, FHWA  
Dominique Paukowits, FTA  
Dallas Hammit, ADOT  
Anson Gock, ADOT

Bret Anderson, ADOT  
Denise Scafide, ADOT  
Patrick Stone, ADOT  
Eric Boyles, ADOT

— A Voluntary Association of Local Governments in the Maricopa Region —

**TABLE A: Requested amendments and administrative modifications to the FY 2014-2018 MAG Transportation Improvement Program (TIP), and the 2035 Regional Transportation Plan<sup>1</sup>, TIP AMENDMENT #13**

Sort: Section, Agency, Location, Work Year

ADOT Traditional Awards																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	Federal ID/ALI	In Life Cycle Program	TRACS/Grant ID	MAG Mode	Funding	Apport Year <sup>2</sup>	Federal	Regional	Local	Total	TIP Change Request
ADOT	Transit	2015	PNP15-440T	NEW	Various (Regionwide)	PPEP, Inc.: Procure: 1 Maxivan no Lift (replacement) (Avondale)	0	0	0	11.12.04	5-year	----	Transit Other	5310-AZ	2015	25,200	-	2,800	28,000	Amend: Add new project for ADOT awarded FY 2015 Section 5310
ADOT	Transit	2015	PNP15-441T	NEW	Various (Regionwide)	PPEP, Inc.: Procure: 1 Cutaway with Lift-9 passenger (replacement) (Avondale)	0	0	0	11.12.04	5-year	----	Transit Other	5310-AZ	2015	56,700	-	6,300	63,000	Amend: Add new project for ADOT awarded FY 2015 Section 5310
																81,900	-	9,100	91,000	

MAG Traditional Capital Awards																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	Federal ID/ALI	In Life Cycle Program	TRACS/Grant ID	MAG Mode	Funding	Apport Year <sup>2</sup>	Federal	Regional	Local	Total	TIP Change Request
MAG	Transit	2015	PNP15-401T	49097	Various (Regionwide)	Chandler Gilbert Arc: Mobility Manager Position	0	0	0	11.7L.00	None	----	Transit Other	5310-MAG	2015	36,000	-	9,000	45,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-402T	49097	Various (Regionwide)	Terros: Mobility Manager Position	0	0	0	11.7L.00	None	----	Transit Other	5310-MAG	2015	10,800	-	2,700	13,500	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-403T	49097	Various (Regionwide)	Foothills Carling Corps: Mobility Manager Position	0	0	0	11.7L.00	None	----	Transit Other	5310-MAG	2015	36,000	-	9,000	45,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-404T	49097	Various (Regionwide)	Marc Community Resources: Mobility Manager Position	0	0	0	11.7L.00	None	----	Transit Other	5310-MAG	2015	36,000	-	9,000	45,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-405T	49097	Various (Regionwide)	Northwest Valley Connect: Mobility Manager Position	0	0	0	11.7L.00	None	----	Transit Other	5310-MAG	2015	28,800	-	7,200	36,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-406T	49097	Various (Regionwide)	One Step Beyond: 1 Minivan no Ramp (expansion) (Avondale, Glendale, Goodyear, Litchfield Park, Peoria, Phoenix, Surprise, Sun City, Anthem, Wickenburg, Morristown)	0	0	0	11.13.04	None	----	Transit Other	5310-MAG	2015	20,000	-	5,000	25,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-407T	49097	Various (Regionwide)	One Step Beyond: 2 Minivans with Ramp (expansion) (Avondale, Glendale, Goodyear, Litchfield Park, Peoria, Phoenix, Surprise, Sun City, Anthem, Wickenburg, Morristown)	0	0	0	11.13.04	None	----	Transit Other	5310-MAG	2015	64,600	-	11,400	76,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-408T	49097	Various (Regionwide)	United Cerebral Palsy (UCP): 1 Minivan with Ramp (replacement) (North Central Phoenix, Paradise Valley, Glendale, Peoria)	0	0	0	11.12.04	None	----	Transit Other	5310-MAG	2015	32,300	-	5,700	38,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-410T	49097	Various (Regionwide)	Chandler Gilbert Arc: 2 Cutaway 22' Vans (expansion) (Chandler, Gilbert, Mesa, Tempe, Queen Creek, Phoenix)	0	0	0	11.13.04	None	----	Transit Other	5310-MAG	2015	103,700	-	18,300	122,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-411T	49097	Various (Regionwide)	The Centers for Habilitation (TCH): 2 Cutaway 22' Vans (replacement) (Chandler, Tempe, Mesa, Phoenix)	0	0	0	11.12.04	None	----	Transit Other	5310-MAG	2015	103,700	-	18,300	122,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-412T	49097	Various (Regionwide)	Benevilla: 1 Passenger Van (expansion) (Surprise, Sun City, Sun City West, El Mirage, Youngtown, Glendale, and Peoria)	0	0	0	11.13.04	None	----	Transit Other	5310-MAG	2015	22,400	-	5,600	28,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA

Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	Federal ID/ALI	In Life Cycle Program	TRACS/ Grant ID	MAG Mode	Funding	Apport. Year <sup>3</sup>	Federal	Regional	Local	Total	TIP Change Request
MAG	Transit	2015	PNP15-413T	49097	Various (Regionwide)	Southern Arizona Association for Visually Impaired (SAAVI): 1 Passenger Van (replacement) (Regionwide)	0	0	0	11.12.04	None	-----	Transit Other	5310-MAG	2015	22,400	-	5,600	28,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-414T	49097	Various (Regionwide)	Gompers: 2 Cutaway 22' Vans (replacement) (Avondale, Glendale, Goodyear, Litchfield Park, Peoria, Phoenix, Surprise, Sun City)	0	0	0	11.12.04	None	-----	Transit Other	5310-MAG	2015	103,700	-	18,300	122,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-415T	49097	Various (Regionwide)	Marc Community Resources: 2 Cutaway 22' Vans (replacement) (Chandler, Gilbert, Mesa, Tempe, North Phoenix, San Tan Valley)	0	0	0	11.12.04	None	-----	Transit Other	5310-MAG	2015	103,700	-	18,300	122,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-416T	49097	Various (Regionwide)	Terros: 1 Minivan with Ramp (expansion) (Regionwide)	0	0	0	11.13.04	None	-----	Transit Other	5310-MAG	2015	32,300	-	5,700	38,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-418T	49097	Various (Regionwide)	Valley Center for the Deaf: 1 Cutaway 21' Van (expansion) (Regionwide)	0	0	0	11.13.04	None	-----	Transit Other	5310-MAG	2015	51,850	-	9,150	61,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-419T	49097	Various (Regionwide)	Arizona Recreation Center for the Handicapped (ARCH): 1 Cutaway 22' Van (expansion) (Regionwide)	0	0	0	11.13.04	None	-----	Transit Other	5310-MAG	2015	51,850	-	9,150	61,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-420T	49097	Various (Regionwide)	Lifewell: 2 Passenger Van (expansions) (Regionwide)	0	0	0	11.13.04	None	-----	Transit Other	5310-MAG	2015	44,800	-	11,200	56,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-421T	49097	Various (Regionwide)	Developmental Enrichment Center: 1 Cutaway 22' Van (expansion) (Northwest Phoenix area)	0	0	0	11.13.04	None	-----	Transit Other	5310-MAG	2015	51,850	-	9,150	61,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-424T	49097	Various (Regionwide)	Civitan: 1 Cutaway 22' Van (replacement) (Phoenix, Surprise, Buckeye, Maricopa, Mesa, Chandler, and Anthem)	0	0	0	11.12.04	None	-----	Transit Other	5310-MAG	2015	51,850	-	9,150	61,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-426T	49097	Various (Regionwide)	Valley Life: 2 Passenger Vans (replacements) (Regionwide)	0	0	0	11.12.04	None	-----	Transit Other	5310-MAG	2015	44,800	-	11,200	56,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-427T	49097	Various (Regionwide)	Foothills Caring Corps: 1 Cutaway 21' Van (replacement) (Cave Creek, Carefree, North Phoenix, North Scottsdale)	0	0	0	11.12.04	None	-----	Transit Other	5310-MAG	2015	51,850	-	9,150	61,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-429T	49097	Various (Regionwide)	Horizon Human Services: 2 Passenger Vans (replacements) (Mesa, Phoenix, and Tempe)	0	0	0	11.12.04	None	-----	Transit Other	5310-MAG	2015	44,800	-	11,200	56,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-430T	49097	Various (Regionwide)	Mountain Health and Wellness (SMMHC Inc.): 2 Minivans no Ramp (replacements) (Maricopa and Pinal Counties)	0	0	0	11.12.04	None	-----	Transit Other	5310-MAG	2015	40,000	-	10,000	50,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-431T	49097	Various (Regionwide)	Northwest Valley Connect: 1 Minivan with Ramp (expansion) (Surprise, Sun City, Sun City West, El Mirage, Youngtown, Glendale, and Peoria)	0	0	0	11.13.04	None	-----	Transit Other	5310-MAG	2015	32,300	-	5,700	38,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-432T	49097	Various (Regionwide)	UMOM: 1 Cutaway 21' Van, 1 Cutaway 22' Van (replacement) (Maricopa County)	0	0	0	11.12.04	None	-----	Transit Other	5310-MAG	2015	103,700	-	18,300	122,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-433T	49097	Various (Regionwide)	Hacienda Healthcare: 2 Cutaway 22' Vans (replacement) (Regionwide)	0	0	0	11.12.04	None	-----	Transit Other	5310-MAG	2015	103,700	-	18,300	122,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA

Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	Federal ID/ALI	In Life Cycle Program	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>5</sup>	Federal	Regional	Local	Total	TIP Change Request
MAG	Transit	2015	PNP15-434T	49097	Various (Regionwide)	Northwest Valley Connect: 1 Routing software (Surprise, Sun City, Sun City West, El Mirage, Youngtown, Glendale, and Peoria)	0	0	0	11.42.20	None	----	Transit Other	5310-MAG	2015	48,000	-	12,000	60,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2016	PNP15-417T	49097	Various (Regionwide)	Terros: 1 Minivan no Ramp (replacement) (Regionwide)	0	0	0	11.12.04	None	----	Transit Other	5310-MAG	2015	20,000	-	5,000	25,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2016	PNP15-422T	49097	Various (Regionwide)	Developmental Enrichment Center: 1 Minivan with Ramp (expansion) (Northwest Phoenix area)	0	0	0	11.13.04	None	----	Transit Other	5310-MAG	2015	32,300	-	5,700	38,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2016	PNP15-425T	49097	Various (Regionwide)	Civitan: 1 Minivan no Ramp (replacement) (Phoenix, Surprise, Buckeye, Maricopa, Mesa, Chandler, and Anthem)	0	0	0	11.12.04	None	----	Transit Other	5310-MAG	2015	20,000	-	5,000	25,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2016	PNP15-428T	49097	Various (Regionwide)	Foothills Caring Corps: 1 Minivan no Ramp (expansion) (Cave Creek, Carefree, North Phoenix, North Scottsdale)	0	0	0	11.13.04	None	----	Transit Other	5310-MAG	2015	20,000	-	5,000	25,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2017	PNP15-423T	49097	Various (Regionwide)	Developmental Enrichment Center: 1 Wheelchair lift replacement (Northwest Phoenix area)	0	0	0	11.42.20	None	----	Transit Other	5310-MAG	2015	5,136	-	570	5,706	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2016	PNP15-409T	49097	Various (Regionwide)	United Cerebral Palsy (UCP): 2-Cutaway 21' Vans (replacement) (North Central Phoenix, Paradise Valley, Glendale, Peoria)	0	0	0	11.12.04	None	----	Transit Other	5310-MAG	2015	103,700	-	18,300	122,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
																1,676,866	-	332,320	2,011,206	

MAG New Freedom Eligible Activities Awards																				
Agency	Section	Work Year <sup>4</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	Federal ID/ALI	In Life Cycle Program	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>5</sup>	Federal	Regional	Local	Total	TIP Change Request
Glendale	Transit	2015	GLN15-409T	NEW	Glendale	Taxi voucher program administrative expenses	0	0	0	30.09.00	None	----	Transit Other	5310-MAG	2015	62,500	-	62,500	125,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-437T	49097	Various (Regionwide)	Benevilla: Volunteer Driver Program (Surprise, Sun City, Sun City West, El Mirage, Youngtown, Glendale, and Peoria)	0	0	0	30.09.00	None	----	Transit Other	5310-MAG	2015	39,590	-	39,590	79,180	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-436T	49097	Various (Regionwide)	Foothills Caring Corps: Alternative transportation to older adults and people with disabilities (Cave Creek, Carefree, North Phoenix, North Scottsdale)	0	0	0	30.09.00	None	----	Transit Other	5310-MAG	2015	42,050	-	42,050	84,100	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-435T	49097	Various (Regionwide)	NAU-Senior Companion Program: Volunteer Driver Program (Chandler, Fountain Hills, Gilbert, Glendale, Mesa, Paradise Valley, Peoria, Phoenix, Scottsdale, and Tempe)	0	0	0	30.09.00	None	----	Transit Other	5310-MAG	2015	43,710	-	43,710	87,420	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
MAG	Transit	2015	PNP15-438T	49097	Various (Regionwide)	Northwest Valley Connect: Ride Connect volunteer driver program reimbursements (Surprise, Sun City, Sun City West, El Mirage, Youngtown, Glendale, and Peoria)	0	0	0	30.09.00	None	----	Transit Other	5310-MAG	2015	8,990	-	8,990	17,980	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA

Agency	Section	Work Year <sup>1</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	Federal ID/ALI	In Life Cycle Program	TRACS/Grant ID	MAG Mode	Funding	Apport Year <sup>2</sup>	Federal	Regional	Local	Total	TIP Change Request
MAG	Transit	2015	PNP15-439T	49097	Various (Regionwide)	Northwest Valley Connect: Taxi connect program providing subsidy rides only (Surprise, Sun City, Sun City West, El Mirage, Youngtown, Glendale, and Peoria)	0	0	0	30.09.00	None	----	Transit Other	5310-MAG	2015	3,000	-	3,000	6,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
Peoria	Transit	2016	PEO15-403T	NEW	Peoria	7 Mobile Data Terminals	0	0	0	30.09.00	None	----	Transit Other	5310-MAG	2015	67,026	-	16,756	83,782	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
Phoenix	Transit	2015	PHX15-439T	18923	Phoenix	ADA Accessible bus stop improvements	0	0	0	11.92.02	None	----	Transit Other	5310-MAG	2015	180,000	-	20,000	200,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
Scottsdale	Transit	2015	SCT15-406T	45236	Scottsdale	Neighborhood Trolley to Granite Reef Senior Center, Vista del Camino, and Palute Neighborhood Centers	0	0	0	30.09.00	None	----	Transit Other	5310-MAG	2015	125,000	-	125,000	250,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
Tolleson	Transit	2015	TOL15-402T	14063	Tolleson	Salary for Community Service driver for older adults	0	0	0	30.09.00	None	----	Transit Other	5310-MAG	2015	27,390	-	27,390	54,780	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
Valley Metro/RPTA	Transit	2015	VMT15-407T	NEW	Chandler, Gilbert, Mesa, and Tempe	East Valley Dial-A-Ride contract service	0	0	0	30.09.00	None	----	Transit Other	5310-MAG	2015	125,000	-	435,000	560,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
Valley Metro/RPTA	Transit	2015	VMT15-406T	NEW	El Mirage, Peoria, Sun City, Sun City West, Surprise, Youngtown, and County	Northwest Valley Dial-A-Ride contract service	0	0	0	30.09.00	None	----	Transit Other	5310-MAG	2015	229,432	-	758,568	988,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
Valley Metro/RPTA	Transit	2015	VMT15-408T	NEW	Regionwide	ADA Travel Securement Loops	0	0	0	30.09.00	None	----	Transit Other	5310-MAG	2015	5,294	-	1,323	6,617	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
Valley Metro/RPTA	Transit	2016	VMT15-409T	NEW	Regionwide	Travel Training	0	0	0	30.09.01	None	----	Transit Other	5310-MAG	2015	33,824	-	8,457	42,281	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA
																992,806	-	1,592,334	2,585,140	

Agency	Section	Work Year <sup>1</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	Federal ID/ALI	In Life Cycle Program	TRACS/Grant ID	MAG Mode	Funding	Apport Year <sup>2</sup>	Federal	Regional	Local	Total	TIP Change Request
Phoenix	Transit	2015	PHX15-440T	NEW	Regionwide	Program Administration Funds	0	0	0	11.79.00	None	----	Transit Other	5310-MAG	2015	232,000	-	-	232,000	Amend: Add new project for FY 2015 Section 5310 Phoenix-Mesa UZA

Notes

1. Rows in the report are sorted in order by the following columns: Section, Agency, Year and TIP ID. Changes are in red font. Deletions are shown in strike through font.
2. The following are used to indicate MAG Committees reviewing these TIP listings for amendment: TRC = Transportation Committee, MC = Management Committee, TPC = Transportation Review Committee, RC = Regional Council
3. The year the federal funds (if any) were apportioned by Congress. This item is included only for informational purposes.
4. For federal projects this is the year the project will authorize. For transit this is the year the project will appear in a grant.
5. Changes are in red font. Deletions are shown in strike through font.

MAG Total FTA Award: Phx-Mesa UZA	\$2,903,892
Traditional Capital Projects: Min	55.00% 57.82%
New Freedom Eligible Projects: Max	45.00% 34.19%
Administration: Max	10.00% 7.99%

**TABLE B: Requested amendments and administrative modifications to the  
FY 2014-2018 MAG Transportation Improvement Program (TIP), and the 2035 Regional Transportation Plan<sup>1</sup>, TIP AMENDMENT #13**

Sort: Section, Agency, Location, Work Year

TIP Amendment #13																					
Agency	Section	Work Year <sup>1</sup>	TIP ID	MAG ID	Location	Work	Miles	Lanes Before	Lanes After	Federal ID/ALI	In Life Cycle Program	TRACS/Grant ID	MAG Mode	Funding	Apport. Year <sup>2</sup>	Federal	Regional	Local	Total	TIP Change Request	
ADOT	Highway	2015	DOT15-461C	34954	10 (Papago): Avondale Blvd to Dysart Road	Construct and install fiber	2	0	0	---	RFHP	---	Freeway	CMAQ	2015	---	---	---	---	54,134	Amend: Project did not authorize in FY2015. Delete project. Move funding to DOT15-193.
ADOT	Highway	2015	DOT16-420	43116	10 (Papago): Litchfield Rd to 83rd Ave	Construct FMS	7	10	10	---	RFHP	---	Freeway	CMAQ	2015	5,566,061	333,939	-	5,900,000	Admin: Project authorized CMAQ for \$5,566,061, reduce federal amount by \$44,789, regional by \$5,211 and total project cost by \$50,000.	
ADOT	Highway	2010	DOT10-6C38RW	NA	303 (Estrella Fwy): I-10 to US60 (Grand Ave)	Right of Way acquisition	15	2	4	---	RFHP	---	Freeway	STP-AZ	2010	68,740,928	4,155,072	-	72,896,000	Amendment: Decrease costs by \$7,104,000 due to project savings. Transfer funding to DOT15-428 for \$6,096,000 & DOT13-153 for \$1,008,000. Change funding source from RARF to STP-AZ.	
ADOT	Highway	2010	DOT10-972	2079	303 (Estrella Fwy): I-10/303 Interchange, Phase 1	Right of Way acquisition	2	0	0	---	RFHP	---	Freeway	STP-AZ	2010	55,140,982	3,333,018	-	58,474,000	Amendment: Bring project cost back to the previous amount of \$58,474,000 due to a budget notation.	
ADOT	Highway	2013	DOT13-153	42975	303 (Estrella): I-10/303L System Interchange, Phase II	Design new freeway interchange	1	0	4	---	RFHP	---	Freeway	NHPP	2013	9,410,197	568,803	-	9,979,000	Amendment: Increase costs by \$1,008,000. Using project savings from DOT10-6C38RW.	
ADOT	Highway	2015	DOT15-428	42975	303 (Estrella): I-10/303L System Interchange, Phase II	Right of Way acquisition	1	0	4	---	RFHP	---	Freeway	STP-AZ	2015	8,130,546	491,454	-	8,622,000	For information only: Revise funding source coming from DOT10-972, now using funding from DOT10-6C38RW. No change in total funding.	
ADOT	Highway	2014	DOT14-173D2	9545	MAG regionwide (I-10, I-17, SR-202, SR-51, US-60)	Design FMS Rehabilitation: DMS Retrofits Kits, and associated components	0	0	0	---	RFHP	---	Freeway	CMAQ	2014	150,880	-	9,120	160,000	Admin: Update location and work description to accurately reflect work.	
ADOT	Highway	2015	DOT15-193	9545	MAG regionwide (I-10, I-17, SR-202, SR-51, US-60)	Construct FMS Rehabilitation: DMS Retrofits Kits, and associated components	0	0	0	---	RFHP	---	Freeway	CMAQ	2015	1,247,485	-	241,635	1,489,120	Amend: Project authorized in two phases, CMAQ for \$1,247,485, increase federal amount by \$49,875 local by \$169,245 and total project cost by \$219,120. Update location and work description to accurately reflect work.	
MAG	Highway	2016	MAG16-4PIP	10280	MAG regionwide	Project Initiation Pool for MAG funded CMAQ, STP, TAP, HSIP, and STP projects.	0	0	0	----	None	----	Other	STP-MAG	2016	99,015	-	5,985	105,000	Amend: Program was approved by Regional Council on May 27, 2015. Program TIP listing for 35 eligible projects at \$2,829 federal, \$171 local, and \$3,000 total each. Projects must authorize funding no later than December 31, 2015.	

**Notes**

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2. The following are used to indicate MAG Committees reviewing these TIP listings for amendment: TRC = Transportation Committee, MC = Management Committee, TPC = Transportation Review Committee, RC = Regional Council
3. The year the federal funds (if any) were apportioned by Congress. This item is included only for informational purposes.
4. For federal projects this is the year the project will authorize. For transit this is the year the project will appear in a grant.

5. Changes are in red font. Deletions are shown in strike through font.

# **ATTACHMENT #3**

**Agenda Item #5C**

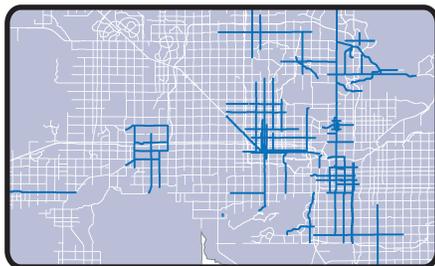
# REGIONAL COMPLETE STREETS PLANNING WORKSHOP #1

## Featuring the Multimodal Level of Service Tool

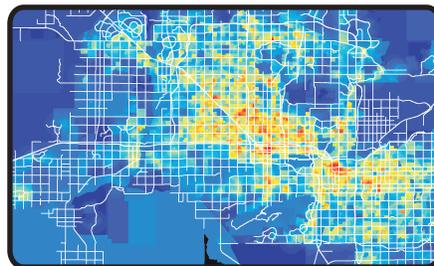
You and your agency staff are invited to a planning workshop to learn about the use of the Multimodal Level of Service (MMLoS) Analyses Tool.

Please join our planning session to:

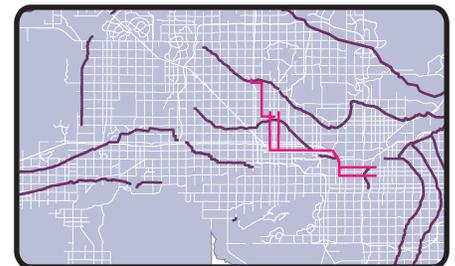
- See our draft map of corridors in YOUR CITY that have the highest potential for “Complete Streets” improvements!
- Discuss the latest in economic benefits of establishing more walkable and bikeable neighborhoods.
- See an introduction to the MMLoS tool and how member agencies will be able to use the final tool.
- Help us to finalize the MMLoS pilot study sites.



*Currently Adopted  
Complete Streets Corridors*



*High Active Transportation  
Propensity in the MAG Region*



*Existing/Planned Multimodal  
Support Features (Canals & LRT)*

### WHEN:

**TUESDAY**

**OCTOBER 13**

**8:30AM - 12:30PM**

### WHERE:

**MAG OFFICES**

**SAGUARO ROOM, 2nd FLOOR**

**302 NORTH 1st AVENUE**

**PHOENIX, AZ 85003**

Parking will be validated  
Breakfast will be provided

**Please RSVP by October 6, 2015 to:**

Alice Chen  
AChen@azmag.gov  
(602) 254-6300

**ATTACHMENT  
#4**

**Agenda Item #6**

# MARICOPA ASSOCIATION OF GOVERNMENTS INFORMATION SUMMARY... for your review

**DATE:**

September 24, 2015

**SUBJECT:**

Southeast Valley Transit System Study

**SUMMARY:**

The Southeast Valley Transit System Study (SEVTSS), a joint study effort between the Maricopa Association of Governments (MAG) and Valley Metro, was launched in January 2014 to analyze transit services and ridership demand in transit-established and transit-aspiring communities within a multi-jurisdictional subarea of the MAG region. The study is the third in a series of sub-regional transit studies undertaken in the region and its result is a tool to help in future system planning.

The study area encompasses the cities of Tempe, Mesa, Chandler, Apache Junction, and the towns of Guadalupe, Gilbert and Queen Creek. The study area also includes portions of the City of Phoenix (Village of Ahwatukee) and Unincorporated Maricopa County. In addition, the study also includes members of the expanded MAG boundary, which are Pinal County, the City of Maricopa, the Town of Florence and the Pinal County portion of the Gila River Indian Community. This study also included input from the City of Coolidge, a transit partner that operates within the study area.

The study had two purposes. The first was to identify potential efficiencies in the current service. The second was to identify an effective, market-defined, efficient and performance-driven transit system that meets the internal mobility needs of the subarea and ties the subarea to the overall regional transit system. The study took a 10 task approach in developing its recommendations:

- Task 1 - Project Scope Refinement
- Task 2 - Data Collection and Documenting Existing Conditions
- Task 3 - Public Involvement Plan
- Task 4 - Transit Service Optimization
- Task 5 - Existing and Future Conditions
- Task 6 - Needs Analysis (Short-, Mid- and Long-Range)
- Task 7 - Briefings, Presentations and Meetings
- Task 8 - Financial Analysis
- Task 9 - Study Recommendations
- Task 10 - Study Record

Through a data-driven and collaborative process the study resulted in the identification of a menu of concepts for optimizing existing transit services as well as mid-term (next 10 years) and long-term improvements (more than 10 years). Please see Appendix A - Executive Summary for more details. The main themes of the optimization, mid-term and long-term timeframe concepts as are follows.

System Optimization:

- consolidate resources within transit corridors to provide seamless, high frequency service
- explore alternative service types to more efficiently serve deviations or lower-productivity route segments
- obtain a minimum 30-minute service
- as possible, improve frequencies on high ridership routes

Mid-term:

- continue improving service frequency on productive routes
- continue exploring new service types as a way to more efficiently provide service in low-ridership areas
- expand service to the east and south as population, employment, and transit demand grow

Long-term:

- fill in the grid to maximize connectivity
- expand service as population, employment, and transit demand grow
- implement new commuter services to meet demand

The study and its recommendations will help in continuing to develop transit service in the Southeast Valley. There are no financial implications tied with the study since the study provides a list of service concepts to feed other planning processes.

Detailed information can be found on the project website at: [http://www.valleymetro.org/projects\\_and\\_planning/project\\_detail/SEVTSS](http://www.valleymetro.org/projects_and_planning/project_detail/SEVTSS).

**PUBLIC INPUT:**

The study incorporated a continuous 18-month public involvement process which included an online survey, social media outreach, study fact sheets, outreach at community events and presentations before various councils and boards of participating study members. The committee and outreach process is outlined in Appendix B.

**PROS & CONS:**

PROS: This study provides a detailed evaluation for expanding and implementing transit service in the Southwest Valley for the short-(optimization), mid-, and long-range.

CONS: NONE.

**TECHNICAL & POLICY IMPLICATIONS:**

TECHNICAL: The resulting transit service study will identify capital and operating requirements, needs based service options, and funding opportunities for transit service in the Southeast Valley.

POLICY: The Southeast Valley Transit System Study provides decision-makers in the Southeast Valley with a comprehensive perspective on the needs and opportunities as well as the cost implications of implementing transit service.

**ACTION NEEDED:**

For information, discussion and possible action for acceptance of the Southeast Valley Transit System Study findings and conceptual recommendations.

**PRIOR COMMITTEE ACTIONS:**

The item was heard by the MAG Transit Committee on September 10, 2015.

MEMBERS ATTENDING

- \*ADOT: Jaclyn Meli
- Avondale: Kristen Sexton, Vice Chair
- #Buckeye: Andrea Marquez
- Chandler: Jason Crampton for RJ Zeder
- El Mirage: Jose Macias
- #Gilbert: Kristin Myers
- Glendale: Kevin Link for Debbie Albert
- Goodyear: Cato Esquivel
- #Maricopa: David Maestas
- \*Maricopa County DOT: Denise Lacey
- Mesa: Jodi Sorrell
- \*Paradise Valley: Jeremy Knapp

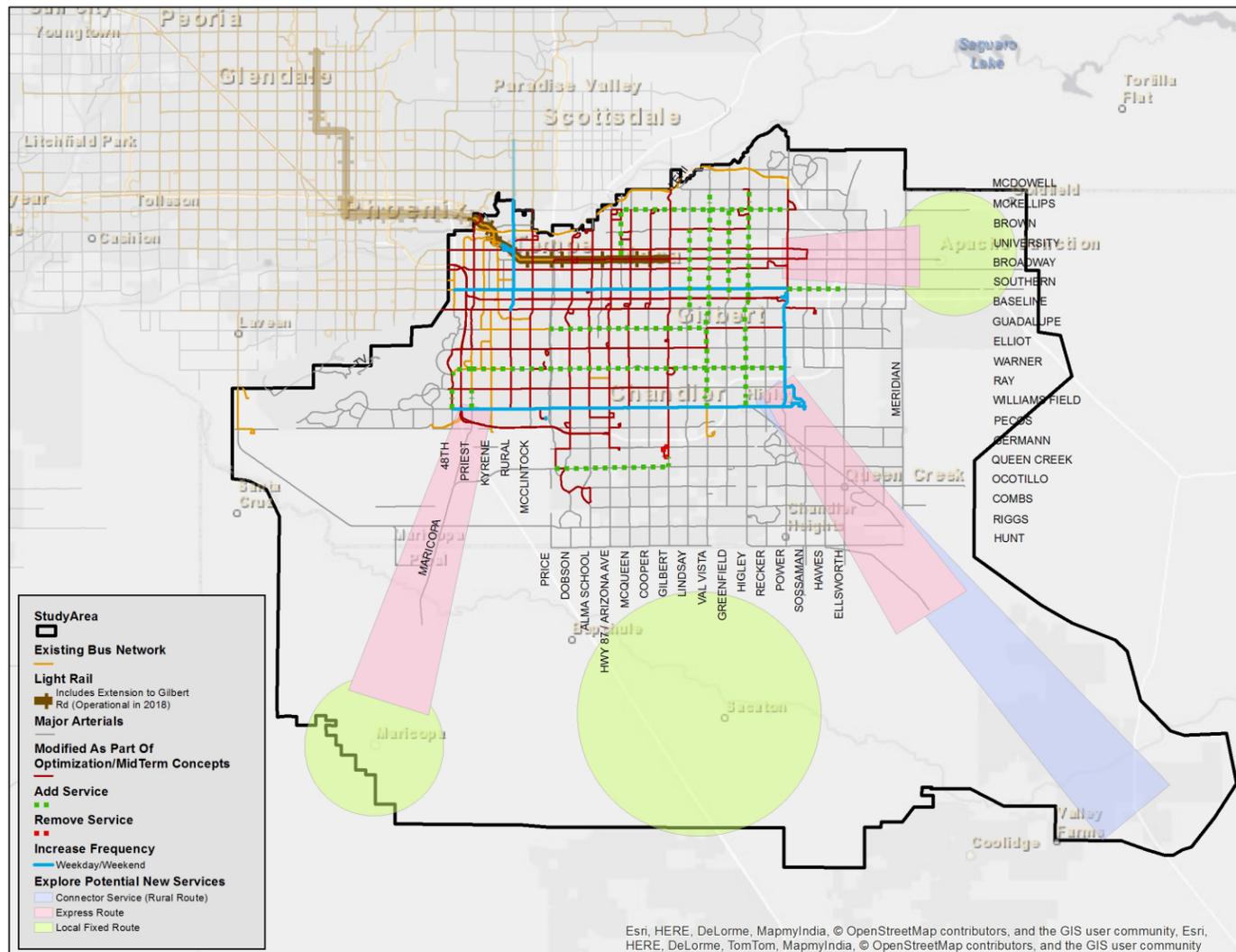
- Peoria: Stuart Kent
- \*Paradise Valley: Jeremy Knapp
- Peoria: Stuart Kent
- Phoenix: Maria Hyatt, Chair
- Queen Creek: Mohamed Youssef
- Scottsdale: Gregory P. Davies for Madeline Clemann
- Surprise: Martín Lucero
- #Tempe: Robert Yabes
- \*Tolleson: Jason Earp
- Valley Metro: Wulf Grote
- \*Youngtown: Grant Anderson

\* Members neither present nor represented by proxy.

#Participated (or attended) by teleconference  
+Participated (or attended) by videoconference

**CONTACT PERSON**

Marc Pearsall, MAG (602) 254-6300.



### LONG-TERM RECOMMENDATIONS – Service to future growth areas

The Long-term planning timeframe includes project recommendations to extend transit services within the Southeast Valley to areas of future projected growth. Implementation would focus on expanding service to potential growth areas and providing connections to communities that are not immediately adjacent to the existing transit service areas. Concepts defined in this timeframe may include recommendations that have been identified as part of the MAG Regional Transportation Plan (RTP) or other local planning efforts.

#### Key Elements of Long-term Concepts

- Fill in the grid to maximize connectivity
- Expand service to the east and southeast as population, employment, and transit demand grow
- New express and other commuter services to meet demand

#### Possible Funding Expanded Transit Services

- An extension of the one-cent regional sales tax would provide continued transit support
- Local sales tax could be used to generate additional funding at the individual jurisdictional level
- Special districts and other local funding mechanisms could be developed to generate support for transit services

Implementing expanded transit services in the Southeast Valley will require a funding commitment in excess of what is being dedicated to transit services currently in operation.

# SOUTHEAST VALLEY TRANSIT SYSTEM STUDY

## EXECUTIVE SUMMARY



The Southeast Valley Transit System Study (SEVTSS) analyzed transit services and ridership demand in transit-established and transit-aspiring communities within the southeast subarea of the Maricopa Association of Governments (MAG) region. The study area encompasses the full extents of the City of Tempe, City of Mesa, Town of Guadalupe, City of Chandler, Town of Gilbert, City of Apache Junction, Town of Queen Creek, City of Maricopa, and Town of Florence as well as parts of the City of Phoenix, Maricopa County, Pinal County and the Gila River Indian Reservation. This study is a joint effort between MAG and Valley Metro. Through a process that was both data-driven and collaborative, this study resulted in the identification of recommendations for optimizing the existing transit system, and mid-term and long-term improvements to enhance a performance-based transit system throughout the Southeast Valley.

### Study Goals and Objectives

#### Continue to develop an effective market-driven transit system by:

- Connecting major residential areas, employment, and other destinations within the Southeast Valley
- Providing a well-integrated multimodal transit system
- Prioritizing transit-dependent and transit-oriented travel markets
- Adapting to changing conditions

#### Continue to develop an efficient performance-driven, affordable, cost-effective network by:

- Providing a system that meets regional targets for productivity and a base level of service in accordance with the adopted Transit Standards and Performance Measures
- Applying the most appropriate transit service types to the various travel markets
- Applying the appropriate mix between service performance and service coverage
- Maintaining an ongoing dialogue among community and agency stakeholders

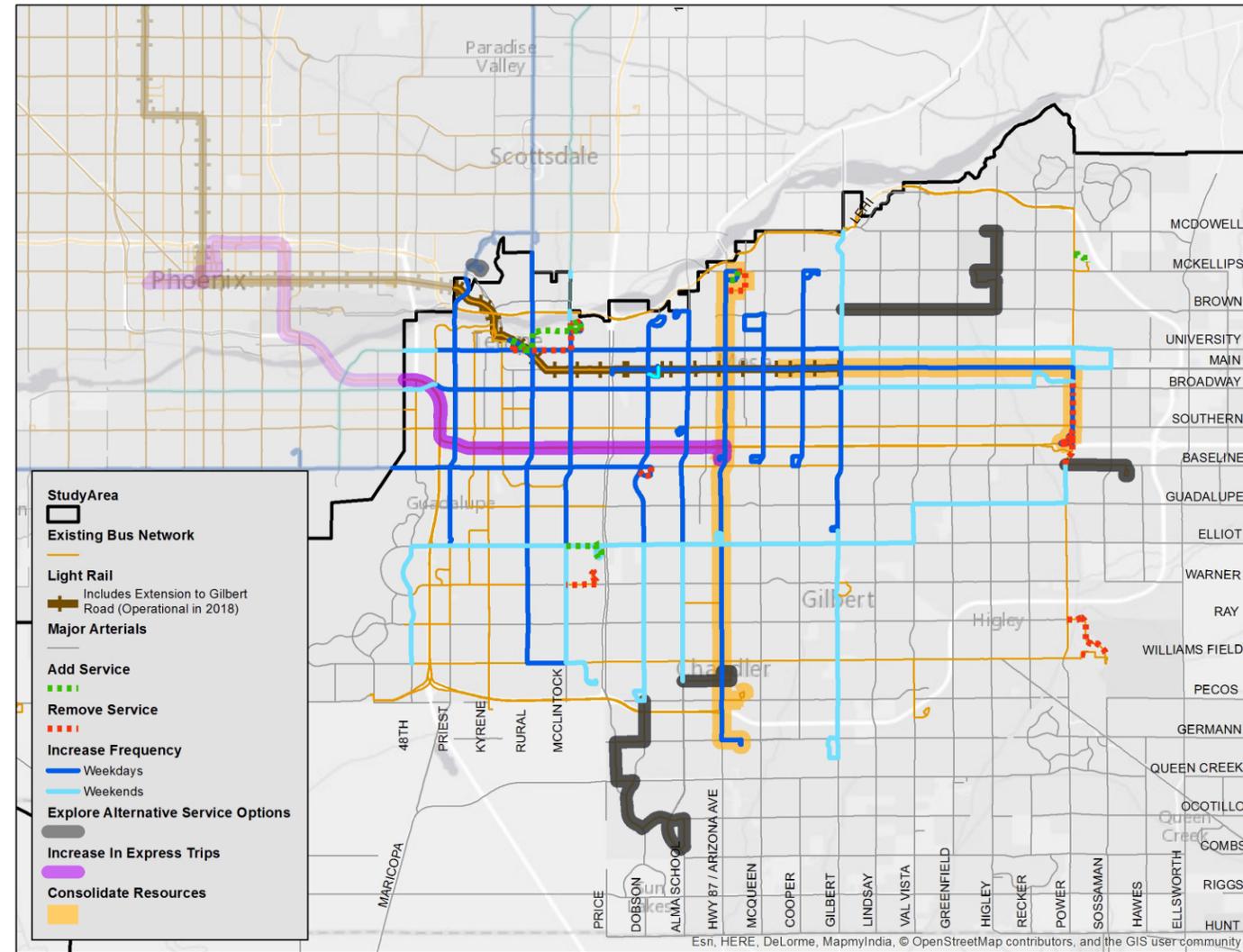
The result of this study is a menu of concepts for (1) optimizing existing transit services, (2) mid-term improvements within the next 10 years, and (3) long-term improvements that would be anticipated in more than 10 years. Overall, important considerations for the evolution of the transit system in the Southeast Valley include:

- Promoting higher frequency service in core areas and greater network connectivity that will make transit a more robust and convenient option for more customers
- Expand the transit service area as population and employment densities grow
- Monitor network performance and actual changes in population and land use over time to adjust service to meet needs
- Coordinate transit service expansion priorities with local land use planning policies and decisionmaking

The development of study recommendations were based on:

- A Transit Optimization Analysis, which provided a data-driven analysis of how to optimize the use of resources in the existing transit system
- A Needs Assessment, which provided analysis of longer-term transportation needs based on projected demographics and land use
- Input from a Project Advisory Committee (PAC), which included representatives of all the jurisdictions within the study area
- Public input, primarily through an online survey conducted in 2014





### OPTIMIZATION OF EXISTING SERVICES

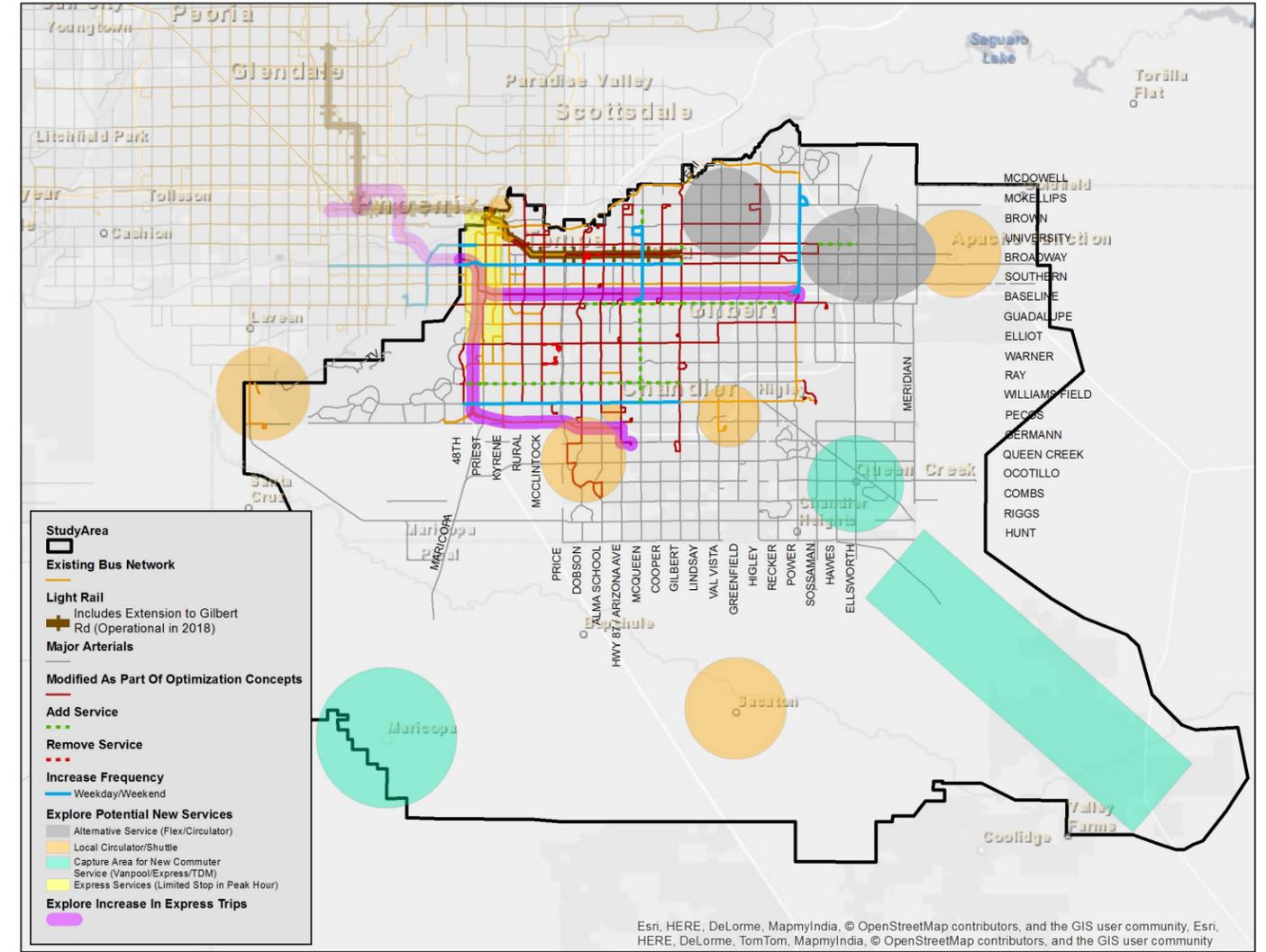
The concepts for Optimization are intended to be implementable in the near-term. The concepts are a menu of options that provide a mix of efficiencies that “save” revenue miles, as well as recommendations for the beneficial investment of additional revenue miles where it would benefit the most productive parts of the system. Concepts include increasing frequency of service, eliminating route deviations that reduce network efficiency, and modifying route structures that create overlap and duplication with other routes in the same area.

#### Key Elements of the Optimization Concepts

- Consolidate the resources invested in the Arizona Avenue and Main Street corridors to provide a robust, high frequency service
- Explore alternative service types to more efficiently serve some deviations or lower-productivity route segments
- Obtain a minimum of 30-minute frequency service
- As possible, improve frequencies on high ridership routes

#### Public Input from 2014 Online Survey

- Over 80% stated that current public transportation does not meet their needs
- Respondents identified the following needs: more service (59%), more frequent service (27%), service to new areas (51%), lower fares (12%)
- 50% of respondents would support a tax to fund more transit service



### MID-TERM RECOMMENDATIONS – Expanding Service by 2025

The Mid-term planning timeframe includes project recommendations that expand or fill in the gaps within the existing transit service network in the Southeast Valley. Service expansion would reach potential growth areas that are located on the fringe of the existing transit network.

#### Key Elements of Mid-term Concepts

- Increase service frequency on productive routes
- Explore new service types as a way to more efficiently provide service in low-ridership areas, or as a lower cost way to expand service to new areas
- Expand service to the east and the south as population, employment, and transit demand grow

#### Key Implementation Steps

- Advance the understanding of cost-effective and productive service types throughout the Southeast Valley, such as flexible services, circulators, vanpool, and TDM strategies
- Develop detailed transit implementation plans at the jurisdictional level
- Collaborate with local planning staff to develop policies that support transit within the Southeast Valley

Implementation of the Optimization period, Mid-term, and Long-term concepts would occur through the prioritization and coordination that accompany programming projects. Timing and sequence of implementation may be determined by available funding.

## Appendix B – Southeast Valley Transit System Study Committee and Outreach Process

<b>Project Advisory Committee (PAC) Meeting #</b>	<b>Date</b>		
Pre study kickoff meeting with Mesa	1/21/2014		
Pre study kickoff meeting with Chandler	1/21/2014		
Pre study kickoff meeting with Tempe	1/23/2014		
Pre study kickoff meeting with Gilbert	1/28/2014		
Pre study kickoff meeting with Florence, Pinal County and Coolidge	1/30/2014		
Pre study kickoff meeting with Phoenix	2/4/2014		
Pre study kickoff meeting with Apache Junction	2/5/2014		
Pre study kickoff meeting with Maricopa (City of)	2/13/2014		
Pre study kickoff meeting with Queen Creek	2/25/2014		
Pre study kickoff meeting with Guadalupe	2/28/2014		
Pre study kickoff meeting with Gila River Indian Community	3/17/2014		
PAC Meeting #1	3/3/2014		
PAC Meeting #2	5/13/2014		
PAC Meeting #3	8/21/2014		
PAC Meeting #4	10/22/2014		
PAC Meeting #5	1/14/2015		
PAC Meeting #6	2/19/2015		
PAC subgroup workshop on transit optimization	3/5/2015		
PAC Meeting #7	3/10/2015		
PAC Meeting #8	4/2/2015		
PAC Meeting #9	5/28/2015		
<b>COMPLETED EVENTS</b>	<b>Date</b>	<b>Time</b>	<b>Location</b>
Queen Creek Town Council	4/16/2014	5:30P	Queen Creek
Guadalupe Town Council Meeting	4/24/2014	7:00P	Guadalupe Council Chambers
Celebrate Mesa	4/26/2014	10:00A-6:00P	Pioneer Park
Florence Town Council Meeting	5/5/2014	6:00P	Florence Town Hall
Tempe Transportation Commission	5/13/2014	7:30A	Tempe Transportation Center
Queen Creek Chamber of Commerce	5/13/2014	Noon	Queen Creek Library
City of Mesa Transportation Advisory Board	5/20/2014	5:30P	Mesa Council Chambers
Tempe Transportation Master Plan Public Meeting	5/29/2014	6:00P-8:00P	Tempe History Museum
Tempe Transportation Master Plan Public Meeting	5/31/2014	9:00A-11:00A	Tempe Transportation Center
Queen Creek Ice Cream Social	6/7/2014	10:00A-Noon	Communiversy
MAG Transit Ambassador Program	9/9/2014	1:00P-3:30P	Mesa Main Library
MAG Transit Committee	10/9/2014		
Chandler Transportation Commission	11/6/2014	7:00P-8:30P	215 E. Buffalo St.
Tempe Transportation Commission	6/2/2015	7:30A	Hatton Hall, Tempe
City of Mesa Transportation Advisory Board	6/16/2015	5:30P	Mesa Council Chambers
Queen Creek Ice Cream Social	6/20/2015	10:00A–Noon	Communiversy
Gilbert Town Council Retreat	8/7/2015	1:30P	Saint Xavier University, Gilbert
Maricopa Co. Dept. of Transportation	8/26/2015	3:00P	2901 W. Durango St., Phoenix
<b>PENDING EVENTS</b>	<b>Date</b>	<b>Time</b>	<b>Location</b>
Chandler Transportation Commission	9/17/2015	7:00P -8:30P	
Queen Creek Town Council & TAC Meeting	9/2/2015	TBD	Queen Creek

(rev Sept 10, 2015)

**ATTACHMENT  
#5**

**Agenda Item #7**

**STRATEGIC  
TRANSPORTATION  
SAFETY PLAN**



**ZERO DEATHS-  
INJURIES**



## **P** Preface

The Maricopa Association of Governments (MAG) was formed in 1967, and designated Metropolitan Planning Organization (MPO) for transportation planning in the Phoenix metropolitan area in 1973. The MAG Metropolitan Planning Area (MPA) boundary encompasses the existing urbanized area and the contiguous area expected to become urbanized within a 20-year forecast.

MAG is responsible for the coordination of the regional planning activities including Multi-modal Transportation Planning, the 2035 Regional Transportation Plan (RTP), Air Quality, Wastewater, Solid Waste, Human Services, and Socioeconomic Projections.

The MAG Regional Council is the decision-making body of MAG. The Regional Council consists of elected officials from each member agency, the Chairman of Citizens Transportation Oversight Committee (COTC) and the Maricopa County representatives from the State Transportation Board. The policy and technical committees at MAG, including the MAG Transportation Safety Committee (TSC), develop planning recommendations for review and approval by the Regional Council. The Strategic Transportation Safety Plan (STSP or Plan), documented herein, was approved by the MAG Regional Council on **[October 28, 2015]**.

---

## **A** Acknowledgements

### **MAG MEMBER AGENCIES**

Apache Junction, City of  
Arizona Department of Transportation  
Avondale, City of  
Buckeye, City of  
Carefree, City of  
Cave Creek, Town of  
Chandler, City of  
Citizens Transportation Oversight Committee  
El Mirage, City of  
Florence, Town of  
Fort McDowell Yavapai Nation  
Fountain Hills, Town of  
Gila Bend, Town of  
Gila River Indian Community  
Gilbert, Town of  
Glendale, City of  
Goodyear, City of  
Guadalupe, Town of  
Litchfield Park, City of  
Maricopa, City of  
Maricopa County  
Mesa, City of  
Paradise Valley, Town of  
Peoria, City of  
Phoenix, City of  
Pinal County  
Queen Creek, Town of  
Salt River Pima-Maricopa Indian Community  
Scottsdale, City of  
Surprise, City of  
Tempe, City of  
Tolleson, City of  
Wickenburg, Town of  
Youngtown, Town of

**TRANSPORTATION SAFETY  
STAKEHOLDERS GROUP**

Oversight for this project was provided by the MAG **Transportation Safety Stakeholders Group** (TSSG) that consisted of members of the MAG Transportation Safety Committee (TSC), Transit Committee, and Bicycle and Pedestrian Committee and other key stakeholders. A primary objective of the TSSG was to provide a broad view of transportation safety from the standpoints of a wide variety of user groups. They participated in 7 project workshops at key points during the project.

The following organizations also served on the TSSG:

- AAA, Driver Education*
- AARP, Retired Persons*
- Arizona Department of Health Services, Health and Human Services*
- Arizona Department of Public Safety, Enforcement*
- Cardon Children’s Hospital, Injury Prevention Education*
- Driving Arizona LLC, Driver Education*
- Federal Highway Administration, Arizona Division*
- Governor’s Office of Highway Safety, Arizona Highway Safety Plan*
- Valley Metro, Transit*

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**TABLE OF CONTENTS**

**PREFACE** .....1

**ACKNOWLEDGEMENTS** .....1

**MAG Member Agencies**.....1

**Transportation Safety Stakeholders Group**.....2

**Table Of Contents**.....2

**Tables**.....3

**Figures**.....3

**EXECUTIVE SUMMARY** .....5

**OVERVIEW: THE STSP DEVELOPMENT PROCESS** ....7

**MAG Working Group to Incorporate Safety Into the RTP and Road Infrastructure Projects** .....7

**Coordination with the 2014 Arizona SHSP** .....8

**STATE OF ROAD SAFETY IN THE MAG PLANNING AREA** .....10

**Regional Trends in Crashes that Involve Fatalities and Serious Injuries** ..... 10

**Safety Performance Due to Driver Conditions and Behavior** ..... 10

**Motor Vehicle Crashes Involving Pedestrians** ..... 11

**Safety Performance of the Freeway and Arterial Street Systems**..... 12

**Comparison of the MAG Planning Area to State of Arizona** ..... 14

**Safety Performance Of the MAG Planning Area**....14

**Comparison of the MAG Planning Area to Other Selected Urban Regions**..... 17

**REGIONAL STRATEGIES & PRACTICES FOR TRANSPORTATION SAFETY** .....19

**IMPLEMENTATION PLAN FY2016 – FY2025**.....39

**Strategies** ..... 39

**Investment Requirements** ..... 39

**Time Frame** ..... 40

**Implementation Cost**..... 40

**MAG guidance for funding PLAN implementation** 41

**2015 HSIP MANUAL & NEW guidance ON FEDERAL ROAD safety FUNDS** ..... 41

**Return on investment**..... 42

**Monitoring the Effectiveness of Regional Road Safety Programs and Initiatives** ..... 42

**ACRONYMS AND DEFINITIONS** ..... I

**IMPLEMENTATION PLAN COST ESTIMATE  
ASSUMPTIONS..... |**

**HYPERLINK REFERENCES..... |**

**TABLES**

**Table 1 – Comparison of Arizona Strategic Highway  
Safety Plan Update Emphasis Areas and MAG STSP  
Action Areas .....9**

**Table 2 – All Crashes, Fatal, and Serious Injury  
Crashes in the MAG Planning Area .....10**

**Table 3 – Estimated Funding Resources for Plan  
Implementation.....41**

**Table 4 – 2015 MAG STSP Implementation Plan  
Matrix .....44**

**FIGURES**

**Figure 1 – MAG 2015 STSP Visioning Workshop  
..... 7**

**Figure 2 – Fatal Crashes in the MAG Planning  
Area by Driver Behavior .....11**

**Figure 3 – Serious Injury Crashes in the MAG  
Planning Area by Driver Behavior .....11**

**Figure 4 – Pedestrians Crossing at Signal .....12**

**Figure 5 – 2008-2012 Crashes Involving a  
Pedestrian .....12**

**Figure 6 – 2008-2012 Fatal and Serious Injury  
Crashes in the MAG Planning Area on  
Freeways by Collision Manner.....13**

**Figure 7 – 2008-2012 Fatal and Serious Injury  
Crashes in the MAG Planning Area on Arterials  
and Local Roads..... 13**

**Figure 8 – 2008-2012 Fatal and Serious Injury  
Crashes in the MAG Planning Area on Arterials  
and Local Roads by Collision Manner ..... 13**

**Figure 9 – Freeway Fatal and Serious Injury  
Crashes in the MAG Planning Area Compared  
to Maricopa County VMT..... 13**

**Figure 10 – Arterial and Local Road Fatal and  
Serious Injury Crashes in the MAG Planning  
Area Compared to Maricopa County VMT .... 14**

**Figure 11 – 2008-2012 Total Crash Comparison  
of MAG Planning Area to State ..... 14**

**Figure 12 – 2008-2012 Fatality Comparison of  
MAG Planning Area to State ..... 14**

**Figure 13 – Crash Tree of Fatal Crashes in the  
MAG Planning Area for 2008 – 2012..... 15**

**Figure 14 – Crash Tree of Serious Injury  
Crashes in the MAG Planning Area for 2008 –  
2012 ..... 16**

**Figure 15 – Injuries per 1,000 Persons,  
Fatalities per 100,000 Persons in Select Urban  
Regions ..... 18**

**Figure 16 – No Drinking and Driving Symbol;  
Source: www.glogster.com ..... 19**

**Figure 17 – Road Safety Assessment Meeting  
..... 24**

**Figure 18 – Pedestrian Alighting at Bus Stop in  
Phoenix, Arizona..... 29**

**Figure 19 – Traditional and Recommended Street Light Placement for Crosswalks; Source: 2012 FHWA Lighting Handbook .....30**

**Figure 20 – Raised Median with Two-Stage Island on Van Buren Street west of 32<sup>nd</sup> Avenue in Phoenix, Arizona.....31**

**Figure 21 – Bicycle Detector Pavement Marking; Source: MUTCD Figure 9C-7 .....31**

**Figure 22 – Pedestrian Hybrid Beacon (PHB aka HAWK) Treatment in Phoenix, Arizona .....32**

**Figure 23 – Brandon Forrey, City of Peoria, providing crossing guard training .....34**

**Figure 24 – Guardians of the Future: *Keeping Children Safe in Yellow Crosswalks* video; Source: MAG.....34**

**Figure 25 – Distracted Driver .....36**

**Figure 26 – Regional Transportation Safety Information Management System (RTSIMS) Screenshot; Source: MAG.....36**

**Figure 27 – Annual Cost of Implementation vs. Current Funding Resources (\$7.8M Annually) through FY2018.....41**

**Figure 28 – Implementation Cost vs. Return on Investment over 10 years (\$78M Total) .....42**

E

## Executive Summary

This Plan is a comprehensive update of the first Strategic Transportation Safety Plan (STSP) approved by MAG in 2005. The new STSP establishes the regional vision, goals, objectives, strategies, countermeasures, and performance measures for making systematic improvements in transportation safety. It is a data-driven, multi-year comprehensive plan that establishes goals, objectives, and key action areas and integrates the four E's of highway safety – Engineering, Education, Enforcement and Emergency Medical Services (EMS). The development of the STSP was closely coordinated with Arizona's 2014 Strategic Highway Safety Plan (SHSP) that was developed by the Arizona Department of Transportation (ADOT).

The MAG planning area is the most populous urban region of Arizona, resulting in crash patterns that are significantly different than statewide crash patterns. This has resulted in some expected differences between the emphasis areas identified in the state's SHSP and the Action Areas identified in this STSP. Nearly 50% of the deaths and nearly 70% of all crashes in the state occur in the MAG planning area. The review of historical crash data from 2008 through 2012 revealed that 21% of all fatal crashes involve a pedestrian. The MAG planning area has a crash injury rate of 7.77 persons injured per 1,000 population. However, in terms of fatalities, the Phoenix metropolitan area has an 8.75 rate per 100,000

persons, second highest in comparison with other urban regions.

Consensus was reached by the Transportation Safety Stakeholders Group (TSSG) on the following vision statement for all road users: **“Zero Deaths – Zero Injuries”**. Working towards this regional vision, the MAG STSP established a regional target to reduce Fatalities and Serious Injuries in the region by three to seven percent in the next five (5) years, from the base year of 2013. This is consistent with the State SHSP target and accounts for some uncertainty such as possible variation in population/VMT (vehicle miles traveled). An extensive review of crash data by the TSSG resulted in the identification of the following five (5) Action Areas to be incorporated in the MAG STSP:

- 1. Eliminate Death and Serious Injury from Impaired Driving**
- 2. Eliminate Death and Serious Injury from Speeding and Aggressive Driving Behavior**
- 3. Eliminate Death and Serious Injury Related to Intersections**
- 4. Eliminate Death and Serious Injury for Vulnerable Road Users – Pedestrians, Bicyclists, and Persons with Disabilities**
- 5. Eliminate Death and Serious Injury Involving Young Road Users**

One Action Area was added from the 2005 STSP due to its importance of continuing a data driven approach to transportation safety planning in the MAG region:

**6. Improve Data Collection, Quality, Availability, Integration, and Analysis for Decision Making**

Implementation of this Plan would span a ten-year time frame from MAG fiscal year 2016 to MAG fiscal year 2025 (July 2015 – June 2025). Implementing the strategies proposed will, in some cases, require changes in investment priorities and/or organizational changes. None require legislative changes. Some of the strategies recommended can be implemented with existing resources and some are already underway. The strategies outlined provide the greatest opportunity of achieving the three to seven percent reduction in fatalities and serious injuries.

Planning level unit costs were projected to generate a cost estimate of \$78 million for implementing this 10-year plan, at an annual average cost of \$7.8 million and would also include any local agency investments. Current estimated funding resources available for implementation of this plan totals \$4.8 million, resulting in a remaining need of \$3 million annually. The available resources include MAG Planning funds, Highway Safety Improvements Program (HSIP) annual allocation, Transportation Alternatives Program (TAP) annual allocation, and some Governor’s Office of Highway Safety (GOHS) funding for the education and enforcement strategies. To

monitor the effectiveness of regional road safety programs and initiatives, MAG will produce an annual Transportation Safety Performance Report that includes: (1) Crash Statistics and Trends; (2) Performance in Comparison to the Safety Target; and (3) Summary of Road Safety Projects & Activities in each Action Area including their possible impact on road safety performance. This annual report will also include a comparison to highlight how the MAG region’s safety improvement projects, programmed utilizing HSIP funding through FY 2018 and beyond, are effecting ADOT’s ability to meet the road safety targets and safety performance measure requirements established in MAP-21. The MAG Transportation Safety Committee will continue to provide oversight to programs and projects and will guide these activities throughout the implementation timeframe. Regular review of projects and programs that address these strategies will be done under the direction and recommendation of the MAG Transportation Safety Committee. Revisions or enhancements to the programs and projects, including further coordination with ADOT on the process of programming of HSIP funds, will be made throughout the implementation period as they relate to safety performance and towards the target. This STSP will be updated on a 5-year cycle.

1

## Overview: The STSP Development Process

The process of developing this STSP included the following individual work tasks, participated in and overseen by the TSSG:

1. *Review of Regional Crash Trends and Resources*
2. *Establish Regional Vision and Goals*
3. *Establish Action Areas and Performance Measures*
4. *Review of the Current MAG Network Screening Methodology for Prioritization of Road Safety Needs*
5. *Incorporating Safety in the Regional Transportation Plan*
6. *Develop a Strategy to Incorporate Safety Enhancements in Road Infrastructure Projects*
7. *Improve Safety via Traffic Operations and ITS Solutions*
8. *Monitoring and Reporting on System Performance and Program Effectiveness*
9. *Implementation Plan*
10. **Final Report**

Each task produced a technical memorandum (document links provided above) which were distributed to the TSSG for review and comment and made available on the project webpage which continues to be maintained at [stsp.azmag.gov](http://stsp.azmag.gov). Each of the draft technical

memoranda provided input to the development of this plan.



Figure 1 – MAG 2015 STSP Visioning Workshop

In addition, the process included the Visioning Workshop and four TSSG workshop events and two meetings of a Working Group that explored ways to help mainstream road safety considerations within the MPO planning process. The work by this Working Group and its contribution to the development of several new practices is highlighted in the next section.

### **MAG WORKING GROUP TO INCORPORATE SAFETY INTO THE RTP AND ROAD INFRASTRUCTURE PROJECTS**

The establishment of this Working Group was a first of its kind for any MPO in the nation. The Group consisted of members from: Transit, Bicycle and Pedestrian, and Transportation Safety Committees. They identified and ranked practices that can be developed or approved by MAG and member agencies to incorporate explicit safety considerations in future MAG programs and projects. A key objective of this Working Group was to recommend practices that would highlight the importance of multimodal safety, enhance awareness of bicycle and pedestrian safety, and increase the

attention to measures that would improve safer access to transit.

Eight individual practices were identified in break-out groups to address two specific Action Areas: intersections, and vulnerable road users (pedestrians, bicyclists and persons with disabilities). The practices were presented to the Streets, Bicycle and Pedestrians, and Transit committees seeking the approval of each committee to include them as recommended practices in the Plan. One of the recommended practices has already resulted in the modification of the MAG Transportation Improvement Program (TIP) project evaluation criteria. This particular practice would affect all future projects that are programmed in the TIP and as such, those committees who oversee the programming of projects in the TIP were provided an opportunity to review and comment on these practices with a request that they recommend approval of the practices. The practices were recommended by each committee including the Transportation Safety Committee, Intelligent Transportation Systems Committee, Transit Committee, Bicycle and Pedestrian Committee, and Streets Committee. The practices developed and recommended by the Working Group have been incorporated into this Plan as Strategies 3.1, 3.3c, 3.6, 3.8, 4.1, 4.9, 4.10, and 4.13 within Chapter 3, including the practice to:

**Encourage submittal of TIP projects that include safety elements, for improving safer access for all modes, by including safety as an explicit project evaluation criteria for all TIP projects that currently have evaluation criteria as a means of prioritizing a list of**

**projects. Exceptions to this practice are those Transit Maintenance and Operations programs funded through the MAG TIP.**

## **COORDINATION WITH THE 2014 ARIZONA SHSP**

The preparation of the MAG STSP paralleled the activities of the 2014 Arizona Strategic Highway Safety Plan (SHSP). Future coordination between Arizona's and MAG's plans and programs will primarily occur at the TIP (short-range) level.

The 2014 Arizona SHSP, published at [www.azdot.gov/shsp](http://www.azdot.gov/shsp) on October 29, 2014, is an overarching safety plan for all public roads in Arizona with the new vision of *"Towards Zero Deaths by Reducing Crashes for a Safer Arizona"*. Under the SHSP, all highway safety programs in the state can leverage resources to address transportation safety issues. The SHSP identifies the State's key safety needs and guides Highway Safety Improvement Program (HSIP) investment decisions.

Twelve emphasis areas were established for Arizona. These were based on traffic crash characteristics and input from statewide safety stakeholders. Table 1 shows the correlation between the Arizona SHSP Emphasis Areas and the MAG STSP Action Areas. It should be noted that the MAG TSSG chose to use the phrase Action Area as opposed to Emphasis Area. Although the idea is one and the same, Action Area is the reference specific to the MAG Plan, whereas Emphasis Area will be in reference to the State SHSP focus areas for road safety improvements.

**Table 1 – Comparison of Arizona Strategic Highway Safety Plan Update Emphasis Areas and MAG STSP Action Areas**

<u>Arizona SHSP Emphasis Areas</u>	<u>MAG STSP Action Areas</u>
<b>Speeding &amp; Aggressive Driving</b>	<b>Eliminate Death and Injury from Speeding and Aggressive Driving Behavior</b>
<b>Impaired Driving</b> (Alcohol, Illegal Drugs, Medication, Fatigued)	<b>Eliminate Impaired Driving</b>
<b>Occupant Protection</b> (Safety Belts, Child Safety Seats, Helmets)	Defer to State SHSP*
<b>Motorcycles</b>	Defer to State SHSP*
<b>Distracted Driving</b>	Defer to State SHSP*
<b>Roadway Infrastructure &amp; Operations Improvement</b> (Lane Departure, Intersections, Rural Roads, Rail Crossings)	<b>Eliminate Death and Injury Related to Intersections</b>
<b>Age Related</b> (Younger/Older Drivers)	<b>Eliminate Death and Injury Involving Young Roadway Users</b>
<b>Heavy Vehicles/Buses/Transit</b>	Defer to State SHSP*
<b>Non-Motorized Users</b> (Pedestrians, Bicyclists, Transit Users, School Zone Users)	<b>Eliminate Death and Injury Involving Vulnerable Road Users – Bicyclist, Pedestrians, Persons with Disabilities</b>
<b>Natural Risks</b> (Weather, Animals)	Defer to State SHSP*
<b>Traffic Incident Management</b> (Secondary Collisions, Work Zones)	Defer to State SHSP*
<b>Interjurisdictional Coordination</b>	Defer to State SHSP*
<u>Arizona Emphasis Area Support</u>	<u>MAG Action Area Support</u>
<b>Data Analysis Improvements</b>	<b>Improve Data Collection, Quality, Availability, Integration, and Analysis for Decision Making</b>
<b>Policy Initiatives</b>	Defer to State SHSP*

\* The MAG Planning area is largely urbanized and has a unique set of issues and associated Action Areas that may not align with the State SHSP Emphasis Areas, such as those representing rural areas, or those which may be better emphasized in the State SHSP.

## 2

## State of Road Safety in the MAG Planning Area

An analysis of crash data was performed for the years 2008 through 2012 to demonstrate crash numbers, types and severity prevalent in the MAG planning area. The results of this analysis provide an overview of road safety within MAG. Crash trends and patterns for fatalities (K) and serious injuries (A) are presented and discussed in [Technical Memorandum No. 1](#).

Crash rates can be an effective tool to measure the relative safety at a particular location. The combination of crash frequency (crashes per year) and vehicle exposure (traffic volumes or miles traveled) results in a crash rate. Crash rates are expressed as "crashes per Million Entering Vehicles" (MEV) for intersection locations and as "crashes per Million Vehicle Miles Traveled" (MVMT) for roadway segments. Some agencies in the MAG planning area have evaluated intersection and/or roadway segment crash rates in their agency transportation plan but many MAG member agencies do not have the resources to provide vehicle exposure data for comprehensive crash rate analysis. No agencies have large quantities of exposure data for pedestrians or bicyclists. There are continuing efforts to improve this data.

The Regional Transportation Safety Information Management System (RTSIMS) software was used to analyze the crash data pertinent to the MAG Metropolitan planning area. The primary source of crash data is the ALISS crash database

maintained by the Arizona DOT. RTSIMS Version 1.0 serves as a key analytical tool at MAG for performing transportation safety analysis that is required for safety planning functions at the regional level. Any local agency in the MAG planning area can obtain free access to the software.

### REGIONAL TRENDS IN CRASHES THAT INVOLVE FATALITIES AND SERIOUS INJURIES

K and A crashes represent nearly 4% of all crashes reported in the MAG planning area. Following a decline in 2009 and 2010, crashes in 2011 and 2012 are on the increase, as shown in Table 2.

**Table 2 – All Crashes, Fatal, and Serious Injury Crashes in the MAG Planning Area**

Crashes	2008	2009	2010	2011	2012
<b>Total</b>	80,746	71,305	71,071	74,949	74,421
<b>Serious Injury</b>	2,426	2,280	2,141	2,304	2,239
<b>Fatal</b>	391	334	332	361	356

### SAFETY PERFORMANCE DUE TO DRIVER CONDITIONS AND BEHAVIOR

Driver condition and behavior, including impaired driving, lack of restraint usage, and speeding, influence a majority of crashes. "Impaired driving" in the ADOT SHSP, includes all cases where the physical description of one or more drivers involved in the crash indicated illness, physical impairment, fell asleep/fatigued, alcohol, drugs or medications as reported by the police officer. In the MAG planning area, 20% of serious injury crashes involve an impaired driver. Impaired driving is

more likely to result in a fatal crash and is a factor in approximately 44% of fatal crashes in the MAG planning area for the study period.

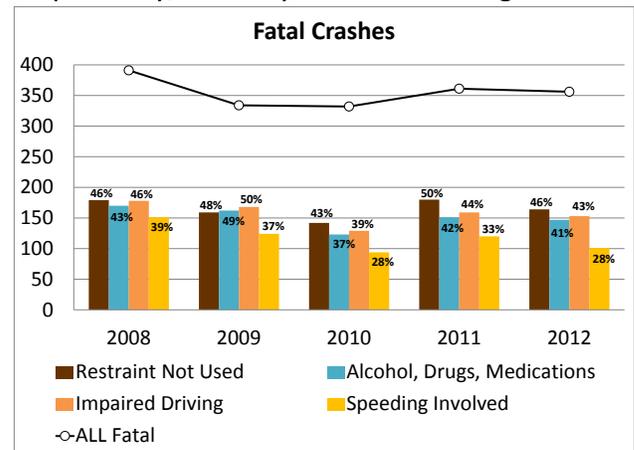
This analysis also reviewed impairment due to alcohol, drugs, or medications on its own. In the MAG planning area, approximately 42% and 16% of fatal crashes and serious injury crashes, respectively, involve impairment due to alcohol, drugs, or medications.

Other factors due to driver conditions and behavior include lack of restraint usage and speeding. A comparison of these factors for fatal and serious crashes in the MAG planning area is provided in Figure 2 and Figure 3, respectively. Percentages do not add up to 100% as there are often multiple factors involved in an individual crash.

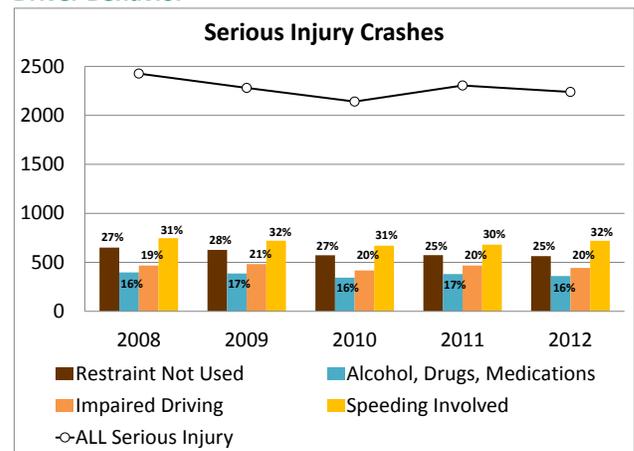
Lack of restraint usage is defined as any driver or passenger not using a lap belt, shoulder and lap belt, or child restraint system. Although not required under Arizona law, this category also includes any motorcycle driver or passenger not using a helmet. The lack of restraint use (safety belt or helmet) reported for serious injury and fatal crashes in the MAG planning area are 26% and 46%, respectively, for the years 2008 through 2012.

“Speeding” in the context of this analysis is based on data entered by the reporting officer as: “speed too fast for condition” or “exceeded lawful speed”. The reporting officers’ assessments are based on traffic, roadway, and weather conditions at the time of the crash and do not necessarily represent speeds in excess

of the posted speed limit. Speeding is a factor in approximately 33% of fatal crashes in the MAG planning area. Fatal crashes involving speeding have gone down in the most recent three years compared to the number of crashes in 2008 and 2009. Speeding involved in serious injury and fatal crashes in the MAG planning area are approximately 31% and 33%, respectively, for the years 2008 through 2012.



**Figure 2 – Fatal Crashes in the MAG Planning Area by Driver Behavior**



**Figure 3 – Serious Injury Crashes in the MAG Planning Area by Driver Behavior**

## MOTOR VEHICLE CRASHES INVOLVING PEDESTRIANS

Arizona is a Focus state for the FHWA Focus Safety Approach Program in three areas.

Phoenix and Tucson are the two cities that qualify Arizona as a Pedestrian Focus State with respect to pedestrian fatalities based on the number of fatal crashes per 100,000 population. Being identified as a focus city or state allows the FHWA the ability to provide additional resources to those agencies to improve pedestrian safety. The review of historical crash data from 2008 through 2012 revealed that 21% of all fatal crashes involve a pedestrian. The pedestrian crash statistics by year are shown in Figure 5.

Crashes involving non-motorized road users are not always identified in crash reports or databases. Crashes involving a single bicycle (run-off-road/path or falls), single pedestrian (trip and falls), bicycle-bicycle, or pedestrian-bicycle are not included in the motor vehicle crash database. As a result, it is likely that many crashes involving pedestrians and bicycles are not accurately reported or included in available crash statistics.



Figure 4 – Pedestrians Crossing at Signal

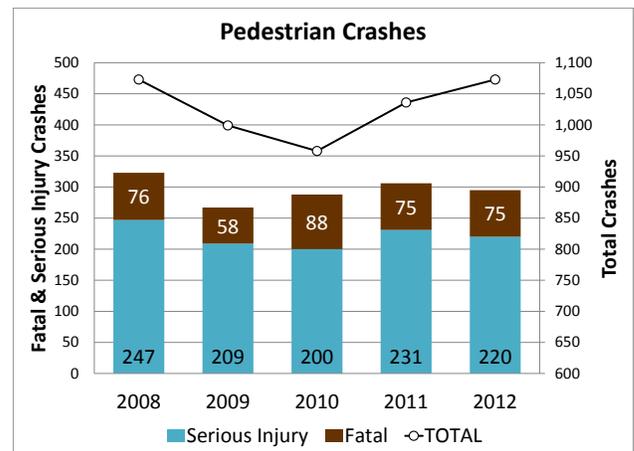
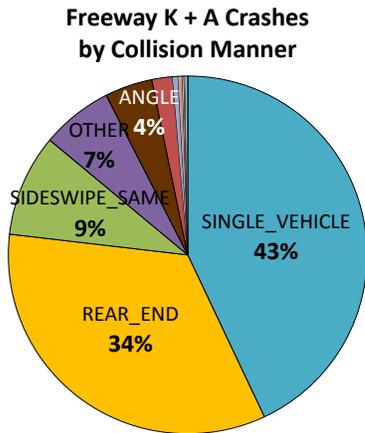


Figure 5 – 2008-2012 Crashes Involving a Pedestrian

### SAFETY PERFORMANCE OF THE FREEWAY AND ARTERIAL STREET SYSTEMS

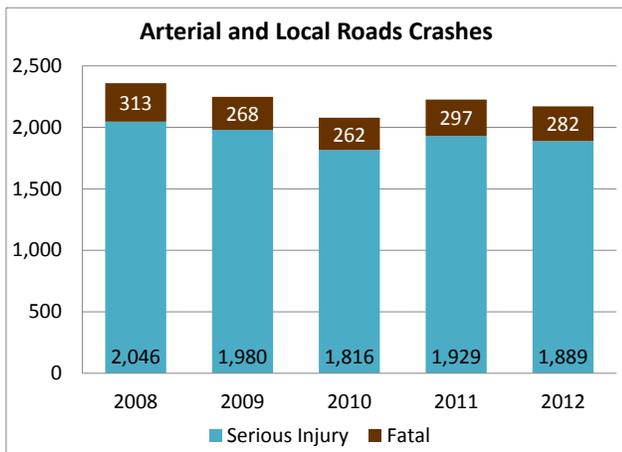
Freeway crashes are those that occur on controlled access, express highways including I-8, I-10, I-17, SR 51, SR 101, SR 143, SR 202, and US 60. The Loop 303 was not a limited access freeway until 2013 and was not included in the analysis. Crashes on state roads with at-grade intersections are included with data for arterial and local roads.

More than 75% of crashes on freeways are either single vehicle or rear end collisions as depicted in Figure 6.

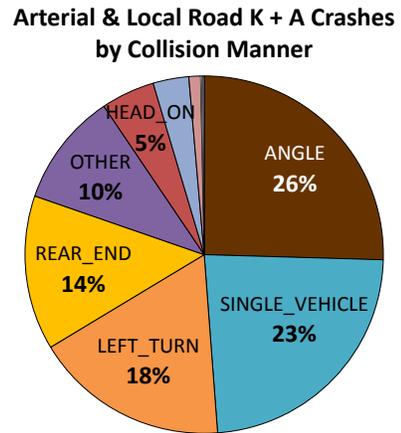


**Figure 6 – 2008-2012 Fatal and Serious Injury Crashes in the MAG Planning Area on Freeways by Collision Manner**

Fatal and serious injury crashes on arterial and local roads appear to follow a downward trend (Figure 7) resulting in a 5-year reduction in K and A crashes of 8% from 2008 to 2012. A chart indicating K and A crashes by collision manner is provided in Figure 8.

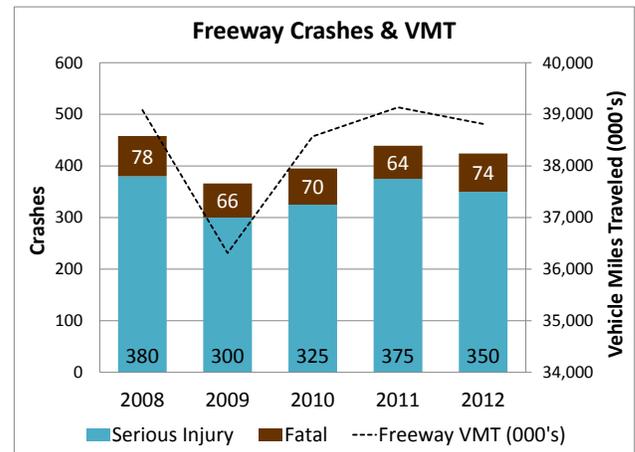


**Figure 7 – 2008-2012 Fatal and Serious Injury Crashes in the MAG Planning Area on Arterials and Local Roads**



**Figure 8 – 2008-2012 Fatal and Serious Injury Crashes in the MAG Planning Area on Arterials and Local Roads by Collision Manner**

The ADOT Highway Performance Monitoring System Daily Vehicle Miles of Travel (VMT) for Maricopa County compared to K and A crashes in the MAG region is shown in Figure 9 and Figure 10.



**Figure 9 – Freeway Fatal and Serious Injury Crashes in the MAG Planning Area Compared to Maricopa County VMT**

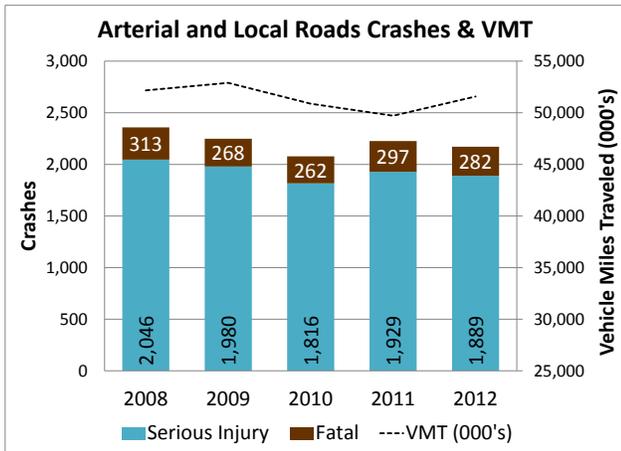


Figure 10 – Arterial and Local Road Fatal and Serious Injury Crashes in the MAG Planning Area Compared to Maricopa County VMT

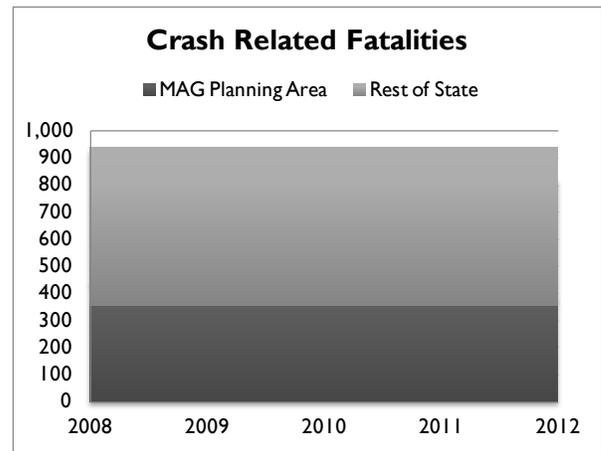


Figure 12 – 2008-2012 Fatality Comparison of MAG Planning Area to State

### COMPARISON OF THE MAG PLANNING AREA TO STATE OF ARIZONA

Nearly 70% of all crashes in the state of Arizona occur in the MAG region as depicted in Figure 11. Approximately half of fatal crashes in the state occur in the MAG planning area as depicted in Figure 12.

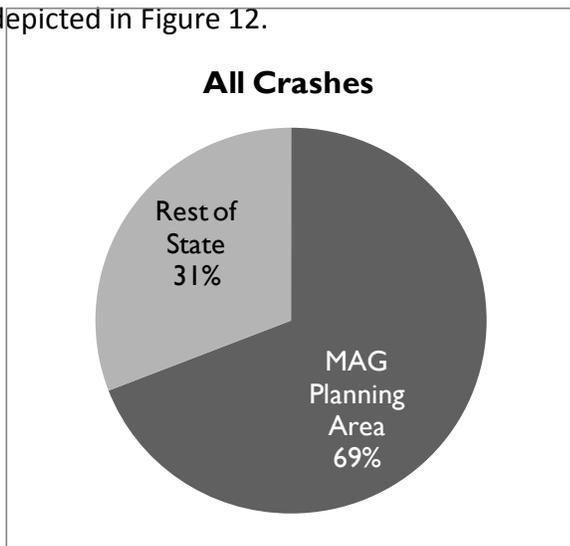


Figure 11 – 2008-2012 Total Crash Comparison of MAG Planning Area to State

### SAFETY PERFORMANCE OF THE MAG PLANNING AREA

“Crash Trees” for fatal and serious injury crashes in the MAG planning area are provided in Figure 13 and Figure 14. They are a tool to help identify and select the facility types and roadway and traffic characteristics of the locations where target crash types occur most frequently.

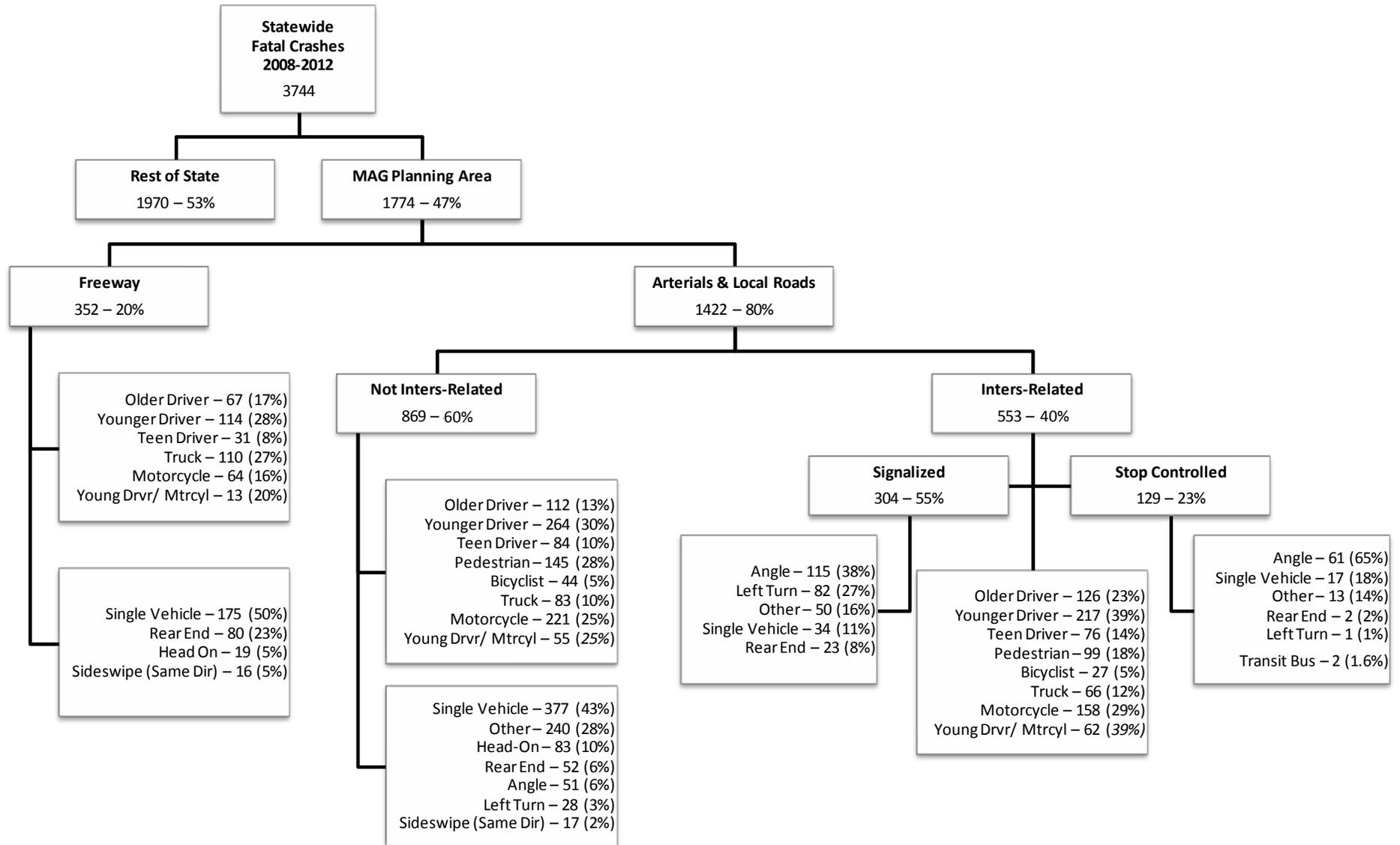


Figure 13 – Crash Tree of Fatal Crashes in the MAG Planning Area for 2008 – 2012 (Note: Lower blocks on this chart depict crash attributes that may not be mutually exclusive)

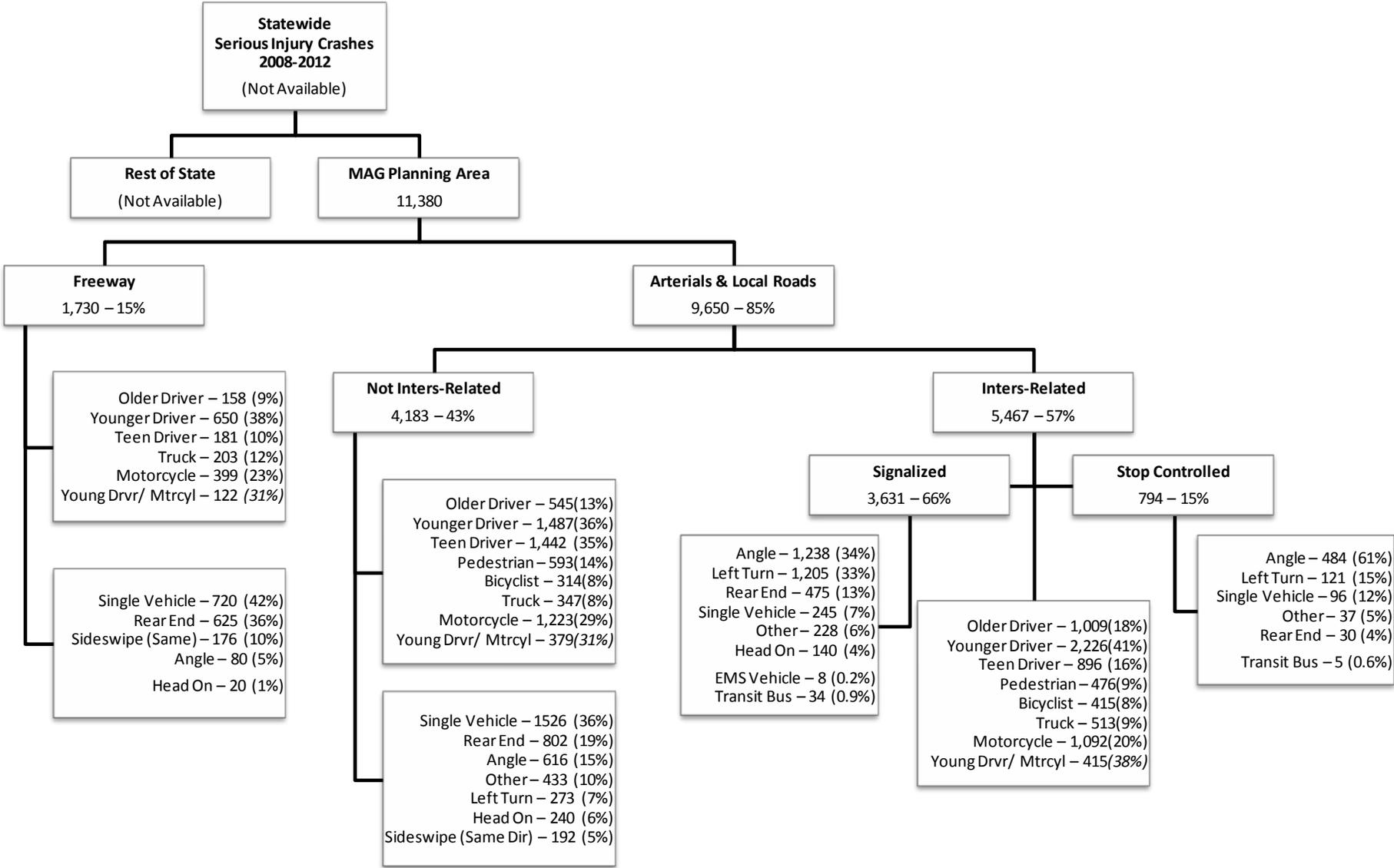


Figure 14 – Crash Tree of Serious Injury Crashes in the MAG Planning Area for 2008 – 2012 (Note: Lower blocks on this chart depict crash attributes that may not be mutually exclusive)

## **COMPARISON OF THE MAG PLANNING AREA TO OTHER SELECTED URBAN REGIONS**

The Figure 15, on the following page, compares the MAG region's road fatality, injury rates based on population, and average annual HSIP dollars spent, to other similar urban regions. These comparisons are based on data included in "Crashes vs. Congestion – What's the Cost to Society" report prepared for AAA by Cambridge Systematics, Inc. in November 2011. The information on Average Annual HSIP dollars (\$) Spent in millions (M) in Figure 15 is based on total amount of HSIP \$ spent in each MPO/COG urban region. Other funding sources, in addition to HSIP funds, are often used to implement road safety improvements in the MAG region and other urban regions. However, this comparison was done simply to show what each urban region spends in HSIP dollars as the one common funding source. This information was obtained from each regional planning organization's TIP listing and state STIP listings available on the corresponding agency websites. The regions selected for comparison were Dallas, Denver, Houston, Las Vegas, Los Angeles, Sacramento, Salt Lake City, San Diego, and Seattle.

Note that the injury rate is per 1000 persons and the fatality rate is per 100,000 persons. This was done to provide conveniently-expressed rates. The population-based rate of fatalities is significantly lower than the rate of serious injuries. In addition, the Salt Lake City region did not have direct information on HSIP

spending in that region and this is notated by \*ND for "no data" available.

The MAG region has an injury rate of 7.77 injuries per 1000 population. Figure 15 reveals that this rate places it near the middle of the metro areas, is similar to rates found in Seattle, and slightly less than rates found in Dallas, Salt Lake City and Houston.

However, in terms of fatalities, the Phoenix metropolitan area has the second highest rate of 8.75 fatalities per 100,000 population. The rate exceeds that of a group consisting of Dallas, Las Vegas, San Diego and Sacramento and is only lower than Houston, which has the highest rate of fatalities per population (10 per 100,000 persons).

The average annual HSIP comparison for the Denver urban region, based on available information, indicated their HSIP spending is the second highest at \$16.7M. Alternately, the Houston and Las Vegas urban regions available information indicated the lower end of about \$4.5M. The Phoenix urban region falls in the middle of this comparison at just under \$10M.

This comparison indicates that there is much room for improvement in the Phoenix region in terms of reducing both fatalities and injuries.

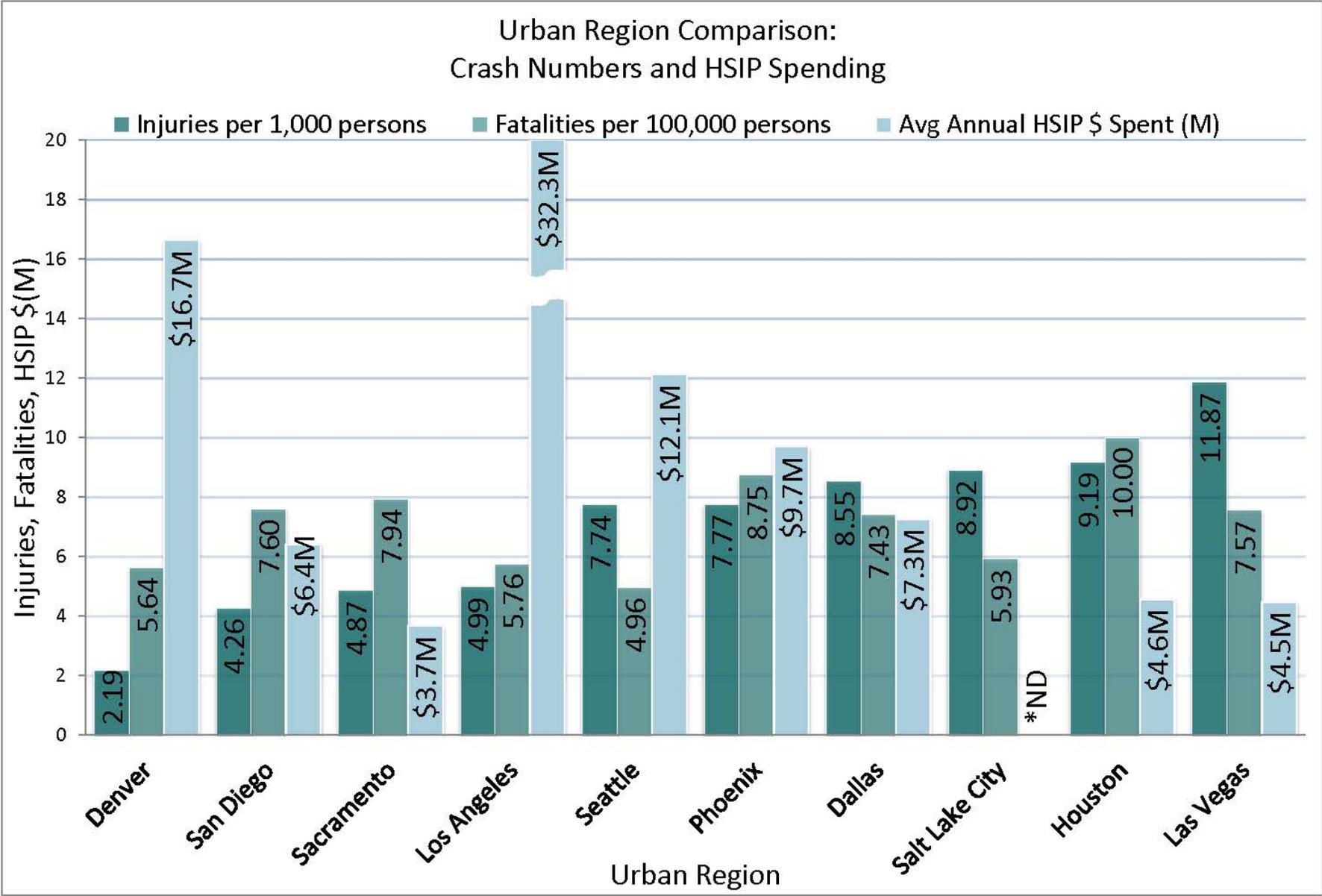


Figure 15 – Injuries per 1,000 Persons, Fatalities per 100,000 Persons in Select Urban Regions, Source: *What’s the Cost to Society* prepared for AAA by Cambridge Systematics, Inc., November 2011, and HSIP Spending (\$M)

### 3

## Regional Strategies & Practices for Transportation Safety

This chapter provides the background and intent of 47 MAG STSP strategies and practices recommended for reducing the number and severity of traffic crashes within the MAG planning area. Although noted in Chapter 1, those noteworthy strategies that are being addressed in the State's SHSP are omitted in this Chapter. The numbering of the strategies described in the following pages refers to the Implementation Plan Matrix in Table 4. The numbering scheme indicates the Action Area number before the decimal and then a number for each strategy under that action area after the decimal. Example: 1.1 is strategy number 1 under Action Area 1.0.

### 1.0 Eliminate Death and Serious Injury from Impaired Driving

In the MAG planning area, approximately 42% of fatal crashes and approximately 16% of serious injury crashes involve impairment due to alcohol, drugs, or medications.



Figure 16 – No Drinking and Driving Symbol; Source: [www.glogster.com](http://www.glogster.com)

### 1.1 Implement wrong-way detection systems to reduce wrong-way crashes on freeways.

Vehicles that utilize exit ramps by entering in the wrong direction present one of the most serious traffic hazards on the national highway system. This typically occurs when the errant driver is impaired or confused.

In Arizona, an average of 30 wrong-way crashes occur yearly with approximately 11 of those crashes resulting in fatalities. According to Arizona Department of Public Safety (DPS), there are approximately 25 wrong-way calls a month throughout the state. Of those calls, 90% do not result in crashes. During the first six months of 2014 in Arizona, six wrong-way crashes have left eight people dead and nine severely injured.

ADOT is aggressively trying to identify a resolution for this problem and has on-going research efforts of wrong-way detection systems to reduce wrong-way crashes on the Phoenix Freeway Management System. The intent of this strategy is to work with ADOT to implement detection systems region wide.

### 1.2 Conduct high visibility DUI saturation patrols.

Saturation patrols are currently conducted in the MAG planning area, which GOHS has assisted with funding DUI saturation patrols and the purchase of DUI processing vans. More widespread application of these patrols are recommended. This strategy will encourage local agencies to conduct more of these patrols

for which this funding source may be able to provide additional funding.

### **1.3 Develop materials for educating target groups for impaired driving including mass-media campaigns on DUI dangers and penalties.**

Arizona has some of the toughest DUI laws in the country with some of the harshest penalties. Crashes involving impaired drivers are more likely to result in high severity or fatalities. Currently, the GOHS has a strong campaign against impaired driving and supports a DUI Abatement Council, and “Know Your Limit program.” More materials and strategies are needed to educate the high risk portions of the community, most notably younger drivers, and identify the most effective means to get this information out to those individuals through social marketing and community intervention. Agencies that can assist in developing and distributing effort include MVD, AAA, AARP and other civic organizations.

## **2.0 Eliminate Death and Serious Injury from Speeding and Aggressive Driving**

“Speeding” in the context of this report is based on data entered by the reporting officer as: “speed too fast for condition” or “exceeded lawful speed”. Speeding involved in all serious injury and all fatal crashes in the MAG planning area are 31% and 33%, respectively, for the years 2008 through 2012. There is also a strong relationship between speeding/aggressive driving and red-light running.

Aggressive driving is defined as a progression of unlawful driving actions such as: exceeding the posted limit or driving too fast for conditions; improper or excessive lane changing: failing to signal intent, failing to see that movement can be made safely, or improper passing; or improper passing -- failing to signal intent, using an emergency lane to pass, or passing on the shoulder.

**NCHRP Report 500** states that *“Because the topic of aggressive driving is a relatively new one, and because arriving at an operational definition has not been easy, there is a lack of data available about the nature of crashes involving aggressive driving. Although some crash reports provide for indication of driver-contributing circumstances, such categories do not allow one to identify all truly aggressive driving actions.”*

### **2.1 Support and encourage the implementation of infrastructure-based ITS technologies that show promise for reducing fatalities and serious injuries.**

MAG is currently developing a study that will guide long-term regional investments in the area of system management and operations on freeways and arterials. Infrastructure-based technology such as transit signal priority, adaptive traffic signal control, expansion of Closed Circuit Television (CCTV) capabilities, expansion of communication networks, and use of arterial Dynamic Message Signs (DMS) is not well established in the MAG planning area. Active Traffic Management (adaptive ramp

metering, dynamic lane use control, dynamic merge control, dynamic shoulder lanes, dynamic speed limits, and queue warning) does not currently exist. Providing real-time, accurate communications to drivers gives them actionable information that improves speed harmonization and their ability to make better decisions about their travel routes and times of travel. The implementation of infrastructure-based technologies that show promise for reducing fatalities and serious injuries is supported and encouraged. These technologies include the use of driver speed feedback signs, real-time driver information, and changeable speed limits signs.

## **2.2 Administer projects that develop ICM strategies for handling incident diversions from freeways onto City arterials to address secondary crashes.**

MAG currently organizes multi-agency efforts to develop Integrated Corridor Management (ICM) strategies for handling incident diversions from freeways onto City arterials. These strategies employ the use of traffic signal operations (special incident timing plans), trailblazing signs, freeway and arterial CCTV and coordinated efforts with the ADOT Freeway Management System. Some local agencies have special timing plans that can be implemented in the event of a special event or incident. Greater coordination is needed between ADOT, Maricopa County Department of Transportation (MCDOT) and local agencies for detecting nonrecurring incidents and implementing special event timing plans.

## **2.3 Develop best practice guidelines for use of automated enforcement to improve safety.**

One of the most documented successes with speed-related strategies is the use of automated speed enforcement, which has a direct impact on compliance and the overall improvement of operations. DPS removed automated speed enforcement from Arizona freeways in lieu of traditional speed enforcement. Some agencies in the MAG planning area currently utilize automated red light and speed enforcement, but there is no central guidance on when and where to best deploy automated enforcement techniques (either fixed or mobile assets), who should operate the automated system, and how the contracts should be structured to be manageable for the local agency, while being fair and responsive to the public to address high crash/severity locations. Automated enforcement should not be used for generating revenue, but should be used to supplement traditional enforcement and only for the goal of improving overall roadway safety, and founded on crash data and speed analyses performed by the agency's road safety and traffic engineering staff.

As specified in section 1533 of [MAP-21](#), HSIP funds may not be used for any program to purchase, operate, or maintain an automated traffic enforcement system. However, HSIP funds may be used for automated traffic enforcement systems used to improve safety in school zones. Automated traffic enforcement

systems may be eligible for other Federal-aid funding and local funding.

#### **2.4 Utilize automated enforcement where appropriate to address speeding.**

Support local initiatives of MAG member agencies and ADOT to:

- Conduct (or expand the use of) automated speed enforcement. This highly effective countermeasure can be deployed at permanent locations, such as signalized intersections and school zones, or at temporary locations using mobile speed vans.
- Implement (or expand the use of) automated red light and/or speed enforcement at high crash intersections. This highly effective countermeasure is typically a permanent installation, but the cameras may be rotated to different high crash locations from time to time as crash patterns change.

The intent of this strategy would be to utilize the product resulting from Strategy 2.3 to encourage effective and proper use for the only goal of improving overall roadway safety.

As detailed in [Section 260](#) of the ADOT Traffic Engineering Policies, Guidelines, and Procedures, *“ARS 28-1206 requires a city of town desiring to install [or wanting to renew a permit for] a photo enforcement system for speed violations on a roadway owned or operated by the State to provide ADOT with sufficient information for ADOT to determine*

*that the photo enforcement system is necessary for public safety”*.

#### **2.5 Conduct enforcement in all work zones and increase enforcement in school zones.**

Ensuring the safety of both motorists and workers in roadway work zones has long been a stated goal of essentially all road agencies and road contractors nationwide. Safety of children walking to and from school receives a very high level of attention throughout the country as well as in the MAG planning area. Some local agencies have implemented automated enforcement programs that focus largely or entirely on schools zones and other school related crossings. Often contractors in work zones are required to employ off-duty officers for traffic control, but these officers do not conduct enforcement. Enforcement techniques can either be traditional or automated and may be used with dynamic speed limit systems associated with active work zones or school zones. Added enforcement in both types of zones would help protect vulnerable road users and reduce high risk crashes, and would be supported by the public.

### **3.0 Eliminate Death and Serious Injury Related to Intersections**

Arizona has been identified by FHWA as a Focus State for Intersection as well as Lane Departure crashes. This action area focuses on strategies related to intersections. Strategies to eliminate death and serious injury related to Lane Departure crashes are not identified in this

MAG STSP as it is mostly a rural road safety issue and, as noted in Table 1, are deferred to and better emphasized in the Arizona SHSP. However, due to the recent expansion of the MAG planning area to include agencies with predominantly rural conditions, Lane Departure and other strategies specified as deferred to the State SHSP will also be supported by MAG as a priority for these rural communities.

Intersections constitute only a small part of the overall roadway system, yet intersection-related crashes constitute 31% of all fatal crashes in the MAG planning area. A brief summary of 2008-2012 fatal crash data for the MAG planning area indicates that:

- 17% of all fatal crashes occurred at signalized intersections,
  - 55% of fatal crashes at intersections occurred at signalized intersections,
- 9% of all fatal crashes occurred at STOP-controlled intersections,
  - 23% of fatal crashes at intersections occurred at STOP-controlled intersections.

Good geometric design combined with good traffic control can result in an intersection that operates efficiently and safely according to [NCHRP 500 Volume 12: A Guide for Reducing Collisions at Signalized Intersections](#). In addition, it has been recognized that strategies that encourage safety enhancements in all phases of the development of intersection improvement projects will be a key component

in reducing fatalities and serious injury crashes region wide.

**3.1 Encourage submittal of TIP projects that include safety elements, for improving safer access for all modes, by including safety as explicit project evaluation criteria for all TIP projects that currently have evaluation criteria as a means of prioritizing a list of projects. Exceptions to this practice are those Transit Maintenance and Operations programs funded through the MAG TIP.**

This has the support of MAG technical committees that evaluate projects that are incorporated into the TIP. MAG staff, with oversight by the Safety Committee, has developed Safety Evaluation Criteria including guidelines for scoring projects. The actual safety scoring will be done by individual modal committees as part of their normal TIP project review process.

**3.2 Identify new practices or standards that integrate safety into planning and design.**

The greatest opportunity for safety benefits tend to occur in the planning and design stages of a project. Changes to improve the safety performance of a facility are typically easier to implement in these early stages. Once a design has progressed into construction, these changes can become more difficult, costly and time-consuming. In addition, safety assessment reviews conducted at the early stages of a project offer greater flexibility for

incorporating more large-scale improvements that may offer maximum safety benefit.

One method of integrating safety as a performance measure is to use methods developed in the American Association of State Highway and Transportation Officials (AASHTO) Highway Safety Manual (HSM). The predictive methods in the HSM provide the ability to quantify the anticipated safety performance for each alternative in terms of its anticipated crash frequency and severity. Training is needed for local agencies to use this tool to assess projects.

### 3.3 Enhance the MAG RSA Program:

#### 3.3.1 Refine RSA location nominating criteria:

**Priority (1) - High crash risk locations**

**Priority (2) - Locations where there are known high volumes of bicyclists and pedestrians.**

MAG Network Screening Methodology for Intersections is used to develop the Top 100 list of high crash risk intersection locations annually.

Similarly, MAG would develop a network screening methodology to rank locations with high exposure for bicyclists and pedestrians. Example locations with large volumes of people walking and biking include transit stops, transit stations, event venues, central business districts, and intersections of roadways and multi-use paths. There is limited exposure data for pedestrians or bicyclists with continuing

efforts to improve this data. MAG conducted its first region-wide bicycle count in 2013 and bicycle counts are also being collected through the MAG RSA program.

Any other location with a transportation safety concern may also be nominated based on input from MAG Transportation Safety Committee members.



Figure 17 – Road Safety Assessment Meeting

#### 3.3.2 Conduct safety assessment reviews during the design phase.

The project development process includes all engineering, construction, and administrative functions required to advance a highway transportation project from conception through design and construction and into operation and maintenance of the project. The process is accomplished through a systematic interdisciplinary approach involving many stakeholders including local, state and federal agencies. The goal of performing formal safety assessment reviews is to promote safety using a more systemic and substantive safety process in addition to relying on design standards/guidelines to provide the level of safety. Design standards provide a consistent,

predictable roadway environment, but may not necessarily result in the desired level of safety for a particular roadway environment.

The existing MAG RSA program has recently been expanded to include formal safety assessment reviews of proposed improvements during the 15% design phase as part of Project Assessment document development.

Additionally, local agencies could request the formal safety assessment review for proposed improvements within their agency, independent of the project's funding source. It is also feasible to develop a simple and understandable safety assessment process guide or template that could be used by local agencies to review private developer as well as local agency projects. This guide or template could be considered for use by MAG and local agencies for design level RSAs conducted in the MAG region.

Ideally, formal safety assessment reviews would also be conducted during the 60% design phase. At this stage the design plans would have sufficient details for the Safety Assessment Review Team (SART) to perform a comprehensive safety evaluation while still being able to incorporate revisions, if necessary, without costly and time-consuming plan changes. The safety review would be conducted by a multi-disciplinary team independent of the project. Safety assessment review after the scoping phase would need to be promoted from the State or local agency level. A framework for integrating safety into

roadway design and a recommended strategy for facilitating the introduction of "safety assessment review" in the project development process are included in [Technical Memorandum No. 6](#).

### **3.3.3 Develop a Bicyclist Safety Assessment (BSA) program that focuses on bicyclist safety countermeasures at high risk intersections of roadways and bike paths.**

The BSA program could be incorporated into the existing MAG RSA program and possibly be expanded for high exposure intersections as the bicycle counts and RSA programs increase the amount of data available. BSAs could be accomplished in conjunction with the State Bicycle Safety Committee and ADOT bike coordinator.

Countermeasures could include a leading bicycle phase to coincide with a leading pedestrian phase; bicyclist signals; continuous bike lanes through intersections, minimum green times at signals to accommodate bicyclists, and bicycle detectors/sensors.

### **3.4 Prioritize Improvements based on screening for high crash risk intersections.**

Network screening enables an agency to systemically assess locations where there are opportunities for safety improvements. The existing network screening methodology for intersections used by MAG should be enhanced and it would be desirable to adopt a

comprehensive method for performing network screening for locations to better identify those intersections or segments that would benefit most from safety improvements. The current Network Screening Methodology for Intersections (NSM-I) technique provides a well-constructed procedure for overcoming many of the known limitations associated with intersection network screening methods. The creation of a composite Intersection Safety Score (ISS) is a very useful approach for an overall network screening evaluation. MAG has recently made enhancements to the existing NSM with the support of the TSC and based on recommendations provided in [Technical Memorandum No. 4](#).

### **3.5 Implement systemic improvements based on identifying characteristics of high risk intersections.**

It is the intent of this strategy to work with local agencies to identify safety deficiencies and implement appropriate treatments at similar intersections (such as lighting or countdown pedestrian signals, etc.) This can be done for similar high-risk intersections, for intersections along one or more high risk corridors, or area-wide across an agency or the entire MAG planning area. The prioritization of the high risk intersections or intersection features can assist in developing funding priorities.

### **3.6 Develop Complete Streets Implementation Guidelines that integrate safety analysis and design throughout the planning process.**

A [MAG Complete Streets guide](#) was published in 2011, and some MAG member agencies have developed and adopted Complete Streets policies or ordinances for roadway design and operation. The intent would be to outline what kind of corridors would be good candidates for these practices from a safety perspective with consideration of connecting or abutting conditions as well as how complete streets policies are implemented/enforced, and incorporating known safety countermeasures into Complete Street projects.

### **3.7 Prepare a "best practices" guide for design of pedestrian and bicycle accommodations at roundabouts.**

The installation of roundabouts is one of the nine proven safety countermeasures being promoted by the [FHWA](#). The 2010 edition of the FHWA Roundabout Information Guide is published as [NCHRP Report 672](#). Other reports include:

- [NCHRP Report 572](#): Roundabouts in the United States (2007),
- [NCHRP Report 674](#): Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities (2011), and
- Pedestrian Access to Roundabouts: Assessment of Motorists' Yielding to Visually Impaired Pedestrians and Potential Treatments To Improve Access, [FHWA-HRT-05-080](#), (2006).

The intent would be to provide designers with guidance on infrastructure that has the greatest

potential to reduce the risk of serious injury and fatal crashes at roundabouts involving bicyclists and pedestrians, especially for those pedestrians that are visually impaired. This guide would incorporate the proposed Guidelines for Pedestrian Facilities in the Public Right-of-way (PROWAG) that is expected to be adopted in the near future, and could provide guidance on improving safety at existing roundabouts.

### **3.8 Prepare technical resource that summarizes and documents regional and national research on effectiveness of safety countermeasures for all E's.**

This is already being done at the national level but could be done through a MAG project at a regional level as more safety countermeasures are implemented that can reflect local conditions and practices. As of now, only the systemic countermeasures that have been installed through HSIP can be documented. A more comprehensive program would need to be defined to align determination of safety countermeasures with what is being implemented regionally and national standards.

The following references may be useful:

- [Safety in Geometric Design Standards](#) (Hauer, 1999),
- [A Case for Evidence Based Road-Safety Delivery](#) (Hauer, 2007),
- [TRB Special Report 300 - Achieving Traffic Safety Goals in the United States:](#)

Lessons from other Nations (Morris, 2011),

- [SWOV Institute for Road Safety Research Fact Sheets](#), Netherland, and
- [Young Drivers: The Road to Safety](#) (OECD 2006).

### **3.9 Conduct targeted enforcement of high crash risk intersections.**

Support initiatives of MAG member agencies and ADOT to conduct red light and/or speed enforcement at high crash intersections. The enforcement should target the types of violations that lead to the largest number of fatal/high-severity crashes, and locations with high numbers of severe crashes should experience periodic enforcement. This can be accomplished with automated or traditional forms of enforcement.

### **3.10 Utilize automated enforcement at high crash risk intersections where appropriate.**

See Strategy 2.4

**3.11 Partner with local professional societies to hold an annual workshop to educate roadway designers on safety tools available to assess and improve substantive safety.**

These would be accomplished in conjunction with FHWA and ADOT via their Local Public Agency Manual (for federally funded projects) or local agencies incorporating safety into the scope for roadway design projects. Using this process would require public agency or private consultant roadway designers to learn about assessing and improving substantive safety.

**3.12 Develop and distribute educational materials related to intersection safety.**

Support and work with ADOT, MAG member agencies, and other organizations such as AAA, AARP, GOHS, MADD, etc., to develop and distribute educational materials to improve the safety of all types of road users. Materials can include videos, radio PSAs, print materials, social media, and information on agency websites, among others. Additional intersection safety information can also be added to the Arizona Driver License Manual, and the Arizona Commercial Driver Manual.

**3.13 Perform comprehensive review of current EVP practices and develop a recommended practice for the region to follow.**

Currently, Emergency Vehicle Preemption (EVP) is installed at a number of signal-controlled intersections throughout the MAG planning

area that are independently controlled and operated by individual jurisdictions. Because the EVP equipment may be purchased from different vendors, if operated in a “coded” (or closed) system, the EVP will not respond to emergency responders using a different system. This is an issue particularly along agency borders since the emergency responders do not typically recognize borders. Another issue is with individuals illegally purchasing transponders that will activate the EVP if operated in an “open” system.

MAG is currently conducting a study to perform a comprehensive review of the current EVP practices within the MAG region and across the country, to determine the best practices, and to develop a recommended practice for the region to follow. The EVP study will outline the best practices, including analysis of the practices in terms of benefits in safety, emergency response time, mobility and other measures of effectiveness.

**4.0 Eliminate Death and Serious Injury for Vulnerable Road Users – Pedestrians, Bicyclists, and Persons with Disabilities**

During 2008 through 2012, 21% of all traffic fatalities and nearly 10% of all serious injuries in the MAG planning area were pedestrians. Bicyclists comprised approximately 4% of traffic fatalities and nearly 7% of serious injuries during that same time. More than 65% of statewide bicycle and pedestrian injuries from crashes occur in the MAG planning area. More than half of pedestrian fatalities from crashes

occur in the MAG planning area. A brief summary of the 2008-2012 crash data involving a pedestrian or bicyclist in the MAG planning area is listed below:

- 59% of serious injury and fatal pedestrian crashes occur at mid-block locations and 41% occur at intersections
- 15 to 19-year old pedestrians are involved in the most pedestrian and bicycle crashes (followed by those in the 20 to 24, and 10 to 14-year old age groups, respectively)
- For the nighttime hours of 7 PM to 6 AM, 42% of pedestrian crashes are fatal and serious injury
- Pedestrians over 60 are more likely to sustain serious injuries or die from a crash
- 55% of serious injury and fatal bicyclist crashes occur at intersections
- bicyclist crashes peak at 7 AM and 4 PM
- for the nighttime hours of 7 PM to 6 AM, fatal and serious injury crashes for bicyclists represent 19% of all bicyclist crashes

An emerging issue with pedestrian safety is cell phone and electronic devices used as a source of distraction, not only for motorists, but for pedestrians. Another issue with respect to pedestrians is the wide streets and often the high speeds and long distances between controlled crossing points within the MAG planning area. Multiple-threat crashes (which occur on multilane streets) tend to have higher severity. Intersection crashes more often involves turning traffic.

**4.1 Encourage submittal of TIP projects that include safety elements, for improving safer access for all modes, by including safety as an explicit project evaluation criteria for all TIP projects that currently have evaluation criteria as a means of prioritizing a list of projects. Exceptions to this practice are those Transit Maintenance and Operations programs funded through the MAG TIP.**

See Strategy 3.1.

**4.2 Promote practices that ensure safety and multimodal connectivity in planning and design.**



**Figure 18 – Pedestrian Alighting at Bus Stop in Phoenix, Arizona**

This strategy aims to support initiatives between MAG member agencies and Valley Metro to work cooperatively to ensure that there is full connectivity between modes, primarily bus transit, rail, pedestrians, and bicyclists that provides accessible accommodations and avoids or minimizes exposure to high risk crossings by pedestrians or bicyclists.

**4.3 Promote and administer Safe Routes to School framework studies to identify school traffic issues and produce walking and biking route maps through the MAG TA non-infrastructure program**

In July 2012, Congress passed a transportation bill: Moving Ahead for Progress in the 21st Century (MAP-21), which modified the original 2005 National SRTS legislation. Beginning in October 2012, SRTS activities were eligible to compete for funding under the Transportation Alternatives Program (TAP). MAG, local agencies, and school officials have worked cooperatively to develop Safe Routes to School (SRTS) studies for the development of School Walking and Bicycling Maps, as well as the development of other Non-Engineering programs (Education, Encouragement and Enforcement) for schools serving students in grades K – 8. The school walking and bicycling maps will help promote more walking and biking to schools by identifying and prioritizing safety enhancements needed in school areas.

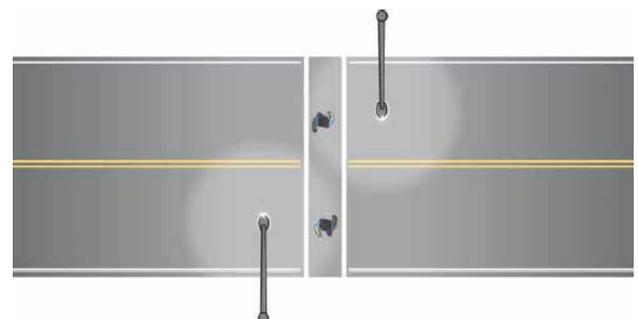
**4.4 Identify high risk locations for potential implementation of enhanced pedestrian crossings that would have a favorable benefit/cost ratio.**

Support local initiatives to review and evaluate high risk crossing locations and identify improvement projects using a Benefit-Cost Ratio (B/C) that exceed 1.5, thereby showing a positive financial benefit to the safety project. Guidance and assistance can be provided to local agencies in evaluating the benefits of pedestrian and bicycle safety projects using

Crash Reduction Factors (CRFs) that have high ‘star ratings’ contained in the CMF Clearinghouse.



Traditional midblock crossing lighting layout



New midblock crosswalk lighting layout

**Figure 19 – Traditional and Recommended Street Light Placement for Crosswalks; Source: 2012 FHWA Lighting Handbook**

**4.5 Install Pedestrian Hybrid Beacons (HAWKs).**

The installation and use of Pedestrian Hybrid Beacons (formerly called the HAWK) is one of the nine proven safety countermeasures being promoted by the FHWA. This special pedestrian crossing device was developed in Arizona and adopted in the 2009 Manual on Uniform Traffic Control Devices (MUTCD). Local initiatives that result in the installation of enhanced crossings for pedestrians and bicyclists should be supported. These initiatives include Pedestrian Hybrid Beacons

(PHBs), as well as Pedestrian User Friendly Intelligent Intersection (PUFFIN) detectors, and devices that are not yet in the MUTCD, such as Rectangular Rapid-Flash Beacons (RRFBs), and BikeHAWKs.

**4.6 Install medians and pedestrian crossing islands.**

The installation of medians and crossing islands in urban and suburban areas is one of the nine proven safety countermeasures being promoted by the FHWA. Local initiatives should be supported that assist member agencies to identify where it is feasible and desirable to install continuous raised median islands or pedestrian crossing islands at individual crossing locations to help facilitate safe pedestrian and bicycle crossings along arterial streets and select wide collector streets.



**Figure 20 – Raised Median with Two-Stage Island on Van Buren Street west of 32<sup>nd</sup> Avenue in Phoenix, Arizona**

**4.7 Provide bicycle detection at signalized intersections.**

Bicyclists are permitted to ride on all public streets within the MAG planning area (except interstate freeways); therefore all traffic signals

should be designed to accommodate bicycle traffic. The intent of this strategy is to support initiatives by MAG member agencies to implement technologies that will provide for the convenient actuation or the accurate automated detection of bicyclists at all traffic signal approaches or movements where signal actuation is required.

In addition, local agencies would be encouraged to implement minimum green times at traffic signals to accommodate bicycles at all fixed time or actuated signals. A supplemental activity of this strategy would be to compile useful information on bicyclist detection, volume, and minimum green times for use by local agencies.



**Figure 21 – Bicycle Detector Pavement Marking; Source: MUTCD Figure 9C-7**

**4.8 Develop Complete Streets Implementation Guidelines that integrate safety analysis and design throughout the planning process.**

See Strategy 3.6.

**4.9 Prepare a "best practices" guide for high risk intersections and high exposure bicycle and pedestrian crossing nodes employing safety countermeasures.**

Safety countermeasures provide consistent traffic signal detection and operations for pedestrians and bicyclists and installation of enhanced crossing treatments (such as improved lighting, shorter crossings, median treatments, widened crosswalks for pedestrians and bicyclists, bulb outs, ladder-style or higher visibility crosswalk markings and consideration of enhanced traffic control devices such as PHBs, RRFBs, advance signing or pavement markings, or two-stage crossings.)



**Figure 22 – Pedestrian Hybrid Beacon (PHB aka HAWK) Treatment in Phoenix, Arizona**

Consideration should be given to methods for collecting, storing, and analyzing bicycle and pedestrian volume data over time in order to better identify high exposure crossings and better understand the relationship between the number of crashes and various levels of exposure. Methods of collecting volume data are already part of the MAG RSA Program and other MAG modal planning efforts in order to address these considerations.

#### **4.10 Develop short-range action program oriented to 1) high transit activity**

#### **stops and 2) new routes that would enhance transit stop safety.**

The intent of this program would be to employ the checklist from the MAG Designing Accessible Communities and tie it to the Valley Metro Service Standards. This would be heavily reliant on the support of RPTA as the administrators of the Public Transportation Funds and agreement with local agencies and towns who own the facilities.

#### **4.11 Decrease wrong-way riding and traffic control violations by bicyclists.**

Arizona law (ARS 28-812) requires bicyclists riding in the street or on the adjoining shoulder to follow the laws that pertain to motor vehicle traffic (where appropriate) which includes riding in the same direction as motor vehicles and obeying all traffic control devices. Member agencies should be encouraged to develop bicyclist education and enforcement programs to promote safe riding practices and compliance with state laws and local ordinances. Education should begin with elementary school children and should continue with adults and senior citizens. Education is also needed for police on bicycle laws and violations that lead to high severity crashes, as well as the importance of enforcement. MAG should also support local initiatives for the implementation of appropriate traffic control measures where repeated wrong-way bicycling is detected in the street.

**4.12 Produce a white paper on wrong way bicycle crashes and model ordinances to prevent crashes.**

Arizona law (ARS 28-812) requires bicyclists riding in the street or on the adjoining shoulder to follow the laws that pertain to motor vehicle traffic (where appropriate) which includes riding in the same direction as motor vehicles. There is no such state law governing bicycles on sidewalks, but some local jurisdictions, such as Tempe, have adopted an ordinance that require bicyclists on sidewalks to ride in the same direction as motorists in the adjacent travel lanes. The unexpected wrong-way bicyclist movement on sidewalks, in bike lanes or elsewhere in the street results in crashes that can be quite serious. A study should be initiated to evaluate the extent of this type of crash problem in the MAG planning area, and explore ways that jurisdictions across the country have dealt with this issue through legislation, education, engineering, and enforcement to provide guidance for member agencies.

**4.13 Develop on-going training and public information bicycle and pedestrian safety campaigns.**

Campaigns would focus on multiple audiences, e.g. elementary schools, MVD, AAA, bicyclists, motorists, police, engineers, planners, teachers, health care industry, etc., and include all types of media (video, printed media, special instruction, radio PSAs, social media and information on agency websites.) GOHS funding could be used for this training and

information campaign. Pedestrian safety education should not be limited to pedestrians, but include educational efforts directed at motorists, engineers, police and teachers.

**4.14 Share best practices among regional stakeholders on best safety practices for getting to and from school; including developing recommended walk or bike to school routes for all schools in the region and administration of SRTS programs.**

ADOT produces and maintains [Traffic Safety for School Areas Guidelines 2006](#) (with input from local agencies statewide) and serves as the lead agency for school traffic control guidelines. MAG should partner with ADOT and member agencies to promote the exchange of best practices among member agencies, schools, identify best practices used by agencies across the country that represent model SRTS programs and practices, including School Walking and Bicycling Maps, and expand SRTS programs throughout the planning area. School and local officials need to learn how to best work together to promote SRTS programs and the implementation of plans that support all four E's (Engineering, Education, Encouragement and Enforcement). This can be done through a MAG sponsored SRTS workshop or conference and through continued educational efforts to promote a cooperative exchange of ideas. It should be noted that some MAG member agencies are nationwide leaders in developing and implementing SRTS programs and MAG is a leader in crossing guard training.

#### 4.15 Support a regional training program for school crossing guards.

The regional training in cooperation with GOHS and AAA to provide crossing guard training opportunities and materials (videos, PSAs, printed materials, information on agency websites) for school crossing guards within the MAG region should continue. These efforts should continue to encourage proper crossing techniques, the use of appropriate safety vests, equipment, and other safety apparel, and the proper placement and removal of portable signs at 15 mph school crossings. School officials should be encouraged to require that all of their guards undergo periodic training, including substitute guards. Safety professionals at MAG member agencies should be encouraged to work with local schools to facilitate additional training if desired.



Figure 23 – Brandon Forrey, City of Peoria, providing crossing guard training

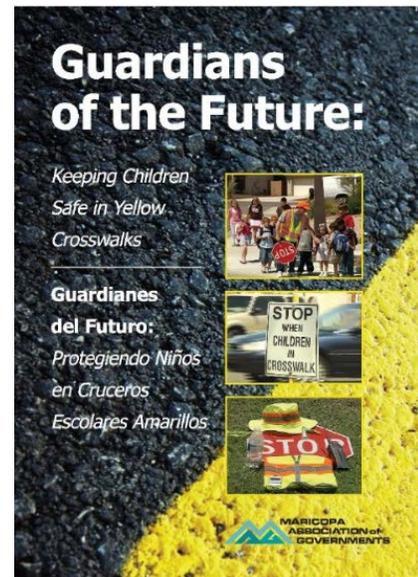


Figure 24 – Guardians of the Future: Keeping Children Safe in Yellow Crosswalks video; Source: MAG

#### 4.16 Explore and release a smartphone application to educate vulnerable users.

Explore the possibility to partner with Valley Metro and ASU to develop and release a smartphone application that would educate vulnerable road users on the dangers of walking or riding while being distracted, especially when travelling to or from transit. An application that combined humorous animation and a catchy song was developed to reduce accidents on the Melbourne Metro train system. The rail agency reported a 30 percent in collisions or near misses between vehicles and pedestrians at level crossings after the implementation of the Melbourne Metro phone application.

## **5.0 Eliminate Death and Serious Injury Involving Young Road Users**

Inexperience and immaturity combine to make young drivers especially at-risk in five circumstances: at night; after drinking alcohol; with passengers; when unbelted; and when using cell phones. A brief summary of the 2008-2012 crash data for the MAG planning area involving young drivers (age 25 or younger) is listed below.

- 28% of fatal freeway crashes
- 30% of fatal non-intersection related crashes on arterials and local roads
- 39% of fatal intersection related crashes on arterials and local roads
- 38% of serious injury freeway crashes
- 36% of serious injury non-intersection related crashes on arterials and local roads
- 41% of serious injury intersection related crashes on arterials and local roads
- Identify best practices for promoting or implementing Safe Driving pledge campaigns.

Support initiatives and work with MAG member agencies, along with GOHS, MADD, AAA and other insurance companies or civic organizations to implement local safe driving programs within communities for young drivers and their families, and to encourage communities to adopt local safe driving campaigns. This information can be made

available on the MAG website for member agencies and area schools to use.

### **5.1 Explore methods of educating young road users through Mass-media campaigns.**

Support and work with ADOT, MAG member agencies, and other organizations such as AAA, GOHS, MADD, insurance companies and civic organizations to develop and distribute education materials to improve the safety of all types of road users, specifically those directed at young drivers (ages 16 to 25). Materials can include videos, radio PSAs, print materials and information on agency websites, among others. Once developed, these materials can be made available to member agencies and area schools on the MAG website.

### **5.2 Partner with ADOT, Valley Metro, and other organizations to deploy distracted driver safety awareness campaigns.**

According to a 1973 USDOT [report](#), ‘Human factors’, including driver and pedestrian distractions, are commonly identified as the probable cause in more than 90% of traffic accidents. In response, this strategy is to partner with ADOT, Valley Metro, AAA, other insurance companies, health agencies, other civic organizations along with member agencies to educate motorists, bicyclists and pedestrians on hazards of driving or walking while distracted by electronic devices or by other means. Materials can include videos, radio PSAs, print materials, social media, and information on agency websites, among others.

Once developed, these materials can be made available to member agencies and area schools on the MAG website. Local police should be encouraged to assist with educational efforts and conduct enforcement of distracted-driving related violations.



Figure 25 – Distracted Driver

### 6.0 Support Action Area – Improve Data Collection, Quality, Availability, Integration, and Analysis for Decision Making

This Support Action Area is carried over from the 2005 STSP as an on-going priority of transportation safety planning in the MAG region. It is not possible to have a high quality data-driven plan without accurate, timely and comprehensive data available for the analysis and decision-making process.

#### 6.1 Enhance the existing network screening methodology for intersections and segments

Enhancing the existing network screen methodology for intersections and adopting a comprehensive method for performing network screening for segment locations would better identify those intersections or segments that would benefit most from safety

improvements. Recommendations include exploring a network screening procedure for use in the MAG region to identify potential locations for improving safety. Some modifications were recommended for the existing MAG network screening methodology for intersections. These network screening modifications were approved by the TSC at their December 9, 2014 meeting. Other recommendations address guidelines for screening roadway segments largely based on HSM techniques.

#### 6.2 Enhance the Regional Transportation Safety Information Management System

Software tools such as the MAG RTSIMS software can be enhanced to enable an agency to have all crash data, for a specified period (e.g. three years), to identify and prioritize locations for road safety improvement.

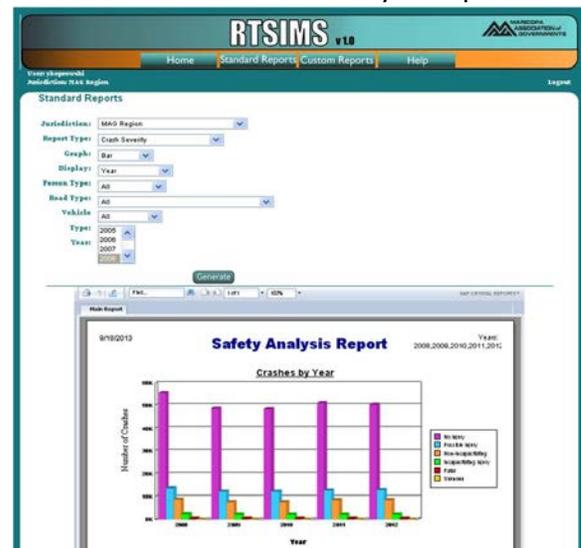


Figure 26 – Regional Transportation Safety Information Management System (RTSIMS) Screenshot; Source: MAG

**6.3 Develop or purchase a comprehensive safety assessment tool based on HSM methodologies.**

Application of evidence-based, data-driven and scientific tools and techniques require a break from the traditional approach of providing nominal safety through compliance with standards and standard practices and an embracing of the concept of substantive safety. This change in approach is being adopted in an evolutionary manner, and requires more analysis and data than simple reliance on standards. Change typically comes slowly, and adoption of new safety analysis tools is no exception. Many agencies and transportation professionals are beginning to use these techniques to improve roadway safety. Local agencies are developing tools based on HSM techniques to automatically compare similar intersections and roadway segments for network screening purposes that provide a more rigorous comparison than crash frequency or rates. These tools also permit efficient evaluation and comparison of design alternatives based on safety.

A comprehensive safety assessment tool would enhance the ability to more accurately identify and prioritize locations having the highest priority for safety improvements. The tool must be user-friendly and have the ability to present results that are easily understandable for MAG and local agency staff. Full or partial funding of the software or other tool used by local agencies could be provided if it is purchased for the entire planning area.

**6.4 Develop a tool to conduct benefit-cost analyses and calculate Crash Modification Factors (CMFs).**

The Florida Department of Transportation uses the Crash Reduction Analysis Safety Hub (CRASH) program for this purpose. The intent of this tool is to identify and prioritize project locations for safety improvements based on the benefit-cost analysis. Crash data before and after a project is implemented would provide the basis for calculating CMFs specific to the region. CMFs are generally calculated based on multiple projects in which the same types of project improvements were applied. CRFs could be developed, that do not currently exist, for improvements such as implementation of adaptive signal control technology. Project data could be entered from the TIP for use by local agencies. Local agencies could also choose to submit their locally funded projects for B/C evaluation based on safety improvement.

**6.5 Develop local calibration factors for existing national HSM SPFs specific to the MAG planning area.**

An initial step towards improved safety assessments and applying safety analysis techniques is to identify essential data needs and develop a strategy for enhanced roadway data collection. Many of the evolving safety procedures can be incrementally applied over time. Systematically developing safety analysis techniques can assist with what may initially seem a challenging task.

Recent enhancements to safety assessment techniques have resulted in evidence-based and data-driven statistical procedures known as safety performance functions (SPFs). The AASHTO Highway Safety Manual (HSM) includes nationally derived SPFs for a variety of segment and intersection locations. These SPFs, in concert with companion crash modification factors (CMFs), act as tools for predicting crash performance for various highway types and associated characteristics. Because road and driver characteristics can vary between regions and since regional environmental and enforcement issues may also contribute to local safety conditions, the SPFs should be calibrated for the MAG planning area prior to establishing or adopting the use of regional SPFs. It would be optimal for the MAG partners to develop a strategy to systematically calibrate existing SPFs and develop MAG-specific SPFs for facilities.

Until that time when the ability and resources are available to perform these refinements, procedures can still be used to develop relative values for safety evaluations (i.e. may not be able to confidently predict 12 crashes for alternative A and 22 for alternative B, but could definitely determine that alternative A would have fewer crashes than alternative B). This type of incremental analysis process will ultimately lead to robust safety assessments and a culture of safety throughout the agency's procedures, discussions, and decisions.

## STRATEGIES

The Implementation Plan Matrix, provided in Table 4 on the following pages, organizes the 2015 MAG STSP Action Areas, strategies, and corresponding lead agencies, planning level unit costs, return on investment, and implementation time frame.

All annual safety programs that resulted from the 2005 MAG STSP will be continued. Most of the new strategies can be considered a promotion or enhancement of strategies identified in the 2005 MAG STSP. Three of the proposed strategies are new:

- 1.1 Implement wrong-way detection systems to reduce wrong-way crashes on freeways.
- 2.1 Support and encourage the implementation of infrastructure-based ITS technologies that show promise for reducing fatalities and serious injuries.
- 2.3 Develop best practice guidelines for use of automated enforcement to improve safety.

## INVESTMENT REQUIREMENTS

The need to improve road safety is prominently identified in the MAP-21 legislation. National performance goals for federal highway

programs were set and the safety goal was at the top of the list:

*“Safety – To achieve significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands”*

MAG member agencies are able to obtain federal funds dedicated for implementing eligible road safety improvements. These funds are available through ADOT, MAG, and the Governor’s Office of Highway Safety (GOHS), including certain set-asides within the programs below:

- National Highway Performance Program (NHPP)
- Surface Transportation Program (STP)
- Highway Safety Improvement Program (HSIP)
- Congestion Mitigation and Air Quality Improvement Program (CMAQ)
- MAG Unified Planning Work Program (UPWP)
- Transportation Alternatives Program (TAP)
- Fixing and Accelerating Surface Transportation (FAST)
- NHTSA Funds (164, 402, 405 and 410 grants) (GOHS)

Additionally, local agency funds may be a funding resource for plan implementation.

The 2035 MAG Regional Transportation Plan (January 2014) identifies the first of four goals as “System Preservation and Safety: Transportation infrastructure that is properly maintained and safe, preserving past investments for the future”. Promoting and ensuring transportation safety will require resources commensurate with the importance of safety to the region’s values.

Securing adequate resources to implement this plan will be a challenge. In some cases, current programs will be enhanced and existing resources are already identified. Other strategies will require new funds.

**TIME FRAME**

Implementation of this plan spans a ten-year time frame from MAG fiscal year 2016 to MAG fiscal year 2025 (July 2015 – June 2025). Implementing the strategies outlined in this STSP provides the greatest opportunity of achieving the goal of reducing fatalities and serious injuries by 3% to 7% in the next five (5) years from the base year of 2013.

**IMPLEMENTATION COST**

Planning level cost estimates were developed for each strategy based on prior experience and local agency/expert input. The following resources were used to estimate costs when local information was not available:

- 2009 FHWA Low-Cost Safety Enhancements for Stop-Controlled and Signalized Intersections

- 2013 FHWA Costs for Pedestrian and Bicyclist Infrastructure Improvements
- BIKESAFE: Bicycle Safety Guide and Countermeasure Selection System
- PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System

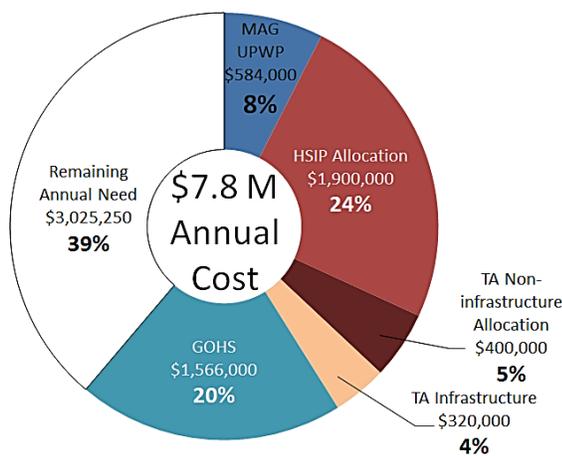
Costs for DUI Enforcement and Pedestrian and Bicycle Crossing Enforcement were estimated by taking the amount of NHTSA funds awarded to MAG member agencies as a low from the years 2013 through 2015. This information was obtained from the GOHS annual reports from 2013 and 2014 and provided by GOHS staff for FFY 2015.

The planning level unit costs were projected to a 10-year total cost of \$78,040,000 to implement this plan. The summary of assumptions used to arrive at this total cost is provided in Appendix B: Implementation Plan Cost Estimate Assumptions. The resulting annual average cost of implementation is \$7,804,000.

The projected funding resources based on those currently available through FY 2018 for implementation of this Plan totaled about \$4,770,000 (see Table 3), which results in a remaining need of \$3,025,250, annually. This funding shortfall is depicted in Figure 27, and was also highlighted in presentations to MAG decision makers.

**Table 3 – Estimated Funding Resources for Plan Implementation**

Funding Resources	FY15-18
MAG UPWP	\$584,000
HSIP Sub-Allocation	\$1,900,000
TA Non-Infrastructure Allocation	\$400,000
TA Infrastructure Allocation (portion)	\$320,000
GOHS	\$1,566,000
<b>TOTAL</b>	<b>\$4,770,000</b>



**Figure 27 – Annual Cost of Implementation vs. Current Funding Resources (\$7.8M Annually) through FY2018**

### MAG GUIDANCE FOR FUNDING PLAN IMPLEMENTATION

The MAG Regional Council and MAG Transportation Policy Committee provided guidance to MAG staff regarding funding the \$3 million Implementation Plan shortfall. The direction given to MAG staff, by Regional Council action, was 1) to have discussions with ADOT to explore the possibility of increasing the safety funding suballocation to the MAG region by at least an additional \$3 million

annually to help implement the strategies identified in the MAG Strategic Transportation Safety Plan, and 2) to work cooperatively with ADOT in demonstrating how increasing the MAG allocation would assist ADOT in meeting the statewide road safety targets and performance measure as required in MAP-21.

### 2015 HSIP MANUAL & NEW GUIDANCE ON FEDERAL ROAD SAFETY FUNDS

Shortly after the MAG guidance was provided to address fund needed to implement the Plan, the Arizona DOT released the new 2015 HSIP manual which outlined a new HSIP programming process and the planned transition to a statewide program in FY 2019. The new HSIP process and related guidance states that all future programming of federal HSIP funds for road safety projects will be based on new project eligibility criteria designed to approve ONLY the funding of safety improvement projects that: 1) include countermeasures that would reduce fatal and serious injury crash occurrence, 2) demonstrate a benefit cost ratio (B/C) of 1.5 or greater, with the B/C ratio calculated using Crash Modification Factors with at least a four-star rating, and 3) have a minimum total project cost of \$250,000.

The programming of HSIP funds for safety projects through FY2018 will continue under the new project eligibility rules. The new HSIP process that will begin in FY2019 will terminate the suballocation of HSIP funds to MAG (and all MPOs and COGs). Starting in FY2019 all

candidate road safety projects will be evaluated and recommended to the Arizona DOT by MAG for multiple program years. All projects would compete for the statewide HSIP allocation of approximately \$42 million in each fiscal year.

Based on the crash history of the MAG planning area (in comparison to the entire state) and the execution of the new HSIP process, it is estimated that about 50 percent of the state’s annual HSIP allocation, or \$21M, would need to be allocated to qualifying road safety projects in the MAG region. This anticipated outcome starting in FY2019, if realized, would fully address the funding needs for road safety improvements in the MAG planning area.

However, this assumes that, for each fiscal year, MAG recommends a sufficient number of excellent candidate road safety improvement projects for locations that have experienced fatal and serious injury crashes. To obtain \$21M in HSIP funds, a total of 42 successful project applications would be required, at an average project cost of \$500,000. The generation of HSIP project applications to meet the new HSIP criteria is a rather complex task that some smaller member agencies may find challenging, despite having sites with road fatalities and serious injuries. Assuming that the HSIP process remains unchanged, to ensure that the MAG region is able to compete successfully for HSIP, it may be necessary to establish a new MAG program that would provide assistance to local agencies in preparing successful project applications through on-call consultants.

### RETURN ON INVESTMENT

The MAG Transportation Safety Committee provided subjective input on the potential of each strategy to provide a low, medium, or high return on investment for the region. Projecting the cost for strategies that are indicated to provide a high rate of return on investment resulted in a total estimated cost requirement of nearly \$68 million dollars, which is 87% of the estimated total cost of Plan implementation. Implementation costs in relation to return on investment over the 10-year implementation time frame is illustrated in Figure 28.

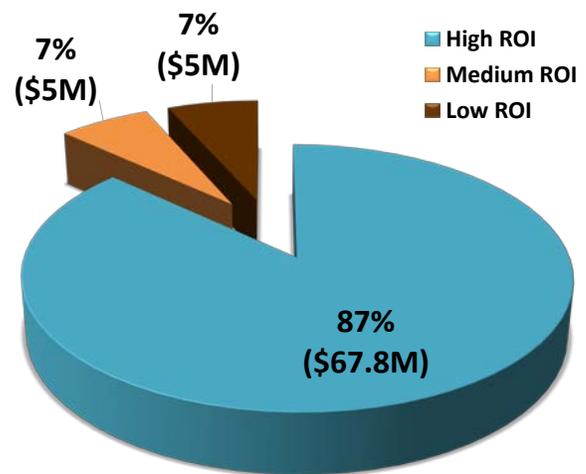


Figure 28 – Implementation Cost vs. Return on Investment over 10 years (\$78M Total)

### MONITORING THE EFFECTIVENESS OF REGIONAL ROAD SAFETY PROGRAMS AND INITIATIVES

MAG will produce an annual Transportation Safety Performance Report that includes: (1) Crash Statistics and Trends; (2) Performance in Comparison to the Safety Target; and (3) Summary of Road Safety Projects & Activities in

each Action Area including their possible impact on road safety performance. This annual report will also include a comparison to highlight how the MAG regions safety improvement projects, programmed utilizing HSIP funding through FY 2018 and beyond, are effecting ADOT's ability to meet the road safety targets and performance measures requirements established in MAP-21. The MAG Transportation Safety Committee will continue to provide oversight to programs and projects and will guide these activities throughout the implementation timeframe. Regular review of projects and programs that address these strategies will be done under the direction and recommendation of the MAG Transportation Safety Committee. Revisions or enhancements to the programs and projects, including further coordination with ADOT on the process of programming of HSIP funds, can be made throughout implementation as they relate to safety performance towards the target. This STSP will be updated on a 5-year cycle.

Table 4 – 2015 MAG STSP Implementation Plan Matrix

Strategies		Lead Agency	Unit Cost (1000's)	Unit	Return on Investment (Subjective)*	Time Frame (Short, Medium, Long)	10-yr Total Cost (\$1000)
3.13	Perform comprehensive review of current EVP practices and develop a recommended practice for the region to follow.	MAG Work Program currently underway					
1.2	Conduct high visibility DUI saturation patrols.	Local Agencies GOHS	\$ 114	per year	High	Short	\$ 1,140
2.1	Support and encourage the implementation of infrastructure-based ITS technologies that show promise for reducing fatalities and serious injuries.	MAG ADOT	\$ 0	na	High	Short	\$ 0
2.5	Conduct enforcement in all work zones and increase enforcement in school zones.	Local Agencies	\$ 180	per year	High	Short	\$ 1,800
3.1	Encourage submittal of TIP projects that include safety elements, for improving safer access for all modes, by including safety as an explicit project evaluation criteria for all TIP projects that currently have evaluation criteria as a means of prioritizing a list of projects. Exceptions to this practice are those Transit Maintenance and Operations programs funded through the MAG TIP.	MAG	\$ 0	na	High	Short	\$ 0
3.2	Identify new practices or standards that integrate safety into planning and design.	MAG ADOT Local Agencies	\$ 0	na	High	Short	\$ 0
3.3	Enhance the MAG RSA Program:						
3.3.1	Refine RSA location nominating criteria: Priority (1) High crash risk locations Priority (2) Locations where there are known high volumes of bicylists and pedestrians.	MAG	\$ 300	per annual program administered	High	Short	\$ 3,000
3.3.2	Conduct safety assessment reviews during the design phase.	MAG Local Agencies	\$ 80	per annual program administered	High	Short	\$ 800

Strategies		Lead Agency	Unit Cost (1000's)	Unit	Return on Investment (Subjective)***	Time Frame (Short, Medium, Long)	10-yr Total Cost (\$1000)
3.4	Prioritize Improvements based on screening for high crash risk intersections.	Local Agencies MAG ADOT	\$ 0	na	High	Short	\$ 0
3.5	Implement systemic improvements based on identifying characteristics of high risk intersections.	Local Agencies	\$ 46	ea intersection	High	Short	\$ 22,770
3.9	Conduct targeted enforcement of high crash risk intersections.	Local Agencies ADOT	\$ 18	ea intersection	High	Short	\$ 8,910
4.1	Encourage submittal of TIP projects that include safety elements, for improving safer access for all modes, by including safety as an explicit project evaluation criteria for all TIP projects that currently have evaluation criteria as a means of prioritizing a list of projects. Exceptions to this practice are those Transit Maintenance and Operations programs funded through the MAG TIP.	MAG Local Agencies	\$ 0	na	High	Short	\$ 0
4.3	Promote and administer Safe Routes to School framework studies to identify school traffic issues and produce walking and biking route maps through the MAG TA non-infrastructure program	MAG Local Agencies	\$ 400	na	High	Short	\$ 4,000
4.4	Identify high risk locations for potential implementation of enhanced pedestrian crossings that would have a favorable benefit/cost ratio.	MAG	\$ 0	na	High	Short	\$ 0
4.5	Install pedestrian Hybrid Beacons (HAWKs).	Local Agencies	\$ 85	ea	High	Short	\$ 1,700
4.6	Install medians and pedestrian crossing islands.	Local Agencies	\$ 75	ea crossing	High	Short	\$ 1,500
4.13	Develop on-going training and public information bicycle and pedestrian safety campaigns.	GOHS MAG Local Agencies	\$ 60	ea	High	Short	\$ 60
4.14	Share best practices among regional stakeholders on best safety practices for getting to and from school; including developing recommended walk or bike to school routes for all schools in the region and administration of SRTS programs.	MAG School Districts Local Agencies	\$ 0	na	High	Short	\$ 0

Strategies		Lead Agency	Unit Cost (1000's)	Unit	Return on Investment (Subjective)***	Time Frame (Short, Medium, Long)	10-yr Total Cost (\$1000)
3.4	Prioritize Improvements based on screening for high crash risk intersections.	Local Agencies MAG ADOT	\$ 0	na	High	Short	\$ 0
3.5	Implement systemic improvements based on identifying characteristics of high risk intersections.	Local Agencies	\$ 46	ea intersection	High	Short	\$ 22,770
3.9	Conduct targeted enforcement of high crash risk intersections.	Local Agencies ADOT	\$ 18	ea intersection	High	Short	\$ 8,910
4.1	Encourage submittal of TIP projects that include safety elements, for improving safer access for all modes, by including safety as an explicit project evaluation criteria for all TIP projects that currently have evaluation criteria as a means of prioritizing a list of projects. Exceptions to this practice are those Transit Maintenance and Operations programs funded through the MAG TIP.	MAG Local Agencies	\$ 0	na	High	Short	\$ 0
4.3	Promote and administer Safe Routes to School framework studies to identify school traffic issues and produce walking and biking route maps through the MAG TA non-infrastructure program	MAG Local Agencies	\$ 400	na	High	Short	\$ 4,000
4.4	Identify high risk locations for potential implementation of enhanced pedestrian crossings that would have a favorable benefit/cost ratio.	MAG	\$ 0	na	High	Short	\$ 0
4.5	Install pedestrian Hybrid Beacons (HAWKs).	Local Agencies	\$ 85	ea	High	Short	\$ 1,700
4.6	Install medians and pedestrian crossing islands.	Local Agencies	\$ 75	ea crossing	High	Short	\$ 1,500
4.13	Develop on-going training and public information bicycle and pedestrian safety campaigns.	GOHS MAG Local Agencies	\$ 60	ea	High	Short	\$ 60
4.14	Share best practices among regional stakeholders on best safety practices for getting to and from school; including developing recommended walk or bike to school routes for all schools in the region and administration of SRTS programs.	MAG School Districts Local Agencies	\$ 0	na	High	Short	\$ 0

Strategies		Lead Agency	Unit Cost (1000's)	Unit	Return on Investment (Subjective)***	Time Frame (Short, Medium, Long)	10-yr Total Cost (\$1000)
4.15	Support a regional training program for school crossing guards	MAG	\$ 4	per year for 3 annual training workshops	High	Short	\$ 40
5.2	Explore methods of educating young road users through Mass-media campaigns.	ADOT GOHS Local Agencies AAA MAG	\$ 30	ea	High	Short	\$ 30
6.2	Enhance the Regional Transportation Safety Information Management System	MAG	\$ 80	ea	High	Short	\$ 80
2.2	Administer projects that develop ICM strategies for handling incident diversions from freeways onto City arterials to address secondary crashes.	MAG ADOT DPS Local Agencies	\$ 180	ICM project/year	Medium	Short	\$ 1,800
3.11	Partner with local professional societies to hold an annual workshop to educate roadway designers on safety tools available to assess and improve substantive safety.	FHWA ADOT MAG	\$ 0	na	Medium	Short	\$ 0
4.7	Provide bicycle detection at signalized intersections.	Local Agencies	\$ 3	ea intersection approach	Medium	Short	\$ 175
6.1	Enhance the existing network screening methodology for intersections and segments	MAG	\$ 0	na	Medium	Short	\$ 0
3.3	Enhance the MAG RSA Program:						
3.3.3	Develop a Bicyclist Safety Assessment program that focuses on bicyclist safety countermeasures at high risk intersections of roadways and bike paths.	MAG	\$ 100	per annual program administered	Low	Short	\$ 1,000
4.2	Promote practices that ensure safety and multimodal connectivity in planning and design.	Local Agencies MAG ADOT	\$ 0	na	Low	Short	\$ 0

MAG STRATEGIC TRANSPORTATION SAFETY PLAN

Strategies		Lead Agency	Unit Cost (1000's)	Unit	Return on Investment (Subjective)***	Time Frame (Short, Medium, Long)	10-yr Total Cost (\$1000)
4.11	Decrease wrong-way riding and traffic control violations by bicyclists.	GOHS Local Agencies	\$ 381	per year	Low	Short	\$ 3,810
4.12	Produce a white paper on wrong way bicycle crashes and model ordinances to prevent crashes.	MAG	\$ 10	ea	Low	Short	\$10
5.1	Identify best practices for promoting or implementing Safe Driving pledge campaigns.	MAG	\$ 30	ea	Low	Short	\$ 30
2.4	Utilize automated enforcement where appropriate to address speeding.	Local Agencies	\$ 77	ea location	High	Medium	\$ 3,465
3.10	Utilize automated enforcement at high crash risk intersections where appropriate.	Local Agencies ADOT	\$ 77	ea intersection	High	Medium	\$ 18,480
5.3	Partner with ADOT, Valley Metro, and other organizations to deploy distracted driver safety awareness campaigns.	ADOT GOHS DOEd AAA MAG	\$ 30	ea	High	Medium	\$ 30
1.1	Implement wrong-way detection systems to reduce wrong-way crashes on freeways.	ADOT DPS MAG	\$ 200	per year	Medium	Medium	\$ 2,000
1.3	Develop materials for educating target groups for impaired driving including mass-media campaigns on DUI dangers and penalties.	MAG ADOT Local Agencies GOHS	\$ 50	ea	Medium	Medium	\$ 500
2.3	Develop best practice guidelines for use of automated enforcement to improve safety.	MAG	\$ 80	ea	Medium	Medium	\$ 80
3.6	Prepare a "best practices" guide for Road Diet and Complete Streets projects that incorporates safety countermeasures in project development.	MAG	\$ 80	ea	Medium	Medium	\$ 80
4.9	Prepare a "best practices" guide for high risk intersections and high exposure bicycle and pedestrian crossing nodes employing safety countermeasures.	MAG	\$ 80	ea	Medium	Medium	\$ 80

Strategies		Lead Agency	Unit Cost (1000's)	Unit	Return on Investment (Subjective)***	Time Frame (Short, Medium, Long)	10-yr Total Cost (\$1000)
4.10	Develop short-range action program oriented to 1) high transit activity stops and 2) new routes that would enhance transit stop safety.	RPTA Local Agencies	\$ 80	ea	Medium	Medium	\$ 80
6.3	Develop or purchase a comprehensive safety assessment tool based on HSM methodologies.	MAG	\$ 100	ea	Medium	Medium	\$ 100
3.7	Prepare a "best practices" guide for design of pedestrian and bicycle accommodations at roundabouts.	MAG	\$ 60	ea	Low	Medium	\$ 60
3.12	Develop and distribute educational materials related to intersection safety.	AAA ADOT AARP GOHS MAG	\$ 60	ea crash type addressed	Low	Medium	\$ 60
4.8	Develop Complete Streets Implementation Guidelines that integrate safety analysis and design throughout the planning process.	MAG	\$ 80	ea	Low	Medium	\$ 80
4.16	Explore and release a smartphone application to educate vulnerable users.	MAG ADOT RPTA ASU	\$ 60	ea	Low	Medium	\$ 60
3.8	Prepare technical resource that summarizes and documents regional and national research on effectiveness of safety countermeasures for all E's.	MAG	\$ 100	ea	Medium	Long	\$ 100
6.4	Develop a tool to conduct benefit-cost analyses and calculate crash reduction factors (CRFs).	MAG	\$ 30	ea	Medium	Long	\$ 30
6.5	Develop local calibration factors for existing national HSM SPFs specific to the MAG planning area.	MAG Local Agencies ADOT	\$ 100	ea	Medium	Long	\$ 100

\*\*\* Return on Investment (Subjective) column entries were based on a poll done of the TSSG for their opinion of the safety benefit to the unit cost of each strategy.



APPENDIX  
**A** Acronyms and Definitions

<b>A</b>	<b>Incapacitating Injury (Serious Injury) Crash</b>
AAA	American Automobile Association
AARP	American Association of Retired Persons
AASHTO	American Association of State Highway and Transportation Officials
ADOT	Arizona Department of Transportation
ALISS	(ADOT) Accident Location Identification Surveillance System
ARS	Arizona Revised Statutes
ASU	Arizona State University
B/C	Benefit-Cost Ratio
BAC	Blood alcohol concentration in the body, expressed in grams of alcohol per deciliter (g/dL) of blood, usually measured with a breath or blood test.

APPENDIX  
**A** Acronyms and Definitions

BSA	Bicyclist Safety Assessment
CCTV	Closed Circuit Television
CMAQ	(Federal) Congestion Mitigation and Air Quality Improvement Program
CMF	Crash Modification Factors
COTC	Chairman of Citizens Transportation Oversight Committee
CRASH	Crash Reduction Analysis Safety Hub
CRF	Crash Reduction Factor
DMS	Dynamic Message Sign
DOT	Department of Transportation
DPS	Department of Public Safety
DUI	Driving Under the Influence
EMS	Emergency Medical Services

APPENDIX	
A	Acronyms and Definitions
EVP	Emergency Vehicle Preemption
FAST	Fixing and Accelerating Surface Transportation
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
FY	Fiscal Year
GOHS	(Arizona) Governor’s Office of Highway Safety
HSIP	Highway Safety Improvement Program
HSM	Highway Safety Manual
ICM	Integrated Corridor Management
ISS	Intersection Safety Score
ITS	Intelligent Transportation Systems
K	Fatal Crash
MADD	Mothers Against Drunk Driving.

APPENDIX	
A	Acronyms and Definitions
MAG	Maricopa Association of Governments
MAP-21	Moving Ahead for Progress in the 21 <sup>st</sup> Century
MCDOT	Maricopa County Department of Transportation
MEV	Million Entering Vehicles (Intersection Crash Rate)
MPA	Metropolitan Planning Area
MPO	Metropolitan Planning Organization. MPOs are designated by the governor to coordinate transportation planning in an urbanized area of the state. MAG is an MPO.
MUTCD	Manual on Uniform Traffic Control Devices
MVD	(ADOT) Motor Vehicle Division
MVMT	Million Vehicle Miles Traveled (Roadway Segment Crash Rate)

APPENDIX  
**A** Acronyms and Definitions

NCHRP	National Cooperative Highway Research Program
NHPP	(Federal) National Highway Performance Program
NHTSA	National Highway Traffic Safety Administration
NSM-I	Network Screening Methodology for Intersections
PBT:	Preliminary breath test device, a small hand-held alcohol sensor used to estimate or measure a driver's BAC.
PHB	Pedestrian Hybrid Beacons
PROWAG	Pedestrian Facilities in the Public Right-of-way
PUFFIN	Pedestrian User Friendly Intelligent Intersection
RPTA	Regional Public Transportation Authority (aka Valley Metro)
RRFB	Rapid-Flash Beacons

APPENDIX  
**A** Acronyms and Definitions

RSA	(FHWA) Road Safety Audit
RSA	(MAG & ADOT) Road Safety Assessment
RTP	Regional Transportation Program
RTSIMS	(MAG) Regional Transportation Safety Information Management System
SART	Safety Assessment Review Team
SHSP	(ADOT) Strategic Highway Safety Plan
SPF	Safety Performance Function
SRTS	Safe Routes to Schools
STP	Surface Transportation Program
STSP	(MAG) Strategic Transportation Safety Plan
TAP	(Federal) Transportation Alternatives Program

APPENDIX  
**A** Acronyms and Definitions

TIP	(MAG) Transportation Improvement Program
TSC	(MAG) Transportation Safety Committee
TSSG	(MAG) Transportation Safety Stakeholders Group
UPWP	(MAG) Unified Planning Work Program
USDOT	United States Department of Transportation
VMT	Vehicle miles traveled

## Implementation Plan Cost Estimate Assumptions

- 1.1** The cost is based on a January 2015 estimate from ADOT Transportation Technology Group of \$2,000,000 to instrument the Phoenix Freeway Management System interchanges with wrong-way detection systems. The 10-year total cost assumes the implementation of the wrong-way detection system is phased-in over 10 years (\$200,000 per year).
- 1.2** Information provided by GOHS indicates an amount of \$98,000 was spent for similar DUI Saturation Patrols in a total of 18 agencies. A goal was assumed of an increase in implementation of DUI Saturation Patrols from 18 member agencies to 21 member agencies per year. The annual cost estimate was increased to \$114,000 to account for the goal of increased participation. The 10-year cost would be \$1,140,000.
- 1.3** The amount to prepare a "best practices" guide for design of pedestrian and bicycle accommodations at roundabouts is based on historical costs to develop this type of document (MAG consultant services Task Orders).
- 2.1** There is no cost for MAG to implement this strategy.
- 2.2** This amount assumes three Integrated Corridor Management (ICM) projects a year at \$60,000 each, for a total annual cost of \$180,000, and a 10-year cost of \$1.8 million.
- 2.3** The amount to develop best practice guidelines for use of automated enforcement is based on historical costs to conduct this type of document (MAG consultant services Task Orders).
- 2.4** The amount for automated enforcement is based on the amount spent for automated enforcement recently by one local agency at 39 locations (\$3 Million divided by 39 locations) for a per location unit cost of \$77,000. The total cost was based on identifying 91 locations in the MAG region (based on the 2008-2012 data) with two or more total fatal/serious injury crashes where one or both drivers were speeding or met another definition of aggressive driving. It was assumed that half of these locations may be appropriate for automated enforcement (45 locations), for a 10-year cost of \$3,465,000.

- 2.5** This amount assumes a goal of half of the local agencies in the MAG region (18) will conduct school zone enforcement per year, increased from two (2) in 2013, where approximately \$21,000 total was provided in GOHS grants for these efforts for 2 agencies (rounded down to \$180,000 per year). The total amount was obtained by multiplying the 10 years of STSP implementation. An amount for work zone enforcement was not included as this would be included in project construction costs.
- 3.1** There is no cost for MAG to implementing this strategy.
- 3.2** There is no cost for MAG to implementing this strategy.
- 3.3** The Strategy to enhance the RSA program is broken into three separate sub-strategies below.
- 3.3.1** The funding assigned to RSAs will be focused on high crash risk locations or priority locations where there are known high volumes of bicyclists or pedestrians, and the amount will be increased to \$300,000 per year, for a total 10-year cost of \$3 million.
- 3.3.2** The amount to conduct safety assessment reviews during the design phase is based on historical costs to conduct this type of reviews (MAG consultant services Task Orders). The amount dedicated to this effort will be \$80,000 per year for a total 10-year cost of \$800,000.
- 3.3.3** The amount to conduct Bicyclist Safety Assessments (BSAs) is based on historical costs to conduct these types of studies (MAG consultant services Task Orders). The amount dedicated to this effort will be \$100,000 per year, for a total 10-year cost of \$1 million.
- 3.4** There is no cost for MAG to implement this strategy.
- 3.5** The cost to implement systemic improvements across MAG is based on the amounts applied for the installation of Pedestrian Countdown Heads, EVP, and APS from existing projects currently being implemented in the MAG region on a per intersection basis. Low cost left-turn improvements would be to provide protected left turn heads on existing mast arms and high cost improvements would include reconstruction and signal upgrades for which the cost was assumed to be that for a new standard signal system at an intersection. The average cost for upgrades was estimated to be \$46,000 per intersection. From the 2008-2012 ALISS data, 495 intersections in the MAG region had at least one fatal

intersection-related collision (and of those, 165 had five or more serious injury crashes). The total cost is based on implementing improvements at 495 intersections over 10 years.

- 3.6** The amount to develop Road Diet and Complete Streets implementation guidelines is based on historical costs to develop this type of document (MAG consultant services Task Orders).
- 3.7** The amount to prepare a "best practices" guide for design of pedestrian and bicycle accommodations at roundabouts is based on historical costs to develop this type of document (MAG consultant services Task Orders).
- 3.8** The amount to prepare a technical resource that summarizes regional and national research on the effectiveness of safety countermeasures for all E's is based on historical costs to conduct this type of study and prepare the document (MAG consultant services Task Orders).
- 3.9** The amount for targeted enforcement assumes an average of \$18,000 per intersection based on information provided by GOHS of funds spent on Selective Enforcement for 10 projects, assumed to be 10 intersections in 8 MAG agencies. From the 2008-2012 ALISS data, 495 intersections in the MAG region had at least one fatal intersection-related collision (and of those, 165 had five or more serious injury crashes.) The total cost is based on providing the targeted enforcement at 495 intersections over 10 years.
- 3.10** The amount to utilize automated enforcement at high crash risk intersections is based on an amount spent by one local agency for automated enforcement recently at 39 locations (\$3 million divided by 39) for a per-intersection cost of \$77,000. The total 10-year cost is based on an assumption that approximately half of the 495 intersections may be appropriate locations to implement this type of automated enforcement where at least one fatal collision occurred (see 3.5), resulting in a total cost (240 locations x \$77,000 per location) of \$18,480,000.
- 3.11** There is no cost for MAG to implement this strategy.
- 3.12** The amount to develop and distribute educational materials related to intersection safety is based on historical costs to produce and distribute similar materials (MAG consultant services Task Orders).

- 3.13** There are no additional costs for MAG to implement this strategy which is already funded.
- 4.1** There is no cost for MAG to implement this strategy.
- 4.2** There is no cost for MAG to implement this strategy.
- 4.3** This amount for SRTS framework studies is presumed to be the entire annual allocation of TA non-infrastructure funds allocated to the MAG region.
- 4.4** There is no cost for MAG to implement this strategy.
- 4.5** The cost for installation of a Pedestrian Hybrid Beacon (PHB aka HAWK) is based on current MAG agency costs to install this treatment. ALISS data shows 37 locations with 3 or more fatal/serious pedestrian injury crashes. The total cost assumes that only 20 of these locations may meet the warrant for PHB installation.
- 4.6** The unit crossing island cost of \$75,000 is based on a cost estimate from a recently completed bike master plan effort, and includes all construction. ALISS data from 2008 - 2012 shows 37 locations in the MAG region with 3 or more fatal/serious injury pedestrian crashes. The total cost assumes that only 20 of these locations may be appropriate for installation of a pedestrian crossing island.
- 4.7** The unit cost to install bicycle detection of \$2,500 at an actuated traffic signal approach is based on a cost estimate from a recently completed bike master plan effort. ALISS data for 2008 - 2012 shows there are 35 locations in the MAG region with 2 or more total fatal/serious injury bicyclist crashes. The total 10-year cost assumes installation of bicycle detection on two approaches at 35 signalized locations ( $\$5,000 \times 35$ ) is \$175,000.
- 4.8** The amount to develop Complete Streets implementation guidelines to integrate safety into the design is based on historical costs to conduct this type of document (MAG consultant services Task Orders).
- 4.9** The amount to prepare a "best practices" guide for high risk intersections and other crossings is based on historical costs to conduct this type of document (MAG consultant services Task Orders).
- 4.10** The amount to develop this short-range program to enhance transit stop safety is based

on historical costs to conduct this type of program (MAG consultant services Task Orders).

- 4.11** From information provided by GOHS on bicyclist and pedestrian enforcement, this cost assumes a goal of half of the MAG local agencies will conduct wrong-way riding enforcement annually, an increase of 3 times that was spent in previous years. \$127,000 was spent by 6 MAG agencies, so the goal is (3 x \$127,000) \$381,000 per year for 10 years.
- 4.12** The amount to produce a white paper on wrong-way bicycle crashes and model ordinances to prevent these crashes is based on historical costs to produce this type of document (MAG consultant services Task Orders).
- 4.13** The amount to develop on-going training and public information bicycle and pedestrian safety campaign is based on historical costs to prepare these types of materials (MAG consultant services Task Orders).
- 4.14** There is no cost for MAG to implement this strategy.
- 4.15** This amount to support the annual regional training program is based on costs for the existing school crossing guard workshops hosted by MAG for the past 9 years (\$4,000 per year).
- 4.16** The amount to develop and release a Smart Phone app to educate vulnerable road users is based on historical costs to develop similar applications.
- 5.1** The amount to identify best practices for promoting safe driving pledge campaigns is based on historical costs to conduct a similar type of effort (MAG consultant services Task Orders).
- 5.2** The amount to explore methods of educating young road users through mass media campaigns is based on historical costs to conduct this type of effort (MAG consultant services Task Orders).
- 5.3** The amount to deploy distracted driver safety campaigns is based on historical costs to conduct similar efforts including the production of materials.
- 6.1** There is no cost for MAG to implement this strategy.

- 6.2** The amount to conduct a study to enhance the regional transportation safety information management system is based on historical costs to conduct this type of effort (MAG consultant services Task Orders).
- 6.3** The amount to develop or purchase a comprehensive safety assessment tool based on HSM methodologies is based on historical costs to develop or purchase this type of product (MAG consultant services Task Orders).
- 6.4** The amount to develop a tool to conduct benefit-cost analyses and develop CRFs is based on historical costs to conduct this type of effort (MAG consultant services Task Orders).
- 6.5** The amount to develop local calibration factors for SPFs specific to the MAG region is based on historical costs to conduct this type of effort (MAG consultant services Task Orders).

<u>Description</u>	<u>Page</u>
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<b>Establish Regional Vision and Goals.....</b>	<b>7</b>
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