DALLAS MIDTOWN AUTOMATED TRANSPORTATION SYSTEM STUDY

Public Open House and Listening Session
STUDY TIMELINE

SPRING 2018
Study of Dallas Midtown development and current and future state of people movers began

SUMMER 2018
Public Open House and Listening Session #1
Collect data for Study including Midtown Plan, Roadway infrastructure and state of ATS industry

WINTER 2018
Public Open House and Listening Session #1
Develop APM Demand Tool and alternative APM recommendations

SPRING 2019
Public Open House and Listening Session #3
Select recommended APM alternative and develop implementation options

SPRING 2019
Final Proposed Recommendations for a People Mover in Dallas Midtown

We are here
MIDTOWN ATS STUDY GOALS

Purpose of the Dallas Midtown ATS Study

- Provide efficient and effective circulation within the proposed development
- Establish connections to the regional rail and transit systems
- Develop a Demand Forecasting Tool that can be applied to future People Mover locations in the region
- Perform an alternative analysis of the present and near-future state of autonomous technologies
- Provide alignment, station location, vehicle and implementation recommendations for an ATS in Midtown
## PARKING STRATEGY

<table>
<thead>
<tr>
<th>Strategy Alternative</th>
<th>Integration with ATS System</th>
<th>Parking Spaces Needed</th>
<th>Cost Implications</th>
<th>Land Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing Parking Code</strong></td>
<td>Encourages and facilitates use of personal vehicles for internal trips, effectively eliminating all ATS demand for trips within Midtown</td>
<td>68,000</td>
<td>Expected increase of parking construction costs by nearly $1 billion in comparison to shared parking strategy</td>
<td>Would require 26,000 additional parking spaces in comparison to shared parking strategy, increasing spatial needs for parking by roughly 3 million square feet</td>
</tr>
<tr>
<td>(determined by individual projects)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Shared Parking Strategy</strong></td>
<td>Encourages and facilitates use of ATS through shared and strategically-located parking assets</td>
<td>42,000</td>
<td>Would result in nearly $1 billion in parking construction savings</td>
<td>Would right-size parking to demand, therefore reducing spatial need for parking by roughly 3 million square feet</td>
</tr>
<tr>
<td>(coordinated based on need throughout the Midtown district)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Existing Parking Code**
- 8,000+ spaces
- 7,500-9,999 spaces
- 5,000-7,499 spaces
- 2,500-4,999 spaces
- <2,500 spaces

**Shared Parking Strategy**
- 8,000+ spaces
- 7,500-9,999 spaces
- 5,000-7,499 spaces
- 2,500-4,999 spaces
- <2,500 spaces
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Purpose / Intent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proximity to ATS Station</strong> (&lt;1/10 mile preferred)**</td>
<td>B+ walking distance Level of Service or better</td>
</tr>
<tr>
<td><strong>Accessibility to main road</strong></td>
<td>Reduce internal circulation and traffic on roads planned to be pedestrian/bicycle friendly</td>
</tr>
<tr>
<td><strong>Potential to incorporate with regional transit</strong></td>
<td>Support ridership goals of planned transit lanes, and provide a flexible, shareable parking supply</td>
</tr>
<tr>
<td><strong>Potential for sharing among multiple uses</strong></td>
<td>Efficient use of parking assets, reduction in the number of spaces needed to be built</td>
</tr>
</tbody>
</table>

Note: A walking distance level of service of B+ or better would be less than 520 feet

Note: The details, locations and alignments displayed are conceptual and do not represent the plans or intentions of any other entity outside of the Dallas Midtown ATS Study.
ATS RIDERSHIP DEMAND

Ridership Estimate Assumptions

- Full Midtown district build-out
- Regional connections to:
  - Red and Blue DART Line
  - Green DART Line
  - Cotton Belt
- Shared parking strategy
- 6 ATS stations in Midtown
- ATS alignment and regional connections as depicted

Note: The details, locations and alignments displayed are conceptual and do not represent the plans or intentions of any other entity outside of the Dallas Midtown ATS Study.
KEY FACTORS IN ALTERNATIVE ANALYSIS

- Feasibility of alignment (ROW and vehicle technology)
- Optimization of alignment/station locations
  - Transit catchment area
  - Visibility/wayfinding/ease-of-use
- Level of Service
  - Operational LOS
  - Failure management flexibility
- Multi-modal connectivity
- Scale Impacts
- Expandability
  - Technology development
  - Infrastructure requirements
- Traffic Impacts
- Passenger Types
  - Daily commute
  - Event-based

Results of alternative alignment analysis using various autonomous technologies and routing schemes
Note: The details, locations and alignments displayed are conceptual and do not represent the plans or intentions of any other entity outside of the Dallas Midtown ATS Study.
ATS STATION LOCATION

Utilize existing thoroughfares for ROW, safety and travel consistency

Distance between ATS stations less than 1800’ (5 minute walk) from each other

Optimized on/off LBJ ramp access on Preston Road

Parking concentrated around perimeter of Midtown to catch interior traffic

Convenient access to major developments

Pedestrian “boulevard” connections from ATS stations to Midtown Park

Access along Montfort Drive for arterial traffic

Note: The details, locations and alignments displayed are conceptual and do not represent the plans or intentions of any other entity outside of the Dallas Midtown ATS Study.
ATS STATION CONCEPT

Elevated guideway minimizes traffic impacts and increases safety and operations

Aerial connections to surrounding development

Use existing street crossings for driver comprehension

Note: The details, locations and alignments displayed are conceptual and do not represent the plans or intentions of any other entity outside of the Dallas Midtown ATS Study.
ATS VEHICLE OPTIONS

Automated People Mover

Group Rapid Transit

Photo credit: 2getthere and DFW
# ATS VEHICLE DETAILS

## Autonomous Vehicle Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Autonomous People Mover</th>
<th>Group Rapid Transit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Passenger Capacity</strong> (people/car)</td>
<td>105</td>
<td>12-21</td>
</tr>
<tr>
<td><strong>Fleet Size Needed</strong> (per direction)</td>
<td>5 cars</td>
<td>22 cars</td>
</tr>
<tr>
<td><strong>Headway Capabilities</strong> (minutes)</td>
<td>2-4</td>
<td>1</td>
</tr>
<tr>
<td><strong>Max. Vehicle Speed</strong> (miles per hour)</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td><strong>Operational Capacity</strong> (persons/hour)</td>
<td>1,800</td>
<td>840</td>
</tr>
<tr>
<td><strong>Operational Efficiency</strong> (peak hour)</td>
<td>41%</td>
<td>88%</td>
</tr>
</tbody>
</table>

**System Expandability**
- Elevated guideway infrastructure
- Specialized track required
- System configuration limited
- Elevated guideway infrastructure
- No specialized track required
- System configuration more flexible with independent vehicles

## Total System Implementation Cost Estimate* (Million USD)

<table>
<thead>
<tr>
<th></th>
<th>Autonomous People Mover</th>
<th>Group Rapid Transit</th>
<th>Light Rail Train</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal Circulator</strong> (2.2 mile loop)</td>
<td>$293</td>
<td>$241</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Regional Connections</strong> (~14 miles)</td>
<td>$988</td>
<td>N/A</td>
<td>$1,471</td>
</tr>
</tbody>
</table>

*Cost estimates are conceptual in nature and subject to change with further design and detail

**Conceptual estimates based on right-of-way acquisition, utility displacement, necessary traffic improvements, station/facility and guideway constructions costs and vehicle procurement costs.

***Conceptual estimates for LRT are assumed to be at-grade. Regional estimates do not include facility or vehicle costs as an operational analysis was not performed for regional connections.
COMMENTS

Find out more about North Central Texas Council of Governments’ Regional People Mover Initiative

www.nctcog.org/trans/plan/transit/emerging-transit-trends/people-mover