MARICOPA ASSOCIATION of GOVERNMENTS

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

January 20, 2010

TO: Members of the MAG Transportation Review Committee

FROM: David Moody, City of Peoria, Chair

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Thursday, January 28, 2010, 10:00 a.m.
MAG Office, Suite 200, Saguaro Room
302 North 1st Avenue, Phoenix

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

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

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

Please be advised that under procedures adopted by the MAG Regional Council on June 26, 1996, all MAG committees need to have a quorum in order to conduct business. A quorum is a simple majority of the membership or twelve people for the MAG TRC. If the Transportation Review Committee does not meet the quorum requirement, members who have arrived at the meeting will be instructed a legal meeting cannot occur and subsequently be dismissed. Your attendance at the meeting is strongly encouraged. If you are unable to attend the meeting, please make arrangements for a proxy from your jurisdiction to represent you. Please contact Eric Anderson or Christina Hopes at (602) 254-6300 if you have any questions or need additional information.

TENTATIVE AGENDA

	COMMITTEE ACTION REQUESTED
1. Call to Order	
2. Approval of Draft December 14, 2009 Minutes	2. Approve Draft minutes of the December 14, 2009 meeting.
3. Call to the Audience An opportunity will be provided to members of the public to address the Transportation Review Committee on items not scheduled on the agenda that fall under the jurisdiction of MAG, or on items on the agenda for discussion but not for action. Citizens will be requested not to exceed a three minute time period for their comments. A total of 15 minutes will be provided for the Call to the Audience agenda item, unless the Transportation Review Committee requests an exception to this limit.	3. For information and discussion.
4. Transportation Director's Report Recent transportation planning activities and upcoming agenda items for the MAG Management Committee will be reviewed by the Transportation Director.	4. For information and discussion.
5. Consent Agenda Consent items are marked with an asterisk (*). Committee members may request that an item be removed from the consent agenda to be heard.	5. Recommend approval of the Consent Agenda.

ITEMS PROPOSED FOR CONSENT

5a. Regional Community Network Roles and Responsibilities The Regional Community Network (RCN) is a fiber optic communications network that, when completed, would connect all MAG Member Agencies for the primary purpose of coordinating traffic control operations between neighboring agencies. The first phase	5a. For information, discussion and recommendation to approve the RCN Roles and Responsibilities as presented in Attachment One.

of the project is currently being implemented by Arizona Department of Transportation through an Intelligent Transportation Systems (ITS) project in the MAG Work Program. The RCN Working Group consists of agencies represented on the ITS Committee and Technology Advisory Group (TAG); both groups have recommended approval of a Roles and Responsibilities document to facilitate the operation of the network. Please refer to Attachment One for the Roles and Responsibilities document recommended for approval by the committees. Attachment Two provides an update on the implementation of the current phase.

ITEMS TO BE HEARD

6. Project Changes – Amendments and Administrative Modifications to the FY 2008-2012 MAG Transportation Improvement Program

   The Fiscal Year 2008-2012 Transportation Improvement Program (TIP) and Regional Transportation Plan Update were approved by the MAG Regional Council on July 25, 2007. Since that time, there have been requests from member agencies to modify projects in the programs. A Project Change sheet will be provided at the Committee meeting.

6. For information, discussion and recommendation to approve of amendments and administrative modifications to the FY 2008-2012 Transportation Improvement Program, and as appropriate, to the Regional Transportation Plan 2007 Update.

7. Programming of Projects for MAG Federal Congestion Mitigation and Air Quality (CMAQ) Funding in the Draft 2011-2015 MAG Transportation Improvement Program

   The MAG Regional Transportation Plan (RTP) targets all future MAG Federal Congestion Mitigation and Air Quality (CMAQ) Funds to specific modes and, in some cases, identifies specific projects for the funds. For ITS, Bicycle, Pedestrian and Air Quality projects, the RTP identified CMAQ allocations, but did not specify individual projects. The TRC met and recommended modifications to federal funds for ITS, bicycle/pedestrian, and pave unpaved road projects. The information was sent back to

7. For information, discussion, and possible action to recommend a list of CMAQ funded projects to be added to the Draft FY2011-2015 MAG Transportation Improvement Program.

the corresponding agency for review and modification of project, scope, and costs. The initial recommendations, along with the modified projects will be provided in a handout at the Committee meeting.

8. American Recovery and Reinvestment Act (ARRA) Monthly Status Report and Update on the Jobs for Main Street Bill

   A Status Report on the American Recovery and Reinvestment Act (ARRA) funds dedicated to transportation projects in the MAG region is provided. This report covers the status of project development as of November 24, 2009. It reports on highway, local, transit, and enhancement projects programmed with ARRA funds and the status of project development milestones per project. An update also will be provided on the Jobs for Main Street bill being considered by the US Congress. Please refer to the enclosed material.

8. For information and discussion.

9. Request for Future Agenda Items

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

9. For information and discussion.

10. Member Agency Update

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

10. For information.

11. Next Meeting Date

    The next regular TRC meeting will be scheduled Thursday, February 25, 2010 at 10:00 a.m. in the MAG Office, Saguaro Room.

11. For information.

DRAFT MINUTES OF THE
MARICOPA ASSOCIATION OF GOVERNMENTS
TRANSPORTATION REVIEW COMMITTEE

December 14, 2009
Maricopa Association of Governments Office
302 North First Avenue, Suite 200, Saguaro Room
Phoenix, Arizona

MEMBERS ATTENDING

Peoria: David Moody
ADOT: Kwi-Sung Kang for Floyd Roehrich
Avondale: Shirley Gunther for David Fitzhugh
Buckeye: Jose Herdia Scott Lowe
Chandler: RJ Zeder for Patrice Kraus
El Mirage: Lance Calvert
Fountain Hills: Randy Harrel
Gila Bend: Rick Buss
*Gila River: Doug Torres
Gilbert: Michelle Gramley for Tami Ryall
Glendale: Terry Johnson
Goodyear: Cato Esquivel
#Guadalupe: Gino Turrubiartes
Litchfield Park: Woody Scoutten
Maricopa County: Clem Ligocki for John Hauskins
Mesa: Brent Stoddard for Scott Butler
Paradise Valley: Bill Mead
Phoenix: Ed Zuercher
Queen Creek: Wendy Kaserman
RPTA: Bob Antilla for Bryan Jungwirth
Scottsdale: Dave Meinhart
Surprise: Bob Buckley for Vacant
Tempe: Chris Salomone
Valley Metro Rail: John Farry
*Wickenburg: Rick Austin
Youngtown: Grant Anderson for Lloyce Robinson

EX-OFFICIO MEMBERS ATTENDING

*Street Committee: Darryl Crossman, City of Litchfield Park
ITS Committee: Debbie Albert, City of Glendale
#Bicycle/Pedestrian Committee: Peggy Rubach, RPTA
*Transportation Safety Committee: Kerry Wilcoxon, City of Phoenix

* Members neither present nor represented by proxy. + - Attended by Videoconference
# - Attended by Audioconference

OTHERS PRESENT

Eric Anderson, MAG
Maureen DeCindis, MAG
Monique de los Rios-Urban, MAG
Dean Giles, MAG
Roger Herzog, MAG
Christina Hopes, MAG
Nathan Pryor, MAG
Eileen Yazzie, MAG
John Dickson, ADOT
Bill Vachon, FHWA
Ed Stillings, FHWA
Paul Ward, Olsson
Joe Bowar, Phoenix
Jorie Bresnahan, Phoenix
Ray Dovalina, Phoenix
Tom Remes, Phoenix
Dawn Coomer, Tempe
Brad Lundahl, Scottsdale
Troy White, Queen Creek
Art Brooks, Strand Assoc.

1. Call to Order

Chairman David Moody from the City of Peoria called the meeting to order at 10:01 a.m.

2. Approval of Draft October 29, 2009 Minutes

Chairman Moody asked if there were any changes or amendments to the October 29, 2009 meeting minutes, and there were none. Mr. David Meinhart from the City of Scottsdale moved to approve the minutes. Mr. RJ Zeder from City of Chandler seconded the motion, and the minutes were subsequently approved by unanimous voice vote of the Committee.

3. Approval of Draft November 13, 2009 Minutes

Chairman Moody asked if there were any changes or amendments to the November 13, 2009 meeting minutes, and there were none. Mr. Lance Calvert from City of El Mirage moved to approve the minutes. Mr. Clem Ligocki from Maricopa County seconded the motion, and the minutes were subsequently approved by unanimous voice vote of the Committee.

4. Call to the Audience

Chairman Moody stated that he had not received any request to speak cards from the audience and moved onto the next item on the agenda.

5. Transportation Director's Report

Next, Chairman Moody invited Mr. Eric Anderson to provide the MAG Transportation Director's Report. Mr. Anderson announced that in early November MAG underwent the certification review process required every four years by the Federal Transit Authority (FTA) and Federal Highway Administration (FHWA).

Mr. Anderson stated that FHWA and FTA conducted a two and half day review of the MAG planning program. He informed the Committee that the certification process went well, but that FTA and FHWA had recommended MAG develop a financial plan for the Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). He added that he would discuss the certification review and subsequent recommendations in a later agenda item.

Mr. Anderson also announced the roll-out of the Western High Speed Rail Alliance. He stated that some members may have seen the roll-out in the newspapers in the previous weeks.

Next, Mr. Anderson reported that MAG was contending with additional fiscal issues, including the rescission of federal contract authority by the federal government. He stated that MAG Staff was working with Chief Financial Officer at Arizona Department of Transportation

(ADOT), John Fink, to determine the impact of the rescission. He explained that per FHWA, the reduction in funding was applied to individual programs as opposed to allowing the state Departments of Transportation to decide how to meet the rescission amount.

Mr. Anderson informed the Committee that the U.S. Department of Transportation (USDOT) was operating under a continuing resolution that would expire on December 18, 2009. He explained the rescissions were part of the Federal Fiscal Year (FFY) 2009 funding were carried forward as part of that continuing resolution. Mr. Anderson stated that ADOT expressed concerns about the ability to spend apportioned funds. He added that he provide additional information as it became available.

Then, Mr. Anderson addressed Regional Area Road Fund (RARF) revenues. He reported that RARF revenues for November were 17.4 percent lower compared to November 2008. He stated the reduction was a surprise because RARF revenue collection had been trending at negative 13 percent for several months. He added that year-to-date RARF revenues were down 14.5 percent from the forecast for FY 2010.

Mr. Anderson announced that a table from the Air Quality Division was at their places. He stated the table removed one program at the request of the MAG Executive Committee. Chairman Moody asked if there were any questions or comments about this agenda item. There were none, and this concluded the Transportation Director's Report.

6. Consent Agenda

Addressing the next order of business, Chairman Moody directed the Committee's attention to the consent agenda. He inquired if there were any questions or comments about the consent agenda item on the development of FY 2011-2015 Transportation Improvement Program(TIP) and FY 2011 Arterial Life Cycle Program (ALCP). There were none. Mr. Zuercher motioned to approve the consent agenda. Mr. Grant Anderson from the Town of Youngtown seconded the motion, and the consent agenda was approved by a unanimous voice vote of the Committee.

7. Project Changes – Amendments and Administrative Modifications to the FY 2008-2012 MAG Transportation Improvement Program

Chairman Moody invited Ms. Eileen Yazzie, MAG Transportation Programming Manager, to present project changes to the FY 2008-2012 MAG Transportation Improvement Program (TIP). Ms. Yazzie announced that a summary transmittal and attached table were at their places for review. She stated the project changes listed in the attached table included cost adjustments to four ADOT projects, three new projects programmed with Congestion Mitigation and Air Quality (CMAQ) funds, and two new projects from Valley Metro Rail. Ms. Yazzie explained the projects needed to put in the TIP before the projects could move forward. She also noted that one local project was listed in the attached table.

Then, Ms. Yazzie announced that on Wednesday, December 9, 2009, the Regional Council and Executive Committee approved a recommendation to allow MAG Staff to transmit four types of administrative modifications to the TIP directly to ADOT and FHWA/FTA without going through the traditional MAG committee process. She stated that federal law defined the differences between amendments and administrative modifications to the TIP in detail, and that according to FHWA, a variety of administrative modifications may be made by staff without approval through the MPO committee process. Ms. Yazzie reported that the four administrative modification approved by the Regional Council and Executive Committee to be executed by MAG Staff outside the traditional committee process included:
1. Revisions to project description (clarifying how project is described in the TIP not amending the scope);
2. Changes in the sources of funding for a project;
3. Combining/Splitting projects; and,
4. Cost decreases.

Ms. Yazzie informed the Committee that MAG Staff was coordinating the details on the process, such as frequency. She explained MAG Staff would submit an administrative memorandum with the requested modifications to ADOT, FHWA, FTA, as well as copy the TRC, and post the information to the MAG TIP website.

Ms. Peggy Rubach inquired if the enhancement grants from Valley Metro were listed on the project change sheet. Ms. Yazzie stated yes.

Mr. RJ Zeder motioned to approve the project changes, amendments and administrative modifications to the FY 2008-2012 MAG TIP as presented. Mr. Gino Turrubiartes from Town of Guadalupe seconded the motion, and the motion was approved by a unanimous voice vote of the Committee.

8. Programming of Projects for MAG Federal Congestion Mitigation and Air Quality (CMAQ) Funding in the Draft FY 2011-2015 MAG Transportation Improvement Program

Chairman Moody invited Ms. Yazzie to present the programming of MAG-CMAQ funds for projects in the Draft FY 2011-2015 Transportation Improvement Program (TIP). Ms. Yazzie announced MAG Staff was in the process of programming Congestion Mitigation and Air Quality (CMAQ) funds to bicycle/pedestrian, intelligent transportation systems (ITS), and paving of unpaved roads projects. She explained that in accordance with the Draft Federal Fund Programming Principles, a programming recommendation was needed by the Committee per mode. Ms. Yazzie listed the amount of CMAQ funds available by mode and fiscal year, as follows:

- $4,513,000 for Paving unpaved roads in 2013;
- $8,737,000 for Bicycle/Pedestrian Projects in FY 2014;
- $6,887,000 for Arterial/ITS in FY 2014; and,
- $7,503,000 for Air Quality Programs in 2014.

Ms. Yazzie directed the Committee's attention to a revised handout at their places. She explained there was an error with one of the bike/ped amount listed in the original handout, which had been corrected and highlighted in the revised handout.

Ms. Yazzie reported that 19 bicycle/pedestrian projects had been submitted requesting $17,299,787 in funding. She stated the Bicycle/Pedestrian Committee recommended funding eight projects for $8,205,528, which left an unprogrammed balance of $531,472. She added that the Bicycle/Pedestrian Committee recommended the remaining funds be applied to the City of Phoenix project on the Grand Canal Multi-Use Path Connection at Indian School Road and 16th Street. Ms. Yazzie stated the Bicycle/Pedestrian Committee also recommended the project be adjusted either by changing the amount of local funds or reducing the project scope.

Next, Ms. Yazzie discussed arterial/intelligent transportation system (ITS) projects submitted for funding consideration. She stated that 13 projects were submitted requesting $7,464,642. She reported that the ITS Committee recommended all 13 proposed projects be programmed for FY 2014. Ms. Yazzie stated that the amount requested exceeded the available funding of $6,887,000, which resulted in a shortfall of $577,642.

Ms. Yazzie explained that the ITS Committee recommendation included adjusting the costs to fund the projects submitted. She proposed a few cost adjustment options available to the Committee, which included:

- adjusting the regional cost share to 62 percent for all projects;
- reducing the federal funds on the lowest ranked project;
- reducing the project scope on the lowest ranked project; or,
- reducing the project scope on other projects submitted for funding consideration.

Then, Ms. Yazzie addressed the paving of unpaved road project applications submitted. She reported that the Air Quality Technical Advisory Committee (AQTAC) met on Thursday, December 10, 2009, and ranked 13 proposed projects based on cost effectiveness. Ms. Yazzie referenced a memorandum that had been transmitted to the Committee electronically, which included the project listings and scores.

Ms. Yazzie stated that the AQTAC recommended funding eight of the 13 projects submitted. She added that a remaining balance of $225,893 would need to be programmed if the first eight projects were recommended for funding. She explained the remaining balance could be applied to the next project on the list that required $401,983 in funds, which resulted in a difference of $176,090.

Moving on, Ms. Yazzie discussed programmed funds for air quality programs for FY 2014. She reported that at the October meeting the AQTAC recommended funding six projects/programs. She announced that since that meeting, the MAG Executive Committee met voted to eliminate the telework ozone/education program Ms. Yazzie explained that the funding for the program was reallocated to the paving dirt road and regional rideshare programs, and that the AQTAC recommended programming $7,509,000 to the remaining five projects/programs for FY 2014.

Chairman Moody asked if there were any questions or comments about Ms. Yazzie's presentation. Mr. Zuercher proposed swapping two City of Phoenix bicycle/pedestrian projects for funding consideration. He stated the City would like to swap the funded Grand Canal Multi-Use Path Connection at Thomas Road and 22nd Street with the unfunded Grand Canal Multi-Use Path Connection at Indian School Road and 16th Street. Mr. Zuercher explained the Indian School Road to 16th Street project was a higher priority for the City.

Ms. Peggy Rubach, the Bicycle/Pedestrian Committee representative for TRC, echoed Mr. Zuercher's suggestion. She stated that the Bicycle/Pedestrian Committee had an extensive discussion on how to program the unprogrammed balance. She stated the Bicycle/Pedestrian Committee would probably endorse the proposed change presented.

Chairman Moody inquired if there were any questions or comments about the bicycle/pedestrian projects being consider for CMAQ funding. Mr. Lance Calvert inquired about the City of Chandler bridge crossing project listed with $2.5 million in local costs and $2 million in regional costs. He stated that the project had received regional funds during a previous programming cycle and inquired if those funds were reflected in the regional costs listed in the table provided. Ms. Yazzie affirmed that the City of Chandler had received funding in a previous year adding she did not believe the table included the previous funding allocation.

Mr. Calvert inquired if Chandler was building the project in phases over multiple years or if the City was requesting incremental funding for the project, which would improve the likelihood of receiving additional funds. Mr. Zeder from Chandler replied that the City intended to build the project in one phase.

Mr. Calvert asked for clarification on the total project cost. He stated the amount programmed seemed high for a project in one location that had already gone through a programming cycle. He referenced an City of El Mirage project for $ 3 million that was denied funding because the project cost was too high. He suggested in the future, MAG Staff should place a limit on the amount to avoid the occurrence from happening again.

Mr. Meinhart expressed support for the City of Phoenix's proposal to swap projects. He stated that during the ranking process, committees often are unaware of local agencies' project priorities. Mr. Meinhart also stated that in terms of federal funds a balance was needed between obligating funds in a timely manner and avoiding short changing quality projects. He cautioned the Committee about funding projects that would not get built.

Mr. Zuercher motioned to approve funding of bicycle/pedestrian projects as presented with the amendment that the Grand Canal Multi-Use Path Connection at Thomas Road and 22nd Street with the be swapped with Grand Canal Multi-Use Path Connection at Indian School Road and 16th Street. Mr. Zeder seconded the motion, and the motion with subsequently approved by a unanimous voice vote of the Committee.

Then, the Committee discussed programming CMAQ funds for ITS projects in FY 2014. Ms. Yazzie reiterated the ITS Committee's recommendation to fund all 13 projects submitted with the necessary cost adjustments. She stated the Committee could alter the regional share, reduce the regional cost share for one or more projects, or change the project scope for one or more projects.

Chairman Moody asked if there were any questions or comments about the ITS projects recommended for funding. Mr. Meinhart inquired if the Town of Fountain Hills, which was ranked the lowest priority, could reduce the project cost in lieu of reducing the regional share for the other projects. Mr. Randy Harrel, from the Town of Fountain Hills, replied the current project was packaged at the minimum initial system.

Mr. Zeder inquired what the funding percentage was as proposed. Ms. Yazzie stated that per the Regional Transportation Plan, ITS projects were typically funded at a 70/30 split. However, the Committee could reduce the regional share from 70 percent to 62 percent to fund all the projects presented. She added that if the Committee decided to reduce the regional share to 62 percent, then per the Draft Federal Fund Programming Principles, a letter would be required from city managers certifying local funds were available to fund those projects or the project scopes would be reduced accordingly.

Mr. Clem Ligocki from Maricopa County asked Ms. Debbie Albert, Vice Chair of the ITS Committee, how the ITS Committee envisioned the adjustments be made to accommodate funding every project. Ms. Albert replied that the Committee discussed several options, but did not make any specific recommendations. She added that it was the goal of the Committee to see all the projects funded.

Chairman Moody summarized the ramifications of reducing the regional share for all projects versus reducing the regional funding for the Fountain Hills' projects. He stated that if the funding share was reduced to 62 percent for all projects, then each affected city would be required to submit a letter to MAG certifying committed local funds; whereas, if the Fountain Hills' project funding was reduced then only Fountain Hills would be required to submit a letter to MAG.

Ms. Albert requested clarification that if the Committee decided to reduce the regional share to 62 percent could the cities affected either reduce the project scope to maintain the 70/30 split or maintain the project scope and increase the local funding. Ms. Yazzie replied yes.

Chairman Moody inquired about the time frame for the requirements if the regional share was dropped to 62 percent. Ms. Yazzie stated that MAG Staff would request letters certifying local funding within two weeks. She added that revised project data would be presented to the TRC for funding approval at the January meeting and be incorporated into the Draft FY 2011-2015 MAG TIP in February.

Mr. Grant Anderson inquired if any jurisdiction felt that dropping the regional share to 62 percent would have a total detrimental effect to any project. He added that he felt dropping the regional share would be the fairest approach. Mr. Cato Esquivel from the Town of Goodyear stated that a reduction in the regional share would have a negative impact on the Town's project.

Mr. Meinhart inquired if Goodyear could resubmit the project for additional funding consideration in FY 2015. Ms. Yazzie replied that MAG Staff was not programming CMAQ funds for FY 2015 at this time. Mr. Meinhart replied that maybe it was possible for Fountain Hills to resubmit the project for consideration during the FY 2015 programming cycle. Ms. Yazzie stated that Fountain Hills could request funds for FY 2015; however, the Town would be required to go through the submittal process again.

Mr. Zeder inquired if Fountain Hills could submit the project for federal fund closeout. Ms. Yazzie replied that Town could submit for closeout; however, that would have to occur in FY 2014. She added that if the amount of funding was reduced for the Fountain Hills' project, the

Town would have to reduce the project scope to be included in the TIP at this time due to the fiscal constraint requirement. She stated that once the project had gone through the ADOT process that the project would be limited to the reduced scope during the federal fund closeout process.

Chairman Moody stated he would entertain a motion at this time. Mr. Ligocki motioned to reduce the regional share to 62 percent for all projects to meet the amount of available funding. Mr. Grant Anderson seconded the motion. A brief discussion followed. Mr. Eric Anderson suggested that jurisdictions be allowed to reduce the project scope, if desired to maintain the 70/30 split, but keep the allocated funding the same. Mr. Ligocki and Mr. Grant Anderson agreed that the motion was intended to include that flexibility. Chairman Moody called a vote, and the motion was passed by a unanimous voice vote of the Committee.

Moving on, the Committee discussed the paving of unpaved road projects funding recommendations. Ms. Yazzie summarized the AQTAC recommendation to fully fund the first eight paving of unpaved projects with partial funding for the ninth project on the list.

Mr. Gino Turrubiartes from the Town of Guadalupe inquired why three projects from City of Peoria and two projects from the Town of Guadalupe were not recommended to receive funds. Ms. Yazzie explained projects were recommended for funding solely on the cost effectiveness scores. She stated the Peoria and Guadalupe projects ranked lower on cost effectiveness and that funding was exhausted before reaching those projects on the list.

Chairman Moody stated that from a Peoria standpoint, he would accept the partial payment because the city would be constructing the projects regardless. Mr. Grant Anderson asked if Chairman Moody was referring to the project below the line. Chairman Moody stated yes.

Mr. Lance Calvert motioned to fully fund the first eight paving of unpaved road projects with partial funding the Peoria project. Mr. Zuercher seconded the motion, and the motion passed by a unanimous voice vote of the Committee.

Next, the Committee addressed the programming of funds for air quality projects/programs. Ms. Yazzie summarized the earlier information, which included the elimination of the telework ozone/education program by the MAG Executive Committee and the revised handouts at their places.

Mr. Grant Anderson inquired if there were metrics or performance evaluations available for the projects/programs listed. Mr. Eric Anderson replied that when the Executive Committee reviewed the projects/programs, extensive materials were provided regarding how other metropolitan planning organization allocate funding to these programs. He added that MAG Staff could provide that information to the Committee after the meeting, if desired.

Mr. Grant Anderson replied that approaches from other regions may not meet the needs of the MAG region. He inquired how the Committee would know they were allocating the funds appropriately without metrics or evaluation criteria. Mr. Eric Anderson invited Mr. Dean Giles, the MAG Air Quality Planning Program Specialist, to address to the Committee.

Mr. Giles stated the MAG Air Quality Division and AQTAC reviewed the projects/programs for any overlap occurring between the Regional Rideshare Program, the Valley Metro's Regional Clean Air Campaign, and Maricopa County's Clean Air - Make More Program. He clarified that the telework component eliminated by the MAG Executive Committee would be incorporated into the Regional Rideshare Program.

Chairman Moody asked if there were any questions about the air quality projects/program recommended for funding. There were none. Mr. Bob Antilla from Valley Metro/RPTA motioned to approve the funding as presented. Mr. Brent Stoddard from the City of Mesa seconded the motion, and the motion was passed by a unanimous voice vote of the Committee.

9. Re-Allocation of Unused Local/MPO ARRA Funds – Technical Programming Issues

Chairman Moody invited Ms. Yazzie to present technical programming issues on the reallocation of unused Local/MPO ARRA funds. Ms. Yazzie referenced the memorandum disseminated in the agenda packet and summarized the ARRA discussions from the previous Committee meeting. She explained that three technical programming issues needed to be resolved regarding the programming of unused Local/MPO ARRA funds, which included establishing project savings programming threshold, assessing local project readiness, and developing a regional prioritized list.

Ms. Yazzie stated the current agenda item focused on establishing a project savings threshold and local project readiness. She explained that the information presented in the memorandum were ideas generated by MAG Staff, which included setting a minimum dollar or percentage that would trigger the reallocation of project savings back to the region for reprogramming. Ms. Yazzie stated that establishing a threshold was important given the administrative costs associated with implementing ARRA and/or STP funded projects. She presented a few scenarios that demonstrated the need for the threshold.

Mr. Zeder stated that at the previous meeting, the Committee discussed moving project savings from one project to another to reduce the local share on the second project. He asked how that option would work under the threshold scenario. Mr. Eric Anderson replied that the option to apply project savings to other ARRA projects was still available. He stated that if projects were in-process and ready to obligate, then allocating the project savings to the second project would be a choice. Mr. Anderson cautioned that the issue with that approach was if the project savings occurred on the second project after the first has gone to bid.

Mr. Ligocki inquired if ARRA project savings could be reallocated to non-ARRA projects. Mr. Eric Anderson replied FHWA was not accepting new ARRA projects and, as a result, ARRA savings could not be reallocated to a non-ARRA funded project. He stated that if an agency wanted to swap ARRA savings with ADOT-STP funds, then those funds could be applied to another federally eligible project; however, the federal local match requirement of 5.4 percent would still apply.

Mr. Ligocki inquired if the proposed threshold would apply to swapped ADOT-STP funds. Mr. Eric Anderson replied that MAG Staff would coordinate with each member agency by project to determine the best way to proceed. He added that for the current agenda item, MAG Staff was requesting guidance in situations where jurisdictions have a minimal amount of savings.

Mr. Stoddard asked if the Committee discussed the minimum threshold when the funds were originally allocated. A brief discussion followed.

Mr. Grant Anderson motioned to establish that the local agency with the ARRA project savings would have local discretion to move the project savings to another existing ARRA project in that jurisdiction and/or swap the ARRA funds with ADOT-STP funds and move the project savings to an eligible project, that is above $500,000, including new projects, and can obligate before September 30, 2010. He added that any jurisdiction that could not meet the $500,000 threshold and obligation deadline of September 30, 2010 will return the project savings to the regional pool for reallocation.

Mr. Ligocki inquired if $500,000 in project savings could be transferred to transit capital projects. Ms. Yazzie replied that she did not have information available at the moment on ready-to-go capital transit projects. Mr. Terry Johnson from the City of Glendale stated that if an agency's saving exceeded $500,000, then the agency could apply more than $500,000 towards transit capital. Ms. Yazzie clarified that the $500,000 in question would be the minimum threshold for project savings to remain with a jurisdiction or trigger reallocation to a regional pot. She stated that the local discretion approved at the previous Committee would still apply.

Mr. Calvert stated El Mirage would not support a threshold of $500,000 given the original allocation of Local/MPO ARRA funds to the smaller jurisdictions in the region. He stated that a threshold of $250,000 or $200,000 would be more appropriate.

Mr. Johnson inquired if the minimum threshold pertained to total project cost or to the total project savings. Mr. Grant Anderson replied that the motion was to return the amount of project savings under $500,000 to the regional pool for reallocation. Mr. Johnson replied that if the amount applied to project savings, then Glendale would oppose a threshold of $500,000.

Mr. Bob Antilla inquired if MAG Staff could address the pros and cons of a $500,000 versus a $200,000 threshold in an effort to help guide the Committee in making a decision. Mr. Eric Anderson replied that there were limited options available to reprogram the ARRA savings regardless of the amount. He stated the options available would be minimal for all jurisdictions in the region citing the inability to fund new projects because of the obligation time frame. Mr. Anderson added that MAG Staff did not want to establish too high of a threshold because that would trigger all funds to be returned to the region.

Mr. Zeder stated that the goal was to keep local discretion and that the $500,000 was too high. He questioned the need to establish any threshold for the reallocation of project savings. Mr. Calvert stated he would agree with the exception of the administrative costs associated with

federally funded projects. Then, Mr. Calvert suggested amending the current motion to include a threshold of $200,000 instead of the $500,000 proposed.

Mr. Zeder requested to amend the previous motion to include a minimum project savings threshold of $200,000, and Mr. Grant Anderson seconded. Mr. Grant Anderson inquired what options were available to local jurisdictions if project savings occurred. Ms. Yazzie replied that agencies could apply the project savings to local match reduction or moving the funds to another ARRA project/eligible STP project.

Mr. Grant Anderson stated he thought local discretion was the first priority and inquired what happened if a jurisdiction had $750,000 in project savings with no options available. Ms. Yazzie replied that if the project savings did not meet the threshold or the other requirements, then the project savings would be reallocated to the region for reprogramming. A brief discussion followed.

Chairman Moody called for a vote to amend the motion. The Committee voted 12 to nine to amend the motion. Then, Chairman Moody called for a vote on the amended motion. The motion passed with a vote of 13 to eight to approve the amended motion.

10. Development of MAG Transportation Financial Plan

Chairman Moody invited Mr. Eric Anderson to present on the development of the MAG Transportation Financial Plan. Mr. Anderson stated that during the certification review, FHWA and FTA recommended MAG develop a Transportation Financial Plan that addressed the underlying financial assumptions used for the Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). He stated the financial plan would need to include regional, state, and federal funds included in RTP and TIP.

Mr. Anderson announced that MAG would be required to include local funding in the financial plan. He explained the documented local funding would need to include dedicated funding sources as well as general fund revenues allocated towards transportation. Mr. Anderson stated the requirements were new and that historically, MAG had included a subjective analysis on the revenue sources.

Mr. Anderson explained the financial crisis and declining revenues had raised concerns about the fiscal constraint of the TIP and RTP. He stated for projects to be programmed in the first two years of the MAG TIP, funds must be committed to the projects. He added that for the out years of the RTP assumptions could be made that funds would be reasonably available.

Mr. Anderson informed the Committee that FHWA and FTA had concerns about transit operations and fiscal constraint. He stated the regional FTA representative questioned why the region continued to fund new capital expansion projects when operations for the current system was being reduced or eliminated.

Mr. Anderson presented a slide that addressed sales tax revenues. He stated that current sales tax revenues had decreased to 2005 levels. Then, he presented another slide that demonstrated the decline of sales tax revenues for eight continuous quarters. Mr. Anderson emphasized that while some may believe the economy would rebound soon to the previous projection levels, he did not believe this would happen. He opined that the region was on a lower trajectory for future revenues.

Mr. Anderson expressed concerns that during the development of the Transportation Financial Plan, member agencies may be projecting more growth than what MAG may be projecting. He emphasized that while a member agency may be able to provide documentation for the projections used that did not mean the projections were accurate or consistent with the regional projections.

Mr. Anderson informed the Committee that the MAG Transportation Financial Plan would be documenting the assumptions used by MAG as well as the MAG Member Agencies. He forewarned the Committee that MAG Staff might require jurisdictions to verify how submitted figures were determined. Mr. Anderson stated the development of the financial plan would likely begin in early 2010 and announced that MAG Staff would send out requests for additional information at that time.

Chairman Moody inquired if there were any questions or comments about the presentation. Mr. Zuercher inquired if the slides presented could be sent to the Committee. Mr. Anderson replied yes. Chairman Moody asked if there were any additional questions or comment, and there were none.

11. American Recovery and Reinvestment Act (ARRA) Monthly Status Report

Next, Chairman Moody invited Ms. Yazzie to provide a status report on the American Recovery and Reinvestment Act (ARRA) funding and project status. Ms. Yazzie explained the highlights of the report were that all highway projects were coming in below bid. She also reported that FHWA anticipated obligating all ARRA projects by the deadline of February 1, 2010.

12. Report on the Performance Measurement Framework and Congestion Management Update (PM/CMP) Study

Then, Chairman Moody invited Ms. Monique de los Rios-Urban from MAG to provide an update on the Performance Measurement Framework and Congestion Management Update (PM/CMP) Study. Ms. de los Rios-Urban announced the completion of Phase I and II of the PM/CMP Study adding that Phase III would begin in late December.

Ms. de los Rios-Urban informed the Committee that the deliverables for Phase I were a review of best practices, the development of a Technical Advisory Committee (TAC), and recommendations from the TAC on performance measures to be included in Phase II of the

study. She stated the deliverables for Phase II of the study included a data assessment report, a gap analysis, a performance measurement framework, a template report, a website interface, and recommendations on future performance measures. She explained that Phase III would include an congestion management process update, which was mandated under federal law.

Ms. de los Rios-Urban listed key reasons for developing performance measures in the region. The reasons listed included:

- Evaluating performance and regional strategies at the system/corridor level for all transportation modes;
- Compliance with legislative requirements, such as the Proposition 400 Performance Audit (state requirement) and the Congestion Management Process updates (federal requirement);
- Updating Regional Congestion Management Strategies to facilitate system programming and evaluation using Performance Measurements as a reference.

She stated that performance measurement was important to the MAG region because it would deliver results and establish accountability; provide feedback relative to goals; measure results for tracking progress, and improve transportation service to the public.

Ms. de los Rios-Urban summarized approaches to reporting performance in the region. She stated that historically MAG has used simulated results and compared those results with base year and no build scenarios. She explained the simulated approach was used in the development of the RTP and the Annual Report on the Implementation of Proposition 400.

Ms. de los Rios-Urban stated the PM/CMP Study team focused on creating a performance measurement framework consistent with achieving the goals and objectives of the RTP, which included (1) system preservation and safety; (2) access and mobility; (3) sustaining the environment; and (4) accountability and planning. Ms. de los Rios-Urban announced that the performance measurement framework was multi-modal by the goals of the RTP. Due to time constraints, she provided an overview of the measures established, such as:

Mode - Freeway GP lanes and HOV Lane Performance
Goal: Access and Mobility Measures

- Throughput – Vehicle ((AADT) and (AAWDT)
- Throughput – Freight (Estimated Truck Volume)
- Per Capita Vehicle-Miles of Travel (VMT)
- Lost Productivity (Percent of Productivity Lost)

Goal: Travel Time, Travel Time Variability, and Delay Measures

- Speed (Average Corridor and Point-based Speeds)
- Point-to-Point Travel Times (Average Commute Time)
- Travel Time Variability (Average Travel Time, Travel Time and Buffer Indices
- Extent of Congestion (Percent of Time Congested)

Goal: Safety Measures

- Crash/Injury/Fatality Rates on Freeways (Crashes per Million VMT)
- Crash/Injury/Fatality Totals for Large Truck-Involved Crashes on Freeways (Total Number of Truck-Involved Crashes)

Mode - Arterial Performance
Goal: Access and Mobility Measures
- Throughput – Vehicle (Weighted Corridor Throughput)
- Travel Time, Travel Time Variability, and Delay Measures
- Spatial Extent of Congestion (Percent of Time Congested)

Goal: Safety Measures
- Intersection Crash Ranking
- Crash/Injury/Fatality Totals for Large Truck-Involved Crashes on the Arterial System (Total Number of Truck-Involved Crashes)

Mode - Transit Performance
Goal: Access and Mobility Measures
- Transit Boardings (Total Number of Annual Transit Boardings)
- Boardings per Revenue Mile (Total Number of Annual Transit Boardings / Total Number of Transit Agency Revenue Miles)
- Travel Time, Travel Variability, Delay Measures
- Transit On-Time Performance (Percentage of "On-Time" Trips)

Goal: System Accessibility and Modal Options Measures
- Percent of Park and Ride Capacity Used
- Vehicle Revenue Miles of Transit Service per Agency
- Subsidy Per Boarding
- Transit Share of Travel

Mode - Pedestrian Performance
Goal: Safety Measures
- Bicycle and Pedestrian Crash Totals for the MAG Region
- System Accessibility and Modal Options Measures
- Bicycle and Pedestrian Share of Travel (Estimate of the Percentage of Total Commuter Trips Made by People on Bicycles or Pedestrians)

After providing an overview of the framework developed, Chairman Moody inquired if the Committee had any questions or comment about Ms. de los Rios-Urban's presentation. Mr. Zuercher inquired if the transit measures included light rail transit (LRT) and if LRT would be combined with or separate from bus transit. Ms. de los Rios-Urban stated she was unsure how transit would be handled at this point.

Chairman Moody asked if there were any additional questions or comments. There were none, and Chairman Moody moved to the next agenda item.

13. Request for Future Agenda Items

Chairman Moody inquired if the members had any topics or issues of interest they would like to have considered for discussion at a future Committee meeting. There were none, and Chairman Moody moved onto the next agenda item.

14. Member Agency Update

Chairman Moody asked members of the Committee if they would like to provide updates, address any issues or concerns regarding transportation at the regional level, and asked if any members in attendance would like to address recent information that was relevant to transportation within their respective communities. There were none.

15. Next Meeting Date

Chairman Moody informed members in attendance that the next regularly scheduled meeting of the Committee would be held on January 28, 2010. There be no further business, Chairman Moody adjourned the meeting at 12:04 p.m.

ATTACHMENT ONE

DRAFT

Regional Community Network (RCN)
Roles and Responsibilities

Version 4.6

Developed by the:

RCN Working Group
ITS Committee
Technology Advisory Group

January 5, 2010

TABLE OF CONTENTS

REVISION HISTORY

Last Updated: 1/5/2010

Date	Version	Author	Description
6/22/2009	1.0	AWT	Initial creation of the document.
8/4/2009	2.0	AWT	Revision
9/4/2009	3.0	SJ	Revision
9/11/2009	4.0	AS	Revision
10/6/2009	4.1	SJ	Revision – address review comments
11/10/09	4.2	SJ	Revision – address review comments
11/11/09	4.3	AS	Revision – address review comments
11/24/09	4.4	AS	Revision – address review comments
12/10/09	4.5	SJ	Revision – address review comments
1/5/10	4.6	AS	Revision – address review comments

DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

Item	Definition / Example
AC	Architecture Consultant
ATM	Asynchronous Transfer Mode
GPS	Global Positioning System
IA	Implementing Agency
IGA	Intergovernmental Agreement
ITS	Intelligent Transportation Systems Committee
IP	Internet Protocol
ISDN	Integrated Services Digital Network
MA	Member Agency
NAT	Network Address Translation
NBD	Next Business Day
NM	Network Manager
OSPF	Open Shortest Path First
OTDR	Optical Time-Domain Reflectometer
PAT	Port Address Translation
PM	RCN Program Manager at MAG
POC	Point of Contact
QOS	Quality of Service
RCN	Regional Community Network
RCN WG	RCN Working Group
RTP	Regional Transportation Plan
RVS	Regional Videoconferencing System
SLA	Service Levels Agreement
SMF	Single Mode Fiber
SONET	Synchronous Optical Networking
TAG	Technology Advisory Group
TIP	Transportation Improvement Program
TT	Trouble Tickets
UPS	Uninterruptible Power Supply
UPWP	Unified Planning Work Program
VDS	Video Distribution Server

VLAN	Virtual Local Area Network

1 INTRODUCTION

1.1 Background & Purpose

The Regional Community Network (RCN) is a high-speed optical fiber based communication system designed primarily to facilitate the exchange of video, data, and other information between traffic management centers at the Arizona Department of Transportation (ADOT), Maricopa County Department of Transportation (MCDOT), and at cities and towns in the Phoenix metropolitan region. The RCN is considered an essential component required for safe and efficient operation of the regional transportation system. Other applications that will utilize the RCN network initially include the Regional Videoconferencing System (RVS) that is owned and operated by Maricopa Association of Governments (MAG), and other videoconferencing applications at a few local agencies. The RCN is NOT intended to be used for mission critical data transmissions between agencies on the network. Applications proposed and implemented on the RCN require that the member agencies supply end to end security levels for their applications and that the non-mission critical network reliability be acceptable in their usage.

The original RCN concept was developed by MAG in 2001. However, the project was not programmed, as the $34 million that was required for full implementation was not available. The Arizona DOT, a stakeholder supportive of the original RCN concept, carried out the design of the first phase of RCN using funds from a United States Department of Transportation (USDOT) Intelligent Transportation Systems (ITS) integration grant awarded to Arizona. The RCN project still lacked funds for building Phase 1. In 2005, $1.6 million that had been programmed in the Transportation Improvement Program (TIP) as a place holder project for the original RCN project became available to the ITS program and was directed to ADOT for implementing the already designed RCN Phase 1A. The status of funding for future RCN implementation has not changed. Its completion remains unfunded at this time. However, many segments of the proposed regional network have also been built through local agency fiber projects.

The RCN is currently being developed as a regional communications infrastructure to be owned and operated by MAG and its Member Agencies (MA). Hence, it is very likely that future regional resources will be directed for completion of the RCN and linking all MAG MA's.

The primary purpose of this document is to outline the framework for future expansion, operation and maintenance of the RCN by identifying the roles and responsibilities of each participant. In addition to this document, a companion document on RCN Governance was adopted by MAG on April 22, 2009.

1.2 Stakeholders

The RCN is being developed by member agencies of MAG in the Phoenix metropolitan area. The primary stakeholders and users of RCN are traffic management staff at agencies that are linked through the network. All participating agencies have agreed to work together in an effort to reduce the cost and time required for the implementation of the system. Where available, agencies have dedicated a portion of their existing fiber infrastructure to the RCN and have agreed to provide space in existing agency facilities for the installation and housing of RCN equipment. The construction of the initial phase of the RCN, Phase 1A, carried out with ADOT as the Implementing Agency (IA) was funded with regional transportation funds. This procurement involved the purchase and installation of the active electronics, construction of fiber segments that are required to complete the initial phase and management of the network for the first year of operations.

1.3 RCN Planning, Programming, Development and Ownership

All planning and programming activities related to the RCN will be carried out by MAG with oversight provided by the ITS committee and the Technology Advisory Group (TAG). A planned schedule for RCN expansion and completion will be developed and updated annually by ITS/TAG. All RCN planning studies will be based on recommendations of ITS/TAG and undertaken by MAG as projects identified in the annual Unified Planning Work Program (UPWP). All new projects that are required for the expansion, rehabilitation and maintenance of the RCN will be programmed in the Transportation Improvement Program based on recommendations from ITS/TAG. The RCN will be identified in the Regional Transportation Plan (RTP) as a key component of the regional ITS infrastructure. Any MA desiring to build a local fiber path shared with the RCN and funded with state, local or a federal grant is required to coordinate with MAG to ensure that all such projects comply with the RCN design, regional standards and adopted practices. The introduction of any such project shall not alter the MAG approved schedule or sequence of RCN expansion projects, unless such a change has been recommended by ITS/TAG and approved by MAG.

All active electronics devices installed at various secure locations within MA facilities will be owned by MAG and will carry an RCN inventory number. Their warranties, repair and replacement will be monitored and maintained by MAG. Agreements will be developed between MAG and MAs linked to the RCN to provide access to RCN equipment installed at secure facilities.

All fiber infrastructure of the RCN located within the jurisdictional boundaries of a MA will be owned by that agency/jurisdiction. Any interruption of RCN services due to damage to such fiber will be repaired by the MA based on regionally agreed upon procedures.

1.4 Legal and Liability Information

The Regional Council approved the governance structure for this project on April 22, 2009. As part of this structure, MAG will have title to the electronic equipment provided for the project. A contracted agent will maintain and repair the electronic equipment. This agent will need permission to access the appropriate facilities. This agent's ability to execute repairs will be limited by the availability of technical staff at participating agencies where troubleshooting and facility access is required and by the terms of the underlying warranty agreement. Repairs will be executed through a best effort approach. Additionally, this network relies on previously agency-owned fiber and project laid fiber which has been transferred to the agency within which it resides. Agencies will be responsible for repairing this fiber through a best effort approach. Future regional investments in the RCN may make greater service levels available, but the service level provided by Phase 1A is adequate for data transmissions required for current traffic management activities.

- Each Agency will provide timely access to MAG and its contracted agent to install and maintain RCN equipment housed in its facilities.
- Each Agency will provide appropriate space, power and environmental conditioning for the network equipment necessary to establish the RCN, and furthermore will provide the necessary technical personnel support (agency representative) as the single point of contact for any network/equipment installation or maintenance issues. The site requirements are detailed in the ADOT Regional Community Network Design Concept Report for Phase 1 prepared by Kimley-Horn and Associates, Inc. and dated November 2004.

- Each Agency will provide the necessary technical personnel support (agency representative) as the single point of contact for coordination of any fiber repair or maintenance issues and to make a best effort at timely repair of such issues.
- Each Agency understands that MAG, its authorized agent and the other participating agencies will make every effort to affect repairs as quickly as possible, but that the initial implementation will not guarantee a service level.

1.5 Standards and Specifications

Standards and specifications used on the RCN will be adopted by ITS/TAG and will be made available via the MAG website. Any changes to the standards and specifications will be made on the recommendation of ITS/TAG and will be accompanied by an analysis of short- and long-term cost implications.

1.6 Descriptions & Roles

This section provides a high level description of the different groups within the RCN management structure and their key functions. This is also graphically depicted in Figure 1.

1.6.1 Member Agency (MA)

This includes all current and future MAG member agencies that wish to be connected to the RCN. It is not based on whether an agency has infrastructure to share with the RCN or not. Staff at MAs are the ultimate end users of the system.

1.6.2 Intelligent Transportation Systems Committee & Technology Advisory Group

The ITS Committee and TAG are comprised of representatives of the local member agencies. Together, these committees are responsible for the review and recommendation of all policies and guidelines related to the RCN for formal adoption by MAG. Some actions of these two committees will be based on the recommendations submitted by the RCN Working Group (WG) which functions as a joint subcommittee of the ITS and TAG committees.

1.6.3 RCN Working Group (WG)

The RCN Working Group (WG) develops recommendations for the management of the RCN and its future expansion. All recommendations for RCN expansion, modification or repair that require funding will be carried forward through the MAG approval process jointly sponsored by the ITS committee and the TAG. No cost changes may be approved by the ITS/TAG committees on the recommendation of the WG.

1.6.4 RCN Program Manager (PM)

A MAG staff position will be assigned to function as the overall Program Manager (PM) for the RCN. The responsibilities of the PM will be as follows:

- Provide reports to ITS/TAG on all RCN related projects that are being carried out directly by MAG or through other agencies. Identify issues that need to be addressed by ITS/TAG and ensure they are included in ITS/TAG meeting agendas.
- Incorporate the RCN as a key regional infrastructure within MAG planning documents such as the Regional Transportation Plan (RTP), TIP and the UPWP.
- Execute planning studies related to the RCN expansion based on direction and funding support from MAG.

- Make presentations to MAG committees based on ITS/TAG recommendations related to the RCN.
- Serve as the primary Point of Contact (POC) for the Network Manager (NM) and the interface to the MAs thru the WG. If the decision is to outsource the NM role to perform the full time technical and expert services that will be required, the PM will also be responsible for the solicitation, funding, and management of this contract. If the NM function is designated to a MA, the PM will coordinate the required IGAs between MAG and the MA, and their approval by the Regional Council.
- Participate in all RCN projects procured through any other MA, and serve as a member of the consultant/contractor selection committee for all RCN projects. Provide oversight to design and construction of all new RCN phases.
- Maintain a record of all standards, specifications, procedures established for the RCN by the ITS/TAG technical committees.
- Ensure the execution of required Agreements. Maintain a record of all IGAs and agreements entered with MAs in connection with the RCN – such as access to Active Electronics located in MA secure facilities, and to ensure that the design and construction of RCN projects will maintain regional compatibility through the adherence to established RCN standards.
- Receive formal reports on all RCN related procurement contracts carried out by other agencies on behalf of MAG. This work may be carried out by ADOT (similar to the Phase 1A project) or MAs for RCN projects that are within their jurisdictions.

1.6.5 Network Manager (NM)

For the initial year, the Network Management function will be provided by Kimley Horn and Asscoaites and ITS Engineers. After that period, the Network Manager (NM) will be either a qualified contractor or a local agency, designated by the Regional Council, with staff dedicated to the RCN NM function. The NM will be primarily responsible for ensuring that the RCN functions without any serious interruptions to service, but will be responsible only for Active Electronics. The NM will be providing ongoing maintenance of the active electronics associated with the RCN. The NM will also manage all repair work carried out under warranties. In the case of other repairs, the NM will purchase, install, and configure RCN active electronics components. The NM will attend all WG meetings, and ITS/TAG meetings when necessary as indicated by the PM.

1.6.6 Implementing Agency (IA)

The IA will be responsible for hiring contractors to design and build new segments of the RCN. The IA could be ADOT, Maricopa County or any MA interested in helping implement any of the planned RCN projects that are funded and programmed in the TIP as MAG projects. Upon the identification of an IA, project funds will be transferred to the IA based on an IGA between MAG and IA that specifies accountability requirements.

The IA's project manager will closely coordinate of all such projects with the PM and shall comply with all established RCN standards and specifications.

Any new fiber infrastructure built by the IA becomes the property of the MA upon completion of the project. Any new Active Electronics that are installed at MA facilities remain the property of

MAG with an RCN inventory number. All warranties for RCN active electronics will be assigned to MAG for administration by NM.

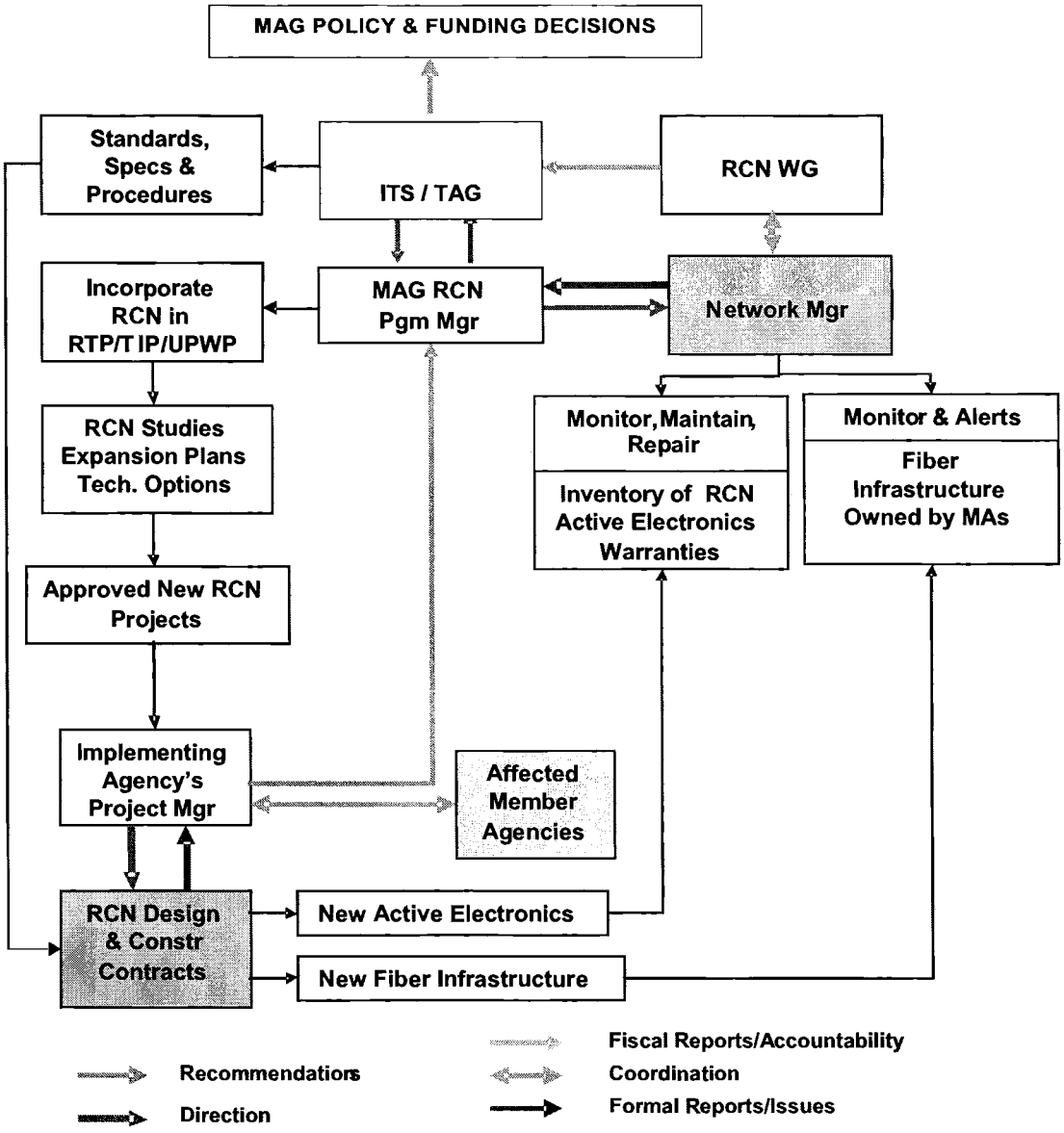


Figure 1. Overall RCN Management Structure & Key Functions

2 LONG RANGE PLANNING

This section describes the responsibilities of those involved in the planning of the RCN.

PM will:

- Be responsible for coordinating all planning activities related to the RCN.
- Obtain input to planning efforts from ITS/TAG, WG, MA and NM.
- Actively seek comments and recommendations for the improvement of the RCN from the WG.
- Obtain consultant support for the preparation of planning documents and complex technical discussions at WG.
- Develop a long range plan for the RCN, updated every year, and contain the following:
    - Identify all fiber paths that are required to provide the desired RCN connectivity.
    - Identify existing fiber infrastructure that may be used to support/expand the RCN.
    - Identify current or planned road construction projects that may be used to implement new fiber that is required for the RCN.
    - Identify gaps in the fiber network that needs to be addressed through new RCN projects.
    - Provide a prioritized list of new RCN projects.

The ITS/TAG will:

- Be responsible for reviewing all planning documents and recommending them for adoption by MAG.
- Review recommendations from WG and produce action items to be addressed during plan updates.
- Assign tasks to WG on complex RCN related issues that needs to be investigated.

The WG will:

- Receive direction from the ITS/TAG committee, and work closely with the MAs they represent to make sure the RCN provides the functionality they need.
- Review the long range plan developed and updated by MAG, provide feedback and recommend improvements.

The MA will:

- Designate primary contacts for the NM at the MAs (These should be WG participants).
- Identify the initial and future nodes that will require connectivity to the RCN and forward that information to the WG.
- Provide documentation on existing and new fiber infrastructure to MAG to help identify fiber that can be used for the expansion of the RCN. For planning, this is limited to the

path, the number of available strands, and the location of splice points. There is no requirement for splice details for the planning phases.

- Identify and relay RCN related issues and concerns through their ITS/TAG or WG representative.

3 REQUIREMENTS DEVELOPMENT

This section will identify the roles and responsibilities of those involved with the requirements development for the RCN. These requirements will be used as the basis for the architecture and design that are described in later sections of this document. During the initial warranty period, changes may be limited if no funding source is identified to enable the network manager to perform the required assessments.

The MA will:

- Identify the specific requirements for each connection to the RCN. This includes items such as those listed below:
    - Entry and exit point
    - Requirements for dedicated fiber strands and/or wavelength (if applicable)
    - Bandwidth
    - Latency and jitter
    - Quality of Service (QOS)
    - Switching
    - Virtual Local Area Network (VLAN)
    - Internet Protocol (IP) addresses
    - Unicast / Multicast
    - Due Date
    - Routing Protocols
- Work closely with the NM and PM to accurately describe the expectations of the MA as it relates to the service levels that are expected of the RCN. These expectations will be the basis of Service Levels Agreements (SLA) and the resulting requirements that drive the design and operation of the RCN. This could have a significant impact on the selection of equipment, need for additional fiber paths, and the availability of technical support staff to respond to problems.
- Help identify requirements and clarify expectations related to the RCN.
- Forward all requests for service to the WG through their representative.

The WG will:

- Recommend the service level to be guaranteed by the RCN.

The ITS/TAG will:

- Approve the service level to be guaranteed by the RCN.

The PM will:

- Assign and manage RCN requirement development activities to the NM.

The NM will:

- Receive and confirm receipt of all requests for service.
- Review all requests to determine the budget impact of all new requests and review the impacts on the system with the PM.

- Evaluate the requests received from the WG to determine if the RCN is capable of meeting the requirements.
- Provide comments back to the WG about the feasibility of their request.
- Request additional information from the WG or MA thru their representative to clarify the request if required.

4 RCN DOCUMENTATION

This section describes the responsibilities of those involved in the documentation of the equipment and fiber used for the RCN. For the initial year of deployment, this information is already in place.

The MAs will:

- Be responsible for maintaining documentation of their respective fiber assets. This includes documentation related to the route, installation depth, conduits, fiber, location of splice enclosures, and complete splice details. Complete and accurate records are important since they impact the ability to repair quickly and accurately, in the event of any damage to the fiber plant.
- Maintain accurate records that can be used by the MA to locate RCN fiber infrastructure as part of the Bluestake process.
- Clearly mark and label all RCN fiber optic patch panels. While some variations are expected between agencies, the labels should clearly identify fiber paths used by the RCN as illustrated in Figure 2.
- Provide a warning sticker or sign at the fiber patch panel with contact information for the NM.
- Track all fiber assets with a system such as OSP Insight or another fiber documentation software application. This software product shall be used to maintain comprehensive as-built documentation of the RCN network. A copy of this documentation will be provided to the PM.
- Identify their agency representative and provide his/her contact information to other agency staff that are involved with any work related to the RCN.
- Identify the need for improvements in the documentation of existing fiber infrastructure and communicate those needs to the ITS/TAG through their WG member or the PM.

Site: ADOT TMC - Room # 312												
Row 5 - Rack 3 - Fiber Panel 3												
	A	B	C	D	E	F	G	H	J	K	L	M
1	1 RCN 7A	7 spare	1 MDN	7 VID	1 Fire	7 spare	13 spare	1 SONET	7 spare	1 empty	7 empty	13 empty
2	2 RCN 7B	8 spare	2 MDN	8 VID	2 Fire	8 spare	14 spare	2 SONET	8 spare	2 empty	8 empty	14 empty
3	3 video	9 spare	3 VID	9 VID	3 Police	9 spare	15 spare	3 spare	9 spare	3 empty	9 empty	15 empty
4	4 video	10 spare	4 VID	10 VID	4 Police	10 spare	16 spare	4 spare	10 spare	4 empty	10 empty	16 empty
5	5 video	11 ATM	5 VID	11 IP	5 spare	11 spare	17 spare	5 spare	11 spare	5 empty	11 empty	17 empty
6	6 spare	12 ATM	6 VID	12 IP	6 spare	12 spare	18 spare	6 spare	12 spare	6 empty	12 empty	18 empty
	Backbone North		Backbone South		Distribution West			Backbone East		Empty		

Figure 2. Patch Panel Labels

The WG will:

- Recommend guidelines and identify issues to be researched and addressed by the NM.
- Make recommendations to the PM regarding the scope of work and assignments to the NM.
- Review and comment on recommendations made by the NM as they relate to the RCN design, implementation, operations, and management.

The ITS/TAG will:

- Establish guidelines and identify issues to be researched and addressed by the NM.
- Make recommendations to the PM regarding the scope of work and assignments to the NM.
- Approve recommendations made by the NM and forwarded by the WG as they related to the RCN design, implementation, operations, and management.

The PM will:

- Maintain documentation of work carried out by the NM.
- Participate in all required meetings related to the documentation of assets used for the RCN.

The NM will:

- Maintain proper documentation for all fiber paths used by the RCN. This includes drawings that provide an overview of each fiber path, and properly identify the demarcation point between the NM and MA. The NM will not be responsible for maintaining complete as-built drawings of the fiber plant unless this responsibility has been delegated to the NM by the MA and approved by the PM.
- Maintain complete documentation of the RCN electronics. This includes drawings that identify all ports that are in use and the MA equipment it is connected to.
- Maintain a complete accounting of all IP addresses that are used on the RCN.
- Maintain a complete accounting of all VLANs that are used on the RCN.
- Maintain a complete accounting of all IP Multicast addresses that are used on the RCN.
- Maintain documentation that shows the physical connection between all RCN equipment. This includes documentation of the slot and port number. This includes type of module, link speed, and duplex mode.
- Identify and document Ethernet trunk and station ports.
- Identify gaps in the documentation of the fiber plant and help identify a strategy to fill in the missing information.
- Coordinate with the WG to evaluate and recommend a software program to document the fiber optic cable and related infrastructure such as conduit, boxes, splice enclosures, etc.
- Coordinate with each MA representative to gather information about how new and existing fiber infrastructure is documented and lessons learned from previous projects.

Information may include items such as the spacing between Global Positioning System (GPS) measurements along the conduit route.

- Utilizing agency experience and best industry practices as input, prepare a white paper that recommends how to document fiber assets during new construction, and the best approach for documenting existing fiber assets. The focus of this white paper is to make sure the fiber used as part of the RCN is properly documented to assist in the planning of future projects and to make sure there is adequate documentation to facilitate repairs.

5 RCN ARCHITECTURE

This section identifies the responsibilities of those involved in the development and maintenance of the RCN architecture. For the initial year of deployment, this information is already in place.

The MA will:

- Inform and coordinate with PM on architecture issues or requirements that impact local functions.

The WG will:

- Review and recommend the architecture and high level design provided by the NM or Architecture Consultant (AC).
- Evaluate the detailed designs prepared by the NM or AC and submit comments and recommendations for improvement.
- Review and recommend the equipment standards recommended by the NM or AC.

The ITS/TAG will:

- Review and approve the architecture and high level design recommended by WG.
- Review and approve the equipment standards recommended by the WG.

The PM will:

- Document the RCN architecture as currently defined in the Phase 1A project.
- Execute tasks for generating architecture improvements through the NM or an .AC

The NM or AC will:

- Evaluate current telecommunications technology for potential use in the RCN.
- Develop an overall architecture that can be used to guide the design of future phases of the RCN and provide updates as new technology becomes available. This includes key decisions such as the use of Single Mode Fiber (SMF) and the selection of key technologies such as Synchronous Optical Networking (SONET), Asynchronous Transfer Mode (ATM), Ethernet, and IP. While many of these decisions have already been made for the initial deployment of the RCN and are not likely to change, these decisions should be revalidated as the RCN is expanded and as equipment is upgraded or replaced over time.
- Develop an overall architecture for the transport of video across the RCN. This includes an approach for the replication of video, the selection of video compression technologies, and an approach to deal with the rapid and continuous improvements in compression technology.
- Work with the WG to make long-term design improvements to the RCN and generate suggestions for improvements within the agency networks that will allow agencies to exchange video without the use of Video Distribution Server (VDS) technology. The use of a VDS is often driven by the fact that agency networks were implemented well before plans could be put in place for a regional network such as the RCN. While that is the reality of today, the NM should consider long-term planning and design that will minimize the requirements for a VDS over time.

- Work with WG to develop and update existing standards related to the interface with the RCN. While many of these standards such as Ethernet and IP are set and not likely to change in the near future, other standards such as video compression will change quickly.
- Develop a high level design of the RCN and update that design as new technology becomes available.
- Develop a detailed design of the electronics used for the RCN.
- Develop a layer 3 network design.
- Develop an IP Address plan for use on the RCN and the interface with the MAs. This includes issues related to the use of Network Address Translation (NAT) and Port Address Translation (PAT).
- Develop a routing design based on the use of open standards such as Open Shortest Path First (OSPF).
- Develop a layer 2 switch design that includes the assignment of VLANs that will be used on the RCN and details on the use of spanning tree.
- Develop a security plan for the RCN and present the plan to the PM and WG for review and approval.

6 RCN DESIGN

This section identifies the responsibilities of those involved in the design of the RCN. RCN design and implementation projects may be undertaken by either (1) a MA for RCN components within their jurisdiction OR (2) by a IA on behalf of MAG.

(1) On MA design projects:

The MA will:

- Have primary responsibility for the design of all fiber infrastructure installed by the MA. This includes all existing and new fiber infrastructure that is used for the RCN.
- Coordinate with the PM and the MA representative to ensure that the designs are carried out to be compatible with regional RCN standards.
- Provide documentation about the IP address space that is already in use within the agency network to help identify overlaps and a plan for NAT and PAT as needed.
- Provide documentation of the VLANs that are being used.

The WG will:

- Evaluate the detailed designs prepared by the NM and submit comments and recommendations for improvement thru the IA.
- Review and recommend new equipment standards recommended by the NM.

(2) On IA design projects:

The IA will:

- Review the requirements that are the result of the planning and requirements development process described earlier and use that information as the basis for the initial and ongoing design process.
- Coordinate with the MAs thru the WG to get the information required to complete the design of the RCN equipment.

The NM or AC will:

- Have primary responsibility for the design of the electronics used to support the RCN.

The PM will:

- Coordinate with the MA 's Project Manager regarding all design activities.
- Coordinate with the MAs and WG to collect comments on the designs developed by the IAs.

7 IMPLEMENTATION

This section will identify the responsibilities of those involved in the implementation of the RCN. During the initial warranty period, changes may be limited if no funding source is identified to enable the network manager to perform the required assessments.

(1) On projects implemented by MA:

The MA will:

- Follow all existing regional standards and specifications for the RCN.
- Have primary responsibility for all aspects of the implementation of the fiber optic cable, including the conduit, boxes, splice enclosures, and patch panels. This includes the management and payments to the contractor.
- Manage the inspection of conduits and boxes installed during the construction.
- Be responsible for the end-to-end testing done as part of the post construction acceptance.
- Work with agency staff to get construction updates and notify the NM of the scheduled availability for all new fiber segments that will be used by the RCN.
- Coordinate fiber testing (Optical Time-Domain Reflectometer (OTDR) and power meter) done by the network manager immediately before connecting RCN equipment to the fiber managed by the MA.

The WG will:

- Receive briefings from NM on project progress and address any issues.

The NM will:

- Test all fiber using an OTDR and power meter immediately before the fiber is put into service for the RCN. Testing should be done in both directions and on all wavelengths that are expected to be used. Compare the results with the calculations prepared during the design process and account for any significant differences. Forward the test results and comparison information to the MA thru the PM.
- Archive the test results for comparison with future test results.
- Provide and install all fiber jumpers and optical attenuators that are required. This includes the fiber jumpers installed between the RCN equipment and the patch panel that is installed by the MA.
- Have primary responsibility for the installation and configuration of all RCN active electronics equipment. This may include firewalls, routers, switches, video conference system, video distribution servers, etc.
- Identify any unexpected items that are needed to complete the installation. Coordinate with the PM to identify a resolution.

The PM will:

- Manage all activities done by the NM.

(2) On projects implemented by an IA:

The PM will:

- Coordinate with the IA to ensure that all existing RCN standards are followed.
- Make periodic reports to WG and ITS/TAG on project progress.
- Upon completion document the handover of fiber infrastructure to MA and addition of active electronics to the MAG equipment inventory.

The NM will:

- Monitor project progress and report on any issues to PM.
- Ensure that RCN standards are followed.
- Have primary responsibility for the installation and configuration of all RCN active electronics equipment.

8 BUILDING INFRASTRUCTURE

This section identifies roles and responsibilities related to buildings used to house the RCN electronics and provide access to the outside fiber cable infrastructure.

The MA will:

- Provide space within an existing building that is appropriate for the installation of equipment. This may include an existing computer room or equipment closet.
- Provide a minimum of one (1) enclosed equipment rack for the installation of RCN equipment. In most cases, racks should match existing rack systems.
- Provide a climate control system to maintain proper temperature, humidity, and dust control.
- Provide a building service entrance for the installation of fiber optic cable. This may include items such as a vault or pull box outside of the building and conduit into the equipment room. The MA will be responsible to make sure the conduits are properly sealed to prevent the entry of water, smoke, or rodents into the building.
- Provide a minimum of two (2) dedicated circuits at the RCN equipment cabinet. The voltage, amps, and plug requirements will be provided by the NM.
- Pay for all power used at the RCN node.
- Ensure that all electrical and safety standards are followed.
- Make sure primary power is provided from a regular commercial power source and should not rely on solar panels or a local generator.
- Provide a secondary source of power such as a diesel or natural gas generator with an automatic transfer switch.
- Provide access to a building Uninterruptible Power Supply (UPS) if available and in good operating condition. The UPS should be capable of providing power from battery for a minimum of one (1) hour if a secondary power source is available or eight (8) hours if a secondary power source is not available.
- Provide an additional equipment rack for the installation of batteries if a secondary source of power is not available. This rack space requirement will change depending on the final power requirements of the equipment.
- Provide secure access to the computer room where the RCN equipment is located. A card reader should be used when possible to provide a method to reporting the date and time that people have entered the area. Access to critical nodes should be available at all times (24x7x365) and during business hours for secondary locations.
- Provide locks for the equipment cabinets used for the RCN equipment when a card reader system is not available.
- Coordinate with the NM to identify the procedure for access into agency buildings. This includes information about requirements for an escort by agency staff.
- Provide a dedicated rack mounted UPS when a building UPS is not available
- Provide additional batteries for the rack mounted UPS if a secondary power source is not available. The batteries should provide power for eight (8) hours. Changes to the Service Level Agreements may increase this requirement and should be carefully considered.

The NM will:

- Follow agency procedures related to building access.

- If provided to the NM, maintain control of all access cards and keys and immediately report to the MA if anything is lost or stolen.

9 MAINTENANCE AND REPAIR

This section identifies roles and responsibilities related to maintenance and repair of the RCN.

The MA will:

- Maintain all outside plant fiber assets such as conduit, fiber cable, boxes, slice points, and fiber patch panels.
- Monitor agency related Trouble Tickets (TT) reports and facilitate agency related repairs.
- Utilize the work order tracking system to manage TTs that are related to the fiber optic cable managed by the MAs.

The WG will:

- Review performance reports submitted by the NM.
- Coordinate with MA representatives to help prioritize and assist with critical repairs.

The PM will:

- Manage all activities done by the NM.
- Review performance reports submitted by the NM to verify proper response times.

The NM will:

- Have primary responsibility for maintenance and repair of the RCN electronics.
- Monitor all critical components on the RCN.
- Provide a primary and secondary contact telephone number for approved agency staff to report problems with the RCN.
- Utilize the work order tracking system to alert the MA of problems with the fiber.

10 RCN OPERATIONS

Operation of the RCN should be modeled after a carrier network with a clear demarcation point between the RCN and the MA network as shown in Figure 3.

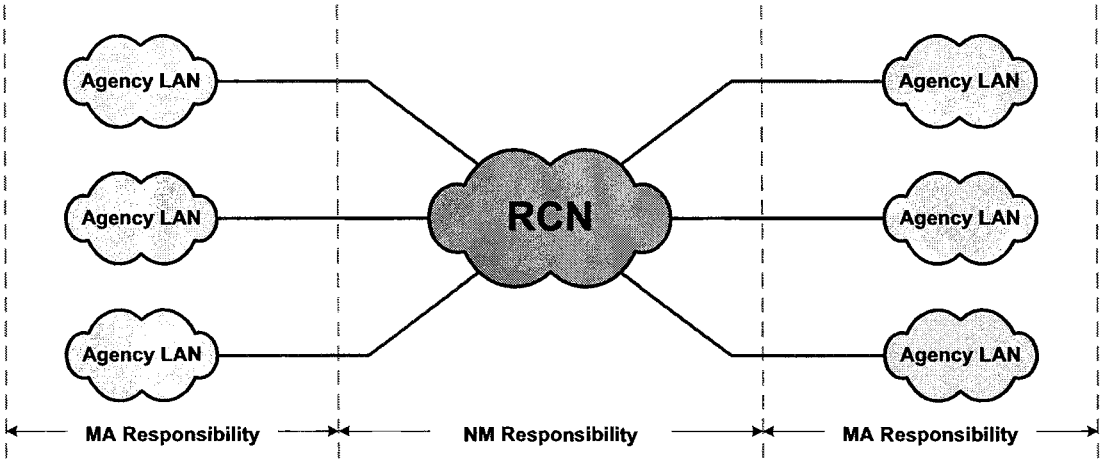


Figure 3 – Division of Responsibility

This diagram is only intended to show the division of responsibility and is not intended to suggest a design for the RCN.

The MA will:

- Have primary responsibility for the operations of the fiber network.
- Participate in the Bluestake program to locate all agency fiber in order to prevent damage.
- Provide a list of authorized users who can submit requests for service.
- Coordinate with the NM to provide notifications of events that might affect the operations of the RCN. All requests should be made thru the PM.

The WG will:

- Discuss and endeavor to resolve issues such as priorities, schedules, and responsibilities that may arise between agencies, members, or other parties.

PM will:

- Coordinate with the ITS/TAG to identify and provide funding for ongoing operations.

The NM will:

- Have primary responsibility for the operation of the RCN electronics.
- Make all approved configuration changes to the RCN electronics in accordance with previously submitted and approved design documents.
- Monitor the status of all RCN electronics to determine the condition of the power supplies, operating temperature, etc.

- Monitor the status of each link in the RCN network to ensure proper operations, and address failures as required.
- Maintain a calendar of planned system downtime to perform maintenance activities. The NM will notify the WG and MAs of any planned downtime with detail such as the date, time, expected duration, and impacts on the RCN.
- Coordinate with PM and the MAs to provide transport across the RCN for the RVS installed and maintained by MAG.
- Perform general network administration oversight and preventative maintenance functions as they relate to the RCN electronics equipment.
- Manage and enforce equipment warranties and operational support service provided by the equipment manufacturers.
- Close out TTs and document changes that have been made to the RCN configuration, and maintain RCN maintenance records and drawings.
- Generate and track the progress of TTs for each system related problem reported by the MAs (or problem identified by the NM during routine preventative maintenance checks). Upon request by a MA representative, generate a report on TTs for any agency. This may also be addressed via the TT tracking software.
- Observe equipment trouble shooting activities, corrective measures taken, and testing of the corrective measures taken.
- Post diagrams and documents that describe any changes made to the RCN configuration.

11 CENTRAL WORK ORDER TRACKING SYSTEM

This section will identify the roles and responsibilities related to the Central Work Order Tracking System.

The MA will:

- Proactively respond to RCN failures that fall within the responsibility of the agency (e.g., fiber cut).
- Notify NM of repairs, issues, or related coordination activities through its representative as appropriate.
- Provide a list of authorized users who can makes requests for service.
- Facilitate agency repairs as may be required.

The PM will:

- Obtain MAG funding for the initial installation, maintenance, and operations of a Central Work Order Tracking System.
- Facilitate the development of a web based system to create and track work orders and TTs.
- Review summary reports of TTs and assist with issues and delinquencies as may be required.
- Make policy recommendations to ITS/TAG and arbitrate issues that may arise.
- Coordinate with the other RCN partners.

The NM will:

- Track and respond to work orders assigned to the NM.
- Track all RCN hardware and the inventory of spare parts that are assigned to the NM, if any.
- Provide monthly reports to the PM for distribution to the WG. The report should include information about open and closed tickets, response times, and the time required to close tickets.

12 GOVERNANCE

This section describes the RCN Management Reporting Structure that has been approved by MAG.

The Regional Community Network (RCN) is a fiber optic communications network that, when completed, would connect all MAG member agencies for the primary purpose of coordinating traffic control operations between neighboring agencies. The RCN communications network will allow the sharing of video and live traffic count data, and would help each jurisdiction manage its signal network more efficiently, thus improving safety, and reducing traffic delay and emissions. In addition, the RCN may be a significant communications asset in the event of a regional emergency evacuation due to a natural or a man-made cause. The network will also be available to support other interagency data sharing applications, including videoconferencing, Information Technology, and possibly public safety communications.

A number of larger cities and towns in the region have developed Traffic Management Centers that serve as the coordination centers for traffic management. Efficient management of the regional road network relies heavily on efficient communications between these centers. At present, a number of local agencies rely on local fiber networks as well as expensive leased phone lines for their agency-to-agency electronic communications. The RCN would eliminate the need for some leased fiber and/or phone lines and result in cost savings for those agencies. The RCN will also link ADOT's Freeway Traffic Operations Center, City of Phoenix's Transit Control Center, and METRO Rail's LRT Control Center to the rest of the regional traffic management network. The following is a subset of the information that will be shared:

Real-time traffic conditions
Crash bottlenecks
Plans for relief routes
Freeway cameras showing traffic heading towards local streets

The initial RCN design was developed as part of a study in which MAG examined ways to increase access to telecommunications and leverage existing agency infrastructure investments. Each agency agreed in principle to provide at least two fiber strands in key locations to allow the creation of a network connecting all MAG member agencies. The design called for filling key gaps to connect one agency's fiber to another's.

ADOT is currently overseeing the construction of Phase 1A of the RCN. This project will create the core ring and abbreviated East Valley and West Valley rings that will eventually be expanded into the full RCN. The original RCN concept specified a network carrying both general information technology data and transportation data, using advanced equipment to create multiple networks on a single pair of fiber. Limiting Phase 1A to accommodate the available budget reduced the scope to a single network carrying transportation data and supporting the RVS. The advanced electronics may still be added at a later date without discarding any equipment provided in Phase 1A.

The RCN Working Group (WG) is comprised of representatives of the member agencies serving on the Technology Advisory Group (TAG) and Intelligent Transportation Systems (ITS) Committee. This group currently develops recommendations for the management and future expansion of the Regional Community Network. The Working Group forwards recommendations

to the TAG and ITS committees for approval and from there the recommendations move through the normal MAG committee structure.

Following completion of Phase 1A of the RCN, the design consultant, Kimley-Horn and the selected turn-key solution provider, will manage the network for one year. This will give member agencies time to develop a funding mechanism for ongoing maintenance, a plan for the ongoing management of the network, and policies for its operation and expansion.

The RCN Working Group will work to identify a number of policies and procedures to assure that the network will fulfill the promise of increased access for Information Technology uses without compromising the primary transportation requirement imposed by the use of FHWA funding for construction and purchase of equipment. Additionally, the Working Group will recommend a network manager after the completion of the first year.

The TAG, ITS, and the RCN WG envision a formal structure whereby the day-to-day operations and routine addition of services to the network would be efficiently managed. To that end, the committees propose that they draft an initial set of policies and delineation of tasks to provide a framework for timely decisions while maintaining the oversight and policy role of the existing MAG process. The following details a suggested program.

Regional Council, Management Committee, Transportation Review Committee
Approve the initial set of policies.
Approve annual funding to support network management activities, including a small budget for incidentals as identified and included through the TIP process.
Review and approve any requests for additional funding for system maintenance.
Review and approve any requests for expansion funding.
Review and approve any policy changes.
Review and approve any removal of a previously approved agency service.
Receive annual reports on the status and function of the RCN.

ITS and TAG
Approve new services that have passed the RCN WG assessments.
Review and recommend approval of RCN WG policies to the TRC.
Approval of RCNWG guidelines.
Proposed Regional Community Network Management Reporting Structure
Review and recommend approval of annual funding to support network management activities including a small budget for incidentals.
Receive annual reports on the status and function of the RCN generated by the Network Manager and recommend them to the TRC.
Identify expansion projects and recommend approval to the TRC.
Approve no-cost expansions of the RCN on recommendation from the RCN WG.

RCN WG
Recommend initial policies and guidelines.
Develop a risk assessment procedure for new services.
Develop a risk assessment procedure for expansions.
Oversee the Network Manager and receive quarterly status reports.
Recommend additional service support.
Recommend expansion support.
Recommend annual funding levels.

Network Manager
Oversee the day-to-day operations of the RCN.
Coordinate repairs and maintenance.
Maintain the safety of the RCN.
Act as a resource for the connected agencies in troubleshooting applications.
Perform risk assessments for new services.
Perform risk assessments for expansions.
Generate quarterly status reports.
Monitor bandwidth and enforce restrictions on usage per the defined policy.
Identify bandwidth limitations and issues.

Member Agency RCN Representative
Coordinate access to agency facilities for repairs and maintenance.
Act as the main resource in troubleshooting applications and determining if the problem lies with the RCN.
Act as the single point of contact for the Network Manager.

13 POLICIES

This section defines the polices under which the ITS and TAG committees will make the decisions delegated to them under the adopted governance structure.

No Cost Additions of Applications

Policy: The TAG and ITS committees will approve no cost additions of applications that respect the funding requirements, technical limitations, regional nature and equitable use of the RCN.

Purpose: This policy allows the timely addition of applications to the RCN while providing for fair accommodation to participating agencies.

Applicability: This policy applies only to no cost application additions by existing participants in the RCN.

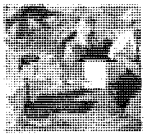
Procedure: The TAG and ITS committees will review all requests that seek to add additional applications based on the following criteria.

Area	Description
Compatibility with funding requirements	Transportation uses must be given priority because construction of the facilities relies on federal transportation funding. Additional uses are permitted as long as they do not affect the transportation use. Projects must demonstrate that they are either compatible with the transportation use or that they will not impact that use in order to be considered.
Bandwidth Usage	The proposed use should be shown to not exceed the available bandwidth of the network, including burst traffic.
Regional Use	Regional uses of the network for interagency communication should be given preference over individual use.
Agency Distribution	The project should reflect a reasonable distribution of bandwidth among agencies.
Cost	Agencies should demonstrate that there will be no additional costs borne by the RCN for the implementation of the application. The agency will have the option of doing this by assuming the costs associated with implementation.

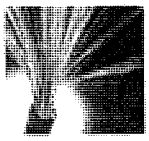
Requests for applications must include the understanding that non-transportation applications may have to be removed from the network in the future or may have to upgrade equipment to maintain the ability to execute transportation related applications.

A request must be approved by both committees before the additional application is added to the RCN.

ATTACHMENT TWO



Overview of the RCN Program



Current Projects in the RCN Program

REGIONAL COMMUNITY NETWORK (RCN)

ADOT

Fall 2009

RCN Program Overview

The RCN Program is the term used to encompass the numerous projects and stakeholders involved in creating a defined network of fiber and communications in the Phoenix metropolitan area. The RCN Program has been in existence since 2001 when the initial RCN Feasibility Study was developed. Projects continue to be developed as part of the RCN Program. Two projects are being developed to construct and implement the first phase of the Regional Community Network.

The RCN Program history in timeline format is described below up to the current status of projects being developed. Future projects foreseen as part of the RCN Program will include additional fiber and conduit infrastructure design/construction projects, operations and maintenance of the network, procurement of additional active electronics equipment such as network switches and fiber connectors, and potential studies regarding use of the network.

During the development of the first phase of fiber/conduit infrastructure deployment to connect agencies (RCN Phase 1A PS&E), the Maricopa Association of Governments (MAG) RCN Working Group was established to provide general oversight to the RCN Program activities and manage the future expansion and changes to the network. Changes to the network shall be discussed by the agencies involved in the MAG RCN Working Group. This MAG RCN Working Group is comprised of staff from MAG member agencies to make recommendations for the RCN Program moving forward.

RCN Program History

2001 — The MAGTAG and MAG ITS Committees started an RCN feasibility study which ultimately identified the need to build a regional network.

2002 — Arizona DPS, ADOT, and the City of Phoenix conducted a proof of concept test to demonstrate possibilities of combining various public agencies' resources to solve their network capacity and path diversity problems.

2003 — Maricopa County developed an AZTech™ Telecommunications Overview report which documented the immediate need for the region to establish center-to-center fiber communications links between the various traffic operations centers and public safety agencies.

2004 — ADOT and its AZTech™ partners secured federal funding to develop east and west valley design concept reports and produce Phase 1 design plans. The Phase 1 DCR was completed in November.

2005 — Phase 1 95% plans were broken into two projects: Phase 1A and Phase 1B. Phase 1A PS&E design was completed to the 100% level. ADOT and MAG developed a Systems Engineering Analysis report.

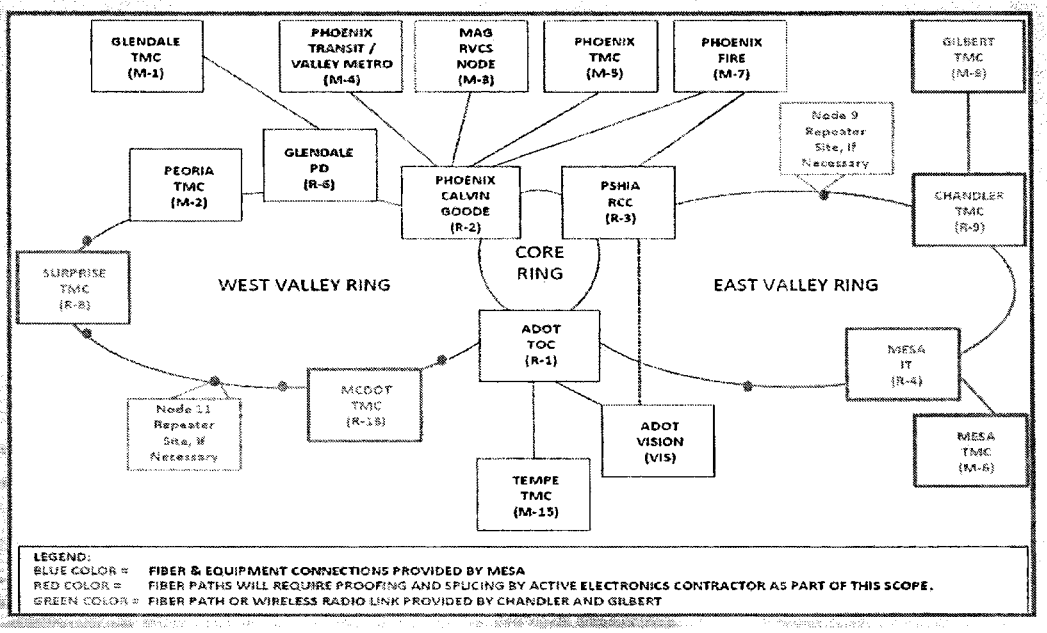
2006 — Phase 1 design plans were taken to 95% level. The design concept for Phase 2 deployment of the RCN covering two East Valley Sub-Rings was completed in December. MAG made $1.6M available for construction of the RCN initial deployment.

2007 — Additional federal funding was added to connect additional cities to Phase 1A. Phase 1A was broken into two separate projects: 1) fiber and conduit construction and 2) active electronics installation.

2008 — The first two projects under Phase 1A provide: 1) fiber and conduit construction and 2) active electronics equipment to establish the initial deployment of the RCN defined on page 2.

2009 — Phase 1A fiber and conduit construction was completed on September 8, 2009.

How RCN Phase 1A Agencies Are Connected



RCN Program — Projects and Progress

Phase 1A PS&E

This first project involved ADOT retaining Kimley-Horn and Associates (KHA) to develop construction plans for Phase 1A deployment, with Plans, Specifications, and Estimate (PS&E). Project activities include:

- Paramount Designs Inc. (PDI) was awarded the contract for the RCN Phase 1A Conduit and fiber project.
- PDI proceeded with submitting material submittals and with the project inventory and getting GPS coordinates on existing RCN pullboxes.
- PDI coordinated with all of the local jurisdictions to obtain access to the RCN hub buildings.
- New conduit and innerduct installation began in outside plant project areas and new innerduct, fiber, and associated RCN equipment were installed in the inside project areas.
- Fibers were tested before splicing in Winter 2009 and after splicing in Summer 2009.
- Received Final Acceptance from ADOT on September 8, 2009.

Phase 1A Active Electronics

This second project involved ADOT retaining KHA to work with MAG member agencies to identify the appropriate technology solution for agencies to connect to the RCN. Project activities include:

- KHA prepared scope of work and submitted to ADOT for distribution to on-call statewide contractors in Fall 2008.
- ITS Engineers was awarded the system integrator contract for the Active Electronics portion of Phase 1A. The kickoff meeting was held in Spring 2009.
- ITS Engineers conducted site visits to all stakeholder facilities to gather required information as part of the final design activities.
- RCN Network Configuration Design Workshop was held in Summer 2009 to provide stakeholders with information about how the network is to be configured, request IP addressing information from stakeholders, and to field comments and/or requests.
- Active Electronics equipment for the East Ring of the project has been ordered and received by ITS and was inspected by ADOT. This equipment will be installed at the Rental Car Center (RCC), Chandler, Mesa, and Gilbert facilities. Bench testing is being conducted in lab facilities for this equipment.
- RCN nodes at ADOT and MCDOT have been installed and fiber verification and equipment installation for the West Ring is on-going.

MAG RCN Working Group

The MAG RCN Working Group has developed a draft RCN Roles and Responsibilities document. To subscribe to the MAG RCN Working Group documents, go to:
http://service.govdelivery.com/service/user.html?code=AZMAG

For additional information, please contact:

Lydia Warnick, P.E., ADOT Project Manager, ADOT Transportation Technology Group, lwarnick@azdot.gov 602-712-4281