The Irving to Frisco Corridor Project Advisory Committee meeting will begin shortly.

Please mute your microphones and enter your name and organization in the chat box.

Thank you.
IRVING TO FRISCO PASSENGER RAIL CORRIDOR STUDY

Project Advisory Committee
7th Meeting

January 21, 2021
Meeting Protocols

• Please keep your microphone muted unless speaking
• Please enter your name and organization into the Chat Box
• Please utilize the Raise your hand feature to ask a question or make a comment; you may also use the Chat Box for questions and comments
• If joining by phone, please hold your questions and comments until feedback is requested at specified times during presentation
Agenda

• Study Milestones Schedule
• December Advisory Committee Follow-up
  ▪ Demand: Trip Patterns along Corridor
  ▪ Supply: Downtown Carrollton – Analysis of Future Rail Movements
• Land Use Analysis Report (Draft)

• Alternative Analysis Results
  ▪ Review of Alternatives
  ▪ Modeling Results
  ▪ Ridership Analysis Summary
• Collin County Transit Study Update
• Questions & Discussion
• Next Steps
A Look Ahead

Transit Demand Results for this Corridor:
  • Results of Corridor Termini Analysis
  • Results of Interlining with TRE Corridor
  • Stations organized by ridership (high, medium, & low)

Next Steps for Future Efforts:
  • Review the Supply Side
    How does the transit demand fit in with current infrastructure & forecasted freight demand?
  • How Will it be Funded? Who Will Implement and Operate?
Current Demand Study & Future Efforts

Develop Supply & Demand Scenarios:
Varying capacity of Infrastructure yields varying levels of Operations

Transit Demand

Freight Demand

Supply/Infrastructure

• Current capacity
• Strategic improvements

Funding & Implementation Strategies to Determine Preferred Alternative

January 21, 2021
Study Milestones Schedule

- **December**
  - Supply vs. Demand Analyses
  - Alternatives Analysis (Ridership Modeling Efforts)

- **January**
  - Land Use Analysis Report (Draft)
  - Alternatives Analysis Results

- **February**
  - Funding & Implementation Strategies (Draft)
Productions & Attractions To/From Frisco-Carrollton Segment

Travel demand projections shown (productions & attractions) are representative of all trips, not just transit trips.

Regions shown in green (PA Districts) are 2- to 4-mile buffers around segments of the Regional Rail network.

Also, see analysis by:
- DART 2040 Transit System Plan
- Frisco Area Transit Opportunities Summary (2017)

January 21, 2021
Five Interlined Routes Review

Interlining Route Ridership

- FRISCO TO FORT WORTH VIA TRE: 16,400
- FRISCO TO FORT WORTH VIA TEXRAIL: 11,700
- FRISCO TO DOWNTOWN DALLAS: 11,000
- PLANO TO DOWNTOWN IRVING: 8,200
- PLANO TO FRISCO: 7,800

Interlining Route Ridership per Mile

- FRISCO TO FORT WORTH VIA TRE: 290
- FRISCO TO FORT WORTH VIA TEXRAIL: 210
- FRISCO TO DOWNTOWN DALLAS: 260
- PLANO TO DOWNTOWN IRVING: 310
- PLANO TO FRISCO: 200

(As shown at October 15, 2020 PAC Meeting)
Downtown Carrollton – Analysis of Rail Movements

• Current Conditions – DART Green Line on Aerial Structure with Station & Parking

• Current Under Final Design – DART Silver Line with At-Grade Station & Expanded Parking

• Future Opportunities
  - Irving to Celina Corridor with At-Grade Station
  - DCTA A-Train Extended to Downtown Carrollton with Potential Connections to Silver Line & Irving-Celina Corridor
Downtown Carrollton – Analysis of Rail Movements

All Existing Railroad Movements Must Be Maintained

- BNSF Railway
- Dallas, Garland & Northeastern (DGNO) Railroad

Corridor Interlining

- Celina-Frisco-Carrollton-Irving: Thru Movement One Seat Ride
- Celina-Frisco-Carrollton-DFW Airport-Fort Worth – Requires Transfer
- Celina-Frisco-Carrollton-Downtown Dallas – Requires Transfer to Light Rail
Land Use Analysis Report Update

• Objective: Provide recommendations that facilitate structured and systematic growth of transit supportive land uses at station locations

• Progress:
  - In development alongside “Best practices for transit-supportive economic development” report
  - Leveraging prior Station Area Alternative Demographics analysis
  - Draft document to PAC for review/comment before next meeting

Alternative Analysis Modeling: What do we Want to Know?

Q1: What ridership do we expect with our updated station list and other changes?
Q2: How much can we affect ridership with different development patterns (Alternative Demographics)?
Q3: Should we extend the corridor to Celina?
Q4: Should we continue to pursue the interlining opportunities we identified earlier in the study?
Q5: If we want to defer some stations with lower ridership, what is the effect on the rest of the line?
Overview of Alternatives

<table>
<thead>
<tr>
<th>Scenario Family</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>B1a</td>
<td>Service from Irving to Frisco; updated stations; Mobility 2045 Demographics</td>
</tr>
<tr>
<td></td>
<td>B1b</td>
<td>Service from Irving to Frisco; updated stations; Alternative Demographics</td>
</tr>
<tr>
<td>Extension</td>
<td>E1a</td>
<td>Service from Irving to Celina; updated stations; Mobility 2045 Demographics</td>
</tr>
<tr>
<td></td>
<td>E1b</td>
<td>Service from Irving to Celina; updated stations; Alternative Demographics</td>
</tr>
<tr>
<td>Interlining</td>
<td>I1a</td>
<td>&quot;Max&quot;: Service from Celina to T&amp;P, Celina to Union, and T&amp;P to Union (TRE); Mobility 2045 Demographics</td>
</tr>
<tr>
<td></td>
<td>I1b</td>
<td>&quot;Max&quot;: Service from Celina to T&amp;P, Celina to Union, and T&amp;P to Union (TRE); Alternative Demographics</td>
</tr>
<tr>
<td></td>
<td>I2</td>
<td>Service from Celina to T&amp;P, South Irving to Union; Mobility 2045 Demographics</td>
</tr>
<tr>
<td>Phasing</td>
<td>P1</td>
<td>Service from Irving to Frisco, Prosper or Celina; omit one or more low-ridership stations; Demographics TBD</td>
</tr>
<tr>
<td></td>
<td>P2</td>
<td>Service from Irving to Frisco, Prosper, or Celina; omit one or more low-ridership stations; Demographics TBD</td>
</tr>
<tr>
<td></td>
<td>P3</td>
<td>Service limits TBD; Demographics TBD; consolidated recommendations for &quot;phased&quot; implementation based on P1 and P2</td>
</tr>
</tbody>
</table>
Previous Modeling

Extension to Celina
*(Scenarios E1a and E1b)*

Potential Interlining Routes
- Celina to Irving
- Trinity Railway Express
- Existing/Planned but not Interlined

January 21, 2021
Previous Modeling

Baseline “Max” Scenario

(l1a and l1b)

Potential Interlining Routes
- Frisco to Fort Worth via TRE
- Frisco to Downtown Dallas
- Trinity Railway Express
- Existing/Planned but not Interlined
Celina to Fort Worth Interlining (I2)

Extension to Celina (E1a) Riders and Trips Through Irving

Celina to Fort Worth Interlining (I2) Riders and Trips Through Irving

Difference in Riders and Trips Through Irving

<table>
<thead>
<tr>
<th>Line Ridership</th>
<th>Irving-to-Celina (E1a)</th>
<th>Interlining Frisco w/ west TRE leg (I2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celina to Irving</td>
<td>18,200</td>
<td>n/a</td>
</tr>
<tr>
<td>Celina to Fort Worth</td>
<td>n/a</td>
<td>31,400</td>
</tr>
<tr>
<td>TRE (Fort Worth to Dallas)</td>
<td>14,100</td>
<td>n/a</td>
</tr>
<tr>
<td>TRE (Irving to Dallas)</td>
<td>n/a</td>
<td>2,900</td>
</tr>
<tr>
<td>Total</td>
<td>32,300</td>
<td>34,300</td>
</tr>
<tr>
<td>Total Rail</td>
<td>292,500</td>
<td>293,000</td>
</tr>
<tr>
<td>Total Transit</td>
<td>621,500</td>
<td>623,900</td>
</tr>
</tbody>
</table>
Impacts of Interlining

• Comparing Scenario I2 to E1a
  ▪ Include extension to Celina
  ▪ Original Mob. 2045 demographics

• More realistic scenario than I1a
  20/60-min headways across TRE and BNSF/Frisco Corridors

• Modest impact north of downtown Carrollton

• Significant impact at Las Colinas
Interlining – Effects on Other Lines

**DFW Regional Rail**

**Celina-to-Fort Worth**

Effects of Interlining Scenario (I2) on Volumes compared to Celina Extension (E1a)

Increases shown in **Black text**; decreases shown in **Red**.

*Red Line volumes in the Celina Extension scenario (E1a) are affected by a concurrent test for the Collin County Transit Study. For the purposes of this study, volumes from the I2 scenario are compared to the Baseline (B1a) scenario.*
Transit Demand Process

Looking back…

• Phase I: Station Screening Process  
  12 Stations

• Phase II: Ridership Modeling  
  ▪ Testing Termini  
  ▪ Testing Alternative Demographics  
  ▪ Testing Interlining
Ridership Results Summary

• Alternative Demographics
  Minimal effect on ridership

• Interlining
  ▪ Highest ridership if interlined with west (Fort Worth) leg of TRE
  ▪ Significantly increases ridership on Irving to Carrollton segment

• Corridor Termini
  ▪ Southern: Downtown Irving (Fort Worth via TRE)
  ▪ Northern: Undetermined
## Alternatives Analysis Decision Matrix

<table>
<thead>
<tr>
<th>Corridor Termini Determination</th>
<th>Criteria</th>
<th>Stations</th>
<th>Scenario Families</th>
<th>Ridership Modeling Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal station minimum segment volume threshold ≈ 4,000 trips</td>
<td>Northern Terminus</td>
<td>Frisco CBD / Panther Creek Parkway</td>
<td>Baseline: Undetermined</td>
<td>Panther Creek Parkway, Prosper, or Celina Additional station to station analysis required to determine recommended northern terminus</td>
</tr>
<tr>
<td>Southern Terminus</td>
<td>Downtown Carrollton (Valley View not logical terminus)</td>
<td>No Effect</td>
<td>Interlining: Downtown Irving (Fort Worth via TRE)</td>
<td>Downtown Irving (T&amp;P in Fort Worth via TRE) Study finds interlining Frisco Corridor with western leg of TRE increases ridership significantly between Irving and Carrollton</td>
</tr>
</tbody>
</table>

### Individual Station Ridership

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Station</th>
<th>Minimum Segment Volume Threshold</th>
<th>Low = &lt; 1,000 riders</th>
<th>Medium = 1,000 &lt; 2,000 riders</th>
<th>High = &gt; 2,000 riders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Celina</td>
<td>N/A</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Prosper</td>
<td>N/A</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Panther Creek Parkway</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Frisco CBD</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Stonebrook Parkway</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Sam Rayburn Tollway</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Hebron Parkway</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Carrollton City Hall</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Downtown Carrollton</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Valley View</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>South Las Colinas</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Downtown Irving</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

**January 21, 2021**
Poor Man’s Benefit/Cost Analysis

Original Corridor with Potential Stations
June 18, 2020 PAC

Jan 21st, 2021 Stations & Segment Ridership Cost / Benefit Analysis
## Original Analysis per June 18th, 2020 PAC

### POOR MAN’S BENEFIT/COST RATIO TABLE

**Irving to Frisco Passenger Rail Corridor**

<table>
<thead>
<tr>
<th>Link</th>
<th>From</th>
<th>To</th>
<th>Distance (miles)</th>
<th>Average Link Cost ($ millions)</th>
<th>Link Weekday Ridership Volume</th>
<th>Link Cost per Weekday Rider</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Celina</td>
<td>Prosper</td>
<td>6.4</td>
<td>$245</td>
<td>700</td>
<td>$350,000</td>
</tr>
<tr>
<td>2</td>
<td>Prosper</td>
<td>North Frisco</td>
<td>1.8</td>
<td>$68</td>
<td>1,700</td>
<td>$40,000</td>
</tr>
<tr>
<td>3</td>
<td>North Frisco</td>
<td>Downtown Frisco</td>
<td>4.0</td>
<td>$153</td>
<td>3,400</td>
<td>$45,000</td>
</tr>
<tr>
<td>4</td>
<td>Downtown Frisco</td>
<td>Sam Rayburn</td>
<td>4.8</td>
<td>$184</td>
<td>7,000</td>
<td>$26,300</td>
</tr>
<tr>
<td>5</td>
<td>Sam Rayburn</td>
<td>Windhaven</td>
<td>2.1</td>
<td>$79</td>
<td>8,100</td>
<td>$9,800</td>
</tr>
<tr>
<td>6</td>
<td>Windhaven</td>
<td>Hebron</td>
<td>2.3</td>
<td>$90</td>
<td>9,100</td>
<td>$9,900</td>
</tr>
<tr>
<td>7</td>
<td>Hebron</td>
<td>Trinity Mills</td>
<td>2.7</td>
<td>$105</td>
<td>9,500</td>
<td>$11,100</td>
</tr>
<tr>
<td>8</td>
<td>Trinity Mills</td>
<td>Downtown Carrollton</td>
<td>3.1</td>
<td>$120</td>
<td>9,800</td>
<td>$12,200</td>
</tr>
<tr>
<td>9</td>
<td>Downtown Carrollton</td>
<td>Mercer Parkway</td>
<td>3.0</td>
<td>$116</td>
<td>3,600</td>
<td>$32,200</td>
</tr>
<tr>
<td>10</td>
<td>Mercer Parkway</td>
<td>South Las Colinas</td>
<td>4.0</td>
<td>$156</td>
<td>3,400</td>
<td>$45,900</td>
</tr>
<tr>
<td>11</td>
<td>South Las Colinas</td>
<td>Downtown Irving</td>
<td>3.3</td>
<td>$127</td>
<td>3,400</td>
<td>$37,400</td>
</tr>
</tbody>
</table>

### Updated Analysis per January 21st, 2021 PAC

### POOR MAN’S BENEFIT/COST RATIO TABLE

**Irving to Frisco Passenger Rail Corridor**

<table>
<thead>
<tr>
<th>Link</th>
<th>From</th>
<th>To</th>
<th>Distance (miles)</th>
<th>Average Link Cost ($ millions)</th>
<th>Link Weekday Ridership Volume</th>
<th>Link Cost per Weekday Rider</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Celina</td>
<td>Prosper</td>
<td>6.4</td>
<td>$245</td>
<td>800</td>
<td>$306,300</td>
</tr>
<tr>
<td>2</td>
<td>Prosper</td>
<td>Panther Creek Parkway</td>
<td>3.1</td>
<td>$120</td>
<td>2,900</td>
<td>$41,400</td>
</tr>
<tr>
<td>3</td>
<td>Panther Creek Parkway</td>
<td>Frisco CBD</td>
<td>2.6</td>
<td>$100</td>
<td>4,500</td>
<td>$22,200</td>
</tr>
<tr>
<td>4</td>
<td>Frisco CBD</td>
<td>Stonebrook Parkway</td>
<td>1.6</td>
<td>$62</td>
<td>6,000</td>
<td>$10,300</td>
</tr>
<tr>
<td>5</td>
<td>Stonebrook Parkway</td>
<td>Sam Rayburn</td>
<td>3.8</td>
<td>$147</td>
<td>9,000</td>
<td>$16,300</td>
</tr>
<tr>
<td>6</td>
<td>Sam Rayburn</td>
<td>Hebron</td>
<td>3.8</td>
<td>$147</td>
<td>9,500</td>
<td>$15,500</td>
</tr>
<tr>
<td>7</td>
<td>Hebron</td>
<td>Carrollton City Hall</td>
<td>3.9</td>
<td>$151</td>
<td>10,900</td>
<td>$13,900</td>
</tr>
<tr>
<td>8</td>
<td>Carrollton City Hall</td>
<td>Downtown Carrollton</td>
<td>1.8</td>
<td>$69</td>
<td>11,100</td>
<td>$6,200</td>
</tr>
<tr>
<td>9</td>
<td>Downtown Carrollton</td>
<td>Valley View Lane</td>
<td>2.3</td>
<td>$89</td>
<td>6,200</td>
<td>$14,400</td>
</tr>
<tr>
<td>10</td>
<td>Valley View Lane</td>
<td>South Las Colinas</td>
<td>4.8</td>
<td>$185</td>
<td>6,500</td>
<td>$28,500</td>
</tr>
<tr>
<td>11</td>
<td>South Las Colinas</td>
<td>Downtown Irving</td>
<td>3.3</td>
<td>$127</td>
<td>8,700</td>
<td>$14,600</td>
</tr>
</tbody>
</table>

### Notes:

- Stations (minus Prosper and Celina) and Demographics based on Mobility 2045 (full commuter service).
- Unit Cost determined from TEXRail capital cost divided by its length; approx. $39 million/mile.

January 21, 2021
## Next Steps/Future Efforts

### THIS STUDY NEXT STEPS

- Finalize ridership modeling based on these results
- Prepare viable Funding/Implementation Strategies based on this Final Scenario
- Compile efforts and results into Final Report

### FUTURE EFFORTS

- Study results to inform:
  - Mobility Plan Update
  - Supply side analysis & follow-on Supply/Demand Scenarios
- Develop Implementation structure and Funding strategy for Preferred Alternative
  - Select stations may be deferred depending on several factors at this stage (supply analysis, funding availability, implementing entity)
Collin County Transit Study Update

- Transit Propensity
- Potential Scenario Framework
- Initiated Modeling of Service Scenarios
- Initiated Exploration of Investment/Governance Options
Questions & Open Discussion

- Study Milestones Schedule
- Land Uses Analysis Report
- Alternative Analysis/Modeling Results
- Ridership Summary Efforts
- Northern Terminus
- Upcoming Funding/Implementation Options Discussion
Next Steps

- Draft Land Use Analysis Report to Committee
- Prepare Draft Funding and Implementation Strategies
- Finalize results of People Mover Locations Feasibility Analysis

Next scheduled meeting is **February 18**
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January 21, 2021