

**LBJ**  
Corridor Study

*TX 0-4160 Operating Freeways with Managed Lanes*




# LBJ Freeway and Managed HOV Lanes

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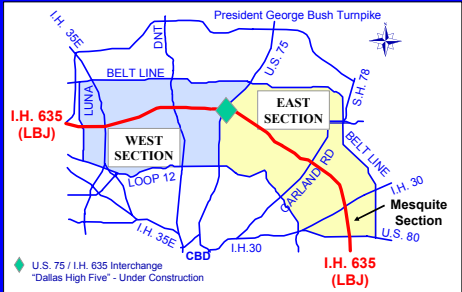
**35**  
Planning Phase

September 5, 2003 – TxDOT Riverside – Room 118 #1  
 Austin, Texas




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## Study Sections



U.S. 75 / I.H. 635 Interchange  
 "Dallas High Five" - Under Construction

**34**  
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→ <http://dfwtraffic.dot.state.tx.us>




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## The LBJ Challenge




- Balanced trip patterns (AM Peak Hour)
  - Local 20%, Origin 22%, Destination 31%, Through 27%
- Peak traffic levels for 12 hours a day
- Continued traffic growth in non-peak hours
- Increased traffic to arterial street system
- Increased frequency of incidents
- Less trip predictability and reliability

**32**  
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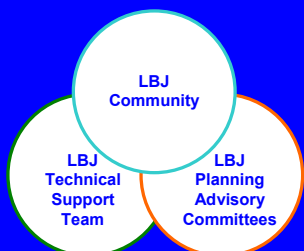


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## LBJ Public Involvement



### Planning to Improve LBJ




**31**  
Planning Phase

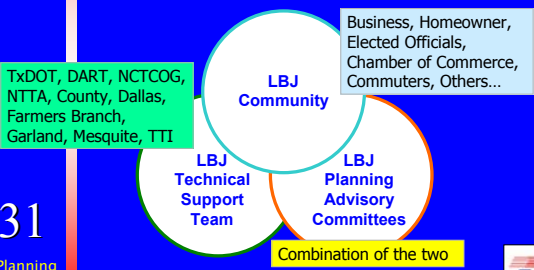


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## LBJ Public Involvement



### Planning to Improve LBJ




TxDOT, DART, NCTCOG, NTTA, County, Dallas, Farmers Branch, Garland, Mesquite, TTI

Business, Homeowner, Elected Officials, Chamber of Commerce, Commuters, Others...

Combination of the two

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## Focus for Today!

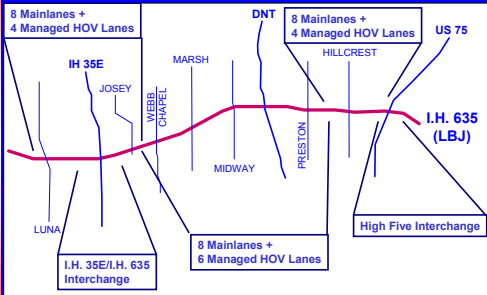
- Introduction (Slide 35 to 31)
- Project Description (Slide 30 to 20)
- Managed Lanes (Slide 19 to 18)
- Value Pricing (Slide 17 to 15)
- Traffic and Revenue (Slide 14 to 10a, 10b)
- Opportunities (Slide 9 to 8)
- Pilot Program (Slide 7 to 6a, 6b)
- TX 0-4818 (Slide 6c)
- NTA Possibilities (Slide 6d)
- Cost and Status (Slides 5 to 1)

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## West Section Luna Road to U.S. 75



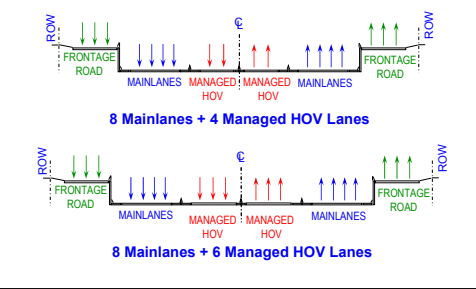
8 Mainlanes + 4 Managed HOV Lanes  
IH 35E  
LUNA  
I.H. 35E/I.H. 635 Interchange  
JOSEY  
WEBB CHAPEL  
MARSH  
MIDWAY  
PRELSTON  
DNT  
HILLCREST  
US 75  
I.H. 635 (LBJ)  
High Five Interchange  
8 Mainlanes + 6 Managed HOV Lanes

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## West Section Interchange Transitions



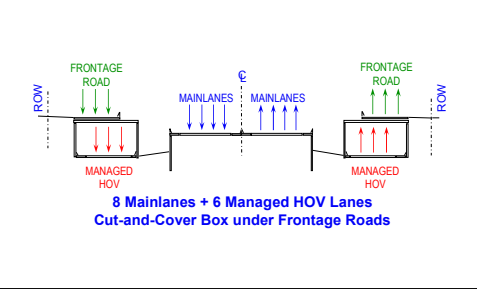
8 Mainlanes + 4 Managed HOV Lanes  
8 Mainlanes + 6 Managed HOV Lanes

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## West Section Webb Chapel to Midway



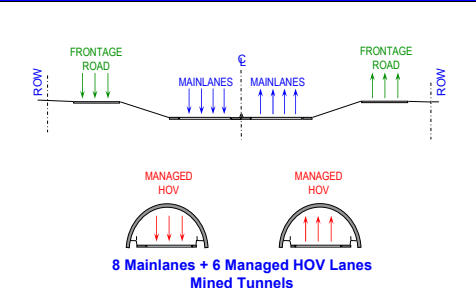
8 Mainlanes + 6 Managed HOV Lanes  
Cut-and-Cover Box under Frontage Roads

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## West Section Managed HOV Tunnels



8 Mainlanes + 6 Managed HOV Lanes  
Mined Tunnels

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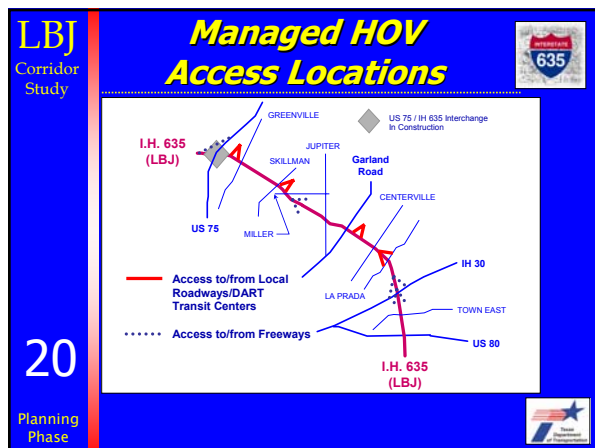
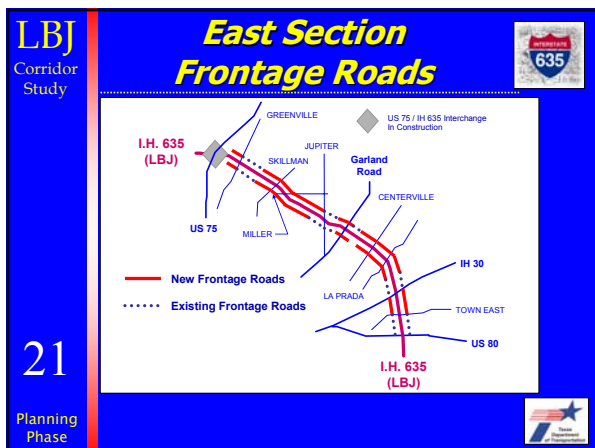
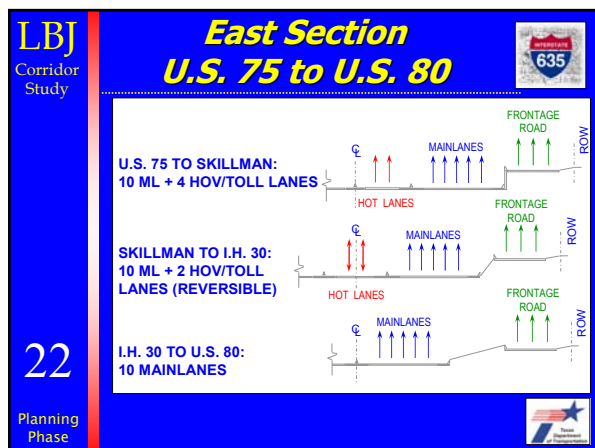
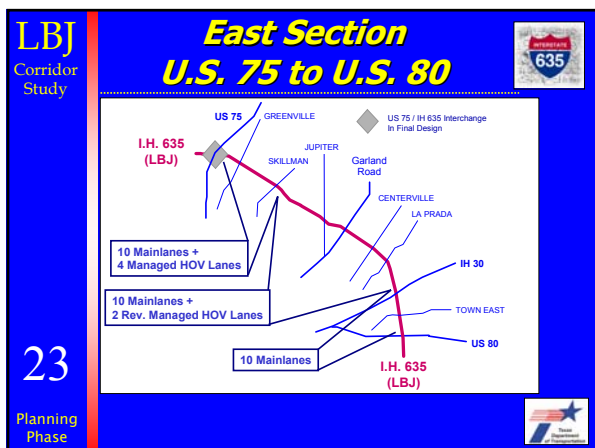
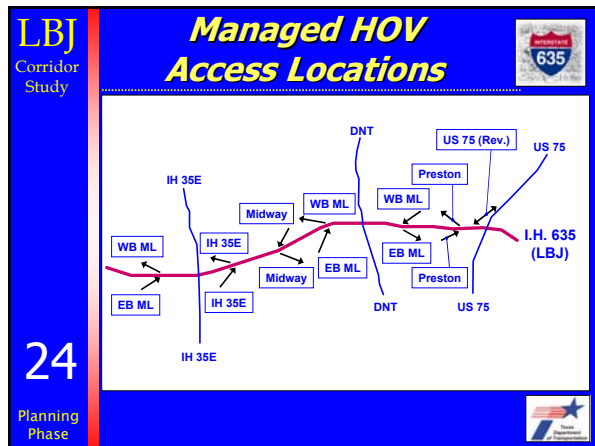
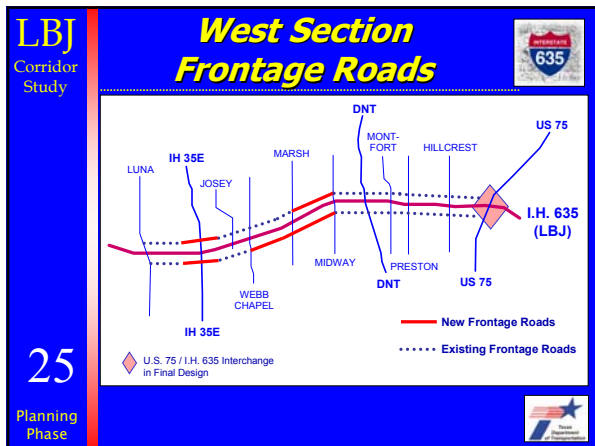
## Managed HOV Tunnels

- ➔ Shifted south
- ➔ "Longest, Widest, Mined Auto Tunnels in U.S."
- ➔ Basic dimensions – 2 mile long by 60 feet wide



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## What kind of lane?

HOV Lane  
Toll Lane  
Integrated  
HOT Lane  
Special Use

# Managed Lane

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## Managed Lanes - Why? (Reasons for Them)

- **Manage** the traffic flow through use of ITS
- Provide a more **predictable** trip for HOT Lane users
- **Mobility driven** to encourage HOV usage in the peak periods and longer trip movements for SOV's in the off-peak
- Improved **safety** by sorting or slotting of traffic
- Improved regional **air quality**
- **Accelerate** project completion through pooling and leveraging funding sources. By use of Bonds.
- Generate a **revenue bonus** (\$16M-\$27M/year by 2015)
- **Opportunity for funding** through TEA-21 Value Pricing Pilot Program, TIFIA, and others

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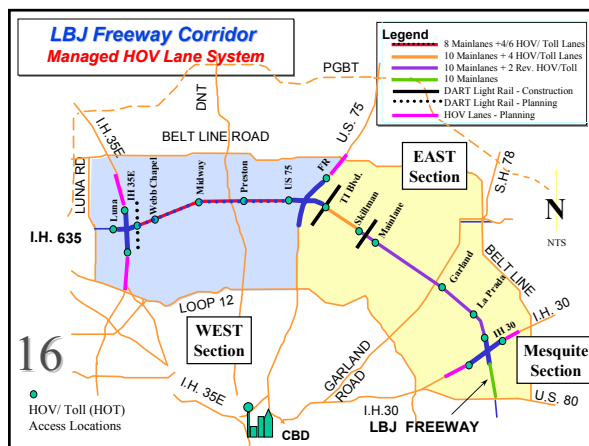
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## What is Value Pricing?

It entails fees or tolls for road use which could vary with the

- **Level of Congestion**
- **Time of Day**
- **Occupancy**
- **Vehicle Type**

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## Value Pricing - How does it work?

A Possible Scenario

	Mainlanes Mixed Flow	HOT - Lanes HOV & SOV	Mainlanes Mixed Flow
1 Morning Peak	Free	HOV - Free SOV - \$\$\$	Free
2 Midday Off-Peak	Free	HOV - Free SOV - \$\$	Free
3 Evening Peak	Free	HOV - Free SOV - \$\$\$	Free
4 Late Night Off-Peak	Free	HOV - Free SOV - \$	Free

HOV - High Occupancy Vehicle  
SOV - Single Occupant Vehicle

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## Traffic & Revenue Study

**Phase 1 - Complete**


- Annual revenue estimated at \$12 million
- Conservative analysis in line with expectations
- As expected, tolls will not fund entire HOV/Toll project
- Suggested Toll Rate Structure

	A.M.	Midday	P.M.	Night
EB Per Mile	\$0.10	\$0.10	\$0.20	\$0.10
EB Minimum	none	none	\$1.20	none
WB Per Mile	\$0.20	\$0.10	\$0.10	\$0.10
WB Minimum	\$1.20	none	none	none

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## Traffic & Revenue Study



**Phase 2 - Complete**

- Extensive traffic counts for more detailed modeling
- Multiple scenarios were tested for a fully functioning date of 2015 & 2025
- Toll rate options were tested
- Opportunities and issues associated with Managed Lanes are numerous

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## Phase 2 - Scenarios




- 8 Lanes vs. 10 Lanes for the LBJ mainlanes
- HOV 2+ vs. HOV 3+ vs. All Toll
- Modified Access Locations
- Interesting range approach for 2015 / 2025
- Report is on-line now

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## Traffic and Revenue Study Range of Revenue by Scenario



1- 8 Lanes w/ 2+ HOV Free	\$16.2 Million
2- 8 Lanes w/ 3+ HOV Free	\$27.1 Million
3- Lanes w/ 2 + HOV Free	\$ 8.5 Million
4- 4 Lanes w/ 3 + HOV Free	\$16.1 Million
5- 5 Lanes w/ 2+ (Less Access)	\$16.7 Million
6- 8 Lanes w/ 3+ (Less Access)	\$24.1 Million
7- 10 Lanes w/ 2+ (Less Access)	\$ 9.4 Million
8- 10 Lanes w/ 3+ (Less Access)	\$15.2 Million
9- 8 Lanes w/ 2+ HOV Free (2025)	\$27.9 Million
10- 8Lanes w/ 3+ HOV Free (2025)	\$47.6 Million


**Note: 10 lane scenarios are not possible with out a lane width and shoulder design exception.**

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## Traffic & Revenue Study



### Investment Grade T&R Study (July 2003 – July 2004)


- Extensive Data Collection and Mobilization
- Travel Pattern and Characteristic Surveys
- Economic Growth, Traffic and Revenue Analysis
- Model and Alternative Refinement
- Sensitivity Tests

**10a**  
Planning Phase




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## Investment Grade Traffic & Revenue Kick-Off Meeting -- Sep. 9, 2003



- **INTRODUCTIONS**
  - Team, TxDOT, NCTCOG, DART, NTTA, Cities
- **The Study**
  - Traditional, LBJ (2+, 3+, Transit, All Toll), Start, Ultimate, Data, etc...
- **Air Quality Credits**
  - Existing Commitments, Methodology to incorporate into Study
- **Other Items**
  - Operations, Enforcement, Collection, Schedule, What is next?

**10b**  
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## Opportunities & Issues



- Multiple Access Locations
  - Park-n-Ride, Rail Stations, Mainlanes, HOV, FR
- Part of a Tunnel Facility (West Section)
- Signing
  - General Guidance, Driver Information (ITS & Pricing)
- Fare/Toll Collection Technologies
- Occupancy Detection (Manual / Automated)
- Enforcement
  - Eligibility, Toll Collection, Use of Video, Ticket by Mail
- Electronic Payment Systems Integration
  - Multiple Toll Rds.; Parking; Bus Transit; Mass Transit; Rail Transit

**9**  
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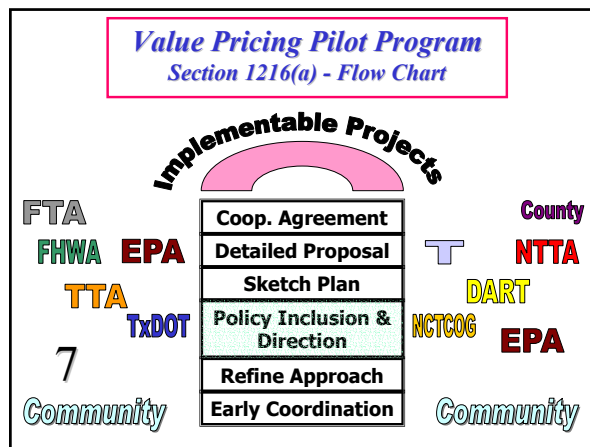
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## Opportunities & Issues

*(Continued)*

- ➔ A Regional Concept or Corridor Solution
- ➔ Opportunities for Bus Rapid Transit Network (BRT)
- ➔ Managed Lanes / BRT Impact on Real Estate Values:
  - Is it Like Rail or Highways?
- ➔ Financing Strategies for a Managed Lane Network
  - Tolls
  - Value Capture – Site Based
  - Compatible Corridor Co-uses
  - Real Estate – Area Based (TIF, Assessment Fees...)
- ➔ Utilizing Managed Lanes for
  - System / Mode Balancing
  - Transportation and Land Use Objectives

**8**  
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### Value Pricing Pilot Program Regional Value Pricing Corridor Evaluation and Feasibility Study North Central Council of Governments

- ✓ Task 1 – Final Detailed Work Plan and Schedule
- ✓ Task 2 – Value Pricing Research (Tech Memo)
- Task 3 – Screening Criteria and Policies
- Task 4 – Prioritized List of Short Term Corridors
- ☐ Task 5 – Corridors for Inclusion in Mobility 2030
- ☐ Task 6 – Working Paper and Presentation
- ☐ Task 7 – Final Report and Executive Summary

Key: ✓ Complete, ➤ Ongoing, ☐ Future

**6a**

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### Potential Demonstration Projects

- I-30 (Existing HOV)
- I-35E (Existing HOV)
- I-635 (Existing HOV)
- I-35E/US 67 (Existing HOV)
- PGB Turnpike (Existing Tollway)
- Dallas North Tollway (Existing Tollway)
- US 75 (Near term HOV Lane)
- Dallas High Five (Under Construction)
- I-635 (Early Managed HOV Lane)

**6b**  
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## TX 0-4818

### Developing a Comprehensive Pricing Evaluation Model for Managed Lanes

- Refine the toll evaluation model developed under research project:
  - TX DOT 0-4009
  - Assessing Pricing Strategies and Users' Attitudes
  - Towards Managed Lanes
- Broaden its application to include tolls for HOV's, commercial vehicles & transit vehicles

**6c**  
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## NTTA

The NTTA is considering expanding its role in many areas to assist the region in solving transportation challenges. The recent passage of HB 3588 provides opportunities for many to participate in the solution process. Many of the solutions may involve a toll, fee or charged component. NTTA, as the regional toll authority may be uniquely suited to expand its role with respect to solving these problems in a more capital implementation mode than before.

- Prior Role – Toll Collection, Interoperability, Accounting
- Current Effort – Consider Expanding Operations
- Future Role – Partner with other Regional Partners

**6d**  
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## Construction Costs



(in millions of \$'s)

1 – Interchange (US75/I635)	\$ 262	◆
2 – Mesquite	\$ 28.9	⊙
3 – East	\$ 458	
4 – West (Incl I635/I35E)	\$ 961	
<b>Total</b>	<b>\$1,709.9</b>	

◆ - Under Construction  
⊙ - Partially Funded by the City and includes \$9M for mainlane reconstruction by TxDOT.

**Note:**  
Totals do not include costs for ROW, Utilities, Engineering, Survey, Testing, and Operation & Maintenance costs for the Tunnels and ITS.

**5**  
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## Project Status Simple Version

- Dallas High Five
  - ✓ Under Construction - Completion by Jan 2007
- Mesquite Section
  - ✓ Public Hearing - May 7, 2002
  - ✓ Environmental Clearance - Sept. 6, 2002
  - ✓ Phase I Under Construction – Completion by Nov 2003
- East Section
  - ✓ Public Hearing - October 10, 2002
  - ✓ Environmental Clearance – January 30, 2003
- West Section
  - Public Hearing – June 5, 2003
  - Environmental Clearance – In October 2003

**4**  
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## Project Status LBJ Managed HOV Lanes

- Complete Planning for West Section – FONSI
  - Environmental Assessment w/ PH documentation
  - Access Justification
  - Mobility 2025 Administrative Update
- Geotechnical Investigation Program - Ongoing
- Traffic and Revenue Study Phase III – Ongoing
- Hire Procurement Engineer / Program Manager
- Begin Comprehensive Development Agreement (CDA) Selection process – After 1
- Complete Financial Plan – After 3
- Complete CDA Selection Process – After 4
- Begin/End Construction → Open Facility

**3**  
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## IH 635 (LBJ Freeway) Funding Update



**Identified and Secured Funding:**

- 2003 City of Dallas Bond Election (\$10 million)
- 2001 and 2003 Federal Appropriations Acts (\$6.4 million)
- East Section Early Frontage Road (\$5.3 million)
- West Section Early Frontage Road (\$24.5 million)
- Mesquite Section (\$22.3 of \$28.9 million)

**Potential Sources of Funding:**

- NCTCOG (MPO) partnership Program
- Dallas Area Rapid Transit
- Additional Local City Participation (D, FB, G & M)
- Dallas County
- TxDOT (TTA) Revenue Bonds
- NTTA
- FHWA (Federal Categories)
- TxDOT (Federal Matching Requirements & State Categories)
- Other (Private, TIFIA Loans, ...)

**2**  
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## Questions & Comments

Check us out on the Internet at:  
[www.dallashighfive.org](http://www.dallashighfive.org)  
and then link to:  
LBJ Corridor Project

**1**  
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