



MAG MANAGED LANES NETWORK DEVELOPMENT STRATEGY - PHASE I

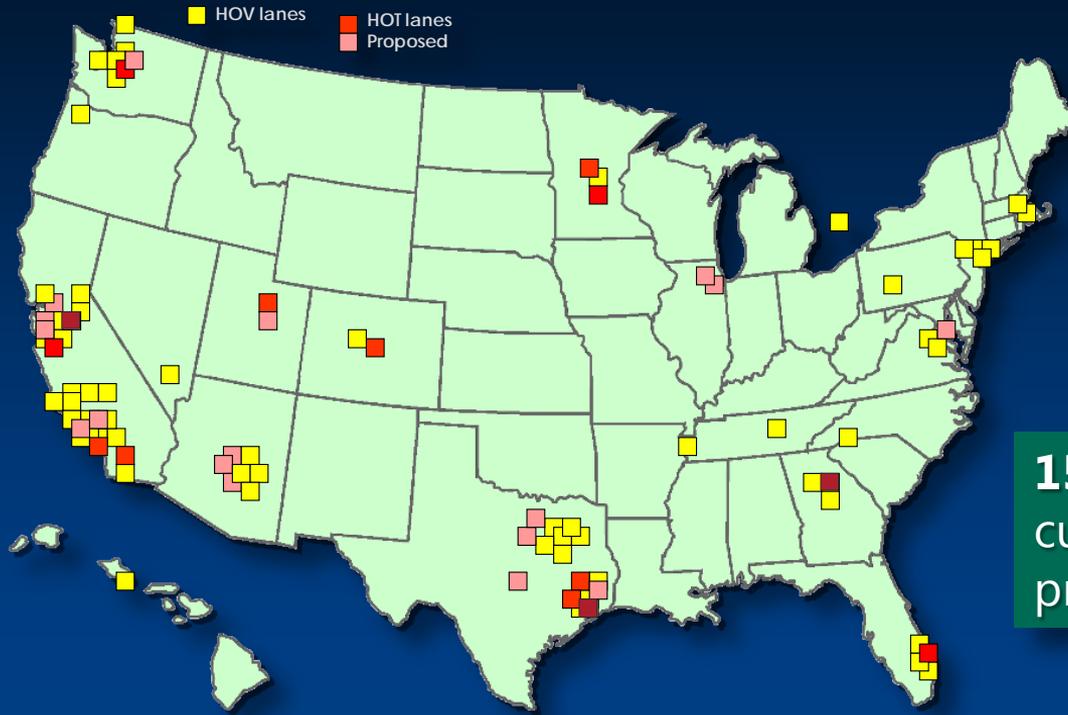
Transportation Policy Committee
April 18, 2012

Managed Lanes Concept

- Many names:
 - High-Occupancy Vehicle (HOV) lanes
 - High-Occupancy Toll (HOT) lanes
 - Express Lanes
 - Express Toll Lanes (ETL)
 - Value Priced Lanes
- Names and branding vary by region and reflect different strategies:
 - Free-to-Go Lanes
 - Sane Lanes
 - MnPass Lanes
 - FastLanes



Lane Management Strategies



15 projects in U.S. currently use pricing

Overview of the Study Effort

MAG MANAGED LANES NETWORK DEVELOPMENT STRATEGY – PHASE I

- First phase in the project development process:
 - Will determine network feasibility and implementation strategy.
 - Establish the “rules of the game.”



Overview of the Study Effort

MAG MANAGED LANES NETWORK DEVELOPMENT STRATEGY – PHASE I

- Project will be finished by later this year (2012).
- Stakeholder involvement at key milestones.



We are Here

Planning Papers

- Project Goals and Objectives
- Legal and Regulatory Issues
- HOV Hours of Operation
- HOV Separation Treatment
- HOV Occupancy
- Access Treatments
- Pricing and Tolling Methods
- Procurement and Financing
- Active Traffic Management and Managed Freeways



Project Goals and Objectives

Goals	Objectives
Improved Mobility	<ul style="list-style-type: none">▪ Reduce travel times and improve travel time reliability▪ Manage travel demand and traffic congestion▪ Improve/maximum existing system infrastructure▪ Maximize use of technology▪ Increase capacity▪ Provide mobility options▪ Improve transit service options, efficiency and reliability
Revenue Alternatives	<ul style="list-style-type: none">▪ Leverage existing revenue sources▪ Access new/alternative revenue sources▪ Accelerate project delivery to complete the system▪ Support ongoing operations and maintenance▪ Support transit service provision▪ Better plan future investments
Public and Political Support	<ul style="list-style-type: none">▪ Support public education and outreach▪ Identify/foster political champions▪ Facilitate equitable distribution of costs whereby users pay for what they use
Improved Environmental Quality	<ul style="list-style-type: none">▪ Provide air quality benefits▪ Enhance quality of life

Legal and Regulatory Issues

- Public-Private-Partnership (P3) authority provides considerable opportunity . . . **balance private participation against identified transportation goals.**
- If P3 is not pursued, then legislative action required to allow a public entity to toll.



Legal and Regulatory Issues

- Other issues to consider:
 - Legislative authority to toll.
 - User fees versus taxes.
 - Tolls on federally-funded facilities.
 - Toll discount programs.
 - Interstate Commerce issues.
 - Rate setting.
 - Toll enforcement.
 - Data privacy concerns.



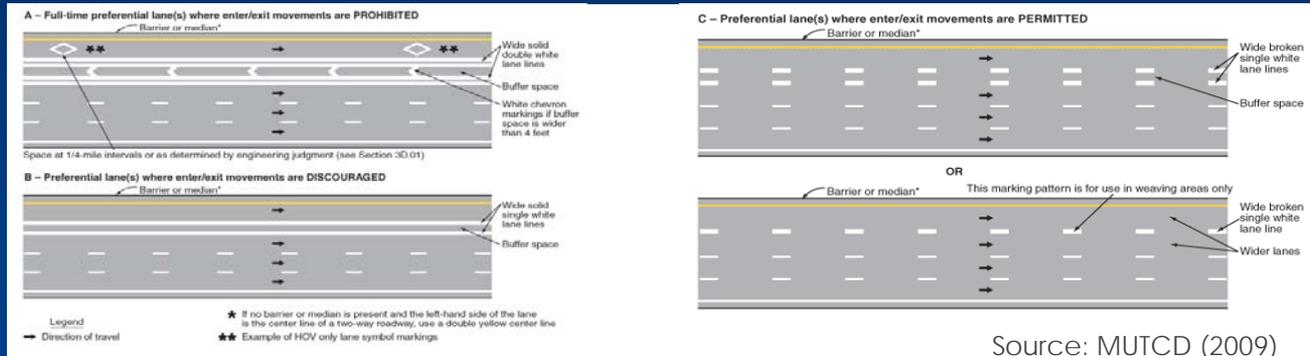
Hours of Operation

- Expand hours of operation to ensure time savings and reliability throughout more of the day:
 - Initially expand peak hours of operation:
e.g., 5:00 AM to 10:00 AM; 2:00 PM to 7:00 PM.
 - Establish performance thresholds for expanding to daytime and weekend hours of operation:
e.g., 5:00 AM to 9:00 PM.
 - Any change in hours of operation will require extensive public outreach and analysis to explore potential impacts to traffic.
- Ensure regional consistency to promote familiarity and support for managed lanes.



Lane Separation

- Continue current HOV lane separation techniques in conjunction with managed lanes:
 - Primarily utilize a combination of painted line and painted buffer lane separation.
 - Barrier separation where elevated segments (including DHOV) or contraflow are involved.
- Begin modifying existing HOV markings to reflect MUTCD:



Source: MUTCD (2009)

Occupancy Requirements

- Maintain existing occupancy requirement of two or more persons per vehicle (2+) during initial deployment of HOT:
 - Permit eligible carpools to use managed lanes facilities toll-free.
- Require all managed lanes users to carry a transponder with switchable settings to declare carpool status:
 - Simplify enforcement while ensuring flexibility to adjust over time.
- Ensure regional consistency in occupancy requirements:
 - Possibly utilize different uniform occupancy requirement for all regional HOV facilities compared to regional HOT facilities.



Access Treatments

- Utilize near-continuous access design and operations:
 - Maintain **consistency** with the current continuous access for the region's HOV lane system.
 - Afford operational, enforcement and toll collection benefits of restricted access in strategic locations.
 - Traffic conditions and other design, operational and cost considerations will determine specific segments for limited access.



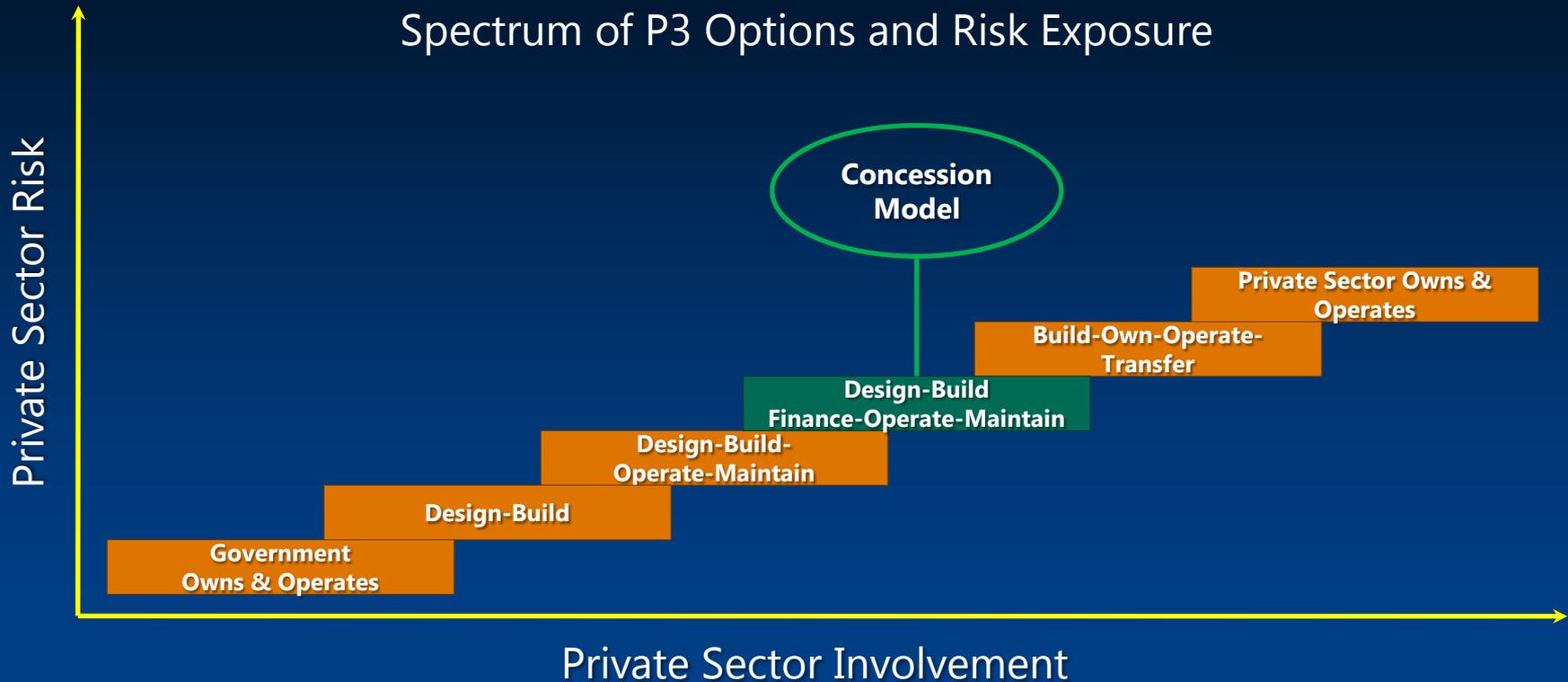
Pricing Methods

- Utilize variable pricing to manage lanes based on levels of congestion within segments of each facility.
 - Fixed-schedule variable pricing provides predictability for users.
 - Dynamic variable pricing can better adjust for real-time demand.
- Calculate tolls on a per mile basis but communicate toll rates to customers per-segment:
 - Utilize per-facility pricing for full length trips on multi-segmented corridors.



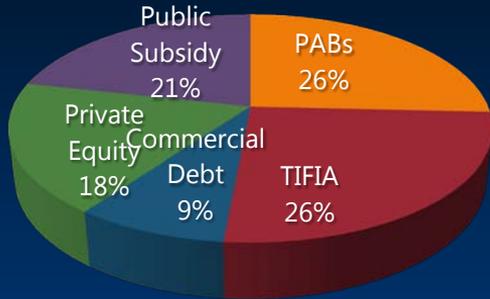
Procurement and Financing

Spectrum of P3 Options and Risk Exposure



Procurement and Financing

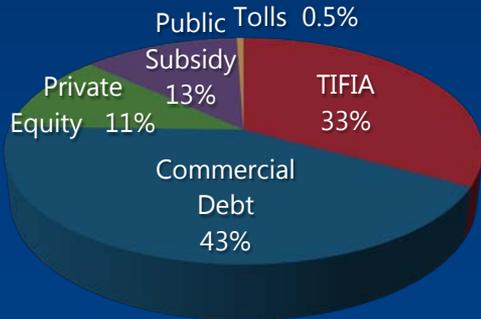
Capital Beltway HOT Lanes \$1.9 billion, 85 years



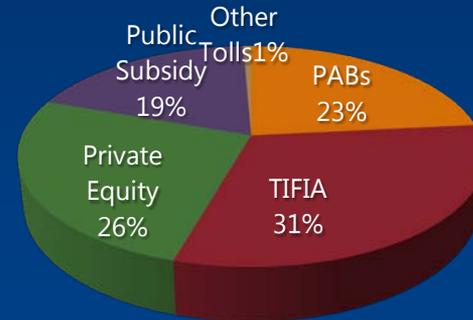
North Tarrant Express \$2.0 billion, 52 years



I-595 HOT Lanes \$1.8 billion, 35 years



LBJ Managed Lanes \$2.6 billion, 52 years



What is Active Traffic Management?

- Traffic management concepts intended to:
- Enhance roadway safety.
- Reduce congestion:
 - Variable speed limits and lanes control primarily non-recurrent.
 - Hard shoulder running primarily recurrent.
- Provide reliable trips.
- Provide enhanced information to motorists.
- Provide additional capacity during periods of congestion or incidents.



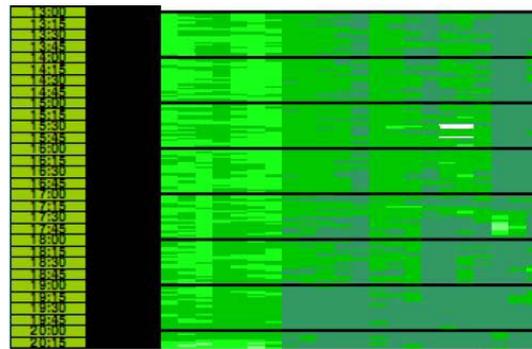
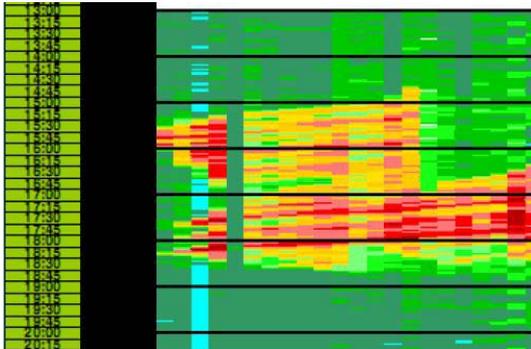
M-42 speed harmonization and hard shoulder lane in England.

Source: UK Highways Agency

Managed Freeways

- Managed freeways aim to minimize turbulence in traffic flows:
 - Integrated system ensures components work together to sustain traffic flows.
 - Bottlenecks can be substantially eliminated.

M1 Managed Motorway Speed Contour Plot (PM Peak Period Monash Motorway Outbound)
 Before Managed Freeways (2007) After Managed Freeways (2010)

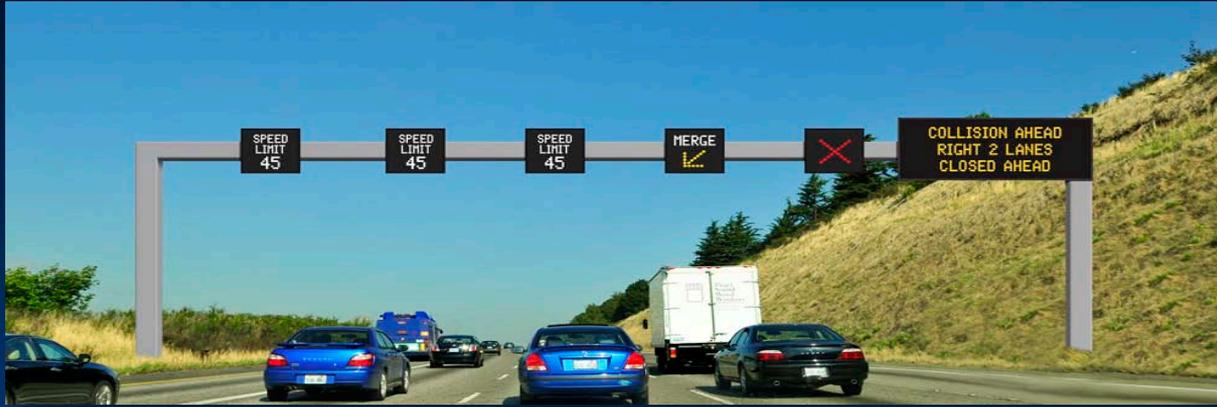


Legend
 Speed Ranges (km/h)

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

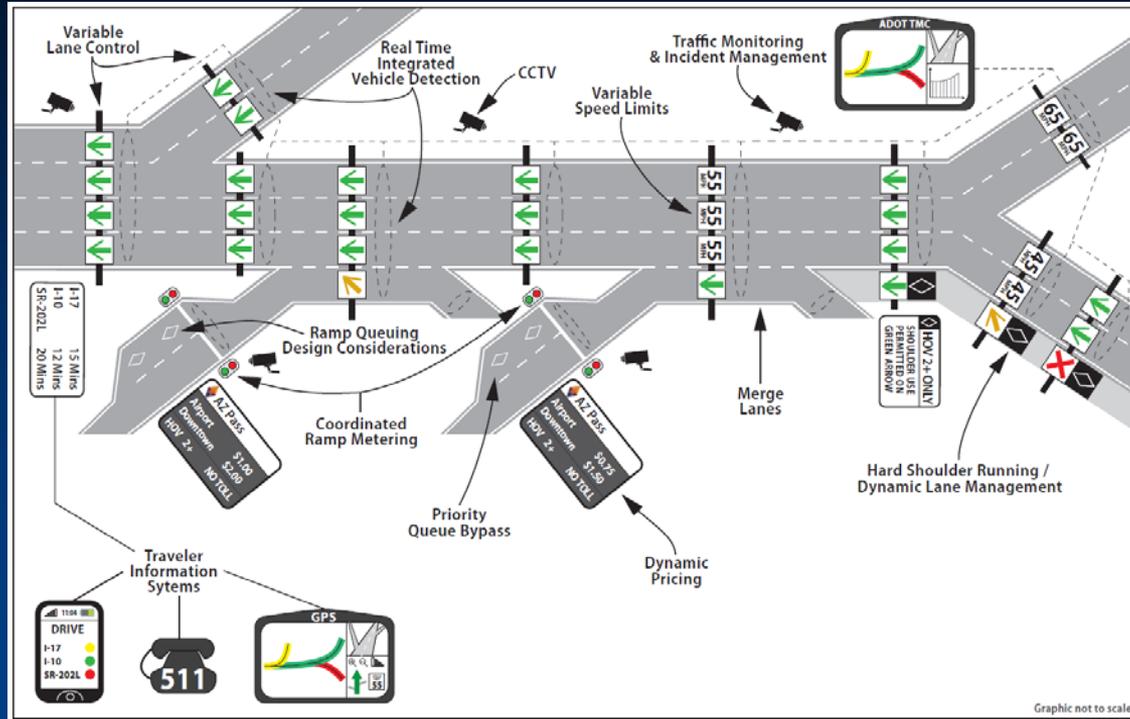
Source: VicRoads

WSDOT's Smarter Highways



- Variable speed limits, lane control, traveler information.
- Reduce speeds approaching congestion, crashes, work zones.
- Warn motorists of downstream queues.
- Display which lanes are open, closed, and closed ahead.

Managed Freeways

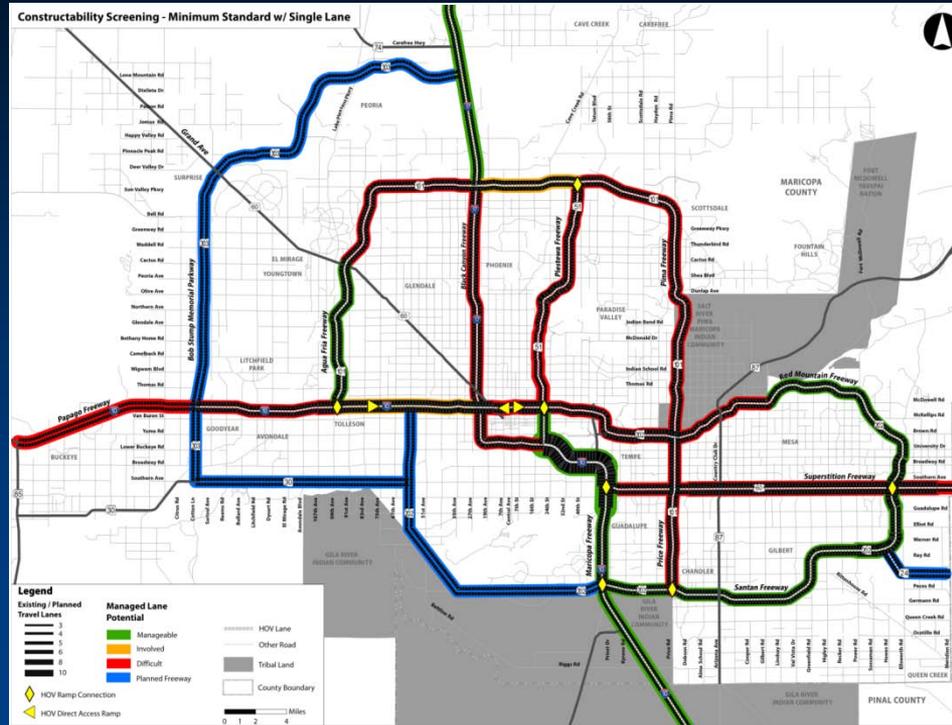


Screening for Alternatives

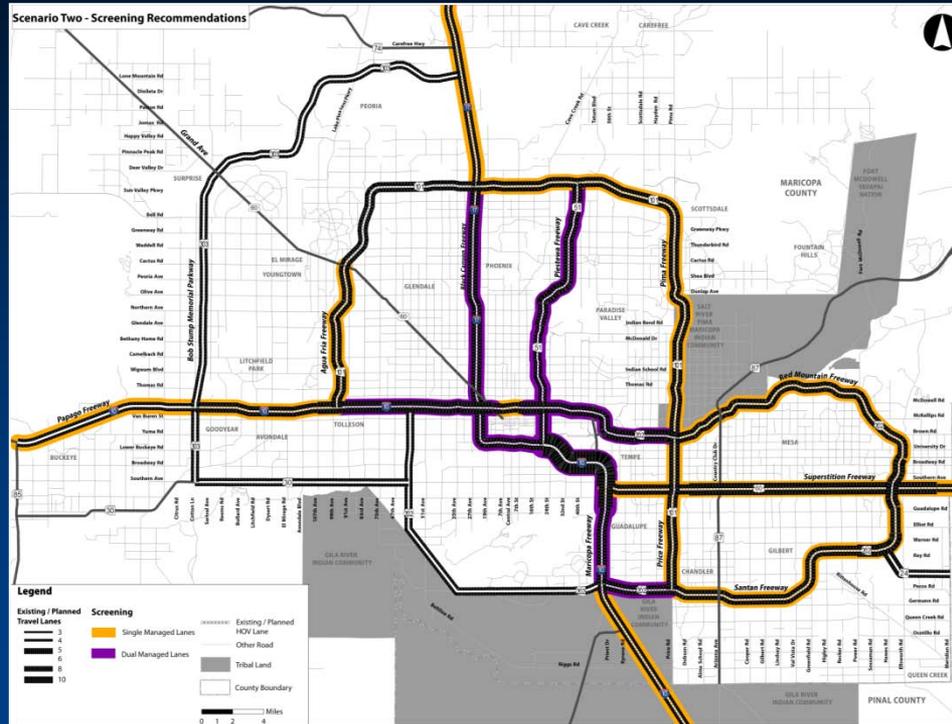
- Two scenarios to be analyzed in more detailed for toll and revenue:
 1. Full deployment of the Regional Transportation Plan Freeway and Highway Program through 2031 with conversion of HOV lanes to managed lanes.
 2. Integrating both single and dual managed lanes facilities based on the findings of the screening evaluation.



Tier 1 Screening - Constructability



Scenario 2 - Screening Recommendations



Next Steps

MAG MANAGED LANES NETWORK DEVELOPMENT STRATEGY – PHASE I

- Conduct toll and revenue forecasting for managed lanes network scenarios
- Coordinate policy market research with MAG staff
- Stakeholder Workshop to review screening results
- Recommend managed lanes options

Task		Months After NTP								
		1	2	3	4	5	6	7	8	9
1	Initiate Project	* ♦								
2	Initial Assessment									
3A	Policy and Practice Considerations									
3B	Financial Feasibility				* ♦	* ♦	* ♦			
4	Implementation Strategy								* ♦	
5	Document Project									* ♦

* Study Review Team Meeting ♦ Stakeholder Workshop





MAG MANAGED LANES NETWORK DEVELOPMENT STRATEGY - PHASE I PROJECT

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