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High Occupancy Vehicle Lanes – Worldwide Lessons for European Practitioners

July 12-14, 2006
Prague, Czech Republic



McCormick Rankin
International



Outline

- ~130 motorway and ~80 arterial HOV lane projects currently in operation
- Lessons learned
- Current trends / future directions
- Applicability to Europe



Definition: HOV Lane

- A lane on a street or highway restricted to use by buses *and* multiple-occupant vehicles during all or part of the day

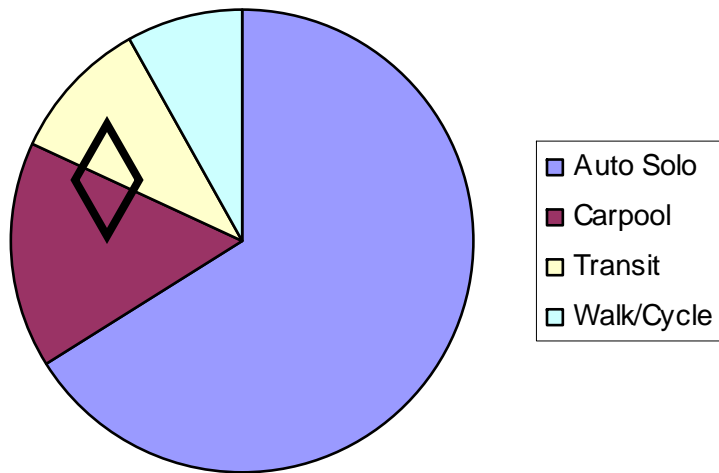


HOV Lane Objective

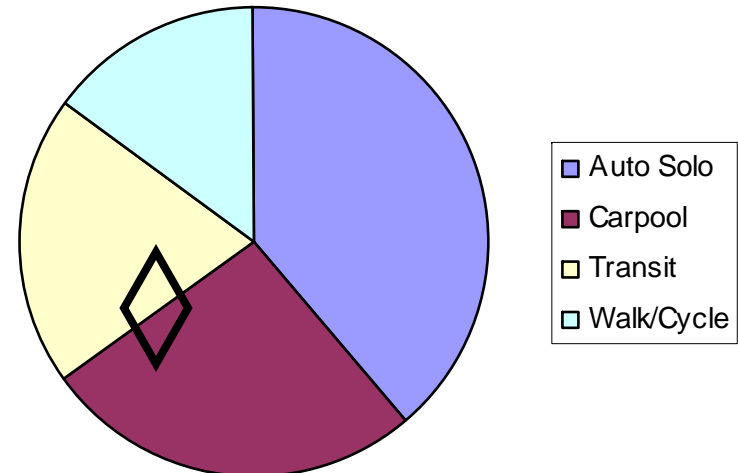
- Provide HOVs with faster, more reliable travel than non-HOVs
- Intended Result:
 - Attract more people to use HOVs
 - Increase road's person-carrying capacity
 - Reduce per capita emissions
 - Promote sustainable transport

Urban Transport Mode Share

Mode Share - North America



Mode Share - Europe





HOV Lane Planning Criteria

- Severe congestion (>5' time savings)
- HOV lane usage potential
- Net person-moving benefit
- Safe, enforceable, cost-effective
- Commitment to succeed



HOV Lane Operational Design Criteria

- Conventional geometric design rules
- Design to suit conditions
 - Location within roadway
 - Separation from non-HOV traffic
 - Eligibility (2+, 3+, 4+, 6+, toll, LEV, m'cycles)
 - Operating hours
 - Operational characteristics

HOV Lane Example



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European Motorway HOV Lanes

- N-VI, Madrid (Spain)



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European Motorway HOV Lanes

- N4, Amsterdam (Netherlands)



European Arterial HOV Lanes

- Leeds (UK)



- Linz (Austria)



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International Motorway HOV Lanes

- Los Angeles (USA)



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International Motorway HOV Lanes

- Houston (USA)



International Motorway HOV Lanes

- Brisbane (Australia)



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International Arterial HOV Lanes

- Ottawa (Canada)



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International Arterial HOV Lanes

- Toronto (Canada)



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International Arterial HOV Lanes

- Brisbane (Australia)



International Arterial HOV Lanes

- Seattle (USA)



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Results

- Successes
- Enforcement
- Problems
- Lessons Learned – European Applicability



Successes

- Avg. Vehicle Occupancy + 20%
- Public Transport mode share up
- Good public / policy support
- HOV lanes support other Demand Management programmes



HOV Lane Enforcement

- Public support depends on compliance
- Design facilities for voluntary compliance
- Define compliance objective
 - Motorways <10 % violators (2+)
 - Arterials < 20% violators
- Agency / Funding commitment
- Legal support, adequate penalties
- Direct visual observation
- Technological solutions emerging



Implementation Problems

- Physical fit
- Underutilisation
- Enforcement
- Safety
- Connectivity
- Jurisdictional Co-ordination



Lessons Learned – European Applicability

- Learn from operational experience
- Organisational co-operation
- Define objectives
- Choose sites carefully
- Manage expectations
- Useful tool for staged PT priority
- HOV priority within managed scheme



The Future

- HOV as a viable, proven tool in the urban transport toolkit
- HOV will continue to face challenges
- Selected applicability – not a panacea
- Better use of technology
- Arterial HOV as Bus Priority technique
- HOV in Managed Lanes context



Conclusions

- Rationale for HOV lanes is applicable to Europe, just as it is elsewhere
- HOV facilities make sense as part of an integrated region-wide transport management strategy
- Future planning and design work should consider HOV issues and opportunities



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