

# MAG Systems Management & Operations Plan

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# Travel Time Reliability through Systems Management & Operations

- ▶ Why develop SM&O
- ▶ SM&O focus on Operations
- ▶ Implementation
- ▶ Key Tasks
- ▶ Lessons Learned

# Why develop a SM&O Plan?



*Targeting regional funding resources toward high-priority investments identified in the SMO Plan, allocate resources in a systematic way toward system reliability, efficiency, and safety*



# SM&O Focus on Operations

By 2030: 24,500 miles of roadway  
35% growth from 2017

By 2050: 7.7 million population  
 current 4.55 million

*Agencies in the MAG region recognize that continuing to focus on building and expanding roads is not a sustainable solution, and will not meet the transportation system needs of the MAG region as it grows.*

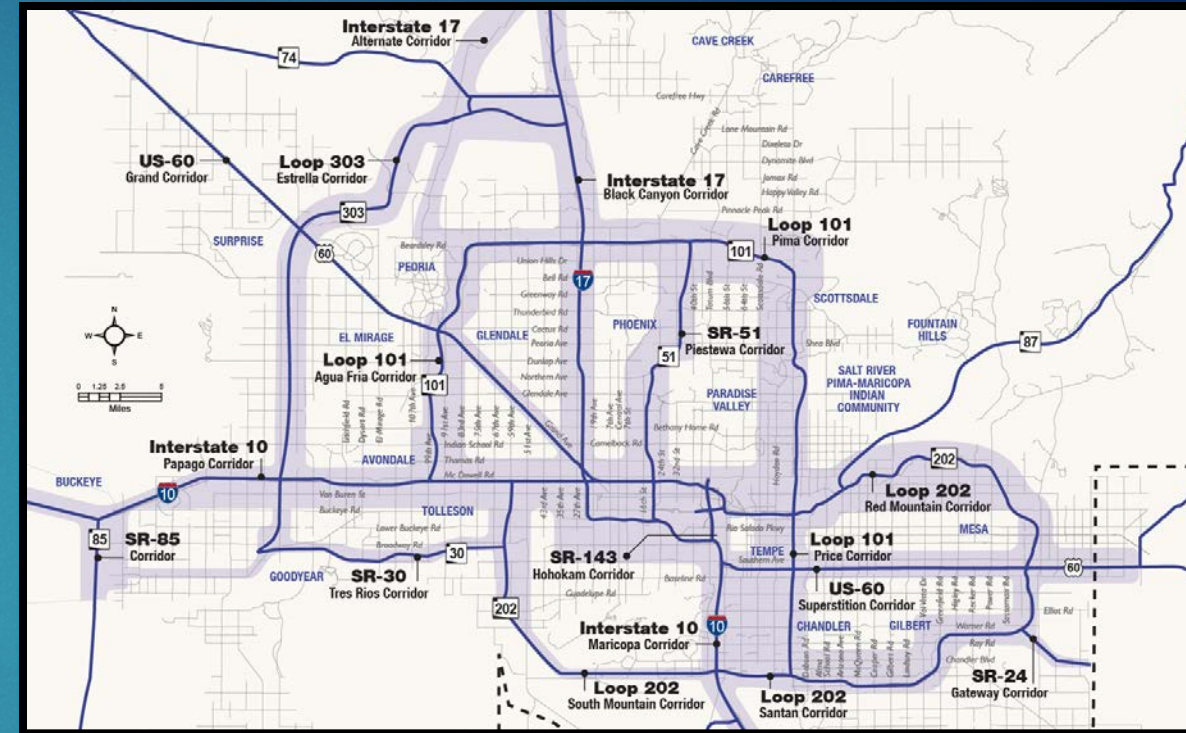
# Integrated Corridor Management

## PRIORITY INVESTMENT AREA #1:

- ▶ Key component of the SMO Vision
- ▶ Important operational objective
- ▶ Freeways & adjacent arterials

## BASE ICM CORRIDOR REQUIREMENTS

- ▶ Infrastructure, process and plans
- ▶ Staffing resources



# Priority Arterial Corridors

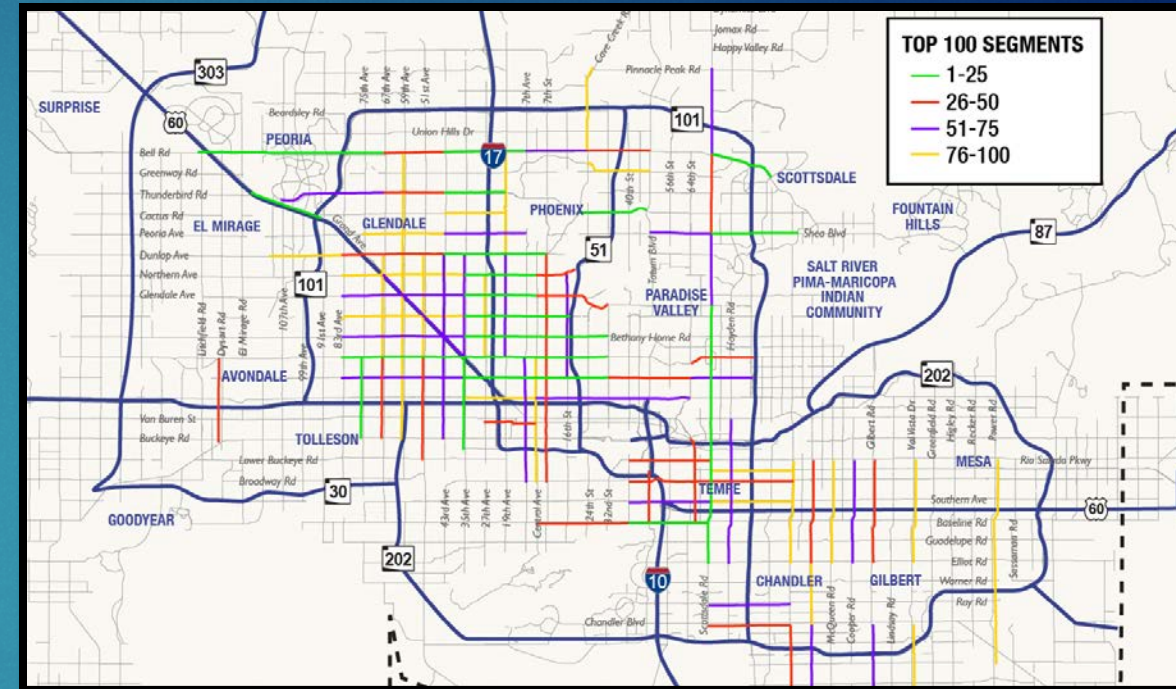
## PRIORITY INVESTMENT AREA #2:

### Level 1 Requirements

- ▶ Real-time visual monitoring
- ▶ Detection – operations & data collection
- ▶ Retiming of signals – Every 5 years

### Level 2 Requirements

- ▶ Expand monitoring
- ▶ Provide arterial travel times & traveler info
- ▶ Emergency Vehicle Preemption



# Other Priority Investment Areas

## #3 LOCAL PRIORITY CORRIDORS

- ▶ Local priorities for available funding
- ▶ TAG recommended for identified investments

## #4 REGIONAL OPERATIONS

- ▶ Programmatic support of operations vs. infrastructure
- ▶ Continues current operations investments
- ▶ New strategies



# Performance Measurement

- Metrics allow MAG to measure SMO program impacts → Proposition 400 extension
- Several reported on by SMO partners; Valley Metro & AZDPS

Investment Category	Performance Measure	Relevant Performance Metrics
Integrated Corridor Management	Incident Management	Freeway clearance time
		Annual number of secondary crashes
	Travel Time Reliability	95% planning time index
		Truck Travel Time Reliability (TTTR) Index
		Vehicle miles traveled (VMT)/year
	Corridor Throughput	Person throughput/year
		Transit route on-time performance
Safety	Total fatal and injury crashes/year	
	Annual crash rate	
Regional Priority Arterials	Travel Time Reliability	95% planning time index
		Vehicle miles traveled (VMT)/year
	Corridor Throughput	Person throughput
		Total fatal and injury crashes/year
		Annual crash rate
	Transit Mobility	Transit route on-time performance
		Transit ridership
Regional Operations Priorities	After-hours TMC Operations	Frequency of response to after-hours traffic incidents
	Freeway Service Patrol	Number of assists per year
	Traveler Information and Alerts	Travel time coverage (miles)
		Regional mobile application subscribers



# Implementation

## Phase 1 Funding Plan: 2020 through 2024

- ▶ Projects programmed in the MAG Transportation Improvement Program (TIP)
- ▶ Projects to be included in the MAG work program for 2020

Project Types	2020-2022 Cycle	Annual Funds
<b>ICM Strategies</b>	\$9.2M	\$3.06M
These projects will likely include detection, communication, CCTV on ICM corridors, data on ICM corridors		
<b>Priority Arterials</b>	\$9.6M	\$3.3M
These projects will focus on identified priority corridors - fill in gaps, integration, communications, signal timing, visual monitoring at all major-major intersections, data collection.		
<b>Upgrade Arterial Equipment</b>	\$10.2M	\$3.4M
These projects address lifecycle equipment upgrade needs on existing infrastructure - signals, detection, cameras, communications, integration. Priority should be given to ICM and priority arterials.		
<b>Local Priorities</b>	\$9M	\$3.0M
These funds are to support local priorities identified by agencies. Could include plans, non-priority corridors, TMC/ATMS enhancements, etc.		

# Project Overview/Key Tasks

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■ Project Management and Technical Oversight

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Best Practices in Urban Transportation Systems Management & Operations

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Current & Planned ITS Infrastructure

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Long Term Vision and Concept of Systems Management and Operations

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 Regional Priorities for SM&O Investments

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 Initial SM&O Implementation Plan

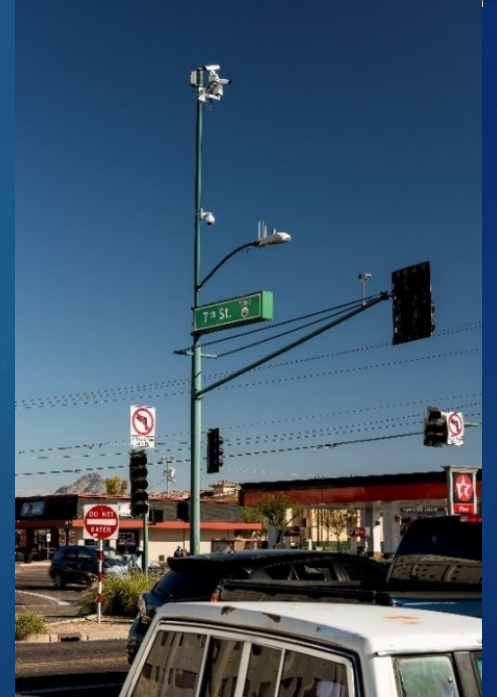
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Data Collection, Performance Measurement and Reporting Processes

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# Process to Establish Priority Regional Arterials

- ▶ Challenge:
  - ▶ Consensus on what constitutes a 'priority corridor'
- ▶ Process:
  - ▶ Establishing criteria and weighting to evaluate corridors
  - ▶ Data-driven and repeatable in future years
- ▶ Result:
  - ▶ Traffic Flow (VMT/mile), Safety/Congestion, Travel Time Reliability
  - ▶ All had equal weighting in the evaluation
  - ▶ Additional considerations: High capacity transit routes, freight corridors





# Lessons Learned from the Prioritization Task

- ▶ Data outputs don't always tell the full story
  - ▶ Corridors can be operationally challenging, even if the 'data' says otherwise
- ▶ Segments need to be manageable to capture operational challenges
  - ▶ Too long – issues get diluted
  - ▶ Too short – analysis becomes arduous
  - ▶ Start and end points needed to cross freeways and major intersections – these usually provide some important land use considerations
- ▶ Segments should be aggregated to arrive at meaningful corridors
  - ▶ Gaps in segments don't indicate a lack of operations priority
  - ▶ Projects will be ultimately be implemented on corridors, not segments





# SMO Strategy Implementation



- **Phase 1:** 2020 – 2024 (timeframe reaching the sunset of Proposition 400)
- **Phase 2:** 2025 – 2030 (timeframe for post-Proposition 400 and potential Proposition 400 extension)
- Post 2030



# Staffing and Workforce Needs for SMO

- ▶ Gap:

- ▶ Limited RECENT guidance on recommended staffing levels for operations
- ▶ Maintenance staff guidelines from ITE are a good start
- ▶ Limited guidance on technical positions to support TSMO – networking, data analysis, ICM requirements

- ▶ How We Addressed:

- ▶ Applying standard formulas resulted in significant staff shortages for ops and maintenance functions across the board
- ▶ Recommended concept for after-hours ICM pilot to determine local staffing needs for post-business hour operations
- ▶ Regional contract for fiber maintenance



Questions?