MARICOPA ASSOCIATION of GOVERNMENTS

MAG Regional ITS Architecture

Appendix F – ITS Glossary

GLOSSARY TERM	DEFINITION
ADEM	Arizona Division of Emergency Management coordinates emergency services and the efforts of governmental agencies to reduce the impact of disaster on persons and property. ADEM also coordinates with the ADOT TOC to facilitate local transportation agencies management of traffic during evacuations/threats/disasters. ADEM operates the State Emergency Operations Center (SEOC).
ADOT	Arizona Department of Transportation operates and maintains the freeway network. Responsible for freeway management system devices/communications, including the 24/7 Traffic Operations Center. Supports the ALERT service to assist with traffic incidents on the freeway network. There are freeways in the east and northeast portions of the Valley that are located on Tribal lands, which requires consultation with the respective Tribal governments for operations.
ADOT TOC	ADOT Traffic Operations Center monitors State roadways 24/7/365 from one centralized location through the use of the freeway management system (cameras, detection, DMS, ramp meters). ADOT supports interagency coordination through the sharing of video feeds with other agencies.
ALERT	Arizona Local Emergency Response Team - this ADOT response service provides emergency traffic control on highways and freeways for incidents or closures. ALERT vehicles operate in the Phoenix metro area, and are dispatched in coordination with DPS and the ADOT TOC. ALERT response support is typically requested when DPS estimates a highway or highway lane will be closed for an hour or more.
ATIS	Advanced Traveler Information Systems - the MAG Region has several traveler information programs underway, many of them involving multiple partners. ADOT provides en-route information on freeways via Dynamic Message Signs, including travel times, incident/closure information, and special event information. Several cities are also implementing permanent arterial dynamic message signs to provide information about incidents or impacts on the arterial network. ADOT operates a statewide 511 service, which includes a web-based tool (www.az511.gov). Other key traveler information initiatives include a PDA/mobile portal for freeway conditions, travel time screens at the Phoenix Sky Harbor Rental Car center, and partnerships with the private sector to gather data and disseminate it to the public.
AZTech™	AZTech™ is a consortium of federal, state, local agencies, and private sector partners within the Phoenix metropolitan area. Core members include transportation and transit agencies, fire departments, police departments, and emergency management agencies. AZTech™ also includes private sector partners that provide services related to advanced travel information systems (ATIS), transportation consultants, and public sector supporting agencies (for example, telecommunication departments and public information officers). The Executive Committee meets every two months while the Operations Committee, ATIS, and other groups meet monthly.
BRT	Bus Rapid Transit is a rapid transit service designed to efficiently move travelers along a specific route through signal priority and coordination with existing express bus route services. BRT is planned to provide connectivity to the METRO Light Rail system for multi-modal travel options to the public.
CAD	Computer-Aided Dispatch is used by law enforcement and public safety agencies such as DPS and Phoenix Fire to record incident information and support dispatching operations and status of incidents. The ADOT TOC and the MCDOT TMC are able to view the DPS and Phoenix Fire CAD incident logs specific to traffic management but are not able to enter or manipulate any information on the two systems.

GLOSSARY TERM	DEFINITION
Camera Cameleon	This is a software system that allows agencies the ability to control IP and analog video camera systems via a server-server or client-server network. This system works with many cameras and can be accessed by public agencies that are connected to the server to view cameras on the server. ADOT has implemented the Camera Cameleon system in its TOC and many agencies have connected to the server for access to cameras viewable from that server. Camera Cameleon is also used to control DMS under authority of the statewide licensing agreement as is being done with the City of Phoenix.
CCTV	A system, which uses video cameras to provide visual surveillance of the freeway or arterial transportation system.
CENS	The Community Emergency Notification System (CENS) is a rapid notification system used to contact the public by telephone during times of emergency. A reverse 911 system, residents receive a recorded message in English and Spanish notifying them of the nature of the emergency, and what steps they should take to eliminate risks associated with the emergency. Any public safety agency in Maricopa County can activate the system, which will be used only for emergency incidents that pose a danger to life or property. Potential uses include emergencies such as major fires, floods, public safety threats, hazardous materials spills, police incidents, and endangered children or elderly persons.
Center Subsystem	Provides management, administrative and support functions for the transportation system. The center subsystems each communicate with other centers to enable coordination between modes and across jurisdictions. Examples of this subsystem include Traffic Operations Centers, Emergency Operations Centers, and Police/Fire Dispatch Centers.
Communications	A system for communicating information from one location to another.
Connected Vehicles	Connected Vehicles represents the equipment and environment that performs data collection and dissemination through vehicle-to-device and vehicle-to-vehicle transmission of information. A pilot project is underway in the MAG Region to demonstrate enhanced emergency responder preemption (traffic signals and ramp meters), vehicle-to-vehicle communications, and transmit data from the responder vehicles to a TMC for dissemination through traveler information systems.
C2C	Center-to-Center - The C2C System does not provide any physical links between centers or agencies, but instead establishes the protocols that the various software platforms within each of the centers will use to exchange information over the RCN or other networks. This system will facilitate the sharing of traffic signal timing (initially) and in the future is planned to support DMS, CCTV and potentially other information sharing in the MAG Region.
Detector	A device for sensing vehicles and collecting traffic data. Vehicle detection in the MAG Region includes inductive loop sensors, passive acoustic detectors, video image detection sensors, and other forms which transmit information to the traffic signal controller and then potentially back to a TMC.
DMS	Dynamic Message Signs, which provide en-route information on freeways and arterials. ADOT deploys and operates signs on the freeway network, and City and County partners deploy and operate arterial message signs. These are used by local agencies to provide information about incidents, closures, planned construction activity, travel times, AMBER Alerts, special event traffic information, and other advisory messages.

GLOSSARY TERM	DEFINITION
DPS	The Arizona Department of Public Safety is the state highway patrol that is responsible for ensuring the safe and expeditious use of the highway transportation system for the public and to provide assistance to local and county law enforcement agencies.
Element	This is the basic building block of a Regional ITS Architecture. It is the name used by stakeholders to describe a system or piece of a system.
EMS	Emergency Medical Service which includes the dispatch and vehicles that respond to emergency calls for medical services. In this architecture, EMS represents the local fire and other responder vehicles that respond to incidents on the transportation network.
EOC	An Emergency Operations Center is a center that is operational during emergencies to manage the distribution of local services and resources to respond to and recover from a man-caused or natural event of significant impact to the region. EOCs typically inform the TMCs of traffic operations needed during emergencies. In a few cases, EOCs may be collocated with their associated TMC/TOC. The State, Maricopa County and cities each operate an EOC.
Equipment Package	Equipment packages are the building blocks of the physical architecture subsystems. Equipment Packages group similar processes of a particular subsystem together into an "implementable" package. The grouping also takes into account the user services and the need to accommodate various levels of functionality. The equipment packages were used as a basis for estimating deployment costs (as part of the evaluation that was performed). Since equipment packages are both the most detailed elements of the physical architecture view of the National ITS Architecture and tied to specific service packages, they provide the common link between the interface-oriented architecture definition and the deployment-oriented service packages.
Field Subsystem	Intelligent infrastructure distributed along the transportation network which perform surveillance, information gathering, and information dissemination whose operation is governed by the center subsystem. Examples of this subsystem include traffic signals, CCTV cameras, DMS, vehicle detection and flood sensors.
FHWA	Federal Highway Administration - An agency of the United States Department of Transportation that funds highway planning and programs.
FMS	ADOT's Freeway Management System - Primary components of the FMS include detection, CCTV surveillance, DMS for traveler information, and ramp meters. Fiber telecommunications provides the communications and control infrastructure for ADOT staff to monitor and implement management and control strategies from the ADOT TOC.
FSP	Arizona DPS operates the Freeway Service Patrol, which is a roving patrol that assists stranded motorists, can help with changing tires, making minor repairs, calling a tow truck, helping move a disabled vehicle to the shoulder, or removing debris from the roadway. The FSP also assists officers at collision scenes or during closures.
Functional Requirement	A statement that specifies what a system must do. The statement should use formal "shall" language and specify a function in terms that the stakeholders, particularly the system implementers, will understand. Functional requirements focus on the high-level requirements that support regional integration.

GLOSSARY TERM	DEFINITION
HCRS	Highway Condition Reporting System - ADOT's statewide closure and restriction information central server. HCRS is essentially an internal multi-agency information sharing system, but the information entered into HCRS (planned closures, special events, incidents, advisories) is used to populate the public website (www.az511.gov) and the 511 phone system. Initially designed for ADOT to input information about planned closures and restrictions, the system has been expanded to include key arterials in the Phoenix metropolitan area, and to be web-based to allow other authorized users (such as counties and cities) to enter information about impacts on arterial corridors.
ICM	Integrated Corridor Management (ICM) is a greater level of coordinated operations between freeways, arterials, and transit services that facilitate a more active management of traffic/incident congestion in order to return the system to normal operating condition. Active Traffic Management (ATM) is a term that is similar in nature, although ATM identifies specific ITS strategies/infrastructure that can be used for more active management of congestion and impacts on the traveling public.
Information Flow	Information that is exchanged between centers-centers, center-devices, and devices-devices in the physical architecture view of the National ITS Architecture. Information flows are the primary tool that is used to define the Regional ITS Architecture interfaces.
Inventory	A collection of all ITS-related elements in a Regional ITS Architecture.
ITS	Intelligent Transportation System is defined as the electronics, communications or information processing that uses an integrated approach to improve the efficiency or safety of surface transportation. Some examples of ITS are ramp metering, dynamic message signs, CCTV monitoring systems, and traffic signal systems.
ITS Architecture	Defines an architecture of interrelated systems that work together to deliver transportation services. An ITS architecture defines how systems functionally operate and the interconnection of information exchanges that must take place between these systems to accomplish transportation services.
ITS Project	Any project that in whole or in part funds the acquisition of technologies or systems of technologies that provide or significantly contribute to the provision of one or more ITS user services.
Logical Architecture	The logical architecture view of the National ITS Architecture defines what has to be done to support the ITS user services. It defines the processes that perform ITS functions and the information or data flows that are shared between these processes. The logical architecture is not technology specific, nor does it dictate a particular implementation. This implementation independence makes the logical architecture accommodating to innovation, scalable from small scale implementations to large regional systems, and supportive of widely varied system designs.
MAG	Maricopa Association of Governments - A council of governments that serves as the metropolitan planning organization for the Phoenix metropolitan area. MAG serves as the principal planning agency for the region in transportation, air quality, water quality, and solid waste management. MAG also develops population estimates and projections for the region.

GLOSSARY TERM	DEFINITION
MAG TAG	The MAG Telecommunications Advisory Group was formed to encourage the development of telecommunication infrastructure and applications which increase multiagency cooperation and improves access to public information by travelers.
MCDOT	Maricopa County Department of Transportation operates and manages arterials in unincorporated areas of the Maricopa County region including CCTV, DMS, and traffic signals as well as having shared control of ITS devices in two cities for multi-jurisdictional corridor management. MCDOT operates and manages the REACT program and facilitates the development of regional systems including RADS and Arterial ATIS.
MCSO	Maricopa County Sheriff's Office is the public safety and law enforcement on arterials within unincorporated Maricopa County and agencies for which it is contracted.
METRO Light Rail	METRO Light Rail is the name of the Metropolitan Phoenix Valley's Light Rail system, which launched December 27, 2008. Expansions are planned for the Light Rail system for the next 20 years.
National ITS Architecture	A common, established framework for developing integrated transportation systems. The National ITS Architecture is comprised of the logical architecture and the physical architecture, which satisfy a defined set of user service requirements. The National ITS Architecture is maintained by the United States Department of Transportation (USDOT).
Operations Control Center	Valley Metro and Phoenix Public Transit manage all of the transit routes from their respective Operation Control Centers (OCC). The respective OCCs are capable of directing, communicating and monitoring the performance of the scheduled services being provided. The OCCs operate seven days per week, approximately 19 hours per day.
Physical Architecture	The physical architecture is the part of the National ITS Architecture that provides agencies with a physical representation (though not a detailed design) of the important ITS interfaces and major system components. It provides a high-level structure around the processes and data flows defined in the logical architecture. The principal elements in the physical architecture are the subsystems and architecture flows that connect these subsystems and terminators into an overall structure. The physical architecture takes the processes identified in the logical architecture and assigns them to subsystems.
PIO	A Public Information Officer represents the agencies and systems used to disseminate traffic, roadway construction and transit information to the general public. These can be websites, interactive voice response systems, personnel, etc.
PIR	Phoenix International Raceway is a special event that has been the focus of developing special traffic management plans for multi-agency coordination.
PSAP	Public Safety Answering Point - designated receiving point for 911 calls for emergency assistance. The MAG Region includes numerous PSAPs, which include city and state police, fire, and tribal police. PSAPs will receive 911 calls, and route them to the appropriate emergency response agency.

GLOSSARY TERM	DEFINITION
Public Agency Video Distribution System	This program is being led by MCDOT and facilitates the sharing of CCTV camera images managed by transportation management agencies throughout the Phoenix metro area with public safety agencies such as the Department of Public Safety, Maricopa County Sheriff, Phoenix Fire Dispatch, and local public safety agencies.
RADS	Regional Archived Data Server - The Maricopa County Regional Archived Data Server (RADS) is being designed to provide and maintain valid, classified ITS-derived data for use in transportation system planning, modeling, and real-time operation applications. RADS will collect and store data from the various systems in Maricopa County, Arizona, including the ADOT FMS, HCRS, and transit operations. The main system design goal for the system is to take ITS data from systems throughout the Phoenix metropolitan area, store the data in a centralized archive data server, and then make the data available for a variety of data users through a common Web interface. Data stored includes traffic volumes, speeds, closures, incidents, public transit operations, and other data collected by AZTech™ partner agencies.
RCN	Regional Communications Network - This concept establishes a direct fiber link between ADOT and various public sector agencies through three sub-rings (West of I-17 Region, Northeast Region, and Southeast Region). The RCN will link multiple agencies throughout the MAG Region to facilitate the sharing of traffic management information and video conferencing capabilities between all linked agencies. The RCN will consist of the conduit, fiber optic cable, routers, switches, and other communications hardware necessary to provide a path between network nodes. It is being built in phases as funding is identified and allocated.
RCRS	Roadway Closure and Restriction System - The Roadway Closure and Restriction System (RCRS) provides construction, maintenance and public works staffs with a single collection point for reporting all planned and actual closures, restrictions, incidents and conditions. The system encompasses a wide range of contributing factors, including traffic incidents, construction, maintenance, weather and special events. This system is being incorporated into the MCDOT ATIS system as an information sharing system for public agencies regarding arterial information. A working group comprised of representatives from the MAG ITS Committee and MAG Telecommunications Advisory Group is overseeing development and implementation.
REACT	Regional Emergency Action Coordination Team - REACT provides on-call emergency traffic management support for incidents, emergency closures, and other unplanned impacts on arterial roadways. MCDOT REACT is dispatched from the MCDOT TMC when requested by the Maricopa County Sheriff, local police, fire, or other emergency response agency, and crews are on-call 24/7. REACT provides a service that supports fast and efficient response to arterial incidents or emergency traffic management support within the corridor. In addition to the MCDOT REACT Team, the program is being expanded to include local response teams dedicated to and located in specific cities.
Region	The geographical area that identifies the boundaries of the Regional ITS Architecture and is defined by and based on the needs of the participating agencies and other stakeholders.
Regional ITS Architecture	A specific, tailored framework for ensuring institutional agreement and technical integration for the implementation of ITS projects or groups of projects in a particular region. It functionally defines what pieces of the system are linked to others and what information is exchanged between them.

GLOSSARY TERM	DEFINITION
Rule 940	Intelligent Transportation System Architecture and Standards, Final Rule. In January, 2001, this FHWA Final Rule and Federal Transit Administration Final Policy went into effect, which requires federally-funded ITS projects (highway and transit) to conform to a regional ITS architecture (developed based on the National ITS Architecture). A second component of this Final Rule/Policy requires that ITS projects be developed using a Systems Engineering analysis.
SEOC	ADEM operates the State Emergency Operations Center which is the location where the state manages the response to state and federal level disasters. Each county in the state operates a county EOC, which if capacity is exceeded at that facility, the SEOC is activated. In non-disaster conditions, the SEOC is maintained in an operational status. Emergency plans, operating procedures, mapping systems, resource status, and staff training are maintained and exercised at the SEOC.
Service Package	The service packages provide an accessible, service-oriented perspective to the National ITS Architecture. They are tailored to fit, separately or in combination, real world transportation problems and needs. Service packages collect together one or more equipment packages that must work together to deliver a given transportation service and the architecture flows that connect them and other important external systems. In other words, they identify the pieces of the physical architecture that are required to implement a particular transportation service.
Sky Harbor Rental Car Center ATIS Displays	Freeway travel time information is provided on traveler information displays at the Phoenix Sky Harbor Airport Rental Car Center with an origin of the Rental Car Center to destinations throughout the Phoenix valley. This information is derived through ADOT FMS vehicle detector data that is sent to the MCDOT RADS server and calculated using specific algorithms for travel times and then the output is sent to the displays.
Stakeholder	A widely used term that notates a public agency, private organization or the traveling public with a vested interest, or a "stake" in one or more transportation elements within a Regional ITS Architecture.
Standards	Documented technical specifications to be used consistently as rules, guidelines, or definitions of characteristics for the interchange of data.
Subsystem	The principle structural element of the physical architecture view of the National ITS Architecture. Subsystems are individual pieces of the ITS system defined by the National ITS Architecture. Subsystems are grouped into four classes: Centers, Field, Vehicles, and Travelers. Example subsystems are the Traffic Management Subsystem, the Vehicle Subsystem, and the Roadway Subsystem. These correspond to the physical world: respectively traffic operations centers, automobiles, and cameras.
System Interconnect Diagram	The diagram summarizes the existing, planned and future ITS elements for the MAG Region in the context of a high-level physical interconnect. Boxes shaded in gray are not being used currently in the MAG Region and are not planned for the future.
Systems Engineering	A structured process for managing the total life-cycle of a system, including the final design. The final design is selected from a number of alternatives that would accomplish the same objectives and considers the total life-cycle of the project including not only the technical merits of potential solutions but also the costs and relative value of alternatives. A Systems Engineering process is required for ITS projects per the Rule 940 requirements.

GLOSSARY TERM	DEFINITION
Terminator	Terminators define the boundary of an architecture. Terminators represent the people, systems, and general environment that interface to ITS. The interface between terminators and the subsystems are defined, but no functional requirements are allocated to terminators.
TMC or TOC	A Traffic Management Center (or Traffic Operations Center) is a centralized location for the operations / management / control of CCTV cameras, DMS, vehicle detection and other devices deployed on the roadways in each individual jurisdiction to support traffic management operations. ADOT operates a statewide TOC and several cities as well as Maricopa County have fully operational TMCs.
Traveler	Travelers are those persons who access ITS services pre-trip or enroute including information service providers including such systems as Internet web sites (e.g. az511.gov) or the AZ511 traveler information telephone service (e.g. 5-1-1).
Turbo Architecture	A software tool used to input and manage system inventory, service packages, architecture flows and interconnects with regard to a Regional ITS Architecture.
User Service	User services document what ITS should do from the user's perspective. A broad range of users are considered, including the traveling public as well as many different types of system operators. The concept of user services allows system or project definition to begin by establishing the high level services that will be provided to address identified problems and needs.
User Service Requirement	A specific functional requirement statement of what must be done to support the ITS user services. The user service requirements were developed specifically to serve as a requirements baseline to drive National ITS Architecture development. User service requirements define the processes (the activities or functions) that are required to satisfy the user services identified and are typically phrased in "shall" statements.
Valley Metro	Operates and maintains the regional transit system in the Phoenix metropolitan area. Under the Valley Metro umbrella, bus and Light Rail services are provided. Previously, Valley Metro was a brand name under which the Regional Public Transportation Authority (RPTA) was a consortium of local governments joined to fund the Valley-wide integrated bus transit system. METRO Light Rail is the name for Valley Metro Rail Inc., a nonprofit, public corporation charged with the design, construction and operation of the Metropolitan Phoenix Valley's light rail system. RPTA bus service and METRO Light Rail services are now combined under one Valley Metro agency. For the purposes of this architecture, Valley Metro inventory items describe bus services and METRO Light Rail items describe Light Rail services.
Vehicle Subsystem	Covers ITS related elements on vehicle platforms such as automatic vehicle location equipment and operations capabilities for portable field equipment. Examples of this subsystem include maintenance and construction vehicles, public safety vehicles and incident response vehicles.