



Volume 3: Defining Projects and Plans

Non-Fixed Route Services – Expanding Transit Choices

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Executive Summary

Public transit includes a diversity of transportation alternatives. While the term “transit” may conjure the image of a city bus, many other services conspire to achieve public transit’s stated purpose: the movement of people. VIA Metropolitan Transit’s (VIA) fixed route service is often the most publicly visible service type, but VIA has many customers (or potential customers) who do not use fixed route service due to disability, lack of access, or inconvenience:

- The senior citizen who no longer drives, and needs to safely reach the bus stop from his or her home;
- A professional whose office is too far from a bus stop to walk, but well within biking distance;
- A group of employees who live outside of VIA’s service area, but would like to take advantage of carpool programs;
- A person who would like to use the bus, but needs training and advice on how to do so;
- A young couple who want to visit downtown in the evenings without worrying about how to get home safely; and
- A student who does not need a car to get to class, but would like to go shopping for groceries on the weekends.

Recognizing the range of travel preferences and identifying alternative transportation options to accommodate those choices is a key consideration for VIA’s long range planning effort. Likewise, as new and innovative transportation technologies become available, VIA and its transportation partners must both adapt to and incorporate them in coordination with existing services.

A number of existing VIA services fall under the definition of nontraditional services; i.e., those that are not fixed route, everyday bus service:

Paratransit services are provided by VIA under the name VIAtrans. In 2013, these trips made up 19 percent of VIA’s operating expenses and two percent of its total trips. Paratransit is both Federally required (as a “complement” to fixed route bus service) and very expensive to operate (about \$30 per trip, compared to VIA’s overall fixed route per trip cost of \$3.70). VIA’s Vision 2040 Long Range Plan identifies the following strategies to improve VIAtrans efficiency while ensuring this service continues to be available to those who need it (Table ES.1).

Table ES.1 Recommended Paratransit Strategies

Capital Investments	<ul style="list-style-type: none"> • Ensure that existing and future bus stops, shelters, and station areas are fully accessible to those who can use it. This can be done through funding of MyLink program. • Anticipate capital needs, such as vehicles or maintenance facilities, in the context of population growth, public health, and demographic changes.
Policy Goals	<ul style="list-style-type: none"> • Examine the role of contractors in order to identify ways to reduce expenses without compromising service delivery. • Identify new sources of funding: <ul style="list-style-type: none"> – Grants from Federal or state agencies; – New local funding sources; and – Operating support from medical providers and human service agencies. • Examine the VIAtrans eligibility process, and provide travel training and support to VIA customers who are able to use existing fixed route bus service.
Operational Improvements	<ul style="list-style-type: none"> • Consider the use of vanpool-like services, where vehicles are leased to high-traffic areas such as assisted living facilities. • Modify paratransit-operating characteristics to reflect fixed route service in order to decrease costs. • Take steps to limit trip lengths, consolidate trip ends, and maximize the number of passengers per trip.

Vanpool services provide vehicles and coordination to passengers in a wide geographic area. In 2013, vanpool trips made up one percent of VIA's operating expenses and one percent of its total trips. These trips reduce congestion on highways, make good use of Federal grants, and are cost-effective (about \$5 per trip). However, ridership is generally limited to large private employers or government agencies. In order to continue to provide high-quality vanpool service, VIA plans to undertake the following strategies (Table ES.2).

Table ES.2 Recommended Vanpool Strategies

Capital Investments	<ul style="list-style-type: none"> • Support implementation of high-occupancy vehicle (HOV) facilities to decrease travel times.
Policy Goals	<ul style="list-style-type: none"> • Develop marketing and communications for outreach efforts to encourage new users. • Identify small- and mid-size employers or neighborhoods as candidates to increase user base. • Allow nonmember cities in the San Antonio urbanized area (UZA) to support the program. • Increase vanpool subsidy amount in order to make vanpool more attractive to nonemployer-subsidized commuters.
Operational Improvements	<ul style="list-style-type: none"> • Coordinate vanpool operations with fixed route metro Express Services to test viability of new express routes and park & ride locations.

No conversation about the future of transit is complete without a discussion of how transit service will integrate with emerging and innovative multimodal transportation services. New transportation modes such as car share, ride-hailing services, flexible routing, and autonomous and connected vehicles will continue to change the transportation paradigm in ways that have the potential to enhance current transit service delivery in several ways: through provision of first-mile/last-mile service for high-capacity routes; by providing flexible and reliable options as a complement to fixed route transit; and by increasing the safety and efficiency of the entire transit network. In order to continue to be a part of a dynamic, evolving transportation network, VIA plans to undertake the following strategies (Table ES.3).

Table ES.3 Recommended Strategies for Integrated Multimodal Services

Capital Investments	<ul style="list-style-type: none"> • Lead, partner, and invest in developments in autonomous and connected vehicle technology through the purchase and testing of transit vehicles with intelligent features. • Partner to invest in bicycle sharing programs (e.g., BCycle) to ensure availability at all high-capacity transit stations.
Policy Goals	<ul style="list-style-type: none"> • Establish subsidy programs for integrated multimodal trips. • Institute integrated payment system for multimodal trips. • Partner with the City of San Antonio and other jurisdictions to identify areas for transit supportive land use (TSLU) and refine TSLU policies.
Operational Improvements	<ul style="list-style-type: none"> • Develop line service design standards to allow for flexible routing (route deviation and point deviation) or demand responsive service in locations with sparse transit coverage. • Establish minimum service standards for the availability of car share, ride-hailing services, real-time signage, and bikeshare options at high-capacity transit stations. • Enhance data and information delivery mechanisms to make trip planning across modes easier, in a single, integrated package: <ul style="list-style-type: none"> – Carpool and multimodal trip planning; – Real-time vehicle arrival and connection information; – Parking, car share, and bikeshare availability; and – Mobility aid (i.e., wheelchair) and bicycle spot availability on buses.

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1.0 Introduction

VIA Metropolitan Transit's (VIA) Vision 2040 Long Range Plan is a guiding document describing a comprehensive, visionary approach to public transportation in the Greater San Antonio Region. Through needs assessment, technical analysis, and stakeholder involvement, the planning process sought to sustainably support the projected growth and development of the region with a series of capital and service improvements to the transit network. While VIA's fixed route services comprise the backbone of the Greater San Antonio Region's public transit network, some transit users require more flexible service options. This technical memorandum provides details on projected needs and best practices for VIA's non-fixed route services and provides a glimpse into the future of innovative and nontraditional transportation services.

Currently, VIA offers two types of flexible transit services: paratransit and vanpool. VIAtrans provides Federally mandated paratransit service to those unable to access or safely use traditional bus routes. Vanpool service provides vehicles and coordination for commuters outside of, or as an alternative to, the VIA fixed route network. Both paratransit and vanpool are key components of the range of transportation choices in the region.

As technological and business innovations continue to change the way people move around the Greater San Antonio Region, it will become more important for transit to become integrated with other transportation modes. Ride-hailing services, short-term vehicle rentals, and real-time information from mobile applications all provide alternative transportation options to the conventional single-occupant-vehicle. For public transit to remain a vital component of the region's transportation system, it must be seamlessly integrated with emerging options to the extent practical. Looking further forward, the rising autonomous and connected vehicle industry has the potential to change every aspect of urban transportation by blurring the lines between taxis, buses, and private vehicles. Autonomous vehicles are also likely to drastically change the role, location, and prevalence of one of the largest land uses in urban and suburban locales alike: the parking lot.

In the near future, transit agencies will need to expand upon their traditional roles as providers of public transit to also become providers of high-capacity and vital transportation services, clearinghouses for transportation information, and coordinating experts between infrastructure, land use, and the network of public and private transportation providers. This document describes VIA's non-fixed route services and provides additional context by comparing VIA's operations with eight peer agencies.¹ Future trends, challenges, and opportunities are described for each non-fixed route service type: paratransit, vanpool, and multimodal integration opportunities.

¹ For a discussion of the peer selection methodology and full comparison with VIA's services, see *Understanding VIA's Role in History, VIA's Role in the Community, and VIA in Comparison to Peer Agencies in Volume 1: The Role of Transit in a Growing Region*.

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2.0 Paratransit

Paratransit is supplementary public transit service designed to ensure that persons with disabilities have full and equal access to public transit service. The Rehabilitation Act of 1973 and later the Americans with Disabilities Act (ADA) of 1990 prohibit “any program or activity receiving Federal financial assistance” from excluding persons with disabilities. Title 49, Part 37 of the Code of Federal Regulations defines how, when, and to whom paratransit service must be provided. VIA provides paratransit service under the name VIAtrans.

An effective paratransit system is based on a highly accessible fixed route public transit network. Accessible services include modifications to fixed route vehicles such as ramps or lifts, restraint facilities to ensure safety when the vehicle is in motion, and modifications to stops and stations such as wheelchair-accessible shelters or audible real-time information systems. However, these additions may not be sufficient to allow all users to utilize fixed route service.

Paratransit is a “demand responsive” service, meaning that the agency dispatches vehicles when and where needed rather than following a fixed route or schedule. Federal regulations require that supplementary transit service to be provided in a region three-quarters of a mile from fixed route service.² Paratransit providers generally implement a “dial-a-ride” service; participants request transportation to a destination (such as a shopping or medical facility) and a central scheduling office dispatches a vehicle. Service can be door-to-door or curb-to-curb, depending on the mobility limitations of a customer and the availability of assistance at the destination end of a trip. Agencies providing paratransit service must evaluate the ability of a potential user to ride fixed route service before allowing access to the paratransit system.

While paratransit is more costly to provide on a per trip basis than fixed route bus service, regulations prohibit agencies from charging more than twice the regular fare for transit trips. Riders may share the vehicle with others traveling to different destinations. A Personal Care Attendant (PCA) and at least one additional companion may always ride with the participant at no charge. Further companions may be accommodated on a space-available basis. Additionally, agencies must provide trips if they are scheduled a day in advance, within an hour of the requested time. Agencies often contract out paratransit services (either in whole or in part) to taxi companies or other private operators in order to meet the full demand for services and/or as a cost savings measure.

² The three-quarters of a mile requirement generally applies to the route as a whole; however, for light rail and commuter rail services the requirement applies to station areas only. Commuter-oriented services such as Express services are not required to provide complementary paratransit service along their route, but are required to have accessible facilities and vehicles.

2.1 Existing Conditions

Staff and Vehicles

VIATrans service is provided by a fleet of 147 vehicles to portions of Bexar County (Table 2.1). Most of the fleet is composed of model-year 2013 vehicles, but 23 vans are approaching 10 years of service with an average mileage of 458,000. In general, VIA replaces vehicles after seven to nine years of service; thus, the 2006 model-year vehicles will need to be replaced in the near future. Thirty of the VIA-owned vans are leased to VIATrans contractors; VIATrans contractors own and operate an additional fleet of approximately 120 vehicles.

Table 2.1 VIATrans Fleet

Vehicle Type	Model-Year	Fleet Size	Seat Capacity	Average Mileage
Chevrolet Express 8.1L	2006	23	5	458,000
Chevrolet Express 6.0L	2013	124	5-9	97,000

Source: VIA Metropolitan Transit, 2016.

VIATrans also provides a taxi subsidy service, where eligible participants contact a participating taxi company and request a trip without going through the VIATrans scheduling process. The passenger pays the \$2.00 VIATrans equivalent fare; additional meter-rate charges up to \$9.00 are covered by VIA (about three miles); the passenger pays any additional fare.

VIATrans employs about 250 full- and part-time staff, the majority of whom are vehicle operators (Table 2.2).

Table 2.2 VIATrans Staff

Role	Positions
Operators	160
Support Staff	61
Eligibility Staff	7
Dispatch Staff	17
Total	245

Source: VIA Metropolitan Transit, 2016.

Service Area

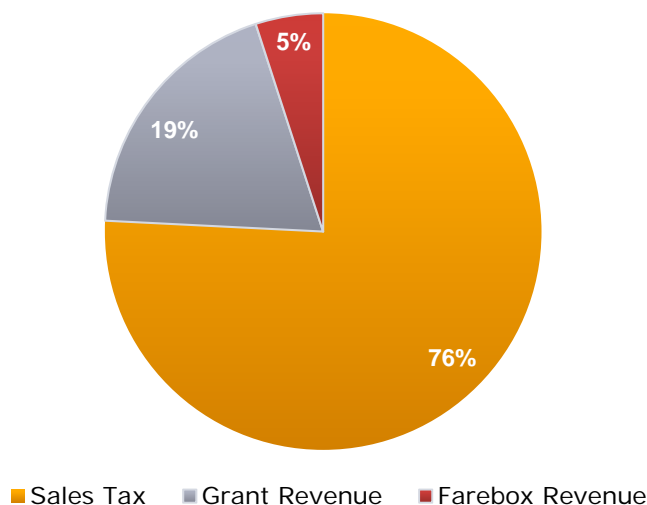
Per Federal regulation, VIATrans provides service in a three-quarter-mile radius around fixed route service (Figure 2.1). However, there are some limitations on this service. VIATrans is only available during days the corresponding fixed route service is available, meaning that weekend or off-peak service is limited along some corridors. While VIATrans is allowed to set time-of-day limits, they currently do not. Also, cities not participating in VIA service do not receive VIATrans service.³ The current weekday service area for VIATrans is 466 square miles (Figure 2.1).

³ As of 2016, the cities of Windcrest, Live Oak, Universal City, Hill Country Village, and Hollywood Park do not participate in VIA Metropolitan Transit.

Funding and Revenue

As with fixed route bus service, VIAtrans primarily operates using funds from the member cities' transit-designated one-half percent sales tax, which provides 76 percent of operating funds (Figure 2.2). A further 19 percent of funding comes from grants, including Federal Section 5310 funds, which are disbursed directly to VIA to provide service that enhances mobility to seniors and individuals with disabilities in the San Antonio urbanized area (UZA).⁴ Finally, a fare is received directly from passengers, accounting for the remaining five percent of revenue (equivalent to the farebox recovery ratio). While ADA regulations allow up to twice the standard fixed route fare to be charged, VIA charges \$2.00 per trip (as opposed to the allowable \$2.40) for passengers and companions.⁵ Children pay a \$0.90 fare, and PCAs are not charged.

Figure 2.2 VIAtrans Funding Sources



Source: VIA Metropolitan Transit (2016).

Ridership

Approximately one million rides are taken on VIAtrans annually; this number has remained relatively steady over the last decade. VIA provides a relatively high number of trips compared to other peer agencies, except for Houston METRO. Slightly more than half of the VIAtrans rides are provided using purchased or contracted services; the remainder are provided directly by VIA (Figure 2.3). Peer

⁴ VIA is currently the designated recipient of Federal Transit Administration (FTA) Section 5310 funding, which are formula-based grants for the purpose of enhancing mobility to seniors and individuals with disabilities. In UZAs, with a population greater than 200,000, the administering Metropolitan Planning Organization designates a recipient of these funds for the purposes of providing this service. As the San Antonio UZA grows, VIA will become responsible for either providing or administering funding for the provision of paratransit service in a growing larger geographic area.

⁵ As of January 1, 2016.

agencies, listed in Table 2.3, provide examples of agencies providing very few or no directly operated trips (Portland TriMet, San Diego Metro Transit System [MTS]), as well as agencies providing most of their paratransit trips directly (El Paso SunMetro). While overall paratransit trips have remained relatively steady, the number of trips provided via subsidized taxi service has increased over the past few years (Figure 2.4).

Table 2.3 Peer Agencies for Comparison

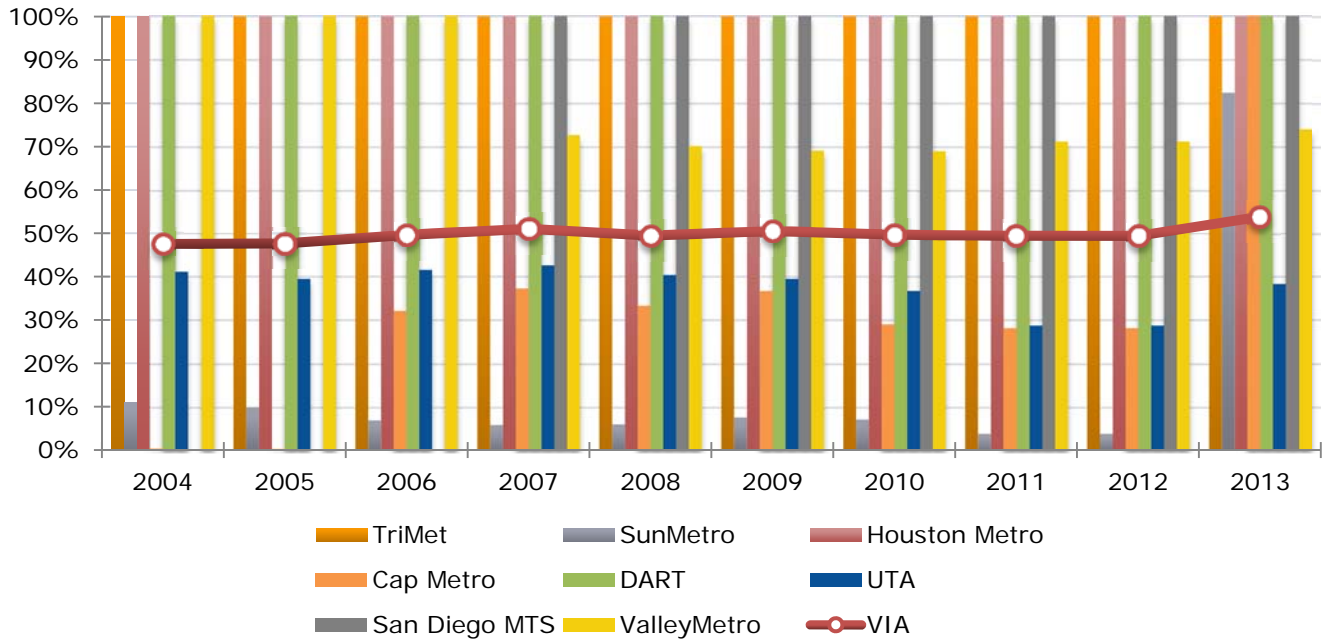
Agency	Major City	MSA Population ^a	Service Area ^b	Service Area Population ^b
VIA	San Antonio	2,278,000	1,213	1,715,000
Capital Metropolitan Transportation Authority (CapMetro)	Austin	1,883,000	522	1,023,000
Dallas Area Rapid Transit (DART)	Dallas	6,811,000	696	2,423,000
Sun Metro Mass Transit System (SunMetro)	El Paso	831,000	251	803,000
Metropolitan Transit Authority of Harris County (METRO)	Houston	6,313,000	1,285	3,528,000
Valley Metro	Phoenix	4,399,000	518	1,665,000
TriMet	Portland	2,315,000	570	1,490,000
Utah Transit Authority (UTA)	Salt Lake City	1,140,000	751	2,165,000
San Diego Metropolitan Transit System (SDMTS)	San Diego	3,211,000	716	1,960,000

Source: U.S. Census Bureau, Population Division.

^a Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2013.

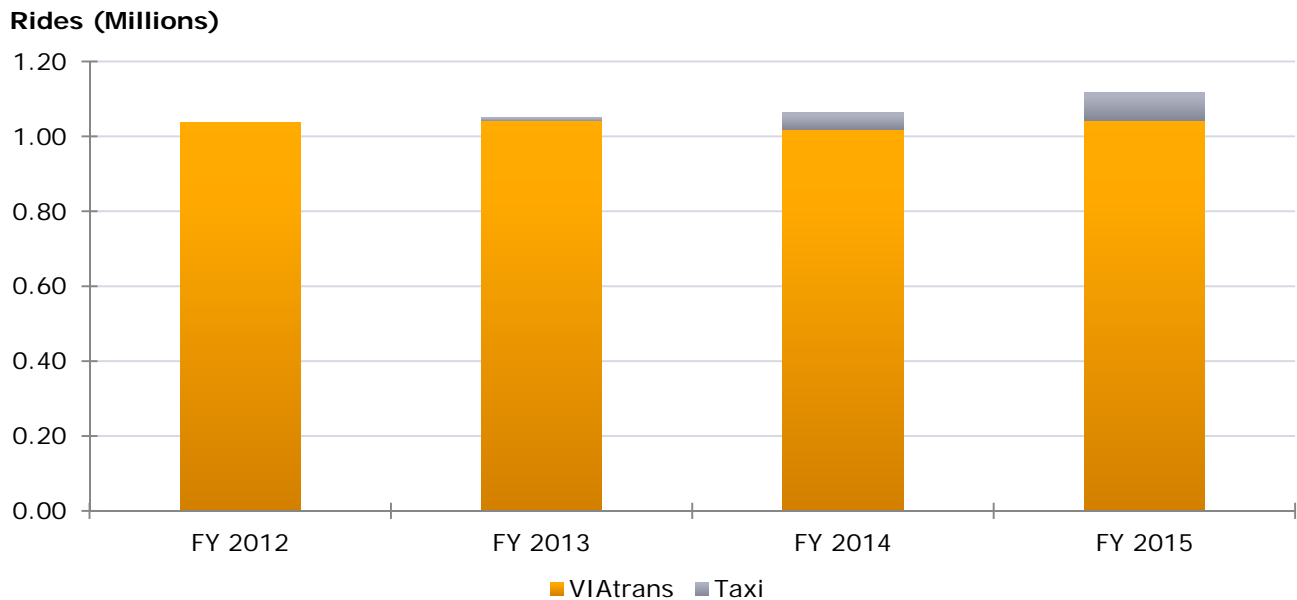
^b NTD Agency Profiles (2012).

Figure 2.3 Percentage of Demand Response Passenger Trips using Purchased/Contracted Transportation by Agency



Source: National Transit Database (2013).

Figure 2.4 VIAtrans Passenger Trips and Subsidized Taxi Trips



Source: VIA Metropolitan Transit (2016).

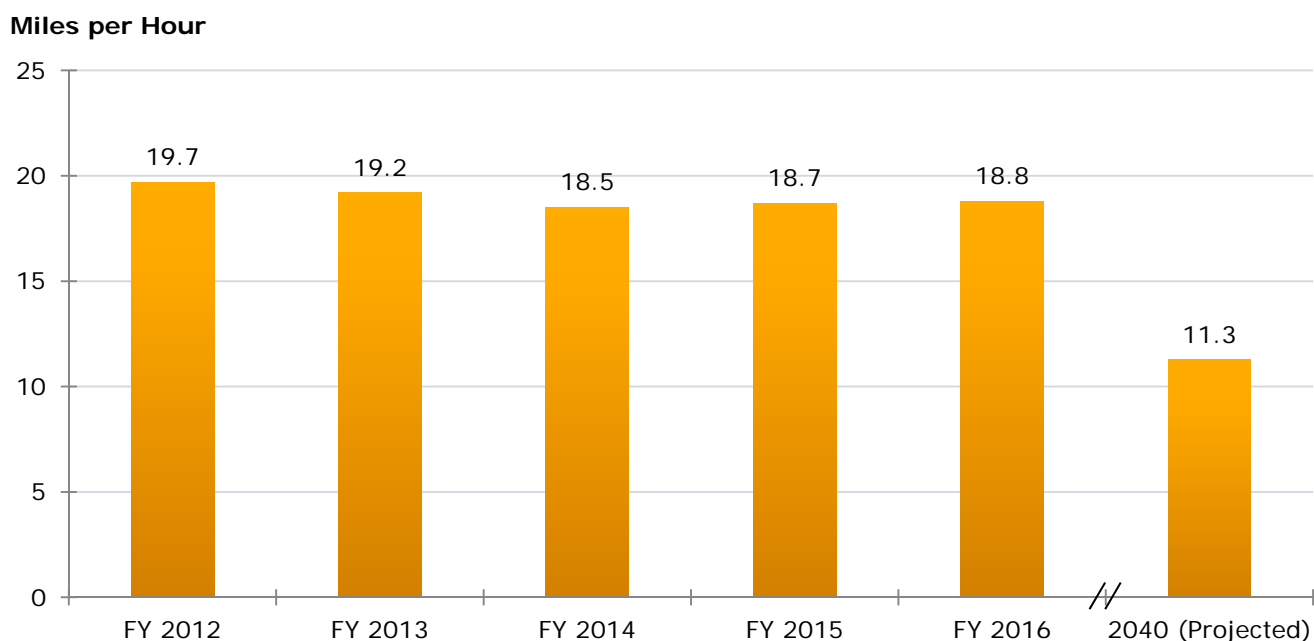
2.2 Challenges, Opportunities, and Best Practices

Paratransit is a comparatively expensive transportation service, with per-trip costs often ten times those of fixed route service. Other challenges include those common to fixed route transit vehicles operating in mixed traffic, such as congestion.

Congestion and Travel Speeds

Since VIAtrans vehicles operate over the roadway network, they are vulnerable to congestion. As travel conditions worsen, mean travel speeds decrease for VIAtrans vehicles (Figure 2.5). Modeling of regional travel patterns suggests an approximate decrease in mean travel speed of 40 percent between 2010 and 2040, which could bring mean VIAtrans speeds well below 15 miles per hour.

Figure 2.5 VIAtrans Mean Travel Speed



Source: VIA Metropolitan Transit, 2016 and Alamo Area Metropolitan Planning Organization Travel Demand Forecast Model.

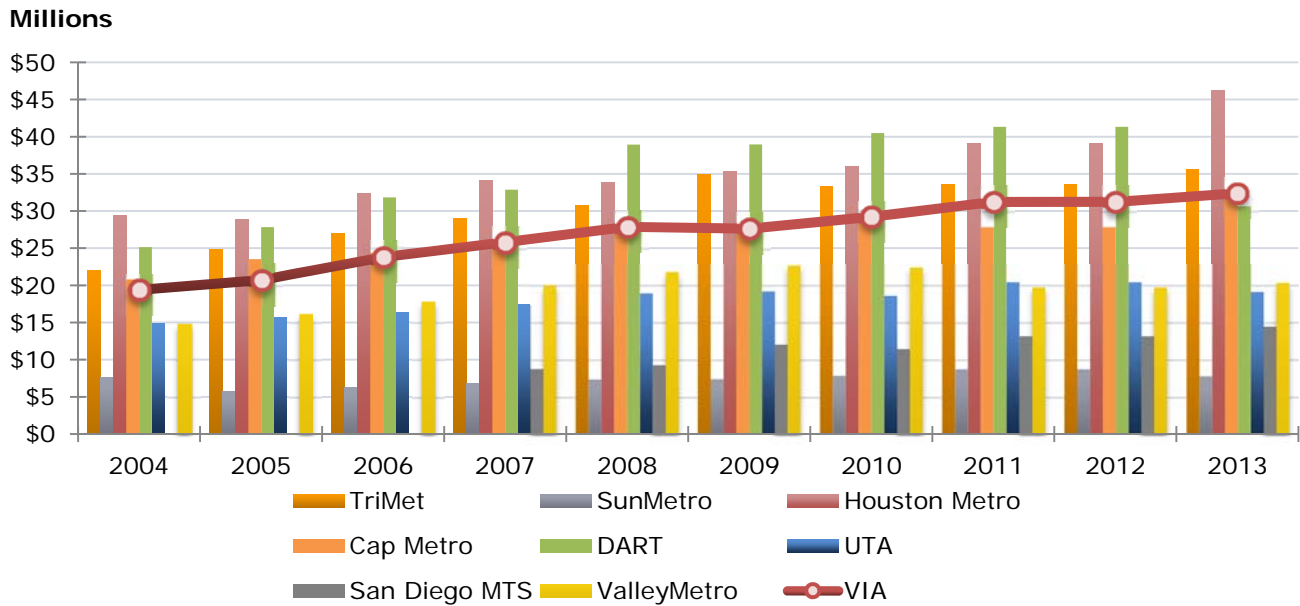
The emergence of managed, toll, or transit-only lanes in the region's transportation system could help mitigate the impacts of congestion for VIAtrans passengers. Any congestion-proof transit facilities, such as light rail or dedicated-lane bus rapid transit (BRT) must be constructed using accessible facilities to provide transit options for those who can use them. In design, features need to be considered that would improve accessibility for all users. Facilities and paths that connect to the system must be coordinated to station areas.

Operating Efficiency

VIA's paratransit service costs the agency a little over \$30 million per year to operate (Figure 2.6). VIAtrans accounts for nearly 20 percent of the agency's total operating expenses (Figure 2.7). Of the

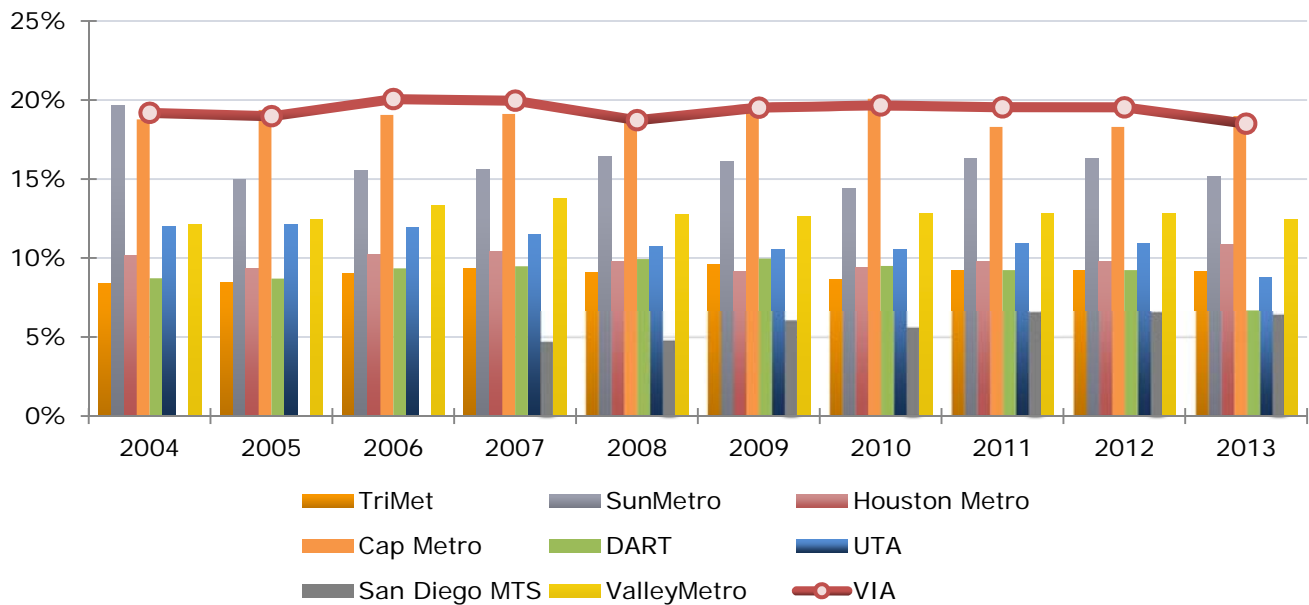
peer agencies surveyed, only Austin's Capital Metro had a similar proportion of expenses represented by paratransit. However, VIAtrans' per trip cost is quite low compared to its peers, averaging about \$30 per trip (Figure 2.8).

Figure 2.6 Paratransit Operating Expenses by Agency



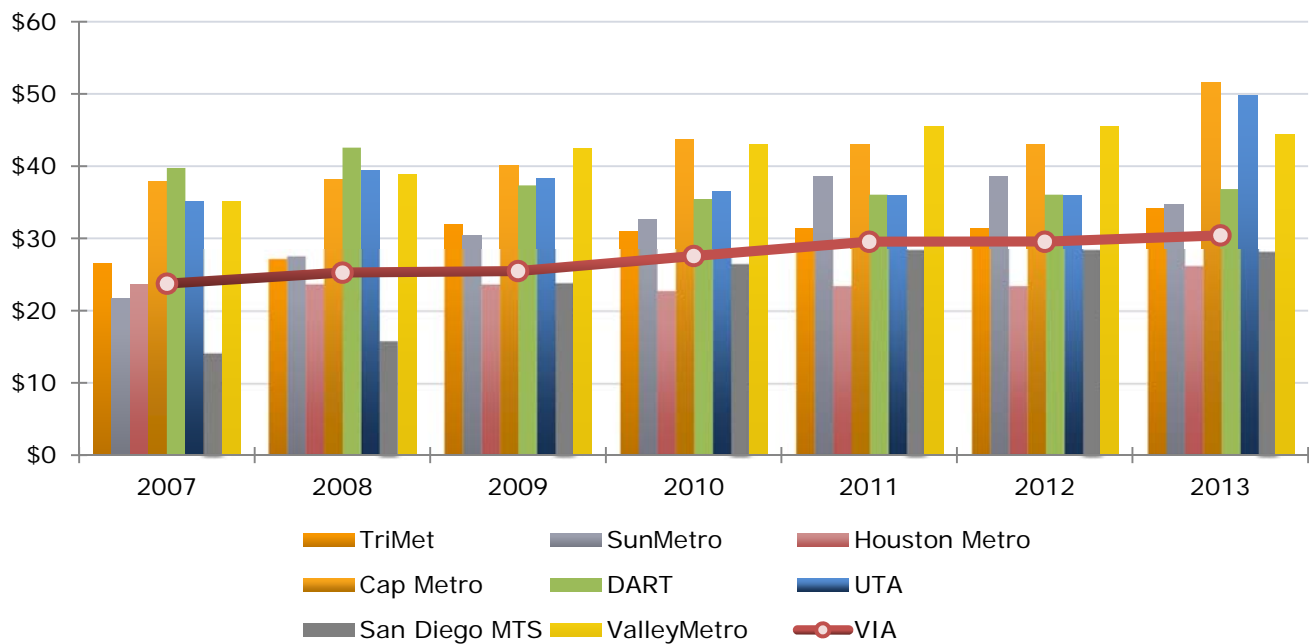
Source: National Transit Database, 2013.

Figure 2.7 Paratransit Share of Total Operating Expense



Source: National Transit Database, 2013.

Figure 2.8 Paratransit Cost per Trip



Source: National Transit Database (2013).

Regardless of its current efficiency, there are still measures VIAtrans could take to reduce costs. In general, purchased transportation is less expensive than directly operated service. Among the peer agencies reporting costs for this information showed that purchased or contracted trips were on average two-thirds the costs of an equivalent directly operated trip. However, the use of purchased transit is not a panacea, with VIA reporting higher passenger complaint rates and worse on-time performance from contractors. Additionally, VIA does not have the vehicle storage and maintenance capacity to accommodate contracted paratransit vehicles. As a result, the agency's contractor pool is limited to contractors who can provide their own service facilities.

Because paratransit per-trip costs are higher than fixed route service, ensuring that riders use fixed route services whenever possible is a key element of controlling costs. Peer agencies reported the following cost-saving provisions:

- **Houston METRO** provides vans to institutions such as senior care facilities and operates less expensive, quasi-fixed route service with contractors under its "VanLite" program. The agency plans to also provide half-price fares to paratransit passengers who only take the service to a fixed route stop.
- **DART (Dallas-Fort Worth-Arlington UZA)** provides a significant fare incentive to paratransit passengers who transfer to a rail facility, reducing the cost of a trip from \$3.00 to \$0.75.

- **San Diego MTS**, in addition to using 100 percent purchased transportation, operates in a zonal system, requiring passengers to transfer vehicles between zones. This may have the effect of disincentivizing longer trips, but requires staffed transfer centers and coordination between transfer vehicles.
- **Valley Metro (Phoenix UZA)** prioritizes the use of more flexible contracted taxi services.
- **Salt Lake City UTA** uses a tier system for its contractors, providing some operators full-time guarantees and route choices in exchange for lower bids. UTA also allows fixed route services to deviate in order to pick up paratransit riders.

While VIAtrans is relatively cost effective compared to its peers, the high per-trip costs associated with the provision of this service make its efficient operation a priority. Thorough examination of eligibility programs are the key to making sure those who qualify for paratransit are admitted to the program, and to provide training and assistance for VIA customers who are otherwise capable of using fixed route service. Additionally, new routes and station areas will be as accessible as possible to ensure that as many customers as possible can make their trips on fixed route service. Contributions to the MyLink program to enhance station area accessibility would help maximize the number of trips that can be made on fixed route service.

Some transit-supportive focal points of the Vision 2040 Long Range Plan (such as transit-oriented development and high-occupancy vehicle (HOV) lanes) would have positive effects on VIAtrans service. Adequately available senior housing in compact, walkable developments would reduce the number of VIAtrans trips needed; HOV lanes would make VIAtrans travel times shorter and more reliable.

Operating costs could be further minimized by limiting service to expressly meet Federal requirements, which only require paratransit to operate when and where equivalent bus service is available. However, while minimizing costs will be a focal point of VIAtrans operations, new funding sources should also be pursued. These could include grants from Federal or state agencies, new local funding sources, or operations support from medical providers and human service agencies.

Rolling Stock and Staff Needs

The current cost of a new full-size (25-foot) paratransit vehicle is nearly \$100,000. A wheelchair-accessible minivan of the type operated by contracted providers cost about \$35,000. VIA currently requires about 30 new vehicles to modernize and expand its fleet to meet current needs.

According to the Alamo Area Metropolitan Planning Organization (AAMPO), the proportion of residents over the age of 65 in Bexar County is expected to increase from 10 percent in 2010 to 16 percent by 2040. While seniors enrolled in the VIAtrans program tend to take fewer trips than those under the age of 65, a greater proportion of seniors in the region use VIAtrans services than do people under 65. On average, VIAtrans sees about 1.7 trips per year for each person of age 65 and over in its service area, and about 0.6 trips per year for each person under 65; ride-along companions could increase these numbers by about 10 percent.

Assuming that paratransit trips (and, therefore, capital and administrative needs) will increase proportionally with population, VIAtrans will need to substantially increase the size of its fleet and support services (or increase the usage of contracted and purchased services equivalently) by 2040 (Table 2.4).

Table 2.4 VIA Service Area Population Projections

	2016 (Estimated)	2040 (Estimated)
VIA Service Area Population	1,543,000	1,956,000
65+	173,000	313,000
Under 65	1,370,000	1,643,000
VIAtrans Annual Trips	1,100,000	1,512,000
VIAtrans Vehicles ⁶	277	377

Several factors could change these projections substantially. Higher rates of chronic disease (such as diabetes), longer lifespans, and the trend of fewer elderly residents living with or near their adult children could all increase the trip rate among the general population; however, advances in in-home medical care such as dialysis could lessen trip requirements. Careful monitoring of ridership trends will be required to ensure that adequate levels of staffing and equipment are maintained.

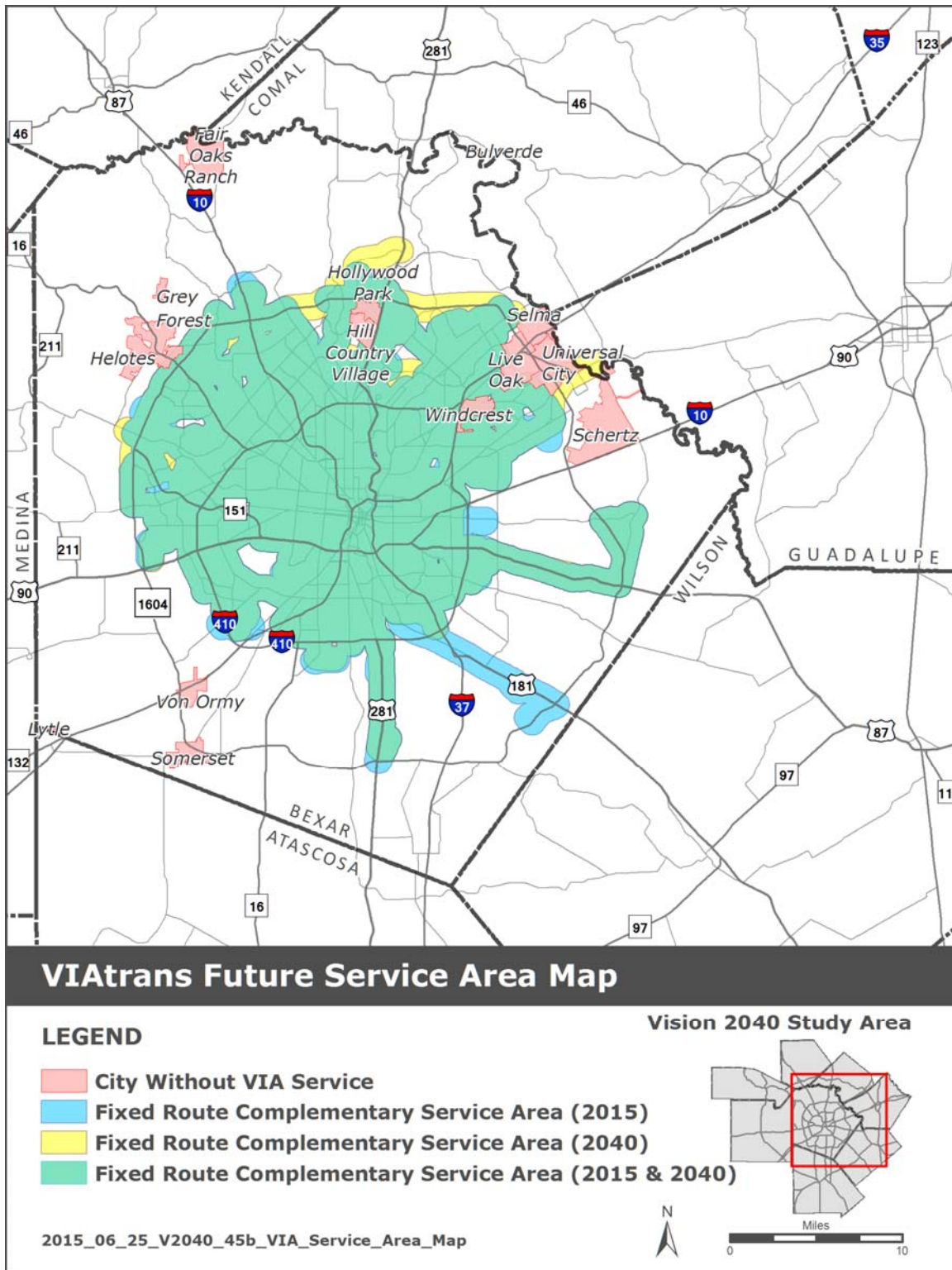
Service Area and Accessibility

As the VIAtrans service area grows to include lower-density regions, the efficiency of the system will continue to decline. Because any service area expansion will necessarily encompass regions that are generally less dense than the current service area, the marginal-time, and expense of providing this service will exceed current per-trip costs, straining VIAtrans resources further. The Vision 2040 Long Range Plan does impact the VIAtrans service area along with modifications to the fixed route service area (Table 2.5).⁷ The plan also includes expansion of service hours along many routes; this change has the potential to increase total demand for trips but lessen relative demand during current service hours. Any expansion of service area, including the addition of currently nonparticipating cities, will increase VIAtrans' capacity needs beyond those shown in Figure 2.9.

⁶ Sum of VIA-owned vehicles, contracted vehicles, and expressed vehicle needs in 2015.

⁷ The implications of service area expansion are mode-dependent. While regular bus service requires a three-quarter-mile buffer along the entire route, some commuter bus or rail services do not. Light rail stations are required to provide complementary paratransit service around station areas, but not along the entire route. No specific guideline exists for bus rapid transit (BRT) services, which have some characteristics of both bus and rail service; however, as BRT lines in the Vision 2040 Long Range Plan are generally served by underlying local bus service, their entire route would already be included in the paratransit service area.

Figure 2.9 Potential Changes to Service Area (2040)



Source: VIA Metropolitan Transit (2015).

Table 2.5 VIAtrans Service Area

	Fixed Route	Express	Total
2015 Service Area	435 mi ²	16 mi ²	451 mi ²
2040 Service Area (Vision 2040 Long Range Plan)	443 mi ²	120 mi ²	563 mi ²

Source: VIA Metropolitan Transit (2015).

VIAtrans does not (and cannot) place restrictions on origins or destinations as long as they are inside the service area. Minimizing trip length and maximizing the number of passengers per vehicle is a key element in reducing costs for VIAtrans service.

For trips outside of Bexar County, the Alamo Area Council of Governments (AACOG) provides public transportation bus service, known as Alamo Regional Transit (ART), to residents in the rural parts of Comal and Guadalupe Counties and all of Atascosa, Bandera, Frio, Gillespie, Karnes, Kendall, Kerr, Medina, McMullen, and Wilson Counties. ART uses a fleet of 102 vehicles to provide demand responsive, curb-to-curb transportation service for the general public. On a limited basis, ART also provides service to and from Bexar County. Customers typically use rides for medical, work, school, daycare, or personal needs. ART prioritizes service to senior citizens, low-income families, persons with disabilities, and veterans. ART also operates a fixed route bus service, Connect Seguin, within the Seguin city limits.

AACOG funds ART service through a combination of Federal (45 percent), state (17 percent), and local (13 percent) sources. In addition, one-quarter of the annual revenue is generated from a medical transportation program contract (Texas Department of Transportation [TxDOT], 2016). Although the cities of Cibolo, Garden Ridge, Marion, New Braunfels, and Selma, and the census-designated place of McQueeney in Comal and Guadalupe Counties became part of the San Antonio UZA following the 2010 US Census, ART continues to provide demand-response service to them under agreements among ART, VIA, and the cities (TxDOT, 2016).

Eligibility

VIAtrans does not enforce conditional eligibility requirements even though it is entitled to do so under Federal Transit Administration (FTA) regulations.⁸ Eligibility determinations are based on a review of functional and diagnostic information provided by the applicant and his/her physician. In some cases, VIA staff also request a “functional assessment” of an applicant’s mobility before making a decision. VIAtrans does not currently operate an eligibility facility, though some prospective riders may come to VIA headquarters for help in the eligibility determination process.

All of the peer agencies reviewed operate an eligibility facility or contract out eligibility operations. Eligibility processes include cognitive and physical assessments, with training or testing completed at nearby transit

⁸ The ADA defines eligibility categories which determine when a person is eligible for paratransit. For example, while a person with unconditional eligibility may be allowed to travel using VIAtrans at any given time, a person with conditional eligibility might be limited to trips when their boarding location is made inaccessible due to weather conditions.

facilities. An eligibility or training facility could help reduce the number of trips taken on VIAtrans while ensuring equitable transportation access for all VIA customers, and serve as the center of a “travel training” program designed to increase the ability of potential riders to use fixed route services.

2.3 Conclusion

VIAtrans provides a vital service to many of the Greater San Antonio Region’s most vulnerable residents. In order to ensure continued effective and efficient service, the projects and strategies listed in Table 2.6 are recommended for implementation.

Table 2.6 Recommended Paratransit Strategies

Capital Investments	<ul style="list-style-type: none"> • Ensure that existing and future bus stops, shelters, and station areas are fully accessible to those who can use it. This can be done through funding of MyLink program. • Anticipate capital needs, such as vehicles or maintenance facilities, in the context of population growth, public health, and demographic changes.
Policy Goals	<ul style="list-style-type: none"> • Examine the role of contractors in order to identify ways to reduce expenses without compromising service delivery. • Identify new sources of funding: <ul style="list-style-type: none"> – Grants from Federal or state agencies; – New local funding sources; and – Operating support from medical providers and human service agencies. • Examine the VIAtrans eligibility process, and provide travel training and support to VIA customers who are able to use existing fixed route bus service.
Operational Improvements	<ul style="list-style-type: none"> • Consider the use of vanpool-like services, where vehicles are leased to high-traffic areas such as assisted living facilities. • Modify paratransit-operating characteristics to reflect fixed route service in order to decrease costs. • Take steps to limit trip lengths, consolidate trip ends, and maximize the number of passengers per trip.



3.0 Vanpool

A vanpool is an arrangement between a group of people, typically seven to 15 individuals, to commute to their jobs using a single van. Vanpools' flexibility is much greater than paratransit and fixed route transit service. This service extends the reach of public transportation beyond fixed routes, particularly in areas where transit services do not exist, are costly to operate, and/or are not convenient to the user. This mode is primarily for employees traveling to work, with passengers planning trips in advance and agreeing on a pick-up and drop-off location, as well as the trip schedule. Vanpool service expands the reach of the VIA system to more users at a lower operating cost because it does not need additional buses, drivers, scheduling planning, and other expenses.

Commuters typically join a vanpool either through a public transportation agency, private vanpool provider, or through their employer. These organizations can either operate the service themselves or through a private vanpool operator. Typically, the agency does not provide a driver; rather, one of the passengers drives the vehicle (and is often exempted from any transit fare). The provision of a vehicle, insurance, fuel costs, toll charges, and/or other mechanisms subsidizes the cost to individual passengers up to \$20 per trip.

Vanpool programs can help extend the reach of a transit system to far beyond what would be practical using fixed route service. The Americans with Disabilities Act (ADA) of 1990 requires that accessible vehicles be made available for vanpool systems.

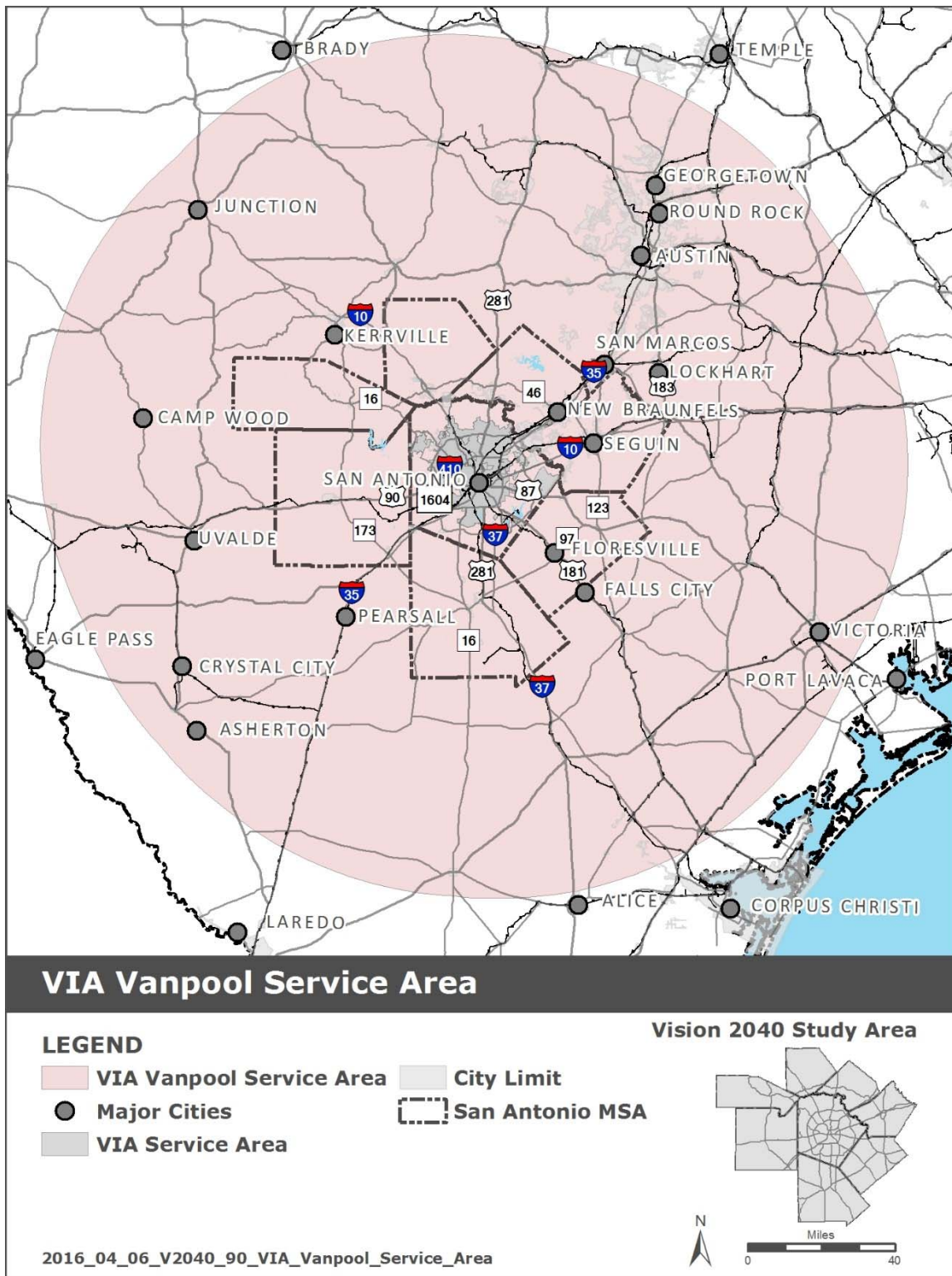
3.1 Existing Conditions

Service Provided

VIA operates 205 vanpools, serving 459,000 passenger trips in 2015. Vanpools can travel anywhere within 100 miles of the San Antonio city limits and can access emergency support at any time (Figure 3.1). The service is available to anyone, as long as an individual's home location, work location, and work schedule are similar to other vanpool commuters and the trip either starts or ends in Bexar County. Currently, commuters interested in joining a vanpool contact VIA Vanpool Services or Zimride and provide information describing their commute. VIA then attempts to find a vanpool that matches the commuter's preferences and the vanpool participants select a pick up location and time.

All VIA vanpools need at least five people, including the driver. Though VIA provides the vehicles, one participant must maintain a daily log, handle vanpool group finances, and take the van in for scheduled maintenance. In return, the driver can use the van for personal use on the evenings and weekends.

Figure 3.1 VIA Vanpool Service Area



Source: VIA Metropolitan Transit (2016).

Rolling Stock and Infrastructure

VIA provides the vanpool vehicles, but a private contractor owns them. However, VIA is not limited in the number of vehicles they request, as long as it is within budget and meets demand. Vehicles are available within two weeks of a new vanpool group forming. As of the end of 2015, VIA's vanpool fleet included 205 vehicles, with the average age of these vehicles just under one year. The fleet includes varying sizes of passenger vans dependent on the size of the vanpool group. The vast majority of the fleet (nearly 90 percent) is composed of seven-passenger vans; the remainder is made up of 8, 12, and 15 passenger vans. In 2015, the average vehicle occupancy was 6.7 persons.

VIA's vanpool program does not currently need additional infrastructure, such as scheduling systems, mobile applications, or facilities. However, real-time ride data collection may be required for projected growth. VIA's vanpool program would greatly benefit from the implementation of managed lanes on congested freeways. The ability for VIA vanpools to travel in HOV or toll lanes that are faster than general purpose lanes would both incentivize more usage and provide faster travel times for vanpool participants.

Funding and Revenue

VIA operates its vanpool service using a monthly rental model, dependent on the number of riders plus the number of daily roundtrip miles. The cost per rider decreases as the vanpool size grows; however, the costs also increase if the vanpool has to drive farther (Table 3.1).

Table 3.1 Vanpool Passenger Monthly Fare per Rider

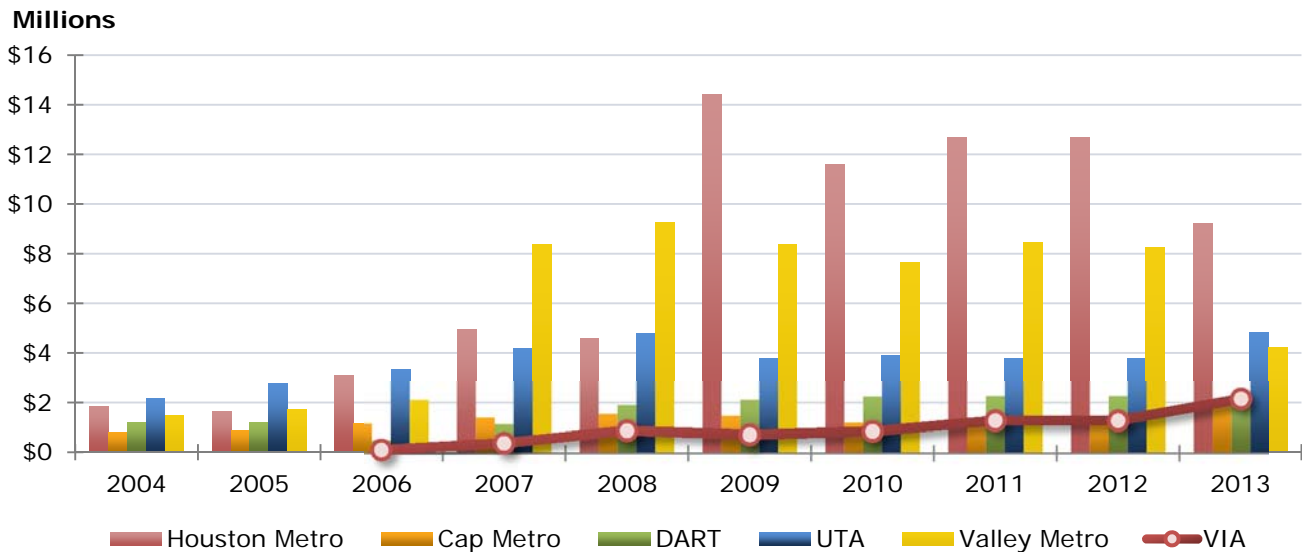
Passengers	Van Size	Roundtrip Miles				
		0-40	41-60	61-100	101-150	151-200
5 riders plus the driver	7	\$144.00	\$146.00	\$148.00	\$152.00	\$156.00
6 riders plus the driver	7	\$116.67	\$121.43	\$127.14	\$123.33	\$126.67
7 riders plus the driver	12	\$118.00	\$121.43	\$124.29	\$127.14	\$130.00
8 riders plus the driver	12	\$101.25	\$103.75	\$106.25	\$108.75	\$111.25
9 riders plus the driver	12	\$87.78	\$90.00	\$92.22	\$94.44	\$96.67
10 riders plus the driver	12	\$77.00	\$79.00	\$81.00	\$83.00	\$85.00
11 riders plus the driver	12	\$68.18	\$70.00	\$71.82	\$73.64	\$75.45
12 riders plus the driver	15	\$67.08	\$68.75	\$70.42	\$72.08	\$73.75
13 riders plus the driver	15	\$60.38	\$61.92	\$63.46	\$65.00	\$66.54
14 riders plus the driver	15	\$54.64	\$56.07	\$57.50	\$58.93	\$60.36

Source: VIA Vanpool Pricing Schedule (2015).

VIA's vanpool operating expense is comparable to peer agencies, averaging approximately \$1.1 million per year since 2006. Overall, there has been an increase in operating expenses since the start of the service, as shown in

Figure 3.2, but VIA still has lower operating expenses when compared to all but one peer agency. Other agencies' vanpool operating expenses range from \$1.5 million to \$10.7 million annually.

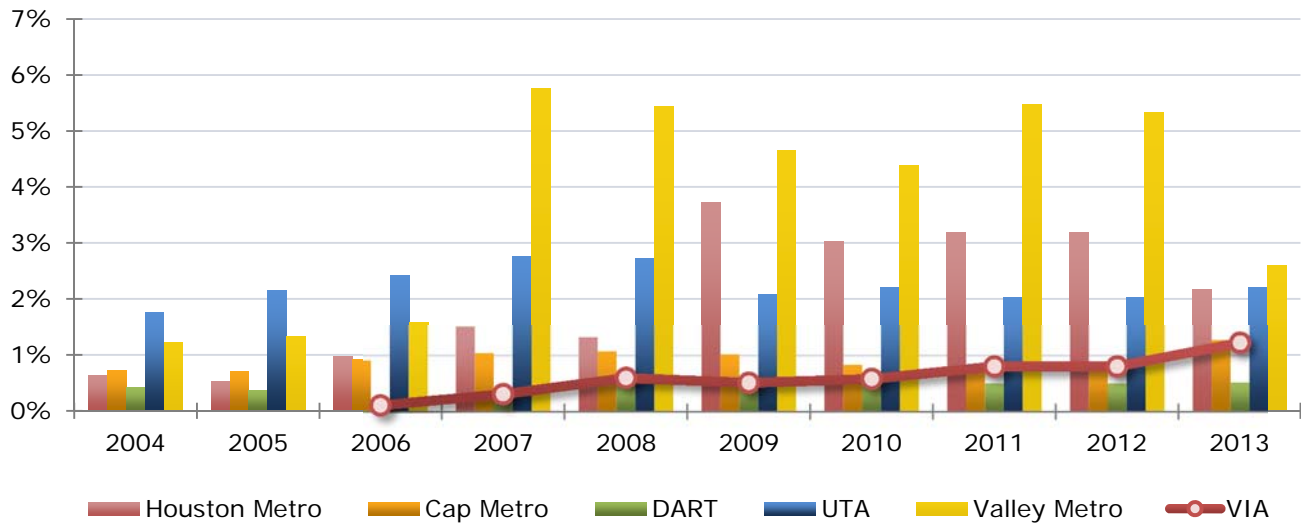
Figure 3.2 Peer Agency Vanpool Operating Expense



Source: National Transit Database (2013). Valley Metro includes agency-operated services only.

Operating vanpool service is a minor portion of VIA's operating expenses, representing approximately 1.2 percent of total operating expenses. This share is similar to peer agencies, who range from 0.5 to 2.6 percent. DART's vanpool operating expense share has consistently been low around 0.5 percent while Houston Metro and UTA's vanpool programs represent a larger share at 2.2 percent each (Figure 3.3).

Figure 3.3 Percentage of Total Operating Expense for Vanpool Operations⁹

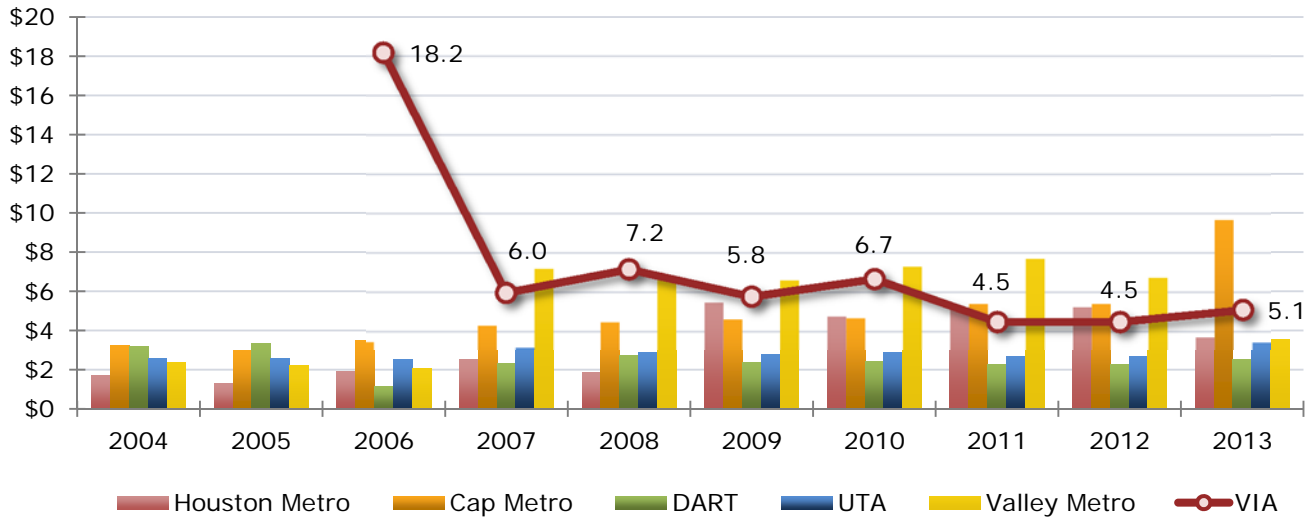


Source: National Transit Database (2013).

VIA's average operating expense per unlinked passenger trip was \$5.10 in 2013, which was higher than most peer agencies. Houston Metro, DART, UTA, and Valley Metro all had lower operating expenses per unlinked passenger trip, ranging from \$2.51 to \$3.71; however, Capital Metro had the highest operating expense per unlinked passenger trip at \$9.68 (Figure 3.4). In 2013, vanpool systems that had lower operating expenses per unlinked passenger trip than VIA had also higher ridership than VIA, as shown in Figure 3.4 and Figure 3.5.

⁹ Valley Metro includes agency-operated services only.

Figure 3.4 Vanpool Operating Expense per Vanpool Unlinked Passenger Trip¹⁰

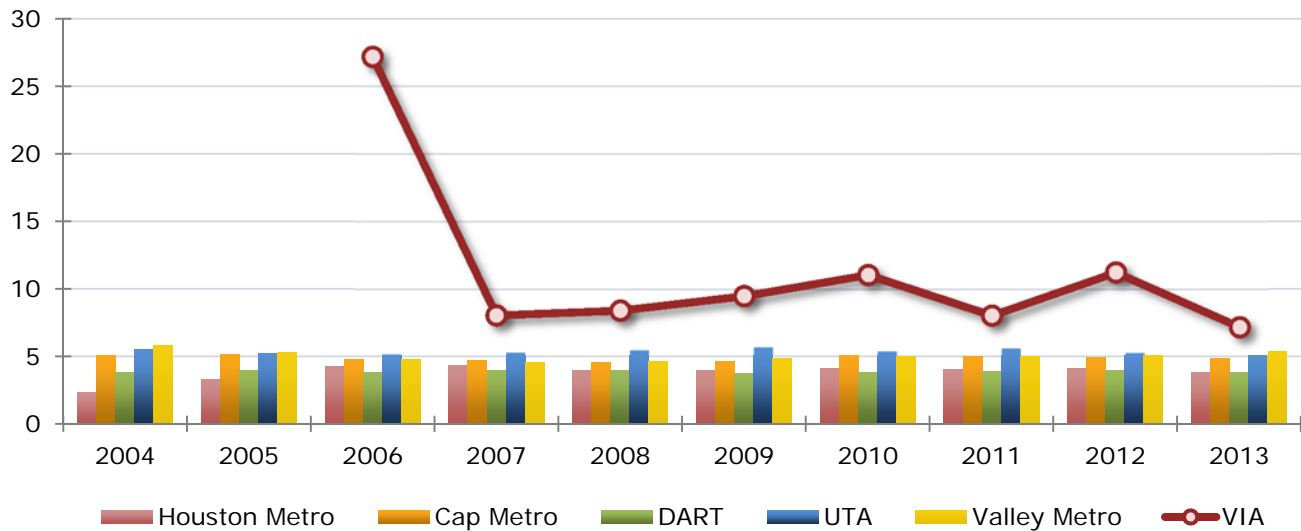


Source: National Transit Database (2013).

Some of VIA's high per trip cost can be explained by mean travel distance. Compared to peer agencies, VIA vanpool riders travel farther, as shown in Figure 3.5. While other agency vanpool riders average three to five miles per trip, VIA riders have traveled between seven and 11 miles since 2006. This may be due to VIA's service area size, which covers well beyond the San Antonio-New Braunfels Metropolitan Statistical Area (MSA) while other agencies limit vanpool service to nearby counties. VIA's initial high average mileage per trip is primarily due to the lower ridership at the beginning of the vanpool service.

¹⁰ Valley Metro includes agency-operated services only.

Figure 3.5 Peer Agency Vanpool Average Vehicle Miles per Unlinked Passenger Trip¹¹



Source: National Transit Database (2013).

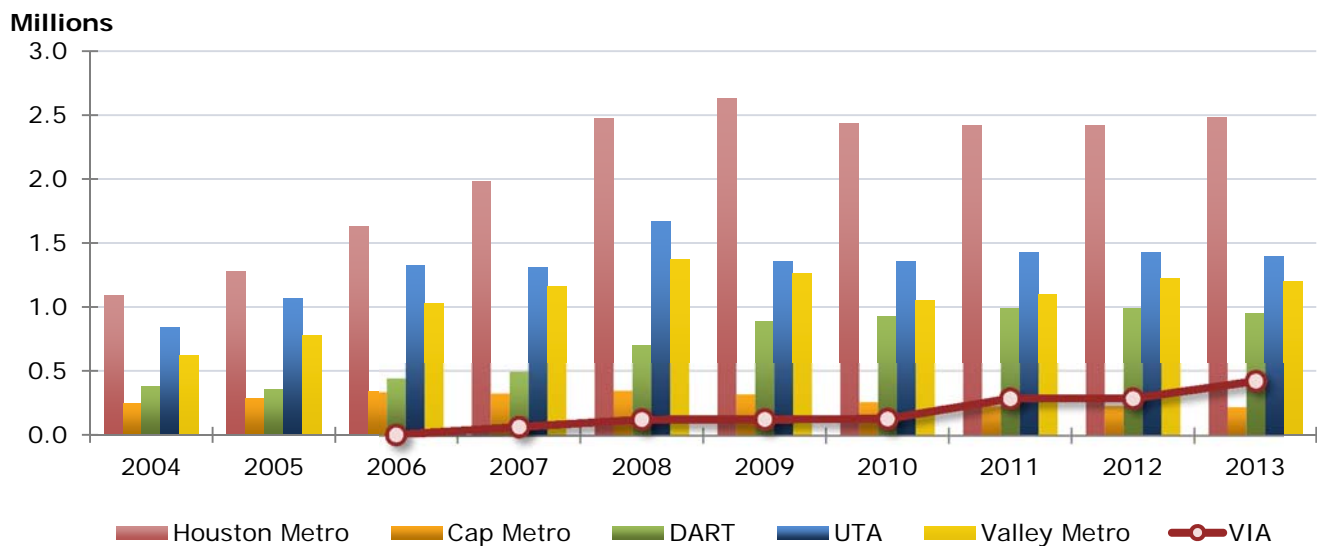
Service Usage and Ridership

In 2015, VIA's vanpool supported 459,000 passenger trips totaling 3.8 million vehicle revenue miles. Total usage of the system has been steadily increasing since its implementation in 2006, both in terms of total ridership (starting from less than 10,000 in 2006 to over 450,000 in 2015) and total hours and miles the vehicles are driven. Military and Federal employees primarily use vanpool service for traveling to work. Primary vanpool destinations in the Greater San Antonio Region, as well as other cities, are commonly large employers. Large companies are able to support and provide various incentives and subsidies to employees for using the system, and the larger employee-base makes finding vanpool groups easier.

Among the peer transit agencies with vanpool service, VIA's ridership is only higher than Capital Metro, as shown in Figure 3.6. However, VIA's service is the youngest with all other agencies starting between 1994 and 2004. VIA is also the only agency that has been increasing in ridership with other agencies' ridership remaining steady in recent years.

¹¹ Valley Metro includes agency-operated services only.

Figure 3.6 Peer Agency Vanpool Ridership¹²



Source: National Transit Database (2013).

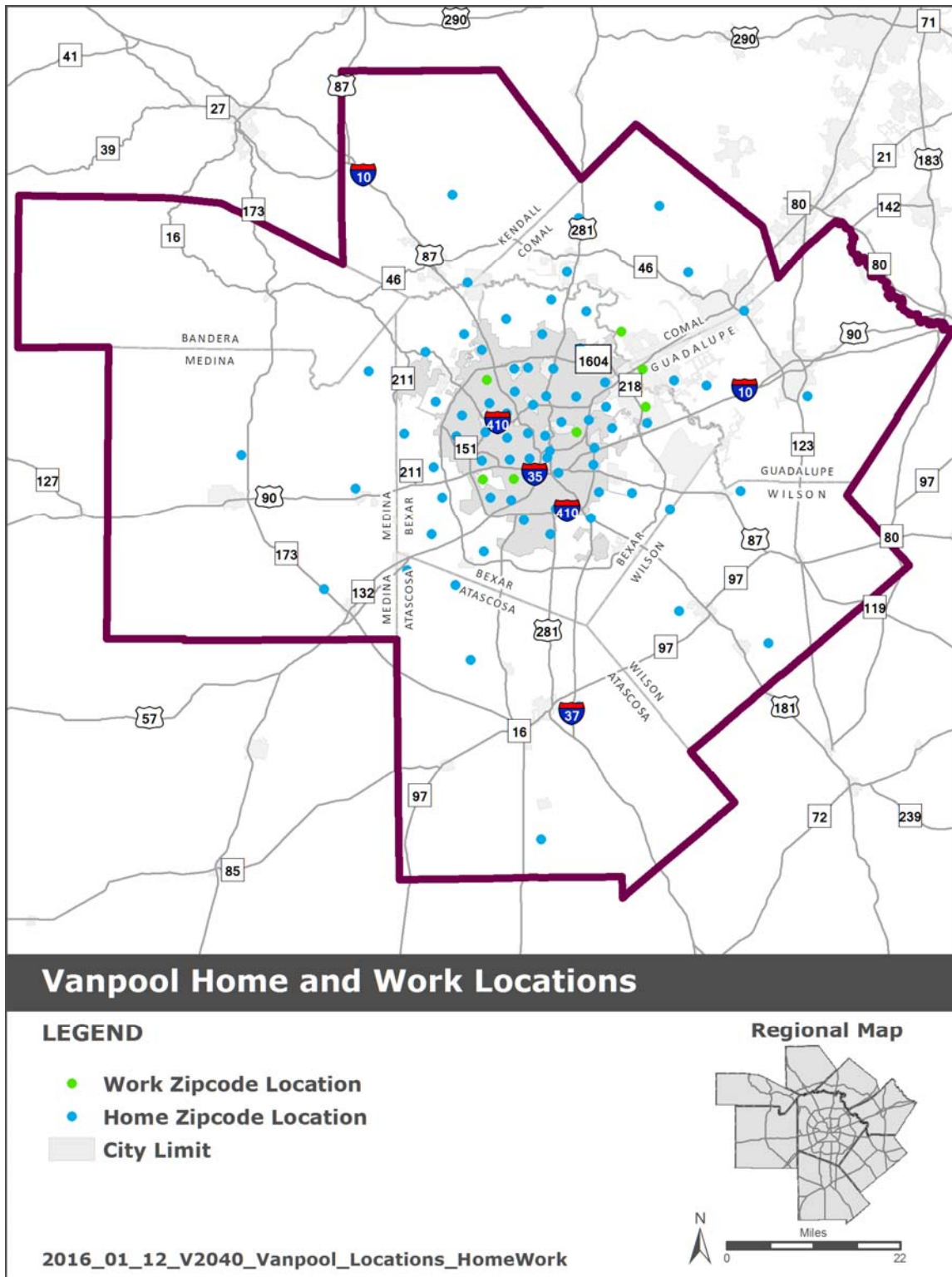
Trip Flows

Vanpool participants' homes are found throughout the Greater San Antonio Region, though the majority are in Bexar County, as shown in Figure 3.7. The most common work locations include Lackland Air Force Base, Fort Sam Houston, Randolph Air Force Base, US Customs and Border Protection, and other Federal employers.

The location where riders meet to vanpool together is dependent on where these individuals live in relation to one another. These locations are commonly convenient for every rider, in areas where riders can leave their vehicle for the day, and are usually close to major roadways or interstates, as shown in Figure 3.8. These locations can be fairly close to their home or require the rider to drive a few miles to the pick up location. For participants in VIA vanpool, locations selected to start the carpool are commonly retail stores with excess parking, such as Home Depot, Target, among others, or churches. In addition, some of VIA's park & ride lots, including Crossroads, Randolph, SeaWorld, and TxDOT park & pool lots outside of VIA's service area are selected as locations to start the vanpool.

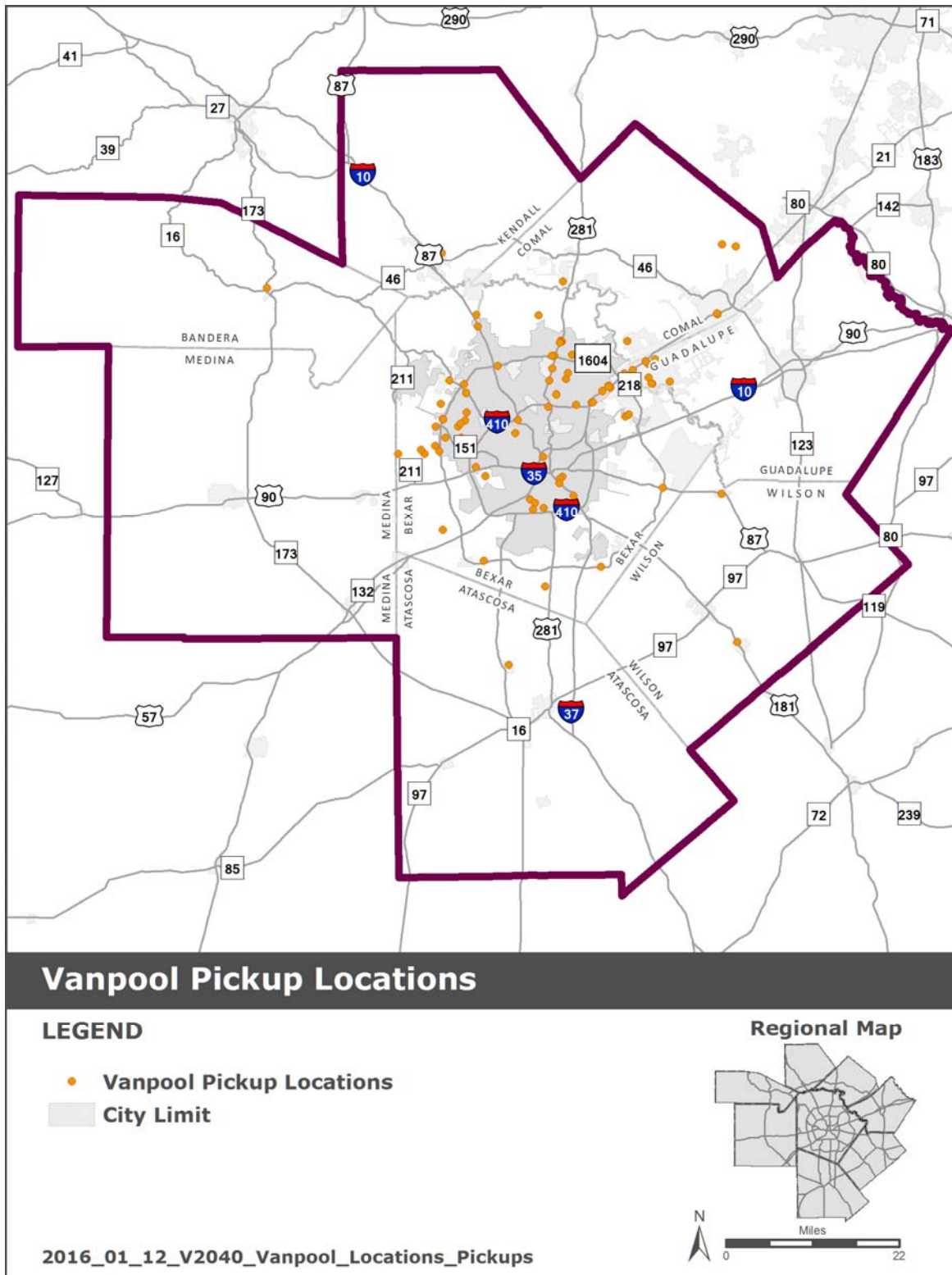
¹² Valley Metro includes agency-operated services only.

Figure 3.7 Home and Work Locations of VIA Vanpool Participants



Source: VIA Metropolitan Transit (2016).

Figure 3.8 Pick-Up Location of Vanpools



Source: VIA Metropolitan Transit (2016).

3.2 Challenges, Opportunities, and Best Practices

Funding and Investment

VIA's vanpool program is very cost effective, with revenues coming from FTA sources, fares from customers, and subsidies from employers. Relative to the fixed route service, VIA's vanpool service contributes greater vehicle and passenger revenue miles per trip compared to overall revenue vehicle miles reported to the Federal government. Vehicle and passenger revenue miles are a key factor in the Federal apportionment for the urbanized area (UZA) formula grants (Section 5307). The greater number of vehicle and passenger miles served, the more Federal 5307 apportionment funds a UZA will receive.

Similar to other services VIA provides, funding remains a challenge for VIA vanpool. Compared to other peer agencies, VIA's subsidy level is much lower; therefore, almost all vanpools include substantial financial support from employers and Federal, state, and local sources. In addition, the majority of VIA vanpool customers (90 percent) are Federal employees whose transit benefits pay all vanpool costs.

However, vanpool funding has a high return on investment. Despite accounting for approximately 1.2 percent of total operating funds, vanpool represents eight percent of total passenger miles traveled and nine percent of total vehicle revenue miles. VIA vanpool is a cost-efficient way of providing transit service to areas that are outside of fixed route service.

Operations

Vanpool programs sidestep many of the operational challenges of other service types, such as route planning, service schedules, and operator training. However, a number of factors still affect the efficiency and viability of vanpool programs. Accessibility to HOV lanes would provide important access to the urban core for vanpools and provide a key distinction of the service over commuting in a single-occupancy vehicle. Vanpool operations may also give insight into areas of demand for higher-capacity transit, such as Express service; careful monitoring of vanpool activity and ridership trends could highlight potential demand for new routes.

Target Markets

Strong relationships with employers to continue providing subsidies to employees are necessary to retain ridership and keep the service feasible. Simply offering information and encouraging vanpool use can capture five to 15 percent of commute trips while financial incentives can capture an even higher share, up to 30 percent (H-GAC, 2016).

Through IRS Code 132(f), companies can provide financial subsidies as a pretax benefit, lowering an employee's taxable income. This, in return, reduces a company's share of payroll taxes. Other benefits to companies supporting and offering vanpool services include saving on parking management costs, retaining employees, and/or advertising on company-sponsored vans (Community Transportation Association, 2014).

Access to tools matching commuters to current vanpools can also attract new ridership. The Georgia Commute Options program is one region offering this free service, presenting vanpool routes with similar origins and destinations (Georgia Commute Options, 2016). Other regions, such as Phoenix and Los Angeles, offer a similar service through its public-private partnerships, with companies such as Enterprise and VPSI coordinating and matching vanpool riders.

In addition to continuing to strengthen existing partnerships with companies, ridership can be increased by targeting additional areas such as employers or neighborhoods not served by fixed route service. For example, Austin's Capital Metro system's vanpool program overcame a plateau in participation after initiating a robust outreach program. The program included meeting with businesses and employers to explain their service and offering free trial programs to interested riders. Valley Metro also offers a \$300 referral for new riders and seat subsidies to help vanpool groups start. USAA encourages new employees to sign up for VIA vanpool during orientation.

3.3 Conclusion

VIA's vanpool service provides a useful alternative to commuting in a private vehicle for passengers outside VIA's fixed route service area. Because of the efficiency of the vanpool system, VIA will prioritize increasing ridership, targeting large and medium employers and public agencies. Recommendations for the Vision 2040 Long Range Plan include setting up vanpool pick-up and drop-off locations at new park & ride facilities and supporting HOV or express lanes (Table 3.2). HOV lanes can greatly improve vanpool's accessibility and travel time while also providing benefits to other transit modes and automobiles with more than one passenger. Finally, successful vanpool routes or route clusters will be identified for possible future expansion of Express service.

Table 3.2 Recommended Vanpool Strategies

Capital Investments	<ul style="list-style-type: none"> Support implementation of HOV facilities to decrease travel times.
Policy Goals	<ul style="list-style-type: none"> Develop marketing and communications for outreach efforts to encourage ridership. Identify small- and mid-size employers or neighborhoods as candidates to increase user base. Allow nonmember cities in the San Antonio UZA to support the program. Increase vanpool subsidy amount in order to make vanpool more attractive to non-employer-subsidized commuters.
Operational Improvements	<ul style="list-style-type: none"> Coordinate vanpool operations with fixed route metro Express services to test viability of new express routes and park & ride locations.



4.0 Multimodal Integration and Emerging Technology

The previous sections focused on VIA's paratransit and vanpool networks. While these services are very effective, they are targeted at specific VIA customers. In contrast, a variety of emerging transportation modes and technologies demonstrate great utility for those who use VIA fixed route service on a regular basis. By increasing access to high-capacity transit, increasing flexibility and reliability, and ensuring safety and efficiency, these services have the potential to fill current or anticipated gaps in VIA's fixed route network while providing the public with more transportation options.

Service gaps can take multiple forms:

- **Geographic or access gaps** occur when areas do not have fixed route service, or the service cannot be reached easily given the road or sidewalk network. Lack of parking may also contribute to access gaps, especially for express-type services. First-mile/last-mile access for fixed route transit service refers to the gap between the starting/ending point of a trip and the point of boarding/alighting the transit vehicle.
- **Temporal or frequency gaps** occur when fixed route service does not operate during the needed time-of-day or arrive often enough to suit passengers' needs.
- **Logistic or convenience gaps** occur when a service cannot accommodate a passenger's needs, despite the presence of service. For example, a person carrying goods or traveling with small children may not be able to easily use fixed route services.
- **Efficiency or information gaps** occur when a service can provide connectivity, but not in a timely or cost-effective manner. Examples include high fares (or high combined fares from using multiple services) or too many transfers between trips. Efficiency gaps can also occur when service is available, but a passenger cannot access it due to a lack of information about the service.
- **Safety or comfort gaps** occur when service is available, but passengers elect not to use it due to feeling unsafe or uncomfortable while accessing or using the service. Improving perceptions of infrastructure safety, personal safety, and cleanliness of vehicles and station areas can encourage the use of a service.

Many different options are available to bridge these gaps, though each alternative comes with a set of tradeoffs. Some mobility options are better suited to certain segments of the population or neighborhoods within the service area. This variation will require flexibility in the VIA policy framework in order to tailor those services to each community.

These options fall into two main categories: supply-side payment and user-side subsidy. Supply-side payment would involve VIA or another transit provider taking on the responsibility of costs associated with running these alternative forms of service such as flex routes or "call and ride" zones. User-side

subsidy would involve VIA providing a voucher for its customers to use other services such as car share or ride-hailing services. There are many pros and cons for each of these alternatives both for the passenger and for the transit agency. Understanding the tradeoffs for each of these alternatives will assist in determining how best to respond to each unique situation or neighborhood need.

4.1 Flexible Route Transit Services

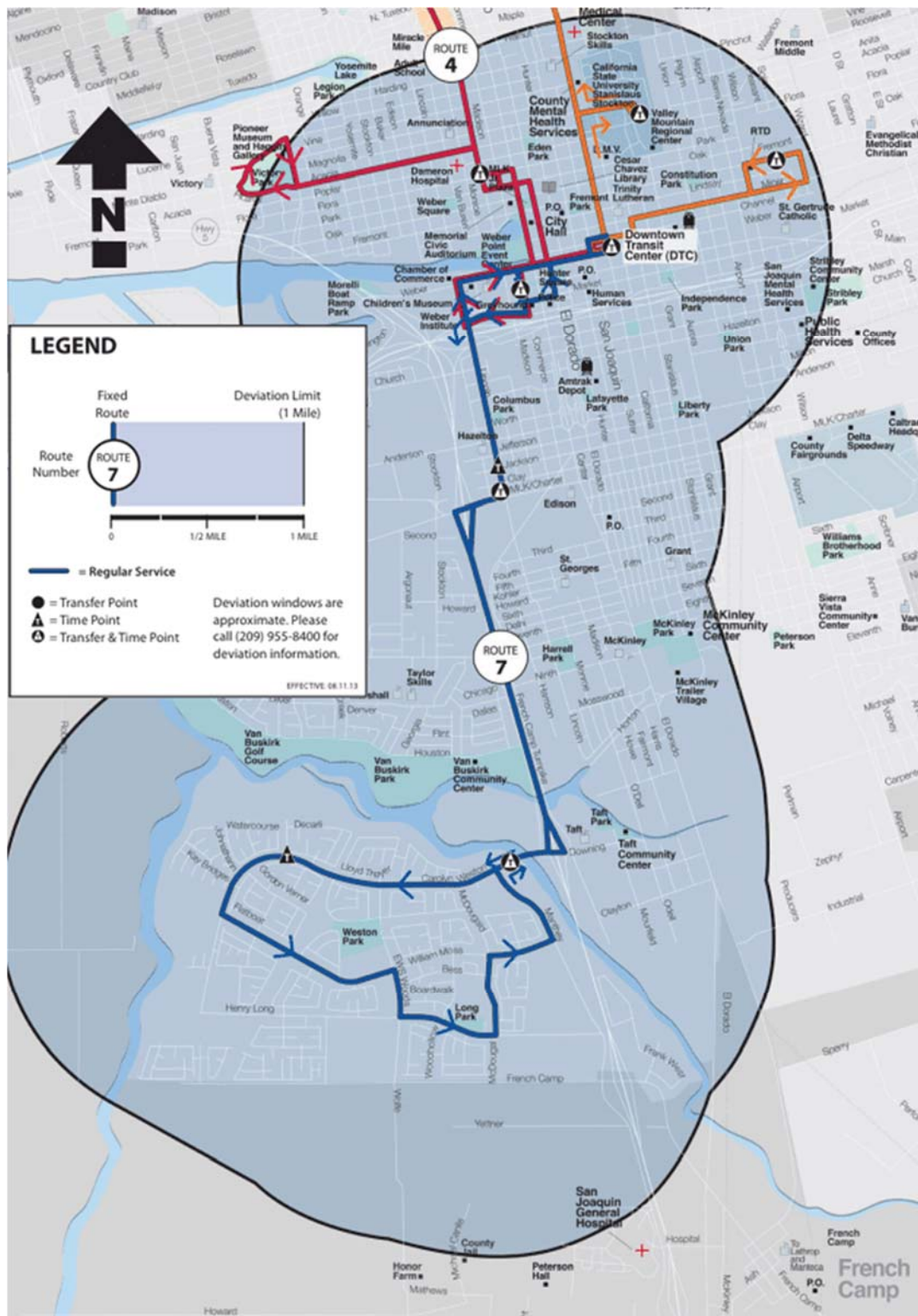
Flexible route transit offers a similar service to fixed route transit by serving time points along a route, but also allows deviations to serve off-corridor locations to address geographic gaps in service. There are varying types of flexible transit services, though the most prevalent among transit agencies is a "route deviation." Route deviation is similar to a conventional fixed route service where passengers can request a pick-up or drop-off location within a specified zone surrounding the fixed route (Potts, Marshall, Crockett, and Washington, 2010). For example, San Joaquin's Regional Transit District allows passengers to request a stop anywhere within a one-mile radius of a scheduled route (Figure 4.1).

Deviations can either be point deviations, serving specific locations when requested, or route deviations serving locations up to a certain distance away by reservation, typically three-quarters of a mile from the route alignment to match ADA requirements. Flexible route transit services often charge a premium fare to make up for the increased cost of providing a higher level of service for the off-corridor travel. Flexible route transit is often found in lower density markets that still have a basic route structure but require deviations to meet the mobility needs of the community. Flexible routes do not require complementary ADA paratransit because they provide curb-to-curb service for all customers within three-quarters of a mile of a fixed route corridor.

In large urban areas, transit agencies primarily implement flexible public transportation services to fulfill a specified need, such as to serve low-density areas, increase route efficiency, or reduce costs associated with providing ADA paratransit service. Flexible route transit has a variety of direct benefits such as a potential increase in ridership, higher cost efficiency, improved integrated service for persons with disabilities, and the ability to remove/reduce complementary paratransit service (Koffman, 2004). Research suggests that flexible route transit is most favorable in targeted areas with a high volume of transportation activity, including transit hubs, shopping centers, medical centers, and employment parks (Potts et al., 2010).

For VIA, flexible routing could provide a cost-effective means of providing service to less-dense areas with fewer routes (Table 4.1). For example, current service to St. Hedwig community to the east of the City of San Antonio or to suburbs in the northwest could be given a flex-route designation in order to maintain coverage without oversupplying transit service.

Figure 4.1 Example of San Joaquin's Flexible-Route Service



Source: San Joaquin RTD (2016).

Table 4.1 Flexible Route Transit Service Pros and Cons

Passenger	
Pros	<ul style="list-style-type: none"> • Option for direct service for off-corridor travel. • Responsive to customer and community needs. • Regular time points for schedule consistency.
Cons	<ul style="list-style-type: none"> • Extra effort for customers to utilize “flexible” part of service (i.e., need to call ahead for off-route pick-up; drop-off notice is when boarding). • May require extra fare for deviations. • Deviations pose inconvenience for through-riders.
Agency	
Pros	<ul style="list-style-type: none"> • Requires less overall operating cost than fixed route with required paratransit service. • Does not require complementary paratransit service as flexible route vehicles are typically ADA accessible.
Cons	<ul style="list-style-type: none"> • Need mechanism to process trip requests (i.e., call center for booking customer pick-ups). • Generally results in lower ridership than fixed route service.

4.2 Carpooling

Carpooling describes a spectrum of activities, from socially organized ad-hoc ridesharing to organized and subsidized services. Carpooling (by definition) reduces single-occupancy vehicle trips; it can supplement transit service by covering geographic and temporal gaps in service. Transit agencies can encourage or subsidize this behavior in a variety of ways.

Casual carpool, also known as slugging or instant carpooling, is a carpool method that is relatively unplanned and mutually beneficial to the driver and passengers (Table 4.2). A casual carpool forms at specified pick-up and drop-off locations, determined by the users and usually in proximity to a major transit hub, station, or before access to a HOV-lane. At these designated locations, vehicles that are about to access a HOV-lane pick up commuters waiting in informal queues and continue onto a designated drop-off location. This allows the driver and passenger to take advantage of the travel time savings through the HOV-lane for free (or for a shared cost in the case of high-occupancy toll lanes). Commuters have participated in casual carpooling since the 1970s, with locations in various cities such as San Francisco, Houston, and Washington, D.C.

Unlike other non-fixed route services, a single company or organization does not need to operate casual carpools. Instead, casual carpooling is often community-driven, with a group of participants or an individual making information on casual carpooling available and forming new pick-up/drop-off locations (LeBlanc, 2016; SF Casual Carpool, 2015).

Transit agencies can assist or subsidize carpools through the provision of ride-matching services, park & ride lots, designated meeting areas, transit vouchers, or other mechanisms. Vanpool, discussed in Section 3.0, is a form of carpooling where the vehicle and gas are provided at a competitive rate. The Greater San Antonio Region hosts a number of designated “park & pool” locations for casual carpools and supports a handful of carpool/vanpool matching services. Riders can find other VIA vanpools and carpool partners using Zimride, and AACOG partnered with NuRide to match commuters with carpools also offering rewards for taking an alternative commute. AACOG also has the SchoolPool program, matching parents who drive their children to/from school with other students. Further integration with and advertising of vanpool, HOV facilities, and ride-matching services could help to encourage this form of mass transit.

Table 4.2 Carpooling Pros and Cons

Passenger	
Pros	<ul style="list-style-type: none"> • Savings over single-occupancy vehicle use. • Ideal for peak-hour commute trips. • Can utilize HOV-lanes for faster travel.
Cons	<ul style="list-style-type: none"> • Must need a valid driver’s license. • Need to coordinate with other drivers that have similar origin and destination commute patterns. • Work hours have to be predictable.
Agency	
Pros	<ul style="list-style-type: none"> • Provides relatively inexpensive mobility alternative to single occupancy vehicles in areas where transit is not well suited.
Cons	<ul style="list-style-type: none"> • Requires construction of “park & pool” lots to ensure wider adoption. • Need to develop a carpooling matching system. • Difficult to measure impact and usage.

Figure 4.2 Commuters Waiting for Next Casual Carpool



Source: Federal Highway Administration (2011).

4.3 Ride-Hailing Services

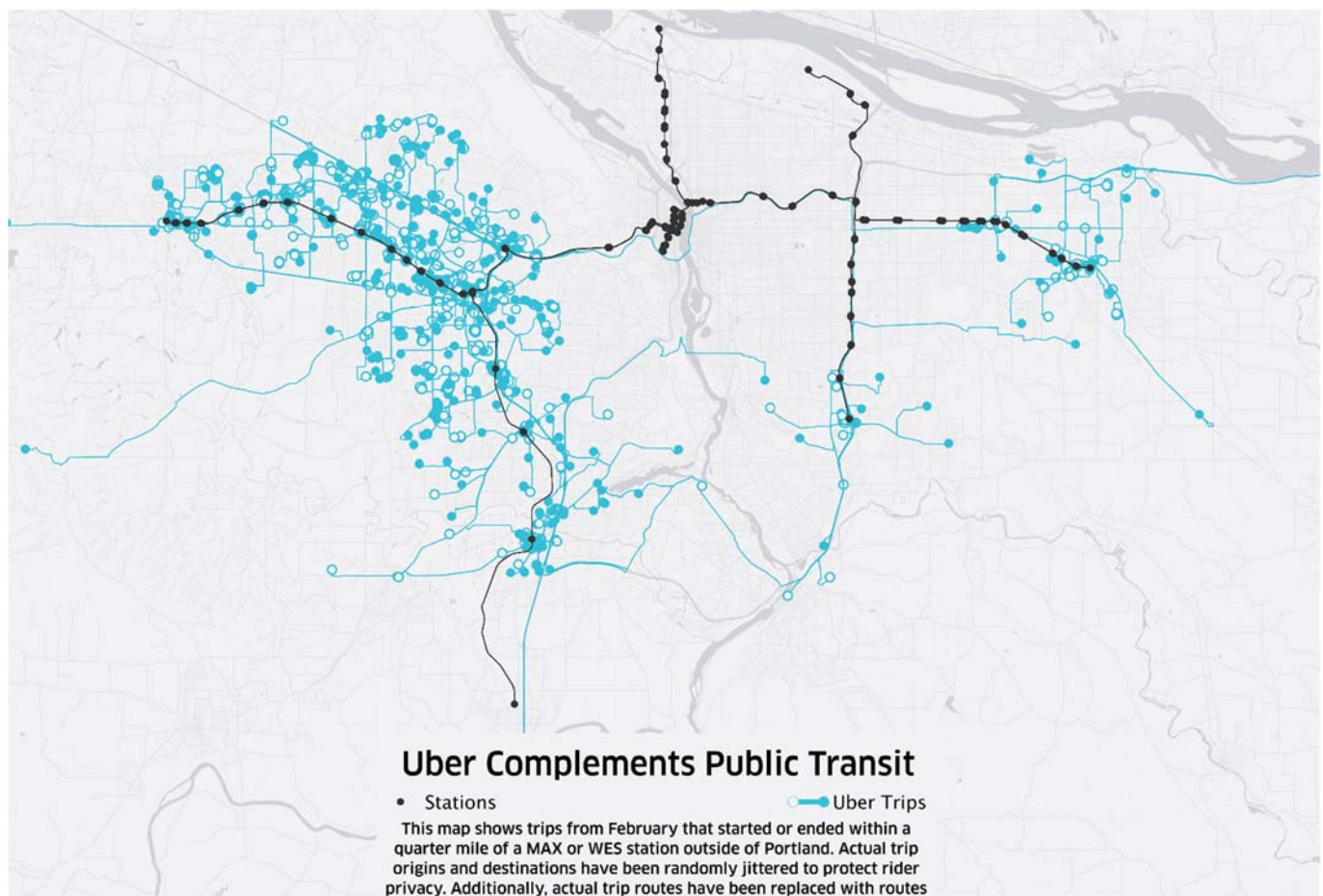
Ride-hailing services, such as Lyft, Uber, Sidecar, GetMe, and others, are a relatively new form of on-demand service that has become readily available within the last five years. A ride-hailing service is a company or organization that uses online mobile applications to coordinate trips between passengers and (nominally) independent contractor drivers. To use the service, a passenger requests a ride, specifying the pick-up and drop-off location on their mobile device. A driver, contracted by the service and operating his or her personal vehicle, picks up and drops off the passenger at the specified locations, and the payment transaction is automatically completed through the mobile application. A ride-hailing service can complete any length of trip, as long as it is within a predefined service area boundary (California Public Utilities Commission, 2013).

Ride-hailing services have a benefit of providing customers with curb-to-curb service and offering fares usually cheaper than traditional taxis (Table 4.3). Ride-hailing services are also forming partnerships with public transportation agencies, providing a solution for first-mile/last-mile connections. In the context of transit service, specific zones could be created within the VIA service area where the agency would provide a fixed subsidy for passengers in order to provide mobility without the expense of running fixed route transit. This mutually benefits the service and transit agency by increasing usage of both systems. Recently, ride-hailing services partnered with transit agencies in Boston, Dallas, Atlanta, Minneapolis, among others (Jaffe, 2015; Lyft, 2015). One example of how ride-hailing services can fill gaps in public transportation service is shown in Figure 4.3.

Table 4.3 Ride-Hailing Service Pros and Cons

Passenger	
Pros	<ul style="list-style-type: none"> Provides curb-to-curb service from origins and destinations. Relatively affordable.
Cons	<ul style="list-style-type: none"> Surge pricing and lack of vehicles reduces reliability. Many vehicles are not ADA accessible and programs such as UberAssist to remedy this issue are not currently available in the Greater San Antonio Region.
Agency	
Pros	<ul style="list-style-type: none"> Ability to set a flat subsidy per ride. Expands reach of transit.
Cons	<ul style="list-style-type: none"> Requires agreements with ride-hailing services be in place.

Figure 4.3 Using Uber for First-Mile/Last-Mile Connections



Source: Uber (2015a).

A current obstacle for public/private partnership between VIA and a ride-hailing service to provide paratransit service is the lack of ADA accessible vehicles in the ride-hailing service's fleet, although new services offered by Uber such as UberAssist are specifically targeted to seniors and persons with disabilities. Another obstacle for partnering with ride-hailing services would be ensuring that drivers comply with drug and background check requirements mandated by transit agencies, an issue that has arisen in several Texas cities.

Ride-hailing services have a short but contentious history in the Greater San Antonio Region. Uber and Lyft initiated service in the City of San Antonio in early 2014, but both companies ceased operations in 2015 citing a "regulatory climate that makes it impossible to meet the high standard of service that riders from over 170 cities across the US have come to expect" (Uber, 2015b). The opposition surrounded the City of San Antonio's desire to require extensive, fingerprint-based background checks for ride-hailing service drivers. Some traditional taxi operators supported this type of legislation, pointing out that differences in regulation between the two types of transportation providers provided ride-hailing services an unfair advantage. In late 2015, the San Antonio City Council approved a pilot program that softened legislation, but still spelled out a number of requirements, including background checks for drivers, vehicle inspections, and certain insurance requirements. As of early 2016, both Uber and Lyft were operating under the new legislation.

Similar scenarios have played out in other Texas cities, with both Houston and Austin engaging in contentious negotiations with ride-hailing services over driver background checks. In Houston, Uber operates under a fingerprint-based background check scheme. In Austin, Uber's threats to leave the city over driver fingerprinting encouraged other smaller rides-hailing services such as GetMe to state that they would comply with the ordinances, indicating that the market for the services is large enough to continue despite the willingness of individual companies to operate under such ordinances (McGivern, 2015). By 2016, after Uber and Lyft voluntarily ceased operations within Austin following a public vote over the issue of fingerprinting, at least four new ride-hailing services had either begun or announced services in the area. The issue is likely to be considered at the state level in the near future.

Regardless of the fate of individual companies in specific markets, it is likely that taxi- or ride-hailing services will be continue to be available in the future from the perspective of passengers. The advent of autonomous vehicles could render any vehicle operator issues moot, and could play out in several forms: a taxi-like service could own and operate a fleet of autonomous vehicles to be dispatched to customers, or a ride-hailing-like service could serve as the broker between passengers and owners of vehicles capable of operating independently.¹³ Coordination between VIA and ride-hailing services could involve the use of vouchers for transferring between the services and traditional transit, guaranteed pick-up locations at transit facilities, or integration with existing paratransit services.

¹³ The two fields have been closely linked since their inception. Google, a key player in the autonomous and connected vehicle market, invested \$258 million (nearly 90 percent of the company's Google Ventures venture capital budget) in Uber in 2013 (Wilhelm et al., 2013).

4.4 Car Share

Car sharing services are, at their essence, car rental services (Table 4.4). However, rather than requiring passengers to travel to a rental center to pick up their vehicle, car sharing programs provide vehicles distributed throughout residential and commercial areas and require little to no reservation time. Vehicles may be parked in designated spaces or city ordinances may allow them to park in any available public parking area. Fees may be monthly, per-mile, per-minute, or a combination of the three. Some car sharing plans do not require vehicles to be returned to the point-of-origin, allowing complex trip chaining to occur.

This mobility option enables individuals to have the freedom to use cars without the burden of car ownership. Subsidized car sharing allows certain households to go from two cars to one or from one car to none, therefore encouraging a low-car or no-car lifestyle in the region. This transition allows households to use transit for the majority of their trips and car sharing as a supplement to their travel. Likewise, car sharing can be utilized by large companies with a fleet of vehicles and/or have employees who frequently travel for business, improving the efficiency of their fleet and decreasing costs in car rental fees and reimbursements.

Car sharing in the Greater San Antonio Region is currently limited. A city partnership with rental agency Hertz's "Hertz 24/7 On Demand" service folded in 2014 after two years of operation, though fewer than 10 locations offered vehicles at any given time (Dimmick, 2014). ZipCar, a nationwide provider of car sharing services, operates a limited service with vehicles available on the campuses of the University of Texas at San Antonio and Trinity University (ZipCar, n.d.). Car2Go, a short-term rental service that does not require cars to be retrieved or left in specified parking spaces, has services in Austin but no other Texas cities.

Car sharing programs are effective complements to transit use, allowing flexible use of a motor vehicle for occasional trips while relying on transit for commuting (Table 4.4).

Table 4.4 Car sharing Pros and Cons

Passenger	
Pros	<ul style="list-style-type: none"> Point-to-point service allows for greater flexibility and access within the region.
Cons	<ul style="list-style-type: none"> Must possess a valid driver's license. Higher per trip costs than transit.
Agency	
Pros	<ul style="list-style-type: none"> Encourages households to downsize their vehicle footprint thereby becoming likelier to use public transportation.
Cons	<ul style="list-style-type: none"> Requires agreements with local car sharing companies be in place.

4.5 Bikeshare

A bikeshare service allows users to rent bicycles on a short-term basis, usually without making a reservation. To use a bikeshare, users insert a credit card into a kiosk, select an available bicycle, and return the bicycle at a bikeshare station. The total fee charged to the user is dependent on how long the user borrowed the bicycle. The system is comprised of a network of stations located strategically around a city, enabling users to return the bicycle at a station different from where they first borrowed the bicycle. Bikeshare stations are placed in areas with high foot-traffic, such as attractions and universities, also in areas to serve as first-mile/last-mile connections to public transportation. More than 65 cities in the United States, including the City of San Antonio (Figure 4.4), have a bikeshare program (US DOT, 2016). Bike rentals are similar but are more focused on longer rentals (typically over two hours), leisure, and tourist riders, and have stations with staff.

Bikeshare has the potential to improve the efficiency of an area's multimodal transportation network and complement public transportation by allowing residents and tourists to explore, visit attractions and restaurants, engage in active transportation, and increase transportation choices (Jaffe, 2014a; Ricci, 2015). As of 2016, over 85 percent of bikeshare stations in the US were located within one block of scheduled public transportation (US DOT, 2016).

BCycle, a partnership between Trek Bicycle Corporation, Humana (a health insurance provider), and Crispin Porter + Bogusky (an advertising agency), began operation in the City of San Antonio in 2011. The service operates as a public-private partnership between BCycle and the City. The City currently hosts a network of over 50 BCycle stations. Most stations are downtown, with a few additional stations located north and south along the San Antonio River. The Vision 2040 Long Range Plan recommends the expansion of the BCycle program at key transportation nodes, such as the South Texas Medical Center, university campuses, Centro Plaza, and Brooks City-Base.

Figure 4.4 City of San Antonio Bikeshare



Source: US Department of Energy (2011).

In addition to bikeshare, innovative bike storage options have been gaining popularity in the past few years. For example, Bay Area Rapid Transit (BART) not only allows bikes on trains, but also provides keyed and electronic bike lockers at some stations. Keyed lockers are for single-use and require a rental agreement. Electronic lockers are for shared use and are available on a first-come, first-served basis, and customers must use a BikeLink Card. Similarly, Cap Metro in Austin provides MetroBike shelters that use key card access (customers can use their bike locks inside) at seven popular MetroRail and MetroRapid stations. MetroBike shelters are fully enclosed and fit up to 24 bikes. Customers can store their bikes during the day and overnight, but access is limited to 5:00am to 2:30am each day. Each shelter has 24-hour camera surveillance and each location has a sitting area and a work stand for minor bike repairs. To access MetroBike shelters, customers pay a membership of \$30 per year.

4.6 Crowdsourced Mobility Solutions

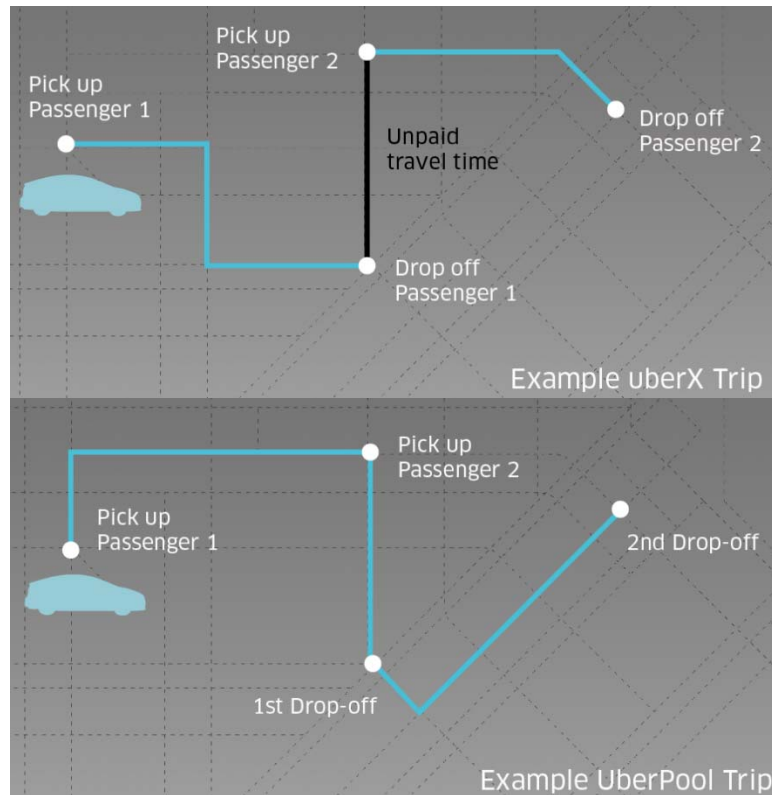
New transportation technologies utilize new data and instantly analyze real-time travel information to warn travelers of current delays and accidents and suggest faster, alternative routes. For example, Google Maps combines live traffic data with data reported by drivers and passengers via the Waze app before it recommends the fastest route possible at that moment. On-demand services, particularly ridesharing services, are now utilizing real-time travel information to improve the efficiency and convenience of their systems.

Over three quarters of Americans get to and from work by driving alone, and 38 percent of all trips are completed in a single-occupant vehicle (Bureau of Transportation Statistics, 2003; US Census Bureau, 2010). The region's travel demand model predicts that by 2040, 48 percent of trips taken in the Greater San Antonio Region will be made by people driving alone. However, new applications are allowing passengers to utilize more of these empty seats, matching drivers with passengers traveling to the same destination or in the same general direction, such as Lyft Line or UberPOOL. Both of these services are similar to the original Lyft and Uber model, with individuals requesting a ride to a certain destinations, but offer passengers a choice to pick up other passengers at a reduced fare (Figure 4.5). This service differs from carpooling and vanpooling by not requiring the passengers to plan the trip in advance. Lyft Line and UberPOOL are currently available in a growing number of cities, including Chicago, Denver, Miami, San Francisco, Seattle, and Washington, D.C.

Other services, such as Carma, have a similar model but focus on sharing commute rides rather than any type of trip (Carma, 2016). These applications help match drivers and passengers and give drivers an option of charging passengers to share their trip.

There are integration opportunities between VIA and these crowd sourced mobility options, such as providing vouchers for transfers, providing guaranteed pick-up locations at transit facilities, and/or integrating these systems with existing paratransit services.

Figure 4.5 Example of an UberX versus an UberPOOL Trip

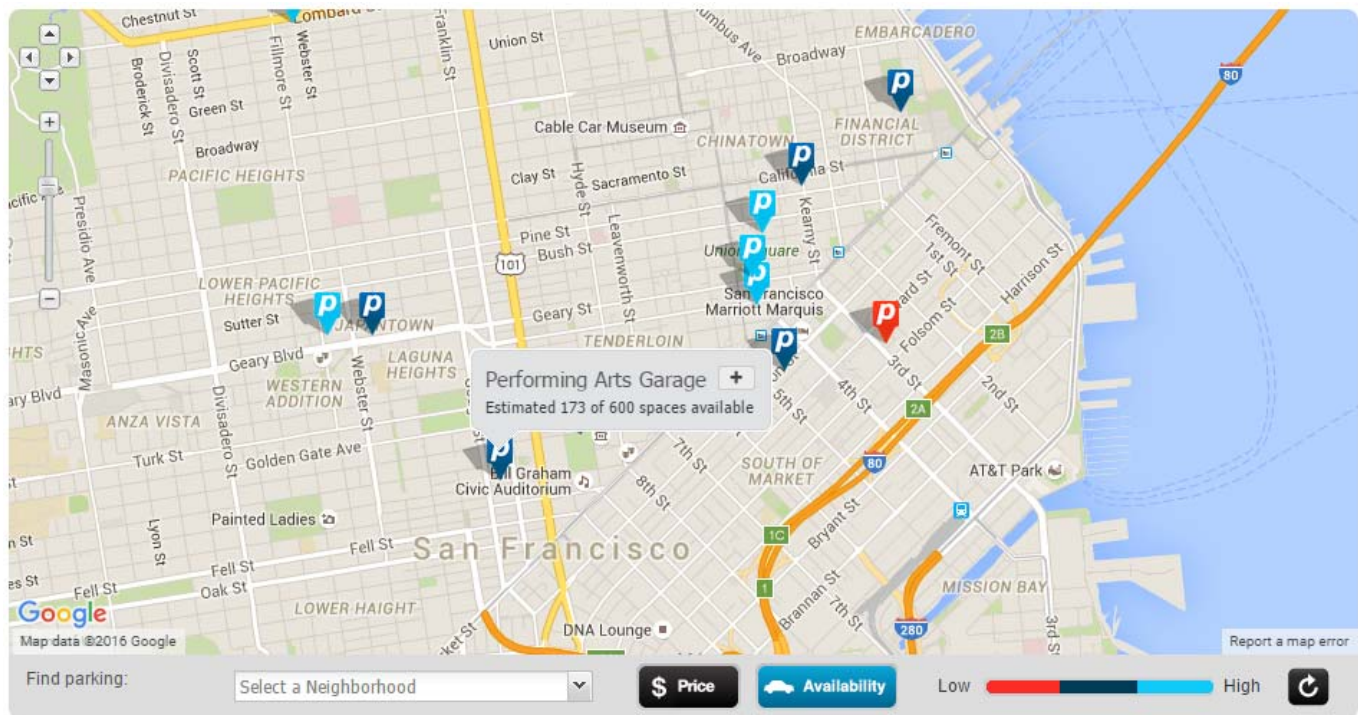


4.7 Smart Parking Lots

Parking is an inevitable element of traveling in a personal vehicle and, in many large cities, is not an easy or convenient process. One survey found that over 30 percent of city traffic are drivers searching for a parking spot, and in New York City 29 percent of commuters spend 20 minutes on average looking for an open parking spot (Rich, 2011). This increases the cost of travel, reduces productivity, and leads to more vehicle emissions. To improve a search for an open spot, many cities are applying smart technology to better communicate real-time parking availability. For example, the San Francisco Municipal Transportation Agency installed sensors into select parking lots and street parking to keep track of which spaces are occupied. Drivers and passengers can utilize this information through SFpark to see where parking is available, as shown in Figure 4.6 (Wilkinson, 2010; SFMTA, 2016). In addition, because the price of parking in many of these lots change based on demand, users can see current parking rates.

The Washington Metropolitan Area Transit Authority's (WMATA) recently used a similar application for their park & ride lots. WMATA's parking lots would frequently become full, and drivers had no previous way of knowing which lots were available. Using the Parker application, drivers are able to know which lots have available parking, as well as average occupancy rates by the hour to know when lots fill up (Streetline, n.d.). This technology can be streamlined with payment methods, increasing the convenience of using the parking lot with mobile payments or similar devices. For example, E-Zpass, the northeast's toll-collection system, allows drivers to use the device to pay for parking at select lots (E-Zpass Interagency Group, 2016).

Figure 4.6 Screenshot of SFpark



Source: SFpark, 2016.

In 2004, the City of San Antonio completed a parking study that found that average peak usage of parking facilities in the western Central Business District was 76 percent, while average peak usage around the Alamodome and HemisFair area was 40 percent (though much of this parking is used during special events). The study noted that “effective capacity” for parking facilities was generally around 85 percent of actual capacity, as higher occupancy causes drivers to spend a longer time searching for an empty space. Smart parking could increase the effective capacity of current facilities, reducing the need to construct new spaces (City of San Antonio, 2004).

As VIA plans expansion and modernization of its park & ride facilities, inclusion of real-time availability and pricing information in mobile applications will become an important part of the customer experience. Additionally, should parking space pricing and availability information become available for non-VIA parking facilities, integration of this information into mobility applications will be an important element of transportation decision-making for transit customers.

4.8 Autonomous and Connected Vehicles

Continuous technological advances will have a significant impact on the transportation network, particularly on how vehicles interact with infrastructure and with each other. Two of these technological advances on the near horizon are connected vehicles, vehicles that communicate with other connected vehicles and transportation infrastructure, and autonomous vehicles, automobiles that are able to operate without a human driver.

This transmission of information has the potential to improve safety, increase mobility, and reduce environmental impacts. Sensors in **connected vehicles** can detect oncoming vehicles, notify the driver if they need to stop, slow down, or change lanes, and even automatically take evasive maneuvers to avoid a collision. Communication with traffic signals can also relay the optimum travel speed to drivers in order to hit continuous green lights or adjust the length of the green light for faster travel. In addition, vehicles can convey the optimal travel speed to conserve fuel.

Some state-of-the-art technology currently available in high-end cars includes:

- **Alerts:** Blind spot monitoring, lane departure warning, forward collision warning;
- **Avoidance:** Automatic emergency braking or steering; and
- **Assist:** Lane keeping assist, active cruise control, automated parking.

These features help notify the driver when a collision might occur and includes automated features to prevent the collision or unsafe vehicular movement (Newcomb, 2015).

While car manufacturers have been relatively quick to adopt these technologies, similar systems have been slower to appear on transit vehicles, with only one manufacturer offering automatic braking technology to buses. However, individual transit agencies and research groups have begun smaller-scale testing of intelligent features:

- New York City (NYC)'s MTA has begun evaluation of a pedestrian detection and collision avoidance system (NYC MTA, 2015);
- Minnesota Valley Transit Authority is developing a system to assist drivers in seeing snow-obscured roadway boundaries (Pessaro et al., 2012);
- Eugene, Oregon's BRT system utilizes a docking assist mechanism that helps its drivers consistently stop at the correct location at the station (Cain et al., 2007); and
- The US Connected Vehicle Safety Pilot Model Deployment has tested a number of connected vehicle technologies on transit vehicles through its Transit Safety Retrofit Project (US DOT, n.d.).

Other technological improvements that have been adopted on transit vehicles include transit signal priority (TSP), a system that allows buses to traverse signaled intersections more quickly. TSP has already been successfully implemented in many transit systems across the country, especially on BRT corridors like VIA's Primo route.

Autonomous vehicles will have most, if not all, of the same features and capabilities of connected vehicles but do not require a vehicle operator. Researchers have explored the possible applications and impacts of autonomous vehicles, though the precise implications of this new technology are unknown.

Potential applications for autonomous vehicles vary greatly, such as everyday commuting, access to and from special events, and freight movement. Car ownership could be affected by whether

individuals will own a personal autonomous vehicle or use them similarly to ride-hailing services with on-demand, origin-to-destination public transport. Under the crowd sourced mobility model, users would hail a ride specifying their origin and destination and the car that arrives may have other passengers traveling along the same route. Similarly, if the user desires an entire vehicle, they could pay a surcharge (Chase, 2014). Existing non-fixed route services, such as vanpools or paratransit, can also use a similar model to decrease operational costs and improve efficiency.

A further possibility is the role of autonomous mass transit vehicles. Many rail vehicles already operate either fully or partially autonomously, with operators assuming emergency control of the vehicle or providing passenger supervision and assistance. While there are no fully autonomous, non-fixed-guideway transit vehicles in operation at this time, several cities or agencies have announced plans to pursue testing of vehicles under either a car share or shuttle model (City of Austin, 2016). First deployments are likely to be in controlled settings, such as between passenger terminals and transit facilities at airports. Although there are currently no transit agencies operating autonomous buses, their advent will require transit agencies such as VIA to consider the relative importance of operation costs, passenger safety concerns, and service flexibility. Dedicated lanes for high-demand transit corridors can expedite the incorporation of this new technology into the transit network.

Potential benefits of autonomous vehicles, especially in conjunction with car sharing or ride-hailing services, include reducing the amount and narrowing the geographic distribution of parking; reducing the need for private car ownership; enabling seniors, the disabled, and others unable to drive private vehicles to retain independence; increasing capacity of existing roadway facilities (though this requires high rates of adoption); and reducing the frequency of human error-related motor vehicle collisions.

4.9 Traveler Information Applications

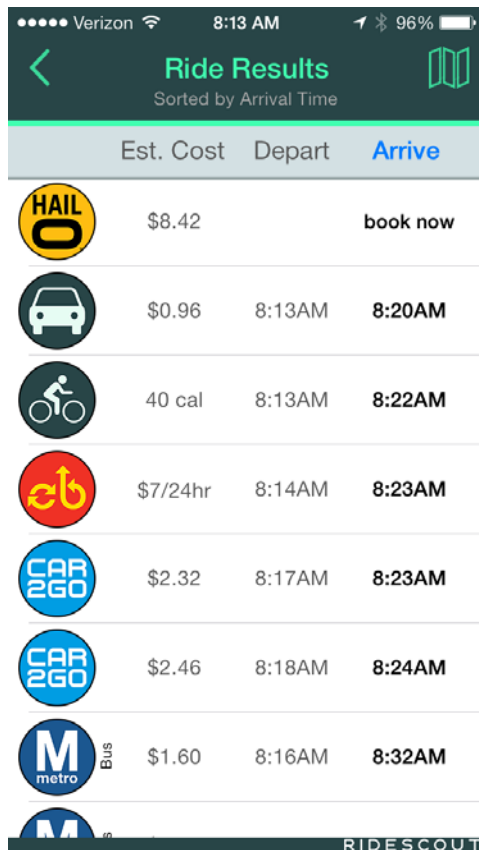
The travel time, cost, and convenience of various transportation modes all contribute to how individuals plan their trip. However, the direct comparison of these three factors and other considerations among all possible transportation options is often time consuming, and information on all the possible modes of travel may not be available. As new transportation options emerge, the region needs a tool showcasing all possible travel modes and their relative costs and travel times (Figure 4.7).








Many traveler information applications can be accessed via smartphones and computers, relaying trip itineraries from two points, but are limited to one specific mode or service, such as VIA's trip planner or MapQuest. However, new applications such as TripGo, GoLA, and Ridescout (the latter two currently available in the Greater San Antonio Region) are streamlining trip planning by communicating all possible travel modes and combination of modes between two points, including ride-hailing services, bikeshare, and transit. These applications can organize the list of possible trips by estimated travel time or cost and send notification when you need to leave to catch a bus. In particular, the GoLA app (serving Los Angeles) allows multiple modes to be used for a single trip. These applications also integrate driving directions, joined with real-time travel conditions such as through Google Maps and parking availability, to provide on-demand traveler information. After a user selects their desired

route and mode of transportation, the application may provide a direct link to the necessary ride-hailing service provider, parking reservation application, or transit agency to get more information, pay for services, and/or request a ride (Krieger, 2013; Jaffe, 2014b).

As transportation information and integration opportunities become more available, aggregated transit and transportation data will, to the extent possible, be made available to the public, either through existing or new mobile applications.

Figure 4.7 Example Traveler Information Application



	Est. Cost	Depart	Arrive
	\$8.42		book now
	\$0.96	8:13AM	8:20AM
	40 cal	8:13AM	8:22AM
	\$7/24hr	8:14AM	8:23AM
	\$2.32	8:17AM	8:23AM
	\$2.46	8:18AM	8:24AM
	\$1.60	8:16AM	8:32AM

Source: CityLab (2014b).

4.10 Conclusion

There is no doubt that transportation in 2040 will look different than it does in 2016. If public transit is to play a dynamic, relevant role in the Greater San Antonio Region's transportation future, VIA's role is to ensure that customers can easily use its services in a seamless manner with the widening range of transportation options available to them. In order to provide attractive and effective service as an alternative to driving, future service will be integrated with emerging technologies and business models (Table 4.5). Partnerships between ride sharing providers, traveler information applications, and transit service providers will equip travelers with more comprehensive, real-time information about their

transportation options with which to make informed choices. Likewise, VIA plans to equip transit vehicles with new and established technologies to help make trips more convenient, safe, and reliable.

Table 4.5 Recommended Strategies for Integrated Multimodal Services

Capital Investments	<ul style="list-style-type: none"> • Lead, partner, and invest in developments in autonomous and connected vehicle technology through the purchase and testing of transit vehicles with intelligent features. • Partner to invest in bicycle sharing programs (e.g., BCycle) to ensure availability at all high-capacity transit stations.
Policy Goals	<ul style="list-style-type: none"> • Establish subsidy programs for integrated multimodal trips. • Institute integrated payment system for multimodal trips.
Operational Improvements	<ul style="list-style-type: none"> • Develop line service design standards to allow for flexible routing (route deviation and point deviation) or demand responsive service in locations with sparse transit coverage. • Establish minimum service standards for the availability of car share, ride-hailing services, real-time signage, and bikeshare options at high-capacity transit stations. • Enhance data and information delivery mechanisms to make trip planning across modes easier, in a single, integrated package: <ul style="list-style-type: none"> – Carpool and multimodal trip planning; – Real-time vehicle arrival and connection information; – Parking, car share, and bikeshare availability; and – Mobility aid (i.e., wheelchair) and bicycle spot availability on buses.

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5.0 Planning for the Future

The story of transportation is one of near-constant evolution and innovation. From horses, to streetcars, to automobiles and beyond, each new wave of technology has influenced how cities grow and change. The widespread accessibility of smartphones and the internet, the ability to gather and process real-time travel data, and a flood of technological advancements are propelling transportation into a new era. Changes in demographic trends and travel preferences will influence future transportation networks, with passengers wanting more transportation options (US DOT, 2015). People will be able to maximize their mobility options by taking advantage of the future technological advancements that improve trip experiences.

VIA's role in future transportation is dependent on the ability to streamline traditional transit service with the future emerging travel options. Implementation of alternative service mobility options will be an important supplement to the Vision 2040 Long Range Plan. In order to guide the implementation of alternative mobility options over time, the existing VIA Line Service Policies and Design Standards (LSDS) will be updated to include emerging technologies. Providing effective alternative mobility options that enable both lower vehicle ownership and low vehicle-usage rates, will help to meet the objectives of greater access and mobility in the region.

5.1 Changing Demographics

Several demographic changes and trends will affect how residents and visitors travel in cities in the future. As described in Technical Memorandum 3, the Greater San Antonio Region is expected to experience an increase in population, employment, and density over the next 25 years. Experts and analysts are also predicting supplemental demographic changes within the same timeframe, specifically an increase in the number of persons over 65, with one-third of these individuals having a disability (US Department of Transportation [US DOT], 2015). These demographic changes result in more individuals requiring mobility choices outside of traditional single-occupant vehicles and possibly outside of traditional fixed route transit service. Millennials are also approaching transportation differently than in past generations, preferring mobility choices that focus on convenience and cost savings, and resulting in millennials driving less and fewer owning a driver's license (US DOT, 2015; Sheehan, 2015).

Trends in driving patterns and habits are also supporting a growing preference for alternative transportation. If current trends remain, the number and percentage of households without a vehicle will increase, resulting in more individuals relying on other transportation choices. The average vehicle miles traveled per capita is decreasing across the county, yet the total number of commuters and individuals living in urbanized areas is expected to continue to increase (US DOT, 2015; Murdock et al., 2008).

The Greater San Antonio Region, along with the rest of the country, must react to these changing demographic trends, characteristics, and preferences in order to continue improving the efficiency of the transportation network. Specifically, mobility options need to increase, including on demand services, which are convenient to the customer and serve the unique needs and preferences of individuals.

5.2 Market Factors Influencing Selection of Alternative Mobility Options

Alternative mobility options best suited for a particular community vary based on underlying market factors such as employment and population density, community demographics, land use patterns, and street network in addition to the location of the proposed fixed route transit network.

Areas with lower population and employment densities, discontinuous street and sidewalk networks, and an automobile-centric environment are best suited for vanpools, flexible-route service, and ride-hailing services subsidies. Thresholds established by VIA, will help determine the minimum densities required to justify these investments in areas not benefiting from frequent transit service.

Areas well served by the proposed frequent transit network with high employment and population densities are better suited for bikeshare and car sharing. Minimum thresholds need to be set for densities that would warrant VIA subsidies and coordination with the organizations that provide these mobility options. Flexible routes may also apply in areas with high employment densities.

5.3 Transit Supportive Land Use and Complete Streets

The foundation of *the Vision 2040 Long Range Plan* is the assessment of future mobility needs, including emerging and potential land use design, density, and diversity to identify and direct the demand for transit service within the Greater San Antonio Region. An area's land use and the development helps identifies the most suitable transit service, such as the transit mode and frequency, which can be a catalyst for new development that further supports the transit service. Transit supportive land use (TSLU) supports the effective use of transit, increasing ridership, walkability, and compact development that encourages activity surrounding station areas. These areas include mixed-use developments with public spaces that are inviting and walkable and a unique transit station or stop that contribute to the area's identity.

Complete streets further support TSLU, encouraging communities and developments to design for all users rather than only cars. These designs often have wide sidewalks, inviting landscapes, and traffic calming infrastructure to make the streets safe for all users. These design features can increase a community's vibrancy and attractiveness, mutually benefiting the transit service and surrounding developments.

VIA's service can be greatly supplemented by TSLU and complete streets and should be considered when designing and selecting transit route placements. The success of TSLU also requires a partnership with the City of San Antonio and other member jurisdictions to develop and refine policies related to land use and transit and develop an integrated system of street, pedestrian, bicycle, and transit networks. TSLU and complete streets can be mutually beneficial to VIA and cities, increasing

transit service attractiveness and usage while stimulating community development in a sustainable manner. More information as well as guidance on how to implement TSLU is available in VIA's 2014 *Transit Supportive Land Use Toolkit* and *Guide to Transit Supportive Land Use*.

Figure 5.1 Rendering of Transit Supportive Land Use



Source: VIA 2014 Transit Supportive Land Use Toolkit.

5.4 Services Best Suited to Complement the Community's Vision for Transit

Full implementation of the Vision 2040 Long Range Plan includes expanded fixed route transit coverage with more frequent service throughout the VIA service area, concentrated in higher density communities, and connecting regional destinations. In areas outside of the proposed frequent transit network, services such as flexible route transit service, vanpooling, and ride-hailing services subsidies have the greatest potential to improve mobility at relatively low cost to the transit authority.

Urban areas well served by the proposed frequent transit network can benefit most from services such as bikeshare and car sharing, reduce reliance on car use, and result in lower rates of car ownership. Together with frequent transit, bikeshare, and car sharing create attractive lifestyle mobility for residents and visitors in the core of the service area.

5.5 Partnerships Critical for Successful Implementation

Alternative service mobility options present a great opportunity for VIA to leverage the proposed transit network to improve quality of life and reduce reliance on single occupancy vehicles in the region. Partnership agreements will be required in order to ensure successful implementation and adoption of these mobility options. Partnership agreements will vary by type of mobility option. The vanpool program will benefit from a combination of targeted subsidies to both private and government employers and widespread promotion. The vanpool program will also benefit from expanding the geographic service area through partnerships with surrounding communities that are currently not being served by VIA vanpool. To develop a ride-hailing service subsidy program, partnership agreements will have to be developed with specific companies to specify geographic scope, level of subsidy per ride, and other parameters that will limit liability and cost to VIA. Recent partnership agreements made between ride-hailing services and transit authorities in Atlanta, Boston, Dallas, and

Minneapolis can service potential models for VIA. Bikeshare is currently operated within City of San Antonio by BCycle. A continued VIA partnership with the BCycle is needed for the expansion of future bike stations in areas well served by proposed frequent transit corridors. Partnerships with car share companies such as Zipcar, which currently operates within the VIA service area, will assist in the implementation of car share service in new areas that are well suited for this alternative mobility option.

5.6 Conclusion

Implementing appropriate transit service for different parts of the region and pursuing partnership agreements will help fill in the gaps of existing and proposed service coverage Vision 2040 Long Range Plan and provide additional mobility throughout the region, while lessening reliance on single occupancy vehicle use. VIA has the opportunity to be both city-serving and city-shaping, as infill development takes advantage of high-frequency transit corridors, while less-dense areas of the region remain connected through the use of established and innovative services. The next 30 years will see a series of enormous changes in the way people move around their cities; in order to continue to ensure adequate transportation options, the region's transportation providers must continually anticipate and adapt its services to the region's needs.



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