

MANAGED LANES

Weaving Recommendations for Managed Lanes

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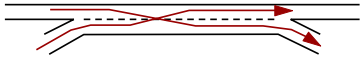


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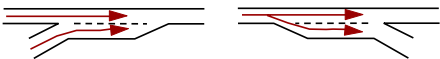

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Weaving Issues

- Weaving within managed lanes



- Merging and diverging

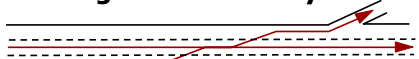



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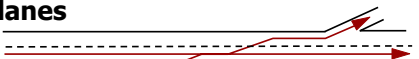

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Weaving Issues (continued)

- Weaving across freeways



- Weaving within general purpose lanes





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Guidance from Manuals

- Weaving distance minimum of 500' per lane
 - HOV Guidelines for Planning, Design and Operations, Caltrans, 1991
- Weaving distance per lane 500' minimum, 1000' desired
 - HOV Facilities: A Planning, Design and Operations Manual, PBQD, 1990
- 2500' or more between entrance or exit ramp and slip ramp
 - HOV Systems Manual, NCHRP, 1998




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Simulation Analysis

- Microscopic model desirable to model vehicular interactions
- VISSIM chosen
 - ✓ Ease of specifying vehicle mix
 - ✓ Output "definable"
- Calibrated and verified against HCM (industry standard)

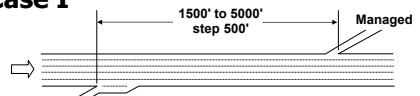
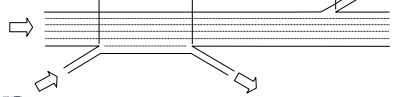



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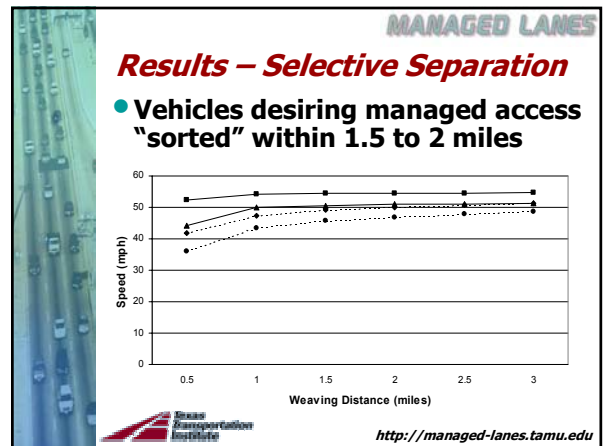
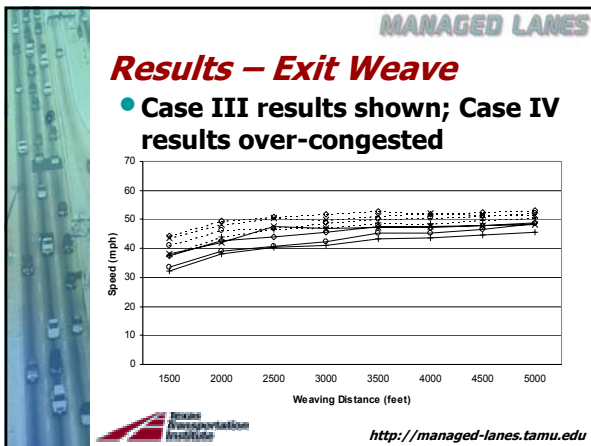
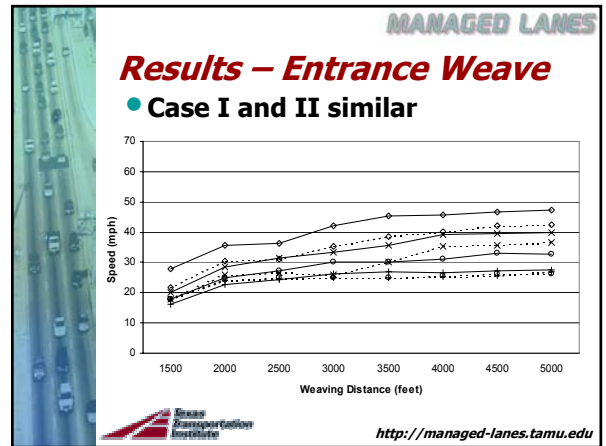
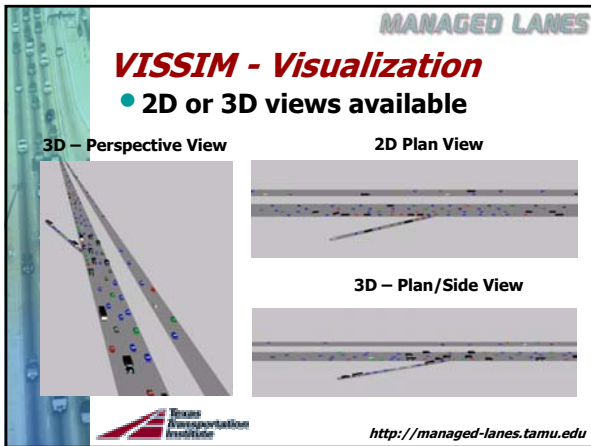
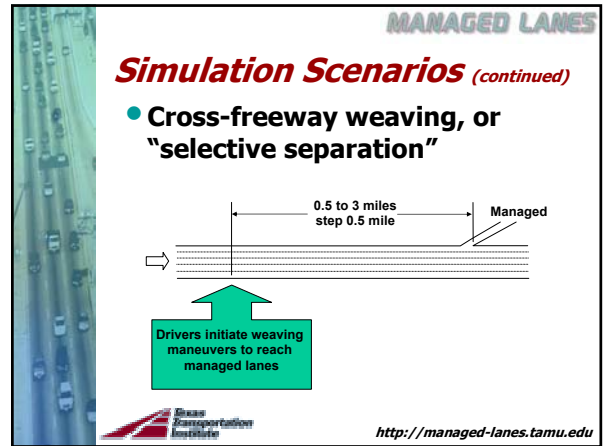
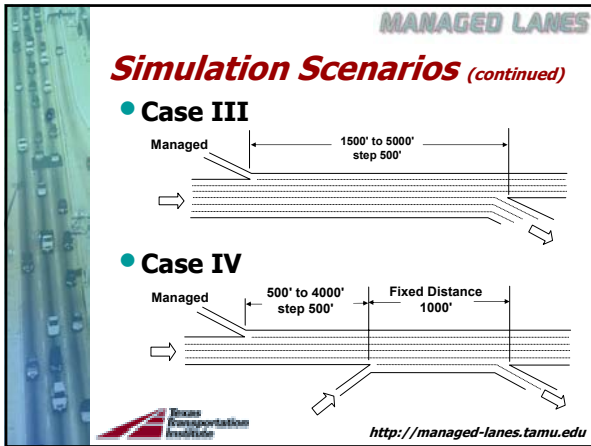
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Simulation Scenarios

- Case I
 - 1500' to 5000' step 500'
- Case II
 - Fixed Distance 1000'
 - 500' to 4000' step 500'


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Results – Selective Separation

- Impact of truck percentage more pronounced at higher volume levels
- Truck percentage greater impact on operations than bus percentage




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Recommendations

- 2500' minimum and 4000' desirable between freeway entrance/exit ramps and managed entrance/exit ramps
- 350 vph max. weaving volume for managed access or egress under high volume conditions (450 vph for moderate volume conditions)




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Recommendations (continued)

- 1 mile "selective separation" distance for moderate freeway volumes; 1.5 to 2 miles for high freeway volumes




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Recommendations (continued)

Design Year Volume Level	Allow up to 10 mph Mainlane Speed Reduction for Managed Lane Weaving ?	Intermediate Ramp?	Recommended Minimum Weaving Distance Per Lane (feet)
Medium (LOS C or D)	Yes	No	500
		Yes	600
	No	No	700
		Yes	750
High (LOS E or F)	Yes	No	600
		Yes	650
	No	No	900
		Yes	950




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Questions ?

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