

2013 Planning Certification Review



November 12-14, 2013



**MARICOPA
ASSOCIATION of
GOVERNMENTS**

302 N. 1st Avenue, Suite 300, Phoenix, AZ 85003
602-254-6400 www.azmag.gov

TABLE OF CONTENTS

OVERALL WORK PROGRAM AND SELF CERTIFICATION..... 5

SAFETEA-LU PLANNING FACTORS..... 15

TRANSPORTATION IMPROVEMENT PROGRAM AND PROJECT SELECTION 19

REGIONAL TRANSPORTATION PLAN..... 27

AGREEMENTS AND CONTRACTS 31

PROGRAM DELIVERY/PROJECT MONITORING AND LIST OF OBLIGATED PROJECTS..... 35

PUBLIC PARTICIPATION PLAN..... 41

TITLE VI, ADA, and ENVIRONMENTAL JUSTICE..... 47

CONGESTION MANAGEMENT PROCESS..... 53

INTELLIGENT TRANSPORTATION SYSTEMS (ITS) 63

TRAVEL DEMAND FORECASTING..... 65

SAFETY CONSIDERATIONS..... 95

AIR QUALITY CONFORMITY 99

FINANCIAL PLANNING/FISCAL CONSTRAINT 109

ORGANIZATIONAL STRUCTURE, REGIONAL COUNCIL MEMBERSHIP AND PLANNING
BOUNDARIES..... 111

INTEGRATING FREIGHT IN THE TRANSPORTATION PLANNING PROCESS..... 125

ESTABLISHMENT AND USE OF A PERFORMANCE-BASE PLANNING PROCESS..... 129

FOLLOW-UP ON 2009 CERTIFICATION REVIEW FINDINGS 137

APPENDICES

- APPENDIX A - FY 2014 MAG UPWP Resolution
- APPENDIX B - Certification
- APPENDIX C - Resolution of Support for Extending the Border Zone
- APPENDIX D - Highway Acceleration Policy
- APPENDIX E - Arterial Life Cycle Program Policies and Procedures
- APPENDIX F - Transit Life Cycle Policies
- APPENDIX G - MAG Federal Fund Programming Guidelines and Procedures
- APPENDIX H - ADOT/MAG Agreement
- APPENDIX I - ADOT/MAG Agreement – Amendment One
- APPENDIX J - ADOT/MAG Agreement – Amendment Two
- APPENDIX K – Rideshare Agreement and UPWP
- APPENDIX L - RPTA Agreement – Transit Planning Services
- APPENDIX M – MAG/VMR Agreement Light Rail Transit Planning Services
- APPENDIX N - Transit Operators/MAG Agreement
- APPENDIX O - Transit Memorandum of Understanding
- APPENDIX P - Public Participation Plan
- APPENDIX Q - MAG Press Releases
- APPENDIX R - MAG Awareness Survey
- APPENDIX S – MAG Agency Performance Review
- APPENDIX T - Socio-Economic Projections – Data
- APPENDIX U - Socio-Economic Projections - Documentation
- APPENDIX V - Air Quality Memorandum of Agreement
- APPENDIX W - Air Quality Conformity Consultation
- APPENDIX X - Organization Charts
- APPENDIX Y- MAG MPA Boundary Expansion
- APPENDIX Z - Board of Directors

OVERALL WORK PROGRAM AND SELF CERTIFICATION

Question: 1. How are activities in the OWP, specifically activities funded by FTA/FHWA, developed, selected, and prioritized? Moreover, how does the OWP provide a strategic view and a strategic direction for metropolitan area planning activities?

Response: Activity Development: Planning for the Maricopa Association of Governments (MAG) Unified Planning Work Program (UPWP) and Annual Budget is a continuous, collaborative process on the key issues facing the region. In developing the UPWP, MAG is inclusive in its development by taking into account input from the public, Metropolitan Planning Organization (MPO) member agencies and local governments, and other transportation agencies in the region, which include local transit agencies and the state.

The development of the UPWP begins with input from the MAG staff and drafting potential studies or work elements by MAG and its participating agencies. These work elements are in response to requests made by the public, participating member agencies, stakeholders, the Arizona Department of Transportation (ADOT) or federal agencies. These entities all provide guidance that are used to develop and promote transportation programs and policies and programs and policies for other MAG responsibilities.

MAG coordinates the review of the draft work elements through staff members of the participating agencies, MAG, the public, ADOT, and federal agencies, the Federal Transit Administration (FTA), Federal Highway Administration (FHWA), and the Environmental Protection Agency (EPA), as well as through an intergovernmental review. The UPWP is then submitted on a monthly basis beginning in January to MAG's technical and policy committees for their endorsement prior to its submittal for FHWA and FTA approval in June.

One important part of the process in developing the Work Program is the MAG transportation public involvement program. Public involvement provides the public an early opportunity to provide input into the MAG planning process and to identify the public's funding priorities. The results of the input process are published through public input opportunity reports. These reports are presented with regular updates to the MAG Management Committee, the Transportation Policy Committee and the Regional Council for review and consideration prior to action.

In addition, various forums for input including public workshops, presentations and survey instruments are used during the input process to provide citizens an opportunity to discuss projects and identify preferences and priorities for the region given the limited resources.

As part of the public input process, a Regional Transportation Stakeholders meeting is conducted to share transportation ideas. At the meeting, the Arizona Department of Transportation provides an overview of potential projects and the Regional Public Transportation Authority (RPTA) also presents information. In addition to construction projects, ideas for future studies may be presented. Stakeholders are provided an opportunity to react to these ideas and given an opportunity to provide their suggestions.

Many of MAG's committee's representation from the RPTA and ADOT. Representatives from ADOT and the RPTA confer on the projects using ADOT federal funds in the Transportation Improvement Program (TIP). This cooperatively developed listing of projects is presented to the MAG committees for consideration.

The formal development of the Work Program begins with a kick-off meeting in December when MAG Managers and Program Managers discuss program priorities and review the proposed timeline and input from the stakeholders meeting, retreats, the public, and committee meetings. Following this general staff discussion, the development of the Work Program begins. The development of the budget document is an incremental process over a period of five months, during which information on the budget - including financial resources, format and program ideas - is shared in a series of public meetings and a public budget workshop. This continuous review of the development of the budget begins in January and ends with the budget being considered for approval by the Regional Council in May.

Activity Selection: In January, the Program Managers begin developing their sections of the Work Program. To ensure that all planning activities proposed by ADOT, RPTA and Valley Metro Rail are included in the Work Program, a letter is sent to the ADOT Transportation Director of Planning, and the Valley Metro Rail Chief Executive Officer, requesting their input into the Work Program. This information is then incorporated into the new Work Program by the Program Managers. The responsibilities for the Work Program are discussed in meetings with the Managers and Program Managers throughout the budget development process. The MAG Executive Director, working with the staff, develops the Work Program for early review by the Management Committee, Regional Council Executive Committee and Regional Council.

In the spring, the draft budget is provided to the state and federal agencies for review in anticipation of the Intermodal Planning Group meeting where questions and comments are heard and, if necessary, adjustments are made regarding the state and federal agency comments. The final budget is presented to the Regional Council in May and, upon approval, is sent in June to the Arizona Department of Transportation, FTA and the FHWA.

As part of the planning process, the Federal Emphasis Areas for FHWA and FTA are received each year by MAG. These areas are highlighted in the Work Program and information is provided on how MAG proposes to respond to these emphasis areas. The guidance from the federal agencies has helped to guide program development.

The UPWP provides a listing of planning projects and defines objectives, associated tasks, and deliverables, as well as budgetary and staffing requirements. The UPWP is a requirement for metropolitan transportation planning activities performed with federal funds provided under 23 USC and 49 USC 53. The UPWP is used as a support document for the programming of these federally-assisted initiatives. Planning studies funded by other, non-federal sources are also identified in the UPWP, and MAG includes them to reflect the context and direction they set for the major transportation planning efforts being undertaken for the metropolitan planning area.

The process of developing the annual UPWP entails a closely coordinated effort among MAG, its participating agencies, and stakeholders.

Planning Priorities: MAG uses the following priorities to evaluate projects and fund them through the UPWP:

1. Projects that fulfill requirements under metropolitan transportation regulations set forth in 23 CFR 450.300.
2. Projects that are necessary to enable MAG and its participating agencies to support the metropolitan transportation planning process or fulfill other federal, state, or city/town regulations applicable to this process.
3. Projects that support planning efforts for projects identified in the MAG Regional Transportation Plan.
4. Projects that support planning efforts consistent with the direction set forth in master plans or other planning documents adopted by MAG, and/or the state.
5. Projects that support, develop and implement planning efforts to enable the state and the region to meet other needs that support MAG's integrated, multimodal transportation system.

Consideration of the Planning Factors: Federal regulations require that the metropolitan planning process provide for consideration of projects and strategies that address the planning factors that are part of the framework used to evaluate MAG's transportation planning program. Studies and projects are reviewed in light of both the MAG planning priorities and how they address the Federal Highway Administration planning factors mandated.

Moving Ahead for Progress in the 21st Century Act (MAP-21) was signed into law by the President on July 6, 2012. This federal transportation legislation replaced SAFETEA-LU, which had been continued through various extensions and continuing resolutions until the enactment of MAP-21. MAP-21 includes a section on the "Scope of the Planning Process", which, among other guidance, lists eight items that the metropolitan transportation planning process shall consider. The eight listed items are the same as the planning factors previously identified by the Federal Highway Administration as planning emphasis areas under SAFETEA-LU. MAG followed these factors as guidance for federal planning emphasis areas for the development of the FY 2014 Unified Planning Work Program.

New federal planning regulations implementing MAP-21 are under development by the U.S. DOT and were not available to apply them to the development of the FY 2014 Unified Planning Work Program. In general, MAG will continue to follow the transportation planning regulations established under SAFETEA-LU until new federal regulations have been approved and deadlines for their application by MPOs promulgated.

MAP-21 again identifies the eight planning factors previously included in SAFETEA-LU, which are:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.

2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the security of the transportation system for motorized and non-motorized users.
4. Increase the accessibility and mobility of people and for freight.
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
7. Promote efficient system management and operation.
8. Emphasize the preservation of the existing transportation system.

Federal Transit Administration National Planning Emphasis Areas: The Federal Transit Administration has identified five key themes for national Planning Emphasis Areas (PEA's) to promote as priority themes for the current and upcoming fiscal year. The PEA's represent topics in statewide and metropolitan planning and statewide planning for consideration when developing the Unified Planning Work Program for statewide planning, including:

1. Incorporating safety and security in transportation planning.
2. Participation of transit operators in metropolitan and statewide planning.
3. Coordination of non-emergency human services transportation.
4. Planning for transit systems management/operations to increase ridership.
5. Support transit capital investment decisions through effective systems planning.

A core function at MAG is to establish and manage a fair and impartial setting for effective transportation decision-making in an urbanized area. MAG provides a forum for regional policy development based on meeting the federal requirements described above, as well as other goals. The activities outlined in the UPWP provide the blueprint for activities on an annual basis that support the adopted policies and goals. The UPWP is a constantly changing document; work changes occur during the year to reflect priority, funding and staffing changes to best implement the strategic planning and direction of adopted policies and goals.

Question: 2. How do the FTA/FHWA funded activities in the OWP relate to the goals and priorities identified in the Transportation Plan?

Response: The FTA/FHWA funded activities in the OWP are closely aligned with the goals and priorities in the Regional Transportation Plan. As part of the process of developing the OWP, objectives and outcome measures are developed for each activity. These criteria are related to the

goals identified in the Plan, to ensure that OWP work efforts focus on regional areas of concern. The Plan identifies four major goal areas, including: (1) system preservation and safety, (2) access and mobility, (3) sustaining the environment, and (4) accountability and planning.

Planning activities for these broad goal areas are realized through implementation of the federal planning emphasis areas. The manner in which the OWP activities included in the MAG FY 2014 Unified Planning Work Program correspond to these emphasis areas is outlined below:

Support Economic Vitality: Long-range transportation infrastructure planning; transportation implementation; socio-economic research and analysis.

- 500 Transportation Program Implementation
- 600 Transportation Planning and Programming
- 600-0600 Transportation-Related Regional Economic Development
- 800-0150 Socio-Economic Research and Analysis

Increase Safety: Safety planning program; safety information management system; safety workshops.

- 600-0180 Transportation Safety Planning
- 600-0185 Highway Safety Improvement Program

Increase Security: Ongoing security efforts in the region; MPO security support activities; Regional Community Network.

- 500-0510 Public Safety Implementation 9-1-1
- 1000 Agency Technology Support

Increase Accessibility and Mobility: Multimodal planning and modal options: highway; transit; bicycle/pedestrian; special needs.

- 300-0111 Human Services Transportation Coordination
- 600-0120 Regional Highway Planning
- 600-0150 Regional Transit Planning
- 600-0145 Regional Bicycle and Pedestrian Planning
- 600-0410 I-10/I-17 Corridor Master Plan
- 600-0197 Central Phoenix Transportation Framework Study

Protect and Enhance the Environment: Designated regional air quality planning agency; close coordination with transportation planning and programming; air quality conformity analysis; environmental mitigation and resource conservation consultation; solid waste planning; water quality planning.

- 100-0110 Solid Waste Planning
- 100-0210 Water Quality Planning
- 100-0310 Air Quality Planning
- 100-0350 Air Quality Conformity Analysis

600-0110 Regional Systems Planning

Enhance Modal Integration and Connectivity: Multimodal planning; integrated travel demand modeling, freight planning.

- 600 Transportation Planning and Programming
- 600-0124 US 60/Grand Avenue Corridor Optimization and Access Management Plan Study
- 600-0125 Cave Creek/Carefree Transportation Framework Study
- 600-0145 Regional Bike and Pedestrian Planning
- 600-0150 Regional Transit Planning
- 600-0190 Regional Freight Planning
- 600-0631 Travel Demand Forecasting and Modeling

Promote System Management: Demand management; congestion management process; Intelligent Transportation Systems (ITS); performance monitoring and assessment.

- 500-0110 Trip Reduction Program
- 500-0120 Travel Reduction Program
- 500-0150 Regional Rideshare and Telework Program
- 500-0651 Traffic Signal Optimization
- 500-0653 ITS Evaluation
- 500-0654 Integrated Corridor Management Systems
- 500-0641 Regional Transportation Performance Monitoring

Preserve Existing System: Investments on existing system; litter pickup/landscaping; streets committee coordination.

- 500-0595 Litter Education
- 600 Transportation Planning and Programming

Question: 3. Does the OWP provide for the development of performance measures that relate to the Transportation Plan's goals and objectives?

Response: The OWP includes a number of activities that enable the development and use of performance measures that relate to the goals and objectives of the Regional Transportation Plan. Included in the FY 2014 OWP are programs to conduct Regional Transportation Performance Monitoring (500-0641) and to administer the Highway Performance Monitoring System (500-0643). These programs are guided by a Performance Measurement Framework Report, which was included in an earlier OWP to coordinate system monitoring with the planning and programming functions at MAG. The monitoring approach developed in this study effort was specifically structured around the goals and objectives in the Regional Transportation Plan. In addition, performance measures used to assess Regional Transportation Plan alternatives were used in identifying the factors included in the MAG performance measurement and monitoring program.

The MAG OWP also includes planning work activities directed at developing indicators that measure and monitor the performance of the transportation system. Timely system performance information will not only allow decision makers to create policies that will facilitate the safe and efficient movement of people and goods, but also will assist in maintaining an acceptable and reliable level of service on the transportation system serving the region, taking into account performance by mode and facility type. Specific objectives of this effort include:

- Enhance planning and programming decision-making processes by enabling MAG to better monitor and evaluate progress toward achievement of strategic goals.
- Provide the tools necessary to better understand regional trends in transportation system performance.
- Provide a factual basis to better inform policy makers based on objectives-based-performance-driven planning.

Question: 4. Are fund transfers and reimbursements administered on a timely basis?

Response: MAG is a sub-recipient of FHWA and FTA funds as well as other federal funds from the state and other funding sources. The majority of funding at MAG is on a reimbursement basis in which MAG is required to pay, with MAG funds, the portion of grants with later reimbursement of these expenditures. In general, MAG reimbursement requests are made monthly. The deposit of funds to the MAG account may occur up to thirty days after a reimbursement request. The review and subsequent disbursement of funds is based on supporting documentation as the basis for reimbursement. The fund transfers for payment are made timely by an Electronic Funds Transfer by ADOT, with all other reimbursements paid by check.

MAG utilizes an indirect cost plan based on audited financial statements. The Indirect Cost Plan is certified by ADOT prior to approval. Any difference between the indirect estimated and actual costs is adjusted in the following year through the proposed indirect cost rate. The indirect cost adjustment, based on audited financial statements, allows for an accurate and timely adjustment of the indirect costs incurred for the programs during the year.

Question: 5. How can ADOT better assist MAG in the development of its OWP?

Response: The most important assistance is the informal “give and take” between the agencies as the UPWP is developed so that issues are identified prior to formal reviews. The benefit of this communication is to effectively identify any UPWP issues as they arise so that they can be addressed well before the formal review.

SELF-CERTIFICATION

Question: 6. What process/procedures are used to self-certify the planning process?

Response: Multiple steps are taken to ensure that all areas required as a certified planning agency are covered.

Traditionally, as part of the development of the Transportation Improvement Program, MAG and ADOT certify that the transportation planning process addresses the major issues in the metropolitan planning area and is being conducted in accordance with all applicable federal requirements. A signed Certification Letter by the ADOT Multimodal Planning Director and the MAG Executive Director is included on the inside front cover of the approved TIP.

The MAG Regional Council resolution on the UPWP includes a reference: that the metropolitan area has a continuing, cooperative, and comprehensive transportation planning process that results in plans and programs that consider all transportation modes. These plans and programs shall lead to the development of an integrated, intermodal metropolitan transportation system that facilitates the efficient, economic movement of people and goods." (See Appendix A UPWP Resolution).

MAG staff attends and participates in current planning seminars, conferences, and webinars to review and integrate current best practices from local, regional and nationwide experts. Presentations are made division wide or agency wide to share information about updated practices.

Programming and Planning staff regularly review and integrate any new federal regulations, guidance, and recommendations into the programming and planning processes.

Question: 7. Is documentation to support the self-certification provided to the policy board and the public?

Response: Documentation to support the self-certification of the planning process is provided to the policy board and the public through the MAG Transportation Improvement Program report. This document contains a certification page, describing the certification finding that the transportation planning process addresses the major issues in the metropolitan planning area and is being conducted in accordance with all applicable federal requirements. It is signed by the Executive Director of MAG and the Director of Multimodal Planning Division at ADOT (See Appendix B Certification).

Question: 8. Does the MPO have processes, procedures, guidelines, and/or policies that address Title VI, ADA, DBE, and other regulatory requirements?

Response: On July 27, 2011, the MAG Regional Council approved the Title VI and Environmental Justice Plan. As federally required, the plan includes the development of a demographic profile for each of the communities of concern, a planning process that identifies their transportation needs, and an analytic process that identifies the benefits and burdens of transportation system investments. The process includes how any potential imbalances will be addressed and resolved in response to the analysis.

The plan also addresses the goals set forth by Executive Order #12898. Environmental Justice promotes nondiscrimination in all federal programs, provides people who are minorities or who have low incomes the opportunity for public participation, and requires the careful assessment of the impact of federally supported activities on these populations. Annual reports have been submitted to and approved by the Arizona Department of Transportation. The reports include detail on the activities conducted with regard to Title VI and Environmental Justice issues in the areas of planning, community presentations, focus groups, outreach events, collaboration

activities, translation services, public hearings, and related training. The reports also include the plan's Limited English Proficiency Plan; the complaint procedure; an update on any Title VI investigations, complaints, or lawsuits (there have not been any); the Title VI Public Notice; updated demographic tables and maps for the communities of concern; and the signed assurances.

These Title VI activities are built on the foundation of the communications, analysis, and human services efforts that have been in place for nearly 20 years. MAG first adopted a formal public involvement process in 1994, expanding and enhancing it in 1998 and again in 2001. In 2006, MAG again enhanced the process and developed a new Public Participation Plan, which was adopted by the MAG Regional Council in December 2006. The plan meets the requirements outlined in the federal regulations, including early and continuing public involvement opportunities throughout the transportation planning and programming process, timely information about transportation issues, reasonable public access to technical and policy information used to develop transportation plans, adequate public notice, a process for seeking out and considering the needs of underserved communities, and periodic review of the process.

As part of its adopted Public Participation Plan, and as an element of the public involvement process, MAG provides Title VI communities and low-income communities access to public information on, and an opportunity for public participation in, matters relating to human health or the environment, especially as they relate to MAG's transportation plans and programs. MAG contracted with a Community Outreach Specialist in 2000, who became a full-time staff member in 2002. The Community Outreach Specialist is specifically tasked with engaging Title VI and low-income communities in the transportation planning process, in coordination with the MAG Human Services division. The specialist attends community meetings, provides presentations and materials, and solicits input from these communities. For example, since 2004, MAG staff has participated in more than 100 community events and meetings as well as delivered numerous small and large group presentations throughout the Valley to underserved communities. Information booths are set up at numerous community events to impart information and receive feedback. In addition, the specialist translates major MAG documents, such as policy documents, newsletters, fact sheets, MAG policy documents, public involvement documents, and press releases, into Spanish for posting to the MAG website. The specialist responds to requests from Spanish language print and broadcast media outlets for interviews and other information related to the MAG planning process. Comprehensive stakeholder lists targeting individuals and organizations within the Title VI and Environmental Justice communities have been developed and notices of public meetings and other planning events and input opportunities are distributed to these stakeholders. While specific outreach depends on the project, focus groups and other targeted events are often held to receive input from low-income populations and minority communities.

MAG also contracted with a Disability Outreach Associate in 2001 to work with the community to receive input from people with disabilities. This associate is a contracted employee who attends meetings, makes presentations and transmits materials to the disability community on behalf of MAG. Input received by the associate is included in public input opportunity reports, which are provided to MAG policy committees during TIP and Plan updates for review and consideration prior to final action. The associate also translates MAG materials into braille for the visually impaired, and on request, makes materials available in large print and audio formats. The associate

position was instrumental in ensuring a high level of involvement of the disability community during the development of the Regional Transportation Plan.

To aid access to MAG websites by the visually impaired, informative graphics such as photos and illustrative graphs are accompanied by a descriptive caption, through the use of the alternate text (alt text) attribute. A visually impaired reader, who is using a screen reader, can access the alt text that accompanies the image to hear a spoken caption. In 2009, MAG underwent a Web redesign that incorporated many of the techniques recommended by the Web Accessibility Initiative to make the information on MAG Web sites accessible to persons with disabilities. In addition, in 2013, MAG began incorporating closed captioning capabilities into its outreach videos, including those submitted to channels 11 and those posted to the MAG website or affiliated sites.

MAG has adopted the ADOT Disadvantaged Business Enterprise (DBE) Program and will ensure compliance with 49 CFR Part 26. MAG, as a sub-recipient of Federal financial assistance, will administer and manage its contracts from advertising, consultant selection, negotiation, contract execution, processing payment reports and contract modifications, audits, and DBE compliance (e.g., reporting and monitoring) through contract closeout.

SAFETEA-LU PLANNING FACTORS

SAFETEA-LU and MAP-21 identify stand-alone planning factors for Safety and Security and expanded the Environmental planning factor to read: “(5) Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.”

Question: 1. Briefly summarize the current safety goals, objectives, performance measures and strategies in the RTP.

Response: The RTP provides information on safety planning activities at MAG in compliance with the requirements of the final rule 23 CFR Part 450. This addresses the federal planning factor that calls for increasing the safety of the transportation system for motorized and non-motorized users.

Safety is identified as a major focus in the RTP and is included in the Plan’s first goal that addresses System Preservation and Safety. One of objectives under this Plan goal is to provide a safe and secure environment for the traveling public, by reducing the overall risk of death and serious injury due to crashes, and improving pedestrian and bicycle safety, and transit security. Safety is also identified as a critical element of each mode of transportation and the RTP specifically addresses safety issues in a separate chapter.

The RTP process includes a safety planning program that enables safety issues in the region to be identified as part of the regional transportation planning process. MAG has established a standing committee for transportation safety planning to provide leadership and oversight for safety planning and activities that provide implementation support to local agencies. The Transportation Safety Committee helped develop the 2005 MAG Strategic Transportation Safety Plan (STSP). Recommendations from the STSP have been integrated within the RTP. A number of strategies identified in the STSP are included in the RTP. This includes the development of the Regional Transportation Safety Information Management System (RTSIMS) that has provided MAG with the essential ability to efficiently perform crash data analysis, to gain a better understanding of the distribution of road risk across the entire region. Another highly successful road safety strategy was the establishment of a Road Safety Assessment (RSA) Program. This program was established with valuable assistance from the ADOT RSA program and training support from FHWA. The MAG RSA program has helped develop a solid base of RSA technical expertise among both local agency staff and local consultants. The MAG RSA program introduced the addition of a human factors expert on all RSA teams as an essential requirement. This has been recognized as a significant improvement of the RSA process.

Information on road safety performance is provided at the MAG website via crash statistics and historical trends. Most of these crash statistics and trends are generated using the RTSIMS software and crash data obtained from ADOT. Some of these statistics are included at the MAG Performance Measures dashboard.

Question: 2. Does MAG have TIP/RTP development procedures that ensure coordination and consistency between MAG's TIP/RTP and other transit or transportation network security programs and projects?

Response: As part of the interagency consultation on the Regional Transportation Plan, the Federal Emergency Management Agency and the Arizona Division of Emergency Management are invited to provide input regarding coordination issues and opportunities related to regional transportation planning and programming. Transportation security is covered specifically in a separate chapter of the Regional Transportation Plan. To address this issue, an inventory of ongoing security activities and programs in the MAG region was conducted and documented. This information was assessed to gain insights into the type of role the metropolitan planning organization might play to advance and facilitate effective application of security measures to transportation systems in the region. MAG already participates in the area of security through its role in the implementation of 9-1-1 and the Community Emergency Notification System, as well as an interagency communications network (Regional Community Network).

Question: 3. Briefly describe MAG's efforts at outreach to, and input from, safety stakeholders.

Response: MAG's outreach efforts to safety stakeholders began with a regional dialogue on transportation safety in 2001. This led to the establishment of the MAG Safety Stakeholders Group that included representatives from all four E's: Engineering, Enforcement, Education and Emergency Services. The Safety Stakeholders Group developed a Draft Safety Action Plan in 2004. In March 2004, MAG established the Transportation Safety Committee, the first MPOs in the nation to do so and also prior to SAFETEA-LU enactment. The Transportation Safety Committee included many of the same stakeholders and helped transform the Draft Safety Action Plan into the region's first Strategic Transportation Safety Plan (STSP). The Plan was adopted by MAG in October 2005, well before the development of Strategic Highway Safety Plans (SHSP) became a federal requirement for all states. The Transportation Safety Committee currently consists of 22 members, with 16 representing cities, towns and Maricopa County, and six members representing Federal Highway Administration, Arizona Department of Transportation, Governor's Office of Highway Safety (GOHS), Regional Public Transportation Authority/Valley Metro, American Automobile Association of Arizona and American Association of Retired Persons. Membership is likely to expand due to the recent expansion of the MAG planning area.

MAG is currently engaged in the development of a comprehensive update to the STSP. A broad cross-section of road safety stakeholders, including injury prevention professionals and driver educators, are participating in the MAG Strategic Transportation Safety Plan (STSP) development. MAG is fully engaged in the ongoing effort by ADOT to develop the state's new SHSP that would comply with MAP-21 requirements. A number of members of the Transportation Safety Committee and MAG staff are actively participating in all ten Strategic Highway Safety Plan task forces, to ensure that road safety issues in the MAG region are addressed in the Strategic Highway Safety Plan as well as to ensure close alignment between the Strategic Highway Safety Plan and the MAG STSP.

The formal mechanisms for MAG to obtain input from safety stakeholders are as follows:

- Public comments received and discussions at Transportation Safety Committee meetings.
- Public meetings held in connection with the RTP such as the Early Phase Transportation Stakeholders Open House and Meeting, and continued input opportunities during the Early Phase.
- Other opportunities during the Early Phase including special events. MAG participates in several special events that are held in conjunction with GOHS, ADOT and RPTA. Past events have included the Safety Days at the State Fair, Chicanos Por La Causa Business Seminar in Spanish and I-17 Road Shows.
- Comments and questions received from the general public who visit the MAG website's Transportation Safety Planning page.

TRANSPORTATION IMPROVEMENT PROGRAM AND PROJECT SELECTION

DEVELOPMENT:

Question: 1. Does MAG have a documented process(es) that outlines roles, responsibilities, and key decision points for consulting with Indian Tribal governments and Federal land Management Agencies in the development of the TIP?

Response: MAG provides continuous and specific involvement with Native American Indian Communities and Federal land management agencies as documented in our Public Involvement Plan, and Regional Transportation Plan. MAG technical and policy committees provide opportunities to comment on and participate in the development of studies and project included in the TIP. Three Native American Indian Communities (Gila River Indian Community, Salt River Pima-Maricopa Indian Community and the Fort McDowell Yavapai Nation) in the MAG region are members of the Regional Council. Specific examples include:

1. Wild Horse Pass Study. Chandler-Gila River Wild Horse Pass Transportation Study – Responding to the Gila River Indian Community and the City of Chandler, MAG began this project to identify improvements for connections between the community and neighboring jurisdictions. As this project is still under development, the intent of the project is to examine varying transportation opportunities to address the growing travel demand created by the Community’s Wild Horse Pass Development. Preliminary results have identified (a) a network of arterials parallel to Interstate 10 to preserve freeway operations but enhance the overall access to adjacent parcels and (b) additional roadways surrounding the Memorial Airfield with strategic connections to the Loop 202/Santan Freeway, City of Chandler arterials, and Maricopa County Department of Transportation roadways to improve accessibility but yet preserve the Gila River Indian Community’s land use proposals.
2. Loop 202/South Mountain Freeway Environmental Impact Statement (EIS) and Location/Design Concept Report Study – Initially identified in the 1985 MAG Regional Freeway Plan, the Loop 202/South Mountain Freeway corridor has been a critical element in providing east-west mobility across the Valley. Through the environmental process that began in 2001, more than 30 corridors were studied with a preferred 22-mile alignment identified to connect the current end of the Loop 202 at the Interstate 10 Pecos Stack traffic interchange with Interstate 10 at 59th Avenue in the West Valley. Starting in 2009, at the request of the Gila River Governor, MAG and ADOT worked with the Community Manager’s Office and Agencies to review a request for roughly following the same preferred alignment located on Community land to avoid the cultural properties. Although the proposal that was prepared for this freeway route was defeated by Community members in a 2012 election, MAG provided a forum that contributed to the more than 200 meetings between the Gila River Indian Community, ADOT, and the Federal Highway Administration to establish a route minimizing harm to the traditional and cultural properties. As the Community alignment was defeated, MAG and ADOT reached out to the Community to establish a mitigation plan for the freeway proposal.

3. On the ADOT Transportation Research Study “Roles of Arizona Tribes in Decision Making,” MAG has participated as a Technical Advisory Committee member.
4. MAG has participated on ADOT’s development of the Tribal Consultation Plan and Training.
5. MAG presented the idea (for potential support) to expand the border crossing card distance for which Mexican visitors can travel in Arizona at a Four Tribes meeting. The Four Tribes are the Tohono O’odham Nation, the Ak-Chin Indian Community, the Gila River Indian Community and the Salt River Pima-Maricopa Indian Community.
6. The Inter Tribal Council of Arizona (ITCA) passed a Resolution of Support for extending the border zone for Mexican visitors to Arizona. The Chair of the MAG Economic Development Committee and MAG staff presented this item to ITCA leadership for information, discussion and consideration of support. (See Appendix C).
7. MAG has been a sponsor for the Annual Indian Nations and Tribes Legislative Day held by the Arizona Commission of Indian Affairs at the state capitol.

Question: 2. Briefly explain how MAG ensures that project cost estimates in the TIP are regularly updated and reflect the latest available information.

Response: The Regional Transportation Plan (RTP) utilizes the life cycle programs that are maintained for the major transportation modes, as a key input to the planning process. These life cycle programs are developed by ADOT, RPTA, and MAG, respectively, for the freeway/highway system, public transit system, and arterial street system. The programs meet the requirements of Arizona state legislation calling for the agencies to conduct a budget process that ensures that the estimated cost of planned improvements does not exceed the total amount of revenues available for those improvements. Cost estimates in the life cycle programs are generally updated annually. The life cycle programs provide a comprehensive yearly listing of projects, including their costs and implementation schedules. In addition to providing a source of updated cost estimates, they represent an invaluable tool for monitoring construction progress on individual projects and assessing the financial status of the programs as a whole. The life cycle programs provide a benchmark for the decision-making process regarding alterations to project scopes, adjustments to construction schedules, and changes to plan and program priorities. As part of the RTP update process, other program costs are also updated to reflect estimated future inflation.

Additionally, the federally funded project sponsors report twice yearly on current project status, and provide a current updated engineering estimate and TIP changes as appropriate.

MAG has created an Access Database System and the TIP Data Entry System that MAG member agencies utilize when updating projects contained in the TIP. MAG releases the TIP Data Entry System to MAG member agencies for approximately one and a half months to capture new projects and document how current programmed projects are developing for an upcoming TIP. The TIP Data Entry System provides the current information as reported in the latest approved MAG TIP, and allows MAG member agencies to update the fields in the database. The main focus of the database system is obtaining the project status relating to the schedule and project cost

estimates. The TIP Data Entry System contains project information: location, description, year of work, project cost estimates per funding type, schedule, and information related to transportation modeling. This information is used to generate the TIP's Listing of Projects, in which the project costs are reported at summary levels related to type of funds, jurisdiction, modal categories, year of expenditures, and management systems.

The update through the MAG TIP Data Entry System has occurred annually for the past eight years, and will occur again the fall/winter of 2014-2015. Implemented in December of 2012, a Federal Fund project data collection and report occurs twice a year. Project scheduling, milestone completion, and current engineering estimate information is collected with the TIP Data Entry System and reported in committee reports and shared with ADOT for project monitoring. This TIP data also provide information for the updating of costs in the Regional Transportation Plan.

Question: 3. Briefly describe how MAG prepares and documents system level estimates of costs and revenues to adequately operate and maintain Federal-aid highways and public transportation service in connection with TIP updates and amendments. In other words, how are system-level costs for maintenance and operations being developed and accounted for in TIP and RTP development?

Response: During development of the Regional Transportation Plan, MAG consults with ADOT on the continuing operations and maintenance needs of the Regional Freeway and Highway Program. Costs are documented in year-of-expenditure (YOE) dollars and projections are made through the planning horizon to identify the revenues needed to effectively maintain the system. In addition, MAG also had prepared, through its transportation planning on-call, a survey of operations and maintenance costs to verify the information provided on the Program. The purpose of this study was twofold; (1) to develop typical annual operating and maintenance (O&M) cost factors for application at a regional level, and (2) to survey and review current pavement management practices of MAG member agencies and identify O&M challenges they face. Nearly all MAG member entities were interviewed during the data collection portion of the study. Operations and maintenance costs are programmed into the TIP for implementation.

As planning progresses on the Next Generation Regional Transportation Plan, MAG will work with member agencies to establish an overall operations and maintenance calendar for identifying horizons for rehabilitating and replacing key segments of the system. This effort is expected to be underway in early 2014 and completed by 2015 for incorporation into the next Plan.

In addition, the MAG Transportation Division closely monitors the ADOT Five-Year Construction Program and cost estimating process. This ensures that TIP cost estimates are reflective of the latest ADOT estimates. At the same time, it enables MAG to provide input into the ADOT project design process. Another cost and revenue review occurs through the Risk Assessment Process. MAG participates in this group, which is assembled by ADOT annually to assess the future transportation cost and revenue picture. The group includes not only transportation professionals, but also economic and development forecasters who provide their perspective on the economic trends that affect transportation costs and revenues. The outcome of sessions is a set of revenue forecasts and an assessment of the future cost outlook.

MAG developed the Transit Service Inventory report in 2012, which documents and summarizes the current and planned transit system over the next five years, including operations, maintenance, fleet, facilities, and supportive services. This information aids in making regional programming decisions for fleet needs, preventive maintenance support, replacement capital, and transit supportive facilities. Additionally, these costs are summarized in the MAG FY 2014-2018 TIP. Related to the RTP, the Transit Service Inventory was used in conjunction with the Transit Life Cycle Program to project the long range transit system (operation, maintenance, facilities and fleet costs), which accounts for the local, regional, and federal cost shares of the system.

Question: 4. What opportunities does the MPO offer for one or more public hearings during the TIP development process?

Response: In general, MAG's Public Participation Plan is a response to requirements included in federal legislation and is divided into four phases: Early Phase, Mid-Phase, Final Phase, and Continuous Involvement. The Early Phase meetings ensure early involvement of the public in the development of the transportation plans and programs. The Mid-Phase process provides for input on initial draft plan analysis for the RTP and the TIP. Continuous Involvement occurs during the development and modifications to the TIP at the technical committees and through the approval process committees including the Regional Council. The Final Phase public hearing provides opportunities for the public to review and comment on the TIP and Plan prior to final approval.

Question: 5. How does the MPO ensure priority programming and expeditious implementation of Transportation Control Measures from the State Implementation Plan?

Response: For key Transportation Control Measures, such as the Maricopa County Trip Reduction Program and Valley Metro/RPTA Regional Rideshare and Telework Program, MAG ensures priority programming and expeditious implementation through Congestion Mitigation and Air Quality Improvement (CMAQ) Program funding that is allocated in the Regional Transportation Plan for air quality projects. The committed measures are implemented by the respective agencies. The Maricopa County Air Quality Department is responsible for tracking the implementation of the air quality measures in the applicable air quality plans, in accordance with the Air Quality Memorandum of Agreement. In addition, during the priority programming process, projects that support Transportation Control Measures or other air quality measures are identified.

The conformity analysis report provides a summary of the projects and programs from the TIP that implement Transportation Control Measures and other air quality measures. As an example, for Transportation Demand Management projects in the FY 2011-2015 MAG Transportation Improvement Program, the total level of funding for Areawide Ridesharing, Travel Reduction, Education and Outreach Programs, and Vanpools is \$14.4 million.

For each update of the TIP and Regional Transportation Plan, MAG prepares an update of the current implementation status of Transportation Control Measures identified in applicable regional air quality plans. The update of the status of Transportation Control Measures is found in the conformity analysis report, which accompanies the approved TIP. According to a review of Transportation Control Measures for the MAG region, the agencies with Transportation Control

Measure commitments in applicable air quality plans have reported that all Transportation Control Measures in the applicable air quality plans are on schedule and there are no obstacles to implementation of the Transportation Control Measures. Many of the Transportation Control Measures in the plans were implemented in the short term, some have been fully implemented, and others are ongoing.

In addition, the Paving of Unpaved Roads, Shoulders, and Alleys and PM-10 Efficient Street Sweeper projects are in applicable air quality plans and are funded at an overall level of \$45.7 million in the FY 2011-2015 MAG Transportation Improvement Program. However, it should be noted that not all of the projects listed in the conformity analysis report correspond to specific implementation commitments, since additional Transportation Control Measures implementation takes place above and beyond the State Implementation Plan committed levels.

Question: 6. Does the TIP describe progress in implementing required Transportation Control Measures?

Response: The EPA regulations in 40 CFR 93.113 indicate that the transportation plan, TIP, or any FHWA/FTA project that is not from a conforming plan and TIP must provide for the timely implementation of Transportation Control Measures from the applicable air quality plans. Nothing in the TIP may interfere with the implementation of any Transportation Control Measure in the applicable implementation plan.

For the Maricopa County region, the applicable air quality plans are the Revised MAG 1999 Serious Area Particulate Plan for PM-10, the Revised MAG 1999 Serious Area Carbon Monoxide Plan, the MAG 2003 Carbon Monoxide Redesignation Request and Maintenance Plan, the MAG 2004 One-Hour Ozone Redesignation Request and Maintenance Plan, and the MAG 2007 Eight-Hour Ozone Plan.

MAG is currently underway with an update of the TIP and Regional Transportation Plan. The FY 2014-2018 MAG Transportation Improvement Program and 2035 Regional Transportation Plan, as well as the corresponding conformity analysis, will be submitted for approval by the MAG Regional Council in January 2014. MAG is preparing an update of the current implementation status of Transportation Control Measures identified in applicable regional air quality plans. The update of the current status of Transportation Control Measures will be in the conformity analysis report, which accompanies the TIP. According to a review of Transportation Control Measures for the MAG region, MAG estimates that all Transportation Control Measures in the applicable air quality plans are on schedule and there are no obstacles to implementation of the Transportation Control Measures. Many of the Transportation Control Measures in the plans were implemented in the short term, some have been fully implemented, and others are ongoing.

PROJECT SELECTION:

Question: 1. Have expedited project selection procedures been jointly developed by MAG, the state, and transit operators to provide for the advancement of projects from the second or third year of the TIP? (Please provide a copy).

Response: MAG has developed two procedural documents: Regional Programming Guidelines for Federal Transit Formula Funds and the MAG Federal Fund Programming Guidelines & Procedures. Both outline the programming efforts for the TIP and do include project advancement options, (See Section 700 in the MAG Federal Fund Programming Guidelines). Please note though, that even though the policy is in place, there are significant challenges in implementations.

1. ADOT capacity to handle more local government projects that are not programmed for construction in the current year: ADOT is focused on obligating projects from both the statewide program and local programs in the current year, therefore, adding projects through the local government project development process that are scheduled to obligate at a later time is not encouraged by ADOT. The agencies that are certified to self-administer are more successful in developing projects beyond the fiscal year.
2. Local government capacity: The capacity at local governments to begin project development earlier than programmed is also a struggle due to staff and fiscal capacity.
3. Timely obligation reports from ADOT to MAG: ADOT has not been consistent with project obligation reports to MAG, which leaves little or no room to advance projects. For example, MAG was recently notified in early September 2013 of \$12 million of unobligated funds that we were requested by ADOT to obligate in a matter of weeks.

Question: 2. Has MAG developed project selection criteria that will allow it to take advantage of the expedited procedures to advance projects from the third or fourth year of the TIP? (Please provide a copy).

Response: The project selection criteria for advancing projects from a later year in the TIP mainly rely on eligibility, project readiness, and available revenue, and policy and procedure direction from the Freeway, Arterial, or Transit Life Cycles Programs or the MAG Federal Fund Programming Principles. (See Appendices D through G).

Question: 3. How does MAG consult with the state and transit operators in selecting projects for the TIP?

Response: MAG relies on its member agencies, transit operators, and committees to evaluate the Transit Program of Projects (POP) and to competitively select local federal aid projects on an annual basis. Additionally, MAG works with its transit operators on a monthly basis through the MAG Transit Committee, which uses the Transit Service Inventory report, the Transit Life Cycle Program, and the Regional Programming Guidelines for Federal Transit Formula Funds to select projects for the TIP. Specifically, ADOT and other state agencies are involved in programming projects for the TIP as they have a seat at on a wide range of committees: MAG Transportation Safety Committee, MAG Transit Committee, MAG Bicycle and Pedestrian Committee, MAG Streets Committee, MAG Intelligent Transportation Systems Committee, MAG Transportation Review Committee, MAG Air Quality Technical Advisory Committee, and the MAG

Management Committee. In addition, State Transportation Board members sit on the MAG Regional Council and Transportation Policy Committee. Also, in managing the freeway life cycle program, staff is in constant contact with ADOT and uses the state's five year plan as the main guidance to program freeway projects.

REGIONAL TRANSPORTATION PLAN

Question: 1. In developing the current RTP, did MAG prepare a discussion of environmental mitigation activities, and potential areas to carry out the activities, in consultation with Federal, State and Tribal wildlife, land management and regulatory agencies? If yes, provide a brief description.

Response: In developing the current Regional Transportation Plan (RTP), a discussion of environmental mitigation and resource conservation issues and opportunities was prepared and included in the RTP. A broad range of Federal, State, and Tribal agencies that specifically address environmental, wildlife, land management and regulatory matters was consulted regarding potential environmental mitigation activities that may have the greatest potential to address the environmental functions affected by the RTP. The consultation process includes one-on-one discussions and periodic workshops with these environmental and resource conservation agencies. Workshops were held in: FY 2007, FY 2008, FY 2009, FY 2010 and FY 2013.

The transportation planning process and its future environmental implications were discussed, and concepts for potential environmental mitigation activities were identified. Since previously adopted projects in the RTP undergo extensive environmental and resource assessment by the implementing agencies through the National Environmental Policy Act process, the primary goal of the consultation effort was to gain insights regarding issues that may potentially involve future planning efforts and future RTP elements. This approach avoided duplicating work efforts and burdening environmental, resource and regulatory agencies with multiple requests for the same information. The consultation process yielded mitigation issues and concepts in four major areas: air quality, water quality, noise and habitat. A detailed discussion of these areas was included in the RTP.

Question: 2. In developing the current RTP, did MAG consult with State and Local Agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation?

- **If yes, did the consultation involve the comparison of transportation plan to State conservation plans/ maps and inventories of natural/historic resources?**
- **Please provide a brief description of the consultation effort.**

Response: In developing the current Regional Transportation Plan (RTP), State, Local, and Tribal agencies were consulted regarding transportation planning issues affecting land use management, natural resources, environmental protection, conservation and historic preservation. These discussions also included the identification of conservation maps, inventories of natural or historic resources, and other information sources to utilize in the regional transportation planning process. Similar to the environmental mitigation discussions, this consultation effort was aimed primarily at identifying resource and conservation concerns that address future planning efforts and future RTP elements. The consultation process yielded mitigation issues and concepts in four major areas: cultural resources, natural resources, and land use patterns. A detailed discussion of these areas was included in the RTP.

The MAG long range transportation planning process is structured to make planning decisions and prepare planning products that are sensitive to environmental mitigation and resource conservation considerations. A key step in this process is the involvement of environmental and resource agencies in MAG transportation framework studies. One of the major steps in the transportation framework study process covers the inventory of environmental and resource factors. Environmental and resource agencies are solicited for input early in the process, so that data on existing conditions can be assembled thoroughly and accurately. This includes the comparison of transportation planning alternatives to state conservation plans/maps and inventories of natural/historic resources. During the consultation process, an emphasis is placed on identifying and avoiding known environmental issues at the level of planning contained in the RTP.

In addition to data collection, the framework process includes the identification of potential environmental, cultural and natural resource issues affecting the area or corridor under study. The information on existing conditions and potential issues provides one of the key inputs for identification of alternatives. Once alternatives have been identified, environmental and resource data and issues identified in the inventory phase are utilized as input for the development of evaluation criteria and the assessment of alternatives. This evaluation process provides valuable information on possible environmental and resource impacts and helps identify mitigation and/or avoidance considerations connected with potential future decisions on proposed new transportation corridors or improvements to existing facilities.

Question: 3. Does MAG have a documented process(es) that outlines roles, responsibilities, and key decision points for consulting with Indian Tribal governments and Federal Land Management Agencies in the development of the Long-range Transportation Plan?

Response: The continuing involvement of environmental and resource agencies is pursued throughout the MAG transportation planning process, and documented in the Regional Transportation Plan. A broad range of agencies is a part of this process, including Indian Tribal governments and Federal Land management agencies, as well as state land management agencies. This participation is aimed at early input so that environmental mitigation and resource conservation considerations are taken into account at all key stages of the technical planning effort, as well as the decision-making process on proposed plans and programs. The approach to the consultation process includes two major elements: (1) consultation in the transportation framework study process, and (2) consultation on the Regional Transportation Plan.

Consultation in the transportation framework study process includes involvement of environmental, resource, and regulatory agencies in the inventory of environmental and resource factors. Agencies are solicited for input early and often in the framework study process, so that data on existing conditions can be assembled thoroughly and accurately. In addition to data collection, the framework process includes consultation on potential environmental, cultural and natural resource issues affecting the area or corridor under study. The information on existing conditions and potential issues is a major input for identification and evaluation of alternatives. This early involvement provides valuable information on possible environmental and resource impacts and helps identify mitigation and/or avoidance considerations connected with potential future decisions on proposed new transportation corridors or improvements to existing facilities.

Consultation on the Regional Transportation Plan includes three types of activities: agency workshops, individual agency meetings, and participation in the MAG public involvement process.

- **Agency Workshops** - The consultation effort includes workshops held for the agencies involved in environmental and resource issues in the MAG region. The purpose of the workshops is to receive input from the environmental and resource agencies regarding the application of environmental mitigation and resource conservation concepts in the transportation planning process. Workshops have been held in FY 2007, FY 2008, FY 2009, FY 2010, and FY 2013.
- **Individual Agency Meetings** - In addition to the workshops, separate meetings with individual agencies to discuss resource conservation and environmental mitigation issues are held, as appropriate. These meetings provide the opportunity to have detailed discussions on concerns and issues, as well as identify available data and information resources in depth.
- **MAG Public Involvement Process** - As part of the overall consultation process, the environmental and resource agencies are included in the MAG public involvement process. The MAG public involvement process is divided into four phases: Early Phase, Mid-Phase, Final Phase, and Continuous Involvement.

Question: 4. Briefly describe how the MAG RTP development process will prepare and document system level estimates of costs and revenues to adequately operate and maintain Federal-aid highways and public transportation service.

Response: The chapters in the RTP on the freeway system and the arterial street system include discussions of system operation, maintenance and preservation. Costs for these functions are developed using per-mile rates by facility-type. These rates are applied to future plan networks to develop long-range cost estimates in terms of Year of Expenditure (YOE) dollars, taking into account the estimated mileage added incrementally to the system and future price inflation rates. Similarly, future transit system operating costs are estimated based on unit operating costs and the service levels included in the RTP, taking into account the growth in service provided during the life of the RTP and future price inflation rates.

Revenues from reasonably available revenue sources are estimated in YOE dollars by mode for the planning period of the RTP. The costs associated with operation, maintenance and preservation are taken into account as part of the long range assessment of funding and expenditures for each mode, which is included in the RTP.

Question: 5. Briefly explain how MAG ensures that project cost estimates in the Transportation Plan are regularly updated and reflect the latest available information.

Response: The RTP utilizes the life cycle programs that are maintained for the major transportation modes, as a key input to the planning process. These life cycle programs are developed by the ADOT, the RPTA, and MAG, respectively, for the freeway/highway system,

public transit system, and arterial street system. The programs meet the requirements of Arizona state legislation calling for the agencies to conduct a budget process that ensures that the estimated cost of planned improvements does not exceed the total amount of revenues available for those improvements. Cost estimates in the life cycle programs are generally updated annually.

The life cycle programs provide a comprehensive yearly listing of projects, including their costs and implementation schedules. In addition to providing a source of updated cost estimates, they represent an invaluable tool for monitoring construction progress on individual projects and assessing the financial status of the programs as a whole. The life cycle programs provide a benchmark for the decision-making process regarding alterations to project scopes, adjustments to construction schedules, and changes to plan and program priorities.

In addition, as part of the RTP update process, program costs not covered by the life cycle programs are also updated to reflect estimated future expansion of the freeway, highway, arterial, and transit networks and inflation.

Question: 6. Does the planning process consider and develop strategies, costs and resources for capital and operations investments to preserve the existing transportation system? Briefly explain.

Response: The RTP process recognizes the high importance of maintaining the regional transportation infrastructure. The RTP identifies maintenance as a critical Plan element, with the following objective: “To provide for the continuing preservation and maintenance needs of transportation facilities and services in the region, eliminating maintenance backlogs.” The recognition of the importance of preservation is reflected by the allocation of major blocks of regional-level funding in the RTP to improving the existing roadway network, and conducting various aspects of the maintenance function, which includes litter pick-up, landscape maintenance, and rubberized asphalt overlays.

In addition, the chapters in the RTP on the freeway system and the arterial street system include discussions of system operation, maintenance and preservation. Similarly, the RTP chapter on public transportation includes estimates of long range operating costs for each transit mode, including maintenance facility requirements. The costs associated with these elements are taken into account as part of the long range assessment of funding and expenditures for each mode, which is included in the RTP.

AGREEMENTS AND CONTRACTS

Question: 1. What interagency agreements and contracts exist between the MPO, State DOT, and transit operators, and are such agreements and contracts current? Have there been any changes to the interagency agreements and contracts since the previous planning review? Please include all current agreements and contracts with your response packet.

Response: A number of interagency agreements exist between MAG and ADOT and the transit operators, Valley Metro Rail (METRO) and the Regional Planning Transportation Authority (RPTA).

The agreement between MAG and ADOT is current. This agreement was substantively changed beginning in FY 2012. The agreement is updated annually through an amendment and a new agreement will be executed every five years. (A copy of this agreement is included in Appendix H MAG ADOT JPA, Appendix I (Amendment One) and Appendix J (Amendment Two)).

There are two current interagency agreements in place between MAG and RPTA. The agreements are for Transit Support Services and Regional Rideshare and Telework. In FY 2011, the Regional Rideshare and Telework and Outreach programs were combined to form the Regional Rideshare and Telework Program. These agreements are updated and described in the MAG Unified Planning Work Program annually and have been ongoing for a number of years. There have been no substantive changes to the scope of work in the agreements since the previous planning review. (Copies of the most current agreements are included in Appendix K Transit Support Services and Appendix L RPTA Agreement (most current amendment)).

An agreement with Valley Metro Rail was first executed in 2005 for Light Rail Transit Planning Services. This agreement has been updated annually and described in the MAG UPWP since the inception of the agreement. There have been no substantive changes to the scope of work in the agreement during this time. (A copy of the most current agreement is included in Appendix M MAG/VMR Agreement Light Rail Transit Planning Services).

Question: 2. Are there agreements between MAG and the transit operators that specify cooperative procedures for carrying out transportation planning, including corridor and sub-area planning studies?

Response: There is a MOU between transit operators, including Valley Metro Rail, RPTA, City of Phoenix (as the Designated Recipient for federal transit funds) and MAG, in place for transportation planning. This resolution was executed in 2010 and is included as part of the UPWP since that time. This resolution was updated from the original document in 2007. (A copy of this resolution is included in Appendix N Transit Operators/MAG Agreement). MAG and its partners are currently revising the agreement to include changes related to MAP-21 and revisions to further clarify roles and responsibilities.

Question: 3. Has MAG set up any alternative procedures for agreements such as a single cooperative agreement with the State, transit operators, and the air quality

agency; or have they included all of the subject roles, responsibilities, and cooperative actions in the prospectus of their Overall Work Program?

Response: Initially, a working group composed of staff from MAG, RPTA and Valley Metro Rail to review the responsibilities and identify alternative ways to organize transit programming activities. An initial agreement among the operators and MAG was put in place in FY 2007. Staff from the City of Phoenix joined the working group later due to the City's role as the designated grant recipient for federal transit funds.

On April 17, 2009, the annual Intermodal Planning Group (IPG) meeting was held for the federal review of the work activities of MAG, RPTA and Valley Metro Rail. Representatives from FHWA, FTA, the EPA, and ADOT participated in the session. During the meeting, the FTA representative stated that MAG could not delegate its transit programming responsibilities. The FTA notified MAG that the programming responsibilities needed to be clarified in a new Memorandum of Understanding (MOU).

During FY 2010, a staff Working Group that included representatives from MAG, the City of Phoenix, RPTA, and METRO undertook the examination of the regional transit programming and planning roles performed by the four agencies. This examination was undertaken to achieve the following objectives:

1. Provide better integration of all modes of travel in the Regional Transportation Plan (RTP).
2. Continue development of a transit program that reflects regional priorities identified in the RTP.
3. Ensure that MAG is meeting its responsibilities under federal and state law to develop an integrated long range transportation plan; develop and administer the Transportation Improvement Program; develop and execute the annual Unified Planning Work Program; and provide administrative oversight of the utilization of Proposition 400 funds.
4. Clarify roles and responsibilities among the four agencies to reduce duplication and to ensure a more efficient and integrated planning process.

The Working Group reached a consensus on several issues. Four of the Working Group recommendations further clarify the coordination of ongoing transit planning as outlined here:

1. MAG is responsible for transit system planning activities for the region, including the transit component of the Regional Transportation Plan, transit corridor studies (prior to the identification of project funding), transit system studies and subregional studies. In some instances, MAG may determine to have a transit operator conduct a specific subregional or corridor study.
2. For projects that require a federal Alternatives Analysis (AA) process, MAG, in cooperation with the affected agencies/jurisdiction(s), shall determine the appropriate agency to conduct and manage the AA. The Locally Preferred Alternative (LPA) resulting from the AA will be reviewed and approved through the MAG committee process, with final approval of the LPA by the MAG Regional Council for inclusion in

and conformity with the Regional Transportation Plan. To ensure continuity in the planning process, RPTA and METRO will provide periodic updates to the MAG Transit Committee on federal Alternatives Analysis projects. Draft Design Concept Reports (DCR) and other major project scoping documents will be reviewed and approved for concurrence through the MAG committee process, in addition to any other agency approvals. MAG will join the operating agency and affected jurisdictions as a member of the Project Management Team for project planning studies, and MAG will provide oversight and quality control over the use of the MAG Travel Demand Model.

3. Regional sustainability issues should be coordinated at MAG, and project/facility specific sustainability initiatives, in connection with the federal application process, should be coordinated by METRO and RPTA in conjunction with the local jurisdiction(s).
4. Regional Transit Oriented Development planning issues should be coordinated at MAG, and project/facility specific Transit Oriented Development initiatives, in connection with the federal application process, should be coordinated by METRO and RPTA in conjunction with the local jurisdiction(s).

A new agreement replacing the 2007 agreement among the Maricopa Association of Governments, the Regional Public Transportation Authority, Valley Metro Rail, and the City of Phoenix and the transit operators in the MAG region represented on the MAG Regional Council regarding transit planning, programming and fund allocation, was executed on April 6, 2010.

Question: 4. Are there any problems with the contents of the agreements that would require updating?

Response: MAG, RPTA, METRO Rail, and City of Phoenix executed a Memorandum of Understanding (MOU) on regional transit planning, programming, and fund allocation on April 6, 2010. This MOU outlines coordination on regional transit planning, high capacity corridor planning, the transportation improvement program (TIP) programming process, grant application responsibilities, and representation on the MAG Transit Committee.

As the new federal transportation authorization, Moving Ahead for Progress in the Twenty First Century (MAP-21) puts a greater emphasis on performance measurement and targets for long range planning and short range implementation, Valley Metro, MAG and the City of Phoenix are currently updating the regional transit planning, programming, and fund allocation MOU. We expect that a new regional transit planning MOU will be completed and signed by the first of the year when final guidance regarding transit asset management and regional transit safety plans are finalized. (See Appendix O Transit Memorandum of Understanding).

PROGRAM DELIVERY/PROJECT MONITORING AND LIST OF OBLIGATED PROJECTS

Please discuss MAG's project monitoring system and the overall program delivery of the previous TIP. Please address the following questions in the discussion:

Question: 1. How does MAG monitor the TIP to assure timely authorization and completion of projects?

Response: For the past eight years, MAG has worked with MAG member agencies on project development status through its annual collection of project information through the TIP Data Entry System. A component of this project information is the status of the project, i.e., if it is completed, underway, deleted, advanced, deferred, or there was no change to the project schedule. This information is reported in the Project Listing section of the MAG TIP. Also, MAG consults regularly with ADOT, RPTA, and Valley Metro Rail regarding the status of improvement projects and potential implementation issues. An ad hoc group of planning agencies meets at least quarterly to facilitate timely completion of projects. During the fourth quarter, MAG and ADOT meet and coordinate weekly or as needed to ensure that projects meet their target authorization.

In addition, local projects programmed to receive federal funds are monitored closely with bi-annual status reports and additional programming guidelines that address project completion issues. MAG has worked cooperatively with MAG member agencies to establish Programming Guidelines that address guiding principles, application process, competitive project selection process for MAG federal funds, programmed federal fund projects, annual year end closeout process, and re-distributed obligation authority. MAG works with the ADOT Local Government Section and MAG member agencies to obtain the most current and accurate information for the bi-annual status reports of local projects programmed with federal funds. In addition, ADOT has created a public website which reports on project development status on all local projects programmed with CMAQ and Surface Transportation Program funds in the MAG region. The website is:

<http://azdot.gov/about/FinancialManagementServices/transportation-funding/federal-aid-highway-program>

This site provides the public and local government staff with information on the authorization of MAG federally funded projects in the state and in the MAG region. MAG is scheduled to receive monthly obligation reports from the ADOT Financial/Planning section, which currently MAG receives at least quarterly; inclusion of TIP number and accuracy of the project information are improving. As a result, MAG crosschecks historic reports and relies on information from local agencies and the ADOT Local Government Section to determine project obligation/authorization.

Question: 2. What process is used to ensure that projects utilize Federal funds for the year for which they are programmed? Over the past three years, what percentage of projects in the TIP actually advanced to construction?

Response: MAG uses the status reports as mentioned above, the ADOT COG-LOG and the Programming Guidelines, to encourage and ensure projects utilize federal funds in the year in which they are programmed. As part of this effort, ADOT and MAG report on obligated projects.

The ADOT Local Government Section also provides bid schedules for locally sponsored federal fund projects. Over the past three years, 55.4 percent of CMAQ projects authorized on time without deferrals, 38.1 percent deferred one or more years, and 6.5 percent of the projects advanced one or more years. Our lifecycle projects are allowed to defer multiple times.

Question: 3. Are project status reports produced? If so, how often? Are such reports provided to project sponsors, FHWA, FTA, ADOT?

- **Optional - What are the primary causes of project delivery delays?**
- **Optional - How has MAG addressed these delays?**
- **Optional - How can FHWA, FTA, and ADOT assist MAG (and local agencies) in addressing project delays?**
- **Optional - Did MAG experience any significant delays in the planned implementation of major projects from the previous TIP? Please provide a list of projects that were not implemented and discuss causes of the delays.**

Response: The project status reports are developed bi-annually, and are shared with a minimum of three MAG Committees: the MAG Street Committee, Transportation Review Committee, and MAG Management Committee, with Regional Council for final approval. MAG member agencies, including ADOT, are members of these committees. MAG also directly emails the status report to the local governments' office. The status of the projects from these reports is included in the TIP database and, as the E-STIP is developed at ADOT, the information will be electronically transmitted and shared.

- **Optional - What are the primary causes of project delivery delays?**

Response: From working with the Arizona Department of Transportation (ADOT) and local sponsors of highway federal fund projects on a continuous basis, the primary causes of delay seem to be:

- Local sponsors under-estimating the time needed for project development, resulting in causing a project not obligating in the year it was programmed to obligate.
- Unavailability of funding for local cost commitments associated with the project.
- Adequate staff available for project development at local sponsor agencies.
- Unpredictable times for project review at ADOT during 'crunch time' that occurs at the end of the State Fiscal Year for Federal Fiscal year close.
- Different ADOT sections providing inconsistent and untimely comments about project development milestones. For example, as projects entering Plans Specifications and Estimates approval, one of the last steps prior to obligation, ADOT staff provides

comments to the local agency regarding the design and scope of the project, which should have been provided at 30 percent or 60 percent design stages.

- Incomplete or untimely financial/obligation reports from ADOT to MAG.
- **Optional - How has MAG addressed these delays?**

Response: MAG works continuously and cooperatively with the ADOT Local Governments Section and MAG member agencies for project obligations. MAG has worked with its member agencies through working groups and the MAG committee process to develop the MAG Federal Fund Programming Principles.

- The MAG Federal Fund Programming Guidelines and Procedures provide guidance related to programming concepts, the application process, competitive project selection process for MAG federal funds, programmed federal fund projects, the MAG closeout process, and re-distributed obligation authority. These Programming Principles were conceived from initial guidance that was approved in the mid 1990's, and expanded to include items related to project changes, deferrals of projects, financial commitment, and project prioritization. The primary objective of the Work Group was to explore ways that MAG can improve the programming process to reduce the number of projects that have to be deferred from one fiscal year to another. In July 2009, the MAG Management Committee established the Federal Fund Work Group that reviewed and updated the MAG policies and processes related to federally funded local projects the Regional Council approved October 2011.
- The Federal Fund Status Reports, which are a requirement included in the MAG Federal Fund Programming Guidelines and Procedures, are presented through the MAG committee process and give agencies a quick reference to review milestone status of their projects.
- During the open "Call For Projects," MAG includes a detailed scheduling template for agencies to complete when submitting their project applications. During the review of applications, modal committees are encouraged to evaluate and comment on the project schedules submitted. Often applicant agencies will reevaluate and modify their work schedules based on comments received.
- ADOT and MAG jointly set an obligation deadline of June 30 each year for projects to be submitted to ADOT for federal authorization. Agencies have been cognizant of the deadline and their project submissions to ADOT have vastly improved to meet the established deadline. However, this June 30 deadline creates a large number of projects being submitted to ADOT during the month of June, and does not allow sufficient time for ADOT staff to review, adjust funding, and authorize projects by the Federal Fiscal Year deadlines. With the implementation of ADOT's 'Use or Lose' obligation authority policy, ADOT cannot respond to the vast amount of projects submitted, evaluate and notify the MPO/COGs of funding adjustments or reprogramming that is needed by the deadline. This is considered the most critical of outstanding issues that requires a solution.

- Funding availability for local cost commitments associated with the project is being addressed by MAG which requires local agencies to provide commitment letters to be signed by the City/Town/County Manager or their designee that ensures local staff and funding to complete the project are available and committed. These project commitment letters are required at MAG, six months prior to the project's authorization year.
- **Optional - How can FHWA, FTA, and ADOT assist MAG (and local agencies) in addressing project delays?**

Response: Assistance can be provided by working cooperatively and openly to address the above mentioned primary causes of project delivery delays, with action items and deliverables. Generating a jointly acceptable project submittal, review and authorization schedule would greatly improve the project authorizations. A suggestion for addressing the large burden on ADOT where the majority of the projects are being submitted in the last month of the state fiscal year would be to provide an incentive or financial advantage to local public agencies to submit projects prior to the last month for ADOT review and authorization. A discount on their review fee may motivate several agencies to advance their schedules.

- **Optional - Did MAG experience any significant delays in the planned implementation of major projects from the previous TIP? Please provide a list of projects that were not implemented and discuss causes of the delays.**

Response: The project status reports that are published bi-annually, and are shared with a minimum of three MAG committees: the MAG Street Committee, Transportation Review Committee, and MAG Management Committee, have vastly improved project delivery times of the federally funded CMAQ projects.

For the past eight years, MAG staff have worked with MAG member agencies on project development status through its annual collection of project information in the TIP Data Entry System. A component of this project information is the status of the project, i.e., if it is completed, underway, deleted, advanced, deferred, or there was no change to the project schedule. This information is reported in the Project Listing section of the MAG TIP.

The Project Listing section that reports on the completed and underway projects includes projects funded with local, regional, state, and federal funds for all modes of transportation, including pedestrian and bicycle facilities. The completed and underway projects include federally funded projects that have obligated.

Due to the economic downturn, and to the rebalancing of the Life Cycle Programs, several projects have not been able to advance and some have deferred by one to two years.

LIST OF OBLIGATED PROJECTS

Question: 4. Does the listing identify pedestrian walkways and bicycle transportation facilities?

Response: In conjunction with the TIP Program of Projects, a CMAQ Annual Report is generated on an annual basis that documents the CMAQ funded projects in the MAG region that obligated in the previous year. This includes pedestrian and bicycle projects that are funded with CMAQ funds. The CMAQ Annual Report is presented and reported on at the MAG Air Quality Technical Advisory Committee meetings with information provided to the Arizona Department of Transportation and the Federal Highway Administration. The MAG Air Quality Technical Advisory Committee meetings are open to the public.

Question: 5. How is the Annual Listing of Obligated Projects made available to the public?

Response: As mentioned in the Transportation Improvement Program and Project Selection section of this report, the TIP, which includes a list of completed and underway projects, is developed, consulted on, and approved through a public process involving the MAG committee process and the approved Public Participation Plan. The completed and underway projects reported in the TIP Listing of Projects include federally funded projects that have obligated.

The Public Participation Plan delineates a process for receiving input on obligated projects via a Mid-Phase Public Hearing that, at times, includes representatives from all or several of the following agencies: ADOT (and members of the State Transportation Board), Valley Metro/RPTA, City of Phoenix/Department of Public Transit and the Citizens Transportation Oversight Committee. It is important to note that, in recent years, this process has changed as planning cycles have changed and has not taken place exactly as spelled out in the Public Participation Plan. However, during a typical planning cycle, the Draft TIP, Draft State Highway Program, and Draft RTP Plan Update are presented for input at the public hearing. At the hearing, comments are received and written responses are provided and included in a Mid-Phase Input Opportunity Report, which is then presented to MAG policy committees for review and consideration. The plan also includes a Final Phase Public Hearing for MAG on the Final Draft TIP, Draft RTP Update, and Draft Air Quality Conformity Analysis. The TIP report that is included in the public participation process includes a listing of completed and underway (obligated) projects in the region.

The CMAQ Annual Report is presented and reported on at the MAG Air Quality Technical Advisory Committee meetings with information provided to the Arizona Department of Transportation and the Federal Highway Administration. The MAG Air Quality Technical Advisory Committee meetings are open to the public.

PUBLIC PARTICIPATION PLAN

Section 450.316(a) of the metropolitan planning regulations requires that the metropolitan planning process include a public participation plan that is created in consultation with interested parties and provides complete information, timely public notice and full public access to key decisions; and to support early and continuing public involvement in developing plans and TIPs.

Question: 1. Has MAG completed its Public Participation Plan in consultation with all interested parties? (Please include a copy).

Response: The MAG Regional Council adopted its Public Participation Plan in December, 2006. (See Appendix P-Public Participation Plan). Prior to its adoption, MAG made the plan available for 45 days for review and distributed the plan to all interested parties (as defined in SAFETEA-LU regulations). MAG also held a stakeholders meeting where the plan was also presented and discussed by representatives from interested parties, including the general public, member agencies, freight, and transit interests. All comments made during the 45-day review were forwarded to policymakers where they were considered prior to adoption of the plan. Due to changes in the planning cycle, MAG is currently evaluating its public involvement process and plan. Changes will be considered after a 45-day review as mandated by federal regulations. MAG seeks to have a new formally adopted process and participation plan in place by the middle part of 2014.

Question: 2. How does MAG employ visualization techniques in the development of its metropolitan transportation plan and TIP?

Response: With the help of its communications, graphics, web and information services staff, MAG utilizes many innovative techniques to help residents better understand what transportation investments are included in its transportation plans and programs. Examples include project specific maps and graphs, digital photography, high resolution graphic displays, Geographical Information Systems, map overlays, PowerPoint presentations, aerial photography, photo simulations, technical drawings, charts and graphs. Alternative scenarios, including visual depictions of scenarios, are presented to demonstrate differences among solutions or approaches. All of these techniques and applications are used as part of the public involvement process for the TIP and Plan updates at input opportunities such as large special events, small and large group presentations, neighborhood meetings/presentations, videoconferencing and one-on-one meetings. In addition, MAG also utilizes its Video Outreach Program to provide frequent videos containing important information to the public about MAG plans and programs. These videos, which include transportation, air quality, human services and other topics, are uploaded to the MAG website, to YouTube, and distributed to all local government access channels (Channels 11). Videos air repeatedly on every city cable channel and provide another way of communicating with Valley residents.

Visualization techniques in public involvement planning are essential to assisting public understanding of transportation plans and programs. The MAG Public Participation Plan was cited as a notable practice in the Federal Highway Administration's *Public Involvement/Public Participation Transportation Planning Process Resource Guide*. In the category of *Public Participation Plans (PPPs) and Notable Elements*, MAG's description of its utilization of

visualization techniques in its PPP was used as an example of how to include these techniques in a public involvement plan and program.

Question: 3. For the RTP and TIP, how did MAG seek out and consider the needs of those traditionally underserved by the existing transportation systems, including, but not limited to low-income and minority households? What issues were raised and how are their concerns documented? In what instances have comments raised during consultation resulted in changes to policy, plans, programs or projects? How does MAG respond to comments when they do not result in a change? Please discuss and provide documentation on specific initiatives or activities undertaken by MAG to these groups in the TIP development process.

Response: Several public input opportunities have occurred in conjunction with the preparation of the Draft 2035 RTP, as well as the Draft MAG FY 2014-2018 Transportation Improvement Program.

Input was received throughout the Early Phase input opportunity conducted from August 2012 through September 2012, which provided an initial opportunity for input on a draft listing of projects that will eventually make up the Draft FY 2014-2018 Transportation Improvement Program (TIP) and draft update to the Regional Transportation Plan. MAG also received public comment at all MAG policy committees during the phase. In addition, MAG received comment via telephone and online correspondence. All input received throughout the Early Phase was included in the FY 2013 Early Phase Input Opportunity Report, which was presented to the MAG Management Committee, MAG Transportation Policy Committee and MAG Regional Council in November 2012. All meetings were noticed with some combination of display advertisements, targeted mailing, public notice, press release, Web posting and/or announcements at MAG policy committee meetings. (See Appendix Q for sample of press releases and media relations).

Input was also received through the Mid-Phase input opportunity conducted during September 2013, which provided the opportunity for input on the Draft MAG FY 2014-2018 Transportation Improvement Program (Listing of Projects) and the Draft MAG 2035 Regional Transportation Plan. MAG received public comment at all MAG policy committees during the phase and at a Mid-Phase Public Meeting held at 5:00 p.m. on September 19, 2013. In addition, MAG received comment via telephone and online correspondence. Input received throughout the Mid-Phase input opportunity will be included in the FY 2014 Mid-Phase Input Opportunity Report, which was/ will be presented to the MAG Management Committee, MAG Transportation Policy Committee and MAG Regional Council in October 2013. All meetings were noticed with some combination of display advertisements, targeted mailing, public notice, press release, Web posting and/or announcements at MAG policy committee meeting. Input received during the Final Phase Input Opportunity was/will be included in a Final Phase Input Opportunity Report. This report will be provided to MAG Management Committee, MAG Transportation Policy Committee and MAG Regional Council in January 2014. All meetings will be noticed with some combination of display advertisements, targeted mailing, public notice, press release, Web posting and/or announcements at MAG policy committee meetings.

In an effort to make information delivery faster, MAG utilizes an e-mail notification system that makes it easier for the public to receive documents such as meeting notifications, agendas, minutes and reports. Through a free subscription service called GovDelivery, users can subscribe to pages that contain information and documents for which they have the highest interest. The service monitors specific Web pages for changes, and when a change is detected, the service sends an e-mail to subscribers notifying them of the updated information available. There are about 150 monitored pages on the MAG website. To aid access to MAG websites by the visually impaired, all photos and illustrative graphics are accompanied by a descriptive caption, through the use of the alternate text (alt text) attribute. A visually impaired reader, who is using a screen reader, will hear the alt text in place of the image. MAG has a goal of meeting as many of the techniques recommended by the Web Accessibility Initiative as possible that are applicable to our websites.

After each key public involvement phase, MAG produced a report containing an extensive summary of input received during the phase. This report was delivered to the MAG Management Committee, Transportation Policy Committee and Regional Council for review and consideration prior to action. During the Mid and Final phases, a public meeting/hearing is typically conducted and a court reporter is retained. Comments and suggestions received at the meeting are taken verbatim, when possible. MAG produces a formal “response to comments” section that is made part of the Mid-Phase and Final Phase reports, and the public meeting/hearing transcript is also included, when possible. A sample of events/meetings conducted during the update cycle where input was received included staffed booths at the Martin Luther King, Jr. Day celebration, Arizona Disability Expo, National Federation of the Blind of Arizona Statewide Conference, EarthFest, Scottsdale Area Realtors Association Expo, Tempe Tardeada (city of Tempe’s salute to Hispanic heritage), Annual American Indian Pow Wow (cultural and informational event), Touchstone Behavioral Health Community Fair, Safety Days at the Arizona State Fair, and the Governor’s Council on Developmental Disabilities Day at the Legislature, among others.

Since the RTP included modal splits, it is important to note that the bulk of MAG's public involvement for the RTP, and consequently the TIP, was completed prior to its approval by voters in 2004. During the development of the RTP, MAG engaged in an intensive public involvement program. There were more than 350 public input opportunities and three scientific telephone polls conducted. In the early stages of RTP development, the modal split was nearly 90 percent for freeways and three percent for transit. After the public involvement/survey process was complete, and the results provided to the Transportation Policy Committee and Regional Council, transit received a tenfold increase (to 30 percent) in modal share. This was due to the comments received during the public input/survey process, which included informal as well as scientifically valid surveys that included all segments of the public, including a variety of ethnic, social and economic demographics.

MAG frequently receives comments on the transportation system. Staff either responds directly to the inquiry or distributes the comments to the appropriate agency, such as ADOT, Valley Metro, Maricopa County or MAG member agencies. These responses are designed to answer questions, communicate the status of projects, address actions that can be taken, or provide context as to why action may not be taken.

Question: 4. Has MAG reviewed its public involvement processes and evaluated their effectiveness in assuring that the processes provide full and open access to all? If yes, please provide a copy of the evaluation.

Response: MAG continually reviews its public participation efforts for effectiveness as part of its communications planning efforts and makes adjustments as warranted. For example, in 2001, MAG sought a stronger relationship with the underserved communities in the Valley and contracted with Community Outreach Associates to the African-American, Hispanic, Native American and disability communities. It quickly became apparent to staff that there was a need for a full time staff member who could provide this outreach. In 2002, MAG hired a full time Community Outreach Specialist to work with Title VI communities, condensing the functions of the three minority functions, while maintaining the Disability Outreach Associate as a separate function.

MAG formally enhanced its public involvement process in 1994, 1998, and 2006. The most significant recent review of MAG's public participation process came during the development of the MAG Public Participation Plan (PPP) in late 2006. This document was provided for public review, including being noticed with a public notice and made available 45 days before the vote. A draft of the plan was directly mailed to all interested parties as outlined in the new regulations, including all MAG policy committee members, partner agencies, and the MAG public involvement mailing list. After the 45-day period of review and consultation, MAG adopted the plan in December of 2006.

In addition to the above, staff recognizes that to reach the greatest number of residents, MAG needs to "go to the people" rather than expecting the people to come to us. To that end, MAG hosts information booths at numerous large and small scale community events and provides many small group presentations to provide information about MAG plans and programs, answer questions, and receive comments. During these events, MAG distributes an awareness survey in which participants are asked questions regarding transportation priorities as well as whether they have heard of the Maricopa Association of Governments. (See Appendix R MAG Awareness Survey). We also ask whether the respondent has ever provided comment to MAG through any of its public input opportunities. We question their overall perception of MAG and their primary area of interest, and ask them to check boxes on publications they are interested in receiving. MAG tracks these responses and utilizes those results to evaluate our effectiveness in increasing awareness of MAG. Due to changes in the planning cycle, MAG is currently evaluating its public involvement process and plan. Changes will be considered after a 45-day review as mandated by federal regulations. MAG seeks to have a new formally adopted process and participation plan in place by the middle part of 2014.

To aid access to MAG websites by those with disabilities, primarily the visually impaired, all photos and illustrative graphics are accompanied by a descriptive caption, through the use of the alternate text (alt text) attribute. A visually impaired reader, who is using a screen reader, will hear the alt text in place of the image. MAG is currently undergoing a Web redesign that requires that as many of the techniques recommended by the Web Accessibility Initiative that are applicable to our sites, are used in order to make the information on MAG websites accessible to persons with disabilities.

These are just a few of the many strategies MAG uses to evaluate its public involvement process. In developing the MAG Unified Planning Work Program and Annual Budget each year, MAG public involvement staff develops numerous specific, measurable objectives and outcome measures for the next fiscal year. Each narrative additionally provides the results of the outcome measures from the previous year. MAG utilizes these results to determine progress made and to develop outreach strategies and outcome measures for the upcoming fiscal year.

External Agencies Survey

On November 19, 2012, the MAG Executive Committee discussed the benefit of an agency questionnaire to provide input on the performance of MAG as an agency. A survey was developed and reviewed by the MAG Executive Committee at the February 19, 2013 meeting. The MAG Executive Committee directed staff to distribute the survey, which was completed on March 27, 2013. The survey indicated a strong level of satisfaction with MAG.

MAG sent 829 survey invitations to representatives from member agencies, federal agencies, other COGs/MPOs, state agencies, cities and counties outside of MAG, and other stakeholders. The invitees were identified by the MAG Division Managers with input from the Executive Committee to include people who interact with MAG at all levels. 370 people (45%) responded to the survey, representing a broad cross-section of organizations.

According to respondents, MAG is perceived as an effective organization and strong partner, taking on an appropriate role in the community. Full survey results are available in the appendix. (See Appendix S).

Some highlights from the survey include:

- 83.3% of respondents rated MAG's organizational effectiveness Good or Excellent.
- MAG was perceived as having a positive relationship with all of its agencies and stakeholders.
- 79.9% of respondents feel MAG has earned a positive reputation as an important partner in regional issues.
- 91% perceive MAG as an important resource in the region.
- 71.5% feel MAG does an adequate job of remaining apolitical.

The Regional Council found the instrument helpful and are interested in reconducting the survey in the future. MAG has also been approached by other agencies interested in using the same survey.

TITLE VI, ADA, and ENVIRONMENTAL JUSTICE

Please discuss MAG's efforts in addressing Title VI, ADA, and environmental justice throughout the transportation planning processes. Please address the following questions in the discussion:

Question: 1. What Title VI and Environmental Justice measures, benchmarks, or a criterion has MAG developed? (Examples: travel time from home to work, number of low-income people who can travel from home to work in under an hour.) How were these measures developed? Who had input in their development? Does the RTP and TIP provide some measure of service across all modes?

Response: MAG recognizes the significance of transportation to all residents of the metropolitan area and the importance of Title VI/Environmental Justice considerations in the transportation planning process. As a result, an environmental justice analysis of the Regional Transportation Plan (RTP) was prepared. Each of the three major components of the RTP (freeways/highways, transit and arterial streets) was addressed in this analysis to assess the distribution of benefits of projects included within the RTP. The analysis determined the percentage of communities of concern that are served by freeways and highway, transit services, and arterial streets projects. Four communities were included in the analysis: minority populations, low income populations, mobility disability populations, and limited English proficiency populations. Based on the review of freeway/highway, transit and arterial improvements, it was concluded that the RTP provides equal or better benefits to minority communities.

The measures of equity in the transportation planning process were developed as part of the RTP update process. Public involvement in connection with these efforts include opportunities for public input early on in the process, during the planning process, and prior to final hearings. The process provides complete information on transportation plans, timely public notice, full public access to key decisions, and opportunities for early and continuing involvement in the process for all segments of the region's population, including Title VI and environmental justice communities.

Numerous public outreach activities are conducted as part of the MAG RTP public participation process. These include staffed information booths, public workshops and meetings, attendance at events, presentations, and open houses. The outreach activities have been targeted to both specific minority groups and the general public as a whole.

Question: 2. What aspects of the regional transportation system are identified as part of a regional analysis of benefits and burdens? How are benefits and burdens of the regional transportation system distributed across different racial, ethnic and economic groups?

Response: MAG endeavors to incorporate environmental justice into regional transportation planning on an ongoing basis. MAG conducted an environmental justice overlay analysis to assess the distribution of benefits and burdens of the RTP. The overlay analysis relies on proximity to transportation facilities and services as a measure of equity in the transportation planning process, and demonstrates that the communities of concern benefit equally from the transportation system without shouldering a disproportionate share of its burdens.

Each of the three major components of the RTP (freeways/highways, transit and arterial roads) was addressed in a Title VI/Environmental Justice analysis, which determined the percentage of communities of concern that are served by freeways and highway, transit services, and arterial streets projects. Approximately 29-31 percent of the census units for each of the communities of concern (minority, poverty, disability, and limited English proficiency) are served by the freeway/highway network, which is nearly the same as the level for the non-communities of concern (29-36 percent). Similar results were found for transit, where 93-97 percent of the communities of concern census tracts were served by the transit network; whereas a slightly lower number of non-communities of concern tracts were served (75-91 percent). Arterial street projects serve 27-33 percent of the census tracts for each of the communities of concern, compared to 34-51 percent for non-communities of concern. Fewer arterial improvements tend to occur in core areas where the majority of the communities of concern are located, because of the mature character of the arterial system in these areas. Transit services often represent the most advantageous approach to addressing mobility for such areas.

Proximity to transportation services is an important issue; however, it is only one of many issues related to transportation equity that MAG pursues. MAG addresses and considers the needs of underserved populations throughout its planning and programming process, and provides outreach in a variety of ways, including the Title VI Community Outreach Program, Geographic Information System (GIS) mapping, the Human Services division of MAG, and through programs run by the Regional Public Transportation Authority (RPTA) using MAG funds. Through the Community Outreach Program, MAG's Community Outreach Specialist coordinates with minority communities to solicit input and to serve as a liaison between MAG and the communities. In addition to minority communities, MAG targets and solicits input from persons with disabilities. Through RPTA's Complementary Paratransit Plan, the needs of the elderly and people with disabilities are served.

In addition, a MAG committee reviews and prioritizes applications for federal assistance under the Elderly Persons with Disabilities Transportation Fund, which provides capital investments to programs serving the elderly and people with disabilities. MAG transportation plans and programs are also submitted to the Human Services Coordinating Committee for review. Additionally, MAG provides multimodal transportation information for review and comment to the Human Services planning process. The needs of older adults are further being addressed through a number of projects related to aging services planning such as the City Leaders Institute on Aging in Place and the Enhancing Age-Friendly Cities Initiative. These projects address the changing mobility options that are needed as people age.

Question: 3. How does MAG determine the needs, values and issues of low-income and minority populations? (Examples: neighborhood or community advisory groups; targeting visioning process; local studies done for other major public capital investments, such as sports arenas, jails, sewage treatment plants, hospitals; MAG interviews and involvement with businesses, community leaders, and residents; focus groups; and preference surveys.) How does MAG seek viewpoints of communities that have no spokespersons or community-based organizations?

Response: MAG's approach to determining the needs of low income and minority populations is unique. The collaboration among the Transportation, Communications, and Human Services Divisions results in a holistic, comprehensive approach. Each division lends their expertise and perspective to determining the needs, values, and issues of minorities and people with low incomes. The following activities support this effort.

During the development of the RTP beginning in 2001, MAG contracted with Community Outreach Associates to the African-American, Hispanic, Native American and disability communities. The sole objective of these associates was to engage the low income and minority populations, and report the results to the MAG TPC and Regional Council via the MAG Communications Division. The associates developed extensive mail lists of key figures in these communities, participated in special events and made small and large group presentations. In 2002, MAG condensed three of the positions into one full time Community Outreach Specialist and retained the Disability Outreach Associate. These positions were critical in helping the TPC and Regional Council develop a multimodal transportation plan that was part of the successful passage of Proposition 400. The relationships forged during that time continue to flourish today, and the stakeholder lists developed during that intensive outreach period are continually updated. More recently, MAG staff has made a priority of engaging groups that are on the fringe of the community such as brain injury survivor groups, aged caregivers groups and mental health deficiency groups, among others. MAG staff provides these presentations in cooperation with Valley Metro. The purpose of these presentations is to help these groups learn how to navigate the Valley's transportation system, including how and where to purchase a transit ticket, apply for an ADA eligibility card, and ensure a discounted fare.

In addition, MAG works closely with its Human Services division, which conducts a variety of planning efforts on behalf of disadvantaged populations. For example, the MAG Human Services Technical Committee and MAG Human Services Coordinating Committee are composed of member agency elected officials and staff, representatives of United Way, community councils, the Arizona Department of Economic Security, and the Area Agency on Aging. The Continuum of Care Regional Committee on Homelessness provides direction on homeless planning and policy and directs an annual street count of homeless populations. Another committee works with domestic violence service providers. The Elderly and Persons with Disabilities Transportation Program Committee determines a priority listing of Section 5310 applications, including mobility management funds to transport older adults and people with disabilities. Recently, the MAG Human Services Coordination Transportation Plan was recognized as a national best practice. The MAG Transportation Ambassador Program is one of the strategies included in the plan and a significant reason for the award. To date, more than 360 people participate in the program from a variety of social service and transportation agencies, community based groups, and individual advocates. All participants offer feedback on the needs of transportation disadvantaged populations and the strategies to best meet these needs. Current efforts in aging are engaging older adults to address their transportation needs as they change with age.

MAG also works with its Information Services division to track changes in population and employment, changes in growth patterns, and shifting demographics.

Finally, MAG works with numerous private and nonprofit partners to host forums, conduct surveys, and analyze information gathered through external sources, such as a recent partnership

with the Center for the Future of Arizona, which conducted a Gallup Poll of 3,600 Arizona respondents to measure Arizonans' attitudes and values.

All of these efforts combine to assist the organization in identifying the needs, values and issues of low-income and minority populations.

Question: 4. How does MAG provide meaningful access to persons with limited English proficiency in its public involvement processes consistent with Executive Order 13166 and US DOT LEP Guidance [70 F.R. 74087 (2005)]?

Response: The 2011 MAG Title VI and Environmental Justice Plan includes the agency's Limited English Proficiency Plan, the results of the four factor analysis indicate that key materials will be translated into Spanish on an ongoing basis and other materials will be translated as needed. The MAG Community Outreach Specialist translates MAG policy documents, public involvement documents, press releases, fact sheets and other major materials into Spanish for distribution and posting to the MAG Web site. The specialist responds to requests from Spanish language print and broadcast media outlets for interviews and other information related to the MAG planning and programming process. In addition, MAG includes specific language on all public hearing/meeting notices that any special assistance needed is available if given reasonable notice.

Question: 5. How are Indian tribal governments and related public agencies involved in the development of transportation plans and programs?

Response: Three Native American Indian communities within the MAG region are MAG members. These communities include the Fort McDowell Yavapai Nation, the Gila River Indian Community, and the Salt River Pima Maricopa Indian Community. These tribes participate in the MAG transportation planning and programming process with full voting representation on the three MAG policy committees: MAG Management Committee, Transportation Policy Committee (TPC) and the Regional Council. The Native American representative to TPC represents all three Native American Indian communities. These tribal nations are also full voting MAG members on all MAG transportation technical committees. A fourth Native American Community, the Tohono O'odham, has a small piece of tribal land in the MAG region and has discussed becoming a member of MAG. MAG staff is currently working on the Wild Horse Pass transportation study for the Gila River Indian Community. This effort looks at improving existing and developing new arterials with better mobility for community members, connections between the Community and neighboring jurisdictions, and the region. In addition, briefings on transportation issues have been provided by MAG staff to the Arizona Inter-Tribal Council, and the Four Southern Tribes (Ak-Chin Indian Community, Gila River Indian Community, Salt River Indian Community and Tohono O'odham).

Question: 6. How does MAG compare investments across different modes? How are highway capital costs compared to public transit capital costs and costs to support walking and bicycling?

Response: An integrated approach is taken to evaluating the trade-offs in investments among the modes. In the development of the RTP in 2002/2003, this approach involved developing a series

of plan scenarios, each with a different modal emphasis but essentially the same total cost. The scenarios were characterized by an emphasis, respectively, on freeways/highways, mass transit, and arterial streets. A set of performance factors was evaluated for each scenario, providing insights into the trade-offs among the scenarios regarding factors such as service levels, impacts, and costs. Based on this analysis, a hybrid scenario was identified, providing the basis for the multimodal plan that was eventually adopted. Similarly, in the transportation framework study process where large subareas of the region are analyzed, an integrated, system level approach is taken in identifying the mix of facilities and services provided.

As noted, a comprehensive update of the Regional Transportation Plan (RTP) was conducted in 2002/2003. This update resulted in the extension of the half-cent sales tax for transportation in the MAG region, and a commitment to the voters of Maricopa County to implement the projects identified in the Plan. As a result, recently the emphasis has been on project implementation, as opposed to the comparison of individual project investments across modes. Specific funding allocations across all modes were identified in the Plan, including freeways/highways, arterials, transit, bicycle/pedestrian, and air quality measures.

The comprehensive update of the RTP that was conducted in 2002/2003 has provided the modal investment targets for recent plan updates, including the 2035 Regional Transportation Plan update that is now underway. It is now over ten years since that last major update of the RTP in 2002/2003, and the changing planning environment calls for another comprehensive review of the plan. During FY 2014, a major update process will be started, with the focus on identifying an overall strategy for plan development and initiating technical planning studies. This new comprehensive review of the RTP will again address the issue of investments across different modes.

Question: 7. What does MAG do to ensure that their services are accessible to persons with disabilities?

Response: MAG contracts with a MAG Disability Outreach Associate. The associate was retained in 2001 and is charged with engaging the disability community through a variety of means, including attending special events within the community, making small and large group presentations and connecting individually with members of the community. The associate also distributes information and gathers input. The input is included in an input opportunity report that is distributed to the MAG Management Committee, TPC and Regional Council for review and consideration prior to action. Because the disability community is an underserved community, and because it relies heavily on transit, nearly all input opportunities that the associate conducts include a representative from Valley Metro. The associate and Valley Metro representative work together to provide as much support and information to the community as possible. This includes helping members of the community learn how to navigate the transit system, including where and how to purchase ADA eligibility cards, how to communicate with the transit operator to ensure a successful ride, and how to best utilize Valley Metro's online trip planner. In some cases, Valley Metro will return to the site of the presentation/event with a bus. Riding the bus can be an intimidating experience for people with disabilities. This allows people from the disability community an opportunity to learn about all aspects of the bus in a controlled environment. Special arrangements can also be made for groups of people within the disability community to

ride the rail with a Valley Metro representative. This is also an opportunity for people with disabilities to ride with a transit representative without the intimidation of riding alone.

In addition, the disability outreach associate translates MAG materials into braille, large-print or audio formats as requested. As a blind person with significant hearing loss, the associate is uniquely qualified to help evaluate the accessibility of MAG services.

All MAG public meetings comply with ADA requirements and are transit and wheelchair accessible. In addition, free transit passes are provided to public meeting attendees upon request. MAG always includes specific language on all public hearing/meeting notices that any special assistance needed is available if given reasonable notice.

CONGESTION MANAGEMENT PROCESS

As a TMA, MAG is required to have a Congestion Management Process (CMP) that complies with the provisions of 23 CFR 500.109.

Question: 1. Does MAG comply with SAFETEA-LU CMP requirements? Has MAG reviewed applicable State laws, rules and regulations to ensure the CMP for the TMA is consistent with the SAFETEA-LU revised statutory language on the Congestion Management Process?

Response: Since 1991, Metropolitan areas with populations over 200,000 known as Transportation Management areas (TMAs) have been required by the federal government to have an ongoing Congestion Management Process (CMP). Federal requirements also state that in all TMAs, the CMP shall be developed and implemented as an integrated part of the metropolitan transportation planning process. In TMAs that are designated as ozone or carbon monoxide nonattainment areas, transportation projects that add significant single-occupant-vehicle carrying capacity cannot be programmed for federal funding unless the need for the project is analyzed and demonstrated by the CMP.

MAP-21 legislation retains the CMP's requirements and further reinforces its connection to performance measures, monitoring and reporting functions. While final rulemaking has not been issued with respect to national or state level performance measures and targets, it is anticipated that the current performance measurement and monitoring program is in line with the forthcoming regulations.

In accordance with Arizona statutes, the authorization for Proposition 400 required the establishment of performance measures for all major transportation modal categories, and required five-year performance audits of proposed transportation projects and systems starting in 2010. The Performance Audit of the Maricopa County Regional Transportation Plan was initiated in December of 2010 and was performed during the first three quarters of 2011. It examined MAG's transportation system, life cycle programs and projects for each transportation mode and assessed those using specific criteria and measures utilizing information from MAG's Performance Measurement Program as well as Valley Metro/RPTA Transit Performance Reports. In addition, the audit reviewed ADOT and MAG's RTP past expenditures and provided recommendations to RTP partner agencies regarding coordination, documentation and reporting activities. Since 2012, MAG has focused on implementing 2010 Performance Audit recommendations in cooperation with RTP partner agencies. A number of these recommendations pertained to the application and integration of the Congestion Management Process into overall planning and programming activities. Specifically, Audit recommendation #12 stated "*Have MAG require the use of the Congestion Management Program (CMP) tool among local cities and counties to identify and prioritize projects.*" This recommendation has been implemented.

Pursuant to the state mandated requirements, MAG's transportation planning activities are substantially consistent with SAFETEA-LU and MAP-21 CMP requirements. The development of MAG's Congestion Management Process has resulted in multimodal system performance measures and strategies that are reflected in the Long Rang Transportation Plan and the Transportation Improvement Program.

The MAG Congestion Management Process (CMP) was cooperatively developed in conjunction with representatives of regional partner agencies and member jurisdiction representatives. In its earlier stages, The MAG CMP proposed a series of quantitative and qualitative criteria and methodologies based on key performance measures. A first draft of the CMP was first implemented as part of the 2011 and 2012 MAG Freeway Program rebalancing efforts. In 2011, a first draft of a CMP Sketch Tool was also tested in the Arterial Life Cycle Program rebalancing. This implementation was not fully applied to the re-programming process but the draft CMP Tool was used by a few member jurisdictions at the local level.

As part of the final development of the CMP, an evaluative Sketch Tool was developed in 2011 based on congestion related performance measures. MAG initiated the implementation of the CMP sketch tool for project selection at the ITS and Bicycle and Pedestrian modal committees in complying with the observations and recommendations of the CMAQ Programming Process Review Report of September 2011 by the Local Division of the Federal Highway Administration.

The CMP Sketch Tool provides a step-by-step sketch planning approach that facilitates the analysis process for evaluating congestion management strategies or projects. The core of the Sketch Tool is a spreadsheet that uses both quantitative and qualitative criteria to assess strategy and project effectiveness and to assist in the assignment of ranks to projects so they can be prioritized. The process and Sketch Tool are designed to be applied to sets of projects or congestion management strategies for which some quantitative data is available. Previous to the application of the CMP Sketch Tool, Vehicle Mile Traveled, traffic data and congestion summary measures sourced from the performance measurement program are evaluated and assessed for accuracy and consistency using MAG developed quality control routines.

By 2012, this Sketch Tool was fully applied to the ITS Committee, and Bicycle and Pedestrian Committee programming process for CMAQ Federal Funds. Implementation of the tool was collaborative and successful, resulting in project ranking and prioritization. It is important to note that the Air Quality Technical Advisory Committee's CMP scores, which measure emissions reductions and cost effectiveness, were a component of the overall project rankings. This committee also facilitates the allocation of funding for PM-10 certified street sweepers and paving unpaved roads, both of which represent significant air quality benefits. In an anticipated effort to align with MAP-21 requirements, MAG is initiating the development of a similar evaluative tool for applying changes to the Arterial Life Cycle Program (ALCP), as well as the Transportation Alternatives Program.

In order to continue enhancing and customizing the CMP tool, in April 2012, MAG formed a 14-member CMP Working Group composed of MAG member jurisdiction transportation officials at the management level. Approximately one-third of the members are from the MAG Transportation Review Committee, another third are MAG modal committee chairs, and the remainder includes representatives from ADOT, the MAG Street Committee and the MAG Transit Committee. The Working Group completed a thorough review the current Congestion Management Process Update and recommended methodologies and practices for the application of the CMP Sketch Tool in the CMAQ and federally funded projects within MAG programming activities.

With respect to transit projects and evaluative criteria, a Technical Advisory Group (TAG) made up of staff from Valley Metro/RPTA, member agencies and MAG, was formed in November 2012.

The TAG has met approximately twice per month since then to review progress on the development of Regional Transit Standards and Performance Measures. A Phase I report documents findings from a peer transit agency review panel, defines service delivery goals, and includes transit operational standards, as well as describes a process for transit service changes. Phase II has recently been initiated and will address additional standards and focus on development of performance measures to compliment agency goals.

The collection of project applications for the FY 2014-2018 TIP and the Transportation Alternatives Program is underway and will include the use of the CMP strategies as applicable and the implementation of the updated CMP Sketch Tool for project evaluations. This process will drive recommendations for ranking projects. As a final step, projects will be programmed pursuant to the Regional Council approved ranking. It is important to note that implementation of the CMP Sketch Tool is a continuous process, benefiting from stakeholder input and proposed modifications and requires the input of specific quantitative and qualitative data for evaluation purposes within each mode.

HOV Lanes

The Clean Air Act Section 176 and the federal transportation conformity rule requires that metropolitan transportation improvement programs and transportation plans provide for the timely implementation of transportation control measures (TCMs) in applicable implementation plans. The transportation conformity rule defines TCMs as any measure that results in a reduction of emissions or concentrations of air pollutants from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions. Examples of TCMs are public transit, travel reduction programs, traffic flow improvements, bicycle and pedestrian travel, and High Occupancy Vehicle (HOV) lanes.

Regional air quality plans have included several transportation control measures. In the MAG 1987 Carbon Monoxide Plan and 1987 Ozone Plan, an implementation schedule for HOV lanes and ramps programmed by the Arizona Department of Transportation was included. In addition, the 1993 Carbon Monoxide Plan and the 1993 Ozone Plan both indicate that State and local governments will analyze traffic projections and bus frequency on a periodic basis to determine the feasibility of the restriction of certain roads or lanes to or the construction of roads or lanes for use by passenger buses and carpools, fixed lanes for buses and carpools on freeways, and HOV ramps which by-pass freeway ramp meter signals. In the EPA-approved Revised MAG 1999 Serious Area Carbon Monoxide Plan and Revised MAG 1999 Serious Area Particulate Plan for PM-10, commitments from the State and local governments include the promotion of high occupancy vehicle lanes and by-pass ramps through rideshare activities.

To meet requirements in the Clean Air Act, the Maricopa County Trip Reduction Program has been included in the regional carbon monoxide plans for several years. The Trip Reduction Program and Regional Rideshare Program have been included as committed transportation control measures in several ozone and PM-10 particulate plans as well. The Trip Reduction Program promotes employer participation in using alternative modes of transportation, including carpooling, vanpooling, taking the bus, using light rail, bicycling, and walking, as well as alternative work schedules.

In the Maricopa County region, HOV lanes and ramps act together with other TCMs such as the Maricopa County Trip Reduction Program and Valley Metro Regional Rideshare and Telework Program, to form a network of facilities for high occupancy vehicle travel. In the FY 2011-2015 MAG Transportation Improvement Program, projects that implemented Freeway Management System and High Occupancy Vehicle lanes were funded at \$319.7 million. In 2013, it is estimated that the regional freeway system has 232 miles of HOV facilities.

High Occupancy Vehicle facilities that provide reduced travel time are an incentive for commuters to take alternatives to the single occupant vehicle by carpooling, vanpooling, and taking express bus transit that are important to the success of the Trip Reduction and Regional Rideshare programs. In the FY 2011-2015 MAG Transportation Improvement Program, projects that implemented Areawide Ridesharing, Travel Reduction, Education and Outreach Programs, and Vanpools were funded at \$14.4 million. The Trip Reduction and Regional Rideshare programs are funded through the Congestion Mitigation and Air Quality Improvement (CMAQ) Program which indicates that Transportation Control Measures and other CMAQ-eligible projects identified in approved air quality plans should receive funding priority. Congested HOV facilities would reduce the impact of the Trip Reduction and Regional Rideshare programs.

TCMs receive the highest priority for funding under the Congestion Mitigation and Air Quality Improvement (CMAQ) Program. Given the importance of the HOV lanes as a TCM, MAG periodically evaluates regional HOV network performance and collects corresponding data to analyze congestion on HOV lanes and utilization of the HOV network. MAG has conducted traffic surveys that have identified a number of congested locations on the regional HOV network. The data suggests that any policies designed to expand the pool of vehicles eligible to use HOV facilities without minimum occupancy requirements may not be consistent with the commitment of HOV lanes as a TCM in MAG air quality plans, and should be carefully assessed for the system-wide and location-specific impacts. Relaxation of the eligibility criteria has the potential to compromise the role of HOV lanes as a traffic control measure.

Question: 2. Briefly explain how MAG is involved in the identification of travel demand reduction and operation management strategies and working with partners to develop projects priorities and schedule for implementation.

Response: Operation management strategies in the MAG region are addressed primarily through the implementation of Intelligent Transportation Systems (ITS) projects. The current ITS project selection process includes the consideration of congestion management potential of proposed ITS projects as one of the factors in generating a score that eventually leads to the recommendation of new ITS projects.

The MAG region continues to benefit from a broad range of demand management techniques and programs. Transportation Demand Management (TDM) reduces congestion by encouraging more efficient use of existing transportation infrastructure through alternatives to driving alone. Reducing vehicle miles traveled also helps improve air quality by decreasing vehicular emissions contributing to the total amount of air pollutants.

TDM programs have continued to encourage reductions in travel demand within the transportation system. TDM activities generally focus on both improved travel choice and incentives to reduce

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

MAG continues to work closely with the Arizona Department of Environmental Quality, the Arizona Department of Transportation and the partner agencies to develop and apply demand management programs. Among the various TDM programs is Commute Solutions, formerly named the Regional Rideshare Program, which encourages commuters and employers to use alternative transportation modes and work schedules throughout the MAG region. Valley Metro/RPTA promotes alternative transportation modes including carpooling, bicycling and walking, subsidized transit fare, vanpools, teleworking and compressed work schedules through a variety of services, including a free on-line trip matching service, the promotion of Single-Occupancy Vehicle (SOV) alternatives, assistance to employers in the Maricopa County Trip Reduction Program, and administration of a regional vanpool program.

Included in the Commute Solutions program are various online services and campaigns such as Trip Matching, SOV Alternatives, Rideshare Month and Valley Bike Month. These campaigns are run by Valley Metro/RPTA and engage various employee/employer constituents offering educational partnerships and communication programs throughout the year as well as continuously via SharetheRide.com and ValleyMetro.org websites.

In addition to facilitating ridesharing vanpools with vans owned by others, Valley Metro/RPTA has provided vanpool service to interested commuters since 1987. The clearly marked vans are provided to qualifying groups of six to fifteen commuters, driven by one of the vanpool members. Passengers share the cost of operating the van by paying a monthly fee to the primary driver. In FY 2012, more than 1.1 million passenger trips were made in approximately 375 vanpools. Valley Metro/RPTA contracts with a third party private vanpool firm to provide insurance, fleet services, and billing. Vanpooling is one of the Transportation Demand Management strategies many employers have implemented as a Trip Reduction Program measure. In FY 2012, the program had a 99.29 percent fare recovery. In FY 2012, staff introduced a pilot program to add bicycle racks to vanpool vehicles. The program has been very successful and as a result, bicycle racks will be added to an additional 50 vanpool vehicles. The program helps improve air quality by removing cold-start trips and short-distance SOV trips.

MAG has established a Teleconferencing Program to link MAG and its member agencies via teleconferencing. The MAG Regional Videoconferencing System Project is designed to facilitate communication between agencies while reducing the need to travel to meetings. The MAG Regional Videoconferencing System has a central videoconferencing location at the MAG offices and satellite locations housed at each member agency. This system allows for communication between MAG and its member agencies as well as among member agencies without direct participation by MAG.

An additional program encouraging state agencies located in Maricopa County is the Travel Reduction Program run by the Arizona Department of Administration Office of Travel Reduction. This program encourages employees to use alternative modes through instruction, promotion and incentives. The office also offers carpool matching and other rideshare services through Capitol Rideshare, which assists state agencies in meeting their travel reduction goals.

Since the last Federal Certification Review, major accomplishments of these programs include a significant increase in transit ridership and awareness in the MAG region. Between FY 2011 and FY 2012, Valley Metro/RPTA experienced a 5.1 percent increase in annual regional transit ridership at more than 71 million boardings. Approximately one-third of Valley commuters use an alternative mode of transportation or schedule during a typical week. In FY 2012:

- The number of major employers participating in the Trip Reduction Program increased.
- Awareness of the Valley Metro/RPTA online ride matching system, ShareTheRide.com, is at its highest (39.5 percent) since residents were first asked in 2007 (26 percent).
- The number of active users of ShareTheRide.com increased 84 percent to a total of 14,332 active users as of June 30, 2012.
- In 2012, more than 6,400 people requested ride matches through ShareTheRide.com, and 5,200 found a shared ride.
- In 2012, users of ShareTheRide.com logged more than 325,000 commutes, shared nearly 12 million commute miles and saved more than \$1.2 million in gas money. Nearly seven million pounds of greenhouse gas emissions were also saved.
- In 2012, 61 new vanpools were formed in the Valley Metro/RPTA vanpool program, ending the year with 374 vans in operation, an increase of 11.6 percent from the prior year.

Besides travel demand reduction solutions for managing proposed capacity increases, MAG has invested in numerous transportation system management programs and projects that focus on implementing operational strategies.

A number of projects are generated from individual MAG modal committees, taking into account MAG modal funding policies. This is the case for all the operation management strategies and improvements, which are identified and assessed in partnership with the MAG ITS and Safety Committees. Criteria applied by the ITS Committee include whether the project has been leveraged by partners of adjacent jurisdictions to have greater impact, whether the project complies with the ITS Strategic Plan Guidelines, and if it is integrated with the Regional ITS Architecture.

Transportation System Management refers to the integrated management of the multimodal transportation system in the MAG region. This includes the integration of infrastructure provision, road safety management, travel demand management, travel behavior, and traffic operations enhanced with ITS. Projects and activities carried out under individual subprograms address each of these areas. Transportation System Management has been most successful when based on deliberate and sustained collaboration and coordination between agencies and jurisdictions responsible for delivering transportation and public safety services.

All of the system management programs are focused on the goal of optimizing the performance of the regional transportation system, including highway, arterial and transit modes, and developing a more effective and efficient use of capacity, resulting in improved security, safety, and system reliability.

ADOT is utilizing an integrated package of ITS infrastructure and management strategies commonly referred to as a Freeway Management System (FMS). The regional FMS first became operational in 1996 and currently provides traffic surveillance, incident management, travel time displays and traveler advisory functions. All FMS operations are centrally coordinated from the ADOT Traffic Operations Center which is staffed 24 hours. The Traffic Operations Center also serves as a statewide emergency coordination center during freeway emergencies. One of the key functions of the FMS is dissemination of information on real-time freeway traffic conditions. This is accomplished via the real-time freeway speed map available on the internet at www.az511.gov. This website is heavily utilized by local television and radio traffic reporters as well as members of the public to obtain freeway condition information. Information on freeway construction and major incidents is also available via, 5-1-1 the telephone based traveler information system. A joint MAG-ADOT project, completed in June 2007, extended the availability of freeway condition information to the public via cellular phones with access to the internet (www.az511.com/pda). This information service provides real-time freeway speed maps and point-to-point travel times, with coverage limited to the fully instrumented portion of the urban freeway system. The FMS also provides displays of peak period real-time point-to-point travel times on six freeway corridors that are generated from traffic data gathered via the FMS. Currently, there are more than 200 dynamic message signs installed on the instrumented freeway system.

One of the system management programs addressing an urgent need in our region is the Traffic Signal Optimization Program (TSOP), which provides technical assistance to member agencies for identifying and addressing improvements to arterial traffic signal operations; this program results in more frequent calibrations of traffic signal timing. Twenty two projects in ten MAG jurisdictions have implemented this program in the last cycle of projects, six agencies received assistance with traffic data collection, and one agency developed the SYNCHRO computer model required for traffic signal timing.

MAG is currently exploring the development of an Integrated Corridor Management System (ICM) which consists of a carefully orchestrated set of traffic management strategies implemented on key freeway corridors and parallel arterials. The MAG Regional Concept of Transportation Operations identified the need to develop fully integrated freeway arterial corridors in the region.

Another project underway at MAG is the implementation of the Regional Community Network. This project will provide the communications infrastructure needed to interconnect traffic management centers and public safety agencies within the Phoenix metropolitan region. The project will utilize the communications architecture recommendations identified in the 2003 MAG Regional Community Network (RCN) Study. This project will lead to the implementation of network links that are considered a high priority by the stakeholders in the region. However, the network resulting from this project will be limited to the number of links that can be constructed with the funds available for this project.

With respect to TDM strategies that focus on the integration of transportation and land use, regional Transit Oriented Development (TOD) planning/land use integration issues are coordinated at MAG, and project/facility specific TOD initiatives are coordinated by Valley Metro/RPTA in conjunction with the local jurisdictions. MAG and its members participate in monthly TOD working group meetings hosted by Valley Metro/RPTA. Additionally, MAG, in partnership with Valley Metro/RPTA, participates in partnerships and collaborations between regional, local, non-profit, and private sectors, promoting TOD benefits and principles through the Sustainable Communities Collaborative.

Finally, MAG is also investing in the exploration of projects and programs that will optimize the use of the existing facilities by managing the built infrastructure capacity. MAG, in cooperation with the ADOT, FHWA, Valley Metro/RPTA, and member agencies, is exploring a regional managed lanes system in the Phoenix Metro area. This effort was initiated in part a response to Arizona House Bill 2396, which enables ADOT to consider Public-Private-Partnerships (P3) as a tool for financing transportation infrastructure in Arizona. The study entails determining future needs for High Occupancy Vehicle (HOV) facilities, and evaluating the potential introduction of High Occupancy Toll (HOT) lanes and active traffic management strategies. Specific study efforts include establishing goals and objectives for managed lanes in the region, exploring various management strategies and operations policies for managed lanes, and evaluating the existing regional freeway network for managed lanes potential in terms of constructability, traffic performance, facility cost, and revenue potential.

Question: 3. Describe how MAG ensures that all projects listed or proposed for inclusion in the TIP that significantly increases SOV carrying capacity are addressed in the Congestion Management Process? How does MAG ensure that all identified reasonable travel demand reduction and operation management strategies are incorporated into the SOV project or committed to by the State and MPO for implementation?

Response: In an effort to ensure that the projects evaluated for inclusion in funded programs result in reasonable travel demand reduction, MAG applies the CMP strategies and evaluative tools which introduce the necessary filters to rank potential Single Occupant Vehicle (SOV) projects. As part of the development of MAG's Performance Measurement Framework, measures have been identified that address levels of congestion and system performance. Measures such as throughput capacity, VMT, extent and duration of congestion, as well as safety (e.g., crashes and crash rates), for both the freeway and arterial systems are components of the quantitative evaluation in the CMP tool. Additionally, among the identified performance measures, there is a subset of measures that allow for long-term operation of the CMP based on data analysis that is available to MAG on a consistent basis, these measures are integral part of the CMP tool and support the evaluation of congestion reduction strategies.

The current CMP emphasizes management and operational solutions as well as travel demand reduction solutions for proposed capacity increases. As MAG continues its application of the CMP in programming activities, it is anticipated that the CMP and associated tools will be a primary component of the review process for individual projects for inclusion in the Transportation Improvement Program. The CMP tool in its optimized format will be the method by which projects are analyzed to determine their effectiveness in terms of their contribution to a reduction

in the number of trips (for travel demand management projects); reduction in the number of trips shifted to transit or other alternative modes; reductions in vehicle miles traveled (VMT); reductions in travel delay, or in vehicle hours traveled (VHT); and improvements in level of service (LOS) and measures of cost-effectiveness.

The approach proposed for the CMP is not intended to supplant existing techniques or decision-making processes, but rather to provide technical support, inform, and complement the approaches currently used. Currently, the MAG modal committees make recommendations to the Transportation Review Committee (TRC) and will continue to do so, benefiting from the additional documentation and technical back-up for setting priorities and selecting projects.

At the planning level, MAG continues to approach demand reduction and operation management strategies primarily from a systems level, to ensure that program efforts are coordinated and non-duplicative. In this way, regionwide results are obtained, providing benefits to transportation facilities throughout the MAG area. As described in the response to Question #2, MAG works closely with a number of agencies to develop and apply demand management programs, including rideshare programs, use of alternative modes of transportation and work schedules, the Trip Reduction Program, and vanpooling. Also, through its extensive involvement in ITS, incident management, and safety programs, MAG facilitates the operation efficiency of the existing transportation system. In addition, the Regional Transportation Plan dedicates a significant block of funding to the construction of HOV lanes on existing freeway facilities in region.

It is important to note that while the CMP provides strategies for prioritizing and ranking projects, the RTP's, three life cycle programs: the Freeway Program Life Cycle Program, the Arterial Life Cycle Program, and the Transit Life Cycle Program, were determined with the RTP's inception. Projects within these programs are evaluated and included in the MAG TIP, as appropriate, as part of the annual update process. These life cycle programs establish a programming approach that forecasts and allocates funds through the full life of a major funding source such as the Proposition 400 tax extension, local and other federal funding sources, and reflect a fiscal balance between anticipated revenues and expenditures.

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

Identified in 23 CFR 940 are the policies and procedures for implementing section 5206(e) of the Transportation Equity Act for the 21st Century (TEA-21), Public Law 105-178, 112 Stat. 457, pertaining to conformance with the National Intelligent Transportation Systems Architecture and Standards.

Please discuss MAG's Intelligent Transportation Systems (ITS). As part of the discussion, please address the following questions:

Question: 1. Who is responsible for maintaining and updating the regional ITS architecture. Is the regional ITS architecture the most current version or is it in need of updating?

Response: MAG is responsible for maintaining and updating the Regional ITS Architecture (RIA). A comprehensive RIA was first developed in February 2009. Since then the RIA has been updated twice to accurately reflect all ITS infrastructure in the region. The most recent update was completed in June 2013. The RIA now includes all ITS projects programmed in the TIP through FY 2017. The June 2013 update also added all transit ITS elements thus ensuring that Valley Metro/RPTA complies with all FTA requirements related to RIA. The entire MAG RIA resides at the MAG website and is easily reviewed by local agencies during any stage of ITS project development. MAG provides technical assistance to smaller local agencies that may lack staff expertise to include RIA requirements during ITS project development.

Question: 2. How is the planning/consideration of ITS being mainstreamed and incorporated into the metropolitan transportation planning process?

Response: The primary tools for mainstreaming ITS within the MPO planning process are the ITS Strategic Plan, the Regional ITS Architecture, and the Regional Concept of Transportation Operations. The RTP Chapter on System Management/ITS is based on these plans. All proposed ITS projects are required to demonstrate how they are compatible with these MAG approved plans.

Since 1996, MAG has taken progressive steps toward mainstreaming the development of regional ITS infrastructure within the transportation planning process. All planning activities for public sector owned regional ITS infrastructure on freeways and arterials are currently coordinated at MAG. The current ITS Strategic Plan was adopted by MAG in December 2012. Oversight for all ITS planning activities at MAG are provided by the MAG ITS Committee that consists of federal, state and local agency ITS or traffic engineering professionals. The 2012 ITS Strategic Plan identified strategic investment priorities and goals. These priorities and goals were utilized in programming new ITS projects in FY 2015-FY 2017. In 2010, MAG developed a comprehensive web-based overview of the regions ITS infrastructure. Since 2009 MAG has gradually built its capability to perform Planning for Operations, by acquiring the simulation modeling software Dynus-T and developing a fully calibrated regional model with Dynamic Traffic Assignment. Working in partnership with ADOT, DPS and local agencies, MAG has begun to apply this simulation model with much success to explore complex traffic operations issues such as identifying the best traffic diversion and signal timing strategies during freeway closures. The

regional Dynus-T model is closely linked to the region's travel demand model and thus produces results that are realistic from a travel behavior viewpoint. Pioneering work by MAG in this emerging area of Planning for Operations is nationally recognized.

The ITS Strategic Plan, Regional ITS Architecture (RIA) and Regional Concept of Transportation Operations currently provide direction to all ITS implementation within the region. An efficient process has been established at MAG to ensure that the region continues to meet the federal requirement that all ITS projects in the region must be consistent with the regional ITS architecture. This process is recognized as a national best practice. All new ITS project development efforts in the region also include numerous references to the RIA, through information available for each agency's RIA components via the MAG website. MAG has encouraged local agencies to begin incorporating a Systems Engineering Analysis in all federally funded ITS projects as a component in all ITS projects during the Design Concept Report stage.

TRAVEL DEMAND FORECASTING

Question: 1. Has MAG been a defendant in, or threatened with, legal action in which the adequacy of the travel forecasting methods was challenged?

If so, what was outcome of this action?

Response: MAG has not been a defendant in, or threatened with, legal action in which the adequacy of the travel forecasting methods was challenged.

Question: 2. Does the MPO organizational structure include a technical committee to review planning assumptions and forecasting methods?

Response: Planning assumptions and forecasting methods are continuously reviewed through a number of technical groups and committees. Planning assumptions are being discussed at Transportation Policy Committee, Transportation Review Committee, Street Committee and Population Technical Advisory Committee. Forecasting methods and relevant developments are reviewed in detail at MAG model peer reviews by independent experts, at project specific technical advisory committees (for both MAG and relevant member agency projects), presented at the multi-jurisdictional Arizona Modeling Users Group, reviewed at multi-jurisdictional evaluation teams, and occasionally by the Street Committee or Transportation Review Committee. MAG periodically presents major developments to FTA as a part of the ongoing New Starts/Small Starts planning efforts. At the moment of writing this report next MAG model peer review was scheduled for October of 2013.

Question: 3. Has MAG convened a peer review of the travel forecasting methods? If so, what was the outcome of the review? Implementation of recommendations?

Response: Yes, MAG convened a peer review of the travel forecasting methods and models in October 2006, and is preparing for an October 2013 peer review (which has not been conducted yet at the moment of writing this report). The 2006 review panel confirmed that the MAG model is a state-of-the-practice travel forecasting procedure and approved its approach as generally sound. More specific observation included: all components are included, components are comparable to other regions, and the model replicated observed data with accuracy consistent with other metropolitan areas. The panel members have made a number of recommendations for further model improvement. All the peer review recommendations have been addressed and implemented as appropriate in the MAG travel forecasting model. The 2013 peer review has been prepared and its results should be available by the time of 2013 planning certification review (November 12-13, 2013). MAG presents most of the major model developments and travel and traffic data collections at leading professional forums and submits relevant papers for peer reviewed publication in order to obtain feedback from national and international experts. MAG papers and submissions are routinely chosen by Transportation Research Board committees for presentation and publication through peer review processes.

Question: 4. Forecasting Documentation: To the extent practicable, provide copies of the technical documentation from the MPO covering the following subject areas, or provide a summary table, listing the information source, the currency of

the information, and the update frequency;

a. **Inventory of current conditions:** The inventory documentation should include the following summary measures for the metropolitan planning area:

i. **Transportation network - Inventory of the current state of transportation networks in the metropolitan area:**

1. Highway System centerline/lane mileage by functional class.

Response: Centerline and Lane Miles by Roadway Classification

| Classification | Centerline Miles | Lane Miles | Information Source | Currency of the Information | Update Frequency |
|--------------------------------|------------------|------------|--------------------|-----------------------------|---|
| Freeway (GP Lanes) | 515 | 2,719 | * MAG TDM | 2012 network, Updated 2013 | As per Regional Transportation Plan updates or more often |
| Expressway | 301 | 1,099 | * MAG TDM | 2012 network, Updated 2013 | |
| Collectors** | 1,415 | 3,088 | * MAG TDM | 2012 network, Updated 2013 | |
| Arterials (including 6 legged) | 3,739 | 12,496 | * MAG TDM | 2012 network, Updated 2013 | |
| Ramps | N/A | 535 | * MAG TDM | 2012 network, Updated 2013 | |
| HOV | 183 | 368 | * MAG TDM | 2012 network, Updated 2013 | |
| | | | | | |

* MAG TDM – Maricopa Association of Governments Travel Demand Model

** Collectors includes unpaved roads. Frontage roads, which are coded as collectors, do not contribute to the centerline miles total as the centerline mileage is included as part of the associated freeway.

2. Transit system by mode (e.g., bus vs. light rail).

Response: 2012 Peak Transit Routes

| Mode Name ³ | Mode ID | Description | Number of Lines ² | Information Source | Currency of the Information | Update Frequency |
|------------------------|---------|---|------------------------------|----------------------|-----------------------------|---|
| Jitney | 2 | Tempe Jitney circulators (Free, Flag Down) | 5 | MAG TDM ¹ | 2012 Network, updated 2013 | As per Regional Transportation Plan updates or more often |
| Circulator | 3 | Neighborhood/CBD Circulators (Flash, DASH, GUS) | 16 | MAG TDM ¹ | 2012 Network, updated 2013 | |
| Local | 4 | Local Bus | 154 | MAG TDM ¹ | 2012 Network, updated 2013 | |
| Arterial BRT | 5 | Bus Rapid Transit operating in mixed flow | 4 | MAG TDM ¹ | 2012 Network, updated 2013 | |
| Express | 6 | Neighborhood Circulator-Express Bus Freeway | 20 | MAG TDM ¹ | 2012 Network, updated 2013 | |
| Rapid | 7 | PNR Rapid Bus | 7 | MAG TDM ¹ | 2012 Network, updated 2013 | |
| Urban Rail | 9 | LRT in Freeway ROW or Arterial LRT | 2 | MAG TDM ¹ | 2012 Network, updated 2013 | |
| ASU | 13 | ASU shuttle buses | 3 | MAG TDM ¹ | 2012 Network, updated 2013 | |

¹ MAG TDM - MAG Travel Demand Model

² Peak period directional number of transit lines.

³ Only modes existing in 2012 peak period transit services are shown.

3. Other transport modes - pedestrian and bike paths.

Response: Total Bike Lane Miles by Classification

| Classification | Miles | Information Source | Currency of the Information | Update Frequency |
|------------------------|-------|--------------------|-----------------------------|------------------|
| Multi-Use Path Unpaved | 288 | MAG | 2013 | Every 3 years |
| Multi-Use Path Paved | 382 | MAG | 2013 | Every 3 years |
| Paved Shoulders | 366 | MAG | 2013 | Every 3 years |
| Recreational Trail | 230 | MAG | 2013 | Every 3 years |
| Bike Lanes | 1,730 | MAG | 2013 | Every 3 years |
| Bike Routes | 524 | MAG | 2013 | Every 3 years |

ii. Population - total population/households, and geographic distribution.

Response: On May 9, 2013, Governor Brewer approved the new Metropolitan Planning Area (MPA) Boundary for the Maricopa Association of Governments (MAG). The MAG Metropolitan Planning Area (MPA) boundary was extended in the southeast to include parts of Pinal County. This change was due to the expanded Urbanized Area Boundary, as defined by the U.S. Census Bureau, following the 2010 Census. The MAG MPA is now 10,647 square miles in area and consists of the 27 incorporated cities and towns, the Gila River Indian Community, the Salt River Pima Maricopa Indian Community, Fort McDowell Yavapai Nation, Maricopa County and portions of Pinal County.

The MAG Region covers all of Maricopa County and 62.3 percent of the Pinal County population. Historic and projected population data, as well as employment data, are not available at the new planning area boundary but they are available for the Phoenix-Mesa-Scottsdale Metropolitan Statistical Area (hereafter referred to as Phoenix MSA), which is geographically defined by the U.S. Census Bureau as Maricopa and Pinal counties. Historic population growth in the MSA between 1960 and 2010 is shown below in *Table 1*, with average annual increases peaking in 1980 at 4.4 percent. The April 1, 2010, population count in the Phoenix MSA was just under 4.2 million people, based on the 2010 United States Decennial Census.

Table 1: Phoenix MSA Population Growth by Decade

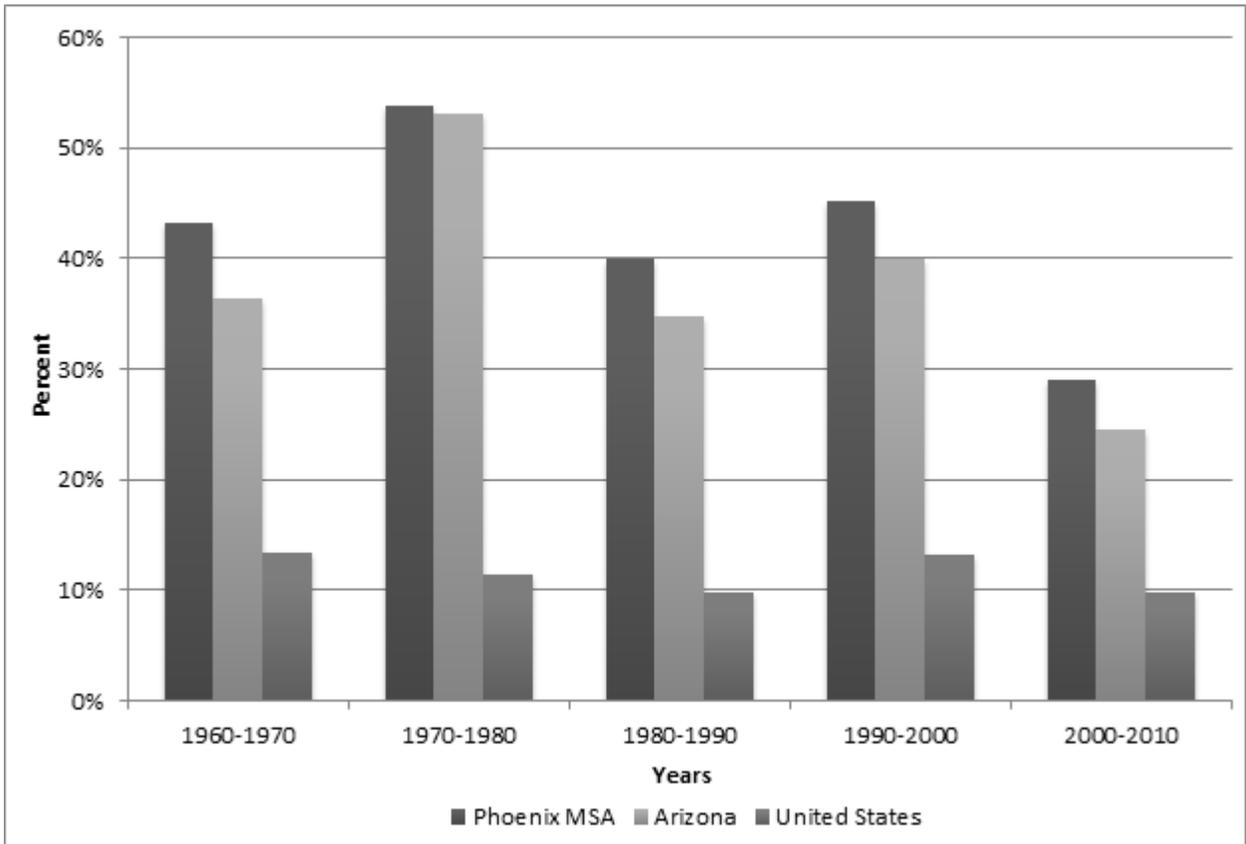
| Year | Population | Average Annual Increase |
|------|------------|-------------------------|
| 1960 | 726,000 | |
| 1970 | 1,040,000 | 3.7% |
| 1980 | 1,600,000 | 4.4% |
| 1990 | 2,238,000 | 3.4% |
| 2000 | 3,252,000 | 3.8% |
| 2010 | 4,193,000 | 2.6% |

Source: U.S. Census Bureau, Decennial Census Program, rounded to the nearest thousand. All counts are as of April 1 of the given year.

Note: Prior to 2000, the Phoenix MSA included only Maricopa County. Pinal County was added to the MSA in 1993.

Since 1960, the resident population in the Phoenix MSA grew at a faster rate than the State of Arizona and the United States overall, as shown in *Figure 1*.

Figure 1: Percentage Change in Population by Decade for Phoenix MSA, state of Arizona, and the United States, 1960 to 2010



The MAG 2013 Socioeconomic Projections and Documentation are attached in Appendices T and U. The documentation covers all aspects of the socioeconomic projections process. The geographic distribution of the current population can be seen in the Socioeconomic Projections Documentation. (See Appendix U, page 6).

Table 2 below lists the population numbers by jurisdiction for July 1, 2010 and July 1, 2012.

**Table 2: Total Resident Population by Jurisdiction
July 1, 2010 and July 1, 2012 Estimates**

| Jurisdiction | Population | | | Percent Growth | | Share | |
|---|---------------------------|---------------------------|------------------|------------------------------|--------------------------|--|--|
| | July 1, 2010 Estimates | July 1, 2012 Estimates | Number Change | Overall Percent Change | Annual Percent Change | Share of MSA ⁵ Growth | Share of MSA ⁵ Population |
| Apache Junction ³ | 35,828 | 36,928 | 1,100 | 3.1% | 1.5% | 1.5% | 0.9% |
| Avondale | 76,468 | 76,870 | 402 | 0.5% | 0.3% | 0.5% | 1.8% |
| Buckeye | 51,019 | 54,102 | 3,083 | 6.0% | 3.0% | 4.2% | 1.3% |
| Carefree | 3,358 | 3,388 | 30 | 0.9% | 0.4% | 0.0% | 0.1% |
| Cave Creek | 5,005 | 5,110 | 105 | 2.1% | 1.0% | 0.1% | 0.1% |
| Chandler | 236,687 | 241,214 | 4,527 | 1.9% | 1.0% | 6.2% | 5.6% |
| El Mirage | 31,911 | 32,067 | 156 | 0.5% | 0.2% | 0.2% | 0.8% |
| Florence | 25,537 | 26,773 | 1,236 | 4.8% | 2.4% | 1.7% | 0.6% |
| Fountain Hills | 22,444 | 22,695 | 251 | 1.1% | 0.6% | 0.3% | 0.5% |
| Gila Bend | 1,932 | 1,932 | | 0.0% | 0.0% | 0.0% | 0.0% |
| Gilbert | 209,048 | 219,666 | 10,618 | 5.1% | 2.5% | 14.5% | 5.1% |
| Glendale | 227,217 | 229,008 | 1,791 | 0.8% | 0.4% | 2.4% | 5.4% |
| Goodyear | 65,404 | 69,018 | 3,614 | 5.5% | 2.7% | 4.9% | 1.6% |
| Guadalupe | 5,540 | 5,943 | 403 | 7.3% | 3.6% | 0.5% | 0.1% |
| Litchfield Park | 5,467 | 5,621 | 154 | 2.8% | 1.4% | 0.2% | 0.1% |
| Maricopa city | 43,598 | 44,946 | 1,348 | 3.1% | 1.5% | 1.8% | 1.1% |
| Mesa | 439,929 | 444,856 | 4,927 | 1.1% | 0.6% | 6.7% | 10.4% |
| Paradise Valley | 12,810 | 13,106 | 296 | 2.3% | 1.1% | 0.4% | 0.3% |
| Peoria ² | 154,164 | 157,653 | 3,489 | 2.3% | 1.1% | 4.7% | 3.7% |
| Phoenix | 1,449,242 | 1,464,727 | 15,485 | 1.1% | 0.5% | 21.1% | 34.3% |
| Queen Creek ³ | 26,448 | 27,708 | 1,260 | 4.8% | 2.4% | 1.7% | 0.6% |
| Scottsdale | 217,365 | 219,713 | 2,348 | 1.1% | 0.5% | 3.2% | 5.1% |
| Surprise | 117,688 | 119,530 | 1,842 | 1.6% | 0.8% | 2.5% | 2.8% |
| Tempe | 161,974 | 164,659 | 2,685 | 1.7% | 0.8% | 3.7% | 3.9% |
| Tolleson | 6,573 | 6,579 | 6 | 0.1% | 0.0% | 0.0% | 0.2% |
| Wickenburg ² | 6,353 | 6,458 | 105 | 1.7% | 0.8% | 0.1% | 0.2% |
| Youngtown | 6,154 | 6,188 | 34 | 0.6% | 0.3% | 0.0% | 0.1% |
| Unincorporated Maricopa County ⁴ | 284,016 | 287,057 | 3,041 | 1.1% | 0.5% | 4.1% | 6.7% |
| Unincorporated Pinal County ^{1,4} | 187,868 | 194,303 | 6,435 | 3.4% | 1.7% | 8.8% | 4.5% |
| Maricopa County | 3,824,058 | 3,884,705 | 60,647 | 1.6% | 0.8% | 82.5% | 90.9% |
| Pinal County | 376,369 | 389,192 | 12,823 | 3.4% | 1.7% | 17.5% | 9.1% |
| Phoenix-Mesa-Scottsdale MSA ⁵ | 4,200,427 | 4,273,897 | 73,470 | 1.7% | 0.9% | 100.0% | 100.0% |
| Arizona | 6,401,569 | 6,498,569 | 97,000 | 1.5% | 0.8% | - | - |
| United States | 308,747,508 | 313,914,040 | 5,166,532 | 1.7% | 0.8% | - | - |

Sources: Arizona State Demographer's Office, U.S. Census Bureau National Estimates

Notes:

¹ Unincorporated Pinal County includes areas outside the MAG Planning Area

² Maricopa County portion only

³ Maricopa and Pinal County portion included

⁴ Gila River, Salt River, and Fort McDowell Indian Communities are included in unincorporated County totals

⁵ The Phoenix-Mesa-Scottsdale Metropolitan Statistical Area (MSA) consists of Maricopa and Pinal counties

iii. Employment - total number of jobs, and their geographic distribution.

Response: Historic employment growth in the MSA between 1960 and 2010 is shown below in *Table 3*, with average annual increases peaking in 1980. In 2012 there were 1,779,500 jobs in Maricopa County and 61,600 jobs in Pinal County. A geographic representation of the employment in Maricopa County by place of work can be seen in the Socioeconomic Projections Documentation. (See Appendix U, page 9).

Table 3: Growth in Employment

| Year | Employment | Average Annual Increase |
|------|------------|-------------------------|
| 1960 | 225,000 | |
| 1970 | 359,000 | 4.80% |
| 1980 | 693,000 | 6.80% |
| 1990 | 975,000 | 3.50% |
| 2000 | 1,610,000 | 5.10% |
| 2010 | 1,767,000 | 0.90% |
| 2012 | 1,841,000 | 2.10% |

Source: U.S. Bureau of Labor Statistics, Current Employee Statistics, MAG and CAG employment estimates 2000, 2010

Note: Prior to 2000, the Phoenix MSA included only Maricopa County. Pinal County was added to the MSA in 1993.

iv. Vehicle miles of travel - average daily and annual VMT by highway functional class.

Response: Daily and Annual VMT by Roadway Classification

| Functional Classification | Daily VMT ¹ | Annual VMT ² | Information Source | Currency of the Information | Update Frequency |
|---------------------------|------------------------|-------------------------|----------------------|-----------------------------|--|
| Freeway | 33,476,288 | 11,013,698,796 | MAG TDM ³ | 2012 | As per RTP ⁴ Updates or more often |
| Expressway | 3,405,284 | 1,120,338,598 | MAG TDM ³ | 2012 | |
| Collectors | 2,675,806 | 880,340,030 | MAG TDM ³ | 2012 | |
| Arterials | 44,509,077 | 14,643,486,269 | MAG TDM ³ | 2012 | |
| Ramps | 2,705,566 | 890,131,163 | MAG TDM ³ | 2012 | |
| HOV | 4,098,750 | 1,348,488,702 | MAG TDM ³ | 2012 | |
| Unpaved | 142,745 | 46,963,069 | MAG TDM ³ | 2012 | |

¹ Average weekday Vehicle Miles Traveled

² Annual Vehicle Miles Traveled (adjusted for weekend and holiday travel)

³ Maricopa Association of Governments Travel Demand Model

⁴ Regional Transportation Plan

v. Transit use - system wide transit ridership and share of regional trips made on transit (average daily and peak).

Response: Systemwide Transit Person Trips by Purpose

| Purpose | Drive Alone | 2 Person Auto | 3 Person Auto | Walk | Bicycle | Local Bus | Express Bus | Rapid Bus | Urban Rail | Total | Information Source | Currency of the Information | Update Frequency |
|------------------|-------------|---------------|---------------|-----------|---------|-----------|-------------|-----------|------------|-----------|----------------------|-----------------------------|--------------------------|
| HBW ¹ | 2,570,345 | 235,794 | 84,361 | 41,450 | 30,561 | 41,674 | 1,693 | 3,730 | 11,502 | 3,021,111 | MAG TDM ⁸ | 2012 | As per RTP or more often |
| HBU ² | 98,410 | 23,684 | 12,484 | 29,225 | 3,277 | 12,222 | 6 | 2 | 1,788 | 181,097 | MAG TDM ⁸ | 2012 | |
| HBO ³ | 3,157,973 | 2,214,866 | 1,788,966 | 1,418,649 | 171,934 | 55,182 | 55 | 11 | 11,886 | 8,819,521 | MAG TDM ⁸ | 2012 | |
| NHW ⁴ | 1,336,688 | 206,036 | 97,799 | 127,678 | 6,389 | 3,493 | 1 | 0 | 989 | 1,779,074 | MAG TDM ⁸ | 2012 | |
| NHO ⁵ | 1,023,103 | 828,637 | 668,686 | 155,928 | 7,934 | 7,726 | 1 | 0 | 1,842 | 2,693,855 | MAG TDM ⁸ | 2012 | |
| ASU ⁶ | 61,153 | 23,294 | 5,753 | 77,214 | 23,161 | 16,877 | 8 | 5 | 14,590 | 222,053 | MAG TDM ⁸ | 2012 | |
| SKY ⁷ | 26,213 | 37,687 | 38,266 | - | - | 64 | - | - | 213 | 102,443 | MAG TDM ⁸ | 2012 | |

- ¹ Home-based Work
- ² Home-based University
- ³ Home-based Other
- ⁴ Non-home based Work
- ⁵ Non-home based Other
- ⁶ Arizona State University
- ⁷ Sky Harbor Airport.
- ⁸ Maricopa Association of Governments Travel Demand Model
- ⁹ Regional Transportation Plan

Share of Regional Trips made on Transit

| 2012 | Daily Person Trips | Peak Person Trips |
|---------|--------------------|-------------------|
| Transit | 185,559 | 102,110 |
| Share | 1.10% | 1.24% |

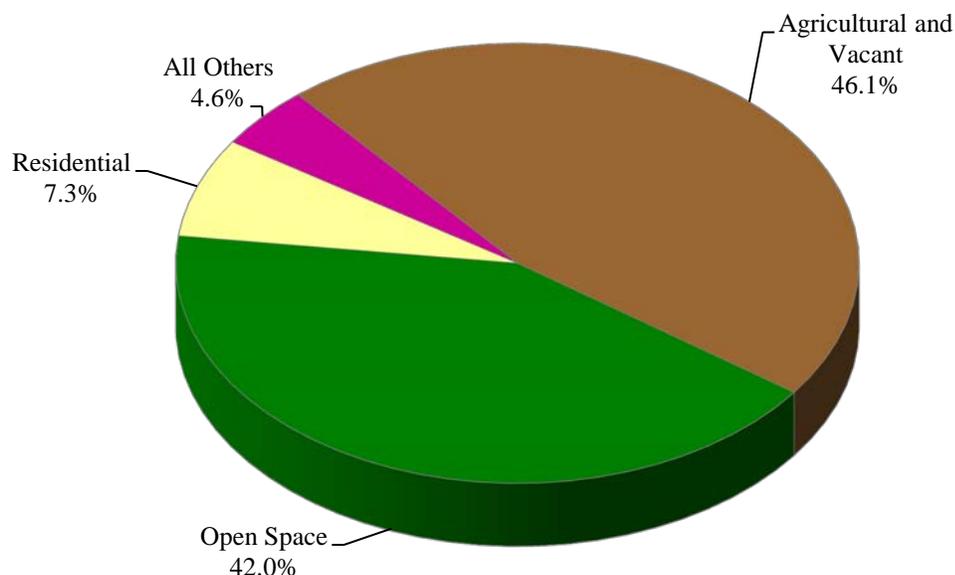
vi. Congestion - description and duration of peak period (i.e., what criteria distinguish peak vs. off-peak travel (e.g., highway level of service?))

Response: Peak periods include: A.M. (6-9 am) and P.M. (2-6 pm). Off-peak periods include Midday period (9 am-2 pm) and Night period (6 pm-6 am). Peak periods are defined based on the highway speed and volume studies. Definition of the peak periods might change in the future based on the observed and predicted changes in travel behavior and patterns.

vii. Land use - amount and geographic distribution of total land area that is currently developed, available for development, or not developable.

Response: The MSA can be disaggregated into the land use categories shown in *Figure 2*. The predominant current land use type is agricultural and vacant land at 46.1 percent, followed by open space with 42 percent. Open spaces include parks, mountains, river beds, washes, and other public areas. The next highest land use type is 7.3 percent for residential. Land developed for retail, office, and industrial uses, as well as public and other types of employment, comprises the balance of the development in the metro area, with approximately 4.6 percent of the developed land dedicated to those various uses. The geographic distribution of the various land uses in Maricopa County can be seen in the Socioeconomic Projections Documentation. (See Appendix U, page 11).

Figure 2: Current Land Use



Source: MAG Existing Land Use Database, 2012, CAG Existing Land Use Database, 2012

- b. Planning Assumptions:** The documentation of planning assumptions should, at a minimum, address the following expected changes in the study area.
- i. Population change - expected change in regional population over the duration of the Transportation Plan.** Population assumptions should be compared to past trends, and to statewide demographic control totals, where available.

Response: Recent and projected growth in Arizona and Phoenix MSA is illustrated in *Table 4*. The growth rates in the Phoenix MSA and Arizona are very similar, primarily due to fact that over 65 percent of Arizona's population resides within the Phoenix MSA.

Table 4: Projected Growth in Population: Phoenix MSA and Arizona

| Year | Phoenix MSA Population | Average Annual Growth Rate | Arizona Population | Average Annual Growth Rate |
|------|------------------------|----------------------------|--------------------|----------------------------|
| 2000 | 3,252,000 | | 5,131,000 | |
| 2010 | 4,193,000 | 2.6% | 6,392,000 | 2.2% |
| 2020 | 5,000,000 | 1.8% | 7,485,000 | 1.6% |
| 2030 | 6,041,000 | 1.9% | 8,853,000 | 1.7% |
| 2040 | 7,110,000 | 1.6% | 10,218,000 | 1.4% |

Sources: Census Bureau, Arizona Department of Administration 2012; rounded to the nearest thousand.

- ii. **Employment change - expected change in regional employment over the duration of the Transportation Plan. Employment assumptions should be compared to past trends, and to statewide economic growth control totals, where available.**

Response: The Phoenix MSA has become increasingly important as a hub of business activity in the Southwest. Table 5 below shows projected growth of employment in Phoenix MSA between 2000 and 2040.

Table 5: Phoenix MSA - Employment Projections

| Year | Employment | Average Annual Increase |
|------|------------|-------------------------|
| 2000 | 1,610,000 | |
| 2010 | 1,767,000 | 0.90% |
| 2020 | 2,426,000 | 3.20% |
| 2030 | 2,902,000 | 1.80% |
| 2040 | 3,411,000 | 1.60% |

Source: U.S. Bureau of Labor Statistics, Current Employee Statistics, MAG and CAG socioeconomic projections 2013

- iii. **Regional distribution of future population, employment and land use - the procedures used to allocate future population, employment and other activity generators within the metropolitan area. Are the land use forecasts consistent with local jurisdictions' Master Plans? If land use models were employed, these should also be documented under forecasting methods.**

Response: MAG develops long-range socioeconomic projections of population, housing and employment using a land use modeling process that incorporates three separate models. The projections are consistent with the general plans of all MAG member agencies. Documentation for the 2013 MAG Socioeconomic Projections, including appropriate population and employment maps, is included in Appendices T and U.

The Central Arizona Governments (CAG) develops socioeconomic projections for Pinal County. CAG maintains similar datasets as MAG and collaborated with MAG since 2007 in the development of its socioeconomic datasets and projections. In 2013, MAG assisted CAG in the development of the sub-area projections for Pinal County by utilizing the same models and methods as were utilized for Maricopa County.

iv. Demographic changes - changes in the demographic characteristics of the study area population that would significantly impact aggregate tripmaking behavior and/or travel patterns. Demographic changes might include, auto ownership, household income, household size, multi-worker households, minority households, etc.

Response: The Modeling Area (MA) for MAG encompasses all of Maricopa County as well as Pinal County, as many of the workers in Pinal County commute to jobs in Maricopa County. During the projection period from 2010 to 2040, it is anticipated that household size will remain fairly constant around 2.7 persons per household; the number of jobs per household will decline slightly from about 1.2 to around 1.1 jobs per household; and minority population will become an increasing proportion of the population. For the current transportation model, household income is measured as the number of households in each income quintile by Traffic Analysis Zone, so this proportion will remain constant over time.

According to the US Census Bureau, 12 percent of the population of Maricopa County was aged 65 or older in 2010 and 19 percent of the population was of school age. According to the Arizona Department of Economic Security, the population of Maricopa County aged 65 or older is anticipated to rise to 21 percent in 2040. And although the percentage of school age children is anticipated to decline to 18 percent of the population, the increase in population will increase the number of school age children by more than 43 percent.

Households by Auto Ownership

| Auto ownership | Number of Households | Percentage | Information Source | Currency of the Information | Update Frequency |
|----------------|----------------------|------------|----------------------|-----------------------------|--|
| 0 | 121,767 | 7% | MAG TDM ¹ | 2012 | As per household surveys Or more often if data become available |
| 1 | 610,596 | 35% | MAG TDM ¹ | 2012 | |
| 2 | 682,511 | 40% | MAG TDM ¹ | 2012 | |
| 3+ | 308,642 | 18% | MAG TDM ¹ | 2012 | |

MAG TDM¹ - Maricopa Association of Governments Travel Demand Model

- v. **Travel behavior changes - changes in the tripmaking behavior of travelers and households that would significantly impact aggregate tripmaking behavior and/or travel patterns. Travel behavior changes might include telecommuting, Internet shopping, trip chaining, etc.**

Response: Changes in trip making behavior of travelers reflect a complex causality of factors affecting travel behavior. Longer term effects might include changes in car ownership or residential and employment location choices. Shorter term effects can be observable within months or even weeks and result in fluctuations in commuter and discretionary travel or short term fleet changes.

A few major data collection exercises helped MAG to address these issues in the forecasting models to a larger extent than what has been implemented previously. On the traffic data side MAG conducted extensive data collection in 2007-2013 as well as purchased region-wide commercial speed data for 2010-2012. Traffic data collections included regional traffic counts in 2007 and 2008, intersection turning movements and approach counts in 2010, regional traffic volume and classification screen lines counts in 2011, unpaved roads and complementary volume counts in 2012 and 2013. Collected traffic data indicated a drop in the regional auto travel in 2008-2011 period reflecting economic downturn in the region. Annual average weekday vehicle miles traveled decreased by 5.2 percent in 2008 versus a 3.3 percent increase in 2007 (source: ADOT FMS). Similarly, average weekday annual volume dropped by 5 percent in the summer of 2008 as compared to the same period in 2007. Weekend volumes dropped by 11 percent for the same time periods, which probably indicates a drastic reduction in discretionary travel, including entertainment and shopping. From 2007 to 2011 traffic volume dropped almost 11 percent (based on 147 same arterial locations) whereas for the period from 2008 to 2011 volume increased by almost 3 percent (68 arterial locations). The data reflects rapid drastic decrease in travel during recession and come back during 2011. Adequate modeling of the underlying behavioral changes requires relevant travel survey data and additional analysis from a modeling perspective. Such data were collected by the MAG 2008-2009 Regional Household Survey. The 2008-2009 Regional Household Survey was a part of the FHWA NHTS add-on program. The survey data provided important additional insights in travel behavior changes and comparisons with the 2001 Regional Household Travel Survey. One of the interesting observations from the NHTS data was relatively high average trip rates for MAG region that fluctuated from 8 to 11 trips per household on weekdays and up to 13-14 trips on Saturdays. Another related observation was changes in auto occupancy rates that picked on the weekends as well. MAG regional travel demand forecasting model was completely recalibrated and updated with the 2008-2009 NHTS data. Another important milestone was the Regionwide On-board Transit Survey conducted by RPTA in 2010. Previous on-board survey was conducted in 2007. The current MAG travel forecasting model was recalibrated based on the latest on-board survey results and reflects corresponding changes in transit travel behavior.

The Maricopa County Trip Reduction Program (TRP) provides another indication of the ongoing behavioral changes (even though the data is not sufficient to address the changes within the MAG modeling framework). The TRP requires organizations with 50 or more employees or students at a single site to participate in a trip reduction program. The TRP is mandated by the Arizona State Legislature. There are currently nearly 1,200 employers and 2,900 sites in the TRP. Based on a survey administered annually, changes in trip behavior, as calculated by the Single Occupant Vehicle (SOV) trip rate, have been estimated.

The SOV trip rate is calculated by dividing the number of SOV trips by the total number of trips taken by all commuters. Aggregate data is then analyzed to count the number of commuters, calculate the Single Occupancy Vehicles (SOV) rate and calculate the number of tons of pollution saved annually. The data shown for Maricopa County in the table below is for the period from July 1, 2011 to June 30, 2012, inclusive.

Maricopa County Trip Reduction Program (TRP)

| Fiscal Year | 2012 | Information Source | Update Frequency |
|----------------------------|---------|--------------------|------------------|
| Commuters | 502,791 | TRP | Annual |
| SOV ¹ trip rate | 78.60% | TRP | Annual |

¹ Single Occupant Vehicles

- c. Forecasting Methods. The technical documentation of the travel forecasting methods or models should include the following information:**
- i. Last model revision - when (what year) was the current set of travel models last revised (e.g., new variables, new model algorithms, recalibrated using new data)?**

Response: The most recent model revision was completed in September 2013. MAG has undertaken a complete model recalibration, update and improvement in 2011-2013 calendar years. The work was necessary to address changes in travel behavior reflected in the latest travel surveys and traffic data. The following surveys formed the foundation for the model update: 2008-2009 National Household Travel Survey Arizona Add-On sample, 2010 regional transit on-board survey, 2008 external travel survey, 2009-2010 Special Events Survey (was used for development of a stand-alone special events model); 2011 GPS Truck data; 2012 Regional Airport Travel Survey (including visitors survey); 2012 ASU Travel Survey.

Main regional model developments included:

- Definition of the new modeling area that allows efficient modeling for projects on the periphery of the previous TAZ system (TAZ2003).
- New traffic analysis zone system (TAZ2012), that improved consistency with transportation networks, area topography, socio-economic data and planned activity-based model developments. New traffic analysis zones system also addressed one of the previous FTA and Metro recommendations on detailing traffic zones along major transit corridors. This improvement will allow for better modeling of the transit facilities in the region.
- Development of new horizon years and base year modeling networks consistent with RTP and TIP. Modeling improvements included detailing of the traffic interchanges, improved functional class designations; updated free flow speeds, capacities and volume-delay functions.

New fully automated area type designation GIS procedures; improved centroid connectors coding.

- Re-estimation, re-calibration and update of the trip generation model.
- New vehicle ownership model estimated and calibrated to the latest surveys.
- Development of the new destination choice trip distribution model and replacement of the old gravity model.
- Recalibration of the mode choice model.
- Development and calibration of the new time-of-day procedures and factors and directionality factors.
- Redeveloped, re-estimated and recalibrated regional truck model. The new model is based in particular on the 2011 truck GPS data sample from ATRI.
- New completed redeveloped, re-estimated and recalibrated to the latest data sets special generator sub-models, including ASU sub-model and Phoenix Sky Harbor International Airport and Phoenix-Mesa Gateway Airport sub-model.
- New modeling software developed for the new MAG sub-models and improved implementations of the previously developed modeling software.
- Improvement of transit assignment procedures and transit accessibility procedures as per FTA recommendations.

ii. Model specification - description of models used (e.g., gravity vs. destination choice) and interactions between models, specification of key model coefficients, calibration results (e.g., goodness-of-fit measures).

Response: MAG regional travel forecasting model is a state of the practice full-fledged, four-step trip-based procedure. It includes the following major components:

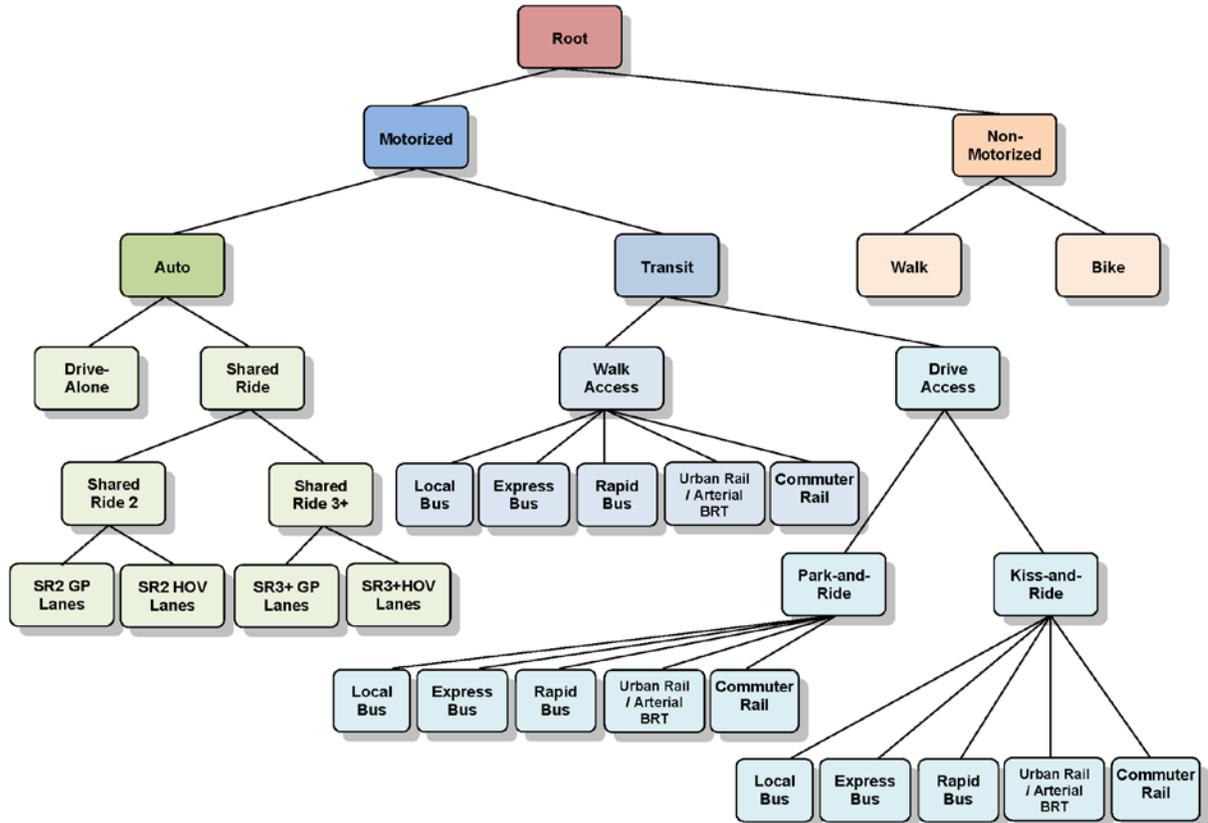
Trip Generation Step: The following trip purposes are modeled: Home-Based Work, Home-Based Shopping, Home-Based Primary and Secondary School, Home-Based Other University (not ASU), Home-Based Other, Non-Home-Based Work, Non-Home-Based Other trips and Airport trips. The model utilizes disaggregate cross-classification methodology for trip production. Trip attractions were modeled through size terms described under trip distribution. Passenger airport trips were modeled separately as special generator models. ASU student trips were modeled separately in the newly updated ASU sub-model.

Trip Distribution Step: For trip distribution, the existing gravity models were replaced by destination choice models for the following purposes- Home-Based Work, Home-Base Shopping, Home-Based School, Home-Based Other University, Home-Based Other, Non-Home-Based Work, and Non-Home-Based Other. Trip distribution for the special generators (ASU model and Airport model) were also modeled as destination choice models. The basic structure of a destination choice model is the combination of an impedance term with a size term. The size term describes the quantity of opportunities at each potential destination and it operates much like a trip attraction term in the gravity model. The destination choice model formulation allows for the treatment of trip distribution in a theoretically and behaviorally consistent manner with mode choice. A primary advantage of destination choice models is that they allow a sound structure in which the logsum from the mode choice model can be used as the impedance term in trip distribution. This means that the models will be sensitive to changes in the level-of-service across

all modes, and the level of sensitivity will be proportional to the mode share for that market segment.

Mode Choice step: MAG mode choice model is a nested logit model. Mode Choice Nesting Structure is depicted in the figure below.

MAG Travel Demand Model - Mode Choice Nested Logit Model Structure



Mode choice coefficients by purpose are provided in the tables below.

Home-based Work (HBW) Mode Choice Coefficients

| Variable | Description | Coefficient | Ratio to IVT/Value of Time |
|-------------------|---|------------------------------|----------------------------|
| c_ivt | In-vehicle time coefficient | -0.02500 | 1 |
| c_autoacc | Auto access time coefficient | -0.05000 | 2.0 |
| c_shwait | Short wait time coefficient | -0.05000 | 2.0 |
| c_lgwait | Long wait time coefficient | -0.02500 | 1.0 |
| c_xwait | Transfer wait time coefficient | -0.05000 | 2.0 |
| c_shwalk | Long walk time coefficient | -0.05000 | 2.0 |
| c_lgwalk | Long walk time coefficient | -0.10000 | 4.0 |
| c_wtwalk | Weighted walk time coefficient | -0.05000 | 2.0 |
| c_bikemode | Bike mode coefficient | -0.10000 | 4.0 |
| c_xferswlk | Transfer penalty for walk access transit | -0.12500 | 5.0 |
| c_xfersdrv | Transfer penalty for drive access transit | -0.50000 | 20.0 |
| c_cbdwlkknrtrn | CBD walk-transit coefficient | 1.00000 | -40.0 |
| c_cbdpnrtrn | CBD drive-transit coefficient | 1.00000 | -40.0 |
| c_const_brt | Constant for Arterial_BRT | -0.22755 | 9.1 |
| aopc | Auto operating cost (cents) | 19 | |
| waitThreshold | Short/Long wait threshold (minutes) | 7.5 | |
| walkSpeed | Walk speed (miles per hour) | 3 | |
| shortWalkTime | Short walk maximum time (minutes) | $0.3333*60/\text{walkSpeed}$ | |
| longWalkTime | Long walk maximum time (minutes) | $0.6666*60/\text{walkSpeed}$ | |
| walkModeThreshold | Short/Long walk mode threshold (miles) | 1 | |
| bikeSpeed | Bike speed (miles per hour) | 12 | |

Arizona State University (ASU) Mode Choice Coefficients

Table: Peak ASU mode choice utility coefficients

| Variable name | Description | Graduate | Undergrad Off Campus | Undergrad On Campus |
|---------------|----------------------------------|----------|----------------------|---------------------|
| c_ivt | In-vehicle time coefficient | -0.02500 | -0.02500 | -0.02500 |
| c_autoacc | Auto access time coefficient | -0.05000 | -0.05000 | -0.05000 |
| c_shwait | Short wait time coefficient | -0.05000 | -0.05000 | -0.05000 |
| c_lgwait | Long wait time coefficient | -0.02500 | -0.02500 | -0.02500 |
| c_xwait | Transfer wait time coefficient | -0.05000 | -0.05000 | -0.05000 |
| c_shwalk | Short walk access time | -0.05000 | -0.05000 | -0.01250 |
| c_lgwalk | Long walk access time | -0.07500 | -0.07500 | -0.02500 |
| c_wtwalk | Weighted walk time coefficient | -0.05000 | -0.05000 | -0.01250 |
| c_cost | Cost coefficient | -0.00176 | -0.00176 | -0.00176 |
| c_bikemode | Bike mode coefficient | -0.10000 | -0.10000 | -0.10000 |
| c_xferswlk | Transfer penalty for walk access | -0.12500 | -0.12500 | -0.12500 |
| c_xfersdrv | Transfer penalty for drive | -0.50000 | -0.50000 | -0.50000 |
| c_cbdwlktrn | CBD walk-transit coefficient | 0.37500 | 0.37500 | 0.37500 |
| c_cbddrvtrn | CBD drive-transit coefficient | 0.37500 | 0.37500 | 0.37500 |

Table: Peak ASU mode choice utility coefficients ratio to IVT / Value of Time

| Variable name | Description | Graduate | Undergrad Off Campus | Undergrad On Campus |
|---------------|----------------------------------|----------|----------------------|---------------------|
| c_ivt | In-vehicle time coefficient | 1 | 1 | 1 |
| c_autoacc | Auto access time coefficient | 2 | 2 | 2 |
| c_shwait | Short wait time coefficient | 2 | 2 | 2 |
| c_lgwait | Long wait time coefficient | 1 | 1 | 1 |
| c_xwait | Transfer wait time coefficient | 2 | 2 | 2 |
| c_shwalk | Short walk access time | 2 | 2 | 0.5 |
| c_lgwalk | Long walk access time | 3 | 3 | 1 |
| c_wtwalk | Weighted walk time coefficient | 2 | 2 | 0.5 |
| c_cost | Cost coefficient | \$8.5 | \$8.5 | \$8.5 |
| c_bikemode | Bike mode coefficient | 4 | 4 | 4 |
| c_xferswlk | Transfer penalty for walk access | 5 | 5 | 5 |
| c_xfersdrv | Transfer penalty for drive | 20 | 20 | 20 |
| c_cbdwlktrn | CBD walk-transit coefficient | -15 | -15 | -15 |
| c_cbddrvtrn | CBD drive-transit coefficient | -15 | -15 | -15 |

Table: Off peak ASU mode choice utility coefficients

| Variable name | Description | Graduate | Undergrad Off Campus | Undergrad On Campus |
|---------------|----------------------------------|----------|----------------------|---------------------|
| c_ivt | In-vehicle time coefficient | -0.02500 | -0.02500 | -0.02500 |
| c_autoacc | Auto access time coefficient | -0.05000 | -0.05000 | -0.05000 |
| c_shwait | Short wait time coefficient | -0.05000 | -0.05000 | -0.05000 |
| c_lgwait | Long wait time coefficient | -0.02500 | -0.02500 | -0.02500 |
| c_xwait | Transfer wait time coefficient | -0.05000 | -0.05000 | -0.05000 |
| c_shwalk | Short walk access time | -0.05000 | -0.05000 | -0.05000 |
| c_lgwalk | Long walk access time | -0.07500 | -0.07500 | -0.07500 |
| c_wtwalk | Weighted walk time coefficient | -0.05000 | -0.05000 | -0.05000 |
| c_cost | Cost coefficient | -0.00231 | -0.00231 | -0.00231 |
| c_bikemode | Bike mode coefficient | -0.10000 | -0.10000 | -0.10000 |
| c_xferswlk | Transfer penalty for walk access | -0.12500 | -0.12500 | -0.12500 |
| c_xfersdrv | Transfer penalty for drive | -0.50000 | -0.50000 | -0.50000 |
| c_cbdwlktrn | CBD walk-transit coefficient | 0.37500 | 0.37500 | 0.37500 |
| c_cbddrvtrn | CBD drive-transit coefficient | 0.37500 | 0.37500 | 0.37500 |

Table: Off peak ASU mode choice utility coefficients ratio to IVT / Value of Time

| Variable name | Description | Graduate | Undergrad Off Campus | Undergrad On Campus |
|---------------|----------------------------------|----------|----------------------|---------------------|
| c_ivt | In-vehicle time coefficient | 1 | 1 | 1 |
| c_autoacc | Auto access time coefficient | 2 | 2 | 2 |
| c_shwait | Short wait time coefficient | 2 | 2 | 2 |
| c_lgwait | Long wait time coefficient | 1 | 1 | 1 |
| c_xwait | Transfer wait time coefficient | 2 | 2 | 2 |
| c_shwalk | Short walk access time | 2 | 2 | 2 |
| c_lgwalk | Long walk access time | 3 | 3 | 3 |
| c_wtwalk | Weighted walk time coefficient | 2 | 2 | 2 |
| c_cost | Cost coefficient | \$6.5 | \$6.5 | \$6.5 |
| c_bikemode | Bike mode coefficient | 4 | 4 | 4 |
| c_xferswlk | Transfer penalty for walk access | 5 | 5 | 5 |
| c_xfersdrv | Transfer penalty for drive | 20 | 20 | 20 |
| c_cbdwlktrn | CBD walk-transit coefficient | -15 | -15 | -15 |
| c_cbddrvtrn | CBD drive-transit coefficient | -15 | -15 | -15 |

Home-based University (HBU) Mode Choice Coefficients

| Variable | Description | Coefficient | Ratio to IVT / Value of Time |
|------------------|--|-----------------------|------------------------------|
| c_ivt | In-vehicle time coefficient | -0.02500 | 1 |
| c_autoacc | Auto access time coefficient | -0.05000 | 2 |
| c_shwait | Short wait time coefficient | -0.05000 | 2 |
| c_lgwait | Long wait time coefficient | -0.02500 | 1 |
| c_xwait | Transfer wait time coefficient | -0.05000 | 2 |
| c_shwalk | Short walk access time coefficient | -0.05000 | 2 |
| c_lgwalk | Long walk access time coefficient | -0.07500 | 3 |
| c_wtwalk | Weighted walk time coefficient (GISDK | -0.05000 | 2 |
| c_bikemode | Bike mode coefficient | -0.10000 | 4 |
| c_xferswlk | Transfer penalty for walk access transit | -0.12500 | 5 |
| c_xfersdrv | Transfer penalty for drive access | -0.50000 | 20 |
| c_cbdwlkknrtrn | CBD walk-transit coefficient | 1.00000 | -40 |
| c_cbdpnrtrn | CBD drive-transit coefficient | 1.00000 | -40 |
| c_const_brt | Constant for Arterial_BRT | -0.29025 | 11.61 |
| aopc | Auto operating cost (cents) | 19 | |
| waitThreshold | Short/Long wait threshold (minutes) | 7.5 | |
| walkSpeed | Walk speed (miles per hour) | 3 | |
| shortWalkTime | Short walk maximum time (minutes) | $0.3333*60/walkSpeed$ | |
| longWalkTime | Long walk maximum time (minutes) | $0.6666*60/walkSpeed$ | |
| walkModeThreshol | Short/Long walk mode threshold | 1 | |
| bikeSpeed | Bike speed (miles per hour) | 12 | |

Home-based Other (HBO) Mode Choice Coefficients

| Variable | Description | Coefficient | Ratio to IVT / Value of Time |
|------------------|-------------------------------------|-----------------------|------------------------------|
| c_ivt | In-vehicle time coefficient | -0.02000 | 1 |
| c_autoacc | Auto access time coefficient | -0.04000 | 2 |
| c_shwait | Short wait time coefficient | -0.04000 | 2 |
| c_lgwait | Long wait time coefficient | -0.02000 | 1 |
| c_xwait | Transfer wait time coefficient | -0.04000 | 2 |
| c_shwalk | Short walk access time coefficient | -0.04000 | 2 |
| c_lgwalk | Long walk access time coefficient | -0.08000 | 4 |
| c_wtwalk | Weighted walk time coefficient | -0.04000 | 2 |
| c_bikemode | Bike mode coefficient | -0.08000 | 4 |
| c_xferswlk | Transfer penalty for walk access | -0.10000 | 5 |
| c_xfersdrv | Transfer penalty for drive access | -0.50000 | 25 |
| c_cbdwlkknrtrn | CBD walk-transit coefficient | 0.80000 | -40 |
| c_cbdpnrtrn | CBD drive-transit coefficient | 0.80000 | -40 |
| c_const_brt | Constant for Arterial_BRT | -0.56753 | 28.3765 |
| aopc | Auto operating cost (cents) | 19 | |
| waitThreshold | Short/Long wait threshold (minutes) | 7.5 | |
| walkSpeed | Walk speed (miles per hour) | 3 | |
| shortWalkTime | Short walk maximum time (minutes) | $0.3333*60/walkSpeed$ | |
| longWalkTime | Long walk maximum time (minutes) | $0.6666*60/walkSpeed$ | |
| walkModeThreshol | Short/Long walk mode threshold | 1 | |
| bikeSpeed | Bike speed (miles per hour) | 12 | |

Home-based Shop (HBS) Mode Choice Coefficients

| Variable | Description | Coefficient | Ratio to IVT / Value of Time |
|-------------------|-------------------------------------|-----------------------|------------------------------|
| c_ivt | In-vehicle time coefficient | -0.02000 | 1 |
| c_autoacc | Auto access time coefficient | -0.04000 | 2 |
| c_shwait | Short wait time coefficient | -0.04000 | 2 |
| c_lgwait | Long wait time coefficient | -0.02000 | 1 |
| c_xwait | Transfer wait time coefficient | -0.04000 | 2 |
| c_shwalk | Short walk access time coefficient | -0.04000 | 2 |
| c_lgwalk | Long walk access time coefficient | -0.08000 | 4 |
| c_wtwalk | Weighted walk time coefficient | -0.04000 | 2 |
| c_bikemode | Bike mode coefficient | -0.08000 | 4 |
| c_xferswlk | Transfer penalty for walk access | -0.10000 | 5 |
| c_xfersdrv | Transfer penalty for drive access | -0.50000 | 25 |
| c_cbdwlkknrtrn | CBD walk-transit coefficient | 0.80000 | -40 |
| c_cbdpnrtrn | CBD drive-transit coefficient | 0.80000 | -40 |
| c_const_brt | Constant for Arterial_BRT | -0.51810 | 25.905 |
| aopc | Auto operating cost (cents) | 19 | |
| waitThreshold | Short/Long wait threshold (minutes) | 7.5 | |
| walkSpeed | Walk speed (miles per hour) | 3 | |
| shortWalkTime | Short walk maximum time (minutes) | $0.3333*60/walkSpeed$ | |
| longWalkTime | Long walk maximum time (minutes) | $0.6666*60/walkSpeed$ | |
| walkModeThreshold | Short/Long walk mode threshold | 1 | |
| bikeSpeed | Bike speed (miles per hour) | 12 | |

Home-based School (HBSC) Mode Choice Coefficients

| Variable | Description | Coefficient | Ratio to IVT / Value of Time |
|-------------------|-------------------------------------|-----------------------|------------------------------|
| c_ivt | In-vehicle time coefficient | -0.02500 | 1 |
| c_autoacc | Auto access time coefficient | -0.05000 | 2 |
| c_shwait | Short wait time coefficient | -0.05000 | 2 |
| c_lgwait | Long wait time coefficient | -0.02500 | 1 |
| c_xwait | Transfer wait time coefficient | -0.05000 | 2 |
| c_shwalk | Short walk access time coefficient | -0.05000 | 2 |
| c_lgwalk | Long walk access time coefficient | -0.07500 | 3 |
| c_wtwalk | Weighted walk time coefficient | -0.05000 | 2 |
| c_bikemode | Bike mode coefficient | -0.10000 | 4 |
| c_xferswlk | Transfer penalty for walk access | -0.12500 | 5 |
| c_xfersdrv | Transfer penalty for drive access | -0.50000 | 20 |
| c_cbdwlkknrtrn | CBD walk-transit coefficient | 1.00000 | -40 |
| c_cbdpnrtrn | CBD drive-transit coefficient | 1.00000 | -40 |
| c_const_brt | Constant for Arterial_BRT | -0.75000 | 30 |
| aopc | Auto operating cost (cents) | 19 | |
| waitThreshold | Short/Long wait threshold (minutes) | 7.5 | |
| walkSpeed | Walk speed (miles per hour) | 3 | |
| shortWalkTime | Short walk maximum time (minutes) | $0.3333*60/walkSpeed$ | |
| longWalkTime | Long walk maximum time (minutes) | $0.6666*60/walkSpeed$ | |
| walkModeThreshold | Short/Long walk mode threshold | 1 | |
| bikeSpeed | Bike speed (miles per hour) | 12 | |

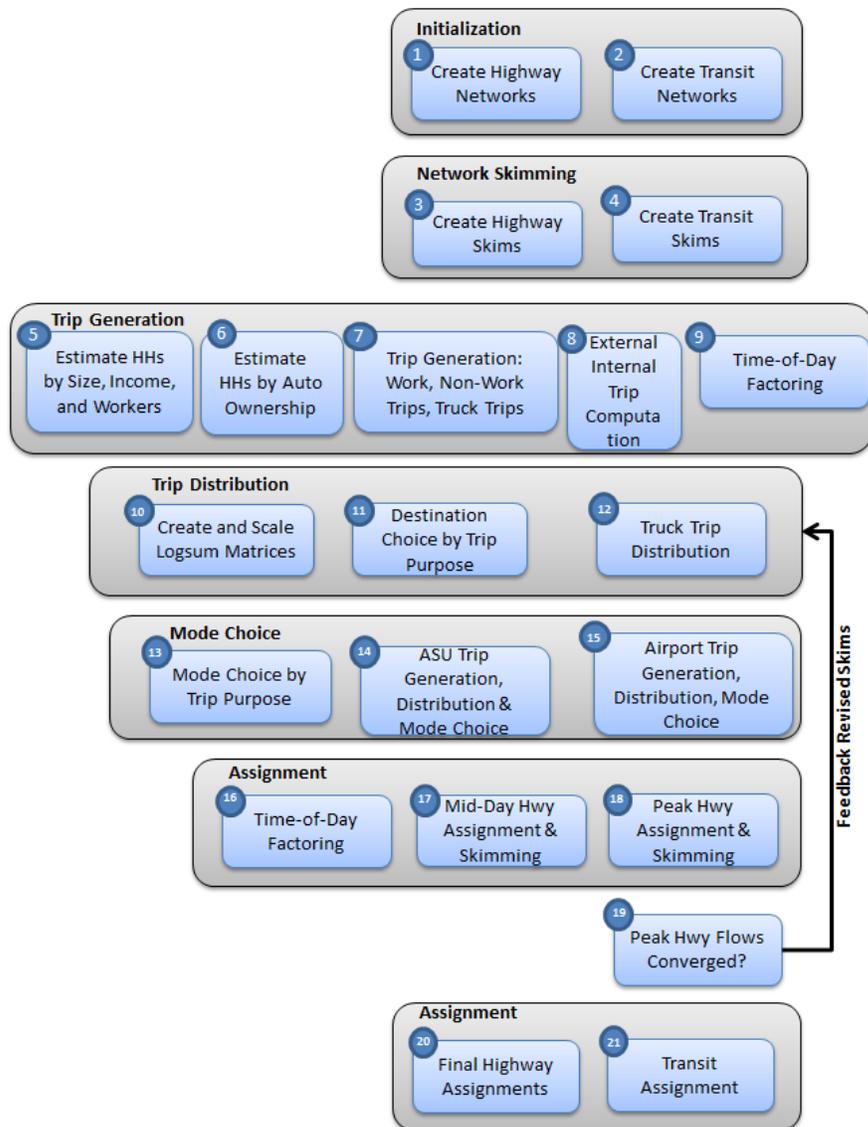
Non-home based Work (NHW) Mode Choice Coefficients

| Variable | Description | Coefficient | Ratio to IVT / Value of Time |
|------------------|-------------------------------------|-----------------------|------------------------------|
| c_ivt | In-vehicle time coefficient | -0.02500 | 1 |
| c_autoacc | Auto access time coefficient | -0.05000 | 2 |
| c_shwait | Short wait time coefficient | -0.05000 | 2 |
| c_lgwait | Long wait time coefficient | -0.02500 | 1 |
| c_xwait | Transfer wait time coefficient | -0.05000 | 2 |
| c_shwalk | Short walk access time coefficient | -0.05000 | 2 |
| c_lgwalk | Long walk access time coefficient | -0.07500 | 3 |
| c_wtwalk | Weighted walk time coefficient | -0.05000 | 2 |
| c_bikemode | Bike mode coefficient | -0.10000 | 4 |
| c_xferswlk | Transfer penalty for walk access | -0.12500 | 5 |
| c_xfersdrv | Transfer penalty for drive access | -0.50000 | 20 |
| c_cbdwlkknrtrn | CBD walk-transit coefficient | 1.00000 | -40 |
| c_cbdpnrtrn | CBD drive-transit coefficient | 1.00000 | -40 |
| c_const_brt | Constant for Arterial_BRT | -0.75000 | 30 |
| aopc | Auto operating cost (cents) | 19 | |
| waitThreshold | Short/Long wait threshold (minutes) | 7.5 | |
| walkSpeed | Walk speed (miles per hour) | 3 | |
| shortWalkTime | Short walk maximum time (minutes) | $0.3333*60/walkSpeed$ | |
| longWalkTime | Long walk maximum time (minutes) | $0.6666*60/walkSpeed$ | |
| walkModeThreshol | Short/Long walk mode threshold | 1 | |
| bikeSpeed | Bike speed (miles per hour) | 12 | |

Non-Home based Other (NHO) Mode Choice Coefficients

| Variable | Description | Coefficient | Ratio to IVT / Value of Time |
|------------------|-------------------------------------|-----------------------|------------------------------|
| c_ivt | In-vehicle time coefficient | -0.02500 | 1 |
| c_autoacc | Auto access time coefficient | -0.05000 | 2 |
| c_shwait | Short wait time coefficient | -0.05000 | 2 |
| c_lgwait | Long wait time coefficient | -0.02500 | 1 |
| c_xwait | Transfer wait time coefficient | -0.05000 | 2 |
| c_shwalk | Short walk access time coefficient | -0.05000 | 2 |
| c_lgwalk | Long walk access time coefficient | -0.07500 | 3 |
| c_wtwalk | Weighted walk time coefficient | -0.05000 | 2 |
| c_bikemode | Bike mode coefficient | -0.10000 | 4 |
| c_xferswlk | Transfer penalty for walk access | -0.12500 | 5 |
| c_xfersdrv | Transfer penalty for drive access | 0.00000 | 0 |
| c_cbdwlkknrtrn | CBD walk-transit coefficient | 1.00000 | -40 |
| c_cbdpnrtrn | CBD drive-transit coefficient | 1.00000 | -40 |
| c_const_brt | Constant for Arterial_BRT | -0.38970 | 15.588 |
| aopc | Auto operating cost (cents) | 19 | |
| waitThreshold | Short/Long wait threshold (minutes) | 7.5 | |
| walkSpeed | Walk speed (miles per hour) | 3 | |
| shortWalkTime | Short walk maximum time (minutes) | $0.3333*60/walkSpeed$ | |
| longWalkTime | Long walk maximum time (minutes) | $0.6666*60/walkSpeed$ | |
| walkModeThreshol | Short/Long walk mode threshold | 1 | |
| bikeSpeed | Bike speed (miles per hour) | 12 | |

Interaction Between Models – Flow Chart



Calibration Results:Total Person Trips, All Purposes¹

| Mode | Observed ² | Estimated ³ | Difference | Percent Difference |
|----------------|-----------------------|------------------------|------------|--------------------|
| Drive Alone | 8,114,920 | 8,186,518 | 71,598 | 1% |
| Shared ride 2 | 3,631,339 | 3,509,017 | (122,322) | -3% |
| Shared ride 3+ | 2,676,899 | 2,652,295 | (24,603) | -1% |
| Bike | 211,013 | 220,095 | 9,082 | 4% |
| Walk | 1,707,915 | 1,772,930 | 65,015 | 4% |
| Bus | 123,820 | 125,795 | 1,976 | 2% |
| Urban Rail | 28,753 | 28,007 | (746) | -3% |
| Total | 16,494,658 | 16,494,658 | 0 | 0% |

¹ Excludes Airport trips and ASU trips, which have different modal alternatives.

² Observed Transit is from 2010 on-board survey, Auto is from scaled 2008-2009 National Household Travel Study.

³ Estimated Numbers are from 2012 travel demand model.

iii. Calibration data - what data was used to calibrate the model set (e.g., local home interview survey, national surveys (e.g., NHTS, CTPP), models "borrowed" from another urban area)? How current is the data source?

Response: A number of major data sources were utilized for calibration of the MAG regional travel forecasting model. 2008-2009 NHTS MAG Add-on sample and 2010 regional on-board survey were the main data sources. ACS and PUMS data played important role as well. The mode choice part of the model was subsequently recalibrated based on the results of the 2010 On-board Regional Transit Survey. External model was developed based on the 2008 MAG external travel survey. Special generator sub-models were developed based on 2012 regional airport survey and 2012 ASU survey. Truck model utilize 2011 ATRI GPS truck data, 2009 Transearch data, 2007 MAG truck survey, NCFRP and FHWA reports and MAG socio-economic NAICS2 data. 2010-2011 NAVTEQ/NOKIA speed data and 2011 counts were utilized for model validation and volume-delay functions review and recalibration.

iv. Local survey - if a local home interview survey was used to calibrate the model, when (what year) was the survey conducted, how many valid household records were collected?

Response: The MAG Add-On NHTS sample was collected in 2008-2009 calendar years and included completed 4707 household samples. The 2010 On-board Regional Transit Survey has 15000 valid completed interviews. ASU survey included close to 11000 cleaned samples. Airport survey has more than 6000 completed cleaned interviews.

v. Model validation - what year and data source was the model validated against?

Response: The MAG regional travel forecasting model validation was validated for 2011. About 3000 volume and classification counts for 2011, including Screen lines, were used for the validation purposes. 2011 NAVTEQ/NOKIA region-wide speed data was used for speed validations.

vi. Size of network - how many links are in the model highway network; what highway functional classes are included as network links; has a compatible transit network been developed?

Response: Yes, a compatible transit network has been developed and fully integrated with the MAG highway modeling network using TransCAD modeling platform.

Number of Links in the Model Highway Network by Functional Class

| Functional Classification | Number of Links ³ | Information Source | Currency of the Information | Update Frequency |
|---------------------------|------------------------------|----------------------|-----------------------------|---|
| Freeway HOV ¹ | 1,061 | MAG TDM ⁴ | 2012 network, Updated 2013 | As per RTP ⁵ updates or more often |
| Freeway General Purpose | 1,845 | MAG TDM ⁴ | 2012 network, Updated 2013 | |
| Expressways | 269 | MAG TDM ⁴ | 2012 network, Updated 2013 | |
| Collectors | 2,846 | MAG TDM ⁴ | 2012 network, Updated 2013 | |
| 6-legged Arterials | 83 | MAG TDM ⁴ | 2012 network, Updated 2013 | |
| Centroid Connectors | 7,370 | MAG TDM ⁴ | 2012 network, Updated 2013 | |
| Arterials | 9,847 | MAG TDM ⁴ | 2012 network, Updated 2013 | |
| Ramps | 4,147 | MAG TDM ⁴ | 2012 network, Updated 2013 | |
| Metered Ramps | 884 | MAG TDM ⁴ | 2012 network, Updated 2013 | |
| CD ² Roads | 00 | MAG TDM ⁴ | 2012 network, Updated 2013 | |

¹ High Occupancy Vehicles

² Collector Distributor Roads

³ Number of Links from TransCAD highway database, one link may represent both directions

⁴ Maricopa Association of Governments Travel Demand Model

⁵ Regional Transportation Plan

vii. Number of zones - How many transportation analysis zones (TAZs) are included in the model?

Response: A total of 3009 TAZ's are currently in the model for all modeling years. In addition there are 13 external zones.

viii. Non-home based travel - How is non-home based travel modeled (e.g., freight, commercial services, through traffic, tourists)?

Response: The following outline provides key points on modeling non-home based travel in MAG regional travel forecasting model.

Non-home Based Travel Modeling Approach

- Non-home based Work (NHW)
 - Cross classification for trip productions, size variable for attractions
 - Destination choice model
 - Standard mode choice model for mode split
- Non-home based Other (NHO)
- Cross classification for trip productions, size variable for attractions
- Destination choice model
- Standard mode choice model for mode split
- Non-home based portion of Sky Harbor trips
 - Linear regression model for generation
 - Standard mode choice model for mode split

I-I Truck

- Light Trucks—Trip Rates asserted from FHWA Report on Light Trucks.
- Medium Trucks—Trip Rates based on medium truck GPS data from NCFRP Report 8 (for Phoenix area).
- Heavy Trucks—Trip Rates based upon Heavy Truck GPS data.
- Trip Distribution is based on gravity model for each class.

E and-E-I Truck

- Trip Generation is based on regression models. Regressions developed using TRANSEARCH and NAICS2 MAG socio-economic data.
- Trip Distribution is based on gravity model for each class.

E-E Truck

- External Station to External Station truck flows directly determined from processing TRANSEARCH data. Growth factors for future years, are determined from TRANSEARCH data.

MAG conducted an internal truck travel survey in 2007 and truck model development using 2009 Transearch data and ATRI in 2011.

Question: 5. Explain how the data on highway VMT and congestion summary measures is utilized and/or evaluated for consistency with traffic monitoring data used in the MAG Congestion management process.

Response: The Maricopa Association of Governments (MAG) has developed a Performance Measures Framework and Annual Report to illustrate the most important characteristics associated with the status of surface transportation in the MAG region. Measures captured in these multimodal documents include VMT, volume throughput, speeds, spatial and temporal congestion, and travel times for the MAG modeling area. The MAG Performance Report is based on observed data sets and constitutes a fundamental tool in the Congestion Management Process evaluation process. Not only does it establish benchmarks for evaluating current year performance and congestion levels but in time will allow for the historic archiving of data, facilitating trend analysis. Parallel to this effort, every RTP Update includes results of model runs that simulate performance for future network scenarios.

SAFETY CONSIDERATIONS

Question: 1. Is safety an explicit goal in the MAG planning process and long range RTP?

Response: Safety is identified as a major focus in the RTP and is included in the Plan's first goal that addresses System Preservation and Safety. One of the objectives under this Plan goal is to: "provide a safe and secure environment for the traveling public, addressing roadway hazards, pedestrian and bicycle safety, and transit security. Safety is also identified as a critical element of each mode of transportation and the RTP specifically addresses safety issues in a separate chapter." An inherent assumption in the 2003 RTP was the anticipated availability of federal safety funds for addressing road safety improvements in the MAG region. However, the actual flow of federal road safety funds to the MAG region has been inadequate to meet the needs. The Next Generation RTP will address this critical issue in order to meet anticipated MAP-21 requirements for road safety performance in the region.

a. Briefly summarize the current safety goals, objectives, performance measures and strategies in the RTP.

Response: Some of the key safety goals identified in the MAG 2005 Strategic Transportation Safety Plan (STSP) are listed below. The STSP is an adopted planning document and is an integral part of the RTP.

- Develop a reliable and efficient method to assess the safety performance of the regional transportation system.
- Improve the overall public awareness on key road safety issues.
- Reduce the number of crashes that involve bicyclists and pedestrians.
- Promote road safety assessments.
- Improve safety on access routes to schools.
- Strengthen driver training and licensing standards.
- Incorporate safety considerations in pedestrian and bicycle facility planning.
- Promote safe multimodal access.
- Reduce mid-block pedestrian crashes.
- Improve lighting, signage and delineation for older drivers.
- Improve lighting, signage and accessibility for physically handicapped users.

For each of these goals the STSP identified a list of General Strategies, Potential Actions and Lead Agencies.

b. Describe how each safety goal is framed and defined (e.g., safety outcomes such as deaths and serious injuries vs. number of crashes overall)?

Response: Specific numerical performance measures have not been established pending the development of the Regional Transportation Safety Information Management System (RTSIMS). The on-going Strategic Transportation Safety Plan is expected to establish road safety performance measures and goals that are also aligned with similar measures and goals to be established in the state's Strategic Highway Safety Plan.

Question: 2. How is safety measured and evaluated throughout the 3-C planning process?

Response: Road safety/risk consequences are currently measured and reported based on recorded crash data. The evaluation of safety/risk consequences of transportation alternatives, during the 3 C planning process, was addressed in the RTP by the application of basic models to future scenarios. For more near term infrastructure planning decisions at MAG, relevant safety information is generated through analysis performed by MAG staff, based on custom queries that are run on the ALISS database.

a. Is the potential safety impact of alternative project and plan scenarios forecast and evaluated?

Response: Yes, this was addressed during the development of the 2003 RTP. The safety consequences of alternative transportation scenarios were generated based on future travel forecasts. It is anticipated that all planning scenarios to be considered in the Next Generation RTP will be evaluated for road safety impact in terms of estimated deaths and serious injuries due to crashes.

b. Do the transportation systems planning process and plan include safety performance measures? If so, what specific metrics are used?

Response: The following road safety metrics are currently used by MAG and are reported at the MAG web site for each year from 1999 through 2012:

- Vehicle-Vehicle Crashes:
Total number of crashes, total number of deaths, and total number of persons injured.
- Vehicle-Pedestrian Crashes:
Total number of crashes, total number of deaths and total number of persons injured.
Injuries and fatalities per 100,000 population for each local jurisdiction.
- Vehicle-Bicyclist Crashes:
Total number of crashes, total number of deaths and total number of persons injured.
Injuries and fatalities per 100,000 population for each local jurisdiction.
- All injury & fatality crashes at intersections:
Signalized intersections, stop controlled intersections and at mid-block locations.
- Crash frequencies and crash rates for each of the urban freeways.

- Top 100 Intersections for Crash Risk – based on the 3-years of crash data.

Question: 3. What safety databases and variables does MAG routinely use and consider in the planning process (e.g., fatalities, serious injuries, crash rates, crash hot spots, collision inventories, pedestrian injuries, behavior statistics, driver's age, location, GIS, roadway inventory data, etc.)? How is the data used?

Response: MAG uses the ADOT ALISS crash database for performing road safety analyses. Crash data are used to generate regional statistics on transportation safety and performance trends that are included in relevant planning documents. This information is also shared with member agencies and the general public via the MAG website. MAG also performs exploratory safety analyses for examining numerous regional road safety issues or in response to specific requests received from member agencies. Crash data are also utilized or made available to planning studies conducted by MAG or by member agencies. The RTSIMS software has built-in capability to perform crash data analysis either at the regional level or for a specific local agency. The software was developed with the goal of eventually providing access, via the internet, to authorized users at member agencies. MAG is currently preparing to release the web-based version of the software for use by any MAG member agency.

Question: 4. To what extent does the MAG TIP/RTP incorporate or summarize the priorities, goals, and countermeasures from the Arizona SHSP that relate to the MPO region? Briefly describe how the RTP development process incorporates the priorities, goals, and countermeasures from the Arizona SHSP.

Response: The current MAG Strategic Transportation Safety Plan (STSP) was developed in 2005, prior to the Arizona SHSP (2007). The Arizona SHSP incorporated many recommendations that were passed along from the MAG STSP. Recommendations from the STSP have been incorporated in the RTP and a number of projects have been implemented through the UPWP. Examples are the Road Safety Assessment Program and the development of the crash data analysis software RTSIMS. These projects have addressed priorities, goals and countermeasures identified in the Arizona SHSP that are relevant to the MAG planning area. MAG receives a suballocation of federal Highway Safety Improvement Program (HSIP) funds. These funds are programmed in the MAG TIP for qualifying safety projects that address regional safety goals as well as being aligned with the goals of the Arizona SHSP.

In 2010, the state began suballocating 20 percent of all federal funds from the Highway Safety Improvement Program funds to MPOs and COGs in the state. The MAG region currently receives \$1.9 million/year or only about 6 percent of federal HSIP funds received by the state, while the region represents nearly 46 percent of all road deaths and 70 percent of all road injuries in Arizona. We would strongly encourage improvements in coordinating Arizona's safety planning activities and making a larger proportion of the federal HSIP funds available to COGs and MPOs, based on a data driven approach. We support an improved process to address road safety problems through a systematic road risk assessment process and a multi-year project programming process rather than the current first come first served approach, as being intensely discussed in the on-going Arizona SHSP development process.

Question: 5. Do MAG's project selection criteria for the TIP reflect the region's safety goals, objectives?

Response: The majority of projects in the MAG TIP are drawn from the list of projects identified in the 2003 RTP. Although safety was a factor in the higher level RTP scenario decisions, safety is not an explicit factor that is currently considered in the TIP project selection and programming process. The only exception is the programming of ITS projects that now encourages ITS projects that improve road safety. This is based on priorities identified in the 2012 ITS Strategic Plan. The need to focus on safety within the overall MAG project programming process is a key issue that will be addressed in the on-going Strategic Transportation Safety Plan. This could potentially result in STSP recommendations for a new TIP project funding category for transportation safety improvements and for including safety as an explicit project evaluation factor for all project modes. Pending MAP-21 requirements related to regional safety goals and performance measures may further specify changes that may be required in the TIP programming process.

AIR QUALITY CONFORMITY

Question: 1. How does MAG, local transit operators, and the local air pollution control district incorporate and implement the air quality goals and objectives of the 1990 CAAAs and the EPA's final rule on transportation conformity for the following:

- **the Overall Work Program;**
- **the Transportation Improvement Plan (TIP);**
- **the Regional Transportation Plan (RTP);**
- **public participation in the development of TIP/Plan conformity;**
- **timely implementation of applicable State Implementation Plan Transportation Control Measures.**

Response: The Maricopa Association of Governments was designated by the Governor in 1978 and recertified by the Arizona Legislature in 1992 to serve as the Regional Air Quality Planning Agency, in accordance with Section 174 of the Clean Air Act. Within this role, MAG develops the attainment and maintenance plans for carbon monoxide, ozone, and particulate matter (PM-10). The plans are developed cooperatively with the Arizona Department of Environmental Quality (ADEQ), Arizona Department of Transportation (ADOT), and Maricopa County Air Quality Department (MCAQD). The commitments to implement the measures in the plans are received from the local governments, MCAQD, ADOT, ADEQ and the Arizona Legislature. MAG also conducts the conformity analyses on the TIP and RTP, as required by Section 176 (c) of the Clean Air Act.

Overall, air quality has improved significantly within this region due to the implementation of numerous air quality measures by the federal, state and local governments. There have been no violations of the federal eight-hour carbon monoxide and one-hour ozone standards since 1996 and no violations of the federal eight-hour ozone standard of 0.08 parts per million since 2004. The Environmental Protection Agency (EPA) issued official attainment determinations for the one-hour ozone standard on May 30, 2001 and for the carbon monoxide standard on September 22, 2003. In addition, EPA approved the carbon monoxide and one-hour ozone maintenance plans and redesignated the area to attainment for carbon monoxide on April 8, 2005 and one-hour ozone on June 14, 2005.

On May 21, 2012, EPA designated the Maricopa nonattainment area as a Marginal Area for the 2008 eight-hour ozone standard of 0.075 parts per million. As a Marginal Area, the region will have a December 31, 2015 attainment date. The boundaries of the ozone nonattainment area were also expanded slightly to the west and south to include new power plants. For the 2010-2012 period, there were ten monitors with no violations and nine monitors with a violation.

For PM-10, there were no violations of the standard in 2010. In 2011 and 2012, there were 31 days of exceptional events that caused exceedances at the monitors due to major haboobs, dust storms, and high winds. By July 1, 2013, EPA concurred with 17 packages of exceptional events

documentation submitted by the Arizona Department of Environmental Quality. The results appear to indicate that there were no violations of the PM-10 standard during the three year period of 2010-2012. The region needed at least three years of clean data for attainment of the PM-10 standard.

During the last two years, MAG has prepared the MAG 2012 Five Percent Plan for PM-10 and MAG 2013 Carbon Monoxide Maintenance Plan. These plans were submitted to EPA in May 2012 and March 2013, respectively. Also, on June 13, 2012, EPA approved the MAG 2007 Eight-Hour Ozone Plan for the 0.08 parts per million ozone standard, established by EPA in 1997.

MAG incorporates and implements air quality goals and objectives of the Clean Air Act and the EPA April 2012 transportation conformity rule as follows:

Overall Work Program. The MAG Work Program contains funding to implement committed measures in the MAG carbon monoxide, ozone and PM-10 plans, including transportation control measures (TCMs), as defined in Section 108(f)(1)(A) of the Clean Air Act. The FY 2014 MAG Unified Planning Work Program and Annual Budget (UPWP) allocates Congestion Mitigation and Air Quality Improvement (CMAQ) funds to implement the following Transportation Control Measures: the Trip and Travel Reduction Programs (\$1.097 million) and the Regional Rideshare and Telework Program (\$594,000).

The purchase of PM-10 certified street sweeper projects supports the measure “PM-10 Efficient Street Sweepers” in the Revised MAG 1999 Serious Area Particulate Plan for PM-10. In addition, the MAG 2012 Five Percent Plan for PM-10 includes PM-10 Certified Street Sweepers. The annual UPWP funds sweeper projects that support this measure. For example, the UPWP allocates \$900,000 in FY 2014 CMAQ funds for MAG member agencies to purchase PM-10 certified street sweepers in the Maricopa County PM-10 and West Pinal PM-10 nonattainment areas. The local match for the sweeper projects is a minimum of 5.7 percent of the total cost.

The FY 2014 UPWP also budgets approximately \$2.9 million in federal transportation funds for MAG staff who prepare emissions inventories, identify potential control measures, obtain control measure commitments, evaluate control measures and CMAQ projects, conduct emissions and air quality modeling, prepare air quality plans, track air quality monitoring data, monitor the implementation of committed measures in the air quality plans, and conduct transportation conformity analyses for the TIP and RTP. Periodically, MAG obtains assistance from consultants in collecting data, conducting modeling, and performing special studies that enhance regional air quality planning. For example, consultant expertise will be needed in the following technical air quality areas: air quality modeling; air quality monitoring and meteorology; exceptional events; traffic surveys and emissions inventories; dirt road inventories and tracking progress made to pave dirt roads; statistical analysis of data; analysis of control measures; air quality plan preparation; CMAQ evaluation methodologies; and transportation conformity.

Transportation Improvement Program. The MAG FY 2011-2015 Transportation Improvement Program (TIP) includes CMAQ funding for programs and projects that reduce transportation related emissions. CMAQ funds in the TIP are allocated annually to regional Transportation Control Measures, including the travel/trip reduction program and the rideshare and telework program. CMAQ funds are also programmed in each year of the TIP for implementation of Transportation Control Measures by MAG member agencies, including bicycle, pedestrian, and

Intelligent Transportation System (ITS) projects. Priority is given to funding the Transportation Control Measures in the TIP. Other air quality projects programmed in each year of the TIP are paving unpaved roads and PM-10 certified street sweepers.

The FY 2011-2015 TIP programs \$33.4 million for paving unpaved roads. The paving of unpaved roads is included in the MAG 2012 Five Percent Plan for PM-10. In TIPs for the fiscal years 2001-2013, \$26.4 million in CMAQ funds were committed to purchase 167 PM-10 certified street sweepers. In the TIP, it is assumed that five additional PM-10 certified units will be purchased each year to replace older PM-10 certified sweepers, expand the area swept, and increase the frequency of sweeping.

Regional Transportation Plan. The MAG Regional Transportation Plan 2010 Update (RTP) incorporates funding for measures to reduce emissions generated by vehicle travel. The funding for air quality programs and projects in the FY 2011-2015 TIP is discussed above. After FY 2015, the RTP provides funding for purchasing five PM-10 certified street sweepers each year. In the RTP, the paving of unpaved roads by local jurisdictions reflects a continuation of current commitments to reduce fugitive dust on unpaved roads; eliminate unpaved roads in areas of new development; and pave unpaved alleys, shoulders, and access points. Consistent with past trends, the RTP assumes that 10 centerline miles of unpaved roads will continue to be paved each year in the Maricopa County PM-10 Nonattainment Area.

Conformity on the TIP and RTP. As required by the Clean Air Act, an air quality conformity analysis was conducted by MAG on the Draft FY 2011-2015 Transportation Improvement Program and the Draft Regional Transportation Plan 2010 Update, as a whole. The conformity analysis, approved by the MAG Regional Council in July 2010, demonstrated that the TIP and RTP are in conformance with the regional air quality plans and will not contribute to air quality violations. In its entirety, the conformity analysis demonstrated that the criteria specified in the federal transportation conformity rule (40 Code of Federal Regulations Parts 51 and 93) for a conformity determination are satisfied by the TIP and RTP. The Finding of Conformity for the TIP and RTP was issued by FHWA on August 25, 2010. The most recent Finding of Conformity on the Amended FY 2011-2015 TIP and Regional Transportation Plan Update 2010 was issued by FHWA on July 1, 2013.

Public Participation in the Development of TIP/Plan Conformity. In response to requirements of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users (SAFETEA-LU), MAG adopted a new Public Participation Plan in 2006. The MAG public involvement process, as presented in its Public Participation Plan, is divided into four phases: Early Phase, Mid-Phase, Final Phase, and Continuous Involvement. The Early Phase meetings ensure early involvement of the public in the development of the Draft TIP and Draft RTP. The Mid-Phase process provides for input on initial plan analysis for the Draft TIP and Draft RTP, and includes a public meeting on regional transportation issues. The Final Phase provides an opportunity for final comment on the Draft TIP, Draft RTP, and Draft Air Quality Conformity Analysis prior to approval. In addition, continuous outreach is conducted throughout the annual update process and includes activities such as distributing press releases and newsletters, presentations to community and civic groups, information booths, and special events coordinated with the Arizona Department of Transportation (ADOT), Valley Metro/Regional Public Transportation Authority (RPTA) and the City of Phoenix Public Transit Department, whenever possible. All of the comments received through the MAG public involvement process are

summarized and provided to the Management Committee, Transportation Policy Committee and Regional Council in the form of input opportunity reports.

Timely Implementation of Applicable State Implementation Plan Transportation Control Measures. Each MAG conformity analysis for a new TIP and RTP includes a chapter on Transportation Control Measures. The findings in Chapter 5 of the 2010 MAG Conformity Analysis for the FY 2011-2015 Transportation Improvement Program and Regional Transportation Plan 2010 Update are based on a review of the Transportation Control Measures contained in applicable air quality plans. The applicable plans (i.e., approved by EPA) for the 2010 Conformity Analysis were the Revised MAG 1999 Serious Area Particulate Plan for PM-10, Revised MAG 1999 Serious Area Carbon Monoxide Plan, MAG 2003 Carbon Monoxide Redesignation Request and Maintenance Plan, and MAG 2004 One-Hour Ozone Redesignation Request and Maintenance Plan.

In December 2004 through January 2005, MAG contacted agencies with Transportation Control Measure commitments in the applicable air quality plans. Each agency reported to MAG that all Transportation Control Measures in the applicable plans are on schedule and there are no obstacles to implementation of the Transportation Control Measures. Therefore, the 2010 Conformity Analysis concluded that the TIP and RTP provide for the timely implementation of Transportation Control Measures in the applicable State Implementation Plans and nothing in the TIP or RTP interferes with the implementation of any Transportation Control Measure in an applicable State Implementation Plan.

In general, Transportation Control Measure implementation in the region has exceeded the commitments in the air quality plans. Some Transportation Control Measure commitments in the air quality plans have been fully implemented for many years. Implementation of these Transportation Control Measures is assumed in the base year traffic assignment for the conformity analysis. The TIP continues to provide funding for many Transportation Control Measures (e.g., trip reduction, transit, bikeway, ridesharing, and ITS projects) that have now been implemented to a significantly greater degree than originally committed.

The RTP assumes or specifically calls for Transportation Control Measure implementation at current or expanded levels, consistent with Transportation Control Measure commitments in applicable air quality plans. The RTP specifically addresses transit service, high occupancy vehicle lanes, demand management programs, and bicycle and pedestrian facility needs. Moreover, continued reliance on alternative modes of travel is reflected in the transportation model projections used in determining facility needs and funding priorities. Despite planned increases in capacity in the RTP, the MAG transportation models project that the highway system will become more congested over time, leading to more single occupant vehicle trips being diverted to alternative modes such as transit and carpooling. Thus, Transportation Control Measures will continue to play an important role in the RTP.

Question: 2. Is there an agreement between MAG and the air quality management district defining the responsibilities of each? (If so, please provide a copy).

Response: The Air Quality Memorandum of Agreement among the Arizona Department of Environmental Quality, Arizona Department of Transportation, Maricopa County and MAG provides the framework and guidelines to promote coordinated decision making in planning,

development, and implementation and enforcement of those actions necessary to attain and maintain the National Ambient Air Quality Standards in Maricopa County or the area specifically designated by the Environmental Protection Agency as a nonattainment area. The roles of these agencies are defined in the document. The memorandum describes the role of MAG as the Regional Air Quality Planning Agency, including transportation/air quality conformity. The memorandum indicates that MAG is responsible for transportation/air quality conformity determinations, subject to the consultation procedures as provided by law (Clean Air Act Section 176). (A copy of the Air Quality Memorandum of Agreement is provided in Appendix V).

In accordance with the Memorandum of Agreement, the Maricopa Association of Governments closely coordinates with the Arizona Department of Environmental Quality and Maricopa County Air Quality Department to develop and implement plans to attain the National Ambient Air Quality Standards and assist in achieving conformity. The air quality modeling performed by MAG for the regional attainment and maintenance plans is reviewed with the local air quality agencies; this modeling establishes the motor vehicle emissions budgets for conformity purposes. MAG also works with the Maricopa County Air Quality Department to ensure that the regionwide Fugitive Dust Control Rules are adequately implemented and enforced to reduce dust on paved and unpaved roadways and other sources.

The state rules for transportation conformity specify that the MPOs must develop specific conformity guidance and consultation procedures and processes. To meet state requirements, MAG developed and adopted the MAG “Transportation Conformity Guidance and Procedures” document which addresses the determination of “regional significance” status for transportation projects and the approval process for regionally significant projects. The MAG “Conformity Consultation Processes” document was also prepared to detail the public and interagency consultation processes to be used in the development of regional transportation plans, programs, and projects. In addition, MAG reviews the federal conformity regulations and subsequent revisions to ensure that the interagency consultation process is conducted in full compliance with the federal regulations.

Currently, the agencies consulted by MAG include the parties to the Air Quality Memorandum of Agreement and others as well. Specifically, the agencies are the: Federal Transit Administration, Federal Highway Administration, Arizona Department of Transportation, Arizona Department of Environmental Quality, Valley Metro/Regional Public Transportation Authority, City of Phoenix Public Transit Department, Maricopa County Air Quality Department, Central Arizona Governments, Pinal County Air Quality Department, U.S. Environmental Protection Agency, Sun Corridor Metropolitan Planning Organization, and other interested parties.

In addition, the MAG Management Committee is a key committee for conformity consultation since the membership includes the 27 cities and towns, Maricopa County, Pinal County, the three Indian communities, Valley Metro/RPTA, and the Arizona Department of Transportation. It is important to note that the cities and towns, as well as both counties, provide transportation services. The consultation process includes an opportunity for members of the MAG Management Committee and members of the public to review and provide comment on conformity consultation items.

Over time, the Air Quality Memorandum of Agreement has served the region well. The roles and responsibilities of the agencies have largely remained the same. Several successful air quality

plans have been prepared through the cooperative effort among the Arizona Department of Environmental Quality, Arizona Department of Transportation, Maricopa County, and MAG. There has also been significant air quality improvement as measured by the monitors.

It is anticipated that the Air Quality Memorandum of Agreement will be revised during the next certification period to accommodate and build upon new relationships and responsibilities that are currently evolving. In 2013, Governor Brewer approved the new expanded MAG Metropolitan Planning Area Boundary, the Sun Corridor Metropolitan Planning Organization in Pinal County was formed, and MAG began to prepare the initial conformity analysis for the Sun Corridor Metropolitan Planning Organization. Both the MAG Metropolitan Planning Area Boundary and the Sun Corridor Metropolitan Planning Area Boundary include portions of the West Pinal PM-10 Nonattainment Area and West Central Pinal PM-2.5 Nonattainment Area located in Pinal County. Transportation conformity is required to be demonstrated for both nonattainment areas by both metropolitan planning organizations.

Question: 3. How does MAG monitor and report on the timely implementation of applicable State Implementation Plan Transportation Control Measures?

Response: The Transportation Control Measures chapter of the MAG conformity analysis for a new TIP and RTP provides a measure by measure assessment of the current status of each Transportation Control Measure in the applicable air quality plans. For information purposes, this chapter also describes the status of Transportation Control Measures in previous air quality plans that MAG submitted to EPA, but were not approved. In addition, MAG includes a table in the conformity analysis that identifies the funding levels for programmed projects that implement Transportation Control Measures and other air quality measures.

Question: 4. How does MAG meet minimum travel modeling requirements as specified in the Transportation Conformity Rule (40 CFR 93.122 (b)) – applies to Transportation Control Measures that are designated as serious, severe or extreme ozone or serious carbon monoxide non-attainment areas?

Response: Under the 1990 Clean Air Act Amendments, the MAG region was classified as a “Moderate” nonattainment area for carbon monoxide. Since attainment of the eight-hour carbon monoxide standard was not achieved by December 31, 1995, the nonattainment area was reclassified to “Serious” by operation of law on August 28, 1996. No violations of the carbon monoxide standard have occurred since 1996. EPA approved the Revised MAG 1999 Serious Area Carbon Monoxide Plan and the MAG 2003 Carbon Monoxide Redesignation Request and Maintenance Plan and redesignated the area to attainment, effective April 8, 2005.

Under the 1990 Clean Air Act Amendments, the MAG region was classified as “Moderate” for the one-hour ozone standard. Since attainment of the standard was not achieved by November 19, 1996, EPA reclassified the area to “Serious,” effective February 13, 1998. No violations of the one-hour ozone standard have occurred since 1996. On June 14, 2005, EPA published the final rule that approved the MAG 2004 One-Hour Ozone Redesignation Request and Maintenance Plan and redesignated the area to attainment. EPA revoked the one-hour ozone standard on June 15, 2005.

EPA designated the MAG region as a nonattainment area for the eight-hour ozone standard of 0.08 parts per million (ppm), effective June 15, 2004. The Maricopa eight-hour ozone nonattainment area was classified under Section D, Subpart 1, of the Clean Air Act, referred to as a “Basic” nonattainment area, with an attainment date of June 15, 2009. No violations of the eight-hour ozone standard of 0.08 ppm have occurred since 2005. MAG submitted an Eight-Hour Ozone Plan to EPA in June 2007 and an Eight-Hour Ozone Redesignation Request and Maintenance Plan in March 2009. EPA approved the MAG 2007 Eight-Hour Ozone Plan, effective July 13, 2012.

On April 30, 2012, EPA published the final rule that lowered the eight-hour ozone standard to 0.075 ppm. Under this more stringent rule, the MAG region is designated a “Marginal” nonattainment area with an attainment date of December 31, 2015.

Since the MAG region is no longer a “Serious” nonattainment area for carbon monoxide or ozone, the requirements of Section 93.122(b) of the transportation conformity rule no longer apply. However, the MAG transportation models being used to perform the 2014 Conformity Analysis for the FY 2014-2018 TIP and 2035 RTP exhibit the following characteristics, which are consistent with requirements in the federal transportation conformity rule:

- MAG regional transportation modeling is performed using TransCAD software for both highway and transit network assignments. The transportation modeling area currently contains 3,009 traffic analysis zones and covers an area of approximately 16,080 square miles, including both Maricopa and Pinal Counties.
- The latest calibration of the highway models was completed in 2013, using data from the 2008-2009 household travel survey. The transit models were re-calibrated in 2013 using data from the 2010-2011 on-board bus survey. The MAG truck model, volume delay functions, and external travel model were re-calibrated in 2012-2013 based on 2011 NOKIA speed data, 2011 truck ATRI data, 2009 Transearch data, and a 2008 External Travel Survey.
- The traffic volumes simulated by the MAG transportation models were validated in 2013 against approximately 3,300 traffic counts collected in 2011. This validation demonstrated a good statistical fit between actual and model-estimated daily traffic volumes, as measured by an overall percent root mean square error of 25.9 percent.
- The population, households, and employment inputs to the travel demand models are based on the Arizona Department of Administration (ADOA) population projections consistent with the 2010 U.S. Census. The official Maricopa County socioeconomic projections based on ADOA county projections were approved by the MAG Regional Council in June 2013. The Pinal County socioeconomic projections were approved by the Central Arizona Governments (CAG) Regional Council in June 2013. These projections were prepared using the AZ-SMART land use model system and UrbanSim.
- The population and employment projections used in the conformity analysis are consistent with the transportation system alternatives considered. In the MAG land use models, transportation system accessibility influences the allocation of population and employment to smaller geographic areas. The UrbanSim model was integrated

into AZ-SMART and used to allocate county projections of households and employment to regional market areas based upon the pre-existing location of these activities, land consumption, and transportation system accessibility, expressed in terms of PM peak travel times. These congested travel times are derived from an appropriate capacity-restrained traffic assignment for each forecast year. The allocation of population and employment from market areas to land use parcels is accomplished with UrbanSim. UrbanSim uses transportation system accessibility measures, such as proximity to the closest highway, in determining the likelihood that a land use parcel will develop during a given forecast interval. AZ-SMART also aggregates population, households, and employment projections by land use parcel to the TAZ-level for input to the transportation models. Congested travel times output by the transportation models are “fed-back” into the land use models to ensure that there is consistency between the transportation system assumptions and the land use projections.

- The transportation models perform capacity-restrained traffic assignments. Restrained assignments are produced for the AM peak period, mid-day, PM peak period, and night time, with volumes and congestion estimated for each period.
- Speeds obtained from the capacity-restrained traffic assignments are “fed-back” in the travel demand modeling chain. The trip distribution, mode choice, and traffic assignment steps of the chain are executed until PM peak period trip tables and link volumes are in equilibrium (percent root mean square error of five percent or less). The travel impedances used in the mode choice model include travel times and costs associated with each of the following modes: auto-drivers, carpools (2 and 3+ persons), and transit, (i.e., shuttle bus, local bus, express bus, and light rail, commuter rail).
- The travel impedances used in the trip distribution and traffic assignment steps of the MAG travel demand modeling are a composite function of highway travel times and costs. The nested logit mode choice model is sensitive to highway and transit travel times, as well as pricing variables.
- As a result of the feedback loop in the MAG travel demand modeling process, the final peak and off-peak speeds are sensitive to the capacity-restrained volumes on each highway segment represented in the network. Data from the MAG 2011 commercial speed data set were used to ensure that the capacity-restrained speeds and delays output by the transportation models are consistent with empirical data. For both freeways and arterials, the TransCAD-estimated speeds are within nine percent of the observed speeds for all area types and the maximum difference in overall speeds is five miles per hour, but most are substantially lower. This indicates that the capacity-restrained speeds produced by the transportation models are in reasonable agreement with the most recently-collected empirical data.
- Section 93.122(b)(3) of the federal conformity rule requires vehicle miles of travel (VMT) estimated by the transportation models to be reconciled with Highway Performance Monitoring System (HPMS) data maintained by the Arizona Department of Transportation. While reconciliation with HPMS is no longer required because

the MAG region is no longer a serious nonattainment area for carbon monoxide or ozone, after conversion from average weekday (ADT) to annual average daily traffic (AADT), the 2011 VMTs estimated by the MAG TransCAD model are within one percent of the 2011 HPMS VMTs for the transportation modeling area.

Question: 5. How does MAG handle the interagency consultation process? (Please provide a copy of MAG's interagency consultation procedures.) Have there been any changes since the previous certification review?

Response: According to U.S. EPA regulations at 40 CFR 93.105, interagency consultation procedures are required for specific processes that involve the MPO, state and local air quality planning agencies, state and local transportation agencies, EPA, and U.S. Department of Transportation. In response to the federal consultation requirements, the State of Arizona adopted consultation rules in Arizona Administrative Code, R-18-2-1405. The state rules for transportation conformity specify that the MPOs must develop specific conformity guidance and consultation procedures and processes. To meet state requirements, MAG developed and adopted two documents. The MAG "Transportation Conformity Guidance and Procedures" document addresses the determination of "regional significance" status for transportation projects and the approval process for regionally significant projects. The second document, the MAG "Conformity Consultation Processes", details the public and interagency consultation processes to be used in the development of regional transportation plans, programs, and projects. (A copy of the MAG Conformity Consultation Processes document is provided in Appendix W).

Over time, several revisions to the federal transportation conformity regulations have occurred. MAG reviews these regulations and continues to conduct an interagency consultation process in full compliance with federal regulations. Generally, the major elements of the MAG consultation processes involve the distribution of an interagency consultation memorandum for review by local, state, and federal air quality and transportation agencies, the MAG Management Committee, the MAG Regional Council, and other interested parties, including members of the public.

Currently, MAG consults with the Federal Transit Administration, Federal Highway Administration, Arizona Department of Transportation, Arizona Department of Environmental Quality, Valley Metro/RPTA, City of Phoenix Public Transit Department, Maricopa County Air Quality Department, Central Arizona Governments, Sun Corridor Metropolitan Planning Organization, Pinal County Air Quality Control District, U.S. Environmental Protection Agency, and other interested parties.

Within MAG, the MAG Management Committee is a key committee for conformity consultation since the membership includes the 27 cities and towns, Maricopa County, Pinal County, the three Indian communities, Valley Metro/RPTA, and the Arizona Department of Transportation. It is important to note that the cities and towns, as well as both counties, provide transportation services. The consultation process includes an opportunity for members of the MAG Management Committee and members of the public to review and provide comment on conformity consultation items (e.g., TIP amendments). The Management Committee consists of the chief administrators from each member agency, such as the jurisdiction's city or town manager, the county manager from Maricopa and Pinal counties, and the chief administrative officer of each Native American Indian Community. The director of the Arizona Department of

Transportation and the chief executive officer of Valley Metro/RPTA represent their respective agencies on transportation issues that are brought before the Management Committee.

The consultation process also includes an opportunity for members of the MAG Regional Council and members of the public to review and provide comment on conformity consultation items. The MAG Regional Council is the governing and policymaking body for the organization and membership currently is composed of elected officials appointed by each member agency for the 27 incorporated cities and towns, Maricopa County, Pinal County, and three Native American Indian Communities. The Arizona Department of Transportation (ADOT) and the Citizens Transportation Oversight Committee (CTOC) serve as ex officio members for transportation related issues.

The consultation process concludes when the consultation memorandum is included as an agenda item for consultation at a meeting of the MAG Regional Council. A final memorandum is distributed to the agencies and members of the public that reports on the action taken by the MAG Regional Council (e.g. TIP amendment) and comments received during the period of consultation. MAG also prepares a response to any comments received.

Since the previous certification review in 2009, the list of agencies that receive interagency consultation memoranda has been expanded to include the Sun Corridor Metropolitan Planning Organization. In addition, the City of Maricopa and the Town of Florence became members of the Maricopa Association of Governments in May 2013 and receive consultation materials. Also, Pinal County, representing the unincorporated portion of Pinal County within the MAG Metropolitan Planning Area Boundary, became a member of the Maricopa Association of Governments in June 2013 and receives consultation materials.

FINANCIAL PLANNING/FISCAL CONSTRAINT

Question: 1. Does MAG provide system level estimates of both costs and reasonably available revenue sources to adequately operate and maintain Federal-aid highways and public transportation with each update or amendment to the transportation plan or TIP?

Response: Revenues from reasonably available revenue sources are estimated by mode for the planning period of the RTP in Year of Expenditure (YOE) dollars. The costs associated with operation, maintenance and preservation are taken into account as part of the long range assessment of funding and expenditures for each mode, which is included in the RTP.

- a. Briefly describe how MAG prepares and documents system level estimates of costs and revenues to adequately operate and maintain Federal-aid highways and public transportation service.**

Response: The chapters in the RTP on the freeway system and the arterial street system include discussions of system operation, maintenance and preservation. Costs for these functions are developed using per-mile rates by facility type. In April 2012, MAG completed a Roadway Operations and Maintenance (O&M) Cost Study. This study developed typical annual operating and maintenance cost factors for application at a regional level and surveyed current pavement management practices of MAG member agencies. Nearly all MAG member entities were consulted during the data collection portion of the study. Among other products, the study resulted in an O&M annual cost factor summary matrix that addressed a full range of O&M factors, including pavement preservation. Costs were representative of annual expenditure patterns during 2007 – 2011 and assumed to represent 2010 price levels. These rates, adjusted for inflation, are applied to future plan networks to develop long-range cost estimates in terms of Year of Expenditure (YOE) dollars, taking into account the estimated mileage added incrementally to the system. Similarly, future transit system operating costs are estimated based on unit operating costs and the service levels included in the Plan, taking into account the growth in service provided during the life of the Plan and future price inflation rates.

Question: 2. Briefly explain how MAG ensures that project cost estimates in the Transportation Plan and TIP are regularly updated and reflect the latest available information.

Response: The Regional Transportation Plan (RTP) utilizes the life cycle programs that are maintained for the major transportation modes, as a key input to the planning process. These life cycle programs are developed by the Arizona Department of Transportation (ADOT), the Regional Public Transportation Authority (RPTA), and the Maricopa Association of Governments (MAG), respectively, for the freeway/highway system, public transit system, and arterial street system. The programs meet the requirements of Arizona state legislation calling for the agencies to conduct a budget process that ensures that the estimated cost of planned improvements does not exceed the total amount of revenues available for those improvements. Cost estimates in the life cycle programs are generally updated annually. The TIP update process also provides information for updating costs in the RTP.

The life cycle programs provide a comprehensive yearly listing of projects, including their costs and implementation schedule. In addition to providing a source of updated cost estimates, they represent an invaluable tool for monitoring construction progress on individual projects and assessing the financial status of the programs as a whole. The life cycle programs provide a benchmark for the decision-making process regarding alterations to project scopes, adjustments to construction schedules, and changes to plan and program priorities.

Another cost and revenue review occurs through the Risk Assessment Process (RAP). MAG participates in this group, which is assembled by ADOT annually to assesses the future transportation cost and revenue picture. The group includes not only transportation professionals, but also economic and development forecasters who provide their perspective on the economic trends that affect transportation costs and revenues. The outcome of sessions is a set of revenue forecasts and an assessment of the future cost outlook.

As part of the RTP update process, other program costs are also updated to reflect estimated future inflation. Inflation factors are estimated in consultation with ADOT and RPTA.

Question: 3. Does the financial plan take into account the capital needs both the bus and rail authorities; specifically, the proposed construction of maintenance facilities?

Response: The Regional Transportation Plan (RTP) utilizes the Transit Life Cycle Program as a major input to the transit element of the Plan. The life cycle program provides a comprehensive yearly listing of projects, including their costs and implementation schedule. This includes capital needs for both bus and rail systems.

Regarding maintenance facilities specifically, the RTP provides funding for a range of future bus maintenance facilities. The identification of specific locations and exact timing of construction for these facilities will occur as the result of ongoing capital planning efforts. Included in this infrastructure are four new bus maintenance facilities. In addition, the financial plan in the RTP includes funding for support infrastructure for the initial 20-mile core of the light rail transit system, as well as future extensions.

ORGANIZATIONAL STRUCTURE, REGIONAL COUNCIL MEMBERSHIP AND PLANNING BOUNDARIES

ORGANIZATIONAL STRUCTURE, REGIONAL COUNCIL MEMBERSHIP

Question: 1. Briefly describe MAG's organizational structure, or provide a copy of the current organization chart highlighting major changes made since 2004 Certification review.

Response: MAG's current organizational structure consists of nine divisions, which includes Administration, Communications, Environmental Programs, Fiscal Services, Human Services, Information Services, Information Technology, Human Resources/Office Services, and Transportation. (See Appendix X). The Executive Director reports directly to the MAG Regional Council, which is the policy board of the organization. One of the major changes since the 2008 Certification review is the creation of the MAG Economic Development Committee (EDC). With the economic downturn and declining sales tax revenues (a major source of funding for the Regional Transportation Plan), it was necessary for MAG to reduce the Regional Freeway Program by more than \$6 billion. The reduction in sales tax funds plus the fact that the region was faced with nearly 64,000 pending and foreclosed homes, coupled with the federal requirement to tie economic development into transportation planning, led MAG to form the EDC. In addition, the Solid Waste Advisory Committee was reconvened in 2012 at the request of the Management Committee; and the Enhancement Peer Review Group committee was dissolved when the Federal law changed to MAP-21. Since November 2009, MAG has increased its staff from sixty-three (63) FTEs to ninety-nine (99) FTEs as of November 2013.

Question: 2. Briefly describe the purpose, function, and membership of all committees (technical, policy, ad-hoc, standing, etc.).

Response: MAG currently has a total of twenty-five (25) committees, including three (3) policy committees, five (5) policy advisory committees, and seventeen (17) technical committees. The MAG Committee Structure for the Arizona Department of Transportation (ADOT) and the Regional Public Transportation Authority (RPTA) are attached to show representation on the MAG committees. The following information addresses the purpose, function and membership of all MAG committees: (See Appendix X).

Policy Committees

- Regional Council

Purpose: Act as the Board of Directors of the organization.

Function:

- Approve regional plans and spending plans.
- Elect officers and members of the Executive Committee.
- Approve the annual budget and work program.
- Approve the Regional Transportation Plan and amendments.
- Approve the Transportation Improvement Program and amendments.
- Approve material cost changes to the Regional Freeway Program.

- Approve accelerations to the Regional Freeway Program.
- Approve Air Quality Plans.
- Approve Air Quality Conformity Analysis.
- Approve 208 Water Quality Management Plan and Amendments.
- Consult with the Executive Committee regarding the performance review of the Executive Director.
- Ratify the hiring and retention of the Executive Director.
- Ratify the Executive Committee approval of the MAG annual goals.
- Approval of MAG Socioeconomic Projections.
- Approval of Maricopa County and Municipalities Annual Resident Population Updates

Membership: The MAG Regional Council consists of thirty-five (35) members. Each unit of local government designates an individual from its duly elected governing body to serve on the Regional Council. For the majority of members, the city or town Mayor serves as the Regional Council member. Other members include usually the Chair of the Board of Supervisors, who represents Maricopa and Pinal Counties, two (2) State Transportation Board Members representing the Arizona Department of Transportation (ADOT), the Chair of the Citizens Transportation Oversight Committee (CTOC), as well as the Governor of the Gila River Indian Community, the President of the Salt River Pima-Maricopa Indian Community, and the President of the Fort McDowell Yavapai Nation.

- Executive Committee

Purpose: Serve as the officers of the Board of Directors and the finance committee for the organization.

Function:

- Recommend adoption of the annual budget and work program to the Regional Council.
- Approve the Annual Goals, with ratification by the Regional Council.
- Hiring and retention of the Executive Director, with ratification by the Regional Council.
- All day to day administrative responsibilities not retained by the Regional Council.
- Performance review of the Executive Director, in consultation with the Regional Council.
- Approve amendments to the annual budget and work program.
- Contract selections and approvals or amendments.
- Appoint chairs and vice chairs of technical and other policy committees, with exception of the Regional Council, Management Committee and Transportation Policy Committee.
- Consider future agenda items requested at Regional Council.

Membership: The MAG Executive Committee includes the chair, vice chair,

treasurer, the past chair, and three members-at-large. The chair, vice chair, and treasurer of the Regional Council serve as ex-officio members of the Executive Committee and the chair serves as the chair of the Executive Committee.

- Management Committee

Purpose: Provide a key role in the policymaking decisions at MAG. The committee is responsible for receiving input from technical committees, analyzing the technical and policy implications, and providing recommendations to the MAG Regional Council.

Function:

- Appoint committees and personnel to study specific problems, programs, or other matters which the Management Committee has approved for study.
- Act as the coordinating committee for all other technical committees and subsidiary technical groups that report to the Regional Council.
- Keep the Regional Council informed of any matter or problem involving intergovernmental cooperation.
- Perform any other functions assigned by the Regional Council.

Membership: The Management Committee consists of the chief administrators from each member agency, such as the jurisdiction’s city or town manager, the county managers from Maricopa and Pinal Counties, and the chief administrative officer of each Native American Indian Community. The director of the Arizona Department of Transportation (ADOT) and the Chief Executive Officer of the Regional Public Transportation Authority (RPTA) represent their respective agencies on traffic and transportation issues that are brought before the Management Committee.

Policy Advisory Committees

- Transportation Policy Committee

Purpose: Develop regional transportation policy positions for Regional Council consideration.

Function:

- Recommend the Regional Transportation Plan.
- Recommend the Transportation Improvement Program.
- Recommend amendments to the Transportation Improvement Program.
- Recommend material cost changes to the Regional Freeway Program.
- Recommend accelerations to the Regional Freeway Program.
- Recommend amendments to the Regional Transportation Plan.

Membership: The Transportation Policy Committee, with its membership and responsibilities enumerated in state statute, consists of twenty-three

(23) members, including elected officials from cities, towns, and the Maricopa County Board of Supervisors, and representatives of the Native American Indian Community and the State Transportation Board, the chair of the Citizens Transportation Oversight Committee (CTOC), and regionwide business representatives, also transit, construction and freight representatives.

- Economic Development Committee

Purpose: The mission of the MAG Economic Development Committee (EDC) is to develop an opportunity-specific and action oriented plan that fosters and advances infrastructure in the MAG Region, especially transportation infrastructure that would further economic development opportunities.

Function: - The fundamental goal of the EDC is to foster enhanced communication, coordination and consistency between transportation plans and economic development strategies among economic development and planning agency leaders. The EDC builds institutional knowledge in the area of economic development to enable MAG to fulfill its responsibility for transportation planning while taking into account economic development.

Membership: The MAG EDC consists of 30 members, eighteen (18) MAG member agency elected officials and twelve (12) business members representing regionwide business interests. The membership includes Arizona Department of Transportation and two educational representatives. The EDC includes a chair and a vice chair.

- Human Services Coordinating Committee

Purpose: The committee prepares a Human Services Plan for the Maricopa region, solicits comments and develops recommendations on the distribution of Federal Social Services Block Grant funds, analyzes issues, and identifies possible solutions.

Function:

- Develop recommendations on human services issues for the review and approval of the MAG Regional Council.
- Review and recommend how locally planned Social Services Block Grant funding will be allocated at the service level.
- Identify regional human services issues for research and assessment by the MAG Human Services Technical Committee and recommend viable strategies to address those issues.
- Prepare a regional human services plan and other reports as needed.
- Recommend policy positions to address emerging human service's needs.
- Serve as the primary committee for the MAG aging in place initiative.

Membership: Members of this committee include municipal and county elected officials and representatives from the boards of the Area Agency on Aging, community councils, the Department of Economic Security, and United Way organizations.

- Continuum of Care Regional Committee on Homelessness

Purpose: The committee prepares and submits an application for homeless assistance funding to the U.S. Department of Housing and Urban Development and addresses regional issues relating to homelessness.

Function:

- Develop recommendations on regional homeless issues for the review and approval of the MAG Regional Council.
- Conduct an annual planning process to develop strategies to end homelessness throughout the region.
- Conduct activities to support the consolidated application to the U.S. Department of Housing and Urban Development (HUD) such as organizing a homeless street count, developing a gap analysis, and creating a housing inventory chart.
- Facilitate the application process and develop the consolidated application to HUD for the Stuart B. McKinney funds.

Membership: Members of this committee include representatives from the private sector, public sector and nonprofit agencies. Private sector representatives include businesses and the general public. Public sector representatives include local elected officials, and municipal, county and state professional staff. Nonprofit agencies include shelter providers, foundations, and advocates.

- Regional Domestic Violence Council

Purpose: The MAG Regional Domestic Violence Council serves as a primary coordinating body for issues related to domestic violence and provides a forum for communication and coordinated action to effectively address, prevent, and eradicate domestic violence in the MAG region.

Function:

- Develop recommendations on domestic violence issues for review and approval by the MAG Regional Council.
- Work with stakeholders to implement the recommendations of the MAG Domestic Violence Plan.
- Conduct research and prepare reports.

Membership: Members of the council are drawn from local elected officials, members of the Governor's Office Division for Women, the business community, healthcare professionals, prosecutors, police officers, shelter and service providers, and private funders.

Technical Committees

- 9-1-1 Oversight Team

Purpose: The committee was formed in December 1993 to provide additional participation by management in the coordination of the MAG Regional 9-1-1 System.

Function:

- Coordinate the 9-1-1 system in the MAG region with other emergency and public safety officials.

Membership: This committee consists of high level officials from police and fire departments of the member agencies.

- Air Quality Technical Advisory Committee

Purpose: The role of the Technical Advisory Committee is to review and comment on technical information generated during the planning process.

Function:

- Make recommendations throughout the air quality planning process to the MAG Management Committee.

Membership: This committee consists of representatives from MAG member agencies, citizens, environmental interests, health interests, construction firms, utilities, public transit, architecture, agriculture, the business community, the automobile, fuel, trucking, rock products, and housing industries, parties to the Air Quality Memorandum of Agreement, and various state and federal agency, including Arizona Department of Transportation, RPTA and Arizona Department of Environmental Quality.

- Bicycle and Pedestrian Committee

Purpose: The committee annually reviews and updates the MAG Pedestrian Plan and recommends projects for funding under the Pedestrian Design Assistance Program. Earlier versions of the committee developed a Regional Bicycle Plan, the Regional Off-Street System (ROSS) Plan, and the Regional Bikeways Map.

Function:

- Encourage the implementation of these plans by recommending pedestrian and bicycle-related projects for funding from federal and other sources as well as activities to inform the region about the benefits of biking and walking.

Membership: The Bicycle and Pedestrian Committee consists of representatives of MAG member agencies, as well as the development, architecture, and

landscape architecture communities, RPTA and the Coalition of Arizona Bicyclists.

- Building Codes Committee

Purpose: Provide a regional forum for construction, development, and other issues as they relate to building codes.

Function:

- Make recommendations on the development, interpretation and enforcement of building codes in the MAG region.

Membership: This committee consists of building officials from MAG member agencies.

- Elderly and Persons with Disabilities Transportation Committee

Purpose: Develop recommendations regarding the prioritization of applicants to receive FTA Section 5310 capital assistance awards in the form of vehicles and related equipment to transport elderly individuals and persons with disabilities.

Function:

- Evaluate applications received for the FTA Section 5310 capital award assistance program.
- Develop a priority listing of FTA Section 5310 applications from agencies serving older adults and people with disabilities.
- Forward prioritized list of applications to the City of Phoenix Public Transit Department for submittal to FTA for approval and awards.

Membership: This committee consists of representatives from MAG member agencies and regional transportation agencies, including Arizona Department of Transportation and RPTA.

- Human Services Coordinating Committee

Purpose: Provide technical assistance to the Human Services Coordinating Committee, develop allocation recommendations for the Social Services Block Grant, and produce regional human services plans.

Function:

- Advise the MAG Human Services Coordinating Committee on identification and prioritization of regional human services issues and assist in the formulation of the annual MAG Human Services Plan.
- Develop allocation recommendations for locally planned Social Services Block Grant funding through research, public input, and professional expertise for review by the Human Services Coordinating Committee.

- Membership: Includes municipal planners, the United Way organizations, the local Area Agency on Aging, local community councils, and the Arizona Department of Economic Security.
- **Intelligent Transportation Systems (ITS) Committee**
 - Purpose: Provide oversight both to the development and periodic updates of regional plans, such as the ITS Strategic Plan, Regional ITS Architecture, and the Regional Concept of Transportation Operations. These plans serve as the overall roadmap for investments in regional ITS infrastructure and in the application of technology-based solutions for managing and operating the regional multimodal transportation system.
 - Function:
 - The primary focus of the committee is on publicly owned transportation facilities in the region. However, a number of regional ITS applications provide real-time traffic information that support value added products and services from private sector ITS partners such as radio, TV and Internet-based traffic information services.
 - Membership: This technical committee consists of representatives from the Federal Highway Administration, the Arizona Department of Transportation (ADOT), the Arizona Department of Public Safety, Valley Metro/RPTA, Arizona State University and fifteen MAG member agencies.
 - **Population Technical Advisory Committee**
 - Purpose: To provide technical guidance for the preparation of socioeconomic estimates and projections, as well as other socioeconomic databases and coverages.
 - Function:
 - The MAG Population Technical Advisory Committee (POPTAC) was created to provide technical input in the development of socioeconomic information for the region. The MAG POPTAC was also designated by the MAG Regional Council as the lead committee for coordinating preparations for the Census.
 - Membership: The committee comprises representatives of MAG's cities and towns, three Indian Communities and Maricopa County, as well as the Arizona Department of Transportation and Regional Public Transportation Authority.
 - **Public Safety Answering Point Managers Group**
 - Purpose: To provide regional coordination of the Maricopa Region 9-1-1 system.
 - Function:
 - Oversee the technical needs of the Maricopa Region 9-1-1 system.

- Membership: Consists of Public Safety Answering Point Managers from MAG member agencies.
- Solid Waste Advisory Committee
 - Purpose: Address issues related to solid waste management affecting the MAG region.
 - Function:
 - Serve in an advisory capacity to the Management Committee and Regional Council on solid waste management matters affecting the region.
 - Membership: Consists of representatives of various local government agencies, economic interests, environmental interests, and private citizens selected by MAG to provide technical expertise in the areas of concern.
 - Standard Specifications and Details Committee
 - Purpose: Address issues related to public works construction in the MAG region.
 - Function-
 - Make recommendations on proposed amendments to the MAG Specifications and Details for Public Works Construction.
 - Membership: Consists of representatives from member agency engineering departments, including RPTA and the construction industry.
 - Street Committee
 - Purpose: Address issues related to arterial streets in the MAG region.
 - Function:
 - Coordinate input for updates to the Highway Performance Monitoring System (HPMS) and the Federal Functional Classification of Highways and Streets within the region. Also provide direct input to the Transportation Improvement Program (TIP), the Regional Transportation Plan and the Arterial Lifecycle Program updates.
 - Membership: Includes local agency transportation planners and engineers, as well as the Arizona Department of Transportation and the Regional Public Transportation Authority.
 - Technology Advisory Group
 - Purpose: Formed by the Regional Council in 1994 to encourage the development of telecommunication infrastructure and applications.
 - Function:
 - Make recommendations on telecommunication infrastructure projects to increase government efficiency, improve access to public

information, and expedite delivery of local government services in Maricopa County.

- Membership: Includes local agency information technology representatives and including Valley Metro.
- **Transit Committee**

Purpose: Formed by the Regional Council in 2009 to assist in the programming process of federal transit funds.

Function:

 - Make recommendations to the MAG Transportation Review Committee on transit projects to be included in the Transportation Improvement Program. The committee also reviews regional transit studies as they are developed.

Membership: Includes local agency transit representatives from MAG member agencies, Valley Metro/RPTA, and ADOT.
 - **Transportation Review Committee**

Purpose: Established in March 1994 to provide input on transportation issues including the development of the Transportation Improvement Program and Regional Transportation Plan updates.

Function:

 - Serve as the primary committee for assembling and recommending the MAG Transportation Improvement Program (TIP).

Membership: Composed of high level transportation representatives from the member agencies.
 - **Transportation Safety Committee**

Purpose: Formed in September 2004 to address the topic of transportation safety in an organized manner.

Function:

 - To help identify both current and potential future transportation safety issues, concerns and needs in the region, and determine ways to address them through the regional transportation planning process.

Membership: Consists of representatives from Federal Highway Administration, Arizona Governor's Office of Highway Safety, Arizona Department of Transportation, Arizona Department of Public Safety, AAA Arizona, AARP, RPTA/Valley Metro, Arizona State University, and fifteen (15) local agencies.

- Water Quality Advisory Committee
 - Purpose: To address water quality matters and the 208 water quality management process in the MAG region.
 - Function:
 - Serve in an advisory capacity to the MAG Management Committee and Regional Council on water quality matters affecting the MAG area.
 - Membership: Consists of a wide variety of representatives from regional and state water quality related agencies, the private sector, civic organizations, and the general public.

Ad Hoc Groups

- Transit Interagency Team
 - Purpose: To coordinate on regional transit planning activities.
 - Function:
 - Discuss, inform, and coordinate on planning project, legislative, financial and grant issues.
 - Membership: Consists of representatives from MAG, RPTA/Valley Metro, and the City of Phoenix Public Transit Department.
- Technical Ad Hoc Groups
 - Purpose: The purpose of these groups is to discuss technical methodological advancements and coordinate interagency understanding of state-of-the-art approaches to key technical aspects of regional transportation planning.
 - Function:
 - Technical groups have been organized by MAG to address a number of technical areas, including the MAG POPTAC Ad Hoc Subcommittee, the Central Arizona Model Users Group, and the MAG GIS Users Group. These groups, respectively, address technical methodological elements of population and socio-economic forecasting, travel demand forecasting and network simulation, and geographic information systems applications. Activities involve coordination of common technical activities, distribution of information on technical advancements, training on software packages, and making recommendations on technical issues.

Technical staff of MAG member agencies and other governmental and private organizations involved in the development and application of analytical transportation and socioeconomic planning tools.

- Transportation Alternatives (TA) Working Group

- Purpose:** To coordinate on the MAG regional Federal Highway Administration sub-allocated funding for the Transportation Alternatives program (TA-MAG) and related activities.
- Function:** To technically review, evaluate, and recommend projects utilizing the MAG Federal Fund Programming Principles for Transportation Alternatives projects submitted in the MAG region, and to make general Transportation Alternatives program recommendations.
- Membership:** This committee consists of Streets Committee, Bicycle and Pedestrian Committee, Safety Committee, Transit Committee, FHWA, and ADOT.

Question: 3. Briefly describe the make-up of the MAG Regional Council and any changes since the 2009 Certification review, including the representation of local jurisdictions, transit operators, Indian tribal governments, etc.

Response: The Regional Council consists of 35 members: Duly elected members from 27 cities/towns, Maricopa and Pinal Counties, and three Native American communities, two representatives from the Arizona Department of Transportation State Transportation Board, and a representative from the Citizens Transportation Oversight Committee.

The following is a list of the 27 incorporated cities and towns within Maricopa County represented on the Regional Council: City of Apache Junction; City of Avondale; Town of Buckeye; Town of Carefree; Town of Cave Creek; City of Chandler; City of El Mirage; Town of Florence, Town of Fountain Hills; Town of Gila Bend; Town of Gilbert; City of Glendale; City of Goodyear; Town of Guadalupe; City of Litchfield Park; City of Maricopa, City of Mesa; Town of Paradise Valley; City of Peoria; City of Phoenix; Town of Queen Creek; City of Scottsdale; City of Surprise; City of Tempe; City of Tolleson, Town of Wickenburg and Town of Youngtown. Additionally included on the MAG Regional Council are Supervisors from the Maricopa County Board of Supervisors and the Pinal County Board of Supervisors, the Governor of the Gila River Indian Community, the President of the Salt River Pima-Maricopa Indian Community, the President of the Fort McDowell Yavapai Nation, two representatives from the Arizona Department of Transportation State Transportation Board and one representative of the Citizens Transportation Oversight Committee. Members of MAG that are in the Pinal County Area are entitled to vote on all matters coming before any meetings of its membership except those that are exclusive to the Maricopa County Boundary defined by State Law or through a planning designation by a Governor's Executive Order, including but not limited to the Transportation Excise Tax enacted by Maricopa County, Section 208 Water Quality Management Planning, and Solid Waste Management Planning. The State Transportation Board members may vote only on traffic and transportation matters. The Citizens Transportation Oversight Committee representative may vote only on matters relating to the Regional Transportation Plan.

On April 15, 2013, the MAG Regional Council Executive Committee approved the MAG Metropolitan Planning Area Boundary (MPA) map to be conveyed to the Governor. The new

MPA Boundary is in accordance with federal regulations §450.312 metropolitan planning area boundaries. Due to this boundary change, three jurisdictions signed resolutions requesting admittance to MAG – City of Maricopa, Town of Florence and Pinal County. These resolutions were approved by the MAG Regional Council.

The City of Phoenix contracts for the operation of the bus system, the light rail transit system and is represented on the MAG Regional Council. The City of Phoenix also operates the regional airport. In addition, the member agencies of the Regional Public Transportation Authority (RPTA) Board also sit on the MAG Regional Council.

Question: 4. Briefly describe the MAG Regional Council approval process for transportation planning actions.

**How is the agenda for Regional Council meetings determined? How does the general public bring issues to the Regional Council?
What responsibilities has the Regional Council delegated to MAG staff?
(Please provide a copy of Regional Council resolutions for the delegations).**

Response: The transportation planning approval process at MAG begins at the technical committee level. For the purpose of transportation planning actions, these may be heard at one or more of the technical committees whose purview are transportation related issues Transportation Safety Committee, Transportation Review Committee, Street Committee, Elderly and Persons with Disabilities Transportation Committee, and/or Bicycle and Pedestrian Committee. After being heard at the technical level, the item proceeds to the Management Committee, Transportation Policy Committee, and ultimately the MAG Regional Council for consideration and action.

a. How is the agenda for Regional Council meetings determined?

Response: The agenda for the Regional Council is prepared by staff through the Executive Director with approval by the Chair of the Regional Council. Items that have been recommended to the Regional Council by the Management Committee or another policy committee are included on the Regional Council agenda for consideration. At MAG, the Chair does not have the unilateral power to remove an item from an agenda that has proceeded through the MAG committee process. A “request for future agenda items” is placed on all Regional Council agendas and items that are requested are considered by the MAG Executive Committee for further direction.

b. How does the general public bring issues to the Regional Council?

Response: Public involvement is encouraged at all MAG committee meetings, including the Regional Council. Opportunity for public comment is agendized at the beginning of every agenda in accordance with the MAG public input policy. Members of the public are provided the opportunity to address the Regional Council 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. Members of the public are requested not to exceed a three minute time period for their comments. A total of 15 minutes is provided for the Call to the Audience agenda item, unless the Regional Council

requests an exception to this limit. Those members of the public who wish to comment on action agenda items are given an opportunity to comment at the time the item is heard.

It should be noted that MAG staff responds to all appropriate telephone, e-mail, MAG website and other communications received from the public. This effort involves all MAG staff to ensure that complete and accurate information is provided.

**c. What responsibilities has the Regional Council delegated to MAG staff?
(Please provide a copy of Regional Council resolutions for the delegations.)**

Response: The Regional Council has delegated authority to the MAG Executive Director to execute the necessary documents to receive funding for the MAG Unified Planning Work Program and Annual Budget, to make administrative changes to the Work Program and Annual Budget, and to execute the contracts pursuant to the Work Program and Annual Budget.

PLANNING BOUNDARIES

Question: 5. Have the UAB and MPA been adjusted in accordance with the most recent Census? Have there been any other changes since the previous certification review?

Response: On May 9, 2013, Governor Brewer approved the new Metropolitan Planning Area (MPA) Boundary for the Maricopa Association of Governments (MAG). The new MPA Boundary is in accordance with federal regulations §450.312 metropolitan planning area boundaries. According to this regulation, “the boundaries of a metropolitan planning area shall be determined by agreement between the MPO and the Governor.” The MAG Metropolitan Planning Area (MPA) boundary was extended in the southeast to include parts of Pinal County. This change was due to the expanded Urbanized Area Boundary, as defined by the U.S. Census Bureau, following the 2010 Census. Due to this expansion, the MAG Regional Council voted in three new member agencies: the City of Maricopa, the Town of Florence, and Pinal County. In addition, the entire area of the Gila River Indian Community now falls within the MAG MPA. The MAG MPA is now 10,647 square miles in area and consists of the 27 incorporated cities and towns, the Gila River Indian Community, the Salt River Pima-Maricopa Indian Community, Fort McDowell Yavapai Nation, Maricopa County and portions of Pinal Counties.

Copy of the letter designating the change in the MPA boundary and a map of the new boundary are (See Appendix Y Governor Letter and Boundaries).

INTEGRATING FREIGHT IN THE TRANSPORTATION PLANNING PROCESS

As part of the MPO participation requirements under title 23 U.S.C., the SAFTEA-LU and MAP-21 includes a number of provisions to improve the condition and performance of the national freight network to provide the foundation for the United States to compete in the global economy and achieve goals related to economic competitiveness and efficiency. (Reference: MAP-21 § 1115-1118, 1201-1203, 1401, 1510-1511, 32801-32802; SAFETEA-LU § 1301; 23 USC 127, 133-135, 148-150, 167).

Please discuss the following questions and how they relate to the MAG freight planning process:

Question: 1. How has MAG identified the transportation planning link between freight and economic development opportunities for the area per 23 CFR 450.306(a)? How have these planning factors been documented within MAG's planning products (e.g. TIP, RTP, OWP, etc.)?

Response: All of the planning factors included under 23 CFR 450.306(a) are documented in Chapter One of the Regional Transportation Plan (RTP). A discussion of the manner in which the Plan approaches the issues raised by each factor is provided in this document.

The RTP identifies several objectives related to mobility options, one of which is related to the planning link between freight and economic development. Specifically, this objective is "to maintain a reasonable and reliable travel time for moving freight into, through and within the region, as well as provide high-quality access between intercity freight transportation corridors and freight terminal locations, including intermodal facilities for air, rail and truck cargo." The RTP increases accessibility and mobility options for freight by calling for significant investments in freeways, highways, and streets, improving the level of service that would otherwise be experienced in moving freight in the MAG region. In particular, truck corridors, such as I-10, I-17 and SR-85, have significant funding in the RTP to improve the movement of freight into and through the region.

The RTP dedicates an entire chapter to goods movement and assesses items pertaining to regional freight infrastructure. The RTP provides an overview of freight movements by types of commodities and overall tons; assesses each of the trucking, rail, and air cargo freight transportation modes; and also considers the potential of regional freight planning efforts that may be pursued in the future.

The RTP addresses several key, overlying issues that are particularly relevant to the goods movement process. As addressed in the RTP, transportation solutions for freight will need to include increases in highway capacity; the widening and ultimate expansion of the regional arterial network; an enhanced Intelligent Transportation System (ITS) of traffic management; intersection improvements; and the construction of new freeways, such as the Loop 202 South Mountain Freeway and the West Valley's State Route 30, which will collectively relieve congestion by providing improved accessibility to the area south of I-10 (which contains high concentrations of truck terminals and other generators of truck traffic). New freeway construction, including the

addition of freeway relievers and bypasses, will help to handle high volumes of truck traffic engaged in the movement of goods to, from, within and throughout the MAG region.

MAG is also continuing to work with the Burlington Northern Santa Fe and Union Pacific railroads to ensure that rail freight and the intermodal connections for trucks are a consideration in the regional planning process. In addition, MAG is working with airport agencies in the region to develop a foundation for addressing air cargo and airport intermodal factors, as part of the future goods movement needs in the region.

In addition to incorporating freight and economic development planning in the MAG RTP, in December of 2009 MAG, CAG, and PAG, signed a resolution stating their desire to jointly coordinate planning efforts in the Arizona Sun Corridor Megaregion (Maricopa, Pinal and Pima Counties). The intent of the JPAC is to coordinate their respective planning activities and cooperatively work together to foster a successful and economically viable Sun Corridor in the State of Arizona. The JPAC lead the freight transportation framework study (2010-2013) that analyzed freight related economic development opportunities for the Sun Corridor. The JPAC project team met with and included in the planning process a large group of freight related Arizona businesses and a variety of government agencies to make this a true collaborative planning effort.

Question: 2. Has MAG developed a "freight contact" list for purposes of encouraging freight shippers and providers of freight transportation services a reasonable opportunity to participate as part of the metropolitan planning process per 23 CFR 450.316(a)?

Response: An up-to-date mailing list is maintained that includes interested citizens, affected public agencies, representatives of transportation agencies, private providers of transportation, advocates for low-income and minority interests, and representatives of community groups with an interest in transportation. Currently, that list includes approximately 3,000 individuals and organizations. This mailing list is used to announce meetings, distribute newsletters, and for other opportunities for public involvement. Announcements are also distributed to public libraries throughout the region.

MAG's adopted policy for public involvement identifies opportunities for public input early in the process, during the planning process, and prior to final hearings. It is MAG's role and policy to obtain maximum public participation and input for each planning process and developed plan of local and regional significance. In the future, with regard to the freight community, MAG will undertake all relevant public information efforts to involve maximum participation by the broadest possible cross-section of the public throughout each stage and development of the plan.

Question: 3. How is the freight community engaged in the planning process, particularly in the development of the RTP and the TIP?

Response: The Transportation Policy Committee (TPC) was established by the MAG Regional Council to oversee the regional transportation planning process, and to find solutions to the region's transportation challenges. The TPC developed, guided and recommended the resulting plan that was eventually adopted by the MAG Regional Council in 2003. As required by state statute, the TPC includes private sector freight representation. This active presence of private

freight sector representation on the committee helped to ensure that the concerns associated with regional goods movement were considered in the RTP process. The TPC also includes other members representing the business community, which has a stake in the efficient movement of goods that support a growing regional economy.

In addition to developing the RTP adopted in 2003, the TPC has a continuing role in the transportation planning process. This includes recommendations regarding updates of the RTP and the MAG Transportation Improvement Program. With freight representation on the Transportation Policy Committee, goods movement needs will continue to be considered as part of the regional transportation planning process. In the future, MAG will further assess regional freight issues through active planning and assessment, and will work toward maintaining a strong and ongoing dialogue with private-sector freight representatives in order to identify infrastructure, investment, and policy needs of the goods movement process.

Question: 4. Has MAG defined the term "freight corridor" for transportation planning purposes? If so, what is the definition of this term used by MAG and have these major freight corridors been visually mapped within the metropolitan planning area?

Response: In 2012, MAG in cooperation with the Joint Planning Advisory Council (JPAC) completed the *Freight Transportation Framework Study*. The goal of the Freight Transportation Framework Study was to identify freight related economic development opportunities in the Arizona Sun Corridor (Maricopa, Pinal and Pima Counties). The framework study completed an extensive freight survey that: (1) included an online survey of over 2,500 shippers and carriers across the United States, (2) conducted phone and in-person interviews with local freight stakeholders, (3) evaluated commodity flows and truck rates, (4) identified 16 freight focus areas, (5) analyzed the industry real estate market, (6) completed a detailed assessment of four emerging focus areas that included the evaluation of the industry market, land use plans (existing and future), inventory of existing businesses, work force education levels and travel times, commodities, transportation infrastructure and economic development incentives.

The Freight Framework study also presents the results of a detailed evaluation of commodity flows affecting the Sun Corridor, with a particular focus on goods movements between Mexico, sources in the southeast United States and markets along the West Coast. A screening of potential freight focus areas leads to the determination of freight related opportunities within the region, including the designation and evaluation of area typologies representing differing relevant majority use types that would support an enhance role for the Sun Corridor in the global supply chain.

Past Freight Planning Efforts: In 2005, MAG completed a Regional Freight Assessment, which contains a regional inventory and analysis of goods movement facilities located throughout the MAG region. This analysis identified and mapped key facilities that are utilized in the movement of goods, such as roadways, rail lines, pipelines, freight terminals, warehouses, intermodal facilities, and cargo airports. In particular, truck corridors, such as I-10, I-17 and SR-85, play a significant role in the movement of freight into and through the region. A total of 43 regionally significant freight terminals, 60 major warehouse facilities, 11 intermodal freight facilities, and the air cargo operations at Phoenix Sky Harbor International Airport and Williams

Gateway Airport are also notable freight facilities. An in-depth analysis of land uses, freight facilities, and community.

Future Freight Planning Efforts: Building on the findings from the Freight Transportation Framework Study, MAG will be initiating, in late (FY) 2013, the MAG Freight Plan, which will include analyzing major and minor freight transportation corridors, identify and develop hazardous cargo routes, a local primary/secondary connected freight corridor, and create freight districts that will include a market analysis, business/community outreach, transportation operations analysis and project identification. It should be noted that this planning effort will be completed in conjunction with the proposed ADOT State Freight Plan.

ESTABLISHMENT AND USE OF A PERFORMANCE-BASE PLANNING PROCESS

As part of the MPO planning requirements under 23 U.S.C. 134, as amended by MAP-21, the metropolitan transportation planning process shall provide for the establishment and use of a performance-based approach to transportation decision-making to support national goals described in section 150(b) of title 23 and section 5301 of title 49.

Question: 1. Please discuss progress on performance-based planning approaches, including: Establishing a performance measurement framework to inform planning activities at MAG in coordination with public transportation service providers and consistent with State transportation plans and processes.

Response: MAG's Performance Measurement Program is the functional component that links planning and programming activities with performance data and analysis at MAG. The program is the result of an extensive process of investigation, exploration and adoption of best practices in the field. It has evolved in the last two years to become a quantitative and qualitative source of information to technical and non-technical audiences. MAG's Performance Measurement program is based on a collaboratively developed framework and is in a continuing state of evolution and development as base data and resources become available. In 2009 MAG published the Phase II Performance Measurement Report, which was created with the participation of MAG member agency modal committee representatives as well as RTP partners including ADOT and Valley Metro/RPTA.

The original Performance Measurement Framework document describes in detail the link between performance measures, transportation modes and regional planning goals. During FY 2012-13 MAG developed two new web-based interactive products, a Performance Measurement Dashboard and a set of Regional Transportation Program (RTP) Freeway Project Cards. The Dashboard product includes interactive maps linking instrumented freeway and major arterial corridors with charts, tables and graphs depicting multimodal performance results. The Project Cards document descriptions, status, schedules and expenditures of various completed projects. Both are currently being used to communicate how the regional transportation system is performing with various audiences. The dashboard can be found at: <http://performance.azmag.gov/>.

The MAG Performance Measurement Program has two main components based on the data sources and methodologies applied: (1) Observed data sources-using data collected from the field, and (2) simulated data sources using calibrated travel demand model data. The latter performance measures have been reported in the Regional Transportation Plan updates in 2007, 2010, Draft 2013, and in the Annual Reports on the Status of the Implementation of Proposition 400 (2007-2012). Performance measures based on simulated results represent how the system is likely to perform in the future using travel demand models to project conditions in three horizon scenarios. Supply Measures, Demand Measures, and Level of Service Measures have been selected as preliminary representative indicators of the overall forecasted performance of the transportation system.

The primary objectives of the Performance Measurement Program are:

- To maintain a framework of measures that develops over time as resources to collect data become available and to publish annual reports as tools for monitoring and evaluating the effectiveness of regional strategies for moving people and goods at the corridor and system level. An effective performance measurement program enables timely and consistent system evaluation and contributes to enhanced regional mobility.
- To continuously update MAG's methodologies in applying performance measures to programming activities and develop enhanced strategies for prioritizing investments. Innovative congestion management strategies are critical to achieve travel demand reduction and implement effective operational management policies.
- To comply with Proposition 400 performance audit recommendations as well as federal requirements to be set forth as part of the Moving Ahead for Progress in the 21st Century (MAP-21) Act.

Question: 2. Please discuss progress on implementation of State mandated 2010 Performance Audit recommendations as they relate to planning activities at MAG.

Response: The adoption of the Regional Transportation Plan (RTP) in November 2003 and the passage of Proposition 400 in November 2004 established Arizona statutes that require MAG, as the regional planning agency, to develop multimodal performance measures for the regional transportation system. Beginning in 2010 and every five years thereafter, A.R.S. 28-6313 requires the Auditor General to contract with a nationally recognized independent auditor to conduct a performance audit of the regional transportation system.

The 2010 Performance Audit of the MAG RTP was completed and released to the public on December 21, 2011. The audit examined the RTP multimodal plan and evaluated it using specific performance measures included in MAG's Performance Measurement Program. The audit reviewed past expenditures in the RTP and examined the effectiveness and performance of the transportation system in relieving congestion and improving mobility and accessibility. The audit also examined the process for revisiting project priorities and provided recommendations regarding whether further implementation of a project is warranted, warranted with modifications, or not warranted.

The final audit report was released December 21, 2011. The audit produced twenty-five recommendations to improve the oversight and management of the program. A series of recommendations proposed improvements to the documentation and rationale for program changes. In addition, the report recommended producing a web-based performance dashboard and informational cards that would provide the description and status of each project. MAG examined the recommendations and organized them in categories in order to establish priorities for implementation. The recommendations that implied enhancements to MAG's established planning and programming process were implemented first. One example is the application of a performance-based CMP process for the programming of CMAQ funds. Another example is the

Exploration of various alternative scenarios based on benefit-cost and performance analysis for the rebalancing of the Freeway Life-Cycle program.

A final implementation plan to respond to each audit recommendation was presented to policymakers in March 2012. All the recommendations were grouped in a matrix describing the tasks involved in the implementation and their relationship to the MAG planning process. By August of 2013 twenty recommendations derived from the audit were completed. The implementation of one recommendation would require changes in state law (ARS 28-6308) and a remaining four are in the final stages of development.

A six month progress report was issued in June 2012 and a presentation to the Transportation Committee of the Arizona Legislature was given in December of 2012. An eighteen month progress report was issued in June 2013, which is being reviewed by the State Auditor General. As a tool to illustrate progress towards a number of recommendations, two web-based products were published in 2012: the Performance Dashboard and the RTP Status Project cards.

For a full description on status of recommendation implementation, please refer to Exhibit 1. (Bullet points represents implementation dates).

Exhibit 1

2010 AUDIT RECOMMENDATION - IMPLEMENTATION PLAN

| DOCUMENTATION ITEMS | | 2012 | | | | 2013 | | | |
|---------------------|---|----------|---|---|---|------|---|---|---|
| | | Quarters | | | | | | | |
| | Audit Recommendation | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 1 | Formally identify and quantify RTP partners' expectations through the implementation of the RTP | | | | | | | ● | |
| 11 | Document performance measures and priority criteria for selection, ranking and changes in corridors and projects | | | | | | ● | | |
| 14 | Ensure documentation describes basis, source, deliberations, outcome, and rationale for resulting actions and decisions related to project and RTP changes | ● | | | | | | | |
| 15 | Summarize and communicate data to MAG committees on options, alternatives, risks, opportunities and impacts for each alternative related to congestion or performance | | | | | | | | |
| 16 | Ensure any additional information provided to individual committee members is distributed to all committee members as well as made available to the public | ● | | | | | | | |

| ANALYSIS ITEMS | | 2012 | | | | 2013 | | | |
|----------------|--|----------|---|---|---|------|---|---|---|
| | | Quarters | | | | | | | |
| | Audit Recommendation | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 2 | Work with ADOT and member jurisdictions to establish coordinated performance targets and baselines for freeways and arterials | | ● | | | | | | |
| 3 | Measure and analyze all available performance data against set baselines to assess impact of projects on the overall system | | | ● | | | | | |
| 7 | Continue to implement the current transportation system and strive to continually reassess system performance to make modifications as necessary | | | | | | | ● | |
| 10 | Develop clear and specific criteria for ranking, and project changes in conjunction with RTP partners | | | | ● | | | | |
| 12 | Have MAG require the use of the Congestion Management Program (CMP) tool among local cities and counties to identify and prioritize projects | | | | | ● | | | |
| 13 | Use a performance based model as part of project change and reprioritization process using factors like volume, capacity, and/or delays | | | | ● | | | | |

| COORDINATION ITEMS | | 2012 | | | | 2013 | | | |
|--------------------|--|----------|---|---|---|------|---|---|---|
| | | Quarters | | | | | | | |
| | Audit Recommendation | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 4 | Coordinate all RTP Partner's individual performance measurement activities with MAG's overall performance system for the RTP | | | | ● | | | | |
| 20 | Memorialize, document and maintain discussions at RTP Partner meetings to include items discussed, agreements reached & action items | | ● | | | | | | |

| REPORTING ITEMS | | 2012 | | | | 2013 | | | |
|-----------------|--|----------|---|---|---|------|---|---|---|
| | | Quarters | | | | | | | |
| | Audit Recommendation | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 5 | Publish a monthly dashboard-format summary of performance data on a regular basis on MAG's website showing targets, budget and schedule by corridor and by project | | | ● | | | | | |
| 6 | In conjunction with RPTA, communicate MAG performance results and analysis to committees on a more frequently basis, such as quarterly | | | | ● | | | | |
| 8 | Develop a "report card" type feature to provide project snapshots summarizing project performance, budget schedule and % completion | | | | | ● | | | |
| 9 | Ensure consistency in reporting and facilitate the tracking of totals and data between the Annual Proposition 400 Reports, RTP Updates and LCP Reports | | | | | ● | | | |
| 17 | Continue to develop a user-friendly guide book providing information as a "road map" clarifying how the public can influence transportation projects | ● | | | | | | | |

| ORGANIZATIONAL ITEMS | | 2012 | | | | 2013 | | | |
|----------------------|---|----------|---|---|---|------|---|---|---|
| | | Quarters | | | | | | | |
| | Audit Recommendation | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 18 | Develop detailed provisions for the MOU agreements between the four RTP Partners, and possibly the City of Phoenix | | ● | | | | | | |
| 19 | Strengthen the existing transit planning MOU to describe the mechanics and specificity of process | ● | | | | | | | |
| 21 | Through the MAG Transportation Policy Committee, or other committee, assume a stronger and more proactive leadership role in setting a framework for RTP related activities | | | | | | | | |
| 22 | Adjust MAG Transportation Policy Committee membership requirements to include RPTA and METRO transit representatives | | | | | | | | |
| 23 | Reaffirm the role of CTOC and increase effectiveness by implementing several changes; among them – to be staffed by MAG | | | | | | | | |
| 24 | Continue investigating cost efficiencies that could result from a combination of RPTA and METRO and implement measures as soon as practical | | | ● | | | | | |
| 25 | Work towards realizing more benefits from regionalizing bus transit activities | | | ● | | | | | |

Question: 3 Describe approaches and progress in anticipation of MAP-21 rulemaking on Metropolitan and Statewide Planning Rule. Discuss the application of performance targets for use in tracking progress toward attainment of critical outcomes for the region.

Response: As part of the implementation of MAP-21, rulemaking will include performance based ‘Statewide and Metropolitan Planning Process’ requirements. MPOs will need to establish and use a performance-based approach to transportation decision making and development of transportation plans. Rulemaking will also include ‘Congestion/System Performance’ requirements to be integrated into the MPO’s planning and programming process.

It is important to note that performance-based planning and programming are not new concepts for MAG. Over the last decade, a number of planning efforts have been informed and supported by various levels of performance measurement information to help direct and prioritize investment decisions. As an example, the 2003 Regional Transportation Plan based the components of the Life Cycle Programs and identified projects considering the performance criteria that met the plan’s principal goals and objectives.

With the understanding that performance measures and targets are the links between goals and specific investments, MAG has initiated the development of regional system targets based on the existing performance measurement framework. Connecting performance measures to goals and objectives through target setting provides a basis for understanding and sharing of information with stakeholders and the public. Nevertheless, MAG is cognizant of the fact that target-setting is influenced by internal and external factors. There are several internal and external factors in an agency that affect target-setting. These factors include: legislative actions, customer and stakeholder perspective, agency experience in using performance measures, extent of agency control of externalities, financial resources and timeframe.

In anticipation of MAP-21 rulemaking, MAG is exploring a set of proposed preliminary performance targets linked to RTP goals and objectives. MAG has initiated work sessions with ADOT representatives to align the development of targets that meet state level expectations while reflecting unique MPO level goals and objectives. Reliability and mobility measures are being considered, with targets being defined as maximum values expected in proportion to increases in supply and demand measures on the transportation system. (See Figs. 1, 2).

The set of draft targets is preliminary and internal. The basic methodology for target setting has been proposed as a starting point in preparation to conduct observed data analysis, model runs and scenario development. In order to successfully adopt performance targets, MAG must conduct the process of consulting policymakers and local government officials, as well as seek feedback to identify the most meaningful mix of measures based on accurate and reliable data. The final implementation step is to seek adoption by the MAG Regional Council.

It is important to note that this target setting exercise is being developed in a context of significant flexibility due to several factors such as the changes in population and land use, which exert sizeable pressures on transportation systems as well as the state of the regional economy that will rapidly and considerably change the performance of a system.

Fig.1

Transportation Performance System-wide Targets

(Based on Percent Increases between 2010 – 2031)

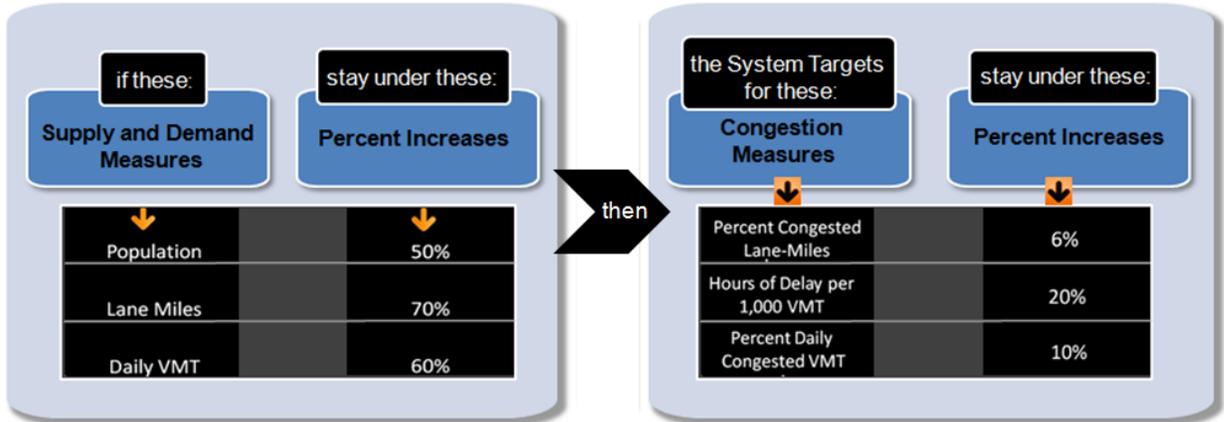
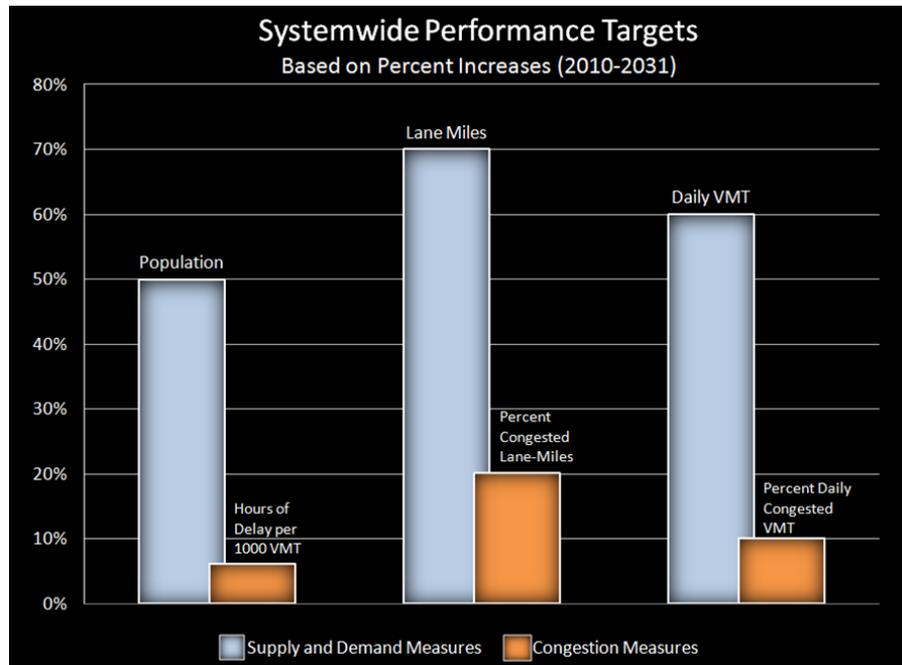


Fig.2



It is also necessary to consider that financial resource limitations are often a driving factor in target setting. For example, if there is no expectation of available funding for transit, embarking on setting targets for transit expansion may become an inefficient use of time and resources. Control of these major factors may be beyond the purview of the MPO, thus setting targets under these conditions become an exercise that may not yield the highest quality of information about performance vs. desired outcomes.

MAG and ADOT continue to collaborate and participate in the discussions at the national level regarding the development of measures and targets by the USDOT. One of the outcomes of ADOT's LRTP planning process was the establishment of performance measures in conjunction with state-wide goals and objectives. MAG is also part of the ADOT Planning to Programming Process (P2P) team which is developing a state level planning and programming framework with a key performance measurement component. The P2P process is to be used as one of the tools for state level transportation project selection and prioritization. MAG is assisting the team in bringing the MPO and urban area perspective as well as serving as a resource as ADOT develops evaluative programming tools.

An integral component of the MAG Regional Transportation Plan and TIP is the Transit Life Cycle Program. The Valley Metro/RPTA publishes the annual Transit Performance Report (TPR), which supports decision making throughout the implementation of the Life Cycle Program. The TPR is developed using input from, and is reviewed by, member agencies and the RPTA Board. The original transit performance measures were established as part of the Service Effectiveness and Efficiency Study (SEES) conducted by RPTA in 2006. This SEES also developed initial performance targets that allow comparison between performance expectations and actual performance. As plan implementation continues, targets are reviewed, refined and indexed to inflation as appropriate.

A Technical Advisory Group (TAG) made up of Valley Metro/RPTA member agencies and MAG, was formed in November 2012 and has been tasked with the development of regional transit standards and to refine the existing transit performance measures. The focus of the first Phase of this effort has been to prepare service delivery goals, develop transit operational standards, initiate a performance measures review, and develop a process for transit service changes. Phase II will address additional standards and focus on development of performance measures to compliment agency goals.

The full Transit Performance Report and The Valley Metro/RPTA Ridership report and the Transit Standards Phase I Reports can be accessed from the Valley Metro/RPTA Website (www.valleymetro.org).

FOLLOW-UP ON 2009 CERTIFICATION REVIEW FINDINGS

During the 2009 certification review, the review team made several recommendations for improvements to the planning process. Please review the recommended improvements below, and provide discussion as to whether any of the recommendations have been implemented – or, if not, why:

Question: 1. Clarifying roles and responsibilities of Participating Organizations: The Federal Team observed the complex structure of the technical committees of the MPO and recommends that the MPO and its partner agencies consider undertaking a study of the efficiency of this structure. The team also observed that the public appears uncertain about the exact responsibilities of regional transit agencies and providers, and also encourages consideration of a study of the efficiency of these organizations.

Response: In May 2008, the MAG Executive Committee requested that the MAG committee policies and procedures be reviewed. The Committee thought it was important to develop a booklet for new members that outline the procedures and policies associated with MAG’s various processes. Since the time, MAG staff has developed a *MAG Committee Operating Policies and Procedures* book that outlines the responsibilities, composition, duties of chairs and election and term of offers. The booklet also outlines agenda development, quorum, minutes and proxy responsibilities, as well as weighted voting.

As a result of the Regional Public Transportation Authority and Valley Metro Rail consolidating staff into one Valley Metro organization, MAG was provided Valley Metro staff assignments to various MAG committees. Valley Metro took a comprehensive look at the various MAG committees and provided MAG with a staff person for each of the MAG committees. (See Appendix X MAG Committee Structure for RPTA).

To help the public understand the transportation planning process, MAG developed to “MAG Public Participation Guide.” This guide provides a roadmap to the decision-making process and shows how a citizen can provide input and ideas on transportation issues and projects.

Question: 2. Memorandums of Understanding (MOU): MAG should work cooperatively with ADOT to develop a new agreement that formalizes mutual roles and responsibilities. This improves accountability and transparency of the planning process. FHWA and FTA will actively participate in this action. MAG should also work cooperatively on a second MOU with ADEQ, ADOT, and Maricopa County that updates mutual roles and responsibilities pertaining to air quality.

Response: Fiscal Service Agreement: Beginning in November 2010, FHWA, FTA MAG and ADOT worked together through June 2011, to develop a Joint Project Agreement to replace the MAG/ADOT contract that was in place beginning in FY 2006. (See Appendix H MAG/ADOT JPA, Appendix I Amendment One, and Appendix J Amendment Two). The Joint Project Agreement was executed at the beginning of FY 2012. During the review process, MAG, ADOT, FHWA and FTA participated in the development of this agreement. Amendments extending the

Joint Project Agreement have been executed each year since FY 2012 for fiscal years 2013 and 2014. The Joint Project Agreement recognizes the mutually agreed upon bases of the agreement which formalizes mutual roles and responsibilities and improve the accountability and transparency of the planning process between MAG and ADOT. These are as follows:

1. To ensure a continuing, cooperative, and comprehensive transportation planning process that involves cooperation/coordination between the MPO and ADOT through the sharing of information.
2. The MPO is charged with the responsibility of carrying out transportation planning and programming processes that lead to the development and operation of an integrated, intermodal transportation system that facilitates the efficient, economic movement of people and goods; and supports metropolitan community development and social goals.
3. ADOT, a State Transportation Agency pursuant to Title 23, Section 134 of the United States Code (23 U.S.C. 134); Title 23, Section 450.310 of the Code of Federal Regulation (23 CFR 450.3 I 0) that is apportioned federal transportation funds, is a recipient of Federal Highway Administration (FHWA) Planning and Research funds, including State Planning and Research (SPR) funds, Metropolitan Planning Funds (PL), Surface Transportation Program (STP) funds, Congestion Mitigation Air Quality Improvement (CMAQ) funds and Federal Transit Administration (FTA) funds that are apportioned per United States Code (49 U.S.C. 5303) and any funds provided to the MPO through ADOT for the purpose of the Work Program and as identified in the Scope as well as any other federal funds specifically identified for transportation planning purposes over which ADOT has fiduciary responsibility.
4. ADOT is authorized to allocate said funds for all Metropolitan Planning Organizations throughout the State of Arizona based on a formula developed by the State in cooperation with the MPO's and approved by FHWA and/or FTA. Federal State Planning and Research (SPR) funds are discretionary for MPO's and are not required to be allocated in cooperation with MPO's.
5. The MPO is to be the subrecipient of Metropolitan Planning Funds (PL Funds) authorized under 23 U.S.C. 104 (f) and 49 U.S.C. 5305 to carry out the provisions of 23 U.S.C. 134/49 U.S.C. 5303.
6. In accordance with 49 CFR 18.40, ADOT shall monitor all activities performed by its staff or by subrecipients of FHWA and FTA funds to assure that the work is being managed and performed satisfactorily and that time schedules are being met.
7. ADOT has primary responsibility for administering FHWA and FTA funds allocated to the MPO and ensuring that such funds are expended for eligible

costs, purpose and activities in accordance with 23 CFR 420.113, that are allowable per 2 CFR 225, and that are within the MPO planning boundaries.

8. 23 CFR 450.314 requires that ADOT and the MPO enter into an agreement clearly identifying the responsibilities for cooperatively carrying out the Metropolitan Planning Process and accomplishing the transportation planning requirements of state and federal law (including corridor and subarea studies pursuant to 23 CFR450.318).

Air Quality Memorandum of Agreement: Following the 2009 Certification Review, MAG recognized that the 2010 Census results would be available in the near future and that based upon the results, it may be necessary to expand the Metropolitan Planning Area Boundary. Since the role of MAG as the designated Regional Air Quality Planning Agency is directly related to the Metropolitan Planning Area Boundary, it was apparent that it would be premature to revise the Air Quality Memorandum of Agreement. In 2013, Governor Brewer approved the new expanded MAG Metropolitan Planning Area Boundary, the Sun Corridor Metropolitan Planning Organization in Pinal County was formed, and MAG began to prepare the initial conformity analysis for the new Sun Corridor Metropolitan Planning Organization. Presently, the two organizations are in the process of developing new roles and responsibilities. It is anticipated that the next certification period would afford an opportunity to build upon the successes of these evolving relationships and revise the Air Quality Memorandum of Agreement accordingly.

Over time, the Air Quality Memorandum of Agreement has served the region well. The roles and responsibilities of the agencies have largely remained the same. Several successful air quality plans have been prepared through the cooperative effort among the Arizona Department of Environmental Quality, Arizona Department of Transportation, Maricopa County, and MAG. There has also been significant air quality improvement as measured by the monitors.

On May 9, 2013, the MAG Metropolitan Planning Area Boundary was expanded due to the 2010 Census urbanized area updates. For transportation planning and programming purposes, the Federal Highway Administration regulations state that at a minimum, the Metropolitan Planning Area must encompass the entire existing urbanized area boundary as well as the contiguous geographic area(s) likely to become urbanized within the next 20 years. The updated urbanized area boundary for the MAG region included areas within Pinal County. Due to this expansion, the MAG Regional Council amended the MAG By-laws to recognize the new Metropolitan Planning Area Boundary and to provide for new members from Pinal County within the new boundary. The MAG Metropolitan Planning Area Boundary now includes the Town of Florence, City of Maricopa, the portion of the Gila River Indian Community within Pinal County, and unincorporated areas within Pinal County.

Also, on May 6, 2013, the new Sun Corridor Metropolitan Planning Organization was designated in the Pinal County area. The Sun Corridor Metropolitan Planning Area Boundary includes the cities of Casa Grande, Eloy, Coolidge, and unincorporated areas of Pinal County.

Both the MAG Metropolitan Planning Area Boundary and the Sun Corridor Metropolitan Planning Area Boundary include portions of the West Pinal PM-10 Nonattainment Area and West Central Pinal PM-2.5 Nonattainment Area located in Pinal County. Both nonattainment areas are

covered by the boundaries of the two metropolitan planning organizations. Consequently, transportation conformity is required to be demonstrated for both nonattainment areas by both metropolitan planning organizations.

On July 1, 2013, the Federal Highway Administration notified the Governor of a transportation conformity lapse in the West Pinal PM-10 Nonattainment Area, effective July 2, 2013. The new West Pinal PM-10 Nonattainment Area had been designated by the Environmental Protection Agency, effective July 2, 2012. The Clean Air Act §176(c)(6) requires a metropolitan long range transportation plan and transportation improvement program conformity determination within twelve months of the effective date of an area being designated nonattainment. The twelve month conformity grace period had lapsed.

To provide assistance to the new Sun Corridor Metropolitan Planning Organization, MAG offered to prepare the initial conformity analysis for the PM-10 and PM-2.5 nonattainment areas in Pinal County, to enable transportation projects in both metropolitan planning organizations to proceed. At a June 17, 2013 meeting with the Arizona Department of Transportation, Sun Corridor Metropolitan Planning Organization and MAG, there was general concurrence that MAG would prepare the initial conformity analysis. The Maricopa Association of Governments is working through a cooperative effort with the Arizona Department of Transportation, Sun Corridor Metropolitan Planning Organization, and Pinal County on the conformity analysis necessary to remove the conformity lapse. In addition, MAG has also been coordinating with the Arizona Department of Environmental Quality, Environmental Protection Agency, and Federal Highway Administration.

Throughout the process to prepare the initial conformity analysis, new relationships and responsibilities are continuing to evolve. While the current Air Quality Memorandum of Agreement has served the region well, the next certification period would provide an opportunity to build upon the successes experienced and revise the Air Quality Memorandum of Agreement to reflect these new relationships and responsibilities.

Question: 3. Broader Regional Planning (Megaregions): In recognition of MAG's ongoing work with the Central Arizona Association of Governments (CAAG) and the Pima Association of Governments (PAG) to explore broader transportation issues beyond the MPO's planning jurisdiction, the Federal team recommends that MAG expand this effort to other agencies such as ADOT and ADEQ. This involves a proactive approach that recognizes the importance of multistate corridors for goods movement and passenger travel, and the challenges of planning and investing to meet these emerging needs.

Response: Continue to Improve Relationships in the Arizona Megapolitan Corridor: The megapolitan region of Arizona will contain 82 percent of the state's population by 2050. MAG will continue to work with the Central Arizona Governments (CAG) and the Pima Association of Governments (PAG) to build stronger relationships among the key elected officials in the three regions to empower a spirit of cooperation and collaboration with each other and important stakeholders, such as the Arizona Department of Transportation, State Land Department, Arizona State University's Morrison Institute of Public Policy, and economic development organizations,

on key projects in the agencies' work programs that will help to establish the building blocks for developing an economic strategic plan for Arizona.

MAG worked cooperatively with the Central Arizona Governments (CAG), and Pima Association of Governments (PAG) to continue to address shared future planning issues in the Sun Corridor. MAG, PAG and CAG held a joint regional meeting on February 27, 2012 to discuss economic development strategies, including Arizona's ports of entry. There was also discussion on border challenges and commerce flow, ADOT's Passenger Rail Corridor Study and Thunderbird School of Global Management Programs. A second joint meeting was held on October 30, 2012 to hear the results and recommendations of the MAG Freight Transportation Framework Study. The purpose of the meeting was to begin developing alignment to diversify Arizona's economy. This meeting was the beginning of an effort to identify a freight system reaching from Nogales to Maricopa and beyond.

Megaregion Planning - MAG hosted and participated in the first peer exchange for "Megaregion Planning for MPOs and Partners" as part of the Transportation Planning Capacity Building Peer Exchange program. In addition to MAG, regions participating included Atlanta, Buffalo, Colorado Springs, Philadelphia, and San Diego

In addition, MAG continues to work with the newly revised Western Regional Alliance (formerly Western High Speed Rail Alliance) to promote all modes of the transportation, connectivity and economic development in the Intermountain West. The goals and priorities of the WRA are to improve connectivity to U.S. trading partners of Canada and Mexico by promoting trade and tourism; promote a freight corridor that connects the three countries, and provide an upgraded highway facility (Interstate 11) paired with rail and other major infrastructure components, between Phoenix and Las Vegas and potentially between Canada and Mexico in the future. The WRA enlisted Michael Gallis and Associates to provide a report at the WRA conference in October 2012 for the Intermountain West titled "*Creating a Vision for the Region in the 21st Century Global Network*". WRA embraces the critical importance of collaborating with key stakeholders throughout the intermountain west in order to more fully harness the capability of delivering transportation planning and environmental review efficiently.

Question: 4. Electronic S/TIP: MAG should work with ADOT to continue initial progress on development of the electronic State Transportation Improvement Program (S/TIP) and advance towards the next phase of the geographic information systems component (GIS-T). These products are potentially very useful to manage business processes and promote transparency and public participation.

Response: MAG has recently updated the GIS-T with additional components that Federal Highway Administration had suggested during a 2011 report. The new database has been renamed to the Roadrunner, and it includes MAP-21 elements and programs and enhanced reporting capabilities.

MAG has participated in all requests to meet for coordination and development of the ADOT E-STIP process. Test files have been provided and MAG and ADOT staffs are coordinating the

formats and information exchange methodologies. ADOT expects to roll out a Beta test of the E-STIP in November/December of 2013 and test update and amendment processes.

Question: 5. Annual Project Listing: Since the TIP has not been published annually, as scheduled, MAG has not met their requirement of annually listing projects. AS MAG moves towards publishing the TIP every two years instead of annually, it should plan to publish this annual listing in another form in the years where they do not publish a TIP.

Response: MAG provides and publishes on the TIP website the incremental Regional Council approved actions to modify and/or to amend the TIP at the conclusion of the action, typically within 48 hours. After ADOT, FHWA and FTA approve the actions, the full version of the updated TIP listings is available on the TIP website in an easy to access and review excel worksheet format. Also available on the website is the full TIP as approved in PDF format.

The MAG TIP website:

<http://www.azmag.gov/Projects/Project.asp?CMSID=1140&MID=Transportation>

Question: 6. Financial Planning: MAG should show greater transparency in documenting the financial planning process in a single accessible reference source. Such documentation should include the assumptions across all modes, jurisdictions, and funding categories, and a discussion of the risks involved in revenue and expenditure estimates (i.e., capital, operations, and maintenance), and program implications. The Federal team will provide examples of best practices for planning.

Response: With the preparation of the “MAG Regional Transportation Plan – 2010 Update” and continuing with the “2035 Regional Transportation Plan” currently under development, a separate document covering the financial planning process has been produced. This report addresses the information sources and the methodologies used to develop revenue forecasts and expenditure estimates across all modes and jurisdictions, including federal, state, regional, local and private funding sources, as well expenditures for capital, operations, and maintenance functions. In addition, a discussion of the uncertainties associated with revenue forecasting and cost estimating is included.

Question: 7. Systematic Approach to Investment Scenarios: The Federal team recognizes the merits of MAG’s systematic approach to reduce the funding level for approved programs, particularly the use of funding scenarios to describe critical choices. This rigorous and transparent approach to a key aspect of programming should be expanded to include the transit component of the program as well.

Response: In FY 2009 – 2010 the transit life cycle program (TLCP) underwent a significant reduction of current and future regional transit services based on the lower revenues and projections. The TLCP is managed by the Regional Public Transportation Authority (RPTA). The RPTA went through an eighteen month process in coordination with local agencies that initially weighed five alternative transit scenarios, approved one (June 2009), and then made further modifications on specific routes.

Each alternative clearly documented the routes, years of initial operations, years delayed, and alternative service years. It did this through charts, graphics, and text via multiple open committee meetings. (See Appendix Z June 18, 2009 RPTA Board of Directors for the initial explanation of alternatives).

Question: 8. Congestion Management Process (CMP): MAG should move ahead rapidly to complete phase three of the CMP, including mainstreaming key aspects into the broader planning process.

Response: MAG initiated the implementation of the CMP tool for project selection complying with the observations and recommendations of the CMAQ Programming Process Review Report of September 2011 by the Local Division of the Federal Highways Administration. A first draft of the CMP was first implemented as part of the 2011 and 2012 MAG Freeway Program rebalancing efforts. Also, in 2011, a first draft of a CMP Sketch Tool was tested in the Arterial Life Cycle Program rebalancing efforts and, while only the CMP strategies and objectives were used as a reference to the re-programming process, the CMP Tool was used by a few member jurisdictions to select projects at the local level.

As part of the implementation of the CMP, the final evaluative Sketch Tool was developed in late 2011 based on congestion related performance measures. This tool provides a step by step sketch planning approach that facilitates the analysis process for evaluating congestion management strategies or projects. The core of the tool is a spreadsheet that uses both quantitative and qualitative criteria to assess strategy and project effectiveness and to assist in the assignment of ranks to projects so they can be prioritized. The process and sketch planning tool are designed to be applied to sets of projects or congestion management strategies for which some quantitative data is available.

This tool was fully applied to the ITS and Bicycle and Pedestrian committee programming process for CMAQ Federal Funds. Implementation of the tool was collaborative and successful, resulting in project ranking and prioritization. It is important to note that Air Quality Technical Advisory Committee's CMP scores, which measure emissions reductions and cost effectiveness, were a component of the overall project rankings. This committee also facilitates the allocation of funding for PM-10 certified street sweepers and paving unpaved roads which represent significant air quality benefits. In an anticipated effort to align with MAP-21 requirements, MAG is initiating the development of a similar evaluative tool to apply for upcoming changes to the Arterial Life Cycle Program (ALCP), as well as a customized tool for the Transportation Alternatives Program. As MAG develops the work plan and framework for the next generation Regional Transportation Plan, the Congestion Management process will be an integral part of the performance based approach to make transportation investment decision for the region

Question: 9. Public Participation: MAG should reevaluate its strategy for public participation and consider ways to make public participation more effective. Potential means to increase effectiveness of public participation to consider include establishing a Citizens Advisory Committee, convening regular focus groups, or holding more informal citizen group meetings.

Response: MAG's Public Participation Plan was adopted by the Regional Council in December of 2006. MAG continues to monitor the effectiveness of its approach through citizen feedback and participation levels in public meetings, hearings, and special events. MAG conducts a transparent planning and programming process that provides the public with a myriad of access points throughout the cycle. This includes committee meetings, public meetings, public hearings, special events, small and large group presentations, web and telephone correspondence and one-on-one meetings. However, due to disrupted planning cycles, which have been caused by reduced revenues as a result of the recession, MAG's public input process has not followed the exact process delineated in the MAG Public Participation Plan. As a result, MAG is currently evaluating its process to discover ways to be more effective in soliciting input from the public, while also looking for ways to communicate input more effectively and efficiently to policymakers. MAG looks to have a reconstituted plan and process in place by spring 2014.

A citizen's advisory committee already exists in our region. The Citizens Transportation Oversight Committee (CTOC) was established in 1994. The committee facilitates citizen involvement in the decision-making process for planning and construction of freeways, arterial streets and transit improvements that are funded by the voter-approved Proposition 400 one-half cent sales tax in Maricopa County and in the Maricopa Association of Governments (MAG) Regional Transportation Plan. By state law, the chairman of CTOC serves as a voting member of the MAG Regional Council. A MAG citizen's advisory committee would be duplicative.

Question: 10. Public Transit: To continue the positive momentum in planning for public transit, MAG and its partners should complete a public transit framework and move further toward a multi-modal transportation system framework that will ease the ability to make trade-offs between highway, transit, and other alternatives. MAG uses frameworks as a long-range planning tool to assess the transportation needs of multi-county areas with significant input from regional stakeholders.

Response: MAG completed the Regional Transit Framework Study in 2010, which outlined regional transit problems and then developed three scenarios addressing the region's transit deficiencies at different levels and solutions. Scenario 1 (Basic Mobility) is a continuation of the RTP with minimal service expansion using the same types of services and programs as currently programmed in the RTP. Scenario 2 (Enhanced Mobility) is a more concentrated expansion integrating a moderate service expansion, increases the service area, improving frequencies to service standards, provides higher speed options, and connects activity centers outside the urban area to the center through frequent, limited stop express services. Scenario 3 (Transit Choice) is a high level growth transit expansion with an aggressive service expansion, service area, high speed options, connections, and frequency upgrades to meet regional service standards.

MAG has not completed a multi-modal transportation system framework that evaluates different types of projects against one another, but plans to do this in the development of the next generation of the regional transportation plan.

NAME OF PERSON PREPARING TOPIC RESPONSES

| | |
|--|---|
| Overall Work Program | Becky Kimbrough Roger Herzog |
| SAFETEA-LU Planning Factors | Sarath Joshua Roger Herzog |
| Transportation Improvement Program and Project Selection | Eileen Yazzie Teri Kennedy Lindy Bauer Nathan Pryor Bob Hazlett |
| Regional Transportation Plan (RTP) | Roger Herzog |
| Agreements and Contracts | Becky Kimbrough |
| Program Delivery/Project Monitoring and List of Obligated Projects | Eileen Yazzie Teri Kennedy |
| Public Participation Plan | Kelly Taft Audrey Skidmore |
| Title VI, ADA, and Environmental Justice | Kelly Taft Amy St. Peter Roger Herzog |
| Congestion Management Process | Monique de los Rios Urban Vladimir Livshits |
| Intelligent Transportation Systems (ITS) | Sarath Joshua |
| Travel Demand Forecasting | Vladimir Livshits Anubhav Bagley Monique de los Rios Urban |
| Safety Considerations | Sarath Joshua |
| Air Quality Planning/Conformity | Lindy Bauer Dean Giles |
| Financial Planning/Fiscal Constraint | Roger Herzog |

| | |
|---|--|
| Organizational Structure, Regional Council Membership and Planning Boundaries | Denise McClafferty Anubhav Bagley |
| Integrating Freight in the Transportation Planning Process | Tim Strow |
| Establishment and Use of a Performance-Based Planning Process | Monique de los Rios Urban |
| Follow-Up on 2009 Certification Review Findings | Denise McClafferty Lindy Bauer Teri Kennedy Eileen Yazzie Roger Herzog Monique de los Rios Urban Kelly Taft |