

Improving Houston METRO HOV/HOT Lane Safety

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Dustin Qualls, PE, PTOE
Nader Mirjamali, PE

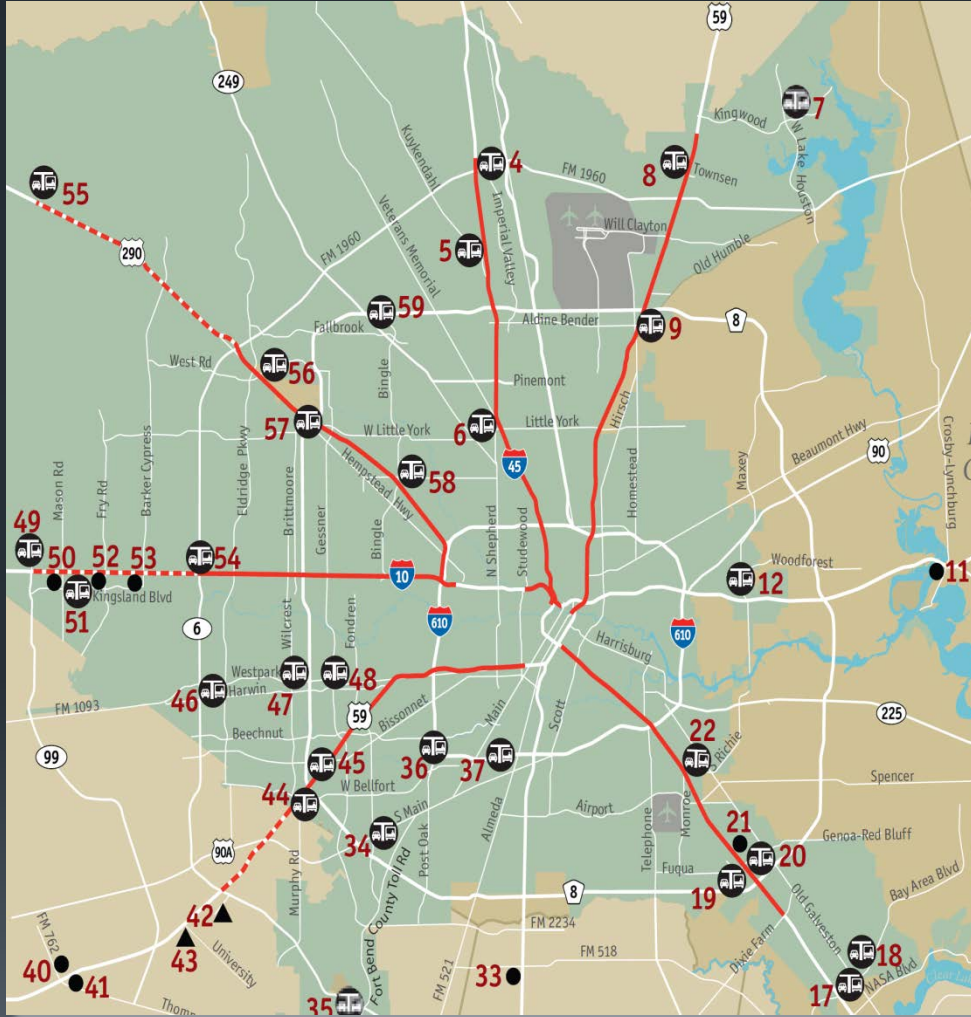
Agenda for Today's Presentation

- I. Introduction to ARGO (Automated Reversible Gate Operation) and HOT (High Occupancy Tolling) Lanes in Houston, TX
- II. Existing HOV Lane Safety Deficiencies
- III. The ARGO Safety Solution
- IV. HOT Lanes – An Added HOV Lane Utilization Benefit
- V. Conclusion / Questions

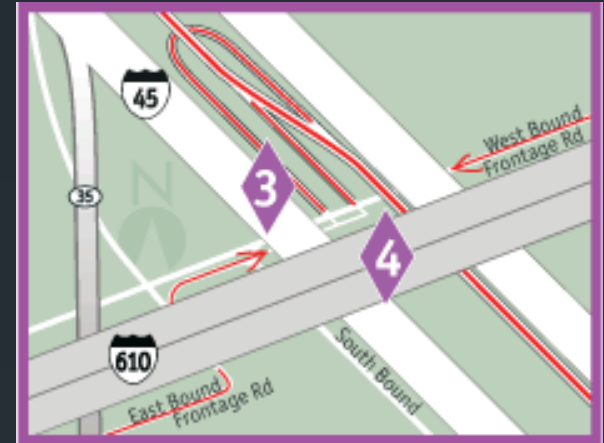
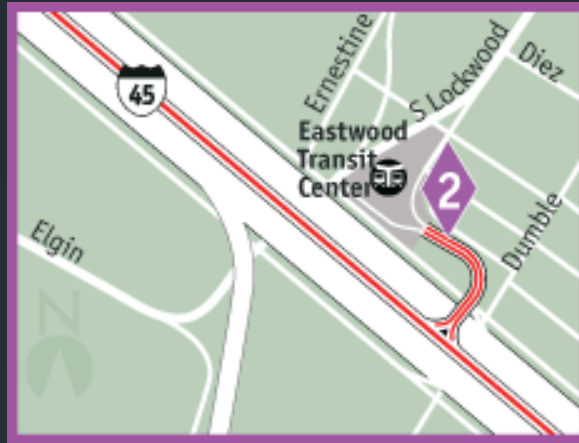
I. Introduction

- The Metropolitan Transit Authority of Harris County (METRO) has operated and maintained reversible, barrier separated, HOV lanes for over 20 years.
- There are five HOV lane corridors in Houston:
 - IH 45 South (Gulf Freeway)
 - IH 45 North (North Freeway)
 - US 59 South (Southwest Freeway)
 - US 59 North (Eastex Freeway)
 - US 290 (Northwest Freeway)

I. Introduction – System Overview



I. Introduction – Access Types



II. Existing Safety Deficiencies



II. Existing Safety Deficiencies



II. Existing Safety Deficiencies



II. Existing Safety Deficiencies



II. Existing Safety Deficiencies



II. Existing Safety Deficiencies



II. Existing Safety Deficiencies

- Other safety deficiencies include the inability to monitor the five corridor system in real time; thus wrong-way drivers or motorists using the HOV lane during times in which the lane is closed were not able to be instantly identified
- Safety at Park & Ride lots was compromised at times due to lack of video monitoring when on-site police were not present

III. The ARGO Safety Solution

III. The ARGO Safety Solution

- Purpose is to automate HOV/HOT lane reversing procedure and provide full video coverage of all Park & Ride lots, HOV/HOT lanes and access points
- Utilizes vertical gates, swinging gates, fiber-optic changeable message small signs and full PTZ video camera coverage of system
- Funded by American Recovery and Reinvestment Act of 2009
- Design-Build method of delivery

III. The ARGO Safety Solution

- METRO employees previously assigned to manual reversing of HOV/HOT lane now stationed at Houston TranStar watching system remotely from video cameras
- Manual reversing time before automation was approximately one hour per corridor (twice per day)
- With ARGO, reversing time now a matter of minutes based on visual confirmations of all gates prior to opening and closing; all gates opened and closed from TranStar

III. The ARGO Safety Solution

- Manually reversed small signs either removed or replaced with fiber-optic, changeable message signs (CMS) tied into same 2070 controller as adjacent ARGO system
- All new fiber optic CMS signs are also observed and confirmed from TranStar using video feed
- Five year operations and maintenance contract with contractor utilized to replace any inoperable or malfunctioning fiber optic sign or ARGO gate; turnaround time within one day

III. The ARGO Safety Solution



III. The ARGO Safety Solution

- Total number of new ARGO gates by HOV/HOT lane corridor:
 - IH 45 South: 26
 - US 59 South: 28
 - IH 45 North: 32
 - US 59 North: 40
 - US 290: 22
- A total of 148 new ARGO gates and approximately 100 new fiber-optic changeable message small signs

III. The ARGO Safety Solution



III. The ARGO Safety Solution

- Full PTZ video camera at all HOV/HOT lane access points, Park & Ride lots, etc
- All viewable from TranStar as well as METRO headquarters building in downtown Houston



IV. HOT Lanes – The Added Benefit

IV. HOT Lanes - Benefits

- Provides new options for commuters
- Increases safety and promotes quick response to accidents and issues in the lanes due to additional camera monitoring
- Improves air quality by reducing traffic congestion
- Better utilizes existing HOV Lanes
- Offers increased enforcement of the HOV Lane system

IV. HOT Lanes - Benefits

- Carpools, vanpools and motorcycles are still able to use the HOV Lanes for free
- Travel times will not increase – traffic monitoring systems monitor real-time speeds on the lane and will close access to HOT lane patrons if speeds drop below 55 mph
- METRO HOT Lanes users have a choice of using a METRO HOT Lanes Toll Tag, Harris County EZ TAG, TxDOT's TxTAG or the Dallas NTTA Toll Tag
- System is transparent to customers already having one of the aforementioned ETC tags; ie, there is not an additional set-up procedure or new tag required

IV. HOT Lanes – AM Schedule

INBOUND							
	Sun	Mon	Tue	Wed	Thurs	Fri	Sat
5:00 a.m.	CLOSED	\$2.25	\$2.25	\$2.25	\$2.25	\$2.25	CLOSED
6:00 a.m.	CLOSED	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50	CLOSED
7:00 a.m.	CLOSED	HOV only	HOV only	HOV only	HOV only	HOV only	CLOSED
8:00 a.m.	CLOSED	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50	CLOSED
9:00 a.m.	CLOSED	\$2.25	\$2.25	\$2.25	\$2.25	\$2.25	CLOSED
10:00 a.m.	CLOSED	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	CLOSED
11:00 a.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
Noon	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
1:00 p.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
2:00 p.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
3:00 p.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
4:00 p.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
5:00 p.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
6:00 p.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
7:00 p.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED

IV. HOT Lanes – PM Schedule

	OUTBOUND						
	Sun	Mon	Tue	Wed	Thurs	Fri	Sat
5:00 a.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
6:00 a.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
7:00 a.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
8:00 a.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
9:00 a.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
10:00 a.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
11:00 a.m.	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
Noon	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
1:00 p.m.	CLOSED	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	CLOSED
2:00 p.m.	CLOSED	\$2.25	\$2.25	\$2.25	\$2.25	\$2.25	CLOSED
3:00 p.m.	CLOSED	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50	CLOSED
4:00 p.m.	CLOSED	HOV only	HOV only	HOV only	HOV only	HOV only	CLOSED
5:00 p.m.	CLOSED	HOV only	HOV only	HOV only	HOV only	HOV only	CLOSED
6:00 p.m.	CLOSED	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50	CLOSED
7:00 p.m.	CLOSED	\$2.25	\$2.25	\$2.25	\$2.25	\$2.25	CLOSED

IV. HOT Lanes



IV. HOT Lanes



IV. HOT Lanes



IV. HOT Lanes – Schedule of Openings

- IH 45 South: Opened early 2012
- US 59 South: Opened July 2012
- IH 45 North: Opening later this year
- US 59 North: Opening mid-2013
- US 290: Opening late 2013

IV. HOT Lanes – Dynamic Message Sign



IV. HOT Lanes – US 59 S Grand Opening





V. Questions / Discussion?