

SEAGO GRAHAM COUNTY TRANSIT ALTERNATIVES STUDY

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EXECUTIVE SUMMARY

Graham County is located within the SouthEastern Arizona Governments Organization (SEAGO). The objective of this project was to evaluate the feasibility of public transportation services for Safford, Thatcher, Pima, and the unincorporated communities of Graham County. Stakeholder outreach was conducted to better understand where service may be needed within this area. Through stakeholder discussions, a potentially unmet need of addressing youth mobility was identified. Also identified was a gap in addressing the mobility of low-income individuals who were not currently served by the Easterseals Blake Foundation service that focuses on the elderly and individuals with disabilities. A review of prior transit planning studies (2007,2015) revealed that public transportation has been needed for some time. Previously identified challenges that prevented implementation were the recommended management style (i.e. a proposed intergovernmental agency) and matching funds. For the latter, while funding for a system can be publicly provided to some level, the entity sponsoring the service and receiving public funding often has to “front” this money for a period of time before receiving reimbursement. This can be a significant upfront investment. Recent interest in supporting a public transportation system that could improve mobility for the general public in the region has increased, leading to this technical assistance partnership.

Three public transportation models were proposed for further analysis: 1) fixed route, 2) fixed route with feeder service, and 3) on-demand service with technology. Each option has unique strengths and weaknesses.

Fixed route public transportation is the most common model of service. A user can expect a vehicle to be at predetermined stops at a known point in time. Therefore, it can provide residents with a simple, reliable schedule of service. However, when population densities are low, the service levels when considering the broader population are limited. When fixed transit is designed in a loop, origins and destinations at the far ends of the loop can result in long rides for the user. When service is designed along a line, the transit service gets closer to fewer potential users and travels to fewer destinations. A fixed route public transportation system designed with a single route would only be able to serve residents in Safford and maintain service with a desirable headway (less than one hour).

A second option is offered, a fixed route with feeder service public transportation model. In this scenario the feeder routes are utilized to access more of the population. The feeder routes would provide limited service on specific days and during specific times to additional potential riders in the outlying neighborhoods south of Safford (Cactus Flats/Tangelo Park) and the communities of Pima, Thatcher, and Solomon. However, limited service is not practical for many people, particularly those with reoccurring travel needs, whether for a variety of different trip purposes and locations, or travel often to the same location (i.e., those traveling to a job or school).



The final proposed model, on-demand transportation with technology (Figure 1), would attempt to address challenges related to the large geographic scale while also providing same-day, curb-to-curb responses to ride requests. One vehicle is needed for the zone illustrated in figure 1. If the service model is successful and ridership increases, the service could be expanded to two additional zones and a larger service area. Such an expansion would require two vehicles. This approach will also identify common pick-up and drop-off points.



Figure 1. Potential On-Demand with Technology Service Zones (24)

An important concern for on-demand with technology solutions as proposed in this report is the status of broadband connectivity within the proposed service region may hinder such a deployment. On-demand with technology public transportation relies on scheduling software which can dynamically process ride requests; however, if a driver is in an area with no cellular service, requests for rides will not show up until they travel back to an area with adequate connectivity. To date, on-demand with technology public transportation services have been provided in large and small urban areas or rural areas that are in proximity to larger urban areas (i.e., Wilson, North Carolina). Consequently, while the authors recommend on-demand with technology as being the best service option to fit the needs of the area, they recommend doing so as a pilot project in cooperation with the Federal Transit Administration (FTA) and the Arizona Department of Transportation. Information gathered from such a deployment in rural Arizona could result in service options offered in other very rural areas throughout the U.S., where there is significant need and similar challenges.



1 Introduction

In 2020, the South Eastern Arizona Governments Organization (SEAGO) and area stakeholders compiled information from previous efforts to offer public transit service in Graham County with a technical assistance team consisting of the National Association of Development Organizations Research Foundation (NADO RF), the Western Transportation Institute (WTI) at Montana State University, and the National Rural Transit Assistance Program (NRTAP). This team is operating with support from the U.S. Department of Agriculture (USDA) Rural Development.

SEAGO is a council of governments that provides several planning, economic development, and human services programs to member communities and local governments within Cochise, Graham, Greenlee, and Santa Cruz Counties.

The objective of this project is to evaluate the feasibility of public transportation service for Safford, Thatcher, Pima, and the unincorporated communities within Graham County (Figure 2). Graham County has 25,290 residents (1). Safford, Thatcher, and Pima have been described as “three nearly contiguous incorporated cities” (1), highlighting the interplay between these communities. This project examined existing public transportation services within Graham County and identified potential public transportation service options that could improve mobility options for residents in Safford and the surrounding area.



Figure 2: Pima, Safford and Thatcher within Graham County, Arizona

Graham County is approximately one hundred and sixty miles from Phoenix and one hundred and thirty miles from Tucson (1). A significant economic driver of Graham County



is the mining industry. Historically, agriculture has been the dominant economic engine, with cotton serving as the primary commodity; hay and small grains are also produced (1). The Gila River is a major contributor to the agricultural presence of the area, enabling more than forty thousand acres of land to be irrigated (1).

Table 1 summarizes key points and the major private and public employers for the Town of Pima, City of Safford, and Town of Thatcher (1).

Table 1: Key Points and Major Private & Public Employers for Pima, Safford, and Thatcher.

Community	Key Points	Major Private Employers	Major Public Employers
Town of Pima	<ul style="list-style-type: none">• Agricultural center• Popular retirement community	<ul style="list-style-type: none">• Ace Aviation• Minit Mart• Glen Bar Gin	<ul style="list-style-type: none">• Graham County Coop• Pima Public Schools• Pima Town Government
City of Safford	<ul style="list-style-type: none">• County seat• Retail and government center	<ul style="list-style-type: none">• Mt. Graham Regional Medical Center• Mt. Graham International Observatory• Impressive Labels• Walmart Super Center	<ul style="list-style-type: none">• Safford Unified School District• City of Safford• Graham County
Town of Thatcher	<ul style="list-style-type: none">• Previously, 68% of land was used for agriculture	<ul style="list-style-type: none">• Home Depot• Phelps Dodge Mining Company• Basha's• Safeway	<ul style="list-style-type: none">• Eastern Arizona College• Thatcher Public Schools• Thatcher Town Government

The Gila Valley Trail System, located along Discovery Park Boulevard, provides some connectivity for those walking and biking in Graham County (1); however, the arid environment can make walking and biking dangerous due to the extreme heat during some seasons.

To better understand mobility needs in the region, previous planning documents were reviewed and multiple outreach activities were completed. Information gathered during these efforts were used to develop three public transportation models that could improve mobility in the region.



The following sections describe prior planning documents completed in the region, outreach activities, proposed public transportation models, benefits and drawbacks of each option, and potential funding and match opportunities that could be utilized to implement public transportation for Graham County.



2 Graham County Planning & Background Information

This section provides information on existing transportation providers in the region and highlights from prior plans, including regional coordination plans and other individual plans that considered public transportation for the region. Also included in this section is a short summary of anticipated impacts as a result of the provision or lack thereof of public transit.

2.1 Existing Transportation Providers in the Region

Currently, Graham County is served by the following agencies that provide transportation: Easterseals Blake Foundation (EBF); Graham County Rehabilitation Center (GCRC); HOPE, Incorporated; Mt. Graham Safe House; and Nnee Bich'o Nii Public Transit.

2.1.1 Easterseals Blake Foundation (EBF)

Transportation is available 24/7 for individuals with disabilities, older adults, and veterans. EBF has a total of 19 vehicles and an annual ridership (in the four counties) of 19,900. Funding is provided through the Federal Transit Administration's (FTA) section 5310 program (<https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310>), Arizona Division of Developmental Disabilities (DDD), and the SEAGO Area Agency on Aging. Programs provided to Graham, Greenlee, Santa Cruz, and Cochise Counties include transportation, employment opportunities, community day programs, residential services, and behavioral health services (2).

2.1.2 Graham County Rehabilitation Center (GCRC)

Transportation is available for individuals with developmental or physical disabilities on weekdays, 9:00 a.m. – 6:00 p.m. In addition, through their Individual Designed Living Arrangements (IDLA) program, transportation is provided 3:30 p.m. – 8:00 p.m., daily. GCRC has 12 vehicles and an annual ridership of 7,607. The Arizona DDD provides funding. The transportation model used for GCRC's programs (Adult and Child Day Programs, supportive work sites, and the IDLA program) are on-demand.

2.1.3 HOPE, Incorporated

HOPE Inc. is a non-profit specializing in supporting adults with mental health disabilities, including substance use disorders. Transportation is available weekdays, 8:00 a.m. – 4:00 p.m. HOPE Inc. has 16 vehicles and an annual ridership of 14,912. Funding is provided through FTA section 5310. Services include counseling, peer support, health groups, life skills, pre-vocational training, job coaching, transportation assistance, and re-entry support through coordination with Mental Health Care Court and Probation in Graham County.



2.1.4 Mt. Graham Safe House

Transportation is available 24/7 to resident and non-resident participants in its programs and services. Mt. Graham Safe House uses its 4 vehicles to provide 2,744 rides per year for trips such as job services, medical appointments, counseling, and legal services. Mt. Graham Safe House's programs are targeted toward victims of domestic violence and sexual assault, including short-term/long term and transitional housing, food, parenting and job skills classes, and advocacy.

2.1.5 Nnee Bich'o Nii Public Transit

The San Carlos Apache Tribe provides public transportation services under the name, Nnee Bich'o Nii Public Transit, where Nnee Bich'o Nii means "Helping the People" (3). There are 10 scheduled routes, including fixed route, commuter routes, contract services, intercity, and intercity feeder routes. Nnee Bich'o Nii Public Transit operates seven days per week, 5:30 a.m. – 2:30 a.m. A fleet of 18 vehicles is used to serve an annual ridership of 71,802. Funding from FTA section 5311 Tribal Transit Program and ADOT Rural Transit Program 5311 program supports the services (2). Nnee Bich'o Nii Public Transit provides general public transportation for reservation residents and for the neighboring communities of Globe and Safford. The service is especially beneficial for elders, individuals with disabilities, temporary assistance for needy families (TANF) clients (TANF is also operated by the Nnee Bich'o Nii Public Transit), and other transportation-disadvantaged individuals (4). One-way fares range from \$1.00 to \$3.50 depending on the distance traveled. The routes provide access to employment, education, healthcare, shopping, and human service opportunities. In addition, the service provides connections to other transportation providers in the area (Greyhound, Cobre Valley Transit). Service within the City of Safford is considered underutilized by students at Eastern Arizona College because of the long headways necessary to provide service both within the San Carlos Reservation and in Safford, nearly 69 miles away (4).

Table 2 summarizes the existing transit service in Graham County.



Table 2: Summary of Existing Transit Services in and Connecting to Graham County.

	EBF	GCRC	HOPE, Incorporated	Mt. Graham Safe House	Nnee Bich'o Nii Public Transit
Who is served?	Individuals with disabilities, older adults, and veterans	Individuals with developmental or physical disabilities	Adults with mental health disabilities, including those with substance use disorders	Resident and non-resident participants who are typically victims of domestic violence and sexual assault	Focused on serving elders, individuals with disabilities, TANF clients, and other transportation disadvantaged individuals
When is service provided?	24 hours a day, 365 days a year	Weekdays, 9-6pm; those within IDLA, 3:30-8pm	Weekdays, 8-4pm	Seven days a week, 24 hours a day.	Seven days a week, 24 hours except from 2:30am-5:30am
What is the service model?	-	On-demand	-	-	Fixed routes, commuter routes, contract services, intercity, and intercity feeder routes
Where does the service go?	-	-	-	Job services, medical appointments, counseling, legal services	Employment, education, health care, shopping and human services trips
Ridership	19,900	7,607	14,912	2,744	71,802
Funding	FTA 5310, Arizona DDD, and the SEAGO Area Agency on Aging	Arizona DDD	FTA 5310	-	FTA 5311 Tribal Transit Program and ADOT Rural Transit Program 5311

Table 2 shows that the existing public transit options in Graham County best serve individuals with disabilities. The general public, particularly youth and low-income individuals, currently do not have transit services that meet their needs. The transportation disadvantaged population that does not own a vehicle or possess a driver's license must depend on a ride from someone else; walk or bike although safe facilities to



do so may not be available; or forego the trip all together. The last could potentially impact the social and emotional well-being, economic well-being, health, and overall quality of life for the individual. In turn, when community members are transportation limited, it can also impact the broader economic well-being of a community.

2.2 Regional Transportation Coordination Plans

The following sections discuss the evolution of the Regional Transportation Coordination Plan over time.

2.2.1 2017

In 2017, SEAGO developed the *Regional Transportation Coordination Plan Update: 2018-2019* (5). It was intended to serve as a “catalog of transit and transportation services available in the region.” SEAGO indicated that the reason for the development of the Coordination Plan was to enable information sharing among smaller agencies and large agencies to better address (or ideally eliminate) service gaps. Every quarter, coordination meetings were held. Those attending included public and human service transportation providers, elected officials, local government representatives, the general public, social service and faith-based agencies representing the elderly, individuals with disabilities, veterans, low-income individuals, domestic abuse survivors, and programs representing youth. The plan identified three groups as being “transit dependent”: 1) elderly, 2) individuals with disabilities, and 3) those living below the poverty level. The plan noted that there is no public transportation in Graham, Greenlee or Santa Cruz Counties. In addition, while there is public transportation (fixed routes) in Benson, Bisbee, and Douglas, there is not a system that connects them; hence, intercity public transportation is still a gap in the region. It also identified transportation to healthcare as the primary use of FTA section 5310 funding. Additional trip purposes were identified as shopping, appointments, food/nutrition, and jobs.

One strategy identified within the plan that is particularly relevant to this technical assistance project is to pursue an FTA section 5311 program in the Safford area. It notes that while there is currently an FTA section 5310 provider, its service is limited to the purpose of the funding program, with a focus on people with disabilities and older adults. Adding an FTA section 5311 program would address the mobility needs of low-income populations and the general public. The document noted that SEAGO was working with Easterseals Blake Foundation (EBF) to transition from FTA section 5310 to FTA section 5311 funding. Working with Nnee Bich’o Nii Public Transit to expand services in Graham County was also identified. At the end of the plan, there is information about vehicle inventory and availability. In the post-pandemic environment, where orders for transit vehicles are significantly backlogged, this information may be utilized to better understand if there is an ability to leverage under or unused vehicles, possibly for a pilot project.



2.2.2 2021

SEAGO completed a *Regional Transportation Coordination Plan* in March 2021 (2). A category to include individuals who do not own a vehicle was added to the “transit dependent” groups identified in the previous plan. The plan provides an estimate of the transit dependent population for each county. The estimates identified for Graham County are noted in Table 3. All transit dependent populations were expected to increase over time. The number of people living below the poverty level is expected to grow from 7,679 in 2019 to 7,991 in 2023, making it the largest group of the transit dependent population.

Table 3: Changes in Population Over Time by Transit Dependent Groups.

Population Type	2019	2020	2021	2022	2023
Over Age 65	5,202	5,254	5,307	5,360	5,414
Disabled	5,015	5,065	5,116	5,167	5,219
Below Poverty Level	7,679	7,756	7,834	7,912	7,991
No Vehicle Available	2,031	2,051	2,072	2,093	2,114
Graham County Totals	19,927	20,126	20,329	20,532	20,738
Unduplicated Totals	12,468	12,592	12,718	12,845	12,973

The coordination plan shows that the percentage of the transit dependent population for Graham County is 33%, which is on par with that of Cochise County (35%); Cochise County has public transportation. The plan highlights again the challenges regarding limited connections between communities in the region (Safford to San Carlos Reservation; Safford to Duncan to Clifton to Morenci) and identifies a need for fixed route service in Safford. As noted in previous years’ plans, there continues to be an interest in starting an FTA section 5311 program in the Safford area. Another community in SEAGO, Huachuca City, received a \$50,000 grant from the Legacy Foundation of Southeast Arizona. There is a potential that a funding source like this could be considered to help implement the proposed system in Graham County, although alternative funding sources would have to be identified for on-going operation.

Within the Mobility Management Planning Priorities and Coordination Strategies, ridership tracking was identified as a need. The plan notes a desire to track riders within a service area and those using services across service areas. Riders’ satisfaction surveys were also identified as a priority. Within the plan, Easterseals Blake Foundation was identified as pursuing a Rural Transportation Incubator grant to “build up ridership for older low-income adults throughout Greenlee County.”

The need for transportation between Graham and Greenlee Counties is alluded to within this coordination plan, other plans, and from the survey findings for this study. Greyhound was identified as providing service between Phoenix, Globe, and Safford; the Greyhound service then continues on to Lordsburg, New Mexico, terminating in El Paso, Texas. Therefore, while earlier public transit plans identify intercity transit as a gap, some service



now exists. Connectivity to Greyhound on any proposed service would enable greater regional mobility for users. Updated information on vehicle availability was also provided.

Using information collected from prior feasibility studies and numerous public meetings, the coordinated plan identified mobility needs in Graham and Greenlee Counties including:

- Fixed route service in Safford
- Connecting service between Safford, Duncan, Clifton, and Morenci
- Connecting service between Safford and the San Carlos Reservation

In addition, the *Regional Transportation Coordination Plan* called out pursuing FTA section 5311 funding for fixed route service in the Safford area as a priority strategy for closing transportation gaps. This service would supplement the existing FTA section 5310 funded program offered by Easterseals Blake Foundation to provide transportation for individuals with disabilities and older adults (2).

A five-year (2021 – 2025) estimate of transit program needs in Graham and Greenlee Counties includes \$1,296,635 in FTA section 5310 funding, \$305,255 in Mobility Management, and \$671,561 in FTA section 5311 funding, for a total estimate of over \$2.2 million (2).

2.2.2.1 Summary of Coordination Plans

As the coordination plans have been updated over time, the need for public transportation within Safford has remained constant. In addition, while some intercity service has been provided by private providers (i.e., Greyhound), limited connectivity between some communities (i.e., between Duncan and Safford) remains.

Over time, the coordination plans have added additional categories of transit dependent people (i.e., adding those without access to a vehicle). However, youth mobility needs might also exist. Another potential category to consider is determining the needs of households with an unreliable or inoperable vehicle, who might not be captured as those without access to a vehicle. However, one way that local stakeholders such as SEAGO and/or Graham County could work to address this is through a Vehicle Repair Loan Program, as occurs in Door County, Wisconsin (<https://door-tran.org/vehicle-loan/>). Households where the use of the vehicle by one member may limit other household members' ability to travel should also be considered.

2.3 Transit Planning

Two prior planning studies were conducted for transit systems in Graham County, one in 2007 and one in 2015. The following two sections discuss these studies.



2.3.1 Graham County Transit Feasibility Review

In 2007, Ostrander Consulting, Inc. and RAE Consultants, Inc. developed the *Graham County Transit Feasibility Review: Final Report* (1). Noted within the review was the value of using transit to address growth issues that may be experienced over time. The report indicated that 76 percent of the population within Graham County resides in Pima, Safford, Thatcher, and the unincorporated areas surrounding these communities. The consultants summarized that the elderly population tends to live within the cities and towns (i.e., Pima, Safford and Thatcher), the mobility limited population is spread throughout Graham County, the low-income population tends to reside in the unincorporated areas of Graham County, and Pima has a larger percentage of population who do not have access to a private vehicle.

The report provides two suggested approaches to determine the number of potential users of a public transit system: 1) survey research trip method, and 2) transit propensity method. The consultants also note that the frequency of service, the ease of using the service (i.e., Is it an easy walk from many people's residences? Is paying for the service easy?), and the community support will determine the success or failure of such a service.

The authors summarize service statistics for other public transit systems in Arizona (Cottonwood, Show Low, and Bisbee) and Idaho (Valley/Adams). They also noted that at the time, SouthEastern Arizona Community Action Program (SEACAP) was the only entity that provided transit service to everyone, and the service did so using only one vehicle. All other providers offered transportation only to specific clients. The review also provided eight institutional alternatives that could be used to manage any proposed transit services:

- 1) Department of local government
- 2) Intergovernmental transit agency
- 3) Metropolitan district
- 4) Regional service authority
- 5) Rural transportation authority
- 6) Public-private partnership
- 7) Private, non-profit corporation
- 8) Private, for-profit corporation

The study identified six potential service types/configurations:

- 1) Fixed route, fixed schedule
- 2) Commuter route, fixed schedule – subscription services
- 3) Fixed route, flexible schedule
- 4) Intercity fixed route, fixed schedule
- 5) Variable route, fixed schedule
- 6) Demand responsive



At the time of the 2007 transit study, the consultants highlighted, “no one government or organization is prepared to take on the task of administering a transit agency.” Identifying required matching funds was also identified as a significant issue, citing budgets overwhelmed by the rapid growth in the region resulting in only “mission critical” projects being implemented. However, the report concluded that there was “substantial demand” for public transit service. The following organizations were identified as being part of the Transit Advisory Committee contributing to the report:

- 1) Non-profit organizations (i.e., Easterseals Blake Foundation, Southeastern Arizona Behavioral Health Services, Inc.; SEACUS; SouthEastern Arizona Community Action Program (SEACAP))
- 2) Department of Economic Security (DES) (Adult Protective Service; Vocational Rehabilitation; Child Support Enforcement; Job Services; Division of Developmental Disabilities (DDD))
- 3) Eastern Arizona College
- 4) Grace Community Church NT
- 5) Graham County Chamber of Commerce
- 6) Graham County
- 7) Graham County Rehabilitation Center
- 8) Mt. Graham Regional Medical Center
- 9) Mt. Graham Safe House
- 10) San Carlos Apache Tribe
- 11) Senior Citizen Center
- 12) Southeastern Arizona Children’s Rehabilitative Services (CRS)
- 13) Communities (Town of Pima; City of Safford; Town of Thatcher)
- 14) Housing
- 15) Private businesses (Walmart; Home Depot; Phelps Dodge Mining Company)
- 16) Private citizens

2.3.2 Graham County Transit Feasibility Study

In 2015, seven years after the *Graham County Transit Study Feasibility Review* (1), the *Graham County Transit Feasibility Study* was developed for SEAGO (6). Its intent was to update the prior study. The study was envisioned to have multiple phases and reported an interest in answering the following questions:

- Is there community support and adequate potential ridership for a viable public transit system in Graham County?
- Does sufficient local or other financial support exist to provide necessary matching funds for federal funding to financially sustain transit services over time?
- Does a viable governance structure exist, or can one be created to govern, manage, and comply with federal funding legislation?



- Is there the potential to leverage existing funding for transportation in Graham County, and coordinate and add value to existing social service agency transportation services with a public transit service?
- Do the benefits of providing a public transit system outweigh the costs of service delivery?

The report suggested a five-year funding commitment by localities (Safford, Thatcher, Pima) desiring transportation services.

The study convened a Technical Advisory Committee (TAC) and attendance included: the Arizona Department of Transportation, Graham County, Graham County Health Department, SEAGO, City of Safford, Town of Thatcher, Town of Pima, Easterseals Blake Foundation, Mt. Graham Regional Medical Center, Eastern Arizona College, and SouthEastern Arizona Community Action Program (SEACAP). Additional stakeholders that were identified included: United Way, SEACUS, Freeport-McMoRan Inc. (current owner of the mines previously owned by the Phelps Dodge Mining Company), the County Board of Supervisors, and the Chamber of Commerce.

The report provided information regarding five service providers within Graham County: 1) Nnee Bich'o Nii Public Transit, 2) the SouthEastern Arizona Community Action Program (SEACAP) service, 3) the Easterseals Blake Foundation service, 4) Greyhound, and 5) private transportation providers.

The report noted that Graham County residents were unaware that the Nnee Bich'o Nii Public Transit service was open to the public. The reported reason for this perception is that the buses have tribal images and do not state "public transit" on their exterior.

SEACAP was identified as providing a dial-a-ride service to meet the needs of approximately one hundred and twenty elderly and individuals with disabilities. However, if there is space available, they will provide a ride to the general public. SEACAP typically provided about 15-16 daily trips between the hours of 8:00 a.m. - 12:30 p.m. and 1:30 p.m. - 5 p.m. and requires advanced reservation. There is no cost for the service, although a donation box is provided. The primary purposes of the trips provided by SEACAP at the time are for travel to "congregate meal sites, doctor visits, dialysis, grocery shopping" (6), and Department of Economic Security (DES) visits.

Easterseals Blake Foundation is a 501(c)3 non-profit corporation, which has been in operation in the region since 1950. The mission of the foundation is to "enable each individual served to discover and meet his or her maximum potential for independent, productive living and developmental growth" (6). Transportation is provided for individuals with developmental disabilities to and from day programs, residential programs, and individual homes. One day a month, transportation is also provided for seniors to travel to and from the nearby casino. They also provided back-up transportation when SEACAP was unable to meet mobility needs due to limited vehicle availability, drivers on vacation, or drivers that were out sick. At the time of the 2015



report, they made use of nine vehicles, operating with FTA section 5310 funding. In 2014, they provided 29,252 trips.

At the time of the 2015 report, Greyhound did not provide transportation in the region. However, it was proposed to connect Phoenix, Arizona with El Paso, Texas, stopping within the Arizona communities of Mesa, Superior, Miami, Globe, Peridot, Bylas, Safford, and Duncan, and the New Mexico communities of Lordsburg and Las Cruces.

A local taxi service was identified as providing on-demand trips. In addition, a limousine and shuttle service were identified as providing intercity trips to Phoenix and Tucson. A non-emergency medical transportation (NEMT) service was also identified as serving the region.

The plan identified four groups as needing public transportation in the region:

- Low-income people who do not have a driver's license or access to a private automobile
- Eastern Arizona College students without access to a private automobile
- Older adults, as demand was expected to surpass that available via SEACAP
- Individuals with disabilities, including those receiving behavioral health services

Those serving women, infants, and children (WIC) recipients noted a need for transportation to access health care, to go grocery shopping and for other travel needs.

DES was identified as serving approximately 5,000 clients. A challenge of people receiving such services is that they often live where housing is more affordable, which is outside of community centers. Ensuring that a public transportation system can address their mobility needs is important.

Over 400 Eastern Arizona College students were identified as living on campus; eighty percent of these students did not have a private automobile. The students desire access to stores and transportation in the evenings. Students are also responsible for their own transportation to and from campus, as identified on Eastern Arizona College's website (https://www.eac.edu/Campus_Life/Transportation/) (7).

The Workforce Connection noted that many access their services by biking, walking, or by someone else providing a ride. An individual who lived in Daily Estates, which was a ninety-minute walk to Workforce Connection, attended a focus group to share that she owned a vehicle, but that the cost of repairs is beyond her means. In addition, Workforce Connection also identified prison release clients that had no driver's license or vehicle access but who were looking for work opportunities.

The Southeastern Arizona Behavioral Health Services (SEABHS) were only able to provide "clinically justifiable" trips, where previously they were also able to provide quality of life trips, like accessing a grocery store. SEABHS identified three hundred clients, approximately half of whom do not have access to an automobile or a driver's license.



Furthermore, SEABHS noted that the extreme heat of Graham County does not mix well with the medications that clients need.

An important point made in the report is “Obtaining and sustaining community support is an important part of developing and growing an effective rural public transit system” (6).

The report also noted the many challenges of funding, including that whichever agency is the lead must have a sufficient amount of existing funding in order to pay expenses up front before being reimbursed.

The document identified five potential service models: 1) fixed route with a fixed schedule, 2) community service route, 3) dial-a-ride service with advanced reservation from origin to destination, 4) flex-route or similar hybrid of fixed route and dial-a-ride services, and 5) taxi services. The report presents a suggested dial-a-ride boundary.

The plan highlighted the lack of an intra-county public transportation system connecting Pima, Thatcher, Safford, and Solomon. Those in the county who did not own an automobile or possess a driver’s license were identified as limited in making trips for work, education, medical, social services, and shopping. However, it noted that seniors and people with disability had some level of public transportation service via social service agencies. The plan recommended developing an Intergovernmental Public Transportation Authority to serve as the primary application for federal funds to support a public transportation system.

2.3.3 Summary of Previous Transit Plans

Both transit plans (2007 and 2015) discuss the SEACAP service; however, more recent coordination plans (2017 and 2021) make no mention of the SEACAP service. Therefore, what was once the only system that would provide service to the general population no longer exists. Furthermore, as SEACAP was identified in prior plans as working collaboratively with Easterseals Blake Foundation to provide service when they could not meet demand, it suggests that at present, demand could significantly outstrip the service that is available. No information was provided regarding whether a taxi service still serves the region.

While the 2015 transit plan discussed Greyhound, it noted that it had not provided public transit to the region. However, in the more recent coordination plans, Greyhound is identified as operating some service in the region.

The second plan discusses the challenges of an administering agency for FTA funding. However, it does not discuss other aspects including reporting, fulfilling the auditing requirements and other related items. These challenges can be insurmountable for many small agencies which already have limited staff.



Overall, while some service has concluded (SEACAP), others have begun (Greyhound). However, since the service that provided mobility within the community no longer exists, day-to-day transportation would be limited for those that relied on it.

2.3.4 Economic Development Strategy & Public Transportation

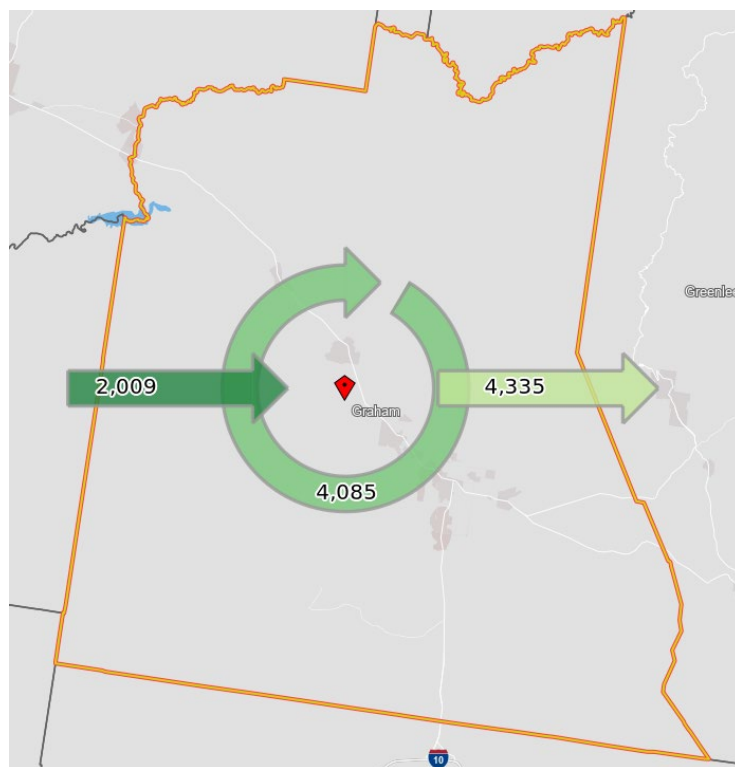
The *SEAGO Comprehensive Economic Development Strategy (CEDS) 2021-2025* (8) identifies limited public transportation as a weakness for Graham County. The plan notes that, “Public transportation, also a steady-state economic resilience initiative due to its importance in the ability to build a resilient workforce, is in the process of being improved.”

In the *Comprehensive Economic Development Strategy (CEDS) 2021-2025*, Graham County is attributed as the second largest county in the SEAGO region, encompassing approximately 4,630 square miles of the region’s 13,000 plus square mile area. This expansive physical footprint creates challenges for transportation as communities and amenities are generally disconnected and distant. To exemplify this point, the SEAGO CEDS describes the northernmost community in the SEAGO region, Clifton, as being 194 miles from the southernmost community in the region, Nogales. This translates to a nearly three-hour drive between these destinations.

Research provided in the CEDS conducted by the Arizona Department of Commerce (now the Arizona Commerce Authority) describes the southeastern region of Arizona as remote with little proximity to major metropolitan areas or markets. With access to nearby communities and markets limited, Graham County must rely on the key identified private economic sectors of mining and agriculture. A major producer of natural resources including copper, a single mine operator in Safford employs approximately 1,200 individuals. Outside of these private enterprises, nearly thirty percent of workers in Graham County are employed in the government sector. Other strategies such as rural wealth creation might identify sectors for growth of wealth through small business ownership, rather than relying on existing larger firms to create new jobs.

2.3.5 U.S. Census Bureau LEHD

Considering these employment conditions, it is possible to examine the inflow and outflow of residents and workers of Graham County to help better understand the transportation demand created. According to U.S. Census Bureau estimates provided via the Longitudinal Employer-Household Dynamics (LEHD) OnTheMap tool (9), of the 6,094 individuals who worked in Graham County during 2019, 2,009 (33%) commuted into the county. Of the 8,420 people living in the county during the same period, 4,335 (51.5%) commuted outside of the county for employment; 4,085 lived and worked within the county.



Inflow/Outflow Job Counts in 2019

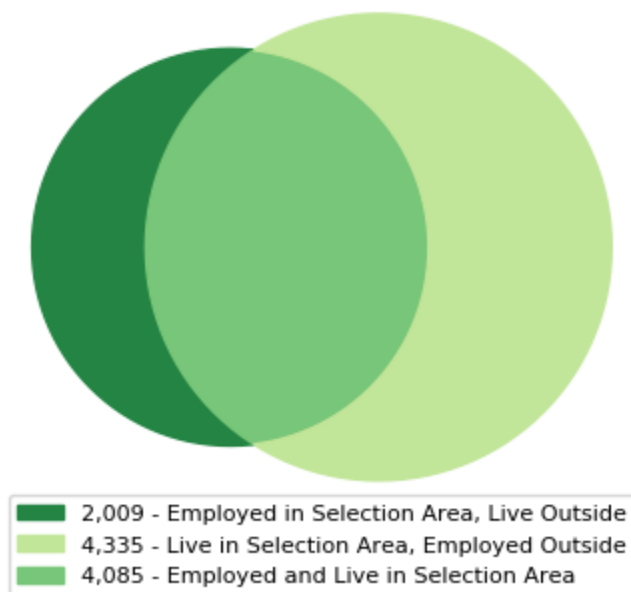


Figure 3: U.S. Census LEHD Inflow/Outflow of Workers



2.4 Substance Use Disorder

Graham County had 15 non-fatal opioid overdose events in 2021 (10), and a drug overdose mortality rate of 32.7 deaths per 100,000 people from 2015-2019 (11).

Rural communities can face greater barriers to health care, including access to behavioral health providers and services which can have serious impacts on substance use disorder treatment and recovery (12). Providing public transportation may improve access to resources that those in recovery need; along with other types of supports, reliable and affordable transportation can be an effective part of “Recovery Capital” that can improve recovery results for individuals with substance use disorders. The Safford area has five behavioral health facilities where individuals may seek treatment.



3 Stakeholder Outreach

The following sections discuss stakeholder meetings as well as outreach targeting individuals in Graham County who work with youth. Information discussed within the larger stakeholder meetings suggested that there was limited knowledge regarding the mobility needs of youth. In addition, a summary of findings from a survey shared with the general public is presented.

3.1 Stakeholder Meetings

Stakeholder meetings were held throughout 2021 and early 2022. In addition to SEAGO staff and the technical assistance team, area staff and stakeholders invited to serve on an advisory group included:

- Eastern Arizona College
- Graham County
- Mt. Graham Safe House
- Easterseals Blake Foundation
- Nnee Bich'o Nii Public Transit
- United Way
- Southeastern Arizona Consumer-Run Services
- Elected officials
- A private transit consultant

The following sections highlight key discussions or ideas exchanged during these meetings.

3.1.1 February 2021

Regarding the project scope of work (SOW), SEAGO would lead the public involvement plan based on their previous similar work, with the technical assistance team providing support. SEAGO identified a survey instrument that they had utilized in the past and identified mechanisms for distributing the survey. The technical assistance team offered to provide feedback on the survey instrument.

When discussing the assessment of existing conditions portion of the SOW, the previous planning efforts were outlined. A key point made during this discussion was that Safford possesses the greatest need for improvements when considering transportation in the area. A discussion ensued about determining ridership. Ultimately, the recommendation was to provide a range of ridership levels that may be expected. In addition, comparison to other systems was suggested. However, another key point of consideration was that the level of use could be expected to vary over time, particularly as the impacts related to COVID-19 fluctuate. Consequently, recommendations were that the system's performance be evaluated over a period of several years; this is similar to what was recommended in the 2015 transit planning study (6). Furthermore, stakeholders agreed that ridership may not be the best and only metric to evaluate a public transit system;



instead defining a metric that identifies the amount of access that a public transportation system may provide was suggested as an example.

During this meeting, Nnee Bich'o Nii Public Transit detailed their operations in response to the COVID-19 pandemic and highlighted their challenges with retaining employees with commercial driver licenses (CDLs) as a result of competition with the mines. However, in response to this need, the transit agency identified a ninety-day training program. They also noted that they must be one hundred percent self-sufficient—no match is provided by the tribe.

A discussion then proceeded to address ways Nnee Bich'o Nii Public Transit could coordinate with the public entities to offer public transportation. The transit agency indicated their requirement to retain control over their operations and transit buses, with an agreement with the outside agencies to provide service. This would eliminate the possibility of a duplication of service. Logos included on the bus could demonstrate the cooperation between the public agencies and the transit agency.

The similarities and differences between Nnee Bich'o Nii Public Transit's role and the existing Easterseals Blake Foundation transportation were discussed. The latter would focus on paratransit and the former on providing public transportation for the general public.

Regarding service models, the Nnee Bich'o Nii Public Transit described how they have an agreement with Google to utilize their trip planner service. Nnee Bich'o Nii Public Transit suggested that a fixed route, operating two days a week, would be a good start. Vanpool options were also identified as an option. On-demand service using technology was identified as a potential contemporary alternative; SEAGO expressed an interest in learning more.

A stakeholder with the San Carlos Apache Tribe expressed a need for transportation for elders in Safford and Pima.

SEAGO expressed an interest in using much of the technical assistance resource to assist with the implementation of a public transportation system.

3.1.2 May 2021

Based on experience from previous planning efforts, the recommended approach was to present the community and county officials with a plan for public transportation service. Stakeholders also expressed an interest in retaining current programs (i.e. Easterseals Blake Foundation (EBF) dial-a-ride and Nnee Bich'o Nii Public Transit's service). EBF's program was described as focusing on individuals with disabilities and those who cannot use "traditional transit." Furthermore, EBF's program was identified as serving Graham and Greenlee County. Leadership within EBF indicated that they were the only transit service available in the area, and residents who do not meet their criteria also contact



them for transportation assistance. In some cases, EBF has expressed that they can accommodate requests (i.e. transportation to government offices).

Providing transit for Graham County was identified as a strategic priority for the Executive Board of SEAGO as well as a growth priority for the Arizona Department of Transportation.

During the meeting, stakeholders indicated that a previously offered and utilized program had concluded and was no longer available. In addition, a transportation company that operated in the region, MedStart, was also identified as recently terminating service.

An additional need highlighted during the discussion was to serve individuals residing in the unincorporated areas needing to fulfill prescriptions. Due to the limited public transportation service offerings in the region, residents were described in some cases as having to wait weeks for transportation service. There were suggestions that these delays in services resulted in life or death concerns for some individuals. As an example, insulin, was identified as one medication that was not always accessible by those living in the unincorporated areas of Graham County. Gaps in the availability of this life saving medicine for people that need it can be life threatening.

Nnee Bich'o Nii Public Transit indicated that while they prefer to focus on general transit service, they acknowledge that with the termination of another non-emergency medical transportation (NEMT) provider, they see a need for such service. In addition, it was suggested that some of the services from the previous NEMT provider left users unsatisfied. For example, the former NEMT reportedly left one user in Phoenix.

There was discussion regarding a need to leverage data to understand demand. However, some expressed concern that surveys, which may provide some measure of demand, may not accurately reflect use.

Throughout conversations with stakeholders, data was identified as being potentially available through Easterseals Blake Foundation's service or Nnee Bich'o Nii Public Transit's service.

Stakeholders also identified concerns regarding outreach activities being conducted exclusively during evening meetings. It was expressed that these meeting times prevented some individuals from being able to participate and express their concerns. Stakeholders identified a need to engage community members that could not access transportation. Recommended future focus groups were those "out in the country" and the college.

3.1.3 September 2021

The September stakeholder meeting engaged elected officials and the Eastern Arizona College.



A significant portion of the discussion was focused on the dissemination of surveys. Three surveys were distributed: to the general public, to social services agencies, and to employers.

Overall, input was limited. The local newspaper was engaged and shared information regarding the project. The business community was engaged via the chamber of commerce. Safford's economic department was engaged. The Area on Aging, with more than thirty providers, was engaged. The Transportation Coordination Group assisted with distribution of the survey. SEAGO utilized sponsored Facebook posts to boost promotion of the survey. All of the aforementioned avenues were digital, reflecting concerns regarding collecting hard copies during the COVID-19 pandemic. However, hard copies were provided to the hospital and others providing direct services to clients who might need transportation.

Other means of dissemination were discussed including local libraries, the community pantry, monthly newsletters from local schools (distributed to approximately eight school districts), and at apartments for low-income residents.

The discussion then focused on origins and destinations that could be the core of a proposed transit system. With no available data regarding current users, stakeholder input was imperative to identify potential service locations. Stakeholders suggested the following destinations: grocery stores (Thrift Food & Drug), pharmacies, a focus on the 20th Avenue corridor, hospitals, clinics, Eastern Arizona College, the Pepsi-Cola Bottling Company, the DES Office, the Graham County Electric Co-op, and other general facilities. Stakeholders suggested the following origins: senior mobile home communities (Lexington Pines Resort, Safford Ranch, Spring Sing); and the Eastern Arizona College.

Anecdotes regarding employees quitting over the lack of transportation were provided.

3.1.4 November 2021

The November meeting began with a discussion about information received via the surveys. Thirty surveys were received from the general public; two were received from social service agencies. Related to the general public, half of the survey respondents reported having a disability. Less than half (eleven) reported not owning or having access to a vehicle. Some indicated that they could not afford a vehicle, gas, and/or insurance.

Previous conversations suggested that high school students could access additional learning opportunities if transportation was available. This led to a concern that their input was not captured or reflected in the survey responses.

The conversation then turned to potential service options. Nnee Bich'o Nii Public Transit indicated that their vehicle remains idle at Walmart for approximately one hour. It was suggested that during this time period when the vehicle was not in use, an individual from the Safford area could run a route. Initial recommendations were that such a service be provided two times per week.



An additional issue identified during this discussion was that new buses could not be acquired for more than two years as a result of COVID-related shortages/supply chain challenges. There were also identified issues with obtaining parts to ensure vehicle repairs were conducted in a timely manner. However, Nnee Bich'o Nii Public Transit indicated that they currently have a bus that could be used. It is a fourteen-passenger vehicle, which does not require a driver to have a commercial driver's license (CDL).

The idea of on-demand with technology public transportation was discussed further. In particular, since the dynamic nature of on-demand with technology public transportation required connectivity to broadband, stakeholders were asked about their understanding regarding whether or not this could pose an issue with this service model. Feedback given suggested that the rural nature of the region could present problems for this service model.

3.1.5 January 2022

The January 2022 meeting included participation from Easterseals Blake Foundation (EBF). While EBF expressed an interest in applying to provide transit service for the region, they indicated that time was needed to engage leadership and obtain approval. Information that EBF requested included: information about the FTA section 5311 program, funding and requirements; an explanation of the budget process and matching funds; the availability of buses; and the application process. In addition, the plan detailing the feasibility of transit for Graham County was requested.

EBF also indicated that they could provide data regarding the amount of time it takes to pick-up a client once the bus arrived at a client's residence. EBF also indicated that they would provide recommendations for additional stops.

During the meeting, there was discussion about a system that used a core route with three feeder routes. The feeder routes would originate in Pima, Solomon, and Tangelo/Cactus Flats. The routes from Pima and Solomon would operate once a week (Tuesday and Thursday, respectively) and the feeder route from Tangelo Park and Cactus Flats would operate three days a week (Monday, Wednesday, and Friday). The core route would travel between Thatcher and Safford, along Hwy 70. Specific destinations included: Thriftee Foods, the library, Walmart, Bashas, Eastern Arizona College, and DES.

3.1.6 Summary of Stakeholder Outreach

Two transit services currently operate in the region: one through Easterseals Blake Foundation and one via the Nnee Bich'o Nii Public Transit. There was a distinctive interest to not diminish service or funding from these providers. Rather, observed unmet needs should be the focus of any future service offering. This would suggest that where demand outstrips availability of service for current providers, a service designed to address general population needs should be the focus.



Due to low response rates to the survey and challenges conducting public outreach due to the on-going COVID-19 pandemic, the technical assistance team relied on knowledge of the stakeholders to define origins and destinations for the purposes of this effort.

3.2 Youth Outreach

The NADORF team was able to speak with two groups of individuals that work with youth in Graham County. In addition, the NADORF team reached out multiple times to counselors and principals at schools within Safford, Thatcher, Pima, and Solomon. Unfortunately, the technical assistance team was not able to engage with school representatives to obtain their input for the purposes of this project.

As part of the outreach process, the NADORF team reached out to several youth services agencies in the area. It was noted during these transactions that high school students struggle to find transportation for employment. For those fortunate enough to find a ride or have access to a vehicle, area high school students are currently traveling into Safford from Artesia, Pima, and Solomon to work at various fast-food locations, grocery stores, and the movie theater (Figure 4). However, those without access to transportation are excluded from these employment opportunities that could assist them in building jobs skills and saving money for the future. Furthermore, the lack of transportation options for youth limits their ability to participate in after-school activities and in enrichment programs offered at the college.

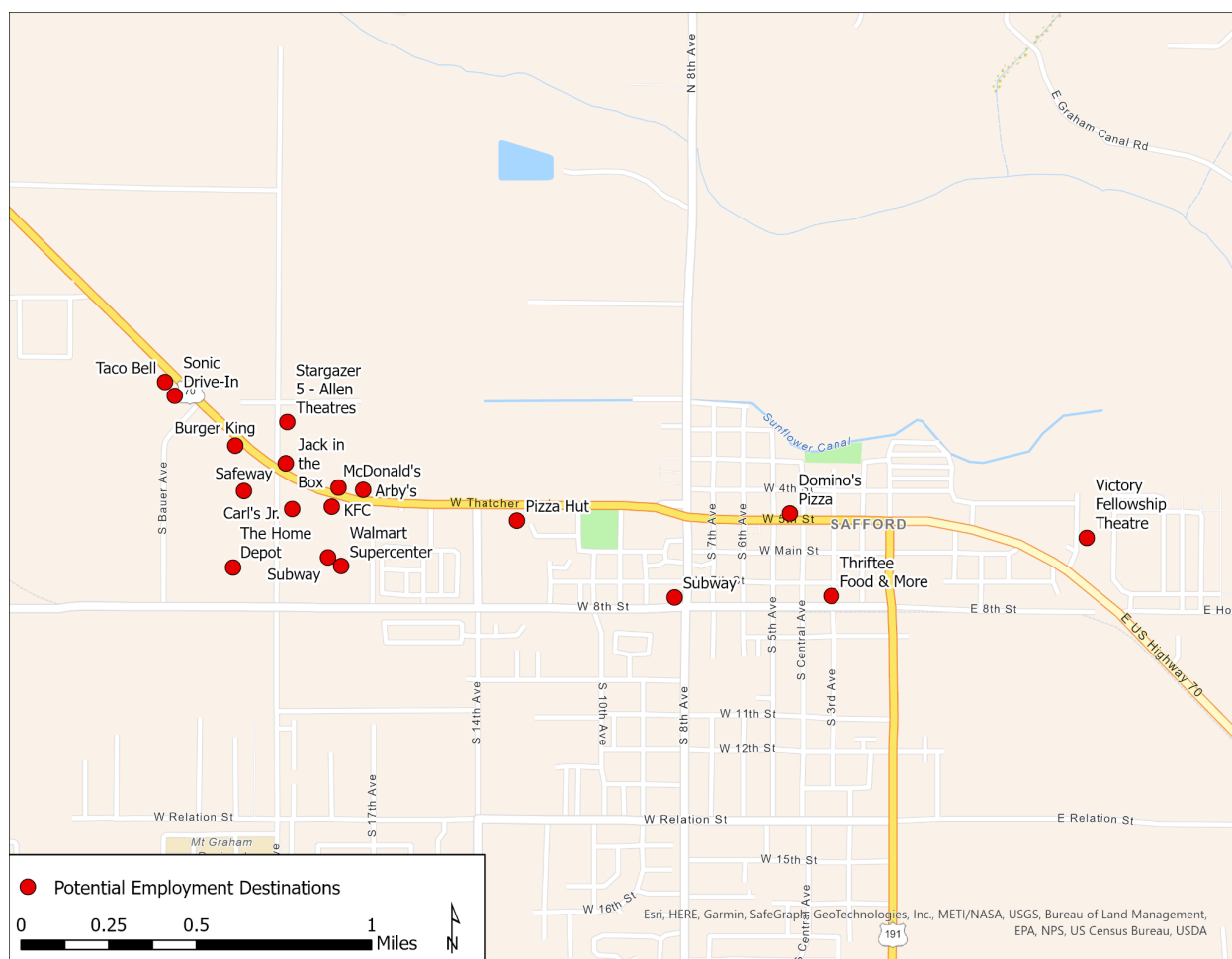


Figure 4: Potential Youth Employers (15)

Providing options for public transportation can improve accessibility to resources and opportunities for a community's youth. This can include access to education, employment, after-school programs, and more. After-school programs generally provided between the hours of 3 pm to 6 pm can provide students with access to academic opportunities, life skills, workforce development, and mentorship. These programs benefit not only school-aged children but provide parents with peace of mind that their child is in a safe environment after school hours while they are still at work. However, a survey of households in the US found that lack of transportation is a key barrier to accessing these types of programs (13). A recent report found that teenagers and young adults from lower socioeconomic backgrounds and/or rural communities tend to have less access to public transportation and face additional barriers to resources and opportunities, especially for those that cannot drive or lack access to a private automobile.

3.3 Survey Analysis

The following section describes general population survey data collected as a part of the effort. The survey was distributed to the public, social service workers, and employers.



3.3.1 General Population Survey Summary

General population survey data was collected between September 16, 2021 and November 9, 2021. A total of thirty surveys were collected. All but three were received via the online interface. SEAGO provided incentives for participation in the survey, including two fifty-dollar VISA cards, to be awarded randomly.

General population survey respondents were asked the following questions:

1. Zip code where the survey respondent lives
2. Age (17 or under; 18-29; 30-49; 50-64; 65-79; and 80 and up)
3. Residency (year-round; seasonal)
4. Status (employed (including zip code); retired; disabled; unemployed; student (zip code of school)
5. If employed, what sector do you work in? (government; education; manufacturing; health care; retail; social services; field agriculture; other seasonal agriculture; other year-round agriculture; other)
6. How far do you drive to work? (less than 30 miles; 4-10 miles; 11-20 miles; more than 20 miles)
7. What is the household size? (1, 2, 3, 4, 5, 6 or more)
8. What is the annual household income? (less than \$18,000; \$18,000-\$24,999; \$25,000-\$30,999; \$31,000-\$37,999; \$38,000-\$43,999; \$44,000-\$49,999; \$50,000-\$54,999; more than \$55,000)
9. Is anyone in your household disabled? (yes (how many?); no)
10. Are you a caregiver for someone with disabilities? (yes, no)
11. What is the primary language spoken in your household? (English; Spanish; A Native American language; other)
12. Are you or any member of your household a veteran? (yes, no)
13. What is your primary means of transportation? (personal vehicle; friend, relative, neighbor; volunteer driver; van or bus service; Medicaid transportation; employer vehicle; other)
14. If you don't drive a car, why not (check all that apply)? (no driver's license; can't afford a car; can't afford gas/insurance; Medical or physical condition; I prefer to walk or bike; other)
15. How many operable vehicles are available to you in your household? (1, 2, 3)
16. Did you know that there is a transportation service available in the Safford area for the elderly and disabled? (yes, no)

A section of the survey then asked questions regarding trip purposes (employment, grocery, local medical appointments, medical appointments in other communities, local shopping, shopping in other communities, school, and other services), how often they made such a trip (week, month), where it was to (Safford, Pima, Morenci, Tucson, other), and whether transportation to that destination was a concern.



While the majority of survey respondents were located within Graham County, three survey respondents reported locations within Greenlee County (Duncan and Clifton) (Figure 4). Background information and planning documents have also suggested that there is a relationship between Graham and Greenlee Counties.

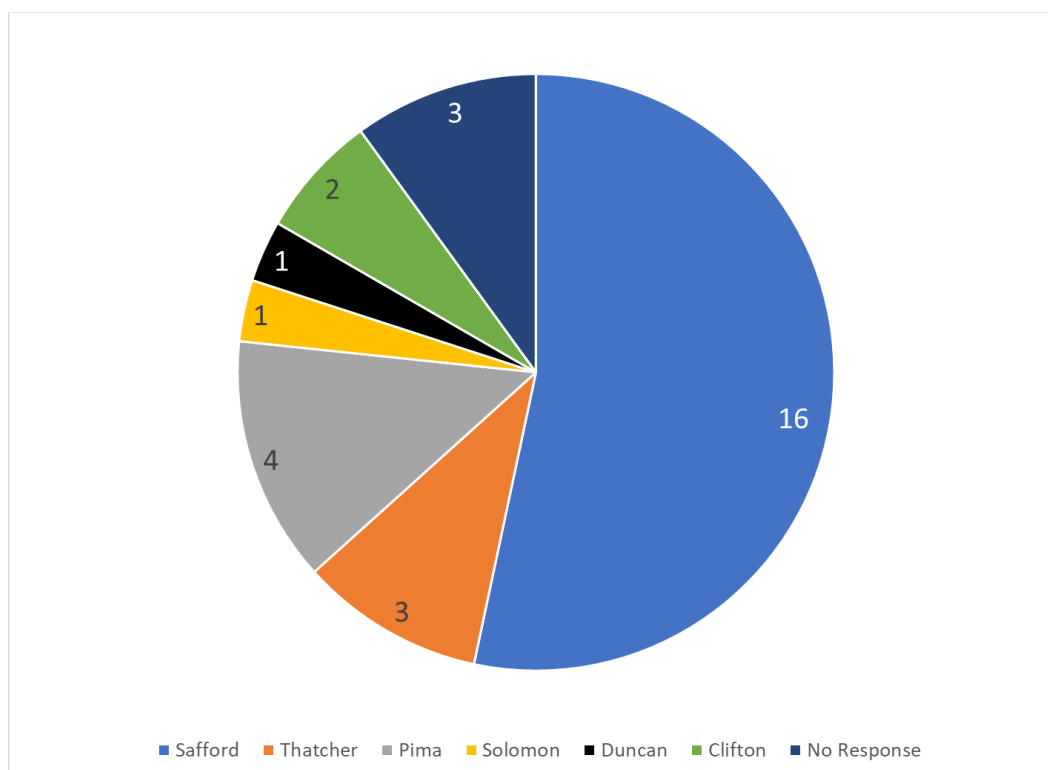


Figure 5: Zip Code of Residence

Residents in Duncan and Clifton are known to travel to Safford (more than twenty miles, one-way) for most shopping and medical services. Because they are accessing services in the Graham County focus area, these survey respondents were retained for the remaining analysis.

All but one survey respondent indicated whether or not they were year-round or seasonal residents. For the twenty-nine survey respondents that provided information, all reported being year-round residents. Therefore, if there is an expectation that seasonal residents may make use of a transit service, no information was available about their needs as a result of the survey effort.

3.3.2 Age

The majority of survey respondents fell within the 50 to 79 age cohort (Figure 5).

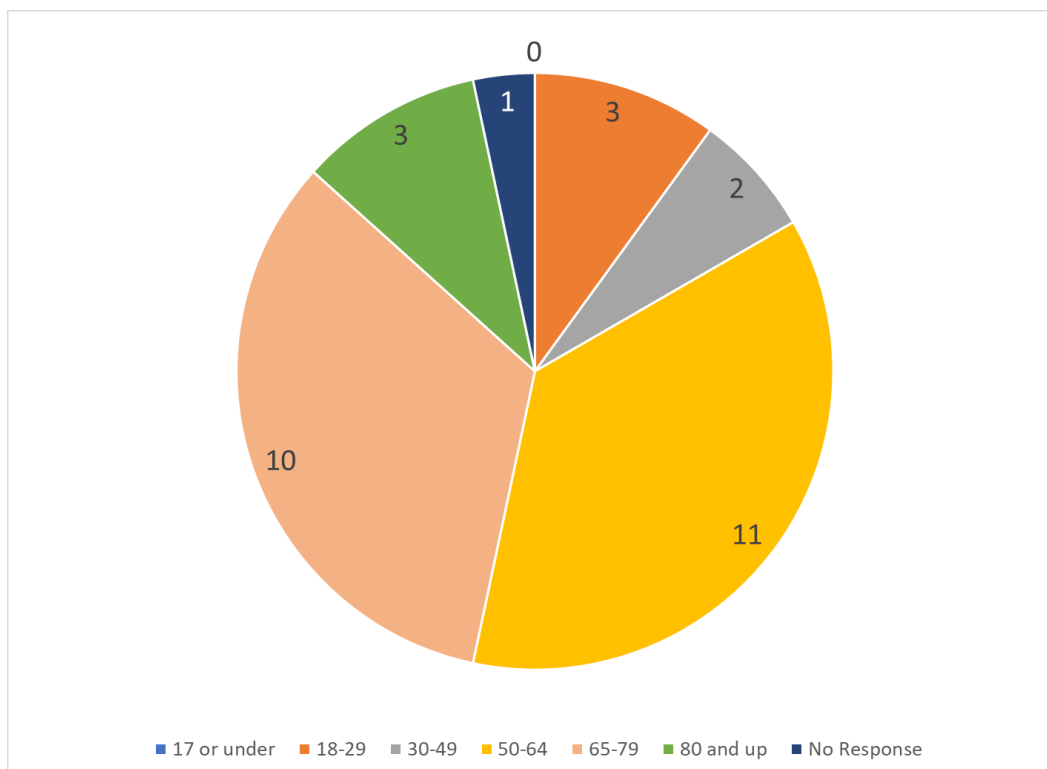


Figure 6: Survey Respondent Age

Compared with the Census Bureau data for Graham County, this age range falls well above the median age of 33.7 (14). Consequently, the discussions with those who work with youth to better understand their transportation needs provided some insight into this user group. However, the results also suggest that the survey may overlook the needs of middle-aged residents in Graham County.

3.3.3 Employment

The majority of survey respondents identified as being employed or retired (Figure 6).

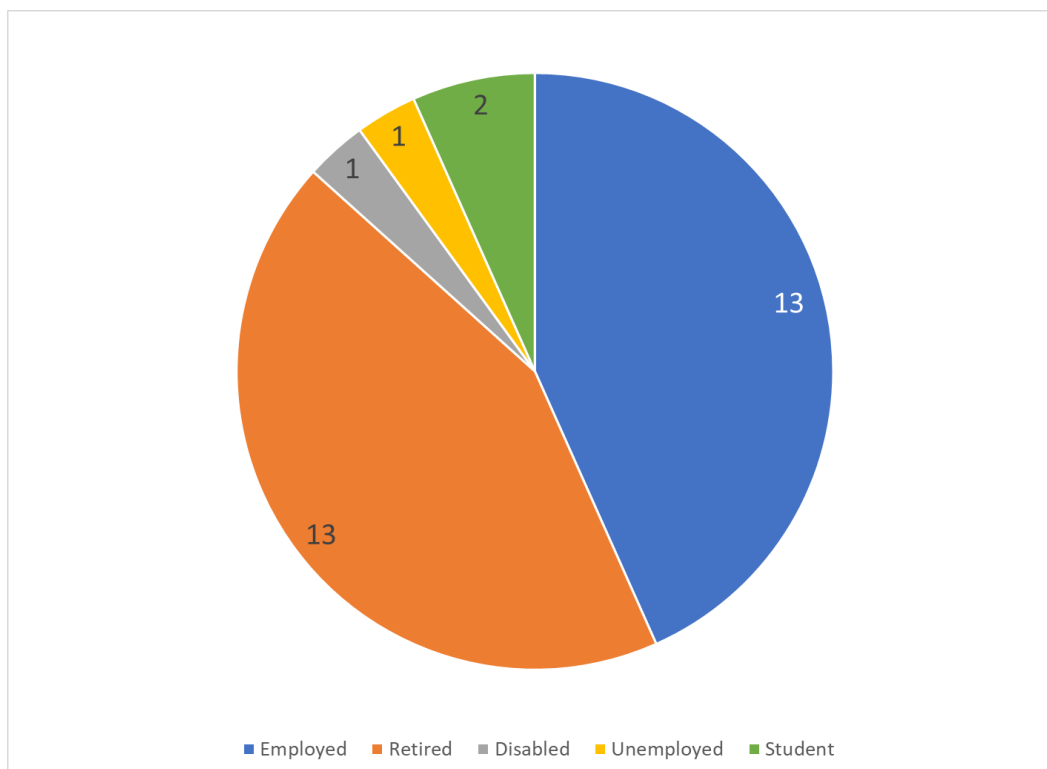


Figure 7: Employment Status or Other

Therefore, the results do not well describe the needs of students or those who are unemployed.

3.3.4 Households: Size, Children, Disabilities, & Veterans

The majority of survey respondents reported one or two-person households, although less than a quarter of the survey respondents provided no information about household size (Figure 7). Therefore, if additional information is available from these survey respondents, the representation of the sample could substantially change (i.e. if all of these survey respondents reported they were in a household of one, there may be an overrepresentation of one-person households represented in the sample).

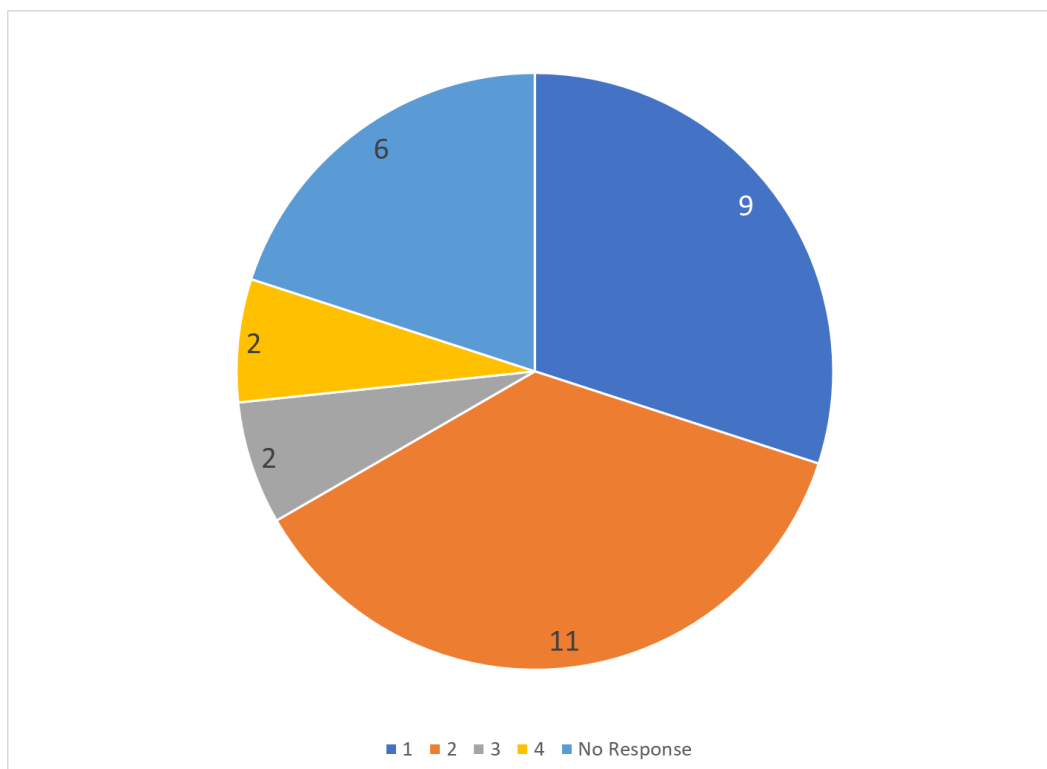


Figure 8: Household Size

Compared with the U.S. Census Bureau data, the survey results are skewed toward smaller household sizes (15). According to the U.S. Census Bureau, 4-or-more person households are the most common at 32.3 percent (Table 4).

Table 4. Graham County, Arizona, Household Size (15)

Household Size	Percent of Occupied Housing Units
1-person household	22.7%
2-person household	30.8%
3-person household	14.2%
4-or-more-person household	32.3%

There is more likely to be a need for public transportation in larger households, as the availability of a vehicle for every household member is likely to be limited. Therefore, the survey results do not well-describe the needs of these households.

Only five households (17%) reported that children were part of the household. Compared with U.S. Census Bureau data, where forty percent of households have one or more people under the age of 18, there is an evident bias in the survey data representing those without children living in the household (15).



Over half (53%) of survey respondents indicated that someone within the household was disabled; a U.S. Census statistic specific to the number of households made up of people with disabilities was not available. However, compared to U.S. Census data for the percentage of the population represented by an individual with a disability, where Graham County has a value of 13.9 percent (16), the survey respondents seem to overrepresent this statistic. In addition, two of the survey respondents indicated that they were a caregiver for someone with disabilities. There is no U.S. Census statistic for comparison.

The majority of survey respondents (87%) indicated that English was the primary language spoken in their households. Of the four households that indicated another language was the primary language, survey respondents indicated it was Spanish. According to the U.S. Census Bureau, of the 11,348 households in Graham County, 2.1% are limited English speaking households with the majority of these households speaking Spanish (17). It is unclear if “limited English-speaking households” can be directly applied to those households whose primary language is a specific language. However, if this can be more directly compared, there seems to be an overrepresentation of households whose primary language spoken is Spanish.

Under seventeen percent of survey respondents (five) indicated that they or someone in their household was a veteran. According to the U.S. Census Bureau, 6.3% of the total population aged 18 and older in Graham County are Veterans (18); therefore, again, the percentage of veterans in the sample is overrepresented.

3.3.5 Annual Household Income

The majority of survey respondents earned less than \$18,000 annually (Figure 9).

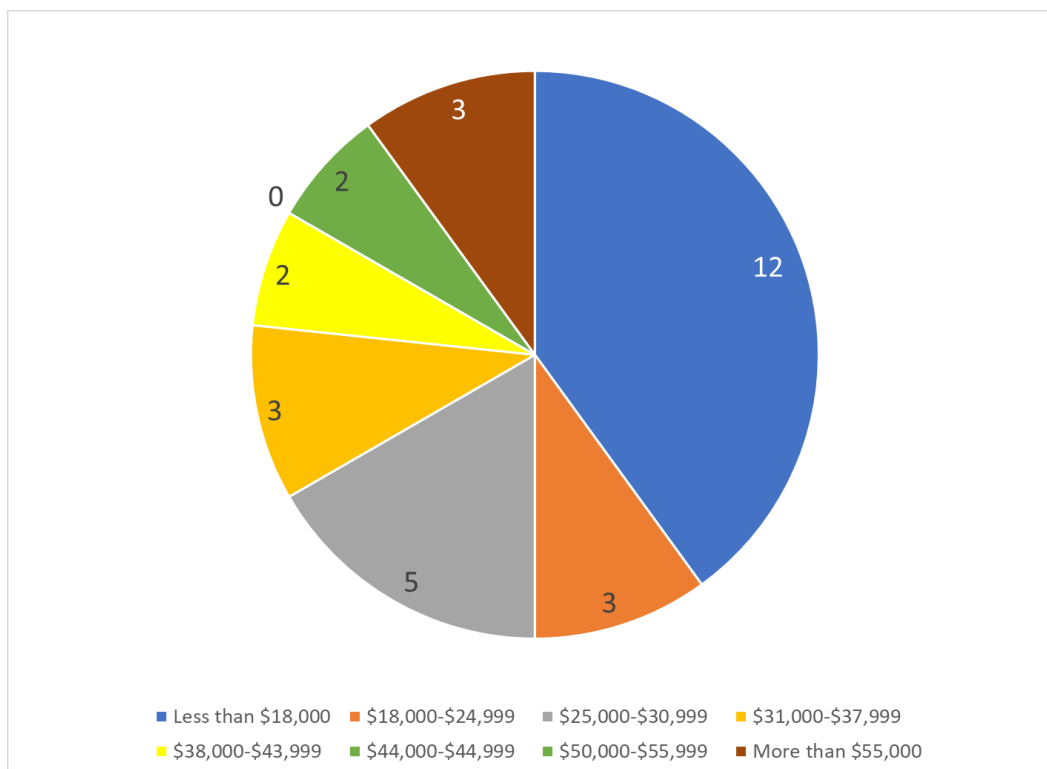


Figure 9: Household Income

Compared to the U.S. Census Bureau, which reports the median household income of Graham County as \$55,693 (19), survey respondents had a third of the median household income. Consequently, one can expect that the survey data represents people that are in need of affordable mobility options. Nearly twenty-one percent of the population of Graham County is below the poverty level (20). The U.S. Census Bureau has defined the poverty level as \$14,097 for individuals under the age of 65 or \$12,996 for individuals over the age of 65 (21). These poverty thresholds follow the Office of Management and Budget's Statistical Policy Directive 14 and vary based on family size and composition (22).

3.3.6 Transportation

This section will discuss the primary means of transportation identified, and the number of operable vehicles identified in the household. It also identifies survey respondent's input regarding their reasons for not driving a vehicle.

The majority of survey respondents reported their primary source of transportation as their private vehicle (Figure 10); however, this is not surprising considering the limited availability of public transportation options in the region.

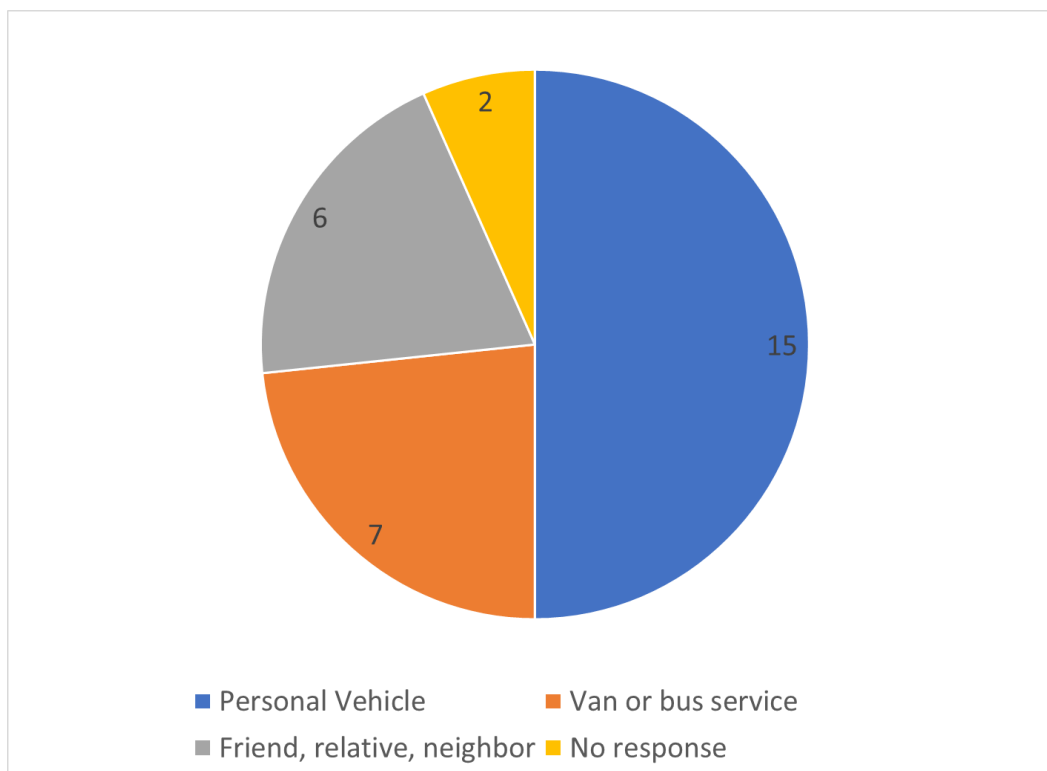


Figure 10: Primary Mode of Transportation

Fourteen survey respondents indicated that they do not drive a vehicle (Figure 10). The majority indicated that they cannot afford a vehicle or the cost of a driver's license/insurance, which are essentially the costs of entry for utilizing a private vehicle as a mobility option.

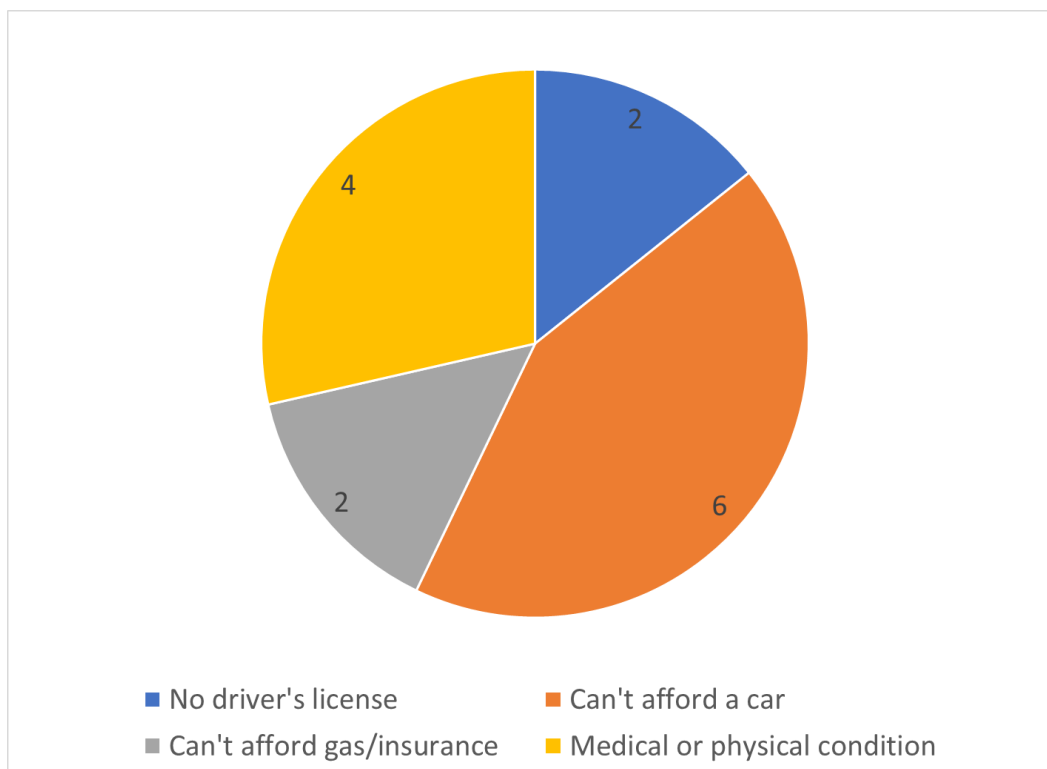


Figure 11: Input Regarding Why a Survey Respondent Does Not Drive

More than half of the survey sample does not have an operable vehicle within their household (Figure 11).

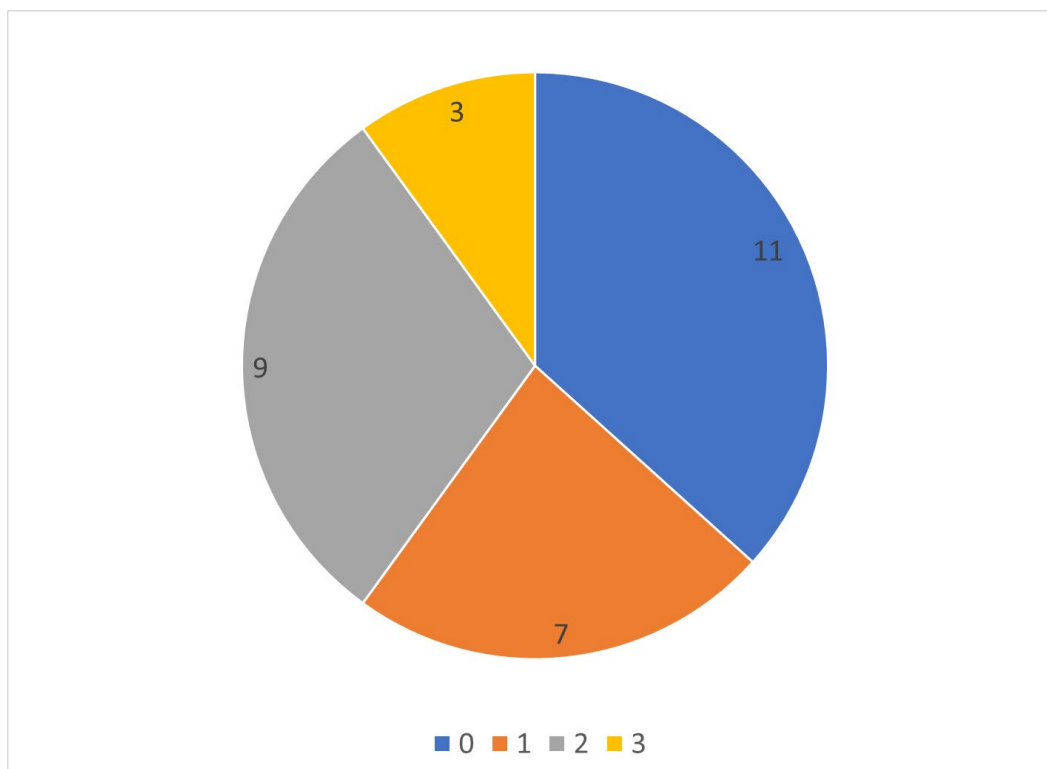


Figure 12: Reported Number of Operable Vehicles Within a Household

Under half (47%) of those who reported owning a vehicle were unaware of the available transportation services for the elderly and disabled in the Safford area.

Over forty percent (43%) of survey respondents reported that either they had used the service or someone they knew had used the service.

3.3.7 Trip Purposes

This section discusses the number, time frame, destination, and whether or not obtaining transportation to make a variety of trip purposes was challenging. Safford was one of the most commonly cited destinations, although Morenci and as far away as Tucson were identified. There were significant gaps in information provided in response to this question. However, the question provides some very valuable information if important points may be deduced from it.

3.3.8 Race & Ethnicity

Nine survey respondents reported identifying as White/Caucasian. Three survey respondents chose other. As survey respondents were allowed to identify multiple races, one survey respondent who identified as White/Caucasian also reported identifying as Latina. Another survey respondent who reported identifying as Other indicated that they



were “American.” The third survey respondent who chose other provided no additional information. Two indicated that they declined to answer. Seventeen did not provide a response. The majority of the sample was White/Caucasian. Compared to the U.S. Census Bureau, 36,046 residents of Graham County identify as a single race, of which 77.5% identify as white alone (23). For ethnicity, of the survey respondents that provided input, the results are split between being Hispanic or Latino and not (Figure 13); however, the majority of survey respondents either did not provide an answer or declined to answer the question.

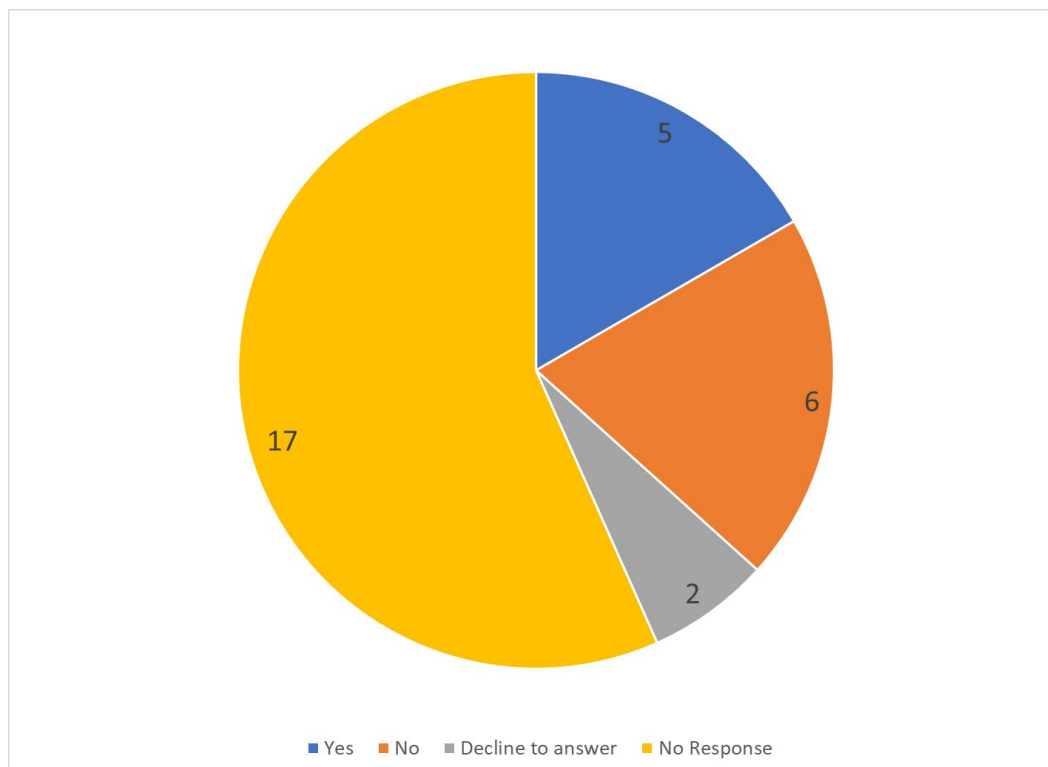


Figure 13: Ethnicity



4 Proposed Transit System Models

The primary goal of the proposed public transportation system is to improve mobility for residents in Graham County, focusing on the Safford area, by providing public transportation connections to residential areas, Eastern Arizona College, the hospital, and local shopping.

After discussions with SEAGO staff, City of Safford officials, and regional stakeholders—including the college and services organizations - the following destinations were chosen as potential key destinations that could serve as a stop in a transit system:

- The Church of Jesus Christ of Latter-Day Saints – Pima, AZ
- Eastern Arizona College – Thatcher, AZ
- Walmart – Safford, AZ
- Walgreens – Safford, AZ
- Lexington Pines Resort – Safford, AZ
- Alder Drive & 8th Street – Safford, AZ (would provide walking access for Lexington Pines)
- Mt. Graham Regional Medical Center – Safford, AZ
- Safford-Graham County Library – Safford, AZ
- Department of Economic Security (DES) Office – Safford, AZ
- Thriftee Food and Drug – Safford, AZ
- Firth Park – Safford, AZ (provides access to Graham County Health Department, Safford City Swimming Pool, Police Department, and Safford Main Street)
- Safford Ranch Mobile Home Park – Safford, AZ
- U.S. Post Office – Solomon, AZ
- The Church of Jesus Christ of Latter-Day Saints – Solomon, AZ

The locations of these stops are illustrated in Figure 13.

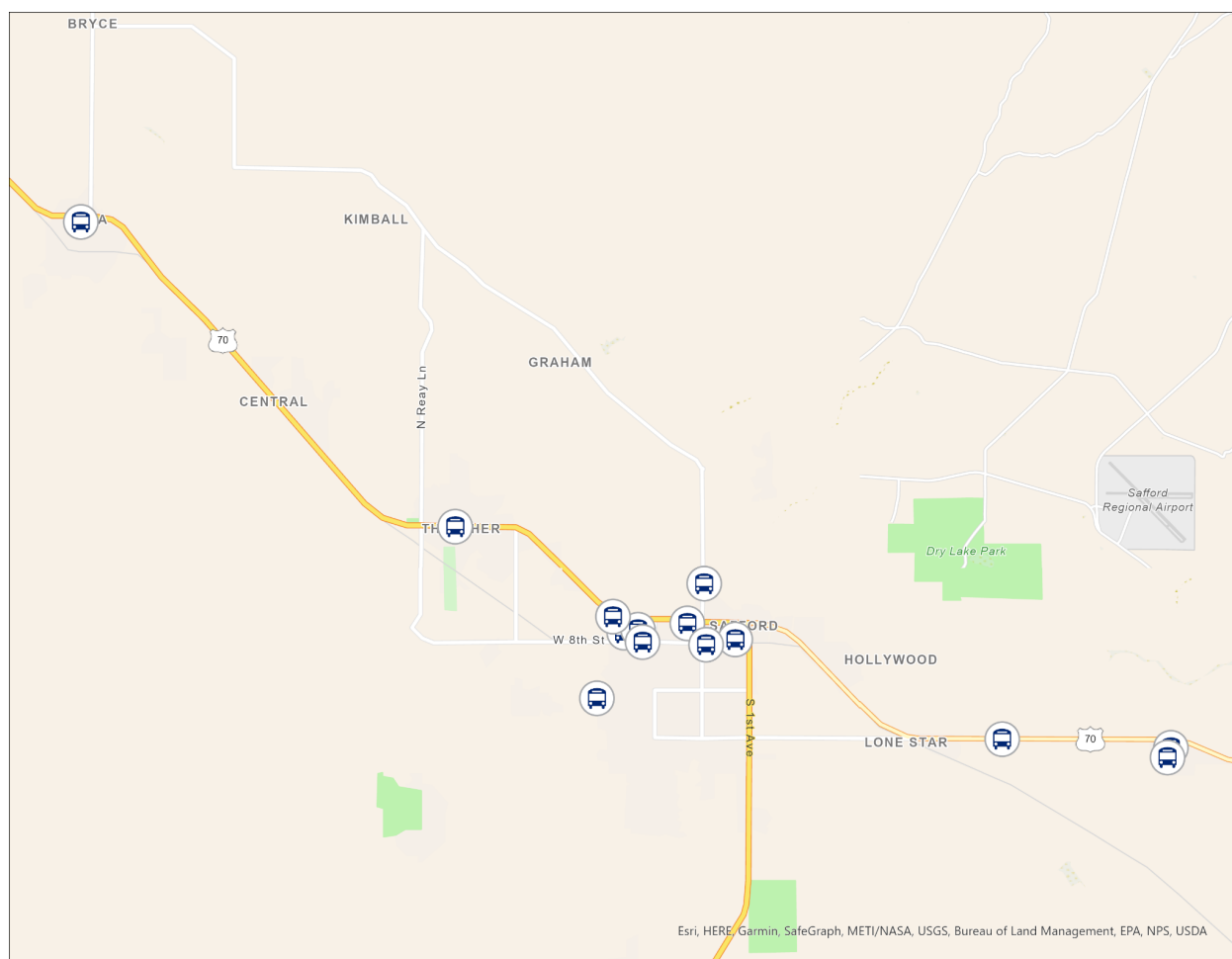


Figure 14: Initial Destinations Identified (24)

While the originally proposed origins and destinations were specific, as discussions progressed, additional locations and needs were identified. Consequently, it is a challenge to ensure providing efficient service to as many individuals as possible. A primary focus was serving the elderly and individuals with disabilities. However, these individuals are provided with some level of service by the Easterseals Blake Foundation. As outlined earlier, there is an observed gap in understanding youth mobility needs and low-income mobility needs of middle-aged residents. Ultimately, a transit system should be designed to provide the highest level of service and operate within the financial means of all potential users. Ultimately, an optimally designed transit system for the area should serve the elderly, individuals with disabilities, youth, middle-aged residents, and anyone else who needs additional mobility options in the Safford area.

The following three transit service models were proposed: 1) fixed route service, 2) fixed route service with a feeder service from outlying communities, and 3) on-demand with technology. These models are described in this section. Following these descriptions,



the costs of the proposed service models are discussed. Finally, the pros and cons of each service model are summarized.

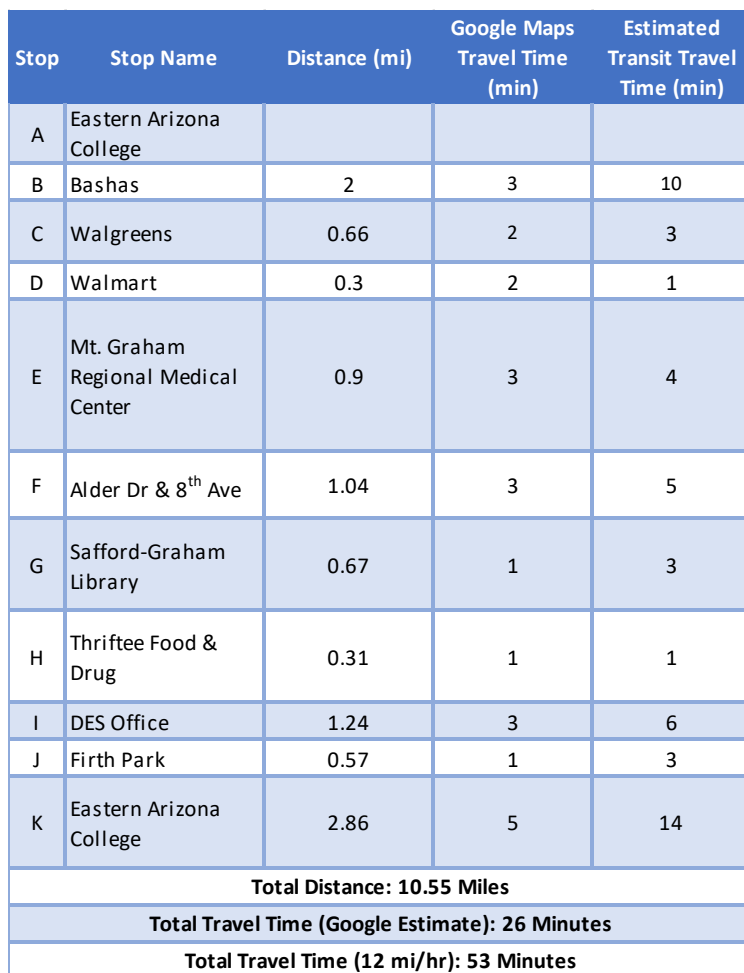
4.1 Fixed Route Service

This section describes a fixed route transit scenario including a list of potential stops and estimated travel times. Travel times are an important consideration because they affect the headway of a bus (the frequency of service). Generally, the shorter the headway, the more desirable the service becomes. This scenario assumes the availability of only one vehicle to provide service.

A route scenario was developed that serves locations primarily off US Route 70. It is proposed that this route would travel in a loop starting at Eastern Arizona College heading into Safford for multiple stops which would provide access to shopping and necessary services, then return to the College (Figure 15). During times when the college does not require service, this loop could begin at Walgreens in Safford (Figure 16).

Travel times were estimated in two ways: 1) using the travel times generated by Google Maps – which provides an estimated travel time based on the speed limit and number of stop lights along a route, and 2) using the widely accepted “rule-of-thumb” speed for transit planning of 12 miles per hour, which accounts for slower travel speeds as well as stopping for passengers to board or exit a transit vehicle. In reality, the travel time along the proposed routes would most likely fall somewhere in between these two travel time estimates depending on vehicular traffic, number of passengers (e.g., time it takes to board and alight the bus), and other factors like the time of day (i.e. potentially more delay during morning and evening “rush hours”) and day of week.

An important point to note regarding the proposed fixed route scenario is that it best serves destinations. Origins, typically where people live, are not well served by this model. For maximum benefit, a user would have to either live in close proximity or the user would have to find a means to get to a location where they could access a fixed route.





Stop	Stop Name	Distance (mi)	Google Maps Travel Time (min)	Estimated Transit Travel Time (min)
A	Bashas			
B	Walgreens	0.66	2	3
C	Walmart	0.3	2	1
D	Mt. Graham Regional Medical Center	0.9	3	4
E	Alder Dr & 8 th Ave	1.04	3	5
F	Safford-Graham Library	0.67	1	3
G	Thrift Food & Drug	0.31	1	1
H	DES Office	1.24	3	6
I	Firth Park	0.57	1	3
J	Bashas	1	4	5
Total Distance: 6.69 Miles				
Total Travel Time (Google Estimate): 20 Minutes				
Total Travel Time (12 mi/hr): 33 Minutes				

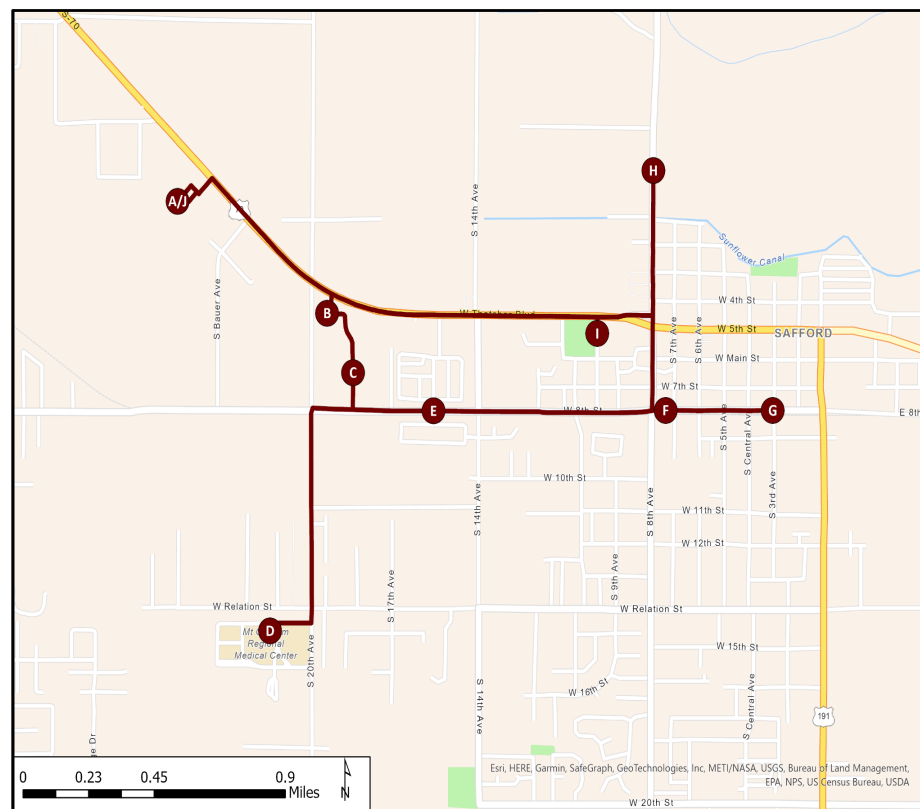


Figure 16: Shortened Loop (24)

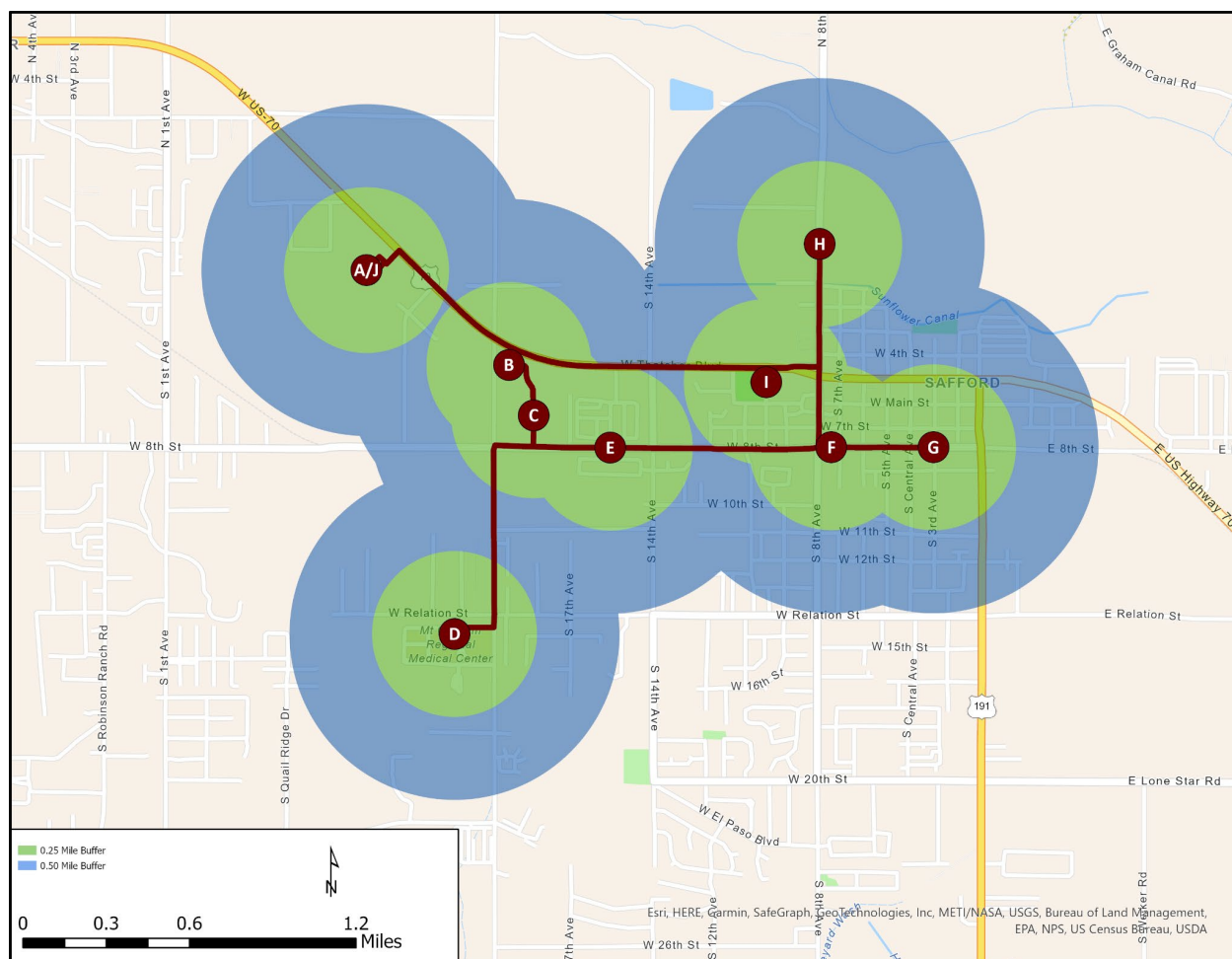


Figure 18: Shortened Loop with Quarter-Mile (Green) & Half-Mile (Blue) Buffers (24)

The catchment zone for the full and shortened loop best serves those between W. Relation Street and US 70. It misses those within W. Relation Street and 20th Street and those in proximity to S. First Avenue. While there is potential that some may be motivated to bike or walk further distances to access the service, these may not be safe places to walk or bike. Furthermore, those living in Cactus Flats and Tangelo Park would likely find little benefit for such a service.

4.1.2 Behavioral Health Facilities

The Safford area has five behavioral health facilities. All but one (SouthEastern Arizona Behavioral Health Services) would fall within walking distance of the proposed fixed route service (Figure 19).



4.1.3 Paratransit Requirements

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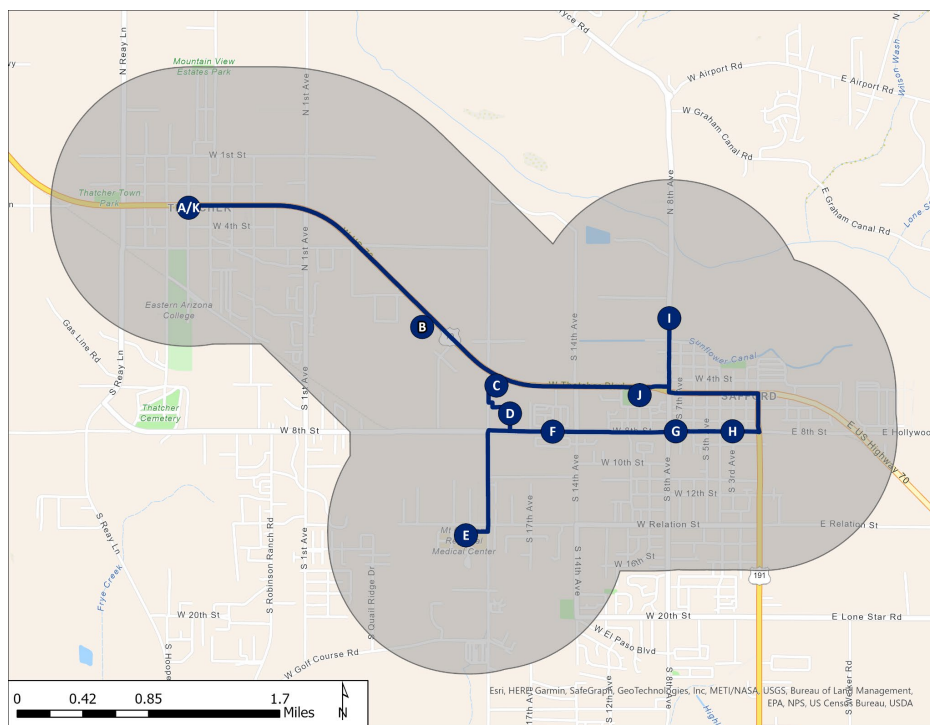


Figure 20: Paratransit Boundaries for Full Loop (24)



Figure 21: Paratransit Boundaries for Shortened Loop (24)

EBF has the potential to address paratransit service needs in these highlighted areas.



4.2 Fixed Route with a Feeder Service

The previous section discussed one potential fixed route service. This section describes another alternative for fixed route service that also draws in additional riders by providing a corresponding feeder service; this scenario was suggested during the January 2022 stakeholder meeting. This feeder service is offered only infrequently to specific locations (i.e. Pima, Solomon, and Tangelo Park/Cactus Flats) to assist with reducing the first-mile/last-mile challenges of public transportation. The fixed route service is considered the “CORE” service. It would run within the City of Safford throughout the day but would provide a feeder service to the outlying communities in the morning, afternoon, and evening so travelers could travel into and out of Safford. Currently, a suggested schedule would provide the feeder service as follows:

- Tangelo Park and Cactus Flats (south of Safford) – offered Monday, Wednesday, and Friday
- Pima – offered Tuesday
- Solomon – offered Thursday

Due to the constraint of only having one vehicle available, service could only be offered to the “feeder” service areas infrequently. If additional vehicles were available, or an on-demand system was coupled with the CORE system, the service levels would improve for those using the CORE route and those using the feeder route services.

The stops identified in Table 5 would serve as the CORE fixed route service.

Table 5: CORE Route.

Stop	Stop Name	Distance (mi)	Time (min)	Transit Time (min)
A	Thriftway Foods			



B	Safford-Graham Library	0.31	1	2
C	Walmart	1.00	3	5
D	Walgreens	0.25	2	1
E	Bashas	0.66	3	3
F	Eastern Arizona College	1.66	3	8
G	DES Office	3.39	6	17
H	Thriftree Foods	1.24	3	6
Total Distance: 9 Miles				
Total Travel Time (Google Estimate): 24 Minutes				
Total Travel Time (12 mi/hr): 42 Minutes				

Feeder service from outlying communities would be provided three times a day. This feeder service could operate as a deviated fixed route service, allowing for a fixed stop within each community and accommodating a small number of pick-ups that would need to be pre-scheduled. Upon entering or exiting Safford, the service would stop at Mt. Graham Regional Medical Center.

4.2.1 Tangelo Park/Cactus Flats (served Monday, Wednesday, & Friday)

A roundtrip diversion to the Tangelo Park and Cactus Flats area will cover an estimated 16 miles and take approximately 40 minutes.

Table 6: Tangelo Park & Cactus Flats Feeder Stops.

Stop	Distance (mi)	Time (min)	Transit Time (min)
Dollar General (Cactus Flats)			
K & S Thrift Store (Tangelo Park)	2.72	3	13



Mt. Graham Regional Medical Center	3.42	6	17
Thriftree Foods	2.02	6	10
Total Distance: 8 Miles			
Total Travel Time (Google Estimate): 16 Minutes			
Total Travel Time (12 mi/hr): 40 Minutes			

4.2.2 Pima (served Tuesdays)

A roundtrip diversion to the Pima area will cover an estimated 20 miles and take approximately 40 minutes.

Table 7: Pima Feeder Stops.

Stop	Distance (mi)	Time (min)	Transit Time (min)
Speedway (Pima)			
Mt. Graham Regional Medical Center	7.75	12	38
Thriftree Foods	2.02	6	10
Total Distance: 10 Miles			
Total Travel Time (Google Estimate): 18 Minutes			
Total Travel Time (12 mi/hr): 48 Minutes			

4.2.3 Solomon (served Thursdays)

A roundtrip diversion to the Solomon area will cover an estimated 18 miles and take approximately 40 minutes.

Table 8: Solomon Feeder Stops.

Stop	Distance (mi)	Time (min)	Transit Time (min)
USPS (Solomon)			



Mt. Graham Regional Medical Center	6.73	12	33
Thriftree Foods	2.02	6	10
Total Distance: 9 Miles			
Total Travel Time (Google Estimate): 18 Minutes			
Total Travel Time (12 mi/hr): 43 Minutes			

The feeder routes take an estimated 40-60 minutes, roundtrip. Conservatively assuming the longer options, a potential schedule for the CORE and feeder routes is described in Table 9. An overview of the route is shown in Figure 22: CORE & Feeder Routes.

Table 9: Proposed Schedule, CORE & Feeder Routes.

Stop	Estimated Time
Scheduled Stop at Originator Community	8:30 AM
Mt Graham Regional Medical Center	8:50 AM
CORE Route	9:00 AM to 11:00 AM
Mt Graham Regional Medical Center	11:10 AM
Scheduled Stop at Originator Community	11:30 AM
Mt. Graham Regional Medical Center	11:50 AM



Lunch Break for Driver	12:00 PM to 1:00 PM
CORE Route	1:00 PM to 4:00 PM
Mt. Graham Regional Medical Center	4:10 PM
Scheduled Stop at Originator Community	4:30 PM

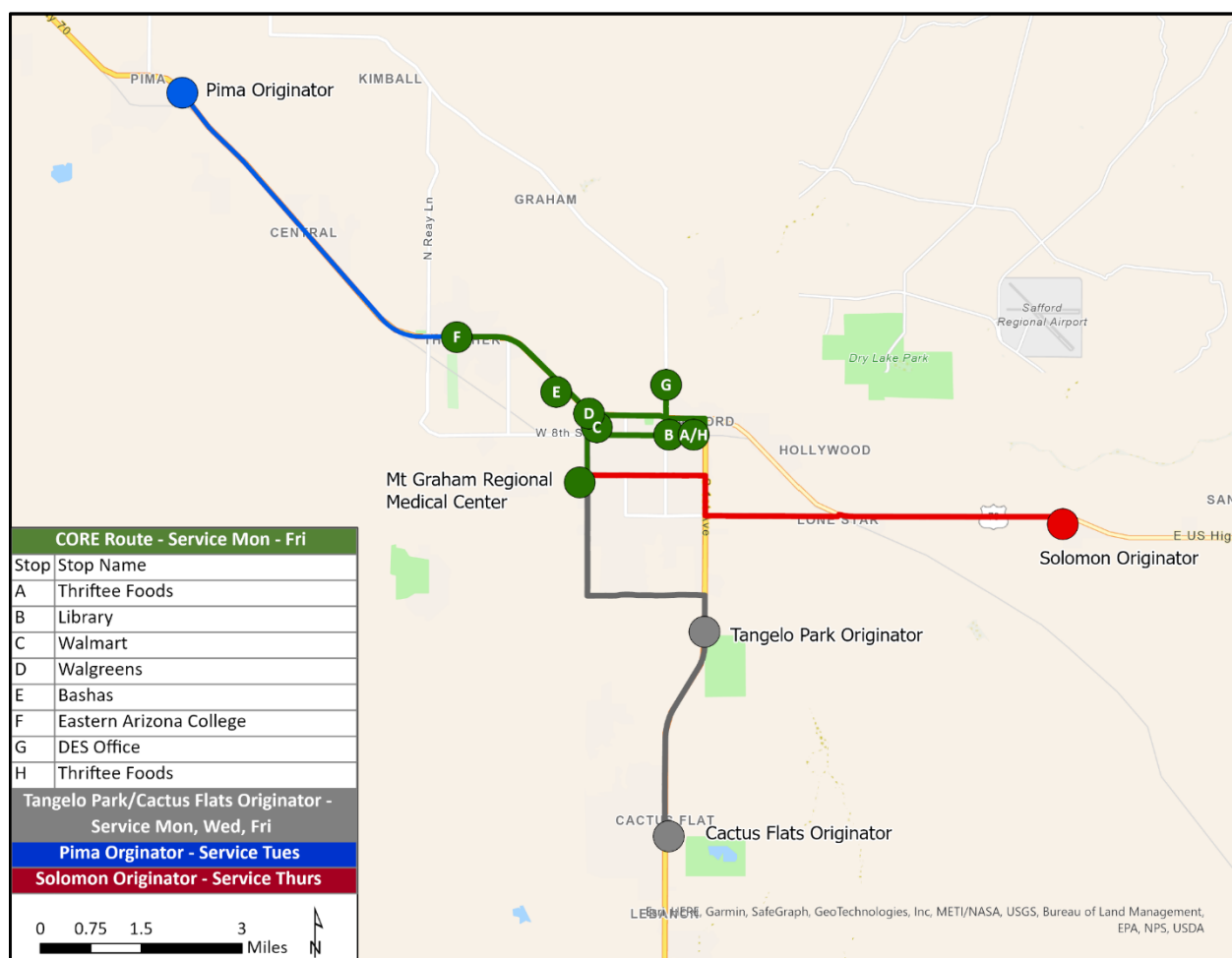


Figure 22: CORE & Feeder Routes (24)

This method of service brings benefits in that it reaches a broader population in the Safford area (i.e. Pima, Solomon, Tangelo Park, Cactus Flats); however, the service limits the usefulness to those who may want to utilize the service for commuting purposes.



4.2.4 Bicycle and Pedestrian Access

Similar to the previously described scenario, this section details quarter-mile and half-mile buffers around each stop to better understand the catchment area for pedestrians and cyclists (Figure 23).

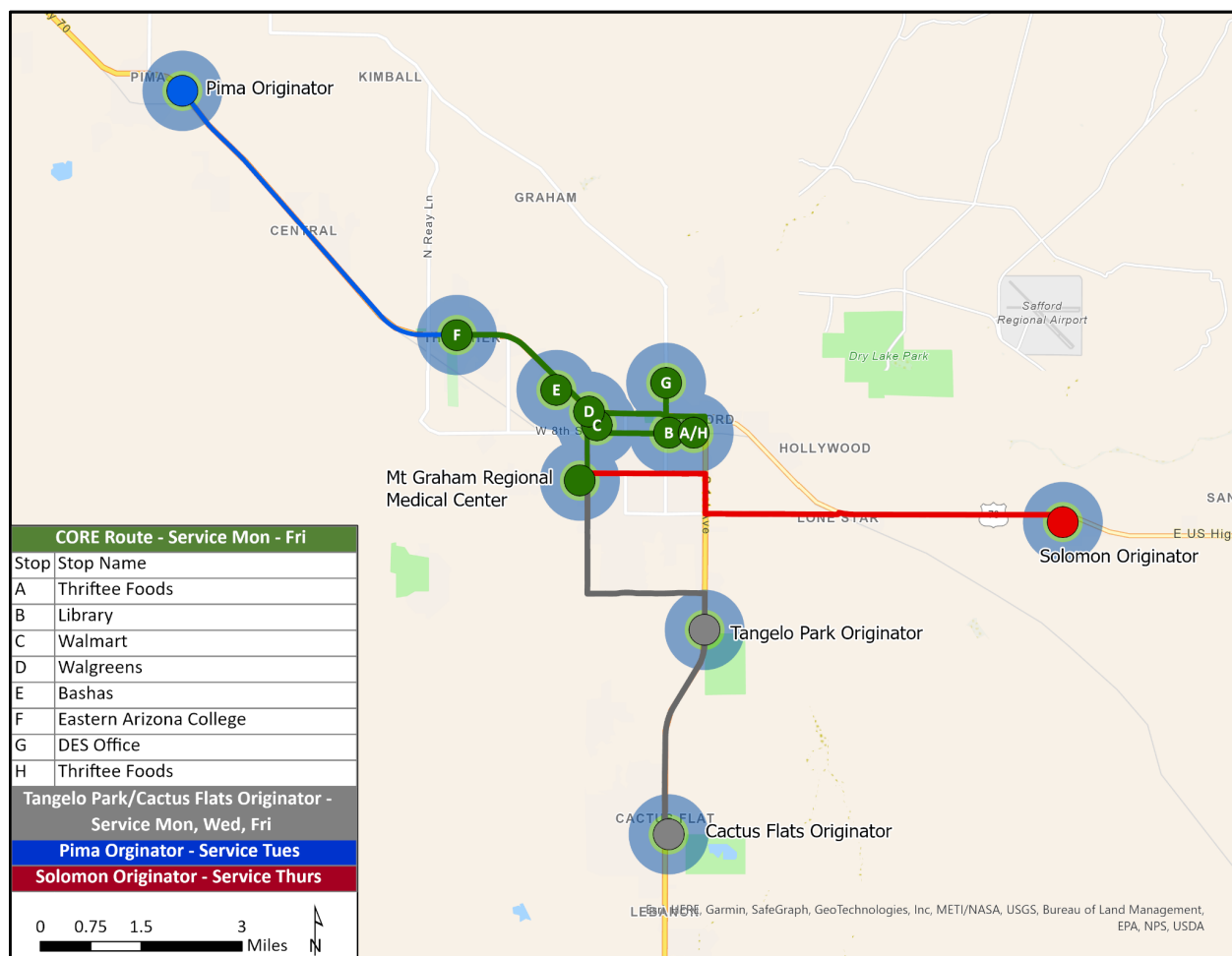


Figure 23: CORE & Feeder Service with Quarter and Half-Mile Buffers (24)

4.2.5 Behavioral Health Facilities

The Safford area has five behavioral health facilities. All but one (SouthEastern Arizona Behavioral Health Services) are located within walking distance of the proposed fixed route with feeder service (Figure 19).

4.3 On-Demand with Technology

On-demand with technology is a shared transportation service that provides a dynamic, demand-response model which can better serve lower population density areas (28). On-demand with technology may provide a feasible alternative to a traditional fixed route



transit system for the Safford area. As the use of technology to enable more flexible service is a relatively new approach, particularly for rural areas, this section will highlight the findings from two recent on-demand with technology reports and present three rural case studies, including one featured in a webinar. Following this, since technology is a central component of the on-demand with technology service model, a discussion related to the connectivity of Graham County compared with counties that currently have such service will be presented. Finally, two on-demand with technology options for the Safford area will be described.

4.3.1 Information about On-Demand with Technology

The following sections detail some contemporary information about on-demand with technology systems, starting with a 2018 report by The Eno Center for Transportation, a 2019 report by the Transit Cooperative Research Program (TCRP) and rural on-demand with technology case studies, including that from a 2020 webinar by the National Rural Transit Assistance Program (NRTAP).

4.3.1.1 UpRouted

In 2018, The Eno Center for Transportation produced the report *UpRouted* (29). Within the document, the efforts of three, large transit providers to offer on-demand with technology transit are described.

This paradigm was highlighted as a means with which to prioritize customer needs. To prioritize the needs of the customer, one must look beyond the typical performance measures (i.e. ridership and farebox recovery) to include metrics like improved mobility, increased safety, and an enhanced customer experience.

Contracting mechanisms that can enable quick changes to be made during the pilot stage in response to issues identified (i.e. concurrently minimizing passenger ride time while balancing the number of riders) was noted as a key recommendation.

Some of the pilot projects discussed within performed poorly. However, the pilots suffered from several issues. Limited marketing was identified as one issue. In addition, for one service, the need for an AM and PM peak commuter service was overlooked as a key need for riders – many reported in surveys that the service time frames were too limited and that the operation area was too linear. Pilots also inadvertently limited the potential user pool in two ways. In one case a call center was not provided even though the transit agency reported that approximately twenty percent of their ridership was arranged via the call center (essentially eliminating one-fifth of potential riders). Second, a pilot program only allowed payment via a debit or credit card even though a transit agency reported that approximately half of their ridership had annual incomes of less than \$24,000. Individuals earning less than \$24,000 annually often do not utilize debit or credit cards.



The report also shared findings regarding considerations for those serving as drivers. First, drivers who formerly operated fixed-route vehicles had difficulty transitioning to the on-demand system. Interestingly, they found that drivers who operated paratransit vehicles made a more seamless transition to the on-demand system. In addition, tablet training was recommended for all drivers.

Another significant issue with the early on-demand with technology pilot programs was related to the algorithm that ultimately provided the directions and schedule for drivers. One algorithm was originally told to pick-up as many passengers as possible, yet the capacity of the vehicle (a.k.a. load factor) was not integrated as a factor in the algorithm; this oversight resulted in long ride times for users. Because the contracting environment did not allow a quick-response change to be made, the system continued to operate with the original algorithm until a change was approved by the board. Consequently, a significant recommendation within the document was to enable quick decisions to be made locally when aspects of the program are not working.

The report provided additional design details of interest. One service reported expanding their on-demand service area from 3.25 square miles to 5.5 square miles. Another service utilized sidewalk decals to mark stops where vehicles could safely and legally stop. Compared to fixed transit, on-demand with technology vehicles are often smaller, leading to the operation and maintenance costs often being less. At least one agency reported challenges with the onboard navigation tablets.

The report provided several suggestions with respect to marketing activities. A very effective marketing tool identified was “in-person education” for the system and its methods of ride reservation. User unfamiliarity with an on-demand with technology system was identified as a substantial barrier to use and adoption. Several systems required a potential user to essentially “self-educate” in order to effectively utilize the system. An introductory period with free rides as well as direct mail marketing to businesses and residences within the quarter mile of the service was also an identified marketing approach.

Not all of the on-demand with technology software systems operated similarly. At least one allowed subscription-type services (i.e. requesting a ride every Monday morning). One also enabled an individual to schedule service for someone else; this might be useful for a more tech-savvy individual to schedule service for a relative that is not as familiar with technology (i.e. a grandchild for a grandparent). Another service allowed customers to board at scheduled times and verbally request their drop off location, which would be entered into the system by the driver manually. This approach provides additional flexibility to those who may not be as digitally connected. A challenge encountered by a pilot program was the inability to concurrently allow on-demand and advanced reservations to be made through the software.



One system noted surprise to find that for a connection (i.e. a light rail station), the on-demand service was not being used to access it, but rather to travel from the station to their final destination.

The findings also recommended, “robust vendor and design research prior to RFP development and release,” including conducting “a series of outreach meetings to potential vendors.”

4.3.1.2 Thoughts in Response to Uprouted

One question that has not been answered is with respect to the algorithms that make on-demand with technology possible. It is clear that decisions made within the algorithms impact the overall performance of the system. Yet, little guidance to date seems to fully discuss this issue. There may be some issues with “proprietary knowledge;” however, this highlights the value of meeting with several potential vendors prior to selection as suggested in the previous section.

The document suggested surprise that people were using the on-demand service for the last-mile more than the first mile. Yet, for the first-mile, it is more likely that someone can get dropped off in a personal vehicle (and then the person dropping them off can take their own vehicle to their final destination), they can use a bike and feel safe about parking it (as they are likely more familiar with the area), or they can walk (again, they are likely are more familiar with the area).

There continues to be an ongoing expectation that potential users can and will educate themselves on how to effectively utilize the systems. Something as novel as on-demand with technology transportation service, while it has the potential to provide significantly higher quality and more efficient service compared to traditional fixed route services in rural areas, there is a need to teach users how to make use of it. This is likely a need for any rural transit service, as providing robust service in rural areas is still evolving.

4.3.1.3 TCRP Report

In 2019, a Transit Cooperative Research Program (TCRP) report (28) reviewed the experiences of more than twenty transit agencies with on-demand with technology applications, with case studies developed for five. The majority of the examples can be described as being more urban/suburban examples. The report indicates that on-demand with technology service is “more efficient than fixed route service in areas of lower density or demand.” The report suggests that on-demand with technology strikes a balance between the individual-based efficiency found via transportation network companies (TNCs) and that of fixed-route service. Algorithms within the technology are used to “optimize the vehicle’s route in real time to serve the most amount of people as efficiently as possible.” On-demand with technology has been described as a paradigm in which the transit vehicle finds the person, as compared with the more traditional scenario where the person finds the transit vehicle. An on-demand with technology system that has point



deviation is a system in which there are a small number of fixed stops but no defined route between them. While the report suggests that in rural areas, the on-demand with technology service is often combined with paratransit, a very limited number of rural examples were considered.

Several reasons were identified regarding why transit agencies moved to an on-demand with technology system. One transit manager reported that the value of on-demand with technology was out of a “genuine concern for those who are socio-economically disadvantaged and a desire to assist them with access to opportunities” including jobs, education, and social services. Others reported that the service could best accommodate a growing elderly population and provide them with a level of mobility that would enable the elderly to age in place. A benefit of on-demand with technology services is the ability to expand “economic opportunities” by enhancing mobility. On-demand with technology was also identified as a solution where there was limited infrastructure to safely support someone walking and bicycling, including the presence of hills. It was also identified as a method that could be used to identify a market for fixed route transit services.

On-demand with technology has found a niche in serving lower transit demand areas, lower densities of population, and areas with lower densities of employment. Suburban and rural areas are specifically identified as being good applications of this service model. The report identifies that it may often be a good fit where fixed transit services have failed to achieve the “standards of ridership performance.” On-demand with technology has also been identified as a good solution to enabling mobility to the largest number of people when considering lower density areas. The report notes that on-demand with technology is now possible because of “advances in technology” and a corresponding reduction in the costs of this technology.

An on-demand with technology system can be designed to allow a user to access the service via all or some of the following methods: 1) smartphones, 2) computing devices, 3) reservation lines, and 4) at identified pick-up points (i.e. a Walmart/Bashas/hospital) (aka checkpoints/time points). Major generators of trips (i.e. schools, shopping centers, office parks) may be good locations for checkpoints; one service identified Walmart as their top destination. Users may be notified by a telephone call or by text that the vehicle is in transit to pick them up. A challenge noted is that when a single vehicle is used, there is a capacity limit for when the vehicle can pick-up and drop-off users, particularly for larger service areas.

The document also details service findings to date, although as mentioned earlier, this information originates from primarily urban/suburban applications. On-demand with technology services have been identified as being able to carry 2.4 to 4.7 passengers per vehicle service hour; however, the greater number of passengers per vehicle service hour reflects systems that are designed with time points and higher frequency cycles. They were also associated with higher levels of employment density and greater populations. Therefore, it is more likely that rural applications would be closer to 2.4 passengers per



vehicle service hour. Zones were reported as spanning between 2 and 30 square miles; however, one provider recommended keeping the zones closer to five to seven square miles. One agency estimates that for a zone between five and seven square miles, one vehicle could accommodate up to six passenger trips per hour. Fares ranged from as low as \$1.00 to as high as \$10.00, with the latter representing long-distance, more regional service (i.e. a 19-mile long trip). Farebox recovery ratios ranged from five percent to twelve percent. Providers reported that if a passenger that reserved service was a no-show, they were precluded from using the service for a period of time following the no-show. At least one service allowed for a trip to be denied if the on-demand with technology vehicle was at capacity.

Service hours varied from as early as 5:30 a.m. to as late as 10:30 p.m., and typically at least provided service during the week (Table 10).

Table 10: On-Demand with Technology Reported Service Hours.

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
6am-10:30pm	✓	✓	✓	✓	✓	✓	✓
6am-9pm	✓	✓	✓	✓	✓		
5:30am-7:30pm	✓	✓	✓	✓	✓	✓	
5:30am-9pm	✓	✓	✓	✓	✓		

To enable an agency to properly analyze the effectiveness of such a service, it is recommended that the agency is provided with control of the mobile application as well as a dashboard that shares administrative system data.

It is also noted a tendency for the on-demand with technology systems to utilize smaller vehicles. Several benefits were reported as being associated with the smaller vehicles for on-demand with technology, including that they are easier to maneuver, are more fuel efficient, and do not require drivers to possess a commercial driver license.

In addition, as the data recorded by the software provides origin and destination data, no automatic passenger counters are necessary. This information can, in turn, be used to analyze if a fixed route, or a fixed route deviated service may be a good service model for the area in the future.

An agency noted that their performance metric for on-demand with technology was not the amount of time it took to get to a single request for service, but instead how close the vehicle arrived within the time that it had indicated to the passenger. Other performance



indicators utilized by some service providers included missed trips, on-time performance, meeting connections, and cost.

One contractor ultimately discontinued service, which had an average cost of \$21.70 per passenger; others reported a cost as high as \$30 per passenger. However, this is likely resulting from maintaining a policy of “zero denials” for riders. Therefore, in some cases, an additional vehicle was brought in to service even while demand was minimal.

RTD, in Colorado, indicated that seventy percent of all trips are for commuting to work or school; they also add vehicles during peak-periods. RTD charges the same fees for their on-demand with technology service as they do for their fixed route transit service.

Houston’s METRO had an unexpected market with their on-demand with technology service: school children. With limited sidewalks and lighting between apartments and schools, children were using the on-demand with technology service to safely travel between their origins and destinations.

A benefit reported by one transit provider was that a cancelled trip does not “negatively affect the operator or the remaining scheduled trips.”

For some services, the transit agency recommended that during peak service periods, that a user book their ride an hour in advance. They also recommended that, if possible, users book their trips during non-peak service hours. In other words, there are ways to use marketing to try to spread out the demand for the service for those who may have more flexible schedules (i.e. the transit provider could work with medical providers to schedule appointments where someone needs transportation during periods when there is less demand).

One service reported using “ruggedized tablets” within their vehicles to display the trips to be served and the route; the next five pick-up and drop-offs were identified. A sound (chime) was used to communicate to the driver if a change had been made to the next pick-up or drop-off. The location of the vehicles updates every three to five seconds during operation. When a vehicle is en-route to pick-up a passenger, an “electronic ‘honk’” is given to the passenger. A driver can override the route identified through the software if they are aware of a more efficient one; this might be particularly relevant for rural areas, although the transit provider should establish policies regarding when this is permitted.

Regarding the software, one agency reported replacing a “calendar-based” interface with a “task-based” interface with turn-by-turn directions. The agency reported that it allowed the driver to pay more attention to driving and providing customer service. Another agency reported that they instituted a mass cancellation-and-notification system, which could be activated for snow and ice events.

In order to be effective, the need to spend a significant amount of effort marketing the service, particularly because it is a new style of service, was reported. At least one



agency reported sending direct mail marketing to every residence and business within the on-demand with technology zone. Agencies also reported purchasing radio spots and television commercial time on English and Spanish channels. Presentations at public meetings, public hearings, and presence in public spaces were also identified. Transit agencies also reached out via local newspapers, large senior living facilities, mobile home parks, conducted ribbon cutting ceremonies, press conferences, press releases, and generated television news coverage. In addition, agencies reported targeting significant trip generators (colleges, hospitals, schools, apartment complexes, industrial complexes, office parks, entertainment venues) for additional marketing efforts. One unique marketing idea was via a movie theatre ad. Another entity marketed the service at a grocery store, coffee shop, provided geofenced mobile ads, and sent an email to high school students. One agency offered postcards that would allow a person to include their contact information if they wanted more information about the service. One on-demand with technology system, HART, had electric vehicles donated for their system. HART used this vehicle to market the system. Marketing should occur before, during and after the service is implemented. When considering what happens if significant marketing efforts are not undertaken, a transit agency example identified that community members were unaware that a limited number of free rides were provided to allow potential users to become familiar with the service. In addition, those that ultimately rode the system only realized it existed by seeing the vehicles drive past them.

Several transit agencies reported offering their on-demand with technology as a pilot first. Offering a pilot was also suggested as being a “wise” choice. Several agencies chose to implement a pilot transit service for a period of a year or less. Another service started with a one-year pilot and extended it into a second year. They also suggested that pilot projects are easier to launch when no service is currently available.

Most of the transit agencies to date that have utilized on-demand with technology systems have done so by contracting with a private entity to operate the system. However, this is not possible in every area, as responses to requests for proposals (RFPs) often result in zero bids being submitted. It has been suggested that when bids are not presented, it may reflect that entities may not have sufficient facilities and equipment available in the area to be served. To date, transit providers have reported that contractors provide on-demand with technology service at a more affordable price. A benefit of using contractors is that they have the ability to quickly scale services in response to observed conditions. Some services provide vehicles and fuel but not a garage, operators, or maintenance. Some have required the contractor to provide “reasonable wage structures,” including “proposed salaries for contracted employees,” and to ensure quality of service. Some transit agencies reported that when a project is a pilot, competitive bids are not required. One agency reported including a provision for liquidated damages if performance was unsatisfactory to the transit agency. RFPs also included on-time performance requirements and standards for safety. One transit agency selected a bidder, not based on the lowest cost bid, but instead on the experience of the company in providing on-



demand with technology service. Transit agencies reported using secret shoppers that randomly accessed the service to evaluate the quality of service. Level 2 background checks and drug and alcohol testing were also requirements. A transit agency recommended that hiring a contractor with on-demand with technology experience is preferred. One transit agency noted a need to remind the contractor that they are “ambassadors and representatives of the public transit agency.” All of the potential provisions within an RFP should be considered to ensure quality of service as balanced with being attractive enough to contractors that at least one bid is submitted.

One transit agency reported issues with the tablets used for the system, citing lost connectivity or periods when it was out-of-service. The lack of connectivity results in trips being missed and presented anxiety to drivers. One transit provider conducted a “dry run testing in a live format” for an entire month before providing service to the public. This enabled that agency to address some significant changes in policy as well as some changes to the software.

One of the most significant challenges identified as being associated with on-demand with technology is “teaching people how to use the service.” One service offered free travel training. At least one agency (LYNX) offered a YouTube video on how to use the service. One transit agency noted that they had challenges because the public perceived the on-demand with technology service to operate the same as a paratransit service.

4.3.1.4 Thoughts in Response to the TCRP Report

Much of the information contained within the TCRP report could inform an on-demand with technology system in the Safford area; however, as the Safford area system is much more rural than the examples in the TCRP report, caution should be taken in too directly mapping the results summarized in the TCRP report to the expected experience in the Safford area. For example, while the TCRP report identified as short as a six-month pilot to one that was extended for a second year, in rural areas, where adoption of public transportation systems may be slower, a longer pilot period is recommended to enable people to learn about the service and adopt it over time.

In addition, thinking about the site-specific experiences of the SEAGO area, in using similar approaches for marketing that were identified, it might be suggested to advertise the service at Bashas, Walmart, via ads within the Allen Theatres – Stargazer 5, and through emails to the high schools and the college.

Another challenge that the Safford area faces compared with those described in the TCRP report is that the systems described often had dedicated transit staff. This is not expected to be the case for the Safford area system. However, long-term, identifying at least one staff person that could oversee the transit system as part of their job responsibilities would ensure the viability of the system by allowing adjustments to be



made over time. The most successful transit systems are those that adapt as a community changes.

As highlighted with the Houston example, the on-demand with technology model could benefit students. These could be high school students going to after-school activities or courses offered to them at Eastern Arizona College (i.e. advanced placement courses), allowing them to safely get home then after. It could also be Eastern Arizona College students, who may need to get to the grocery store or work which could be enabled by the service.

A significant benefit of this approach as compared with fixed route or fixed route with feeder services, is that the flexible nature of the service allows for a better understanding of when someone may use the service and where they want to go. If after running the service for a period of a year, the data reviewed suggests a large majority of the origins and destinations are in a specific area, at a minimum, checkpoints could be used, and even potentially a fixed route system could be defined based on the collected data.

4.3.1.5 On-Demand with Technology, Case Studies

In November of 2020, a representative from the City of Wilson, North Carolina and a private contractor (Via) presented a webinar through NRTAP (30). The webinar started by defining on-demand with technology, noting that “schedules’ aren’t really schedules at all, as they shift constantly based on rider demand.” The City of Wilson identified starting with an existing, fixed route service that had sixty-minute headways. They identified the following objectives for their on-demand with technology service called RIDE:

- Drive economic growth by connecting Wilsonians with more jobs,
- Improve access to critical resources – healthcare, food, government, fixed route transit, etc.
- Grow ridership with convenient and tech-enabled experience
- Deliver a higher quality of service for comparable cost to today’s fixed route
- Ability to experiment with minimal long term capital investment or risk.

The on-demand with technology service allowed for prepaid vouchers or prepaid debit cards to be utilized by unbanked individuals. The contractor also provided National Transit Database (NTD) reporting summaries. Daily rides with the new system, post-pandemic, were reported to have exceeded those of the pre-pandemic, fixed-route system (322 to 275).

The on-demand with technology service is operated by a private company (Via) using ten vans (31). Users book a ride via a smartphone application or by telephone. The service charges a flat fare of \$1.50 for a trip within the City of Wilson. Since launching the service in September of 2022, RIDE has increased service coverage across the city and seen significant growth in ridership (averaging over 300 rides per day). In fact, on-demand with



technology has become so popular that the North Carolina Department of Transportation is implementing it elsewhere throughout the state. According to a June 2022 presentation by Ryan Brumfield, NCDOT Director of the Integrated Mobility Division, there were 30 on-demand with technology projects underway in the state. Of these thirty projects 12 are in the exploration phase, 13 are in the planning phase, and 5 are operating and collecting revenue.

Another case study of on-demand with technology in a rural area is the Baldwin Regional Area Transit System (BRATS) in Baldwin County, Alabama. The service operates within a primarily rural county spanning 2,000 square miles. It is operated by a private company (Via). Rides can be scheduled using a smartphone application or by calling the BRATS scheduling team. Fares range from \$2.00 to \$5.00, one-way, depending upon the distance traveled.

Ben Franklin Transit in the Tri-Cities area of Washington State operates an on-demand with technology service called BFT CONNECT. It provides connections to Ben Franklin Transit's fixed route transit system. Operated by a private company (Via), the on-demand with technology service is designed around six service zones throughout the Tri-Cities (32). Each zone has a select number of predetermined destinations that a user can schedule a ride to (generally transit centers or Ben Franklin Transit bus stops). Rides can be scheduled via a smartphone application or phone.

4.3.2 Connectivity Challenges in Rural Areas

Connectivity is critical to the functionality of an on-demand with technology system. This allows riders to call in or utilize a smartphone application to request a ride and enables the system to dynamically schedule pick-ups and drop-offs. The aforementioned studies were performed in rural areas in proximity to larger, urban areas. In contrast, the focus area for this study is in a very rural part of the country where connectivity may be a concern. Therefore, while one potential solution identified is that a route is updated when a driver returns to an area that enables the system to reconnect, the question becomes whether or not this reduces the efficiency of the service in a very rural context. To date, no known example operating in a very rural environment exists.

To better inform whether this impact is perceived or real, the technical assistance team investigated what was known about connectivity in Graham County. The National Association of Counties (NACo) developed the TestIT smartphone application to collect data on how people across the country experience cellular and broadband internet. This app allows for an analysis of the true state of broadband and cellular connectivity and may be used to identify areas with poor or no connectivity. Table 11 compares fixed wireless and cellular speeds in Graham County to the aforementioned case study communities. A qualitative assessment is also used to demonstrate when the wireless and cellular speeds fall below (red) or meet the FCC definition of a minimum standard of



service (green). Graham County, Arizona fell below FCC standards for all indicators (cellular and fixed broadband speed).

Table 11: Comparing Cellular and Fixed Wireless of Graham County to Case Study Communities (33).

Location	State	County Avg Cellular & Fixed Wireless Download Speeds vs. FCC Minimum Standard (mbps)	County Avg Cellular Speeds vs. FCC Minimum Standard (mbps)	County Avg Fixed-Wireless Download Speed vs. FCC Minimum Standard (mbps)	County Avg Fixed-Wireless Download Speed vs. Form 477 Data (mbps)
Graham County	AZ	-5	10	10	-5
Wilson County	NC	5	25	No Data	No Data
Franklin County	WA	-25	No Data	0	-15
Benton County	WA	-25	25	25	-15
Baldwin County	AL	-25	25	25	0.2
Norfolk	VA	No Data	No Data	No Data	No Data

The U.S. Census Bureau's American Community Survey is another data source that provides information about household access to computers, smartphones, and broadband internet. Nearly eighty-one percent of households in Graham County have a smartphone; 67.6 percent of households have a cellular data plan (Table 12). Having access to these tools enables a potential rider to access an on-demand with technology application when they are not at home. Consequently, understanding the access of



potential riders in Graham County is important to understand their ability to utilize such a system.

Table 12: Comparing Graham County Households to Case Study Households When Considering Access to the Internet, Computing Devices, Smartphones, a Cellular Data Plan, and Computers (34).

Location	Households	% of Households With One or More Computing Device (Any Type)	% of Households with a Smartphone	% of Households with No Computer	% Households with No Internet Access	% Households with a Cellular Data Plan
Graham County	11,348	90%	81%	10%	20%	68%
Wilson County	31,968	83%	73%	17%	20%	66%
Franklin County	27,263	95%	88%	5%	9%	80%
Benton County	73,073	94%	86%	6%	8%	78%
Baldwin County	84,047	92%	85%	8%	12%	78%
Norfolk	89,398	92%	86%	8%	12%	79%

Table 13: Comparing Graham County Households to Case Study Households When Considering Internet Subscription, Dial-Up, Broadband of Any Type, and Internet without Subscription (34).

Location	Households with Internet Subscription	% of Households with Internet Subscription	% Households with Dial-Up	% Households with Broadband	% Households with Internet Access Without a Subscription
Graham County	8,964	79%	-	79%	1%
Wilson County	24,479	77%	0.2%	76%	3%
Franklin County	24,228	89%	0.1%	89%	2%



Benton County	64,510	88%	0.3%	88%	4%
Baldwin County	71,880	86%	0.5%	85%	3%
Norfolk	75,764	85%	0.1%	85%	3%

The Federal Communications Commission (FCC) mapped access to broadband at the county level for the entire United States. Graham County is the most rural of the communities considered and has the fewest number of broadband providers (seven), while under 67% of the population has access to fixed broadband service that meets the FCC standard or higher (Table 14).

Table 14: *Rurality and Broadband Service Levels (35).*

Location	% Rural	# of Broadband Providers	% of Population with Access to Fixed Broadband Service at 25/3 or Higher	% of Population with Access to Fixed Broadband Service at 25 mbps or Higher Advertised Download Speed	% of Population with Access to Fixed Broadband Service at 3 mbps or Higher Advertised Upload Speed	% of Households with Fixed Connections Over 200 kbps
Graham County	46.0 %	7	66.6%	66.6%	91.1%	60%-80%
Wilson County	38.0 %	9	97.5%	98.7%	100.0%	60%-80%
Franklin County	12.1 %	12	100.0%	100.0%	100.0%	60%-80%
Benton County	9.9%	12	100.0%	100.0%	100.0%	80%-100%
Baldwin County	41.9 %	11	23.1%	40.7%	100.0%	80%-100%
Norfolk	N/A	8	95.7%	95.7%	100.0%	60%-80%

Piloting an on-demand with technology service would provide service for the community and allow testing regarding whether connectivity is sufficient in the area. The lessons learned from such a pilot could be a significant resource for other rural communities looking to provide a higher level of transportation service in a more flexible, cost-effective manner. One potential option that could be considered is leveraging Federal Transit Administration's (FTA's) Enhancing Mobility Innovation grant:

<https://www.transit.dot.gov/research-innovation/enhancing-mobility-innovation-fy-2021-notice-funding-opportunity>.

4.3.3 On-Demand with Technology Scenarios

First, a single zone, single vehicle system is described, as it would use one vehicle similar to the fixed-route and fixed-route feeder scenarios discussed previously. Then after, a two-zone, two vehicle system is described, as the smaller vehicles that may be used for on-demand with technology may make two vehicles financially attainable, particularly if operating expenses are reduced by making use of an electric vehicle.

4.3.3.1 One Zone, On-Demand with Technology

First, a one zone and consequently one vehicle system was considered. The intent was to enable a more direct comparison to the fixed route with one vehicle service described previously. A map of this service, which would encompass the fixed route area is provided below (Figure 24). This zone would span 7.4 square miles.

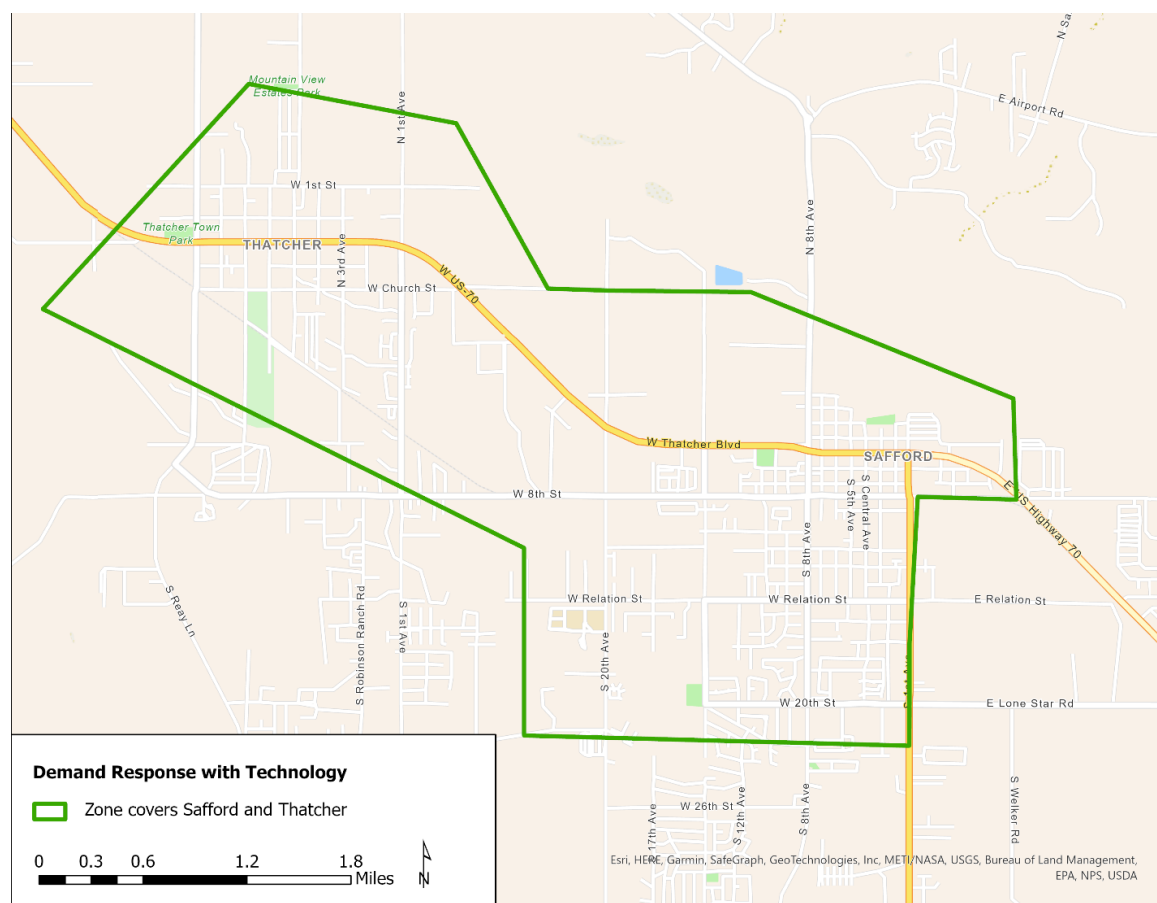


Figure 24: Single Zone, On-Demand with Technology System (24)



With zones identified as spanning from two to thirty square miles (30) in other projects, this zone would fit within this observed range; however, depending upon the number of rides requested, there is the potential that demand could quickly outstrip the supply provided by the single vehicle. Consequently, two smaller zones were identified in the next section.

4.3.3.2 Two Zone, On-Demand with Technology

Based on the descriptions provided by the stakeholders, a two-vehicle system and consequently two-zone system would likely better serve the needs of the Safford area:

- Zone 1: Safford/Cactus Falts/Tangelo Park
- Zone 2: Thatcher/Pima

In the future, a third zone could integrate Solomon based on the performance of the two zone scenario.

Fares could be set depending on origins and destinations. Generally, fares within a core zone (in this case, Zone 1) are less expensive, whereas fares for those traveling between zones may be more expensive (i.e. \$1.00 versus \$1.25).

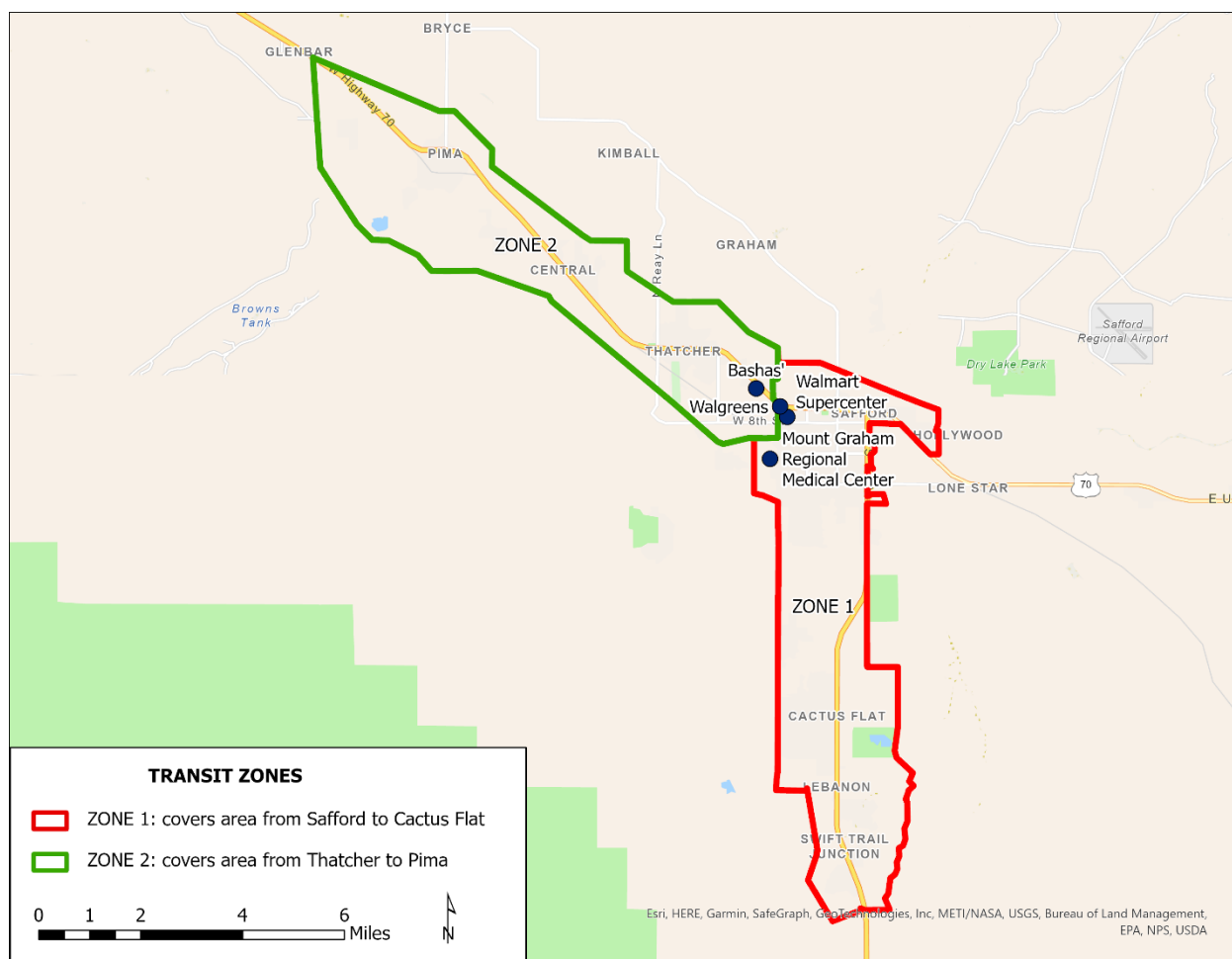


Figure 25. Two Zone, On-Demand with Technology System (24)

4.4 Estimated System Costs

Costs associated with a public transportation system include capital costs, operating costs, and maintenance costs. Public transportation costs are heavily influenced by the following factors: 1) type of vehicles, 2) the hours of service, 3) the days per week that service will be offered, and 4) the number of vehicles. However, there are additional costs including supporting infrastructure and staff to market, oversee, and administer FTA program requirements. These costs are detailed in the following sections.

4.4.1 Types of Vehicles

Table 15 identifies vehicle costs associated with various identified vehicles frequently utilized by providers. In particular, the Ford MobilityTRANS, are vehicles commonly utilized by on-demand with technology services, whereas the larger vehicles, shown in the first three rows, are more typical of fixed route or fixed route with feeder systems. As described above, another identified benefit of the on-demand with technology service systems are that they types of vehicles frequently utilized are often less cumbersome



while driving (i.e. they more easily fit down roadways). In addition, with fewer passengers in the vehicle, a commercial drivers license (CDL) is not required (36). This can enable a larger pool of potential driver candidates for employment by the provider.

While the initial cost of the vehicle acquisition may be more expensive for electric vehicles (EVs), the operation and maintenance costs, which can be steep for a service that is expected to run for many hours daily could easily account for these costs over time. There is also the potential that another funding source could be leveraged to purchase an EV.

Table 15: Costs and Capacity of Potential Vehicles ((37), (38), (39)).

Model	New or Used	Estimated Price	Capacity	Wheelchair Accessible	Fuel Type
2019 Chevrolet Arboc Spirit of Mobility	Used	\$66,675	12 passengers + 2 wheelchairs or 16 passengers	x	Gasoline
2020 Startrans Senator 270	Used	\$79,800	8 passengers, 6 wheelchairs	x	Gasoline
2023 Diamond VIP 2500	New	\$92,800	21 passengers		Gasoline



2022 Ford MobilityTRANS	New	At least \$55,000	14 passengers		Electric
2022 Ford MobilityTRANS	New	At least \$50,000	9 passengers, 1 wheelchair	x	Gasoline

4.4.2 Hours & Days of Service

For the purposes of this report, operating costs were estimated assuming transit service would operate Monday through Friday from 8am to 6pm. This service would operate for roughly 255 days per year, accounting for major holidays (e.g. Thanksgiving, Christmas, etc.) when the vehicle would not be in service.

4.4.2.1 Fixed Route and Fixed Route with Feeder Service

When considering the fixed route and the fixed route with feeder service, per hour operating costs were estimated using the average and median operating expense per vehicle revenue mile in Arizona provided by the Rural Transit Factbook (2021) (40).

- Average operating expense per vehicle revenue mile in Arizona: \$3.97
- Median operating expense per vehicle revenue mile in Arizona: \$4.26

Costs were estimated assuming a one-hour headway for the full loop fixed route transit scenario and a thirty-minute headway for the shortened loop fixed route transit scenario. In other words, a user would see the shortened loop more often, which also means that a vehicle serving the shortened loop would travel more miles in one day. Consequently, the costs for a shortened loop are greater. For the full loop transit scenario, the estimated operating expense would range between \$101,235 to \$108,630 per year (Table 16). For the shortened loop transit scenario, the estimated operating expense would range between \$121,482 to \$130,356 per year.

Table 16: Estimated Costs for Fixed Route.

Fixed Route Transit Scenario	Full Loop	Shortened Loop
Total Distance Traveled (mi)	10	6
Number of Vehicles	1	1
Total Times Traveled in 1 Day (operating 8am - 6pm)	10	20
Total Days Per Week	5	5
Total Days Per Year	255	255



Total Distance Traveled Per Day	100	120
Total Cost Per Day (Low)	\$397.00	\$476.40
Total Cost Per Day (High)	\$426.00	\$511.20
Total Distance Traveled Per Year	25,500.00	30,600.00
Total Cost Per Year (Low)	\$101,235.00	\$121,482.00
Total Cost Per Year (High)	\$108,630.00	\$130,356.00
Total Cost Per Year for Route Scenario	\$108,630.00	\$130,356.00

Costs for the fixed route with feeder service were estimated assuming a thirty-minute headway for the CORE route which would operate between 9:00 am to 11:00 am and 1:00 pm to 4:00 pm daily. The costs for the CORE route are based only on the defined route, not including any deviations that may be requested. Therefore, if it is decided that the CORE route may deviate, the operating and maintenance costs would increase.

For the fixed route with feeder service, one or all three feeder services may be added to the CORE Route. To serve, for example, only Tangelo Park/Cactus Flats, the total cost would be \$99,684.00 + \$31,898.88 = \$131,582.88 (Table 17). To serve all feeder routes, the total costs would be \$156,836.16. The service could also choose to serve only two of the feeder routes (i.e. Tangelo Park/Cactus Flats + Pima, Tangelo Park/Cactus Flats + Solomon, Pima + Solomon).

Table 17: Estimated Costs for Fixed Route with Feeder Service.

Fixed Route with Feeder Service				
	CORE Route	Tangelo Park/Cactus Flats	Pima	Solomon
Total Distance Traveled (mi)	9	16	20	18
Number of Vehicles	1	1	1	1
Total Times Traveled in 1 Day (operating 8am - 6pm)	10	3	3	3
Total Days Per Week	5	3	1	1
Total Distance Traveled Per Week	450	144	60	54
Total Cost Per Week (Low)	\$1,786.50	\$571.68	\$238.20	\$214.38
Total Cost Per Week (High)	\$1,917.00	\$613.44	\$255.60	\$230.04



Total Distance Traveled Per Year	23,400.00	7,488.00	3,120.00	2,808.00
Total Cost Per Year (Low)	\$92,898.00	\$29,727.36	\$12,386.40	\$11,147.76
Total Cost Per Year (High)	\$99,684.00	\$31,898.88	\$13,291.20	\$11,962.08
Total Cost Per Year for Route Scenario	\$99,684.00	\$31,898.88	\$13,291.20	\$11,962.08
TOTAL	\$156,836.16			

4.4.2.2 On-Demand with Technology

From the TCRP report (28), the low, average, and high service hour costs were \$34.69, \$80.48, and \$214.00, respectively. To provide service similar to that for fixed route and fixed route with feeder, where Monday through Friday, 8am to 6pm, for 255 days a year, the costs would range from \$88,459.50 to \$545,700.00, with an average of approximately \$205,224.00 (Table 18).

Table 18: Estimated Costs for On-Demand with Technology Service.

On-Demand with Technology		
	Single Zone	Two Zone
Total Distance Traveled (mi)	Unknown	Unknown
Number of Vehicles	1	2
Total Times Traveled in 1 Day (operating 8am - 6pm)	Unknown	Unknown
Total Days Per Week	5	5
Total Distance Traveled Per Week	Unknown	Unknown
Total Cost Per Week (Low) (\$34.69)	\$1,734.50	\$3,469.00
Total Cost Per Week (Average) (\$80.48)	\$4,024.00	\$8,048.00
Total Cost Per Week (High) (\$214.00)	\$10,700.00	\$21,400.00
Total Distance Traveled Per Year	Unknown	Unknown
Total Cost Per Year (Low) (\$34.69)	\$88,459.50	\$176,919.00
Total Cost Per Year (Average) (\$80.48)	\$205,224.00	\$410,448.00



Total Cost Per Year (High) (\$214.00)	\$545,700.00	\$1,091,400.00
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4.4.3 Capital, Staffing Costs

Fixed routes and fixed routes with feeder services will require bus stop signs, bus stop benches, lighting, and other infrastructure items. The on-demand with technology solution may not require such infrastructure, unless check points are used. However, as identified in *UpRouted* (29), decals on the sidewalks may be a simple, affordable solution.

4.4.4 Vehicle & Operations Cost Totals

For this section, the costs for a fixed route, for a fixed route with feeder service, and for a single zone on-demand with technology are identified (Table 19).

Paratransit costs related to required services, cost savings in comparison to fixed route service, etc.

Table 19: Capital & Operational Expenses and Other Considerations.

Summary of Capital and Operational Costs & Other Considerations					
	Fixed Route (Long)	Fixed Route (Short)	Fixed Route with Feeder Service (All Feeders)	On-Demand with Technology , Single Zone	On-Demand with Technology , Two Zones
Estimated Annual Operational Costs	\$108,630.00	\$130,356.00	\$156,836.16	\$225,224.00	\$410,448.00
Estimated Annual Vehicle Costs	\$92,800.00	\$92,800.00	\$92,800.00	\$55,000.00	\$55,000.00
TOTAL	\$201,430.00	\$223,156.00	\$249,636.16	\$280,224.00	\$465,448.00
Benches and signs at bus stops	Yes	Yes	Yes	No	No
Areas Served	Safford, Thatcher	Safford	Safford, Thatcher, Pima, Solomon, Cactus Flats,	Safford, Thatcher	Safford, Thatcher, Pima, Cactus Flats, Tangelo Park



			Tangelo Park		
Supports Work Travel	Maybe	Unlikely	Unlikely	Yes	Yes
Convenient and Accessible?	Unlikely	Unlikely	Unlikely	Yes	Yes
CDL Required?	Yes	Yes	Yes	No	No

Note: All fixed route scenario costs outlined above do not include required ADA Paratransit service costs.

As one can see, when considering the costs associated with vehicle operation, the costs for the on-demand with technology system become more reasonable. However, as limited information is available for on-demand with technology applications in rural areas, the cost per service hour is an estimate. In addition, the operation costs (i.e. gasoline) could be reduced if electric vehicles were utilized. Another significant cost savings when considering on-demand with technology as compared with more traditional service models is the ability to recruit from a wider pool of candidates for drivers, as for the on-demand with technology service, a CDL is not required. This is expected to be a significant consideration in the Safford area mining is a major employment sector and a CDL is credential highly sought by entities in this sector. Representatives from Nnee Bich'o Nii Public Transit identified competition with mining operations for qualified drivers as a challenge. There is potential that students from the nearby college could be interested in employment as drivers for any system that does not require a CDL.

In all scenarios, it is recommended that a staff person, whether at the local level or at SEAGO be hired to complete the required FTA paperwork, to support advertising of the service, and to provide necessary training (particularly if an on-demand with technology option is chosen).

It is important to note that the fixed route service costs outlined above do not include any costs for complimentary ADA paratransit service that would be required. These services would be available during the same days and hours as any fixed route service, with a comparable fare structure, to any riders with three-fourths of a mile of exiting routes or stops. With little existing ridership data to utilize as a baseline, the research team consulted 2020 National Transit Database (NTD) data for rural systems that reported offering demand response services in Arizona. On average these systems reported \$144,218 in operating expenses. At a minimum this average value should be added to the estimated expenses for any fixed route operation that may be considered.

4.5 Pros and Cons of Proposed Transit Service Options

This section summarizes pros and cons of the identified transit service options (Table 20) outlined in this report.



Table 20: Pros and Cons of Proposed Transit Service Options

Transit Option	Pros	Cons
Fixed Route Service	<ul style="list-style-type: none">• Provides service on a reliable schedule, no advanced reservation required	<ul style="list-style-type: none">• No service to outlying communities• Paratransit must be provided with fixed route service; this can increase costs• Requires a larger vehicle• Requires additional infrastructure investments (i.e. bus stop signs and benches)• Requires the user to get to the service, which may include walking or biking in areas that are not well designed for these modes
Fixed Route Service with Feeder Service	<ul style="list-style-type: none">• Provides service on a reliable schedule, no advanced reservation is required• Provides service to outlying communities	<ul style="list-style-type: none">• Service would have to divert to pick up/drop off in outlying communities three times a day (no service in Safford during these diversions)• Not well-designed for reoccurring travel needs (i.e. work and school)• Requires a larger vehicle• Requires additional infrastructure investments (i.e. bus stop signs and benches)• Requires user to get to the service, which may include walking or biking in areas that are not well designed for these modes
On-demand with technology	<ul style="list-style-type: none">• Flexible service that would not require advance notice• Brings service to the user• Drivers do not require a CDL	<ul style="list-style-type: none">• There are unknown technological challenges (i.e. Can ride requests be sent and received by vehicles en-route? Is connectivity sufficient?)• Will require riders to either use a smartphone application or call-in to schedule a ride (unless walk-ons are allowed at certain locations, i.e. Walmart)• Will likely need travel training



5 Potential Funding & Match Sources

As identified within the two previous transit feasibility studies undertaken in 2007 and 2015, matching funds required to secure additional public funding to establish transit services is a significant challenge. During the COVID-19 pandemic, the Federal Transit Administration received additional emergency funding allocations to support transit agencies. As an industry, transit across the United States suffered a precipitous decline in ridership that had not fully recovered after 18 months, and is still challenged. As a result, pandemic-specific relief funding was available to transit agencies at 100 percent federal share, with no match required. However, this no-match scenario is unlikely continue long-term, and local agencies will need matching funds in order to continue accessing federal funding in the future. For reference, two of the most frequently utilized transit programs referenced in this report, FTA section 5310 (seniors and individuals with disabilities) and section 5311 (rural areas below 50,000 population) require matching funds of 20 percent for capital expenses, and 50 percent for operating assistance. Research completed by the National Cooperative Highway Research Program/Transportation Research Board (TRB) in February 2020 provides information on allowable in-kind and local match sources being utilized by local entities, as indicated through survey efforts conducted with 24 State Departments of Transportation, 10 FTA Regional Offices, and representatives from the Coordinating Council on Access and Mobility (CCAM). (41) The responses indicated the following sources of matching funds and in-kind support as being in use by respondents. (Respondents n=24)

Table 21: Matching Funds - Non-Farebox Operating Revenue

Non-Farebox Operating Revenue	
Source of Funds	States Reporting Use
Advertising	20
Contract or Purchase of Service Revenue	17
Concession Revenue	6
Long Term Lease of Existing Assets	1
Right of Way Leasing	0



Table 22: Matching Funds - Fees

Fees	
Source of Funds	States Reporting Use
Parking Fees	2
Long Term Leases of Existing Assets	1
Car Rental Fees	1
Utility Fees/Taxes	1
Vehicle Lease Taxes and Fees	1
Right of Way Leasing	0
Access Fees	0
Business License Fees	0
Community Facility Districts	0
Congestion and Cordon Pricing	0
Emissions Fees	0
Impact Fees	0
Mortgage or Real Estate Transfer Fees	0
Traffic Camera Fees	0
Vehicle Miles Traveled Fees	0

Table 23: Matching Funds - Taxes

Taxes	
Source of Funds	States Reporting Use
General Revenues	16
Property Taxes	11
Sales Taxes	8
General Sales Taxes	7
Local Option Taxes	5
Transportation Improvement District	3
Room/Occupancy Taxes	2
Special Assessment Districts	2
Casino/Lottery Tax	1
Cigarette Tax	1
Corporate Franchise Taxes	0
Mortgage Recording Tax	0
Oil Company Tax	0
Petroleum Business Tax	0
Payroll/Income Tax	0
Value Capture	0



Table 24: Matching Funds - Private Contributions

Private Contributions	
Source of Funds	States Reporting Use
Donations	18
Corporate Sponsorship	5
Employer Cont. for Oper. Costs	4
Public Private Partnership/ Joint Dev.	4

Table 25: Matching Funds - Federal Program Funds & In-Kind

Federal Program Funds & In-Kind	
Source of Funds	States Reporting Use
In-Kind Contributions	17
Non-USDOT Federal Funds	15
Volunteer Efforts	11
Transportation Development Credits	6
Tribal Transportation Program Funds	3
Federal Lands Transp. Prog. Funds	0

These tables are provided for reference of potential matching fund sources that could be considered as efforts in Graham County continue to develop. Of note, table 25 above lists 'Non-USDOT Federal Funds' as a potential matching source. This technique is called 'federal fund braiding' and describes situations where funding from specified federal programs can be used to meet the local match requirements for other designated federal funding programs. To learn more about this, the Coordinating Council on Access and Mobility (CCAM) has produced a Federal Fund Braiding Guide to help guide stakeholders on the process of fund braiding. This report was last updated in June 2020, and is available at: <https://www.transit.dot.gov/sites/fta.dot.gov/files/2021-04/ccam-federal-fund-braiding-guide-june-2020.pdf>. The contents include decision making support concepts, technical definitions, a listing of identified programs that allow federal fund braiding, and the circumstances of application. In many cases, multiple sources of concurrent matching funds are utilized to secure federal support necessary to effectively offer and operate transit services.

Table 25 above specifically covers in-kind contributions toward FTA or other federal funding. As indicated in the TRB report, the most frequently utilized form of in-kind was reported as real estate. An example is also provided outlining in-kind match for intercity bus services that include feeder services, as offered as one alternative in this report. The TRB report states the following:



“Circular 9040.1G states that in the case of an intercity bus project that includes both feeder service and an unsubsidized segment of intercity bus service to which the feeder service connects, the match to FTA awards may be derived from the costs of a private operator for the unsubsidized segment of intercity bus service as an in-kind match for the operating costs of connecting rural intercity bus feeder service funded under 5311(f).”

This section is highlighted as a possible strategy for consideration and exploration as Graham County, SEAGO, and stakeholders work to establish a scenario for potential funding. As a complimentary product to the baseline match and in-kind report produced by TRB and referenced here, a guidebook for the use of in-kind as match for FTA awards was also produced, and can be accessed at <https://onlinepubs.trb.org/onlinepubs/nchrp/2065/Task75InKindGuidebook.pdf>. This report includes discussion on the use of labor, space, land/buildings, equipment, goods and services and other common assets that can be potentially considered as match for FTA awards.

Private funding from relevant organizations is also another option for exploration and will be dependent on stakeholders present and/or engaged in the local community. For example, smaller grants from entities like Walmart (<https://walmart.org/how-we-give/local-community-grants>) could be an option, especially considering that a stop at a Walmart was proposed as part of at least one transit option presented in this report. Other potential funding sources may include philanthropic health-related agencies operating in the area. The challenges with having additional varied funding sources are many including continued engagement of these sources and reporting required to sustain services over time, as well as attention to not cannibalize funding from other entities that are already receiving assistance from some of these targeted partners.

There is no realistic scenario identifiable by this team of researchers where a transit system can be established and operated without matching funds being generated and contributed for the purpose of the project.



6 Conclusions & Recommendations

There is a need for public transportation in the Safford area; this was demonstrated during the two previous public transportation studies as well as through input provided via the survey and stakeholders for this study. Providing public transportation would benefit the young, the old, those with disabilities, those with more modest means, and others who are looking for mobility options. It would improve the quality of life for many. It would also enable all community members to contribute to the economy by accessing employment and required services. The challenge to leadership within the Safford area is to implement a system that meets the varied needs of stakeholders. It should be expected that any public transportation system will need to be modified over time to reflect new information and changing conditions observed from operation as more individuals utilize the system.

Previous studies documented that local residents without access to a private vehicle and/or who lack the ability to drive a vehicle for any reason, were walking and biking in Graham County. Consequently, ensuring that residents have safe places to walk and bike should be a priority considered in tandem with the establishment of a public transportation system. Furthermore, as Graham County looks to implement a public transportation system within the region, bolstering walking and bicycling networks in the small communities and supporting connections between larger areas should be considered as well. Enhancing the ability to walk and bike to motorized public transportation locations effectively extends the reach of these systems.

The researchers recommend that a pilot of an on-demand with technology style system is conducted for the Safford area. An on-demand with technology system could provide flexible service that would efficiently cover larger geographic areas, making it a strong fit for the area based on the feedback received. A pilot test of this type of system would also enable testing of connectivity issues and broadly determine if such a service is feasible in a rural context. The anticipated high level of service, lack of advance reservation requirements and provision of regional connectivity, make the anticipated service adoption high. Making use of passenger vans would enable a larger pool of potential driver candidates, as this would remove the need for drivers to hold a commercial driver's license (CDL). With limited supply access to higher capacity shuttle vehicles at present, waiting on delivery of these vehicles will delay the establishment of service. Any utilized vehicles should have exterior signage that provides information about how to access the service (i.e. a telephone number and website). Significant marketing and public information efforts should complement any service offering initiated by stakeholders in Graham County. In order to accommodate a variety of users, trip reservations should be available via a smartphone application, by telephone, and by allowing walk-ons at select locations based on seat availability (i.e. Walmart, Bashas). A designated coordinator, whether at the community level or a regional partner like SEAGO, should be assigned job responsibilities to oversee the service. If no local entity can be agreed upon this position could potentially be filled via an AmeriCorps VISTA service member or similar individual with sufficient training and support. This individual should



track ridership and use data, while also soliciting feedback data from users to better understand the quality of service. The coordinator should also continuously engage in conversations to identify a diversity of funding options for ongoing system support. Facilitating dialogue among partners including Graham County, Thatcher, Pima, Safford, DES, WIC, Eastern Arizona College, Easterseals Blake Foundation, and others is an additional critical function. Providing office space and other administrative support for the coordinator while undertaking these outlined services on behalf of the organization can serve as federal funding match with proper documentation.

The conditions for success of implementing a well-organized on-demand with technology transit pilot service are present in Graham County based on the findings and actions of this research team.



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