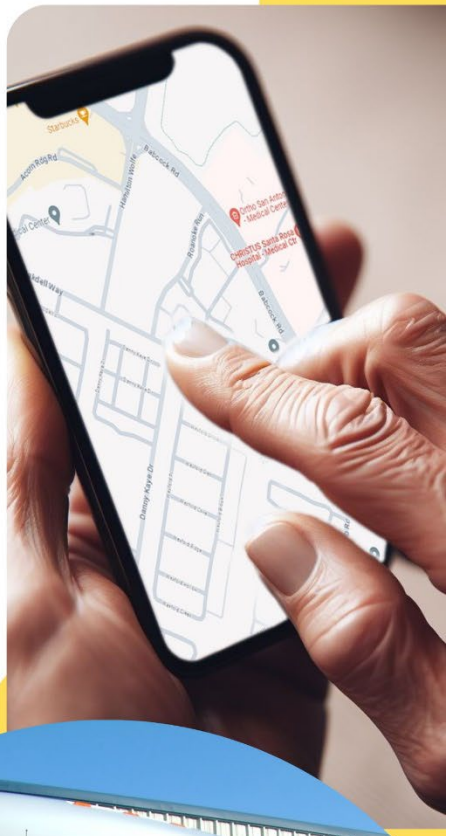
Towards Implementation of a One-Call/One-Click System in San Antonio

Institutional and Infrastructure Capacity Assessment



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MARCH 2024
FINAL REPORT

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Executive Summary

The Scope of this Report

This report presents a crucial step in preparing the coalition to realize its vision for enhancing access to mobility of transportation disadvantaged groups in San Antonio and Bexar County. This report presents a comprehensive assessment encompassing Tasks 3 and 4 of the scope of work. To systematically evaluate the readiness of the eco-system of service providers for the One Call One Click integration, an important task of this research project is to understand the system level and institutional capacity factors of community-based transportation providers and the foundational hard infrastructure that influence transportation access and experiences of mobility for the transportation disadvantaged. This report responds to the need to evaluate the current ecosystem in San Antonio and Bexar County.

The following subtasks were carried out in preparation of this report:

- Evaluating the existing institutional and system capacities, collaborative endeavors, and challenges faced by public transit and community-based transportation entities in San Antonio and how these factors influence the feasibility of a 1C1C system.
- An examination of physical infrastructure and its effect on accessibility to transportation services.
- A comprehensive analysis segmented by census tract identifying the mismatch of demand and supply between the needs of the transportation-disadvantaged (TD) population and the available services.
- The development of an Accessibility Index (ELI) for the TD community in San Antonio, aimed at enhancing awareness and fostering a more hospitable and age-friendly environment.

The insights from this report offer a deep dive into San Antonio's existing institutional and infrastructure landscape, highlighting the successes and challenges experienced by organizations providing transportation. By pinpointing institutional gaps and potential early wins, this report lays a solid foundation for measuring the community's readiness to develop and support an integrated 1C1C system, marking a significant step forward in improving mobility and quality of life for the TD population in the area.

Data and Methods

We utilized data from various sources and completed multiple analyses to understand San Antonio's institutional and infrastructure ecosystem. We collected institutional and system-level data from thirteen organizations involved with transportation services through surveys and publicly available data, including websites and reports. Additionally, we conducted six in-person and two virtual interviews with eight of the thirteen organizations to capture additional details on their experience in providing services to the TD population. We also relied on American Community Survey (ACS) Census Tract data, publicly available shapefiles, available origin and destination trip data from providers, and multiple databases to complete the infrastructure assessment.

Institutional and Infrastructure Impact on a 1C1C System

We have identified five early win opportunities from our institutional and infrastructure assessment that address current challenges to avoid potentially negative implications on 1C1C creation and implementation:

1. **Utilize MPO (Metropolitan Planning Organization) Funding for a coordination pilot project.**
   Launching a pilot project emerges as a vital step towards fostering better coordination among service providers, directly contributing to the success of an envisioned 1C1C system. A pilot project will provide a practical platform for providers to collaboratively explore and implement strategies that streamline service transferability and bridge the service gap among providers. Tackling transferability issues such as discrepancies in eligibility criteria, accessibility features, pricing models, service boundaries, and types of services provided is crucial before fully rolling out the 1C1C system. Additionally, a pilot project allows providers to assess how increased coordination can address other challenges, such as driver shortages leading to riders needing to schedule trips multiple weeks in advance. Without addressing these critical concerns, the system risks failing to maintain and attract new riders, who may find it challenging to find rides, navigate between services or experience inconsistent service levels from one provider to another. Such a focused approach is key to ensuring a smooth, equitable service landscape that is indispensable for the 1C1C system's overarching aim and long-term viability.

2. **Prioritize accessibility and partner with COSA for walkability enhancements servicing VIA bus stops.**
   Safe infrastructure is essential for the TD population to access transportation services. We advocate for COSA to fund essential infrastructure enhancements, focusing on sidewalks and crosswalks, to bolster the accessibility of fixed-route buses and paratransit vans. Such comprehensive upgrades to sidewalks are necessary to guarantee that all clients, particularly those with limited mobility, can navigate safely to their awaiting vehicles without the risk of falling or getting stuck. The safety and accessibility of riders should be a foundational consideration for a 1C1C system. Ignoring these critical aspects may compel riders to rely on alternative means of transport, such as assistance from friends or family, or to reduce their travel frequency altogether, thereby diminishing their independence. These factors also restrict the viability of VIA as an option to accommodate the growing demand from riders. A significant portion of the TD population resides within the 3/4 mile buffer of transit routes, matching higher mobility riders with VIA services within a 1C1C framework is imperative to accommodate demand. However, if bus stops remain inaccessible, this alternative may not be attractive to riders. We acknowledge that sidewalk construction and repair is costly and time-intensive. However, SALSA members should work with city council members to prioritize a 2027 city bond package for sidewalks.

3. **Undertake extensive community outreach and education.**
   Start engaging with the TD population through community outreach and educational initiatives immediately. These initiatives should include travel training programs to teach individuals how to navigate public transit, including fixed-route buses and paratransit vans. This not only fosters greater independence for TD riders but also utilizes VIA's service network, which surpasses the capacity of other providers in San Antonio. Initiatives can also include distributing general information about existing providers in print, as a significant portion of the TD population may

lack the digital literacy skills to find providers online. As the TD population's familiarity with existing providers grows, they are more likely to utilize the 1C1C system.

4. **Establish a unified driver recruitment, training, and certification program.**
   A program at the city or county level that recruits, trains, and certifies drivers will benefit every transportation provider in San Antonio. Ride providers have reported significant difficulties with hiring and retaining drivers. Failing to cultivate responsible and considerate drivers creates a barrier for a 1C1C system, as riders will not use a system or provider within the system if the drivers are unprofessional. Moreover, a shortage of drivers leads to riders having to book trips several weeks in advance which can force riders to rely on family and friends, resulting in a loss of independence and undermining a core objective of a 1C1C system, which is to provide convenient and on-demand transportation options. A city or county program focusing on increasing driver numbers and providing comprehensive training can increase the number of available rides, thereby reducing the number of days between scheduling a trip and trip fulfillment.

5. **Establish an independent administrative 1C1C system lead and host agency.**
   Designating an independent non-provider entity to lead the 1C1C system can resolve multiple challenges, such as coordination and overall management. An administrative lead committed to the 1C1C system mission and able to manage a complex network of providers can provide oversight on service integration, manage stakeholder interests, and push the project toward its strategic goals. Selecting a current provider as the 1C1C system lead may result in siloed leadership, competition for services instead of coordination of services, and conflicts of interest between provider goals and system goals.

Abbreviations and Important Concepts

1C1C—One-Call/One-Click Transportation System

3C—Comprehensive, coordinated, and continuous

AAA—Area Agency on Aging

AAMPO—Alamo Area Metropolitan Planning Agency

AACOG—Alamo Area Council of Governments

ACS – America Community Survey (U.S. Census Data)

ART—Alamo Regional Transit

COSA—City of San Antonio

DHS—Department of Human Services as the City of San Antonio

FACTS San Diego—Facilitating Access to Coordinated Transportation in San Diego is the name of the 1C1C system

FPL— Federal Poverty Level

FTA—Federal Transit Administration

GIS—Geographic Information Systems

GRASP—Greater Randolph Area Services Program

IVR—Interactive Voice Response

NCR—National Church Residences

NESA—Northeast Senior Assistance, a community-based transportation provider.

NEMT—Non-emergency medical transportation

PRESA—PRESA describes a geographic region of San Antonio and is the name of a community center that provides various services, including transportation.

RCT—Ride Connect Texas

SAAFdn—San Antonio Area Foundation

SACRD—San Antonio Community Resource Directory

SALSA—Successfully Aging and Living in San Antonio

TDAI—Transportation Disadvantaged Accessibility Index

TD—Transportation-disadvantaged. This designation refers to the population of older people above age 65 and below the federal poverty line and any individual with a disability below the federal poverty line.

VIA—VIA Metropolitan Transit. VIA is San Antonio's designated public transit provider.

VIAtrans—VIA paratransit service

WAVs—Wheelchair-accessible vehicles

1.0 Introduction

1.1 Scope and Content of the Report

Ride Connect Texas (RCT), in collaboration with its SALSA affiliates, has initiated a comprehensive study through a partnership with the University of North Texas at Denton's Department of Public Administration, further extending a sub-award to the University of Massachusetts Boston. This study aims to evaluate the feasibility of developing an advanced mobility management system in San Antonio and Bexar County, specifically designed to serve the transportation needs of disadvantaged groups. The proposed system, commonly called a "One Call/One Click" (1C1C) platform, provides a wide range of services. These include door-to-door and door-through-door assistance, professionally trained drivers, the capability for same-day travel arrangements, and a unified approach to scheduling and payments for those facing transportation challenges.

This report addresses Tasks 3 and 4 within the project's scope of work, offering an in-depth examination of the operational (Task 3) and institutional (Task 4) capabilities of community-based alternative transportation options in San Antonio and Bexar County. The goals for these tasks have been outlined as follows:

a) To evaluate the institutional readiness of organizations in the San Antonio region to participate in the 1C1C transportation planning system. This includes potential funders, entities capable of identifying or referring rides, or those providing subsidies, alongside transportation providers and local agencies.
b) To examine the physical and technological infrastructure available to meet the needs of the transportation-disadvantaged populations in the city and region. This encompasses the examination of physical transportation infrastructure, the technological backbone, and the capacity of vehicles provided by service entities.

Through this analysis, the report aims to establish both short-term and medium-term objectives for the planning and implementation of the 1C1C system. It also intends to formulate strategic methodologies for the system's initiation and growth while securing the support and commitment of key stakeholders, including transportation service providers and local governmental agencies.

The following sub-tasks were carried out in preparation of this report:

Sub-Task 1: Evaluation of Institutional Capacity and Participation

This section of our analysis was conducted through a systematic process involving surveys and interviews with ride providers, as detailed in Appendix A of our Scope of Work. Our evaluation focused on several key areas:

Organizational Capacity: We assessed the strengths and areas for improvement in coordinating transportation services for those disadvantaged in mobility. This assessment included a review of human resource capabilities among various types of organizations, analyzing the composition and roles of core staff, contractual personnel, and volunteers.

Participation and Adaptability: We examined providers' willingness to engage with the 1C1C system. This involved evaluating their readiness to modify operational practices, engage in data sharing and collection, and extend their service offerings.

Institutional Challenges and Motivations: We identified and categorized institutional obstacles and driving forces for participation, organizing these findings by provider category (e.g., non-transit, referral agencies). Considerations included financial incentives, such as subsidies, that might influence provider engagement.

Sub-Task 2: Infrastructure Capacity Analysis

In this segment, our approach involved deploying surveys and interviews with service providers in alignment with the methodology described in Appendix A of our Scope of Work. Our assessment encompassed:

System and Vehicle Capacity: We evaluated the current capacity of the system, including the availability and limitations of vehicles, service areas, pricing structures, types of services offered, management of back-end systems, services rendered, and areas of unmet demand, benchmarking these elements against case study standards.

Geographic Service Coverage: Using Geographic Information System (GIS) tools, we analyzed the spatial distribution and density of services across neighborhoods to identify areas lacking sufficient coverage.

Sub-Task 3: Transportation Disadvantaged (TD) Accessibility Index (TDAI)

For this analysis, we developed an index by amalgamating various publicly accessible federal datasets with primary data. This data included service delivery metrics, and ridership survey results specific to San Antonio and Bexar counties. The index incorporates several critical metrics:

Mobility Options: Assessment of access to alternative transportation services, pedestrian-friendly infrastructure, and public transportation availability.

Health Amenities Accessibility: Evaluation of proximity to essential health-related facilities, such as fresh food markets, pharmacies, primary healthcare providers, and recreational spaces including parks.

Environmental and Safety Concerns: Analysis of environmental health risks and safety issues, including exposure to toxins and crime rates.

Housing Affordability and Safety: Examination of access to affordable and safe housing, emphasizing the financial burden on residents and the prevalence of housing-related issues.

Social Amenities Access: Evaluation of the availability of social and recreational amenities, including senior centers, libraries, community centers, and both city and non-profit-operated recreational facilities.

1.2 Project Update

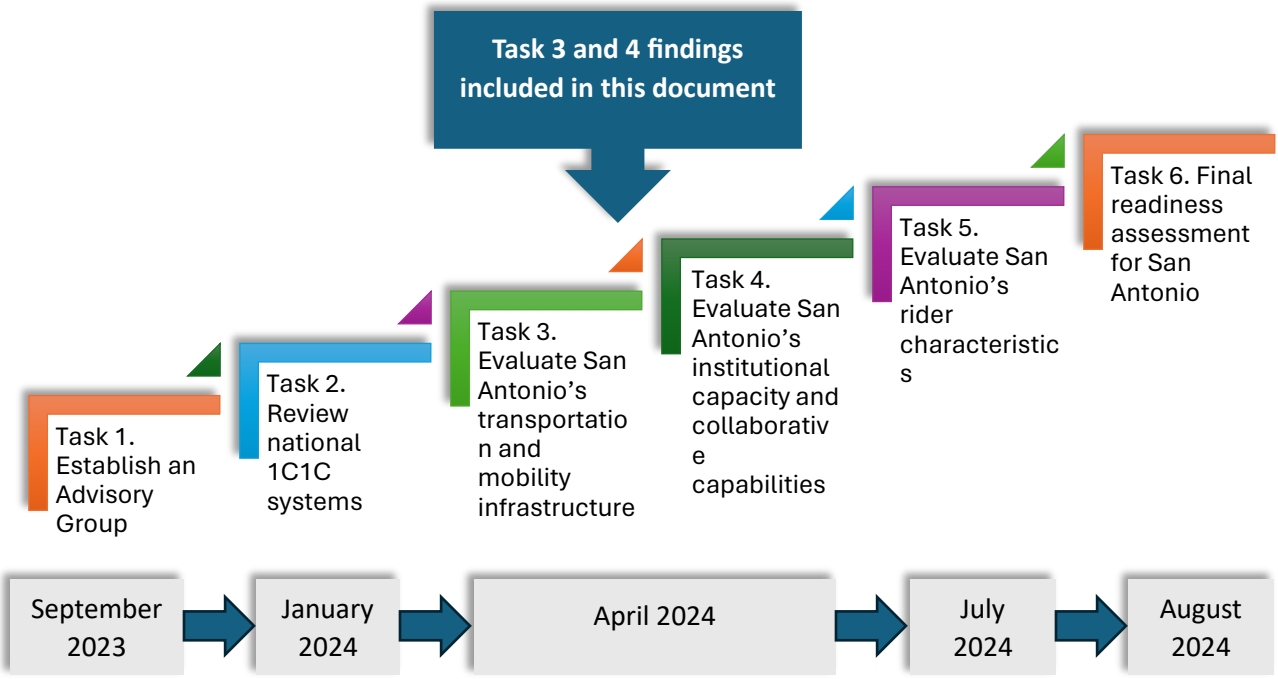


Figure 1 Updated scope of work timeline.

In September 2023, this project was initiated by creating an Advisory Group that consisted of community groups and transportation providers. The Advisory Group attended a Kick-Off Event on November 3, 2023, at the San Antonio Area Foundation. During the event, we shared our initial findings from Task 2's review of national 1C1C systems with the attendees. Additionally, the attendees participated in exercises to identify gaps in San Antonio's existing transportation network and potential funders for 1C1C system.

We completed and shared the draft of the Task 2 report, titled "The Dynamics of One-Call/One-Click Transportation Systems Insights from 21 National Case Studies," with Ride Connect Texas and Advisory Group members in November 2023. We presented the Task 2 findings to Advisory Group members over Zoom on December 11, 2023. Subsequently, we received feedback from Ride Connect Texas and the San Antonio Area Foundation on January 4, 2024, and submitted the final report for Task 2 by the end of January 2024.

Image 1 1C1C Advisory Group Kick-Off Event

To prepare for the report covering Tasks 3 and 4, we received surveys from twelve San Antonio institutions in December 2023. These surveys helped us determine institutional capacity, identify gaps in capacity, and assess institutional interest in a 1C1C system. In January 2024, we visited San Antonio to conduct in-person interviews with transportation service providers, planning agencies, and philanthropic organizations. Due to scheduling conflicts, we conducted six in-person interviews and two over Zoom. Simultaneously, we were collecting census track data, GIS shapefiles, and origin-destination data from ride providers to create maps that address the distribution of transportation-disadvantaged populations in San Antonio and city walkability to analyze institutional capacity further.

We are on track to complete Task 5 in July 2024 and the final deliverable, Task 6, in August 2024. Task 5 includes a ridership survey and focus groups with transportation disadvantaged. The ridership survey closed on March 31, 2024, and we are analyzing the responses. We traveled to San Antonio in February 2024 and conducted six in-person focus groups: four hosted at senior centers and two at Connectability. While in San Antonio, we met with Ride Connect Texas and the San Antonio Area Foundation to discuss the status of Task 5 activities and the overall timeline for the project. Ride Connect Texas and the San Antonio Area Foundation proposed to use additional methods to increase ridership survey participation during the month of March, including hosting pizza parties at senior centers and distributing the survey through local businesses.

Image 2 In-person focus group at San Antonio Senior Center.

2.0 Institutional Capacity

Studying the ecosystem of community-based, on-demand transportation is key for addressing the mobility needs of transportation-disadvantaged populations in San Antonio. This investigation sheds light on the multifaceted nature of the ecosystem that underpins service delivery, highlighting key areas such as coordination among service providers, the availability and accessibility of information and services, and the role of institutional collaboration. Furthermore, insights gleaned from in-depth interviews with institutional stakeholders reveal significant themes that could shape the development of a streamlined, efficient One-Call One-Click system. Understanding these dynamics is essential for creating a 1C1C system that is not only responsive to current needs but also adaptable to future challenges, ensuring improved mobility and quality of life for the transportation disadvantaged.

2.1 Institutional Ecosystem for On-Demand Transportation in San Antonio

2.1.1 Department of Human Services (DHS), City of San Antonio

The Department of Human Services (DHS) at the City of San Antonio runs multiple community-based social programs for children, youth, families, and older people. With over 9% of its annual budget spent on senior independence, the department operates 50 senior centers and nutritional sites. It conducts multiple programs to ensure food security, reduce social isolation, and improve digital and financial literacy among older people in San Antonio. The department engages with communities in multiple ways, including providing opportunities for residents to serve on boards and commissions related to its diverse human services. Specifically, the department runs the Senior Services program through senior centers to help older people in San Antonio lead healthy, active, and independent lives. Their senior centers provide various services, including the Healthy Eating Aging Living Program. Transportation services to the senior centers are available to all members within a 5-mile radius of their senior center. The centers also provide field trips to grocery stores and other activities.

2.1.2 Alamo Area Metropolitan Planning Agency

The Alamo Area Metropolitan Planning Agency (AAMPO) was set up under the Federal Highway Act of 1962, in 2010 to provide comprehensive, coordinated, and continuous (3C) transportation planning to serve the economic, social, and environmental goals of a four-county region. The areas of interest include the counties of Bexar, Comal, Guadalupe, and a portion of Kendall. The AAMPO is now poised to expand its jurisdiction of focus to include all of Kendall and Medina Counties. The last long-range plan for 2050 was prepared in 2022, and the Metropolitan Transportation Plan 2045 was prepared in 2020. The Transportation Improvement Program currently in force (FY (Fiscal Year) 2023 to 2026) was to be approved in spring 2023.

2.1.3 VIA Metropolitan Transit

The VIA Metropolitan Transit Authority is the designated public transit service provider in the San Antonio area. Their fixed-route buses operate on nearly 100 lines and paratransit on-demand transportation services provide shared, curb-to-curb, and assist-to-door rides for individuals with disabilities who cannot use a regular bus service. The eligibility is not based on age, income, residency, or whether an applicant can drive. These services can be accessed by applying for eligibility determination and accessing either the call center or the VIAtrans Online Service available through a website or a phone app.

2.1.4 Alamo Regional Transit

The Alamo Area Council of Governments (AACOG) houses the Alamo Regional Transit (ART). The ART provides transportation for the counties of Atascosa, Bandera, Comal, Frio, Gillespie, Guadalupe, Karnes, Kendall, Kerr, Medina, McMullen, and Wilson, in addition to services to and from Bexar County and San Antonio. ART does not provide direct services for Bexar County residents but is currently contracting with the Alamo Area Agency on Aging to provide medical and grocery trips to their clients. ART also contracts FTA 5310 funding to NESA for its transportation program. ART monitors the grant. ART operates weekly, Monday through Friday, from 7:00 a.m. to 6:00 p.m. Rides can be scheduled through their call center. Trips can be booked up to 30 days in advance on a first-come basis.

2.1.5 Area Agency on Aging

AACOG also houses the Area Agencies on Aging (AAA). With a focus on the quality of life for older people, the AAA provides access to food, counseling, legal assistance, caregiver support, and transportation services. Their call center, also called the Aging and Disability Resource Center, provides a range of information and referrals, including transportation. The Bexar County Area Agency on Aging works alongside the DHS through the senior centers in delivering programs, including transportation for older people in the San Antonio region.

2.1.6 San Antonio Area Foundation

The San Antonio Area Foundation (SAAFdn) works to strengthen nonprofit organizations in San Antonio and Bexar County by providing capacity-building support and raising and aggregating philanthropic funding. In addition, SAAFdn administers student scholarships and provides advisory services for philanthropies. Among its nonprofit activities is the Successfully Aging and Living in San Antonio (SALSA) initiative to bring together organizations serving older people with necessary services, information, and support systems. It spearheads community-based research, strategic planning, and collaboration to advocate for improved quality of life for older people in Bexar County.

2.1.7 Ride Connect Texas

Ride Connect Texas (RCT) provides transportation services for transportation disadvantaged who reside in the south and southwest San Antonio. Using both volunteer drivers and drivers on payroll, RCT provides services to clients with a range of mobility options, including curb-to-curb, door-to-door, and door-through-door options. In addition, RCT is part of the PRESA transportation coalition and runs a bus 5 days a week, providing shared rides throughout Bexar County.

2.1.8 PRESA Community Center

PRESA Community Center is a faith-based organization working to provide a range of community services throughout Bexar County. In addition to providing youth and senior services and transportation for those who are unable to drive or use public transportation, the center also assists with income tax preparation and filing. It provides a computer lab and career closet to enable access to jobs. The shared rides, available through weekdays, are provided through partnerships with four other nonprofit organizations. Eligible riders, including transportation disadvantaged, must schedule rides two weeks in advance. Clients can request rides for various reasons, including doctors' appointments, shopping, visiting, and other needs that enhance their quality of life.

2.1.9 NESA

Northeast Senior Assistance (NESA) provides transportation and other services to older people in the city's northeastern part. Unique in its approach, the organization ensures a high level of care for its clients to reduce their stress and anxiety in living independently. They deliver these services primarily through a network of volunteers. All rides are provided by volunteer drivers for door-through-door service using private vehicles.

2.1.10 National Church Residences

National Church Residences is a nonprofit provider of senior housing and offers a wide range of living options and services for older people in different parts of the country, including San Antonio. NCR sought and won a VIA 5310 grant to provide transportation for seven properties in the greater San Antonio and New Braunfels areas of Texas. By providing transportation services to residents, National Church Residences extends housing reach, offering a way to age in place and reduce dependence on government resources.

2.1.11 ComfortCare Transportation

ComfortCare Transportation provides non-emergency medical transportation (NEMT) rides within Bexar County for United Healthcare insurance plan patients. In addition to booking in advance, ComfortCare also provides real-time rides for its riders. All vehicles within ComfortCare's fleet are wheelchair accessible and door-to-door services are available.

2.1.12 Vibrant Works

Formally known as San Antonio Lighthouse for the Blind and Vision Impaired, Vibrant Works provides rehabilitation services and employment training for individuals with vision impairments. Vibrant Works does not provide transportation services for its clients but provides Orientation and Mobility (White Cane) Training, which includes the creation of an individualized training plan to help people with vision impairments meet their travel needs, as well as counseling services and independent living skills training to help people adjust to the challenges associated with vision loss.

2.1.13 Greater Randoph Area Services Program, Inc (GRASP)

GRASP is a nonprofit organization that provides transportation services to the TD population if travel originates in Converse, Live Oak, Universal City, Windcrest, Cibolo, Schertz, and Selma using a fleet of six WAV vehicles five days a week. In addition to transportation services, GRASP operates several other community programs, such as a senior center, food pantry, and emergency assistance programs for clothing, rent, and utilities. Contact information for community programs, including PRESA, is available on GRASP's website.

3.0 Implications for a 1C1C System and Early Win Strategies

Here are five early win opportunities for implementing a One Call One Click in San Antonio

Utilize AAMPO Funding for a Coordination Pilot Project

Leverage AAMPO funding to test a pilot coordinated transportation system to test the potential for long-term collaboration and system interoperability. Can resolve multiple service issues for clients in the short term such as transferability, eligibility criteria, accessibility features, pricing models, service boundaries, types of services, and driver availability across systems.

Prioritize Accessibility and Walkability Enhancements

Leverage VIA's 0.5% of local sales tax to invest in infrastructure improvements such as sidewalks and crosswalks to make fixed-route buses and paratransit van service more accessible. Matching higher mobility riders with VIA services within a 1C1C framework is imperative to accommodate demand. However, if bus stops remain inaccessible, this alternative may not be attractive to riders.

Undertake Extensive Community Outreach and Education

Familiarize the TD population with available services, reducing hesitation in selecting rides from unknown providers. Enhance outreach through travel training for greater utilization of the system.

Establish a Unified Driver Recruitment, Training, and Certification Program

The unavailability of volunteer and part-time drivers is an important barrier to improving on-demand services. Driver shortages impact the number of available rides, which often creates a backlog in ride availability and the need for multiple weeks of advanced booking. A common city or county level system for vendor development and driver recruitment, training, and certification will serve every provider.

Establish an Independent Administrative Lead & Host

Designating an independent non-provider entity to lead the 1C1C system can resolve coordination and management challenges. An administrative lead with the right mission and capacity can oversee the integration of services, manage stakeholder interests, and push the project towards its strategic goals.

As the next steps the coalition must consider **unified client eligibility determination, standardized data management, and the adoption of compatible software**. In addition, **marginal improvements to the current system can help cover the 333,427 annually unserved calls** through appropriate transportation.

Where did these ideas come from?

We collated current institutional challenges, the potential impact of implementing a 1C1C system, and the way forward from the analyses of institutional and infrastructure capacity conducted in the first four chapters of this report. Read further to learn more about how these analyses were consolidated into the five early wins and three supplemental measures.

Table 1 provides a summary of identified challenges faced by the current institutional eco-system in San Antonio. Challenges range from general service disparities between drivers to issues with eligibility, accessibility, and data sharing. Also included in the table are the implications for those challenges on a 1C1C system. In other words, how could a 1C1C system be affected if the challenges are not addressed. Finally, the table presents suggestions on how to address those challenges, establish early wins, and move San Antonio closer to a 1C1C system. Understanding each aspect of this table is important for the community as it navigates the complexities of developing a 1C1C system. By addressing the highlighted challenges and implementing proactive solutions, San Antonio can pave the way for an efficient, accessible, and equitable transportation system that meets the diverse needs of its residents.

Table 1 Challenges, Implications, and Strategies

Current Institutional Challenges	Potential Impact on a 1C1C System	The Way Forward—Early 1C1C Wins
TD population tends to rely on friends, family, and informal sources for transportation information. TD also experiences digital divide 2.2.1 & 2.3.1	Limited awareness and utilization of formal transportation services; riders may lack the digital literacy skills needed to navigate complex online systems.	Ongoing collaboration with community organizations, advocacy groups, and transportation providers
Lack of coordination among providers 2.2.2	Problems bringing new riders into the system and transferring riders between providers.	Lean into existing collaborative relationships. Utilize AAMPO funding for a pilot project. The project will encourage coordination among participating providers, which can be carried into full implementation.
Specialized vehicles or door-to-door services may be necessary in areas with poor walkability to ensure that transportation disadvantaged can still access transportation options effectively.	Addressing the quality of infrastructure and the issue of poor walkability is crucial for coordinated transportation services to provide a seamless and accessible experience for all passengers.	VIA and the city must prioritize accessibility issues so that more higher mobility individuals could see themselves using public transit. We learned multiple times in focus groups that VIA works well for those that can easily access it. By aligning efforts to improve walkability with data-driven insights from initiatives like Vision Zero, stakeholders can identify priority areas for intervention and allocate resources effectively.
The system currently faces challenges in providing rides to	Current transportation providers cannot fulfill all	Collaborate among current providers to develop strategies

Current Institutional Challenges	Potential Impact on a 1C1C System	The Way Forward—Early 1C1C Wins
meet demand. Nonprofit providers have limited full time or contracted drivers, and some rely on volunteers for door through door services. VIA and Comfort Care have the highest number of paid drivers. VIA will not offer door through door and the Comfort Care business model is based on medical insurance reimbursement.	requested rides, all providers require advanced booking and calendars are reserved 2-4 weeks in advance. The inability of current transportation providers to fulfill all requested rides indicates a gap in accessibility and timeliness of transportation services. If users are unable to secure rides when needed due to advanced booking requirements and limited availability, it undermines the core objective of the 1C1C system to provide convenient and on-demand transportation options.	for additional incentives and recruitment for volunteer drivers.
There has been a concern that a 1C1C may create a latent demand situation and the capacity of the system is not ready to meet this demand.	With a 1C1C system it is crucial to match different transportation providers with the specific needs and eligibility criteria of riders. Community investment should focus on transitioning capable individuals to public transportation, as it offers a cost-effective solution for all parties involved.	Prioritizing investments in sidewalks and crosswalks. Infrastructure improvements, alongside enhanced travel training and outreach efforts by VIA, can make public transit a more feasible alternative for the transportation-disadvantaged population.
Service disparity across coverage areas 2.2.2	Challenging to transfer riders between providers.	Encourage provider participation in SALSA and utilize AAMPO funding for a pilot project. The project will allow testing transferability across service boundaries before full implementation.
The challenges with transferability between transportation systems can exacerbate existing disparities in transportation access and mobility.	The current fragmentation in transportation services is resulting in service gaps, making it difficult for riders to navigate and access the full range of transportation options available to them. Some trips require multiple transportation modes to complete a single trip.	A pilot project would serve as a tangible demonstration of the benefits and feasibility. A one-click framework can help mitigate logistical hurdles and enhance the overall efficiency of transportation services. For San Antonio's efforts to increase transportation provider capacity and coverage, addressing these challenges is crucial to ensure that all residents, especially

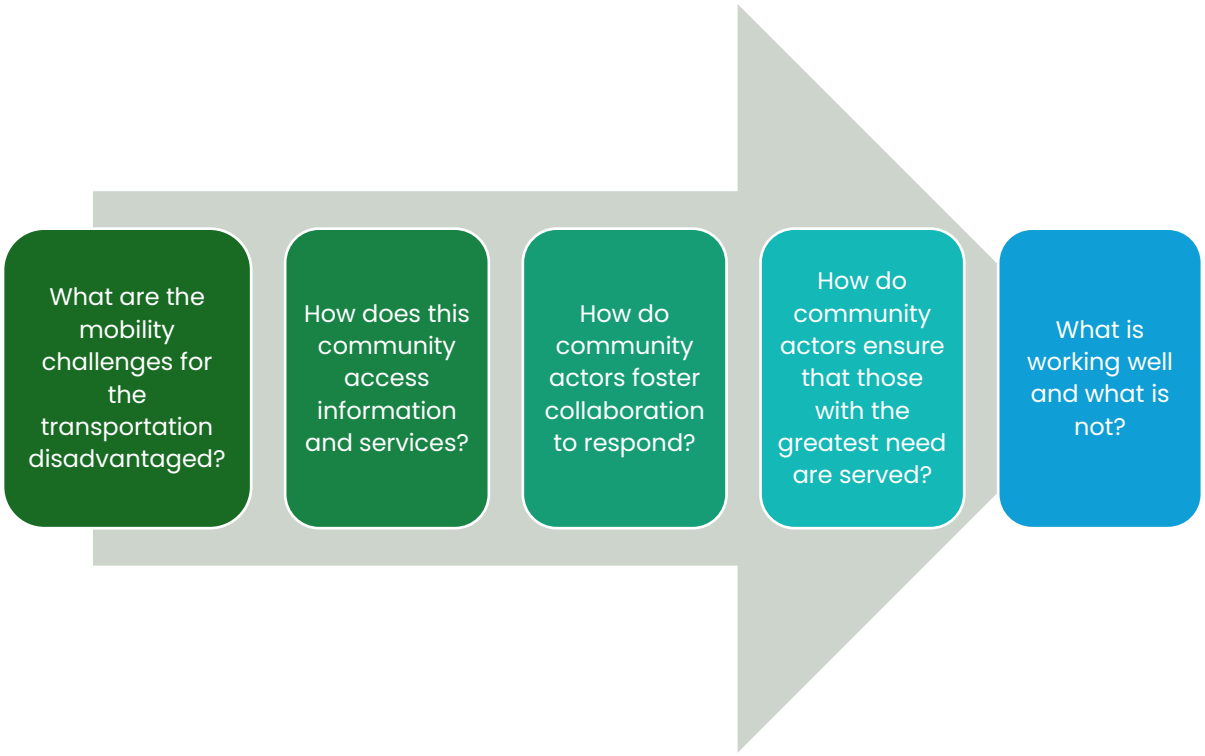
Current Institutional Challenges	Potential Impact on a 1C1C System	The Way Forward—Early 1C1C Wins
		those with limited mobility, have reliable and safe transportation options.
Outreach about available services to TD riders	TD riders may be less likely to select a ride from an unknown community-based provider.	All providers will increase community outreach and marketing to senior centers, including travel training.
Negative user experiences with transportation services 2.2.1	Long wait times can deter riders from using the centralized transportation system, leading to decreased adoption and utilization rates. The 1C1C system may struggle to attract a sufficient number of users to achieve economies of scale and sustainability.	Transportation providers should collaborate on a goal for reduced wait times and set benchmark to minimize wait times across all systems
Limited services available for lower mobility clients	Lower mobility clients will continue to be underserved. Currently only two agencies provide door through door through volunteer drivers.	Coordinate with AmeriCorps to increase the number of volunteer drivers at nonprofit community-based providers. Volunteer drivers provide door-through-door services for lower-mobility clients.
Accessibility differences due to vehicle differences and physical infrastructure	Problems transferring riders between providers.	Explore funding opportunities to increase WAV fleet for community-based providers. Establish a 1C1C champion to encourage city and county infrastructure improvements, including sidewalk and curb repair.
Accessibility differences due to time delays and driver training	Problems transferring riders between providers.	All providers will increase driver training. Consider standardization of driver training (COSA)
Different eligibility requirements among providers	Problems bringing new riders into the system and transferring riders between providers.	SALSA initiates the early development of a streamlined eligibility process—test eligibility process in an MPO-funded pilot project.
Inconsistency in transportation service offerings and booking procedures 2.2.1	Inconsistencies can result in confusion, frustration, and difficulty for riders making trips. Inconsistencies in	Align goals among providers to address service gaps and accessibility issues.

Current Institutional Challenges	Potential Impact on a 1C1C System	The Way Forward—Early 1C1C Wins
	transportation service offerings may inadvertently exclude transportation disadvantaged from accessing certain services or destinations.	
Inconsistency in fare structures and pricing models	Divergent pricing policies and fee structures make it difficult to standardize fare calculations and facilitate interoperability between different modes of transportation. These variations exacerbate accessibility and affordability concerns for riders.	Develop a task force or working group of transportation providers and community members to discuss the potential of fare standardization.
Collecting different rider data	Problems transferring riders between providers.	SALSA initiates the early development of a data-sharing agreement among providers—test data-sharing agreement in an MPO-funded pilot project.
Hesitancy among transportation providers to share rider information and data due to concerns related to privacy, confidentiality, and data security.	Without access to comprehensive rider data from all transportation providers, the centralized system may lack visibility into the availability, capacity, and scheduling of transportation services. This limited visibility can hinder the system's ability to effectively coordinate rides, optimize routes, and respond to riders' needs in real-time, leading to inefficiencies and service gaps. Incomplete rider information from transportation providers may result in incomplete trip planning and booking processes within the centralized system. Riders may not have access to all available transportation options or may encounter difficulties in booking seamless, multi-modal journeys that involve multiple providers.	SALSA initiates the early development of a data-sharing agreement among providers.
Variability in software use among providers	The use of different software systems by transportation providers may lead to	Begin process to move forward with the purchase of compatible software among providers

Current Institutional Challenges	Potential Impact on a 1C1C System	The Way Forward—Early 1C1C Wins
	interoperability challenges within the centralized platform. Incompatible software systems may not be able to seamlessly communicate or share data, hindering the integration of transportation services and the ability to provide a unified user experience for passengers.	
Unclear lead entity for a 1C1C system. Ride Connect, AAMPO, and SAAFdn identified among peers to lead, but face mission, management, and capacity limitations.	Problems coordinating participating organizations, conflict of interest, and siloed leadership.	Establishing an independent non-provider administrative organization, possibly a nonprofit, to act as an administrative lead agency for the 1C1C system.

3.1 Five Critical Questions

We posed five critical questions to key community stakeholders to gauge their perception of need, roles, engagement levels, and their approach to serving the mobility needs of the transportation disadvantaged. Here's a snapshot of what we asked:



Responses to questions in the five key areas are discussed in the sections below, within the context of the opportunities and challenges for implementing a One-Call One-Click system.

3.2 Community Perspectives on Mobility Challenges for the Transportation Disadvantaged

Understanding the challenges that the transportation disadvantaged face is the first step in developing a comprehensive 1C1C transportation plan. As shown in Figure 2, there are twelve San Antonio institutions that may participate in a 1C1C system. All institutions have a direct mission to provide transportation information, direct services, or support transportation programs in the city, in Bexar County, and to and from Bexar County (ART). All agencies have programs that provide services to those aged 60 and older or persons with a disability. These individuals often face obstacles that create barriers to full participation in society, resulting in inequitable socioeconomic outcomes. Examination of these barriers is a first step in creating accessible options.

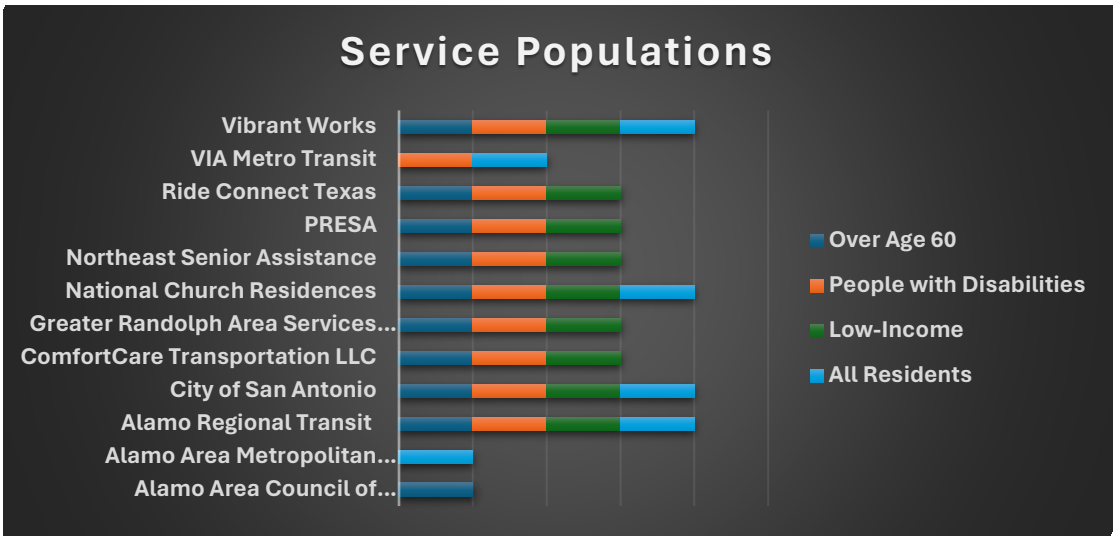


Figure 2 On-Demand Transportation Eco System and the Demographics of Communities Served

Stakeholder responses reveal systematic barriers to equitable access to transportation services in San Antonio. Across the different agencies, interviewees identified several key themes and challenges related to transportation services for the TD target population.

3.2.1 Challenges for the Transportation Disadvantaged

Lack of access to information about transportation services: Community members often face significant challenges in accessing information about current ride providers due to the inadequate marketing of these services. Ride providers struggle to communicate their offerings effectively because they are constrained by the high service demand. As a result, many individuals are left without reliable transportation options, leading to missed appointments.

Onsite coordinators in apartment communities, like those working in the National Church Residence campuses, can be crucial in improving communication about transportation services. They act as intermediaries, similar to a mobility manager, connecting residents with accessible information and resources. However, the effectiveness of their support largely depends on the quality and availability of information provided by local transportation agencies.

Lack of technology and digital divide: Limited access to technology among transportation-disadvantaged individuals, including smartphones and the internet, significantly hampers their ability to access transportation information. Economically challenged zip codes experience a pronounced digital divide due to insufficient technology resources. This gap is exacerbated by the reliance on traditional communication methods among older riders.

Transportation providers, during interviews, highlighted that the current situation, with multiple providers serving the community and various phone numbers in use, often leads to confusion. Older riders frequently call different agencies, forgetting where they originally booked their services. This confusion further complicates their ability to secure reliable transportation, underscoring the need for more streamlined and accessible communication methods.

Reliability and Service Quality of On-Demand Systems: Transportation disadvantaged tend to perceive on-demand transportation services negatively. These systems have limitations in accommodating disabilities, with rigid scheduling requirements and long delays in pick-up times impacting independence and convenience. The variability in service availability, especially during evenings and weekends, further limits accessibility.

Unique Riders: Riders require assistance with transportation and aspects of their visits, particularly those with dementia who require caregiver support. Affordability issues persist for lower-income residents, and riders need help remembering and managing their reservations.

Spotlight on Focus Groups

"Spanish speakers struggle to access bus schedule information with VIA's English-only IVR (Interactive Voice Response) system, which ultimately causes them to end the call." **Upon additional investigation, it appears that VIA's IVR system does have an option for Spanish. However, this statement provided during a focus group indicates that the system may be difficult to navigate for Spanish-speaking riders.**

"VIA buses do not give you enough time to sit down, causing riders to fall when the bus takes off." **Transportation providers must be considerate of the safety of all riders and practical limitations of individuals with lower mobility.**

3.2.2 Systemic Issues in Improving Service Delivery.

Lack of coordination among providers: Nonprofit organizations and agencies providing transportation services need more collaboration. Different funding sources, unique requirements, and infrastructure gaps impede improved service coordination. Stronger board involvement and centralized processes are needed to improve coordination efforts.

Geographic Alignment and Disparity in Services: Attention must be given to specific areas, such as older neighborhoods with limited English-speaking residents and economically challenged zip codes. Further, increasing travel distances to medical providers poses challenges for riders, particularly those recommended to specialists in distant locations.

Spotlight on Focus Groups

There are multiple challenges that highlight the gap between the proclaimed accessibility of services and the practical limitations riders face. Riders traveling to a specific location just outside a service area face multiple transfers and extended wait times, which can be made even more difficult for transportation disadvantaged during weather events and a lack of sheltered stops. Even sheltered stops may prove to be inaccessible due to sidewalk disrepair or missing ramps.

"I live on the edge of the service area, in a donut between two major bus routes but still within city limits. The nearest bus stop is a mile and a half away. They [VIA] told me I am not eligible for paratransit, and I need to walk a mile away to a gas station inside Loop 1604 to get paratransit."

Transportation providers should be aware of barriers created by service area coverage. Interpretation and understanding of service boundaries may differ between providers and riders. Improved outreach programs and transit stops can help alleviate some of the frustration experienced by riders.

Inconsistency with eligibility: Variations in intake processes and eligibility criteria across systems present barriers to accessing consistent transportation services.

Data Tracking: Tracking data on unfulfilled rides is crucial for understanding and addressing the origins and destinations of these unmet transportation needs.

The variations in service models, eligibility criteria, and practical accessibility limitations of riders hinder the coordination and transferability of riders between systems.

Key Takeaways

Challenges in accessing on-demand transport services, such as reliability, accessibility, and quality, lead to dissatisfaction among those reliant on transportation.

The digital gap affects many transportation disadvantaged, forcing them to depend on others, which can result in missed appointments and struggles to access necessary information.

Geographic inequalities must be reassessed, especially in aging and economically disadvantaged areas, to ensure service coverage aligns with the transportation needs of transportation disadvantaged.

We urgently need better cooperation between agencies, as service fragmentation, funding stipulations, and differing service models currently hinder seamless service coordination.

Ride providers must commit to promoting accessibility in all areas, including improved language services for Spanish-speakers and driver training to recognize that riders with mobility limitations need additional time to board and safely sit.

3.3 Access to Transportation Information and Services

The transportation disadvantaged must navigate various resources to find accessible, reliable, and affordable transportation services in the community. Many rely on family members and word of mouth about available services in their community. The healthcare industry also has a substantial influence on patients' transportation access. Some clinics offer transportation services for medical appointments. Additional obstacles, as discussed above, such as lack of coordination among service providers and varying eligibility criteria, exacerbate this problem for the rider. Collaboration of resources among providers can help fill the information and service gaps for the rider. Therefore, understanding where to

find transportation and which agencies are involved in strategic partnerships will help to inform potential solutions that streamline this information for the rider.

3.3.1 Where transportation disadvantaged go for information:

Family and Community Information: Many transportation-dependent individuals rely on word of mouth or family members for transportation information.

Established Information Sources: AACOG Alamo Service Center is highlighted as an essential resource for transportation information. Some agencies emphasize the importance of 211 as a reliable resource for transportation information. Keeping the United Way's 211 system updated with current and relevant information is stressed as highly important. San Antonio Community Resource Directory (SACRD) and the 311 websites are also recommended as viable sources of relevant transportation information.

Community-based Transportation Providers: Many older people rely on community-based transportation providers such as RCT, NESA, PRESA, and GRASP.

Spotlight on Focus Groups

Most participants were familiar with or had utilized VIA's services but were unfamiliar with the existence of other community-based nonprofit transportation service providers. **Participants are interested in having multiple transportation options to best suit their needs.**

Participants noted VIA used to provide travel training at senior centers, but that classes stopped. New members expressed interest in having VIA come back into senior centers. **Outreach needs to be ongoing.**

Healthcare Provider Influence: Healthcare providers substantially influence transportation access for their patients. Some clinics provide transportation services for doctor appointments, influencing the choice of medical care providers.

3.3.2 Where San Antonio's transportation agencies go for transportation information:

Transportation Resource Guides: Agencies direct individuals to AACOG's Area Agency on Aging for comprehensive transportation information, particularly regarding services for older people.

Printed Lists of Providers: Some agencies maintain printed lists of transportation providers. However, there are concerns about the challenge of keeping the information updated.

Use of Service Coordinators or Call Center Staff: Some use service coordinators or call center staff to connect individuals with transportation resources.

Case Study Connection

Call center vs. Website—FACTs San Diego contracts with another organization for call center support during non-business hours with excess demand. Hopelink and the City of McKinney, Collin County's SPARE Labs prefer clients to use the app or website and use Integrated Voice Recognition to cancel trips or get up-to-date ride provider information. **Call centers remain the dominant method for transportation information and referrals, even in systems with efficient websites. Clients prefer to talk with mobility managers to plan and book trips during regular business hours.**

Mobility management —Mobility managers in local government and non-profits coordinate policies, services, data, and customer travel. Mobility managers in Access Services LA are trained to understand clients' specific needs and suggest alternative options like a city-level dial-a-ride system. Ineligible clients are usually provided with at least a referral for an outside service provider in all seven systems. **Mobility management, including travel training and detailed trip support, enables 1C1C systems to access 5310 funding.**

Key Takeaways

Transportation disadvantaged have limited access to comprehensive information and are more likely to rely on informal resources such as word of mouth or family members about transportation options. The digital divide exacerbates the information gaps.

Transportation agencies use formal directory resources and will likely have more up-to-date information.

Healthcare providers offering transportation services exclusively for their patients may improve access but may also exacerbate disparities in access to healthcare services.

Effective transportation support for transportation disadvantaged requires combining traditional call center support with modern digital solutions like websites and apps.

A 1C1C system should balance ongoing community engagement with traditional marketing strategies to reach riders and stakeholders.

A dedicated mobility manager is essential to support the needs of the riders and collaboration across systems.

3.4 The Eco-System of Services

3.4.1 Characteristics of Rides Provided

Transportation agencies offer a range of rides, prioritizing medical trips and utilizing WAVs to accommodate individuals with disabilities. Partnerships and contracted rides expand service coverage while efforts are made to enhance accessibility through paratransit services and accessible features on public fixed-route buses. However, challenges in accessibility, such as limitations in accepting certain wheelchair sizes, highlight ongoing areas for improvement in ensuring inclusivity for all riders.

The SALSA vision for 1C1C is to expand the availability of door-through-door services throughout San Antonio and Bexar County for individuals with extremely limited mobility. Only service providers with volunteer support can offer door-through-door transportation. As shown in Figure 3, only two community-based transport providers utilize volunteer drivers and are therefore able to provide door-through-door services, as seen in Table 2. Community-based transport providers should collaborate globally to recruit volunteers across agencies, fostering a door-through-door service approach. A concerted effort among these providers is essential to enhance service capacity.

VIA and ART are unlikely to adopt a door-through-door due to the significant cost implications, including insurance, liability, and training required for hiring full and part-time staff. VIAtrans provides an assist-to-door service, similar to door-to-door, but riders must apply. Currently, there are 146 registered assist-to-door riders. The assist-to-door service has several restrictions, such as not servicing apartment complexes or locations with facility staff to help riders in and out of the buildings, such as dialysis centers or adult day cares.

Despite having many full-time and part-time drivers, as shown in Figure 4, it's important to note that VIA and Comfort Care operate differently. Despite possessing ample driver capacity, VIA has chosen not to adopt a door-to-door service approach. Similarly, Comfort Care's business model focuses on providing non-emergency medical, insurance-based rides not fee for service rides similar to Ride Connect.

The absence of hired drivers and substantial volunteers among other providers signals a capacity challenge in meeting the increasing ride demand and accommodating a door-through-door service model.

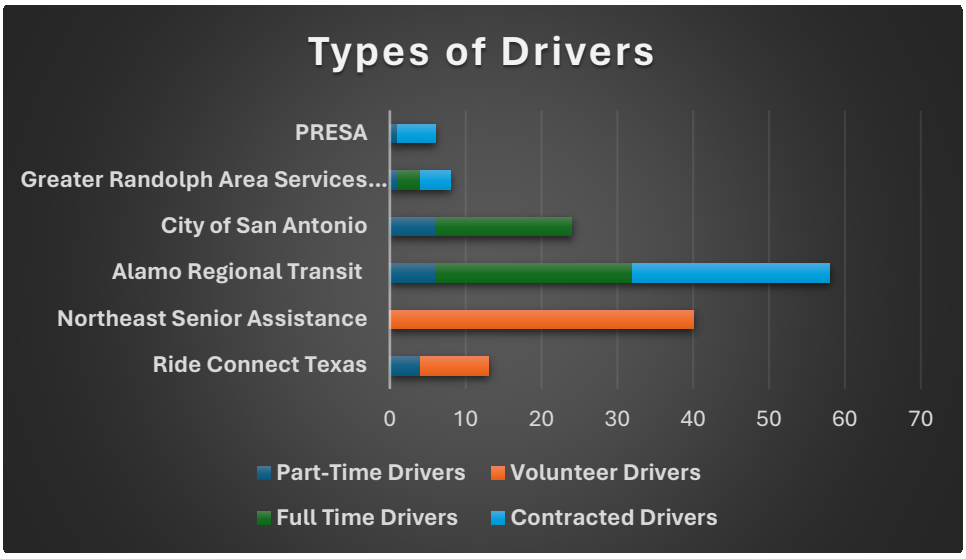


Figure 3 Types of Drivers excluding VIA and ComfortCare

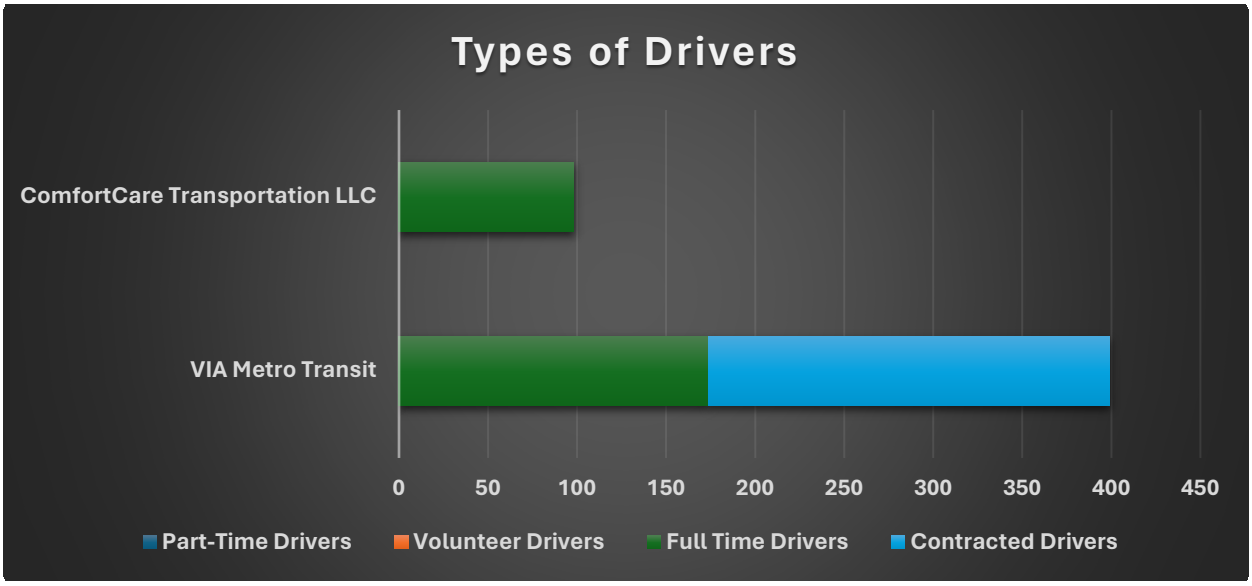


Figure 4 Types of Drivers for VIA and ComfortCare

Table 2 Services available across San Antonio transportation providers

	VIA Metro Transit	Ride Connect Texas	PRESA	Northeast Senior Assistance	Greater Randolph Area Services Program	ComfortCare Transportation LLC	City of San Antonio	Alamo Regional Transit	Alamo Area Council of Governments Area Agencies on Aging
Curb-to-Curb	✓	✓			✓		✓	✓	
Door-to-Door	✓	✓	✓			✓			✓
Door-through-Door		✓		✓					
WCA Vehicles	✓	✓	✓		✓	✓	✓	✓	✓
Caregivers Available		✓			✓				

Most providers provide curb-to-curb and door-to-door services for their clients due to liability and risk assessments. Ride Connect Texas and NESA provide door-through-door services for lower-mobility clients using 100% volunteer drivers. All but one provider has wheelchair-accessible vehicles because that provider relies solely on volunteers using their private vehicles.

Table 3 Ride Characteristics in On-Demand Transportation

	VIA Metro Transit	Ride Connect Texas	PRESA	Northeast Senior Assistance	Greater Randolph Area Services Program	ComfortCare Transportation LLC	City of San Antonio	Alamo Regional Transit	Alamo Area Council of Governments Area Agencies on Aging
Geographic Boundaries	✓	✓	✓	✓	✓	✓	✓	✓	✓
Advanced Booking	✓	✓	✓	✓	✓	✓	✓	✓	✓
Real-Time Rides	✓				✓	✓		✓	
Client Pays Full Fare	✓	✓			✓			✓	
Free NEMT Rides		✓		✓					✓
Subsidized NEMT Rides		✓	✓			✓			
Free Non-Med Rides		✓		✓					✓
Fee Non-Med Rides		✓			✓				

Table 3 provides an overview of the providers' ride characteristics. All ride providers limit their service by defined geographic boundaries and require advance booking. Some providers report having real-time rides available. Four providers have client fare structures, but fare structures vary significantly (Table 4). Ride Connect Texas offers the most varied client fare structures, as they accept full payment, non-emergency medical transportation (NEMT) rides, subsidized NEMT, and free and fee-based non-medical rides. However, this variation within Ride Connect Texas and across all institutions creates barriers to sharing clients across the 1C1C system. VIA Metro Transit and ART have similar characteristics, which is to be expected because they are designated public transit providers. The inconsistencies fall across the other community-based providers.

Table 4 Fares for the Clients of On-demand Services

Organization	Rider Costs
Ride Connect Texas	$5 one way. $10 round trip
Northeast Senior Assistance	Riders do not pay for service.
Alamo Regional Transit	$2 per ride within the same county. $6 per rides crossing county lines and additional $2 if the county line is crossed again. $12 per rides crossing two county lines.
City of San Antonio	Riders do not pay for service.

VIA Metro Transit	Rider costs vary from $0-$50 depending on rider characteristics.
Greater Randolph Area Services Program Inc	Rider costs are based on distance. The price range is from $5-$25 per trip.
Alamo Area Council of Governments Area Agencies on Aging	Riders do not pay for service.
ComfortCare Transportation LLC	N/A
PRESA	$5 one way. $10 round trip

Why should we worry about fares in building a 1C1C system?

The variation in fares among transportation providers can significantly impact efforts to centralize and coordinate rides and create barriers to the transferability and alignment of rides between agencies. Currently, each agency has different pricing models, making it challenging to standardize fare calculations and payment processing within a centralized system. This can lead to confusion for riders and administrative complexities for the coordinating entity.

The variation in rider costs may also exacerbate equity concerns, particularly for low-income individuals or those with limited financial resources. Some providers offer subsidized or free services, while others charge fare rates that may be prohibitive for certain riders. Ensuring equitable access to transportation services across all socioeconomic groups requires addressing these disparities in fare structures.

3.4.2 Accessibility Features and Challenges

VIA provides paratransit services for eligible riders in San Antonio and emphasizes accessible features on public buses to support independence for transportation-disadvantaged individuals. Paratransit-eligible riders may receive discounted or free passes for fixed-route bus services.

While agencies strive to enhance accessibility, some challenges remain. Table 5 demonstrates the variations across agencies regarding accessibility features and challenges. For example, Ride Connect vehicles may have limitations in accepting riders using larger-based wheelchairs due to vehicle size constraints. NESA does not accept riders who cannot independently enter a volunteer's vehicle, potentially limiting accessibility for certain individuals.

Table 5 Accessibility Features and Challenges

Agency	Service Type	Accessibility Features	Accessibility Challenges
Ride Connect	Door through Door (volunteer drivers only) Door to Door Curb to Curb	Wheelchair accessible vans Volunteer drivers can offer door through door when available	They cannot accept larger-based wheelchairs. Two new sedans will only accommodate canes and walkers, not door-through-door services.

			Long wait times between the service provider receiving ride information and picking someone up.
NESA	Door through Door	No wheelchair-accessible vehicles	Riders must be ambulatory.
VIA	Curb to curb	Paratransit, accessible features on buses	There are inconsistencies in bus stop access and distance, as well as long wait times (as expressed by multiple focus group participants) between the service provider receiving ride information and picking someone up. This inconsistency can impact the overall efficiency of the system. Variability in driver training and knowledge in working with transportation disadvantaged. VIA provides initial and refresher training for drivers, but focus groups indicated lack of driver consideration of the needs for TD riders.
PRESA	Curb to Curb	Wheelchair accessible vans	Allows caregivers to accompany clients on trips at no additional cost. Door-to-door is provided in some situations.
GRASP	Curb to Curb	Wheelchair accessible vans	
COSA	Curb to Curb	Wheelchair accessible vans	Allows caregivers to accompany clients on trips at no additional cost.
ART	Curb to Curb	Entire fleet WAV	Does not serve Bexar County residents.

The number one issue causing accessibility challenges for riders among providers is inadequate infrastructure and resources to accommodate individuals with varying mobility needs, particularly those with extrememly low mobility and those who require wheelchair accessibility. Some considertation should be given to the following:

- Additional vehicles are needed among the community-based transportation providers, especially WAVs. Improvements must be made to scheduling and dispatching to reduce wait times for drop-off and pickup.

- The system of providers, especially VIA, is encouraged to set benchmarks to reduce these wait times.
- VIA must work with local authorities to improve accessibility at bus stops by installing ramps, benches, and shelters.
- Develop standardized training programs for drivers focusing on working with transportation disadvantaged. Establish clear policies and procedures across all systems to facilitate caregiver involvement and improve passenger experience.

Spotlight on Focus Groups

"For blind and visually impaired individuals, it's challenging because we're unaware if the vehicle is present. If the driver isn't trained to make verbal contact, we have no way of knowing if the vehicle is outside the building, despite the pickup instructions provided."

"Not all bus stops provide adequate shelter, leaving us without a safe place to wait or rest."

Transportation disadvantaged have needs that impact their safety while using public and community transportation services.

Agency Feedback

“The cost associated with providing door-through-door services can be prohibitive, considering the added time, resources (insurance costs), and potential safety measures required costing about $100 a trip.”—Alamo Regional Transit

3.4.3 Partnerships and Collaborations Among Community Stakeholders

Partnerships and contractual arrangements demonstrate collaborative efforts among transportation agencies to improve transportation access for vulnerable populations. Despite variations in rider characteristics and challenges in aligning accessibility features, San Antonio transportation providers already demonstrate some examples of collaborating to improve transportation services (Figure 5). This figure is not exhaustive of all collaborative arrangements in the region but shows an early win for pooling resources, expertise, and funding. Agencies can enhance their reach and quality of transportation services required of a 1C1C system and ultimately benefit individuals who rely on these services for their mobility needs.

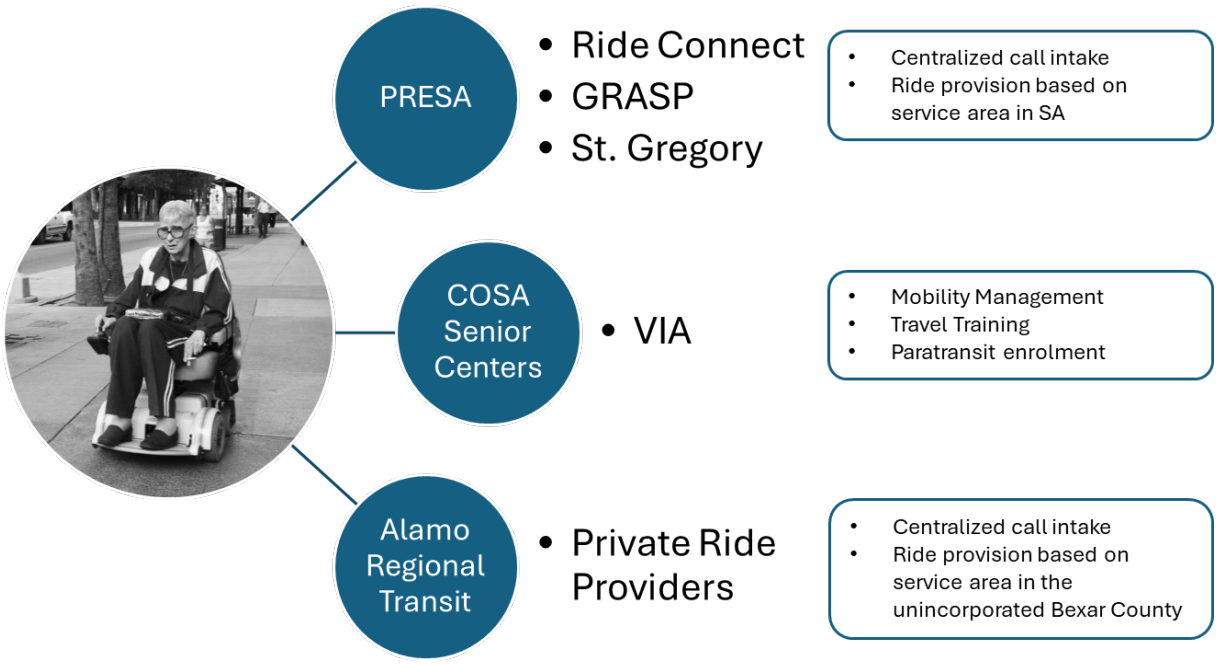


Figure 5 Some existing collaborations in the on-demand eco-system

Positive Working Relationships: Some agencies emphasized opportunities to leverage a history of positive working relationships to expand transportation access. For instance, VIA staff already partner with the COSA senior centers, providing mobility management and travel training to members on-site at COSA centers and helping to enroll members into VIA paratransit services. The SALSA Transportation Workgroup specifically targets mobility challenges affecting transportation disadvantaged, aiming to ensure equitable access to affordable, accessible transportation options throughout the county. The Workgroup commissioned a white paper to identify and address the existing transportation system's shortcomings and propose solutions to enhance service coordination, accessibility, and data collection.

Contractual Relationships: Multiple agencies have contracts with other agencies in the network to provide transportation services. For instance, Ride Connect contracts with PRESA to allocate one vehicle to the PRESA fleet using FTA 5310 funds. PRESA, in turn, contracts with Ride Connect, GRASP, and St. Gregory to fulfill all calls. Alamo Regional Transit (ART) contracts with a private entity to offer rides for older people residing in unincorporated Bexar County for medical and nutrition trips, expanding services beyond traditional routes. ART also contracts FTA 5310 funding to NESA for its transportation program. ART monitors the grant. Ride Connect contracts with VIA for FTA 5310 funding.

New Contractual Arrangements: PRESA received additional funding from VIA FTA 5310 to substantially change its transportation dispatching and service provision system. The new Request for Proposals aims to create a fair and equitable system, ensuring a certain number of vehicles operate at least five days per week. This new contract focuses on providing dedicated curb-to-curb service with specialized assistance when needed, covering both urban and less densely populated areas of Bexar County. National Church Residence is contracting with VIA for FTA 5310 funds to offer transportation services for a variety of trips at 7 apartment locations in the greater San Antonio area for an 18-month period.

While PRESA and other providers like RCT have a positive collaborative relationship, RCT currently has only two vehicles. While collaboration maximizes service capacity, the rides they can actually provide with two vehicles are limited, and they are usually overbooked.

Challenges with Collaboration: The intake and eligibility criteria differ across all agencies involved, making it difficult for individuals to access transportation services consistently. There is no centralized process for coordinating transportation services, and numerous geographic boundaries complicate the situation.

Collaboration Changes

- Ride Connect Texas and GRASP's withdrawal from the PRESA coalition signifies a significant change in the landscape of transportation services for the disadvantaged in San Antonio. With these organizations now operating independently, there is a need to reassess the coordination and delivery of transportation options for riders.
- The departure of key service providers raises questions about San Antonio's readiness to develop a centralized one-call, one-click system. This system, which aims to streamline transportation requests and placement into appropriate options, relies on the collaboration of multiple agencies. The recent changes highlight potential challenges in achieving this level of coordination and cooperation. We recommend that the SA Advisory Group identify the lead agency, existing or new, to help champion collaboration.
- The transition of transportation services to individual organizations underscores the importance of enhancing capacity to meet the needs of riders. With Ride Connect Texas and GRASP now handling their own rides, there may be gaps in coverage and accessibility for certain populations. Assessing and addressing these gaps will ensure equitable access to transportation services across the city. This situation also highlights the importance of discussing what it means for SA to centralize a system of services with enhanced capacity without the fear of each organization losing riders to another organization. This critical collaboration versus competition issue must be discussed relative to the implications for an effective 1c1c system.
- Despite the challenges posed by the withdrawal of key service providers, there are also opportunities for collaboration and resource-sharing. For example, Comfort Care, downsizing services to riders may present an opportunity for Ride Connect Texas to explore. Similarly, the acquisition of Conviva Health by Cano Health presents an opportunity to explore new contracting arrangements that benefit both parties and expand transportation options for riders. Cano Health has indicated to RCT that they have a way to pay for rides but do not have enough drivers or vehicles.
- Finally, the uncertainty surrounding the status of the PRESA proposal for transportation services funded through VIA public transportation highlights potential gaps in understanding how it relates to filling gaps in the system and the role they will play in the 1c1c system under their new leadership.

Due to the timing of the changes, PRESA remains mentioned in the report, but the current information in this call-out will serve as a guide for the final readiness assessment.

Key Takeaways

Transportation providers offer various services, from volunteer-driven to paratransit, with differing trip priorities, such as medical trips over other grocery or social trips. This diversity makes it difficult to align offerings for riders.

Accessibility features among providers vary. While many providers provide WAV, challenges exist with drivers trying to accommodate larger wheelchairs on vans due to size limitations. Given the liability, risk, and safety issues, only 2 agencies, Ride Connect and NESA, provide door through door services using volunteer drivers.

Ride Connect's collaboration with PRESA to dispatch rides on a single vehicle demonstrates an attempt to optimize service capacity. However, due to limited infrastructure, they are only able to meet a fraction of the demand.

Inconsistent service quality in paratransit, with drivers lacking knowledge of riders' needs, variability in wait times between drop off and pick up among providers, alongside challenges at bus stops due to inadequate sidewalk infrastructure and lack of shelter and benches, particularly impacting individuals with disabilities.

Political leadership is crucial in addressing the transportation challenges of the TD population while funding is neccessary for 1C1C systm implementation and sustainability.

3.5 Eligibility Determination and Interoperability Between Systems

3.5.1 Process for Determining Client Eligibility

Addressing the diverse eligibility criteria, streamlining application processes, providing counseling assistance, and enhancing coordination among transportation agencies are essential to improve access and transferability of transportation services for vulnerable populations. The providers' current eligibility criteria, application process, and approval process are shown in Table 6 below.

Table 6 Eligibility Criteria and Application and Approval Process

Agency Name	Eligibility Criteria	Application Process	Approval Process
Ride Connect	50+ for disability 60+ health conditions and income Reside inside loop 1640	Online application or phone assistance for registration	No physician approval required
NESA	Must be at least 60 years old. Ambulatory Reside within the service area. No longer able to drive on highways but can still manage other local driving. (limited-service area)	Screening process Intake Sheet Communication assessment Final form completion	No physician approval required Home site visit assessment Home health and safety assessment 1-2 weeks for approval
PRESA	60 years of age or having a disability, with the disability being on the Social Security Income (SSI) disability list. Reside inside loop 1640	Phone assistance for registration	No physician approval required Applicants are screened over the phone and approved immediately if they meet the requirements – 60 plus or disabled 24 hours for approval
GRASP		In-person application Online application Phone application	No physician approval required 24 hours for approval
COSA	Must be a member of a senior center. 60 years of age or older. Capable of traveling independently or have a caregiver accompany them	In-person application	No physician approval required 24 hours for approval

	Residence should be within a 5-mile radius of the senior center.		
VIA Trans	Federal Transit Administration (FTA) guidelines to determine paratransit eligibility. Eligibility is limited to individuals who have a disability that prevents them from using regular public transportation services.	Complete pages 1-5 of the application as completely and accurately as possible. Mail or deliver the completed application to VIA at the address on the form for processing.	A medical professional familiar with the applicant's condition must complete application pages 6-8. Applicants may not change or add to the information in this section. Hard copy application, medical provider input, in person functional ability screening by VIA Up to 21 days for approval
ART	Broad eligibility scope, allowing anyone in the region to access them. Eligibility criteria can vary depending on specific programs, geographic presence, and age requirements. Rural communities outside of Bexar County	Call in Must live in one of the rural counties serviced by ART	Approved at time of call
Comfort Care	Non-emergency medical for riders subsidized through UCH medical insurance	Rider must be insured through United Health Care Online Application	24 hours for approval

Diverse Eligibility Criteria: Transportation agencies have varying eligibility criteria, including age, disability, income, and residence. While some agencies have specific criteria like NESA requiring individuals to be at least 60 years old and unable to drive on highways, others have broader policies allowing anyone in the region to access services.

Application and Approval Processes: The application processes and approval times differ among agencies, with some requiring screening, intake applications, and assessments, while others aim for user-

friendly processes, such as online applications or phone assistance. For example, NESA's process involves multiple steps, including screening, intake application, and a home visit by a contracted nurse.

Counseling Assistance: Some agencies, like COSA and ART, provide limited counseling assistance to help clients learn about mobility options. VIA offers mobility management assistance and travel training to promote greater independence. This support is particularly beneficial for paratransit-eligible riders who can also use other VIA transportation options.

The number one problem with provider eligibility applications and processes is the complexity and inconsistency of the application process and approval times, which creates challenges for transportation disadvantaged looking for rides. The lack of clear guidance on provider websites, varying requirements, and the involvement of multiple steps and stakeholders complicate this complexity.

To address this challenge, providers can consider several measures:

- Simplify the application process across providers by consolidating steps and eliminating unnecessary paperwork.
- Provide clear instructions and assistance options in various places, such as online, phone, or in-person support, to help applicants navigate the process more efficiently.
- Develop comprehensive and consistent guidelines among agencies on the applicant process.
- Establish standardized eligibility criteria and documentation requirements across all providers to ensure consistency and fairness in the application process, including whether physician approval is necessary and streamlining the screening and intake procedures.
- Develop a consistent processing wait time for approval among agencies, providing regular updates on their application status and promptly addressing any questions or concerns.

Spotlight on Focus Groups

"I am in the PRESA region because I live in Bexar County, but they told me I was outside the service area." **Service providers must maintain consistent information regarding coverage boundaries.**

Case Study Connection

Of the 21 cases reviewed, we found that the criteria for eligibility determination vary among agencies: three systems require in-person interviews, three require mail-in applications, and one offers a website application. Three of these systems require a physician's approval, and one system has an additional extensive screening process to confirm eligibility. **Eligibility and application processes vary across 1C1C systems.**

Why are varied eligibility criteria and determination processes a challenge for 1C1C implementation?

The disparity in eligibility criteria and approval processes among ride providers poses a significant challenge to coordinating shared services. This is essential for ensuring smooth on-demand transportation for clients, particularly when transfers between different service areas are necessary. This inconsistency is further complicated by differential ride pricing and geography served. In addition, the local physical and built environment complicates the logistics of setting drop-off points, addressing safety issues, accommodating health restrictions, and navigating extreme weather conditions. This fragmentation hinders the ability to offer a unified and efficient transportation experience for all users, especially those with critical mobility needs.

3.5.2 Data Collection Formats

As shown in Table 7, the current variety in the types of data collected by each transportation provider presents significant challenges for effective coordination and creating a centralized rider portal. While some organizations collect extensive client data encompassing medical conditions, income, demographics, mobility aids, and more, others gather only basic contact information. This disparity complicates efforts to standardize data and raises concerns about privacy and confidentiality. For instance:

- Ride Connect Texas and Northeast Senior Assistance collect detailed client information such as medical conditions, income levels, demographic characteristics, and even COVID vaccination status and
- City of San Antonio collects only contact information and emergency contacts, while Alamo Regional Transit gathers only general demographic data.

The current variety in the types of data collected by each transportation provider presents significant challenges for effective coordination and creating a centralized rider portal. While some organizations collect extensive client data encompassing medical conditions, income, demographics, mobility aids, and more, others gather only basic contact information.

Table 7 Differences in Client Data Collected and Managed Across Service Providers

Information Type	VIAtrans	RCT	PRESA	NESA	GRASP	Comfort Care	COSA	ART
Name								
Gender								
Age								
Home Address								
Phone Number								

Trip Information								
Ambulatory Status								
Mobility Aids								
Caregiver/ Companion								
Service Animal								
Disabilities								
Extra Time to Board								
Medicaid Eligible								
ADA Eligible								
Other Agencies								
Veteran Status								
Employment Status								
Emergency Contact								

Case Study Connection

According to the 21 Case Study Review, critical rider data elements for inclusion in a centralized portal might include:

- Basic demographic information (name, age, gender, address)
- Contact information (phone number, email)
- Medical conditions or special needs requiring accommodation.
- Mobility aids or assistance requirements
- Emergency contact information
- Trip history or service utilization patterns
- Payment or insurance information

Protocols for protecting the confidentiality of rider data are essential to address privacy concerns and comply with relevant regulations such as HIPAA (Health Insurance Portability and Accountability Act) for medical information. Data encryption, restricted access controls, and anonymization techniques can help safeguard sensitive rider information. Additionally, clear guidelines for data sharing and consent

procedures should be established to ensure that rider privacy rights are respected across all participating organizations.

Agency Feedback

"Assessing the health condition of clients based on trip details raises potential HIPAA (Health Insurance Portability and Accountability Act) compliance issues. Care must be taken to ensure limited exposure and impact on client privacy and data security."—Alamo Regional Transit

3.5.3 Software Adoption

The current software usage status among the various transportation systems poses significant challenges to effective coordination. While some organizations utilize comprehensive software solutions for ride requests, rider data, dispatching, and payments, others lack such integrated systems or rely on different platforms. This disparity complicates communication and data sharing between agencies and hinders the seamless coordination of transportation services for transportation disadvantaged. Table 8 shows the variations in technology adoption in different stages of the ride provision. From the table, the following observations can be made about the software usage variability along the service provision's value chain.

- For ride requests, most organizations listed, such as Ride Connect Texas, Northeast Senior Assistance, and Alamo Regional Transit, use Assisted Rides and Ecolane, indicating some level of uniformity. However, other organizations like VIA Metro Transit and ComfortCare Transportation LLC opt for different software like Trapeze and Blue Dog Code - Chopper respectively, which may affect interoperability.
- Regarding rider data, there's a mix of software used. Some organizations like Ride Connect Texas use the same software as for ride requests (Assisted Rides), while others such as Greater Randolph Area Services Program Inc and Alamo Area Council of Governments Area Agencies on Aging rely on distinct platforms, like ClientTrack and Moment Tech - NovusMed. This suggests challenges in maintaining a consistent and comprehensive data ecosystem.
- In terms of ride dispatch, we see a similar pattern of diverse software utilization with no single solution dominating across organizations. This variety can complicate the coordination of dispatching efforts and efficiency in operations.
- For payments, the disparity is even more pronounced with different systems like Masabi app and goCard for VIA Metro Transit, whereas others like Alamo Regional Transit do not have a specified system, which could lead to inconsistencies in payment processing and financial tracking.
- Ride/client sharing is also varied, with some organizations using the same platforms as for other services (Assisted Rides for Ride Connect Texas) and others relying on referrals or not specifying a system. This could hinder the ability to effectively share rides and clients between services.
- The software for coordinating volunteers or caregivers is largely unspecified (N/A) for most organizations, suggesting a gap in this area. Without dedicated software solutions, managing and mobilizing volunteers or caregivers can be inefficient and challenging.

Table 8 The On-Demand Services Value Chain and Technology Adoption

Organization	Software for Ride Requests	Software for Rider Data	Software for Ride Dispatch	Software for Payments	Software for ride/client sharing	Software for Volunteers or Caregivers
Ride Connect Texas	Assisted Rides	Assisted Rides	Assisted Rides	Assisted Rides	Assisted Rides	Assisted Rides
Northeast Senior Assistance	Assisted Rides	Assisted Rides	N/A	N/A	N/A	Assisted Rides
Alamo Regional Transit	Ecolane	Ecolane	Ecolane	Ecolane	Ecolane	N/A
City of San Antonio	Seniorstat (in progress)/ Creative Solutions Inc.	Seniorstat	Seniorstat	N/A	N/A	N/A
VIA Metro Transit	Trapeze	Trapeze	Trapeze	Masabi app, goCard, Masabi validators	Trapeze	N/A
Greater Randolph Area Services Program Inc	N/A	ClientTrack	Referred to PRESA	N/A	Referred to PRESA	N/A
Alamo Area Council of Governments Area Agencies on Aging	depends on contracted providers	depends on contracted providers	depends on contracted providers	depends on contracted providers	depends on contracted providers	depends on contracted providers
ComfortCare Transportation LLC	Momentm Tech - Passenger Portal	Momentm Tech – NovusMed	Momentm Tech - NovusMed	N/A	Momentm Tech - NovusMed	N/A
PRESA	Blue Dog Code Choppers	Blue Dog Code Choppers	Blue Dog Code Choppers	N/A	N/A	N/A

What does this mean for implementing a 1C1C system?

An expert must undertake a specialized inquiry on the current software interoperability. While some software may provide room for integration, others may pose challenges for viable integration of transportation services, particularly affecting seamless travel for clients. Additionally, the absence of uniform software for volunteers or caregivers further complicates coordination efforts, potentially leading to inefficiencies and gaps in service delivery.

At the same time adopting new software may be challenging for nonprofit ride providers owing to high capital expenses and HR training costs. Our preliminary assessment indicates that WellRyde by Modivcare and NovusMED by Momentm are two examples of software designed to be compatible with multiple transportation provider interfaces. We know from case studies that service providers are requiring ride providers to install compatible software with their ride app (Example: Access LA and the Myride app).

Key Takeaways

Currently client eligibility criteria, and application processes vary across service providers. Standardizing application, and eligibility determination processes will positively impact service reach and is a necessary precursor for integrating services

Client data are collected and managed by service providers for providing rides. Service providers collect different types of data and have varying data management standards. Before integration, a common data specification, and data protection protocol must be adopted.

There is greater technology adoption among service providers for ride request, client data, and ride dispatch and fewer agencies adopt technology for payment, client sharing, and coordination of volunteers and drivers. Standardizing technology adoption and interoperability is necessary for integration of services.

3.6 Summary of Current Eco-system Conditions

In conclusion, the insights gathered highlight the multifaceted challenges facing transportation agencies in meeting the needs of the transportation-disadvantaged (TD) population in San Antonio. Key challenges include the following:

- Persistent digital divide among the transportation disadvantaged: The TD population relies heavily on word-of-mouth for their information, which is counterintuitive to a formal website or app based 1C1C system.
- Fragmentation and funding constraints: All agencies are relying on FTA 5310 to some degree, which comes with limitations. Community-based providers rely on FTA 5310 funding, grants, and donations.
- Variations in the agency service model: Agency characteristics make coordination difficult.
- Diversity of services offered by transportation providers: Door-through-door is only possible with volunteer drivers and is only offered by two community-based agencies. Public transit providers will never provide door-through-door because of insurance cost due to liability risk.
- Inconsistencies in eligibility criteria and fare structures: No consistent eligibility process or fare structure across agencies.

Case Study Connection

Continuity of Service disruption: There are interruptions in service continuity without dedicated funding. Rides are necessary, not just an information portal – successful programs have contracted services or their own fleet, not volunteers, and reliable access to transportation system structure.

Providing door-through-door services comes with trade-offs, particularly in cost and subsidy allocation. Agencies must weigh the high costs of providing door-to-door services against serving more people and trips. Additionally, serving lower-mobility clients who require door-through-door assistance presents unique challenges, including ensuring adequate support and addressing safety concerns for clients and drivers.

Some agencies emphasize the importance of door-through-door services in fostering independence for transportation disadvantaged. These services provide essential assistance to individuals with mobility limitations or other challenges accessing transportation independently, enabling them to maintain their autonomy and participate in activities such as employment.

Agency Feedback

"The decline in volunteerism for door-through-door services has been significant, impacting the availability of this service."—Pat Ogle, NESA

"Rising fuel costs have discouraged volunteers from using their personal vehicles for door-through-door services, as the reimbursement of 55 cents per mile may not adequately cover expenses." – Dr. Amanda Villarreal, Ride Connect Texas

While the challenges are significant, there are tangible opportunities for transportation coordination and advancing the concept of a 1C1C transportation system through:

- Focusing on preferred communication channels and barriers to access: A 1C1C system must balance information communication through community outreach and programs to reach riders and formal communication through standard marketing practices to engage stakeholders.
- Standardizing eligibility criteria, fares, and programs: All 1C1C participating agencies should agree on a minimum eligibility standard to demonstrate trust.
- Address geographic disparities: ART currently addresses a geographic disparity by contracting with the Area Agency on Aging to provide medical and grocery trips for older people in unincorporated Bexar County. This agreement demonstrates an early win on overcoming geographic disparities in transportation coverage. Chapter four provides maps that identify geographically underserved areas. Another early win will be continued coordination among providers to increase services in those underserved areas.
- Technology integration: Initiate agreement among transportation providers to move toward the purchase of compatible software packages.
- Innovative funding strategies leading to increased collaboration: Explore funding mechanisms through local agencies, such as the Alamo Area MPO, and grant opportunities, such as National Church Residencies receiving FTA 5310 funds through VIA to initiated transportation services at seven apartment properties in Bexar County. New and innovative funding relationships spur on collaborative relationships that will continue to support the 1C1C, improving its sustainability.

4.0 Participation in a One-Call One-Click System

In this section, we provide an overview of community institutions' interest in participating in an integrated system and their perceptions of challenges and opportunities in integration.

4.1 Anticipated Growth in On-demand Transportation

Overall, transportation agencies expect significant growth in demand for transportation services among transportation disadvantaged in the coming years. The interviews with the agencies highlight important future challenges for serving these needs and steps agencies are taking to address them.

Key themes in transportation agency expectations for growth in transportation services among transportation disadvantaged include the following:

Anticipated Growth and Demand: All agencies anticipate increased demand for transportation services among transportation disadvantaged over the next 5-10 years. Factors contributing to this growth include population aging, increased medical needs, and expansion into rural communities. Transportation agencies like ART, COSA, and VIA are planning for growth and adjusting strategic plans and budgets. VIA will offer more travel training to promote fixed-route use, while ART aims to meet increased demand for rural medical services.

Agency Feedback

Ride Connect has plans to expand its vehicle fleet by adding five more vehicles to its existing resources. This expansion is made possible through FTA 5310 funding and philanthropic contributions.

PRESA is currently undergoing significant changes, with a new CEO, taking over after a long-standing CEO's 19-year tenure. The organization is defining its future direction, and the board is interested in investing in its growth. PRESA and Ride Connect occasionally compete for funding, and there's limited awareness among board members regarding the constraints of FTA 5310 funding, which was previously at a million dollars. PRESA operates with a relatively small staff of only ten members.

Infrastructure and Accessibility: Some agencies emphasize the importance of infrastructure improvements to enhance accessibility for transportation disadvantaged. Issues such as inadequate sidewalk access to bus stops and long distances in rural areas pose accessibility challenges and may hinder service utilization.

Volunteer and Staffing Challenges: Agencies recognize the need for additional staff and volunteers to accommodate the anticipated growth in demand for transportation services. However, they also acknowledge challenges in recruiting and retaining volunteers. Despite efforts to recruit more volunteers, agencies like NESA continue to face declining volunteer numbers, which may impact their ability to meet future demand.

Challenges in Procurement: Procurement challenges, such as lengthy waiting periods for bus purchases, pose obstacles to transportation agencies in supporting forecasted service demand. Delays in

procurement processes may limit agencies' ability to acquire the necessary vehicles and resources to meet growing transportation needs effectively.

Challenges in Providing Rides: To understand the effectiveness of transportation providers, a critical aspect is the number rides provided by their drivers. A lower ratio of drivers to annual rides indicates an effective use of the drivers' time and vehicle and a larger number of drivers available for rides. As Figure 6 depicts, the ratio of drivers to annual rides served indicates, organizations like VIA, ART, and Comfort Care have a decided advantage compared to nonprofit providers with the lowest ratio of drivers to annual rides provided. A critical reason for these differences could be the difference in access to sustainable funding – notably VIA and ART are designated public transit providers and receive funding from reliable government grants. Comfort Care, a private transportation organization, provides non-emergency medical transport that is funded through insurance companies, another sustainable funding mechanism. Nonprofits providing community-based transportation programs rely on philanthropic support and other less reliable competitive funding, making their programs susceptible to funding fluctuations.

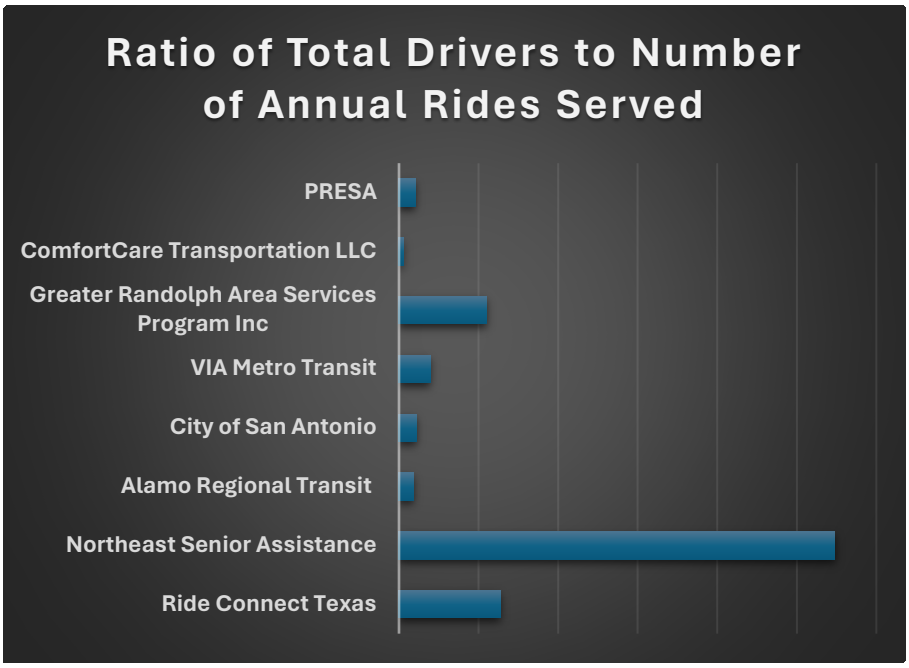


Figure 6 Drivers to Rides Served by On-demand Transportation

Since nonprofit organizations reliance on fluctuating funding can make it challenging for hiring staff drivers, many rely on volunteer drivers for ride provision. Volunteer drivers allow nonprofit providers the ability to offer door-through-door services for their clients, which meets a critical need for lower-mobility riders. For NESA, they have expanded the service area 5 times, but they are not always successful in finding more volunteers to provide the trips. Additionally, volunteers only sometimes tell NESA all the extra trip chaining they add for a single client per trip, so NESA is not able to log the trip accurately. For example, if NESA was able to capture driver trips accurately, then the bar length in Figure 6 would decrease. An inability to collect accurate trip information is a challenge, which could hinder NESA's ability to apply for additional funding.

NESA stands out with the highest ratio of drivers to rides because they have been able to recruit a large and sustainable number of volunteer drivers in a geographic area with a lower concentration of transportation disadvantaged resulting in a lower demand for rides. NESA's ability to recruit and retain volunteers is based on a volunteer-centric mindset as outlined below:

- Prioritize stringent criteria for client eligibility, safety, and volunteer protection to establish strict client eligibility and safety standards.
- Ensure volunteers' security in their role is paramount, reflecting a volunteer-centric approach.
- Accommodate volunteer schedules with daily, weekly, or monthly options, providing flexible ride offerings.
- Support the multifaceted needs of transportation disadvantaged by offering comprehensive assistance, including door-to-door transportation.
- Serve clients within NESA's designated Service Area, making those eligible for transportation services to medical appointments throughout San Antonio with service area specificity.
- Support additional client needs and essential tasks like shopping and attending appointments, extending assistance beyond transportation.

Key Takeaways

Transportation providers can expect significant increases in demand over the next 5-10 years as the population ages.

To plan for increased demands, providers must start addressing the following now: infrastructure and accessibility needs, volunteer and staffing challenges, vehicle procurement delays, and driver recruitment and training.

Volunteer drivers allows for door-through-door services. A volunteer-centric plan, as demonstrated by NESA's transportation program, provides insight on how to implment a similar program by successfully recruiting and retaining a healthy volunteer base.

4.2 Agency Visions to Respond to Growth and Increased Demand

To expand transportation services in San Antonio, efforts must focus on engaging corporations, raising awareness of community needs, and securing funding. Ride Connect and potential collaboration with SAAFdn can be instrumental in these efforts. RCT is interested in approaching corporations to raise

awareness and potentially provide financial support, while Ride Connect can leverage its knowledge of the community's transportation needs to actively seek support. PRESA faces funding challenges, including a significant decrease in United Way funding, but the board's interest in investing in the organization's future suggests openness to exploring growth opportunities. SAAFdn could establish a philanthropic arm or initiative to incentivize providers to participate in transportation services, offering data and impact metrics, developing a technology platform, including affordable options, ensuring accessibility for individuals with disabilities, and providing incentives for traditional providers to compete with ride-sharing services.

Continuous Service Expansion: NESA's vision includes continuously expanding its service area, building upon past achievements. They plan to address reporting gaps in volunteer-tracked trips to optimize the coordination of volunteer drivers, ensuring efficient service delivery and meeting growing demand. SAAFdn envisions a philanthropic arm to make participation in transportation services more attractive for providers. This could involve data and impact metrics to showcase the effectiveness of their services and provide a carrot to encourage involvement. A technology platform would allow transportation organizations to showcase their services. Expanding these services must be accessible to individuals with disabilities who may need special accommodations, such as guide dogs or vehicles with accessibility features. Future expansion must acknowledge that traditional transportation providers may need incentives to compete with ride-sharing services like Uber and Lyft, which have disrupted the market.

Leveraging Regional Entities: Ride Connect and potential collaboration with SAAFdn are pivotal in expanding transportation services. Efforts should focus on engaging corporations, effectively communicating community transportation challenges, and seeking financial support. Ride Connect, equipped with firsthand knowledge of local transportation needs, can actively engage with corporations to present its case, and seek support. COSA aims to leverage regional entities such as AACOG and ART to coordinate the city's transportation needs. They plan to utilize positions on the boards of regional entities to explore collaboration opportunities, foster partnerships, and enhance coordination efforts. The Alamo Area Metropolitan Planning Organization (AAMPO) could actively contribute to a 1C1C system by leveraging its study area and the Unified Planning Work Program. This could involve funding a study on mobility for the targeted populations and exploring their transportation needs and challenges. The AAMPO can access important data resources, including indices, supply and demand mapping, GIS (Geographic Information System) information, and act as a convener of stakeholders for a 1C1C system. Additionally, VIA (VIA Metropolitan Transit) has conducted assessments of the transit system, including identifying non-accessible bus stops. In cases where data sets are not readily available, the AAMPO could consider funding studies for mapping purposes. The AAMPO suggested the following study ideas to support a 1C1C system:

- A tactical urbanism project to improve the quality of sidewalks and crosswalks,
- Pilot small-scale travel vouchers for working TD populations (through AAMPO call for projects), maybe those seeking jobs; or,
- Sidewalk and crosswalk quality assessment and mapping in a few historically underserved neighborhoods such as the West Side.

Development of a Comprehensive Platform: ART's vision focuses on developing a single platform to compare transportation options and services comprehensively. They are building an app that allows clients to evaluate and compare transportation options easily. Additionally, ART’s collaborative efforts

with VIA to share online resources and ART's discussions with local taxi service Z Trip demonstrate ART's commitment to innovation and coordination to meet increased demand effectively. SAAFdn highlighted that one significant challenge is the reluctance of seven agencies to share client information. To address this issue, it may be necessary to reframe the concept of 1C1C and emphasize that sharing client information can be done while protecting data standards and privacy. The goal is to ensure improved transportation options for riders without compromising privacy.

Key Takeaways

The limitations of the existing infrastructure and myriad unsustainable funding sources present a challenge for each agency to develop a strategic growth plan to expand their systems through added capital and staffing in alignment with forecasted growth demands.

Lean into established collaborative relationships. Regional planning agencies and foundations should be utilized to the fullest extent by community-based providers for coordination, research, and funding opportunities. An early win will be engaging with the AAMPO to receive funding for a small scale pilot project.

Overcoming the hesitancy to share rider information is essential for the creation of a comprehensive 1C1C system. An early win will be the development of a data sharing agreement among San Antonio transportation providers that allows for seemless transitions between services while protecting rider information.

4.3 Precursors for Participating in an Integrated System

Before implementing a coordinated 1C1C transportation system in San Antonio, it is crucial to address several challenges and difficulties identified by agencies and community members. While there is widespread acknowledgment of the potential benefits of an integrated service infrastructure, key issues must be tackled to ensure its success. These include understanding the critical challenges facing transportation-disadvantaged communities, identifying pressing gaps in developing coordinated transportation planning systems, and effectively addressing these issues during the system's development phase.

Active Participation of All Agencies: Some agencies stressed a lack of participation among providers in the coordinated transportation planning project, indicating a need for increased agency involvement. For

example, organizations involved in transportation made early commitments to push out the ridership survey for this project. However, a low response rate on the ridership survey demonstrates that the commitment has fallen short. Additionally, attempts to schedule interviews and receive data from providers proved challenging and required multiple requests. The struggles experienced in this project highlight the underlying problems with building a coordinated system, such as fear of sharing data, the difficulty of bringing people to the table, and losing their individuality as a service provider to a larger system. Building trust among agencies is essential to overcoming these problems. To encourage trust and coordination among providers, a central administrative entity (i.e., an independent nonprofit that does not provide transportation services) can serve to streamline some of these processes, including applying for funding on behalf of the entire 1C1C system and serving as a centralized database manager.

Finding Sustainable Funding: Multiple agencies cite financial limitations in the current funding landscape as a significant challenge. Table 9 provides a summary of identified funding sources, but it is not an exhaustive list of sources used by providers. Most providers rely on FTA 5310 funds; alternative funding sources, such as donor support, are needed. Challenges in competition for limited resources among nonprofits are recognized, and securing sustained funding is crucial.

Table 9 Identified Funding Sources by Transportation Providers

Organization	Funding Sources Used
Ride Connect Texas	FTA 5310 through VIA
Northeast Senior Assistance	FTA 5310 through AACOG
Alamo Regional Transit	FTA 5310 through VIA, FTA 5307, DARS, VA, Local Grants
City of San Antonio	City of San Antonio's General Fund
VIA Metro Transit	FTA 5307 and 5310, Local Sales Tax
Greater Randolph Area Services Program Inc	FTA 5310 through VIA, PRESA Contract, Bexar County
Alamo Area Council of Governments Area Agencies on Aging	HHSC Area Agencies on Aging
ComfortCare Transportation LLC	UHC Benefit Health Plans
National Church Residences	FTA 5310 through VIA
PRESA	FTA 5310 through VIA, AACOG

Reluctance to Share Client Information: Challenges in data sharing, client information, and privacy concerns are mentioned by several agencies. NESA and Ride Connect expressed reluctance to share client information, highlighting the importance of data-sharing agreements to protect confidentiality and privacy while facilitating information exchange.

Geographic disparities in service areas further complicate the situation. Providers that operate across multiple counties may find it challenging to adapt to centralized systems like VIA, especially when these systems are expected to manage call centers that cater to demands extending beyond city limits. Additionally, the variability in pricing structures among service providers, such as VIA's nominal $2 per trip fee for fixed routes versus higher charges by others, introduces complexity to the proposition of a unified system. VIA's fixed route price is even further reduced for transportation disadvantaged that register for VIA's reduced fare program.

Importance of Community Engagement: Some agencies stress the importance of effective communication to increase public awareness and community buy-in for a coordinated transportation system. Engaging the community is vital for successful implementation and sustainability.

Equity in Service Allocation and Variability of Wait Times: Ride Connect and VIA identify variability in wait times between service providers as critical to enhancing coordination. Addressing inconsistencies and coverage gaps, especially during events or non-standard operating hours, is essential for improving system efficiency and equity in service allocation.

Staff Training and Capacity Upgrades: Firstly, there's a crucial need for training on HIPAA regulations, which will equip staff with the knowledge to maintain privacy and confidentiality when dealing with client information. Technological proficiency is also highlighted, ensuring staff can confidently handle the system's software and navigate its digital aspects. Moreover, a thorough understanding of the 1C1C system's overall functionality is essential, enabling staff to grasp its features and processes integral to accessing and coordinating services. Additionally, staff should be well-versed in risk management to tackle any challenges and preemptively ensure client safety during transport.

Key Takeaways

Regular meetings or a joint task force may be necessary to enhance agencies' participation in the 1C1C transportation planning process.

A central administrative entity can help unite providers by overcoming limitations related to data sharing, funding, and general service area coordination.

Clear and transparent data-sharing agreements are needed to overcome privacy concerns. Standardized protocol may help facilitate the safeguarding of client data.

Addressing disparities in service allocation, such as variability in wait times, the eligibility and application processes, and accessibility of services is central to establishing a successful 1C1C system.

Significant investment is required in the training and capacity building of agency staff across the board for the successful implementation of the 1C1C system.

4.4 Incentivizing Market Expansion of On-Demand Transportation Services

Sustainable Funding from New Sources: Transportation agencies are exploring alternative funding avenues beyond traditional sources like FTA grants. Initiatives include seeking corporate sponsorship, building philanthropic support, and showcasing impact metrics to attract funding. Collaborative efforts with organizations like the San Antonio Area Foundation (SAAFdn) can help present community transportation needs and secure corporate support.

Branding and Affordable Options: Destigmatizing on-demand transportation and building trust among transportation disadvantaged are priorities for some agencies. Standardizing branding, vetting drivers,

and ensuring safety compliance can enhance the credibility of a coordinated system. Developing affordable options is important to compete with ride-sharing apps like Uber and Lyft and meet the diverse needs of TD.

Central Clearinghouse: Establishing a central entity to standardize trip costs, ensure equitable compensation for drivers, set compliance standards, and facilitate partnerships that can streamline operations and improve service quality. Technology platforms can showcase service availability and facilitate efficient coordination among transportation organizations.

Social Innovation and Education: Initiatives like securing grant funding to expand transportation services demonstrate social innovation and entrepreneurship. Education targeted at patients and doctors can promote efficient travel planning, encouraging appointments closer to home and reducing transportation barriers.

Accessibility and Inclusivity: Ensuring accessible transportation services to individuals with disabilities is essential. Providing special accommodations like vehicles with accessibility features and guide dog-friendly options can enhance inclusivity and meet diverse needs effectively. Offering a mix of affordable options ensures accessibility for all individuals, regardless of financial constraints. Traditional providers may require incentives to remain competitive in a market disrupted by ride-sharing services.

Key Takeaways

Consider a community fundraiser or partnership with an existing entity such as SAAFdn to attract philanthropic support that can finance each agency's different aspects toward a system expansion goal.

A central administrative entity can serve in a capacity to support brand awareness, coordinate, and standardize aspects related to driver recruitment and training, accessibility, and trip cost.

Investing in social innovation efforts may also incentivize agencies to expand service offerings or align programs with other service providers.

4.5 Potential for Funding

Key themes on potential funding types to support coordination of transportation and system expansion needed for 1C1C transportation system planning:

Limitations of 5310 Funds: While Federal Transit Administration (FTA) 5310 funds can be a potential funding source for transportation projects, they are primarily designated for capital expenses rather than operational costs. Approximately 60% of 5310 funds are allocated for traditional capital projects, leaving only 40% available for non-traditional projects like operational expenses.

Support from Philanthropic Foundations: Philanthropic organizations like the San Antonio Area Foundation (SAAFdn) can provide needed support for transportation services. Previous funding from foundations like the Warm Spring Foundation and Brooks Gives Back Foundation to PRESA for system expansion demonstrates the potential for philanthropic support in the community.

City and County Support: Collaboration with local government entities such as Bexar County can provide grant funding opportunities for transportation initiatives. Agencies like NESA and ART have experience receiving grant funding from the county and suggest further collaboration with city and county commissions on aging to identify potential funders and advocates. Additionally, ART estimates the annual budget requirement for 1C1C system development and expansion to be around $500,000 annually and suggests involving the Area Agency on Aging in securing funding.

Collaboration with Healthcare Institutions: Partnerships with healthcare institutions, particularly hospitals and medical districts, can offer opportunities for funding and collaboration. Institutions may be incentivized to support transportation services to ensure consistent care for patients. The University Health System in Bexar County is highlighted as a potential financial partner.

Table 10 Recommended Sources of 1C1C Funding

Recommended Funding Sources for 1C1C	RCT	NESA	ART	COSA	VIATrans	PRESA
FTA 5310						
Area Agency on Aging						
COSA						
Bexar County						
AAMPO						
Philanthropic						
VIA						
Corporate Partnerships						
Hospital Partnerships						
Commission on Elderly Affairs						

Table 10 shows that providers recommended various funding options for a 1C1C system during their interviews, indicating that no single entity has the financial capacity to support one. The table is not indicative of where providers are currently receiving funding. FTA 5310 funding is already allocated for individual transportation programs that are already struggling to meet the demand for rides in San Antonio. A funding plan for a 1C1C system must consider costs associated with a ride scheduling platform, database management, staff, and ride subsidies.

To subsidize rides for transportation-disadvantaged individuals, agencies in San Antonio are exploring various funding avenues beyond the limitations of FTA 5310 funding. As shown in Table 9, Philanthropic foundations like the Warm Spring Foundation and Brooks Gives Back Foundation have previously supported transportation services, as noted by organizations such as SAAFdn, Ride Connect, and PRESA. While emphasizing the importance of maintaining stringent eligibility standards, NESA also highlights the

need to explore new funding sources. City and county support, including grant funding from entities like Bexar County, is seen as crucial by agencies like NESA and ART. Collaboration with the city and county Joint Commission on Aging is suggested to identify potential funders. Additionally, partnerships with healthcare institutions could offer opportunities for funding. Incentivizing hospitals and medical districts to support follow-up appointments for patients is proposed, with the University Health System in Bexar County identified as a potential financial partner.

Key Takeaways

A central administrative entity could play an important role in securing and managing funding for a 1C1C system.

A dedicated funding professional is neccessary to engage the community, research funding opportunities, and secure grants.

A 1C1C champion can build political support potentially leading to dedicated city and/or county funds.

4.6 Leadership and Participation

Various agencies have a clear interest and willingness to support and participate in developing a 1C1C transportation system, with suggestions for potential leaders and collaborators to champion the initiative. This is clear from the overwhelming interest in formalizing partnerships with a Memorandum of Understanding, as seen in the Figure 7 below. In addition, community organizations are willing to

- Use a centralized app or website and adopt common software, indicating a readiness to standardize their technological platforms.
- Participate in unified standards for evaluating risks or quality through centralized due diligence on contractors, drivers, and volunteers.
- Increase their customer base and collaborate to share rides and seats for improved efficiency, or
- Commit dedicated funding, although this could be a contentious issue for many.

As discussed in detail in the following sections, there is a reluctance to share client data and centralize client information. The community is also uncertain about an integrated call center or having a centralized payment mechanism.

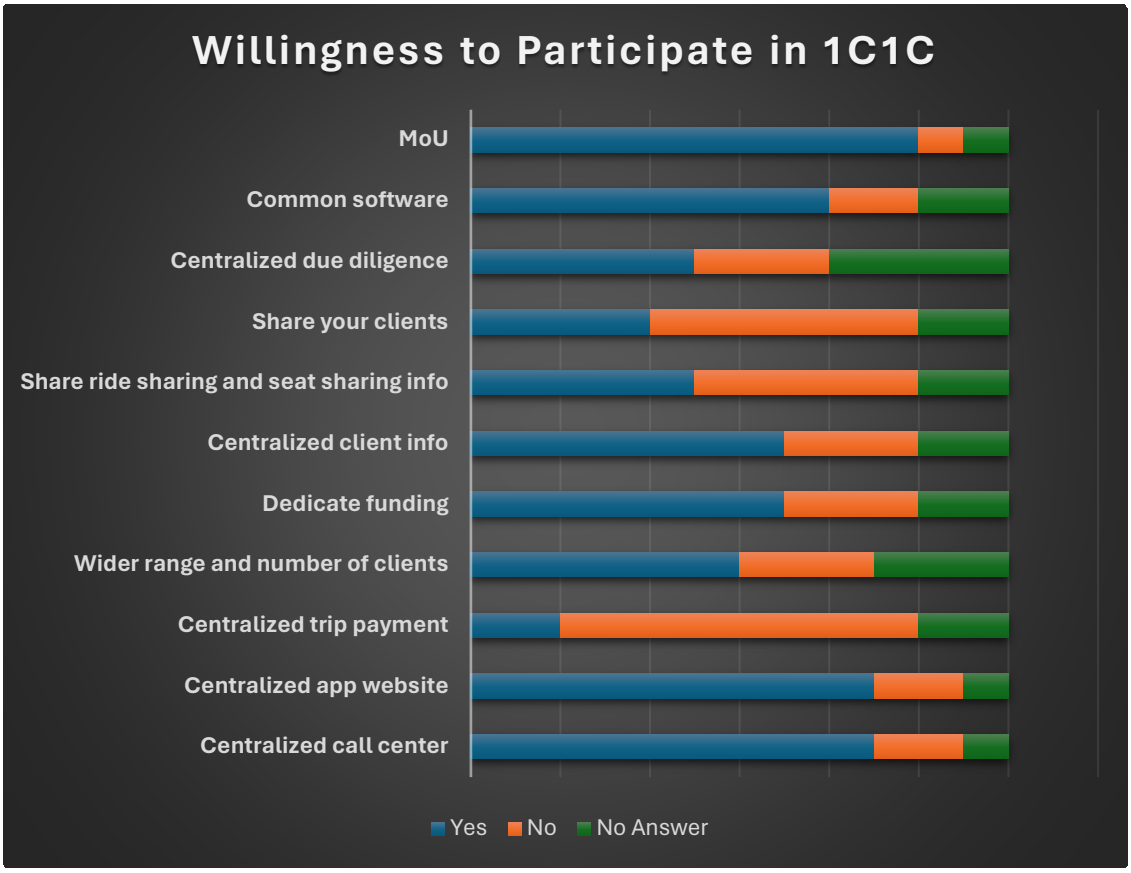


Figure 7 Willingness to Participate in a 1C1C System

Supportive Participation: Various agencies, including COSA, NCR, ART, and NESA, express interest in the role of supporting over leading the 1C1C system due to their limitations in management and capacity.

- COSA could contribute by providing centralized leadership in driver training and risk management, while NESA could assist in evaluating rider eligibility.
- ART is interested in serving as a centralized umbrella entity to host the system and leverage its existing APP.
- NCR aims to actively participate in discussions and initiatives related to 1C1C to represent the interests of low-income older people and serve as an education hub for raising awareness and fostering community engagement.

Pilot Collaboration: Various agencies suggest a pilot project to demonstrate collaboration and trust to community members and potential funders. Ride Connect and NCR propose ideas for pilot testing the 1C1C system.

- NCR plans to use their newly awarded 5310 transportation projects for a pilot site assessment, providing transportation services to five communities for medical, grocery, and social visits.

- Ride Connect suggests leveraging their collaboration with PRESA to explore conditions needed for coordination and ridesharing between organizations. The MPO also highlights the possibility of using federal funding to support a small pilot project or study.

Champion and Lead: Ride Connect suggests that the MPO and SAAFdn could lead as champions due to their capacity and lobbying capabilities. PRESA recommends Ride Connect as a potential lead but acknowledges the need for fundraising to build organizational capacity and address necessary changes to its mission. There is concern that this could divert resources from PRESA's core mission. An alternative to an existing entity taking a lead agency position is the establishment of an independent non-provider organization, possibly a nonprofit, to act as an administrative lead agency to coordinate eligibility, data sharing, and data management for the system.

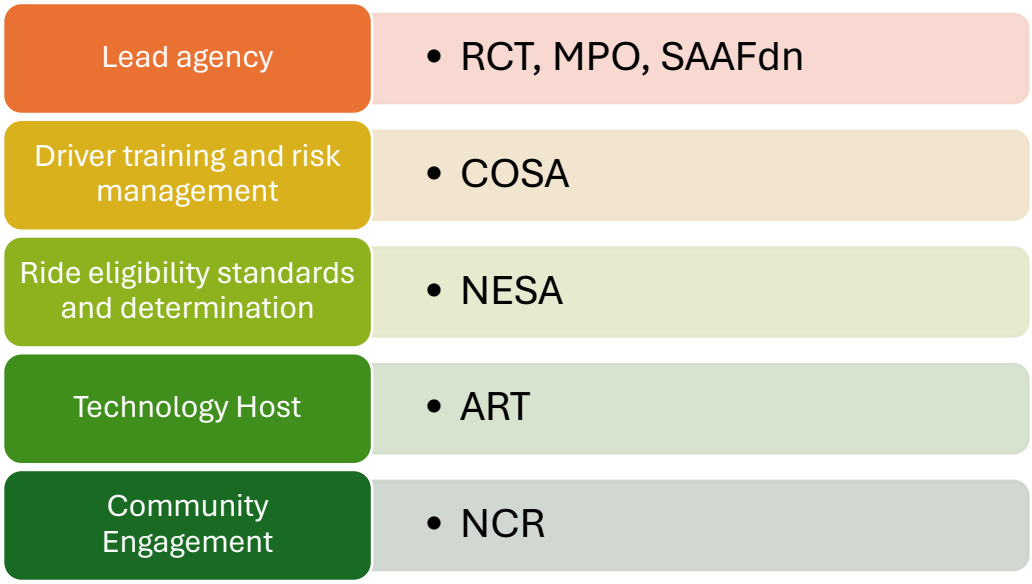


Figure 8 Community Interest and Preferred Roles in Participating in the 1C1C System.

Expertise in Transit: Stakeholders prioritize leadership from agencies with expertise in transit, such as VIA or city and county transportation departments, to ensure effective development of the one-call/one-click transportation system.

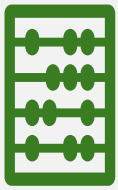
Capacity for Funding and Infrastructure: The selection of a lead entity is influenced by its capacity for funding and existing infrastructure, with VIA highlighted as a strong candidate due to its 0.5% of local sales tax funding and alignment with the system's goals.

Potential Collaborations: Finally, the selection of the leader rests on their ability to foster collaborations across a range of organizations, assessing the strength of the collaborations for the benefit of the integrated system. For example, collaborating with the MPO and 211 is important for their planning and information management expertise, respectively. Collaborations with RCT and SAAFdn are essential to leverage their existing expertise and access to diverse funding streams.

Key Takeaways

Various agencies are interested in supporting the system but have management and capacity limitations to contribute to a leadership role.

A pilot demonstration project seems to be a reasonable idea to test this initiative as an early win, helping garner broader community support.



Some agencies recommend VIA as a strong candidate, but another entity like Ride Connect, with substantial financial support and mission alignment to enhance their capacity, may have the potential lead. An independent central administrative entity, as recommended in other key takeaways, can avoid conflicts of interest or siloed leadership.

5.0 Infrastructure Assessment

In this section, we delve into the combined capacity of community-based, on-demand transportation in San Antonio, alongside a critical evaluation of the city-level infrastructure system and its influence on the functionality of these transportation services. Key to our analysis is understanding how the availability and condition of roads, sidewalks, crosswalks, and ADA-compliant features impact the accessibility of transportation for transportation disadvantaged, as these elements play a crucial role in their ability to navigate different city areas (Loukaitou-Sideris et al., 2019).

The chapter is organized into three main sections:

1. **San Antonio's city-level infrastructure** - We begin with an overview of San Antonio's city-level infrastructure, drawing on publicly available data to assess the extent and quality of this infrastructure. This foundational assessment sets the stage for understanding the broader context in which on-demand transportation operates.
2. **Combined Service Capacity for On-demand Transportation** - Next, we assess the services provided by on-demand transportation providers in the city, focusing on a spatial analysis of where demand meets supply and identifying gaps. This assessment also extends to evaluating other dimensions of institutional capacity, such as the number of vehicles deployed, staffing levels, and additional factors affecting service quality and availability, wherever data permits.
3. **TD Accessibility Index** - Building upon our insights into city-level infrastructure and the operational landscape of on-demand transportation services, we conclude by developing a neighborhood-level accessibility index for TD populations. This index specifically targets populations disadvantaged by transportation issues. It uses census tracts as a stand-in for neighborhoods to offer a granular view of transportation accessibility and its implications.

Through this structured analysis, we aim to offer a comprehensive understanding of the current state and potential areas for improvement within San Antonio's on-demand transportation ecosystem, focusing on enhancing accessibility for those most in need.

5.1 Access to Transportation and Walkability

The vast majority of TD populations rely on fixed-route buses and paratransit vans for their daily mobility. According to the Human Services and Transportation Plan the Atlanta Regional Commission prepared, fixed-route buses and paratransit vans allow TD populations to travel longer distances and make more frequent trips. However, a systematic assessment of the quality of fixed-route transportation is outside the purview of this project. Therefore, we focus on availability analyses of walkability and service reach of community-based on-demand transportation that includes paratransit and other mobility services.

Table 11, along with Map 1, visualizes the distribution of the TD populations within the San Antonio region, categorized by age and disability status, and indicates the percentage of these populations that fall below the Federal Poverty Level (FPL). The census tract level map illustrates that the central areas of San Antonio have a higher density of transportation-disadvantaged populations (darker color), which may indicate a greater need for transportation services and support in these areas.

Map 1 Distribution of Transportation Disadvantaged Population by Tract Population within the Urbanized Areas of San Antonio and Bexar County *(Data Source: American Community Survey 2022 5YR)*

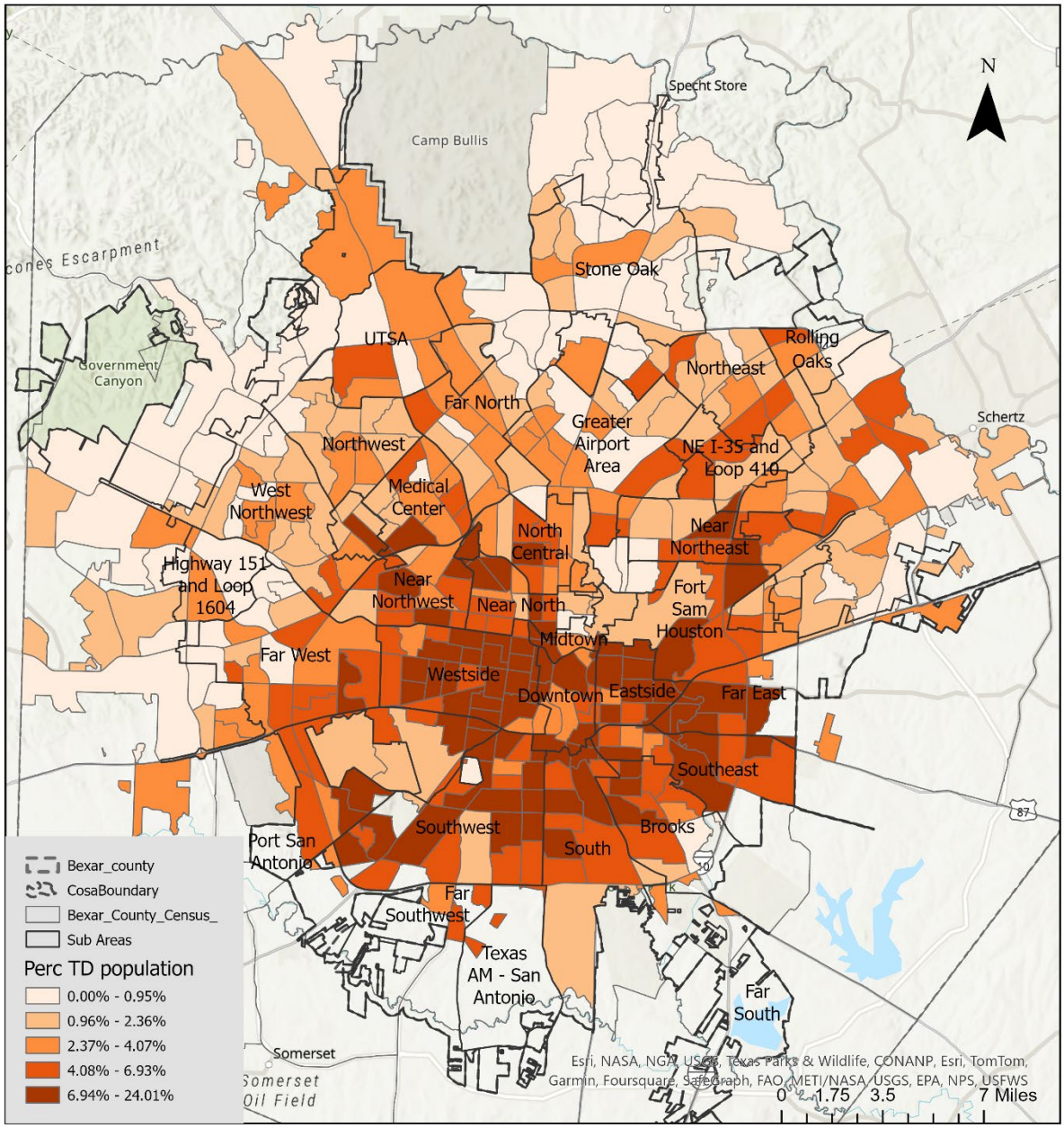


Table 11 Distribution of Transportation Disadvantaged Populations in the City and County

Area	With Disabilities Below age 18 (below FPL)	With Disabilities age 18 to 64 (below FPL)	With Disabilities age 65 and over (below FPL)	Without Disabilities age 65 and over (below FPL)	TOTAL
San Antonio City, Texas	7,625	30,196	13,877	11,559	63,257
	(12.05%)	(47.74%)	(21.94%)	(18.27%)	(84.92%)
Rest of Bexar	1,733	5,052	2,295	2,150	11,230
	(15.43%)	(44.99%)	(20.44%)	(19.15%)	(15.08%)

Data Source: ACS 2022 5yr (Sheet C18130)

Within Bexar County, there are 74,487 individuals that fit the definition of transportation disadvantaged. The table shows that the majority of the TD populations in the region live within San Antonio (84.92%) and the rest live outside the city within Bexar County (15.08%) – populations who are either over the age of 65 or with disabilities under the federal poverty level. This is the definition of transportation disadvantage for the purpose of this research project. More local, context-specific definitions can change these distribution patterns. In both regions, populations in the 18 to 64 age group with disabilities constitute the highest percentages, followed by older adults with disabilities. A detailed table of the percentage distribution of population by sub-area is provided in the appendix 6.2

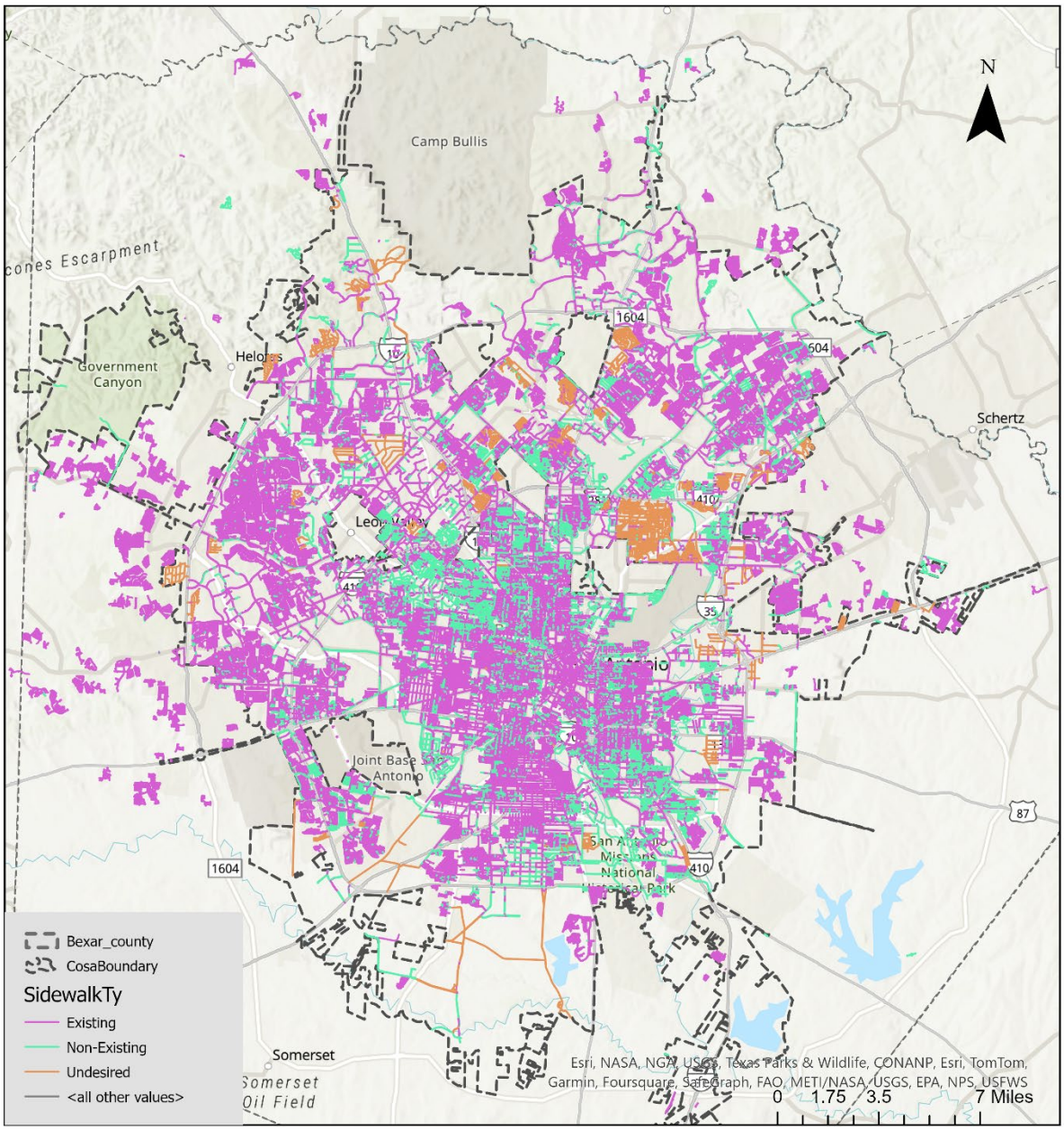
The sub-areas with the highest percentage of their population being TD compared to their total population are Downtown, Westside, and Southwest, suggesting that these areas may have higher needs for disability-related services. Westside and Southwest also have the highest percentages when it comes to their share of the city's total TD population, indicating these areas have a significant concentration of the city's TD residents.

5.1.1 Sidewalk Infrastructure

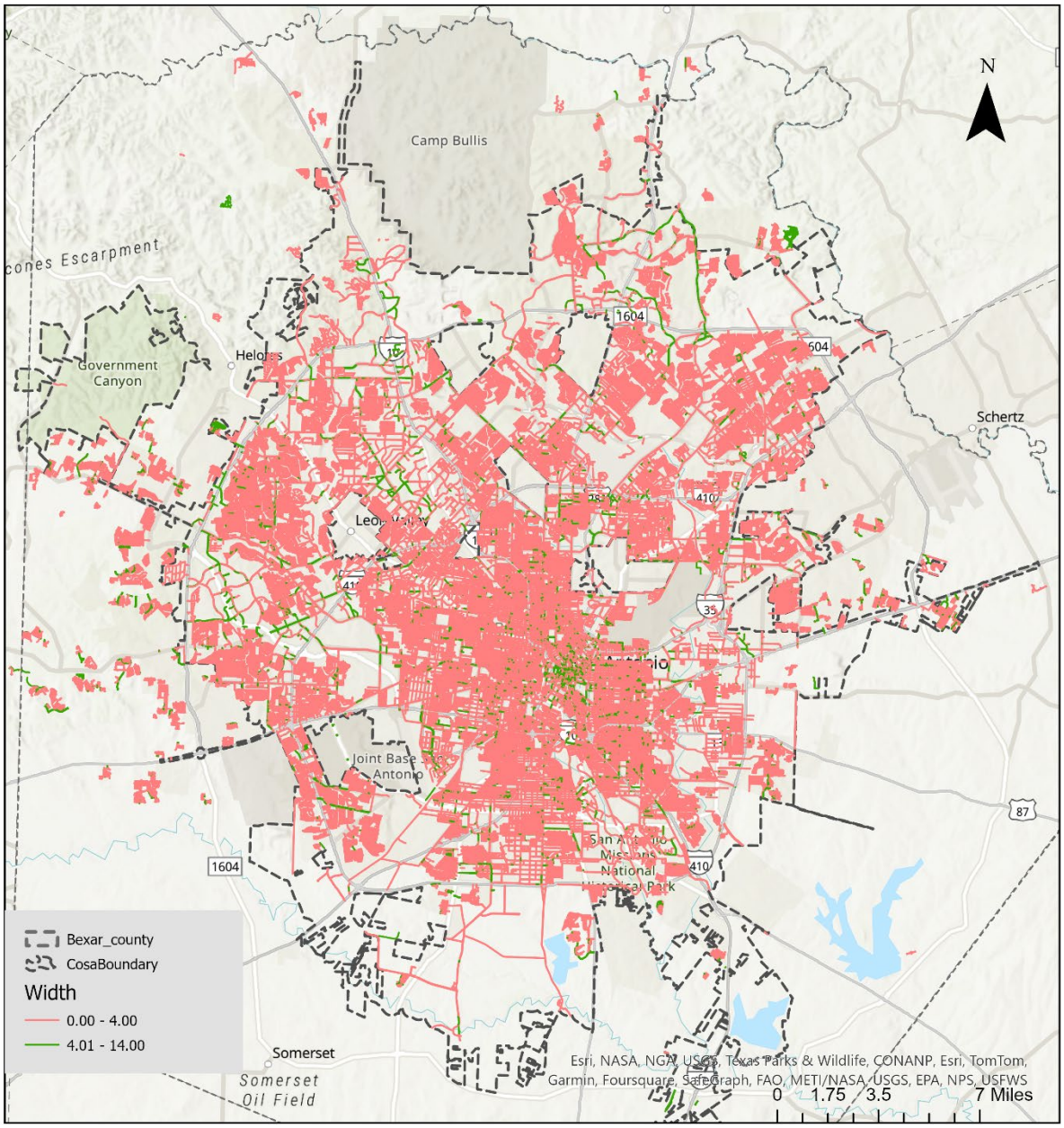
Equitable access to road infrastructure is difficult to assess. Sparser road networks and greater block distances make neighborhoods automobile-dependent and make using fixed-route buses or paratransit vans less attractive, particularly for lower-mobility populations. However, even within neighborhoods with higher road network density, the absence of sidewalk infrastructure and lower walkability can significantly raise mobility barriers for all.

Two maps generated from the COSA GIS database show the status of sidewalks in the city region. Map 2 shows the distribution of sidewalks in the different parts of the city (refer Map 2). 75% of the streets have sidewalks, 19% of the streets do not have sidewalks, and 6% of the streets are in neighborhoods that do not desire a sidewalk. Map 3 shows greater nuance. ADA-compliant sidewalks must be four feet wide to accommodate mobility aids like wheelchairs. The COSA GIS data shows that 63% of the sidewalks in the region have a width of less than four feet, and only the remaining 37% have sidewalks that have widths that are higher.

Map 2 Sidewalks in the City Region



Map 3 Distribution of Side Walks by Width

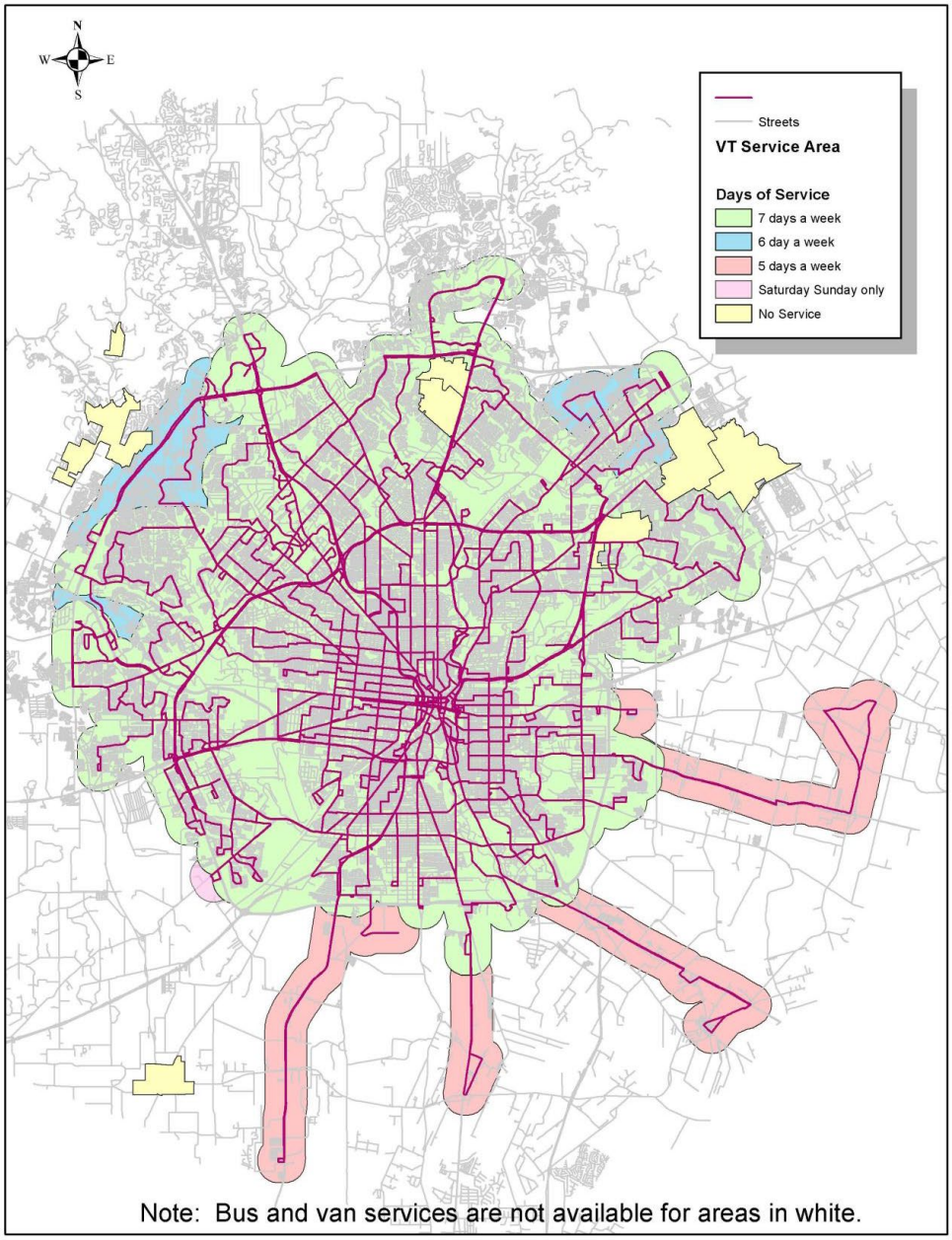


The Advisory Group should reference the MPO study on sidewalks to understand the quality of the available sidewalks. An updated study may be necessary. In addition, walkable streets necessitate the improvement of other street infrastructure such as crosswalks, cooling rest stops, and so on. The maps show that there is considerable room for improvement. Our focus groups with the TD populations in the city provided qualitative evidence of the poor quality of pedestrian infrastructure. Participants mentioned that even if a sidewalk is present, it is uneven, broken, and unsuitable for wheelchairs, limiting their ability to access fixed-route buses and curb-to-curb services provided by paratransit vans.

5.1.2 Access to Paratransit

Most TD populations have considerable difficulty accessing fixed route systems even with ADA-compliant features owing to poor quality pedestrian infrastructure and physiological barriers to mobility. Paratransit services are, therefore, the preferred mode of public transport and cover almost the entire city and some parts of suburban Bexar County. The service area and the days of service are shown in Map 4 below:

Map 4 VIAtrans Service Area



Source: VIAtrans Customer Service Guide (May 2022)

What does this mean for the One-Call One-Click System?

The implications for the One-Call One-Click System are significant. In San Antonio, most on-demand services offer curb-to-curb transportation, which is beneficial. However, the effectiveness of these services for Transportation Disadvantaged (TD) communities heavily depends on the quality of the infrastructure, such as sidewalks and public transport access. Adopting centralized software, increasing the number of vehicles, or the capacity of nonprofit service providers will have limited impact on mobility for TD populations if the foundational infrastructure is sub-par. Moreover, our focus group discussions with community members have highlighted a wide disparity in infrastructure quality across different areas of the city, directly affecting their ability to move around. Therefore, in the following section, we will assess the walkability of neighborhoods in the city to better understand these disparities and their impact on accessibility.

5.2 Walkability in San Antonio

The National Walkability Index, developed by the Environment Protection Agency (EPA), offers a comprehensive assessment of the walkability of block groups across the United States, utilizing data from the Smart Location Database (SLD). This Index evaluates block groups, which are subdivisions of census geography smaller than a census tract but larger than a census block, on their suitability for walking as a primary mode of transportation. The assessment is based on critical elements of the built environment that influence walking behaviors, including street intersection density, proximity to transit stops, and a diversity of land uses. By assigning a score to every block group in the nation, the Index simplifies the complexity of walkability into an accessible format for the general public, using a limited set of measurable variables that reflect the likelihood of walking based on the area's infrastructure and amenities. A description of the detailed methodology used by the EPA can be found in the Appendix section 6.1. The walk index distribution across the San Antonio region is provided in Map 5.

The National Walkability Index categorizes block groups into four distinct levels of walkability based on their score range. Block groups with a score from 1 to 5.75 are considered the 'Least walkable,' indicating the lowest potential for walking as a mode of transport within these areas. Those with a score ranging from 5.76 to 10.5 are rated as 'Below average walkable,' suggesting a walkability that falls short of the median expectation. Block groups that achieve a score between 10.51 and 15.25 are 'Above average walkable,' showing a higher than usual likelihood of walking. Finally, the 'Most walkable' block groups are those with a score from 15.26 to 20, reflecting the highest propensity for walking and the most supportive environments for pedestrians.

The EPA's walkability assessment does not include a scale depicting the quality of pedestrian infrastructure. Still, this map is important for understanding, in general, how walkable communities with high numbers of TD residents could be with infrastructure investment. Even though the map does not consider sidewalk quality, it does consider the walkable distance between amenities. The shortest distance between amenities is reflected in the darker green areas, while the orange and yellow areas have greater distances between amenities and, therefore, are automobile-dependent.

Map 5 San Antonio Area Walkability Index

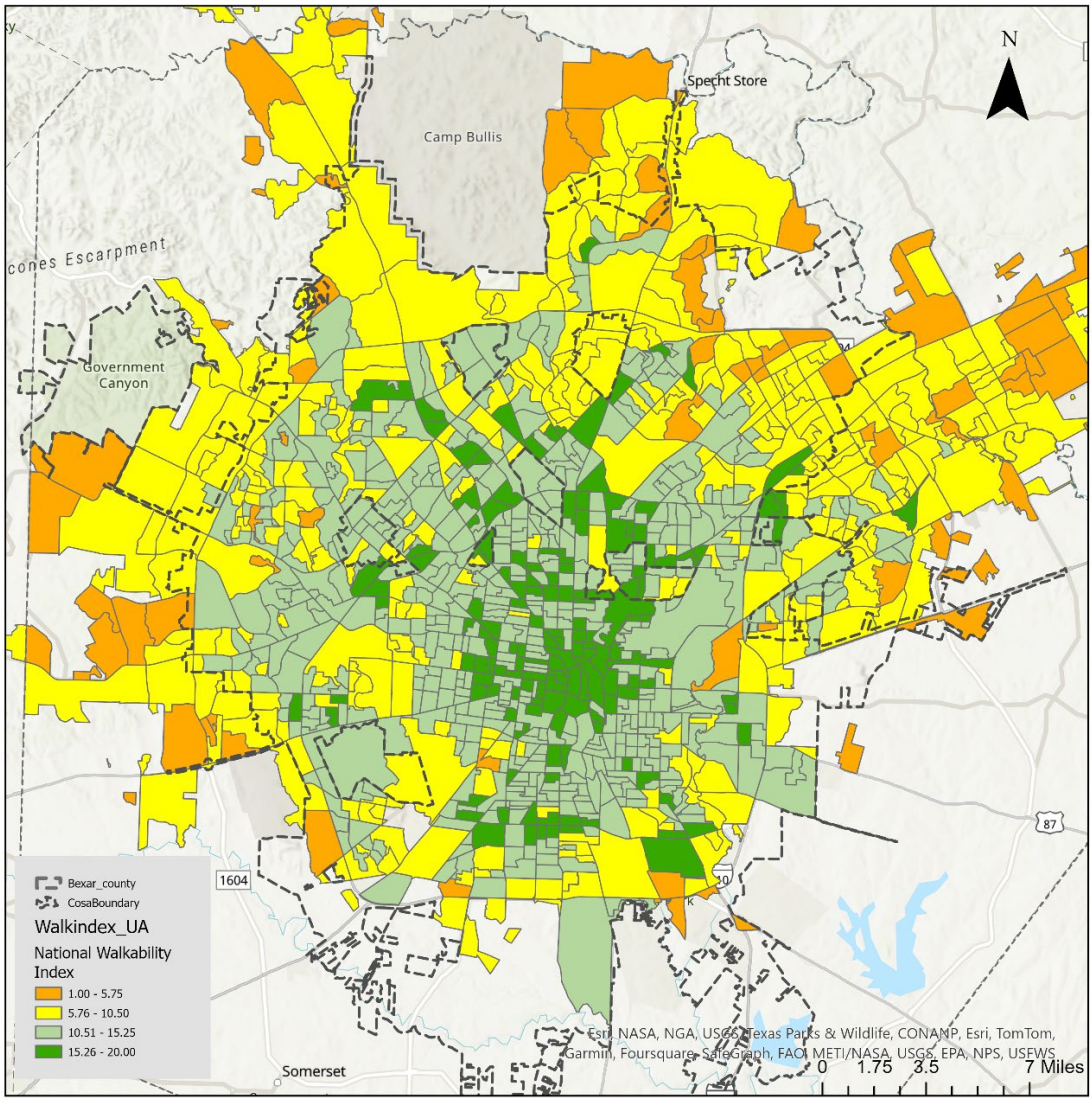


Table 12 Walkability in the City and Region

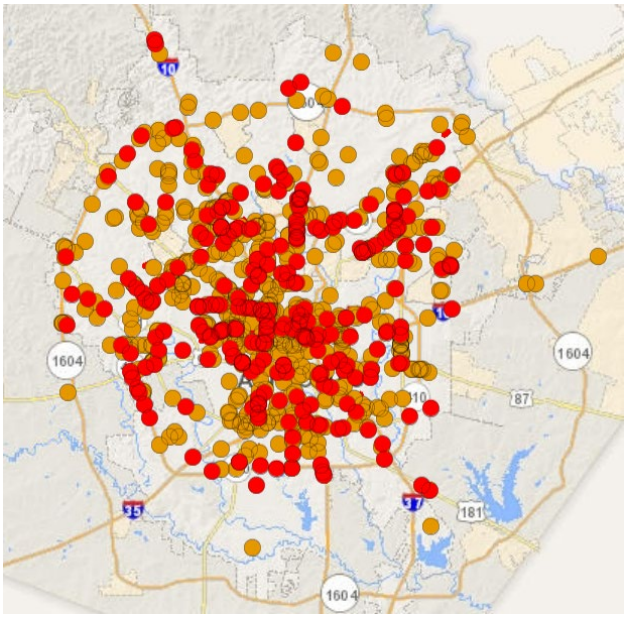
Percentage TD population	Least walkable (Orange)	Below average walkable (Yellow)	Above average walkable (light green)	Most walkable (dark green)
San Antonio	2.45%	23.55%	63.78%	10.23%
Rest of Bexar County	11.29%	44.88%	38.42%	5.41%

While Map 5 provides a spatial representation of how the EPA walkability index is distributed in San Antonio, we gain more impactful information by observing the percentage of the TD population living in the least to most walkable areas inside San Antonio city limits and outside San Antonio, but within Bexar County (Table 12). Significant disparities exist between above-average and below-average walkability in San Antonio and Bexar County. Within San Antonio, 74.01% of the TD population live in areas with above-average and higher walkability. However, 26% of the TD population live in areas below average or lower walkability (total percentage greater than 100 due to rounding). The walkability disparities outside San Antonio city limits but within Bexar County are even more apparent. Only 43.83% of the TD population live in areas with above-average or higher walkability, and 56.17% live in areas with below-average or lower walkability. The percentages presented in Table 12 demonstrate the disparities faced by the TD populations viewed through the lens of neighborhood walkability. Since TD populations frequently rely on walking as part of their daily commute, poor walkability can negatively impact their ability to access essential services, employment, and social engagement opportunities, exacerbating social isolation and economic hardship.

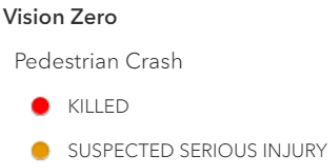
Why does walkability matter?

A direct implication of walkability is safety for pedestrians and lower mobility populations. In 2021, TxDOT reported 626 reports of vehicles hitting pedestrians in the San Antonio area, resulting in 88 fatalities and 132 serious injuries. In 2022, the total number of vehicle and pedestrian accidents in San Antonio was 781. In 2023, that number jumped to 841. An analysis of the pedestrian crash data has identified 90 Severe Pedestrian Injury Areas (SPIAs) in San Antonio, consisting of about 53 roadway miles. These areas represent about 1% of San Antonio roadways but account for about 42% of all fatal and suspected serious pedestrian crashes.

Map 6 Extracted from Vision Zero Data (City of San Antonio)



According to data from the city's Vision Zero program, an effort to reduce accidents and aim towards zero fatalities, a snapshot of data over the last 5 years identified 4,000 pedestrian-involved crashes (Map 6). Some common injuries sustained by pedestrians in accidents include broken bones and bone fractures. Most pedestrian accidents occur in cities, in streets outside of intersections, and at night. Other areas where these accidents are more likely include parking lots and on private property, such as in driveways. Recklessness by both drivers and pedestrians can be considered one of the primary causes of pedestrian accidents.



5.3 On-Demand Transportation – Demand and Supply Gaps

A demand-supply gap analysis at the tract level constitutes a thorough assessment that aims to match the transportation needs (demand) of the transportation-disadvantaged (TD) populations within a particular census tract to the availability (supply) of transportation services. On-demand transportation is a flexible and dynamic service where riders can book rides in real-time or advance by selecting their pick-up and drop-off locations within a designated service area through a mobile app, website, or call center. On-demand transportation services aim to improve accessibility, reduce wait times, and enhance the overall efficiency of transportation systems.

Undertaking a demand-supply gap analysis at the tract level for transportation disadvantaged (TD) populations is crucial for several reasons, especially when considering the implementation of a 1C1C system:

Targeted Service Delivery: By analyzing the gap at a granular, tract level, transit authorities and community service providers can identify specific areas where the TD population's need for transportation services is unmet. This targeted approach allows for more efficient allocation of resources where they are most needed.

Stakeholder Engagement: Detailed gap analysis can be a valuable tool for engaging stakeholders, including the TD population, advocacy groups, service providers, and funding bodies, by providing clear evidence of need and potential impact.

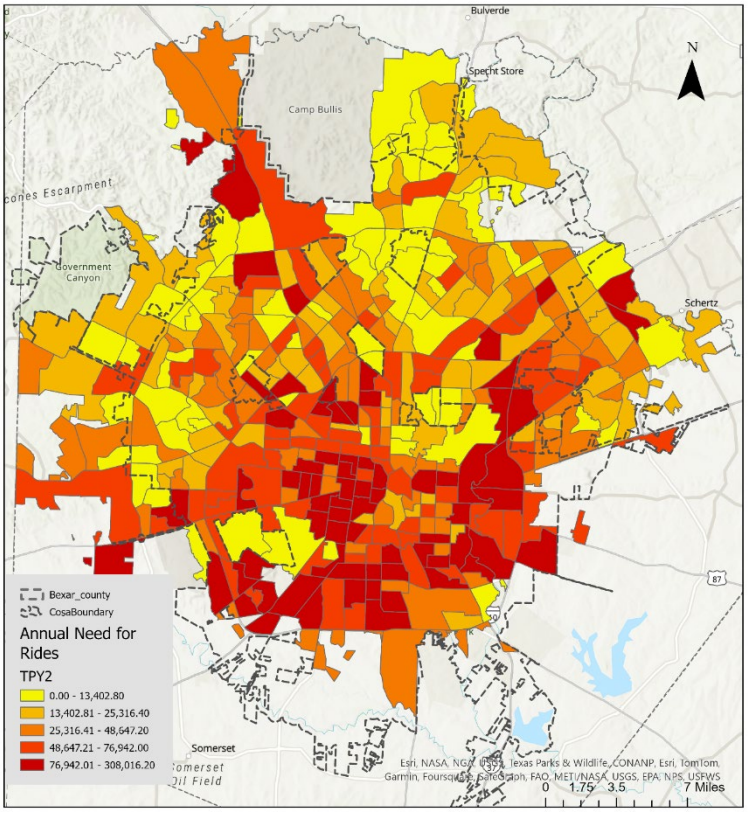
Performance Monitoring: Once services are implemented, the data from the gap analysis can serve as a baseline to monitor the performance and effectiveness of the 1C1C system, allowing for ongoing improvements.

5.3.1 What is the extent of the need for rides?

We calculated "transportation disadvantaged" as adults over 65 below the federal poverty line and people at any age with a disability also below the federal poverty line. Using 2021 American Community Survey data, we estimated the total population of transportation-disadvantaged individuals and their total trip demand. Based on the 2017 National Travel Survey, the estimated national average person trip rate or the number of daily trips for older people is approximately 3.19 (Lidbe et al., 2021). This translates to about 83 million rides per year. However, this constitutes the latent demand for rides.

Without a high level of service, TD populations may change their behavior and economize on the number of trips made in a day. A rough estimate from the ridership survey for San Antonio shows a daily trip rate of only 1.23 for work, grocery shopping, medical trips, and socialization. Nearly half do not have cars, and about 55% use ride services. Considering that 55% of the daily trip rate is expected to be served by on-demand transportation, TD populations on average need to make about 0.68 daily trips by on-demand services or about 18.48 million trips per year. However, this method of calculating daily trip needs does not factor in the self-reported missed trips or the ride needs of populations above the federal poverty line. Therefore, it is a very conservative estimate of travel needs.

Map 7 Spatial Distribution of Rides Per Year to be Served by On-Demand Transportation

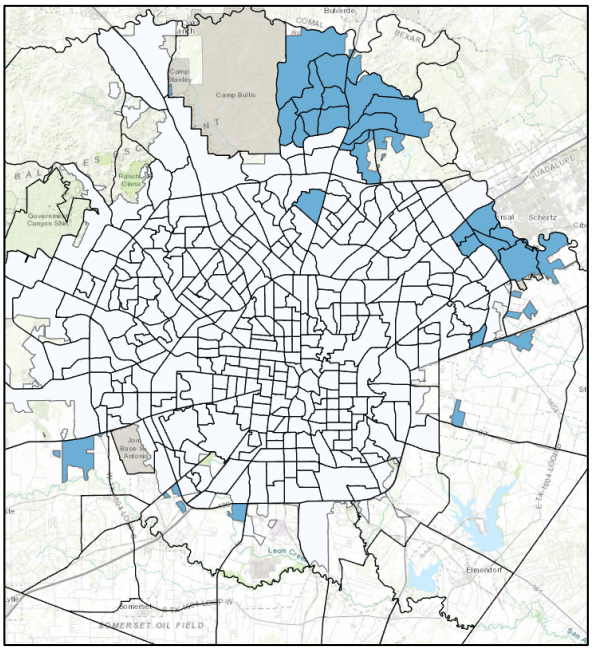


Map 7 shows the spatial distribution of the absolute need for on-demand rides based on a daily trip rate of 0.68. In the map the colors from deep red to yellow denote the decreasing need for rides for the TD populations. This is directly related to the percentages of TD population in the tract.

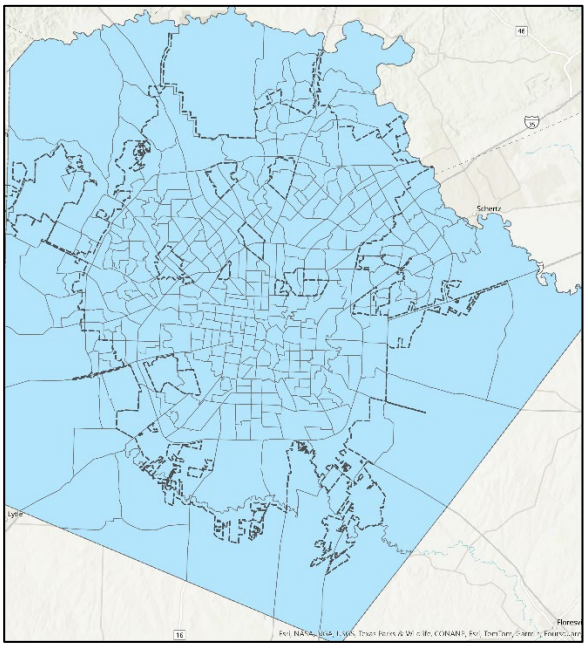
5.3.2 What is the available supply of rides across the city and the region?

Next, using the data from the different service providers, we distributed the serviced trip proportionally to the TD population in each tract within the service area. This is an important limitation of the spatial analysis since the actual service provision will vary across neighborhoods. The following maps show the service area coverage and annual rides for ride providers other than VIAtrans.

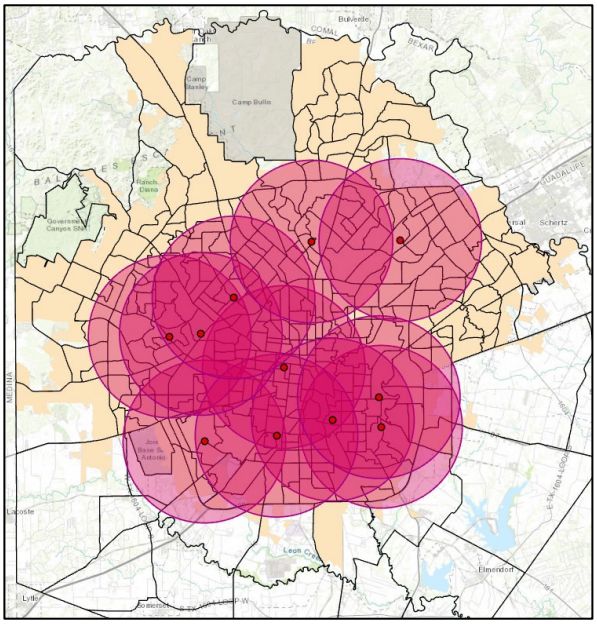
Map 8 Service coverage of on-demand transportation providers in San Antonio



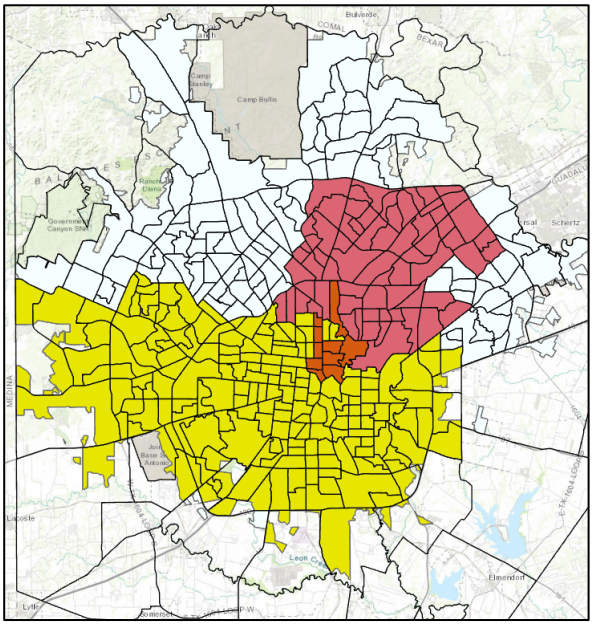
Rural paratransit (ART)



PRESA



Senior center (5-mile buffer)



Non-profit ride providers (Ride Connect, NESA)

These maps show that the service area coverage is not uniform across the urbanized area of San Antonio and Bexar County. Discussions with ride providers show wide temporal variation in rides offered. For example, NESA increased its rides from 4 to 8 per day. PRESA shows an annual 20,000 rides on its website, almost double that of the data collected during the survey. Ride Connect of Texas recently terminated its partnership with PRESA and this could lead to further discrepancies in the rides provided. Based on the information provided, we estimate a maximum of 2.04 million rides provided by on-demand transportation. Therefore, although the spatial coverage of on-demand transportation is extensive, (approximately) the rides provided fall significantly short, covering only about 11% of the annual demand for 18.5 million on-demand transportation rides. The data for Table 13 comes from discussions and institutional surveys with the various ride providers.

Table 13 Rides served by the service provider

Service provider	RCT	NESA	VIAtrans	ART	PRESA	Comfort Care	Senior Center
Total TD populations in the service area	54,093	15,922	70,114			73,363	68,790
Calls received per day	37	15	1,400	450	50	3,500	
Rides provided per day	8	8	3,346	222	40	2,507	395
Area Served	PC	PC	COSA, PB	PC, PB	PB	COSA, Bexar	PC
Origin Destination data available	YES	YES	YES	YES	NO	NO	NO
Number of days of service per week	5	5	7	5	5	5	5
Approximate Annual Rides Provided	2,130	2,080	1,217,967	57,590	10,428	651,775	102,700
Approximate annual number of calls unserved	7,490	1,820		59,410	2,572	258,225	
Percentage calls unserved	78%	47%		51%	20%	28%	

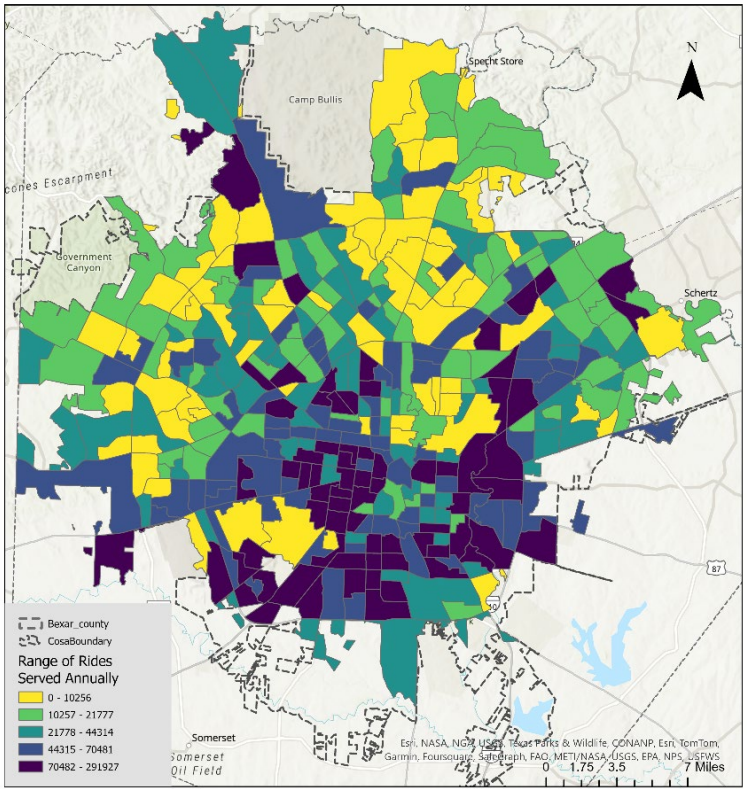
Key: **PC** – Parts of the City, **COSA** - City of San Antonio, **Bexar** – Bexar County, **PB** – Parts of Bexar outside COSA

Table 13 is a proxy for understanding the basic capacity of the system. The table shows that the nonprofit providers contribute very few rides relative to VIAtrans and ART. Therefore, the nonprofit providers should not be considered capacity builders for the system to meet the manifest and latent demands presented in this analysis. The Advisory Group could use this table to consider strategies for comprehensive capacity enhancements. It provides an insightful overview of the performance and reach of various ride providers within different jurisdictions. It highlights the disparity between the number of calls received and rides provided daily, the coverage area, availability of origin-destination data, operational days per week, and the approximation of annual rides versus unserved rides based on call data.

Ride Connect of Texas, NESA, and ART demonstrate a significant gap between demand (calls received) and supply (rides provided), with unserved rides based on call data percentages at 78%, 47%, and 51%, respectively. This indicates a substantial unmet need within their service areas. In contrast, VIA Trans, serving the COSA area, efficiently manages a high volume of calls, providing over 1.2 million annual rides. Despite receiving the most calls, Comfort Care has a 28% gap, suggesting a better but challenging ability to meet demand.

The figures underline a broader issue across all providers. The overall gap of 89% underscores the critical need for enhanced support, capacity building, and, perhaps, technology integration to better match ride demand with supply, especially in underserved areas.

Map 9 Distribution of Rides Served Annually



Map 9 shows the spatial allocation of rides for the different ride providers listed in the Table 13

The rides provided by each service provider were allocated to their respective jurisdiction and added at the tract level. The tracts with higher rides closely follow the patterns of the VIA paratransit since they provide the most rides.

5.3.3 What is the level of service gap?

Using ride data from the different service providers we plotted spatially the rides served to total rides needed in each census tract. Map 10 below shows variations from green (most served) to deep red (least served) census tracts.

Map 10 Service Gaps in San Antonio and Bexar County

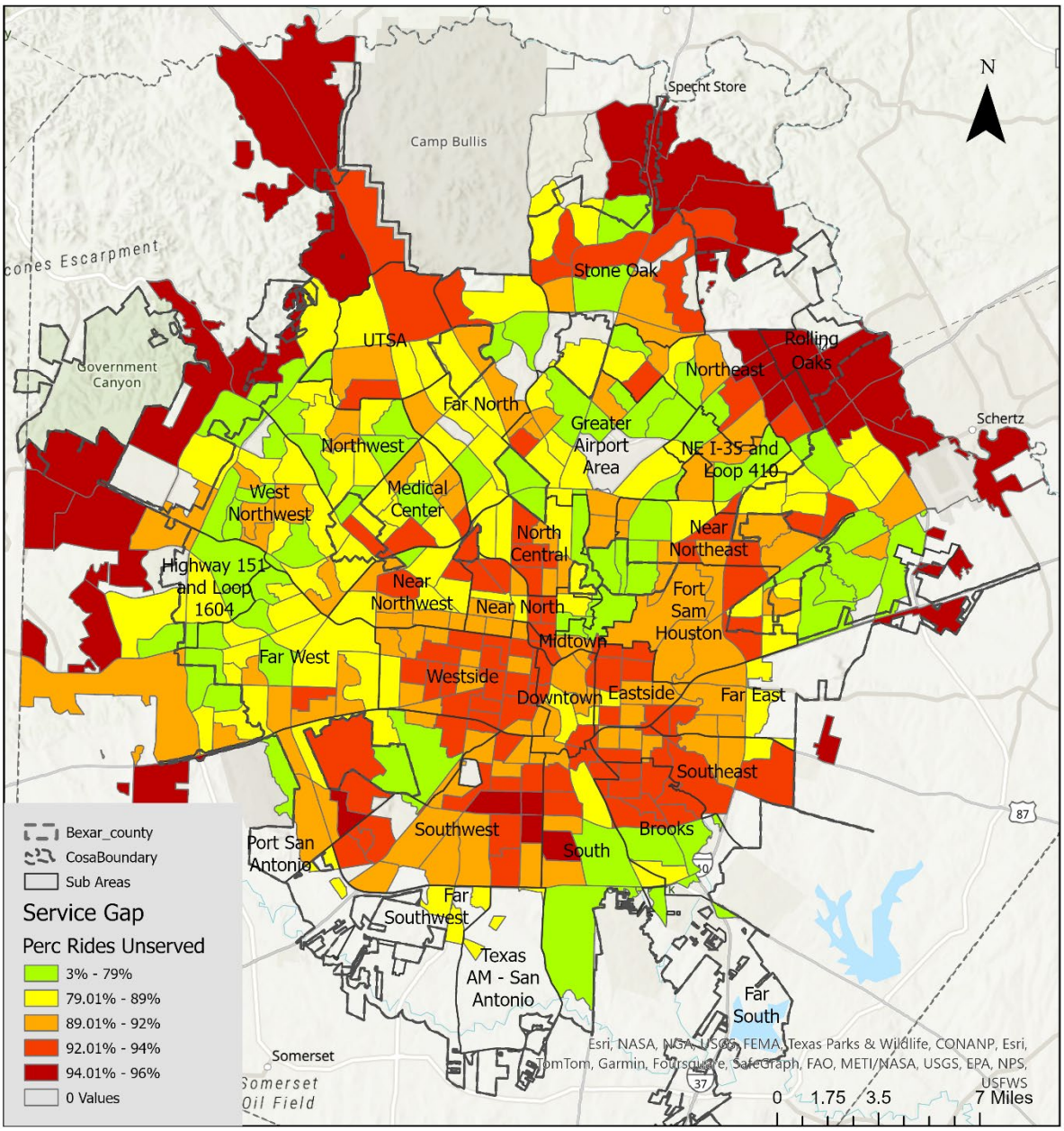


Table 14 Percentage of TD populations in the different service regions

Region	Highest Service Gaps	Higher Service Gaps	High Service Gaps	Low Service Gaps	Lowest Service Gaps
Color range					
City of San Antonio	30%	45%	8%	13%	5%
Rest of Bexar	21%	27%	21%	21%	10%

Table 14 delineates the service gaps experienced by the transportation disadvantaged (TD) populations across the City of San Antonio and the broader Bexar County. In San Antonio, the TD community predominantly grapples with "Higher Service Gaps," affecting 45%, and "High Service Gaps," affecting 30%, indicating significant deficiencies in transportation services. A mere 5% enjoy "Lowest Service Gaps," while the extremes of "Highest" and "Low" are less prevalent. Conversely, Bexar County's TD populations endure a more uniform distribution of service gaps, with both "Higher" and "Low" service gaps impacting 21% each. Strikingly, 21% also confront the "Highest Service Gaps," which is more severe than in San Antonio.

A detailed table of demand, supply, and service gaps in each sub-area is provided in Appendix 6.3. A stark disparity is evident across all regions, with most required rides going unmet. For instance, Rolling Oaks exhibits a 95% service gap. Similarly, high percentages of unmet needs are seen in Southwest, Southeast, Eastside, and other areas. Even in the best-served area, Highway 151 and Loop 1604, the unserved ride percentage is 76%. This suggests that irrespective of the area, there are considerable challenges in meeting the transportation demands of the TD population, with an average ride served at 13% across the sub-areas.

5.4 Access to Paratransit and Service Gaps

In San Antonio, paratransit services are a lifeline for the transportation disadvantaged (TD) populations, providing critical mobility options for those who are unable to use standard public transit due to various disabilities. To test the relationship, we ran two separate regression models with percentage of rides served as the dependent variable and the proximity score or distance to bus stops ($r = 0.171$, $p < 0.001$), and the percentage of rides served by VIA ($r = 0.156$, $p = 0.002$) as the independent variables. Because of the magnitude of the demand and the very small percentage of overall supply, we found weak but positive correlations between access to paratransit and mobility for the transportation disadvantaged. This result indicates that having access to paratransit services does not have much impact on improving overall mobility for the TD population.

These results underscore the importance of bolstering the paratransit service. Despite having access to dedicated revenues through the 0.5% of local sales tax, paratransit is not currently serving a significant portion of the transportation need.

This specialized transportation is not just a matter of convenience but of necessity, enabling access to essential services like medical appointments, education, employment, and social activities. The presence of a reliable and efficient paratransit network is fundamental to ensuring that all members of the community, regardless of their physical capabilities, can participate fully in society and lead independent lives.

5.5 TD Accessibility Index

Why do we need an index?

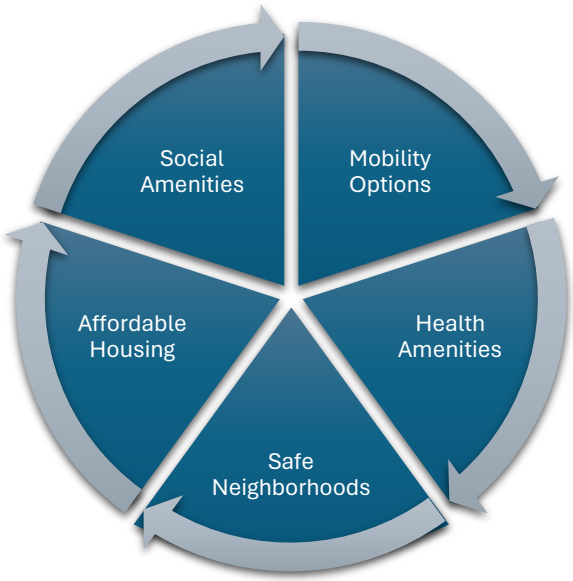
Constructing an Accessibility Index for the transportation disadvantaged at a granular spatial level offers a comprehensive approach to understanding and addressing the needs of this demographic. It not only aids in creating more livable and age-friendly environments but also informs policy, fosters community engagement, and supports the well-being of TD populations in San Antonio. Here are a few important advantages:

Benchmarking and Monitoring Progress: The index provides a baseline against which improvements can be measured over time. It allows for the monitoring of progress in enhancing the accessibility for transportation disadvantaged, helping to evaluate the effectiveness of policies and interventions.

Community Engagement and Awareness: The process of constructing and disseminating the index can raise awareness among residents and local stakeholders about the challenges faced by TD populations in their communities. This can foster a sense of solidarity and prompt community-led initiatives to support this demographic group.

Targeted Policy Interventions by the Wider Community: Not all mobility issues for TD populations can be resolved by SAAFdn and its SALSA partners. By identifying areas with low accessibility scores, policymakers can design and implement targeted interventions to address specific deficits. This might include improving public transportation accessibility, increasing the availability of affordable healthcare services, or enhancing safety measures in neighborhoods identified as vulnerable.

What is in the Index?



We recommend considering several variables that influence mobility opportunities for the transportation-disadvantaged population in San Antonio. While the availability of ride services, such as nonprofit providers and paratransit vans, and proximity to fixed-route bus stops is essential, understanding the intersection of those services with affordable housing, grocery store locations, community centers, healthcare services, and neighborhood safety are also critical to developing a robust transportation system that encourages independent living through accessibility for vulnerable populations, such as older adults and people with disabilities below the poverty line. A complete discussion of the variables included in the accessibility index are available in the appendix of the report.

The image, with its circular diagram and segments, represents a conceptual framework for assessing the Accessibility Index in a community or urban setting. Each segment of the circle corresponds to a crucial aspect of living standards and quality of life. In the context of the Accessibility Index:

Social Amenities: This would measure the access to and quality of community spaces and cultural institutions that foster social interactions and cultural engagement. A higher number of quality social amenities would contribute positively to the Accessibility Index.

Mobility Options: This indicates the diversity and efficiency of transportation means available to residents. Well-connected neighborhoods with various transportation options would score higher on the index, reflecting easier and more affordable mobility.

Health Amenities: This captures the accessibility and availability of healthcare facilities and wellness programs. An area with a greater density of health-related services would be deemed to have a higher accessibility.

Safe Neighborhoods: This relates to the perceived and actual safety of the area. Low crime rates, effective law enforcement, and community programs that promote safety would enhance the accessibility.

Affordable Housing: This assesses housing affordability, which is a critical component of living standards. Housing that is affordable for the majority of residents would contribute positively to the index.

Data was collated from various public sources and Exploratory Factor Analysis was used to reduce variables to a single factor score that represents the variability in all of the indicators. A detailed description of final variables included, and the index construction method is included in the appendix section 950.

Map 11 Transportation Disadvantaged Accessibility Composite Index

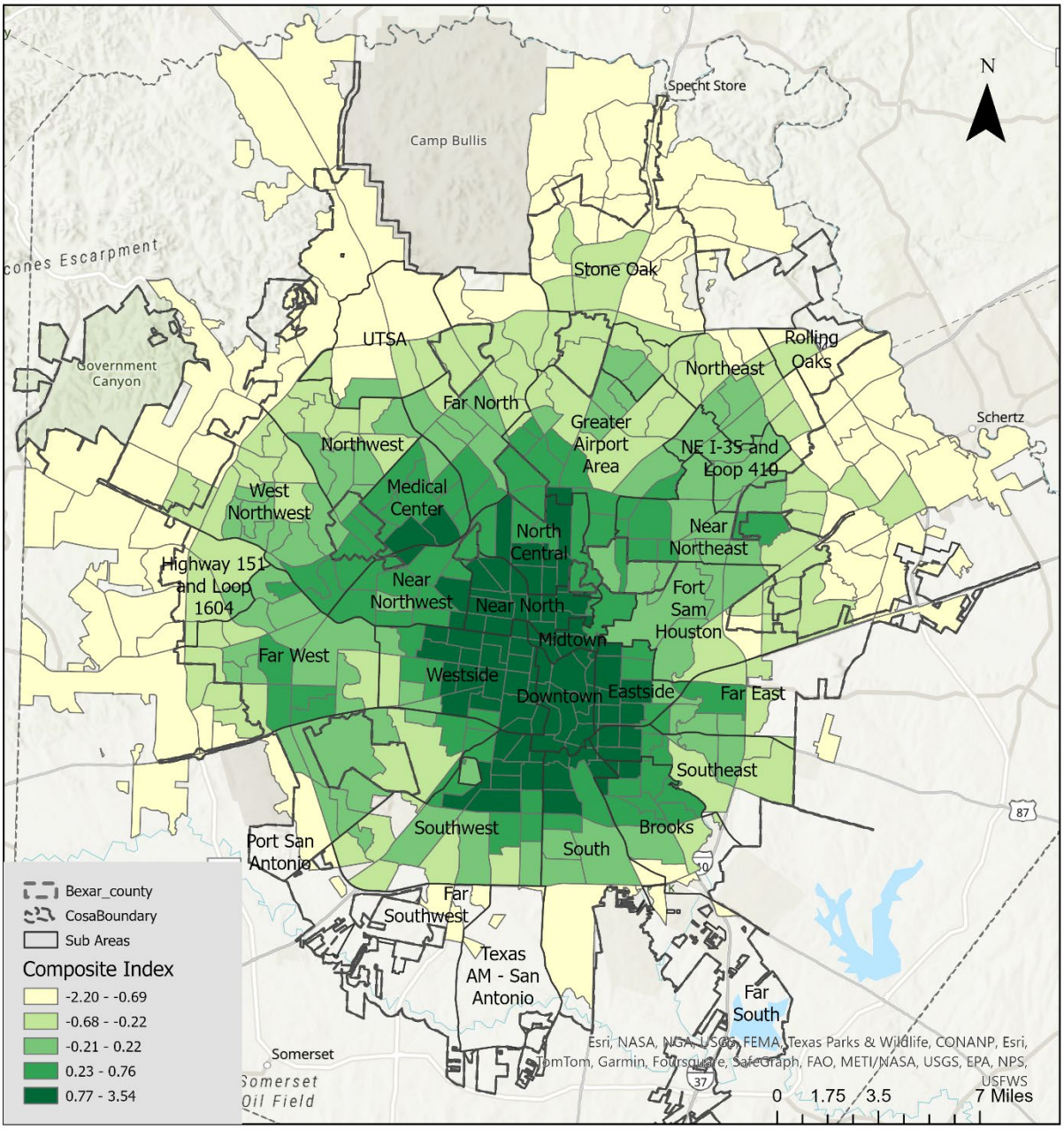


Table 15 Percentage TD Population Based on Accessibility

	Lowest Accessibility	Low Accessibility	Medium Accessibility	High Accessibility	Highest Accessibility
San Antonio	8.92%	14.69%	21.23%	24.67%	30.49%

Rest of Bexar County	43.67%	16.7%	11.71%	18.23%	9.68%

Table 15 and Map 11 show that while San Antonio offers a better quality of life overall, with more areas and TD population segments experiencing higher accessibility than the rest of Bexar County, there is considerable scope for improvement. Marginal improvements in service infrastructure can improve accessibility and shift the populations towards the highest accessibility segment. The concentration of higher Accessibility neighborhoods within the city center is primarily because of the concentrations of crucial amenities and improved access to them in the index. Appendix 6.5 includes additional maps of amenities and their spatial distribution.

Key Takeaways

Infrastructure Influence: The availability and condition of city infrastructure, including roads and ADA-compliant features, critically affect the accessibility and reliability of on-demand transportation services, making infrastructure improvements a necessary consideration for 1C1C systems.

Paratransit Access: Given that paratransit services are crucial for many TD individuals, ensuring that these services are well integrated into the 1C1C system and that gaps in paratransit availability are filled is essential for a fully functioning transportation network.

Service Capacity Benchmarking: Understanding the current capacity and performance of existing on-demand services through spatial analysis helps in identifying where the demand exceeds the supply, thereby informing where the 1C1C system should focus its resources.

6.0 Appendix

6.1 National Walkability Index Methodology

The National Walkability Index provides a score for each block group in the United States to evaluate its walkability. A block group is a geographic unit used for census data, smaller than a census tract but larger than a census block. This index assesses walkability based on key components of the built environment that encourage or deter walking as a primary mode of transportation. These components include the density of street intersections, the proximity to transit stops, and the diversity of land uses within a block group.

To compile the index, three specific measures from the Smart Location Database (SLD) are utilized due to their nationwide consistency and the ability to quantitatively assess walkability factors:

- Intersection Density (SLD variable D3b): This indicates that a higher number of intersections in a block group is associated with increased walking activity.
- Proximity to Transit Stops (SLD variable D4a): This measures the distance from the center of a population to the nearest transit stop in meters, with shorter distances indicating higher walkability.
- Diversity of Land Uses:
    - Employment Mix (SLD variable D2b_E8MixA): A variety of employment types (retail, office, industrial, etc.) within a block group suggests more reasons for walking.
    - Employment and Household Mix (SLD variable D2a_EpHHm): A mix of different employment types along with numerous occupied housing units in a block group is indicative of a vibrant, walkable area.

Each block group is ranked based on these variables. The rankings are determined by dividing the block groups into 20 quantiles, each quantile representing 5% of all block groups, based on the value of each variable. Block groups in the quantile with the lowest values for walkability factors receive a rank of 1, while those in the highest quantile receive a rank of 20. This ranking system (shown in the table below) allows for a nuanced assessment of walkability across the United States, providing valuable insights into the factors that contribute to or hinder pedestrian movement in urban and suburban areas.

The selection of these specific measures for the National Walkability Index simplifies the complex concept of walkability into a format that's accessible and understandable for a broad audience, aiming to inform urban planning and public health initiatives.

	1 – 5.75	Least walkable
	5.76 – 10.5	Below average walkable
	10.51 – 15.25	Above average walkable
	15.26 – 20	Most walkable

6.2 Distribution of Annual Demand, Supply, and Service Gaps in the Sub Areas

Sub Areas	Proportionate TD population	Annual need for rides	Proportion of rides served annually
Downtown	1,785	443,016	10%
Eastside	2,345	581,988	9%
Far East	2,300	570,943	11%
Far North	1,073	266,277	21%
Far South	786	195,106	14%
Far Southwest	785	194,940	10%
Far West	3,564	884,564	15%
Fort Sam Houston	1,884	467,650	11%
Greater Airport Area	2,039	505,997	20%
Highway 151 and Loop 1604	771	191,279	24%
Medical Center	1,900	471,663	13%
Midtown	931	231,033	11%
NE I-35 and Loop 410	1,481	367,626	16%
Near North	2,871	712,499	10%
Near Northeast	3,273	812,421	15%
Near Northwest	4,482	1,112,308	10%
North Central	2,458	610,076	11%
Northeast	1,879	466,244	13%
Northwest	2,256	559,856	14%
Port San Antonio	3,728	925,228	9%
Rolling Oaks	207	51,253	5%
South	3,526	875,257	9%
Southeast	2,555	634,048	10%
Southwest	7,372	1,829,834	8%
Stone Oak	1,058	262,554	11%
Texas AM - San Antonio	439	108,960	14%
UTSA	1,012	251,261	14%
West Northwest	2,184	542,152	19%
Westside	8,214	2,038,591	9%

Note: The sub-areas do not encompass all of Bexar County, and therefore, the total transportation disadvantaged population is lower than that of Bexar County. Since census tracts are not coterminous with the sub-areas, the TD populations have been proportionally allocated among the sub-areas. Therefore, the estimates of rides needed, and the proportions of rides served are approximate.

6.3 Distribution of Annual Demand, Supply, and Service Gaps in the Sub Areas

Sub Areas	TD Population	Annual Need for Rides	Annual Rides Served	Annual Rides Unserved	Annual Percentage Unserved
Rolling Oaks	374	92,827	4,330	88,496	95%
Southwest	12,949	3,213,943	223,727	2,991,504	93%
Southeast	5,765	1,430,873	105,889	1,324,984	93%
Eastside	4,760	1,181,431	88,521	1,092,911	93%
Port San Antonio	8,359	2,074,705	156,851	1,919,142	93%
Downtown	4,593	1,139,982	85,917	1,054,065	92%
Westside	13,292	3,299,074	253,707	3,045,368	92%
Near North	6,247	1,550,504	123,090	1,427,416	92%
South	7,013	1,740,628	139,155	1,601,472	92%
Brooks	4,508	1,118,885	89,788	1,029,098	92%
Near Northwest	7,798	1,935,464	161,642	1,773,822	92%
Far Southwest	1,707	423,678	36,230	387,447	91%
Far East	5,375	1,334,075	118,169	1,215,906	91%
Fort Sam Houston	4,586	1,138,245	103,722	1,034,524	91%
Stone Oak	1,406	348,969	34,470	316,951	91%
Midtown	2,565	636,632	58,802	577,831	91%
North Central	4,703	1,167,284	111,692	1,055,593	90%
UTSA	2,228	552,992	55,661	497,329	90%
Medical Center	3,141	779,596	78,550	701,046	90%
Rest of Bexar	17,319	4,298,573	439,052	3,864,247	90%

Sub Areas	TD Population	Annual Need for Rides	Annual Rides Served	Annual Rides Unserved	Annual Percentage Unserved
Northwest	3,841	953,336	106,824	846,789	89%
Northeast	3,612	896,500	107,670	791,070	88%
Near Northeast	6,450	1,600,889	189,046	1,411,844	88%
Far West	5,495	1,363,860	164,808	1,199,051	88%
NE I-35 and Loop 410	3,491	866,467	112,854	761,446	88%
Texas AM - San Antonio	923	229,089	29,325	199,763	87%
Far North	2,528	627,451	86,632	545,775	87%
West Northwest	3,611	896,250	126,268	771,029	86%
Greater Airport Area	4,229	1,049,637	165,851	895,165	85%
Highway 151 and Loop 1604	1,438	356,912	64,288	294,335	82%
Far South	175	43,435	10,973	32,462	75%

6.4 Constructing the Index Measure

6.4.1 Description of variables

- Groceries: Identify the location of all grocery stores excluding the food market attached to the gas station through the 'business analysts' tools in ArcGIS Pro and Axel database. Street addresses of groceries are geocoded into a point within the Bexar County boundary. Based on the kernel density of groceries within Bexar County, Zonal statistics (Mean value) are calculated to identify the density of the groceries in each census track of Bexar County.
- Pharmacies: Identify the location of all pharmacies through the 'business analysts' tools in ArcGIS Pro and Axel database. Street addresses of pharmacies are geocoded into a point within the Bexar County boundary. Based on the kernel density of pharmacies within Bexar County, Zonal statistics (Mean value) are calculated to identify the density of the pharmacies in each census track of Bexar County.
- Medical Services: Identify the location of all medical service facilities through the 'business analysts' tools in ArcGIS Pro and Axel database. Street addresses of medical service facilities are geocoded into a point within the Bexar County boundary. Based on the kernel density of medical service facilities within Bexar County, Zonal statistics (Mean value) are calculated to identify the density of the medical services in each census track of Bexar County.
- Recreational Facilities: Identify the location of all recreational facilities through the 'business analysts' tools in ArcGIS Pro and Axel database. Recreational facilities include various types including community centers, YMCA, libraries, etc. Street addresses of recreational facilities are geocoded into a point within the Bexar County boundary. Based on the kernel density of recreational facilities within Bexar County, Zonal statistics (Mean value) are calculated to identify the density of the recreational facilities in each census track of Bexar County. Including the YMCA and libraries.
- Pedestrian Injuries: To identify the safety level for the pedestrian, data from the City of San Antonio (COSA) GIS database is used. 'Severe Pedestrian Injury Area' data indicates severe Pedestrian injury crashes occurred on San Antonio roadways. Based on the kernel density of severe pedestrian injury area within Bexar County, Zonal statistics (Mean value) are calculated to identify the severity of the pedestrian injury crashes in each census track of Bexar County.
- Sidewalk: As a method to identify the walkability of each census tract, sidewalk data from the City of San Antonio (COSA) GIS database is used. COSA sidewalk data depict all sidewalks within the COSA boundary. Zonal statistics (Mean value) based on kernel density. Based on the kernel density of sidewalks within COSA, Zonal statistics (Mean value) are calculated to identify the density of sidewalks in each census track of COSA.
- Park: From the COSA park boundary data, two figures are calculated including the ratio of park area in each census tract and the proximity to the nearest park from the census tract centroid. Park score is calculated by adding up these two figures derived from the park boundary data.
- Brown field sites: Major brown field locations which have presence or potential presence of hazardous substances, pollutant or containments are collected from the United States

Environmental Protection Agency (EPA). Based on the geocoded location of brownfield sites distance to the nearest brown field site from the census tract centroid is calculated.

- Senior Centers: All senior center locations are collected from the COSA senior center service website. Based on the geocoded location of senior centers, distance to the nearest senior centers from the census tract centroid and binary figures that indicate whether the census tract is covered by any one of senior centers' service area (within 5mi radius) are calculated.
- Walkability index: National Walkability Index score is calculated based on the ranked score for intersection density, proximity to transit stops, employment mix, and employment/household mix at the block group level. Higher scores (from red to green) correlate with more walkable conditions (data from EPA).
- Rides served as a percentage of total rides needed – This data comes from our demand supply gap analysis described in the section 4.3

6.4.2 Sourcing data from different sources

Construct	Variables	Data Sources
Food and Health	Groceries	Data Axle (Business Analysts)
	Pharmacies	Data Axle (Business Analysts)
	Medical Services	Data Axle (Business Analysts)
	Recreational Facilities	Data Axle (Business Analysts)
Transportation	Public Transit Stops	COSA
	Pedestrian Injuries	COSA
	Sidewalk	COSA
	Total Rides served by tract	Survey from institutions
Community Environments	Park Area Ratio	COSA
	Brownfield Site	EPA
	Senior Center	COSA
	Walkability Index	EPA
	Housing Costs Burden	US (UK Scientific) Census

6.4.3 Index Construction

Methodology

In the development of the Accessibility Index through Exploratory Factor Analysis (EFA), the methodology encompassed the following critical procedures:

Compilation and Refinement of Data:

Comprehensive collection of data was undertaken from a myriad of sources including municipal databases, national records, public health entities, and transportation bodies. Verification processes were implemented to ensure data recency and fidelity to the represented categories such as community amenities, transit solutions, healthcare services, neighborhood safety, and housing affordability.

Rigorous data cleansing was conducted to eliminate duplications, rectify inaccuracies, and address missing values, alongside standardization efforts to facilitate inter-dataset compatibility.

Data Categorization and Analysis:

An analytical distinction was made among data types: pinpoint data for specific locales (like grocery outlets and pharmacies), linear data for infrastructure (sidewalks, transport lines), and areal data for larger geographic features (parks, district boundaries). Spatial analysis techniques were tailored to the data nature, employing service area delineation for reach-specific amenities and kernel density evaluation for proximity-based features.

Spatial Density Evaluation and Sectoral Scoring:

Geospatial Information Systems (GIS) were utilized to compute zonal statistics, determining the density of key variables within census tracts, thus enabling a uniform assessment of service availability and accessibility. Mobility-related analyses leveraged existing kernel density and zonal statistics from the National Walkability Index to avoid redundancy.

Employment of Exploratory Factor Analysis (EFA):

EFA was deployed to unearth latent relationships among variables, grouping them into coherent factors that elucidate the dataset's structure. Preliminary assessments, including the Kaiser-Meyer-Olkin (KMO) test and Bartlett's Test of Sphericity, were executed to confirm the suitability of the data for factor analysis. Varimax rotation was applied to the factor structure to enhance interpretability. Factor scores were extracted and preserved as distinct variables to formulate a composite score for each census tract.

Establishment of Approximations:

Where direct data was lacking or partial, approximations were formulated based on accessible data, available literature, or analogical variables, with a strong emphasis on methodological transparency.

Construction of the Composite Index:

A composite Accessibility Index was assembled by aggregating tract-level factor scores, applying normalization to facilitate tract comparisons and weighting scores according to their relative impact on living ease.

Index Validation and Refinement:

The index underwent validation against external life quality metrics and through empirical surveys to gauge its accuracy and relevance. Adjustments were made in response to validation outcomes to refine the index’s predictive capability and utility.

This systematic approach was designed to craft a nuanced Accessibility Index that captures the intricacies of urban life, thereby offering valuable guidance for urban policy formulation and planning.

Results from SPSS for the final model

Correlation Matrix

		Proximity to				
		Public transit	**Groceries**	**Pharmacies**	**Sidewalk**	**Brownfield**
Correlation	Publictransitstops	1.000	.774	.552	.645	-.512
	Groceries	.774	1.000	.578	.675	-.447
	Pharmacies	.552	.578	1.000	.402	-.203
	Sidewalk	.645	.675	.402	1.000	-.527
	Brownfield	-.512	-.447	-.203	-.527	1.000
	Seniorcenter	-.446	-.492	-.449	-.637	.716
	RecreationFac	.802	.590	.490	.492	-.423
	WalkabilityEdit	.681	.674	.522	.642	-.563
	Housing Costs	.272	.203	.029	.236	-.323
	Served Rides	.171	.266	.108	.209	-.411

Correlation Matrix

		Proximity to			
		Seniorcenter	RecreationFac	Walkability Index	Housing cost burden
Correlation	Publictransitstops	-.446	.802	.681	.272
	Groceries	-.492	.590	.674	.203
	Pharmacies	-.449	.490	.522	.029
	Sidewalk	-.637	.492	.642	.236
	Brownfield	.716	-.423	-.563	-.323
	Seniorcenter	1.000	-.334	-.640	-.271
	RecreationFac	-.334	1.000	.583	.203
	WalkabilityEdit	-.640	.583	1.000	.249
	Housing Costs	-.271	.203	.249	1.000
	Served Rides	-.365	.065	.248	-.060

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test

- **KMO Measure of Sampling Adequacy:** The KMO statistic is .832, indicating that the data is well-suited for factor analysis. KMO values closer to 1 suggest that patterns of correlations are relatively compact, and factor analysis is likely to be useful.
- **Bartlett's Test of Sphericity:** The test is significant (Chi-Square = 2285.970, df = 45, p < .001), indicating that the correlation matrix is not an identity matrix and factor analysis is appropriate.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.832
Bartlett's Test of Sphericity	Approx. Chi-Square	2285.970
	Df	45
	Sig.	<.001

Communalities

- Initial communalities are estimates of the variance in each variable accounted for by all the factors. After extraction, the communalities indicate how much of the variance in each variable is explained by the extracted factors. For example, Access to Public Transit has an initial communality of .808 and an extraction communality of .736, meaning that the factor explains 73.6% of the variance in public transit stops.

Communalities		
	Initial	Extraction
Publictransitstops	.808	.736
Groceries	.702	.676
Pharmacies	.523	.343
Sidewalk	.621	.602
Brownfield	.658	.447
Seniorcenter	.719	.511
RecreationFac	.667	.489

WalkabilityEdit	.639	.701
Housing Costs	.194	.085
Served Rides	.267	.088
Extraction Method: Principal Axis Factoring.		

Total Variance Explained

- **Initial Eigenvalues:** The first factor has an eigenvalue of 5.110, explaining 51.103% of the variance, which is a significant proportion. This indicates that the factor is a strong one.
- **Extraction Sums of Squared Loadings:** After extraction, the first factor explains 46.791% of the variance. The eigenvalues and the explained variance suggest a one-factor solution is appropriate for the data.

Total Variance Explained						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.110	51.103	51.103	4.679	46.791	46.791
2	1.273	12.726	63.828			
3	1.077	10.774	74.602			
4	.649	6.493	81.095			
5	.540	5.400	86.495			
6	.479	4.793	91.288			
7	.317	3.173	94.461			
8	.262	2.616	97.077			
9	.160	1.603	98.680			
10	.132	1.320	100.000			
Extraction Method: Principal Axis Factoring.						

Factor Matrix[a]	
	Factor
	1
Publictransitstops	.858
WalkabilityEdit	.837
Groceries	.822
Sidewalk	.776
Seniorcenter	-.715
RecreationFac	.699
Brownfield	-.669
Pharmacies	.585
Served Rides	
Housing Costs	
Extraction Method: Principal Axis Factoring.[a]	
a. 1 factors extracted. 5 iterations required.	

Factor Matrix

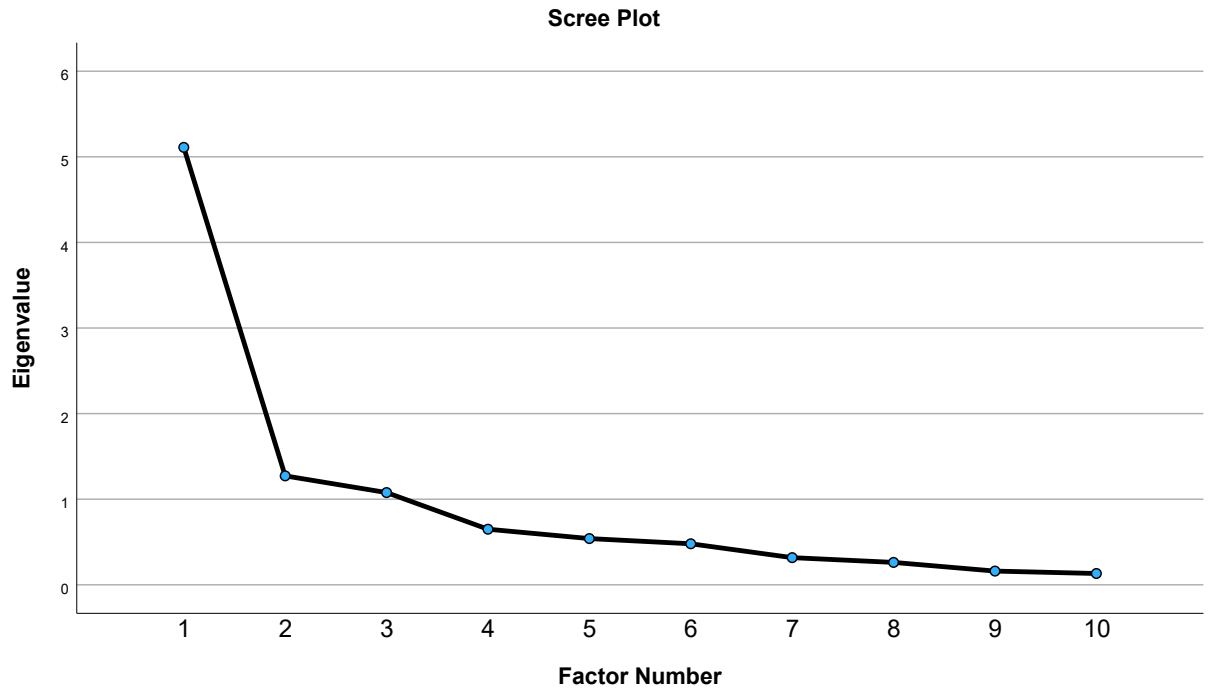
The factor matrix (before rotation, as only one factor was extracted) shows the loadings of each variable on the extracted factor. Loadings are correlations between the variables and the factor. Variables with high loadings (both positive and negative) on the same factor are considered to be associated with that factor.

- High Positive Loadings: Publictransitstops (.858), WalkabilityEdit (.837), and Groceries (.822) have high positive loadings, indicating they are strongly associated with the extracted factor.
- High Negative Loadings: Seniorcenter (-.715) and Brownfield (-.669) show strong negative associations with the factor.

Scree Plot

The scree plot visually represents the eigenvalues associated with each factor in descending order. The plot shows a clear break after the first factor, which justifies the decision to extract a single factor, as subsequent factors contribute significantly less to explaining the variance in the data.

This factor analysis has successfully reduced the dimensionality of the dataset, providing insights into the primary underlying structure that might influence the distribution and access to services and infrastructure within urban environments.

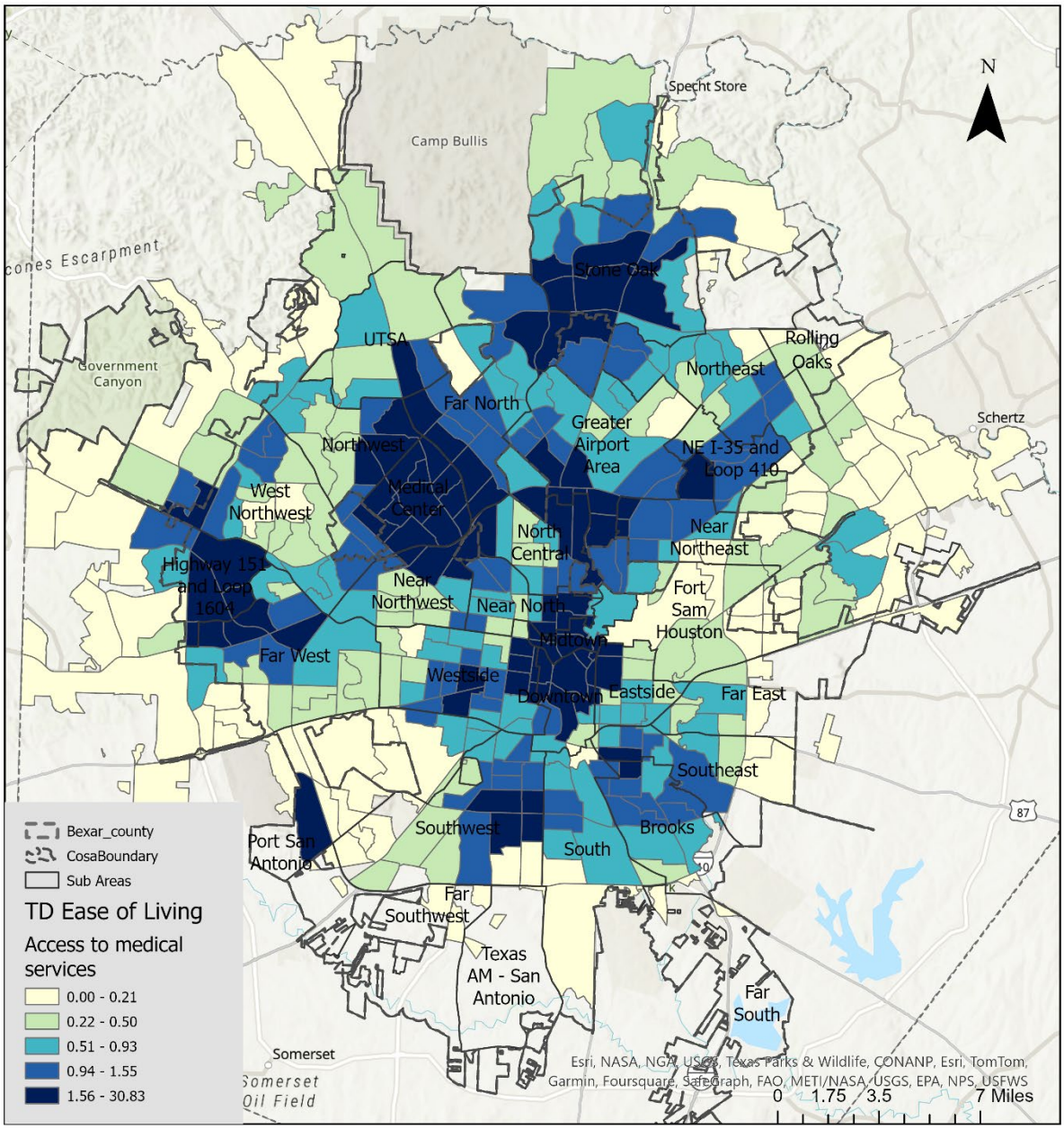


Descriptive Analysis of Zonal Statistics

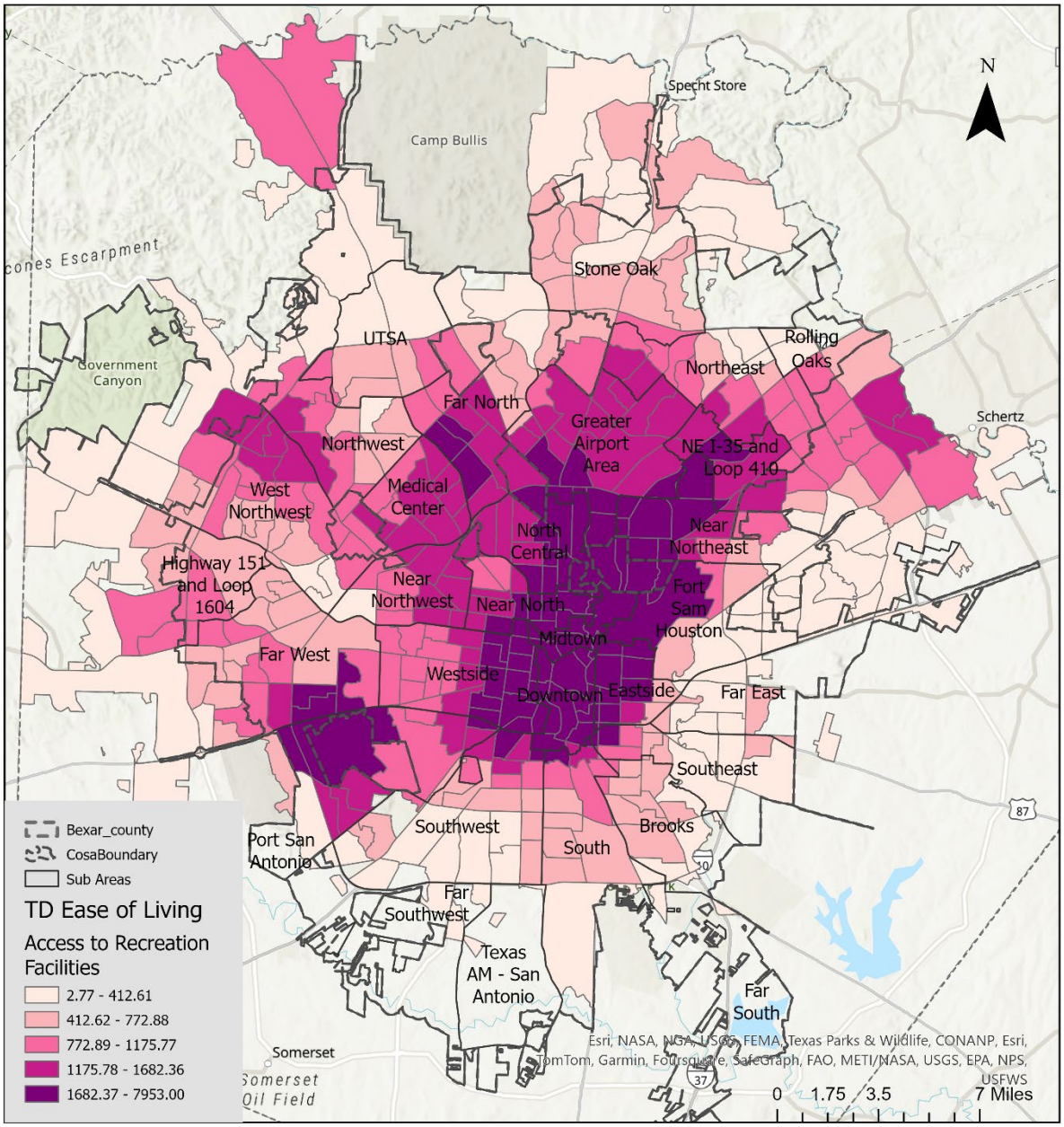
Variable Name	Mean	Median	Range (Min)	Range (Max)	Standard Deviation
Groceries	0.67	0.51	0	3.27	0.57
Pharmacies	0.83	0.70	0	4.99	0.72
Medical Services	1.51	0.71	0	30.83	3.15
Recreational Facilities	1242.18	951.66	0	7953.00	1262.15
Public Transit Stops	270295.57	155426.63	0	2130879.04	324921.99
Pedestrian Injuries	0.47	0.16	0	8.35	0.96
Sidewalk	18.75	18.21	0	48.63	12.59
Park Area Ratio (%)	4.72	1.69	0.07	99.67	8.48
Brownfield Site	4.58	3.60	0.12	19.76	3.66
Senior Center	4.26	3.57	1.09	14.50	2.43
Walkability Index	12.74	13.33	2.00	21.17	3.48

6.5 Spatial Distribution of Key Amenities

Map 12 Spatial Access to Medical Services



Map 13 Spatial Access to Recreation Facilities



Map 14 Spatial Access to Grocery Stores