



CTB Workshop

A NATIONAL PERSPECTIVE ON HIGH-OCCUPANCY TOLL (HOT) LANES

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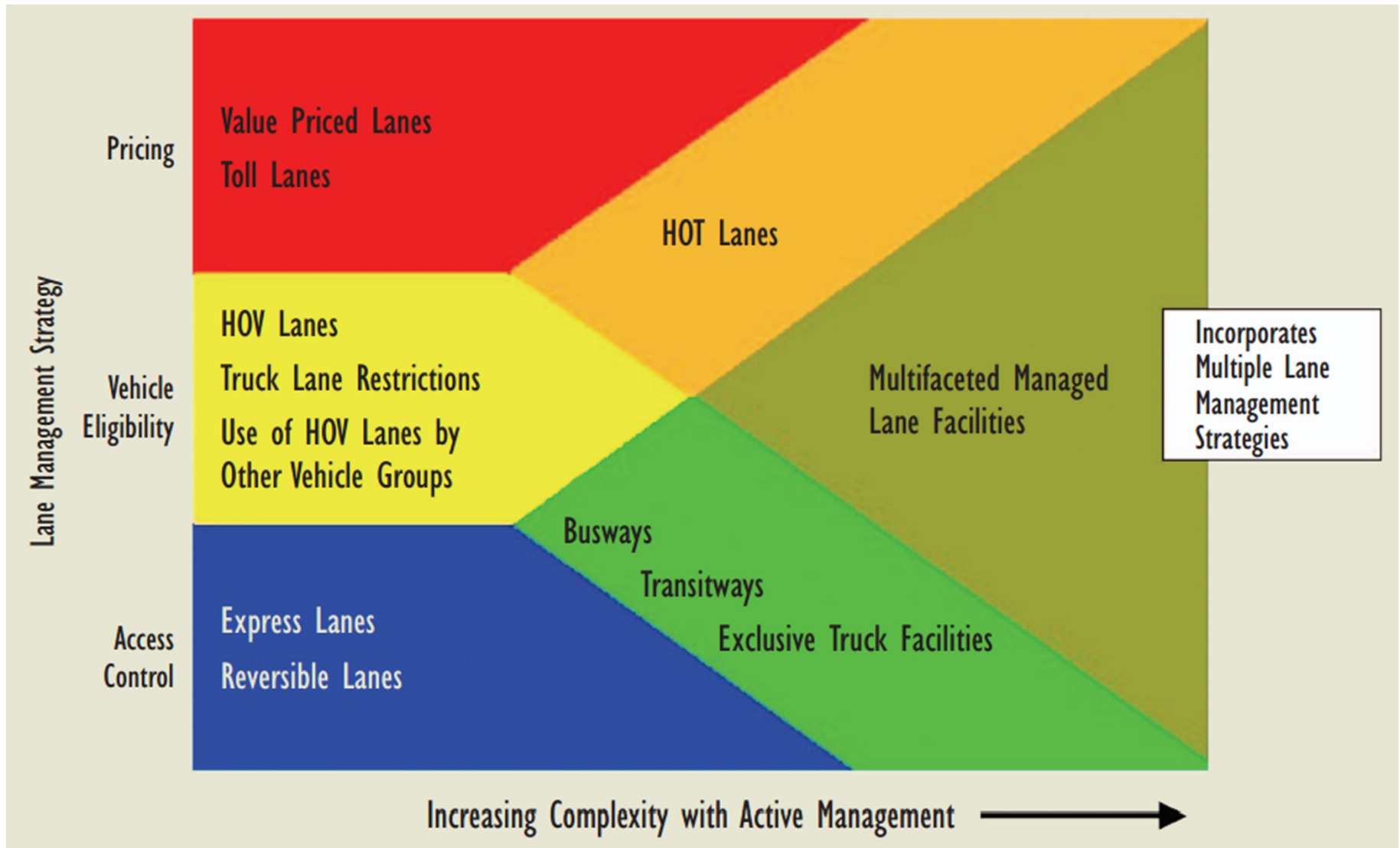
American Association of State Highway and Transportation Officials



CONCEPT OF “MANAGED LANES”

- Highway facilities or a set of lanes where operational strategies are proactively implemented and managed in response to changing conditions.
- Examples include high-occupancy vehicle (HOV) lanes, “value-priced” lanes, HOT lanes, or exclusive or special use lanes.
- Potential benefits
 - Regulate demand
 - Separate traffic streams to reduce turbulence
 - Utilize available and unused capacity





POTENTIAL BENEFITS OF HOT LANES

- Pricing can encourage road users to take transit, walk, bike, carpool or telework compared to driving alone during peak periods.
- Revenues can be used to enhance transit system capacity, ridesharing programs, and amenities for pedestrians and bicyclists, making those options more attractive to commuters.
- By converting an under-utilized HOV lane to a HOT lane that attracts more vehicles, congestion in the general purpose lanes could be improved.
- Conversely, converting an over-utilized HOV lane to a HOT lane may disincentive its use, lessening traffic on those lanes.



URBAN PARTNERSHIP AGREEMENTS

- USDOT's comprehensive policy response to urban congestion based on the "4 Ts"
 - Tolling (congestion pricing) demonstration
 - Enhanced transit services
 - Increased emphasis on telecommuting and flex scheduling
 - Deployment of advanced technology
- Deployed in Miami, Minneapolis, San Francisco, and Seattle



TRANSIT BENEFITS AS A RESULT OF HOT LANES

- Federal funding used in following HOT lane projects to purchase express buses and/or fund new express bus service
 - Miami
 - Minneapolis
 - Atlanta
 - San Diego



NATIONAL COMMUTING PATTERNS

Table 1: U.S. Commuting Patterns, 1960–2010

Commute Mode	1960	1970	1980	1990	2000	2005	2010
Drove Total	64.0%	77.0%	84.1%	86.5%	87.9%	87.7%	86.3%
Drove Alone	N/A	N/A	64.4%	73.2%	75.7%	77.0%	76.6%
Carpooled	N/A	N/A	19.7%	13.4%	12.2%	10.7%	9.7%
Used Public Transit	12.1%	8.5%	6.2%	5.1%	4.6%	4.7%	4.9%
Walked	9.9%	7.4%	5.6%	3.9%	2.9%	2.5%	2.8%
Biked	N/A	N/A	0.5%	0.4%	0.4%	0.4%	0.5%
Telecommuted	N/A	N/A	2.3%	3.0%	3.3%	3.6%	4.3%

Source: U.S. Census Bureau, American FactFinder



INCREASE IN RIDERSHIP UPON CHANGE FROM HOV TO HOT

UPA Site	Before HOT	After HOT	% Change
Miami	1,827	2,877	57%
Minneapolis	4,572	4,649	8%
Atlanta	1,210	1,459	21%
Seattle	4,441	4,889	24%

Figures reflect a.m. peak period

Seattle figures are for eastbound and westbound combined



WEEKDAY BUS TRIPS AND RIDERSHIP ON HOT LANES

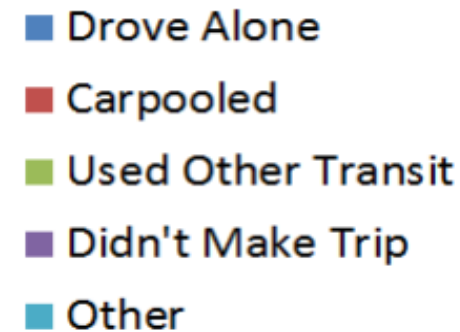
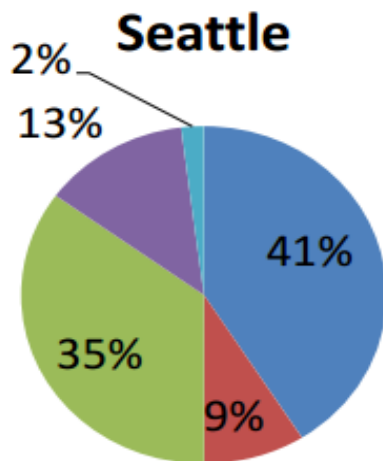
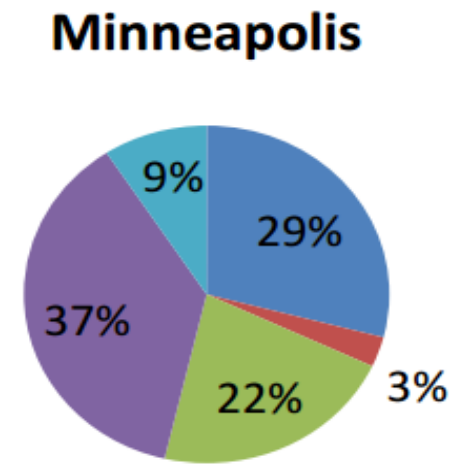
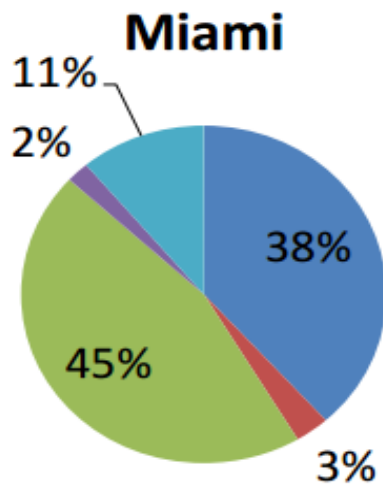
Region	Corridor	Weekday Bus			
		Trips ^a	Riders	Rider Count Period(s)	Riders/Trip
Orange Co.	SR-91	39	450	March 2010; Oct 2011	12
San Diego	I-15	141	2,158	Spring 2011; Nov 2011	15
Houston	I-10	391	8,027	Fiscal Year 2011	21
Houston	US-290	236	4,526	Fiscal Year 2011	19
Minneapolis	I-394	548	12,141	Calendar Year 2011 (est)	22
Salt Lake City	I-15	76	3,477	Calendar Year 2011	46
Denver ^b	I-25	434	14,840	Aug – Dec 2011	34
Seattle	SR-167	88	2,334	Oct-Dec 2011; Dec 2011	27
Miami	I-95	259	4,286	June 2011	17
Minneapolis	I-35W	495	11,647	Calendar Year 2011 (est)	24
Bay Area ^c	I-680	30	307	Calendar Year 2011	10
Atlanta	I-85	133	3,179	Sept 12 – Oct 7, 2011	24

^a Trips based on January 2012 schedules.

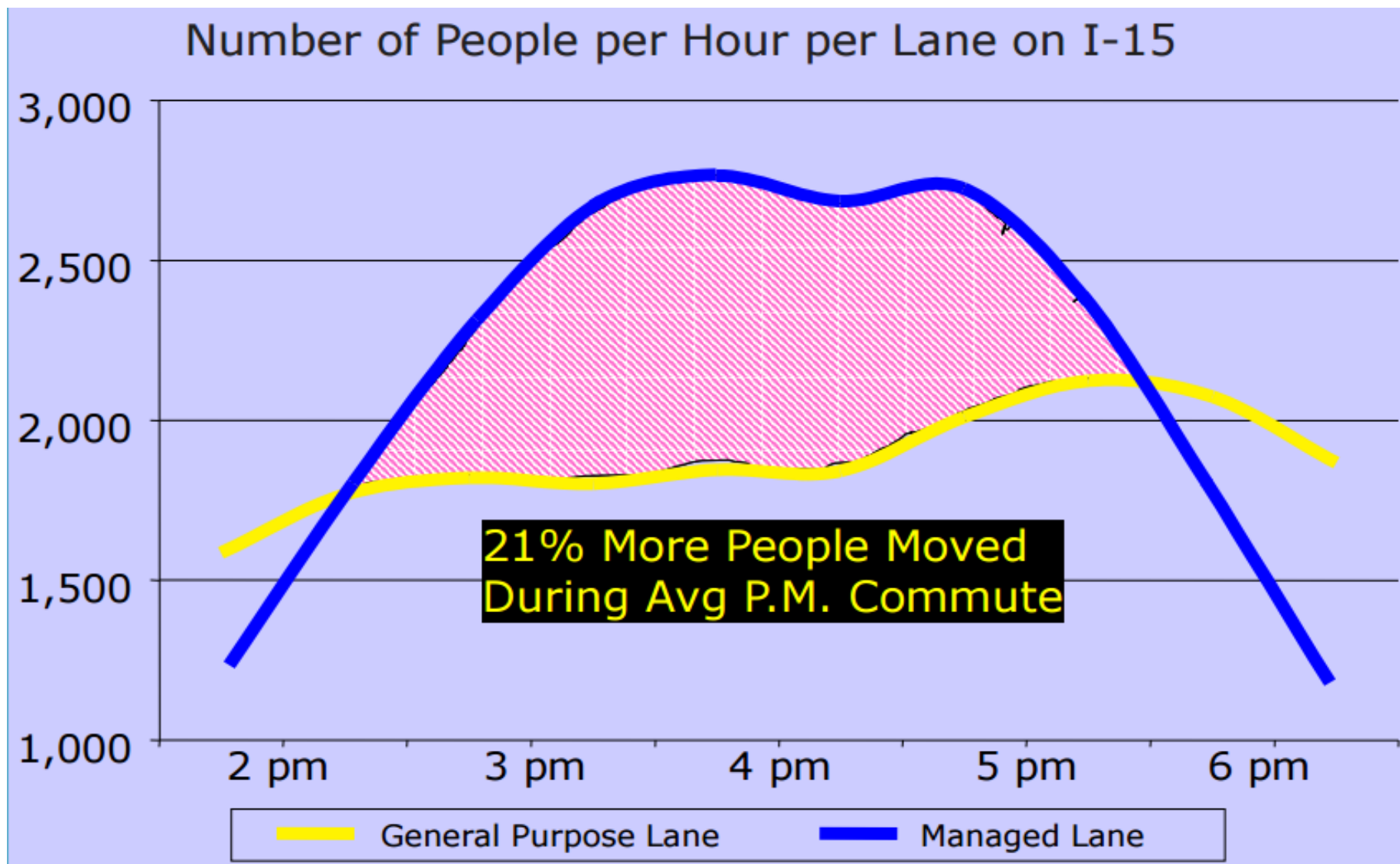
^b The B, L, and 120X routes also operate some service in the reverse commute direction. This service does not use the HOT lanes, but the data on those trips and ridership are included in these totals.

^c Since the Bay Area (I-680) HOT Lane is southbound only, only buses running in that direction and their ridership are counted.

PREVIOUS MODE OF NEW TRANSIT RIDERS IN CITIES INSTITUTING HOT LANES



SAN DIEGO: I-15



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A portion of the peak period travel volumes on the HOT lanes was redistributed from the middle of the peak to its shoulders, improving operation for the entire I-15 corridor

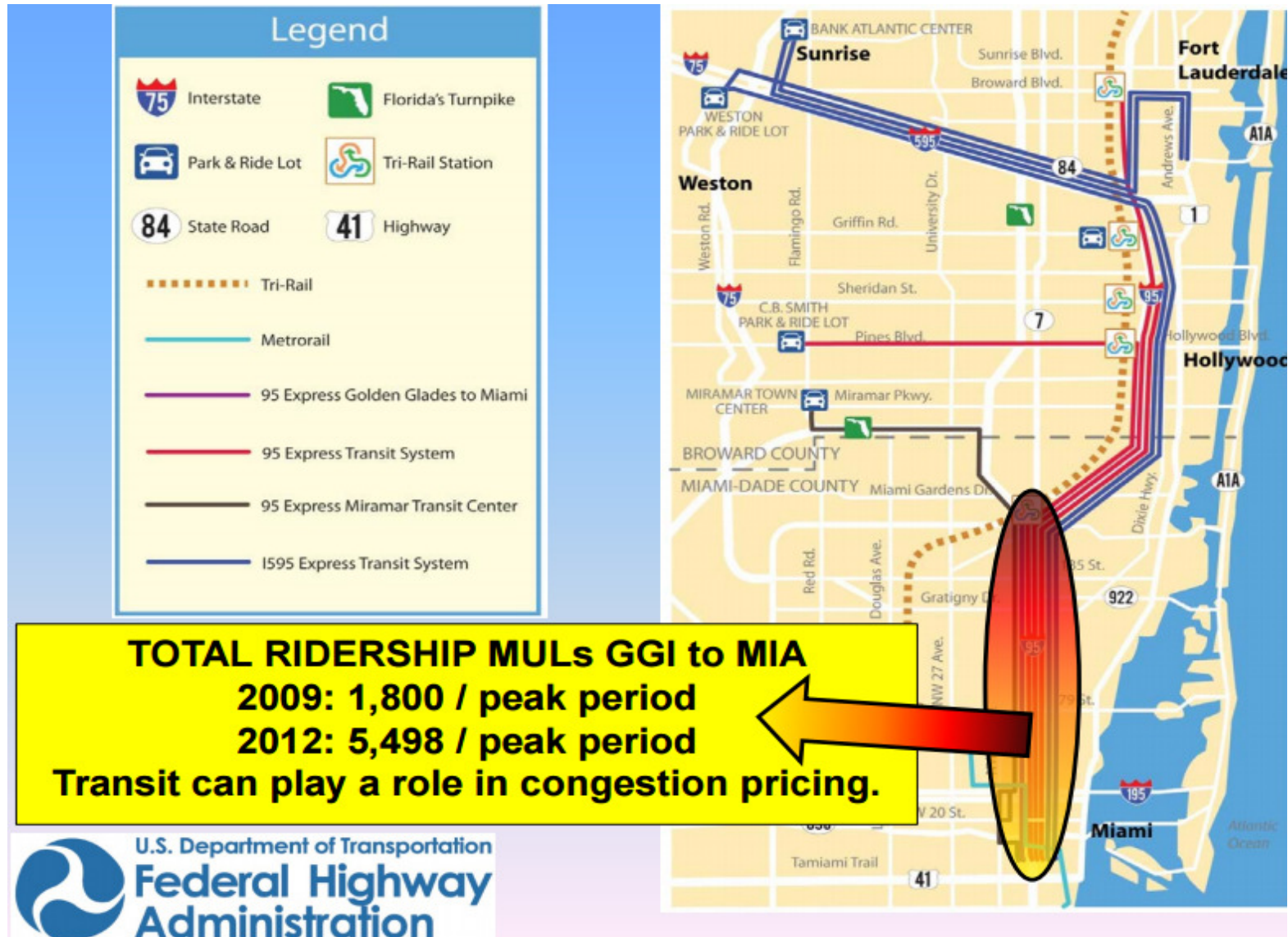


SAN DIEGO: I-15

- Toll revenue funds the Inland Breeze bus service in the HOT lane corridor
- Toll revenue pays for roughly \$430,000 per year in operating costs and \$60,000 for Highway Patrol facility enforcement, with the remaining revenue to be spent on improving transit service along the I-15 corridor



MIAMI: I-95



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- Average Peak Period Traffic Flow Improved
 - 2008: 20 mph or less in HOV and General Purpose (GP)
 - 2011: HOT 61-to-51 mph, GP 47-to-35 mph
- Change in the Average Peak Volume
 - HOT lanes: 8,900 in 2011 to 9,700 in 2013
 - GP lanes: 18,400 in 2011 to 17,900 in 2013



MIAMI: I-95

- Express Bus Service Has Improved
 - Average travel speed increased from 18 to 55 mph
 - Travel time decreased from 25 to 8 minutes
- Ridership Has Increased
 - Average weekday ridership increased from 1,827 to 2,877 (57%) between 2008 and 2010 and to 4,500 by Aug 2011
- 2010 Survey
 - 72% of riders new since tolling began
 - 53% of riders said tolling affected their decision to use transit



MINNEAPOLIS: I-35W

- As of April 2013 monthly trips reached 73,260; Average toll is \$1.71; Maximum average \$5 to \$7
- Increased use and throughput in corridor
- Some shift to HOT Lanes from GP and HOVs have remained
- Reduced Violations

I-35W HOT Lane Use – AM Peak Period

	4 th Quarter 2008		2 nd Quarter 2011	
	Vehicles	%	Vehicles	%
Total Vehicles	2,068		2,969	
Carpools/Vanpools	1,718	83%	1,784	60%
Tolled at Black Dog Road	0	—	967	33%
Transit Buses	47	2%	54	2%
SOVs (Violators)	303	15%	164	5%

MINNEAPOLIS: I-35W

- On I-35W South after HOT lanes conversion:
 - Bus speeds increased
 - Bus travel times decreased
 - Park-and-ride lot usage grew by 641 vehicles
- Marquette and Second Dual Bus Lanes in Downtown Minneapolis:
 - Bus speeds increased
 - Bus travel times decreased
 - Trip-time reliability increased
 - Consolidated bus routes



LOS ANGELES: I-110 BRT

- I-110 Segment of the Silver Line BRT
 - Transit travel times remained relatively constant
 - Transit on-time performance increased
 - Average daily peak period ridership increased by 52% in the AM peak period and 41% in the PM peak period after CRD-funded service was added, and again by 29% in the AM peak period and 25% in the PM period after tolling began



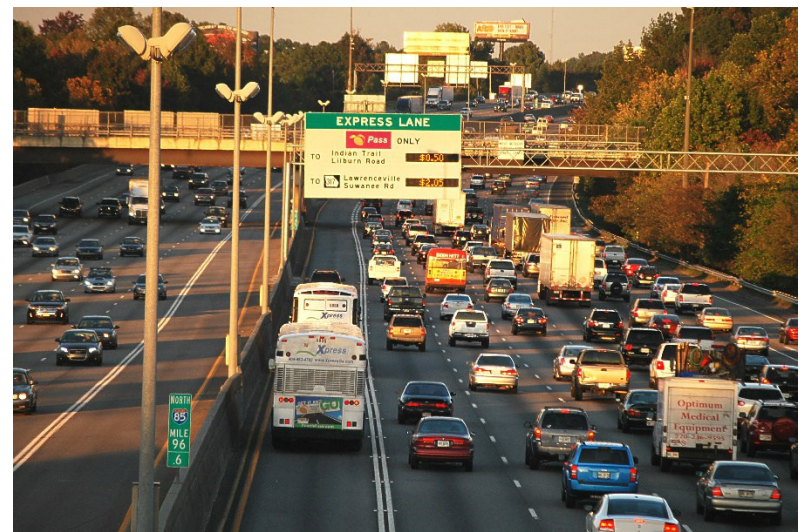
LOS ANGELES: I-110 BRT

- Survey results indicate:
 - Customer satisfaction with frequency of service increased, but availability of seats and parking availability declined
 - 62% new riders
 - 33% used to drive alone
 - 78 new registered vanpools formed



ATLANTA: I-85

- “Ride Transit—Earn Toll Credits” Program
 - Pilot program instituted earlier this year to keep traffic better-flowing on I-85 in Atlanta
 - Toll credit earned when a commuter rides a bus instead of a car in the I-85 Express Lanes
 - They receive a toll credit of \$2 per trip, up to \$10 per month



DENVER: I-25

- For the I-25 Express Lanes in Denver, transit is placed at the top of the hierarchy of users
- Having in place monitoring programs to avoid service degradation is critical for ensuring public confidence with HOV-to-HOT conversions



SEATTLE: SR-167

- SR-167 HOV lanes were converted to HOT lanes due to having available space pre-conversion during peak period commute times, and population expected to increase

		May - Jul	Aug - Oct	Nov - Jan	Feb - Apr
Average number of daily tolled trips	Year One	1,110	1,260	1,410	1,670
	Year Two	1,750	1,830	1,980	2,090
	Year Three	2,540	2,780	2,670	3,070
Highest number of daily tolled trips	Year One	1,390	1,560	1,910	1,880
	Year Two	2,060	2,150	2,230	2,390
	Year Three	3,160	3,290	3,340	3,480
Average peak-hour northbound tolled trips	Year One	150	180	200	260
	Year Two	250	290	320	350
	Year Three	360	370	340	420
Average peak-hour southbound tolled trips	Year One	110	120	130	160
	Year Two	160	170	190	200
	Year Three	210	210	200	250
Maximum peak-hour tolled trips	Year One	210	240	260	310
	Year Two	310	350	390	420
	Year Three	430	440	430	530

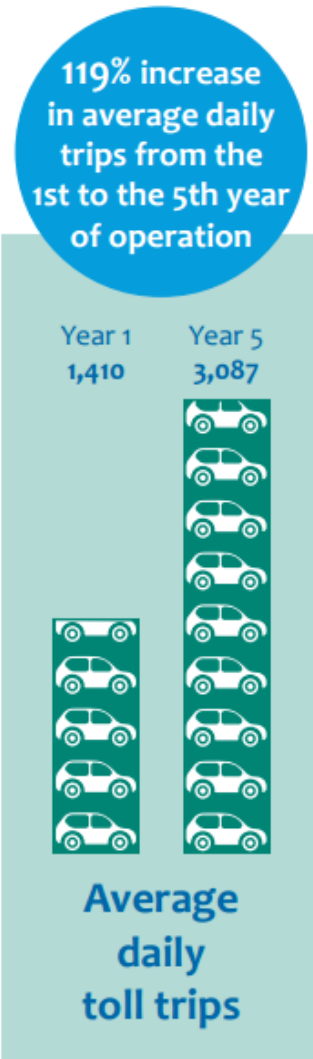
SEATTLE: SR-167

- On average, daily general purpose lane volumes have decreased 4-5%, with speeds increasing 8%
- On average, speeds in the HOT lanes have remained around the 60 mph speed limit



BAY AREA: I-680S

- Net toll revenue is required by law to be used for transit service on the corridor or for building additional lanes
- Plans to build an express lane on I-680N



CONCLUSION

- Enhancing travel options and efficiency in congested corridors is critical
- Scaling up HOT lanes into a coordinated network could make the whole greater than sum of its parts
- Going forward, increased sample size of HOT lanes and associated data will better inform public policy



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Questions?

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