

## **CONTACT INFORMATION**

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Ken Buckeye is Program Manager for Value Pricing with the Office of Policy Analysis, Research and Innovation with the Minnesota Department of Transportation (Mn/DOT). Ken has more than 20 years of experience in transportation planning and project management covering nearly all modes of travel. Most recently his work at Mn/DOT has focused on value pricing alternatives as a means to manage demand and to help finance transportation systems. He currently is leading the department in implementation of its telework initiative created through the national Urban Partnership Agreement. Ken has a BA in Urban Affairs and Business Management from St. Cloud State University and a Master Degree in City and Regional Planning from Southern Illinois University.

# **CONGESTION CHARGES IN THE UNITED STATES**

## **INTERNATIONAL FORUM ON ECONOMIC POLICIES FOR TRAFFIC CONGESTION AND TAILPIPE EMISSIONS CONTROL**

**HANGZHOU, ZHEJIANG PROVINCE, CHINA**

**BY**

**KENNETH R. BUCKEYE, AICP**

**PROGRAM MANGER FOR CONGESTION PRICING**

# **PRESENTATION OUTLINE**

## **3 PARTS**

**Why congestion pricing in the U.S.?**

**What does congestion pricing accomplish and how does it work?**

**Examples of operational congestion pricing project around the nation:**

- Minneapolis-St. Paul, Minnesota
- Miami, Florida
- San Diego, California
- Los Angeles, California
- Seattle, Washington

# **REASONS TO SUPPORT CONGESTION PRICING POLICIES**

**We tend to overuse that which appears to be free**

**Limits to roadway capacity expansion requires more efficient use of existing infrastructure**

**Those limits include**

- High Occupancy Vehicle (HOV) lane policies didn't always work well enough..., needed to adjust policy
- Cost of adding roadway capacity
- Community impacts and environmental impacts
- Need to enhance efficiency and better use unused capacity



# THE COST OF CONGESTION IN THE U.S.

## The financial and environmental cost of congestion:

- 3.7 billion hours of delay and 2.9 billion gallons of wasted fuel annually\*
- 56 billion lbs. of CO<sub>2</sub>
- Estimated to be \$121 to \$200 billion after accounting for unreliability, inventory, and environmental costs \*\*

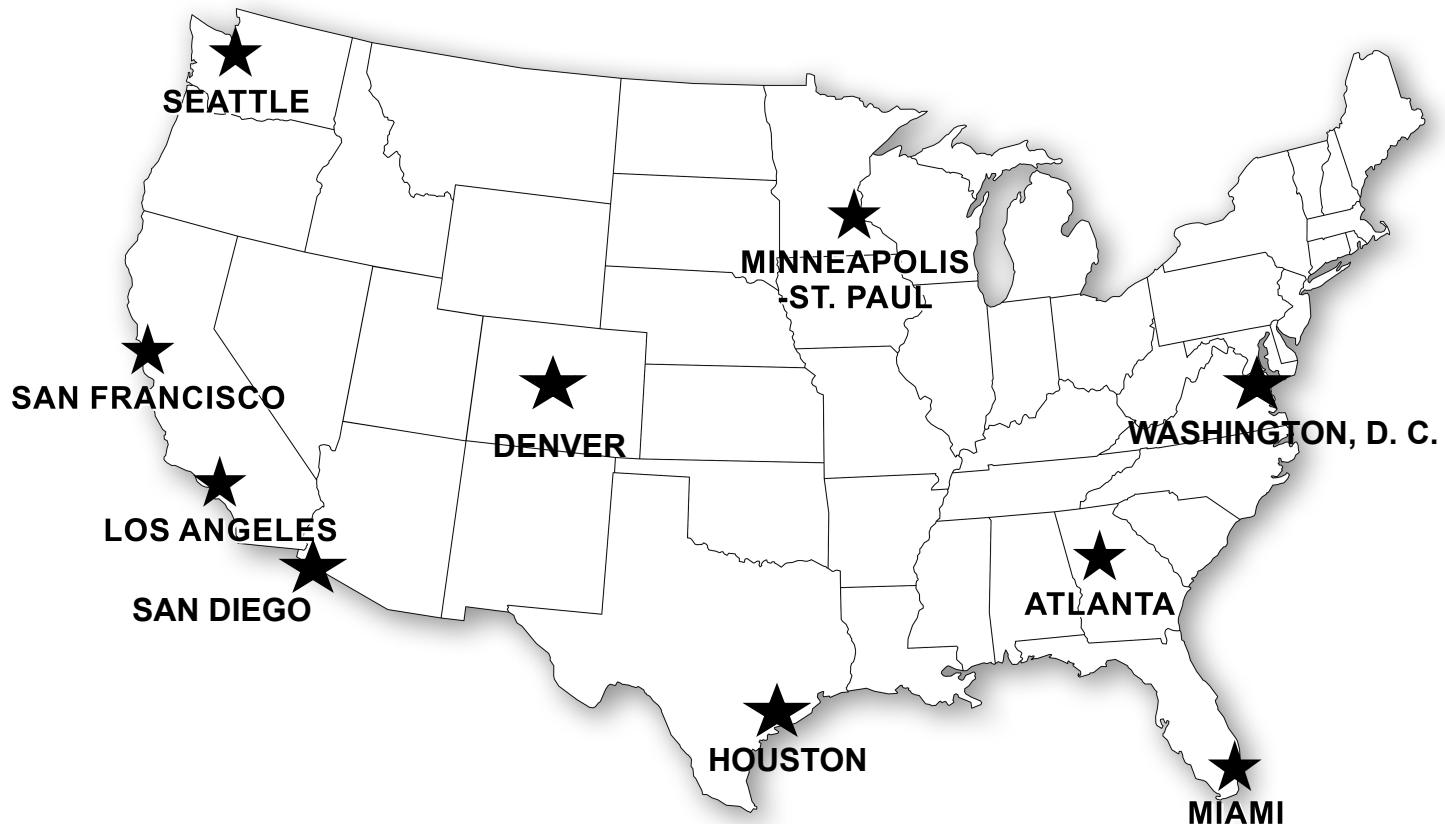
## Congestion hurts family and civic life, impacting:

- Where people live and work
- Where they shop
- How much they pay for goods and services

\* Texas Transportation Institute, 2012 Urban Mobility Report

\*\* USDOT internal analysis

# CONGESTION PRICING PROJECTS IN U.S.



# CONGESTION PRICING PROJECTS AROUND THE U.S.

SR 91, Los Angeles, California

I-15 San Diego

I-394 & I-35W Minneapolis

I-95 Miami

Seattle



# **GOALS FOR CONGESTION PRICING\***

**Improve mobility**

**Increase reliability**

**Improve safety**

**Decrease environmental impacts**

**Manage demand vs. generation of revenue**

\*Priced Managed Lane Guide, 2012, FHWA

# **WHAT DOES CONGESTION PRICING DO?**

**When implemented effectively, congestion pricing helps to optimize person and vehicle throughput for a congested lane, highway, bridge or tunnel**

**There are many variables to consider when implementing congestion pricing**

- Toll lane/lanes within a highway
- All drivers pay/certain classes of drivers
- Charge 24/7 vs. peak-period only

**Pricing uses market forces (consumer demand) to improve performance**

- Price is adjusted optimize demand
- Based on willingness to pay

# HOW DOES CONGESTION PRICING WORK?

**Drivers pay a fee (toll) to ensure a faster and more reliable trip time**

- Toll road, bridge or tunnel
- Toll lane/lanes
- Discounts or incentives for certain vehicles or classes

**Fee might be levied in a variety of ways**

- Flat fee all day
- Schedule of fees that vary by time
- Dynamic fees that change with demand
- Combination of scheduled fees with dynamic pricing option

**Price controls demand for facility**

- Variable and dynamic pricing may require loop detectors
- Algorithm to read demand, speed and adjust price

# WHAT IS NEEDED TO MAKE CONGESTION PRICING WORK?

**Congestion**

**Authority to charge drivers..., political will**

**Technology to collect tolls**

**Technology to manage pricing and congestion on facility**

- Loop detectors
- Algorithm to read demand, speed and to adjust price
- Controllers
- Signing

**Enforcement tools and commitment**

**Traffic management center control**

# **OBSTACLES TO IMPLEMENTING CONGESTION PRICING**

**Political support / decision-maker support**

**Public acceptance of policy**

- Difficult to communicate purpose

**Popular public sentiment**

- “All roads should be free..., just build more capacity”
- “Congestion pricing is gouging the public”

**Cost**

**Complexity**



# **STAGES OF PUBLIC ACCEPTANCE FOR CONGESTION PRICING PROJECTS**

- 1. Confusion / opposition**
- 2. Rejection**
- 3. Relief and rejoicing**
- 4. Realization**
- 5. Reconsideration**
- 6. Skepticism / reluctant acceptance**
- 7. Love / indifference**



# OUTREACH AND EDUCATION FOR CONGESTION PRICING

Market research ... *understanding*

Education ... *learning*

Outreach ... *engaging*

Communication ... *explaining*

Marketing ... *selling*

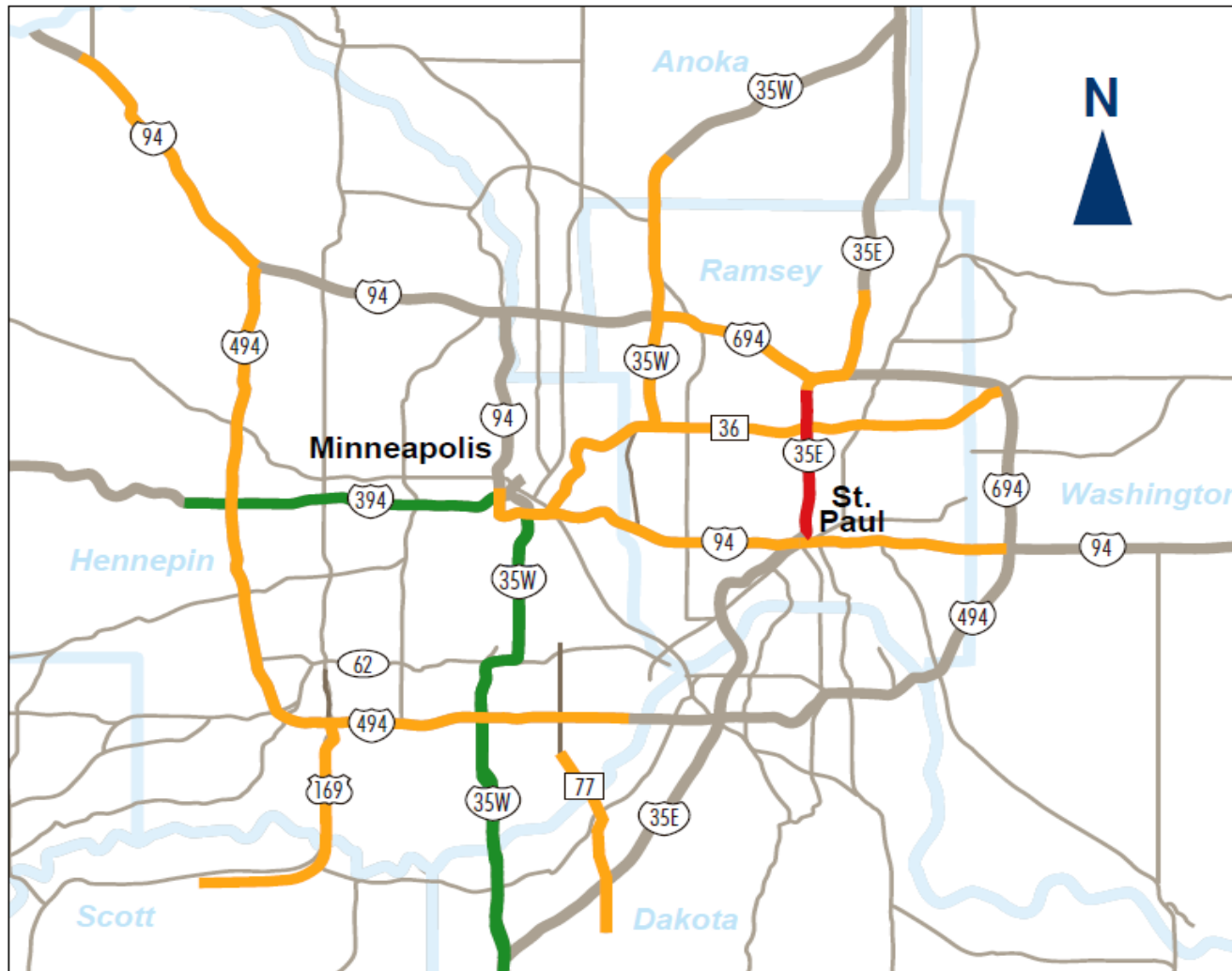
Evaluation ... *confirming*

# CONGESTION PRICING PROJECTS IN MINNESOTA



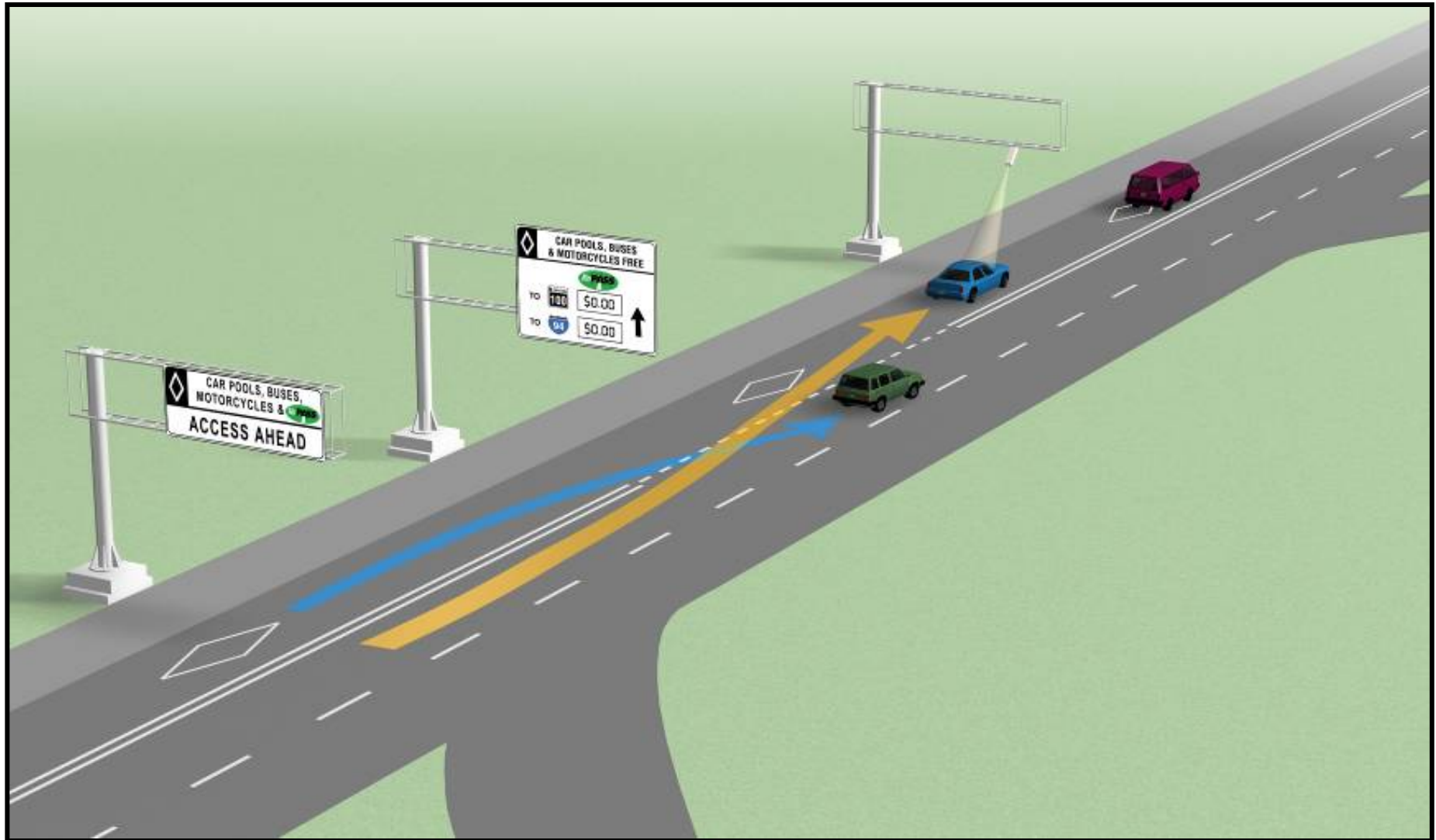
# Regional 2030 Transportation Policy Plan

## Future Managed Lane System



- Existing MnPASS
- 35E MnPASS Construction 2013-2015
- Future Managed Lane or MnPASS System

# MNPASS HIGH OCCUPANCY TOLL (HOT) LANE DESIGN





# **I-394 AND I-94 INTERCHANGE IN MINNEAPOLIS**



# **I-394 MNPASS DESCRIPTION**

**150,000 average daily traffic**

**11 mile east-west corridor**

**8 miles of single lane**

**3 miles of two lane reversible**

**5 access points in each direction**

**First facility to use double white stripe buffer lane separation**

**Skip stripe delineates access points (25% open)**

**2+ carpools, transit and motorcycles are free**

**No requirement for all users to have transponder**

**10% of users on the roadway are toll paying customers**

**18,000 transponders in the corridor**

**Maximum toll is \$8.00, minimum toll is \$0.25 (\$1.30 avg. toll)**











 CAR POOLS, BUSES  
& MOTORCYCLES FREE

 RATES

TO		\$0.25
TO		\$0.50

ACCESS 1200 FT

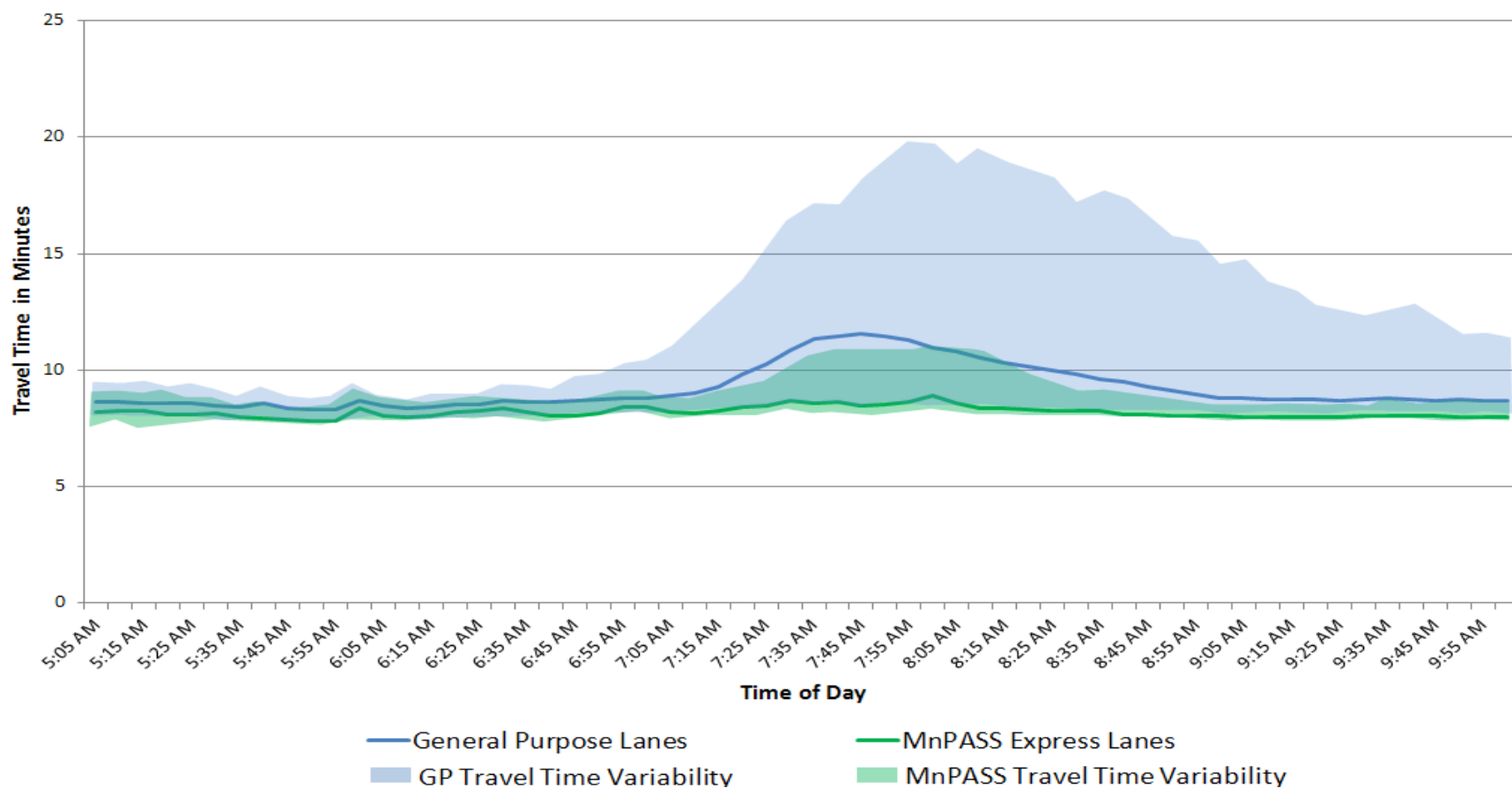
EXIT 3

 SOUTH  
NORTH  
General Mills  
Blvd

EXIT  ONLY

SPEED  
LIMIT  
55

# TRAVEL TIME SAVINGS AND RELIABILITY: EASTBOUND I-394 AM PEAK





# MNPASS USERS

**30% of transponders used on a typical day**

- Average user makes 2-3 tolled trips per week

**Wide Range of Users**

**Usage Higher Among**

- Full-time workers
- Homeowners
- Ages 35-55
- Incomes over \$50,000
- Women



# **MNPASS USERS SATISFACTION**

**95% satisfaction with all electronic tolling**

**85% satisfaction with traffic speed in lane**

**65% satisfaction with dynamic pricing**

**65% satisfaction with safety**



# **I-394 MNPASS PERFORMANCE INDICATORS**

**Averages more than 5,000 toll paying trips per day**

**Averages more than \$7,000 per day**

**Average toll paid = \$1.30**

**Continued robust growth**

**Customer satisfaction remains high**

**50% of revenue beyond expenses is shared with transit**

**Operational success opened door to development of more  
MnPASS projects**

# CONGESTION PRICING PROJECTS IN CALIFORNIA





# SR 91 ORANGE COUNTY, CALIFORNIA





# **SR 91 DESCRIPTION**

**Toll facility built within the median of SR 91 in 1995**

**Privately funded and financed**

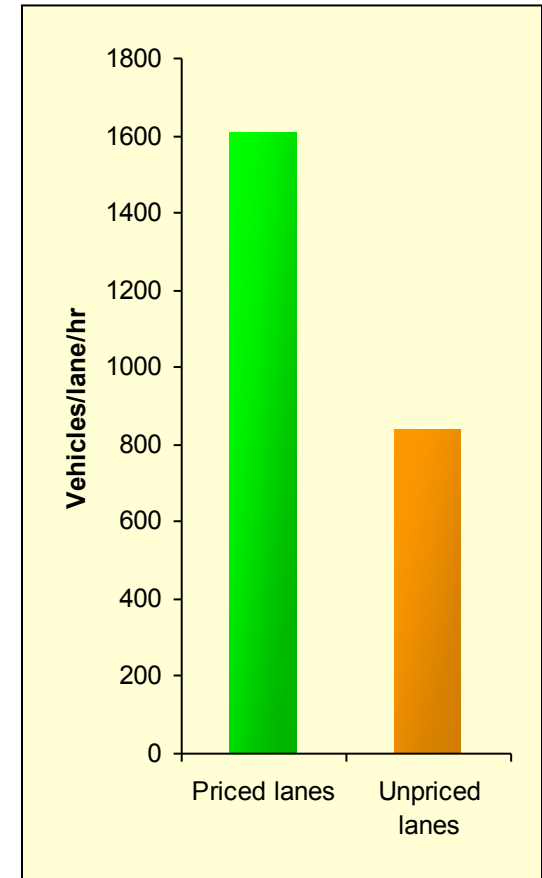
**Successful operation**

**Sold at a profit to Orange County in 2003**

**Continues to generate strong revenue stream**

**Pressure to extend the facility**

# SR 91



**Peak period throughput  
on California SR-91,  
priced vs. unpriced  
lanes**

# **I-15 SAN DIEGO, CALIFORNIA**

**20-mile HOT lane facility providing two travel lanes in each direction**

**First use of dynamic pricing in tolling application**

**Annual Operating costs: \$4.4 million with \$800,000 transit operating subsidy**

**Annual Revenue: \$4.4 million**

**Maximum toll is \$8.00, minimum toll is \$0.50**

**5,500 tolled users per day (about 25% of all users)**



CARPOOLS



ONLY



FASTRAK™  
ONLY







# CONGESTION PRICING PROJECTS IN FLORIDA





# I-95 MIAMI, FLORIDA





# I-95, MIAMI

## Reduce lanes from 12' to 11'

- Reduce shoulder widths
- No new right-of-way
- No relocation of noise walls
- Limited major construction

**3+ carpools and transit free**

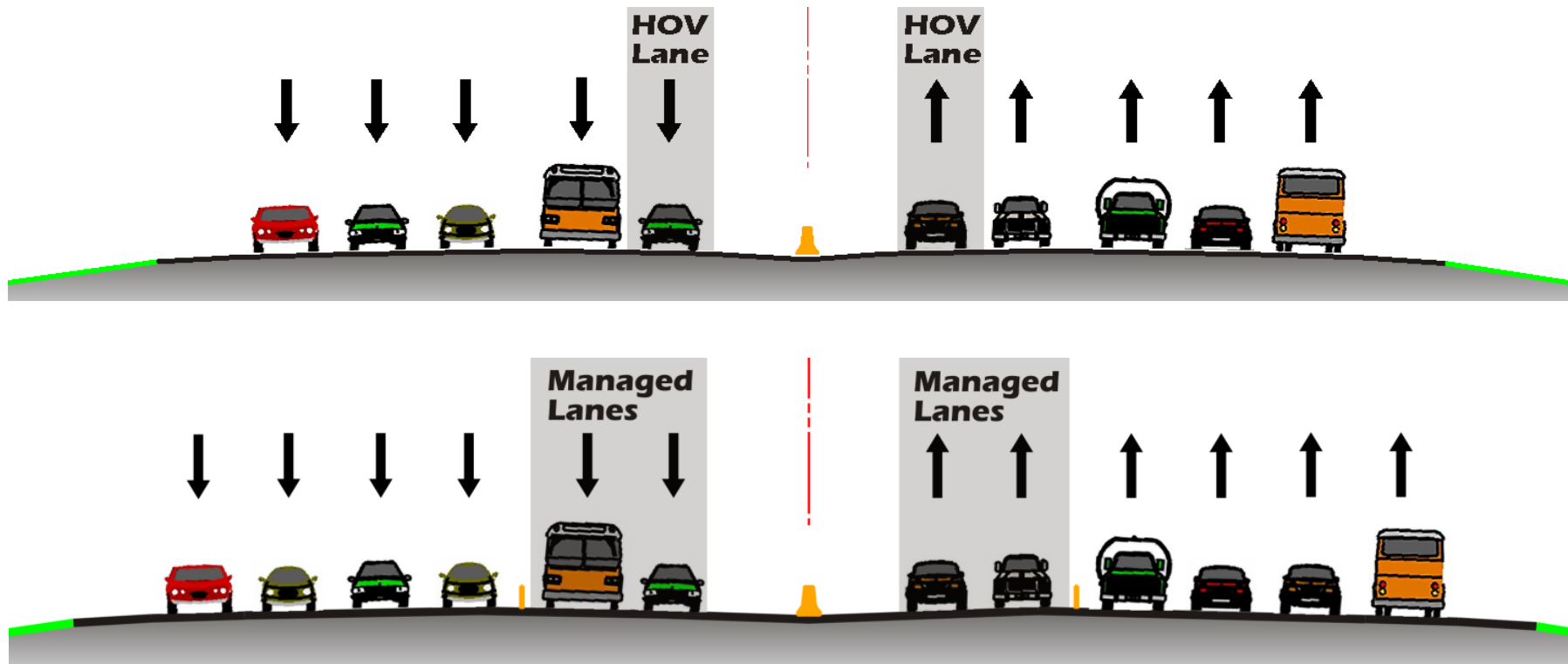
**All users required to have transponder**





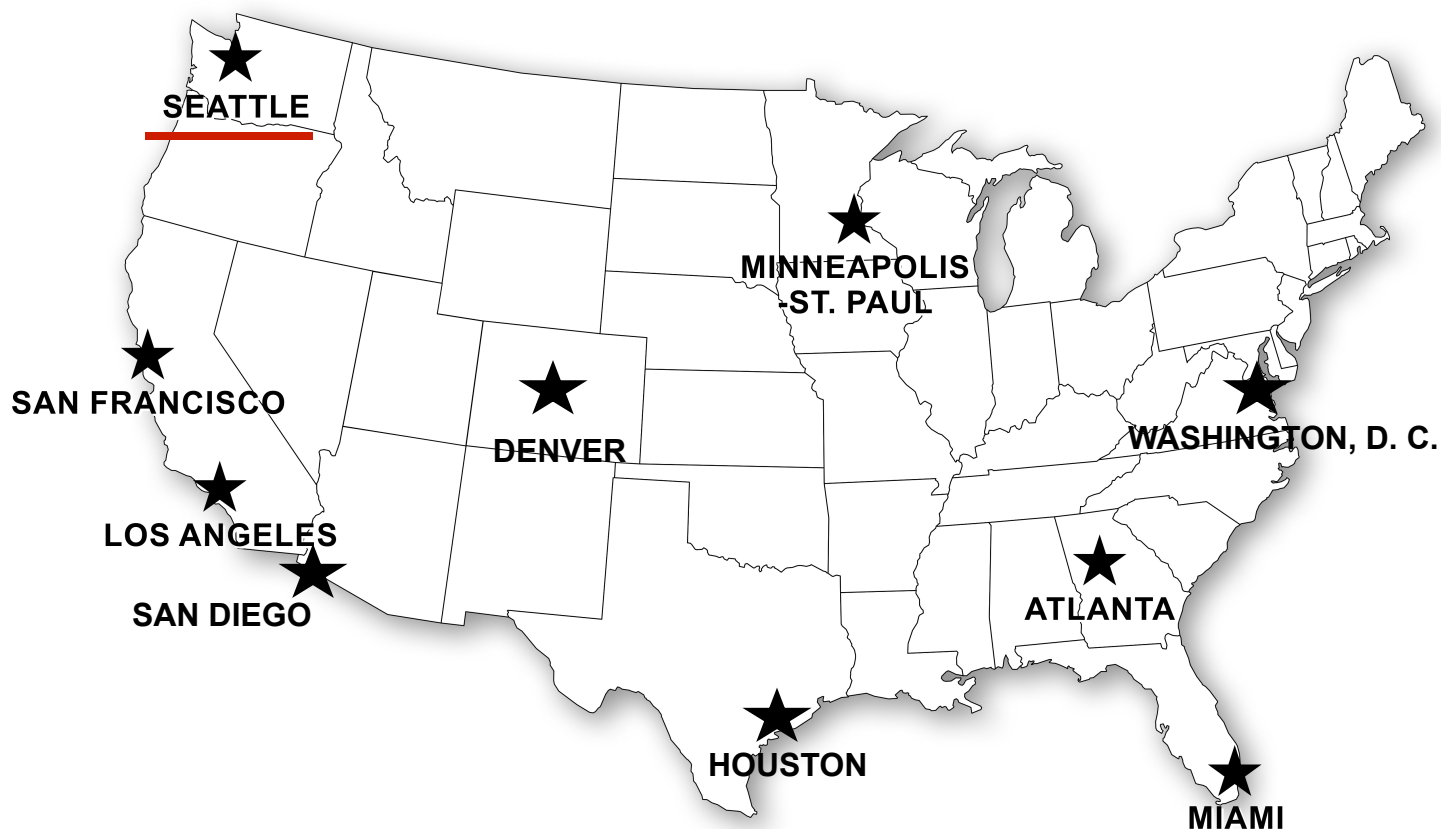
# I-95 CONVERSION

## HOV to Express Lane Conversion





# CONGESTION PRICING PROJECTS IN WASHINGTON STATE





# SR 167 HOT LANE FEATURES

Free to buses, 2+ carpools and motorcycles

Solo drivers pay a single toll to travel any distance on 10-mile route

Single HOT lane in each direction

HOT lane separated from GP lanes by double-white line, which is illegal to cross.

Electronic signs indicate the toll rate before each entry point  
10 access points



**Pre-HOT lanes:**

*SR 167 had two general purpose lanes and one HOV lane.*



**Post HOT lanes:** HOV lanes were converted to a single HOT lane in each direction.



# SR 520 BRIDGE REPLACEMENT

## \$2 BILLION PROJECT

Need to replace floating bridge over Lake Washington

Converted formerly free facility to toll bridge in advance of construction

May convert adjacent bridge to toll

Purpose is to both manage demand and raise revenue



# **CONCLUSIONS AND LESSONS LEARNED FROM CONGESTION PRICING**

- **Winning support is initially an enormous challenge**
- **Once implemented congestion pricing options offer choice and customers like choice**
- **Public acceptance is high**
- **More efficient use of HOV lanes**
  - Both travel time savings and reliability of travel times are key
  - General purpose lanes also work better
  - Benefits transit and carpools
  - Reduces emissions
- **Must continue to monitor performance and make adjustments**
- **Continue to market projects**
- **Nothing succeeds like success..., creates new opportunities**

**THANK YOU!**  
**FOR MORE INFORMATION**  
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