09.18.2024 PUBLIC REVIEW DRAFT

2024 FAIRBANKS TRANSIT PLAN

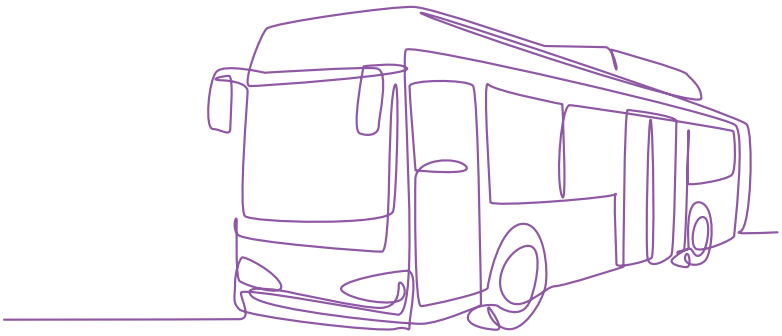
Prepared for
FAST PLANNING

Prepared by
R&M CONSULTANTS

In cooperation with
ALTA PLANNING + DESIGN, INC.

SEPTEMBER 2024

2024 Fairbanks Transit Plan



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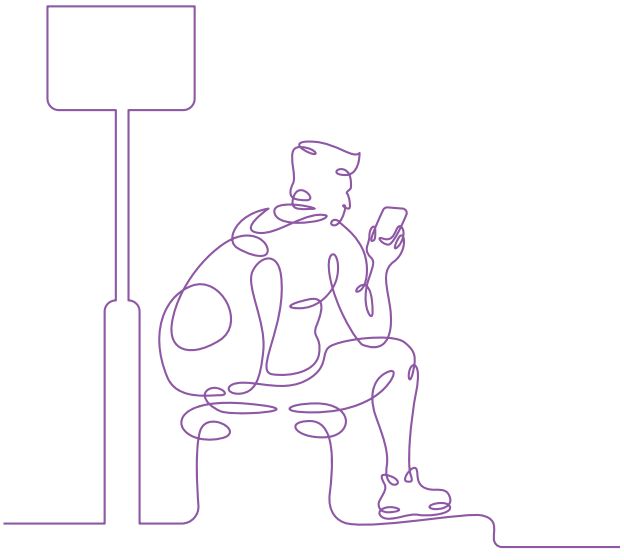

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GLOSSARY

Accessibility: Often used to refer to how accessible something is for people with disabilities, in this document it is also used to discuss how easily "accessible" (or physically navigable) a bus stop or roadway is for people on foot or bike.

Active Transportation: Bicycle or pedestrian travel, or other primarily human-powered means of transportation.

Adjusted Connectivity Ratio: How well-connected a bus stop is to surrounding streets that considers (or is "adjusted" by) the Level of Traffic Stress (LTS).

Bidirectional Service: Public transportation service provided in both directions on a route, rather than in only one direction.

Demand Response: Unlike fixed route service, "demand response" public transportation service picks up riders from and drops off riders at specific requested locations at specific times.

Environmental Justice: The fair treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in public transportation decisions.

Fixed Route Service: Public transportation service operating on fixed routes with predetermined schedules.

Frequency: *See "Headways."*

General Transit Feed Specification (GTFS): A standard data format that public transportation agencies use to distribute route, stop, and timetable information to third-party users. For example, Google Maps uses GTFS to provide public transportation directions.

Headways: The time between vehicles moving in the same direction on a particular route, measured in minutes. Or in other words, the amount of time between buses.

Interlining: A fixed route public transportation scheduling practice that involves a transit vehicle from one route continuing on to serve a different route after arriving at the terminus of the first route.

Level of Traffic Stress (LTS): A measure of how comfortable it is for bicyclists or pedestrians to travel along a roadway, usually measured on a 1 to 4 scale.

Paratransit: See Demand Response.

Productivity: How well-used or "busy" a public transportation route is, as measured by the average annual unlinked trips divided by average annual revenue service hours. This gives an indication of how productive a route is, as measured by how many riders use the route per revenue service hour on average.

Radial Network: A public transportation system that prioritizes one-seat rides (i.e., rides not requiring a transfer). This type of network is often accompanied by circuitous routes that cover more area but result in more out of direction travel and longer headways.

Revenue Service Hours: The number of hours that a public transportation vehicle is available for "revenue service," or when the vehicle

can be boarded by fare-paying passengers.

Ridership: The number of riders that board public transportation vehicles within a specified time. This can be considered at multiple levels, such as systemwide, on routes, or at individual stops.

Route Deviation: Out-of-direction travel that a public transportation vehicle undertakes to serve specific neighborhoods or locations.

Service Coverage: The amount of area that a public transportation network reaches (or "covers") with its fixed route system.

Service Quality: A subjective measure that refers to the "amount" of transit service provided when considering service span and headways (or service frequency).

Service Span: The amount of time or hours during the day a public transportation route or system is in operation.

Timepoints: Important stops with scheduled arrival and departure times that help public transportation vehicle operators stay on schedule.

Timetable: A public transportation schedule that shows service times. These are often organized by "timepoints," or important stops with scheduled arrival and departure times that help public transportation vehicle operators stay on schedule.

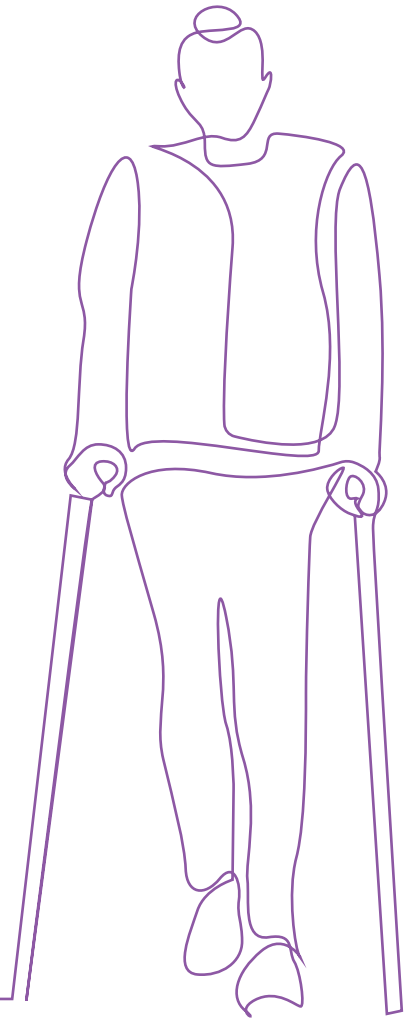
Title VI: Title VI of the Civil Rights Act of 1964 protects people from discrimination based on race, color, and national origin in programs and activities receiving federal financial assistance, including public transportation services.

Transit Corridor: A roadway that at least one fixed route public transportation service operates on.

Unadjusted Connectivity Ratio: How well-connected a bus stop is to surrounding streets without regard to the Level of Traffic Stress (LTS).

Unlinked Trips: A standard Federal Transit Administration (FTA) measure that counts the total number of trips (boardings) without considering transfers. For example, someone who boarded a bus and then transferred to another bus to complete their journey would count as two unlinked trips.

Winter Maintenance: The clearance of snow and ice from roads, bus stops, sidewalks, and other transportation infrastructure.



1. Executive Summary

Purpose

The Fairbanks Area Surface Transportation (FAST) Planning partnered with the Fairbanks North Star Borough (FNSB) to update the 2013 Short- and Long-Term Transit Plan for the Metropolitan Area Commuter System (MACS) and update the 2015 Coordinated Human Services Transportation Plan (CHSTP) to improve transit and coordination between providers in the Borough. This document consists only of the 2024 Transit Plan. The 2024 CHSTP is available as a separate document.

Each of these plans impacts the other. They were updated at the same time for more efficient and effective public engagement, to use the most current transportation data, and to develop transit plans that are informed by rider and provider needs in the FNSB.

Updating these plans fulfills federal requirements for the FNSB to receive the grant funding necessary to provide transit service. It is also an essential step in continuing to provide transit services that meet the needs of the FNSB.

Vision & Goals

The vision and goals for the Transit Plan shape the plan's recommendations and were developed in coordination with MACS Transit, FAST Planning, and the project's Steering Committee.

Vision

"The MACS Transit system is an investment in our subarctic communities, connecting people with opportunities through access to jobs, healthcare, education, and destinations, with dependable, inclusive, safe and equitable service in all seasons."

Goals

1. Maximize transit system efficiency
2. Provide accessible, equitable service in all seasons
3. Connect the MACS system to destinations through the wider transportation network
4. Connect riders with economic opportunities and continue to bring economic benefits to the Borough
5. Coordinate transit decisions with local and regional planning priorities
6. Protect the environment, improve air quality, and promote alternate fuels
7. Develop a plan for Communication, Education, and Awareness
8. Provide a level of service so that MACS transit is dependable, welcoming, consistent and preferred transportation

Needs & Opportunities

After analyzing existing conditions and receiving feedback from stakeholders and the community, the project team identified a range of transit needs and opportunities that the Transit Plan can address in its recommendations.

1. Staff recruitment and retention
2. Bus stop inventory and data collection
3. Funding levels
4. Fare options
5. Service needs:
   - ★ Weekend service
   - ★ Service frequency
   - ★ Transfer points
   - ★ Rural connector routes
   - ★ Route changes (Brown, Red, Blue, Orange, Purple, and Yellow)
   - ★ Potential new fixed route services (Fort Wainwright and Alaska Railroad)
6. Van Tran enhancements:
   - ★ Expand capacity
   - ★ Simplify application process
7. Hire Human Services Transportation Coordinator
8. System wide accessibility improvements
   - ★ Bus stop connectivity
   - ★ Winter maintenance improvements
9. Roadway improvements to enhance connections to transit

Figure 1: Makeshift seat at bus stop

Figure 2: Token Machine

Recommendations

The following are recommendations that FAST Planning, MACS Transit and partner agencies can pursue to address the needs and goals identified above.

These Transit Plan recommendations are categorized as either "constrained" or "unconstrained." For the "constrained" scenario, the constraining factor is continued operator and administrative staffing limitations at MACS Transit and Van Tran. In the "unconstrained" scenario, improved staffing and resource levels are assumed.

Please see the full Transit Plan document for a table of recommendations that includes priorities and expected timeframes for implementation.

Constrained Recommendations

1. Continue to pursue federal funding programs to provide increased capacity.

2. Work with FAST Planning and the Fairbanks North Star Borough to increase local funding for transit.
3. Implement a new, comprehensive Software as a Service (SaaS) platform that includes:
    - ★ Electronic fare payment options
    - ★ Fare capping
    - ★ Real-time bus tracking and trip planning
    - ★ Pre-trip and post-trip reports and incident reporting
    - ★ Driver scheduling and bidding processes
    - ★ New process for inventorying MACS Transit bus stops and updating the system's General Transit Feed Specification (GTFS)
4. Incentivize recruitment and staff retention.
5. Consolidate and reduce route deviations along the Red and Blue Lines.
6. Simplify the Van Tran application process or provide even more application support

Un-Constrained Recommendations

1. Expand capacity for "B" and "C" service categories for Van Tran.
2. Reinstitute Saturday fixed route service and add Sunday fixed route service.
3. Increase service span on the MACS transit fixed-route system to offer earlier and later trips.
4. Improve the frequency of the Red and Blue lines so they run every 15 minutes or better during peak weekday periods.
5. Provide bidirectional service on the Brown and Purple Lines and improve service to every 15 minutes or better for during peak weekday periods.
6. Extend the Orange Line east to Easy Street and west to Chena Pump Road.
7. Reroute the Purple Line to serve only neighborhoods north of the Parks Highway.
8. Reroute the Yellow Line to focus on service between the Fairbanks International Airport and Downtown Fairbanks and increase its frequency to 15 minutes or better during peak weekday and weekend periods.
9. Consider opportunities to improve access for populations with high need and ridership potential.
10. Identify MACS Transit bus stops for improved rider amenities such as shelters.

Fast Planning & Partner Agency Recommendations

These recommendations will improve transit service and address the needs and goals identified in this plan, but require significant involvement and leadership from agencies besides MACS Transit and Van Tran.

1. Work with the FNSB, AKDOT&PF, and MACS Transit to construct pedestrian crossing treatments at high ridership bus stops that currently lack marked crosswalks.
2. Work with the FNSB, AKDOT&PF, and MACS Transit to construct sidewalks, bike lanes, or other active transportation facilities on corridors with low pedestrian connectivity scores on the MACS Transit network, where applicable.
3. Work with the FNSB, AKDOT&PF, and MACS Transit to create new, formalized public transfer points for the fixed route system.
4. Work with the FNSB, AKDOT&PF, and MACS Transit to perform road diets, intersection, and bus stop accessibility improvements on select corridors with high active transportation and transit ridership potential.

5. Develop a transportation provider "clearing-house" and create a Human Services Transportation Coordinator role independent of any of the local agencies to help riders navigate multiple providers.

Winter Maintenance Recommendations

These recommendations focus on winter maintenance that pertains to all agencies (not just MACS Transit) involved in winter maintenance.

1. Pursue FTA Flex Funding for use as a snow removal program.
2. Institute adopt-a-sidewalk or adopt-a-stop program to promote a collective spirit around snow removal.
3. Determine a "core" set of MACS Transit bus routes for priority snow removal that can be published on the MACS Transit website and channels.
4. Invest in new equipment and technology dedicated to removing snow from active transportation facilities.

Looking Ahead And Conclusions

While this plan looks ahead approximately 20 years, it is recommended to review and update every five years to respond to community and resource changes and inform the ongoing transportation planning processes at FAST Planning and AKDOT. Funding sources, projects, and priorities may be updated and should be informed by continued public feedback. Assuming adequate resources, successful implementation of this plan's recommendations will meet objectives and achieve goals for the Fairbanks transit system.

2. Introduction and Background

The Fairbanks North Star Borough (FNSB), Fairbanks Area Surface Transportation (FAST) Planning, and the Alaska Department of Transportation & Public Facilities (DOT&PF) partnered to update the Fairbanks area 2013 Short- and Long-Range Transit Plan and 2015 Coordinated Human Services Transportation Plan (CHSTP) concurrently. The objective of combining the two plans under a single effort was to increase coordination among transportation providers, develop recommendations in an environment of greater understanding of community needs and available resources, and create efficiencies through the consolidation of certain tasks.

The 2024 Transit Plan update (this document) addresses the current and future public transportation needs of all residents of the greater Fairbanks community. The Plan considers short-term needs and goals related to operations, finances and capital improvements, and long-term issues that could affect how transit is provided such as forecasted changes in population or infrastructure.

The Process

The plan process was guided by a project management team of agency planners and representatives and planning consultants, a steering committee of transportation and human services providers, FAST Planning advisory committees and Policy Board, and feedback from the public including transit riders. Staff representatives from the FNSB Transportation Department, who operates the Metropolitan Area Commuter System (MACS) Transit fixed-route bus service and Van Tran paratransit demand-response service (for eligible riders with qualifying needs and disabilities) were consulted at every major milestone.

The plan process included:

1. Developing a shared vision and set of goals for local transit services;
2. Assessing the status of the Fairbanks community and the public transportation system with respect to those goals;
3. Analyzing the top needs and opportunities for improving transit service; and
4. Recommending strategies for the FNSB and partners to implement to improve the system and maximize local transit investments.

Findings from each of these efforts are included in this plan and its appendices.

Figure 3: Bus Stop

Why a Transit Plan

The hallmark of a livable community is how well it provides for its residents, regardless of socio-economic status and mobility needs. Access to transportation is a critical benchmark for livability. For some, public transit or on-demand transportation services are essential to be able to travel and truly participate as a member of the community. For others, using public transportation is a choice that provides financial freedom from automobile ownership and maintenance. Continued investment in local public transit and paratransit (transit for persons whose disabilities prevent them from using the regular bus system) is necessary to support economic and population growth as well as access to jobs, schools, parks, and essential human services.

The population within the Fairbanks Metropolitan Planning Area (MPA, or the jurisdictional boundary for FAST Planning) is growing and changing and public transportation must respond to new needs. For example, as the Fairbanks community continues its aging trend and driving abilities change, coordinated efforts to provide public transportation for seniors will be essential to keeping residents in our community after retirement and maintaining our economy and quality of life. Fortunately, transportation access and accessibility are two solvable challenges the community faces that can be addressed through planning and coordination. This plan looks at these and other population trends to determine areas of greatest need and make recommendations for the transit system and its partners.

This plan update falls under FAST Planning's obligation to meet the Federal Transit Administration (FTA) mandate for locally driven transit service and coordinated transportation to access essential human and social services. An updated Transit Plan specifically fulfills eligibility requirements to receive federal transit funds set forth in the Bipartisan Infrastructure Law, Infrastructure Investment and Jobs Act, and Enhanced Mobility for Seniors and Individuals with Disabilities Program (U.S. Code: Title 49 Section 5310).

3. Stakeholder & Public Engagement

Public engagement and participation in both the Transit Plan update and CHSTP update occurred simultaneously, and shared a project management team, steering committee, public outreach efforts, workshops, and adoption process.

Project Management Team

The project management team consisted of FAST Planning staff, planning consultants, and focused engagement from FNSB Transportation and Community Planning Departments staff. As FAST Planning and the FNSB Transportation Department are responsible for much of the implementation of transit planning recommendations, including operation of the MACS Transit and Van Tran paratransit services, their frequent and intense engagement and review of planning milestones was critical.

Stakeholder Steering Committee

Membership

Stakeholders for the plan include those organizations whose constituents rely on public transportation or transportation assistance as well as those who provide transportation or help people access transportation resources.

The project management team identified public transit service providers, human health service entities who also provide transportation assistance to their clients, and private transportation services as stakeholders and potential Steering Committee members.

Leaders of non-profit advocacy groups and human service providers were chosen to represent the needs of target populations in need of transit and transportation support: those experiencing low-income, disabilities, people on public assistance who need to work, senior citizens, and beneficiaries of the Alaska Mental Health Trust who are the mentally ill, sufferers of chronic alcoholism and mental illness, people afflicted with Alzheimer's or other dementias, and those who are developmentally disabled have also been identified as stakeholders.

A Stakeholder Contact List was continually updated throughout the entire planning process as providers and constituents and their roles in the transportation and human services community were discovered by or introduced to the project team.

Those contacts who were willing and able to commit to participating in a more intensive role as a Steering Committee member are listed in Table 1.

Meeting Schedule

Steering committee members were instrumental in the generation and review of planning milestones such as the vision and goals for the transit system, needs and gaps in the system, and recommendations and plan implementation strategies.

Public Workshops

Public Workshops were conducted to reach the broader public and generate ideas and feedback for the planning effort.

Table 2: Meeting Schedule

Date	Meeting Topic
9/19/2023	Discovery & Foundations: Get to know committee members and planning team, introduce the project, and identify issues and opportunities for transportation providers and transit riders.
10/17/2023	Foundations part 2: Plan Vision, Goals and Objectives workshopping to establish foundational elements that will inform the rest of the plan update and process.
3/7/2024	Analyze needs and identify action alternatives to address them.
9/5/2024	Review Draft Plans, Recommendations & Strategies.

Table 1: Steering Committee Members

Name	Organization	Role/Position	Representing
Michelle Denton	FNSB Transportation Department	Director	MACS Transit and Van-Tran
Dey Johnson	FNSB Transportation Department	Transportation Manager	MACS Transit and Van-Tran
Darlene Supplee	North Star Council on Aging (Fairbanks Senior Center)	Executive Director	Senior Citizens and Senior Services Providers
Emily Ennis	Fairbanks Resource Agency (FRA)	Executive Director	Persons with Disabilities
Bear Edison	University of Alaska Fairbanks	Campus Operations Manager	University Students
Ryan Hinton	FNSB School District	Transportation Manager	K-12 Students
Angi Thomas	Fairbanks Native Association	Family Wellness Coordinator	Fairbanks Area Native Alaskan Families
Carol Anthony	Foundation Health Partners	Community Partnerships Manager	Healthcare Providers and Recipients
Denise Daniello	FNSB Senior Citizens Commission	Chair	Senior Citizens
Michelle Leonard	FNSB Parks & Recreation	Recreation Specialist?	Senior and Adaptive Recreation Programs
Lt. Mark Richardson	US Army Garrison Ft. Wainwright	Installation Transportation Officer	Fort Wainwright soldiers and families
Lisa Slaba	Fairbanks Economic Development Corporation	Project Manager, Military Affairs	Service men & women and their families

Workshop #1

The first public workshop was hosted on Tuesday, October 17th, 2023 at the Pioneer Park Centennial Center Exhibition Hall from 5:00pm-7:00pm. The purpose of the workshop was:

1. Present and get feedback on the draft vision and goals for the transit system and for coordinated human services transportation.
2. Provide an opportunity for the community to share their transit-related needs and wishes.
3. Field questions about the planning process, local transit and paratransit systems and other transportation options.

Several interactive stations were available for attendees to read about the plan process, evaluate current routes, describe their transit and transportation patterns, provide ideas for how to improve the system, and enjoy a slice of free pizza. Attendees could also tour an off-duty MACS transit bus in the parking lot. A total of 30 attended this workshop.

Figure 4: Workshop #1

Workshop #2 (in progress)

The second public workshop is scheduled for Wednesday, September 18th, 2024 at the Noel Wein Library Auditorium from 5:30pm-7:30pm. The purpose of this workshop will be to:

1. Present and get feedback on the draft Transit Plan update and the draft Coordinated Human Services Transportation Plan update.
2. Provide additional opportunity for the community to share their transit-related needs and wishes and respond to planning recommendations.
3. Field questions about the planning process, local transit and paratransit systems and other transportation options.

This section will be updated upon completion of the second public workshop.

Transit Rider & Staff Surveys

On-Board and Online Rider Surveys

FAST Planning and R&M Consultants conducted a Rider Survey for riders of the Metropolitan Area Commuter Systems (MACS) Transit. The survey was distributed in person while riding on bus routes and online through self-selective sampling. The purpose of the survey was to:

- ★ Understand ridership behaviors, preferences and desired improvements;
- ★ Supplement data analysis; and
- ★ Guide improvements to the MACS System.

The full rider survey report can be found in Appendix D.

Rider Surveys Executive Summary

A total of 255 people responded to the survey about riding transit, including 63 (25%) who never ride transit. The analysis benefited from revealing differences between those who use local transit and those who do not.

Overall riders are positive about their experience using the local bus system, with one criticism: lack of service on certain days and times, primarily weekends.

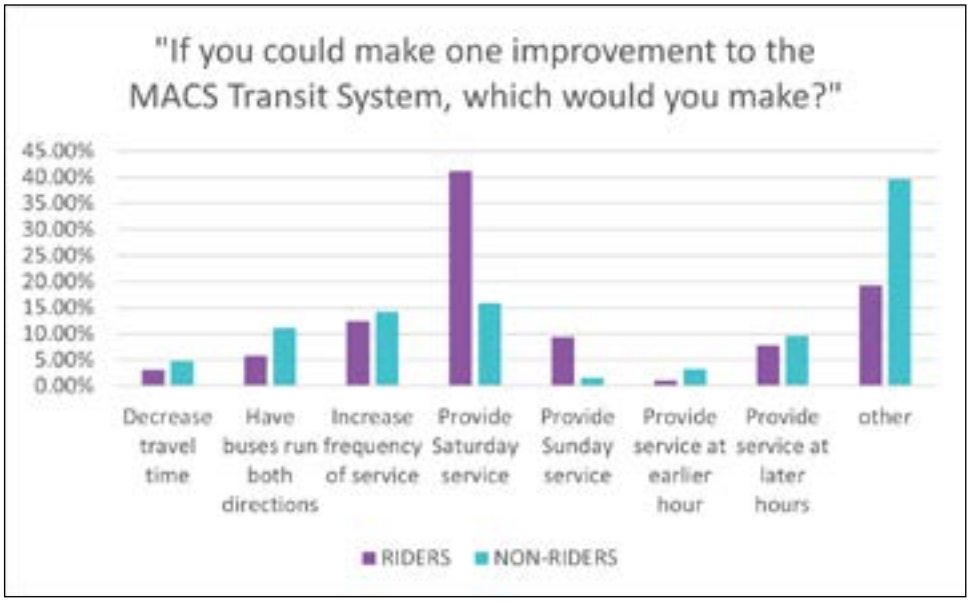


Figure 5: Suggested Improvements

Non-riders were supportive of providing transit service, but less positive about using it. Many felt the bus is not convenient or close enough to access, desiring broader coverage to residential areas outside the current system.

Respondents had many opportunities to make recommendations and suggest improvements throughout the survey. The preferred means of improving current service include upgrading technologies (including cashless or mobile payment options and better or more accurate real-time bus location tracking) and maintaining and improving bus stops to be safer and more accessible.

If resources are available to expand service and increase ridership, riders and potential riders prefer adding Saturday service to Blue and Red lines and expanding service in outlying areas of Goldstream Valley, Chena Ridge and Chena Pump Road, North Pole, Fort Wainwright and the airport.

Recommendations for further research include specific outreach to paratransit users, specific outreach to military communities at Fort Wainwright and Eielson Air Force Base, and investigating potential demand for transit to and from the areas of West Fairbanks/ Chena Pump, the Goldstream Valley, and throughout North Pole.

Staff Surveys

FAST Planning and R&M Consultants conducted a Staff Survey for drivers, dispatchers, and supervisors, and an interview with maintenance employees serving Metropolitan Area Commuter Systems (MACS) Transit and Van-Tran systems. The purpose of the study was to understand the experiences, needs, and issues faced by staff on the front lines of operating and servicing Fairbanks's transit systems. The full staff survey report can be found in Appendix A: Public Involvement Record.

Staff Surveys Executive Summary

The planning team conducted two efforts to study staff needs and experiences. Seven (7) complete questionnaires from drivers, dispatchers, and supervisors and a group interview with ten (10) maintenance staff gave insight into the daily struggles of the people who keep Fairbanks transit systems moving. Issues identified and/or reinforced include:

- ★ Limited staff capacity for driving and maintenance.

- ★ The importance of recruitment and retention efforts.
- ★ The costs, inefficiency, and risk associated with keeping a vehicle fleet past its lifespan and of not having adequate space.
- ★ A shared concern among drivers about safety from unruly passengers and the need for training and support to manage that risk.

Other Outreach

The planning team also took advantage of opportunities to engage community groups in the planning process through presentations.

Table 3: Outreach Events

Date	Organization/Audience	Outcomes
Jan 12, 2024	Fairbanks Chamber of Commerce: Military Affairs Committee	Greater understanding of Military Service family transportation needs and available transportation on posts. Contacts for transportation providers on Fort Wainwright (Shuttle Service and Armed Forces YMCA).
Feb 8, 2024	FNSB Senior Citizens Advisory Commission	Engagement with senior citizen representatives.
Mar 8, 2024	Foundation Health Partners Community Health Improvement Plan (CHIP): Senior & Elder Care Team	Introduced to the CHIP effort and stakeholders.

Fast Planning Committees Review & Adoption Process

FAST Committees

Policy Board

The FAST Planning Policy Board creates, reviews and approves plans and policies for the Fairbanks Metropolitan Planning Area. Guided by the Technical Committee and adopted plans, the Policy Board creates policy and plans to improve the community's quality of life while supporting economic progress and environmental protection. The Policy Board membership includes the mayors from the Borough, City of Fairbanks and City of North Pole, representation from the City Council and Borough Assembly, and state of Alaska DOT and DEC regional and division directors. The Policy Board is responsible for adopting the updated Transit Plan.

Technical Committee

The Technical Committee is a guiding body for FAST Planning. Made up of local technical experts at the city, state and borough levels, the Technical Committee reviews draft decisions being made for the FAST Planning area before going to the Policy Board. The Technical Committee will review this Transit Plan update and provide recommendations to the Policy Board regarding its adoption.

Bicycle and Pedestrian Advisory Committee

The FAST Planning Bicycle and Pedestrian Advisory Committee (BPAC) promotes active transportation in the Fairbanks Metropolitan Planning Area. The BPAC follows policies and plans as they are updated or created, advising the Technical Committee on project-specific opportunities, deficiencies, and future needs, as well as innovation, safety, and best practices for bicycle and pedestrian users. While the BPAC is not formally part of the adoption process, it was kept apprised of progress throughout the planning effort to solicit their advocacy and feedback.

FAST Committee/Board Review and Adoption Schedule

FAST Planning Committees were kept informed about the Transit Plan updates throughout the process and given the following opportunities to review and weigh in on recommendations:

Table 4: FAST Committee/Board Review and Adoption Schedule

Date	Committee/Board	Action
February 29, 2024	Bike and Pedestrian Advisory Committee	Presentation/No action.
March 6, 2024	Technical Committee	Presentation/No action.
March 27 2024	Policy Board	Vision Goals and Objectives
March 28, 2024	Bike and Pedestrian Advisory Committee	TPU Update Presentation/ No action.
July 25, 2024	Bike and Pedestrian Advisory Committee	TPU Update Presentation/ No action.
September 4, 2024	Technical Committee	Recommendation to release draft plan for 30-day public comment period.
September 18, 2024	Policy Board	Authorize release of plan for 30-day public comment period.
November 6, 2024	Technical Committee	Review Public Comment Response Summary and final plan draft. Recommendation to Policy Board to adopt plan.
November 20, 2024	Policy Board	Review Public Comment Response Summary and final plan draft. Adoption of Transit Plan Update.

4. Existing Conditions

Community characteristics, existing conditions of the transit and paratransit systems, and the transportation network collectively inform the level and types of transit and mobility needs in the greater Fairbanks community. This chapter covers highlights from the Existing Conditions report. The full report, which also includes a review of relevant existing plans, studies, and reports, can be read in Appendix B.

Community Characteristics

Fairbanks North Star Borough Regional Overview

The Fairbanks North Star Borough is in the interior region of Alaska. It was incorporated in January 1964 as a second-class borough. It encompasses 7,361 square miles. FNSB is the third most populated borough in Alaska, with 95,655 residents in 2020. Within the FNSB are the incorporated cities of Fairbanks and North Pole. The 2020 population of the City of Fairbanks was 32,515 and North Pole was 2,243. Approximately one-fifth of the FNSB's population consists of military personnel and their families posted at US Army Garrison Fort Wainwright and Eielson Airforce Base. Additionally, FNSB is home to the University of Alaska Fairbanks (UAF), which employs approximately 3,000 full and part time faculty and staff and had 7,425 students in Fall 2022.

As a second-class borough, the FNSB does not have area-wide road powers. Road maintenance and street light maintenance are accomplished through service areas. The FNSB has a transportation department that is responsible for monitoring air quality and operating a fixed route bus service (MACS Transit) and a paratransit demand response service for eligible riders (Van Tran). In 2002 the area surrounding Fairbanks and North Pole qualified as an Urbanized Area and the Fairbanks Metropolitan Planning Organization, originally named the Fairbanks Metropolitan Area Transportation System, was established in 2003. In 2018 the MPO transitioned to an independent non-profit organization, FAST Planning. FAST Planning is responsible for transportation planning within the urbanized area.

Demographic Overview

Understanding the demographics of Fairbanks will help shape transit services to effectively serve those most dependent on transit and expand ridership. The Alaska Department of Labor (DOL) notes that FNSB's population had declined about 1% per year since 2012, but in 2019 an influx of new military personnel and their families began to arrive. The Alaska Department of Labor & Workforce Development (DOL&WD) is forecasting

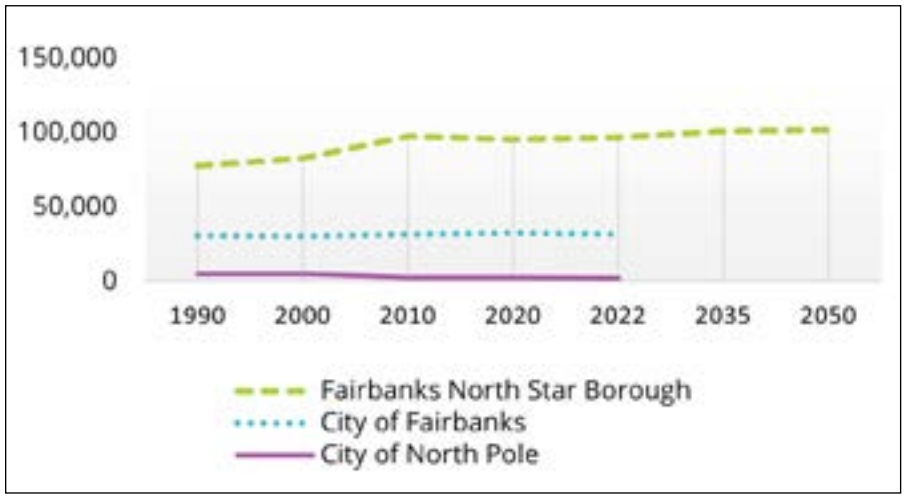


Figure 6: Population Trend

a 4.6 percent increase in population within the FNSB by 2050, compared with 4 percent statewide[1]. The FNSB's population is expected to grow to 101,136 by 2035, and to 102,013 by 2050. The FNSB is the only area in the interior region of Alaska projected to grow.

Fairbanks, on average, is a young community. In the City of North Pole nearly one third of the

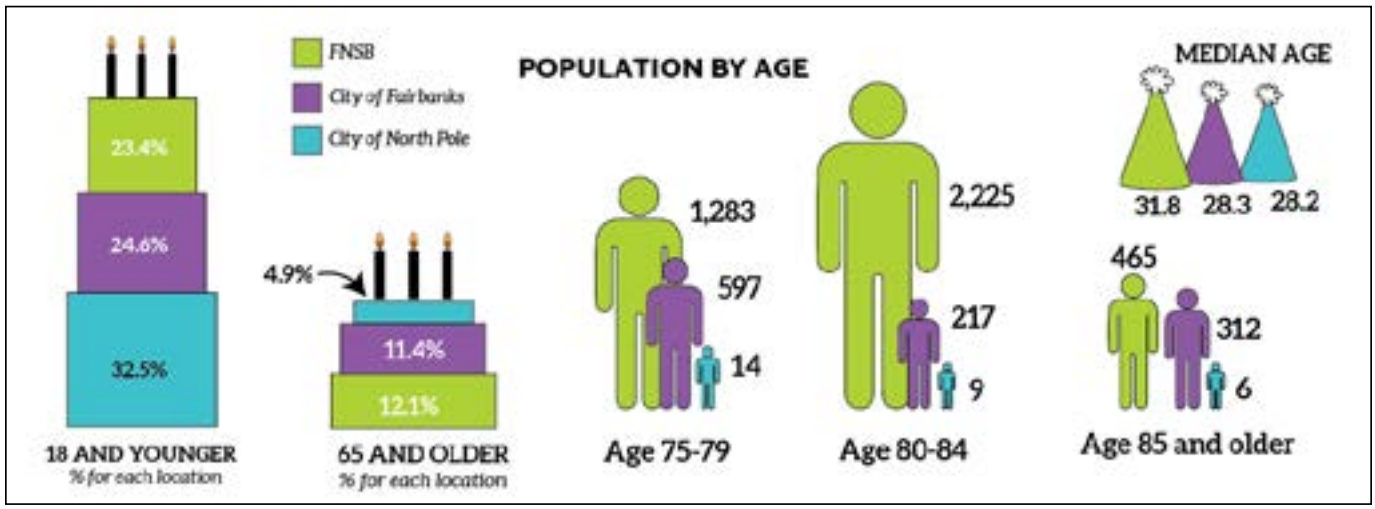


Figure 7: Population by Age

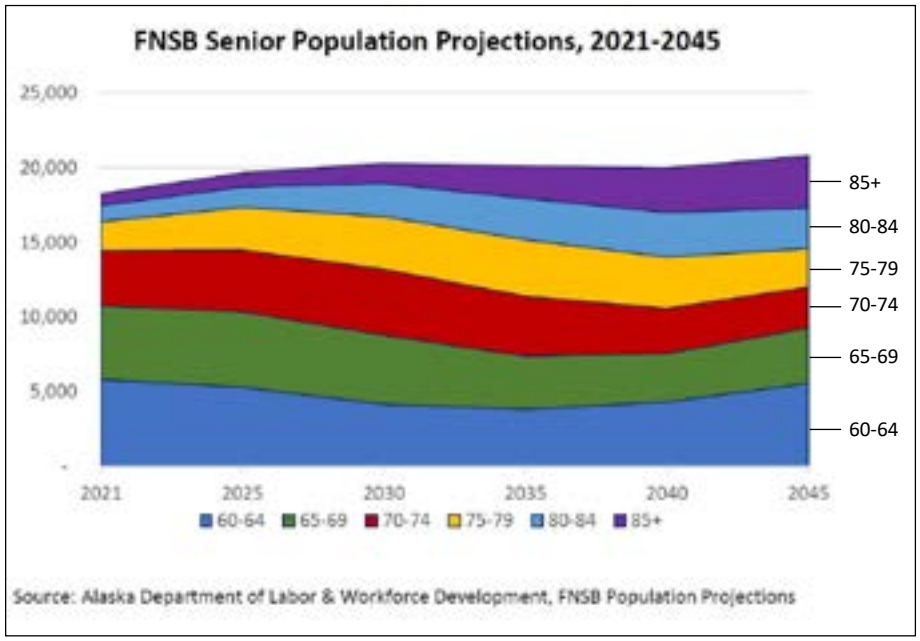


Figure 8: Senior Population Projections

population is 18 years old or younger. An aging population is a national trend, and it is reasonable to expect FNSB to experience an increase in residents aged 65 and older. According the 2023 North Star Borough Senior Needs Transportation Report and Alaska Department of Labor and Workforce Development, the population of senior citizens is expected to grow substantially over the next decades. The age distribution among seniors is also expected to become older, with the 80+ population expected

1 – ADOL&WD, Alaska Population Estimates, 2021, https://live.laborstats.alaska.gov/pop/index.cfm

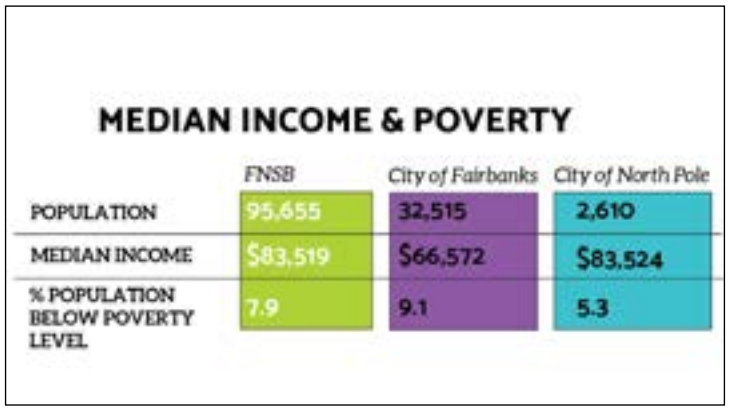


Figure 9: Median income and poverty

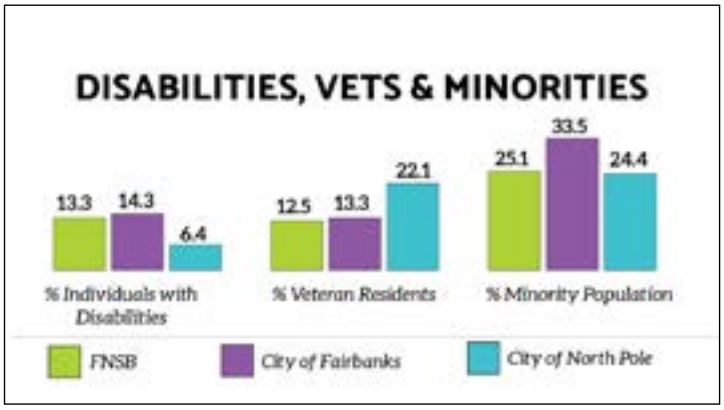


Figure 10: Disabilities, Vets and Minorities

to triple over the next 20-30 years (Figure 8). As people age, they may experience changes in vision, mobility, and health that prevent them from driving a personal vehicle.

The City of North Pole has a median income slightly higher than the FNSB's median income. The City of Fairbanks has both a lower median income and higher percentage of those living below the poverty level.

Individuals with disabilities, veterans and minority populations typically make up a higher percentage of transit users. Additionally, persons whose disabilities make them unable to use MACS may apply to use Van Tran, the demand-response paratransit service.

Households & Employment

The median household size throughout the FNSB is slightly more than two and one half. The City of North Pole's median household size is larger than both the City of Fairbanks and the FNSB. This is likely related to the greater number of residents aged 18 years and under. Households that are "rent burdened" or paying more than 30 percent of their income on rent are more likely to be reliant on public transit to travel to work, medical appointments, shopping, and errands. Nearly 25% of households are rent burdened.

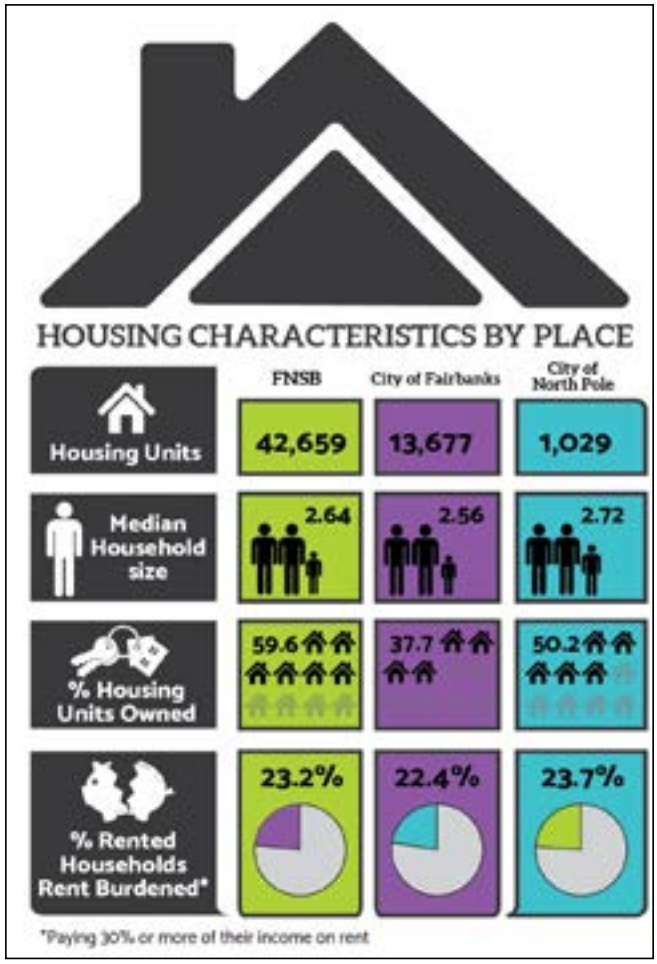


Figure 11: Housing Characteristics

Workers in the City of Fairbanks spend less time traveling to work than their neighbors. Fairbanks workers, on average spend less time traveling to work than the national average of almost 27 minutes. Additionally, most workers have access to a vehicle.

Most workers travel to work alone in a personal vehicle. Workers living in the City of Fairbanks are more likely to walk or bike to work compared to residents of other parts of the FNSB.

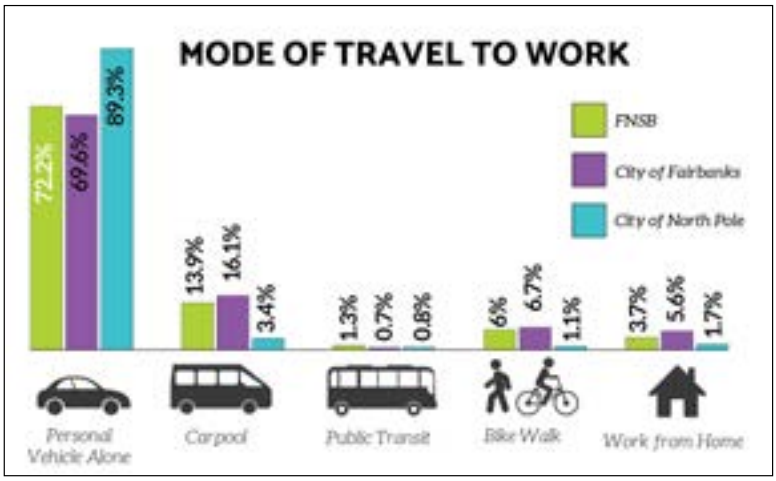


Figure 12: Mode of travel to work

Table 5: Employment & Travel to Work by Place

Location	% Employed	% Zero Vehicle Workers	Zero Vehicle Households	Average Travel Time to Work
Fairbanks North Star Borough	53.3	2.1	1653	19.5 Minutes
City of Fairbanks	47.2	2.9	980	15 Minutes
City of North Pole	66.3	1.9	42	20.9 Minutes

Fixed Route System

Service Overview

The MACS Transit service currently operates eight fixed-route bus lines that serve the FNSB, including the City of Fairbanks and the City of North Pole. MACS also operates a supplementary paratransit service called Van Tran. Figure 13 - MACS Routes & Stops provides an overview of the fixed-route bus system and the associated Van Tran demand-response service area. Analysis of Van Tran is addressed in Section 3.

The MACS fixed-route system consists of two types of fixed route bus lines:

- ★ **Regular:** Bus lines that provide service at varying intervals for most of the system's regular span of service. These lines are intended for all-day use for many different types of trips.
- ★ **Limited:** Bus lines that only provide service that is mostly aligned with traditional morning and evening peaks. These lines are oriented towards serving traditional commuter needs.

Table 6 – *Service Details by Line*, shows the service span, peak frequency (or headway, displayed in minutes between transit arrivals), operating days, type of service, average annual unlinked trips[1], and average annual productivity[2] for each MACS fixed route bus line. Generally, the regular bus lines operate every 30 to 60 minutes on weekdays between about 6am and 10pm, while the limited bus

1 Unlinked trips are a standard Federal Transit Administration (FTA) measure that counts the total number of trips (boardings) without considering transfers. For example, someone who boarded a bus and then transferred to another bus to complete their journey would count as two unlinked trips.

2 "Productivity" is the average annual unlinked trips divided by average annual revenue service hours. This gives an indication of how productive a route is, as measured by how many riders use the route per revenue service hour on average.

lines operate every 60 to 90 minutes on weekdays during select morning and afternoon/early evening commuting hours. There is currently no weekend service, with Saturday service having been eliminated in 2021 due to a shortage of bus operators.

Please see the next section, The Importance of Headways, for a description of the peak headway column shown in Table 6.

Table 6: Services Details by Line (FY2019-FY2023)

Line	Peak Headway	Days	Service Span	Type of Service	Average Annual Unlinked Trips	Average Annual Productivity
Blue	30 minutes	M-F	6:60AM-9:45PM	Regular	88,519	14.8
Brown	30 minutes	M-F	7:00AM-9:10PM	Regular	28,940	13.7
Green	90 minutes	M-F	6:00AM-8:52PM	Limited	25,406	8.3
Grey	60 minutes	M-F	6:45AM-6:40PM	Limited	7,158	5.7
Orange	60 minutes	M-F	6:30AM-6:00PM	Limited	15,959	5.8 m
Purple	30 minutes	M-F	6:30AM-9:44PM	Regular	53,651	19.9
Red	30 minutes	M-F	6:15AM-9:45PM	Regular	77,877	14.0
Yellow	75 minutes	M-F	7:15AM-6:59PM	Limited	10,930	4.3

Total system-wide averages for annual unlinked trips is 308,441. The system-wide average for annual productivity is 10.8

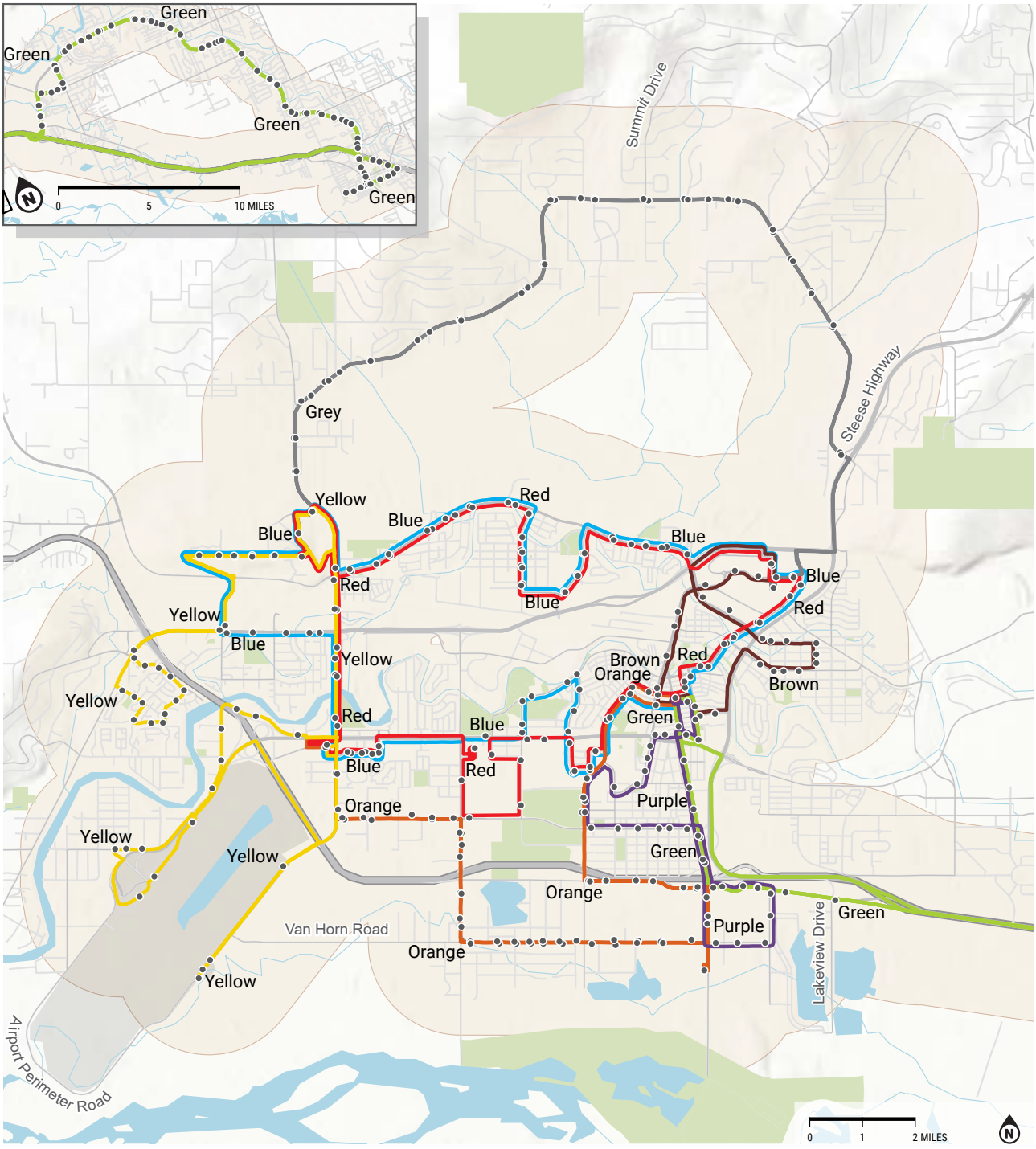
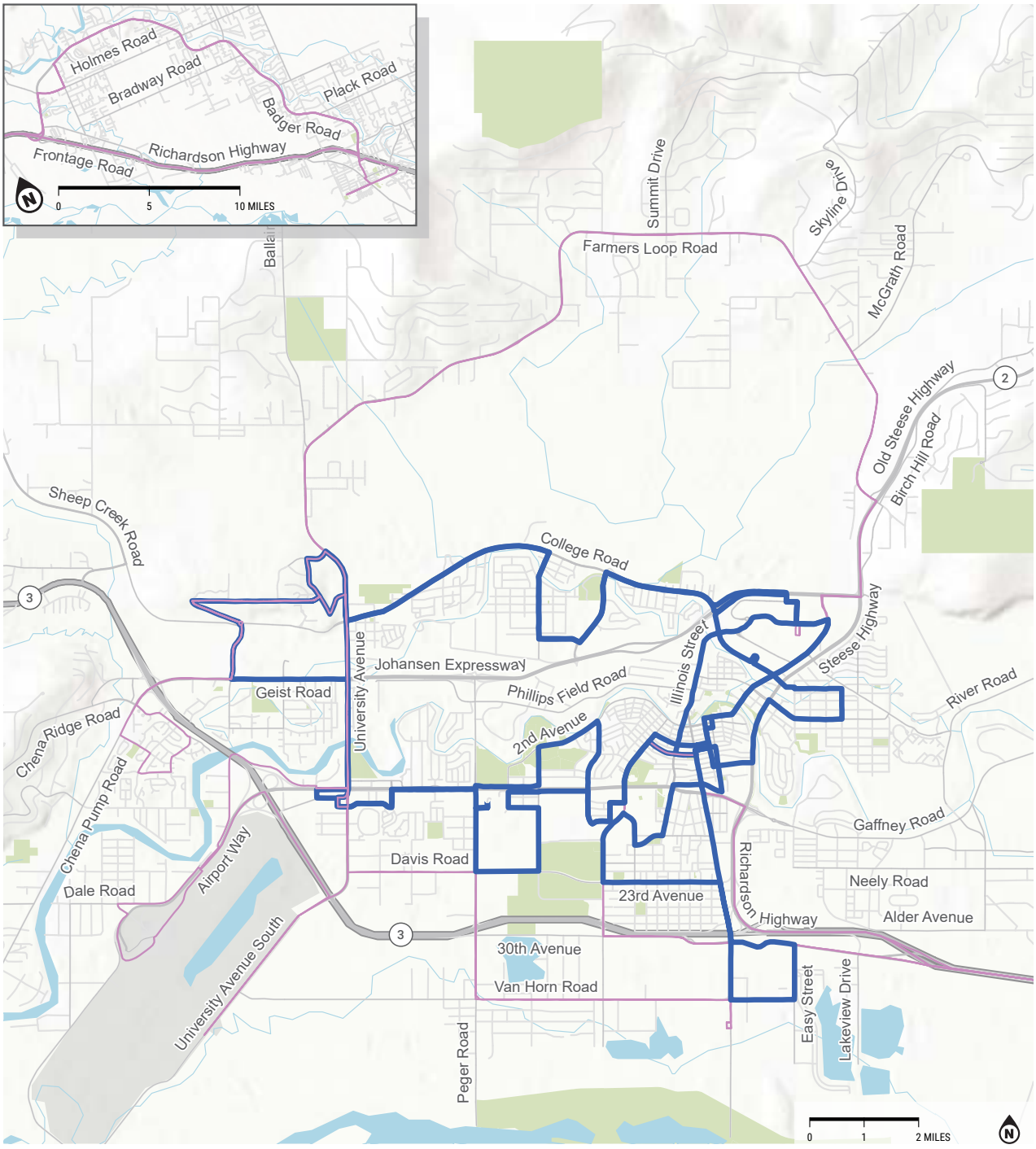


Figure 13: MACS Routes and Stops



METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

Peak Frequencies

30 Minutes

AM and PM peak only

Figure 14: MACS Routes by Peak Headway

The Importance of Headways

In addition to knowing where each bus route travels, it is important to visualize each route's frequency at peak operating times, also known as a route's peak headway. A "headway" is the time between vehicles moving in the same direction on a particular route, measured in minutes[1]. Or in other words, the amount of time between buses. Figure 15 shows each MACS bus route by peak headway. Generally, a bus that arrives every 15 or 30 minutes will be more useful for a wider variety of trips than a bus that arrives every 60 minutes. This also means that buses with shorter headways (buses that come more often) will also allow a rider to be less dependent on the bus schedule in planning his or her day.

Shorter headways also make transfers easier. For example, barely missing a connection to a bus with a 60-minute headway can result in almost an hour wait until the next bus, while the same missed connection for a bus with a 15-minute headway might mean a wait of just over 10 minutes.

Ultimately, shorter headways make bus routes more useful for more people by allowing them to access a greater number of destinations in less time. Shorter headways also use more resources in many respects, both in operator time and the number of buses that must be in operation on a route at any given time to achieve that headway.

Network Characteristics

Radial Network, Coverage Focus

Five of the eight MACS bus routes provide service to the Downtown Transit Center in Fairbanks. In this respect, the MACS system operates what is primarily a radial network with a focus on providing one-seat rides (rides not requiring a transfer) with long headways to and from downtown Fairbanks. Service focused on providing one-seat rides is also known as coverage-focused service because it usually consists of indirect routes that make detours from trunkline segments[2] to serve pockets of demand or provide equitable access. However, two MACS bus lines do not stop at the Transit Center (the Yellow and Grey lines), instead focusing on other activity centers that also function as transfer points for riders that may need to travel further:

Figure 15: FRiders waiting for the Blue Line at Fred Meyer West

- ★ Fred Meyer East
- ★ Fred Meyer West
- ★ University of Alaska Fairbanks

These hubs outside of downtown Fairbanks mean that although the MACS system is a radial network focused on downtown, it also attempts to accommodate other activity centers with high passenger demand. Scheduling methods should make transfers at all these hubs easier and more reliable than they would be at other stops. In practice, headways of 30 minutes or greater can still result in long wait times that deter riders from transferring from one bus to another. For example, if a rider misses their connection to a bus route with a 30-minute headway by just a few minutes, that translates into about a 25-minute wait for the next bus.

1 FTA National Transit Database Glossary (2017)

2 "Trunkline segments" are segments of bus lines that provide fast and direct service between destinations, such as arterial roadways, and are often where multiple bus lines overlap.

However, a radial network with a coverage focus, like the MACS fixed-route system has, is usually not intended or able to facilitate easy transfers. Instead, such a system relies on providing one-seat rides with the occasional transfer between lines for longer trips.

Several factors likely contributed to the establishment of this type of network in Fairbanks:

- **A disconnected street grid** with few parallel roadways outside of downtown makes it difficult for buses to provide direct service outside of trunkline segments without making significant detours.
- **Incomplete streets with inadequate pedestrian infrastructure that make it difficult to walk very far to a bus stop** outside of downtown, especially for people with disabilities. This makes it more necessary for bus lines to make time-intensive (and costly) detours from trunkline segments to reach those riders.
- **Relatively long headways** that make transferring from one bus line to another impractical in most circumstances outside of the Transit Center and a few activity centers.

Figure 16: MACS bus stop with schedule and route information.

A radial network with a coverage focus can provide essential public transportation services to the areas it serves, but it is a type of network that is not usually very useful for a broad range of people and trip types, due to long headways and out-of-direction travel.

This type of network also lends itself to **interlining**, a scheduling practice that involves a bus from one route continuing on to serve another route after arriving at the terminus of the first route. For example, in the MACS system the bus serving the Purple Line immediately proceeds to serve the Brown Line after arriving at the Transit Center. While the decision to interline buses results in a relatively complex scheduling process, it can also improve the efficiency of short routes with long headways by maximizing the use of in-service vehicles.

Despite its limitations, a radial network with a coverage focus may continue to meet the needs of the FNSB depending on the agency's transit goals.

Loop vs. Bi-Directional

About half of the existing MACS bus lines operate as **loops**, or lines that travel in one direction only, including the Blue Line, Brown Line, Purple Line, and Red Line. These are also the most productive lines, as shown in Table 6 - Service Details by Line.

It is important to note that the Blue Line and the Red Line travel in a mostly complementary fashion where the Blue Line provides clockwise service, and the Red Line provides counterclockwise service. They are not completely complementary, however, as each route diverges to cover different neighborhoods.

The remaining bus lines are bi-directional, or lines that provide service in both directions, including the Green Line, Grey Line, Orange Line, and Yellow Line. However, some of these bi-directional routes such as the Yellow Line include divergent loop service to cover neighborhoods off the main route.

While loop service may make it easier to provide service along a route with fewer resources, it is also less useful for riders than bi-directional service due to the potential for significant out-of-direction travel. For example, if a rider wishes to travel to a destination a half mile to the east on a westbound loop, then the rider may also have to ride the entire loop before arriving at their stop. In addition, such a trip may be even more time-intensive if the loop involves a layover at the line's origin/terminus such as the downtown Transit Center. All of this means that while loop routes may be an cost effective way to provide transit coverage, the resulting out-of-direction travel makes them inconvenient for many riders.

Bicycle Accommodations

There is a self-service bike rack on the front of each MACS fixed route bus. Every bike rack can accommodate up to three bikes. Currently, these racks cannot accommodate the larger tire size of fat tire bikes; however, at the time of this report, MACS is investigating adding new bike racks to all buses with that capability due to popular demand.

Figure 17: Integrated Transit in Fairbanks

Fares

Currently, MACS fixed-route riders use cash to pay for a single fare on the bus, or to obtain single-ride tokens from vending machines. They can also purchase day, month, or pro-rated partial-month passes directly from operators when boarding the bus. Exact change is required for each fare purchase. Seniors aged 60 and over and children 5 years or younger ride free.

Figure 18: The Transit Center in downtown Fairbanks

Cash should always be accepted for fares in any bus system to facilitate equitable access. However, in a world where non-cash fare options such as mobile ticketing are increasingly common, a lack of alternative fare payment methods may represent a barrier to entry for some people. Fare categories and prices, as of October 2023, are shown in the table below.

System Metrics

See Appendix B, Existing Conditions

Table 7: Fare Categories

Fare Catigory	Adult[1]	Reduced[2]	Seniors & Children[3]
Single Ride	$1.50	$0.75	Ride Free
Day Pass	$3.00	$2.00	Ride Free
Half Month Pass	$20.00	$20.00	Ride Free
Monthly Pass	$40.00	$20.00	Ride Free

[1] Ages 19 to 59

[2] Ages 6 to18, people with Medicare or Medicaid Cards, active military and dependents, those with qualifying disabilities

[3] Ages 60 and over or 5 and under

Ridership Data

Another important performance metric for a fixed route bus system is stop-level ridership, as measured in boardings. A "boarding" is counted when any rider boards the bus. Having detailed information about how many people use each of the bus stops can help MACS recognize where it can deploy resources to best serve its riders. It is also very important information to consider alongside stop-level connectivity ratios, which are introduced and discussed in the Connectivity section.

Boarding information is best visualized using maps to show how where MACS bus lines may have more or less ridership activity. This section provides a brief description of how ridership numbers were ascertained from RouteMatch data and contains maps that visualize the data (Figure 21 through Figure 30).

Methodology

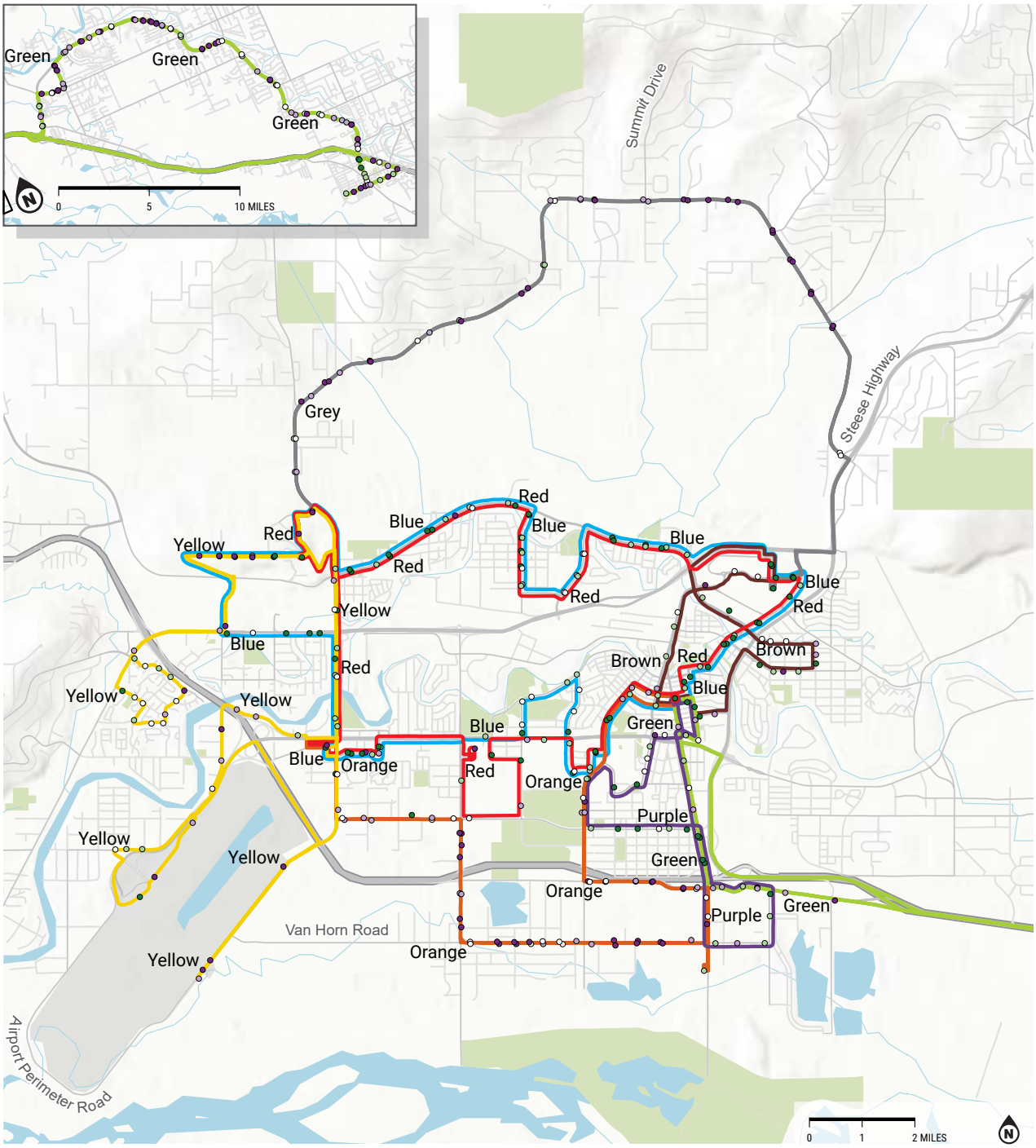
A third-party vendor called RouteMatch collects a variety of data for MACS, including stop-level boardings through automatic passenger counters (APCs). This analysis examines the past 5 years of this data between July 2018 and June 2023.

While the data is mostly complete, there are sporadic gaps in data for certain time periods and bus lines due to RouteMatch system outages. For example, stop-level data between November 2022 and March 2023 is completely absent and data for the Grey Line and the Orange Line are missing during several time spans. To get a better idea of what typical ridership looks like for each stop and minimize the data impact caused by these

Figure 19: MACS Bus Shelter

RouteMatch outages, the project team used median monthly boardings for the last 5-year period. The median value removes distortions caused by unusually high or low boardings and takes into account that some stops will have more data points over time than others. This analysis reports the median monthly boarding value between July 2018 and June 2023 for each transit stop on the MACS system. This value is visualized spatially in the following ways in the section below:

- ★ Systemwide ridership by stop
- ★ Line ridership by stop
- ★ Systemwide ridership by stop before and after March 2020 (to show ridership pre- and post-pandemic)



METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

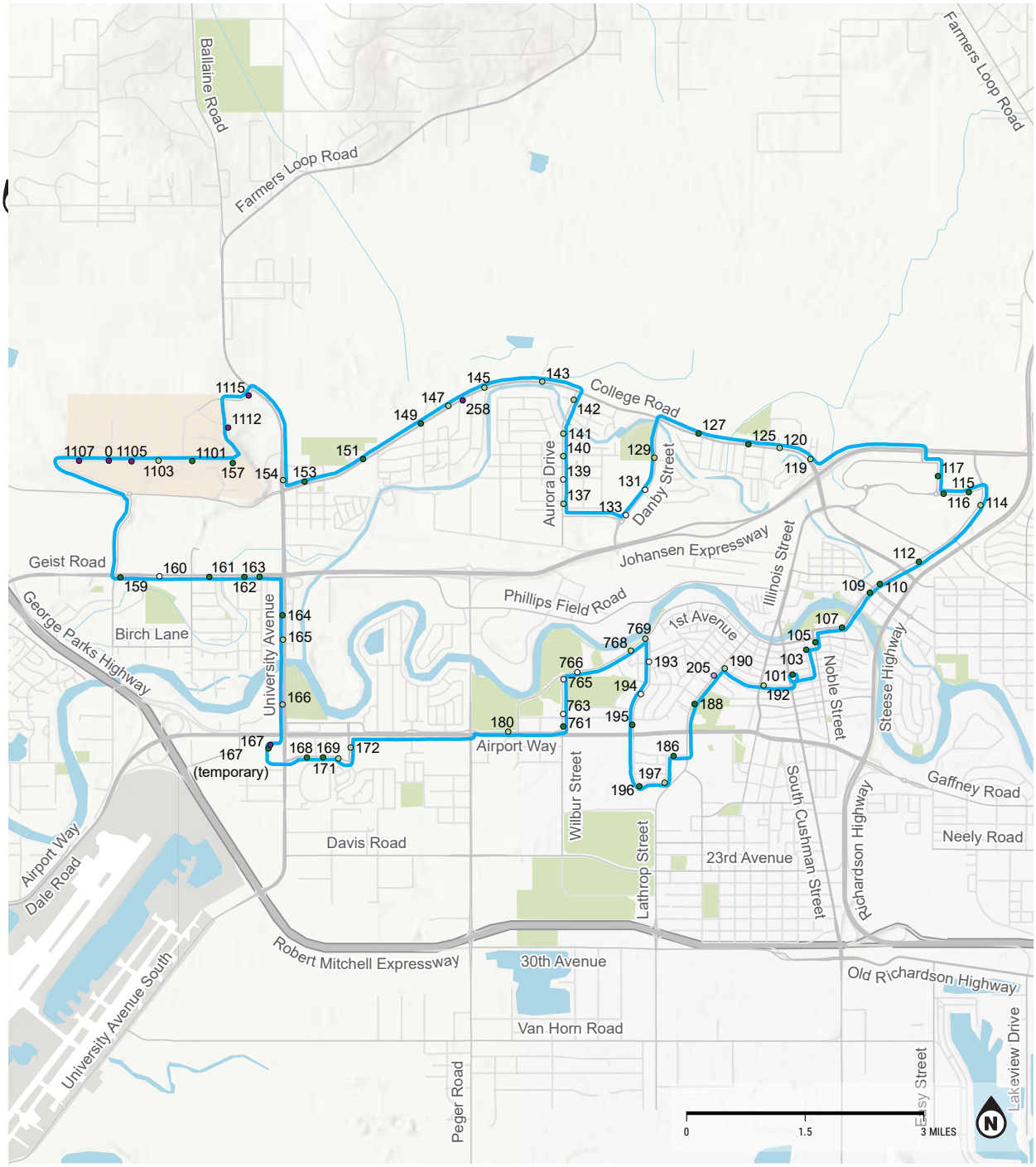
- Blue Line
- Brown Line
- Green Line
- Grey Line
- Orange Line
- Purple Line
- Red Line
- Yellow Line

5-Year Median Monthly Boardings

- 0 - 2
- 2 - 5
- 5 - 11
- 11 - 39
- 39 - 1446

Stop-level boarding information is incomplete due to intermittent RouteMatch data collection software outages. For that reason, this stop-level information is provided for general planning purposes only and should not be relied upon for detailed reporting.

Figure 20: MACS Systemwide Stop-Level Ridership



Blue Line Ridership

5-Year Median Monthly Boardings

- 0 - 2
- 2 - 5
- 5 - 11
- 11 - 39
- 39 - 1446

Stop-level boarding information is incomplete due to intermittent RouteMatch data collection software outages. For that reason, this stop-level information is provided for general planning purposes only and should not be relied upon for detailed reporting. The numbers displayed beside each stop point are the stops' identification number.

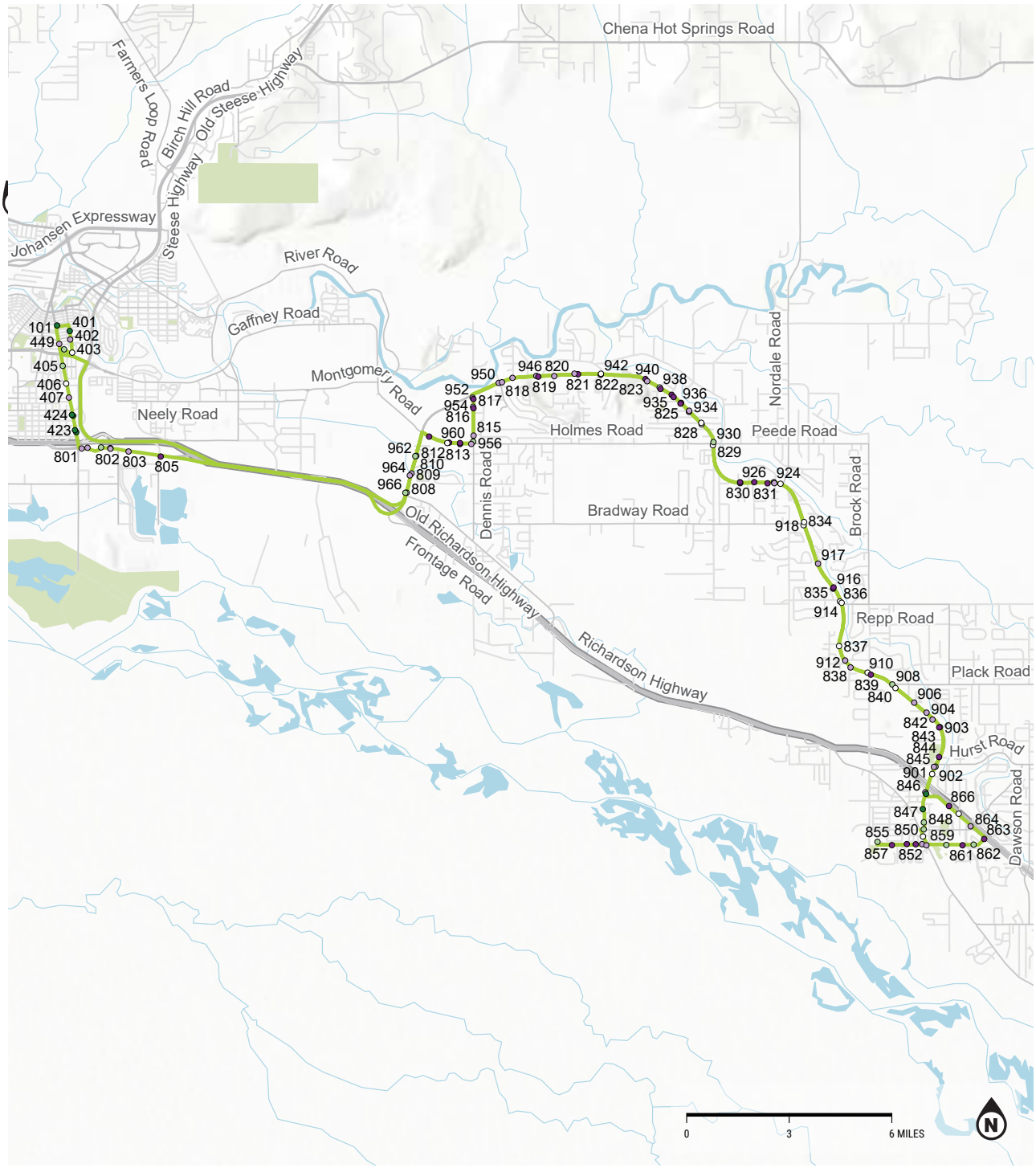
Figure 21: MACS Blue Line Stop-Level Ridership

Brown Line Ridership
5-Year Median Monthly Boardings

- 0 - 2
- 2 - 5
- 5 - 11
- 11 - 39
- 39 - 1446

Stop-level boarding information is incomplete due to intermittent RouteMatch data collection software outages. For that reason, this stop-level information is provided for general planning purposes only and should not be relied upon for detailed reporting. The numbers displayed beside each stop point are the stops' identification number.

Figure 22: MACS Brown Line Stop-Level Ridership

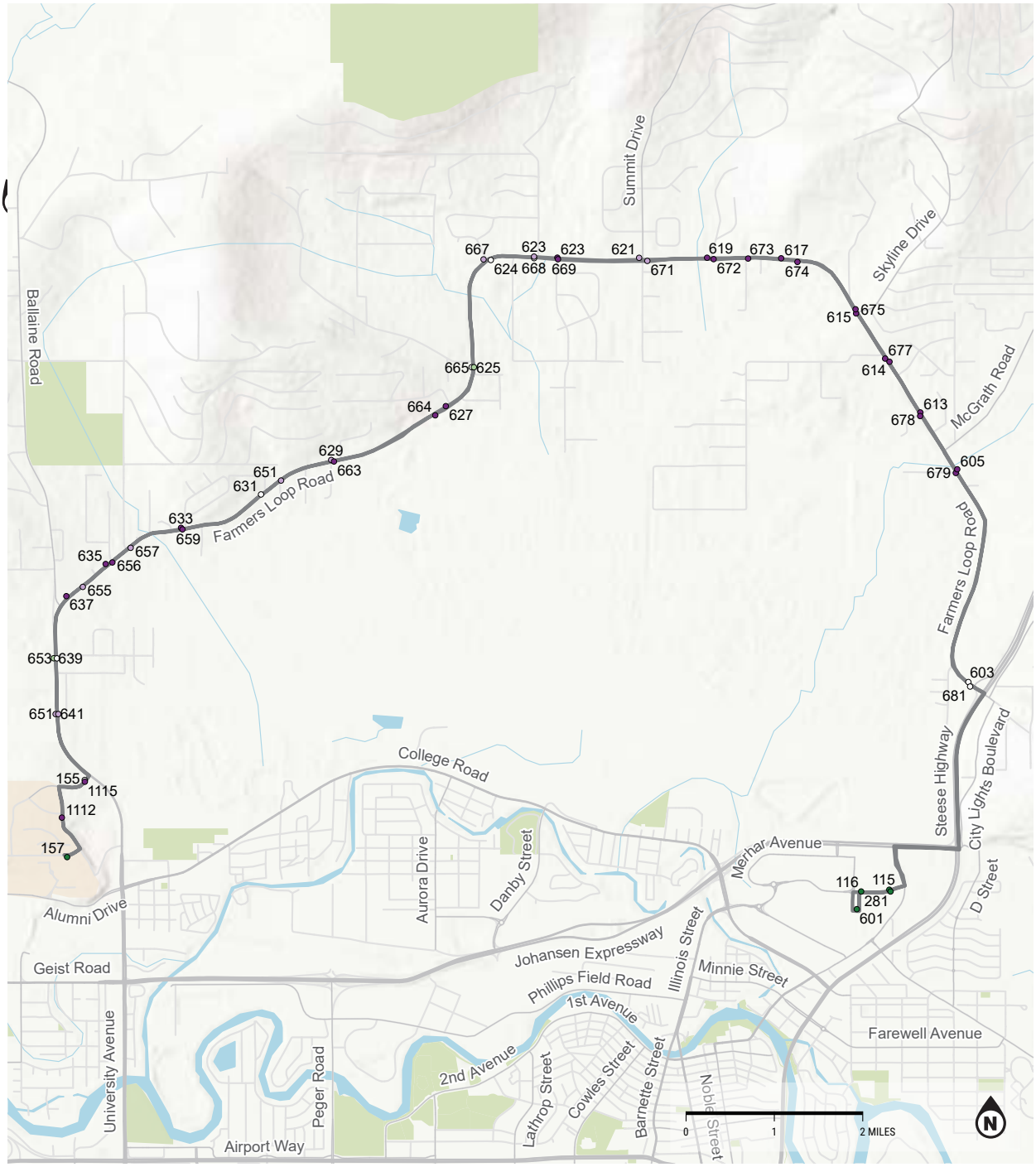


Green Line Ridership
5-Year Median Monthly Boardings

- 0 - 2
- 2 - 5
- 5 - 11
- 11 - 39
- 39 - 1446

Stop-level boarding information is incomplete due to intermittent RouteMatch data collection software outages. For that reason, this stop-level information is provided for general planning purposes only and should not be relied upon for detailed reporting. The numbers displayed beside each stop point are the stops' identification number.

Figure 23: MACS Green Line Stop-Level Ridership

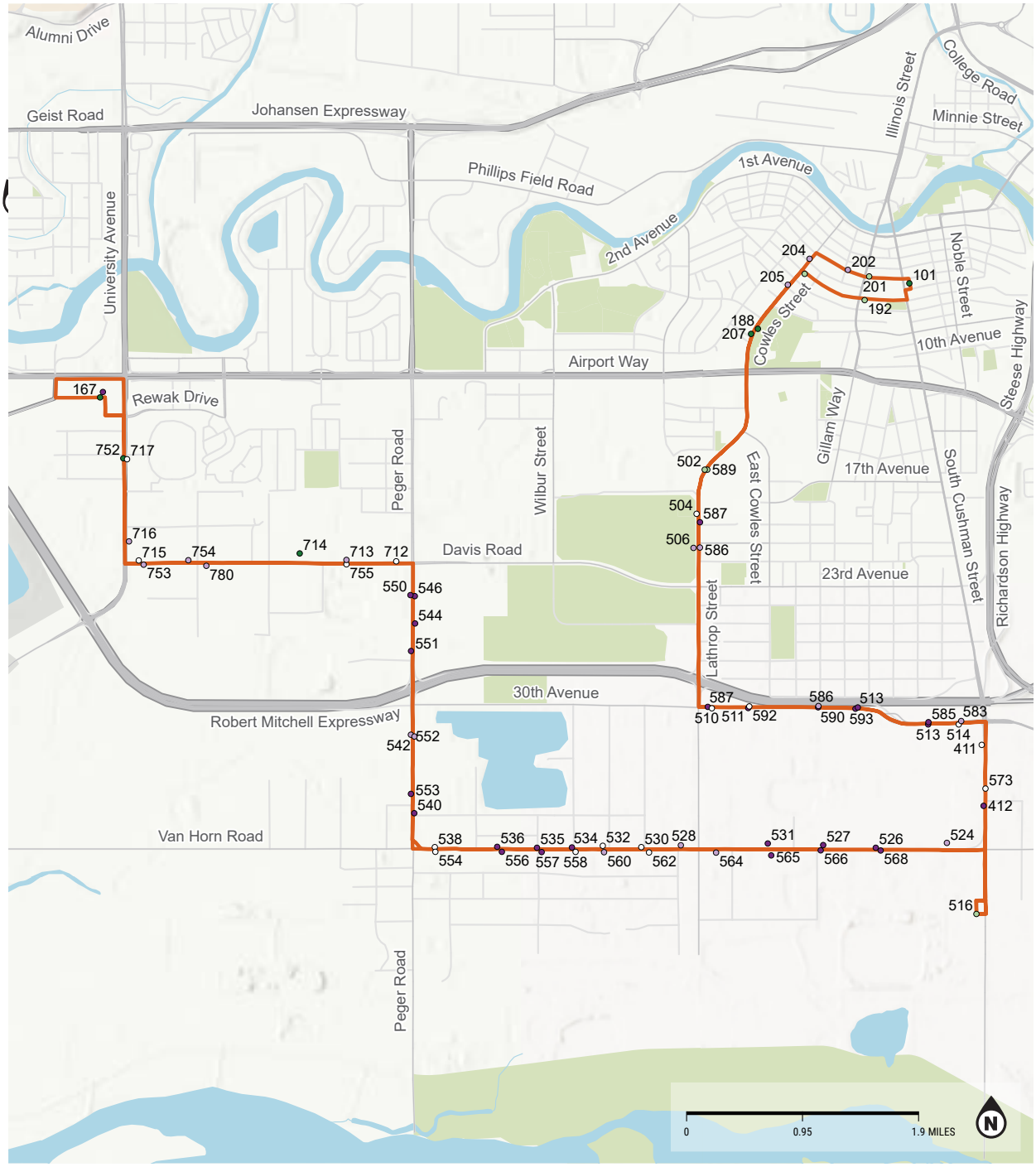


Grey Line Ridership
5-Year Median Monthly Boardings

- 0 - 2
- 2 - 5
- 5 - 11
- 11 - 39
- 39 - 1446

Stop-level boarding information is incomplete due to intermittent RouteMatch data collection software outages. For that reason, this stop-level information is provided for general planning purposes only and should not be relied upon for detailed reporting. The numbers displayed beside each stop point are the stops' identification number.

Figure 24: MACS Grey Line Stop-Level Ridership

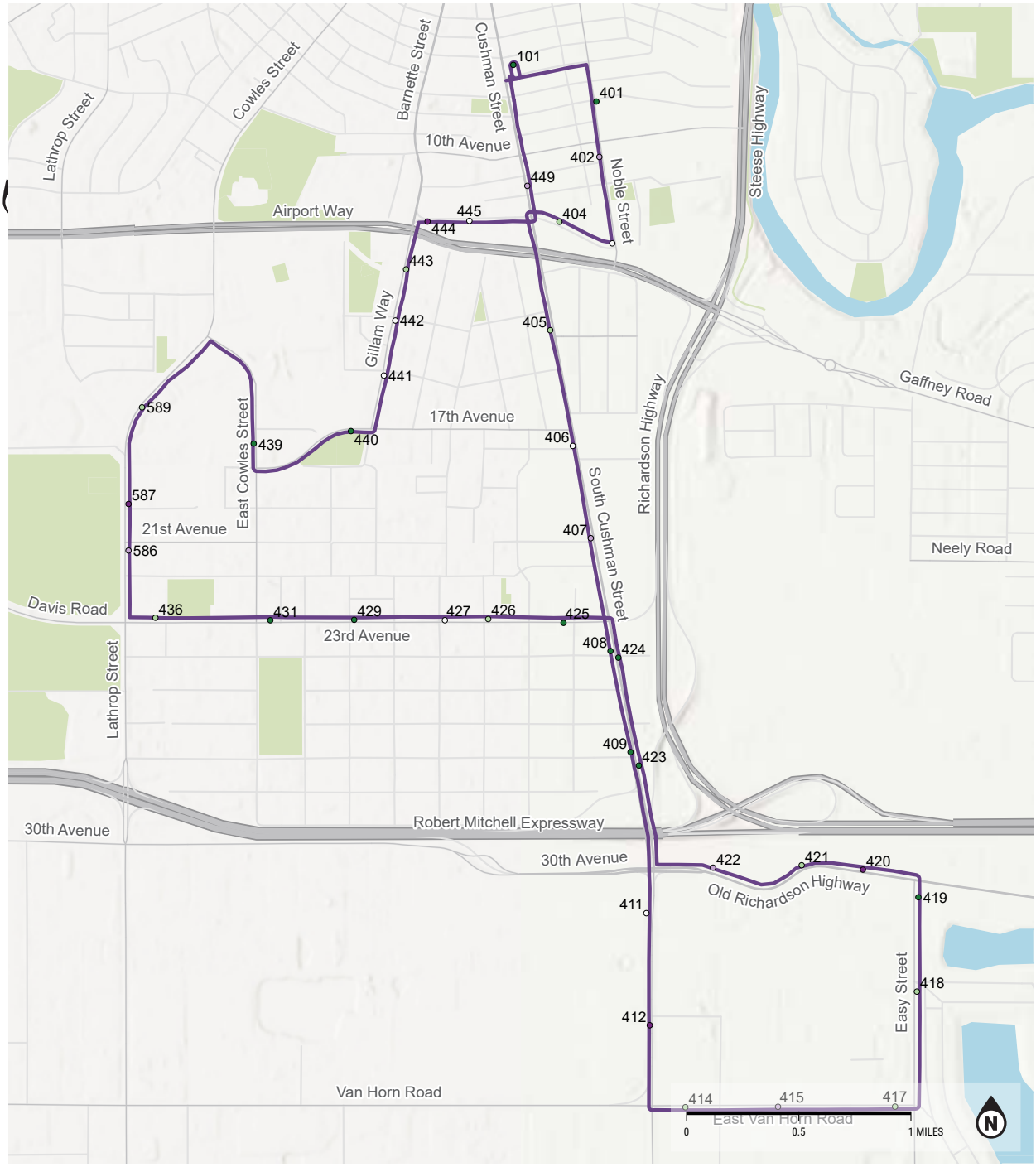


Orange Line Ridership
5-Year Median Monthly Boardings

- 0 - 2
- 2 - 5
- 5 - 11
- 11 - 39
- 39 - 1446

Stop-level boarding information is incomplete due to intermittent RouteMatch data collection software outages. For that reason, this stop-level information is provided for general planning purposes only and should not be relied upon for detailed reporting. The numbers displayed beside each stop point are the stops' identification number.

Figure 25: MACS Orange Line Stop-Level Ridership



Purple Line Ridership
5-Year Median Monthly Boardings

- 0 - 2
- 2 - 5
- 5 - 11
- 11 - 39
- 39 - 1446

Stop-level boarding information is incomplete due to intermittent RouteMatch data collection software outages. For that reason, this stop-level information is provided for general planning purposes only and should not be relied upon for detailed reporting. The numbers displayed beside each stop point are the stops' identification number.

Figure 26: MACS Purple Line Stop-Level Ridership

Red Line Ridership
5-Year Median Monthly Boardings

- 0 - 2
- 2 - 5
- 5 - 11
- 11 - 39
- 39 - 1446

Stop-level boarding information is incomplete due to intermittent RouteMatch data collection software outages. For that reason, this stop-level information is provided for general planning purposes only and should not be relied upon for detailed reporting. The numbers displayed beside each stop point are the stops' identification number.

Figure 27: MACS Red Line Stop-Level Ridership

Yellow Line Ridership
5-Year Median Monthly Boardings

- 0 - 2
- 2 - 5
- 5 - 11
- 11 - 39
- 39 - 1446

Stop-level boarding information is incomplete due to intermittent RouteMatch data collection software outages. For that reason, this stop-level information is provided for general planning purposes only and should not be relied upon for detailed reporting. The numbers displayed beside each stop point are the stops' identification number.

Figure 28: MACS Yellow Line Stop-Level Ridership

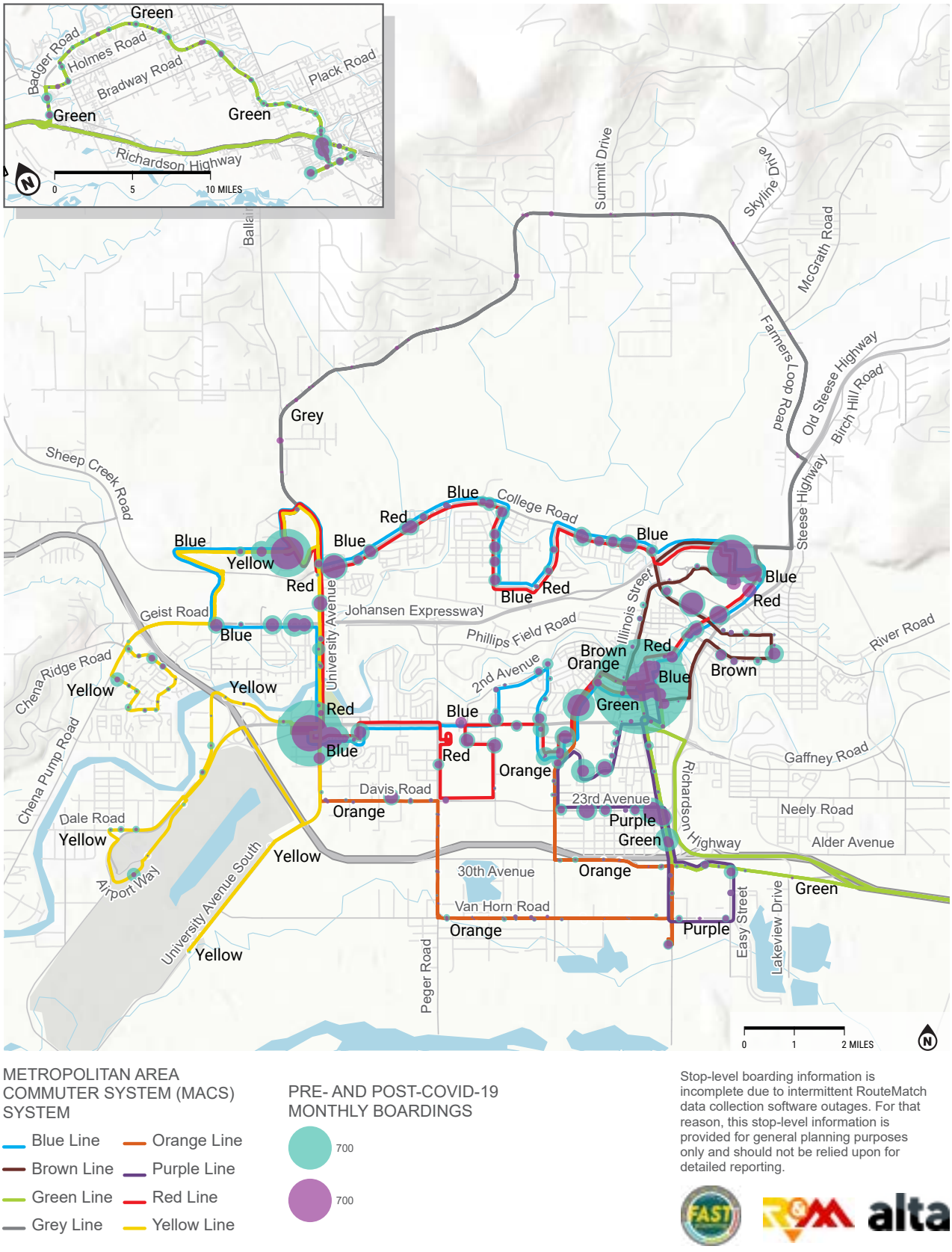


Figure 29: MACS Systemwide Stop-Level Proportional Ridership Before and After COVID-19

Demand & Equity

Demand and equity measures help measure locations of greatest transit demand and need. While the two factors are often related, it is important to consider each separately. Equity considerations highlight where the need for public transportation services may be highest, and analyzing demand can help determine locations that may have the greatest potential for high levels of ridership.

Demand measures population density and job density, and then shows where their combined density is highest. Identifying these areas shows where there might be a relatively high density of both homes and businesses, which can help predict the potential for "all day" demand for fixed route public transportation trips. When quality service (see discussion in "Service Quality" below) is provided in such areas, it often results in higher ridership and higher productivity than service in areas with lower demand measures.

Demand can also show where the origins and destinations of demand response trips may be highest, especially when they coincide with certain equity factors.

Equity, on the other hand, is analyzed here using factors that suggest need:

- ★ Low-income households
- ★ Racial or ethnic minorities
- ★ People with disabilities
- ★ Youth and seniors
- ★ People with limited English proficiency
- ★ People without access to vehicles

These are factors that are prominent in Title VI and Environmental Justice considerations, and some may also result in increased demand for transit. However, it is important to consider equity separately from demand to assess how well both fixed route and demand response services are meeting the needs of the FNSB's most vulnerable populations.

The results of the demand and equity analyses highlighted in Appendix B, Existing Conditions are two important inputs that should be considered side-by-side when determining recommendations for the future of both fixed route and paratransit services in the FNSB.

Connectivity

The usefulness of any fixed route bus network is contingent upon how accessible and connected its bus stops are to riders. All stops must be accessible to riders of all ages and abilities for the network to maximize its return on service investments.

This report does not comprehensively examine accessibility for people with disabilities and related requirements under the Americans with Disabilities Act (ADA). However, it does provide a thorough connectivity analysis that measures the connectivity of each bus stop in the MACS fixed route network. In this case, "connectivity" is considered the degree to which each stop is reachable by pedestrians and bicyclists. This connectivity analysis also incorporates a Level of Traffic Stress (LTS) analysis to refine its results. LTS is a measure of how comfortable it is for bicyclists or pedestrians to travel along a roadway.

Appendix B outlines the methodology and results of both the LTS analysis and the connectivity analysis. Ultimately, the results helped identify gaps and needs which were in turn used to inform recommendations.

Gaps

The Transit Plans Update will ultimately provide recommendations to inform the future of MACS and coordinated human services transportation throughout the FNSB. As a step in that direction, this report identifies some potential high-level "gaps" based on the Existing Conditions analysis that are explored further in the Needs Analysis section. These gaps are organized and dis-

cussed by category: coverage, service quality, and connectivity.

Coverage

"Coverage" describes where public transportation service is provided. As noted in the Existing Conditions analysis, about 45,000 and 50,000 people live within a ten-minute walk of a MACS fixed route bus stop. This amounts to just over half of the FNSB's population. The Van Tran demand-response paratransit service extends an additional ¾-mile radius beyond the MACS fixed-route corridor.

★ **MACS provides good coverage of high demand areas,** but there is room for some improvement. As discussed in the Existing Conditions analysis, the MACS Transit fixed route system currently provides at least some service in most of the areas highlighted in the Demand Analysis. Still, an example of an area of high demand that currently lacks coverage are the neighborhoods bounded by Airport Way to the south, Washington Drive to the west, and Peger Road to the east.

★ **There is potential for improved coverage of high-need equity areas.** The Existing Conditions analysis shows that some areas that scored high in the Equity Analysis may not be receiving adequate MACS Transit coverage.

Service Quality

There are many ways to measure service quality. However, in this report "service quality" refers to the amount of transit service provided. In many cases, service quality can be even more important than coverage due to the potential for the quality of transit service in an area to be inadequate to meet need or demand.

★ **Even the shortest headways on the MACS Transit fixed route bus system can result in long waits for riders.** Peak headways on even the most productive MACS bus lines (Blue, Brown, Purple, and Red) are 30 minutes, which can still result in significant wait times. See the "Service Overview" section for discussion and definition of bus line productivity.

★ **Headways on some MACS Transit bus lines increase significantly in the mornings and evenings.** Headways are generally longer outside of peak midday hours, up to 60 or even 90 minutes even on the most productive MACS bus lines. This makes it more difficult for riders to use the MACS system outside of relatively short timeframes when headways are at their peak.

★ **Some high demand and high equity need areas are served by bus lines with long headways and/or limited spans with large breaks in service.** For example, the area around the Yellow and Grey Lines provide only limited service at 60-minute headways and large gaps in service.

★ **Loop routes and deviations result in less direct travel and increased travel times.** The four most productive MACS bus lines (Blue, Brown, Purple, and Red) operate as loops. This can significantly impact travel times, especially on the Brown and Purple Lines that do not have complementary loop service as seen with the Red and Blue lines.

★ **Some MACS bus lines include deviations that result in indirect travel and increase travel times.** Some of these deviations may be necessary to serve pockets of demand and provide equitable access and may at times represent the best use of current MACS resources. However, deviations on some lines may be worth examining for efficiency and potential improvements.

★ **Weekend service is not currently provided.** Weekend service is vital for reliable access to jobs and services, especially at employment locations such as retail establishments that tend to be busy on weekends.

★ **Service spans may not run late enough for some trip types.** Like weekend service, operating bus service early enough and late enough is essential to providing viable transportation to jobs and services.

★ **The convenience of Van Tran's scheduling, eligibility, and service timing may be improved.** Van Tran provides service to those not able to use the fixed route system, and although it operates on an on-demand basis the service quality of those trips may need to be assessed for potential improvements.

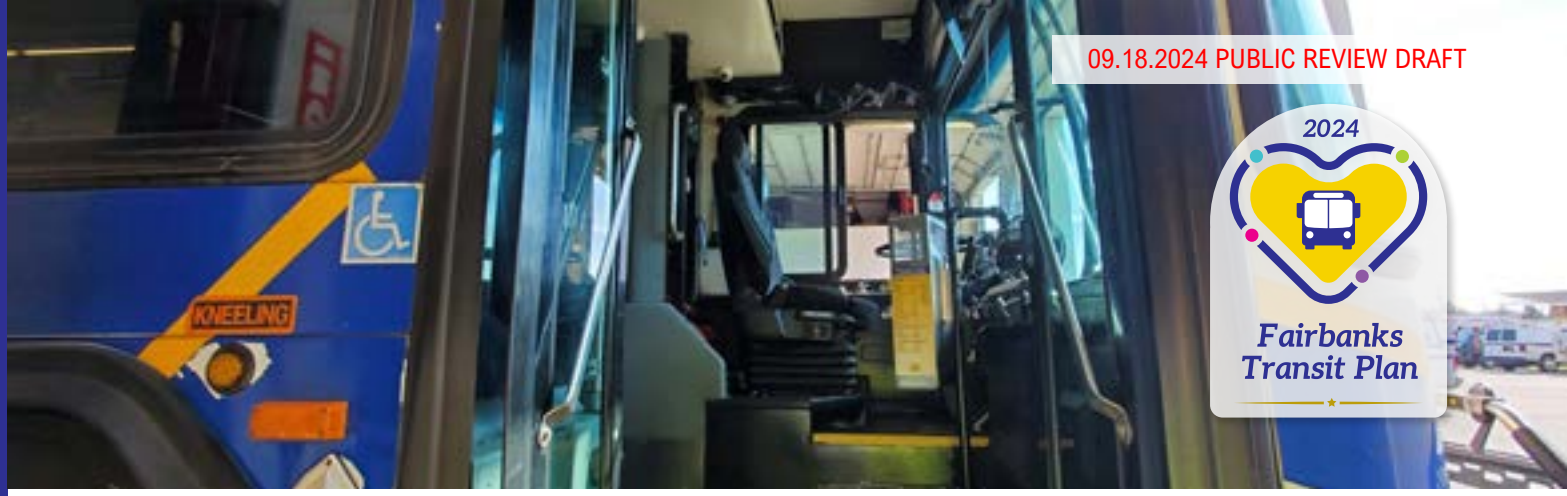
Connectivity

As discussed in the Connectivity section, riders need to be able to reach bus stops safely and comfortably. Connectivity can be improved through efforts such as safer and more comfortable bike and pedestrian infrastructure and crossings (including ADA enhancements), improved lighting, bus stop amenities, snow removal practices that prioritize bus stop accessibility, and thoughtful bus stop placements that allow the bus system to reach as many people as possible.

★ **Many bus stops are difficult or uncomfortable to reach under current roadway conditions, even those that receive relatively high service quality.** As shown in the pedestrian connectivity maps in the Existing Conditions Report, many bus stops may be well-connected to the street network (shown as high "unadjusted connectivity ratios") but are not easily or comfortably reachable on foot (shown as stops with low "LTS-adjusted connectivity ratios"). This suggests a need for pedestrian connectivity improvements to these stops bus stops to improve accessibility, especially outside of downtown.

★ **Some bus stops are not well-connected to the surrounding street network.** Bus stops that have low "LTS-adjusted connectivity ratios" scores are stops that would be difficult to access even if roadway conditions were improved. In some cases, this may be due to a disconnected street network. These bus stops may benefit from being re-assessed to make sure that they are in the best possible locations for connectivity purposes.

★ **Large arterials are a connectivity barrier in the FNSB.** The Level of Traffic Stress (LTS) analysis highlights that large arterial roadways are uncomfortable for pedestrian and bicycle travel in the FNSB. Considering improvements to pedestrian and bicycle crossings along these arterials, especially in the vicinity of bus stops, may improve connectivity to and from the MACS fixed route bus network.



5. Transit Needs and Opportunities

The Needs Analysis expands upon the gaps identified in the Existing Conditions report and considers feedback from the community and stakeholders. The result is a list of needs and opportunities that directly inform the Transit Plan Update's final recommendations.

Findings from the Needs Analysis are briefly discussed below, with more details in the full Needs Analysis report in Appendix C.

Needs

This Needs Analysis examines specific needs for the MACS Transit fixed route system and Van Tran demand-response service and explores potential solutions that could help meet those needs. The results of this analysis are how the services of these agencies could look if current operator shortage and funding gaps are resolved, issues which emerged in part during the COVID-19 pandemic. This report also considers winter maintenance and pedestrian and bicycle access to MACS Transit facilities.

The needs and findings in this analysis are derived from the results of the Rider Survey, the Existing Conditions Report, and the plan's Vision, Goals, and Objectives. In particular, the Gaps section of the Existing Conditions Report informed many of the needs identified in this report.

The needs identified in this report are divided into the following categories:

1. Operational Needs
2. Fixed Route Service Needs
3. Demand Response Needs
4. Transit Corridor Needs

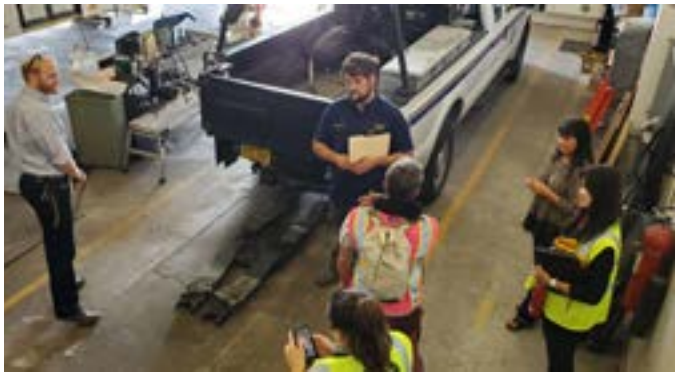


Figure 30: Planning team speaks with MACS employees

This report also considers and references the results of the Winter Maintenance and Access to Transit studies, which are analyzed in the Special Studies section. The resulting recommendations are summarized below after the four needs categories.

Operational Needs

Staff Recruitment and Retention

MACS Transit faces challenges recruiting and retaining drivers which has resulted in reduced service levels, hampers its ability to reliably service its routes, and can dampen morale among existing drivers.

Stop Inventory and Data Collection

- ★ Comprehensively analyze existing resource utilization and scheduling.
- ★ Enhance transit system data collection and analysis technology and practices.
- ★ Develop a method to regularly inventory MACS Transit bus stops and update the system's General Transit Feed Specification (GTFS).
- ★ Develop a System for Real Time Bus Tracking.

Funding

- ★ Collaborate with the FNSB and other localities to identify additional local funding.
- ★ Some federal funding programs may provide increased capacity. MACS Transit could continue to investigate the following Federal funding opportunities:
  - Flexible Funding for Transit and Highway Improvements
  - Access and Mobility Partnership Grants
  - Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities (Formula Funds)
  - Formula Grants for Rural Areas
  - Grants for Buses and Bus Facilities Program
  - Low or No Emissions Program
- ★ FAST Planning may be able to assist with targeted funding for different vehicle types.

Fare Systems

Fare Options

- ★ Consider providing weekly and annual pass options.
- ★ Continue to pursue electronic fare payment options.
- ★ Consider fare capping.
- ★ Investigate expanding free fares to specific groups.

Fixed Route Service Needs

General Systemwide Needs

Weekend Service

Lack of weekend service can leave travelers with few options on Saturdays and Sundays.

Service Frequency

Existing service levels on the MACS Transit fixed-route system often do not accommodate varying rider schedules.

Service Span

Existing service span on the MACS transit fixed-route system often does not include early, midday, or late trips, which limits travelers who want to travel for work, to study, or for other reasons at times outside peak periods. This also tends to provide more service to conventional "9 to 5" commuters with fewer resources devoted to non-work trips and shift workers, which can be an equity issue.

Transfer Points

Transfer points outside of the downtown Transit Center are owned privately, which means MACS Transit has limited ability to improve or alter those facilities to support their operations.

Fixed Route System

Rural Connector Routes

Beyond the current fixed route system, there may be opportunities for MACS Transit to increase fixed route coverage to areas beyond the Cities of Fairbanks and North Pole.

Brown Line

The Brown Line provides essential coverage to Fairbanks neighborhoods north of the Chena River; however, the route is circuitous and provided as a one-way loop, which limits its utility and complicates travel planning.

Red and Blue Lines

- ★ The Red and Blue Lines provide indirect service.
- ★ Combine the services: consider consolidating Red Line and Blue Line services.
- ★ Reconsider route deviations: route deviations may confuse riders and make their journeys longer and less predictable.

Orange Line

Consider extending the Orange Line further east to allow the Purple Line to focus on the areas around downtown.

Purple Line

Consider shortening the Purple Line and provide bidirectional service to reduce out of direction travel.

Yellow Line

The existing service on the Yellow Line provides coverage to many destinations west of Fairbanks, including the airport and the university, but this service is infrequent and circuitous.

New Fixed Route Services

- ★ Rethink service to Fort Wainwright through Steering Committee consultations.
- ★ Provide a connection to the Alaska Railroad Fairbanks Depot.

Figure 31: Max C. Lyon Transit Center

Demand Response Needs

- ★ Expand capacity for "B" & "C" service categories.
- ★ Simplify the Van Tran application process or provide even more application support.
- ★ Develop a "clearinghouse" and create a Human Services Transportation Coordinator role to help riders navigate multiple providers.

Transit Corridor Needs

Systemwide Accessibility Improvements

- ★ Focus on improving pedestrian and bicycle connections to high need MACS Transit bus stops.
- ★ Upgrade select high-ridership MACS Transit bus stops with amenities that enhance the ridership experience. High ridership stops with connectivity needs can be viewed in Table 10.
- ★ Improve winter maintenance practices to provide year-round bus stop accessibility.

Corridors

Corridor-level improvements on the roadways below could increase accessibility more broadly and efficiently for some MACS Transit lines.

- ★ Farmers Loop Road between Steese Highway and Alumni Drive
- ★ Airport Way between Fairbanks International Airport and Steese Highway
- ★ Badger Road between Richardson Highway and North Pole City Limits
- ★ Danby Street between Wembley Avenue and College Road
- ★ College Road between University Avenue and Johansen Expressway
- ★ 30th Avenue between Lathrop Street and Cushman Street
- ★ University Avenue between College Road and Davis Road

6. Special Studies

Winter Maintenance

MACS Transit

MACS transit provides transit service throughout the winter and must have vehicles ready for heavy snowfall conditions. The agency recognizes that there are several challenges facing the agency during periods of heavy snowfall:

1. Bus stops can become covered in snow and ice until the snow is removed by the City of Fairbanks or Alaska DOT&PF. MACS Transit has a designated employee who removes snow from bus shelters and boarding pad. This employee also plows the parking lot at the transportation garage and the Downtown Fairbanks Transit Center. If necessary, other employees can help with snow removal; however, this would require them to be pulled away from their regular duties.
2. Fat tire bikes are not currently accommodated on bus bike racks, but the agency is working to accommodate them in the future.

Van Tran

Van Tran operates a demand-response service that provides rides to residents throughout the FNSB, making it particularly susceptible to service disruptions during periods of heavy snowfall. Accordingly, Van Tran reported they cannot provide service to certain areas during periods of heavy snowfall.

Winter Maintenance Recommendations

1. Regional Coordination of Snow Removal.
2. Removal of Snow on Active Transportation Facilities
3. Van Tran Service
   - ★ Map the locations of the address points for internal use and share another map without the addresses but with information on which routes need to be cleared. This could take the form of a heat map or similar.
4. Behavior Change
   - ★ "Adopt-A-Sidewalk" program could improve connections to transit.
5. FTA Flex Funding Use for Snow Removal Program

Transit Stop Accessibility Assessments

As part of the existing conditions report, the project team performed an accessibility and connectivity analysis of bus stops in the MACS transit system. Each bus stop on the MACS system was analyzed in comparison to the surrounding street network to find out the areas reachable by a person walking 10 minutes along the street network.

Median monthly ridership over a 5-year period for each bus stop was also calculated as part of the existing conditions report, providing insight into which stops may be most important for MACS riders. These metrics can be combined to understand where improvements can be prioritized to benefit the most travelers in terms of connectivity, accessibility, and ridership.

High Pedestrian Need Bus Stops

The project team analyzed the pedestrian connectivity ratios for bus stops with high ridership. The factors that produce low pedestrian connectivity scores may include a disconnected street grid, a high number of vehicle lanes on adjacent roadways, or the absence of active (bicycle or pedestrian) transportation facilities. Considering that while a low accessibility score may be partially attributed to one or more of these factors, this may not be the complete picture.

High Bicycle Need Bus Stops

Similar to high pedestrian need bus stops, there are several bus stops throughout the FNSB that demonstrate high needs for people traveling by bicycle. The project team analyzed the bicycle connectivity ratios for bus stops with high ridership. Factors that may contribute to low connectivity for people traveling by bicycle are similar to those that inform the pedestrian scores but differ in several ways. For one, bicyclists can travel a greater distance to reach bus stops, which expands the travel shed.

High Need Corridors

Examining accessibility at the corridor level may give FAST Planning the opportunity to identify where improvements can be made along roadways to make walking and biking to transit stops easier. The project team observed bus stops with low connectivity ratios along the following roadway corridors along with high pedestrian level of traffic stress scores (least comfortable).

1. Danby Street between Wembley Avenue and College Road
2. University Avenue between College Road and Davis Road
3. 30th Avenue between Lathrop Street and Cushman Street
4. Badger Road between Dennis Road and Bradway Road
5. College Road between University Avenue and Aurora Drive

Notably, Airport Way is another corridor with an elevated LTS score for both bicyclists and pedestrians. There are no MACS transit stops on this corridor; however, many stops are located on adjacent frontage roads. The corridor serves as a major east-west conduit for travel within Fairbanks, but also acts as a barrier for pedestrian and bicyclist travel and bus stop access.

Table 8: Top 20 High Pedestrian Need Stops

Transit Stop	Stop #	Disconnected Street Grid / Long Blocks	HIGH Number of Vehicle Travel Lanes	Absence of Active Transport Facilities	Ped Connectivity Score	Bicycle Need	Median Monthly Ridership	Notes
Airport	728	Yes	No	Yes	0.021	Yes	46	
Old Steese @ Safeway Gas	284	Yes	Yes	Yes	0.021	Yes	110	
College Rd. @ Aurora Motel	262	Yes	Yes	No	0.022	Yes	47	
Bentley Mall parking lot	475	No	Yes	No	0.022	Yes	206	
Old Steese @ Cornerstone Mall	112	No	Yes	No	0.022	Yes	87	
University Ave @ Holiday Apts	164	Yes	Yes	Yes	0.032	No	54	Lacks marked pedestrian crossing of University Avenue
Herb Miller Rd Eastside - (Walmart/Lowes)	117	Yes	No	No	0.034	Yes	446	
Herb Miller Rd Westside - (Walmart/Lowes)	279	Yes	No	No	0.034	Yes	625	
College Rd @ Geraldo's Rest.	275	No	Yes	Yes	0.037	Yes	100	
Old Steese @ Timberland (Gavora Mall)	110	Yes	No	No	0.042	Yes	86	
College Rd. @ Hayes Ave	153	No	Yes	Yes	0.048	Yes	76	Lacks marked pedestrian crossing of College Rd
College Rd. @ Mike's Chevron	254	No	Yes	Yes	0.050		61	Lacks marked pedestrian crossing of College Rd
College Rd. @ Creamer's Field	127	Yes	Yes	Yes	0.051	Yes	53	
Davis Rd @ Jillian Square Apts	714	Yes	Yes	Yes	0.051	Yes	84	Serves a large apartment complex. Lacks marked pedestrian crossing of Davis Rd.
Fred Meyer West	167	Yes	No	No	0.053	No	1446	
College Rd. @ Kathryn	271	Yes	No	No	0.055	Yes	71	Lacks marked pedestrian crossing of College Rd
University Ave @ Sandvik	240	Yes	No	No	0.056	No	71	Lacks marked pedestrian crossing of University Ave
Aurora Dr. @ Tamarack St.	263	No	No	No	0.066	Yes	48	
College Rd. @ Westwood Way	256	Yes	Yes	No	0.066	Yes	91	Lacks marked pedestrian crossing of College Rd
Cowles St @ Fbks Mem. Hospital	439	Yes	No	No	0.069	No	78	

Table 9: Top 20 High Bicycle Need Stops

Transit Stop	Stop #	Unconnected Street Grid / Long Blocks	Number of Vehicle Travel Lanes	Absence of Active Transport Facilities	Bike Connectivity Score	Ped Need	Median Monthly Ridership	Notes
Airport	728	Yes	No	Yes	0.028	Yes	46	
Bentley Mall parking lot	475	No	Yes	No	0.037	Yes	206	
College Rd @ Geraldo's Rest.	275	No	Yes	Yes	0.060	Yes	100	
Herb Miller Rd Eastside - (Walmart/Lowes)	117	No	No	No	0.071	Yes	446	
Herb Miller Rd Westside - (Walmart/Lowes)	279	Yes	No	No	0.071	Yes	625	
College Rd. @ Kathryn	271	Yes	No	No	0.080	Yes	71	Lacks marked pedestrian crossing of College Rd
College Rd. @ Creamer's Field	127	Yes	Yes	Yes	0.080	Yes	53	
Davis Rd @ Jillian Square Apts	714	Yes	Yes	Yes	0.081	Yes	84	Serves a large apartment complex. Lacks marked pedestrian crossing of Davis Rd.
Aurora Dr. @ Tamarack St.	263	No	No	No	0.100	Yes	48	
College Rd. @ Aurora Motel	262	Yes	Yes	No	0.104	Yes	47	
College Rd. @ Hayes Ave	153	No	Yes	Yes	0.124	Yes	76	
College Rd. @ Westwood Way	256	Yes	Yes	No	0.130	Yes	91	Lacks marked pedestrian crossing of College Rd
University Ave. @ Sophie Plaza	752	No	Yes	Yes	0.135	No	71	No pedestrian crossing until Rewak Dr
Old Steese @ Safeway Gas	284	Yes	Yes	Yes	0.152	Yes	110	
Washington @ Bank	228	Yes	No	No	0.156		72	
Old Steese @ Cornerstone Mall	112	No	Yes	No	0.157	Yes	87	
Helmericks Ave @ Mt McKinley Bank	115	Yes	No	Yes	0.159	No	98	
Helmericks Ave (Mt McKinley Bank)	281	Yes	No	Yes	0.160	No	150	
College Rd. @ Hess St.	250	Yes	Yes	No	0.161	No	217	No pedestrian crossing of College Rd
Old Steese @ Timberland (Gavora Mall)	110	Yes	No	No	0.167	Yes	86	

Table 10: Top 5 Highest Ridership Stops

Transit Stop	Stop #	Monthly Median Ridership	Ped Connectivity Score	Bike Connectivity Score
Fred Meyer West	167	1446	0.053	0.053
Transit Center	101	1090	0.381	0.381
Herb Miller Rd Westside - (Walmart/Lowes)	279	625	0.034	0.034
Lacey St @ Parking Garage	103	498	0.417	0.417
Herb Miller Rd Eastside - (Walmart/Lowes)	117	445.5	0.034	0.034

Figure 32: MACS Bus in service

7. Vision, Goals & Objectives

A vision for the transit system laid the foundation for the plan, guided the goals and objectives, and provide a tool for prioritizing future transit funding needs. Several meetings with the internal project management team, FNSB Transportation staff, the Steering Committee, and feedback from Public Workshop #1 were instrumental in crafting and refining the vision statement and goals and objectives for the transit system.

Transit Vision

The MACS Transit system is an investment in our subarctic communities, connecting people with opportunities through access to jobs, healthcare, education, and destinations, with dependable, inclusive, safe, and equitable service in all seasons.

Transit Goals & Objectives

Goal 1

Maximize transit system efficiency.

Objective 1A
Ensure adequate funding to maintain and rehabilitate existing transit infrastructure, equipment, and assets to facilitate year-round access.

Objective 1B
Continually evaluate system performance to ensure effective, efficient, and dependable service delivery.

Objective 1C
Provide service levels adequate to meet transit system goals and objectives and evaluate those service levels on a route-by-route basis. For example, routes with limited service or infrequent service may be evaluated through different service standards than routes with regular (all day) or frequent service.

Objective 1D
Provide complementary paratransit services to maintain federal funding eligibility by complying with the Americans with Disabilities Act (ADA).

Goal 2

Provide accessible, equitable service in all seasons.

Objective 2A
Continuously identify opportunities to improve the accessibility of the system for people of all ages and all abilities.

Objective 2B
Consult relevant equity-related demographic measures to provide service and amenities where they are needed most.

Objective 2C
Continue year-round system accountability in the Borough's subarctic climate.

Objective 2D
Maintain current fare policy to avoid burdening vulnerable populations.

Objective 2E
Ensure that underrepresented groups, including Limited English Proficiency (LEP) populations, are included in transit planning processes and decision-making considerations.

Goal 3

Connect the MACS system to destinations through the wider transportation network.

Objective 3A
Improve MACS and transit-supporting infrastructure in accordance with Americans with Disabilities Act (ADA) requirements and Universal Design best practices to increase connectivity for people with disabilities.

Objective 3B
Promote bicycle and pedestrian connections to bus stops to improve access for all riders.

Objective 3C
Strategize and implement ways to maximize connectivity within the MACS network through efficient transfers on higher frequency routes or reliable one-seat rides on routes with limited service.

Objective 3D
Coordinate transportation changes at UAF, Airport, railroad terminal, Wainwright, hospital, educational centers/schools, grocery stores, recreation destinations, etc.

Goal 4

Connect riders with economic opportunities and continue to bring economic benefits to the Borough.

Objective 4A
Provide a level of service in areas with high populations and job densities that effectively connect people to employment.

Objective 4B
Increase access to essential services such as healthcare and education that improves lives and benefits the regional economy.

Objective 4C
Provide a feasible mobility option for visitors and tourists that contribute to the Borough's economy.

Objective 4D
Make the Borough more affordable for a variety of workforce income levels by reducing the cost of transportation through practical transit commuting options.

Objective 4E
Invest in MACS Transit as the economic opportunity it is, including providing jobs supporting MACS maintenance and operations and capital project construction.

Goal 5

Coordinate transit decisions with local and regional planning priorities.

Objective 5A
Coordinate land use planning and roadway improvements with transit service, ensuring transit needs are integrated in planning and design of transit-oriented streets and roads.

Objective 5B
Encourage transit-supportive development to expand transportation options, improve access to bus stops, encourage transit use, improve pedes-

trian, and bicycle travel, and promote affordable housing along transit routes.

Objective 5C
Ensure transit needs are integrated into regional funding decisions, such as through the State Transportation Improvement Program (STIP), local TIP and Unified Planning Working Program (UPWP).

Goal 6

Protect the environment, improve air quality, and promote alternate fuels.

Objective 6A
Increase transit ridership to help improve air quality, attainment of National Air Quality Standards (NAAQS) and reduce greenhouse gas emissions.

Objective 6B
Improve climate change resiliency by providing additional mobility options and reducing the amount of land necessary to accommodate the Borough's growing population.

Objective 6C
Protect the Borough's natural environment by considering and reducing potential negative impacts of transit vehicles and supporting facilities as practical.

Goal 7

Develop a plan for Communication, Education, and Awareness

Objective 7A
Provide necessary staffing to implement SAS (Statistical Analysis System) Technology and communication, education, and awareness efforts.

Objective 7B
Establish a marketing campaign to increase awareness of transportation resources in the Borough.

Objective 7C
Support access to community services through education and awareness (host meetings, travel training, webinars, info distribution materials, etc.).

Objective 7D
Develop education materials on all mobility options, including partners.

Objective 7E
Centralize and develop consistent information about transportation and transit services.

Goal 8

Provide a level of service so that MACS Transit is dependable, welcoming, consistent, and preferred transportation.

Objective 8A
Proactively address safety issues to ensure the transit system is welcoming and can be used comfortably by all.

Objective 8B
Continue to minimize service interruptions and meet advertised schedules.

Objective 8C
Identify strategies to ease personal transportation during inclement weather and road conditions.

Objective 8D
Develop safe and comfortable bus stops and facilities that consider factors such as pedestrian-scale lighting, adequate sight lines, and climate exposure.

Objective 8E
Incorporate the needs of transit riders into street design to promote safe and comfortable access between bus stops and surrounding destinations.

Objective 8F
Buses and shelters are clean, comfortable, and well-maintained.

8. Recommendations & Implementation Strategies

Recommendations for the 2024 Transit Plan

The following sections outline recommendations that FAST Planning, MACS Transit & Van Tran, and partner agencies can pursue to address the needs outlined in the needs analysis.

MACS Transit & Van Tran recommendations are categorized as either "constrained" or "unconstrained." For the "constrained" scenario, the constraining factor is continued operator and administrative staffing limitations at MACS Transit and Van Tran. In the "unconstrained" scenario, improved staffing and resource levels are assumed.

Recommendations come from a variety of sources throughout the project which may include the rider survey, the existing conditions report, the operator survey, and the Needs analysis.

MACS Transit & Van Tran

Constrained Recommendations

1. **Continue to pursue federal funding programs to provide increased capacity.** MACS Transit can strategically pursue funding opportunities that, if awarded, would help the agency achieve other recommendations within this list. Relevant funding opportunities include the Flexible Funding for Transit and Highway Improvements program, Access to Mobility Partnership Grants, Section 5310 Formula Funds, Formula Grants for Rural Areas, Grants for Buses and Bus Facilities Program, and the Low or No Emissions Program. Additional funding can be used to increase investment in the transit system which will support future development and density increases. This recommendation is discussed in the Needs Analysis. Please see the Potential Funding Sources for Implementation section of this chapter for a list of relevant funding opportunities.
2. **Work with FAST Planning and the Fairbanks North Star Borough to increase local funding for transit.** Increasing local funding for MACS Transit and Van Tran (beyond matching funds) may increase the system's flexibility and allow it to better respond to rider needs without an overreliance on State of Alaska or federal funding sources. Increased local funding could be particularly useful if used to improve or sustain transit service levels, since federal funding sources often focus on capital improvements. This recommendation is discussed in the Needs Analysis.

3. **Implement a new, comprehensive Software as a Service (SaaS) platform.** Access to an updated SaaS platform will allow MACS Transit and Van Tran to track, analyze, and share system-related data more efficiently and effectively. Capabilities of the new platform should include the items listed below, which were identified as priorities in the Needs Analysis.
   - ★ Electronic fare payment options. Providing electronic fare payment options increases the accessibility of the MACS Transit system, may increase the efficiency of passenger boarding, and allows for fare capping. This issue was brought up in the rider survey and discussed in the Needs Analysis.
   - ★ Fare capping. Set a limit after which passengers will no longer be charged at certain intervals, such as daily, weekly, or monthly travel. This change has the potential to reduce cost burdens on frequent riders and is a tool used by other transit agencies. This recommendation comes from the Needs Analysis.
   - ★ Pre-trip and post-trip reports and incident reporting. Drivers currently log many routine processes on paper forms which decreases efficiency and increases administrative burden. Bringing these processes into an electronic system can save time and staff resources that can be deployed elsewhere.
   - ★ Driver scheduling and bidding processes. Having a comprehensive software service that can automate aspects of schedule development and drive bidding for both MACS Transit and VanTran can help increase operational efficiency, and may help if the agencies ever needed to balance drivers between the two agencies.
   - ★ New process for inventorying MACS Transit bus stops and updating the system's General Transit Feed Specification (GTFS). High quality data can give MACS Transit and other agencies the tools they need to make decisions that impact service and operations of their agencies. MACS Transit may choose to install new software and consider what similar sized American transit operators are doing for data collection. Installing such software can help increase the efficiency of operations and help unburden existing staff. Additionally, an electronic comment system can be developed that allows transit users to submit present issues around the transit system which may include reporting on shelter condition, cleanliness of buses, etc. This recommendation comes from the Needs Analysis.
4. **Incentivize recruitment and staff retention.** Interviews with staff at MACS Transit and Van Tran have revealed that the agency struggles to recruit and retain drivers. Refer to the Needs Analysis which describes in detail strategies that can be used to bolster recruitment and retention. Examples of strategies include narrowing the current pay gap between bus and demand-response vehicle drivers.
5. **Consolidate and reduce route deviations along the Red and Blue Lines.** The Red and Blue lines provide complementary service in clockwise and counterclockwise directions; however, having them branded as two distinct lines can confuse travelers. Furthermore, route deviations that stray significantly from the routes of the two lines can make round trips complicated. This recommendation comes from the findings of the rider survey, existing conditions report, and discussed in the Needs Analysis.
6. **Simplify the Van Tran application process or provide even more application support.** Simplify the application form and advertise FNSB Transportation's ability to provide appli-

cation assistance. Refer to the Needs Analysis for more information.

Unconstrained Recommendations

1. Expand capacity for "B" and "C" service categories for Van Tran. Expanding category "B" and "C" Van Tran coverage to improve accessibility for people living outside the minimum ¾ mile service radius and for people without disabilities that are over 60 years old. Refer to the Needs Analysis for more information.
2. Reinstitute Saturday fixed route service and add Sunday fixed route service. This could start with relatively productive and busy lines such as the Red, Blue, Brown, and Purple lines, followed by other lines that experience less usage. The lack of weekend service was a major concern brought up in the Rider Survey and is addressed in the Needs Analysis.
3. Increase service span on the MACS transit fixed-route system to offer earlier and later trips. Some routes, particularly the Yellow, Orange, and Grey Lines, operate on a limited schedule that limits rider mobility. Others do not offer service later in the evening. Extend service spans to avoid large gaps in service and provide later trips for the Blue, Brown, Purple, and Red Lines. This recommendation does not apply to the Green Line. Refer to the Needs Analysis for additional details about this proposal.
4. Improve the frequency of the Red and Blue lines so they run every 15 minutes or better during peak weekday periods. Increased frequency provides travel options to transit riders which in turn increases the value of the transit system. It also increases the ability of travelers to make connections between transit lines with minimal waiting time. Refer to the Needs Analysis for additional details about this proposal.
5. Provide bidirectional service on the Brown and Purple Lines and improve service to every 15 minutes or better for during peak weekday periods. The Brown and Purple Lines are two of the most productive MACS Transit routes and are currently served by one interlining bus. These two routes used to be composed of a single route. Combining these lines and providing bidirectional service could improve frequencies and greatly reduce out of direction travel. Service on one line may increase efficiency of the line by allowing for a shorter layover time at the Transit Center.
6. Extend the Orange Line east to Easy Street and west to Chena Pump Road. This change would decrease out of direction travel and, along with the other route changes on this list, reduce redundancies with the Purple Line. Refer to the Needs Analysis for additional details about this proposal. This recommendation originates from findings from the existing conditions report and the needs analysis.
7. Reroute the Purple Line to serve only neighborhoods north of the Parks Highway. This change would decrease out of direction travel and, along with other changes on this list, reduce redundancies with the Orange Line. Refer to the Needs Analysis for additional details about this proposal.
8. Reroute the Yellow Line to focus on service between the Fairbanks International Airport and Downtown Fairbanks and increase its frequency to 15 minutes or better during peak weekday and weekend periods. There used to be Yellow Line service between the airport and Downtown Fairbanks; however, this was discontinued. In coordination with the addition of Orange Line service to Chena Pump Road, this change would decrease out of direction travel and reduce redundancies with the Red and Blue Lines while offering greater mobility for airport employees and passengers. Refer

to the Needs Analysis for additional details about this proposal.

9. Consider opportunities to improve access for populations with high need and ridership potential. Strategically providing complimentary transit passes on a limited basis to groups such as seniors, people with disabilities, students, and people attending special events, such as World Eskimo Indian Olympics or the Alaska Federation of Natives Convention, will likely directly benefit these groups and increase ridership. Additionally, MACS Transit could work directly with large employers such as Fairbanks International Airport, University of Alaska Fairbanks, and Fairbanks Memorial Hospital to distribute transit passes to their employees. Improving accessibility for some groups may also contribute to future the system's future relevance and ridership potential by increasing awareness and providing an enhanced base of support. Note that this action may require mayoral, assembly, and grant program support for completion.
10. Identify MACS Transit bus stops for improved rider amenities such as shelters. To provide increased comfort and weather protection at select bus stops, improve amenities at high-need bus stops throughout the system. These high-need bus stops are identified in the Needs Analysis. Additionally, the agency can continue efforts to install fat bike racks on their bike fleet.

FAST Planning & Partnering Agencies

1. **Work with the FNSB, AKDOT&PF, and MACS Transit to construct pedestrian crossing treatments at high ridership bus stops that currently lack marked crosswalks.** In the near term, improvements at the following locations have the potential to make the greatest impact to riders:
   - ★ Stop 153 – College Rd @ Hayes Ave
   - ★ Stop 164 – University Ave @ Holiday Apts
   - ★ Stop 254 – College Rd @ Mike's Chevron
   - ★ Stop 256 – College Rd @ Westwood Rd
   - ★ Stop 271 – College Rd @ Kathryn
   - ★ Stop 714 – Davis Rd @ Jillian Square Apts
   - ★ Stop 752 – University Ave. @ Sophie Plaza

   These stops were among the top ten bicycle or pedestrian high-need high-ridership stops without marked pedestrian crossings of the major roadway, an analysis documented in the Needs Analysis.
2. **Work with the FNSB, AKDOT&PF, and MACS Transit to construct sidewalks, bike lanes, or other active transportation facilities on corridors with low pedestrian connectivity scores on the MACS Transit network, where applicable.** Make improvements along University Ave between College Rd and Davis Road, 30th Ave between Lathrop Street and Cushman St, Badger Rd between Dennis Rd and Bradway Rd, and College Rd between University Ave and Aurora Dr. This recommendation comes from the Transit Stop Accessibility Assessments portion of the Needs Analysis.
3. **Work with the FNSB, AKDOT&PF, and MACS Transit to create new, formalized public transfer points for the fixed route system.** Except for the Downtown Transit Center and UAF, the current transfer points for the MACS Transit network are all located on private property. Creating new transfer points with dedicated transit facilities located on publicly owned facilities will remove uncertainty around these facilities and allow for improvement of the rider experience. Examples of such facilities could be well-designed intersections or off-street facilities depending on system needs and opportunities. This recommendation comes from the Transit Stop Accessibility Assessments portion of the Needs Analysis.

4. **Work with the FNSB, AKDOT&PF, and MACS Transit to perform road diets, intersection, and bus stop accessibility improvements on select corridors with high active transportation and transit ridership potential.** College Rd between University Ave and Johansen Expy is a corridor that should be considered for a road diet, while Old Steese Hwy between Chena River and Johansen Expy, Airport Wy between Parks Hwy and Richardson Hwy should be considered for intersection crossing and bus stop accessibility improvements. This recommendation originates from the Transit Stop Accessibility Assessments portion of the Needs Analysis.
5. **Develop a transportation provider "clearinghouse" and create a Human Services Transportation Coordinator role independent of any of the local agencies to help riders navigate multiple providers.** The Human Services Transportation Coordinator could keep track of transportation providers throughout the FNSB, which could enable agencies operating within the FNSB to provide a virtual and/or telephonic clearinghouse serving as a "one-stop" website or phone number for transportation information. More information provided in the Needs Analysis.

Winter Maintenance Recommendations

The following section includes recommendations for winter maintenance that pertain to all agencies (not just MACS Transit) that are involved with winter maintenance in the transit service area in the Fairbanks North Star Borough.

1. **Pursue FTA Flex Funding for use as a snow removal program. Leveraging this funding source can help agencies in the Fairbanks area increase their funding options for snow removal targeted to improve bus stop accessibility.** Note that snow removal activities may not be used on areas where Van Tran currently operates, but the FNSB does not have roadway authority. This recommendation comes from the Winter Maintenance portion of the Needs Analysis.
2. **Institute adopt-a-sidewalk or adopt-a-stop program to promote a collective spirit around snow removal.** Such programs may be effective in increasing awareness and involvement in snow removal, especially in the case of broader adopt-a-sidewalk programs which facilitate accessibility benefits to bus stops and other destinations. This recommendation comes from the Winter Maintenance portion of the Needs Analysis.
3. **Determine a "core" set of MACS Transit bus routes for priority snow removal that can be published on the MACS Transit website and channels.** The most productive MACS Transit routes should be considered for priority snow removal to make the system accessible for as many riders as possible following a major snow event. This could be expanded to Van Tran as well by prioritizing snow removal in high need or high ridership areas. Having guidelines such as these in place would increase reliability and allow travelers to know what to expect when inclement weather occurs. This determination should coordinate with Borough-wide active transportation and vehicle snow removal priorities and is discussed further in the Needs Analysis.
4. **Invest in new equipment and technology dedicated to removing snow from active transportation facilities.** Investing in new snow removal equipment will increase the ability of the region to clear active transportation facilities. This recommendation comes from the Winter Maintenance portion of the Needs Analysis.

Prioritized Strategies and Plan Implementation

The following tables list the recommendations described above, regrouped into these five categories: 1. Funding & Staff, 2. Technology & Fares, 3. Van Tran, 4. Fixed Route Service, 5. Infrastructure & Winter Maintenance. The tables describe each recommendation's relative priority or timeframe for implementation; who is responsible; and estimated levels of effort, capital cost, and operational cost.

1. Funding & Staff

Table 11a: Category 1 - Funding and Staff

Recommendation	Priority or Timeframe	Responsible Entity	Effort	Capital Costs	Operating/ Staff Costs
A. Continue to pursue federal funding programs to provide increased capacity.	**IMMEDIATE** 6 to 12 Months	Lead: MACS Transit **(Unconstrained)**	**Moderate**	**Low**	**Moderate**
B. Work with FAST Planning and the Fairbanks North Star Borough to increase local funding for transit.	**SHORT-TERM** 1-3 years	Lead MACS Transit **(Unconstrained)**	**Moderate**	**Low**	**Moderate**
C. Incentivize recruitment and staff retention.	**LONG-TERM/ ONGOING** 1-5 years	Lead MACS Transit **(Unconstrained)**	**Moderate**	**Low**	**Moderate**

2. Technology and Fares

Table 11b: Category 2 - Technology and Fares

Recommendation	Priority or Timeframe	Responsible Entity	Effort	Capital Costs	Operating/ Staff Costs
A. Implement a new, comprehensive Software as a Service (SaaS) platform that includes these capabilities: • Electronic fare payment options • Fare capping • Pre- and Post-trip reports and incident reporting • Driver scheduling and bidding processes • New process for inventorying MACS Transit bus stops and updating the system's General Transit Feed Specification (GTFS).	**IMMEDIATE** 6 to 12 Months	Lead: MACS Transit **(Unconstrained)**	**Moderate**	**Low**	**Low**
B. Consider opportunities to improve access for populations with high need and ridership potential.	**IMMEDIATE** 6 to 12 Months	Lead MACS Transit **(Constrained)**	**Low**	**Moderate**	**Low**

3. Van Tran

Table 11c: Category 3 - Van Tran

Recommendation	Priority or Timeframe	Responsible Entity	Effort	Capital Costs	Operating/ Staff Costs
A. Simplify the Van Tran application process or provide even more application support.	**IMMEDIATE** 6 to 12 Months	Lead: Van Tran **(Unconstrained)**	**Low**	**Low**	**Low**
B. Expand capacity for "B" and "C" service categories for Van Tran.	**MID-TERM** 2-4 years	Lead Van Tran **(Constrained)**	**Moderate**	**Low**	**High**
C. Develop a transportation provider "clear-inghouse" and create a Human Services Transportation Coordinator role indepen-dent of any of the local agencies to help riders navigate multiple providers.	**MID-TERM** 2-4 years	Lead Van Tran **(Constrained)**	**Moderate**	**Low**	**Moderate**

4. Fixed Route Service

Table 11d: Category 4 - Fixed Route Service

Recommendation	Priority or Timeframe	Responsible Entity	Effort	Capital Costs	Operating/ Staff Costs
A. Reinstitute Saturday fixed route service and add Sunday fixed route service.	**LONG-TERM/ ONGOING** 1-5 years	Lead MACS Transit **(Constrained)**	**Moderate**	**Low**	**High**
B. Increase service span on the MACS transit fixed-route system to offer earlier and later trips.	**SHORT-TERM** 1-3 years	Lead MACS Transit **(Constrained)**	**High**	**Moderate**	**High**
C. Consolidate and reduce route deviations along the Red and Blue Lines.	**MID-TERM** 2-4 years	Lead MACS Transit **(Unconstrained)**	**Moderate**	**Low**	**Low**
D. Improve the frequency of the Red and Blue lines so they run every 15 minutes or better during peak weekday periods.	**MID-TERM** 2-4 years	Lead MACS Transit **(Constrained)**	**High**	**Low**	**High**
E. Provide bidirectional service on the Brown and Purple Lines and improve service to every 15 minutes or better for during peak weekday periods.	**LONG-TERM/ ONGOING** 1-5 years	Lead MACS Transit **(Constrained)**	**High**	**Moderate**	**High**
F. Reroute the Purple Line to serve only neighborhoods north of the Parks Highway.	**LONG-TERM/ ONGOING** 1-5 years	Lead MACS Transit **(Constrained)**	**High**	**Moderate**	**High**
G. Extend the Orange Line east to Easy Street and west to Chena Pump Road.	**LONG-TERM/ ONGOING** 1-5 years	Lead MACS Transit **(Constrained)**	**High**	**Moderate**	**High**
H. Reroute the Yellow Line to focus on service between the Fairbanks International Airport and Downtown Fairbanks and increase its frequency to 15 minutes or better during peak weekday and weekend periods.	**LONG-TERM/ ONGOING** 1-5 years	Lead MACS Transit **(Constrained)**	**High**	**Low**	**High**
I. Create new, formalized transfer points for the fixed route system.	**LONG-TERM/ ONGOING** 1-5 years	Lead MACS Transit **(Constrained)**	**Moderate**	**Low**	**Low**

5. Infrastructure and Winter Maintenance

Table 11e: Category 5 - Infrastructure & Winter Maintenance

Recommendation	Priority or Timeframe	Responsible Entity	Effort	Capital Costs	Operating/ Staff Costs
A. Identify MACS Transit bus stops for improved rider amenities such as shelters.	**SHORT-TERM** 1-3 years	Lead MACS Transit **(Constrained)**	**Moderate**	**Moderate**	**Low**
B. Transit to construct pedestrian crossing treatments at high ridership bus stops that currently lack marked crosswalks.	**LONG-TERM/ ONGOING** 3-5 years	Lead AKDOT&PF, FNSB, FAST Support MACS Transit	**Moderate**	**Moderate**	**Low**
C. Construct sidewalks, bike lanes, or other active transportation facilities on corridors with low pedestrian connectivity scores on the MACS Transit network, where applicable.	**LONG-TERM/ ONGOING** 3-5 years	Lead AKDOT&PF, FNSB, FAST	**High**	**High**	**Low**
D. Implement road diets, intersection, and bus stop accessibility improvements on select corridors with high active transportation and transit ridership potential.	**LONG-TERM/ ONGOING** 3-5 years	Lead AKDOT&PF, FNSB, FAST	**High**	**High**	**Low**
E. Pursue FTA Flex Funding for use as a snow removal program.	**SHORT-TERM** 1-3 years	Lead AKDOT&PF, FNSB, FAST Support MACS Transit	**Low**	**Low**	**Low**
F. Institute adopt-a-sidewalk or adopt-a-stop program to promote a collective spirit around snow removal.	**SHORT-TERM** 1-3 years	Lead AKDOT&PF, FNSB, FAST Support MACS Transit	**Low**	**Low**	**Moderate**
G. Determine a "core" set of MACS Transit bus routes for priority snow removal that can be published on the MACS Transit website and channels.	**SHORT-TERM** 1-3 years	Lead AKDOT&PF, FNSB, FAST Support MACS Transit	**Low**	**Low**	**Moderate**
H. Invest in new equipment and technology dedicated to removing snow from active transportation facilities.	**MID-TERM** 2-4 years	Lead AKDOT&PF, FNSB, FAST Support MACS Transit	**Moderate**	**High**	**Low**

Benefits & Impacts of Transit Improvements

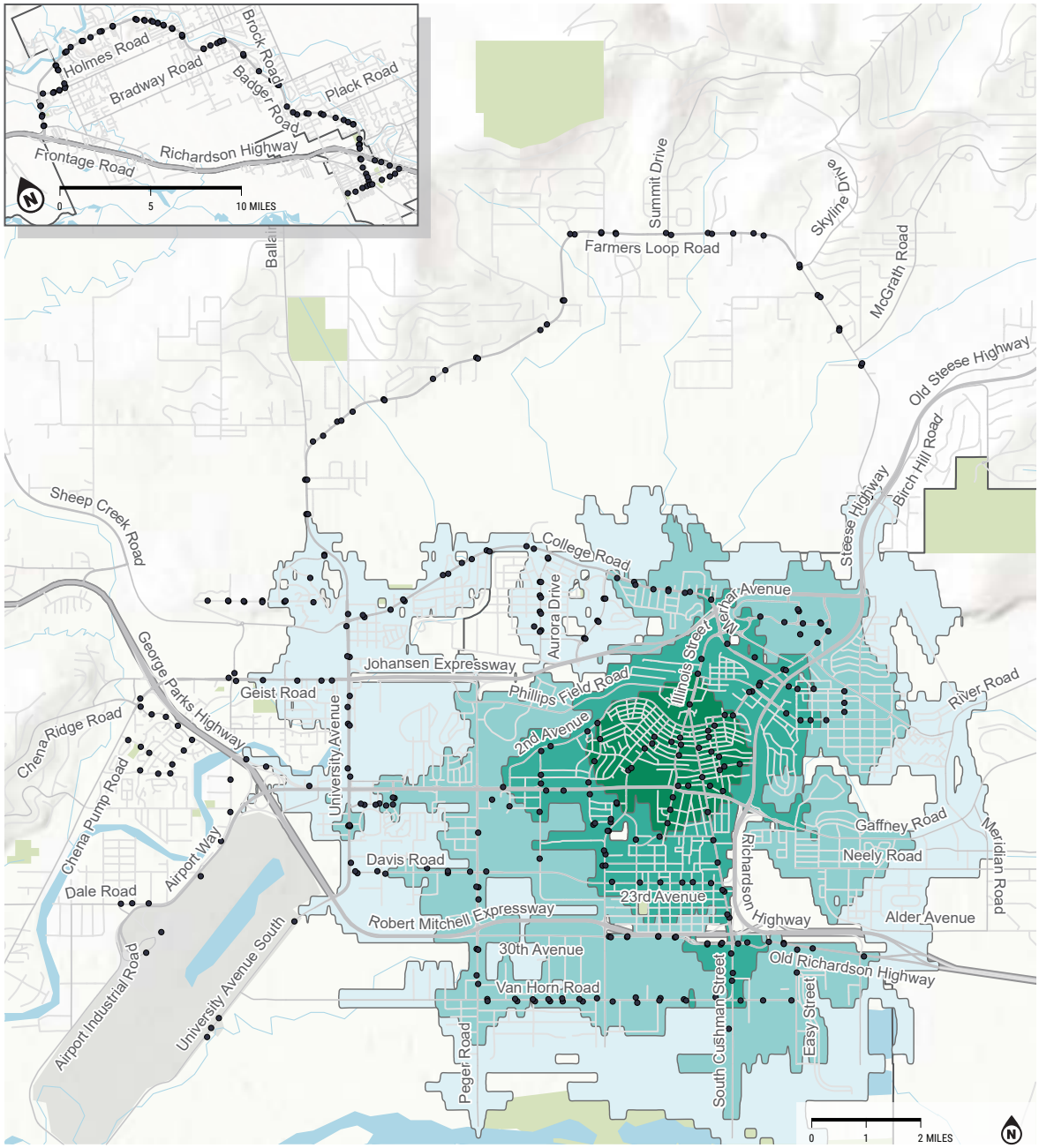
To illustrate the anticipated benefits of implementing plan recommendations, a Benefits and Impacts of Transit Improvements Analysis was conducted for several indicators of transit service quality.

Two map sets show how travel times for the average trip across the transit network could improve as a result of implementing recommendations in the unconstrained resource scenario. The "before" images show the current baseline travel times, each image showing a "transit shed" (or areas reachable by riders) relative to a different point of origin: the downtown Transit Center or the UAF Campus. The "after" images show the transit shed expansion and travel time improvements under future conditions after implementing recommendations under unconstrained resource scenarios.

A benefits summary table follows the transit shed maps, which shows the estimated increase in accessibility that riders would experience if the unconstrained recommendations were implemented.

Benefits & Impacts from the Downtown Transit Center

Baseline Condition

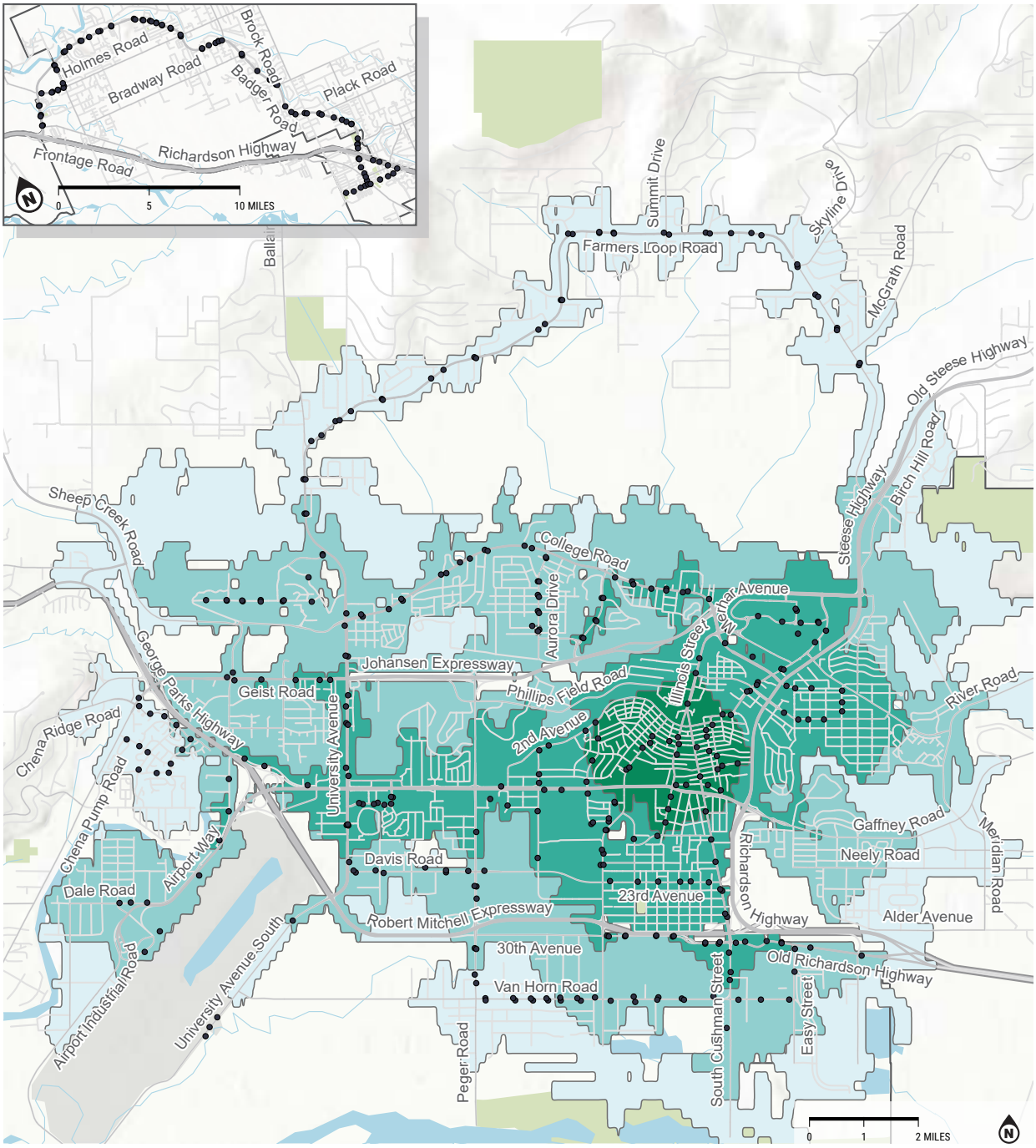


AREAS WITHIN REACH BY THE MEDIAN OF TRANSIT TRIPS FROM DOWNTOWN FAIRBANKS: BASELINE CONDITION

- 0 - 15 Minutes
- 15 - 30 Minutes
- 30 - 45 Minutes
- 45 - 60 Minutes

Figure 33: Areas within reach by the median of transit trips from downtown Fairbanks - baseline condition

Future condition



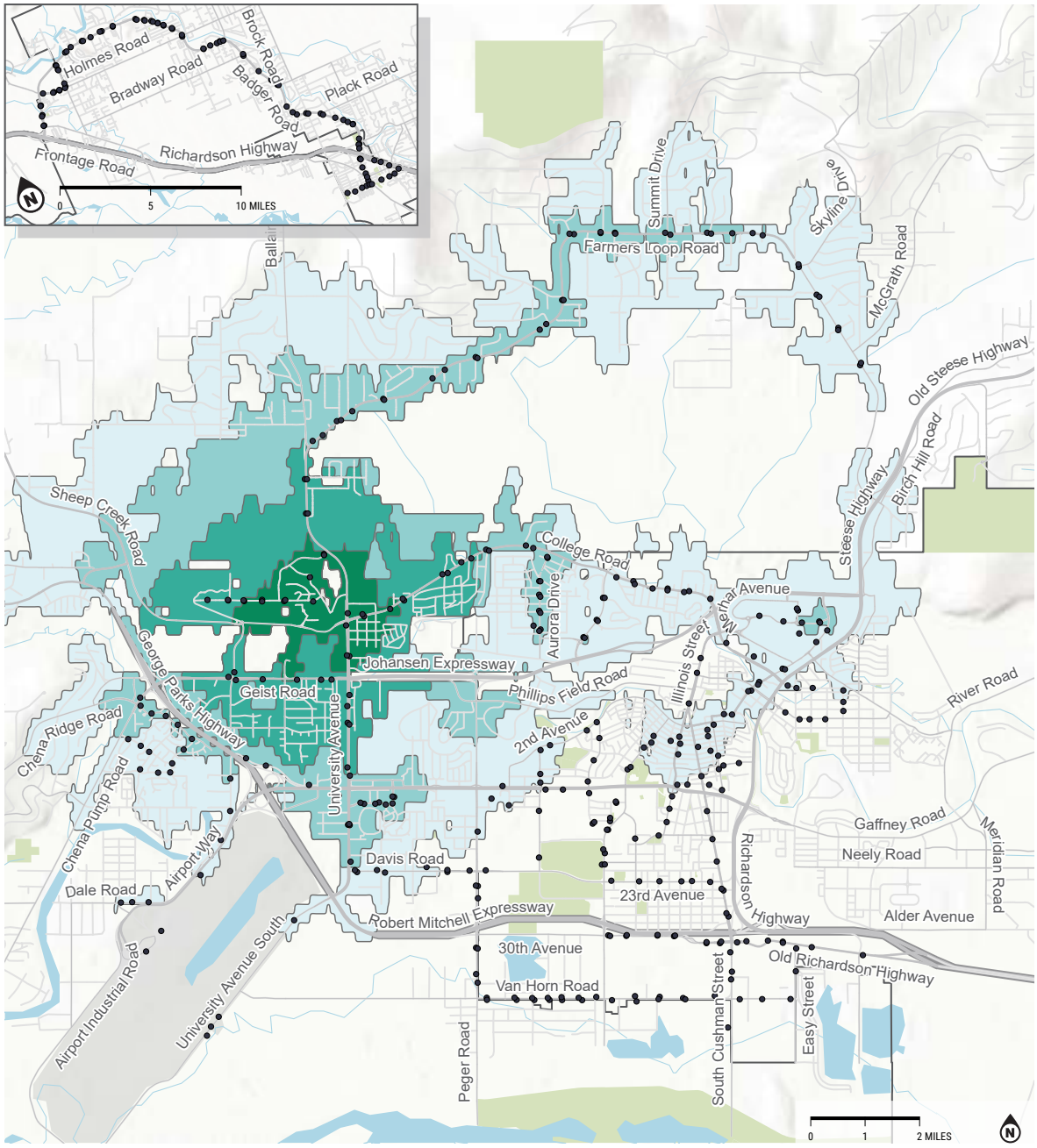
AREAS WITHIN REACH BY THE MEDIAN OF TRANSIT TRIPS FROM DOWNTOWN FAIRBANKS: FUTURE CONDITION

- 0 - 15 Minutes
- 15 - 30 Minutes
- 30 - 45 Minutes
- 45 - 60 Minutes

Figure 34: Areas within reach by the median of transit trips from downtown Fairbanks - future condition

Benefits & Impacts from the UAF Campus

Baseline Condition

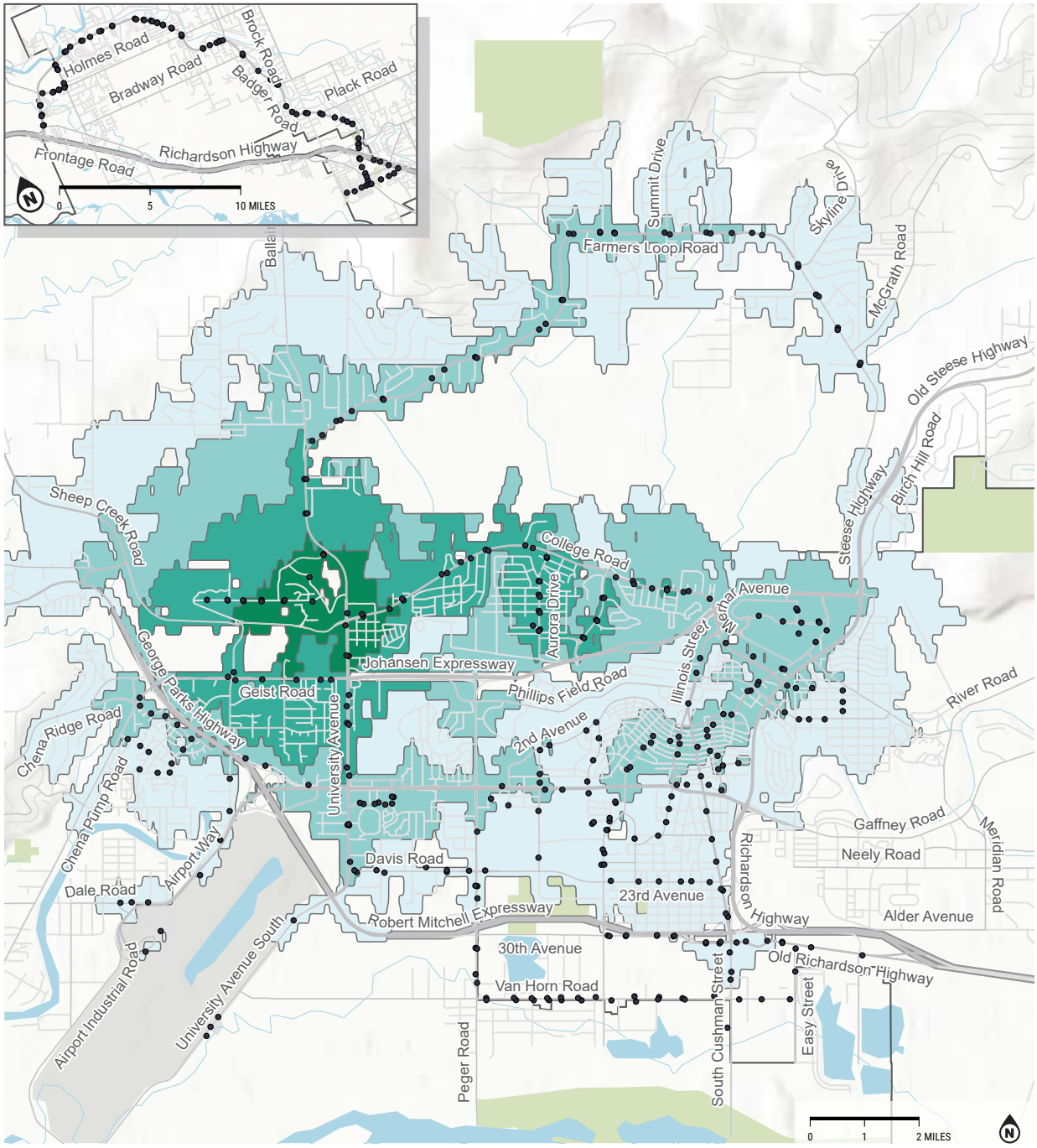


AREAS WITHIN REACH BY THE MEDIAN OF TRANSIT TRIPS FROM UNIVERSITY OF ALASKA FAIRBANKS: BASELINE CONDITION

- 0 - 15 Minutes
- 15 - 30 Minutes
- 30 - 45 Minutes
- 45 - 60 Minutes

Figure 35: Areas within reach by the median of transit trips from University of Alaska Fairbanks - baseline condition

Future condition



AREAS WITHIN REACH BY THE MEDIAN OF TRANSIT TRIPS FROM UNIVERSITY OF ALASKA FAIRBANKS: FUTURE CONDITION

- 0 - 15 Minutes
- 15 - 30 Minutes
- 30 - 45 Minutes
- 45 - 60 Minutes

Figure 36: Areas within reach by the median of transit trips from University of Alaska Fairbanks - future condition

Improved Access to Key Destinations

Implementing the unconstrained recommendations would improve mobility for riders and allow them to reach a variety of destinations more quickly and easily than is possible under the current MACS Transit fixed route system. To quantify these mobility benefits, the project team analyzed "before and after" access to several types of destinations:

- ★ Health Services
- ★ Jobs
- ★ Parks & Recreation
- ★ Public & Social Services
- ★ Retail & Restaurants
- ★ Schools & Education

Measuring access to these destinations helps illustrate the benefits that further investment in the MACS Transit system would bring to the average rider.

Methodology

The "before" access scenario was based on today's MACS Transit fixed route system. The "after" (or with improvements) scenario was analyzed with holistic service improvement assumptions listed below, which are in line with the unconstrained recommendations described in the Recommendations section. The project team developed a General Transit Feed Specification (GTFS) for both the "before" and "after" scenarios that formed the basis of the analysis.

It is important to note that only a specific time period was analyzed for both scenarios, which in this case was a typical weekday from 3:30pm to 5:30pm. This means that not all the improved service assumptions impacted the results.

Assumed Improvements for:

- ★ All Routes & Times
  - Route and alignment changes described in the Recommendations section are in effect.
- ★ Weekdays
  - Red/Blue, Purple/Brown, and Yellow Lines: 15-minute headways from 8am to 7pm. From 6am to 8am and 7pm to 11:30pm, headways drop to 30 minutes.
  - Grey Line: All day weekday service with 60-minute headways (midday service gap removed).
  - Orange: All day weekday service with 60-minute headways (midday service gap removed).
  - Green Line: Unchanged
- ★ Weekends
  - Yellow Line: 15-minute headways on weekends from 8am to 7pm. From 7pm to 10pm, headways drop to 30 minutes.
  - Red/Blue Line: 75-minute headways from 8am to 10pm to match existing weekday headways.
  - Purple/Brown Line: 60-minute headways from 8am to 10pm to match existing weekday headways.
  - Green Line: 120-minute headways from 7am to 7pm to match existing weekday headways and span.
  - Grey Line: 60-minute headways from 7am to 6pm to match the new weekday headways and span.
  - Orange Line: 60-minute headways from 7am to 6pm to match the new weekday headways and span.

With these assumptions, the project team measured before and after access to the destination categories listed above. Each category included many individual destinations that were determined through consultation with FAST Planning and third-party data available via Overture Maps Foundation. The staff-identified destinations were given a higher weight to reflect their importance.

Results

Tables 12a and 12b below highlight the results of the analysis, organized by destination and travel time. It shows both absolute and percent change in access gains for each category, which ultimately reflects the degree to which new destinations and opportunities would be available to riders if the unconstrained recommendations were implemented.

Key Findings

Tables 12a and 12b provide detailed findings for each destination category and travel times and Figure 37 shows the increase in number of jobs accessible to the average rider within 30 minutes.

However, there are a few key findings that highlight some of the gains:

Across all analyzed destinations, there is an average 51% increase in the number of people that can access these destinations in 15 to 60 minutes.

The 30- and 45-minute travel times saw the greatest access gains for all destination categories, with average increases of about 63% and 83%, respectively, in the number of people that can access these destinations within those travel times.

There was an average increase of about 64% in the number of jobs accessible to the average rider within 30 to 60 minutes.

For tables 12a and 12b below:

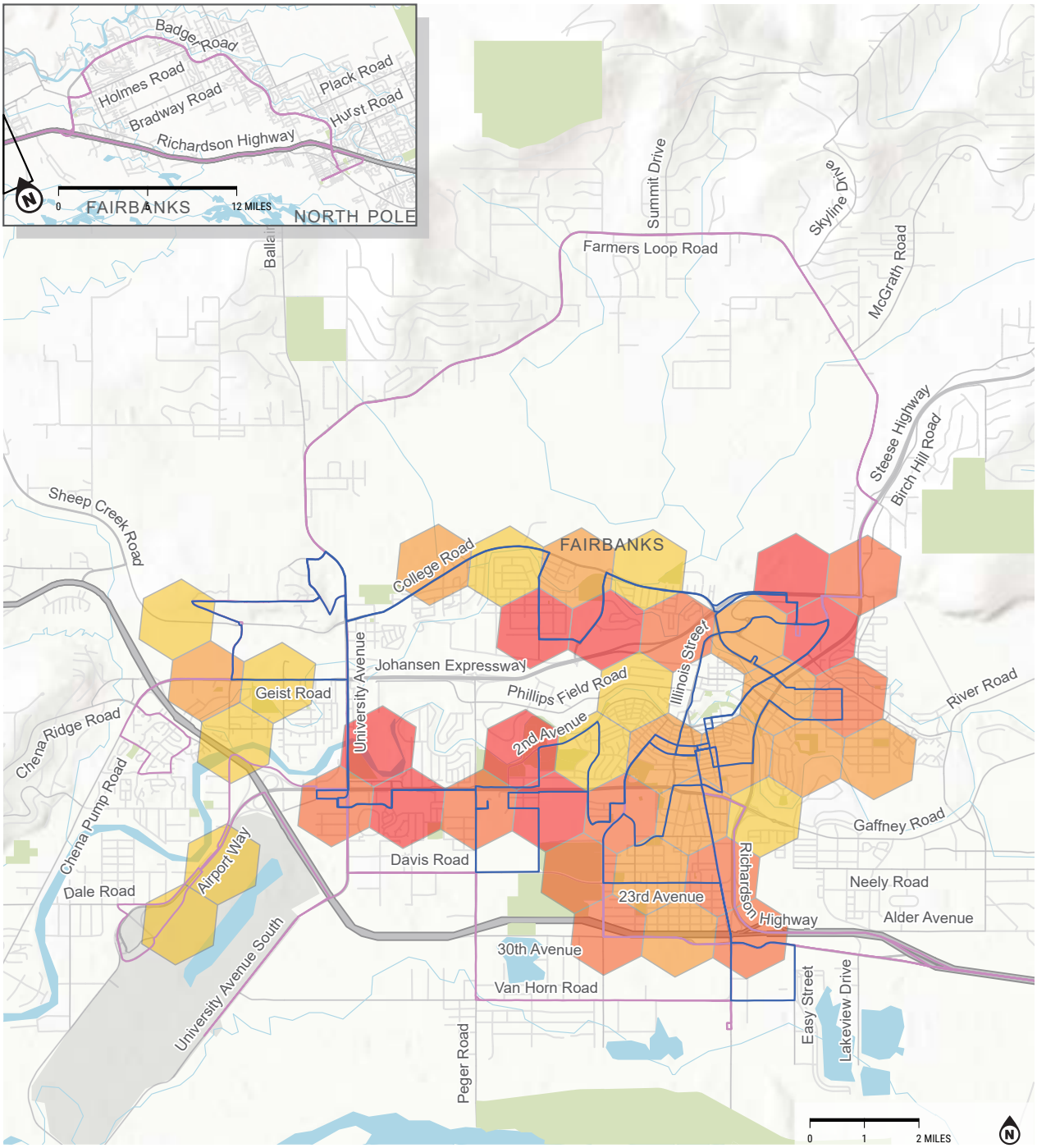
Baseline Access: *Number of people that can access a destination category under today's conditions*
Weighted Change in Access: *The Increase in number of people who would have access to a destination category*
Future Access: *Number of people that could access destination category in the future*
Percentage Change in Access: *Average % increase in number of people that can access a destination category*

Table 12a: Destinations Access

Destination	Travel Time	Baseline Access	Weighted Increase in Access	Future Access	Percentage Increase in Access
Health Services	15 minutes	1,987	220	2,207	11.07
Health Services	30 minutes	6,573	4,458	11,031	67.82
Health Services	45 minutes	11,958	9,765	21,723	81.66
Health Services	60 minutes	19,708	9,124	28,832	46.3
Parks and Recreation	15 minutes	1,476	68	1,544	4.61
Parks and Recreation	30 minutes	4,717	2,884	7,601	61.14
Parks and Recreation	45 minutes	9,103	7,594	16,697	83.42
Parks and Recreation	60 minutes	15,448	8,234	23,682	53.3
Public and Social Services	15 minutes	2,003	141	2,144	7.04
Public and Social Services	30 minutes	6,071	3713	9,784	61.16
Public and Social Services	45 minutes	10,794	8,326	19,120	77.14
Public and Social Services	60 minutes	17,537	8,376	25,913	47.76
Retail and Restaurants	15 minutes	1,905	171	2,076	8.98
Retail and Restaurants	30 minutes	6,039	4,103	10,142	67.94
Retail and Restaurants	45 minutes	10,935	8,825	19,760	80.7
Retail and Restaurants	60 minutes	1,8111	8,811	26,922	48.65
Schools and Education	15 minutes	1,292	81	1,373	6.27
Schools and Education	30 minutes	4,023	2,377	6,400	59.09
Schools and Education	45 minutes	8,466	7,595	16,061	89.71
Schools and Education	60 minutes	15,647	8,671	24,318	55.42

Table 12b: Jobs Access

Destination	Travel Time	Baseline Access	Weighted Increase in Access	Future Access	Percentage Increase in Access
Jobs	15 minutes	881	27	908	3.06
Jobs	30 minutes	3,183	2,194	5,377	68.93
Jobs	45 minutes	6,376	4,838	11,214	75.88
Jobs	60 minutes	10,380	4,866	15,246	46.88



METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

by Peak Headway

— 30 Minutes

— Limited

Increase in number of jobs accessible to the average transit rider within 30 minutes

- 695 - 2806
- 2807 - 5119
- 5120 - 7712
- 7713 - 10062

Figure 37: Jobs access map

Potential Funding Sources for Implementation

Several federal grant programs are available for eligible communities and organizations to receive funds for transit and transportation programs and infrastructure to improve access to transit. Below lists key programs, eligibility requirements, and how they are applied to a community transportation system.

Congestion Mitigation and Air Quality (CMAQ) and Carbon ResFunds

Congestion Mitigation and Air Quality Improvement Program (CMAQ) to provide a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former nonattainment areas that are now in compliance (maintenance areas).

Bipartisan Infrastructure Law - Congestion Mitigation and Air Quality (CMAQ) Improvement Program Fact Sheet | Federal Highway Administration (dot.gov)

Eligibility

- ★ Electric Vehicles and charging stations
- ★ Diesel engine replacements and retrofits, or medium-duty or heavy-duty zero emission vehicles and related charging equipment
- ★ Transit improvements
- ★ Bicycle and pedestrian facilities
- ★ Shared micromobility, including bikesharing and shared scooter systems

Application

CMAQ provides funding to areas in nonattainment or maintenance for ozone, carbon monoxide, and/or particulate matter. This is a formula funded grant. CMAQ typically requires a 20 percent local match. State funds, donations from non-federal third parties, or in-kind donations from local governments may be used to satisfy the local match.

Section 5339 Bus and Bus Facilities Formula Grants

Grants for Buses and Bus Facilities program, which makes funding available to states, designated recipients, and local governmental entities that operate fixed route bus service to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities including technological changes or innovations to modify low- or no- emission vehicles or facilities. Funding is provided through formula allocations and competitive grants. Two sub-programs provide competitive grants for buses and bus facility projects, including one that supports low and zero-emission vehicles.

Grants for Buses and Bus Facilities Formula Program - 5339(a) | FTA (dot.gov)

Eligibility

Eligible recipients include designated recipients that operate fixed route bus service or that allocate funding to fixed route bus operators; and state or local governmental entities that operate fixed route bus service that are eligible to receive direct grants under the Urbanized Area Formula (Section 5307) and Rural Formula (Section 5311) programs.

Subrecipients: An eligible recipient that receives a grant under the formula or competitive programs may allocate amounts from the grant to subrecipients that are public agencies or private nonprofit organizations engaged in public transportation, except that nonprofit organizations are not eligible

subrecipients under the Low or No Emission Grants program.

Application

Funding is through a statutory formula to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities. In addition to the formula allocation, the Grants for Buses and Bus Facilities program (49 U.S.C. 5339) includes two competitive components: the *Bus and Bus Facilities Competitive Program* and the *Low or No Emissions Bus Vehicle Program*. Please see the program *fact sheet* for additional information.

Section 5307 and 5340 Urbanized Area Formula Grants

The Urbanized Area Formula Funding program (49 U.S.C. 5307) makes Federal resources available to urbanized areas and to Governors for transit capital and operating assistance and for transportation related planning in urbanized areas. An urbanized area is a Census-designated area with a population of 50,000 or more as determined by the U.S. Department of Commerce, Bureau of the Census.

Urbanized Area Formula Grants - 5307 | FTA (dot.gov)

Eligibility

Funding is made available to designated recipients, which must be public bodies with the legal authority to receive and dispense Federal funds. Governors, responsible local officials, and publicly owned operators of transit services are required to designate a recipient to apply for, receive, and dispense funds for urbanized areas pursuant to 49 U.S.C. 5307(a)(2). The Governor or Governor's designee is the designated recipient for urbanized areas between 50,000 and 200,000.

Application

The Federal share is not to exceed 80 percent of the net project cost. The Federal share may be 90 percent for the cost of vehicle-related equipment attributable to compliance with the Americans with Disabilities Act and the Clean Air Act. The Federal share may also be 90 percent for projects or portions of projects related to bicycles. The Federal share may not exceed 50 percent of the net project cost of operating assistance. Funding is apportioned on the basis of legislative formulas. For areas of 50,000 to 199,999 in population, the formula is based on population and population density.

Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities

The program aims to improve mobility for older adults and people with disabilities by removing barriers to transportation service and expanding transportation mobility options. This program supports transportation services planned, designed, and carried out to meet the transportation needs of older adults and people with disabilities in all areas – large urbanized (over 200,000), small urbanized (50,000-200,000), and rural (under 50,000). The funding can be used for "traditional" or "nontraditional" projects. "Traditional" projects are capital projects as defined in 49 U.S.C. 5302(3). "Nontraditional" projects are capital and/or operating projects that go beyond the scope of the Americans with Disabilities Act (ADA) complementary paratransit services or public transportation alternatives designed to assist older adults and people with disabilities.

Enhanced Mobility of Seniors & Individuals with Disabilities - Section 5310 | FTA (dot.gov)

Eligibility

States, local government authorities, and designated recipients are direct recipients; Eligible subrecipients include private nonprofit organizations, states or local government authorities, and operators of public transportation. Operators of public transportation are entities that provide regular continuing shared-ride surface transportation services that are

open to the general public or open to a segment of the general public defined by age, disability, or low-income. Operators of public transportation are eligible as subrecipients for nontraditional Section 5310 projects.

Application

This program provides formula funding to states and designated recipients to meet the transportation needs of older adults and people with disabilities when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs.

Section 1122 Transportation Alternatives

The Transportation Alternatives Program (TAP) was authorized under Section 1122 of the Moving Ahead for Progress in the 21st Century Act (MAP-21) and is reauthorized under the Fixing America's Surface Transportation (FAST) Act. In 2022 the Bipartisan Infrastructure Law replaced the FAST Act and re authorized TAP. Each state develops rules to administer their program according to its priorities.

The federally funded TAP provides opportunities to expand transportation choices and enhance the transportation experience through categories of activities related to the surface transportation system. The TAP focuses on non-traditional transportation projects.

TAP Program Information, Alaska Transportation Alternatives Program (ATAP), Program Development, Transportation & Public Facilities

Eligibility

The entities eligible to receive TA Set-Aside funds are:

- ★ A local government.
- ★ A regional transportation authority.
- ★ A transit agency.
- ★ A natural resource or public land agency.
- ★ A school district, local education agency, or school.
- ★ A Tribal government.
- ★ A metropolitan planning organization that serves an urbanized area with a population of 200,000 or fewer.
- ★ A nonprofit entity.
- ★ Any other local or regional governmental entity with responsibility for or oversight of transportation or recreational trails.
- ★ A State, at the request of an eligible entity listed above.

Application

ADOT&PF administers the Alaska Transportation Alternatives Program. Projects are submitted an evaluated by a Program Evaluation Board.

Accelerating Innovative Mobility (AIM)

TA's Accelerating Innovative Mobility (AIM) Initiative highlights FTA's commitment to support and advance innovation in the transit industry. AIM will drive innovation by promoting forward-thinking approaches to improve transit financing, planning, system design and service. The AIM Initiative also supports innovative approaches to advance strategies that promote accessibility, including equitable and equivalent accessibility for all travelers.

The goals of AIM are to:

- ★ Identify, test, and prove out new approaches, technologies and service models
- ★ Promote the most promising mobility innovations that can be implemented more broadly through FTA's capital programs
- ★ Establish a national network of transit stakeholders that are incorporating innovative approaches and business models to improve mobility.
  https://www.transit.dot.gov/AIM

Eligibility

Eligible recipients include providers of public transportation, including public transportation agencies, state/local government DOTs, and federally recognized Indian tribes. Eligible applicants may identify one or more strategic project partner(s) with a substantial interest and involvement in the project.

Eligible project partners under the AIM Initiative include, but are not limited to:

- ★ Private for-profit and not-for-profit organizations, including shared-use mobility providers, technology system suppliers and integrators, automated vehicle technology providers, property managers and developers, and others
- ★ Private operators of transportation services, such as employee shuttle services, airport connector services, university transportation systems, or parking and tolling or airports authorities
- ★ Other operators of public transportation, including public transportation agencies, State/local government DOTs, and Federally recognized Indian tribes
- ★ Bus or vehicle manufacturers or suppliers
- ★ Banking or financial institutions
- ★ State or local government entities, including multi-jurisdictional partnerships, and organizations, such as a Metropolitan Planning Organization

Other organizations including research consortia or not-for-profit industry organizations, institutions of higher education, and other.

Application

AIM is a competitive grant program announced through a NOFO. The federal share of project costs under this program is limited to 80 percent. Proposers may seek a lower federal contribution. The applicant must provide the local share of the net project cost in cash, or in-kind, and must document in its application the source of the local match.

Capital Investment Grants (CIG) – 5309

This FTA discretionary grant program funds transit capital investments, including heavy rail, commuter rail, light rail, streetcars, and bus rapid transit. Federal transit law requires transit agencies seeking CIG funding to complete a series of steps over several years.

Capital Investment Grants - 5309 | FTA (dot.gov)

Eligibility

New Starts:

- ★ Total project cost is equal to or greater than $400 million or total New Starts funding sought equals or exceeds $150 million
- ★ New fixed guideway system (light rail, commuter rail, etc.)
- ★ Extension to existing system
- ★ Fixed guideway BRT system

Small Starts:

- ★ Total project cost is less than $400 million and total Small Starts funding sought is less than $150 million
- ★ New fixed guideway systems (light rail, commuter rail, etc.)
- ★ Extension to existing system
- ★ Fixed guideway BRT system
- ★ Corridor-based BRT system
- ★ Core Capacity
- ★ Substantial corridor-based investment in existing fixed guideway system

Project must:

- ★ Be located in a corridor that is at or over capacity or will be in ten years
- ★ Increase capacity by 10%
- ★ "Not include project elements designated to maintain a state of good repair"

Bundling

- ★ BIL establishes a process for bundling of projects to allow sponsors to move multiple

projects through the CIG pipeline simultaneously.

Application

- ★ Discretionary & Competitive Federal Grant Program
- ★ Authorized up to $4.6 billion per year, subject to Congressional appropriations

Enhancing Mobility Innovation

FTA's Enhancing Mobility Innovation program advances a vision of mobility for all – safe, reliable, equitable, and accessible services that support complete trips. The program promotes technology projects that focus on the traveler experience and encourage people to get on board, such as integrated fare payment systems and user-friendly software for demand-response public transportation.

Enhancing Mobility Innovation | FTA (dot.gov)

Eligibility

Eligible applicants include:

- ★ Providers of public transportation, including public transportation agencies, state or local government DOTs, and federally recognized Indian tribes
- ★ Private for-profit and not-for-profit organizations incorporated in a jurisdiction of the United States, including shared-use mobility providers, private operators of transportation services, technology system suppliers and integrators, bus or vehicle manufacturers or suppliers, software and technology developers, financial institutions, consultants, research consortia, and industry organizations
- ★ State, city, or local government entities, including multi-jurisdictional partnerships, and organizations such as Metropolitan Planning Organizations
- ★ Institutions of higher education including large research universities, technical and community colleges, particularly those with Minority Serving Institution status

Eligible applicants are encouraged to identify one or more project partners with a substantial interest and involvement in the project to participate in the implementation of the project.

Application

Funding opportunities are announced through a NOFO. This is a competitive grant, and up to 80% of project costs can be funded by the grant.

Grants for Buses and Bus Facilities Program

The purpose of the Buses and Bus Facilities Competitive Program is to assist in the financing of buses and bus facilities capital projects, including replacing, rehabilitating, purchasing or leasing buses or related equipment, and rehabilitating, purchasing, constructing or leasing bus-related facilities. Additionally, recipients are permitted to use up to 0.5 percent of their requested grant award for workforce development activities eligible under federal public transportation law (49 U.S.C. 5314(b)) and an additional 0.5 percent for costs associated with training at the National Transit Institute. For applicants proposing projects related to zero-emission vehicles for either program, 5 percent of the requested federal award must be used for workforce development activities.

Grants for Buses and Bus Facilities Program | FTA (dot.gov)

Eligibility

Eligible recipients include designated recipients that operate fixed route bus service or that allocate funding to fixed route bus operators; and state or local governmental entities that operate fixed route bus service that are eligible to receive direct grants

under the Urbanized Area Formula (Section 5307) and Rural Formula (Section 5311) programs.

Subrecipients: An eligible recipient that receives a grant under the formula or competitive programs may allocate amounts from the grant to subrecipients that are public agencies or private nonprofit organizations engaged in public transportation, except that nonprofit organizations are not eligible subrecipients under the Low or No Emission Grants program.

Application

Capital projects to replace, rehabilitate and purchase buses, vans, and related equipment, and to construct bus-related facilities, including technological changes or innovations to modify low or no emission vehicles or facilities. Additionally, 0.5% of a request may be for workforce development training, and an additional 0.5% may be for training at the National Transit Institute. Applicants proposing any project related to zero-emission vehicles must also spend 5% of their award on workforce development and training as outlined in their Zero-Emission Transition Plan, unless the applicant certifies that their financial need is less.

Integrated Mobility Innovation (IMI)

The goals of IMI are to:

- ★ Explore new business approaches and technology solutions that support mobility
- ★ Enable communities to adopt innovative mobility solutions that enhance transportation efficiency and effectiveness
- ★ Facilitate the widespread deployment of proven mobility solutions that expand personal mobility

Integrated Mobility Innovation | FTA (dot.gov)

Eligibility

Eligible applicants are providers of public transportation, including public transportation agencies, state/local government DOTs, and federally recognized Indian tribes.

Application

This competitive grant program is announced though a NOFO.

Metropolitan & Statewide Planning and Non-Metropolitan Transportation Planning - 5303, 5304, 5305

Provides funding and procedural requirements for multimodal transportation planning in metropolitan areas and states. Planning needs to be cooperative, continuous, and comprehensive, resulting in long-range plans and short-range programs reflecting transportation investment priorities.

Metropolitan & Statewide Planning and NonMetropolitan Transportation Planning - 5303, 5304, 5305 | FTA (dot.gov)

Eligibility

State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs). Federal planning funds are first apportioned to State DOTs. State DOTs then allocate planning funding to MPOs.

Application

A formula-based grant. Federal funds will cover up to 80% of the project costs. Funds are available for four years.

Public Transportation Innovation – 5312

Provides funding to develop innovative products and services assisting transit agencies in better meeting the needs of their customers.

Public Transportation Innovation - 5312 | FTA (dot.gov)

Eligibility

Eligible recipients are determined for each competition, and may include: universities, public

transportation systems, state DOTs, non-profit and for-profit entities, amongst others. **Application**

Funds may be allocated on a discretionary basis. Grant opportunities are posted on http://www.grants.gov/ under the CFDA Number 20.514. Interested parties may subscribe on that website to receive notification of all FTA research opportunities by entering 20.514 where it requests the CFDA Number.

Flexible Funding for Transit and Highway Improvements

Federal law (23 U.S.C. § 104(f); 49 U.S.C. § 5334(i)(1)) allows Federal-Aid Highway Program funding made available for public transportation projects to be flexed (or transferred) to be administered by FTA for public transportation projects.

Eligibility

FHWA programs that are potentially eligible for flexible funding include:

- ★ Congestion Mitigation and Air Quality (CMAQ) program,
- ★ Surface Transportation Block Grant (STBG)
- ★ Tribal Transportation Program
- ★ Flexible Funding for Transit Access

Process

To transfer the funds, the state department of transportation sends a request that the funds be transferred, with the concurrence of the MPO if the project is within a metropolitan planning area, to the FHWA Division Office.

https://www.gao.gov/assets/gao-13-19r.pdf

Application

Many State DOT's are not able to use Federal-Aid Highway Programs for projects that enhance access to transit due to processes and requirements that are more suitable to large-scale highway projects

The FTA Flex program facilitates federal investments at the local level for projects that improve access to transit, especially for underserved groups. Projects can include pedestrian access, bicycle access, and enhanced access for persons with disabilities to public transportation. Refer to the FTA website on the program for a full list of eligible uses.

Projects must have de facto functional relationship to public transportation and be within ½ mile of transit stop for pedestrian improvements or 3 miles of transit stop for bicycle improvements.

Clearing sidewalks and bicycle facilities in the vicinity of transit stops will improve access to transit for pedestrians, bicyclists, or persons with disabilities and may provide preventative maintenance and thus may meet the legal nexus required for this funding mechanism. The Governmental Accountability Office describes preventive maintenance as "All maintenance costs related to vehicles and non-vehicles such as the activities, supplies, labor, services, and associated costs to preserve or extend the functionality of the asset." In this case, the asset would be the active transportation facilities such as sidewalks and bike lanes. Snow removal activities can preserve the functionality of these facilities as they are unfunctional when covered in snow.

There are many examples of where FLEX Funding has been used in creative ways to fund transit, such as the use of FTA Flex funding for Transportation Demand Management Activities in Portland, Oregon and the use of FTA Flex funding for preventative maintenance to free up funds for operating expenses in Pittsburgh, Pennsylvania.

To be eligible for funding, the project must be a project within the Alaska Statewide Transportation Improvement Program (STIP) list or the FAST Planning Transportation Improvement Program (TIP).

9. Looking Ahead & Conclusions

While this plan looks ahead approximately 20 years, it is recommended to review and update every five years to respond to community and resource changes and inform the ongoing transportation planning processes FAST Planning and AKDOT. Funding sources, projects, and priorities may be updated and should be informed by continued public feedback. Assuming adequate resources, successful implementation of this plan's recommendations will meet objectives and achieve goals for the Fairbanks transit system. The following tables connect each category of need, recommendations, and goals that can be achieved upon implementation.

Recommended Strategies to Achieve Transit Goals

1. Funding and Staff

Table 13a - Category 1: Funding and Staff

Recommendations	Goals
A. Continue to pursue federal funding programs to provide increased capacity.	Transit Plan Goals 4 and 5, Coordinated Human Services Transportation Plan Goal 2.
B. Work with FAST Planning and the Fairbanks North Star Borough to increase local funding for transit.	Transit Plan Goals 4 and 5, Coordinated Human Services Transportation Plan Goal 2.
C. Incentivize recruitment and staff retention.	Transit Plan Goal 1

2. Technology & Fares

Table 13b - Category 2: Technology & Fares

Recommendations	Goals
A. Implement a new, comprehensive Software as a Service (SaaS) platform.	Transit Plan Goal 1 and Coordinated Human Services Transportation Plan Goal 3
B. Consider opportunities to improve access for populations with high need and ridership potential.	Transit Plan Goals 1 and 2

Table 13c - Category 3: Van Tran

Recommendations	Goals
A. Simplify the Van Tran application process or provide even more application support.	Coordinated Human Services Transportation Plan Goals 1, 3, and 4
B. Expand capacity for "B" and "C" service categories for Van Tran.	Coordinated Human Services Transportation Plan Goal 4
C. Develop a transportation provider "clearinghouse" and create a Human Services Transportation Coordinator role independent of any of the local agencies to help riders navigate multiple providers.	Coordinated Human Services Transportation Plan Goals 1, 3, 4, and 5

4. Fixed Route Service

Table 13d - Category 4: Fixed Route Service

Recommendations	Goals
A. Reinstitute Saturday fixed route service and add Sunday fixed route service.	Transit Plan Goals 2, 4, and 8
B. Increase service span on the MACS transit fixed-route system to offer earlier and later trips.	Transit Plan Goals 1, 2, 3, 4, and 8
C. Consolidate and reduce route deviations along the Red and Blue Lines.	Transit Plan Goal 1
D. Improve the frequency of the Red and Blue lines so they run every 15 minutes or better during peak weekday periods.	Transit Plan Goals 1, 2, 3, 4, and 8
E. Provide bidirectional service on the Brown and Purple Lines and improve service to every 15 minutes or better for during peak weekday periods.	Transit Plan Goals 1, 3, and 8
F. Reroute the Purple Line to serve only neighborhoods north of the Parks Highway.	Transit Plan Goals 1, 3, and 8
G. Extend the Orange Line east to Easy Street and west to Chena Pump Road.	Transit Plan Goals 1, 3, and 8
H. Reroute the Yellow Line to focus on service between the Fairbanks International Airport and Downtown Fairbanks and increase its frequency to 15 minutes or better during peak weekday and weekend periods.	Transit Plan Goals 1, 3, and 8
I. Create new, formalized transfer points for the fixed route system.	Transit Plan Goals 1, 2, 3, 4, and 8

5. Infrastructure & Winter Maintenance

Table 13e - Category 5: Infrastructure & Winter Maintenance

Recommendations	Goals
A. Identify MACS Transit bus stops for improved rider amenities such as shelters.	Transit Plan Goals 1, 2, 3 and 8
B. Transit to construct pedestrian crossing treatments at high ridership bus stops that currently lack marked crosswalks.	Transit Plan Goals 1, 2, 3 and 8

Recommendations	Goals
C. Construct sidewalks, bike lanes, or other active transportation facilities on corridors with low pedestrian connectivity scores on the MACS Transit network, where applicable.	Transit Plan Goals 1, 2, 3, and 5
D. Implement road diets, intersection, and bus stop accessibility improvements on select corridors with high active transportation and transit ridership potential.	Transit Plan Goals 1, 2, 3, and 5
E. Pursue FTA Flex Funding for use as a snow removal program.	Transit Plan Goals 1, 2, 3, and 8 and Coordinated Human Services Transportation Plan Goal 5
F. Institute adopt-a-sidewalk or adopt-a-stop program to promote a collective spirit around snow removal.	Transit Plan Goals 1, 2, 3, and 8 and Coordinated Human Services Transportation Plan Goal 5
G. Determine a "core" set of MACS Transit bus routes for priority snow removal that can be published on the MACS Transit website and channels.	Transit Plan Goals 1, 2, 3, and 8 and Coordinated Human Services Transportation Plan Goal 5
H. Invest in new equipment and technology dedicated to removing snow from active transportation facilities.	Transit Plan Goals 1, 2, 3, and 8 and Coordinated Human Services Transportation Plan Goal 5

Appendices

Appendix A: Public Involvement Record

Appendix B: Existing Conditions Report

Appendix C: Needs Analysis Report

Appendix D: Transit Rider and Staff Survey Reports