MAG Managed Lanes Network Development Strategy – Phase II Update

Transportation Policy Committee
April 20, 2016

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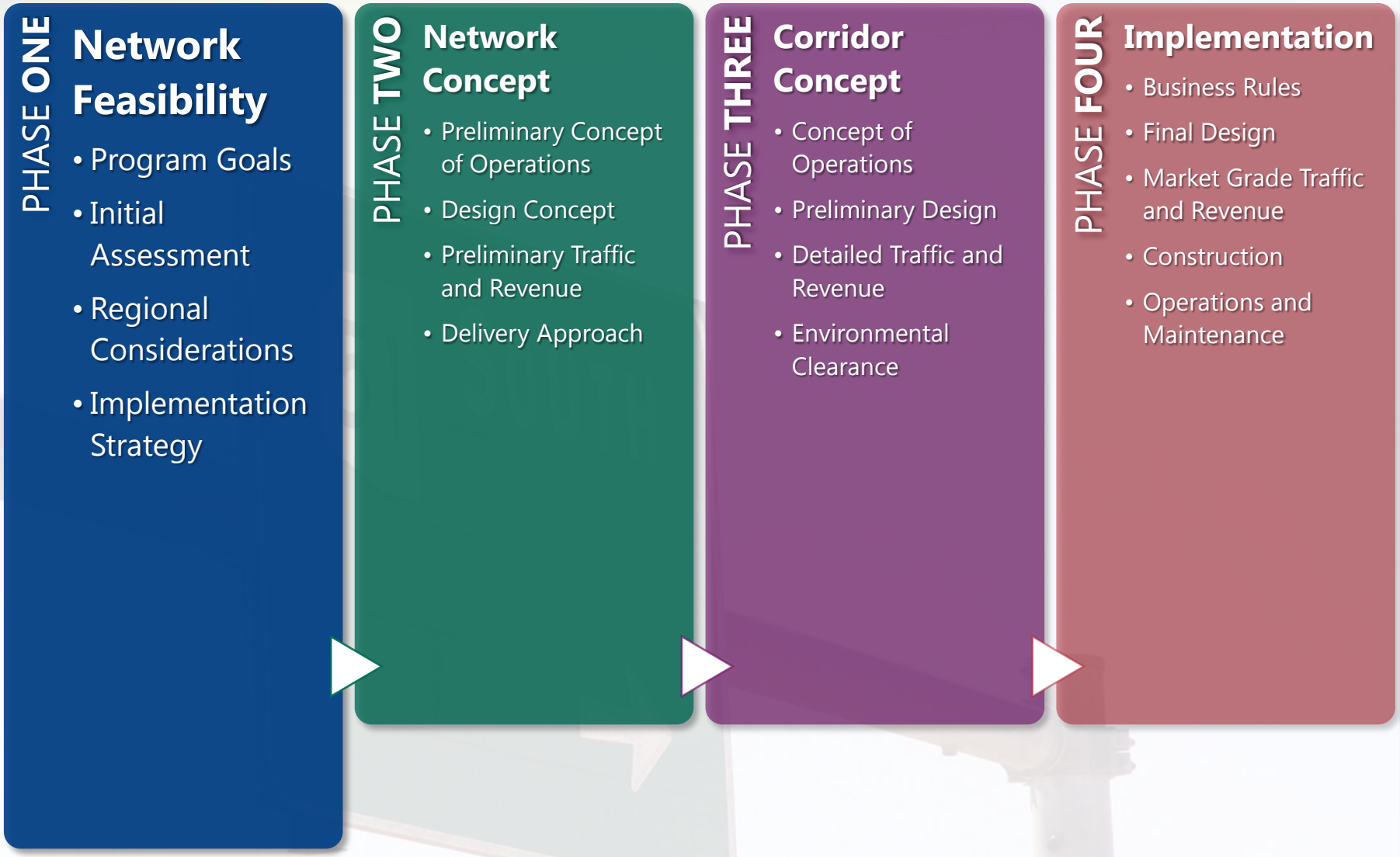
Southbound at Cactus Rd, Phoenix

MAG Managed Lanes Network Development Strategy

In part response to HB2396 enabling Public-Private Partnership (P3) opportunities in Arizona.



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Based on the findings, it is recommended that MAG and its key transportation partners actively pursue implementing a broad array of enhanced mobility options, including the use of **Managed Lanes**, **Congestion Pricing**, **Active Traffic Management**, and other similar innovative transportation solutions.

Develop a **unified branding** strategy for enhancing mobility in the MAG region to capitalize on the success of projects that focus on maximizing system performance and productivity.

Prioritize implementing an **Active Traffic Management demonstration on the I-10/Papago Freeway** to promote the benefits of integrated managed lanes strategies.

Determine **possible congestion pricing demonstration projects** to pursue as an initial proof of concept.

Use **guiding policies** to further enhance existing HOV operations or to facilitate the introduction of HOT operations on the regional freeway system.

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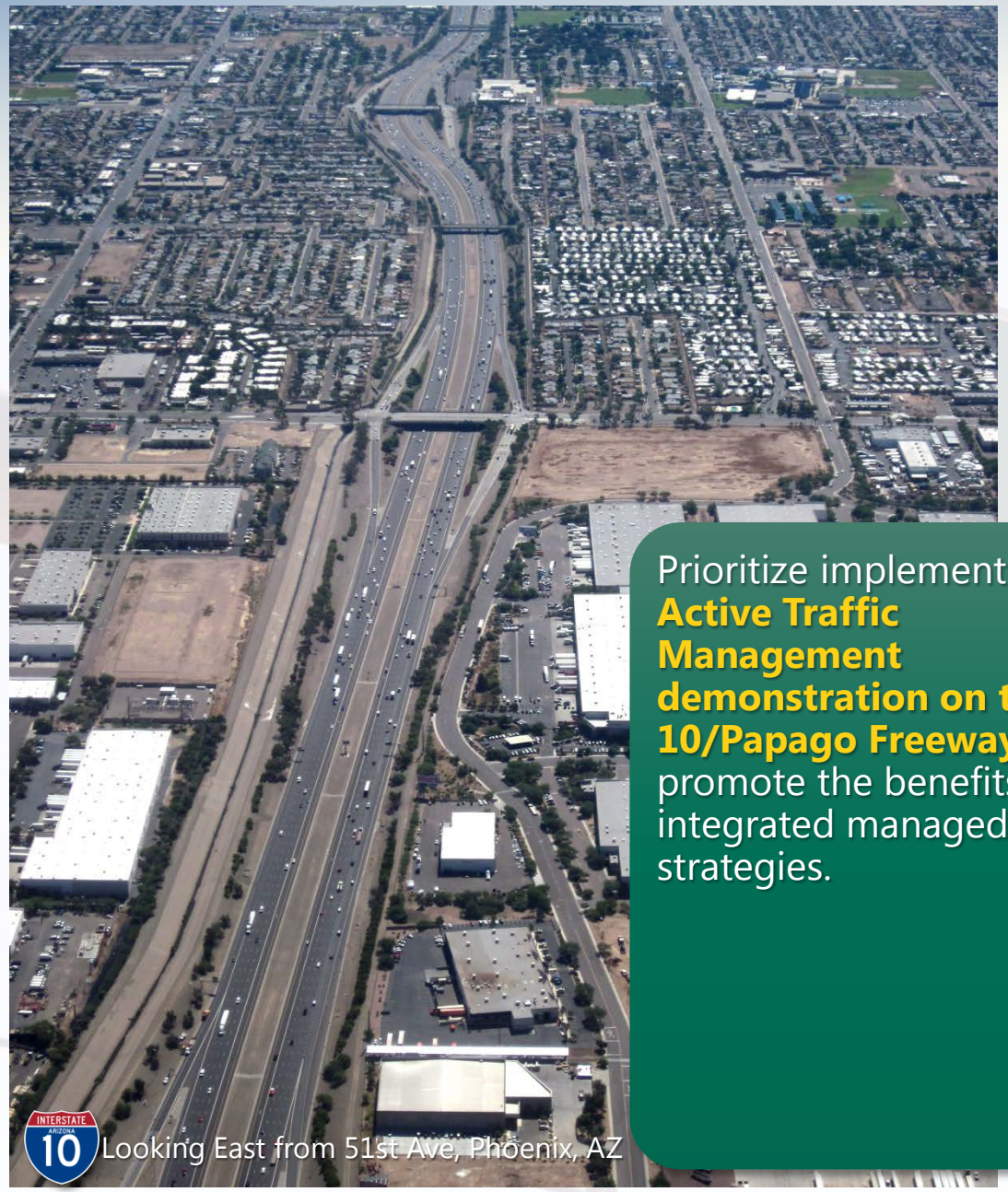

Looking East from 51st Ave, Phoenix, AZ

Prioritize implementing an **Active Traffic Management demonstration on the I-10/Papago Freeway** to promote the benefits of integrated managed lanes strategies.

- Active Traffic Management provides the lowest cost and least intrusive managed lanes solution.
- Active Traffic Management can afford meaningful traffic flow benefits in appropriate locations.

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ADOT

ARIZONA DEPARTMENT OF PUBLIC SAFETY

MARICOPA COUNTY ARIZONA

City of Phoenix

BUCKEYE ARIZONA

Goodyear ARIZONA

City of Avondale

VALLEY METRO

UNION PACIFIC BUILDING AMERICA

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Traffic Operations and ITS Enhancements

Active Traffic Management (ATM):

- Reducing potential for crashes when speed and conditions change.
- Reducing congestion with variable speed limits, lane control, and hard shoulder running.
- Improving reliability and enhancing information to motorists.
- Providing meaningful traffic-flow benefits at a relatively low cost.
- Coordinated with local communities.

Approaching West Seattle Freeway Exit 163, Seattle WA

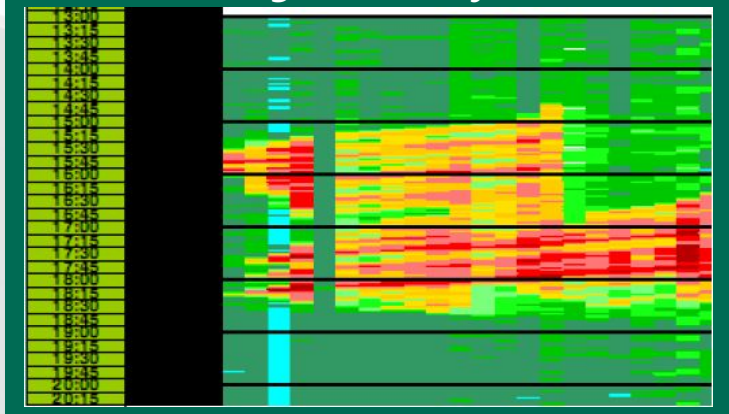
Traffic Operations and ITS Enhancements

Managed Motorways . . . Redefines urban freeways:

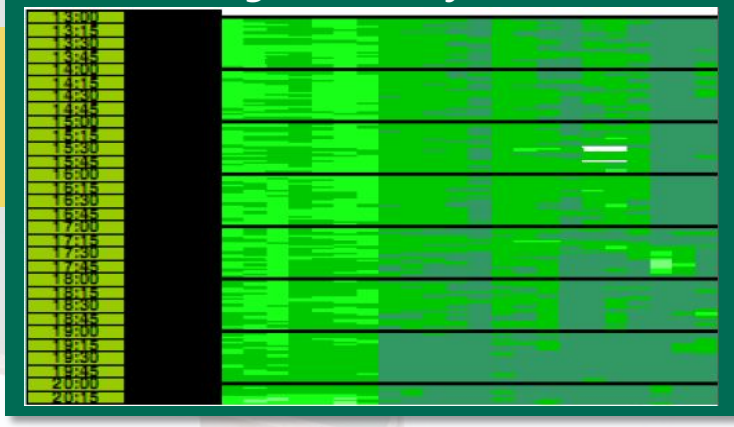
- Using integrated data collection sensors along the roadway.
- With that data, use advanced system management tools for traffic monitoring in real time.
- **Ensures higher and consistent level of freeway performance.**

M1 Managed Motorway Speed Contour Plots
(Evening Peak Period Monash Motorway Outbound)

Before Managed Freeways (2007)



After Managed Freeways (2010)



Legend
Speed Ranges (km/h)

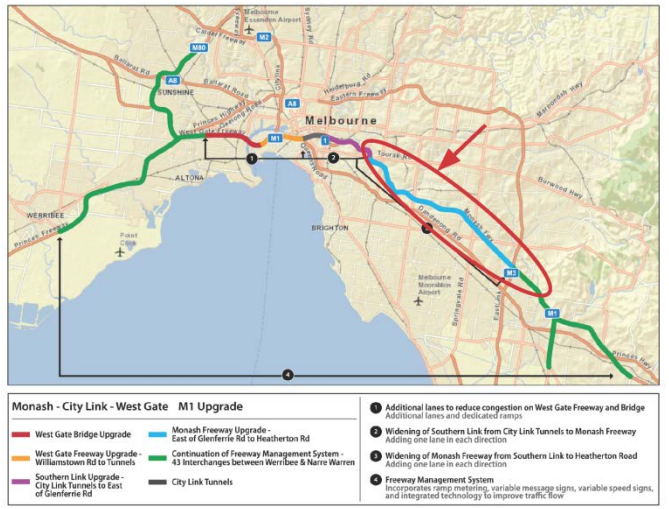
BIN	Low	High	LEGEND	INDEX
1	1	10	001 - 010	17
2	11	20	011 - 020	18
3	21	30	021 - 030	19
4	31	40	031 - 040	20
5	41	50	041 - 050	21
6	51	60	051 - 060	22
7	61	70	061 - 070	23
8	71	80	071 - 080	24
9	81	90	081 - 090	25
10	91	100	091 - 100	26
11	101	110	101 - 110	27
12	111	999	111 - 999	28

Source: VicRoads

M1 Motorway Improvements

- Project Started in 2009.
- 2011 Findings from Infrastructure Australia study on specific Managed Motorways benefits on ramp metering:
  - Increase of 13-26 percent in travel speed;
  - Increase of 5-30 percent increase in traffic throughput; and
  - **Reduction of 15-30 percent in road crashes.**

Performance Indicators	Inbound Morning Peak Hour			Outbound Evening Peak Hour		
	2007	2013	Diff	2007	2013	Diff
Traffic Flow (vehicles per hour per lane)	1,476	1,755	+19.0%	1,402	1,627	+16.0%
Travel Speed (miles per hour)	**39.0**	**46.1**	**+19.0%**	**36.0**	**46.0**	**+27.8%**



M1 Corridor:

- 47-mi Length.
- Carries 160,000 vehicles per day.
- Carries 18,000 trucks per day.
- Six- to Eight-lanes.

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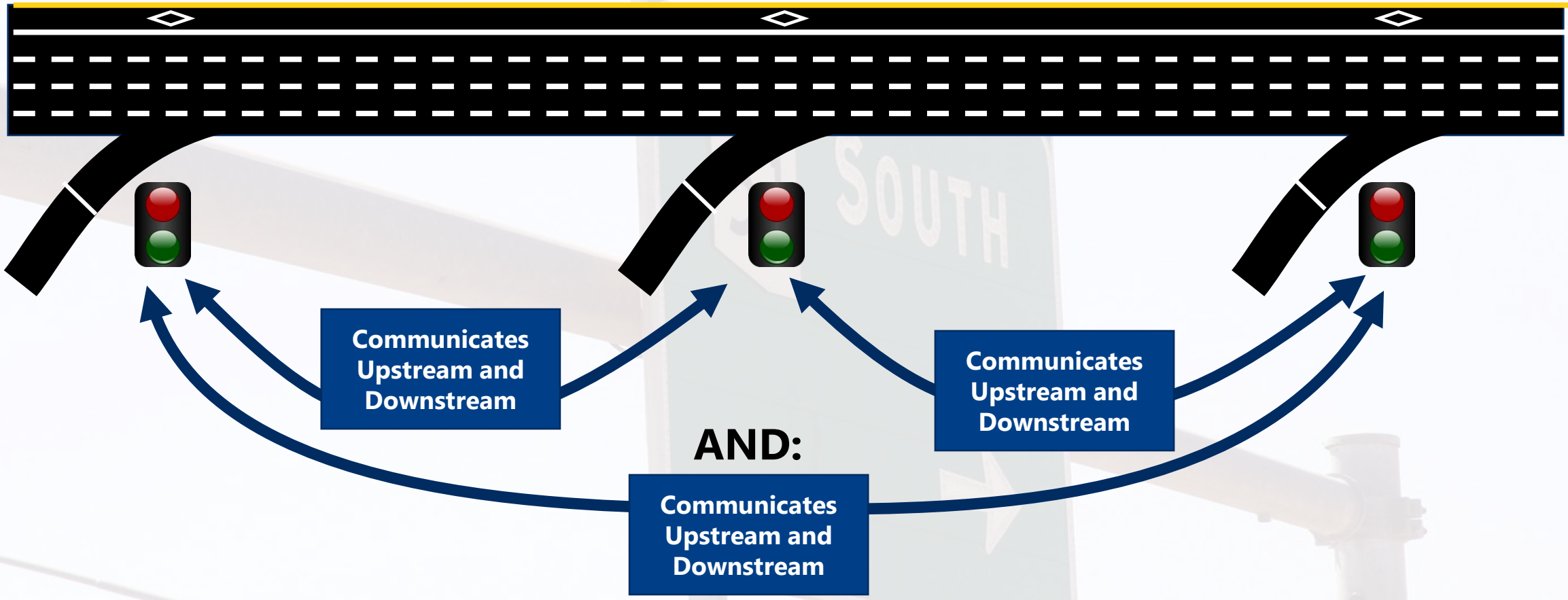
How it Works . . .

EVERY 20-SECONDS!



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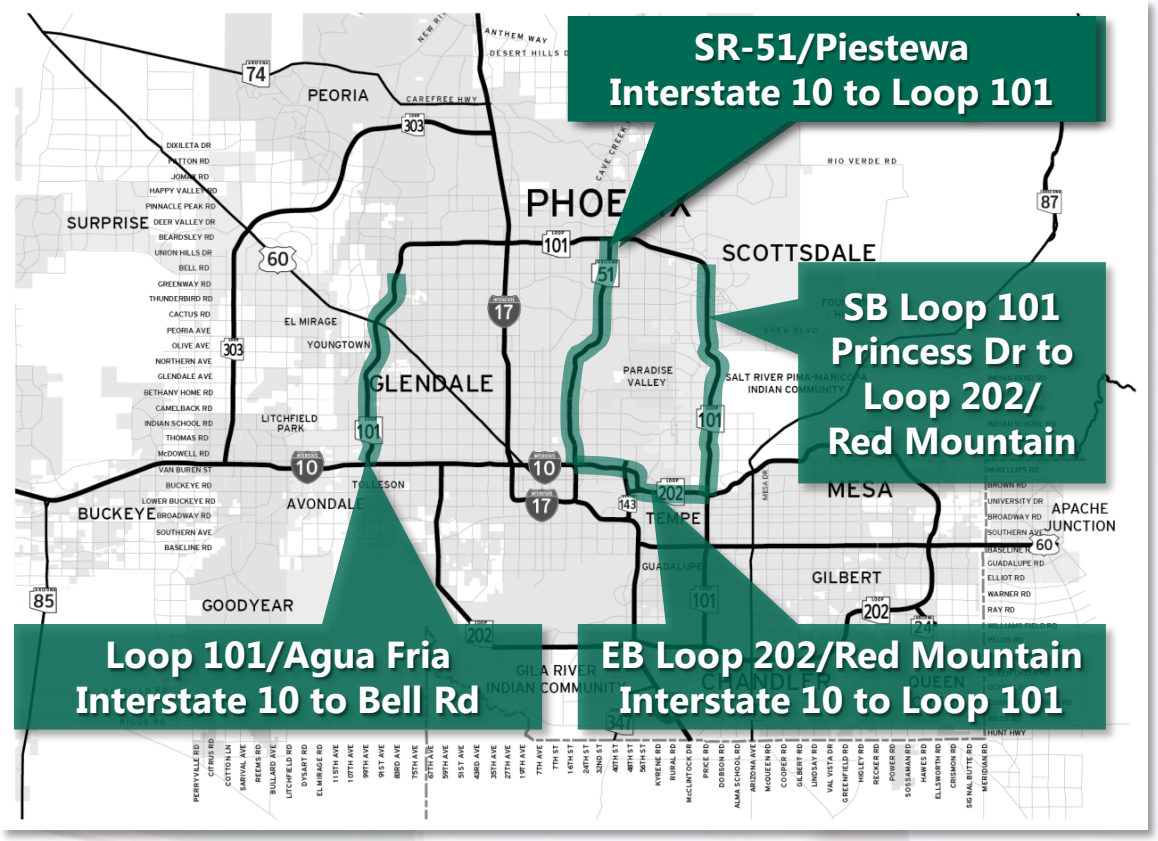
Metropolitan Phoenix Corridors Considered

Criteria

- Presence of substantial periods of recurring congestion during peak periods.
- No at-grade intersections with signalization.
- No corridor under active traffic management consideration.
- Definable project limits.

Candidate Corridors

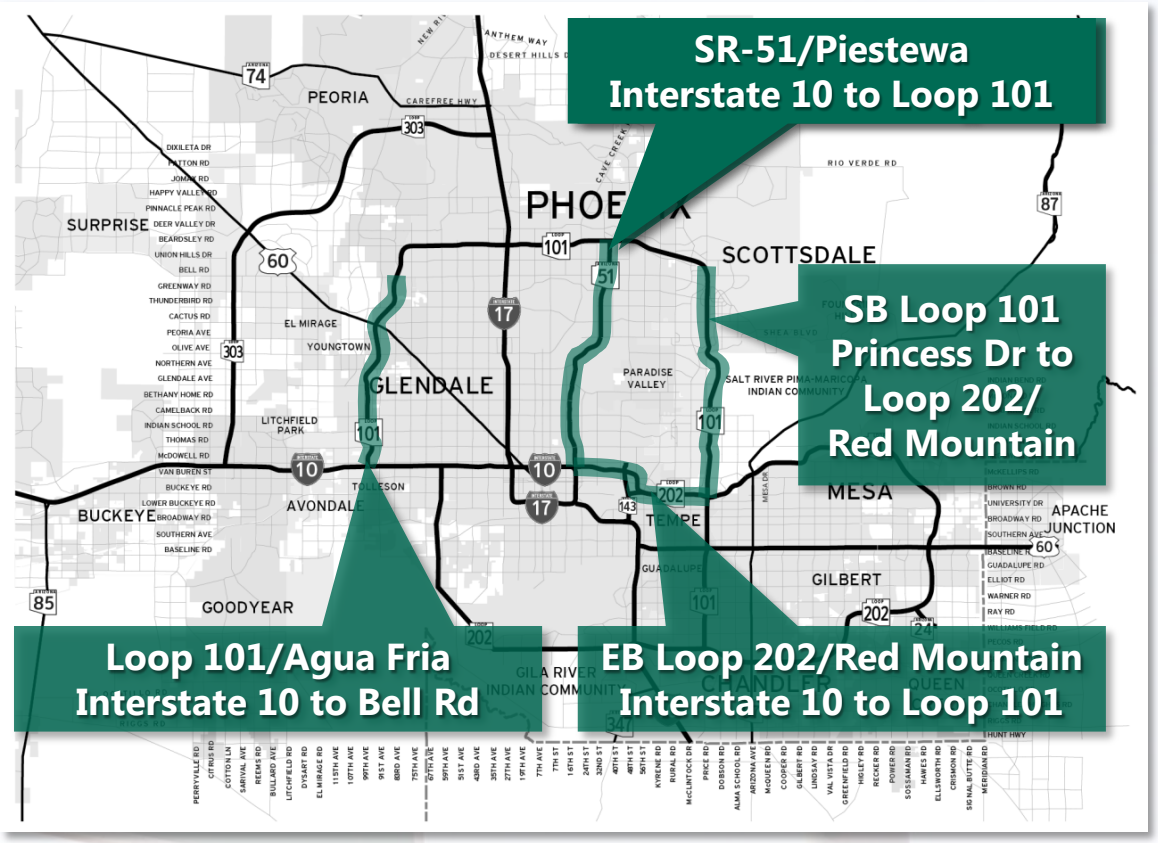


Metropolitan Phoenix Corridors Considered

Further Screening

Freeway	Segment	Ramp Length	Ramp Width	Existing Meters	Existing Const.
Loop 101/ Agua Fria	Interstate 10 to Bell Rd	Good	Fair	Poor	None
SR-51/ Piestewa	Interstate 10 to Loop 101	Good	Fair	Good	None
Southbound Loop 101/ Pima	Princess Dr to Loop 202/Red Mountain	Good	Fair	Good	▲
Eastbound Loop 202/ Red Mountain	Interstate 10 to Loop 101	Good	Fair	Fair	None

Candidate Corridors



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SR-51 Recommendation

- Mainline Conditions and Corridor Assessment developed.
- Corridor technology (with assistance from VicRoads staff) and ADOT Staff resources also reviewed.
- Recommendation for conceptual design of pilot program along Southbound SR-51 initially.
  - Provide for additional instrumentation.
  - Use software from VicRoads to test pilot through cloud computing.
  - Pilot demonstration **cost opinion of $7.1 million**.

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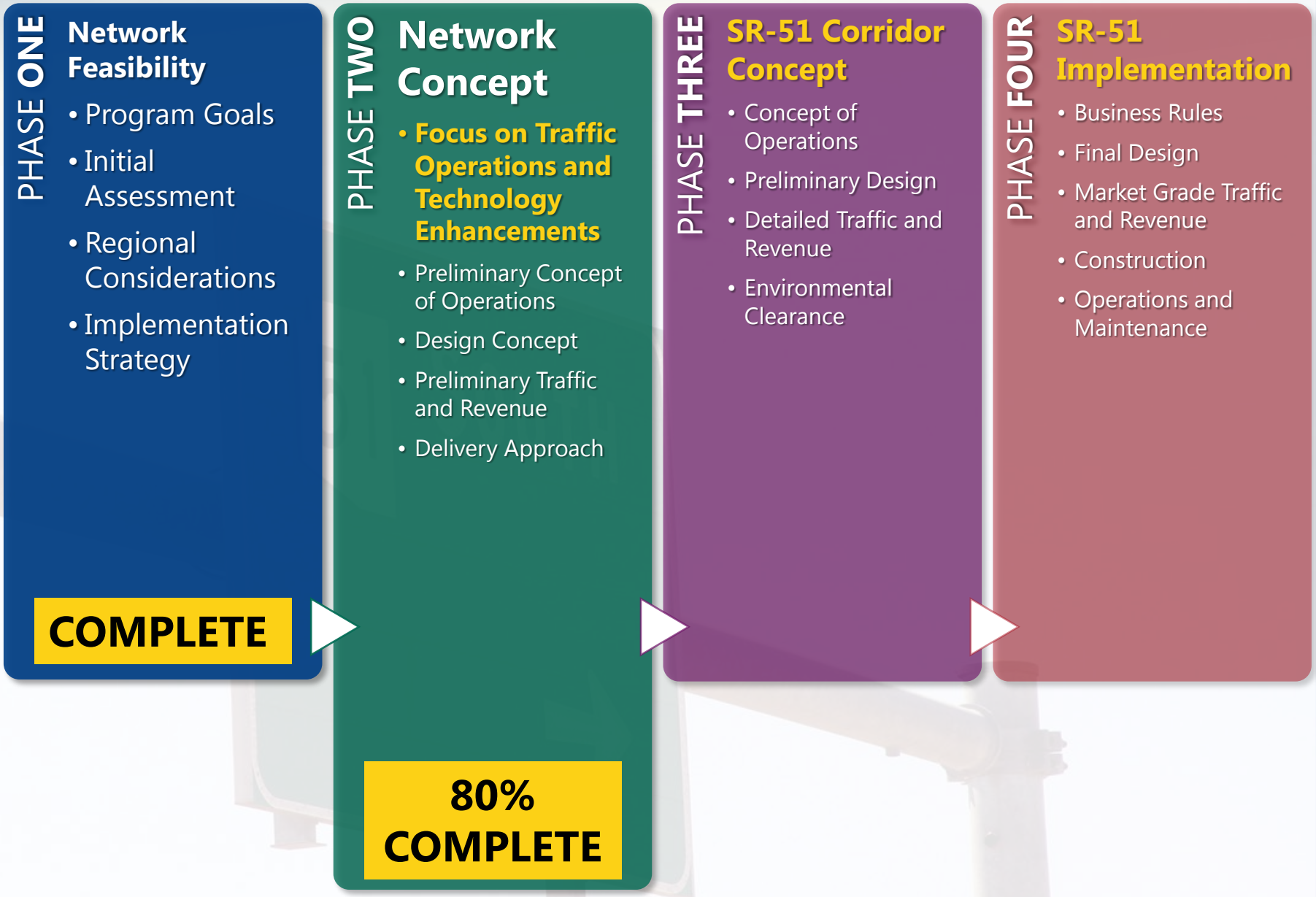

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