



MAG MANAGED LANES NETWORK DEVELOPMENT STRATEGY - PHASE I

Management Committee

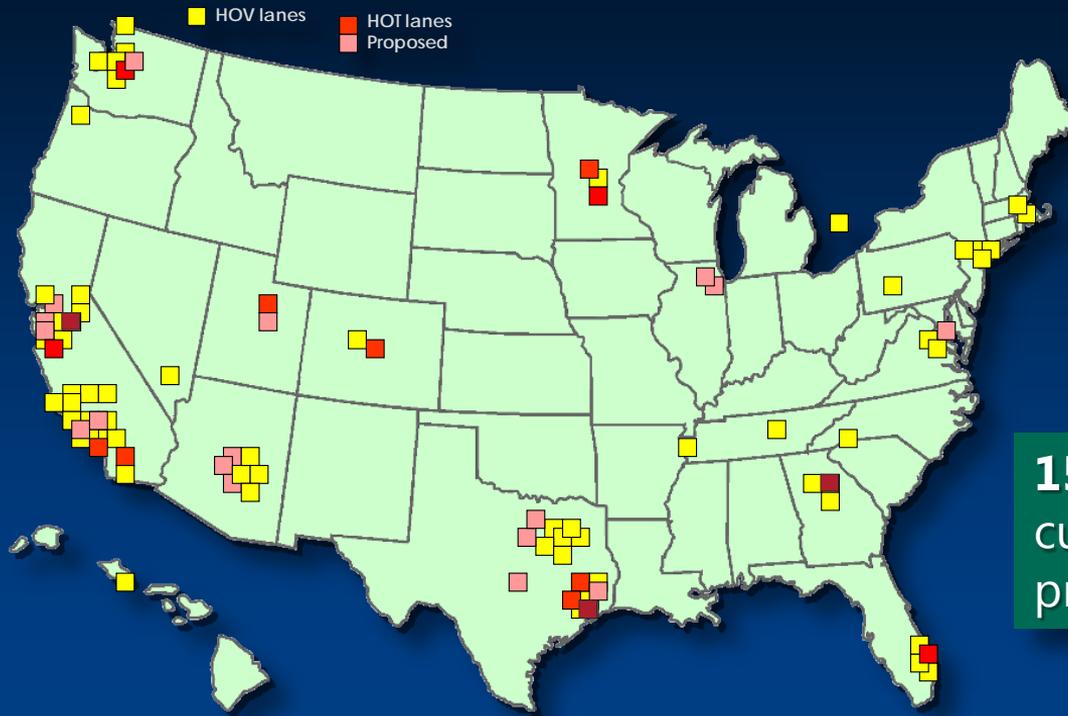
June 13, 2012

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



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. <ul style="list-style-type: none"> ▪ 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. <ul style="list-style-type: none"> ▪ 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.

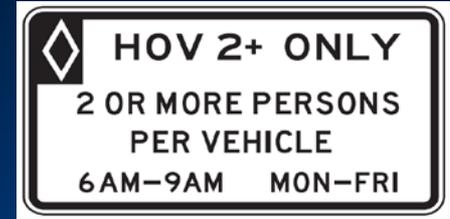
Legal and Regulatory Issues

- 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.



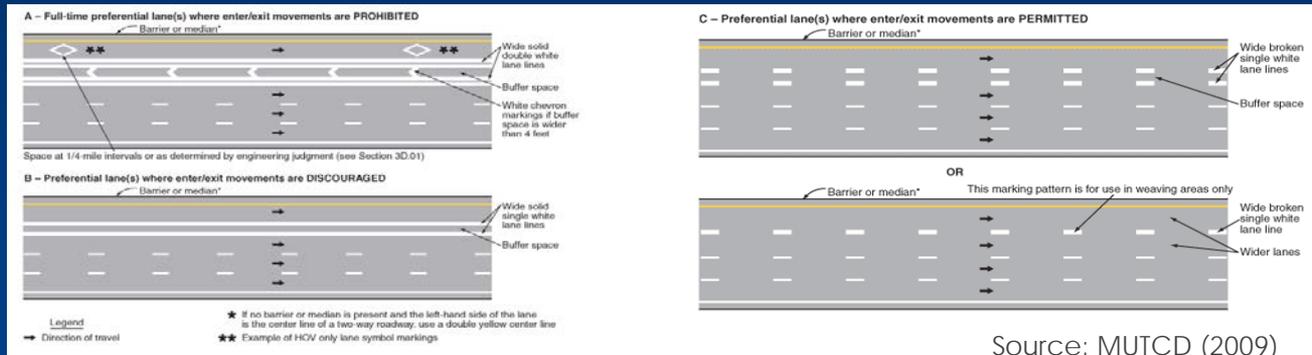
Hours of Operation

- 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 lane 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.



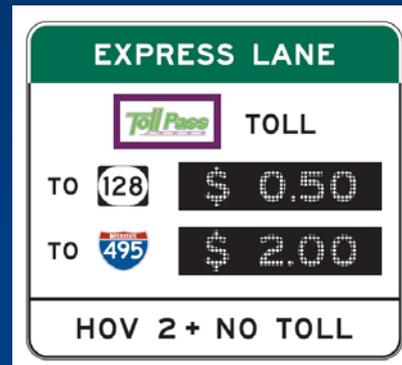
Access Treatments

- 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.



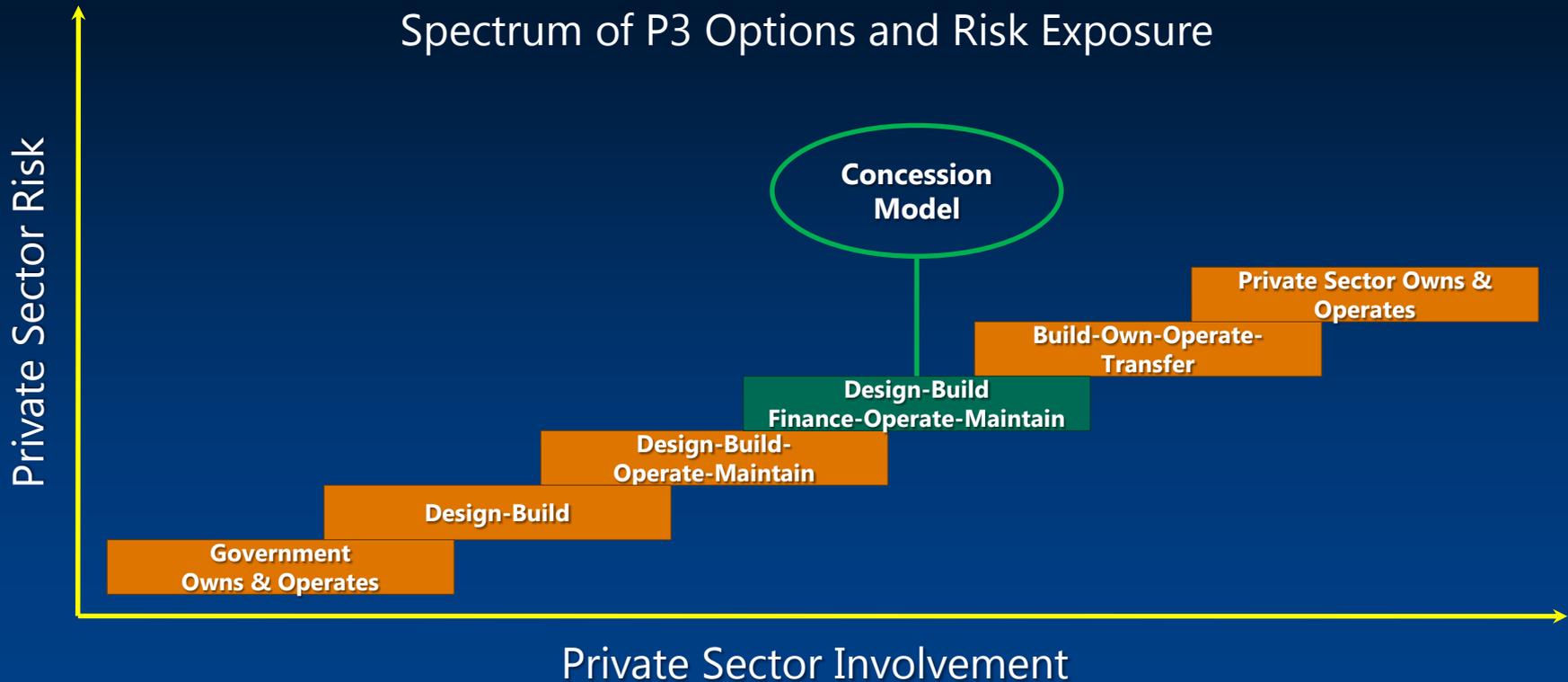
Pricing Methods

- 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



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.



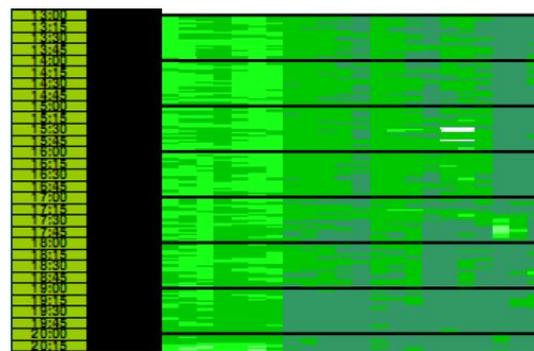
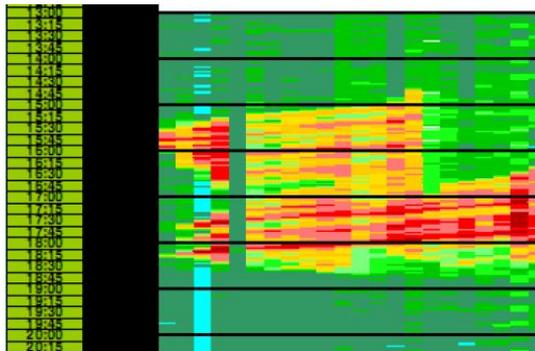
M 42 speed harmonization and hard shoulder lane in England.

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)

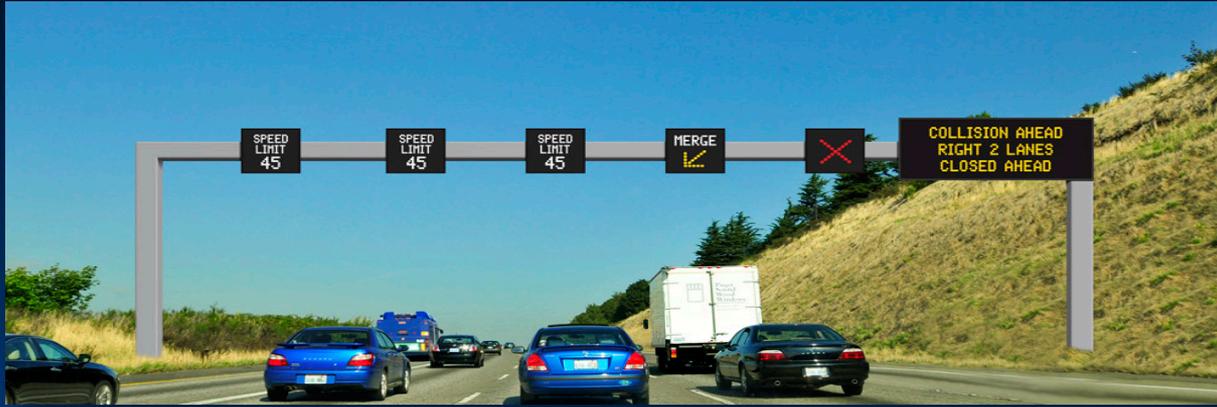


Legend
 Speed Ranges (km/h)

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

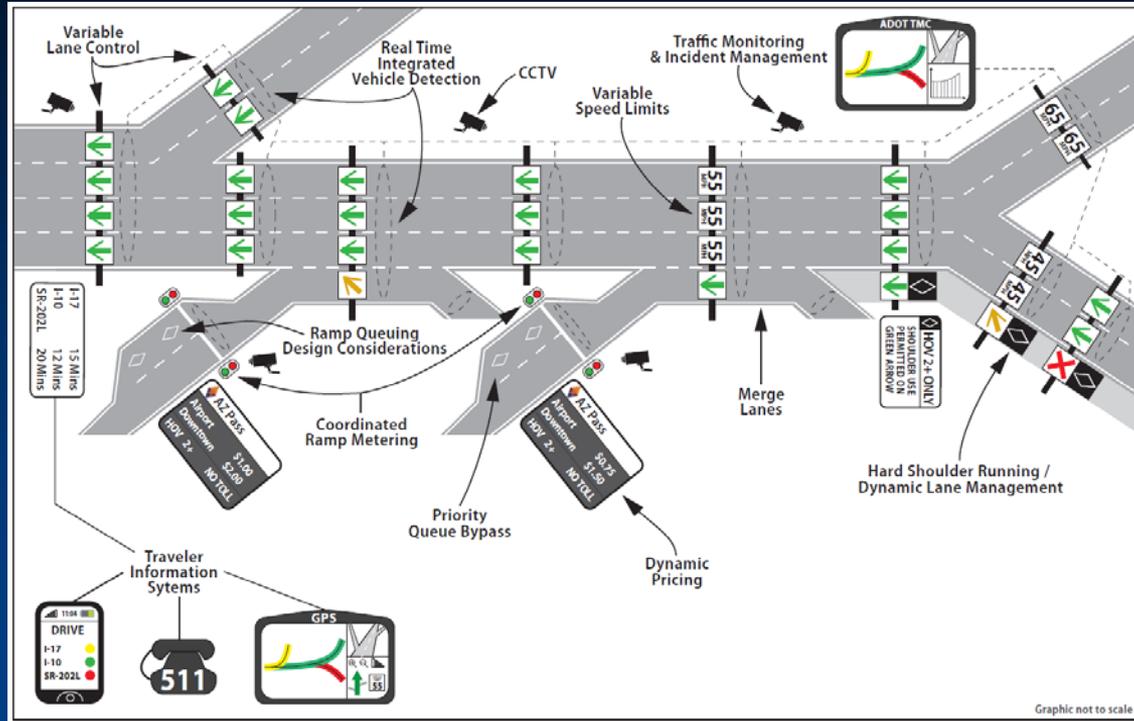
Source: VicRoads

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

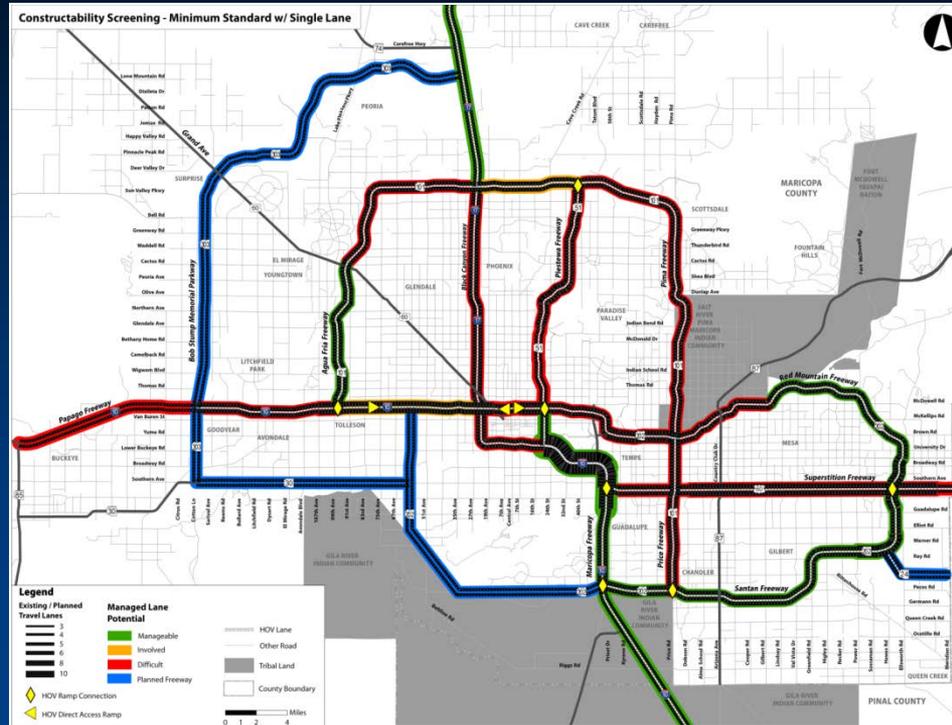


Screening for Alternatives

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



Tier 1 Screening - Constructability



Next Steps

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- 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.





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