Memorandum

DATE December 5, 2008

TO Members of the Transportation and Environment Committee: Linda Koop, Chair; Sheffie Kadane, Vice-Chair; Jerry R. Allen; Carolyn R. Davis; Vonciel Jones Hill; Angela Hunt; Pauline Medrano; Ron Natinsky

SUBJECT People Mover Connector – Additional Study of Alternatives

Attached is the briefing entitled, “Dallas Love Field – People Mover Connector – Additional Study of Alternatives” that will be presented to you on December 8, 2008.

Please contact me if you need additional information.

Ramón F. Míguez, P.E.
Assistant City Manager

Attachment

c: Honorable Mayor and Members of the City Council
   Mary K. Suhm, City Manager
   Thomas P. Perkins, Jr., City Attorney
   Deborah Watkins, City Secretary
   Craig Kinton, City Auditor
   Judge C. Victor Lander, Judiciary
   Ryan S. Evans, First Assistant City Manager
   Jill A. Jordan, P.E., Assistant City Manager
   A.C. Gonzalez, Assistant City Manager
   Forest E. Turner, Interim Assistant City Manager
   David Cook, Chief Financial Officer
   Jeanne Chipperfield, Director, Budget and Management Services
   Helena Stevens-Thompson, Assistant to the City Manager - Council Office
   Dan Weber, Director, Department of Aviation

"Dallas, The City That Works: Diverse, Vibrant And Progressive."
Dallas Love Field
People Mover Connector

Additional Study of Alternatives

Briefing to the Transportation
and Environment Committee

Department of Aviation
December 8, 2008
Purpose of Briefing

- To brief the Committee on **alternatives** for connecting the DART Love Field Station with the Love Field Airline Terminal, **with the following objectives:**
  - Lower cost than 9/22/08 recommendation
  - Comparable level of service

- NOTE: Strategies to locate car rental and parking facilities are not related to the evaluation of connector alternatives, and will be the subject of a future briefing.
Background Review

- 2005 – DART determined the Green Line would not connect to Love Field.
  - Committee requested staff to study the feasibility of an automated people mover, providing a seamless, high level of service.

- 9/22/08 – Staff briefed the Committee as follows:
  - Presented a people mover concept with a seamless, high level of service
  - PFC funding is estimated to be sufficient to fund the $330M, 2010 cost.
  - Financial impact on other capital projects to be reported next briefing.

- 10/13/08 – Staff briefed Committee on financial impact:
  - Consumes all PFCs and doubles airline rental rate for new terminal.
  - Recommended further study of cost-effective alternatives
Approach to Alternatives Analysis

9 Alternatives Considered

- 5 bus alternatives
  - Advanced bus technologies
  - Inwood Station Bus Shuttle
  - Inwood Station Bus Rapid Transit (BRT)
  - Love Field Station Bus Shuttle (public roadways)
  - Love Field Station Bus Shuttle (on-airport roadway)

- Automated People Mover (APM) alternatives
  - Re-alignment around end of runway
  - 3 modifications to original Automated People Mover concept
Approach to Alternatives Analysis (cont’d)

- Advanced Bus Technologies
  - Eliminated from consideration
    - New, unproven technologies
Approach to Alternatives Analysis (cont’d)

- Airfield Constraints

  - Runway 13R-31L runs parallel to Denton Dr.

  - Space between runway and Denton Dr. not sufficient for additional surface road on airport

  - Eliminates *on-airport* surface route for either *bus* or *realigned APM*
Approach to Alternatives Analysis (cont’d)

- Measuring Level of Service for Remaining 6
  - Headway (wait time plus transit time)
    - Objective measure – distance & speed
  - Passenger convenience and ease of use
    - Subjective measure – view video of bus and APM service
APM vs. Bus Boarding/Deboarding Comparison

Timed APM Boarding/Deboarding

Timed Bus Boarding/Deboarding
Inwood Station Bus Shuttle

- Not recommended in 2005 DART Study
  - Love Field station deemed to be better bus option than Inwood Station
Inwood Station BRT

- Elevated BRT Lanes obstruct approach to primary runway
  - Alignment shown is the optimized BRT route from the Inwood Station
  - Significant real estate acquisition impacts (approximately 20 acres)
  - Not recommended by DART. Love Field station deemed to be better bus option than Inwood Station
Love Field Station Bus Shuttle on Public Roadways

- Subject to traffic signals and congestion
- Estimated capital cost of $1.8 M (2010 $)
Automated People Mover Alternatives

- 3 modifications to Sept 22 recommendations

- Cost basis revised based on recent bid experience
  - Economic conditions have lowered construction prices
  - DART currently using 5% escalation (8% used Sept 22)

- Design basis reviewed for possible cost savings
  - Station width & length reduced
  - System and/or tunnel quantity reductions
Sept 22 Recommendation
APM Alignment
Phased Approach to Recommended APM Alternative

- Single Lane Shuttle - Build Both Tunnels
- Single Lane Bypassing Shuttle in Single Tunnel
- Single Lane Shuttle in Single Tunnel

Tunnel Cross Section
Single Lane Shuttle - Build Both Tunnels

- Expandable to Recommended APM Alternative in future
- Wait time of 4.4 minutes
- Ride time of 1.7 minutes
- Availability greater than 99%
  - Would require bus backup
- Lower initial cost of $265 M (2010 $)
Single Lane Bypassing Shuttle in Single Tunnel

- Would provide equivalent capacity and trip time of Recommended APM Alternative
- Wait time of 2.4 minutes
- Ride time of 1.9 minutes
- Availability greater than 99%
  - Would require bus backup
  - If cable system, dual drive equipment would increase redundancy
- Lower initial cost and lower ultimate cost of $250 M (2010 $)
Single Lane Shuttle in Single Tunnel

- Expandable to Recommended APM Alternative in future
  - Remobilization required for future tunnel work
- Wait time of 4.4 minutes
- Ride time of 1.7 minutes
- Availability greater than 99%
  - Would require bus backup
- Significantly lower initial cost of $225 M (2010 $)
# Alternatives Evaluation Matrix

## DALLAS LOVE FIELD

### AUTOMATED PEOPLE MOVER

### ALTERNATIVE CONNECTIONS

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<thead>
<tr>
<th>EVALUATION CRITERIA</th>
<th>APM CONNECTION ALTERNATIVES</th>
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<td>Single Lane Shuttle - Build Both Tunnels</td>
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## LEVEL OF SERVICE - USER PERCEPTION

- Seamless?
- Public Entrance to Airport?
- Overall Image/Aesthetics

## LEVEL OF SERVICE - PERFORMANCE

- Wait Time
- Ride Time
- Environment
- Accessibility
- Ridership

## PHYSICAL & OPERATIONAL IMPACTS

- Airfield/Airspace Impacts

## RELATIVE COSTS

- Relative Costs

## OVERALL SCORE

### LEGEND

- **Good** ➡️
- **Fair** ➡️
- **Poor** ➡️
- **Fail** ➡️
Preferred Alternative and Costs

- Love Field Station Bus Shuttle is clearly the lowest cost, however, it cannot provide the level of service needed for success.

- The Alternatives Matrix shows the best alternative to be the “Single Lane/Tunnel Bypassing Shuttle”:
  - Planning cost is $25 M higher (11%) than the lowest cost alternative for APM (Single Lane/Tunnel, Single Shuttle).
  - Headway performance (wait time + travel time) is almost 1/3 better (70%), at 4.3 min vs. 6.1 min for lowest cost alternative.
  - Planning cost of $250 M is $80 M reduction from Sept 22 recommendation of $330 M. (all 2010 $)
  - Annual O&M costs will remain similar as Sept 22, approx $5 M.
Financial Analysis

- A complete financial analysis cannot be made for the APM until the LFMP budget is finalized in the Design Development phase (approx Oct 2009)
  - Need to consider the financial requirements of both projects together

- It is estimated that PFC resources will be available to fund the Preferred Alternative
  - Will take away resources from LFMP and require a re-programming effort to finance both programs

- APM cost estimates, based on more advanced design (Schematic Design), are needed in order to make informed decision
Recommendation

- **Begin schematic design effort** to maintain schedule and refine our estimates.
Next Steps

- Bring supplemental agreement for **schematic design** scope of work and fee to **City Council** for approval in **Apr 2009**

- **Brief Committee Nov 2009** on project budget, schedule, financing

### Proposed Project Schedule

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