

Environmental Justice Analysis, Tools and Approaches Virtual Workshop

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FEBRUARY 28, 2017



Agenda

2

- Objectives
- Speaker Introductions
- Introduction to the Congestion Pricing Program
- LA Metro: ExpressLanes Low-Income Impact Assessment
- NCTCOG: Influencing Travel Behavior with Sensitivity to Environmental Justice
- Open discussion

Objectives

- ▶ Insight into FHWA's efforts towards supporting agencies with Environmental Justice (EJ) aspects of their congestion pricing initiatives
- ▶ Learn about innovative EJ analysis approaches and tools through real-life examples
- ▶ Gain perspective of the role of public perception and EJ population concerns
- ▶ Broader conversation through open discussion and suggestions for FHWA

Speaker Introductions

- ▶ Angela Jacobs, FHWA Office of Operations, Congestion Pricing Manager
- ▶ Natalie Bettger, Senior Program Manager, Congestion Management and System Operations, North Central Texas Council of Governments (NCTCOG)
- ▶ Nancy Pfeffer, President, Network Public Affairs, LLC

FHWA's Congestion Pricing Program

5

- ▶ Congestion Pricing program and website provides information and resources to help equip state agencies and practitioners with an understanding and tools to implement congestion pricing projects and incorporate pricing into transportation planning.
- ▶ Relevant Initiatives
 - ▶ VPPP supported project in Texas
 - ▶ Ongoing support to NCHRP 08-100 "Environmental Justice Analysis when Considering Toll Implementation or Rate Changes"
 - ▶ Upcoming White Paper: "Impact of Congestion Pricing on Low-Income Populations"



Impetus for the Workshop

6

“Agencies looking to implement priced-managed lanes need to be cognizant about both the potential for genuine adverse impacts on low-income populations, as well as the gap in public education leading to a rejection of road pricing as inherently inequitable.”

- ▶ There has been a significant amount of interest in the impact of pricing on EJ populations.
- ▶ Very limited information filters to practitioners and the public beyond the transportation agency involved in the action.

LA Metro: I-10/I-110 ExpressLanes Low-Income Impact Assessment

LA Metro – Overview

- ▶ Assessment of low-income impacts required by state authorizing bill (SB 1422)
 - ▶ Offered guidance as to methodology
- ▶ ExpressLane implementation would leave low-income commuters better off:
 - ▶ More travel choices
 - ▶ Enhanced transit service
- ▶ However, some mitigations were recommended and implemented:
 - ▶ Transponder account: administrative burdens
 - ▶ “Equity Plan” – now called Low-Income Assistance Plan

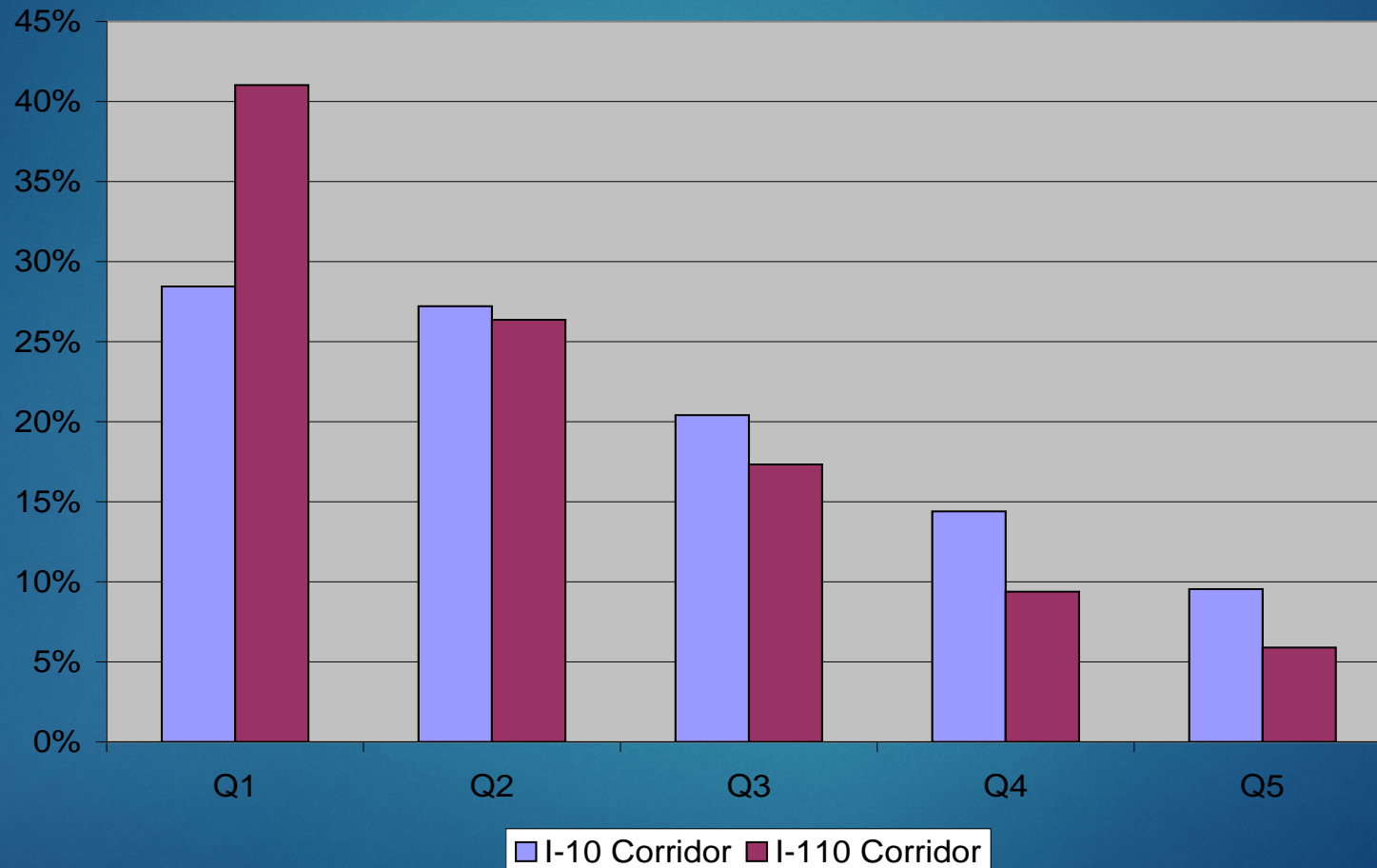
LA Metro – Methodology

9

- ▶ Define “low-income” -> Recommendation
 - ▶ State and local assistance programs
 - ▶ Federal poverty threshold
 - ▶ Definitions used in project surveys
- ▶ Identify potential “low-income” users of express lanes
 - ▶ Census data on commuting modes
 - ▶ Regional MPO commuting survey
 - ▶ Travel demand model: trip origins & demographics by TAZ
 - ▶ License plate survey

Income Distribution in ExpressLane Corridors

2/28/2017



Source: 2008 data from SCAG; income distribution based on 2000 U.S. Census.

LA Metro – Methodology

11

- ▶ Evaluate impacts on low-income commuters
 - ▶ Travel demand model plus toll optimization model
 - ▶ ***Toll model can be run to optimize revenue OR optimize travel time***
 - ▶ Comparison: low-income value of time with marginal value of time: the value at which the driver is indifferent between staying in the free lane or entering the ExpressLane
- ▶ Conclusion: no instances where low-income commuters would choose the express lanes, BUT
 - ▶ ***Minimum toll level affected model results***
 - ▶ Average value of time vs. instantaneous (range)
 - ▶ Toll credits could help, along with different assumptions about value of time
 - ▶ Anyone may decide that the cost of toll is worth the time saved

LA Metro – Additional Findings

12

- ▶ Overall cost- benefit analysis
 - ▶ Ensure cost of contemplated toll and transit credits could be covered
 - ▶ Overall net social benefit (positive Net Present Value)
- ▶ Analysis of transponder account administrative burdens
 - ▶ Prevalence of credit cards, bank accounts

LA Metro – Recommendations

13

- ▶ Credit account set-up fees for low-income households
 - ▶ Versus on-going toll credit
 - ▶ Implemented: one-time \$25 credit per household
- ▶ Require lower minimum account balance for accounts not linked to credit card
- ▶ Ensure wide local distribution of transponders
- ▶ Waive or reduce minimum monthly account charges
 - ▶ Implemented – monthly \$1 fee waived
- ▶ Transit credits can be earned
 - ▶ Implemented via TAP cards
- ▶ *****Outcome: as of early 2015, over 5,000 low-income households signed up*****

Two Important Publications

14

- ▶ **Equity of Evolving Transportation Finance Mechanisms**, 2011 (TRB Special Report 303) suggests these key questions:
 - ▶ Who is affected by the project?
 - ▶ Who makes direct payments, and how are revenues spent?
 - ▶ What are the benefits and impacts of the project [for low-income drivers]?
 - ▶ What travel alternatives are available (if needed)?
- ▶ **Just Pricing: the distributional effects of congestion pricing and sales taxes** (L. Schweitzer, University of Southern California, and B.D. Taylor, University of California, Los Angeles, 2008)

“Using sales taxes to fund roadways ... shift[s] some of the costs of driving from drivers to consumers at large, and in the process disproportionately favors the more affluent at the expense of the impoverished. Others have shown such transfers to be inefficient; we argue it is inequitable as well.”

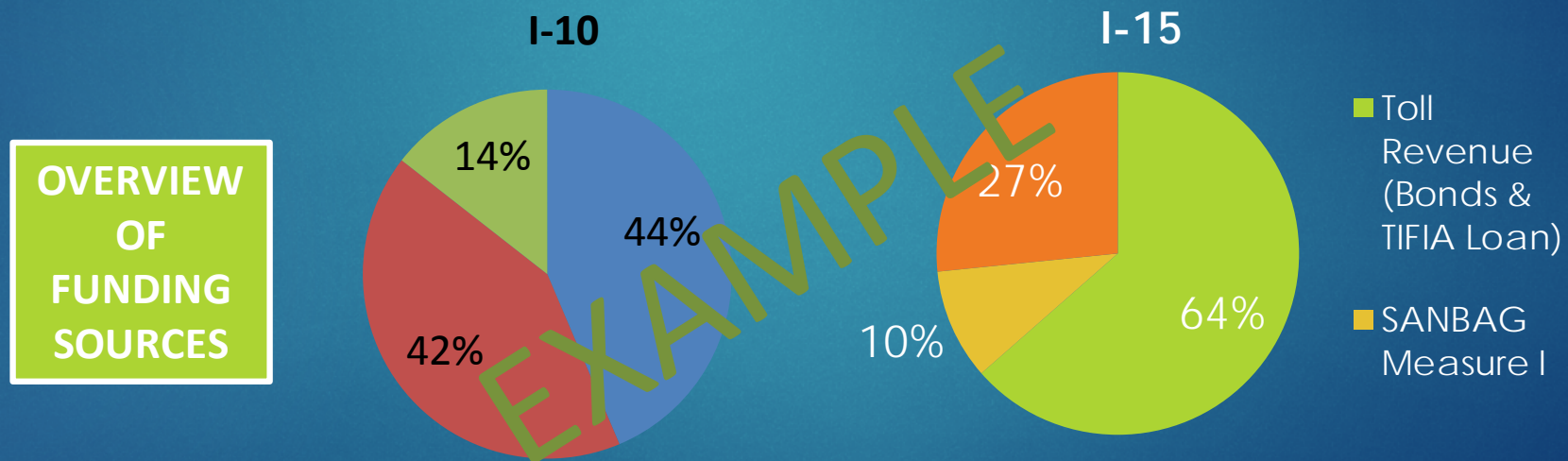
Elements of Equity Assessment

15

- ▶ Demographic data (focus on low-income)
- ▶ Survey data
- ▶ Project funding/financing data
- ▶ Traffic modeling: time savings
- ▶ Toll modeling and value of time
- ▶ Travel alternatives
- ▶ Transponder issues

Equity Findings – Project Finance Plans

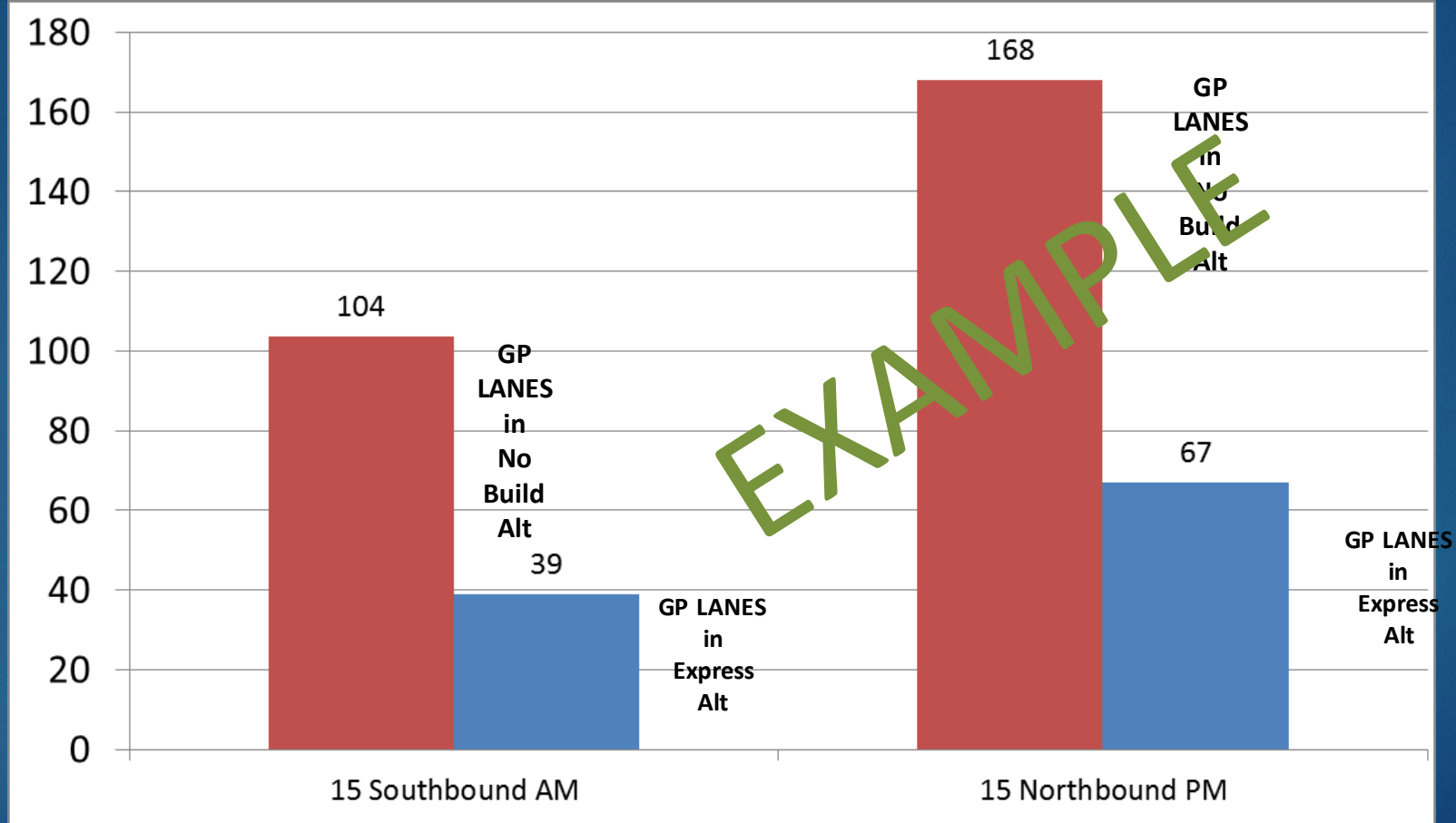
- Funding can come from multiple sources
 - Toll is paid by user for specific benefit (most equitable)
 - Gas tax may be paid by non-users of I-10 & I-15 toll lanes
 - Sales tax may be paid by non-users



- There is no goal or standard for what is equitable

General Purpose Lane Travel Time on I-15 Year 2030 from SR-60 to US 395

(in minutes to travel ~33 miles)



Source: CDM Smith traffic model results September 2013

Overall Recommendations for Tolling Equity Analysis

- ▶ Analyze equity concerns early (if you can)
- ▶ Coordinate with other project analysts
 - ▶ GIS staff
 - ▶ Traffic modelers
 - ▶ Financial projections
- ▶ Consistent findings for HOT lanes
 - ▶ Positive findings for equity for low-income travelers: better off with more travel choices, (possible) new transit service, faster GP lanes
 - ▶ Subsidy or special policies recommended for low-income households' accounts
- ▶ ***Other forms of tolling may present more equity concerns***

NCTCOG: Influencing Travel Behavior with Sensitivity to Environmental Justice

Project Overview Phases

20

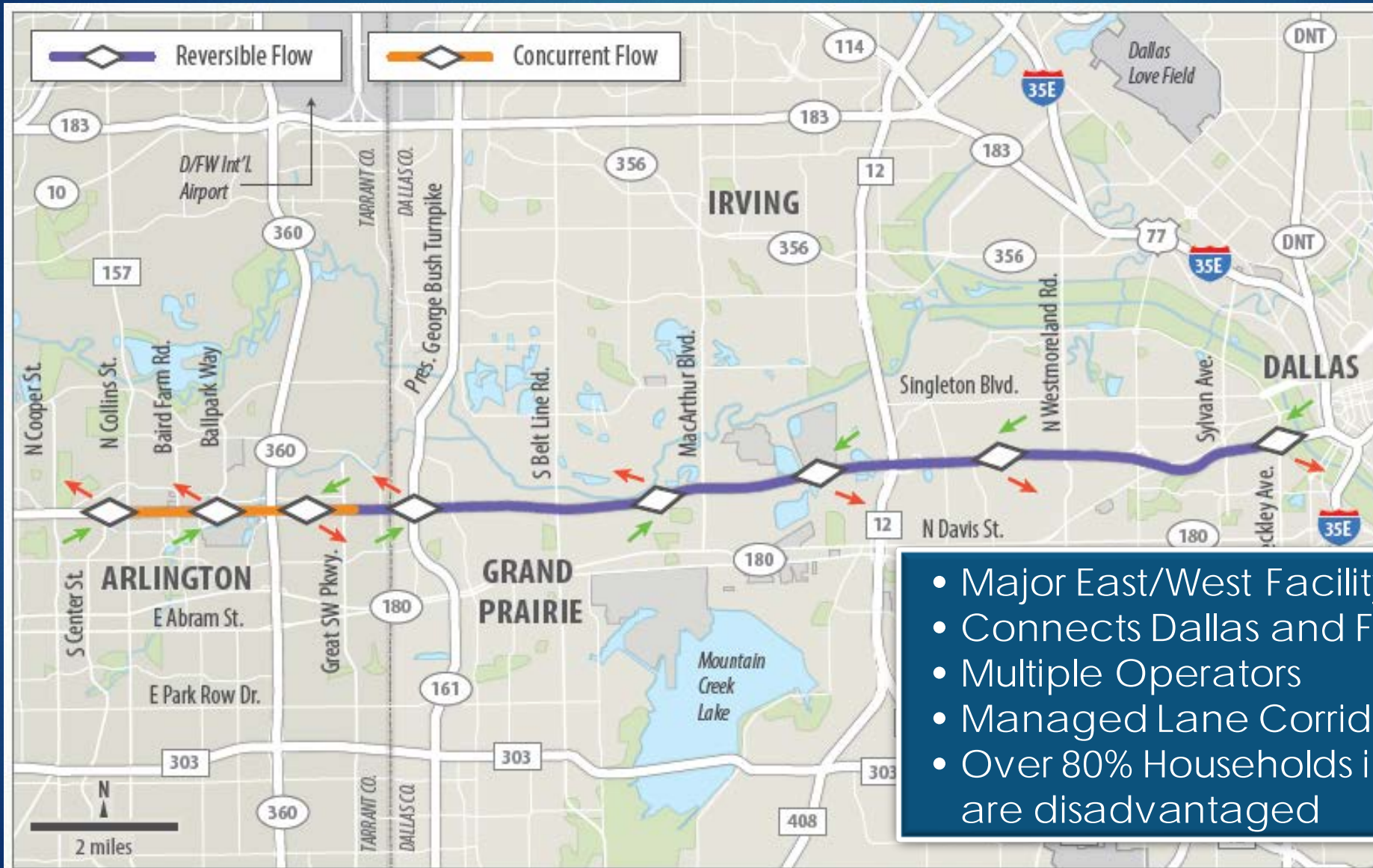
- ▶ Develop Tool to Track Usage and Provide Incentives
 - ▶ TryParkingIt
 - ▶ DFW Connect-A-Ride
- ▶ Enhance Tool to Guide Operational Decisions on Managed Lanes (ML)
 - ▶ Goals And Performance Measures
 - ▶ Determine and Measure Incentives through Survey
 - ▶ Model Incentive Impacts and Incorporate Results into Tool
 - ▶ Use the Tool to Help Determine IH-30 ML Policies
- ▶ Implement Incentives
 - ▶ Marketing and Outreach
 - ▶ Track Usage
 - ▶ Compare Model Data to Real World Data



Environmental Justice

IH 30 Corridor Characteristics

21



Usage Tracking Tools and Incentives

22

- ▶ NCTCOG's Commuter Tracking & Ride-matching System

- ▶ Purpose is to reduce journey-to-work trips

- ▶ App and Website



- ▶ NCTCOG's "real-time" ridesharing program

- ▶ Drive on TEXpress is a free mobile app and website for HOV users to receive toll discounts

- ▶ Carpools using the app receive a 50% toll discount on ML



Traffic Thermostat Modeling Tool

23

Goal	MOEs
Safe Travel	Number of Crashes
	Incident Clearance Time
High-Speed Travel	Average Speed
	Travel Time
Reliable Travel	Buffer Index
	Days per Month Below Threshold
Provide Choice	Public Perception of User Choice
	Number of Unique Users
Maximize Throughput	Person Throughput
	Person Throughput in HOVs

Traveler Characteristics - Survey

24

Characteristic	Percentage of Travelers
Gender	
Male	55.2
Female	44.8
Age	
18-24	4.3
25-34	20.1
35-44	17.6
45-54	24.1
55-64	23.5
65+	10.2
Ethnicity	
White/Caucasian	78.5
Hispanic/Latino	6.9
African American	6.6
Asian American	2.8
Native American	1.3
Other	3.8

Traveler Characteristics - Survey

25

Characteristic	Percentage of Travelers
Education	
Less than high school	0
High school graduate	2.5
Some college or vocational school	21.9
College graduate	42.5
Post-graduate college	33.1
Household Income	
Less than \$10,000	0
\$10,000 - \$14,999	0.3
\$15,000 - \$24,999	1.9
\$25,000 - \$34,999	4.1
\$35,000 - \$49,999	8.8
\$50,000 - \$74,999	20.7
\$75,000 - \$99,999	16.3
\$100,000 - \$199,999	25.4
\$200,000 or more	6
Prefer not to answer	16.7

Mode Choice

26

Answer to Stated Preference Question 1	Percentage of Travelers
General Purpose Lane	68.8
Managed Lane Drive Alone	15.7
Managed Lane Car Pool	11.7
Transit	3.7
Average of SP2 and SP3	
General Purpose Lane	60.2
Managed Lane Drive Alone	19.1
Managed Lane Car Pool	17.1
Transit	3.7

Express Lanes chosen 31% of the time without an incentive and 40% when an incentive was offered

Incentives Chosen for Survey

27

- ▶ Earn a free trip for every X paid trips taken on the ML
- ▶ Earn gift cards worth \$5 for every X peak-hour trips saved by either telecommuting or by not traveling during the peak hours (7-9 am or 4-6 pm)
- ▶ X% discount offered through select businesses
- ▶ For every X trips taken by transit, \$5 in credits that can be used on the Express Lanes
- ▶ A transit fare discount of X%
- ▶ Express bus service from park-and-ride lots to downtown

Traffic Thermostat Tool: Inputs Page

28

RANK USER GROUP	CURERNT STATUS	TRANSPORTATION MODE	GPL VOLUME	ML VOLUME
1 ▾	Free ▾	Transit (number of vehicles)	<input type="text"/>	<input type="text" value="10"/>
2 ▾	Free ▾	Vanpools	<input type="text"/>	<input type="text" value="8"/>
2 ▾	Free ▾	Other buses	<input type="text"/>	<input type="text" value="5"/>
3 ▾	Tolled ▾	HOV3+	<input type="text"/>	<input type="text" value="250"/>
4 ▾	Tolled ▾	HOV2	<input type="text"/>	<input type="text" value="1000"/>
5 ▾	Tolled ▾	SOVs	<input type="text"/>	<input type="text" value="2300"/>
▾	Not Allowed ▾	Low Emissions/"green" vehicles	<input type="text"/>	<input type="text"/>
▾	Not Allowed ▾	Fuel efficient vehicles	<input type="text"/>	<input type="text"/>
3 ▾	Tolled ▾	Motorcycles	<input type="text"/>	<input type="text" value="30"/>
▾	Not Allowed ▾	Law enforcement/ambulance/fire vehicles	<input type="text"/>	<input type="text"/>
0 ▾	Not Allowed ▾	Violators	<input type="text"/>	<input type="text" value="60"/>
▾	Not Allowed ▾	Transportation Agency Vehicles	<input type="text"/>	<input type="text"/>
▾	Not Allowed ▾	Low income traveler program	<input type="text"/>	<input type="text"/>
▾	Not Allowed ▾	Trucks	<input type="text"/>	<input type="text"/>

Previous

Next

Traffic Thermostat Operational Fixes

29

I-30 Traffic Thermostat

Overview

Facility Type:

HOT

Start Time: 7:00:AM

End Time: 8:00:AM

Goals & MOEs:

Goal 1: High-speed Travel

Average Speed

Goal 2: Maximize

Throughput

Person Throughput Per
Hour

Select possible operational fixes and / or incentives to appear in the framework along with pricing and occupancy solutions. Any incentive value can be entered. However, the incentives' impact was based on a specific range. More information is available [here](#).
Note, the change of toll would only be applied to those user groups which are allowed.

Select all that apply:

	Previous Value	New Value
<input checked="" type="checkbox"/> Pricing (toll per trip)		
<input checked="" type="checkbox"/> Toll Group 1: HOV3+, Vanpools	\$ 2	\$ 3 ?
<input checked="" type="checkbox"/> Toll Group 2: HOV2	\$ 2	\$ 3 ?
<input checked="" type="checkbox"/> Toll Group 3: Motorcycles, Law Enforcement Vehicles, TAV, Low-income	\$ 2	\$ 3 ?
<input checked="" type="checkbox"/> Toll Group 4: SOVs, Low Emissions, Fuel Efficient	\$ 4	\$ 6 ?
<input type="checkbox"/> Toll Group 5: Trucks		?
<input checked="" type="checkbox"/> Allowed user groups		
<input checked="" type="checkbox"/> Increase enforcement (This will remove 50% of the violators from the managed lane)		
<input checked="" type="checkbox"/> Incentive 1: Earn a free trip on the Managed Lanes for every ____ number of trips		8 ? Recommended: 8-12
<input type="checkbox"/> Incentive 2: Earn gifts such as cash or gift cards for every ____ number of trips		?

☐ Incentive 3: A ____ percent discount to local businesses ?

☐ Incentive 4: Earn \$5 in credit for every ____ number of trips taken by transit ?

☒ Incentive 5: A Transit discount of ____ % during the peak hours
15 ?
Recommended: 10-30

☐ Incentive 6: Express bus service to downtown

*Others (write in): New fix, like Rangers Tickets

*Others (write in):

*Note that the impact of these are unknown

Previous

Next

Traffic Thermostat Output

30

I-30 Traffic Thermostat

Overview

Facility Type:

HOT

Start Time: 7:00:AM

End Time: 8:00:AM

Goals & MOEs:

Goal 1: High-speed Travel

Average Speed

Goal 2: Maximize

Throughput

Person Throughput Per
Hour

Current Facility Type : HOT

Summary : No change in facility type

GOAL : High-speed Travel

Chosen MOE : Average Speed

Currently : Failing

Value assigned to this MOE : 50

Selected operational fixes for this MOE :
pricing

Is 48 mph for the current Average Speed acceptable?.

Chose No

Operational Fix: Allowed User Group. Exclude SOVs ?

Chose No

Operational Fix: Pricing. Change toll for TollGroup4(SOV) from \$4 to \$6?

Chose Yes

Given this change, the average speed on the MLs for your time period is now 51 mph. Are you
done implementing fixes?

Chose Yes

GOAL : Maximize Throughput

Chosen MOE : Person Throughput Per Hour

Currently : Failing

Value assigned to this MOE : 5700

Selected operational fixes for this MOE :

Incentive 5: A Transit discount of 8% during the peak hours

The Person Throughput Per Hour during your time period is 5644 people. Is this satisfactory ?

Marketing & Outreach Goals & Objectives

31

- ▶ Recruit participants for the I-30 Insider program
- ▶ Determine the effectiveness of several types of incentives to encourage alternative commutes
- ▶ Specific focus low-income individuals
- ▶ October 2016 through April 2017

IH 30 Insider Infographic

32



[try parking it](#)

[LOGIN](#)[REGISTER](#)

NCTCOG
North Central Texas Council of Governments

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I-30 Insider ChallengeOct 1 to Apr 28, 2017

How it works

- 1 Create an account at TryParkingIt.com.
- 2 Come back to I30Insider.com and join the I-30 Insider Challenge.
- 3 Between 10/1/2016 and 4/28/2017, instead of driving alone on I-30, use any of these alternative commutes:

Carpool or Vanpool

Take Transit

Bike

Walk

Telecommute or Compressed Work Week

Find a ride match under "Find Commute Options" at TryParkingIt.com

Get a TollTag and download the Drive On TEXpress app for HOV rush hour discounts in the TEXpress Lane at DriveOnTEXpress.com
- 4 Log your alternative commute at TryParkingIt.com and select the I-30 Insider option to earn points. The I-30 Insider icon () will appear on your calendar.
- 5 Claim your I-30 Insider rewards, as long as supplies last.

Leader Board

Participant Name	Distance Miles	Trips	Calories Burned	Fuel Saved Gal	GHG Saved Lbs

Advertisements

33

- ▶ Social Media Advertising
 - › Facebook
 - › Instagram
- ▶ Digital Billboards
- ▶ Search Engine Optimization
- ▶ Targeted Digital Advertising
 - › CBS Radio
 - › Dallas Morning News
 - › KXAS / NBC 5



Challenges

34

- ▶ Challenging to develop a tool that is both accurate and flexible
 - › Quantifying impacts
 - › Changing operational fixes
 - › Conflicting goals
- ▶ Access to demographic data for specific users of the system.
 - › Have options not to answer
- ▶ Marketing and outreach to specific audience.
 - › How best to engage Environmental Justice disadvantaged community?
- ▶ Environmental Justice disadvantaged is high along corridor, but not sure about travelers on the facility

Contacts

35

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Q&A

Open Discussion

37

- ▶ Other experiences with performing EJ analysis and equity concerns related to congestion pricing projects
 - ▶ Innovative approaches
 - ▶ Tools developed
 - ▶ Steps taken to mitigate any adverse impacts
 - ▶ Communicating equity impacts to public
 - ▶ Lessons learned