Dallas CBD Second Light Rail Alignment (D2)

Subway Project Refinement

Public Meetings
January 19, 2017
Discussion Items

• Background
• Schedule
• Public/Stakeholder Involvement
• Subway Construction Overview
• Potential Subway Alternatives
  – Technical Committee Input
  – Stakeholder Committee Input
• Next Steps
Redefining D2 as a Subway

• Concerns with D2 mostly at-grade
• October 2016 Actions:
  – Dallas City Council approved resolution to pursue subway option from Woodall Rodgers to IH-345
  – DART Board approved FY17 Financial Plan with increased budget ($1.3 Billion YOE) for subway and larger FTA grant amount
• Now advancing D2 as a subway
Why is D2 Important?

• Add **Core Capacity** to and through downtown
  – Some trains will be at capacity within a few years

• Provide **Operational Flexibility** for the system
  – Continuity of service during incidents
  – System expansion/added service

• Enhance **Mobility and Access** for existing and future riders
  – Get our riders where they need to go
How will D2 Affect Today’s Riders?
Operating Plan Concept

• Green and Orange to shift to D2
• Orange Line terminus to be determined
  – Deep Ellum
  – Lawnview
  – Other
• Red Line loads addressed by extra insert trains
FTA Core Capacity Funding

• November 2015
  – FTA authorization to enter two-year Project Development (PD) phase to complete PE/EIS

• February 2016
  – D2 receives “Medium-High” rating from FTA

• September 2016
  – DART submitted annual update to FTA
  – FTA held its review pending subway discussion
  – D2 will receive “not rated” in next report to Congress
LPA Refinement Evaluation Process

- **Key Objectives**
  - Range of Reasonable Subway Alternatives

- **Screening Evaluation**

- **Short List of Subway Alternatives**

- **Detailed Evaluation**

- **Refined D2 LPA Recommendation**

- Dec-Jan
- Jan-Feb
- Mar-May
- May-June
# LPA Refinement Phase

## LPA Refinement Phase Table

<table>
<thead>
<tr>
<th>LPA Refinement Phase</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range of Subway Options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screening Evaluation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short List of Subway Options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detailed Evaluation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refined LPA Recommendation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refined LPA Approvals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTA Core Capacity Annual Submittal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public &amp; Stakeholder Involvement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Timeline:

- **Decision Milestone**: WE ARE HERE

---

*Note: The diagram illustrates the timeline and milestones for the LPA Refinement Phase.*
Public and Agency Involvement

Key to Success

POLICY & MANAGEMENT

DART BOARD

- DALLAS CITY COUNCIL
- POLICY COMMITTEE
- DART STAFF/CONSULTANT TEAM

STAKEHOLDERS

- STAKEHOLDER COMMITTEE
- TECHNICAL COMMITTEE
- DDI MOBILITY COMMITTEE

PUBLIC INPUT
Subway Construction Overview

• Geology of the CBD
• Portal Transition Areas
• Subway Construction Methods
  – Tunnel Boring Machine (TBM)
  – Sequential Excavation Method (SEM)
  – Cut and Cover Method
• Station Construction and Access
Geology

GOOD TUNNELING MATERIAL

POOR TUNNELING MATERIAL
Portal Transition Areas
Mockingbird Station & North Portal

- Open shaft for lowering/assembling equipment
- Construction staging area
- Hauling routes
Subway Construction Methods

Tunnel Boring Machine (TBM)

“Tunnelling underground - Melbourne Metro Rail Project” courtesy of Melbourne Metro Rail Authority
Subway Construction Methods
Sequential Excavation Method (SEM)
Subway Construction Methods
Sequential Excavation Method (SEM)
Cut and Cover Construction Method

• Can be used for portions of subway
• Common construction method for stations, ventilation shafts, emergency access
• Requires temporary and/or permanent use of surface right-of-way
1. Utility relocation and initial street excavation
2. Install concrete decking/ temporary street surface
3. Station or subway construction and street restoration
Tunnel Earth Removal

Muck house
Subway Station Access

• Multiple access points are possible
• Integrate into building
• Station plaza
• Sidewalk / Public right-of-way
• Connections to pedestrian tunnel system
• Urban design opportunity at station access points
Station Integration into Adjacent Building Site or Plaza
Range of Subway Ideas

Corridors
• Uptown
• Arts District
• Pacific
• Elm
• Commerce
• Wood
• Young
• Canton

West/Victory Connection
• Existing rail corridor
• DART-owned Victory ROW

East/Deep Ellum Connection
• Swiss
• Good Latimer
UPTOWN (PEARL) CORRIDOR

Portal north of Victory Station

Swiss Option
UPTOWN (ROUTH) CORRIDOR

Portal in Museum Way

Complex Junction Configuration
May require LRT system out of service
ARTS DISTRICT CORRIDOR

DART Victory ROW Option

Complex Junction Configuration
May require LRT system out of service
Discussion of Subway Alternatives

Primary Corridors

PACIFIC CORRIDOR

DART Victory ROW Option

Swiss Option
Portal west of IH 345

Swiss Option
Portal east of IH 345

Rail Corridor Option

Green Line track reconstruction (embedded track) and Deep Ellum Station removal/relocation

* This note added post meeting to reflect discussion
Discussion of Subway Alternatives

Primary Corridors

- ELM CORRIDOR
  - DART Victory ROW Option
  - Rail Corridor Option
  - Swiss Option
    - Portal east of IH 345

- Green Line track reconstruction (embedded track) and Deep Ellum Station removal/relocation
  - *This note added post meeting to reflect discussion*
Proposed Elm Refinements

West adjustment to Elm RR Corridor option will be assessed

Monument Street option will be assessed
COMMERCE CORRIDOR

Primary Corridors

- **DART Victory ROW Option**
  - Portal west of IH 345

- **Swiss Option**
  - Portal west of IH 345

- **Good Latimer Option**
  - Portal west of IH 345

**Rail Corridor Option**

*Green Line track reconstruction (embedded track) and Deep Ellum Station removal/relocation*

This note added post meeting to reflect discussion
Discussion of Subway Alternatives

Primary Corridors

- **WOOD CORRIDOR**
  - DART Victory ROW Option
  - **Swiss Option**
    - Portal west of IH 345
  - **Good Latimer Option**
    - Portal west of IH 345

Green Line track reconstruction (embedded track) and Deep Ellum Station removal/relocation

*This note added post meeting to reflect discussion*
Discussion of Subway Alternatives

Primary Corridors

YOUNG CORRIDOR

DART Victory
ROW Option

Good Latimer Option
Portal west of IH 345

Swiss Option
Portal west of IH 345

Green Line track reconstruction (embedded track) and Deep Ellum Station removal/relocation

* This note added post meeting to reflect discussion
Discussion of Subway Alternatives

Primary Corridors

CANTON CORRIDOR

DART Victory ROW Option

Good Latimer Option
Portal west of IH 345
Ideas Not Developed

West Junction in Subway

• Beyond Core Capacity scope
• Exceeds available budget
• Constructability issues
• Existing rail service impacted during construction
Ideas Not Developed
East Junction in Subway

- Beyond Core Capacity scope
- Exceeds available budget
- Constructability issues
- Existing rail service impacted during construction
Objectives to Identify Reasonable Set of Subway Alternatives

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within $1.3 Billion Budget (YOE)</td>
<td>DART</td>
</tr>
<tr>
<td>Constructability/Favorable geology conditions</td>
<td>DART</td>
</tr>
<tr>
<td>Subway between Woodall Rodgers and IH 345</td>
<td>City Council</td>
</tr>
<tr>
<td>Ability to shift Green/Orange Line operations to D2</td>
<td>FTA (Core Capacity)</td>
</tr>
<tr>
<td>Ease of transfers (Proximity to Existing Bus/Rail)</td>
<td>City Council/DART</td>
</tr>
<tr>
<td>Access to Jobs (Employment density)</td>
<td>City Council/DART</td>
</tr>
<tr>
<td>Interoperability between both downtown LRT lines</td>
<td>DART</td>
</tr>
<tr>
<td>Minimize curves (travel time, O&amp;M, construction)</td>
<td>DART</td>
</tr>
</tbody>
</table>
### Summary of Technical Committee and Stakeholder Committee Findings

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Technical Committee Recommendation</th>
<th>Stakeholder Committee Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR ROW</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>VICTORY ROW</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>RR ROW</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>VICTORY ROW</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>RR ROW</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>VICTORY ROW</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>GOOD LATIMER</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>SWISS</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>GOOD LATIMER</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>SWISS</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>GOOD LATIMER</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>SWISS</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>GOOD LATIMER</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>SWISS</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>CANTON</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>PEARL</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>ROUTH</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>ARTS DISTRICT</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

*Refine alignment*
Key Committee Findings

• Canton is too far south to meet Core Capacity objectives and serve existing ridership
• Uptown options would have significant real estate impacts and would not meet Core Capacity objectives
• Wood Street is too narrow and presents constructability issues
• Pacific, Elm, Commerce best meet project objectives
• Young meets objectives, but not as well as those to the north
Key Committee Findings

• When considering the RR corridor versus the DART Victory right-of-way:
  – Victory provides benefit of station near Perot that can serve that growing area of downtown
  – RR corridor presents cost/risk issues due to poor geology
  – If using RR corridor:
    • Pacific is the only option that avoids Sixth Floor Depository/Dealey Plaza area
    • Elm presents risk unless alignment can be refined
    • Commerce presents the most risk
Key Committee Findings

• When considering Swiss versus Good Latimer:
  – Swiss is preferred due to Deep Ellum concerns with Good Latimer route:
    • A portal east if IH 345 is preferable
    • Avoid impacts to Carpenter Park
  – Good Latimer should only advance if a feasible below-ground option can be developed
  – Monument Street portal option will be assessed
Next Steps

• January
  – Initiate screening evaluation to develop short list

• February
  – Technical Committee Meeting
  – Stakeholder Committee Meeting
  – Screening Evaluation/Short List Recommendation

• March-May
  – Public Meetings
  – Define and Evaluate Short List Options
  – Initiate Streetcar Alignment Discussion
Public Feedback

• Do you agree with the Technical and Stakeholder Input?

• What are your thoughts on issues and opportunities for the alignments?

• Do you have ideas on station locations?

• What are your ideas on a downtown streetcar alignment?
How to Stay Involved

• Attend project meetings
• View materials and progress on www.DART.org/D2
• Comments? Email D2@DART.org
• Provide comments on key issues that DART should address in the process