



HOV-to-HOT Lanes Workshop

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Mark Burriss, Texas Transportation Institute
Jessie Yung, Federal Highway Administration



Workshop Purpose

Provide hands-on practice in applying lessons learned and best practices from implemented projects across the country

- understand the challenges in implementing pricing projects
 - move pricing forward in your area
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Workshop Agenda

- Review of Project
- Break into groups for exercises
- Five subject areas covered
 - 5-10 minute overview of subject area
 - 20-25 minutes to complete exercise
 - Break for lunch after second round of exercises
- Group reports

Subject Areas

- Planning
 - Operations
 - Design
 - Funding and Finance
 - Outreach
- ❖ No specific order, all have overlapping elements

Our Project

Radial freeway corridor serving major activity center

15 miles total length

3 GP lanes in each direction

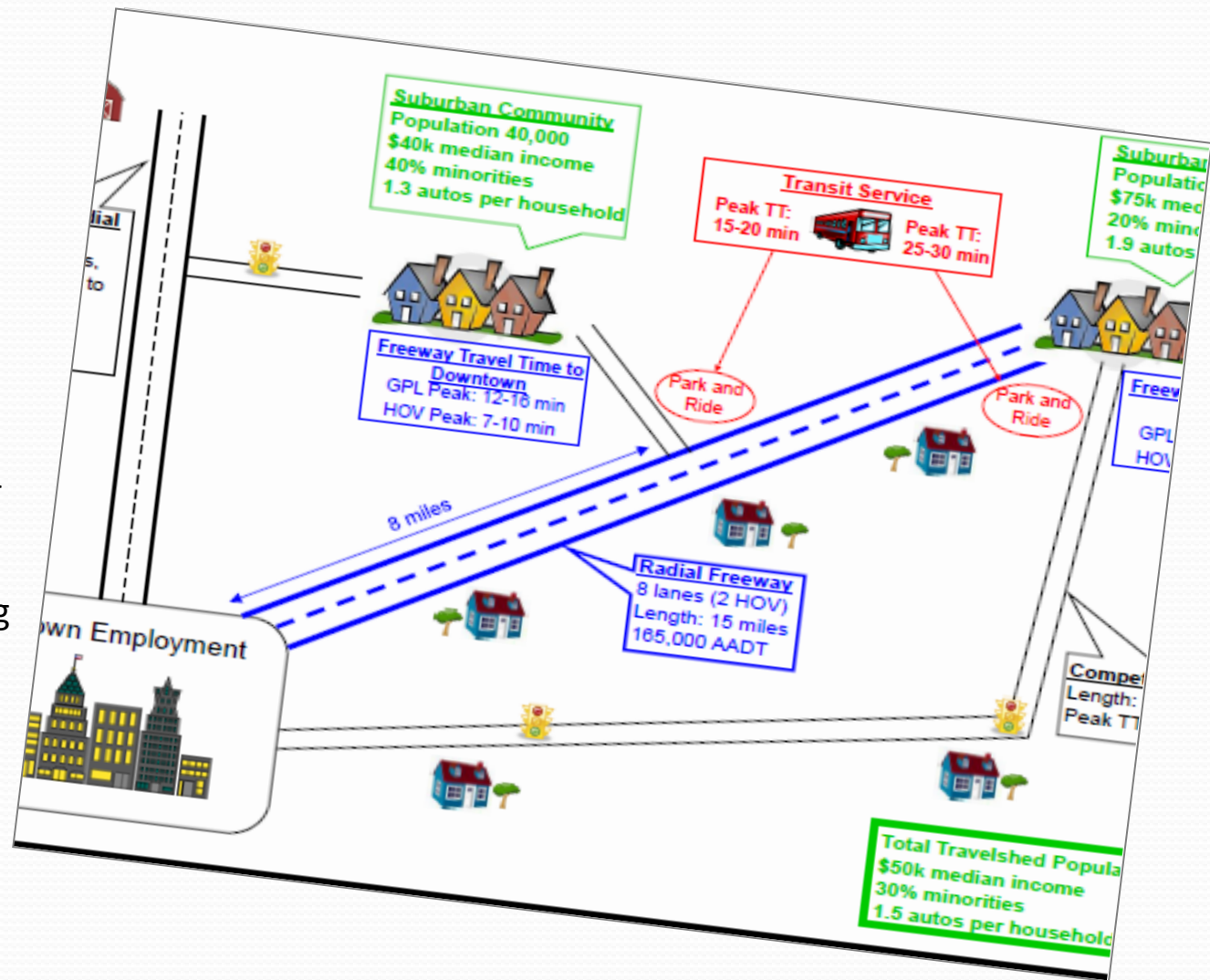
1 HOV lane in each direction

Transit service with two park-and-ride facilities

Downtown rapidly developing and congestion growing

No funding for expansion. Congested 4-lane adjacent radial freeway is funded for expansion

Parallel arterial





Competing Radial Freeway
 Currently 4 lanes, very congested, to be expanded to 6 lanes in the future

Suburban Community
 Population 40,000
 \$40k median income
 40% minorities
 1.3 autos per household

Transit Service
 Peak TT: 15-20 min  Peak TT: 23:30

Suburban Community
 Population 20,000
 \$75k median income
 20% minorities
 1.9 autos per household



Freeway Travel Time to Downtown
 GPL Peak: 12-16 min
 HOV Peak: 7-10 min

Park and Ride

Park and Ride

Freeway Travel Time to Downtown
 GPL Peak: 20-30 min
 HOV Peak: 13-16 min

8 miles

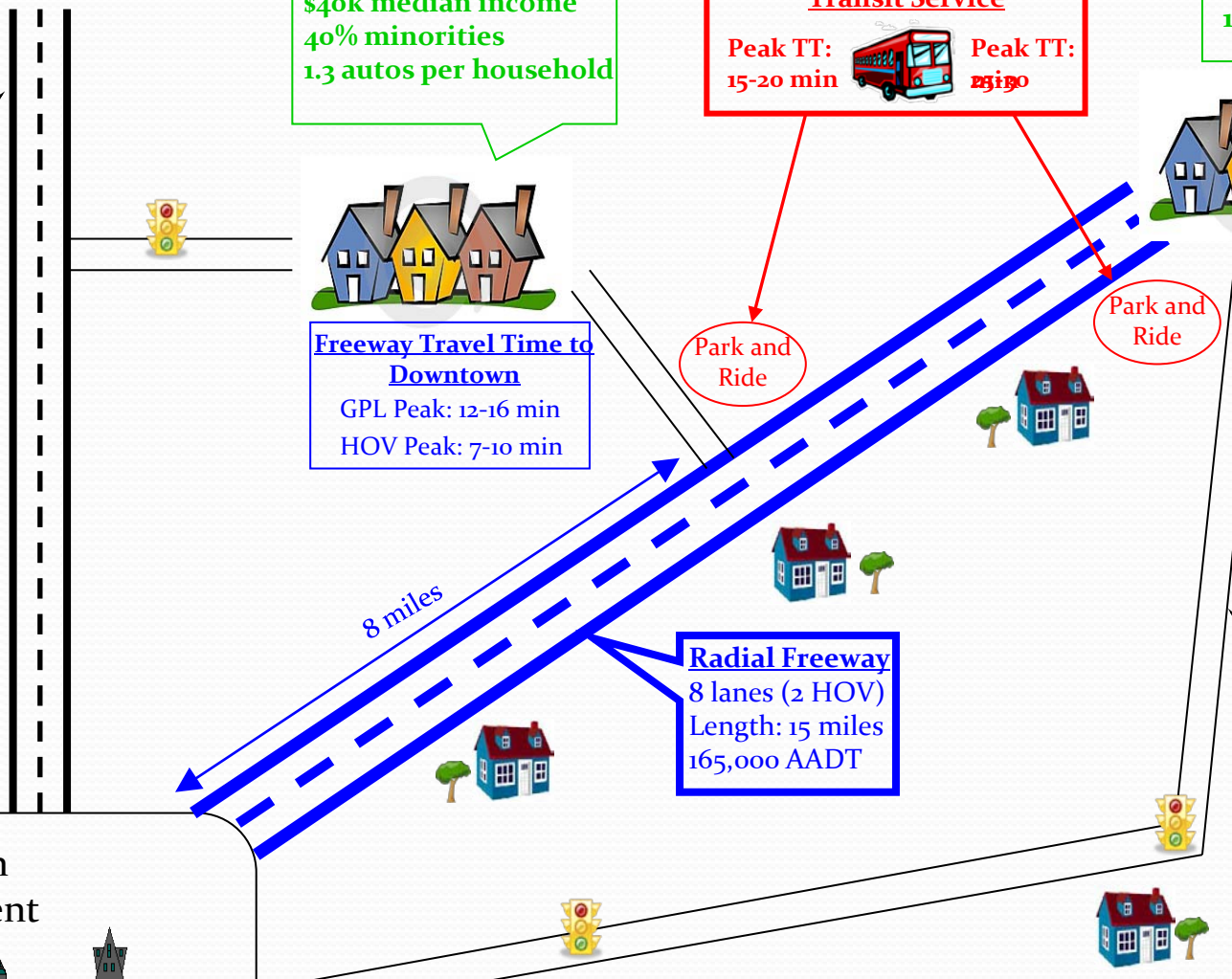
Radial Freeway
 8 lanes (2 HOV)
 Length: 15 miles
 165,000 AADT

Competing Arterial
 Length: 20 miles
 Peak TT: 25-45 min

Downtown Employment



Total Traveled Population:
 200,000
 \$50k median income
 30% minorities
 1.5 autos per household



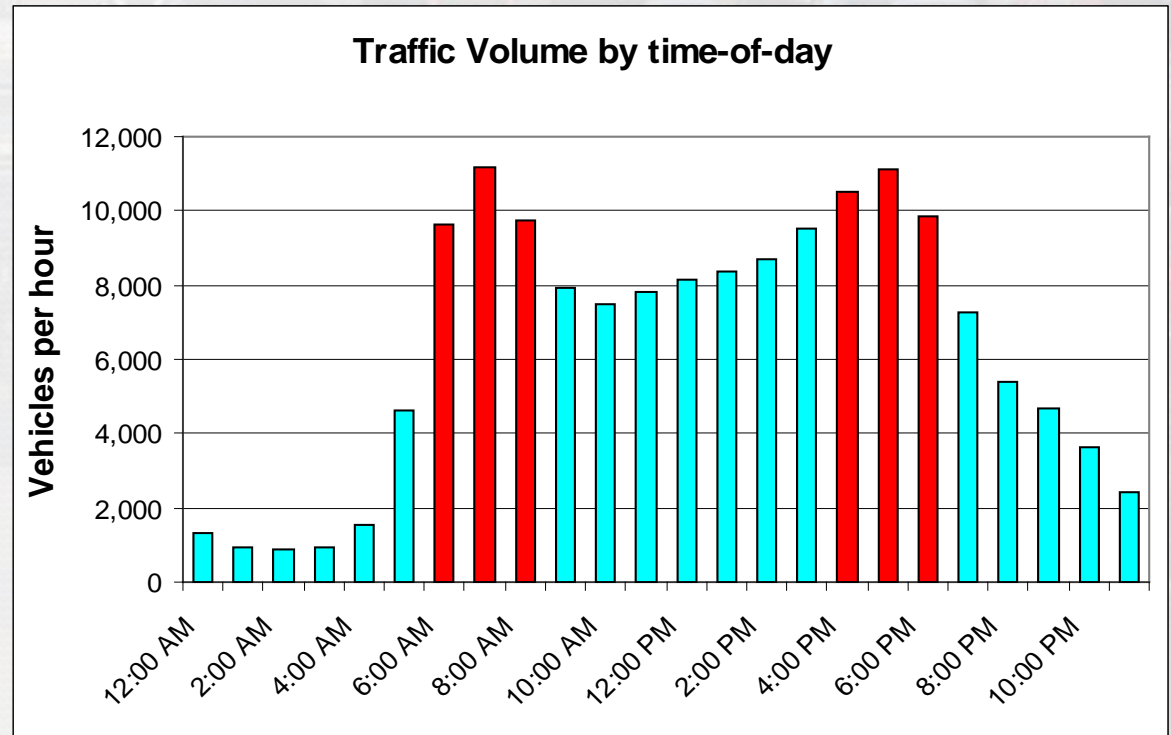
Project Characteristics

- Corridor History
 - Congestion worsening
 - Downtown businesses seeking alternatives to bring more commuters downtown
 - Opposition to capacity improvements on adjacent radial corridor from environmental interests
 - Corridor demographics
 - Varies by sub-area
 - Total travelshed population = 200,000
 - \$50,000 median income
 - 30% minorities
 - 1.5 autos per household
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Project Characteristics

General Purpose Lanes

- 6 lanes with full shoulders
- 165,000 AADT and growing



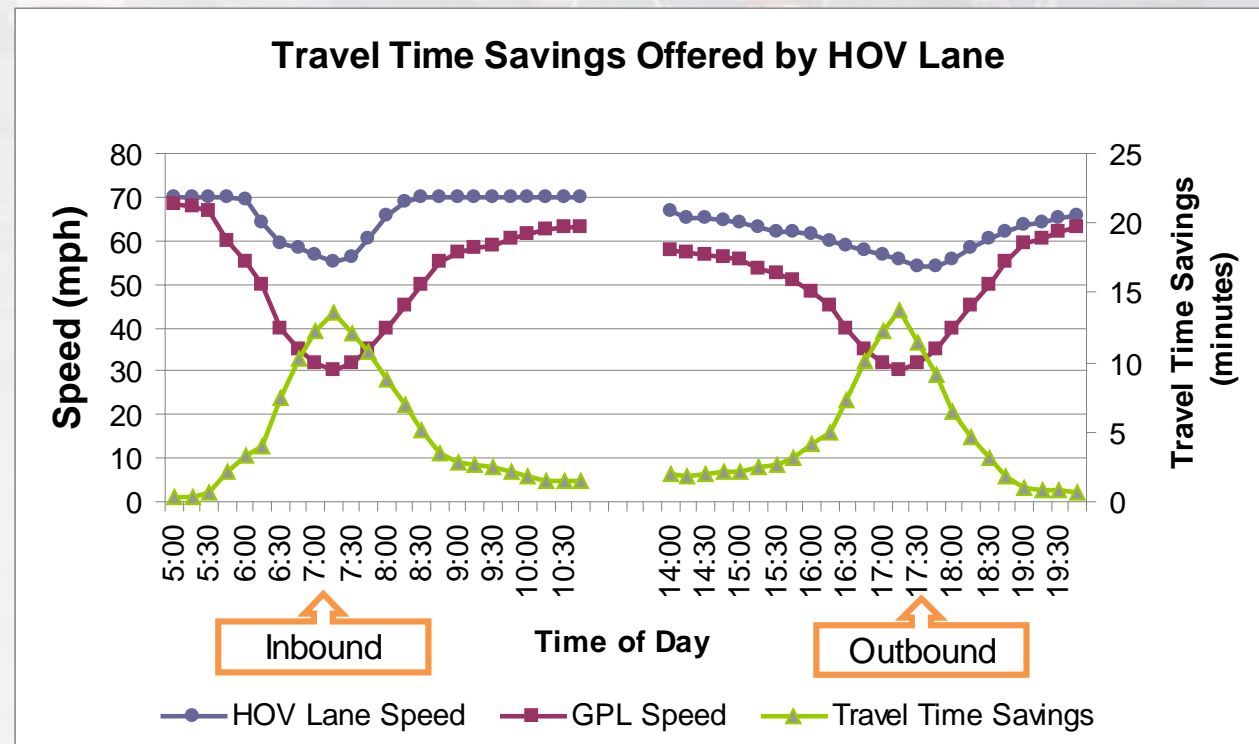
Project Characteristics

- HOV Project History
 - Operating for 9 years
 - Construction funding came from state and federal sources
 - Full-time HOV₂₊ operation (24/7)
 - Peak period average vehicle occupancy of 2.21
 - Public perception of underutilization, 1000 vph in peak
 - Park-and-ride utilization at 65% , 2 lots

Project Characteristics

HOV lanes

- 2 lanes, one in each direction
- Buffer separated
- Peak volumes 800-1000 vehicles per hour
- Peak period speed 65 mph



Project Characteristics

Project Partners

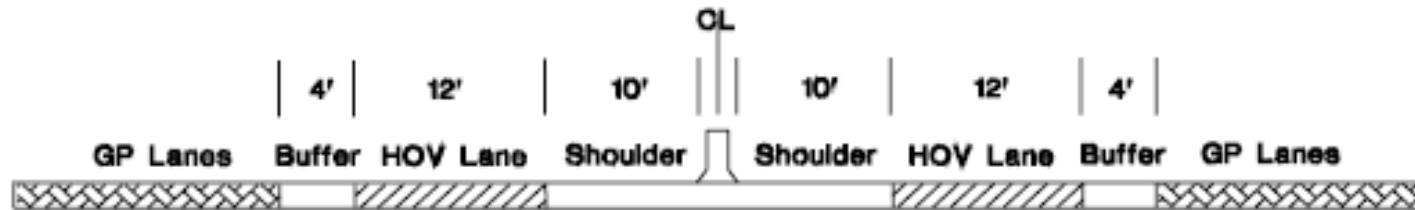
- State DOT
 - Owner of lanes and ROW
 - Operator of freeway
 - Transit authority
 - Operator of express bus service and park-and-ride facilities
 - Regional toll authority
 - Operates one toll road in region
 - Cash and transponder-based electronic tolling
 - State police
 - HOV enforcement
 - Metropolitan Planning Organization
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Project Characteristics

- Legal authority
 - HOT allowed by state statute
- Regional policies
 - Conversion of HOV lane to HOT lane in long range plan
 - No policies on toll rate setting, occupancy, etc.
- Environmental clearance – FONSI expected

Project Characteristics

- Cross section



- Access

- In addition to termini, two intermediate access points to HOV lane
 - Between the two P&R lots
 - Between P&R lot and downtown

- Enforcement

- Enforcement areas (14' shoulder) located on downstream ends of intermediate access points

Project Characteristics

- Estimated project costs
 - Capital costs: \$10,000,000
 - Annual operating costs \$1,000,000
 - Available funding
 - State is committed to contributing \$8,000,000
 - FHWA/FTA program requirements and limitations – FTA funds used in construction of HOV lanes
 - Traffic and revenue studies – none
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Planning



- Establish goals and objectives and clearly communicate a vision
- Take advantage of opportunities
- Maintain flexibility
- Engage project partners and encourage agency cooperation

Planning Exercise

Planning Group Exercise

Develop an Action Plan that identifies the steps necessary in the planning process to support the project.

What are the sequential steps to plan the project?

What are the project goals?

Who are the players and what are their roles?

Operations



- Develop a Concept of Operations to guide the process
- Determine vehicle occupancy based on current operating conditions
- Pricing strategy
- Tolling policy
- Enforcement
- Hours of operation
- Operating parameters/goals

Operations Exercise

Operations Group Exercise

Develop an Action Plan that identifies critical operational issues that need to be addressed to support a successful project.

What are the roles and responsibilities of partner agencies?

Establish measures of effectiveness and thresholds for performance.

Establish monitoring, maintenance, and incident management processes.

Design

- Depends on design of HOV lanes and available room in the corridor to make modifications
- Separation mechanism
- Access locations
- Toll collection locations
- Coherent signing program
- Wider buffer when using pylons or paint
- Safe merging/weaving distances
- Incident detection and use of ITS
- Number of lanes

Design Exercise

Design Group Exercise

Develop an action plan that identifies critical design issues that need to be addressed to support a successful project.

Identify user groups and design criteria based on the group requiring the greatest flexibility (buses?).

Identify and establish fundamental design parameters of facility.

What are the costs involved in adopting the different separation mechanisms and the width of the separation?

Funding and Finance



- Ownership for facility and right-of-way
- Available assistance through federal programs
- Stakeholders
- Revenue sharing

Finance Exercise

Finance Group Exercise

Develop a financial plan that will allow for the successful design, construction, operations, and maintenance of the facility.

Who owns the lane(s) and right-of-way (ROW)?

Were FTA funds used for the HOV project?

Is the project eligible for an urban partnership agreement grant or a value pricing pilot program grant?

Outreach

- Identify project champions
- Conduct market research and identify issues
- Develop clear and concise messages
- Communicate project goals
- Outreach to travelers about changes in access or other conditions
- Continue from project development through operations
- Create brand awareness

Outreach Exercise

Outreach Group Exercise

Develop a communication/marketing plan that will support project implementation and operation.

Outline sequential steps in outreach plan.

Who are the stakeholders?

What are the most appropriate communication methods? Will they vary throughout the corridor? If yes, how so?

Breakout Group Reports

