Meeting Summary Notes

Project: DART Dallas CBD Second Light Rail Alignment (D2 Project) – D2 Subway

Subject: Technical Committee Meeting for D2 Subway Project LPA Refinement Phase

Date: Thursday, January 12, 2017 at 9:00AM

Location: DART Headquarters, 1401 Pacific, Dallas, TX – Room 1C

Attendees:
- Chad Edwards, DART AVP Capital Planning
- Ernie Martinez, DART D2 Project Manager
- Kay Shelton, DART Capital Planning
- Carlos Huerta, Community Engagement
- Mike Holbrook, DART
- Rob Smith, DART
- Leroy Cox, Jr., DART
- Eben Cobb, DART
- Mack Turner, DART
- Brittany Farr, DART
- Evelio Hernandez, DART
- Todd Plesko, DART
- Jeff Hendricks, DART
- Victor Ibewuike, DART
- Tom Shelton, GPC6 Program Manager
- Steve Knobbe, GPC6 D2 Project Manager
- Israel Crowe, GPC6 D2 Engineering Lead
- Michelle Dippell, GPC6 D2 Environmental Lead
- Keith Williams, Oncor
- Marina Dultra, Oncor
- Jessica Burnham, Deep Ellum Foundation
- Stephen Endres, TxDOT
- Evan Sheets, City of Dallas
- Mark Doty, City of Dallas
- Frank Honeycutt, City of Dallas
- Chelsea St. Louis, City of Dallas
- Tanya Brooks, City of Dallas
- Theresa O’Donnell, City of Dallas
- Arturo Del Castillo, City of Dallas
- Tamara Leak, City of Dallas
- Daniel Church, City of Dallas
- Micah Baker, Dallas County
- Minesha Reese, Dallas County
- David Williams, Kinetic Spectrum
- Michael Kuhlenbeck, Kinetic Spectrum
- Kourtney Garrett, DDI
- Allan Zreet, DDI
- Jacob Browning, DDI
- Jing Xu, NCTCOG
- Larry Good, GFF/DDI
- Dustin Bullard, DDI
- Steven Duong, AECOM (for City of Dallas)
- Sarah Chadderdon, NCTCOG
- Peer Chacko, City of Dallas
- Matt Tranchin, CND
- Ronisha Hodge, FTA

These meeting summary notes document the presentation and the question and answer discussion for the Dallas CBD Second Light Rail Alignment (D2 Project) Technical Committee meeting held at the DART Headquarters on Thursday, January 12, 2017 at 9:00am. Attachments are listed below.

Attachments

- Sign-In Sheets
- Presentation
- Proposed Evaluation Criteria/Project Objectives (handout)
Reasonable Alternatives Assessment Board (completed at meeting)

Welcome & Introductions

Chad Edwards, DART AVP Capital Planning, opened the meeting by welcoming attendees. The key objectives for the meeting included:

- Technical Committee feedback
- Agree on set of reasonable subway alternatives to recommend to Stakeholders
  - Eliminate half of the alternatives or more
- Discuss screening evaluation criteria

Agenda

The agenda for the meeting as outlined in the attached presentation included a discussion of:

- Review LPA Refinement Process and Schedule
- Review Key Project Objectives
- Review D2 Subway Alternatives
  - New Alternatives that were under review as of the last meeting
- Technical Committee Feedback
  - Agreement on Set of Reasonable D2 Subway Alternatives
- Discuss Evaluation Criteria

Next Steps

Chad reviewed the LPA refinement process, schedule and key objectives. The key objectives are key to defining a reasonable set of alternatives to advance into the next step of screening evaluation. Steve Knobbe, GPC6 Project Manager, then reviewed the primary corridors that were presented at the last meeting. These included Pacific, Elm, Commerce, Wood, Young, and Canton. In addition, he reviewed three alignment ideas that were not developed as of the December 15, 2016 Technical Committee meeting, including an Arts District option, the Uptown (Pearl) and the Uptown (Routh) alignments. Two of these alignments have potentially complex connections on the east of the CBD and further work would be needed should they advance.

The team walked the group through the sixteen alignment corridors, reviewing the options for connection points or portals on the east and west ends of the CBD.

The next part of the meeting was to listen to feedback based on the “homework” assigned at the last meeting.

NCTCOG, Oncor, DDI, and the City of Dallas presented their concerns and findings.

NCTCOG Feedback

- Suggest an alignment further south from existing alignment to:
  - better serve areas to the south side of downtown
  - encourage more redevelopment to the south
  - provide better access to City Hall and the convention center
The Pacific and Elm alignments are less preferable.
The Commerce, Wood and Young seem like good candidates provided they minimize impacts.
The Canton alignment seems too far south.
All of the alignments should include a potential station somewhere between Akard and Harwood to serve the center city.

**Oncor Preferred Alignments (viewed from asset standpoint)**

1. Canton
2. Pacific
3. Commerce
4. Elm
5. Wood

**DDI Feedback**

- Understands FTA Core Capacity is priority, but should look at long term (i.e. future LRT lines, service to High Speed Rail)
- Streetcar should serve growing residential
- Station portal entrances should drive alignment location
- Consider the east transfer center area for TOD and different designs
- Suggest the committee agree on East End junction/train portal configuration that applies to all options early in the process
- Suggest the committee agree on a west train portal configuration that applies to all options early in the process
- Eliminate Wood and Canton St. alignments. Wood is too narrow and presents constructability issues, while Canton is too far south.

**City of Dallas Feedback**

- Show how D2 could connect to High Speed rail; possibly using dashed line on maps
- Alignments south of Commerce have lower priority
- Concern of using Caesar Chavez for any D2 alignments based on current construction underway in that corridor
- Any portal through Carpenter Park would be fatal flaw
- Streetcar could serve southern downtown area (Young)

DART also presented an assessment of the range of alternatives based on an internal workshop. This summary is captured in the presentation.

Using the Reasonable Alternatives Assessment board, the Technical Committee then reviewed the advantages and disadvantages of the 16 subway alternatives identified to date. The group started with alignments where there was a clear consensus to not advance – these included Canton, Wood and the Uptown options – they were marked as “No” on the board. With a thorough discussion (see the Q &A summary at the end of these notes) amongst the Technical Committee, the following subway
alternatives were recommended as “Yes” for further evaluation and presentation at the upcoming Stakeholder Committee and public meetings (these recommendations and notes from the meeting are shown in the attached picture of the alternatives assessment board):

- Pacific (RR ROW): revise portal location on the east end to east of IH 345 if possible; avoid effect on Carpenter Park. Although many in the group were willing to not advance the RR corridor, some felt more information was needed to make that determination. In addition, the Pacific/RR Row option is the only RR option that avoids potential impacts to the JFK memorial site.
- Pacific (Victory ROW): revise portal location on the east; avoid affect on Carpenter Park.
- Elm (Victory ROW): need further evaluation of subway alignment under hotel, but the group did not feel that this potential acquisition was cause to be a fatal flaw.
- Commerce (Victory ROW)
- Commerce (Swiss): revise portal location to avoid impact at Carpenter Park and locate east of IH 345. Assess potential to straighten out the curve south of east transfer center although that could require acquisition.
- Young (Swiss): revise portal location to east of 345

A third category emerged where a clear “Yes” or “No” was not known yet. The Committee suggested DART refine the following alternatives and take them through the screening evaluation as a refined alternative, if the refinements are feasible. These include:

- Elm (RR ROW): This alternative was marked as “Yes” pending an assessment of the feasibility of a revised West End alignment to avoid tunneling under Sixth Floor Museum. The Coalition for New Dallas representative indicated that the stakeholder who submitted this idea has a solution; he will provide that information to the team.
- Commerce (Good Latimer): This alternative was marked as “No” pending investigation into the feasibility of an extended Good Latimer subway and Southeast/Green Line subway connection. The committee recognized the concerns of the Deep Ellum alignment for anything at-grade.
- Young (Good Latimer): Similar to the above finding, this alternative was marked as “No” pending the feasibility of an extended Good Latimer subway and Southeast/Green Line subway connection.
- Arts District: This alternative was marked “Yes” but requires development of a junction that will accommodate movements from the North Central and Southeast corridors. The City of Dallas will have some ideas and will work with DART to define a feasible alignment.

This information will be shared with the Stakeholder Committee at their January 18, 2017 meeting for their consideration and to see if there is consensus around the findings.

A follow up meeting with the Technical Committee will be held in February.

The group was informed that there are public meetings on January 19 here at DART.

**Question & Answer Session**

**Question:** Are the Griffin/Elm alignment issues beyond the scope or a fatal flaw?

**Response:** We wouldn’t consider purchasing one piece of property a fatal flaw.
**Comment:** For clarification it does not state on the slide that the role of the technical committee is providing comments on the alignments.

**Response:** The Technical Committee is expected to provide technical expertise, represent their respective Agency or Jurisdiction, and make comments that reflect that. In addition to basic project information, we would ideally hear comments from a single City of Dallas voice, rather than varying positions. Providing comments on alignments is implied in many elements of the committee role but can be added.

**Follow-up Response:** The City will have a unified, coordinated response on the D2 project throughout the course of the study.

**Question:** Why are there no options at Deep Ellum at sub-grade?

**Response:** Constructability & Cost issues. The green line could be out of service for 2 years.

**Follow-up Response:** The City would like the Study Team to investigate the possibility of establishing working sub-grade options along Good Latimer for the Young and Commerce Street Alternatives that would connect to a sub-grade alignment of the existing Southeast/Green Line from Good Latimer to the Baylor Station. There could be a possibility of building alongside the existing line to avoid any out of service time.

**Comment:** We have gotten positive feedback from Deep Ellum foundation on the Swiss option; resolves many of their previous issues.

**Question:** How wide does the D2 subway need to be?

**Response:** Twin bores: 65’ wide, this is preferred.

**Question:** Are we looking at cross passage ways?

**Response:** Yes, and emergency exits.

**Comment:** On Elm, concerned about JFK 6th Floor museum for an option that follows the existing railroad ROW - elevation change to consider and geology is poor.

**Question:** Uptown (Routh) alternative, could a portal be done north of Victory and come down the corridor to Museum Way?

**Response:** No, there are right-of-way issues and also a new subway station at Victory could cost about $110M.

**Question:** Uptown (Routh) Could the alignment be shifted south to go under Woodall Rodgers Freeway?

**Response:** There are constructability issues with having to go so deep under Woodall.

**Question:** Uptown (Routh) Are there Real estate issues as well?

**Response:** Yes. Either of the Uptown options would go under existing buildings because there is no clear public ROW path.
**Question:** Is it true that D1 & D2 need to be interconnected?

**Response:** Yes, preferably for operational flexibility.

**Question:** Young (Good Latimer) Could the portal be east of 345?

**Response:** Not within public right-of-way but possibly with some ROW acquisition.

**Question:** Does the Good Latimer alignment have a station that accommodates transfers?

**Response:** Yes, Metro Center station would provide for bus and rail transfers at the west end.

**Comment:** With respect to the Railroad ROW and Victory ROW alignment options, for the Pacific, Elm and Commerce alignments, the preference would be to select the Victory option, because it has better geology, wouldn’t require a subway through Victory Park or near Woodall Rodgers, can accommodate an additional station near the Woodall Rodgers area to serve Perot Museum, Dallas World Aquarium, Klyde Warren Park, etc.; this station has a ridership base.
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**ATTENDED WRONG MEETING**

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Meeting Objectives

- Technical Committee feedback
- Agree on set of reasonable subway alternatives to recommend to Stakeholders
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Agenda

- Review LPA Refinement Process and Schedule
- Review Key Project Objectives
- Review D2 Subway Alternatives
  – New Alternatives that were under review as of the last meeting
- Technical Committee Feedback
  – Agreement on Set of Reasonable D2 Subway Alternatives
- Discuss Evaluation Criteria
- Next Steps

LPA Refinement Evaluation Process

Key Objectives
- Range of Reasonable Subway Alternatives
- Screening Evaluation
- Short List of Subway Alternatives
- Detailed Evaluation
- Refined D2 LPA Recommendation

LPA Refinement Phase

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Objectives to Identify Reasonable Set of Subway Alternatives

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<td>Within $1.3 Billion Budget (YOE)</td>
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<td>Constructability/Favorable geology conditions</td>
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<td>Subway between Woodall Rodgers and IH 345</td>
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<td>Ability to shift Green/Orange Line operations to D2</td>
<td>FTA (Core Capacity)</td>
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<td>Ease of transfers (Proximity to Existing Bus/Rail)</td>
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<td>Access to Jobs (Employment density)</td>
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<td>Interoperability between both downtown LRT lines</td>
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<td>Minimize curves (travel time, O&amp;M, construction)</td>
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Range of Subway Ideas

Primary Corridors
- Pacific
- Elm
- Commerce
- Wood
- Young
- Canton

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

East/Deep Ellum Connection
- Swiss
- Good Latimer

Additional Corridors
- Uptown
- Arts District

Discussion of Subway Alternatives

Primary Corridors

PACIFIC CORRIDOR
- Swiss Option Portal east of IH 345
- Swiss Option Portal west of IH 345
- DART Victory ROW Option

Page 2

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

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COMMERCE CORRIDOR
- Swiss Option Portal west of IH 345
- DART Victory ROW Option

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WOOD CORRIDOR
- Swiss Option Portal west of IH 345
- Good Latimer Option Portal west of IH 345

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YOUNG CORRIDOR
- Swiss Option Portal west of IH 345
- Good Latimer Option Portal west of IH 345

Page 6
Discussion of Subway Alternatives

Primary Corridors

13 CANTON CORRIDOR
- Good Latimer Option
  Portal west of IH 345

DART Victory ROW Option

14 UPTOWN (PEARL) CORRIDOR
- Portal north of Victory Station
- Swiss Option

15 UPTOWN (ROUTH) CORRIDOR
- Portal in Museum Way
- Complex Junction Configuration
  May require LRT system out of service

16 ARTS DISTRICT CORRIDOR
- DART Victory ROW Option
- Complex Junction Configuration
  May require LRT system out of service

Ideas Not Developed

- Beyond Core Capacity scope
- Exceeds available budget
- Constructability issues
- Existing rail service impacted during construction

Ideas Not Developed

- Beyond Core Capacity scope
- Exceeds available budget
- Constructability issues
- Existing rail service impacted during construction
Role of Technical Committee

- Provide existing reports, data, analyses
- Validate technical work
- Represent respective agency policies and perspectives
- Increase technical credibility of effort
- Address issues relative to your expertise to stakeholders and public
- Attend meetings regularly

Technical Committee Feedback

- Presentation/Discussion from representatives

NCTCOG Feedback

- Suggest an alignment further south from existing alignment to:
  - better serve areas to the south side of downtown
  - encourage more redevelopment to the south
  - provide better access to City Hall and the convention center
- The Pacific and Elm alignments are less preferable.
- The Commerce, Wood and Young seem like good candidates provided they minimize impacts.
- The Canton alignment seems too far south.
- All of the alignments should include a potential station somewhere between Akard and Harwood to serve the center city.

ONCOR Feedback

- Primary concerns:
  - Cut and cover openings in street ROW
  - Main Street streetcar route option
  - Other?

D2 Subway Evaluation
DDI Mobility Committee Preliminary Considerations
January 11, 2017

- Alignment alternatives should include a long term vision plan for transit in downtown including future LRT lines to serve ridership in projected growth areas and service to future transit systems including High Speed Rail
- Alignment evaluation should include consideration of a synergistic Dallas Streetcar system as a secondary distribution system for downtown areas not served directly by LRT
- Balance FTA Core Capacity criteria with consideration of improved geographic service to future business and residential uses to enhance future ridership and integration with other multimodal transportation improvements.
- Prioritize stations and station portal locations to connect to businesses, entertainment, hotels and public open spaces

D2 Evaluation Considerations
DDI Mobility Committee
January 11, 2017

- Corridor implementation must incorporate best practice goals set in the Urban Transit Design Criteria as approved by City of Dallas and supported by project stakeholders.
- Corridor implementation must incorporate best practice goals set in the Urban Transit Design Criteria as approved by City of Dallas and supported by project stakeholders including support of mixed use development and pedestrian-oriented design.
- Consider the East and West Bus Transfer Centers and surrounding property as a TOD site with reconfigured bus operations and incorporation of new LRT stations / portals
D2 Evaluation Considerations
DDI Mobility Committee
January 11, 2017

- Determine a preferred Deep Ellum junction (east) train portal configuration common to all options early in the evaluation process
- Determine feasibility of the Rail Corridor (west) train portal configuration common to all options early in the evaluation process
- Eliminate the following D2 Subway Alternatives from further evaluation:
  - Wood Street – due to ROW constraints
  - Canton Street - due to costs and consideration of employment density and Core Capacity criteria

Other Technical Committee Feedback

- Presentation/Discussion from representatives

Recommended Set of Reasonable Alternatives

- Which options meet key project objectives?
- Which options should be dropped?
- Consensus list of alternatives

Initial DART Technical Staff Assessment

| Objectives                                                                 | Public | RR | Victory | Victory | 90 Proof | 90 Proof | Wood | Wood | Victory | Victory | Victory | Good Lat. | Good Lat. | Good Lat. | Good Lat. | Routh | Routh | Pearl | Routh | Routh | Routh | Routh | Routh | Routh | Routh | Routh |
|----------------------------------------------------------------------------|--------|----|---------|---------|----------|----------|------|------|---------|---------|---------|-----------|-----------|-----------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Within $1.3 Billion Budget (NDE)                                           |        |    |         |         |          |          |      |      |         |         |         |            |            |            |            |       |       |       |       |       |       |       |       |       |       |       |       |
| Constructability/Favorable geology conditions                             |        |    |         |         |          |          |      |      |         |         |         |            |            |            |            |       |       |       |       |       |       |       |       |       |       |       |       |
| Subway between Woodr Rodgers and IH 345                                   |        |    |         |         |          |          |      |      |         |         |         |            |            |            |            |       |       |       |       |       |       |       |       |       |       |       |       |
| Ability to shift service                                                  |        |    |         |         |          |          |      |      |         |         |         |            |            |            |            |       |       |       |       |       |       |       |       |       |       |       |       |
| Orange operations to D2                                                    |        |    |         |         |          |          |      |      |         |         |         |            |            |            |            |       |       |       |       |       |       |       |       |       |       |       |       |
| Ease of transfers (Prox. to Existing Bus/Rail)                            |        |    |         |         |          |          |      |      |         |         |         |            |            |            |            |       |       |       |       |       |       |       |       |       |       |       |       |
| Access to jobs (Employment density)                                       |        |    |         |         |          |          |      |      |         |         |         |            |            |            |            |       |       |       |       |       |       |       |       |       |       |       |       |
| Interoperability between both downtown LRT lines                          |        |    |         |         |          |          |      |      |         |         |         |            |            |            |            |       |       |       |       |       |       |       |       |       |       |       |       |
| Minimize curves (Travel time, O&M, construction)                          |        |    |         |         |          |          |      |      |         |         |         |            |            |            |            |       |       |       |       |       |       |       |       |       |       |       |       |
| Advance to Screening?                                                     | Y      | Y  | Y       | N       | Y         | Y         | Y    | Y    | N      | N       | Y         | Y         | Y    | Y    | N    | N    | N    | N    | N    | N    | N    | N    | N    | N    | N    | N    | N    | N    | N    | N    |

- Green = Meets Objective
- Yellow = Meets Objective with some challenges
- Red = Does not meet objective due to fatal flaw or significant risk factor

Screening Evaluation Criteria

- Draft Screening Evaluation Criteria
  - Key objectives are highlighted
  - Stakeholder input to date is noted as H, M, L importance
- Detailed Evaluation Criteria will be developed to evaluate the shortlist of D2 subway options
- Discussion:
  - Are we missing something for screening level?
  - Are there some that can wait for detailed evaluation?
  - Data needs and sources are noted

Next Steps

- January
  - Stakeholder Committee Meeting (January 18)
  - General public meetings (January 19)
  - Initiate screening evaluation
- February
  - Stakeholder Committee Meeting
  - Screening Evaluation/Short List Recommendation
- March-May
  - Define Short Listed Options in more detail
  - Detailed Evaluation of Short List
  - Initiate Streetcar Alignment Discussion
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
## 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>
# Proposed Screening Evaluation Criteria

<table>
<thead>
<tr>
<th>Goal</th>
<th>Objective</th>
<th>Screening Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capital Investment Grant Program</strong></td>
<td>Meet FTA Core Capacity Requirements</td>
<td>FTA Guidance</td>
</tr>
<tr>
<td>Fiscal Responsibility</td>
<td>DART Budget: $1.3 Billion YOE; Strive to keep project cost under $1 Billion</td>
<td>Capital cost estimate</td>
</tr>
<tr>
<td></td>
<td>Retain or improve current &quot;Medium-High&quot; FTA rating</td>
<td>Potential to affect project rating by negatively affecting project justification or financial capacity ratings (assessment of ridership, congestion relief, capital and operating costs)</td>
</tr>
<tr>
<td></td>
<td>Retain FTA/PMOC assessment of technical, management and financial capacity and project readiness</td>
<td>Minimize and manage project cost and schedule risks (early consideration in selection of alternative, alignment, and design)</td>
</tr>
<tr>
<td><strong>Mobility and Access</strong></td>
<td>Locate subway in high density employment areas</td>
<td>Employment within 1/4 mile of corridor, ridership estimates and characteristics</td>
</tr>
<tr>
<td></td>
<td>Provide for multi-modal connectivity and ease of transfer between modes</td>
<td>Connection opportunities (direct or within one block)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Connection to TRE at Victory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Connection to Red/Blue between West End and Pearl</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Connection to West Transfer Center</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Connection to East Transfer Center</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Connection to Streetcar Central Link</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Connection opportunities to pedestrian tunnel(s)</td>
</tr>
<tr>
<td></td>
<td>Locate subway in high density residential areas</td>
<td>Residents within 1/4 mile of corridor, ridership estimates</td>
</tr>
<tr>
<td></td>
<td>Locate subway to serve entertainment/hotel/attractions</td>
<td>Proximity of station(s) to entertainment districts/attractions and assessment of linkages to downtown streetcar network</td>
</tr>
<tr>
<td></td>
<td>Locate subway to serve Convention Center</td>
<td>Proximity of station to Convention Center and assessment of linkages to downtown streetcar network</td>
</tr>
<tr>
<td></td>
<td>Minimize increases in travel time for existing passengers that shift to D2</td>
<td>Travel times compared to existing operations</td>
</tr>
<tr>
<td></td>
<td>Consider opportunities future expansion</td>
<td>Design would allow for junction to the south</td>
</tr>
<tr>
<td><strong>Operational Flexibility</strong></td>
<td>Ability to shift Green/Orange lines to D2 for regular operations</td>
<td>Junctions allow for continuation of current operating plan (SE-NW, DFW-N) and opportunities for flexibility</td>
</tr>
<tr>
<td></td>
<td>Design for operational flexibility to operate all four lines on D2 during incidents, special events, etc.</td>
<td>Project allows for full junctions at each connection point (preferable); or special trackwork (3-track station, pocket track, crossovers for interoperability)</td>
</tr>
<tr>
<td><strong>Engineering Feasibility</strong></td>
<td>Identify construction staging/access areas</td>
<td>Land available for staging areas at each portal (2 acres preferable) and for vertical access to and ventilation shafts at station areas (street ROW/adjacent parcel)</td>
</tr>
<tr>
<td></td>
<td>Meet safety and design standards</td>
<td>Alignment meets DART design criteria with no/minimal design exceptions; emergency egress points can be provided per NFPA130</td>
</tr>
<tr>
<td></td>
<td>Locate corridor within favorable geologic conditions</td>
<td>Alignment location relative to known geologic conditions</td>
</tr>
<tr>
<td></td>
<td>Minimize utility relocations and impacts</td>
<td>Identification of utility conflicts and impacts</td>
</tr>
<tr>
<td><strong>Environment/Community</strong></td>
<td>Minimize impacts to built and natural environment</td>
<td>Minimize acquisition/use of buildings, historic resources, parks, etc.</td>
</tr>
<tr>
<td></td>
<td>Minimize long-term impacts to traffic/pedestrian movements</td>
<td>Number of streets/access points impacted, disruption to pedestrian paths</td>
</tr>
<tr>
<td></td>
<td>Locate subway between Woodall Rodgers and IH 345</td>
<td>Subway limits (portal-to-portal)</td>
</tr>
<tr>
<td></td>
<td>Minimize construction impacts and traffic/pedestrian impacts</td>
<td>Estimates of construction timetable, sequencing, impacts on property, traffic, pedestrian circulation</td>
</tr>
<tr>
<td><strong>Land Use/Urban Design</strong></td>
<td>Encourage Long Term Urban Development</td>
<td>Identify opportunities and constraints for higher density commercial and residential development served by high capacity transit (likely varies by different alignments and station locations)</td>
</tr>
</tbody>
</table>

**NOTE:** Shaded rows are proposed primary objectives to establish set of reasonable alternatives to advance into screening evaluation.
<table>
<thead>
<tr>
<th>Alternative</th>
<th>Key Comments</th>
<th>Advance? Yes or No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific (RR ROW)</td>
<td>Swiss Option - affect on Carpenter Park (review project)</td>
<td>Y</td>
</tr>
<tr>
<td>Pacific (Victory ROW)</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Elm (RR ROW)</td>
<td>Revised alignment West connect 6th Floor Museum</td>
<td>Y</td>
</tr>
<tr>
<td>Elm (Victory ROW)</td>
<td>Under Hotel</td>
<td>Y</td>
</tr>
<tr>
<td>Commerce (RR ROW)</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Commerce (Victory ROW)</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Commerce (Good Latimer)</td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Commerce (Swiss)</td>
<td>Avoid portal than Carpenter Park</td>
<td>Y</td>
</tr>
<tr>
<td>Wood (Good Latimer)</td>
<td>Very narrow street. Need 65' for Twin Bore Tunnel</td>
<td>N</td>
</tr>
<tr>
<td>Wood (Swiss)</td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Young (Good Latimer)</td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Young (Swiss)</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Canton (Good Latimer)</td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Uptown (Pearl)</td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Uptown (Routh)</td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Arts District</td>
<td></td>
<td>Y</td>
</tr>
</tbody>
</table>