Shoulder Conversion to HOT Lane Workshop

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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
Workshop Agenda

- Review of Project
- Break into groups for exercises
- Five subject areas covered
  - 5-10 minute overview of subject area
  - 35-40 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

Length: 15 miles

6 lanes with 10’ shoulders on both sides

165,000 AADT and growing

Peak period speeds consistently reach 30mph

Drainage inlets every 0.5 mile with 4” depression in left shoulder

Additional 20’ of ROW periodically available beyond right shoulder

Rumble strips on outside edgelines

Four bridge abutments exist along the facility

Existing ITS components include cameras, loop detection in all lanes at half mile spacing and on freeway ramps, DMS, & ramp meters.
Suburban Community
Population 40,000
$40k median income
40% minorities
1.3 autos per household

Downtown Employment

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

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

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

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

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

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

Radial Freeway
6 lanes
Length: 15 miles
165,000 AADT

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

Park and Ride

Park and Ride
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
General Purpose Lanes
- 6 lanes with 10’ shoulders
- 165,000 AADT and growing
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
- Metropolitan Planning Organization
- State Police
  - Enforces traffic laws on state highways
Project Characteristics

- Legal authority – HOT and shoulder running allowed by state statute
- Regional policies – none for shoulder conversion
- Project partners – state DOT (owner of ROW), transit authority, regional toll authority, state police
- Toll authority currently operating one toll road in region with ETC (transponder)
- Environmental clearance – FONSI expected
- Design exceptions – submit request to FHWA prior to implementation
Project Characteristics

- Cross section

- Access
  - Location and method of access undetermined

- Enforcement
  - Subject to design and location
Project Characteristics

- Estimated project costs
  - Capital costs: $10,000,000
  - Annual operating costs: $1,000,000
- Bus volumes
- Available funding
  - State is committed to contributing $8,000,000
- Traffic and revenue studies - none
- Revenue sharing potential – Regional toll authority
- Possible funding partners - Regional toll authority and transit agency
Planning

- Establish goals and objectives and clearly communicate a vision
- Take advantage of opportunities
- Maintain flexibility
- Engage project partners and encourage agency cooperation
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
- Establish a minimum operating speed threshold of 45 mph for HOT operation
- Select the appropriate user group to best optimize the added capacity and achieve stated objectives
- Ensure that temporary use of the shoulder as a HOT lane is only deployed when needed
Operations

- Establish operational procedures that ensure the safety of users and help maximize the potential benefits of using the shoulder during congested periods
- Ensure operations integrate with existing systems
- Determine if existing incident management protocol will be applicable to shoulder operations
- European applications of shoulder use have typically been accompanied by one or more ATM strategies
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

- Ensure the safest design possible that provides adequate space for identified users and necessary maneuvers
- Provide adequate space for emergency refuge and/or enforcement whenever possible
- Provide clear information to users to ensure their comprehension of the facility and the specifics of operation
Design Group Exercise
Develop an action plan that identifies critical design issues the addressed to support a successful project.

Who are the appropriate user groups?

Identify and establish fundamental design parameters of the

Identify and establish related design parameters of the facil
Funding and Finance

- Consider any and all funding and/or financing mechanisms
- Available assistance through federal programs
- Stakeholders
- Revenue sharing
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
- Continue from project development through operations
- Create brand awareness
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