



Dallas Midtown Autonomous Transportation System and Shared Parking Feasibility Study

September 2019



North Central Texas
Council of Governments

JACOBS



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Executive Summary

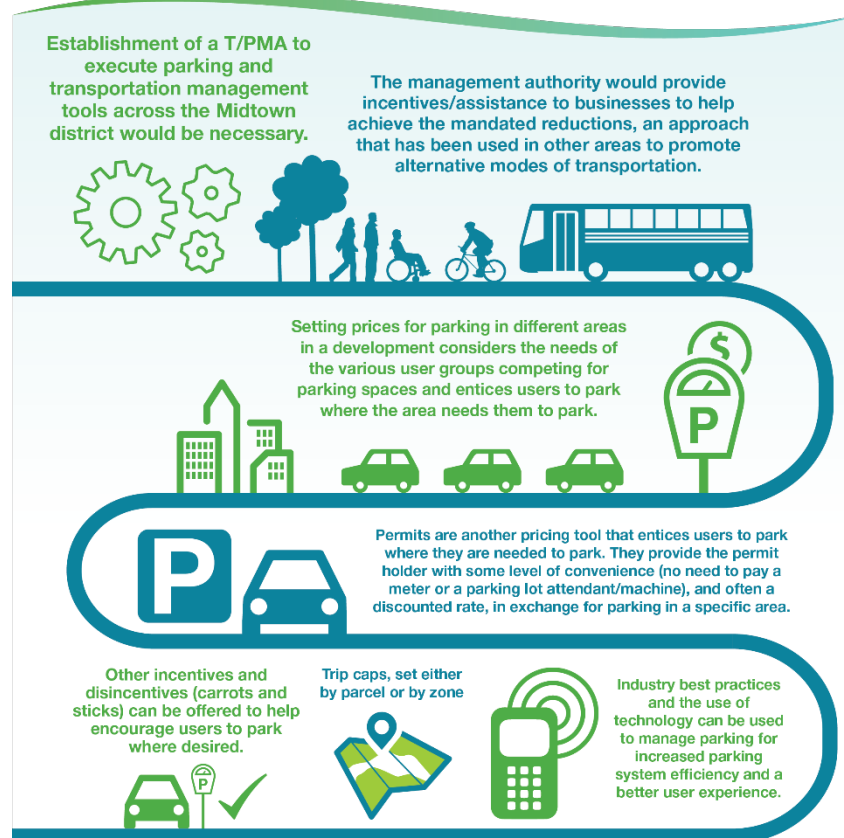
Dallas Midtown is an ambitious master-planned redevelopment site envisioned as a live-work-play district with a cohesive and symbiotic mix of uses, from retail and restaurants to residences, office space, and community parks. An essential component of this vision is mobility—how people enter and move throughout the site. Rather than a traditional framework, wherein single-occupancy vehicles are the primary method of internal circulation, the creators of the Dallas Midtown vision—including the North Central Texas Council of Governments (NCTCOG), the City of Dallas, North Dallas Chamber of Commerce, and many property owners and developers—espoused a pedestrian-friendly, multimodal mobility network, where convenience and connection among uses are elevated above all.

Dallas Midtown exists in a “transit desert”; for it to reach its full potential, it must be connected to the regional transit system.



Mobility and the Dallas Midtown Vision

Without ample and active mobility options within the district, the synergy of Dallas Midtown’s many proposed uses and amenities would be lost. Recognizing this, NCTCOG initiated an effort to study how best to create and support a reliable, self-operating, internal circulation system. This work, the *Autonomous Transportation System and Shared Parking Feasibility Study*, assessed the utility and technical feasibility of an autonomous transportation system to achieve larger district-wide mobility and sustainability goals; feasible recommendations for development, support, and management of the system; and projected capital and operating costs. In summary, the following findings and recommendations were developed, by topic:



Parking and Transportation Demand

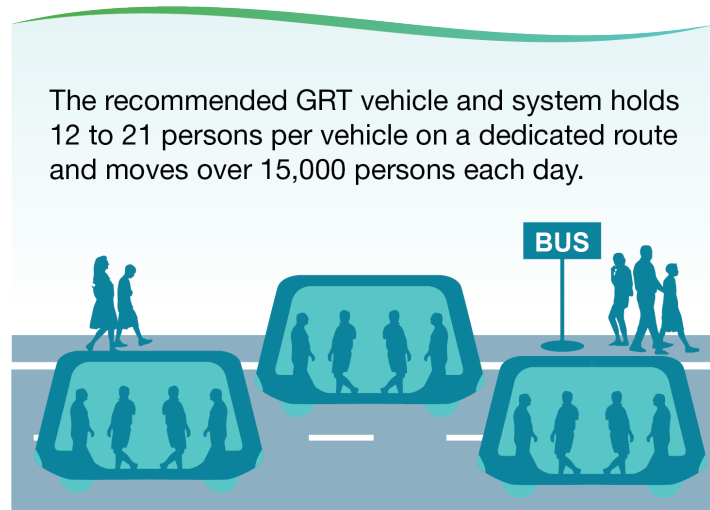
In most cases, parking is provided on a project-by-project basis, with the amount generally based on use and density. However, this study determined that this traditional method of parking resource allocation would not contribute to, and could even damage, the mobility vision for the Dallas Midtown district. Instead, the study recommends a district-wide shared parking model wherein a number of strategically located structures, closely linked to internal circulation options and



pedestrian infrastructure, would serve the whole. This strategy would be complimented by a series of active transportation demand management initiatives to not only discourage the use of single-occupancy vehicles in traversing the site, but also encourage alternative modes of arrival to the district itself.

ATS Route Alignment and Stations—Of the various route and station alignments considered, the study recommends an elevated system based on projected implementation costs, operational reliability, pedestrian access, and a reduced potential for conflict with vehicles at-grade. Further, the study identifies six potential station locations, with the objective of evenly distributing access, enhancing pedestrian connectivity, and aligning with vehicular and transit access points to the district.

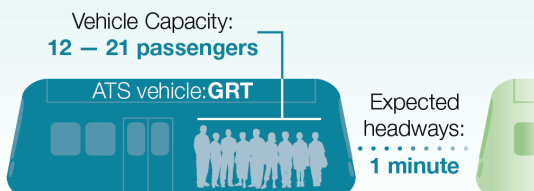
ATS Vehicle Types—The study recommends a group rapid transit (GRT) technology—a vehicle resembling a small bus in outward appearance, able to run on a dedicated looped route with fixed pick-up and drop-off locations. After review of many different vehicle types, this option was selected based on feedback from stakeholders and the public, cost, and its technical performance in the following areas: level of service, technological maturity, and infrastructure requirements.



Pedestrian and Placemaking Integration—Mobility in all forms—particularly enhancement of the pedestrian environment through connection and placemaking—is an essential study component. Conceptual ATS station designs, intended to seamlessly integrate the ATS with the pedestrian framework as well as points of entry for other forms of travel (e.g., light rail and vehicle parking), have been developed for further consideration and refinement. From an aesthetic standpoint, these conceptual stations embrace modern and timeless design elements and simple, easily understood wayfinding with a focus on people over vehicles.

Recommended route alignment: **Elevated 2.2-mile loop circulating the Dallas Midtown area in both directions**

Driverless, automated single-vehicle system on a dedicated, grade-separated facility. Fixed route and stops. Up to 18 vehicles circulating.



System capacity: **840 persons/hour (15,120 persons/day)**

Implementation Cost

Conceptual estimate based on ROW acquisition, utility relocation, necessary traffic improvements, station and guideway construction, and vehicle procurement.

Capital Cost: **\$95M** Maintenance Cost: **\$1.4M/year**

Unified Management—Implementation of these initiatives will require uniformity in policy and direction at the executive level. As such, the study recommends the creation of a management entity to provide leadership and oversight over shared parking and transportation demand management, the ATS, and general transportation and mobility infrastructure programs.

Blended Buildout—While full redevelopment of Dallas Midtown will occur over a period of many years, the study recommends completing buildout of the ATS route to ensure district-wide mobility equity. Conversely, the study recommends a phased buildout of shared parking structures—and the use of existing structures to meet initial demand—as development occurs.



Recognizing Road Blocks

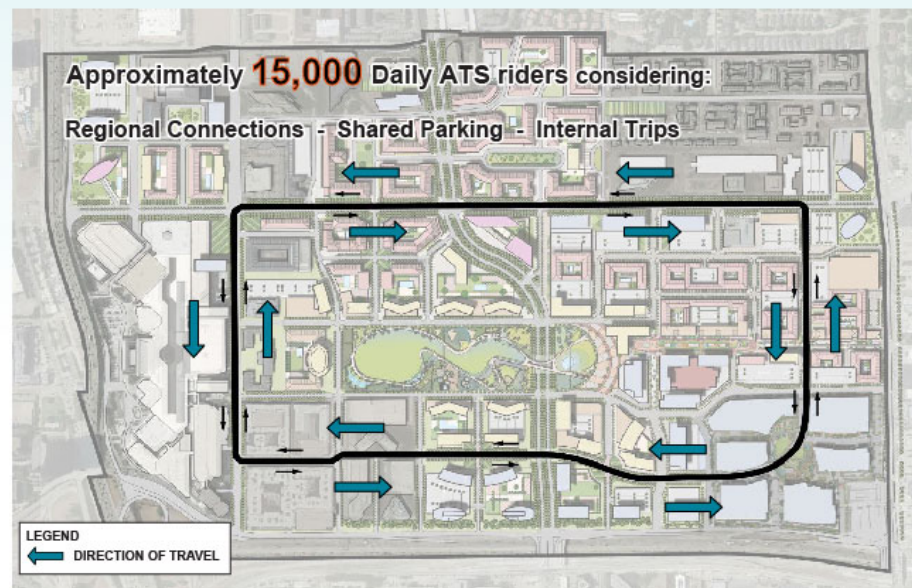
Many of the recommendations described herein diverge from traditional models, which primarily emphasize single-occupancy vehicle usage as the major—and even sole—form of transportation. While these recommendations are essential to creating the cohesive, connected, and highly cooperative mobility network imagined for Dallas Midtown, they come with their own roadblocks, albeit surmountable ones, including:

Administrative and Regulatory Changes—To implement the recommended district-wide shared parking strategy, changes to the zoning code sections governing the off-street parking provision in Dallas Midtown would be required. This, in turn, requires leadership from the City of Dallas Planning and Urban Design departments and support and approval by the Planning Commission and City Council.

Traditional Financing for New Development—Shared parking is a less conservative approach to building parking infrastructure than adhering to simple and additive use-based parking ratios; however, the parking industry, as well as many municipalities including the City of Dallas, have used shared parking publications (primarily the Urban Land Institute's 2005 *Shared Parking* handbook) for decades. As such, while this strategy may be considered modestly unorthodox and require some communication and coordination (particularly with commercial lenders), it is unlikely to significantly hinder the speed or scope of the study area's development potential.

Forecasting Autonomous Travel Demand—Autonomous systems such as the one recommended for Dallas Midtown are an emerging technology that produces a variation in scale that both provides an opportunity for adaptive use and creates challenges in demand modeling based on more traditional travel modes. A model based on transit-oriented developments was created for forecasting ATS ridership potential in Midtown; Midtown will become the first of what can be expected to be many such developments that use autonomous technologies to increase mobility within a dense, diverse district while also connecting to regional networks. Further study of the impacts of the Midtown ATS installation will be vital to providing more information for this emerging market.

Estimated Daily ATS Ridership





Next Steps

The recommendations herein form a comprehensive and coordinated solution. If deviations from the recommended solution occur, additional analysis will be required. Some of the recommendations are critical and time-sensitive to this plan advancing into detailed design and implementation and should be approached in the immediate future. These recommended next steps are summarized below and detailed in the full report.

Organization of Management Agency—Organize a coordination meeting among major partners within the first 60 days following acceptance of this report to discuss the creation of a management entity for the Dallas Midtown mobility system.

GRT Vendor Demonstration—Work with a GRT vendor to arrange a temporary vendor demonstration route in the Dallas Midtown area.

Shared Parking Implementation—Evaluate the potential for existing parking structures to accommodate shared parking. Work with developers currently in the planning stages for new developments to assess options to utilize existing parking resources to the extent possible.

Thoroughfare Adjustment—Align the existing *Thoroughfare Plan for Dallas Midtown* to accommodate ATS alignment as proposed in this report. By making some of these thoroughfare alterations before the streets are constructed in the year following the study closure, construction costs may be lower than when the parcels around it are developed and construction time would be shorter, reducing the duration of lost street access and minimizing negative impacts.

