



DRAFT Appendices

2024 Transit Plan & Coordinated Human Services Transportation Plan

Prepared for:



FAST Planning

Prepared by:



R&M Consultants, Inc.

IN COOPERATION WITH
Alta Planning + Design, Inc.

September 2024

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Appendix A: Public Involvement



Public Meeting #1

Transit Plan Update | FAST + R&M + Alta + DOWL + MACS



Date

October 17 2023

Location

Pioneer Park Exhibit Hall

5:00 - 7:00 pm

Attendees

1. Members of the Public
2. MACS Transit staff
 - a. Michelle
 - b. Dey
 - c. Chris (driver)
3. FAST Planning Staff
4. Consultant Team
 - a. Van, Taryn (R&M)
 - b. Colin (Alta)
 - c. Jessica (Dowl)



2023 Transit Plans Update

Short- and Long-Range Transit Plan

Coordinated Human Services Transportation Plan

About the Updates

Fairbanks Area Surface Transportation (FAST) Planning is partnering with the Fairbanks North Star Borough (FNSB) to update the Transit Plan for the Metropolitan Area Commuter System (MACS) and update the Coordinated Human Services Transportation Plan (CHSTP) to improve transit and coordination between providers in the Borough.

Each plan impacts the other, so they are being updated through one process to ensure both the MACS Transit Plan and CHSTP are accurately informed by rider and provider needs in our community. Updating the plans and coordinating transportation services fulfills federal requirements necessary to receive grant funding.



Questions? Contact:

Corey DiRutigliano, Project Manager
FAST Planning
corey.diru@fastplanning.us
907-308-3809

Bryant Wright, Stakeholder Engagement
R&M Consultants, Inc.
bwright@rmconsult.com
907-458-4307

Van Le, AICP, Project Manager
R&M Consultants, Inc.
vle@rmconsult.com
907-646-9659



Join us for a Public Open House!

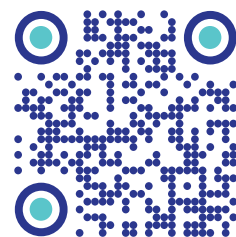
Do you ride a MACS Bus? Call for a ride? Schedule someone to pick you up? Interested in not using a personal vehicle to get around the FNSB?

Join us for a Public Open House and share your needs and ideas for public transportation in the borough. Bring the kids and enjoy some pizza on us at the meeting.

October 17th, 5:00 PM to 7:00 PM
in the Exhibition Hall of the Centennial Center for the Arts, at Pioneer Park.

How to get there

Take the MACS Transit Blue Line and get off at the Pioneer Park stop.



For more information, visit our project website: <https://fastplanning.us/transit/>

Stay tuned for a Transit Provider Survey in October to share your input.

TRANSIT PLAN OPEN HOUSE



Do you use MACS transit or Van Tran? Have an idea for improving public transportation in our community? Come share your thoughts!

@ the Pioneer Park
CENTENNIAL CENTER
October 17, 2023 | 5 - 7pm

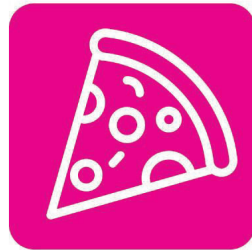
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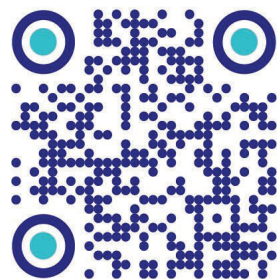


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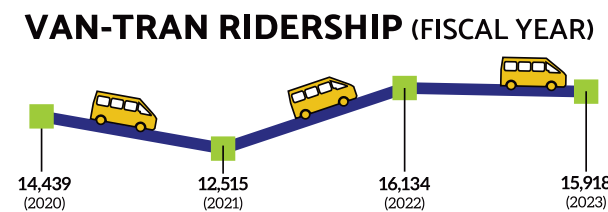
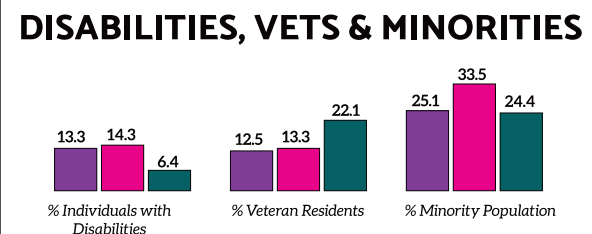
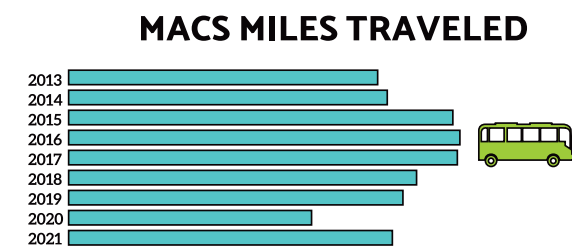
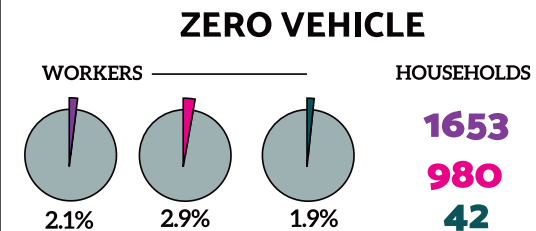
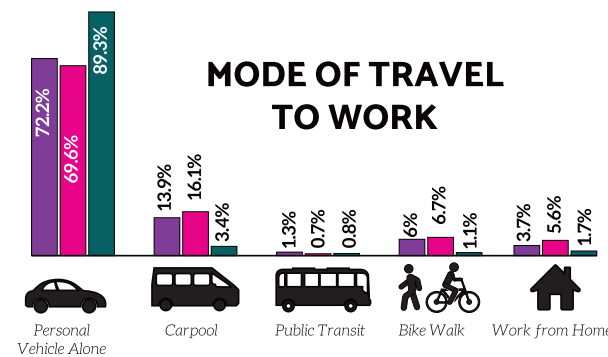
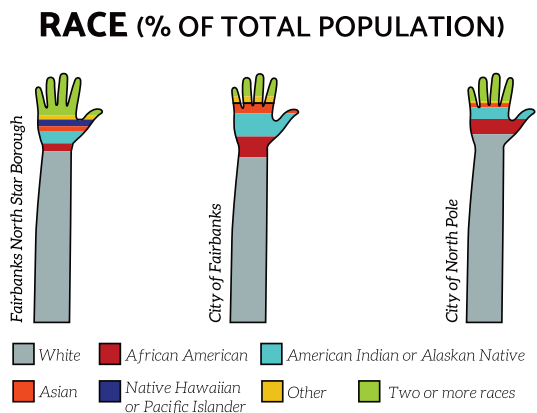
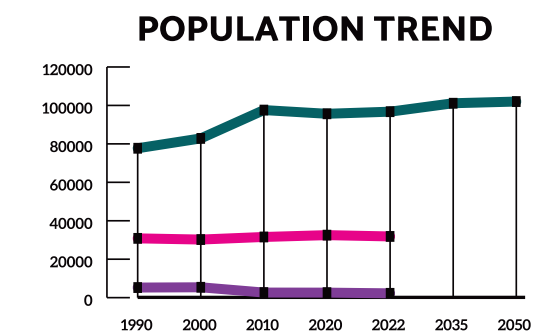
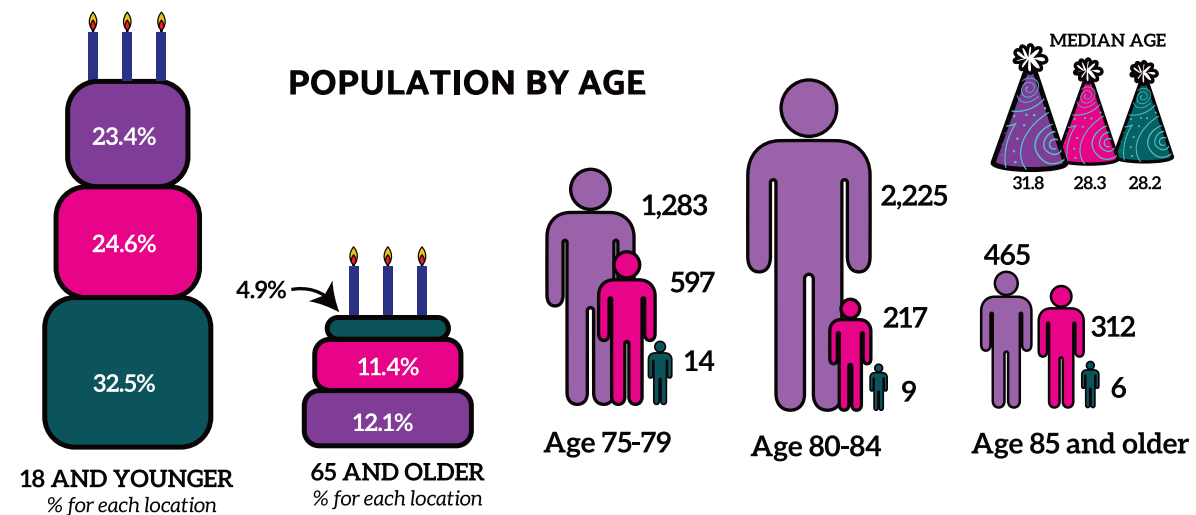
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907-308-3809

Fairbanks North Star Borough

City of Fairbanks

City of North Pole



MEDIAN INCOME & POVERTY

Location	Population	Median Income	% Population Below Poverty Level
Fairbanks North Star Borough	95,655	\$83,519	7.9
City of Fairbanks	32,515	\$66,572	9.1
City of North Pole	2,610	\$83,524	5.3



Transit Plan Update Vision and Goals



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 MACS transit is dependable, welcoming, consistent and preferred transportation

Coordinated Human Services Transportation Plan Update Vision and Goals

VISION "Any member of the community, from most to least advantaged, including elderly and people with disabilities, whose mobility needs are not met through their own means or MACS fixed-route services, is connected to the community through a range of transportation options to elevate their independence, freedom and opportunities for a cohesive and enriching public life."



GOALS

- 1** Expand Communication, Education, and Awareness
- 2** Strengthen provider resources and ensure consistent and reliable funding for services and programs
- 3** Collect data consistently and coordinate information sharing to enhance transit equity and service delivery
- 4** Expand service availability through ongoing Coordination, Collaboration, and Partnerships
- 5** Plan and Coordinate safe, affordable and accessible services for Borough Residents



2023 Transit Plans Update

Fairbanks North Star Borough

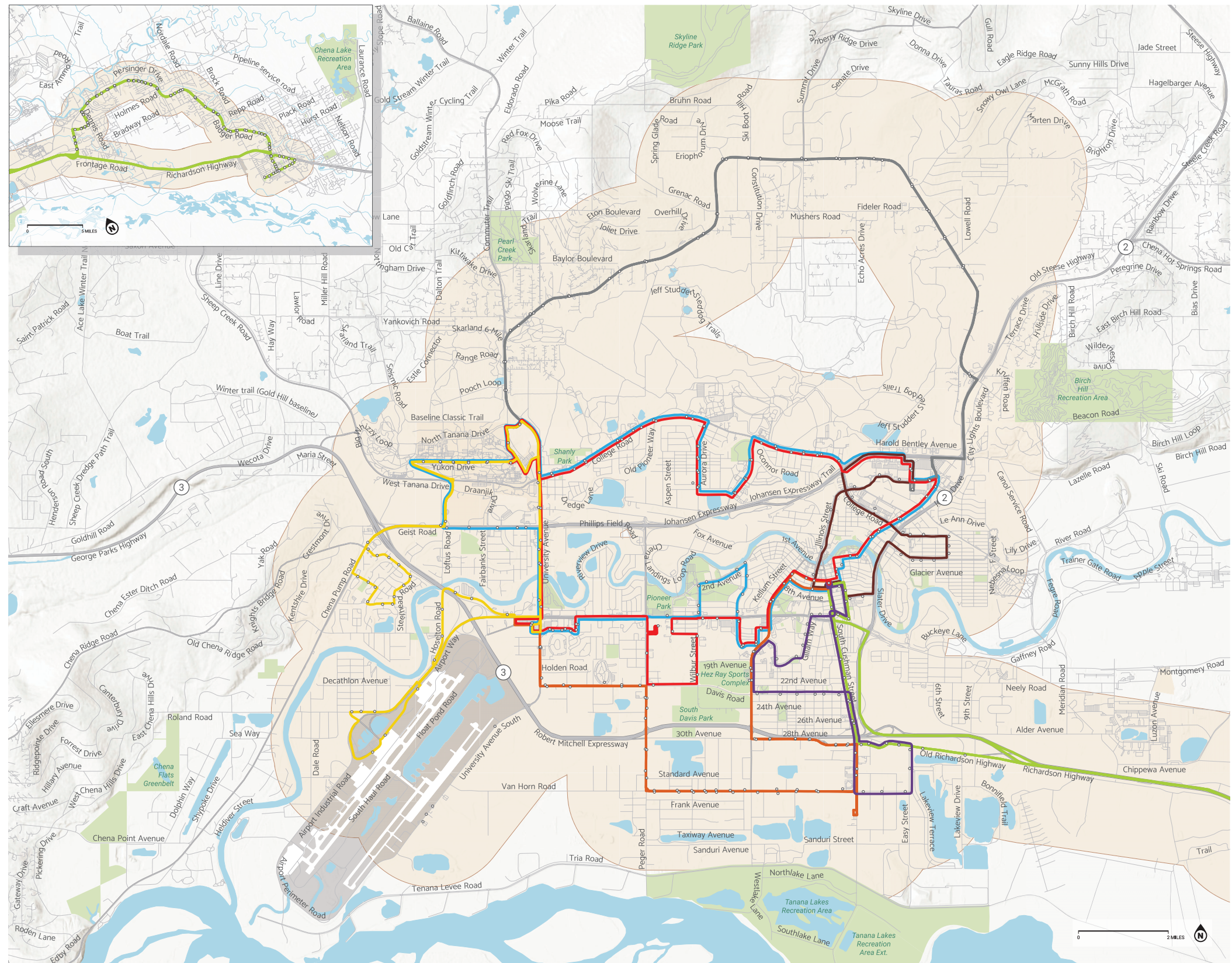
METROPOLITAN AREA COMMUTER SYSTEM (MACS)

Fixed Route Bus Lines

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

Paratransit

- VanTran Service Area





2023 Transit Plans Update

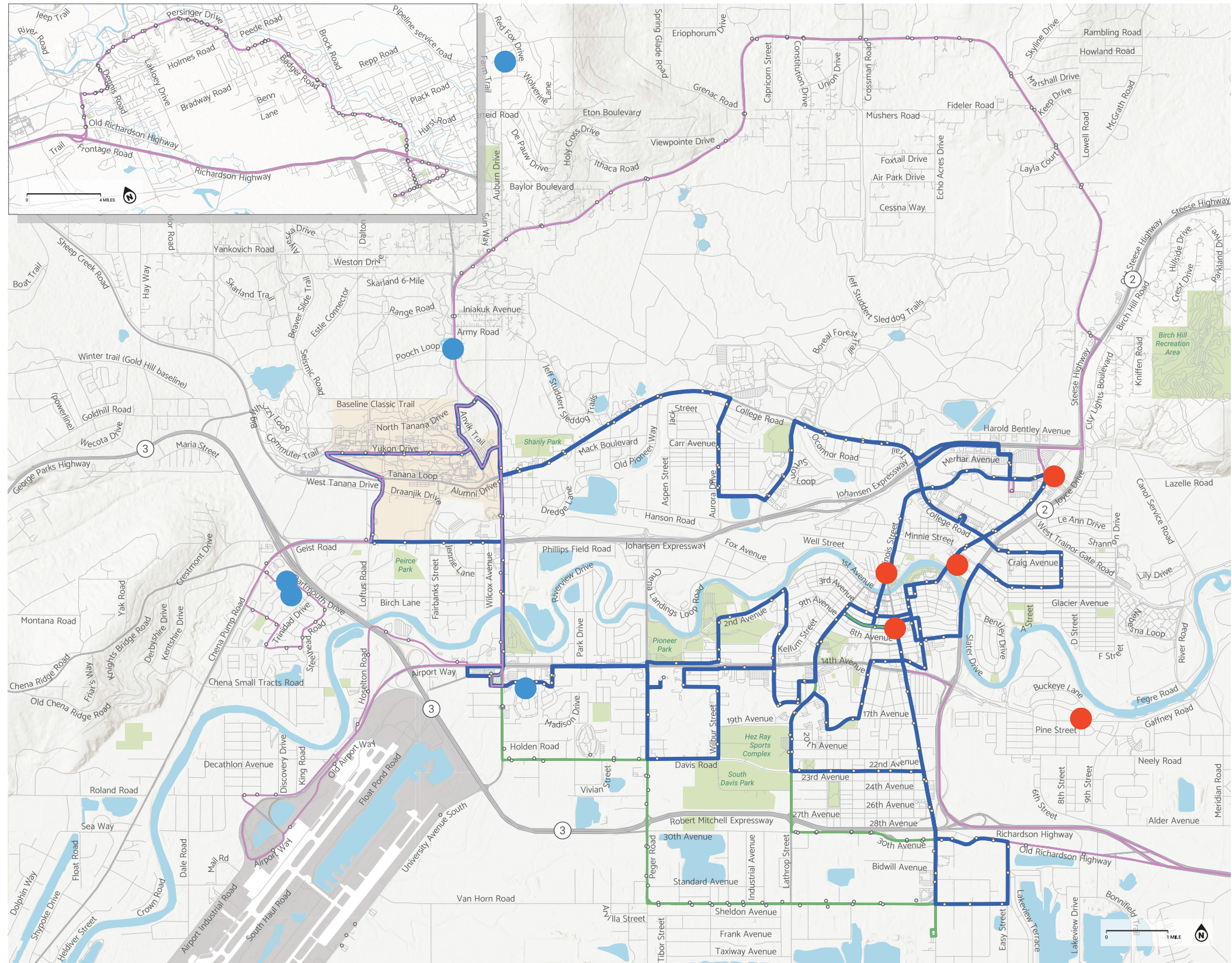
Fairbanks North Star Borough

ROUTES BY PEAK FREQUENCY (HEADWAYS)

Metropolitan Area Commuter System (MACS) Routes
by Peak Frequency (Headway)

- 30 Minutes — All Day Service
- 60 Minutes — Limited
- Limited — AM and PM Peak Only
- Bus Stops

- Blue circle: Where I START my trip
- Red circle: Where I END my trip



Fixed Route Transit

1

What is working well for fixed route (MACS) transit?

★

- Grey line is very important for people living on Farmers Loop
- Routes Hit Major points in town (Grocery stores, hospital etc)
- Affordable
- reliable major stops
- west fred meyer, people look comfortable while they wait
- the transit center is great!

2

What needs to change?

★

- stop locations
- south of airport is a food desert, especially weekends low income people cannot get groceries
- plowing of bus turnouts and shelters
- frequencies
- Late night bus for all the bars
- key to the downtown area is that the sidewalks and residential roads that lead to the bus stops need to be plowed and cleared of snow
- weekend service (we need it)
- plowing of sidewalks and paths
- routing
- bus on the goldstream loop
- weekend and later evening service
- weekend service even if it is just one loop
- add bus stop at new VA offices (Mountain View clinic)
- transportation to and from airport
- accommodations?
- safe ride home option (late hours)
- fast reliable service
- current system takes a VERY long time to get [to] many locations
- immediate maintenance of sidewalks and bike lanes after weather events
- wifi on the buses
- park and ride options for Goldstream (include bike racks on + in the buses)
- more options for service between FBX and North Pole
- run buses on weekends
- buses need to be more frequent
- gaps during the day (ex yellow line)
- more bike lanes (separated from cars and pedestrians)
- weekend and evening service
- connection times
- use the transit station for an emergency cold weather shelter
- Viable bus options late at night to discourage DUI
- winter maintenance of bus stops is a MUST

3

If money were not an issue, what is your ideal transportation system?

★

- Public Rail system to connect towns together
- free buses
- protected bike lanes
- weekend service
- more frequency (10-15 minute connection times for all routes)
- bus service to Fort Wainwright
- extended hours for special events (FCA concerts, midnight sun fest, etc)
- Bust Tracking app
- pay via app or card
- bike storage at the transit center
- more bus shelters at business centers
- train between Ester, North Pole and Fairbanks
- separated bike lanes with vegetated buffer from traffic
- more sidewalks for pedestrians separate from vehicles and cyclists
- bush shelters on Van Horn (near Easy street)
- hover crafts?
- separated bike paths, plowed and maintained all year long
- Goldstream loop bus/train
- heated bus stops at all stops
- bring back streetcar/trolleys (free hop-po and hop-off)
- pay for bus with app/electronic
- adequate racks on transit for bikes/multi modal transit
- more walkable areas and compact urban design so less vehicles
- bike share program
- free/reduced cost for students, older folks, SNAP holders
- App with next bus tracking
- lots of pedestrian and bike infrastructure
- ped-only areas
- bike parking that is predictable and safe
- separated bike lanes
- bike lanes by all roads!!!
- Train passenger service between towns
- more pedestrian only streets/market days
- bike share
- yes to streetcars especially in Anchorage
- fat bike racks for buses
- free rides
- Late night bus that does the bars until after close
- light rail to outer ring of the borough
- bike share



Coordinated Human Services Transportation

1

What is working well for human services transportation?

having service that includes door-to-door assistance (senior center)

door-to-door service us incredibly helpful for seniors, especially in winter

2

What needs to change?

eligibility application process for Van Tran

better/more available info on transportation options

information readiness + availability

low income insular(?)

what about the warming(?) services

human service agencies

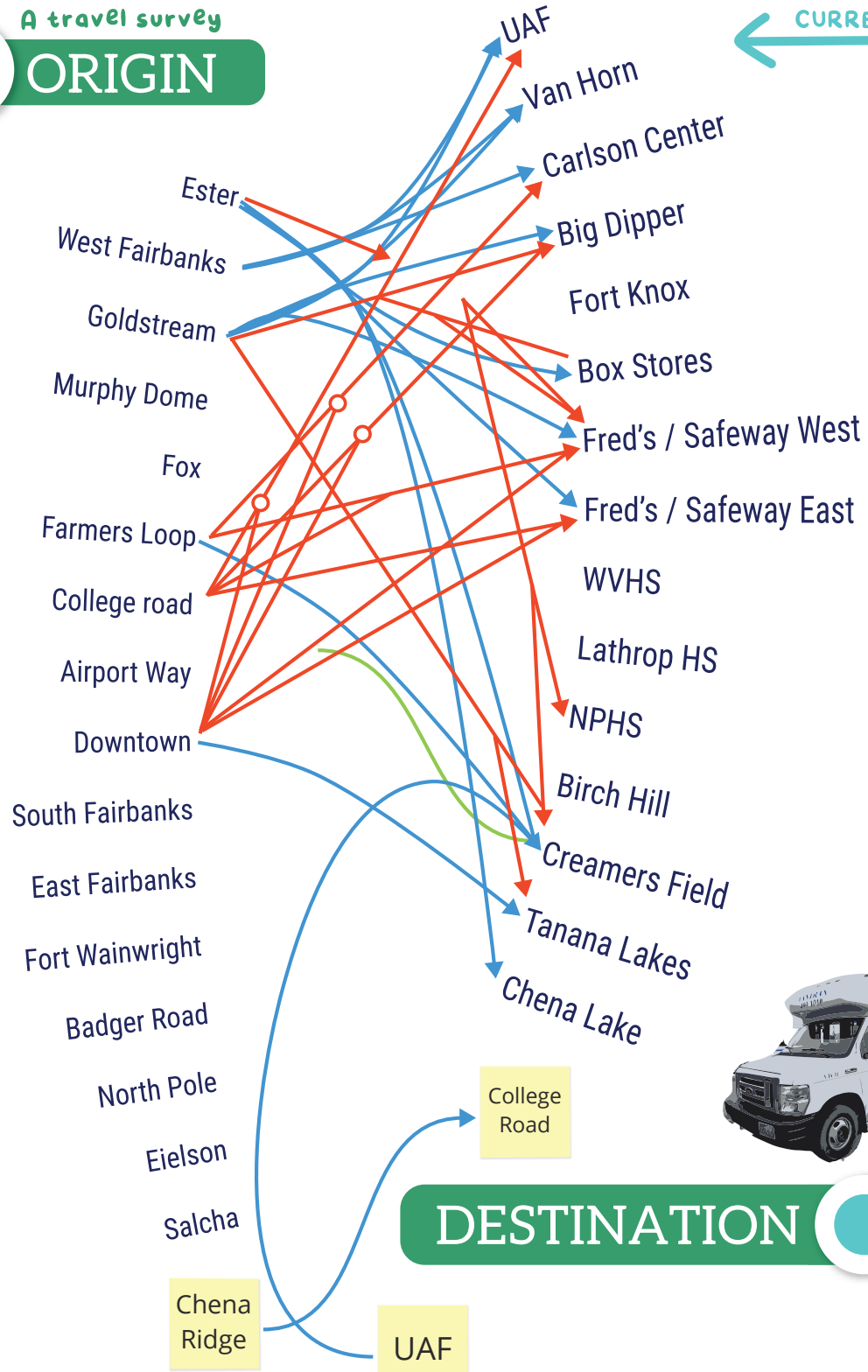
3

If money were not an issue, what is your ideal transportation system?

regular service later into nights

and weekends!

A travel survey
ORIGIN



← CURRENT ★ IDEAL FUTURE →

COLOR KEY

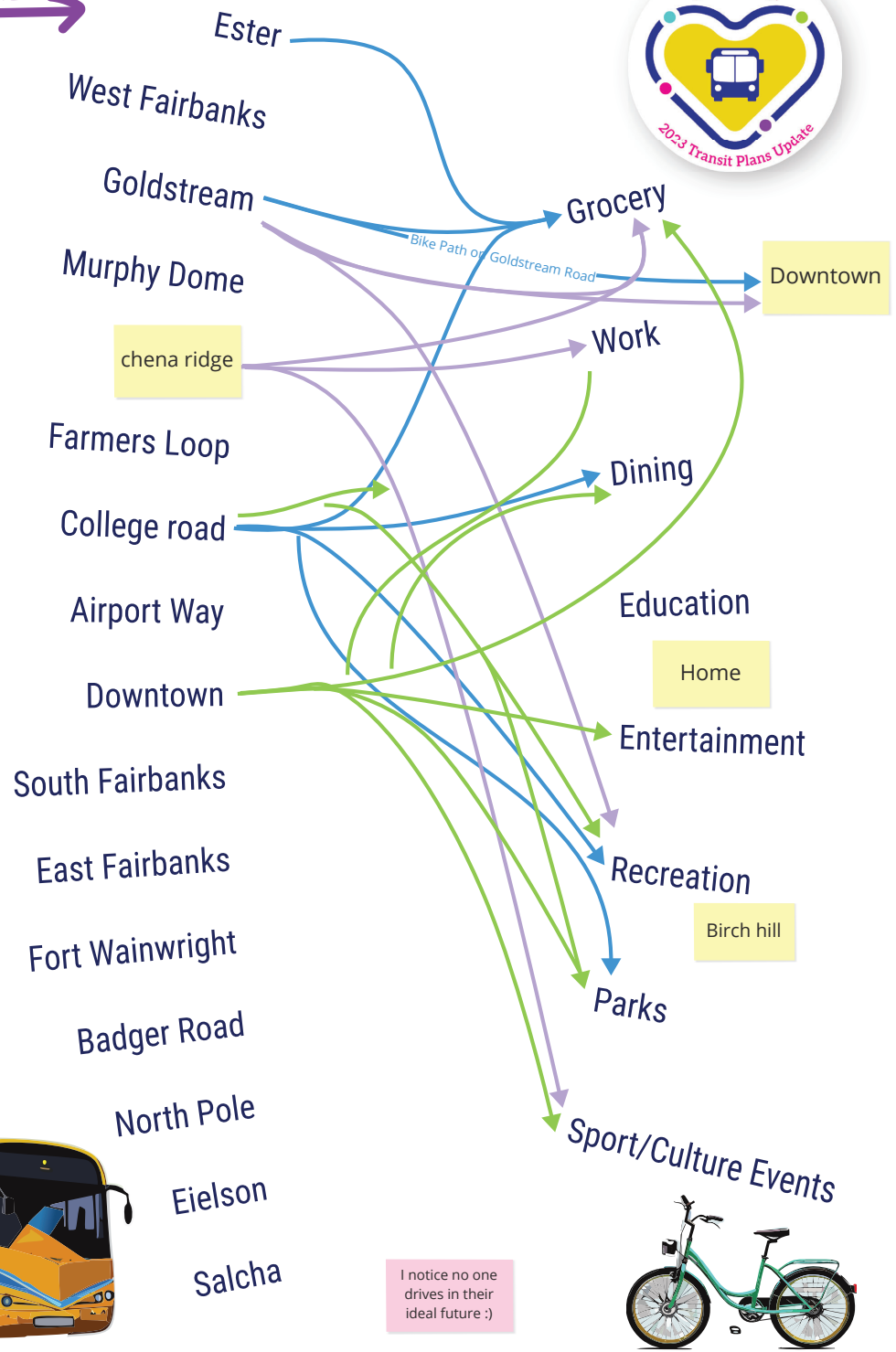
walk

bike

bus

get a ride

drive



I notice no one drives in their ideal future :)



A travel survey
ORIGIN



COLOR KEY

walk

bike

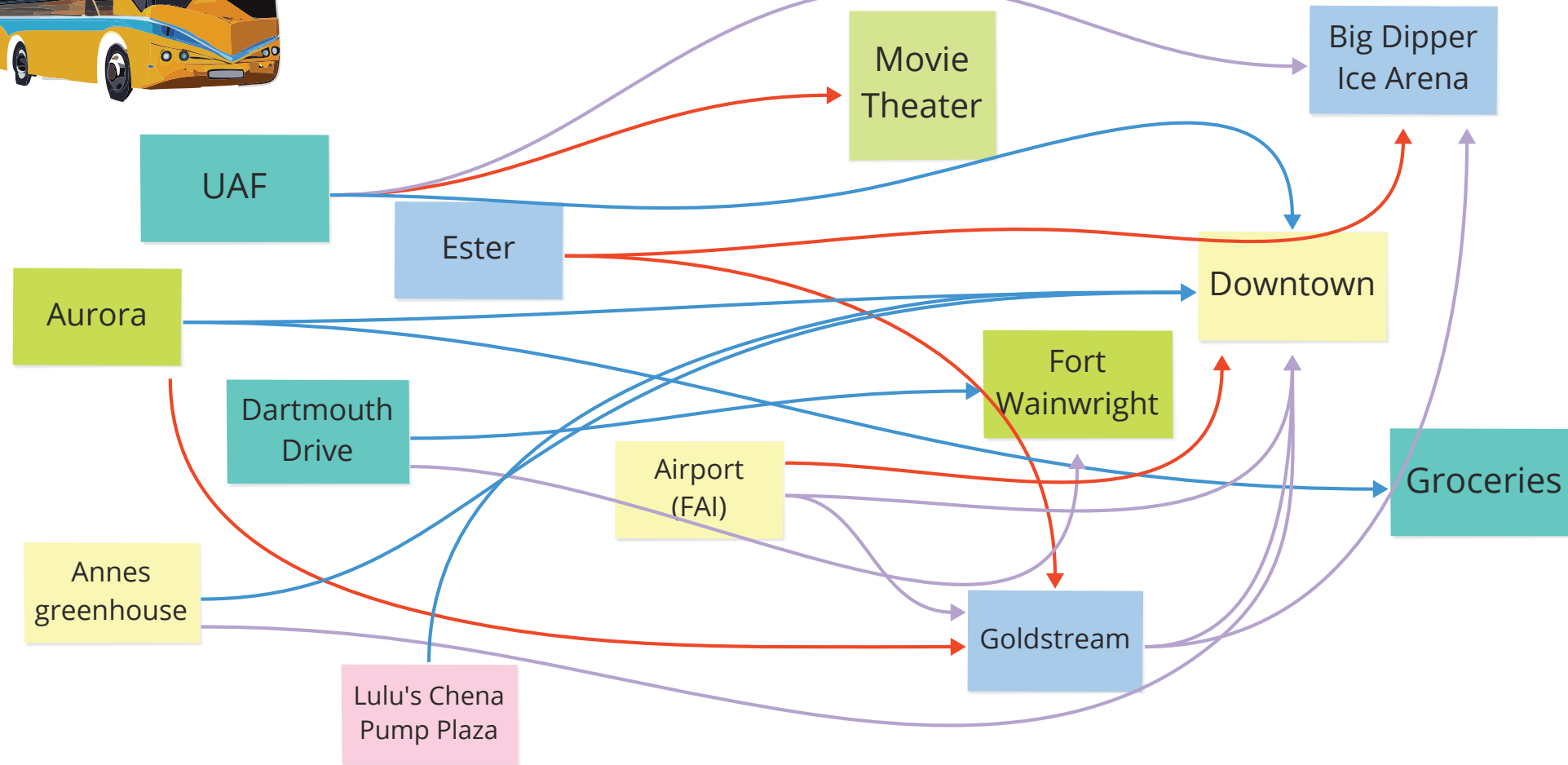
bus

get a ride

drive

Bus Needs Racks for fat bikes

DESTINATION

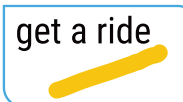
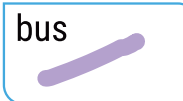


A travel survey
ORIGIN

- Ester
- West Fairbanks
- Goldstream
- Murphy Dome
- Fox
- Farmers Loop
- College road
- Airport Way
- Downtown
- South Fairbanks
- East Fairbanks
- Fort Wainwright
- Badger Road
- North Pole
- Eielson
- Salcha

← CURRENT ★ IDEAL FUTURE →

COLOR KEY



DESTINATION

- UAF
- Van Horn
- Carlson Center
- Big Dipper
- Fort Knox
- Box Stores
- Fred's / Safeway West
- Fred's / Safeway East
- WVHS
- Lathrop HS
- NPHS
- Birch Hill
- Creamers Field
- Tanana Lakes
- Chena Lake



- Ester
- West Fairbanks
- Goldstream
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- South Fairbanks
- East Fairbanks
- Fort Wainwright
- Badger Road
- North Pole
- Eielson
- Salcha

- Grocery
- Work
- Dining
- Education
- Entertainment
- Recreation
- Parks
- Sport/Culture Events



A travel survey
ORIGIN

- Ester
- West Fairbanks
- Goldstream
- Murphy Dome
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- College road
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- Downtown
- South Fairbanks
- East Fairbanks
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- Badger Road
- North Pole
- Eielson
- Salcha

- UAF
- Van Horn
- Carlson Center
- Big Dipper
- Fort Knox
- Box Stores
- Fred's / Safeway West
- Fred's / Safeway East
- WVHS
- Lathrop HS
- NPHS
- Birch Hill
- Creamers Field
- Tanana Lakes
- Chena Lake

← CURRENT ★ IDEAL FUTURE →

COLOR KEY

- walk
- bike
- bus
- get a ride
- drive

- Ester
- West Fairbanks
- Goldstream
- Murphy Dome
- Fox
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- Grocery
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DESTINATION



A travel survey

ORIGIN

Origins



destinations

COLOR KEY

Origins

walk

bike

bus

get a ride

drive



destinations

DESTINATION





2023 Transit Plans Update

Short- and Long-Range Transit Plan

Coordinated Human Services Transportation Plan

Have comments, ideas, feedback? Share them here!

- *Weekend service, especially access for community events*
 - *People want to participate but cant because we cant get there*
- *More physical covers at bus stops, especially near hospitals and clinics (near specialty clinics too)*
 - *Especially for the elderly and handicapped*
- *Snow berms are a problem*
- *Bench seating near the parking garage and more stops*
 - *The one near the Westmark too (Downtown)*
 - *Lighting is a really nice feature*
- *Wait times for when Van Tran is giving a ride can be long*

name *Rocky (via conversation with Taryn)* email / phone

Contact:

Corey DiRutigliano, Project Manager

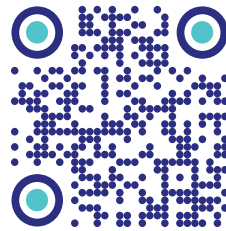
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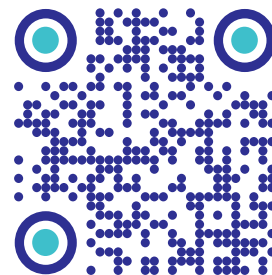
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Name:

Email:

Contact:

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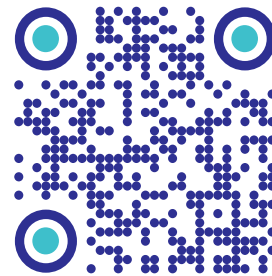
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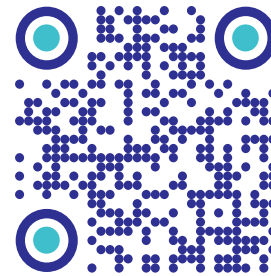
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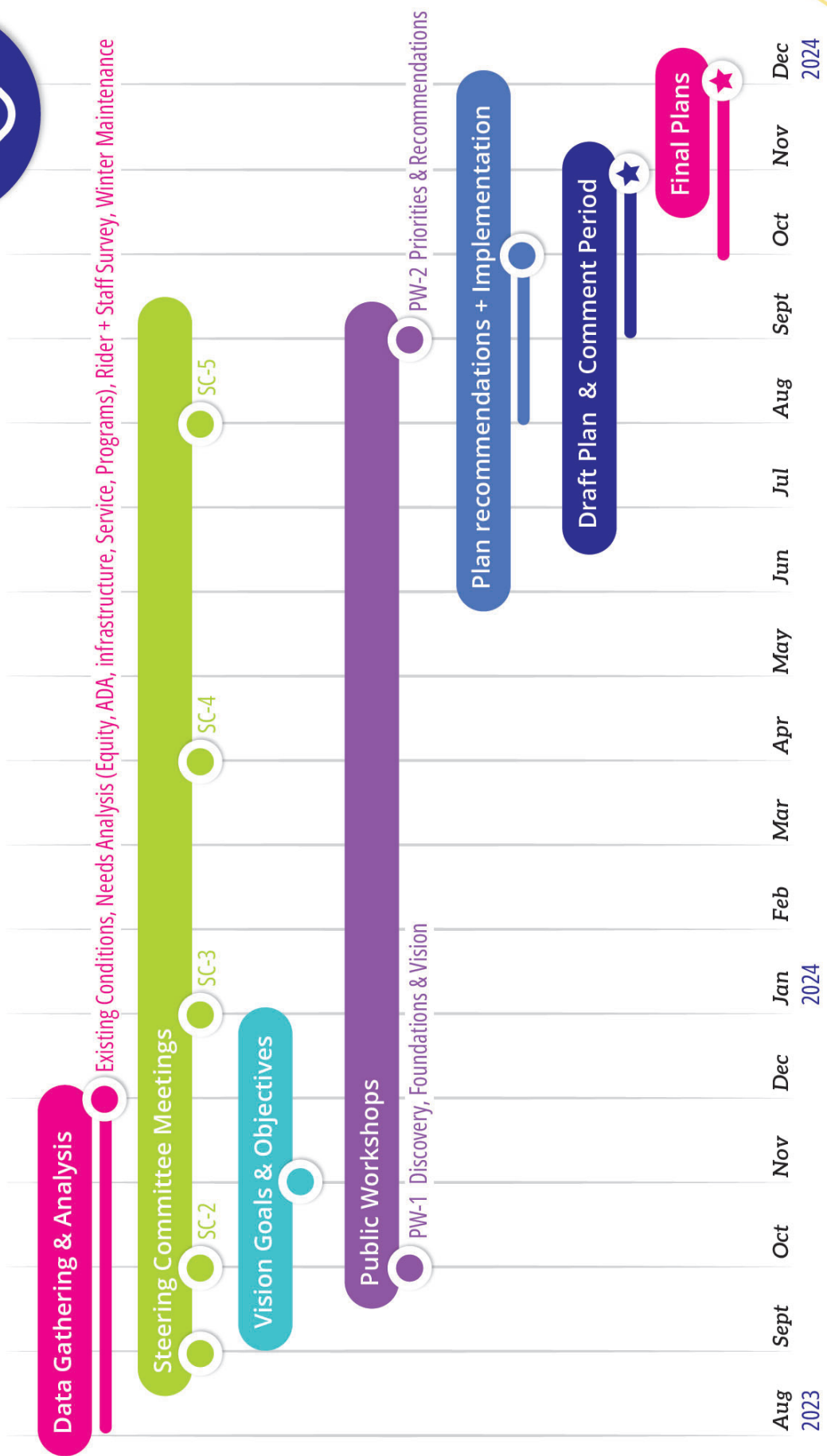
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Fairbanks North Star Borough 2023 Transit Plans Update Project Schedule



Reliable major stops

*This information is **voluntary**. Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by FAST Planning

MEETING: TRANSIT PLANS UPDATE PUBLIC OPEN HOUSE			DATE: October 17, 2023		
	NAME (PLEASE PRINT)	MAILING ADDRESS and *EMAIL	PHONE	*GENDER (M/F)	*RACE (W, AN, N, B, H, A, P, O)
12	Patrick Catter	patrick.catter@respec.com		M	W
13	Melissa Head	headmelissa@gmail.com		F	W
14	Scott McCrea	smccrea@exploreFairbanks.com		M	
15	Sue Sprinkle	suesprinkle@alaska.net	907-452-4166	F	W
16	Caitlin Lenahan	1730 Wilbur Run Caitlinena@gmail.com		F	W
17	John Perreault	john.perreault@alaska.gov		M	W
18	Mary Burtness	mburtness@gmail.com		F	W
19	Scott Cross	scott.cross@gmail.com	2540800	M	
20	Sarah Berger	berger.sarah@gmail.com	9079876015	F	W
21	Rebecca Siegel	1488 Carraive rebecca.siegel@gmail.com			W
22	Chris Darrah	cdarrah64@gmail.com		M	W
23	Phyllis Darrah	phyllisbrush@gmail.com		F	W

RACE CATEGORIES: WHITE (W), ALASKA NATIVE (AN), NATIVE AMERICAN (N), BLACK (B), HISPANIC (H), ASIAN (A), PACIFIC ISLANDER (P), and OTHER (O)

Effective: December 2004

stops



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SIGN IN SHEET

MEETING: TRANSIT PLANS UPDATE PUBLIC OPEN HOUSE			DATE: October 17, 2023		
	NAME (PLEASE PRINT)	MAILING ADDRESS and *EMAIL	PHONE	*SEX (M/F)	*RACE (W, AN, N, B, H, A, P, O)
1	Jackson Fox	100 Cushman Street, Suite 205, Fbks, AK jackson.fox@fastplanning.us	(907) 205-4276	M	W
2	Olivia Lunsford	100 Cushman Street, Suite 205, Fbks, AK olivia.lunsford@fastplanning.us	(907) 205-4276	F	W
3	Corey DiRutigliano	100 Cushman Street, Suite 205, Fbks, AK corey.diru@fastplanning.us	(907) 205-4276	M	W
4	Susan Bissell	227 Woodridge #10 Fairbanks AK bissell-s@msn.com	907-251-9744	F	W
5	Jim Richardson	1032 8th Ave richfai@gmail.com	907-378-7783	M	W
6	Douglas Wagoner	253 Romans Way		M	W
7	Rocky Osborne	455 3rd Ave #431 Fairbanks	907-799-4440	F	W
8	DEY JOHNSON		907 459-7435	F	H W
9	STEPHEN MCNULTY	P.O. Box 74822 FBX, AK 99707	907-978-2522	M	W
10	Griffen + Sunniva	3511 renald dr unit 2	206-556-8805	M/F	W, Asian american
11	Jacob Barnum	200 N. Cushman West	907-760-4494	M	White

RACE CATEGORIES: WHITE (W), ALASKA NATIVE (AN), NATIVE AMERICAN (N), BLACK (B), HISPANIC (H), ASIAN (A), PACIFIC ISLANDER (P), and OTHER (O)

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24	Mike Frantos	1248 Jones Rd mike.frantos@hotmail.com	907-322 9681	M	W
25	Michelle Denton	203 E Street Flks 99701		F	
26	Grace Felix	203 E St Flks 99701		F	
27	Nelson Felix III	203 E St Flks 99701		M	
28	Jennifer Jolis	PO Box 155 Ester 99725		why?	
29	Erin Tilly	erintilly@gmail.com 3842 Hasellock Dr Flx 99709		F	W
30	Emilie Wright	1718 Red Fox Dr emilielorraine@gmail.com		F	W
31					
32					
33					
34					

RACE CATEGORIES: WHITE (W), ALASKA NATIVE (AN), NATIVE AMERICAN (N), BLACK (B), HISPANIC (H), ASIAN (A), PACIFIC ISLANDER (P), and OTHER (O)

Effective: December 2004



SURVEY: HUMAN SERVICES PROVIDER TRANSPORTATION NEEDS

1. Organization Name:
2. Contact (Name, email, phone number, date)
3. Who do you serve? Who are your clients/customers?

4. How do your customers access/get to-and-from your services?

5. Do you provide any transportation-related assistance to help people access yours or other services? Describe:

6. Do you provide or coordinate financial assistance, like Medicaid vouchers?

Yes/No. Explain:



SURVEY: HUMAN SERVICES PROVIDER TRANSPORTATION NEEDS

7. Do you provide rides?

Yes/No. If Yes:

- a. For whom and for what types of appointments or destinations? (Use Transportation Provider survey to ask about service type, fleet, staff, funding mechanisms, etc.)
- b. What staff is responsible for coordinating any of the assistance you described? (Again, use Transportation Provider Survey)

8. What would you say are the main transportation-related needs of your customers?

9. How do you and your customers interact with the local transit system? Do you help people access MACS or Van Tran, or do they help people access your services?

10. Anything else you want to share about your organization and customers' needs related to transportation or the transit system?



SURVEY: TRANSPORTATION SERVICE PROVIDER

Organization Name:	Contact Name:
Headquarter Location:	Number:
Primary Services:	Title:

Management and Operations

Types of service you provide:

Fixed Route Demand Response Other Describe: _____

Describe area serviced (provide maps or GIS data if available):

Describe primary routes, including number and location of stops (provide maps or GIS data if available):

Days/hours of operation:

Dispatch method(s):

Staffed call center Calls taken by general staff member Other (describe):

Average number of riders:

Per day Per week Per month Per year

Number of administrative staff:

Number of drivers:

Number of support staff:

Current funding source(s):

Seasonal limitations/scheduling:

Other information relative to management and operations of the transportation services you provide:



SURVEY: TRANSPORTATION SERVICE PROVIDER

Organization Name:	Contact Name:
Headquarter Location:	Number:
Primary Services:	Title:

Management and Operations (Continued)

Vehicle Inventory (if more space is needed, please attach additional forms):

Vehicle Make/Model	Number of Vehicles	Year	Wheelchair (Y/N)	Passenger Capacity

Support Facilities

Location(s) _____

Lease or own _____

Landlord _____

Seasonal limitations _____

Vehicle maintenance _____

capabilities _____

Staff _____

Other information



SURVEY: TRANSPORTATION SERVICE PROVIDER

Organization Name:	Contact Name:
Headquarter Location:	Number:
Primary Services:	Title:

Human Service Providers

Passenger eligibility:

Medicaid Insurance ADA Other: _____

Use the space below to describe who your passengers are and expand on passenger eligibility if needed.

Scheduling and dispatching:

Number of staff Number of dedicated staff

Do you have a formal relationship or agreement with other community organizations to provide transportation services to your clients? If so, please describe the terms of the agreement.

Appendix B: Existing Conditions



2023 Transit Plans Update

Fairbanks North Star Borough

DRAFT EXISTING CONDITIONS REPORT

Prepared for:



FAST Planning

Prepared by:



R&M Consultants, Inc.

IN COOPERATION WITH
Alta Planning + Design, Inc.

December 2023

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ACRONYMS

ACS	American Community Survey
ADA	Americans with Disabilities Act
ADOL&WD	Alaska Department of Labor & Workforce Development
APC	Automated Passenger Counters
BLTS	Bicycle Level of Traffic Stress
CARES	Coronavirus Aid, Relief and Economic Security
CEDS	Comprehensive Economic Development Strategy
CHSTP	Coordinated Human Services Transportation Plan
CMAQ	Congestion Mitigation & Air Quality Improvement Plan
CRP	Carbon Reduction Program
CRRS	Coronavirus Response and Relief Supplemental Appropriations Act of 2021
DOL	Alaska Department of Labor
DOL&WD	Alaska Department of Labor & Workforce Development
DOT&PF	Alaska Department of Transportation & Public Facilities
FAST	Fairbanks Area Surface Transportation
FIA	Fairbanks International Airport
FNSB	Fairbanks North Star Borough
FTA	Federal Transit Administration
LEHD	Longitudinal Employer-Household Dynamics
LEP	Limited English Proficiency
LTS	Level of Traffic Stress
MACS	Metropolitan Area Commuter System
MPA	Metropolitan Planning Area
MPL	Metropolitan Planning
MPO	Metropolitan Planning Organization
MTA	Metropolitan Transportation Authority
OSM	OpenStreetMap
PLTS	Pedestrian Level of Traffic Stress
STP	Surface Transportation Plan
TAP	Transportation Alternatives Program
TIP	Transportation Improvement Program
TPL	Transit Planning
TPU	Transit Plans Update
UAF	University of Alaska Fairbanks

1. INTRODUCTION & BACKGROUND

PURPOSE & NEED

The Fairbanks Area Surface Transportation (FAST) Metropolitan Planning Area (MPA) is growing, and its demographic is changing. As Eielson Airforce Base fully staffs and the greater Fairbanks area population ages, coordinated services and planning efforts are essential to provide for the needs of the changing population. To address these issues and opportunities, the Fairbanks North Star Borough (FNSB) partnered with FAST and the Alaska Department of Transportation & Public Facilities (DOT&PF) to update the Short- and Long-Range Transit Plan and the Coordinated Human Services Transportation Plan (CHSTP). This singular planning effort is accordingly referred to as the “Transit Plans update.”

The plans address both current and future public transportation needs of all residents of the greater Fairbanks community and fulfils the requirements of the Bipartisan Infrastructure Law. The Existing Conditions section sets the stage for the short- and long-term recommendations. It assesses existing transit services, reviews pertinent plans and documents, outlines relevant demographic characteristics, analyzes travel patterns, identifies service gaps, and evaluates equity and accessibility.

PROJECT BACKGROUND & CONTEXT

FAST Planning

Fairbanks Area Surface Transportation (FAST) Planning is the Metropolitan Planning Organization (MPO) for the urbanized areas of the Fairbanks North Star Borough, including the cities of North Pole and Fairbanks. FAST Planning is a 501(c)(3) nonprofit organization. FAST Planning focuses on creating plans, including this Transit Plans update, that will guide local multi-modal transportation system investments to safely and efficiently move people and goods while simultaneously supporting economic progress, environmental protection, and an improved quality of life.

As a MPO, FAST Planning receives an annual allocation of federal funding for transportation projects, plans, and programs under a population-based formula through the DOT&PF. The federal funding received includes multiple fund categories including Surface Transportation Program (STP), Congestion Mitigation and Air Quality (CMAQ) Improvement Program, Transportation Alternatives Program (TAP), Carbon Reduction Program (CRP), Metropolitan Planning (MPL), and Transit Planning (TPL) funds. FAST Planning maintains a 4-year Transportation Improvement Program (TIP) that programs the annual allocation of each funding category to various projects, plans, and programs. Inputs to the TIP are nominated by the public and local agencies to FAST Planning, reviewed and scored by the FAST Planning Technical Committee, and approved by the FAST Planning Policy Board.

Metropolitan Area Commuter System Transit

Metropolitan Area Commuter System (MACS) Transit, operated by the FNSB Transportation Department, is the fixed route bus service system for the borough. FNSB began operating MACS in 1977. The system currently operates eight routes Monday through Friday, except for eight holidays. Routes run from 6 or 7 A.M. to 9 or 10 P.M. The MACS Transit Center is in downtown Fairbanks and serves as a hub for transfers between most routes. It also provides a heated, indoor facility for passengers. Bus service is provided throughout Fairbanks and North Pole, around Farmer's Loop Road, and to and from the Fairbanks International Airport main terminal and East Ramp.

Coordinated Human Services Transportation Plan

The Coordinated Human Services Transportation Plan (CHSTP) focuses on the transportation needs of disadvantaged persons and those with special transportation needs that cannot be met through traditional personal automobile or public transportation means. An effective public transit and human services transportation system enhances the quality of life for those who cannot drive. Additionally, federal transit law requires that projects selected for funding under the Enhanced Mobility for Seniors and Individuals with Disabilities (Section 5310) Program be "*included in a locally developed, coordinated public transit-human services transportation plan.*" Federal law also requires that the plan must be developed and approved through a process that includes participation by seniors; individuals with disabilities; representatives of public, private, and nonprofit transportation and human services providers; and other members of the public utilizing transportation services. FAST Planning is responsible for facilitating the required planning process among the region's various transportation and human services providers.

FNSB provides demand-responsive paratransit service with Van Tran to meet requirements of the Americans with Disabilities Act (ADA). The service is available for senior citizens and people with disabilities who are unable to use MACS. Riders must complete an application to become eligible to use Van Tran.

REVIEW OF EXISTING PLANS, STUDIES, AND REPORTS

Published planning documents and ongoing planning efforts are reviewed to provide context for this report and to ensure effective coordination between existing and future transit and transportation planning efforts. The table below summarizes the plans reviewed. A description of policies as well as programs or projects relevant to updating the Transit Plan is found in **Appendix A**.

STATE OF ALASKA

- *Alaska Statewide Transportation Plan – Alaska Moves 2050, 2023*
- *Interior Alaska Transportation Plan, 2010*
- *DOTPF ADA Transition Plan, 2023*

FAIRBANKS NORTH STAR BOROUGH

- *Fairbanks North Star Borough Regional Comprehensive Plan, 2005, amended 2022*
- *Fairbanks Comprehensive Economic Development Strategy (CEDS), 2022*
- *Fairbanks North Star Borough Coordinated Transportation Plan, 2015*
- *Fairbanks North Star Borough Senior Needs Transportation Survey Report, 2023*
- *Fairbanks North Star Borough Joint Land Use Study, 2006*
- *Downtown Fairbanks 2040 Plan, 2023 DRAFT*
- *Salcha-Badger Road Area Plan, 2019*

FAST PLANNING

- *2045 in Motion, Metropolitan Transportation Plan, 2023 DRAFT*
- *Connect Fairbanks, Non-motorized Plan, 2021*
- *Complete Streets Policy, 2015*
- *FAST Planning Seasonal Mobility Task Force – Mobility Recommendations Report, 2021*
- *FAST Planning FFY2023-2027 Transportation Improvement Program, 2023*
- *FAST Public Participation Plan, 2023 DRAFT*
- *FAST Title VI Plan, 2020*

CITY OF FAIRBANKS

- *City of Fairbanks Sidewalk Transition Plan Report, 2018*

CITY OF NORTH POLE

- *North Pole Strategic Plan, 2016*
- *North Pole Land Use Plan, 2010*

EIELSON AIR FORCE BASE

- *Eielson Air Force Base Regional Growth Plan, 2018*

FORT WAINWRIGHT

- *Fort Wainwright, West Post District Area Development Plan, 2017 & Fort Wainwright, Chena North District Area Development Plan, 2016*

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 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.

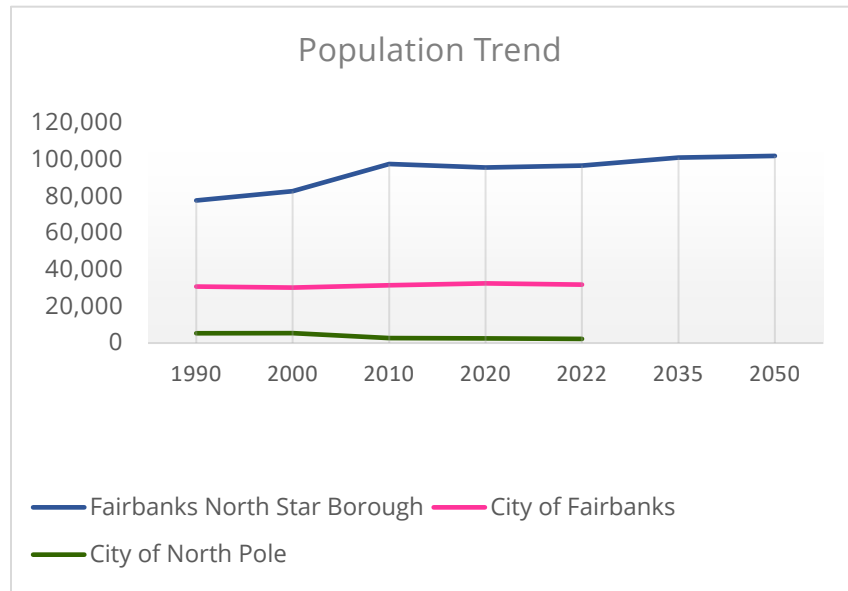


Figure 1- Population Trend

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

● Fairbanks North Star Borough

● City of Fairbanks

● City of North Pole

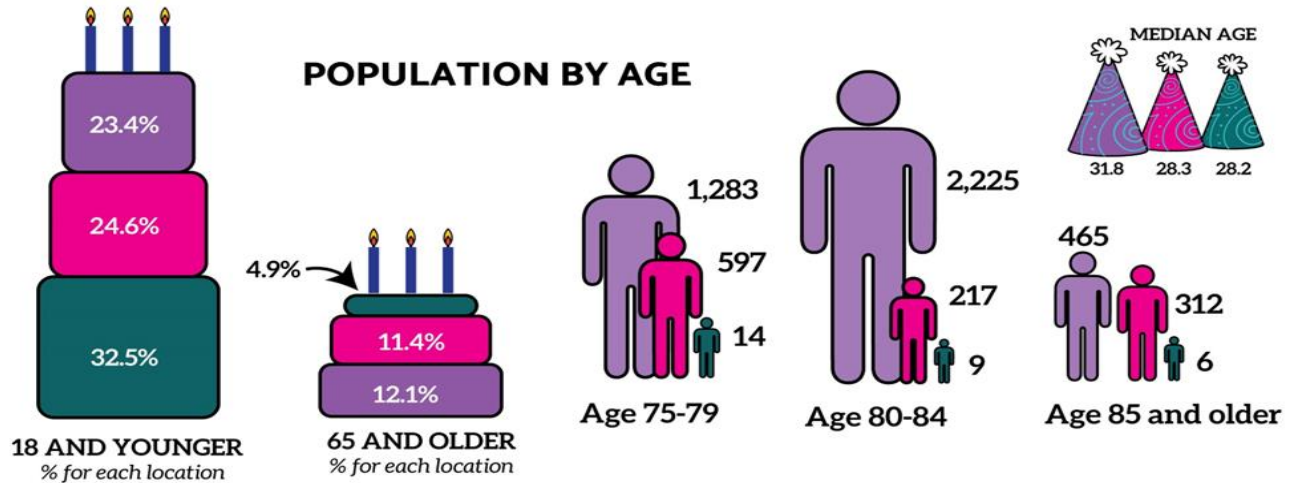


Figure 2 - Population by Age

Fairbanks, on average, is a young community. In the City of North Pole nearly one third of the 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. As people age, they may experience changes in vision, mobility, and health that prevent them from driving a personal vehicle.

MEDIAN INCOME & POVERTY

POPULATION	95,655	32,515	2,610
MEDIAN INCOME	\$83,519	\$66,572	\$83,524
% POPULATION BELOW POVERTY LEVEL	7.9	9.1	5.3

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.

Figure 3 - Median Income & Poverty

DISABILITIES, VETS & MINORITIES

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.

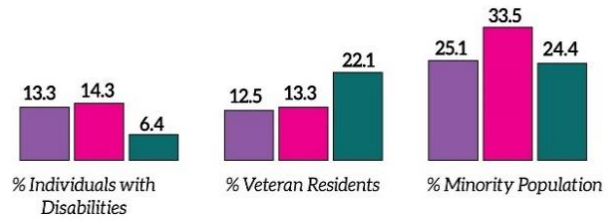


Figure 4 - Disabilities, Vets & Minorities

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.

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.

Table 1- Employment & Travel Time to Work



HOUSING CHARACTERISTICS BY PLACE

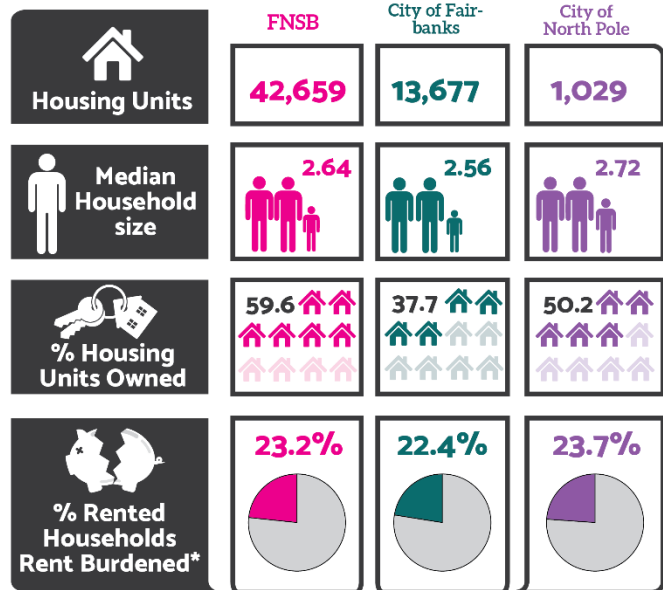
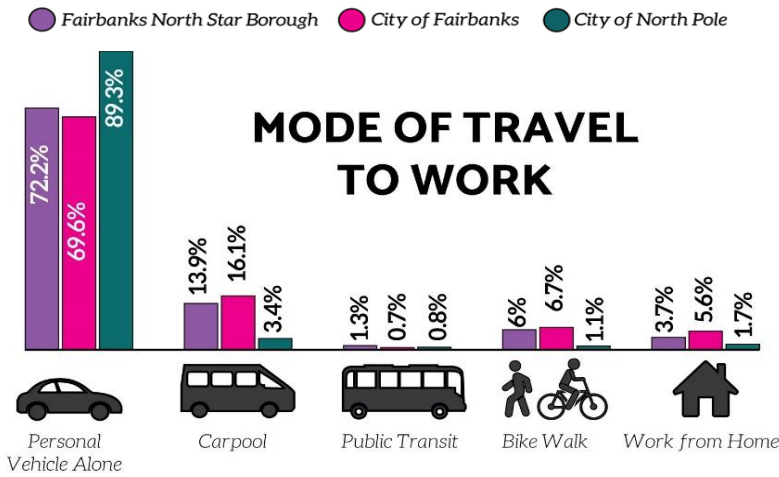


Figure 5 - Housing Characteristics

Employment & Travel to Work by Place				
	% Employed	% Zero Vehicle Workers	Zero Vehicle Households	Average Travel Time to Work

Fairbanks North Star Borough	53.3	2.1	1,653	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



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.

LAND USE

A review of land use plans and land use regulations is helpful in predicting future transit demand. Understanding where different types of existing and planned development (where people live and work) provides information about where people are and where they go. Each of the plans reviewed provides insight into where and what type of future development may be located.

Fairbanks North Star Borough

2005 FNSB Comprehensive Plan, updated in 2020, includes both land use and transportation elements. The plan states that future commercial development proposed outside designated commercial areas needs to consider the availability of public transit. The plan identifies a lack of privately owned land and supports releasing appropriate public lands into private ownership. The Comprehensive Plan includes a map that identifies land use categories (Figure 7). The categories within the planning area are described below:

Industrial – activities such as manufacturing, processing, and storage, that handle explosives or other hazardous materials, or emit noise, air, chemicals, or other pollutants detrimental to surrounding land uses and should therefore be developed in areas sufficiently buffered to avoid detrimental effects.

Light Industrial Area – activities such as manufacturing, storage, wholesaling, repair maintenance and related office functions which do not handle explosive or other

hazardous materials or emit noise, air, chemicals, or other pollutants detrimental to surrounding land uses.

Open space/Natural Area – undeveloped areas in a natural state, golf course, park or cemetery, along a road that provides some visual relief from urbanization and public recreation. Open space may or may not be improved, but it does serve to interrupt more intense land uses.

Rural Settlement Area – publicly owned land planned for residential land disposals. Rural settlement areas are intended to have appropriate public improvements common in other rural residential areas.

Urban Preferred Residential – land determined to be more suitable than other lands for development because it is generally: a) on slopes of 20% or less, b) not designated wetlands, c) has a lower probability of containing detrimental permafrost conditions.

Urban Preferred Commercial – activities such as office buildings, government offices, schools, public facilities, entertainment, shopping, and churches. These facilities shall be located to provide conveniently to residential areas without impacting residential uses.

Figure 7 - Map of Land Use Designations, FNSB



2023 Transit Plans Update
Fairbanks North Star Borough

Metropolitan Area Commuter System (MACS)

by Peak Headway

- 30 Minutes
- 60 Minutes
- Limited

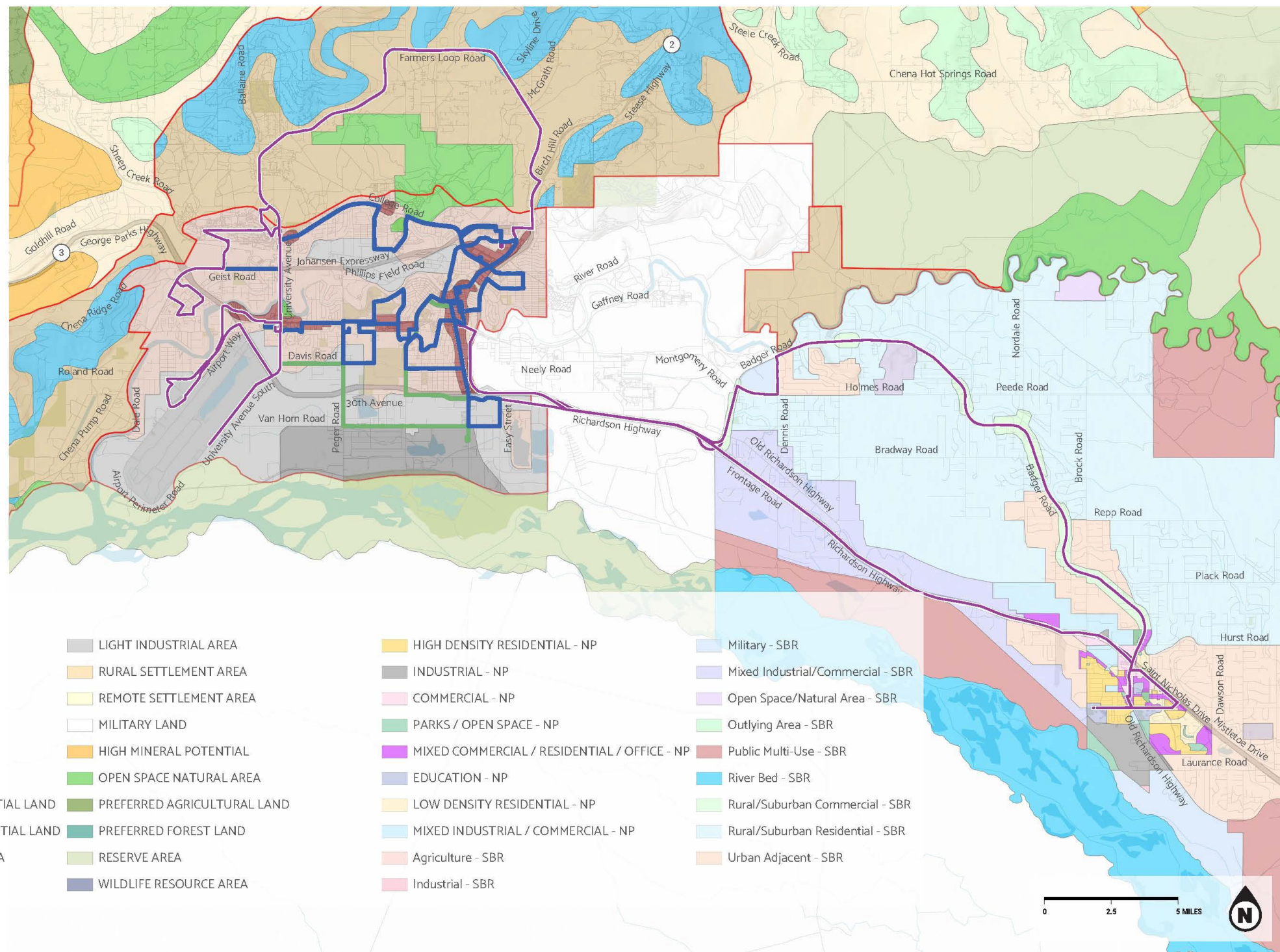
Comprehensive Plan (Land Use)

- URBAN AREA
- URBAN BOUNDARY
- PERIMETER AREA
- PERIMETER BOUNDARY
- OUTSKIRT AREA
- OUTSKIRT BOUNDARY
- OUTSKIRT AREA PREFERRED RESIDENTIAL LAND
- PERIMETER AREA PREFERRED RESIDENTIAL LAND
- URBAN PREFERRED COMMERCIAL AREA
- HEAVY INDUSTRIAL AREA

- LIGHT INDUSTRIAL AREA
- RURAL SETTLEMENT AREA
- REMOTE SETTLEMENT AREA
- MILITARY LAND
- HIGH MINERAL POTENTIAL
- OPEN SPACE NATURAL AREA
- PREFERRED AGRICULTURAL LAND
- PREFERRED FOREST LAND
- RESERVE AREA
- WILDLIFE RESOURCE AREA

- HIGH DENSITY RESIDENTIAL - NP
- INDUSTRIAL - NP
- COMMERCIAL - NP
- PARKS / OPEN SPACE - NP
- MIXED COMMERCIAL / RESIDENTIAL / OFFICE - NP
- EDUCATION - NP
- LOW DENSITY RESIDENTIAL - NP
- MIXED INDUSTRIAL / COMMERCIAL - NP
- Agriculture - SBR
- Industrial - SBR

- Military - SBR
- Mixed Industrial/Commercial - SBR
- Open Space/Natural Area - SBR
- Outlying Area - SBR
- Public Multi-Use - SBR
- River Bed - SBR
- Rural/Suburban Commercial - SBR
- Rural/Suburban Residential - SBR
- Urban Adjacent - SBR



City of Fairbanks

The City of Fairbanks does not exercise planning and zoning powers; these are accomplished by the FNSB. Current land use designations in the City of Fairbanks are shown in Figure 8. The land use descriptions are the same as those for the FNSB.

The Draft Downtown Fairbanks 2040 plan presents two future land use options for public consideration. Once adopted and implemented these land use designations, and future development that aligns with this vision, have the potential to impact transit. The plan encourages mixed-use development and promotes increased housing density in the downtown core. Both options include the same land use categories summarized below:

Urban Core – intended to be the employment and activity center; pedestrian oriented commercial uses; high density residential of no less than 13 dwelling units per acre; minimal off-street parking; streets designed to emphasize accessibility over mobility.

Mixed-use Preferred Residential – intended to be a transitional area between intense commercial area and residential areas; high density residential of 13-29 dwelling units per acre and compatible small scale commercial uses; ground floor retail encouraged; large commercial uses only along high-volume roads.

Mixed-use Preferred Commercial – intended to provide commercial uses with a regional focus; mid-scale higher intensity commercial uses with less pedestrian focus; residential density of no less than 13 dwelling units per acre; limited new industrial uses.

Downtown Neighborhood Residential – intended to protect established residential neighborhoods; residential density between 5 and 13 dwelling units per acre; compatible uses.

The plan also includes the land use categories of Parks and Open Space and River Corridor. Neither of these categories provide for commercial or residential development. However, parks are a destination and should be considered in transit route development.

Once adopted, this plan will supersede the regional comprehensive plan map from the FNSB Comprehensive Plan for the project area.

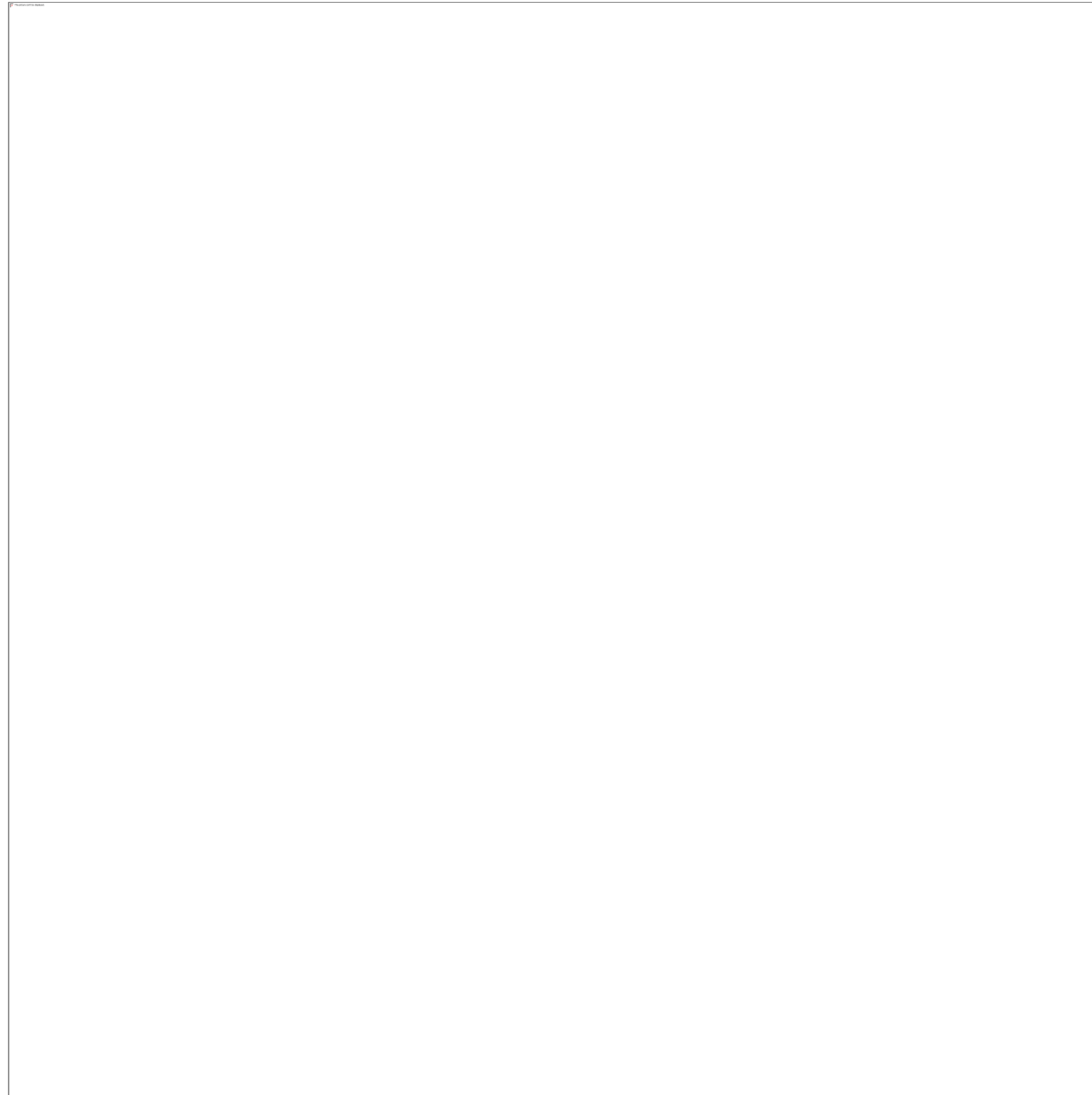


Figure 8 - Map of Land Use Designations, City of Fairbanks

City of North Pole

The North Pole Land Use Plan establishes land use categories ranging from low density residential (1-4 dwelling units per acre), high density residential (5 or more dwelling units per acre), mixed commercial/residential (including high density residential and offices), mixed uses encouraged, industrial, mixed industrial/commercial (including office and general business uses), education, and open space/natural areas. The plan focuses commercial areas near the Richardson Highway and Badger Road. The land use designations are shown in Figure 9 with the suffix "NP."

The plan is intended to guide future land use determinations and zoning changes. The City of North Pole issues building and utility permits within city limits. Zoning, and zoning permits are the responsibility of the FNSB.



2023 Transit Plans Update

Fairbanks North Star Borough

Metropolitan Area Commuter System (MACS)

by Peak Headway

- 30 Minutes
- 60 Minutes
- Limited

Comprehensive Plan (Land Use)

- Residential
- Commercial
- Industrial
- Mixed Use
- Public use / Institution
- Open Space
- Agriculture / Resource Extraction

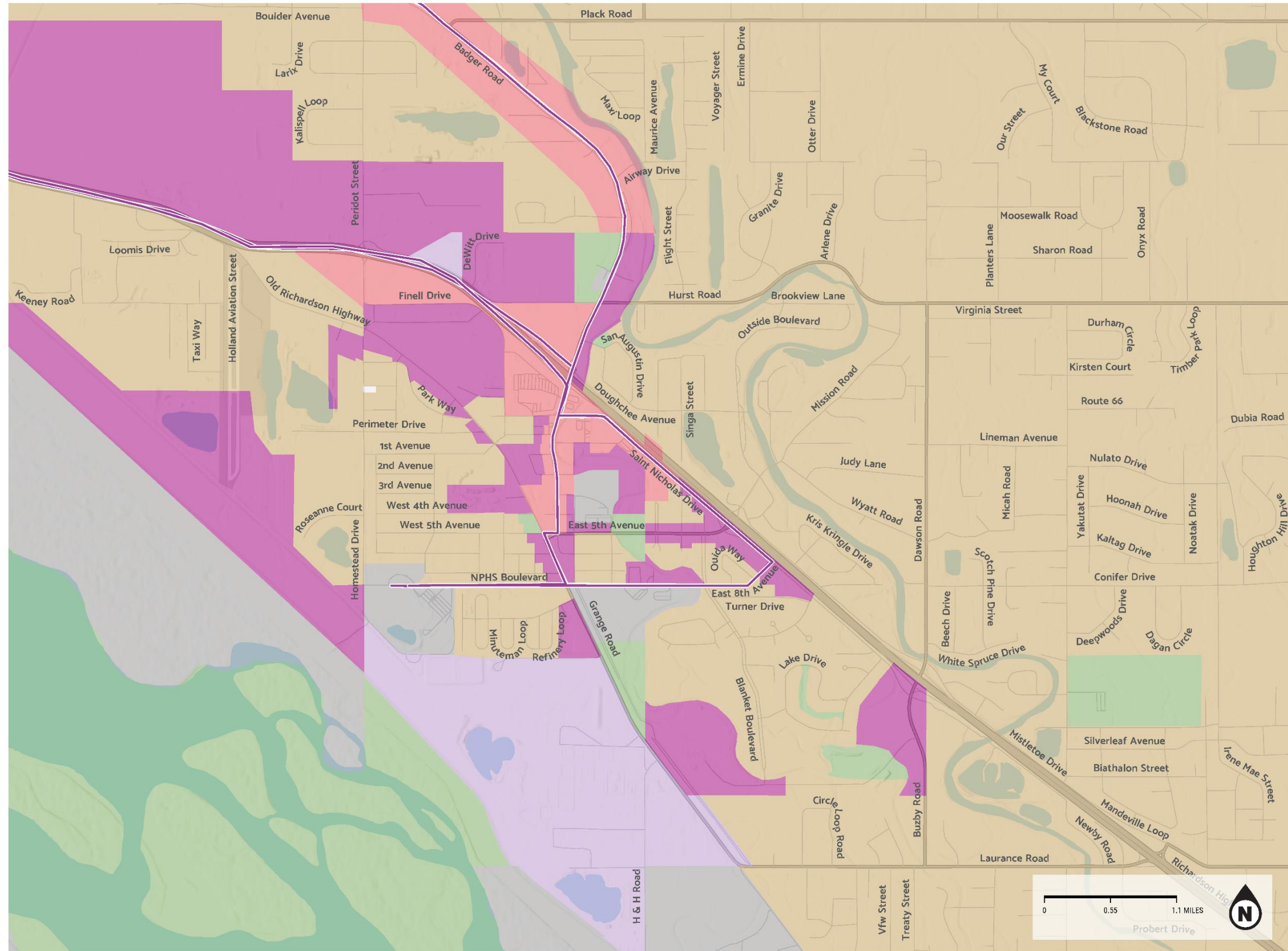


Figure 9 - Map of Land Use Designations, North Pole

ECONOMICS

The Fairbanks North Star Borough is the regional economic hub of interior Alaska. People from the broader Interior region travel to, and through, Fairbanks for goods and services. Additionally, Eielson Air Force Base, Fort Wainwright and the University of Fairbanks are significant economic engines, both drawing people to Fairbanks, creating jobs, and a need for services and housing. The U.S. Census reports that fewer than 2% of the FNSB's workers travel outside FNSB for work.

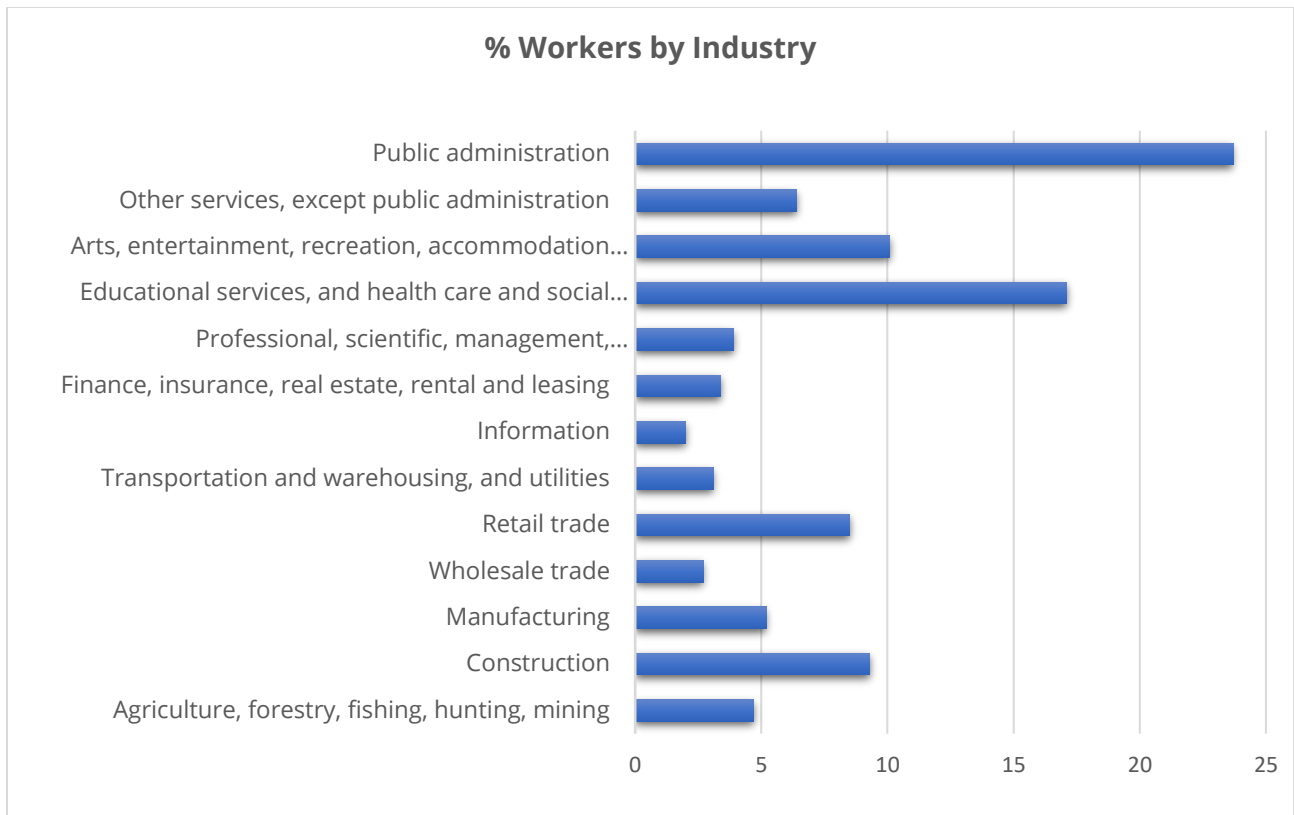


Figure 10 - Percent Workers by Industry

The January 2023 Trends, published by DOL, states that Fairbanks experienced fewer pandemic job losses than Anchorage and Southeast Alaska, due in part to a military influx and less reliance on tourism. Fairbanks private sector job count increased in 2022 by five hundred jobs. This growth was primarily in leisure and hospitality industries. At the same time two hundred government jobs were lost. DOL is forecasting continued job growth. The January 2023 Trends article states that Fairbanks is expecting significant funding from the infrastructure bill, which will help support the economy with projects such as upgrades to the Fairbanks International Airport, and research funding at the University of Fairbanks.

MAJOR DESTINATIONS

The University of Alaska, Fairbanks (UAF) campus is located just outside city limits of the City of Fairbanks, with the main campus located northwest of the College Road and Farmer's Loop Road intersection, off Alumni Drive. According to the UAF website there are

seven off-campus locations within the vicinity of the main campus. Founded in 1917, UAF currently has 545 faculty, 2,498 staff, and 7,425 enrolled students. UAF offers a variety of on-campus housing options including dormitories, apartments and duplexes, and options for couples and families.

There are numerous health care options in the FNSB. Within the City of Fairbanks is the Chief Andrew Isaac Healthcare Center, Fairbanks Memorial Hospital, Tanana Valley Clinic, Denali Center long-term care facility, Fairbanks Regional Public Health Center, Fairbanks Urgent Care Center, and the Interior Community Health Center. In North Pole there is Fireside Family Medicine.

Fairbanks is the retail hub of the FNSB. While businesses are spread throughout the community, there are two major shopping districts, “East Fairbanks” (roughly between College Road, the Johansen Expressway, and the Steese Highway) and “West Fairbanks” (around the University Avenue and Airport Way intersection). The East Fairbanks shopping district includes major retailers such as Safeway, Fred Meyers, Walmart, Lowe’s, Home Depot, Walgreen’s, Petco, Costco, Sportsman’s Warehouse, Old Navy, Ulta, GameStop, and Barnes and Noble, as well as many local businesses. The relatively smaller West Fairbanks shopping district includes businesses such as Safeway, Fred Meyer, Arby’s, Taco Bell, AutoZone, and Ace Hardware.

FNSB operates two public libraries: the Noel Wien Public Library in Fairbanks and the North Pole Branch. Because the Noel Wien Public Library is undergoing renovations there is a temporary branch at the Joy Community Center in Fairbanks.

Fairbanks International Airport (FIA), owned by the state, is three miles southwest of downtown Fairbanks. FIA, together with Anchorage International Airport make up the state’s International Airport System. FIA is the second-largest airport in Alaska and serves as the regional passenger and cargo hub for interior. DOT&PF reports there were more than 107,000 takeoffs and landings in 2022 and that more than 1.1 million passengers transit the airport annually.

2. 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 11 - 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 2 -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,² and average annual productivity³ 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 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 2.

Table 2 -Service Details by Line

Line	Peak Headway	Days	Service Span	Type of Service	Average Annual Unlinked Trips (FY2019-FY2023)	Average Annual Productivity (FY2019-FY2023)
Blue	30	M-F	6:60AM-9:45PM	Regular	88,519	14.8
Brown	30	M-F	7:00AM-9:10PM	Regular	28,940	13.7
Green	90	M-F	6:00AM-8:52PM	Limited	25,406	8.3
Grey	60	M-F	6:45AM-6:40PM	Limited	7,158	5.7
Orange	60	M-F	6:30AM-6:00PM	Regular	15,959	5.8
Purple	30	M-F	6:30AM-9:44PM	Regular	53,651	19.9
Red	30	M-F	6:15AM-9:45PM	Regular	77,877	14.0
Yellow	75	M-F	7:15AM-6:59PM	Limited	10,930	4.3
					308,441 <i>(Total of Systemwide Averages)</i>	10.8 <i>(Systemwide Average)</i>

² 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.

³ "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.



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Fairbanks North Star Borough

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

- Blue Line
- Brown Line
- Green Line
- Grey Line
- Orange Line
- Purple Line
- Red Line
- Yellow Line
- VanTran Service Area

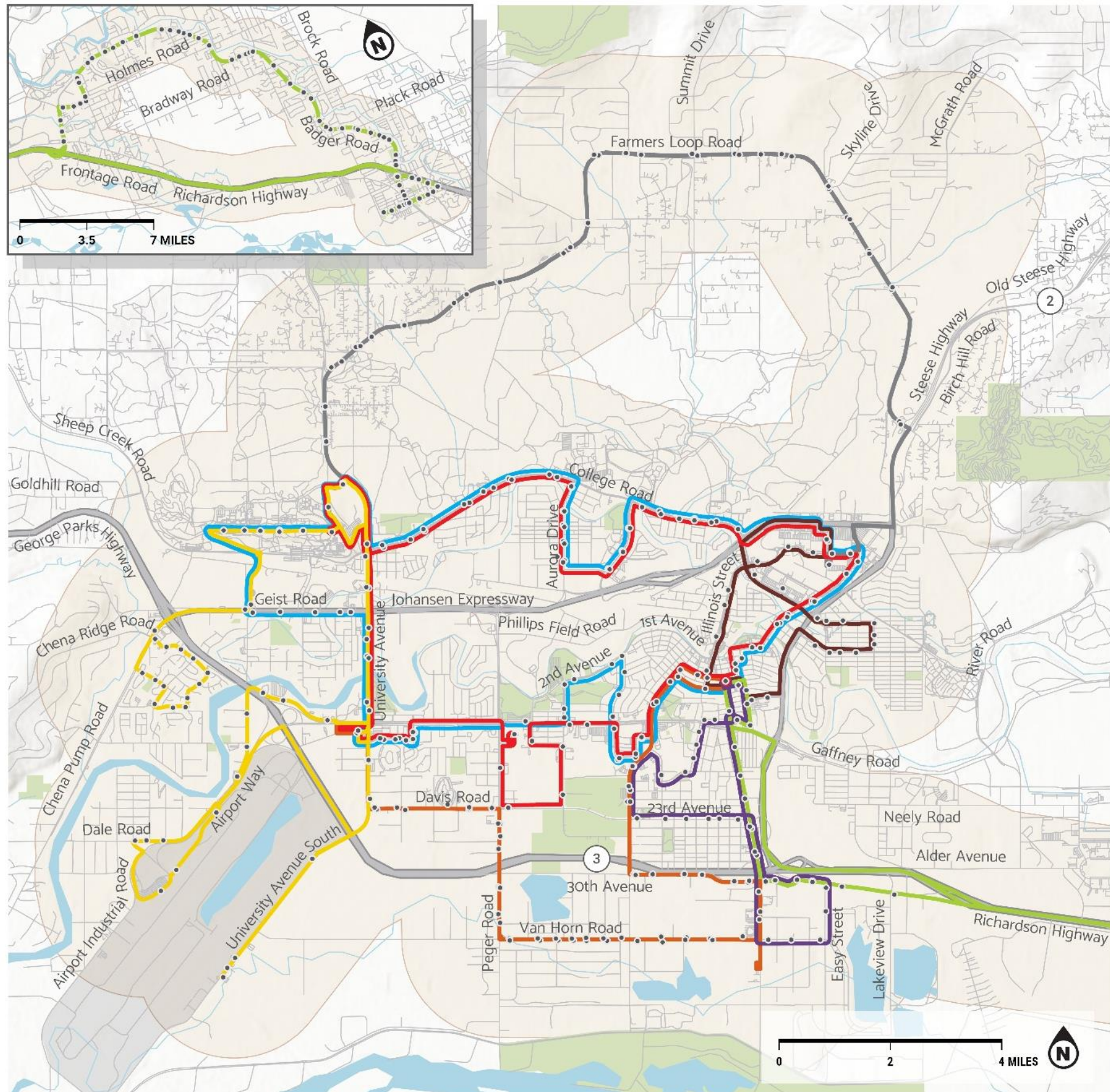
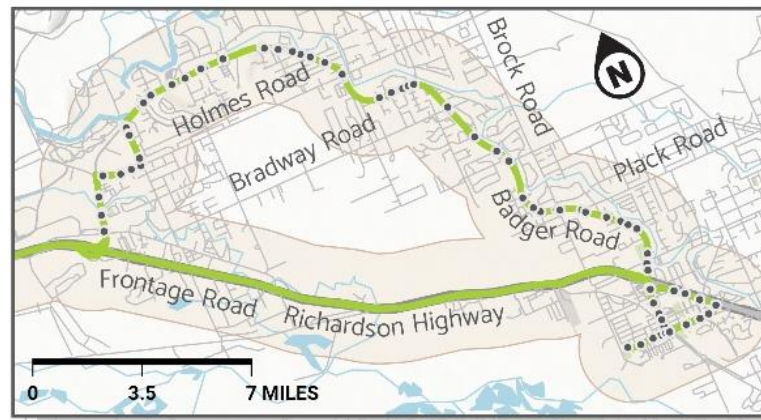


Figure 11 - MACS Routes & Stops

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. Figure 13 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.



Figure 12 - Riders waiting for the Blue Line at Fred Meyer West



2023 Transit Plans Update

Fairbanks North Star Borough

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

Peak Frequencies

- 30 Minutes All-day service
- 60 Minutes All-day service
- Limited AM and PM peak only

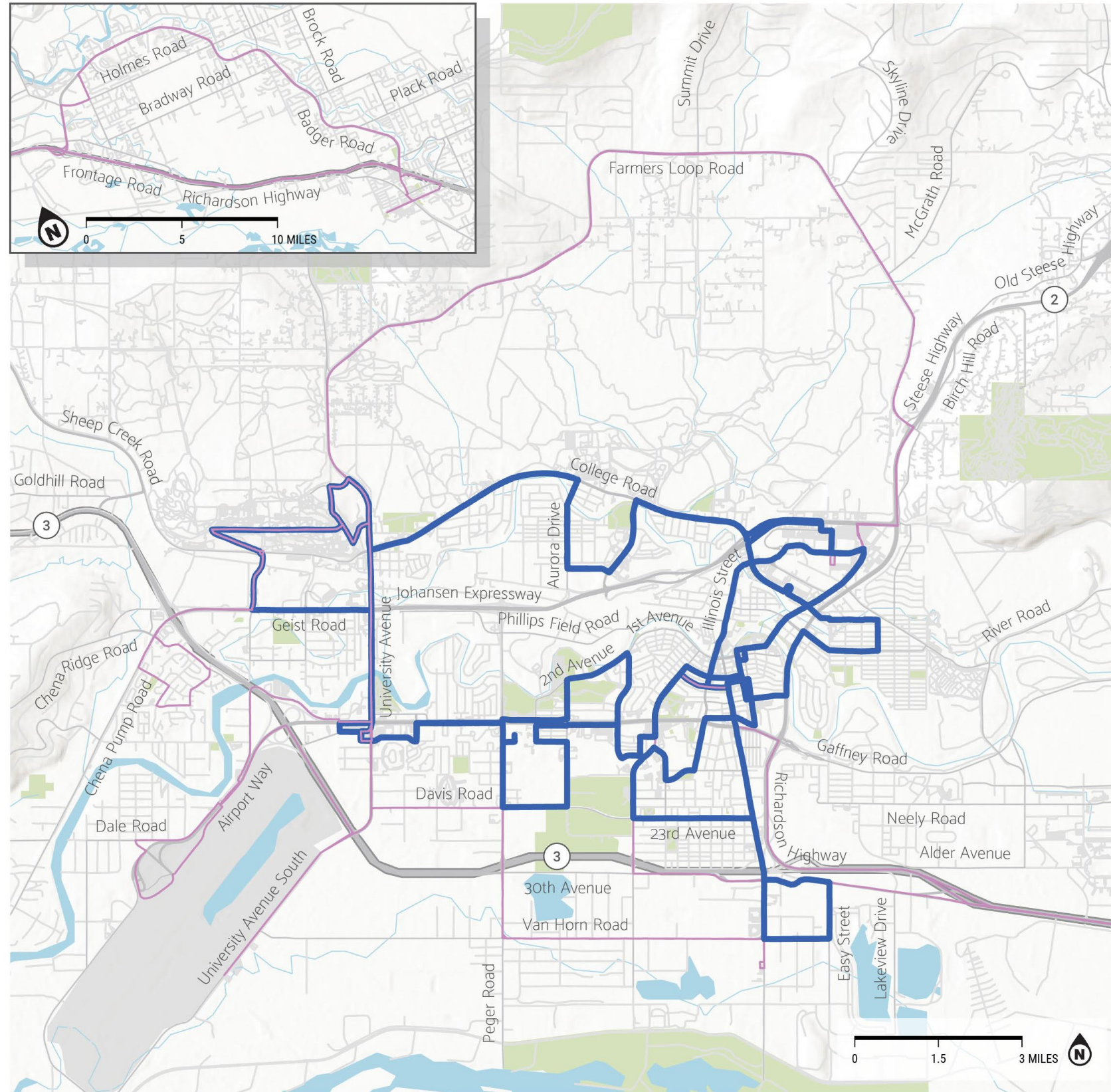


Figure 13 - MACS Routes by Peak Headway

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 segments⁴ 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:

- 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.



Figure 14 - MACS bus stop with schedule and route information

⁴ "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 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.

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.



Figure 15 - The Transit Center in downtown Fairbanks

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 **Error! Reference source not found.**

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.

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, MACS is investigating adding racks with that capability due to popular demand.



Figure 16 - Integrated Transit in Fairbanks

FARES

Currently, MACS fixed-route riders use cash to obtain single-ride tokens from vending machines, as shown in Figure 4. 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.

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 Table 3 - Fare Categories.

Table 3 - Fare Categories

Fare Category	Adult Ages 19 to 59	Reduced Ages 6 to 18, people with Medicare or Medicaid Cards, active military and dependents, those with qualifying disabilities	Seniors & Children Ages 60 and over or 5 and under
Single Ride	\$1.50	\$0.75	
Day Pass	\$3.00	\$2.00	
Half Month Pass	\$20.00	\$20.00	Ride Free
Monthly Pass	\$40.00	\$20.00	



Figure 17 - MACS Token Vending Machine

The MACS fixed route system paused fare collection for all riders during the COVID-19 pandemic with financial support from Federal programs such as the Coronavirus Aid, Relief, and Economic Security (CARES) Act and the Coronavirus Response and Relief Supplemental Appropriations Act of 2021(CRRSA). MACS resumed collecting fares in July 2022 and fare payment is now required to use the system.

SYSTEM METRICS

The Federal Transit Administration (FTA) requires transit agencies in the United States to annually report data, including operating expenses, ridership, and number of vehicles in operation, among other measures. The following sections highlight how MACS performed between 2013 and 2021 under a series of metrics that analyze this available NTD data. They also compare the performance of the MACS fixed route system under those metrics to three peer transit agencies in similarly sized metropolitan areas: Josephine County, Oregon; Pocatello, Idaho; and Dubuque, Iowa. These peer agencies share numerous characteristics with the FNSB, including:

- Having similar urbanized area populations (about 50,000 to about 100,000).
- Sharing a land use context of a compact downtown surrounded by large rural/low density areas.
- Being smaller systems operating between 9 and 11 fixed route buses (and between 14 and 28 transit vehicles total including paratransit).
- Supplying a similar number of annual vehicle revenue miles (about 280,000 to about 655,000).
- Reporting similar numbers of annual unlinked trips (about 106,000 to about 550,000)
- Having some have limited service commuter buses (similar to the MACS Green Line).

Comparing MACS to these peer agencies can help MACS understand if the trends it is experiencing are unique to the FNSB or if these trends are impacting similar agencies across multiple geographic areas.

It is important to note that full NTD data for 2022 and 2023 is not yet available. MACS is processing preliminary data to share with the FTA that shows an increase in ridership from 2021, and some of this more recent ridership data is used in several sections of this report. However, the analysis of system metrics in this section relies on officially released 2013 to 2021 NTD data to maintain consistency.

Van Tran paratransit system metrics are discussed separately in the Human Services Transportation section and are also compared to the same peer agencies discussed above.



Figure 18 – MACS bus undergoing maintenance at agency facility

OPERATIONAL PERFORMANCE METRICS

Investment

The transit investment metric, which is calculated by dividing the number of revenue hours provided by a transit agency by the population of the metropolitan area, helps contextualize how much service an agency is delivering to that area’s population. Transit investment for MACS Fairbanks peaked in 2016 and has mostly fallen since then. Investment fell to its lowest level in 2020, at approximately 0.4 revenue hours per capita, likely due to the impacts of the COVID-19 pandemic. 2019 saw a resurgence in transit investment, however, as is common with transit agencies across the United States, as of 2021 transit investment had not yet recovered to 2019 levels.

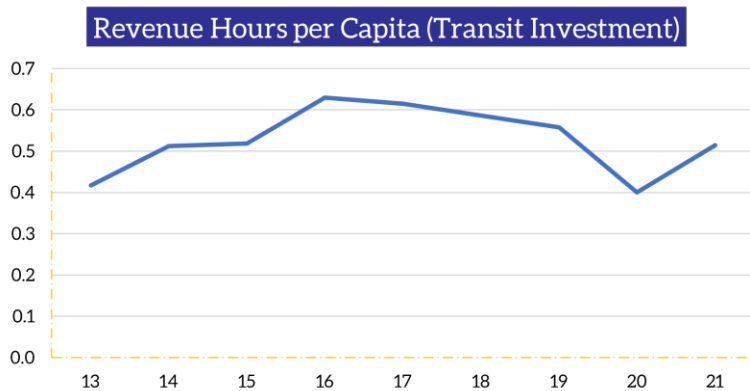


Figure 19 - Revenue Hours per Capita (Transit Investment), MACS/Fairbanks

Similarly sized peer agencies did not experience as drastic of a drop in transit investment during 2020. Josephine County increased its transit investment slightly between 2019 and 2020, while Dubuque continued a trend of decreasing transit investment, a trend that originated in 2018.

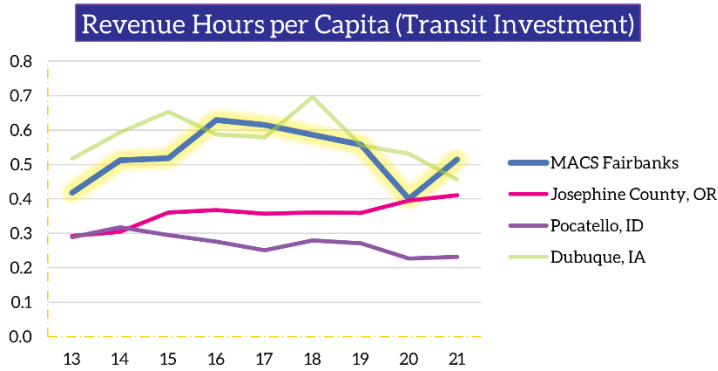


Figure 20 - Revenue Hours Per Capita (Transit Investment) – Community Comparison

Relevance

Transit relevance can demonstrate how vital or important transit service is to a community by showing the number of trips made per person in the agency’s service area. Transit relevance experienced an increase in the FNSB between 2013 and 2015 but has been declining since then. By this measure, the relevance of the MACS transit system has more than halved from its peak in 2015 of more than eight trips per capita to a low of less than 3 trips per capita in 2021. Increasing post-Pandemic ridership may see these levels increase when 2022 and 2023 NTD data becomes available.

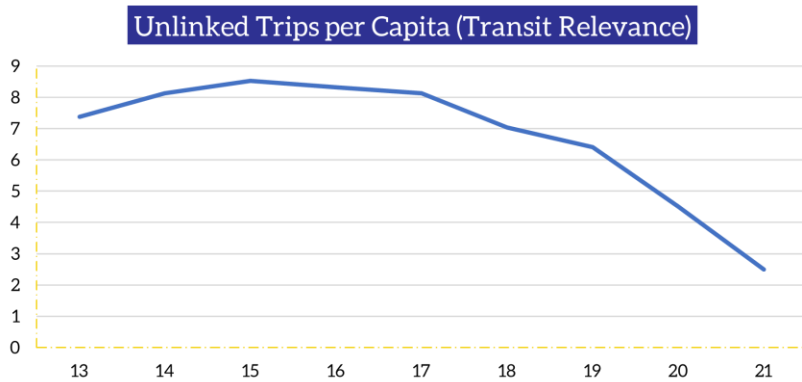


Figure 21 - Unlinked Trips per Capita, MACS/Fairbanks

The trend of decreasing transit relevance is not unique to MACS. The analyzed peer agencies have also experienced a significant decrease in trips taken during the same time, albeit to a lesser extent than MACS.

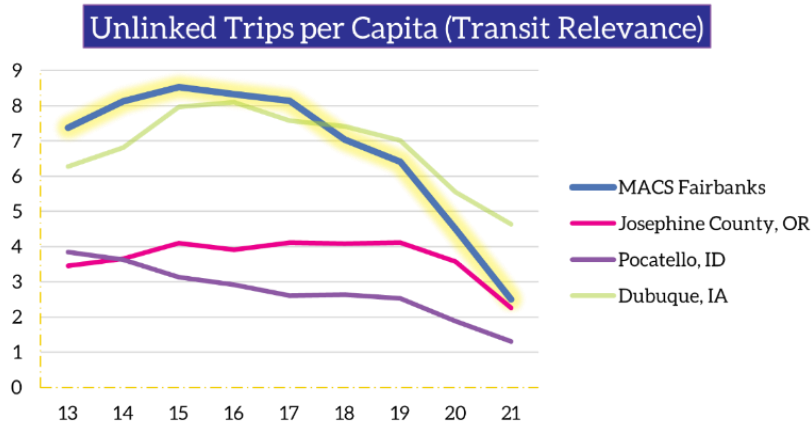


Figure 22 - Unlinked Trips per Capita, Community Comparison



Figure 23 - Interior of a MACS bus stored at agency facility

Productivity

Productivity demonstrates how ridership relates to the level of transit service provided. It is a measure of how “productive” the system is in terms of the average number of trips taken per revenue service hour. This concept was introduced in the Service Overview section.

A systemwide decrease in productivity appears to have been happening in Fairbanks for some time and was accelerated by the COVID-19 Pandemic. Despite this decrease in productivity, **Error! Reference source not found.** at the beginning of this section shows that productivity for some lines (Brown, Blue, Red, and Purple) is at 13.0 or greater, with average systemwide productivity tentatively back up to 10.8 (approximately matching pre-Pandemic levels).

This productivity data also suggests that MACS has not significantly cut transit service despite decreases in ridership. However, this data also does not reflect ridership changes that may have occurred in 2022 and 2023, after MACS cut Saturday service due to a shortage of bus operators.

Unlinked Trips per Vehicle Revenue Hour (Productivity)

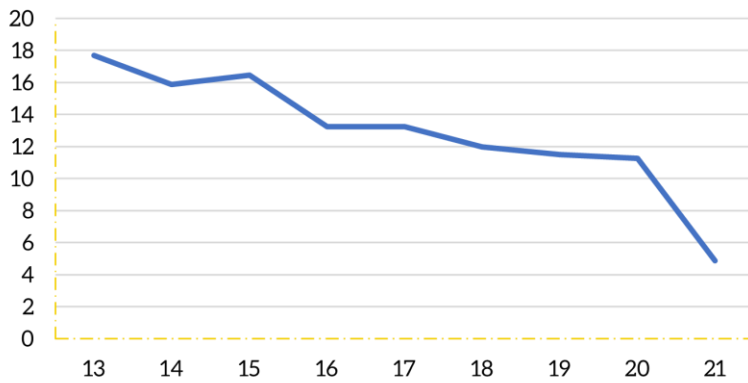


Figure 24 - Unlinked Trips per Vehicle Revenue Hour, MACS/Fairbanks

Peer agencies have also demonstrated decreases in transit productivity between 2013 and 2021. This may point to larger factors and trends across United States that has result in decreased levels of transit productivity, such as falling ridership numbers.

Unlinked Trips per Vehicle Revenue Hour (Productivity)

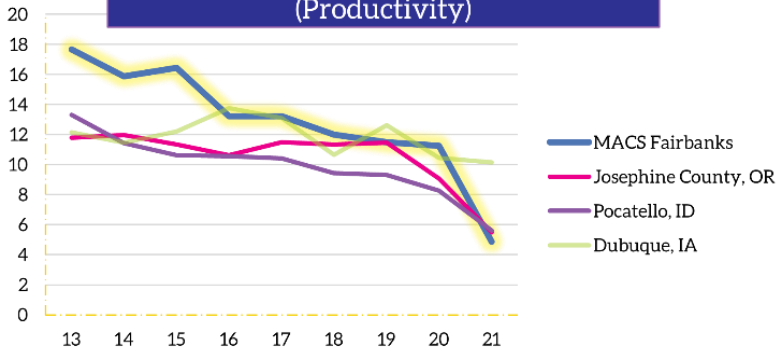


Figure 25 - Unlinked Trips per Vehicle Revenue Hour, Community Comparison

FINANCIAL METRICS

Operating Expenses per Vehicle Revenue Hour/Mile

Comparing how an agency's operational expenses relate to vehicle revenue hours and miles can show how effective the agency is at delivering transit service based on available financial resources. In the FNSB, these metrics have fluctuated between 2013 and 2021, from a low of approximately \$125 per vehicle revenue hour in 2016 to a peak of nearly \$200 per vehicle revenue hour in 2020. An increase in this number be a result of factors such as increased labor costs or material costs.

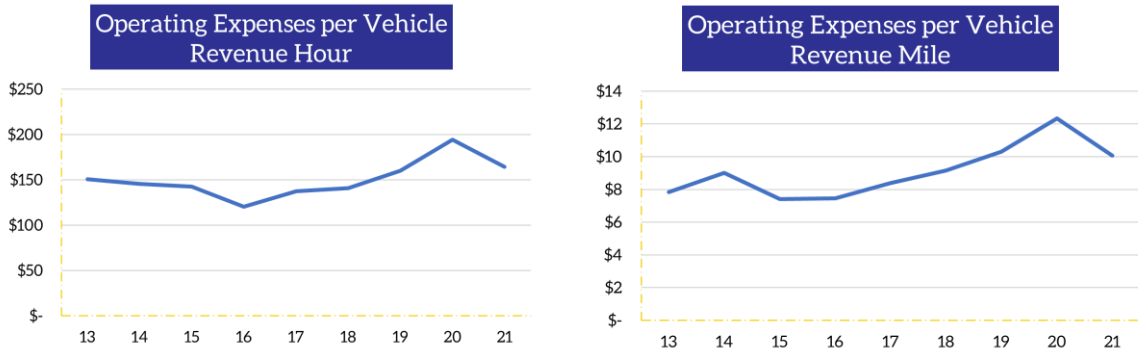


Figure 26 - Operating Expenses per Vehicle Revenue Hour & Mile, MACS/Fairbanks

When comparing MACS to the peer agencies, MACS stands out for its high operating expenses per vehicle revenue hour and mile. This may be due to a number of factors including the high cost of materials and equipment in Interior Alaska, labor shortages, or increased costs associated with the FNSB's unique sub arctic climate. However, all of the analyzed peer transit agencies appear to be experiencing operating costs that are also trending upwards.

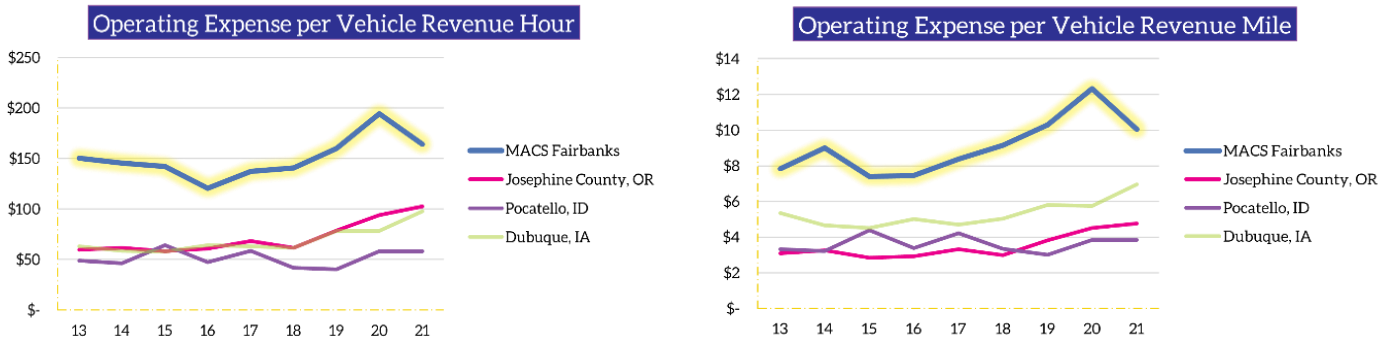


Figure 27 - Operating Expense per Vehicle Revenue Hour & Mile, Community Comparison

Operating Expenses per Vehicle Unlinked Trip

Operating expenses per unlinked trip describes how much each passenger trip on a transit system costs to the agency. Trips taken on the MACS system became more expensive between 2013 and 2021, increasing from a low of below \$10 per trip to a high of nearly \$35 per trip. The MACS policy to eliminate fares for all riders during the pandemic directly affected this number.

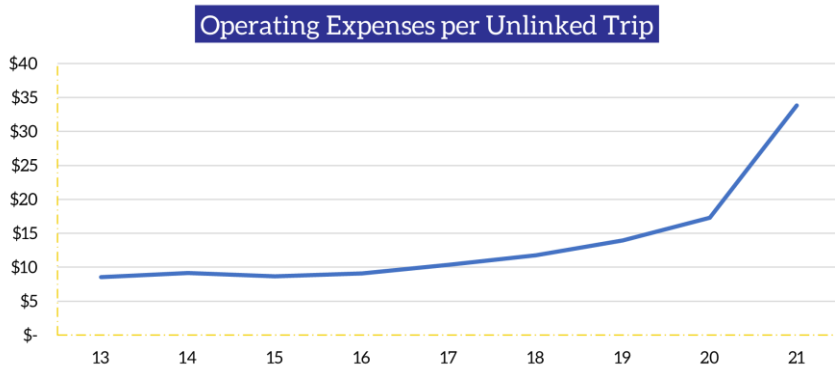


Figure 28 - Operating Expenses per Unlinked Trip, MACS/Fairbanks

The trend of increasing costs per trip is not unique to MACS, with all other peer agencies experiencing similar trends during the same time period between 2013 and 2021. It appears that the gap between MACS and its peer agencies has become increasingly wide, however this may moderate with the post-pandemic re-introduction of fares.

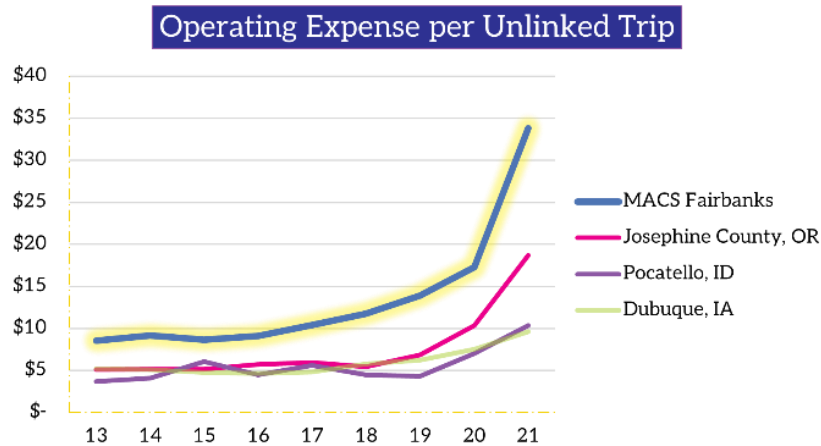


Figure 29 - Operating Expenses per Unlinked Trip, Community Comparison

Average Fare

Average fare per trip shows the average amount of revenue MACS acquires per customer on its system when different fare classes are taken into account. Between 2013 and 2021, average fares on the MACS system increased from under 60 cents to over 80 cents per rider. Between 2019 and 2020, average fares fell slightly and dropped significantly by 2021, when the average fare was a negligible value due to MACS eliminating fares during the COVID-19 Pandemic.

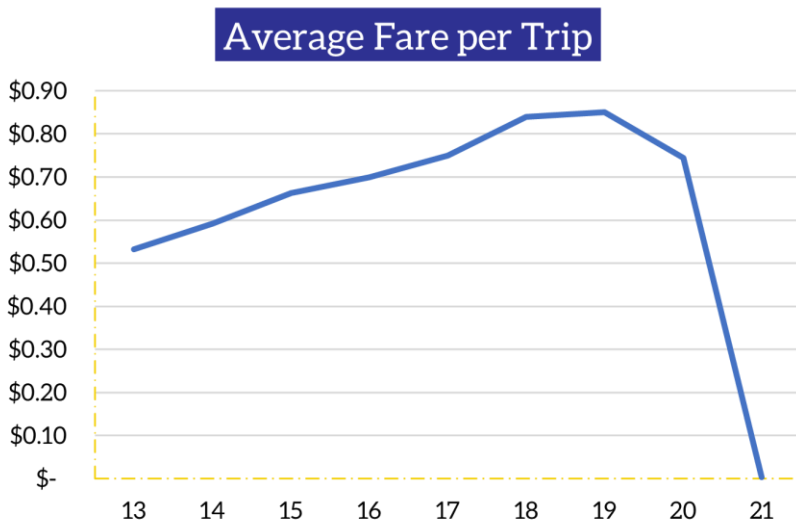


Figure 30 - Average Fare per Trip, MACS/Fairbanks

When compared to other agencies, MACS fare decision-making most mirrors that of Dubuque, Iowa, which also demonstrated a sharp decline in its average fare between 2020 and 2021. Similar to MACS, Dubuque, Iowa reported total fare revenues of only \$345.00 in 2021, a value significantly lower than in previous years and likely due to Pandemic policies. Average fares have remained relatively flat in Josephine County, Oregon and in Pocatello, Idaho, they have increased significantly.

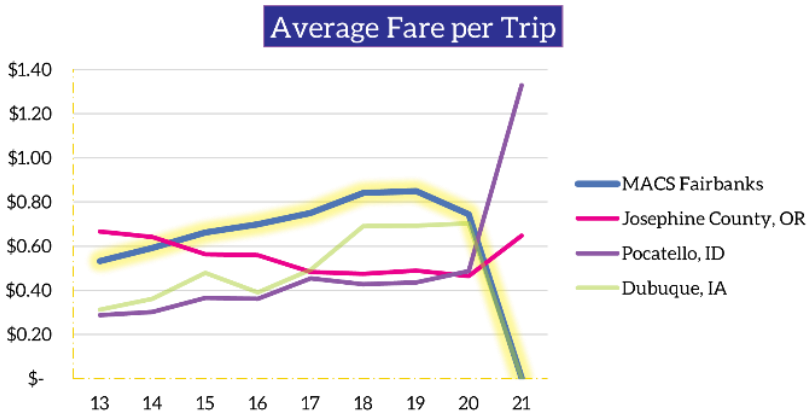


Figure 31 - Average Fare per Trip, Community Comparison

Farebox Recovery

The farebox recovery ratio is a metric that shows how well a transit agency is able to recoup their expenses through fares. It shows what percentage of overall operating expenses comes from rider fares, which is often very low for fixed route bus systems in small urban areas. Farebox recovery ratios are also fairly low even in large transit agencies with very high levels of ridership, such as New York City's Metropolitan Transportation Authority (MTA) which reported a pre-Pandemic (2019) farebox recovery ratio of 30% for its bus services.

Farebox Recovery Ratio

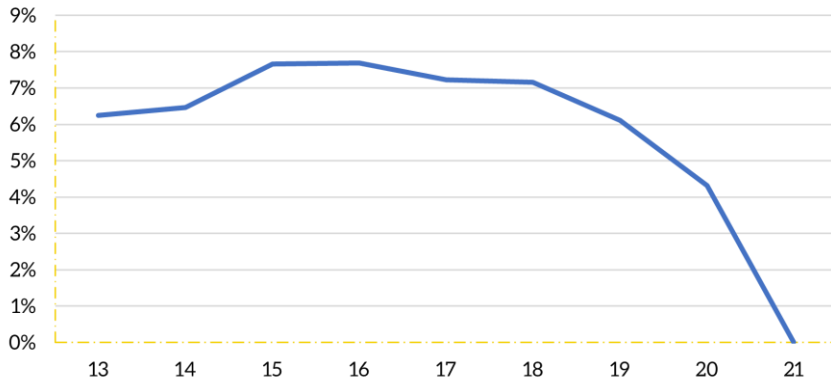


Figure 32 - Farebox Recovery Ratio, MACS/Fairbanks

MACS fixed route bus farebox recovery ratio is similar to its peer agencies. Pocatello, Idaho, has been increasing its farebox recovery ratio, which may be a result of an increased average fare to \$1.40 per trip in 2021 from around \$0.30 in 2013. The two other peer agencies, Josephine County, Oregon, and Dubuque, Iowa, both showed plummeting farebox recovery ratios in 2021 due to a combination of changing ridership patterns and fare policies.

Farebox Recovery Ratio

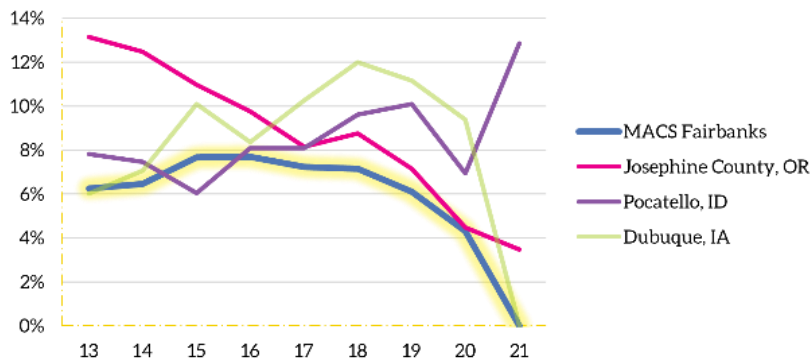


Figure 33 - Farebox Recovery Ratio, Community Comparison

RIDERSHIP DATA

Another important performance metric for a fixed route bus system is stop-level ridership (as measured in boardings). 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 35 through Figure 44).

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 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)



Figure 34 - MACS Bus Shelter



2023 Transit Plans Update

Fairbanks North Star Borough

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.

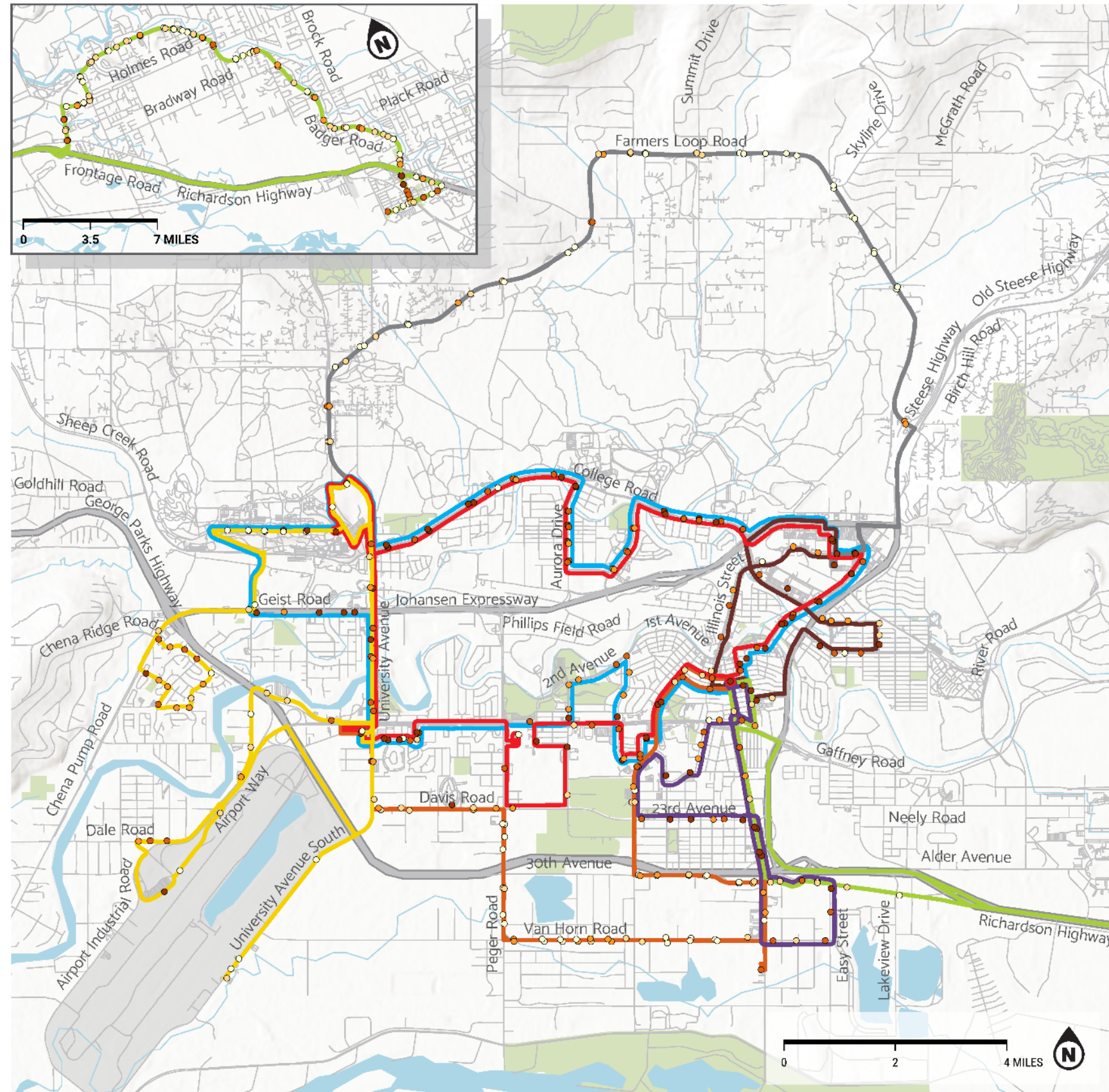


Figure 35 - MACS Systemwide Stop-Level Ridership



2023 Transit Plans Update

Fairbanks North Star Borough

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

BLUE 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.

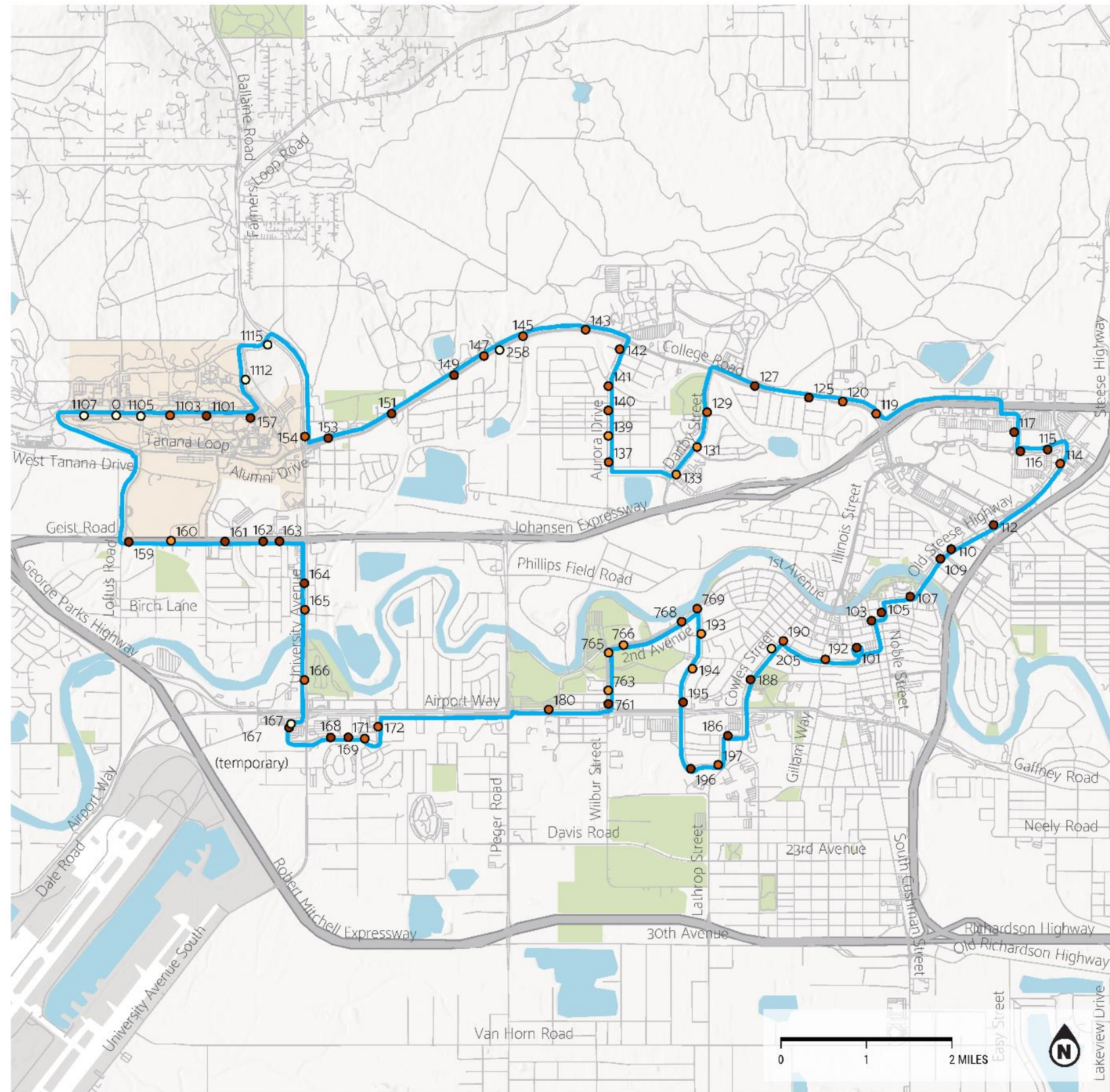


Figure 36 - MACS Blue Line Stop-Level Ridership



2023 Transit Plans Update

Fairbanks North Star Borough

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

BROWN 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 37 - MACS Brown Line Stop-Level Ridership



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METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

GREEN 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.

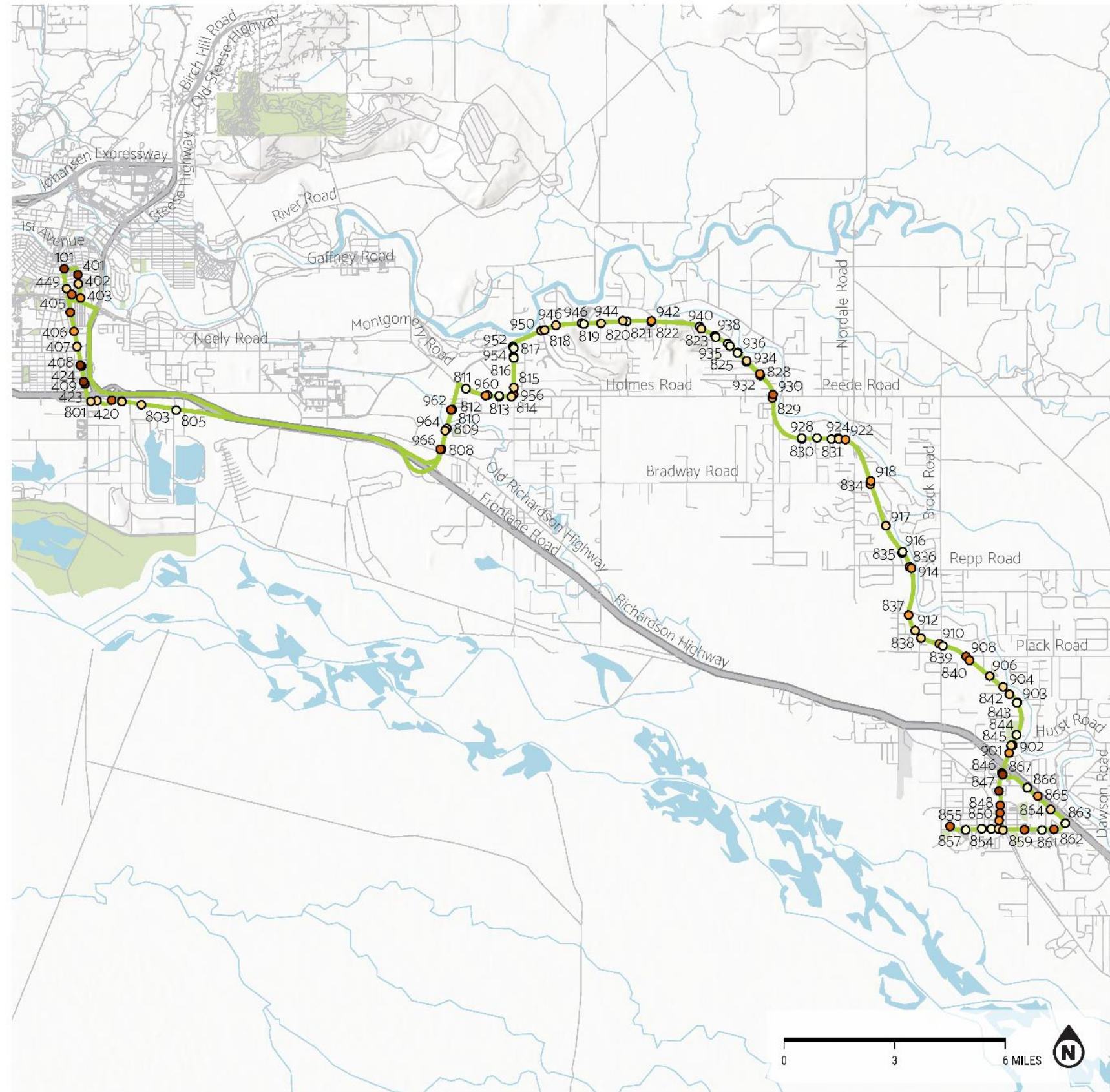


Figure 38 - MACS Green Line Stop-Level Ridership



METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

GREY 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 39 - MACS Grey Line Stop-Level Ridership



METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

ORANGE 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.

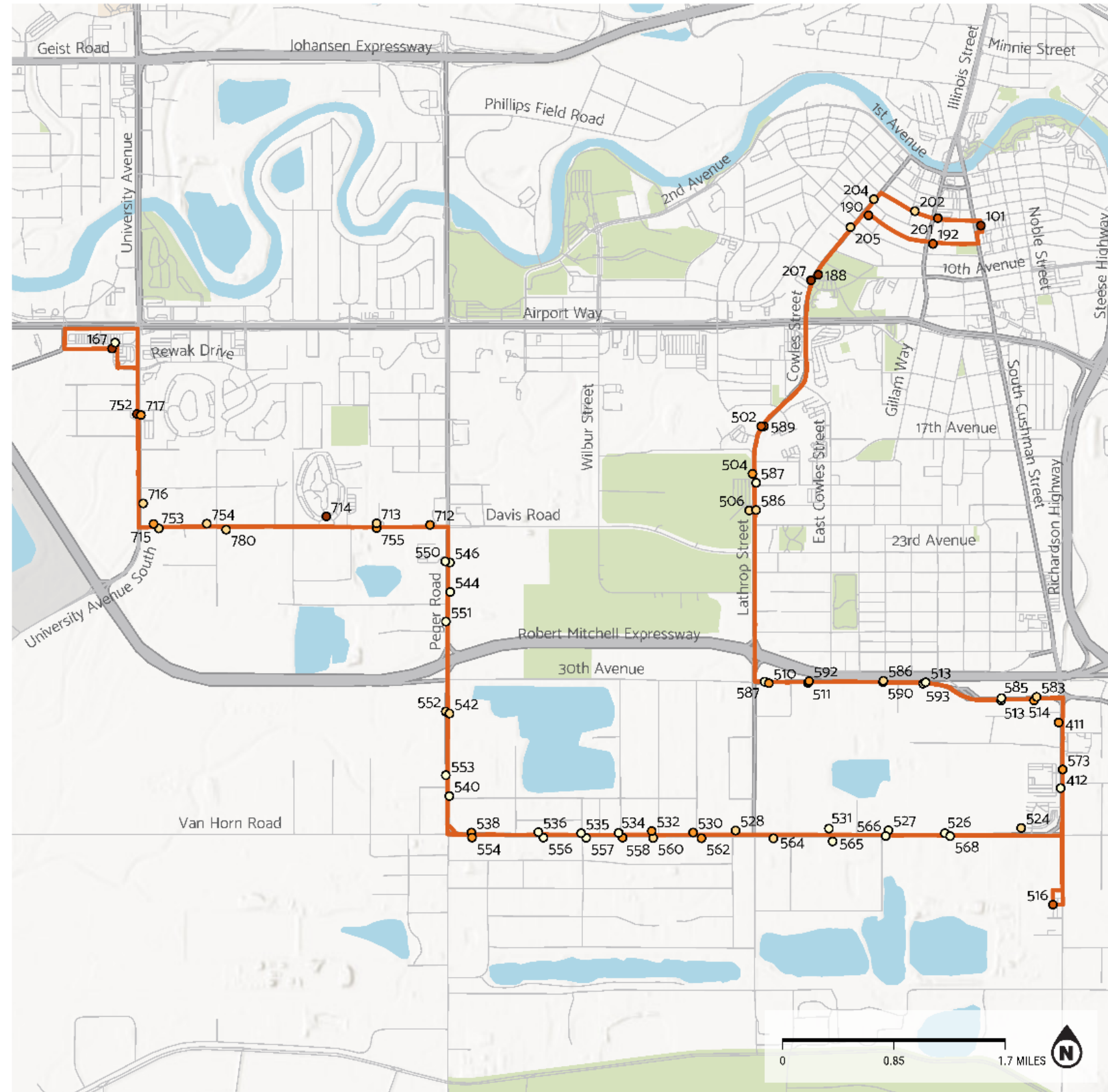


Figure 40 - MACS Orange Line Stop-Level Ridership



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METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

PURPLE 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.

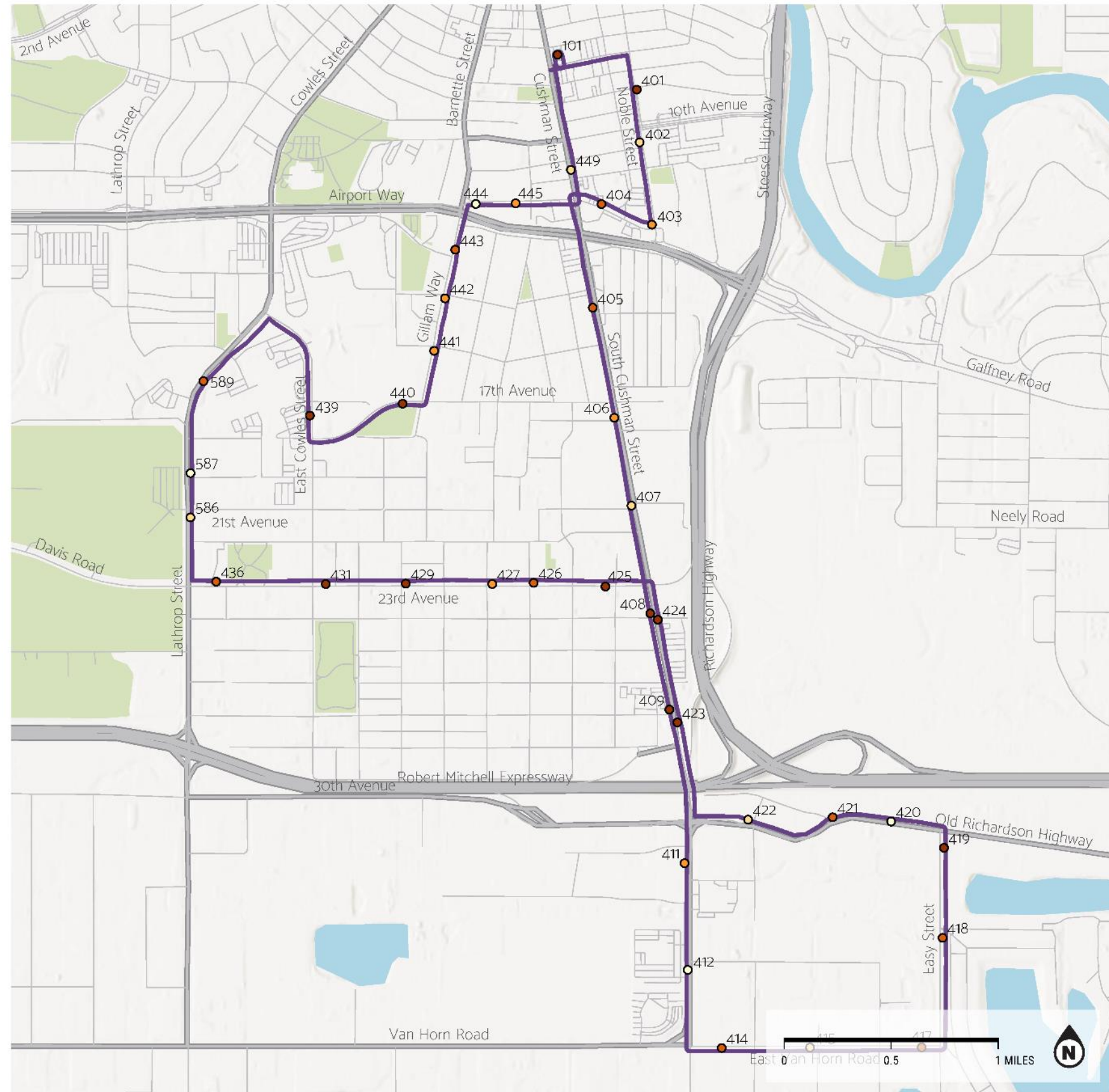


Figure 41 - MACS Purple Line Stop-Level Ridership



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METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

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.

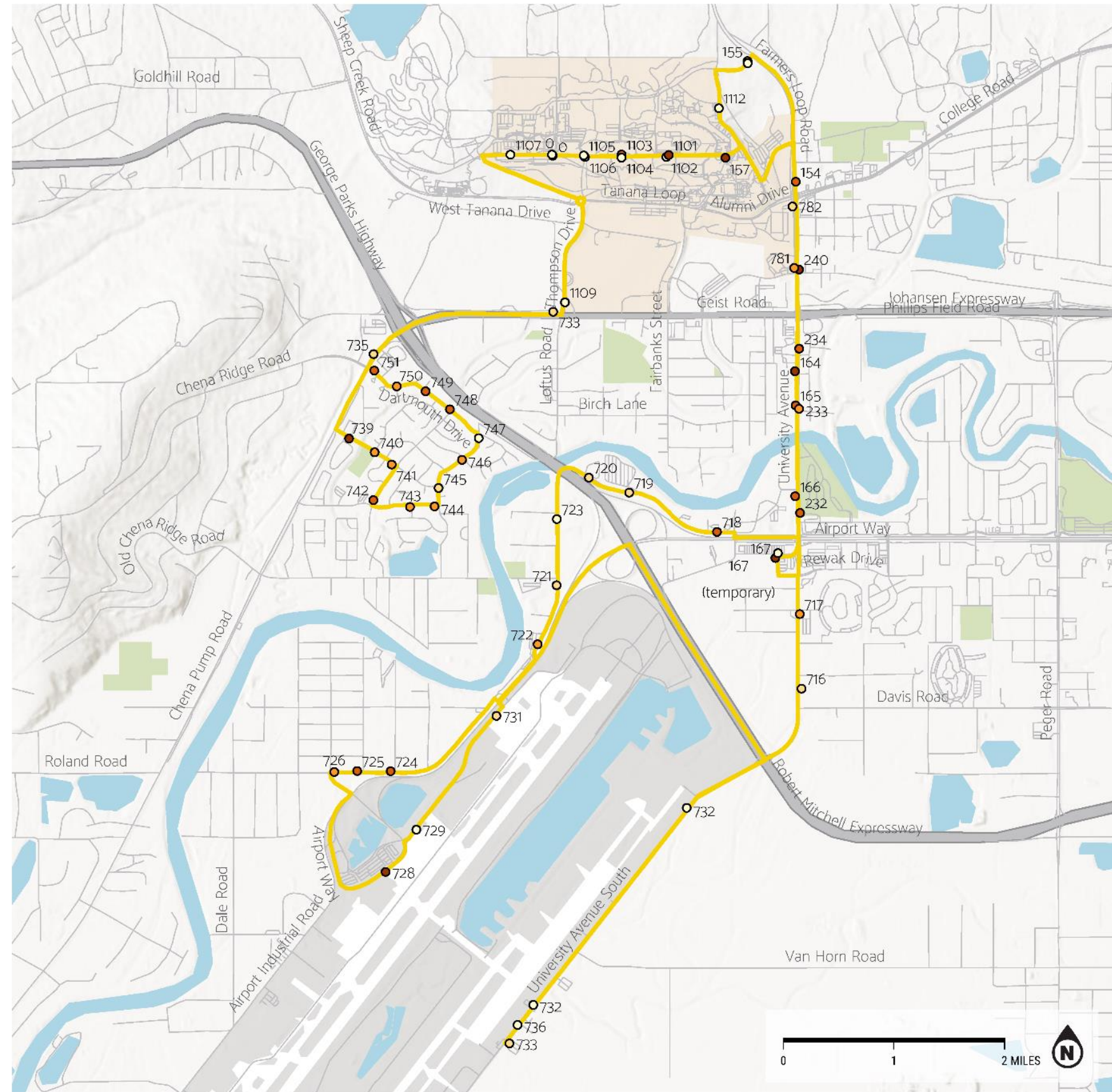


Figure 43 - MACS Yellow Line Stop-Level Ridership



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METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

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

PRE- AND POST-COVID-19 MEDIAN MONTHLY BOARDINGS

- Pre-COVID Boardings
- Post-COVID Boardings

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.

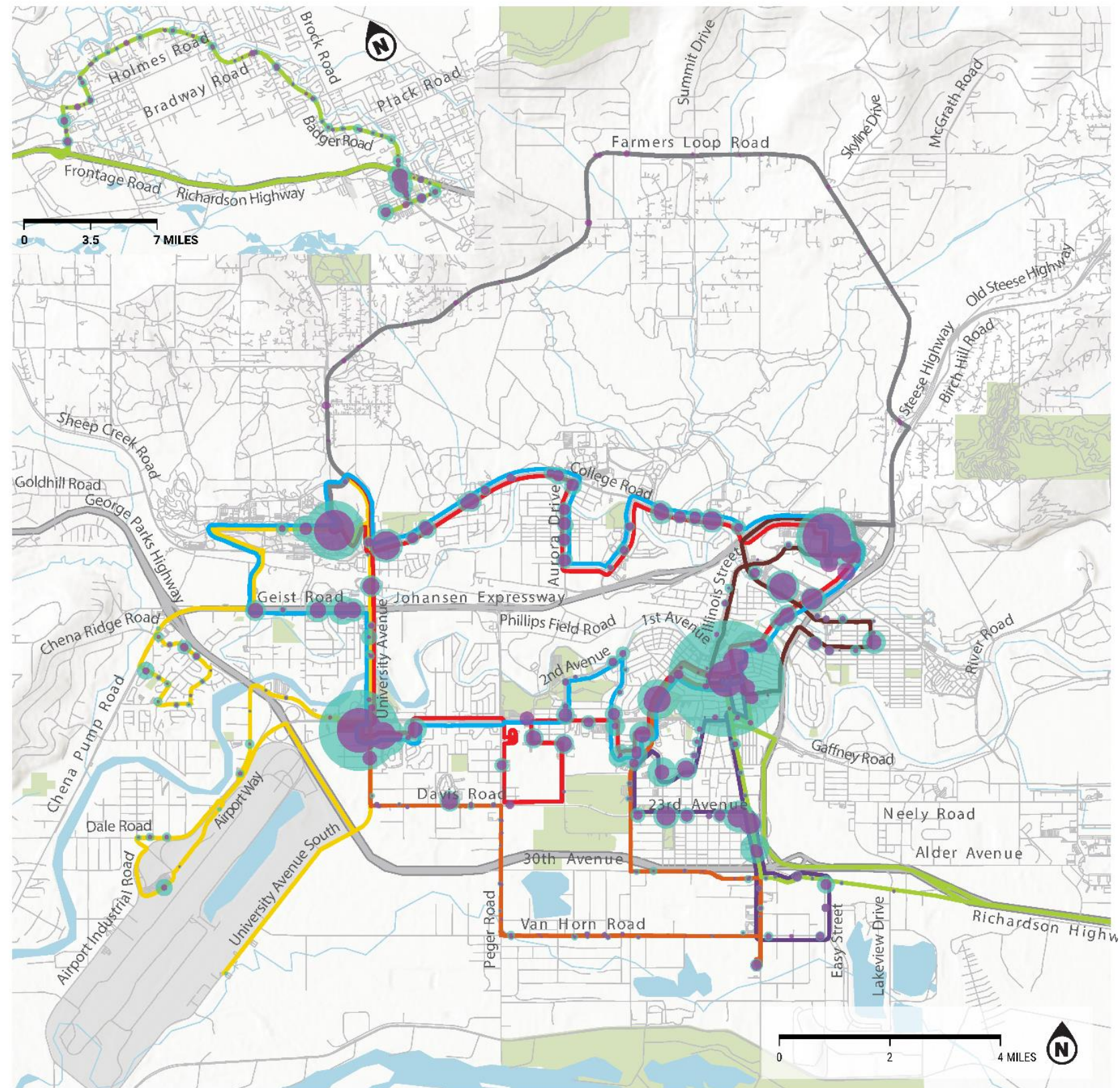


Figure 44 - MACS Systemwide Stop-Level Proportional Ridership Before and After COVID-19

3. HUMAN SERVICES TRANSPORTATION

According to the Federal Transit Administration (FTA), human services transportation “includes a broad range of transportation service options designed to meet the needs of transportation disadvantaged populations including older adults, disabled persons and/or those with lower income.”⁵ These services could include any transportation that helps meet the needs of transportation disadvantaged populations, from paratransit services like MACS Van Tran to shuttle services provided by Fairbanks Memorial Hospital or the University of Alaska Fairbanks. It also includes MACS fixed route bus services, given the system’s ability to serve people with disabilities and provide low-cost transportation for other transportation disadvantaged populations.

This report identifies existing human services transportation providers in the FNSB. Due to Van Tran’s importance in providing mobility services to transportation disadvantaged populations in the FNSB and data availability, this report also provides an analysis of Van Tran service metrics in relation to several peer agencies.

SERVICE PROVIDERS

Access Alaska

Aging at Home Fairbanks

Alaska Behavioral Health

Boys and Girls Clubs Alaska

Eagle Cab & Yellow Cab

Fairbanks Native Association

Fairbanks North Star Borough Parks & Recreation

Fairbanks Pioneer Home

Fairbanks Resource Agency

Fairbanks Taxi Services

Fairbanks North Star Borough School District Transportation

North Star Council of Aging, Fairbanks Senior Center

Tanana Chiefs Conference

Timber Creek Senior Living

University of Alaska Fairbanks

VAN TRAN

SERVICE OVERVIEW

Van Tran is a paratransit service run by MACS. Paratransit is door-to-door transportation service that is provided to people who are not able to use the fixed route bus system due to a qualifying disability. Whether or not a disability qualifies an individual for Van Tran service is determined through an

⁵ <https://www.transit.dot.gov/what-human-service-transportation>, accessed 10/31/2023.

application process that requires input from a medical provider in addition to an interview and assessment with MACS staff. If an individual is determined eligible for Van Tran service, the application process results in one of the following eligibility determinations:

- **“Unconditional Eligibility:** There will be no restrictions to Van Tran service within the program guidelines.
- **Temporary Eligibility:** Van Tran service will be provided to people who are determined capable of using accessible MACS Transit bus service but have a temporary need for Van Tran.
- **Conditional Eligibility:** Van Tran service will be provided for certain trips for which it is determined that the person’s disability prevents him or her from using MACS Transit independently.”⁶

Anyone who is determined to be ineligible for Van Tran service may appeal the decision or reapply wif there is a significant change in their condition related to eligibility.

For qualifying individuals, Van Tran service is typically provided anywhere within the Van Tran service area, which is 3/4 of a mile on each side of MACS fixed route lines. This is the minimum service area required for systems receiving FTA funding, and the extent of that service area is shown on Figure 7 - Map of Land Use Designations, FNSB.

Van Tran may also provide rides outside the minimum service area and to seniors older than 60 years of age who do not meet Van Tran eligibility criteria related to disabilities. Such riders are assigned a lower priority than rides within the minimum service area for people that meet eligibility requirements. A description of Van Tran ride priority levels is provided in Table 4 - Van Tran Priority Levels.

Table 4 - Van Tran Priority Levels

Priority Category	Priority Level	Area Served
A	1	Patrons with qualifying disabilities wanting to travel (both origin and destination) within ¾ mile of a fixed bus route.
B	2	Patrons with qualifying disabilities wanting to travel (either origin or destination) beyond ¾ mile of a fixed bus route.
C	3	Patrons over 60 years of age who do not meet the criteria identified in priority category A or B.

Riders must generally request demand trips⁷ by 5:30pm on the business day preceding the trip, although riders may also request same-day rides subject to availability via a standby list. Pickups are scheduled for a 30 minute window, from 15 minutes before the requested time to 15 minutes after the requested time.

One-way fares for all rides are \$2.00, and a \$20.00 ten ride “punch card” is available for convenience.

⁶ All eligibility language quoted from Fairbanks North Star Borough Van Tran Application.

⁷ A “demand trip” is a single trip. Trips may also be requested through a “subscription service” that accommodates trips that occur one or more times a week.

SERVICE METRICS

Similar to the fixed route system, the MACS Van Tran paratransit system reports performance statistics to the FTA. However, because paratransit operates based on demand (if people need the service and choose to use it), direct comparisons cannot be made to MACS fixed route service, which has a consistent schedule. This analysis compares Van Tran to the paratransit systems of the same peer agencies previously analyzed: Pocatello, ID; Dubuque, IA; and Josephine County, OR. As with the fixed route analysis, this analysis relies on data from the NTD between 2013 and 2021.



Figure 45 – Van Tran vehicle parked at agency facility

Investment

Unlike the fixed-route system, paratransit service does not have regularly scheduled service that results in regular revenue hours. Still, Van Tran transit investment has been decreasing slowly but steadily between 2013 to 2021.

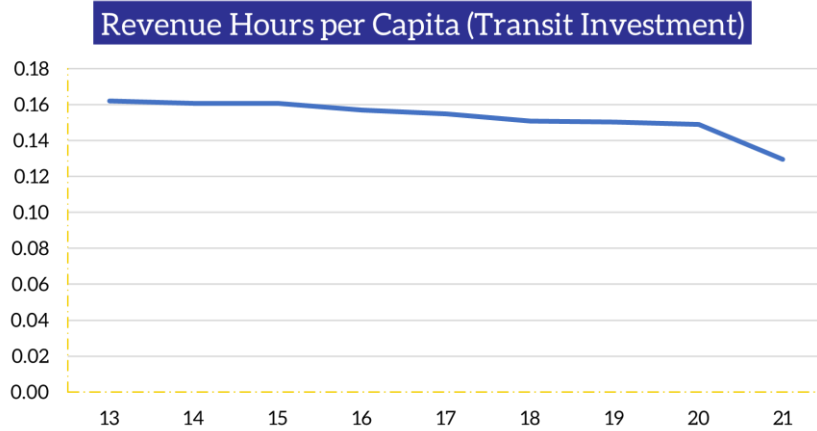


Figure 46 - Revenue Hours per Capita

Van Tran's consistency in its paratransit investment is highlighted when compared against Pocatello and Dubuque, both of which have demonstrated fluctuations in the investment they make in paratransit. Josephine County is most similar to the MACS level of transit investment. Pocatello and Dubuque have more than double the investment in their paratransit systems when compared to Van Tran.

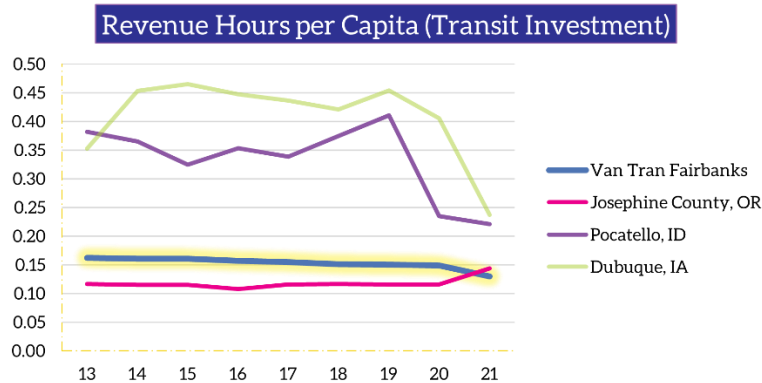


Figure 47 - Revenue Hours per Capita

Another way to compare Van Tran to peer agencies is through its vehicle assets. Pocatello and Dubuque have a greater number of paratransit vehicles than Van Tran, and may be able to respond to additional service calls or may be able to operate in a larger service area.

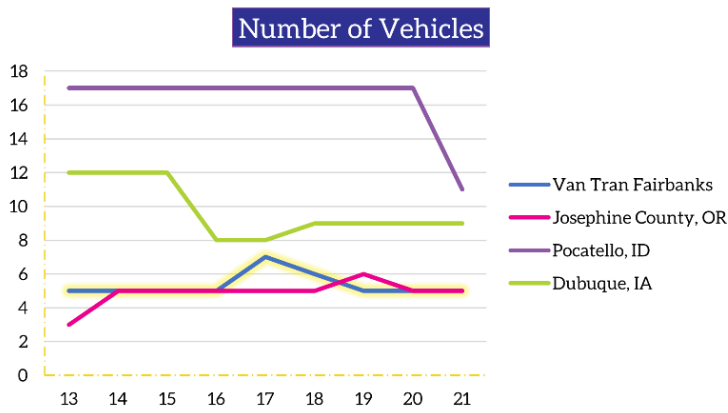


Figure 48 - Number of Vehicles

Relevance

The relevance of paratransit service slightly increased between 2013 and 2019, while investment has been on a steady decline. This increase may be due to Van Tran making fewer trips overall but at greater distances per trip, which would require additional hours. It may also be related to picking up more passengers during each trip, resulting in additional unlinked trips. Between 2019 and 2021, the number of unlinked trips nearly halved, which may have been a result of COVID-19 pandemic.

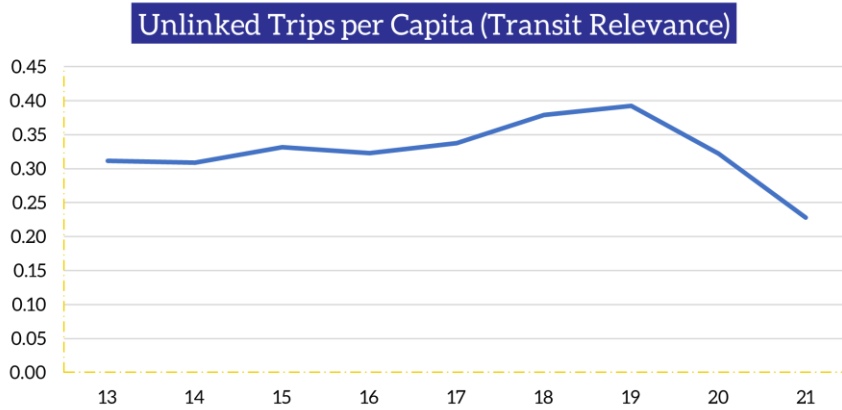


Figure 49 - Unlinked Trips per Capita (Transit Relevance)

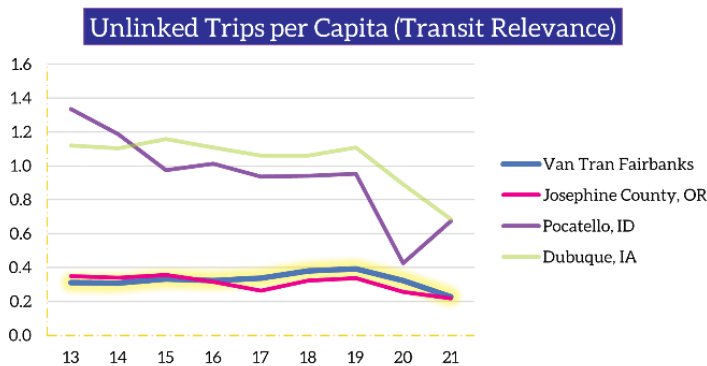


Figure 50 - Unlinked Trips per Capita (Transit Relevance)

Productivity

Increased productivity, similar to relevance, may be due to either fewer overall trips coupled with longer distance trips, or more passengers on each vehicle trip.

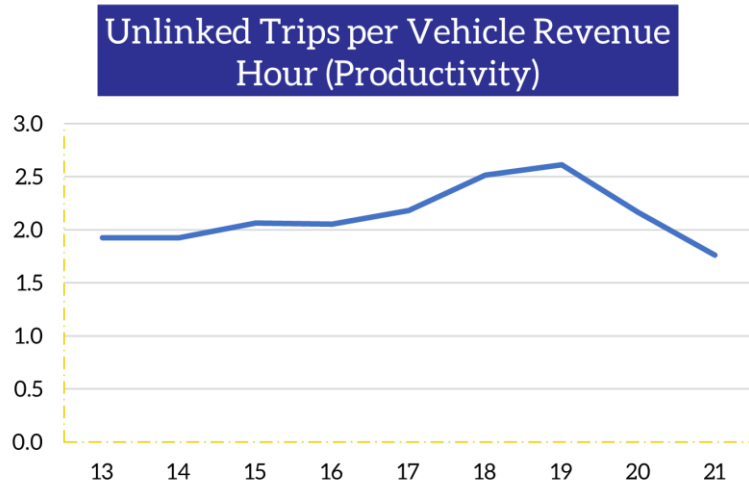


Figure 51 - Unlinked Trips per Vehicle Revenue Hour

When compared to peer agencies, recent trends indicate that Van Tran and Josephine County are becoming less productive, while Dubuque and Pocatello are becoming more productive, approaching 3 unlinked trips per revenue hour.

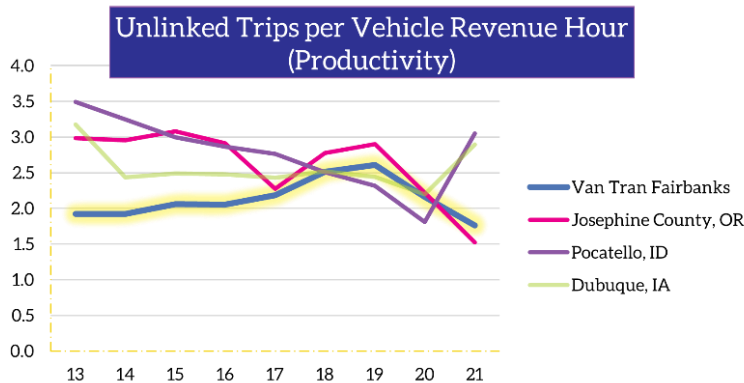


Figure 52 - Unlinked Trips per Vehicle Revenue Hour

Operating Expenses per Vehicle Revenue Hour/Mile

Both operating expenses per vehicle revenue hour and vehicle revenue mile have been increasing for Van Tran since 2013.

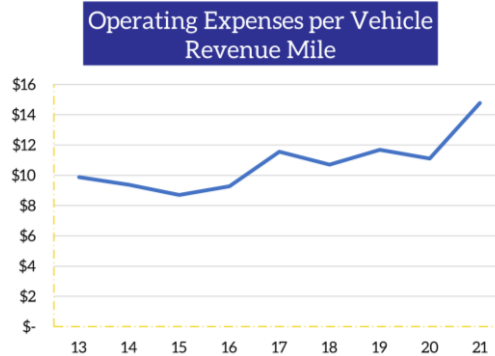
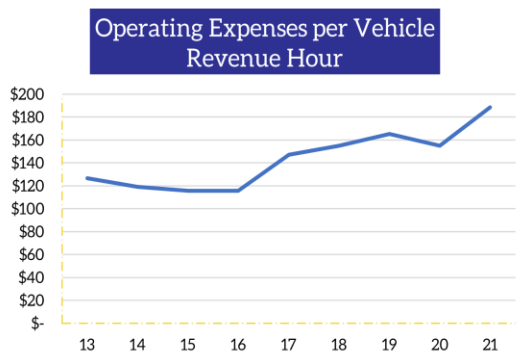


Figure 53 - Operating Expenses per Vehicle Revenue Hour & Mile

All the analyzed peer transit agencies appear to be experiencing operating costs that are trending upwards. Van Tran stands out as the agency with the highest costs, with each vehicle revenue mile costing the agency nearly \$15 and each revenue hour costing over \$180 in 2021. This may be due to a number of factors, including the high cost of materials and equipment in Interior Alaska, local labor shortages, or increased costs associated with the FNSB’s sub arctic climate.

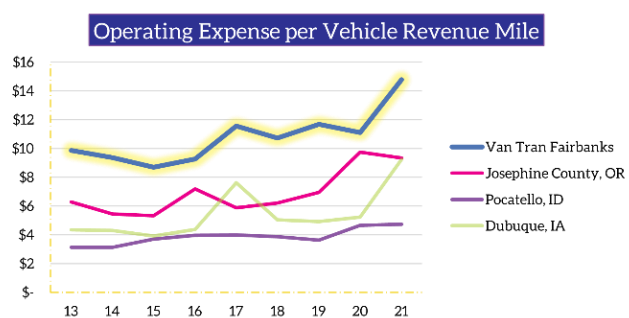
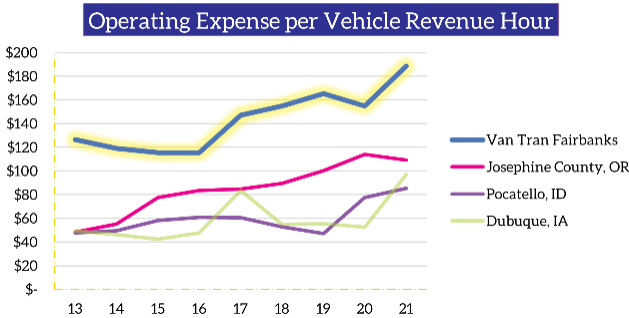


Figure 54 - Operating Expenses per Vehicle Revenue Hour & Mile

Operating Expenses per Vehicle Unlinked Trip

It costs Van Tran over \$100 on average for each trip. Similar to vehicle revenue hours and miles, this number has increased since 2013. However, the greatest increase was between 2019 and 2021.

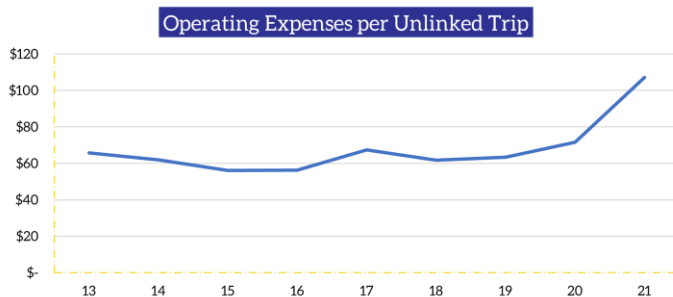


Figure 55 - Operating Expenses per Unlinked Trip

The analyzed peer agencies are all facing increasing costs per trip similar to Van Tran. However, Pocatello, ID was able to decrease its costs in 2021 which may be due to the agency lowering its fleet size from 17 to 11 between 2020 and 2021.

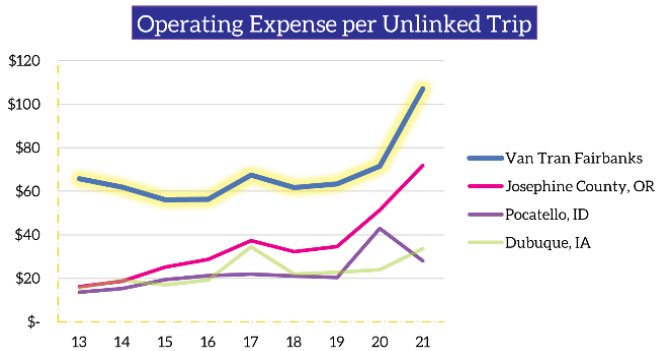


Figure 56 - Operating Expense per Unlinked Trip

Average Fare

For a majority of the time between 2013 and 2021, Van Tran fares averaged around \$2 per trip; however, in 2020, the average fare decreased as Van Tran made accommodations to travelers during the pandemic. Dubuque appears to have pursued a similar strategy, while Pocatello increased fares at the same time. Josephine County has stayed steady with its fares hovering around \$2 between 2012 and 2021.

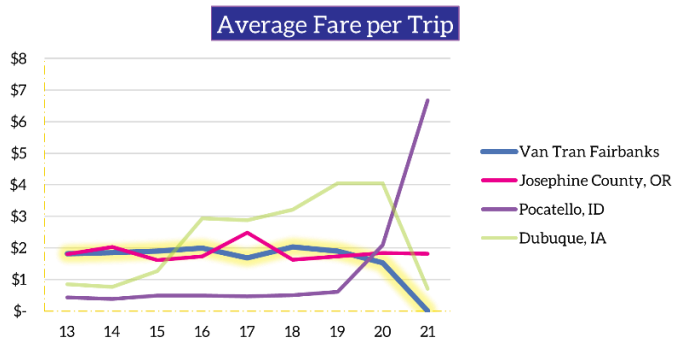


Figure 57 - Average Fare per Trip

Ridership by Priority Level

Beyond NTD data, there is more recent Van Tran data collected by MACS on the priority levels of its riders between FY 2019 and FY 2023 that has not yet been submitted through the NTD process. See the preceding Service Overview section for a description of Van Tran priority levels.

This data paints a picture of a potential rebound in ridership following the drastic drop in ridership on the Van Tran system during the COVID-19 pandemic. It also shows that while most of Van Tran’s resources go towards serving trips classified as priority level A, about 5% to 10% of its trips are priority level C (or riders over 60 years of age who do not meet eligibility criteria).

In the chart below, “PRK RC-a” and “PRK RC-b” indicate priority level A and B trips (respectively) that were paid for by the Fairbanks North Star Borough Parks and Recreation Department for residents requiring Van Tran transportation to attend their programmed events.

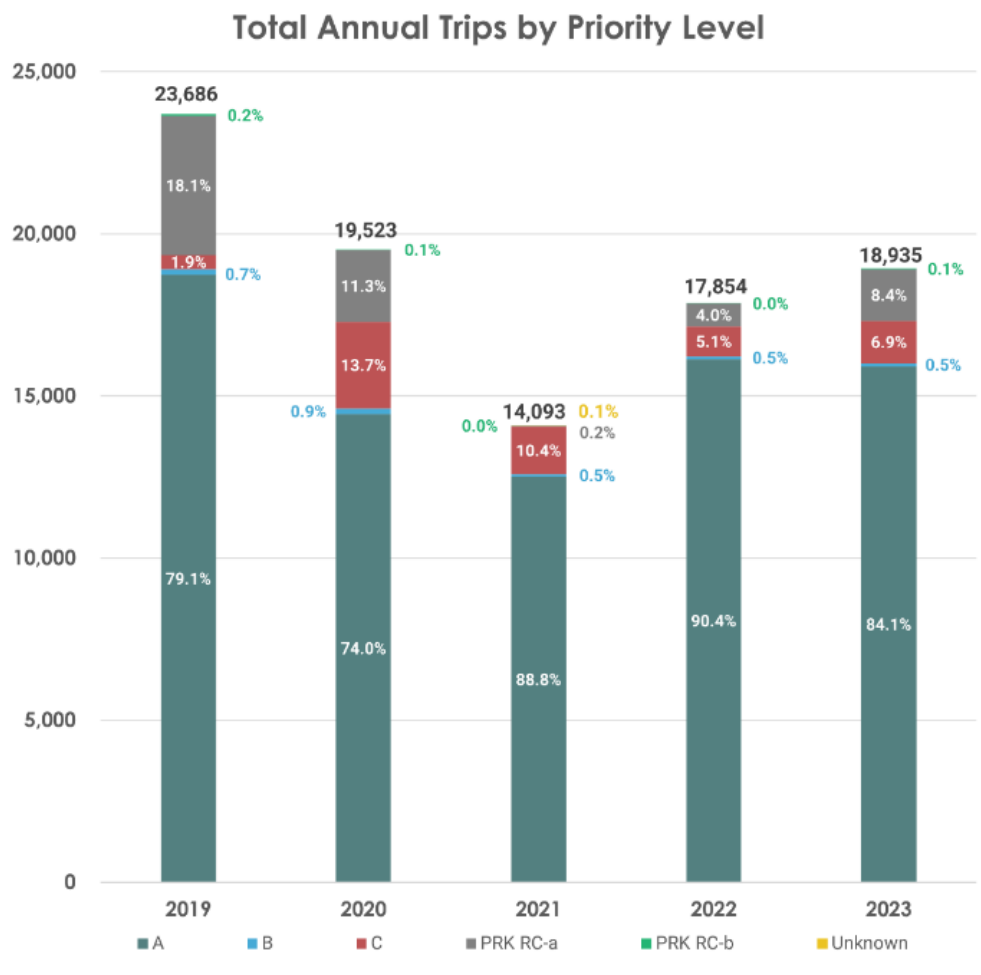


Figure 58 - Total Annual Trips by Priority Level

4. DEMAND & EQUITY

PURPOSE & IMPORTANCE

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.

In this analysis, **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 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 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.

The following sections discuss the methodology and results of each analysis.

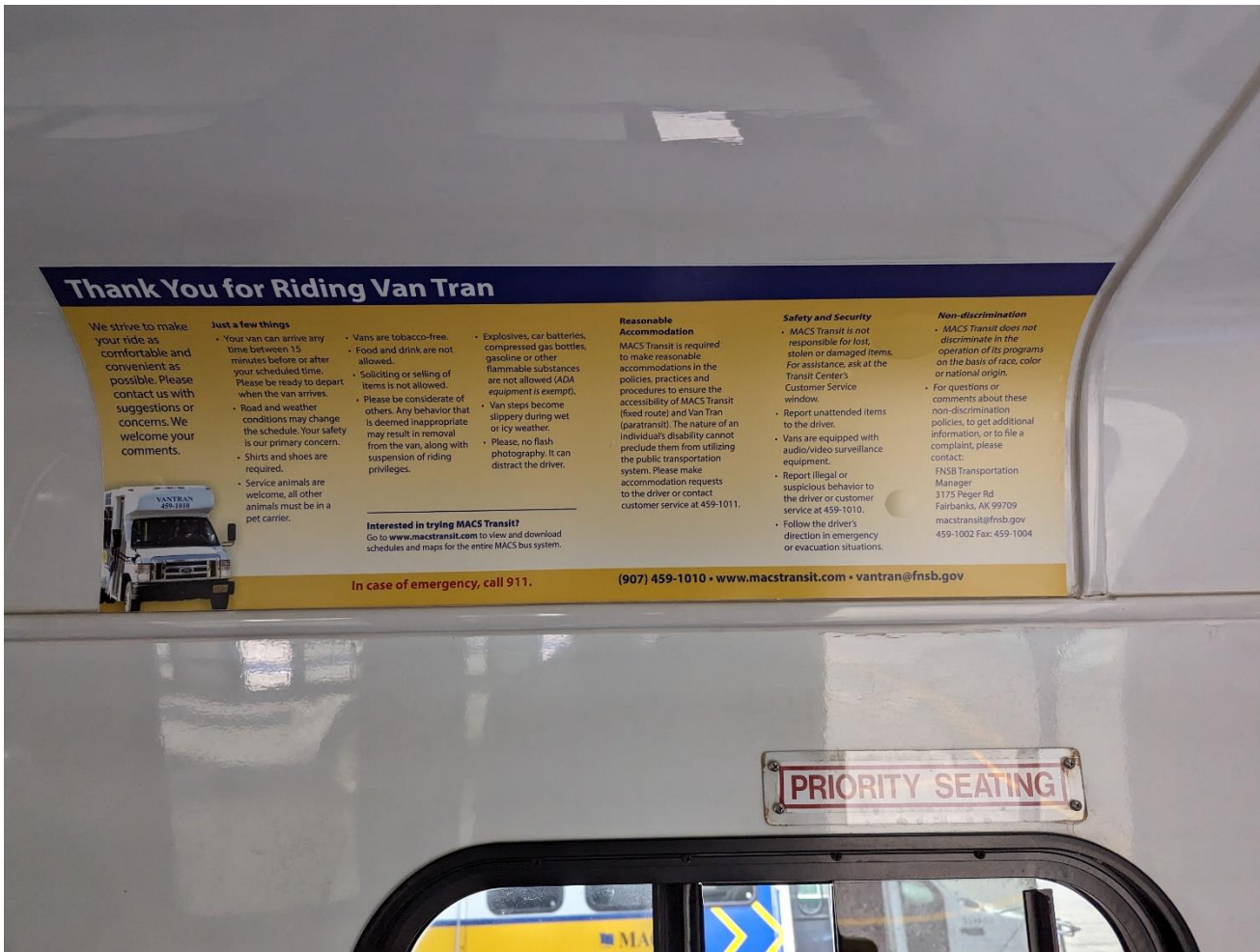


Figure 59 - Informational display in Van Tran bus

DEMAND

METHODOLOGY

The demand analysis visualized two factors using the most recent data available:

- **Population density**, drawn from the 2021 American Community Survey (ACS) 5-Year Estimates.
- **Job density**, using job location information drawn from the Census Bureau's 2017 Longitudinal Employer-Household Dynamics (LEHD) program.⁸

Each of these factors was mapped separately, and then visualized in a single map ("demand") that highlights where both population density and job density are highest. While demand can be analyzed and considered in many ways, this focus on where people live and work in the greatest densities can help determine where demand for public transportation services may be highest.

The results of this analysis (population density, job density, and demand) are shown and discussed in the following sections.

POPULATION DENSITY

Figure 60 - Map of Population Density visualizes population density in the current MACS service area by the number of people per square mile, according to the 2021 ACS 5-Year Estimates. The results show that population density is generally highest around the routes in the MACS fixed route system with the shortest peak headways, in addition to a notable area of relatively high population density along the Yellow Line west of Chena Pump Road and south of the Parks Highway.

Overall, the highest population densities are concentrated around and to the south of downtown Fairbanks. The City of North Pole has some pockets of relatively high population densities near the terminus of the Green Line.

JOB DENSITY

Similar to population density, the highest job densities shown in Figure 61 - Map of Job Density generally correspond with the MACS fixed route lines with the shortest peak headways. The highest job densities, however, are even more concentrated in and around downtown Fairbanks. Figure 11 - MACS Routes & Stops does not register any areas of high job density in the City of North Pole.

DEMAND

Figure 62 - Map of Demand shows the results of this demand analysis by combining population density and job density to highlight areas where the density of both factors overlap. Areas with the highest density of both population and jobs may have higher demand for public transportation services due to a relatively high density of a wide variety of trip types.

The results suggest areas of high demand generally corresponding with routes that currently have the highest peak headways in the MACS system, with the highest demand occurring around and the south of downtown Fairbanks. These results generally correspond with the service areas of MACS' most productive fixed route bus lines noted in **Error! Reference source not found.**

⁸ While LEHD data is now available through 2020, data for Alaska is currently only available through 2017.



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POPULATION DENSITY

Population Density (People per Sq. Mile)

- 1 - 250
- 251 - 650
- 651 - 1,500
- 1,501 - 4,000
- 4,001 - 6,820

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

by Peak Headway

- 30 Minutes All day service
- 60 Minutes AM and PM peak only
- Limited VanTran Service Area

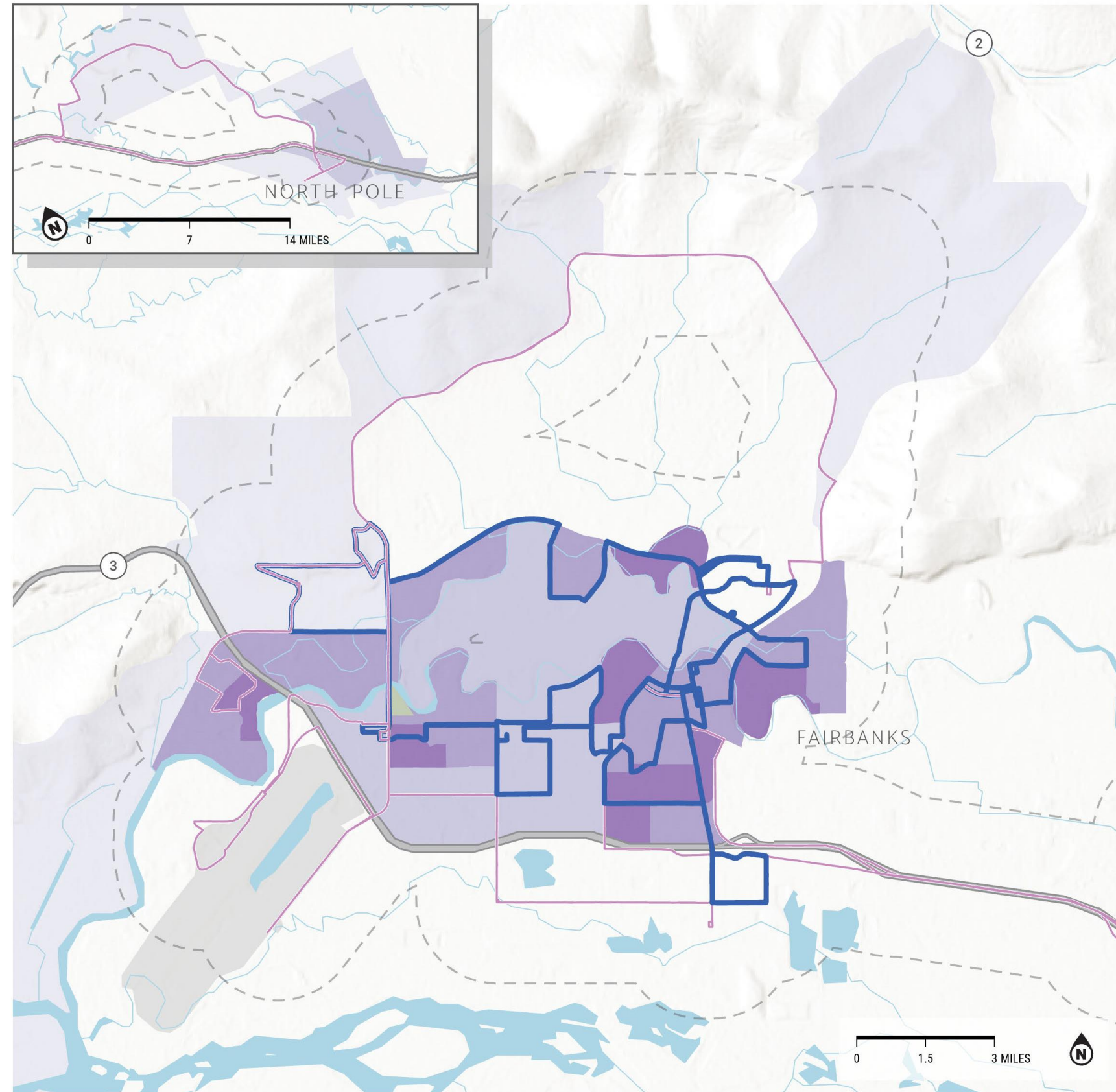


Figure 60 - Map of Population Density



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JOB DENSITY

Jobs per Sq. Mile

- < 400
- 401 - 1,500
- 1,501 - 3,000
- 3,001 - 5,500
- 5,501 +

VanTran Service Area

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

by Peak Headway

- 30 Minutes
 - 60 Minutes
 - Limited AM and PM peak only
 - VanTran Service Area
- All day service*

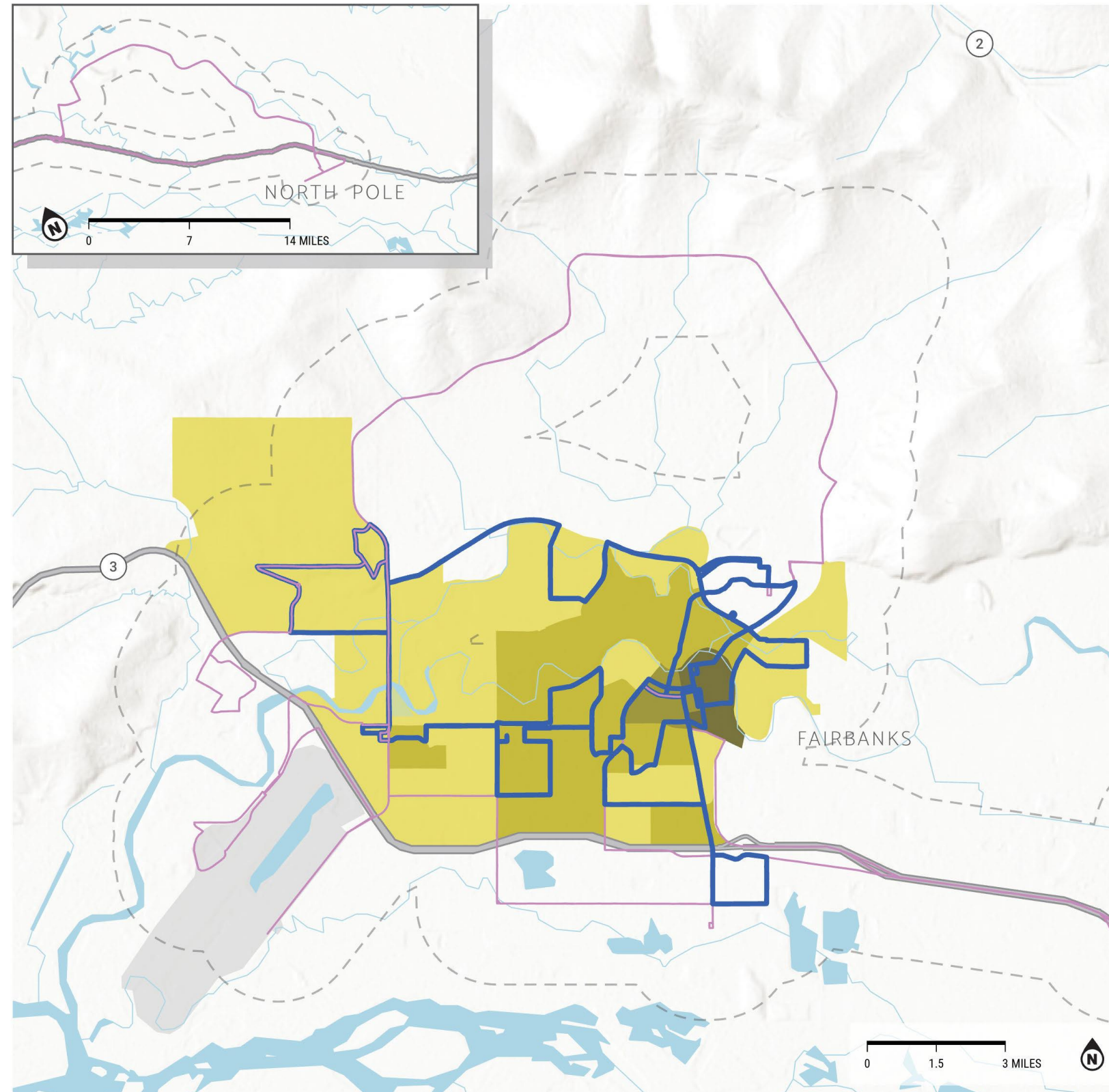


Figure 61 - Map of Job Density



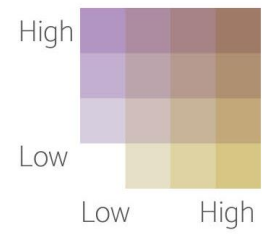
2023 Transit Plans Update

Fairbanks North Star Borough

DEMAND (POPULATION + EMPLOYMENT)

Population Density (People per Sq. Mile)

Employment Density (Jobs per Sq. Mile)



METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

by Peak Headway



VanTran Service Area

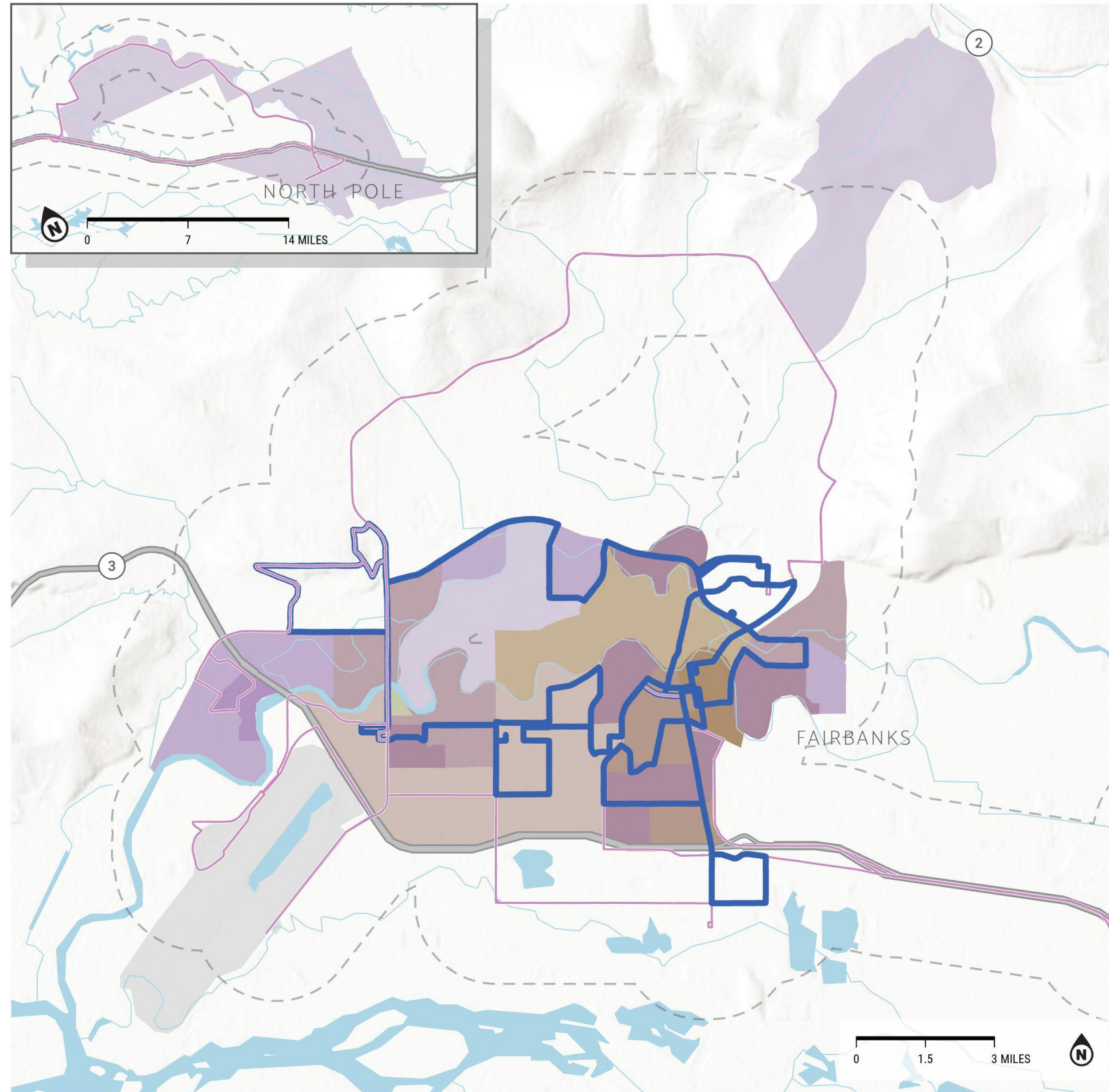


Figure 62 - Map of Demand

EQUITY

METHODOLOGY

The project team gathered Census Tract-level data for Fairbanks North Star Borough on the six-equity metrics, assigning each tract a percentage rank based on the highest and lowest percentages within the FNSB. The equity analysis drew upon the most recent available data from the 2021 American Community Survey (ACS) 5-Year Estimates. The specific source table is listed for each category, below:

- **Low-income households**, Table B17026.
 - Weight = 25%
- **Racial or ethnic minorities**, Table B02001.
 - Weight = 20%
- **People with disabilities**, Table S1810.
 - Weight = 20%
- **Youth and seniors**, Table S0101.
 - Weight = 15%
- **People with limited English proficiency**, Table C16001.
 - Weight = 10%
- **People without access to vehicles**, Table S0801.
 - Weight = 10%

Once the percentile ranks are determined, the score is then multiplied by the chosen weight for that category to generate a weighted score. For example, if income is weighted 25% of the overall score, then a block group that was in the 80th percentile for low-income population would get a weighted income score of $(.80 * .250) = 0.16$. Weighted scores for each variable are then summed to generate an equity composite index of between 0 and 1 for each block group.

Data Limitations

The ACS 5-Year Estimates provide estimates at the Census Tract level, which in some areas of the FNSB represents small geographies while others are much larger. The larger size of the Census Tracts may obscure spatial differences, which are especially important when planning for public transportation. In general, smaller tracts are located within Fairbanks and North Pole, while larger tracts are in the surrounding rural areas.

RESULTS

The results of the equity analysis are shown and discussed in the following sections organized first by equity metric followed by the combined composite score.

Poverty Status

Low-income households are defined as households with incomes below 150% of the federally defined poverty level. Households and individuals within this category are likely to be more burdened with travel-related costs and may benefit from the provision of transit service. As shown in Figure 64 - Map of , parts of the FNSB with higher rates of households below 150% of the Federal Poverty Level include Census Tract 7 in west Fairbanks, the location of the Fred Meyer hub, as well as Census Tract 9800, which includes the military base and rural parts of the FNSB. Census Tract 14.01 is another area with elevated poverty outside of Fairbanks.

Title VI

Title VI Ethnic and Racial Minorities were found by combining the totals for non-White populations living in Fairbanks North Star Borough. This designation includes people identifying as Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, some other race, two or more races, two races including some other race, two races excluding some other race, and three or more races. Figure 65 - Map of shows that the following areas have greater numbers of racial and ethnic minorities compared to the FNSB as a whole:

- Central and west Fairbanks. In particular, Census Tracts 1, 3, and 8.
- Outside of Fairbanks, Census Tract 14.01 in the community of Badger.

People with Disabilities

The US Census Bureau provides estimates on numbers of individuals in Fairbanks North Star Borough with disabilities including for those with hearing difficulty, a vision difficulty, a cognitive difficulty, an ambulatory difficulty, a self-care difficulty, and/or an independent living difficulty. The “people with disabilities” metric in this equity analysis combines these disability types into one measure for comparison across the FNSB. The FNSB’s demand response ADA service is Van Tran, which is provided to travelers whose physical, cognitive, or sensory disabilities prevent them from using MACS fixed route services. Given Van Tran’s operational objectives, it is important for the agency to understand where people with disabilities are living in the FNSB. Figure 66 - **Error! Reference source not found.** conveys that the areas with major concentrations of people with disabilities are in Fairbanks, which is largely within Van Tran’s service area. However, there are several areas that exist outside of Van Tran’s service area that have elevated proportions of people with disabilities, including:

- Areas east of North Pole and east of Mistletoe Drive
- Large rural areas of Fairbanks North Star Borough east of Fairbanks and North Pole

Youth and Senior

Areas of Fairbanks North Star Borough with higher concentrations of proportions of Youth and Seniors include Census Tract 10 in Fairbanks as well as Census Tract 14.01 in the community of Badger. Census Tracts 12 and 13 north of Fairbanks also have elevated proportions of youths and seniors. These results are visible in Figure 67 - .

Limited English Proficiency

Limited English Proficiency (LEP) populations are people who may require outreach in a language other than English due to their limited ability to understand written and verbal materials in English. This number is separate from the number of speakers who have the ability to speak a language besides English, which would be greater. This type of outreach is required as part of Federally funded planning processes and is supported through the FAST Planning Title VI Plan.

Figure 68 - maps the results, which show that LEP populations can be found throughout Fairbanks North Star Borough. However, LEP populations are most concentrated within and around the City of Fairbanks, especially north of the Chena River.

Spanish is the single language with the greatest population of LEP individuals (about 652). The Census Tract with the greatest proportion of Spanish-speaking LEP speakers is Census Tract 6, which includes

neighborhoods to the east of University of Alaska Fairbanks such as College and Aurora. 11 % of households speak Spanish at home in this Census Tract.

Notably, when combined, Asian or Islander languages made up the largest group of speakers (about 1,084). These Asian languages include:

- Korean (about 414 speakers)
- Chinese, including Mandarin and Cantonese (about 120 speakers)
- Tagalog (about 120 speakers)
- Vietnamese (about 74 speakers)
- Other Asian and Pacific Island languages (about 356 speakers)

Areas with elevated numbers of Asian language LEP speakers include Census Tracts 4, 5, and 13, which include neighborhoods north of downtown Fairbanks such as Slaterville and areas in the vicinity of Farmers Loop Road. About 14% of the households in Census Tract 5, the area around Slaterville, are estimated to speak Asian or Pacific Islander languages.

Other languages with LEP speakers in Fairbanks North Star Borough include:

- French, Haitian, or Cajun (about 127 speakers)
- Russian, Polish, or other Slavic languages (about 232 speakers)

No Vehicle Access

Figure 69 - shows that areas within Fairbanks, especially near downtown, have the highest concentration of no-vehicle households, the highest rate is in Census Tract 2 just west of downtown, estimated at nearly 17%. In addition, Census Tract 19.02 has a considerably high no-vehicle household rate at 4.5%, which is substantial given that the majority of this area has a rural development typology.

Composite

The following areas rank highest in the composite map, as shown in Figure 70 - :

- Census Tracts 1, 3, 5, 7, 10, 13, and 14.01.
- Areas in and around Fairbanks rank the highest. North Pole generally ranks much lower than Fairbanks.



Figure 63 - MACS vehicle waiting for person walking to cross



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Fairbanks North Star Borough

FAIRBANKS NORTH STAR BOROUGH EQUITY PROFILE

Equity Composite Score

- 0.15
- 0.15 - 0.36
- 0.36 - 0.49
- 0.49 - 0.60
- 0.60 - 0.80
- Parks

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

by Peak Headway

- 30 Minutes
 - 60 Minutes
 - Limited
- All-day service
AM and PM peak only

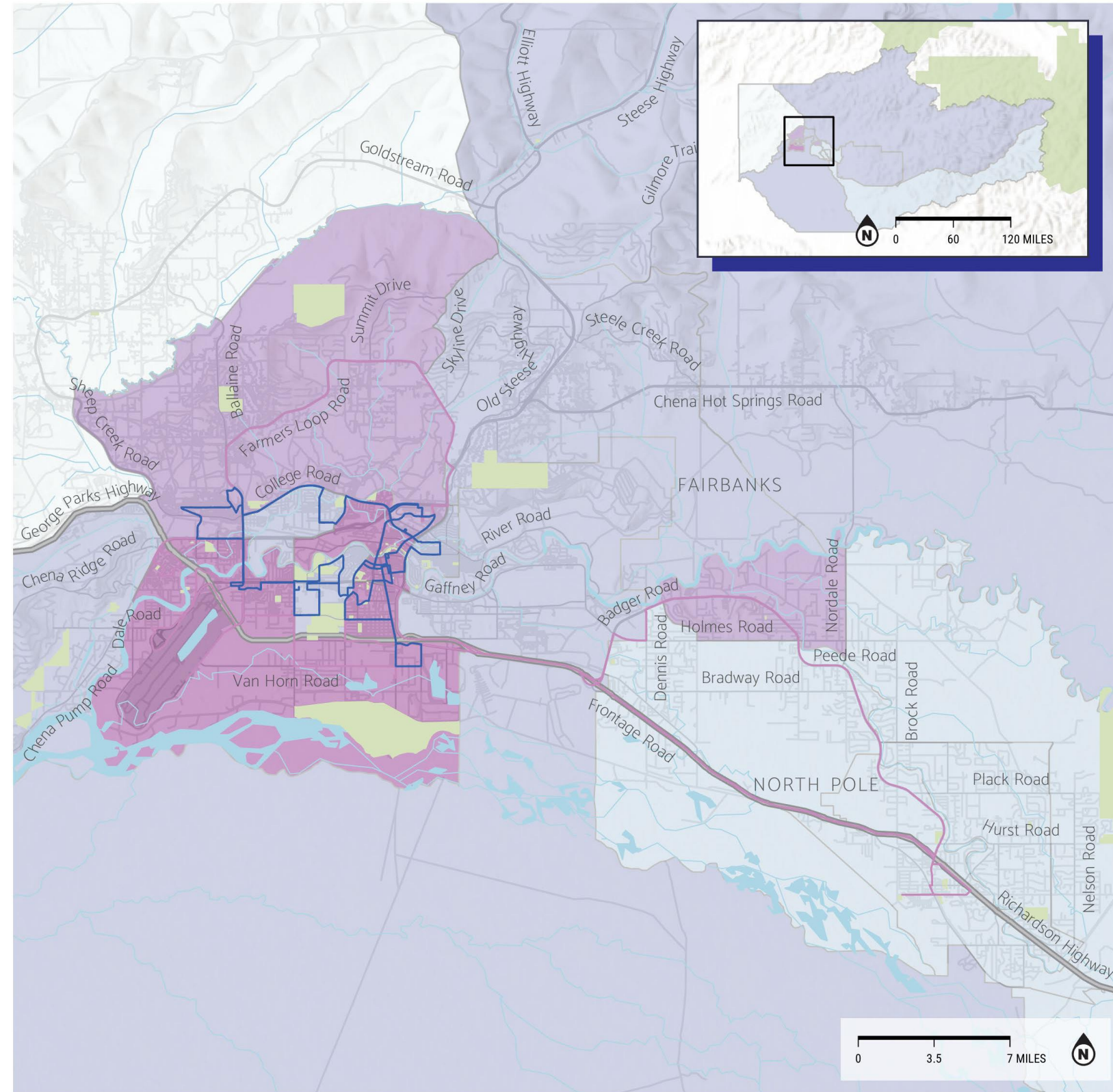


Figure 64 - Map of Equity Composite Score



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Fairbanks North Star Borough

FAIRBANKS NORTH STAR BOROUGH EQUITY PROFILE

Poverty Status (Below 150% of Federal Poverty Level)

- 0%
- 0 - 7%
- 7% - 11%
- 11% - 14%
- 14% - 27%
- Parks

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

by Peak Headway

- 30 Minutes All-day service
- 60 Minutes All-day service
- Limited AM and PM peak only

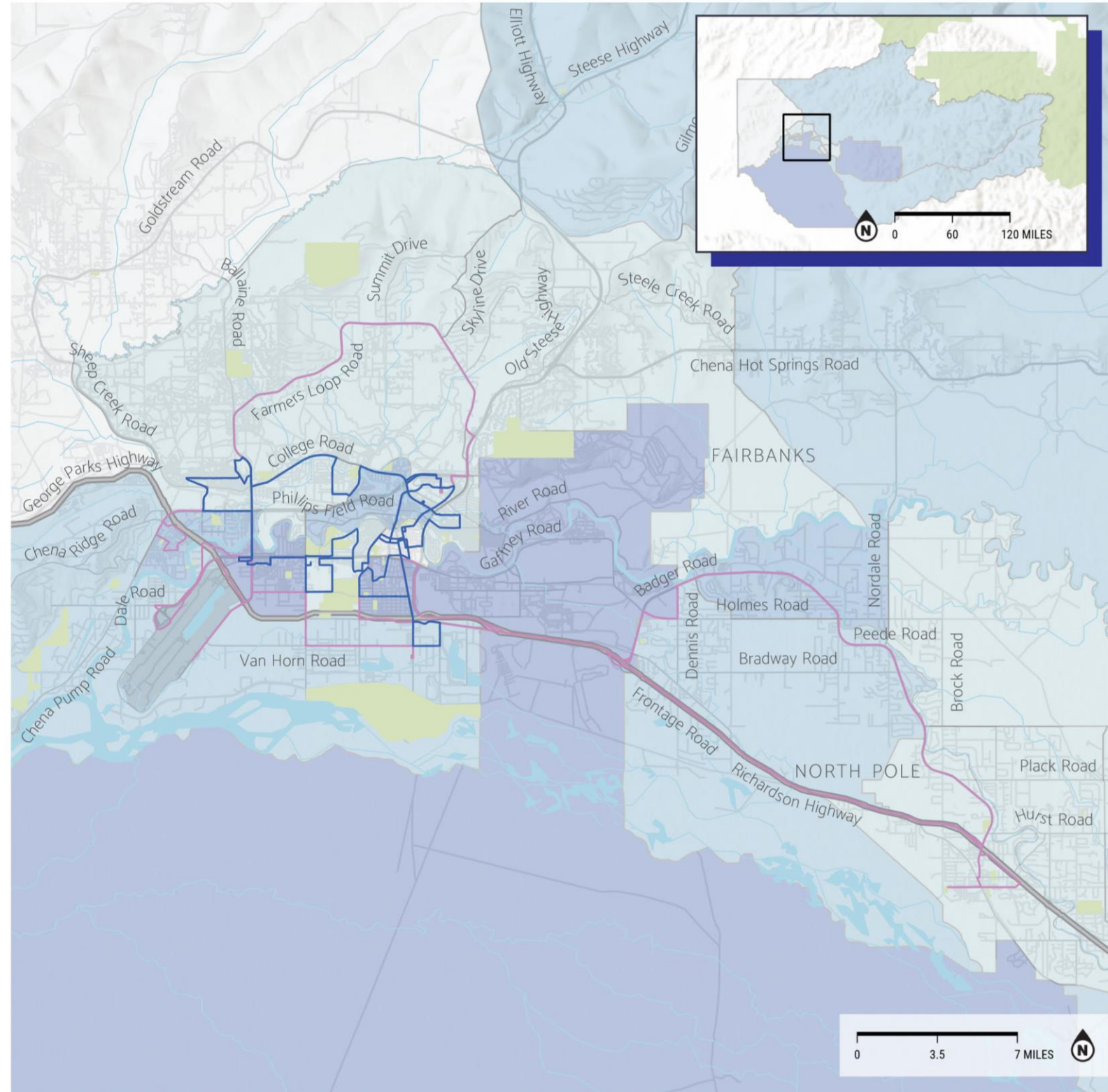


Figure 65 - Map of Map of Poverty Status



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Fairbanks North Star Borough

FAIRBANKS NORTH STAR BOROUGH EQUITY PROFILE

Title VI Racial or Ethnic Minority

- 14% - 27%
- 27% - 35%
- 35% - 43%
- 43% - 45%
- 45% - 52%
- Parks

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

by Peak Headway

- 30 Minutes All-day service
- 60 Minutes AM and PM peak only
- Limited AM and PM peak only

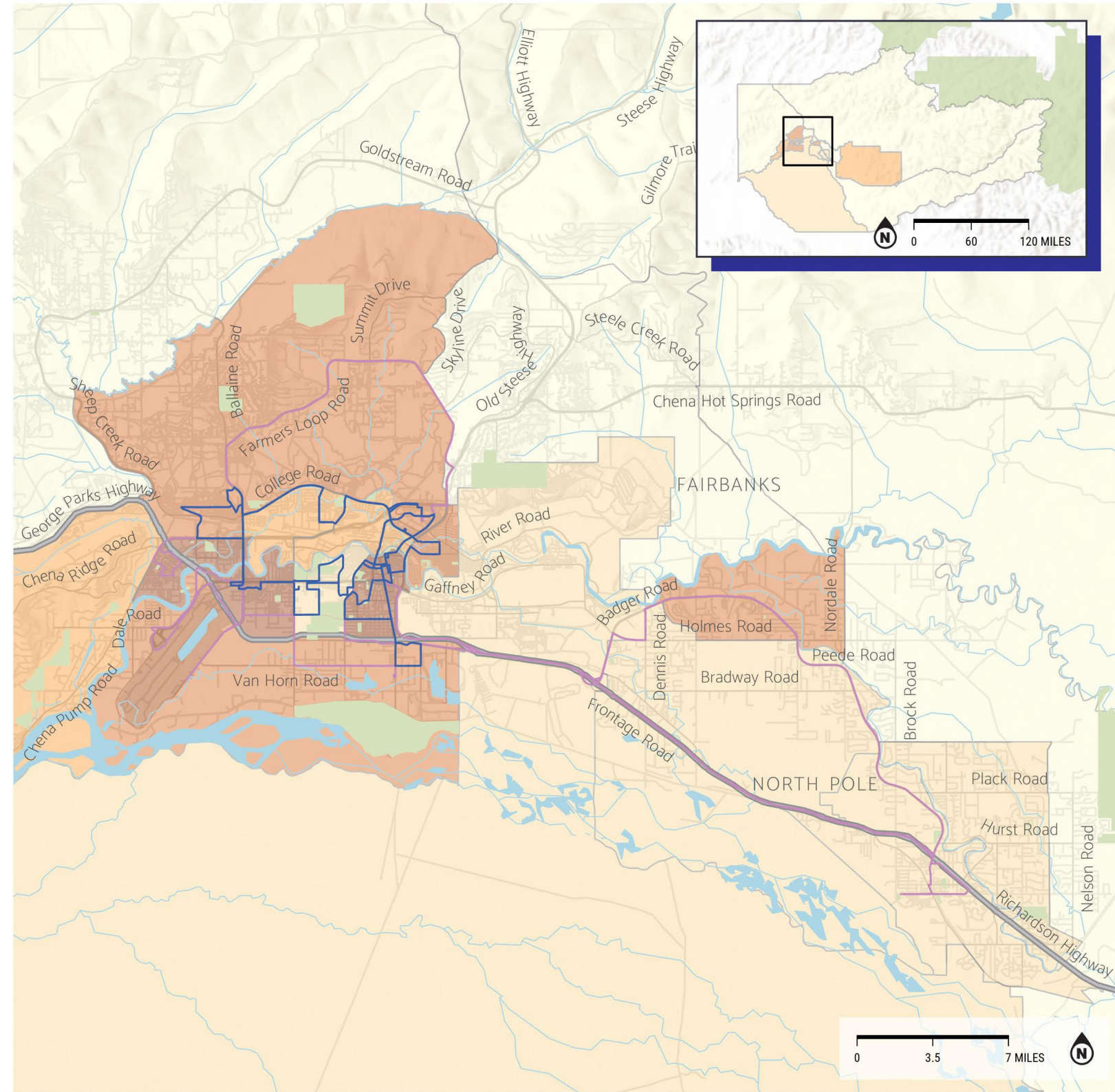


Figure 66 - Map of Title VI Racial or Ethnic Minority



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FAIRBANKS NORTH STAR BOROUGH EQUITY PROFILE

People with Disabilities

- 2% - 6%
- 6% - 12%
- 12% - 13%
- 13% - 16%
- 16% - 28%
- Parks

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

by Peak Headway

- 30 Minutes
- 60 Minutes
- Limited

All-day service

AM and PM peak only

VanTran Service Area

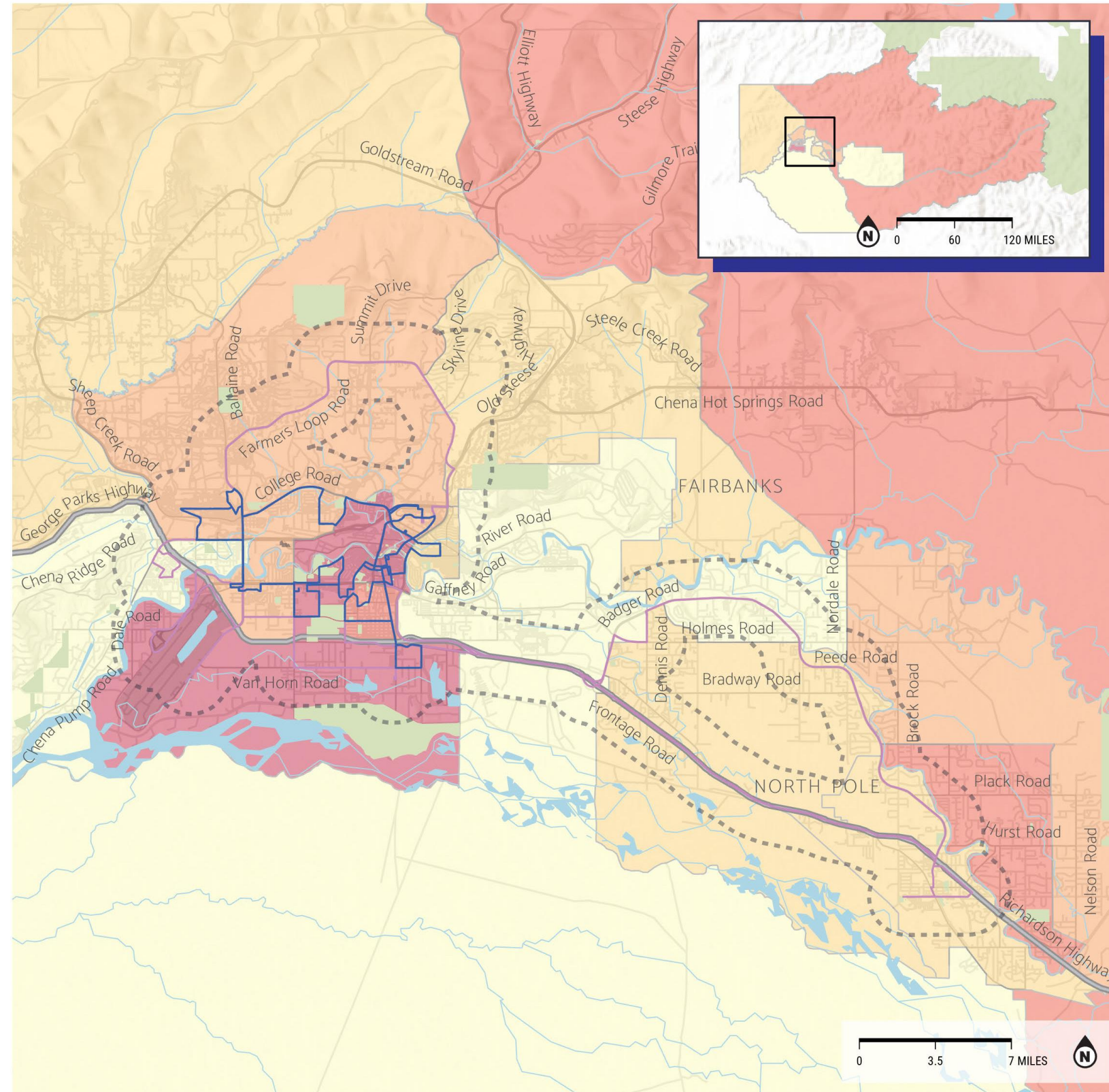


Figure 67 - Map of People with Disabilities



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Fairbanks North Star Borough

FAIRBANKS NORTH STAR BOROUGH EQUITY PROFILE

Youth and Senior

- 22% - 29%
- 29% - 35%
- 35 - 38%
- 38% - 41%
- 41% - 44%
- Parks

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

by Peak Headway

- 30 Minutes All-day service
- 60 Minutes AM and PM peak only
- Limited AM and PM peak only

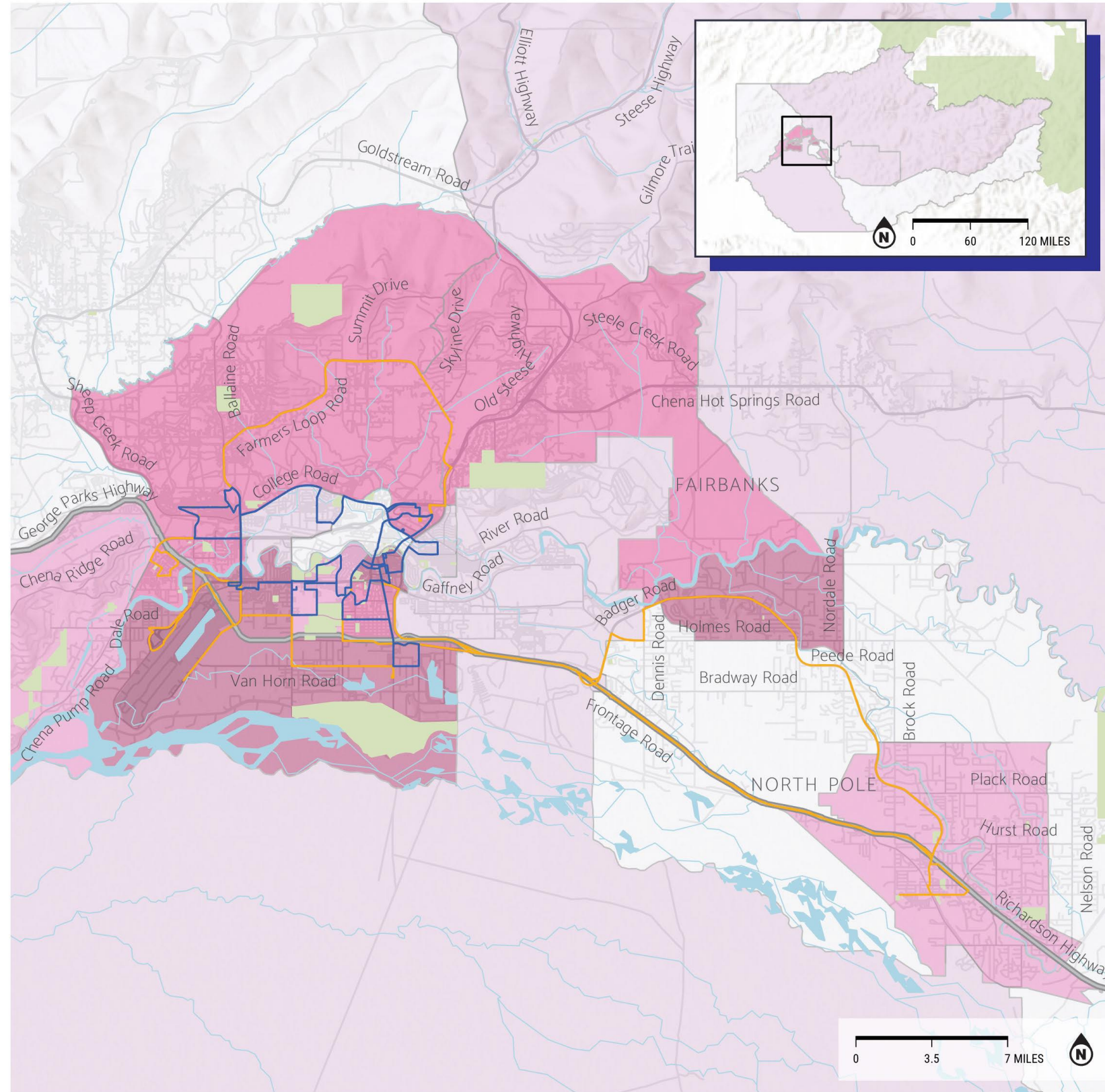


Figure 68 - Map of Youth & Senior



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FAIRBANKS NORTH STAR BOROUGH EQUITY PROFILE

Limited English Proficiency

- 0 - 0.1%
- 0.1% - 1%
- 1% - 3%
- 3% - 4%
- 4% - 15%
- Parks

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

by Peak Headway

- 30 Minutes All-day service
- 60 Minutes All-day service
- Limited AM and PM peak only

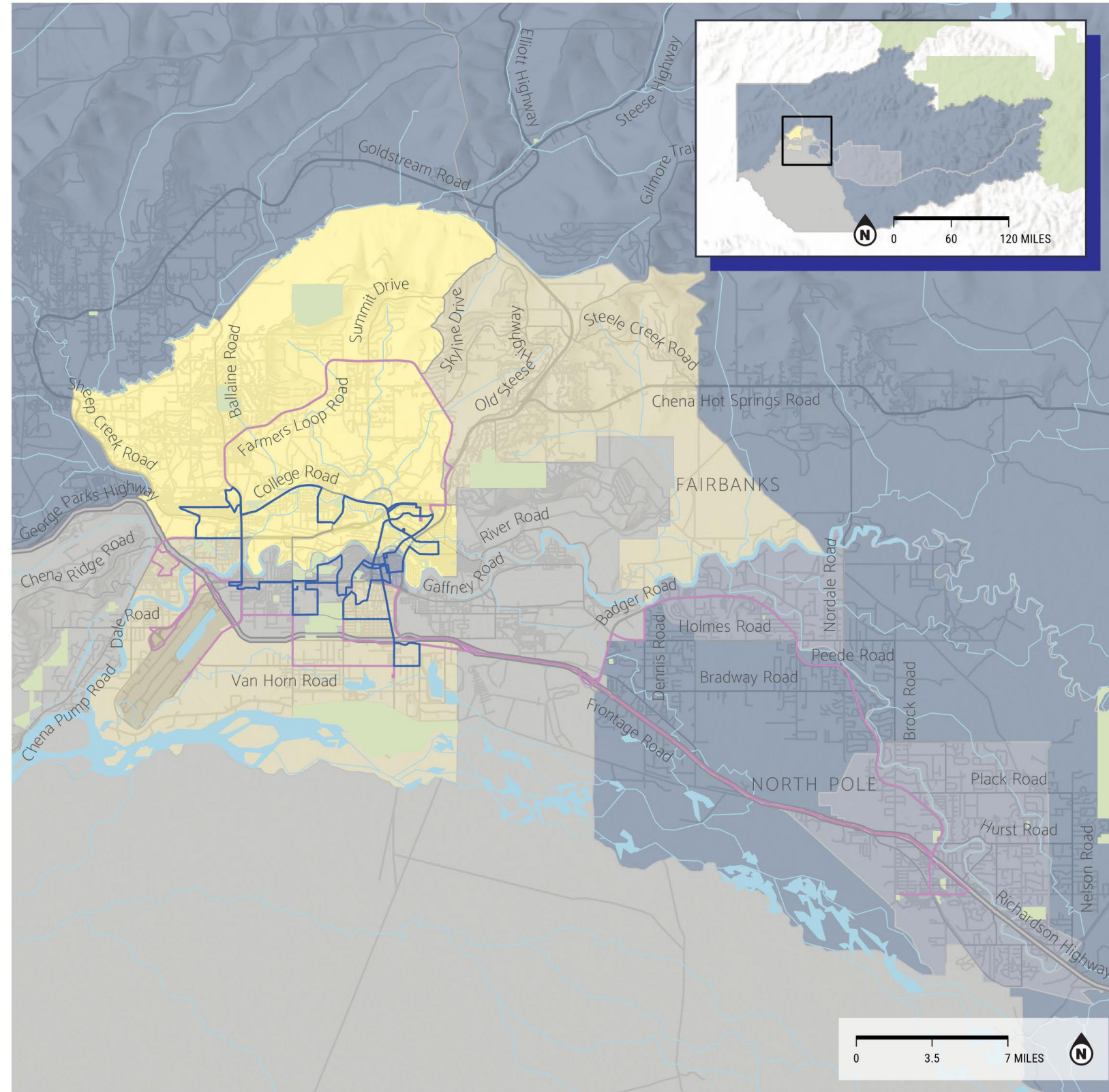


Figure 69 - Map of Limited English Proficiency



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FAIRBANKS NORTH STAR BOROUGH EQUITY PROFILE

No Vehicle Access for workers over 16

- 0%
- 0% - 2%
- 2% - 4%
- 4% - 10%
- 10% - 17%

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

by Peak Headway

- 30 Minutes - - - All-day service
- 60 Minutes - - - All-day service
- Limited - - - AM and PM peak only

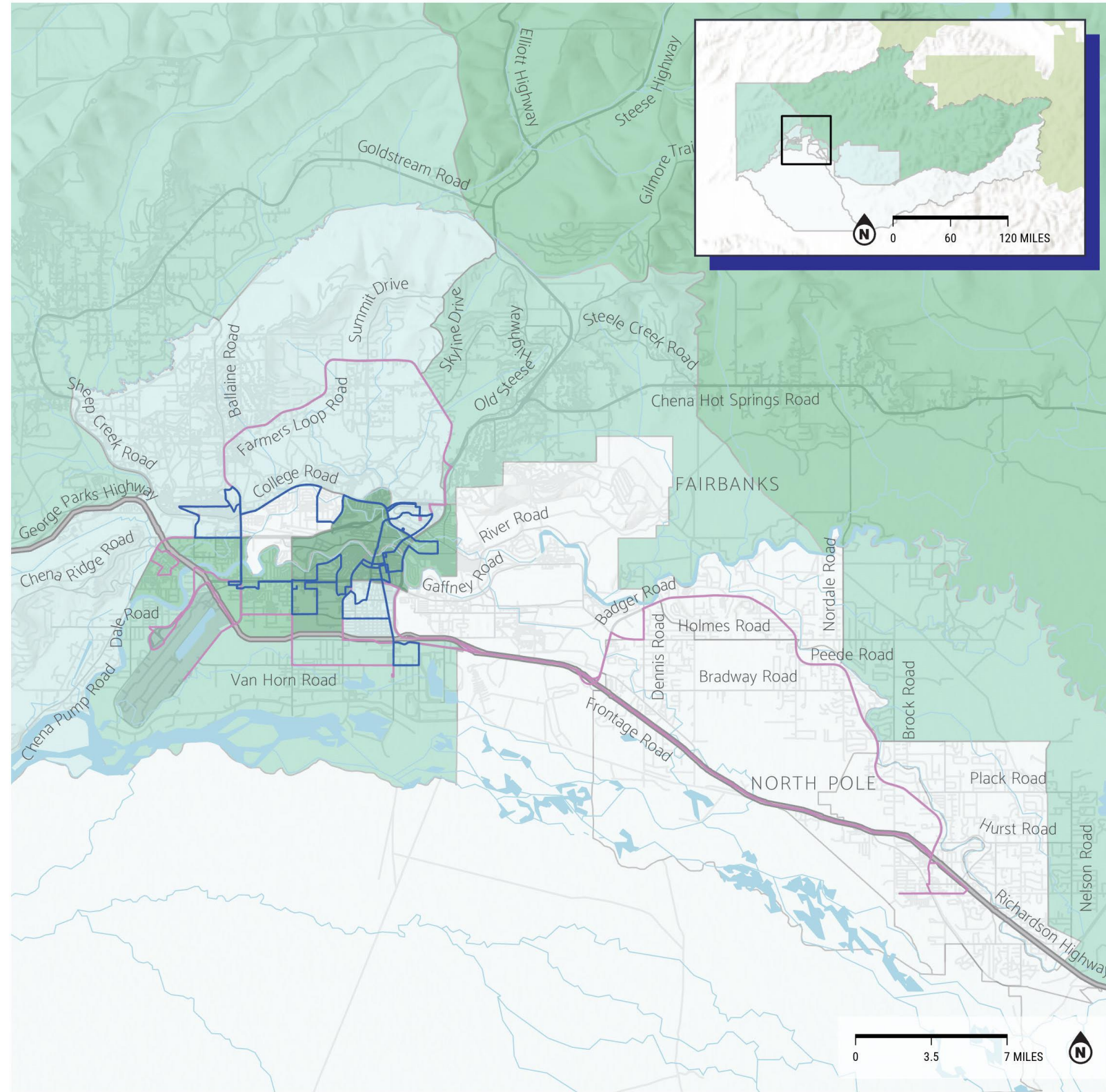


Figure 70 - Map of No Vehicle Access

5. CONNECTIVITY

PURPOSE & IMPORTANCE

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. Accessibility and connectivity is also important for paratransit services, although the door-to-door nature of paratransit means that it can more effectively bridge accessibility and connectivity gaps. In fact, paratransit services often bear an increased burden when the fixed route network is less accessible and connected because that may force some riders with disabilities to abandon fixed route service in favor of door-to-door paratransit rides.

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.

This section outlines the methodology and results of both the LTS analysis and the connectivity analysis. Ultimately, the results will help identify gaps and needs which can then later inform recommendations.

METHODOLOGY

The project team analyzed the pedestrian and bicycle connectivity of each MACS bus stop in the FNSB. This involved defining two types of connectivity ratios that gauge the disparity between **actual** and **optimal** connectivity, with 0 being lowest and 1 being highest. The resultant connectivity ratios measure. The project team calculated both of these ratios for pedestrian and bicycle travel in the FNSB:

- **Unadjusted Connectivity Ratios** – This is the ratio between the coverage of a pedestrian or bicyclist travel shed⁹ on the actual road network (**actual connectivity**) to the area of a perfect circle if that traveler was able to travel in a straight line at a typical walking or bicycle speed (**optimal connectivity**). It tells us how connected or disconnected a bus stop is from the surrounding street network.
- **Adjusted Connectivity Ratios** – For a specific mode and travel time allowance, this is the ratio between the stress-adjusted area of coverage of a pedestrian or bicyclist travel shed¹⁰ to the area of a perfect circle if that pedestrian or bicyclist could travel in a straight line at a typical walking or bicycle speed. It tells us how well-connected a bus stop is to the surrounding street network, as “adjusted” by comfort-related roadway characteristics that were incorporated into a travel stress analysis.

To determine travel stress for each roadway, the project team used a concept called **Level of Traffic Stress (LTS)**. An LTS analysis estimates the level of comfort for people biking or walking on a given roadway segment and identifies the degree to which some roadways must be improved to provide a more comfortable experience for pedestrians, bicyclists, and bus riders of all ages and abilities. The

⁹ A “travel shed” is the areas along a road network that a pedestrian or bicyclist could travel under conditions defined in the analysis.

¹⁰ Where travel costs are adjusted to account for level of comfort according to the Level of Traffic Stress (LTS) analysis.

results of the bicycle and pedestrian LTS analyses are scored from LTS 1 (most comfortable) to LTS 4 (least comfortable).

Calculating the LTS provides the required input for the adjusted connectivity ratio analysis which, for example, treats a bus stop that is only reachable by high-stress roadways as less accessible than one reachable via low-stress streets.

A more detailed description of the methodology for both the LTS analysis and the connectivity analysis is provided in Error! Reference source not found. **B.**

RESULTS

LEVEL OF TRAFFIC STRESS

The pedestrian LTS analysis shown in Figure 71 - Map of Pedestrian LTS illustrates that the most comfortable streets for pedestrians of all ages and abilities are in downtown Fairbanks, where there is a connected sidewalk network with low vehicle speeds. Most local streets outside of downtown are an LTS 2, suitable for most older children and adults. Arterials, on the other hand, are generally not comfortable for most pedestrians throughout the FNSB.

The bicycle LTS analysis shown in Figure 72 - Map of Bicycle LTS had somewhat different spatial patterns, with most downtown streets scoring a LTS 3 due to a lack of bike facilities. Many local streets outside of downtown scored a LTS 1. Many of these streets have bike paths, but even those without bike facilities enjoy low vehicle speeds that result in comfortable biking.

Relationship to Past Planning

It is important to note that the 2021 FAST Non-Motorized Plan (Connect Fairbanks) included a full bicycle LTS analysis and a partial pedestrian LTS analysis that informed its recommendations for the region's active transportation network. The full bicycle and pedestrian LTS analyses in this section were used specifically to develop the bus stop connectivity ratios, and therefore considered a greater number of data of inputs than the Connect Fairbanks LTS analysis. Those data inputs are outlined in Appendix B. The pedestrian LTS analysis in this section also included all streets in the MACS service area, while the LTS analysis in Connect Fairbanks only included a selection of streets due to data limitations at the time.

While the LTS analysis in this report is not intended to supersede the analysis Connect Fairbanks, it is a newer analysis that may serve as a supplemental reference. It also provides the data that was necessary to calculate the bus stop connectivity ratios.



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Fairbanks North Star Borough

PEDESTRIAN LEVEL OF TRAFFIC STRESS

Walk Level of Traffic Stress

- 1 (Most comfortable)
- 2
- 3
- 4 (Least comfortable)
- Parks

Level of Traffic Stress (LTS) is a metric of how comfortable it feels to walk along a road. Scores can be interpreted as follows:

- LTS 1:** Comfortable for all ages and abilities.
- LTS 2:** Requires more attention to traffic, but suitable for older children and adults.
- LTS 3:** Moderately uncomfortable but safe for most able-bodied adults.
- LTS 4:** Only for "strong and fearless" people or those with limited route choices.

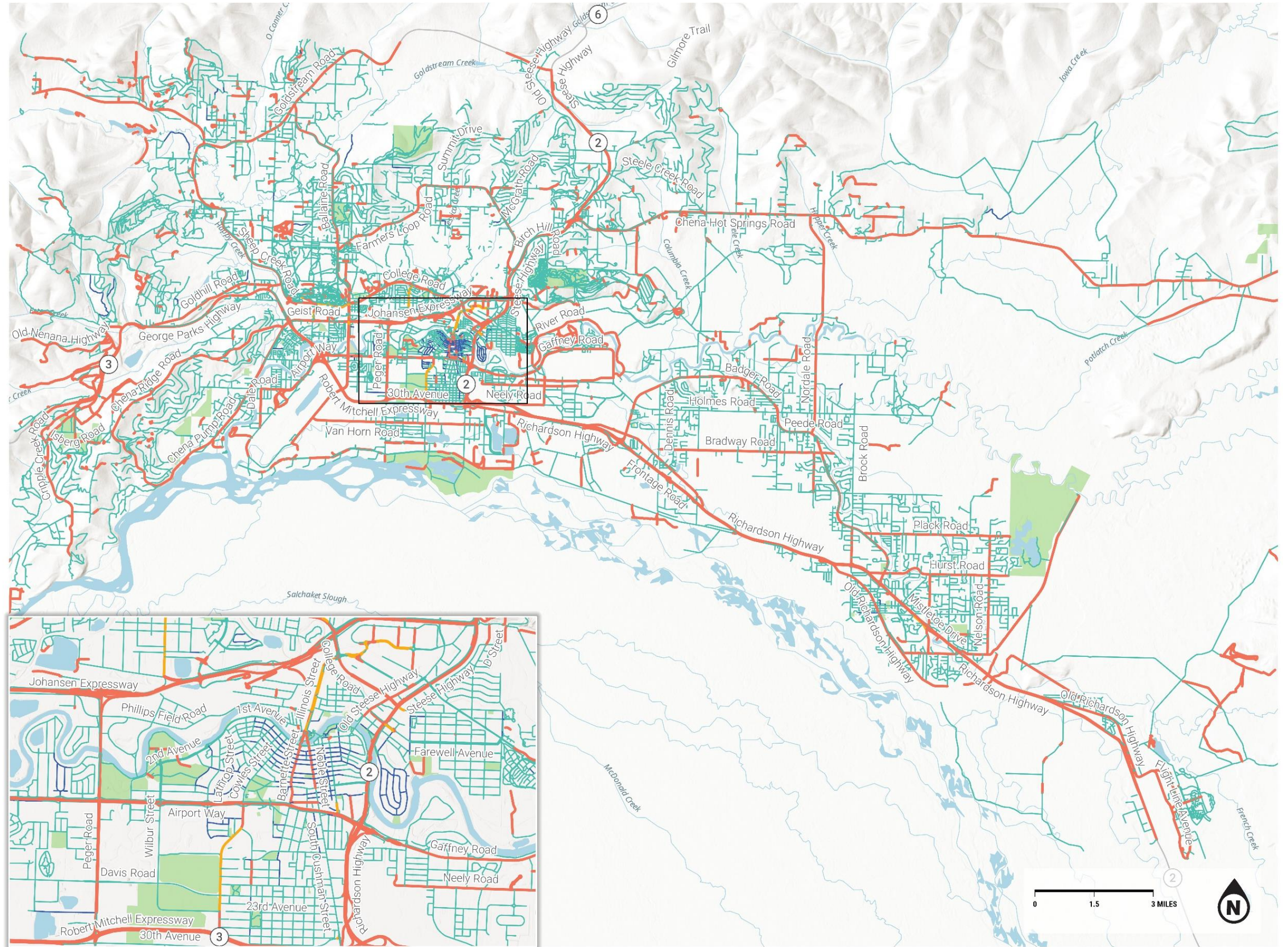


Figure 71 - Map of Pedestrian LTS



2023 Transit Plans Update

Fairbanks North Star Borough

BICYCLE LEVEL OF TRAFFIC STRESS

Bike Level of Traffic Stress

- 1 (Most comfortable)
- 2
- 3
- 4 (Least comfortable)
- Parks

Level of Traffic Stress (LTS) is a metric of how comfortable it feels to bike along a road. Scores can be interpreted as follows:
LTS 1: Comfortable for all ages and abilities.
LTS 2: Requires more attention to traffic, but suitable for older children and adults.
LTS 3: Moderately uncomfortable but safe for most able-bodied adults.
LTS 4: Only for "strong and fearless" people or those with limited route choices.

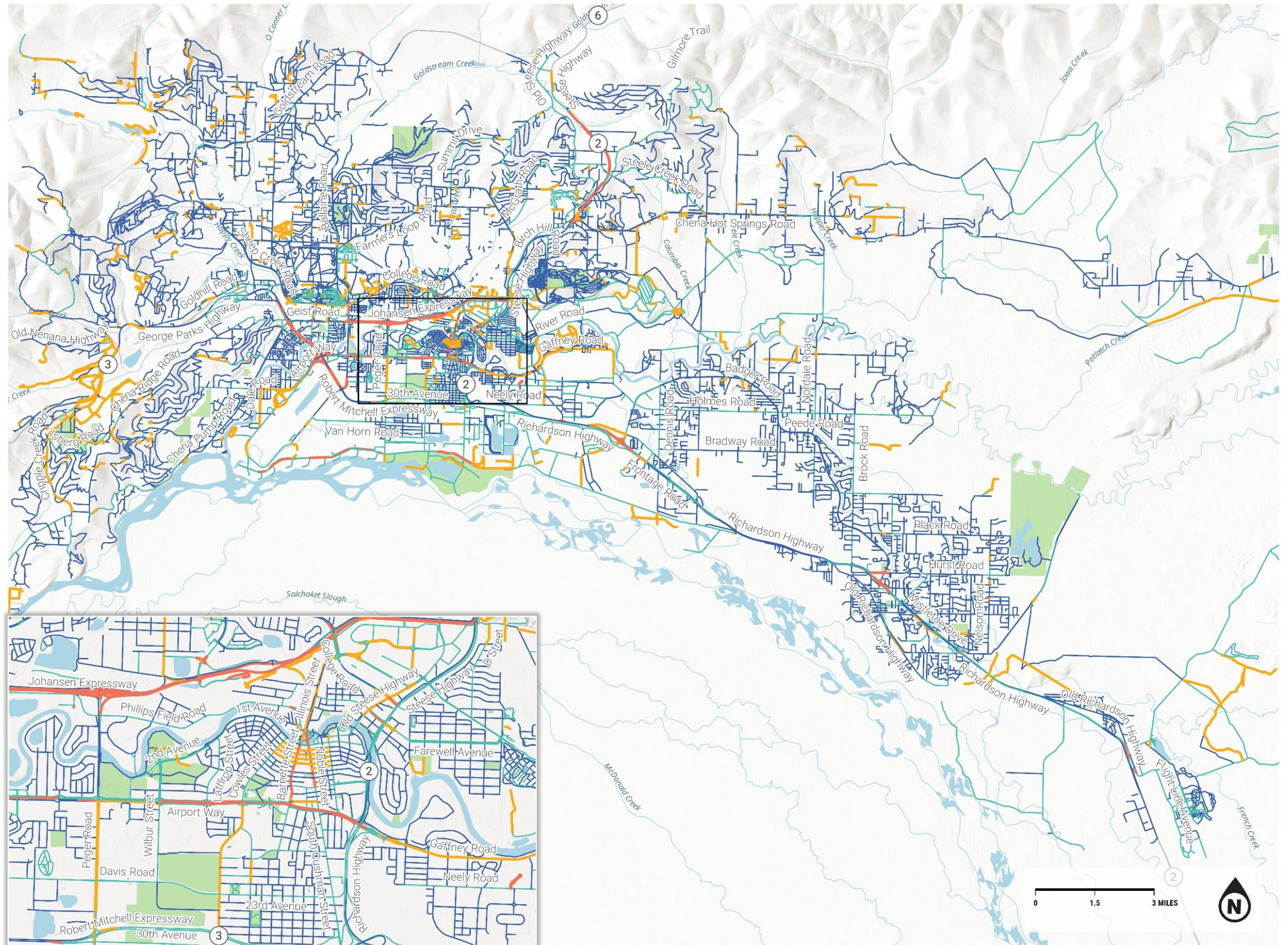


Figure 72 - Map of Bicycle LTS

PEDESTRIAN CONNECTIVITY

Figure 73 - Map of Unadjusted Pedestrian Connectivity shows that the best connectivity when not accounting for LTS is found:

- In downtown Fairbanks and vicinity;
- At Brown Line stops along Farewell Avenue; and,
- On the campus of the University of Alaska Fairbanks.

The highest connectivity ratio is 0.69, found along Barnette Street downtown. This means that a person walking for 10 minutes from these stops can reach 69% of the area that they would if they were able to walk in a straight line in any direction.

Figure 74 - Map of LTS-Adjusted Pedestrian Connectivity shows that LTS has a significant impact on connectivity throughout the FNSB. The highest LTS-adjusted connectivity ratios are found along Lacey Street in downtown Fairbanks, with a maximum ratio of 0.43. The lowest scores are found at Orange Line stops along Davis Road and along 30th Avenue.

The walk sheds are also noticeably larger on the unadjusted map than the LTS-adjusted map. This shows that traffic stress is a factor that can reduce the area that riders can comfortably reach from a bus stop.

BICYCLE CONNECTIVITY

The bicycle connectivity analysis shows that unadjusted connectivity, shown in Figure 75 - Map of Unadjusted Bicycle Connectivity, shows cyclists can access more destinations compared to adjusted connectivity, which is shown in Figure 76 - Map of LTS-Adjusted Bicycle Connectivity.

The highest unadjusted connectivity ratio is 0.5, and the average score borough-wide is 0.32. The lowest bicycle connectivity ratios are at Red and Blue Line stops along Aurora Drive and at Yellow Line stops at the airport, although low connectivity ratios at an airport is not a surprise. As with pedestrian connectivity, the highest bicycle connectivity is in downtown Fairbanks.

When adjusted for LTS, connectivity ratios are lower across the board, with downtown Fairbanks still among the most connected areas even when considering traffic stress. The lowest bicycle connectivity ratios are at Red and Blue Line stops along College Road and at Orange Line stops along Davis Road.

Similar to the pedestrian maps, the bike sheds are smaller when accounting for LTS scores, indicating that traffic stress can impact a cyclist's connectivity if high stress streets are a barrier to route choice.



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UNADJUSTED PEDESTRIAN CONNECTIVITY

Raw connectivity ratio

- <.06 (Least connectivity)
 - 0.06 - 0.13
 - 0.14 - 0.25
 - 0.26 - 0.42
 - > 0.43 (Most connectivity)
- Highway
 - Arterial
 - Collector
 - Cities of Fairbanks and North Pole
 - Parks
 - 10 minute stop walkshed

The unadjusted walk ratio compares the area reachable by a person walking 10 minutes along the street network to the area within a 10-minute walk as the crow flies. This metric does not account for Level of Traffic Stress. A ratio of 1 would be optimal.

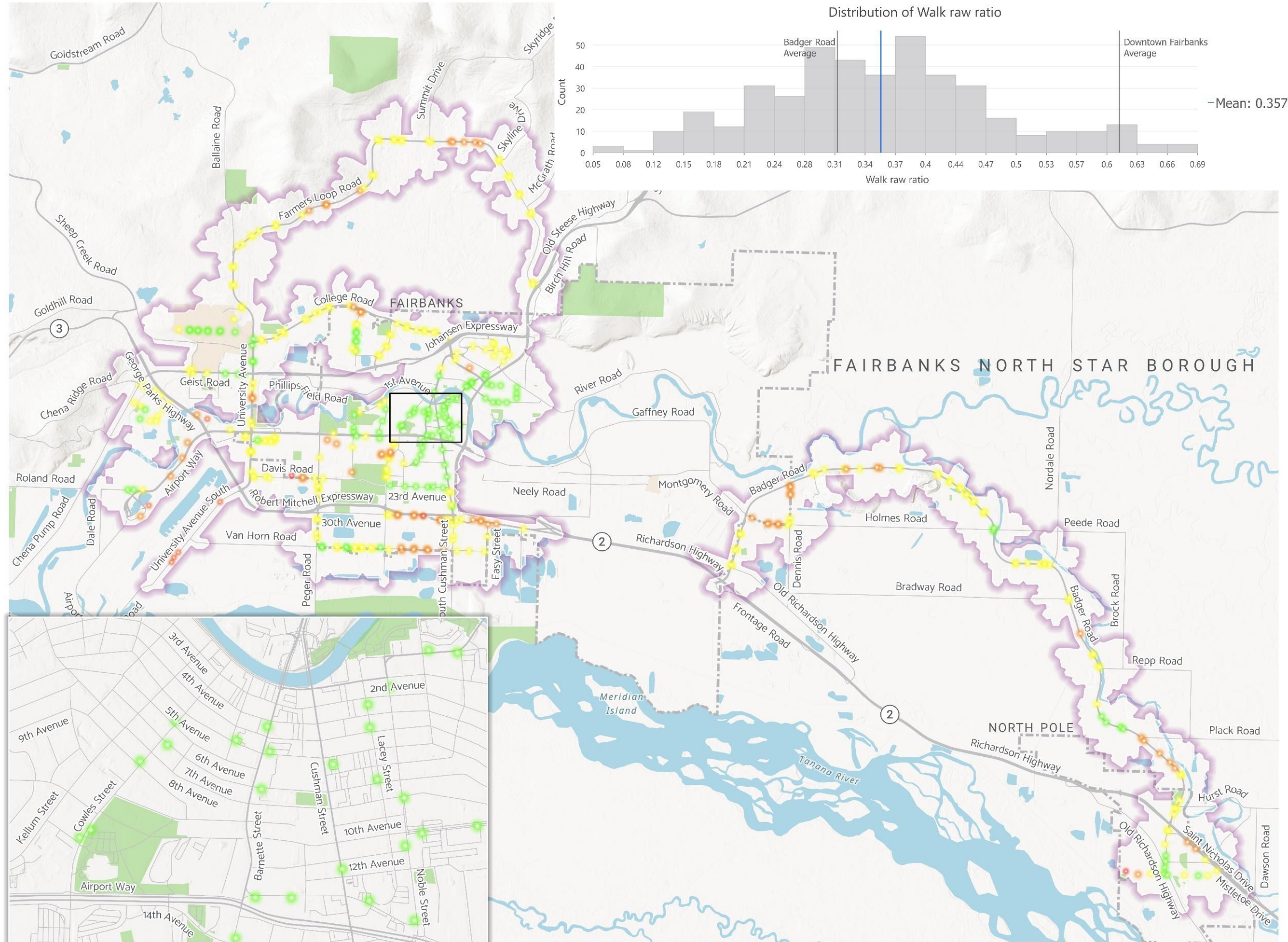


Figure 73 - Map of Unadjusted Pedestrian Connectivity



2023 Transit Plans Update

Fairbanks North Star Borough

LOW-STRESS ADJUSTED PEDESTRIAN CONNECTIVITY

Level of Traffic Stress connectivity ratio

- <.06 (Least connectivity)
 - 0.06 - 0.13
 - 0.14 - 0.25
 - 0.26 - 0.42
 - > 0.43 (Most connectivity)
- Highway
 - Arterial
 - Collector
 - Cities of Fairbanks and North Pole
 - Parks
 - 10 minute stop walkshed

The LTS-adjusted walk connectivity ratio compares the area reachable by a person walking 10 minutes along the street network to the area within a 10-minute walk as the crow flies. This ratio further adjusts for level of traffic stress, assuming that perceived or actual travel times are longer in higher-stress contexts. A ratio of 1 is optimal.

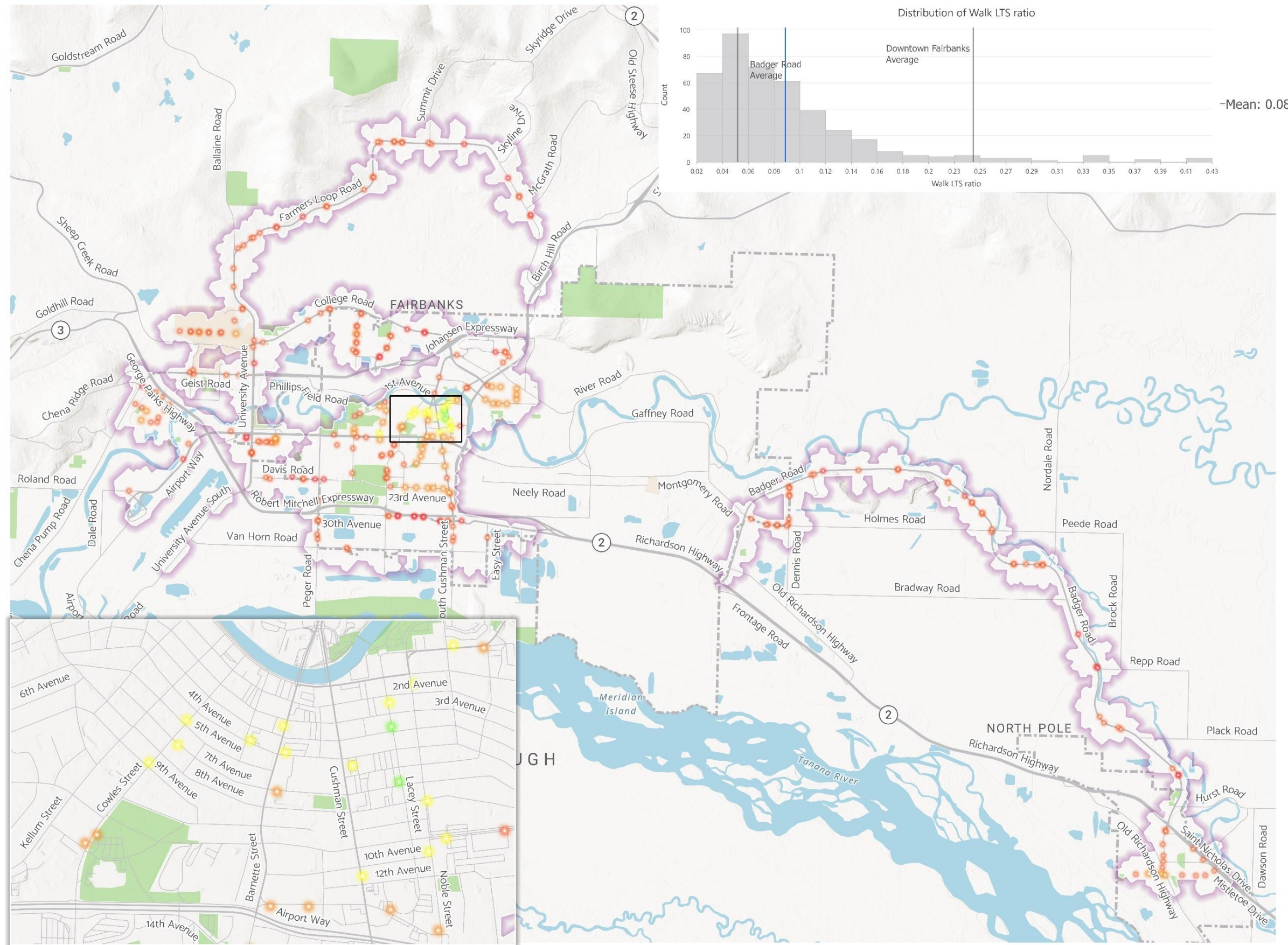


Figure 74 - Map of LTS-Adjusted Pedestrian Connectivity



2023 Transit Plans Update

Fairbanks North Star Borough

UNADJUSTED BICYCLE CONNECTIVITY

Raw connectivity ratio

- < 0.1 (Least connectivity)
 - 0.11 - 0.19
 - 0.20 - 0.26
 - 0.27 - 0.35
 - > 0.35 (Most connectivity)
- Highway
 - Arterial
 - Collector
 - Cities of Fairbanks and North Pole
 - Parks
 - 10 minute stop bikeshed

The unadjusted bike ratio compares the area reachable by a person biking 10 minutes along the street network to the area within a 10-minute ride as the crow flies. This metric does not account for Level of Traffic Stress. A ratio of 1 would be optimal.

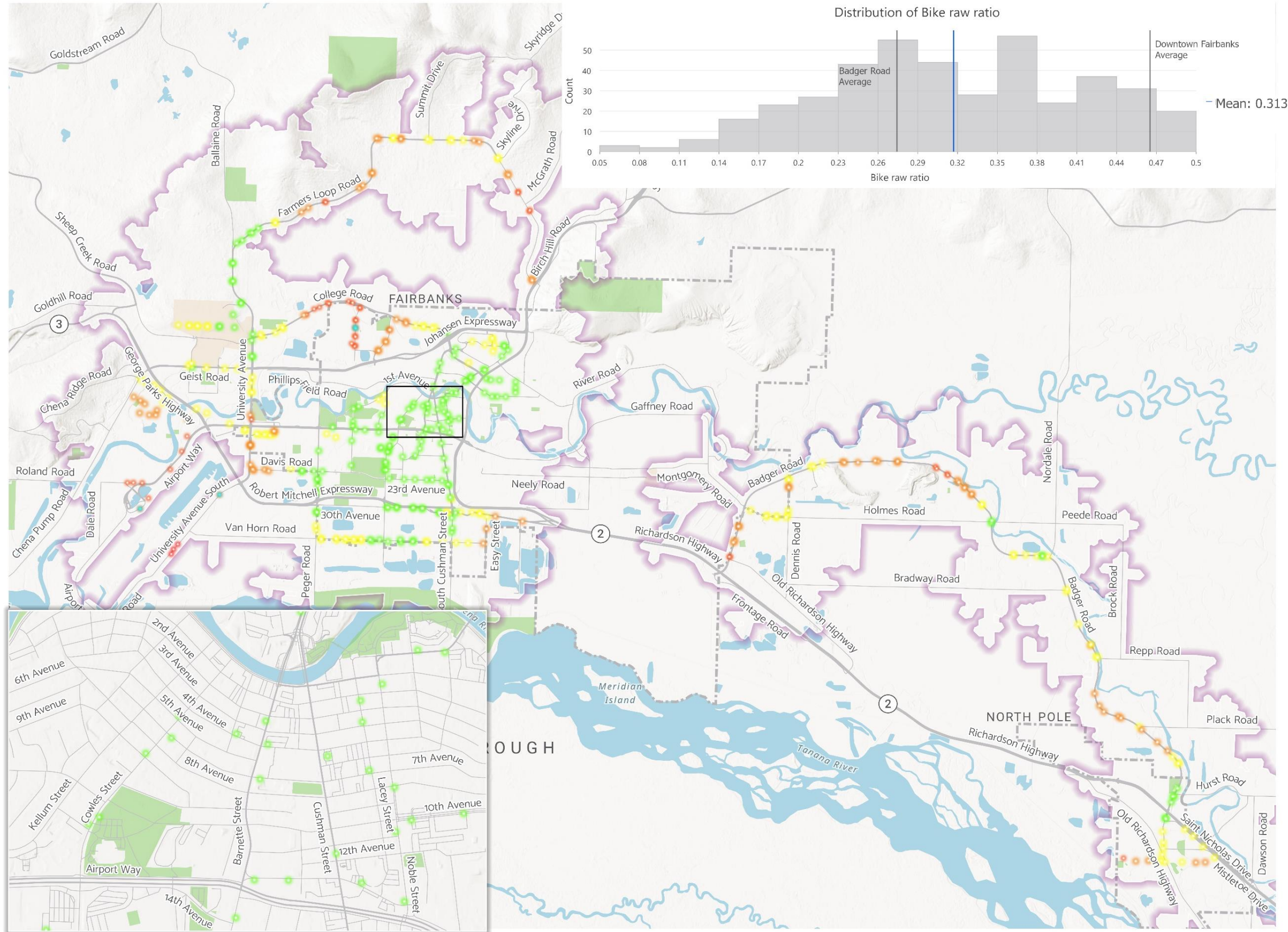


Figure 75 - Map of Unadjusted Bicycle Connectivity



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Fairbanks North Star Borough

LOW-STRESS ADJUSTED BICYCLE CONNECTIVITY

Level of Traffic Stress connectivity ratio

- < 0.1 (Least connectivity)
- 0.11 - 0.19
- 0.20 - 0.26
- 0.27 - 0.35
- > 0.35 (Most connectivity)

- Highway
- Arterial
- Collector
- Cities of Fairbanks and North Pole
- Parks
- 10 minute stop bikeshed

The LTS-adjusted bike ratio compares the area reachable by a person biking 10 minutes along the street network to the area within a 10-minute ride as the crow flies. This ratio further adjusts for level of traffic stress, assuming that perceived or actual travel times are longer in higher-stress contexts. A ratio of 1 would be optimal.

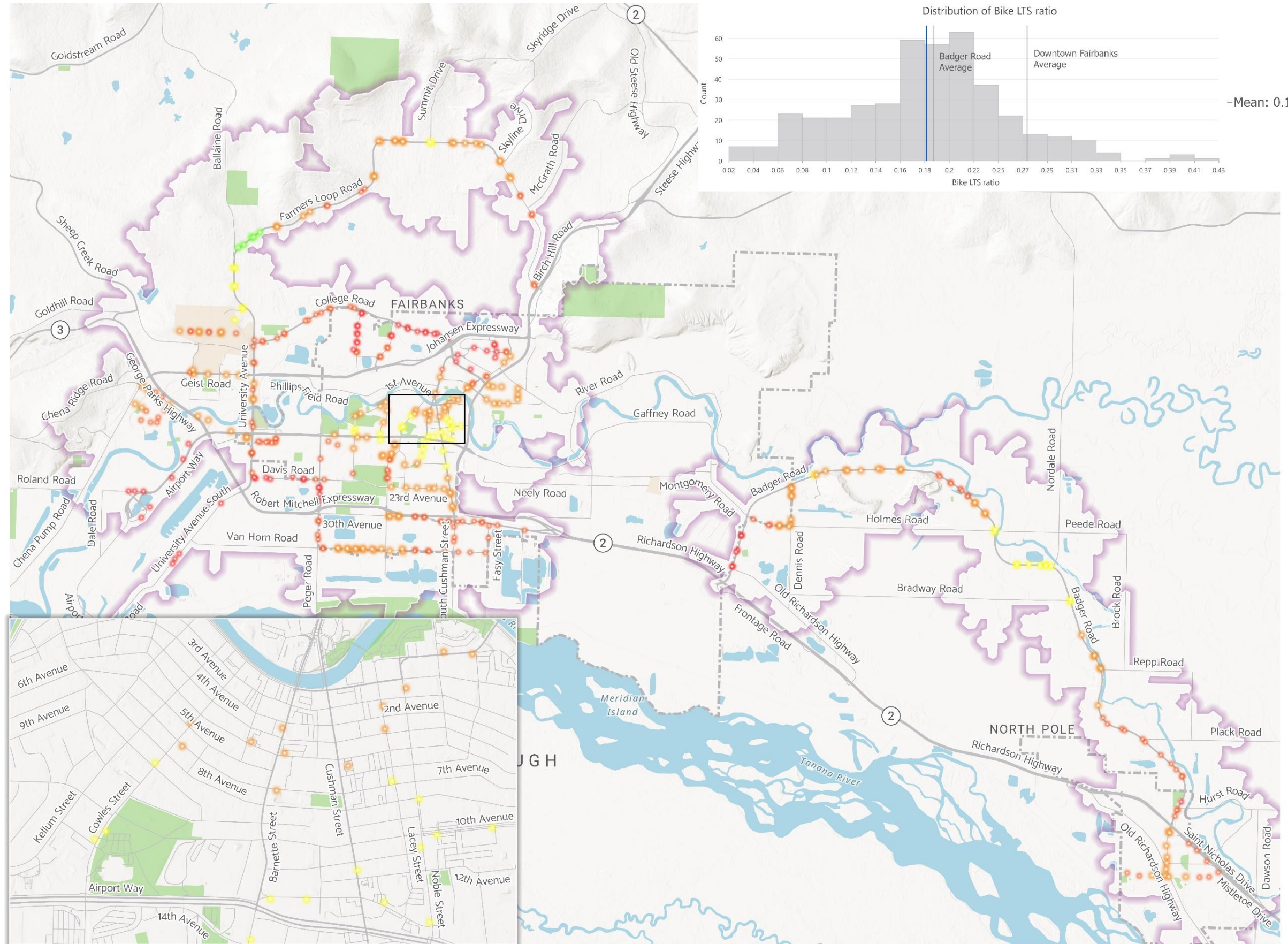


Figure 76 - Map of LTS-Adjusted Bicycle Connectivity

WALKSHED METRICS

The project team also calculated characteristics of the populations that live within the adjusted and unadjusted walksheds of all bus stops in the FNSB.

As shown in Table 5 - Walkshed Metrics below, just over half (51%) of the FNSB's population of lives in the 10-minute raw walkshed of a bus stop. People living within the walkshed are more likely to be people of color, live below the poverty line, and to not own a car when compared to the population characteristics of the entire FNSB.

Table 5 - Walkshed Metrics

Area	Population ¹¹	Percent People of Color ¹²	Number of Jobs ¹³	Percent no vehicle ¹⁴	Percent Low Income ¹⁵
Unadjusted walkshed	49,407	36.5%	19,904	6.7%	7.2%
LTS-adjusted walkshed	44,601	36.8%	16,851	7.2%	7.8%
Fairbanks North Star Borough	97,149	31.1%	33,200	4.3%	7.0%

¹¹ American Community Survey 5-Year Estimates, 2021.

¹² Ibid.

¹³ Smart Location Database, 2021.

¹⁴ Ibid.

¹⁵ Defined as the percentage of households with incomes below the federal poverty line (ACS, 2021).

6. GAPS

The 2023 Transit Plans Update (TPU) will ultimately provide recommendations to inform the future of MACS and coordinate human services transportation throughout the FNSB. As a step in that direction, this report identifies some potential high-level “gaps” based on the preceding analyses that may warrant additional consideration in the subsequent Needs Analysis phase of the TPU. These gaps are organized and discussed by category: coverage, service quality, and connectivity.

COVERAGE

“Coverage” describes **where** public transportation service is provided. As noted in Table 5 - Walkshed Metrics, between 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. A greater number of people live within the MACS Van Tran service area since it operates door-to-door at least ¾ mile of either side of the MACS fixed route bus network; however, Van Tran is intended to provide service to a smaller subset of the FNSB’s residents.

Initial findings related to coverage include:

MACS provides good coverage of high demand areas. As discussed in the

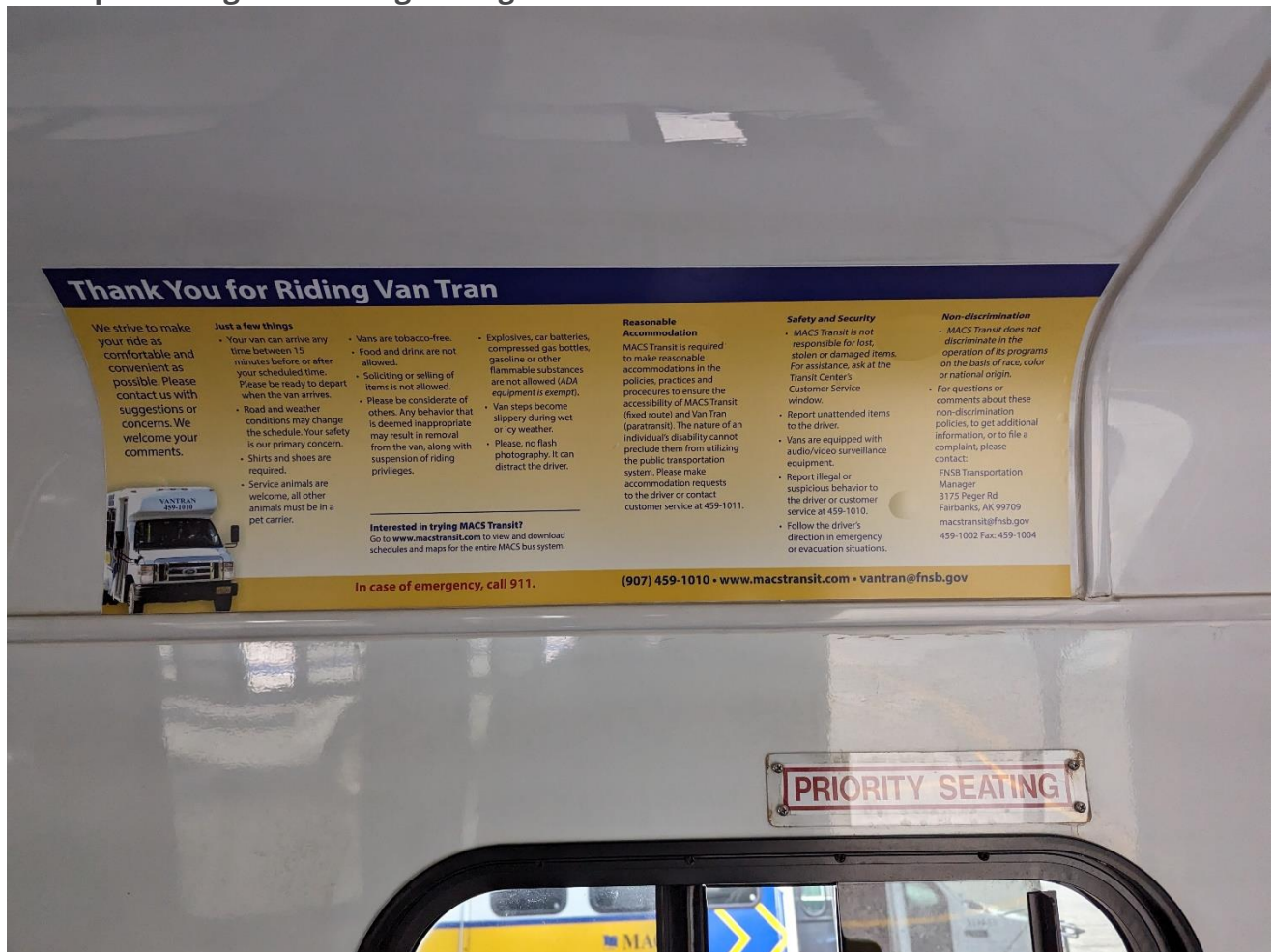


Figure 59 - Informational display in Van Tran bus

Demand section, the MACS fixed route network 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. The Red and Blue lines run on Airport Way to the south of this area, however there are no stops along this section between Pioneer Park and Washington Drive.

There is potential for improved coverage of high need equity areas. The Equity section shows that there are some areas that scored high on the equity analysis that may not be receiving adequate MACS coverage.

For example, Figure 66 - suggests that the existing minimum Van Tran service area does not extend to some areas in which 12% or greater of the population lives with a disability. However, it is unknown if the disabilities reported in that analysis constitute a qualifying disability per Van Tran eligibility requirements and Van Tran does provide some rides beyond its minimum service area. The vast geographic area of the FNSB also poses a major challenge. Still, this is a subject that the project team should investigate further, including the extent to which other human services transportation providers may be covering this gap.

In addition, fixed route bus service covers only a small portion of some of the areas that score high in several equity measures, including overall equity needs as shown in Figure 70 - . There are major challenges to service provision in some of these areas, however, including low density development patterns and lack of walking and biking facilities. One of these areas of high equity need is the community of Badger. This area is currently covered by limited, commuter-oriented Green Line service, but it would be costly to increase service due to Badger's distance from Fairbanks, its low density land use pattern, and lack of stop-level connectivity.

Ultimately, pursuing increased coverage of the MACS fixed route system may not be as desirable as improving service levels to the areas already served. This is discussed in the next section, Service Quality.

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.

Service quality can include several categories: **headway**, **span**, and **directness**. As discussed in the Service Overview section, headway (or frequency), is **how often** service is provided, measured as the time between bus arrivals for a given route at a given stop. The Importance of Headways section discusses the impact of headways on the usefulness of a bus system for varying trip types.

Span refers to the **duration** of transit service, as measured by hours of operation and days of operation. Span can have a big impact on service quality as well, since a transit system will be less useful if limited-service duration precludes many types of trips.

Finally, as discussed in the Network Characteristics section, directness affects **travel time** between destinations through how much out-of-direction travel a rider may have to endure. For example, the MACS fixed route bus system incorporates several loop routes and also operates routes that include out-of-direction travel through deviations to reach out-of-the-way areas or neighborhoods. While this may improve access for some riders, it may also make them less useful for others due to increased travel time. In this sense, directness is not always a straightforward variable because it is often related to coverage and may involve tradeoffs between accessibility for some riders and travel time for other riders.

To the extent that there is a desire to increase the usefulness of the MACS system to a wider variety of people and trip types, the project team should investigate targeted, feasible ways to improve service quality to maximize its return on existing transit investments.

Initial findings related to service quality include:

Even the shortest headways on the MACS 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.

Headways on some MACS 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 Line east of Chena Pump Road and south of the Parks Highway scores high in both the demand analysis and the equity analysis. Despite this, only limited service is provided at 60-minute headways and with only eight trips per day (four before noon, and four after 2pm). Similarly, areas surrounding the Grey Line score high on the equity analysis but only receive seven trips per day at 60-minute headways with a significant midday gap. Both of these lines also have significant gaps in midday 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 directness, especially on the Brown and Purple Lines that do not have complementary loop service as seen with the Red and Blue lines. For example, someone wanting to travel on the Brown Line from C & Eureka to the downtown Transit Center would need to ride the loop in the opposite direction for about 20 minutes. If the Brown Line was bi-directional, that same trip would instead take just over 5 minutes.

Some MACS bus lines also include deviations that result in indirect travel and increase travel times. For example, riders on the Red Line wishing to travel from the downtown Transit Center to Fred Meyer West must ride through a deviation from the trunkline (Airport Way) of almost two miles, which also includes two additional detours within that deviation.

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.



Figure 77 - Bus stop with notice of closure

Weekend service is not currently provided. As noted earlier in this report, weekend service was completely discontinued with the elimination of Saturday service in 2021. 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. Similar to weekend service, operating bus service early enough and late enough is essential to providing viable options for transportation to jobs and services. Most MACS fixed route bus lines operate fairly early, starting at around 6:30am. However, all routes end service between 9pm and 9:45pm, which may be too early for some types of jobs. For example, several large retailers in Fairbanks with significant bus access remain open until 10pm or 11pm on weekdays.

The convenience of Van Tran’s scheduling, eligibility, and service timing needs to be assessed. 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 needs to be assessed for potential improvements.

CONNECTIVITY

As discussed in the Connectivity section, riders being able to reach bus stops safely and comfortably is extremely important in providing useful and equitable service. 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 maximize connections to the surrounding street network.

Similar to improving service quality, enhancing connectivity to the existing MACS system can help maximize the reach and potential of the existing fixed route system.

Initial findings related to connectivity include:

Many bus stops are difficult or uncomfortable to reach under current roadway conditions, even those that receive relatively high levels of transit service. As shown in Figure 73 - Map of Unadjusted Pedestrian Connectivity and Figure 74 - Map of LTS-Adjusted Pedestrian Connectivity, many bus stops outside of downtown that are relatively well-connected to the street network (indicated by higher unadjusted connectivity ratios) may in reality not be comfortable or easy to reach on foot as indicated by their relatively much lower LTS-adjusted connectivity ratios. This suggests a need for pedestrian connectivity improvements to many bus stops in the MACS fixed route bus system to improve stop access and comfort, especially outside of downtown.

Findings are similar for bicycle connectivity needs, as shown in Figure 75 - Map of Unadjusted Bicycle Connectivity and Figure 76 - Map of LTS-Adjusted Bicycle Connectivity.

A few example corridors include bus stops along:

- College Road (Red and Blue Lines)
- Airport Way (Red, Blue, and Yellow Lines)
- Amherst/Dartmouth Loop (Yellow Line)
- Aurora Drive, Wembley Avenue, and Danby Street (Red Line)
- Illinois Street (Brown Line)
- Old Steese Highway (Red and Blue Lines)
- Lathrop Street (Purple and Orange Lines)
- Badger Road, E 8th Avenue, and S Santa Claus Lane (Green Line)

Some bus stops are not well-connected to the surrounding street network. Bus stops that have low scores on Figure 73 - Map of Unadjusted Pedestrian Connectivity show that they 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.

Some examples include the stops listed below, which have low unadjusted pedestrian connectivity scores due to being located on particularly disconnected street networks:

- College Road at Aurora Drive (Red Line)
- Some segments of Farmers Loop Road (Grey Line)
- Van Horn Road between Lathrop Street and S Cushman Street (Orange Line)
- Davis Road (Orange Line)
- Holmes Road and Some segments of Badger Road (Green Line)

Large arterials are a connectivity barrier in the FNSB. The Level of Traffic Stress (LTS) analysis shown in Figure 71 - Map of Pedestrian LTS and Figure 72 - Map of Bicycle LTS 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.



Figure 78 - MACS bus traveling an arterial roadway in Fairbanks

APPENDIX A: REVIEW OF EXISTING PLANS, STUDIES, AND REPORTS

STATE OF ALASKA

Alaska Statewide Transportation Plan – Alaska Moves 2050, 2023

Alaska Moves 2050 updates the state’s Long-Range Transportation Plan. The plan will guide decisions related to state owned multi-modal transportation assets for a 25-year horizon. It establishes goals, policies, and measurable actions for an adaptable, resilient transportation system.

Interior Alaska Transportation Plan, 2010

This plan is one regional component of the statewide transportation plan. The Fairbanks Metropolitan Planning Organization (MPO) boundary is excluded from the review and recommendations of this plan. The MPO has a separate planning process from the state’s process.

DOT&PF ADA Transition Plan, 2023

The ADA Transition Plan evaluates the DOT&PF’s services, policies and practices to make sure they serve the needs of those with disabilities. Under the ADA and 28 CFR, the DOT&PF is obligated to self-evaluate current facilities under the accessibility standards the U.S. Access Board put forth. In Fairbanks, DOT&PF assessed curb ramps, pedestrian push-buttons, slope and other features within the pedestrian right-of-way, and bus stops on state-maintained sidewalks recommends projects to improve mobility.

FAIRBANKS NORTH STAR BOROUGH

Fairbanks North Star Borough Regional Comprehensive Plan, 2005, amended 2022

The plan provides a vision, goals, strategies, actions, and creates a framework for decisions for land use, economic development, transportation and infrastructure, environment and community and human resources. The availability of transit is included as a decision metric for some types of land use. Additionally, the plan supports expanding transportation options, and good access to bus stops.

Fairbanks Comprehensive Economic Development Strategy (CEDS), 2022

The CEDS plan identifies economic vision and goals for the entire FNSB. It presents a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis for core economic clusters, and creates goals, strategies and measures of success for each of the clusters. Limited transit to recreational and entertainment designations is identified as a weakness. One of the identified strategies is, “Strategically expand transit options in the FNSB to better meet the needs of residents. Actions include:

- Increase public transit and carpool options, including service to military bases
- Offer reduced fare transit options to college students, service members, and seniors

- Develop new Transit plan, to include consideration of new routes to better connect user groups with services.

Fairbanks North Star Borough Coordinated Transportation Plan, 2015

This plan updates the 2010 Coordinated Transportation Plan and the 2011 Mobility Management Plan. The plan identifies the transportation needs of vulnerable populations such as those with disabilities, older adults, and those with low incomes. It provides strategies for meeting their transportation needs and prioritizes services for funding and implementation. This plan carries forward the recommendations of the 2011 Mobility Management Plan.

Fairbanks North Star Borough Senior Needs Transportation Survey, 2023

This survey was conducted by the FNSB Senior Citizen Advisory Commission, FNSB Parks and Recreation Department, and FNSB Transportation Department. The goals of the survey were to gather data on senior experiences and perceptions of both public and private transportation options in the FNSB, to gain insight in transportation patterns, needs and behaviors of older residents, and expand understanding of senior transportation to better inform policies and help address senior transportation needs. Key findings from the survey include: most seniors drive or rely on others for transport and only 37 percent use public transportation. Most respondents travel between 8 a.m. and 4 p.m. More than half respondents report being able to access reliable transportation when needed. When asked for reasons to not use public transit most reported not needing it. However, many indicated they were not familiar with the services provided. Nearly 70 percent of respondents indicated a preference for printed materials for gaining information about public transit. The survey showed a strong interest in using door to door transit services.

Fairbanks North Star Borough Joint Land Use Study, 2006

The study was completed through a partnership between the FNSB, U.S. Department of the Army and the U.S. Air Force with the purpose of exploring opportunities to accommodate necessary growth and to maintain the regional economic sustainability associated with the two military bases. The plan is intended to encourage cooperative land use planning between the FNSB and the military and reduce the operational impacts of the military bases on neighboring properties.

Downtown Fairbanks 2040 Plan, 2023 DRAFT

This planning process is currently underway. When complete it will guide policy decisions and development for downtown Fairbanks. The draft plan includes a transportation element. The plan acknowledges the importance of transit and recommends additional connections for the downtown transit network. The draft plan also creates desired land use categories within the planning area, which are intended to guide future policy and regulatory decisions.

Salcha-Badger Road Area Plan, 2019

The small area plan provides direction for long term planning for the Salcha-Badger Road area. The plan provides more detail and specificity for this planning area. The plan presents a vision and goals, recommended policies and actions to implement the vision and goals, a summary of key issues guiding the plan goals, strategies and actions for each focus area (land use, transportation and housing), a future land use map, and a list of preliminary priority strategies for plan implementation.

The plan identifies the following key issues related to transportation (summarized):

- Rural low density living, and independent lifestyles are highly valued and residents rely on personal vehicles for transportation.
- Safe and efficient travel along the Richardson Highway is a priority.
- Strong desire for separated pedestrian/bicycle facility along Richardson Highway from Salcha to the City of North Pole.
- “Orphan roads” exist within the planning area. Orphan roads are those without an identified entity responsible for maintenance and snow removal. Unmaintained roads create challenges for emergency responders.
- Efficient transit service can be challenging to provide due to low residential and employment densities and the large geography of the area.
- Future services to Eielson Air Force Base and Salcha are potential transportation needs.
- The rail route is a potential concern if rail traffic increases due to frequent at-grade crossings.

The plan includes the following transportation goals:

- A. Ensure the transportation is planning, constructed and maintained to facilitate access and improve safety and mobility for all uses.
- B. Improve road maintenance standards to (1) maintain roads at levels appropriate to current use and to respond to demand, (2) protect user safety, and (3) provide efficient, convenient travel along the route.
- C. Establish and maintain a connected bicycle and pedestrian network along major collectors and arterials in the project area to create safer and efficient connections.
- D. Maintain an effective and efficient regional freight and rail transportation system
- E. Develop an interconnected recreational trail system that considers all users and abilities and serves as a foundation for tying the Salcha-Badger Road area together.
- F. Ensure recreational trails are planned, designed, constructed and maintained in such a manner that the environment is respected, long-term maintenance needs are kept to a minimum and associated costs are within the reach of the land managers.

Key recommendations of the plan related to transit are:

- Prioritize routes to school and transit that enable pedestrians and cyclists to travel safely and freely.

- Monitor the need for expanded transit service.
 - As density increases, evaluate the need for improved transit service to the City of North Pole and Badger West and East subareas.
 - Continue to monitor the need for a North Pole transit center to meet increased ridership demands. If a need is identified, consider proposed locations identified in the 2010 North Pole Land Use Plan.
- Partner with the City of North Pole and ARRC in support of the North Pole Road/Rail Crossing Project which includes rail realignments and a future transit center in the City of North Pole.

FAST PLANNING

2045 in Motion, Metropolitan Transportation Plan, 2023 DRAFT

An update to the MTP, the plan presents a long-range vision for the transportation system in the urbanized area of the FNSB, including the cities of Fairbanks and North Pole. The plan identifies current and future transportation needs. It also provides a list of projects needed to meet the identified needs, a project cost breakdown and expected timeframe for implementation. The needs assessment for transit identifies areas to be considered for future transit expansion: east and northeast North Pole, and the area between the New Steese Highway and Skyridge Drive/Skyline Drive, east and north of Fox. The plan identifies a lack of service to Eielson Air Force Base and Salcha. The plan also the capacity of the transit maintenance center is inadequate. General transit needs listed include new transit and paratransit vehicles, lack of service on Sundays, inadequate headways on Red and Blue lines, inadequate and insufficient bus stop shelters and amenities and a need for updated transit planning and network analysis (underway with this plan).

Connect Fairbanks, Non-motorized Plan, 2021

This plan is a regional non-motorized transportation plan that outlines policy and recommends programmatic and infrastructure improvements to increase access to transit, walking and bicycling. It also lays out a framework to connect routes for those traveling without the use of a personal vehicle.

Complete Streets Policy, 2015

This policy specifies that complete streets should be considered at all phases of planning and project development for the development of a multimodal transportation system. The policy is a commitment that future transportation projects will consider all modes of transportation within the road right-of-way throughout the planning process.

FAST Planning Seasonal Mobility Task Force – Mobility Recommendations Report, 2021

This report updates the 2010 report. The report outlines the goals of the Seasonal Mobility Task Force, agency responsibilities for maintenance of the pedestrian and bicycle network within the FAST Planning area. It also lists accomplishments since the 2010 report was published, reaffirms performance guidelines established in the previous report, and establishes the FAST Planning Bicycle & Pedestrian Network priority route map. The report

also notes the committee and FAST Planning created a second supplemental map showing where bicycle and pedestrian facilities receive regular maintenance, with the intent the two maps will be used together for allocating resources. The report includes eleven recommended actions.

FAST Planning FFY2023-2027 Transportation Improvement Program, 2023

FAST Planning's TIP is the multi-year funding plan for prioritized transportation projects, plans, and programs as associated timelines listed in the region's 20-year, long-range Metropolitan Transportation Plan and FAST Planning's Public Participation Plan. It was adopted by FAST Planning's Policy Board in March 2023, and the Federal Highway Administration and Federal Transit Administration in May 2023. The plan identifies the need for the transit plan update, establishes transit performance measures for equipment, facilities, heavy and light duty buses, and service vehicles. This TIP is submitted to DOT&PF for inclusion in the State Transportation Improvement Program.

FAST Public Participation Plan, 2023 DRAFT

This plan serves as a procedural document for public engagement in FAST Planning processes. This plan meets the federal participation requirements required of a MPO. The plan also incorporates public participation recommendations from the FNSB Comprehensive Plan. The plan is intended to provide a balanced decision making and planning process that is open to the public and encourages equitable public engagement. The plan was last updated in May, 2022 and is currently undergoing a 2023 update.

FAST Title VI Plan, 2023 DRAFT

The purpose of this plan is to ensure that all races, income levels, ages, abilities, and genders have equal opportunity for input in, and equal benefit from, the planning and projects delivery processes of FAST Planning. The plan identifies roles, responsibilities, required training, compliant processes, data collection criteria, public notice and education processes, to guide FAST Planning and ensure compliance with Title VI of the Civil Rights Act of 1964.

CITY OF FAIRBANKS

City of Fairbanks Sidewalk Transition Plan Report, 2018

This plan builds on an existing inventory, map and assessment of the condition of approximately 56 miles of city-owned sidewalks. The assessment included identification of barriers to handicapped individuals as well as an evaluation of sidewalk ramps. The Transition Plan includes a prioritized set of projects, which when implemented, will eliminate accessibility issues and barriers for handicapped individuals for the City of Fairbanks sidewalk network.

CITY OF NORTH POLE

North Pole Strategic Plan, 2016

This plan establishes a framework to guide decisions on economic development, land use and city policies. One of the goals is “Promote a connected transportation system in North Pole”.

North Pole Land Use Plan, 2010

The plan creates a land use framework (and map) for North Pole’s preferred future land use scenario. The plan provides land owners, developers, governmental staff and elected officials direction for land use decisions, public and private investment, and infrastructure development.

EIELSON AIR FORCE BASE

Eielson Air Force Base Regional Growth Plan, 2018

The plan includes a review of current and projected needs of incoming families and existing and projected needs of FNSB residents, review of existing programs, services and infrastructure. It evaluates anticipated gaps and recommends strategies for addressing the identified gaps. Chapter 2, Regional Growth Plan includes a section dedicated to transportation. Better public transit is identified as a projected transportation need. The plan acknowledges the challenge of providing efficient transit in low density areas.

FORT WAINWRIGHT

Fort Wainwright, West Post District Area Development Plan, 2017 & Fort Wainwright, Chena North District Area Development Plan, 2016

These are real property master plans for two “districts” of Fort Wainwright. The plan establishes a framework for development and expansion of the base. Vision and goals and preferred alternatives are presented. The plan does not address transit, or activities outside the base.

APPENDIX B: LTS & CONNECTIVITY ANALYSIS METHODOLOGIES

LTS ANALYSIS

STREET NETWORK PREPARATION

Alta derived analysis inputs from existing State of Alaska and FNSB data resources and OpenStreetMap (OSM) data.¹⁶ OSM data was used as a base, but FNSB and State of Alaska data were used to replace OSM data wherever possible since they were more likely to be accurate. Attributes of interest included number of lanes, posted speeds, one-way streets, and the presence and width of bike facilities (including shared use paths), sidewalks, parking lanes, and Average Annual Daily Traffic (AADT). The baseline assumptions deriving key attributes from OSM are documented as well.

Detailed Methodology

Once the street network database was populated from OSM, Alta assigned scores to roadway segments. The comprehensive LTS analysis for the bicycle and pedestrian network entailed categorizing streets from low stress (LTS 1, suitable for children) to high stress (LTS 4, suitable only for "strong and fearless" bicyclists or pedestrians), as shown in Figure 79 - Example of LTS Facilities for Bikes.

Once the base input values were validated, Alta updated the dataset with FNSB and State data to use in place of OSM data where possible and refreshed LTS scores using Alta's LTS calculation scripts. This process also facilitates the assessment of new scenarios, in addition to standardized network analysis. For instance, Alta can efficiently reevaluate the LTS impacts of measures such as reducing speed limits on specific roads or introducing parking lanes.

The results of the PLTS analysis identified existing areas that are currently low stress for pedestrians and highlight the degree to which roadways must be improved in order to provide a comfortable experience for pedestrians of all ages and abilities.

¹⁶ OSM is a crowdsourced database of geographic features including administrative boundaries, street centerlines, points of interest, building footprints, physical and natural features, and other types of geographic information. OSM is one of the most prominent examples of volunteered geographic information, where community processes drive the contributions of geographic information to a shared database (2). These geographic features are tagged based on their attributes, and while community wiki pages provide guidance on which tags apply to which features, there is no centralized authority that authenticates these contributions. For example, street networks in OSM may include tags where contributors denote functional classification, number of lanes, one-way classification, speed limits, presence of sidewalks, and the type of bicycle facility that might be present on the network. While OSM is not always accurate, it has been benchmarked against comparable map data sources such as Google and found to have comparable or better accuracy for bike paths depending on the type of error (3). Multiple non-profits, academics, and practitioners have found OSM to be an acceptable base for initial derivation of LTS analysis (4,5,6,7).

Data Considerations and Assumptions

Intersections are not considered as part of the LTS analysis. However, crossings influence travel comfort and should be considered especially where low-stress roadways cross high-stress roadways. In these scenarios, the high-stress roadway crossing can act as a barrier between two otherwise low-stress roadway segments.

LEVEL OF TRAFFIC STRESS

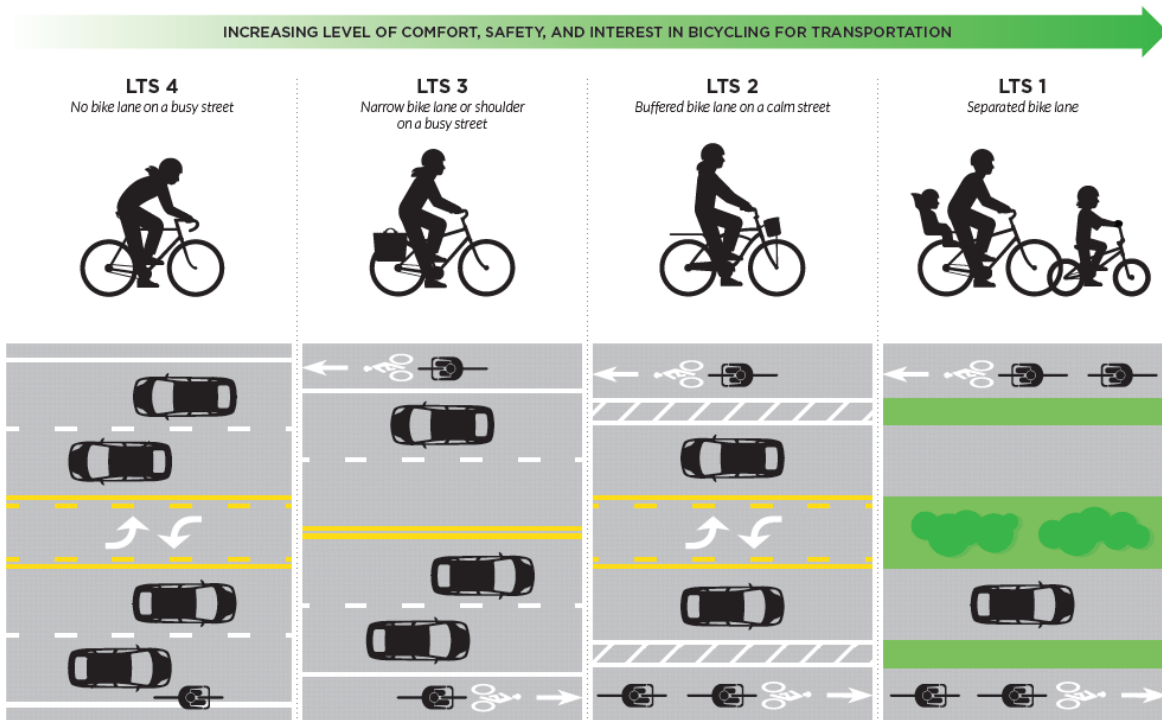


Figure 79 - Example of LTS Facilities for Bikes

CONNECTIVITY ANALYSIS

After completing the LTS analysis, Alta used the data as an input to the LTS-weighted connectivity analysis.

Detailed Methodology

Alta's connectivity metric assesses the actual area that a user can reach within a 10-minute walk or 10-minute bicycle ride from a bus stop in comparison to the ideal scenario represented by a straight-line or "as the crow flies" buffer from the same starting point. In reality, it is almost never possible to walk in a straight line in all directions from a point; the street network is a constraint.

For the stress-adjusted analysis, network travel times were inflated where LTS was higher. For example, a corridor may only take 5 minutes to traverse, but if it is an LTS rating 4

(indicating higher stress), it will be treated as if it has a higher travel time as it may pose a mental barrier to travel there.

The stress-adjusted connectivity metric accounts for how pedestrians and bicyclists react to traffic stress conditions¹⁷. For all analyses, routing is limited to network segments that permit bicycle and pedestrian travel. For example, this means the network connectivity analysis will take into account how freeways often fragment network connections by excluding them from the routable network for bicyclists and pedestrians. An illustration of this process is provided in Figure 80 - Connectivity Ratio Illustration.

Determining the precise starting point for a pedestrian trip to or from a stop can be challenging using GIS stop data; for example, a stop may appear to be situated in between two streets. The choice of which street to begin routing from may be arbitrary and therefore introduce bias into the analysis. To minimize the potential for network sampling bias, Alta positioned sampling points within a 250-foot radius of every stop and compiled the average scores from these points. This strategy follows the approach delineated in research on bicycle connectivity and provides a more robust and nuanced view of the connectivity landscape within the context of the existing pedestrian and bicycle infrastructure.

The results show locations in the FNSB where connectivity is higher and lower.

¹⁷ Alta has multiple examples where high-stress segments are modeled using network impedances with close relationships to adjustments implied by travel demand modeling research and related literature, but can also use more conventional approaches such as those suggested by Conway (2015) where modeling high-stress segments at walking speeds and low-stress facilities at biking speeds. We are capable of modifying our impedance calculations to match a client's desired approach.

Connectivity Ratio

Connectivity ratios help identify the degree of **connection** and **reach** in a network given a start location, mode, and travel time. This ratio is created by comparing reach using the network relative to a “perfect” scenario where the user could travel in a straight path in every direction.

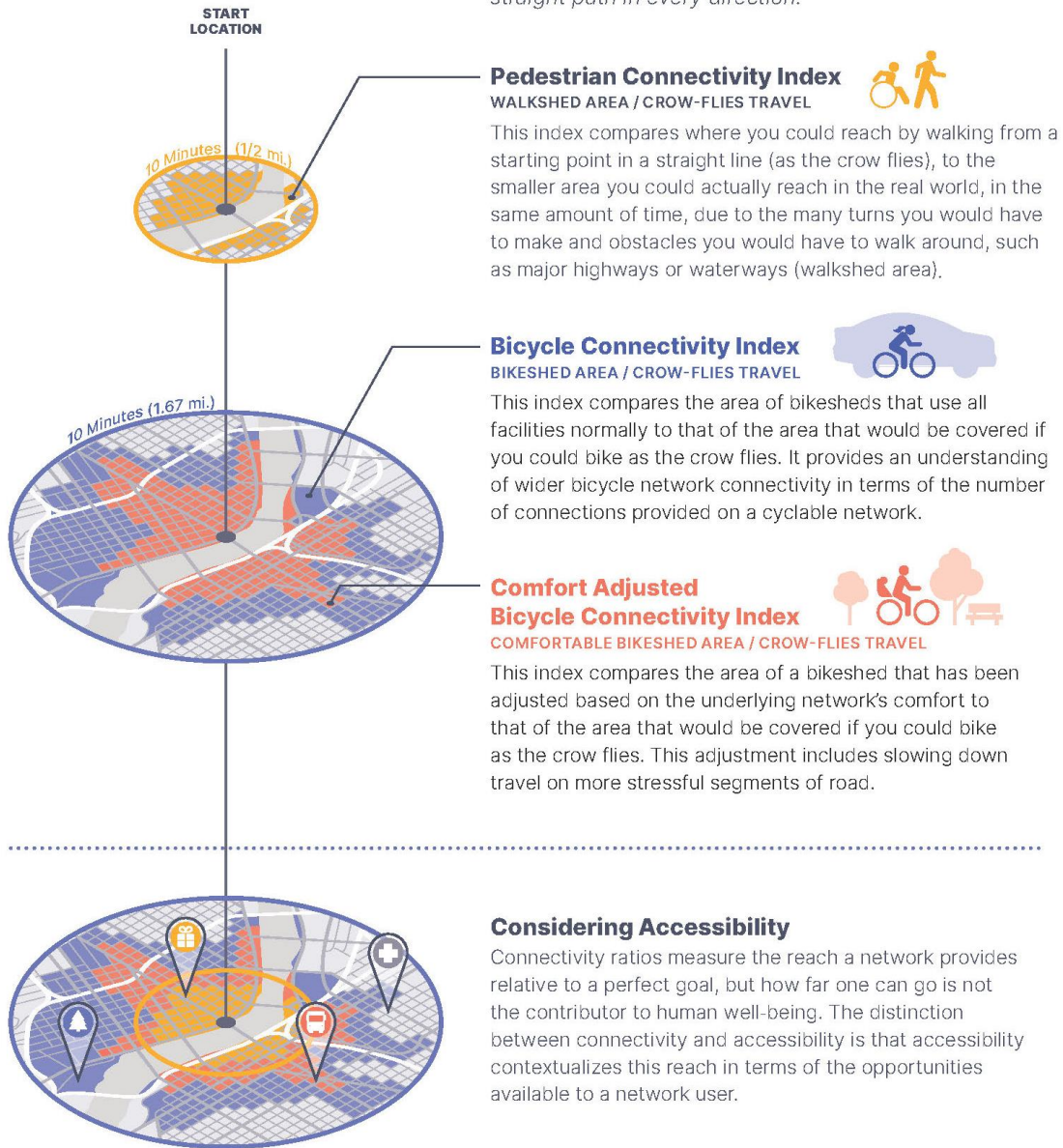


Figure 80 - Connectivity Ratio Illustration

Appendix C: Needs Analysis Report



2023 Transit Plans Update

Fairbanks North Star Borough

DRAFT NEEDS ANALYSIS REPORT

Prepared for:



FAST Planning

Prepared by:



R&M Consultants, Inc.

IN COOPERATION WITH
Alta Planning + Design, Inc.

July 2024

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EXECUTIVE SUMMARY

PURPOSE

The Metropolitan Area Commuter System (MACS) Transit provides fixed route and demand response service that operates very effectively amidst ongoing budgetary and staffing constraints. This Needs Analysis Report identifies a variety of needs that MACS Transit may address to make progress towards the goals of this Transit Plans Update. All of these needs are outlined in the following Needs Analysis section, with detailed winter maintenance and transit accessibility considerations discussed in the subsequent Special Studies section.

KEY OPPORTUNITIES

Several key opportunities emerged in this Needs Analysis, all of which are described in more detail in subsequent sections of the report.

Key opportunities include:

- **Improve data collection and analysis practices.** MACS Transit should continue its efforts to develop a sustainable system for regularly inventorying bus stop locations and amenities, collecting and analyzing stop- and route-level system performance data, and procure a software solution to allow it to regularly update the fixed route system's General Transit Feed Specification (GTFS).
- **Explore new funding opportunities.** MACS Transit currently tracks a variety of funding opportunities, and it should continue monitor and pursue diverse funding sources to expand its capabilities, including the potential for increased local funding.
- **Fine-tune fare collection methods.** Although MACS Transit currently provides an affordable range of fare options, some new fare categories could be introduced in conjunction with electronic fare collection and fare capping to make the system even more accessible.
- **Enhance service quality on the existing fixed route system while adjusting lines to meet goals.** The existing MACS Transit fixed route network provides good coverage of high demand and high equity need areas in the Fairbanks North Star Borough (FNSB). However, the Existing Conditions Report and Rider Survey have highlighted opportunities for improving service quality, including service frequency, service span, and an overreliance on loop routes. The alignment of some existing bus lines may also be modified to improve efficiency and make the system more intuitive for riders.
- **Expand "B" and "C" category Van Tran service and simplify the application process.** Van Tran divides its services into three priority tiers (A, B, and C). To continue to accommodate the changing demographics of the FNSB, MACS Transit should investigate expanding category "B" and "C" services, which would increase service allocated to people living outside the minimum mile service area and for people without disabilities that are over 60 years old. The Van Tran application process may also be simplified or provide additional assistance for applicants to improve accessibility.

- **Reduce human services transportation barriers.** Working with the FNSB to provide a Human Services Transportation Coordinator and a “clearinghouse” website and/or phone line that can provide clear, accessible information on human services transportation options would reduce barriers to entry for prospective riders.
- **Make it easier for riders to access bus stops, especially at key stops and corridors.** A variety of issues make it difficult for riders to get to and from bus stops, including winter maintenance, lack of connectivity, high speed roads with few crossings, and inadequate pedestrian and bicycle accommodations. MACS Transit and FAST Planning should work with the FNSB and the Alaska Department of Transportation & Public Facilities to improve overall transit access, with a focus on high need stops and corridors identified in this report.

NEEDS ANALYSIS

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.¹

This report also considers and references the results of the Winter Maintenance and Access to Transit studies, which are included in the Special Studies section.

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

- Operational Needs
- Fixed Route Service Needs
- Demand Response Needs
- Transit Corridor Needs

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. This issue has been shared in communications between the project team and was also highlighted as an issue in the Staff Survey Report. While MACS Transit is already working

¹ The Gaps section (Section 6) can be found on pgs. 86 to 90 of the Existing Conditions Report.

hard to bolster operator recruitment and retention, the following bullet list summarizes additional ways that MACS Transit can supplement those activities.

- Analyzing driver compensation packages and ensuring it is competitive.
- Marketing the unique benefits of the position, including retirement and healthcare.
- Optimizing driver schedules.
- Offering drivers different time frames such as shorter part-time shifts or longer full-time shifts.
- Equalizing pay between Van Tran and Fixed Route driving staff.
- Increasing support for commercial driver license certification.
- Providing additional social and wellness opportunities for staff.
- Protecting drivers from harassment and assaults.
- Working to recruit younger drivers.
- Including operators in agency decision-making processes.

Notably, a portion of funding granted as part of an awarded Low or No Emissions Grant from the FTA² can be used for workforce development training. Communities awarded this grant have used the funding to create and develop workforce development programs (See Funding for additional details on this funding opportunity). For example, the North County Transit District used awarded Low or No Emissions Grant funding to develop a workforce development program in partnership with a local college.

Beyond the need for more drivers, MACS Transit service and operations could also be benefited by hiring other staff types to support operations and maintenance. Additional administration staff could help the agency pursue grant funding and additional maintenance staff could help the agency preserve its assets.

Notably, transit agencies across the United States are facing issues recruiting and retaining operations staff. MACS Transit may consider consulting with other agencies or reviewing recent studies and work that have highlighted and discussed this recent phenomenon, some of which include:

- Bus Operators in Crisis
- Transit Workforce Shortage - American Public Transportation Association
- Bus Driver Recruitment and Retention in Challenging Times

Supports: Transit Plan Goal 1.

² <https://www.transit.dot.gov/lowno>

STOP INVENTORY AND DATA COLLECTION

Comprehensively analyze existing resource utilization and scheduling. As of 2022, MACS Transit operates 12 fixed route buses and 6 demand response (Van Tran) vehicles during maximum service. In total, MACS has 26 revenue vehicles available (fixed route bus and demand response vehicles combined). Even when accounting for a standard spare ratio of 20%, there may be additional fixed route bus and demand response vehicle capacity to provide additional service levels, subject to sufficient operating budgets and staff availability. On top of this, MACS Transit is acquiring 5 new Van Tran vehicles and compressed natural gas vehicles will also be starting service in conjunction with the new bus facility.

MACS Transit should comprehensively analyze existing revenue vehicle utilization and identify opportunities for efficiency improvements if any exist. For example, is there sufficient staffing and operating budget to provide increased service levels? If not, and if staffing, maintenance backlogs, or operating budgets are constraining factors, then MACS Transit can develop a better understanding of opportunities and what constraints should be prioritized to remove those barriers.

In addition, this planning process provides MACS Transit with the opportunity to assess its current scheduling practices and identify potential for efficiency improvements, if any are available. For example, could relatively short and interlined routes such as the Brown or Purple lines be combined with bidirectional service using existing operator and bus resources? Is there an opportunity to provide expanded Van Tran service in some areas if maintenance and staffing are increased and specific vehicles are dedicated to those areas? These are questions that this process can explore and help answer, although completing this type of analysis would hinge on planned technology upgrades coming to fruition. **Supports: Transit Plan Goal 1 and Coordinated Human Services Transportation Plan Goal 3.**

Enhance transit system data collection and analysis technology and practices. MACS Transit currently uses the Routematch software platform and fare information entered by bus operators to track key system metrics such as unlinked trips, boardings and alightings by stop, on-time performance, vehicle revenue hours, and fare revenue. While bus operator inputs are valuable and provide excellent macro-level data, farebox data entry does not provide the level of granular data collection that is necessary for tracking detailed route- and stop-level system performance. Routematch has also experienced numerous outages that has impacted data availability and quality, which is an issue that will affect MACS Transit's ability to respond to rider needs. To correct this, MACS Transit must identify alternative data collection methods either by using a new software platform or by resolving the issues affecting the current platform. This would enable MACS Transit to more easily and regularly analyze route- and stop-level system data to inform service changes and respond to rider needs. **Supports: Transit Plan Goal 1 and Coordinated Human Services Transportation Plan Goal 3.**

Develop a method to regularly inventory MACS Transit bus stops and update the system's General Transit Feed Specification (GTFS). MACS Transit's current inventory of transit stops does not include all existing stops, includes some outdated stops, and contains inconsistent stop information. These inaccuracies decrease the ability of the agency and its partners to perform analyses of the system and understand current conditions. Regularly performing a comprehensive inventory of the MACS transit fixed-route system and updating the existing stop inventory will allow MACS Transit to create a database that can be built upon. Additional staffing may be required to address these stop inventory and data collection needs.

The MACS Transit fixed-route system's General Transit Feed Specification (GTFS) is also out of date because RouteMatch, their current Software as a Service (SaaS) provider, no longer supports GTFS updates. MACS Transit can take this opportunity to update its GTFS through a new SaaS platform, which will help both external partners and the public better understand the system and how they can use it. Considering administrative staffing constraints, this would likely require the use of either a new SaaS platform or third-party software that can create and update the system's GTFS quickly and easily. **Supports: Transit Plan Goal 1 and Coordinated Human Services Transportation Plan Goal 3.**

Develop a System for Real Time Bus Tracking. Knowing if a bus will arrive on time increases the ability of transit riders to manage their trips and may increase their confidence in taking transit. Even when a bus is late, knowing that the bus is still coming can ease riders' minds. While MACS Transit has a real-time bus tracking site, it is technologically out of date and does not provide consistently reliable bus location information. MACS Transit can work to either develop their own application or work with a third-party service that offers improved real time bus tracking capabilities. Bus arrival information could also be displayed at high-traffic locations on the fixed route system, such as the Downtown Transit Center, Fred Meyer West, and UAF. **Supports: Transit Plan Goals 7 and 8.**

FUNDING

Collaborate with the FNSB and other localities to identify additional local funding. MACS is currently heavily dependent on Federal Transit Administration (FTA) and State of Alaska funding to maintain service levels. Increased local funding and a reduced reliance on State and federal funding sources would improve the system's flexibility and allow it to better respond to rider needs. Local funding increases would require support from elected officials, so MACS Transit or FAST Planning should emphasize how additional funding would support local transportation goals.

Several options for increased local funding include:

- Increasing allocation of local general tax revenues.
- Advertising on buses and at transit stops.
- Introducing a tax levy for public transportation.
- Establishing a special assessment.

- Creating a Parking Benefit District and using funds collected from sources such as parking meters for public transportation improvements.
- Community funding schemes such as “adopt a bus stop.”

Supports: Transit Plan Goals 1, 5 and 8.

Some federal funding programs may provide increased capacity. New funding opportunities are often limited, especially those that MACS Transit is not already pursuing and when considering funding for operations. In addition to pursuing increased local funding, MACS Transit could investigate the following Federal funding opportunities:

- **Flexible Funding for Transit and Highway Improvements.** This program allows Federal Transit Administration funding to be used for (“flexed” to) roadway projects benefiting transit. This program can be used to fund transit improvements as well as qualified bicycle and pedestrian accessibility improvements that enhance access to transit. Taking advantage of this program has the potential to increase funding for transit and transit accessibility without relying on local funding increases. USDOT is also considering making these flex funds (and Urbanized Area Formula Funds) available for a wide range of operating expenses. However, this is subject to Congressional approval through the current Federal budget proposal. **Supports: Transit Plan Goals 4 and 5.**
- **Access and Mobility Partnership Grants.** Administered by the FTA, grants under this initiative “seek to improve access to public transportation by building partnerships among health, transportation and other service providers.”³ Three specific funding programs have fallen under this initiative in the recent past and have all shared a similar mission of providing funding for eligible recipients to develop and implement innovative approaches to the provision of human services transportation:
 - Innovative Coordinated Access and Mobility
 - Mobility for All
 - Human Services Coordination Research

FAST Planning and MACS Transit should monitor this funding opportunity to help implement recommendations arising from the Coordinated Human Services Transportation Plan portion of this project. **Supports: Transit Plan Goals 4 and 5, Coordinated Human Services Transportation Plan Goal 2.**

- **Section 5310 Formula Funds.** Federal formula funds available to states and designated recipients to help meet the transportation needs of older adults and people with disabilities that is allocated based on populations of older adults in a geographic area.⁴ MACS Transit and Van Tran already use this funding stream. This program can be used to fund several traditional and nontraditional transit-related activities. Notably, this funding

³ <https://www.transit.dot.gov/funding/grants/grant-programs/access-and-mobility-partnership-grants>. Accessed 2/14/24.

⁴ <https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310>.

could be used to improve transit information technology systems, construct accessible paths to bus stops, among other activities.

Fast Planning and MACS Transit should examine how these funds are currently being used by Van Tran and determine if it would be helpful to investigate other potential uses of the funding. **Supports: Transit Plan Goal 3, Coordinated Human Services Transportation Plan Goal 2.**

- **Formula Grants for Rural Areas.** The Formula Grants for Rural Areas program provides capital, planning, and operational assistance to states to support public transportation in rural areas with populations of less than 50,000.⁵ Funding for this program is awarded to states based on a legislative formula that includes land area, population, revenue vehicle miles, and low-income individuals in rural areas. This funding could be used to support the development of public transportation services in rural unincorporated areas of the FNSB and to North Pole. FAST Planning and MACS Transit can work with AKDOT and the State of Alaska to be the subrecipient of funding as part of this program. **Supports: Transit Plan Goals 3, 4, and 5.**
- **Grants for Buses and Bus Facilities Program.** This program provides competitive funding for states and local agencies to buy or modernize buses, improve bus facilities, and support workforce development.⁶ This funding could be used to improve MACS Transit bus facilities and a small portion could be used to support workforce development, which may help the agency better support staff retention. Note that this program requires a 20% local match for capital project costs unless the recipient identifies certain activities that allow for a lower match percentage. **Supports: Transit Plan Goal 1**
- **Low or No Emissions Program.** This program provides funding on a competitive basis to state and local governments supporting the purchase or lease of zero-emission and low-emission transit buses, as well as the acquisition, construction, and leasing of required supporting facilities.⁷ Similar to the Grants for Buses and Bus Facilities program, this program also allows the use of funding for workforce development or staff training at the National Transit Institute. FAST Planning and MACS should investigate using this funding opportunity to support transition to electric vehicles and aid in workforce development and retention. **Supports: Transit Plan Goals 1 and 6.**

FAST Planning may be able to assist with targeted funding for different vehicle types. Some lines may continue to have lower capacity needs than the standard bus capacity of the current MACS Transit fleet. In such cases, FAST Planning may be able to assist with funding to purchase right-sized vehicles. While smaller transit vehicles are unlikely to significantly reduce operating

⁵ <https://www.transit.dot.gov/rural-formula-grants-5311>.

⁶ <https://www.transit.dot.gov/bus-program>.

⁷ <https://www.transit.dot.gov/lowno>.

costs, they can improve the efficiency in other ways such as lowering the fleet's emissions and wear-and-tear. However, MACS and FAST will need to review the Collective Bargaining Agreement for potential conflicts with this direction. **Supports: Transit Plan Goals 1 and 6.**

FARE SYSTEMS

Fare Options

Consider providing weekly and annual pass options. Currently MACS Transit offers the following fare types:

- Single ride (\$1.50 / \$0.75 reduced)
- Day pass (\$3.00 / \$2.00 reduced)
- Half month pass (\$20.00 / \$20.00 reduced)
 - Available from the 15th of each month.
- Monthly pass (\$40.00 / \$20.00 reduced)
 - Good for that calendar month.

Adding weekly and annual pass options could provide an extra tier of pricing to accommodate a wider variety of budgets and travel habits, although implementation would need to navigate the difficulties historically posed by the July to June fiscal year. **Supports: Transit Plan Goal 2.**

Fare Collection

Continue to pursue electronic fare payment options. The existing fare collection system is mostly cash-based and relies on tokens distributed at five token machines and printed paper passes distributed by bus operators. Checks, credit/debit cards, and State of Alaska vouchers are also accepted at the Downtown Transit Center and Peger Road Administration Office. Cash fares should be retained because it provides an essential fare payment option for underbanked riders. However, electronic fare payment options are now very common, to the extent that many transit riders have come to expect the ability to pay for fares using their mobile devices. Notably, being able to pay using a mobile application was stated as a preference by 45.5% of respondents in the Riders Survey, including riders and non-riders.⁸ Providing an electronic fare payment option through mobile ticketing is a priority for MACS and is already underway. Implementation of this will help better serve existing riders and reduce barriers to entry for prospective riders. **Supports: Transit Plan Goals 1 and 2.**

Consider fare capping. Electronic payment options would make it easier for MACS Transit to introduce "fare capping," which is the practice of tracking riders' cumulative fare payments and "capping" them (or ceasing fare collection) when riders have reached the best rate for their travel needs. For example, if a rider was to pay for two single rides in one day totaling \$3.00, then that rider would not be charged for any subsequent trips that day because they have reached the amount required for a day pass. Under a system that does not use fare capping, a

⁸ Additional details about the Rider Survey can be found in the Survey Report.

rider might unintentionally (or out of necessity) pay for multiple lower-cost single rides over the course of a day that add up to more than would be required for a day pass.

Fare capping will need to be coordinated with the financial department of the FNSB, especially for annual fares. Given that the FNSB has an annual budget,

If fare capping is introduced for electronic fare payment options, then there should be a method to address fare capping for cash payments as well. This could involve rider education and making sure cash-paying riders can easily claim credit for cumulative payments. **Supports: Transit Plan Goal 2.**

Investigate expanding free fares to specific groups. There are certain populations in the FNSB who stand to benefit considerably through the provision of complimentary transit passes. Seniors, people with disabilities, and people 18 years and under are less likely to own and drive a car than the rest of the general population. Providing members of these groups free or discounted service can boost ridership and directly benefit these groups. In particular, high school students may benefit from having access to transit passes. With transit passes, some students may be able to attend extracurricular activities more easily. Parents of these students may also benefit from not having to make as many trips to pick up and drop off their student. Passes could be distributed at schools and verification could be linked to student identification cards. **Supports: Transit Plan Goal 2.**

FIXED ROUTE SERVICE NEEDS

MACS Transit provides good coverage of the Fairbanks metropolitan area and provides adequate coverage of areas of high equity and demand need. However, the project team noted deficiency in the service quality of the MACS Transit fixed route system, which includes low service frequency, indirect routes, and limited service spans, among other needs.

GENERAL SYSTEMWIDE NEEDS

Weekend Service

Lack of weekend service can leave travelers with few options on Saturdays and Sundays. While many businesses operate regular schedules between Monday and Friday, others such as those in the food service industry can have atypical hours with shifts on weekends. Weekend transit service is essential in providing equitable access to employment opportunities and improves overall community mobility. The lack of weekend service was an issue brought up in the Riders Survey, with 108 out of 255 marking either Saturday or Sunday service as the one improvement they would make to the system (see Figure 1) and 8 respondents providing additional comments about the desire to reinstate it, some comments including:

- “Additionally since the buses don't run on Sundays, I often had to Uber or find a ride to get to work those days”
- “[I would like service on] Weekends especially blue, red, and yellow”

Consider reinstating weekend service for the MACS Transit fixed-route system, especially on high ridership lines such as the Blue and Red Lines. **Supports: Transit Plan Goals 2, 4, and 8.**

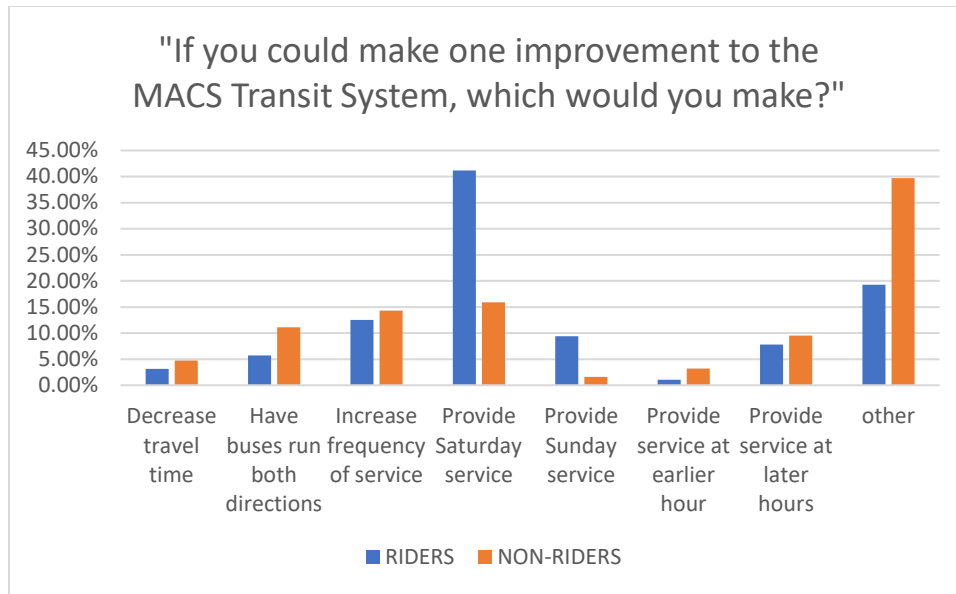


Figure 1 - Transit Plans Rider Survey: Desired Improvements to MACS Transit System

Service Frequency

Existing service levels on the MACS Transit fixed-route system often do not accommodate varying rider schedules. Many of the fixed-route system bus lines provide service that run all-day service at peak headways of 30 minutes or 60 minutes, and other lines only serve the AM and PM peaks. Providing service at these levels can limit people being able to make everyday trips at the times they would prefer. Additionally, at these service levels, transfers between lines are complicated to plan and when a transfer is missed, it can result in a considerable wait time. Many survey respondents of the Transit Rider Survey shared that they wished MACS Transit fixed-route service was more frequent. Some comments from the Rider Survey emphasizing this point include:

- “Needs to go more often and Sundays”
- “Current locations get me where I need, but more frequent routes would help”
- “Grey line more often”
- “It goes where I might need to be BUT I would have to walk 2 miles to nearest stop and spend all day changing busses to get where I want.”
- “Just more frequently would be nice.”
- “I think the System Map covers everywhere I would want to go; I would instead prioritize frequency over coverage...”
- “Less bus frequency on farmer's loop road. No bus during 11-3”

Consider increasing service frequency, especially on high ridership lines where it could have the most impact on riders and service quality.

In addition, the Yellow and Grey Lines have very low service frequency and suffer from long gaps in midday service of 6-7 hours for the Grey Line and about 3 hours for the Yellow Line. This can make it difficult for riders to rely on these lines. **Supports: Transit Plan Goals 1, 2, 3, 4, and 8.**

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. Riders have expressed the desire to have bus service at more times throughout the day to accommodate their needs. In particular, the following comments emphasize the need for increasing service span:

- “If schedules were better (more days/later hrs), I might ride it more”
- “Orange line schedule starts too late for shifts in the industrial area”
- “The bus does not run late enough for me to ride it home from UAF to Badger. If I take the bus to work I am stranded since I get off work after 10pm.”

Consider increasing service spans on the fixed-route system to include early morning, midday, and evening trips on high ridership routes such as the Red and Blue Lines.

Despite being less utilized, the Yellow and Grey Lines have particularly short evening spans, with each ending service between 6pm-7pm.

In addition, a large section of the Orange Line serves an industrial employment corridor on Van Horn Road, and in many cases the Orange Line's service span does not match up with the schedule requirements of the businesses on that corridor. **Supports: Transit Plan Goals 1, 2, 3, 4, and 8.**

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. The most important transfer points in the MACS Transit system are the Downtown Transit Center, Fred Meyer West, Fred Meyer East, and the University of Alaska Fairbanks.⁹ The design of the MACS Transit fixed route bus system means that riders can be expected to make transfers at these locations regularly. MACS Transit should make sure that these transfer points are as accessible as possible, easy to use, easy to navigate, and calibrate schedules to make transfers even more convenient. While the Downtown Transit Center already achieves most of these objectives, attending to the other three transfer points is especially important considering the low service frequency of many MACS bus lines. However, even if service frequency were increased on some lines, the rider experience at these locations is still very important.

⁹ The structure of the MACS Transit system as it relates to these transfer points is discussed in more detail on pgs. 27-28 of the Existing Conditions Report.

A severe limitation is that all the transfer points in the MACS Transit apart from the Downtown Transit Center are privately owned, which reduces the ability of MACS Transit and its partners to ensure a reliable and comfortable rider experience. Over the long-term, MACS Transit and its partners can work to increase their control over these spaces. One strategy would be to create a Memorandum of Understanding (MOU) between MACS Transit and the property owner. This MOU could include provisions that guarantee the ability of MACS Transit to provide certain transit amenities to its customers at the site such a ticket distribution machine, a transit shelter, etc. If an agreement cannot be reached, there may be the opportunity for MACS Transit to purchase a site elsewhere to locate a transfer point.

Additionally, MACS Transit may consider optimizing scheduling at transfer points to reduce passenger wait times during transfers. This process may be made easier through a scheduling software.

Supports: Transit Plan Goals 1, 2, 3, 4, and 8.

FIXED ROUTE SYSTEM

The MACS Transit fixed-route system currently consists of eight bus lines that cover Fairbanks, North Pole, and portions of unincorporated FNSB. Needs for the fixed-route system are categorized by bus line; however, it should be noted that if route changes are made to one line, they may result in impacts to another line. Thus, if the needs of this section are addressed, the actions should be taken in context of how they would impact the MACS Transit system as a whole.

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. Given the lower demand for service to these areas, midday service using smaller transit vehicles may be the ideal level of service to consider. Such services may constitute service to and from the hubs of these communities to Downtown Fairbanks. The following communities may be candidates for such services:

- Ester
- Goldstream
- Moose Creek
- Pleasant Valley
- Salcha
- Steele Creek
- Two Rivers

Service on these routes could be provided through a contractor to reduce costs and relieve pressure on existing staff. **Supports: Transit Plan Goals 3 and 4.**

Military Installations

There are several military installations located in Fairbanks North Star Borough, including Fort Wainwright and Eielson Air Force Base. MACS has historically provided service to these areas, but these routes were heavily grant-funded and experienced low ridership. There could be an opportunity to provide future transit service for the active-duty service members that live on these bases as well as non-military employees and visitors, but this is a low priority considering stakeholder feedback and past attempts at serving these areas. **Supports: Transit Plan Goals 3 and 4.**

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. Currently, trips between popular destinations on this line require considerable out of direction travel. For example, someone traveling from Farewell Avenue to Downtown Fairbanks would first have to travel north through the Walmart shopping area before looping back to Downtown Fairbanks. Consider making the route bidirectional¹⁰ to increase its utility for everyday trips. **Supports: Transit Plan Goals 1, 3, and 8.**

Red and Blue Lines

The Red and Blue Lines provide infrequent and indirect service. These routes are complimentary, running clockwise and counterclockwise, and form the backbone of the MACS Transit fixed route system. When these routes deviate, it can make travel difficult. For example, people boarding the Red Line at Davis and Wilbur Street (Stop 217) traveling to Downtown Fairbanks would have to first travel westward on the Red Line and then get off at Washington Drive (Stop 228), where they would then have to cross the street and then transfer to Blue Line service eastward. Moreover, these routes run at the most 30-minute headways, but for most of the day they run at 45-minute headways. These long headways may make transfers inconvenient.

Combine the Services

Consider consolidating Red Line and Blue Line services. The fact that the Blue and Red Lines are provided as two distinct lines may confuse riders who use the lines as a single service. For example, it can be confusing for riders when they must look at two PDFs on MACS Transit's website to understand the details for a round trip. Additionally, visitors to Fairbanks may not understand the complimentary nature of the two lines. Combining them may reduce confusion and make public communication efforts easier. **Supports: Transit Plan Goal 1.**

Reconsider Route Deviations

Route deviations¹¹ may confuse riders and make their journeys longer and less predictable.

There are several sections of the Red and Blue Lines where route deviations should be

¹⁰ Impacts of bidirectional travel vs. loop routes are described in more detail on pgs. 29 and 88 of the Existing Conditions Report.

¹¹ Impacts and considerations of route deviations are explained in more detail on pgs. 27 and 88 of the Existing Conditions Report.

reconsidered. For example, UAF is currently supported by Red and Blue Line services that are somewhat complimentary, but also cause some difficulties for round trips. Someone traveling from the Aurora area to Museum of the North must first catch the Red Line to the bus stop at University and Sandvik and then catch the Blue Line.

Relatively direct service between downtown Fairbanks and Fred Meyer West could be provided with less out of direction travel. However, removing deviations would need to be seriously considered for their implications. For example, several destinations on Wilbur Street and Peger Road may need alternate service provisions (whether through fixed route service or other human services transportation accommodations) if that particular deviation was removed.

Supports: Transit Plan Goal 1.



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METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

EXISTING BLUE LINE



EXISTING RED LINE



PROPOSED COMBINED LINE

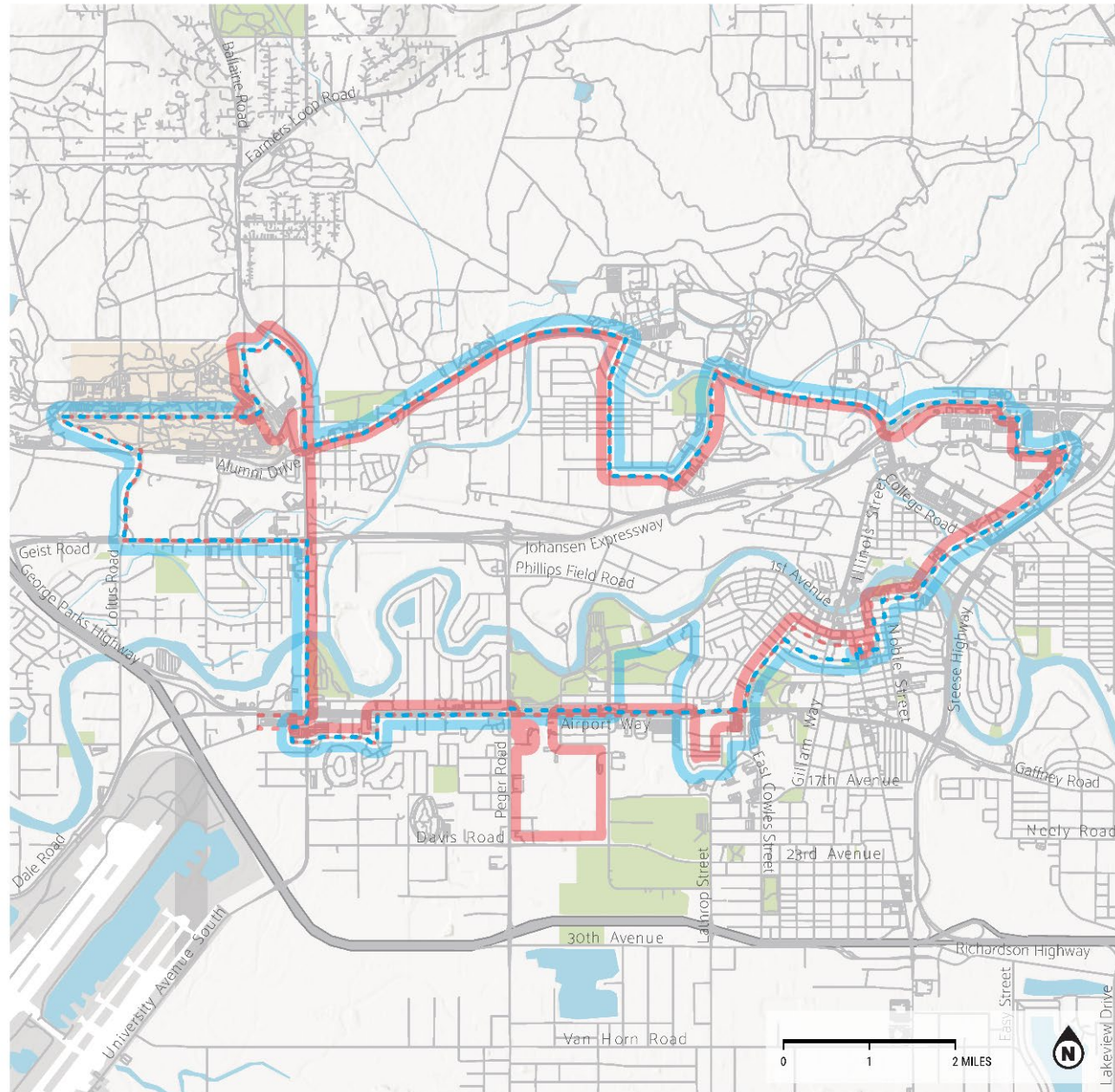


Figure 2 - Potential Changes to the Red and Blue Lines

Orange Line

Consider extending the Orange Line further east to allow the Purple Line to focus on the areas around downtown. The Orange Line could continue east on Van Horn Road to Easy Street and serve the loop that is currently served by the Purple Line. This would allow the relatively very productive Purple Line to focus on providing more service to areas north of the Parks Highway that score high in the demand and equity analyses in the Existing Condition Report.¹² For riders on the former Easy Street loop served by the Purple Line, they would still have service to downtown and the areas south of Downtown via the extended Orange Line, in addition to being able to travel westward on the Orange Line to the Fred Meyer West transfer point.

This change, in combination with proposed adjustments to the Purple Line, would make it would remove service from S Cushman Street between the Parks Highway and Van Horn Street. However, this section has had relatively low ridership despite being served by both the Orange and Purple Lines, and Orange service would still be available within a maximum of ¼ mile to the north or south.

Contingent on if Yellow Line service to the neighborhood bounded by Chena Pump Road, Palo Verde Avenue, the Chena River, and the Parks Highway is discontinued as suggested in this document (See Yellow Line), consider extending the Orange Line westward to provide coverage to these neighborhoods via the Parks Highway (See Figure 3). Extending the Orange Line to this neighborhood would replace less frequent Yellow Line service with more robust and frequent service on the Orange Line. This reroute would also provide residents of this area with a more direction connection to the Fred Meyer West Transit Center and the option to continue to areas in south Fairbanks, such as the industrial district along Van Horn Road.

It would also be important to ensure this Orange Line extension would not trigger the use of too many additional resources, such as an extra bus to maintain the existing or desired service frequency. Implementing all these changes would likely require adding an additional bus on this route to maintain the existing 30-minute peak headways along this route. **Supports: Transit Plan Goals 1 and 2.**

¹² The demand and equity analyses can be found on pgs. 59 to 75 of the Existing Conditions Report.



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Fairbanks North Star Borough

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

EXISTING ORANGE LINE



PROPOSED ORANGE LINE



Figure 3 - Potential Changes to the Orange Line

Purple Line

Consider shortening the Purple Line and provide bidirectional service to reduce out of direction travel. On the current loop route, a Purple Line rider traveling from downtown Fairbanks to the Chief Andrew Isaac health Center would first have to go all the way south to Van Horn Ave before being able to loop back to the Health Center. In addition, the Purple Line spends a lot of time traveling south of the Parks Highway which can result in significant out of direction travel for northbound riders. Shortening the Purple Line and providing bidirectional travel would help the Purple Line focus on high ridership, high equity, and high demand areas to the south of downtown Fairbanks.¹³

In addition, the Purple Line would be able to serve the neighborhoods around the Sheridan Apartments, a residential area of considerable density that is not currently being adequately served by transit.

As noted in the Orange Line section, the Orange Line could be extended east on Van Horn Road to provide replacement service to the Easy Street area that the Purple Line would no longer serve. Staff also noted in the Staff Survey that the Orange and Purple Lines provide redundant service in many places, so this change could help improve the efficiency of both lines.

It will be important to consider the equity implications of any changes made to the Orange and Purple Lines. Areas of particular concern include FNA Headstart and the bus stops along East Street.

With these potential service changes, transit riders on Easy Street will now be able to make it to Fred Meyer West and Greater Fairbanks Community Hospital in one trip. Previously, riders from this area on the Purple would need to make out of direction travel if they wanted to reach a destination before Downtown Fairbanks depending on the direction of their travel. Service to Downtown Fairbanks will remain for both areas on the Orange Line. It will be important to ensure that these areas continue to have reliable and robust service on an improved Orange Line.

Supports: Transit Plan Goals 1, 3, and 8.

¹³ The demand and equity analyses can be found on pgs. 59 to 75 of the Existing Conditions Report. In addition, the impacts of bidirectional travel vs. loop routes are described in more detail on pgs. 29 and 88 of the Existing Conditions Report.



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METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

EXISTING PURPLE LINE



PROPOSED PURPLE LINE

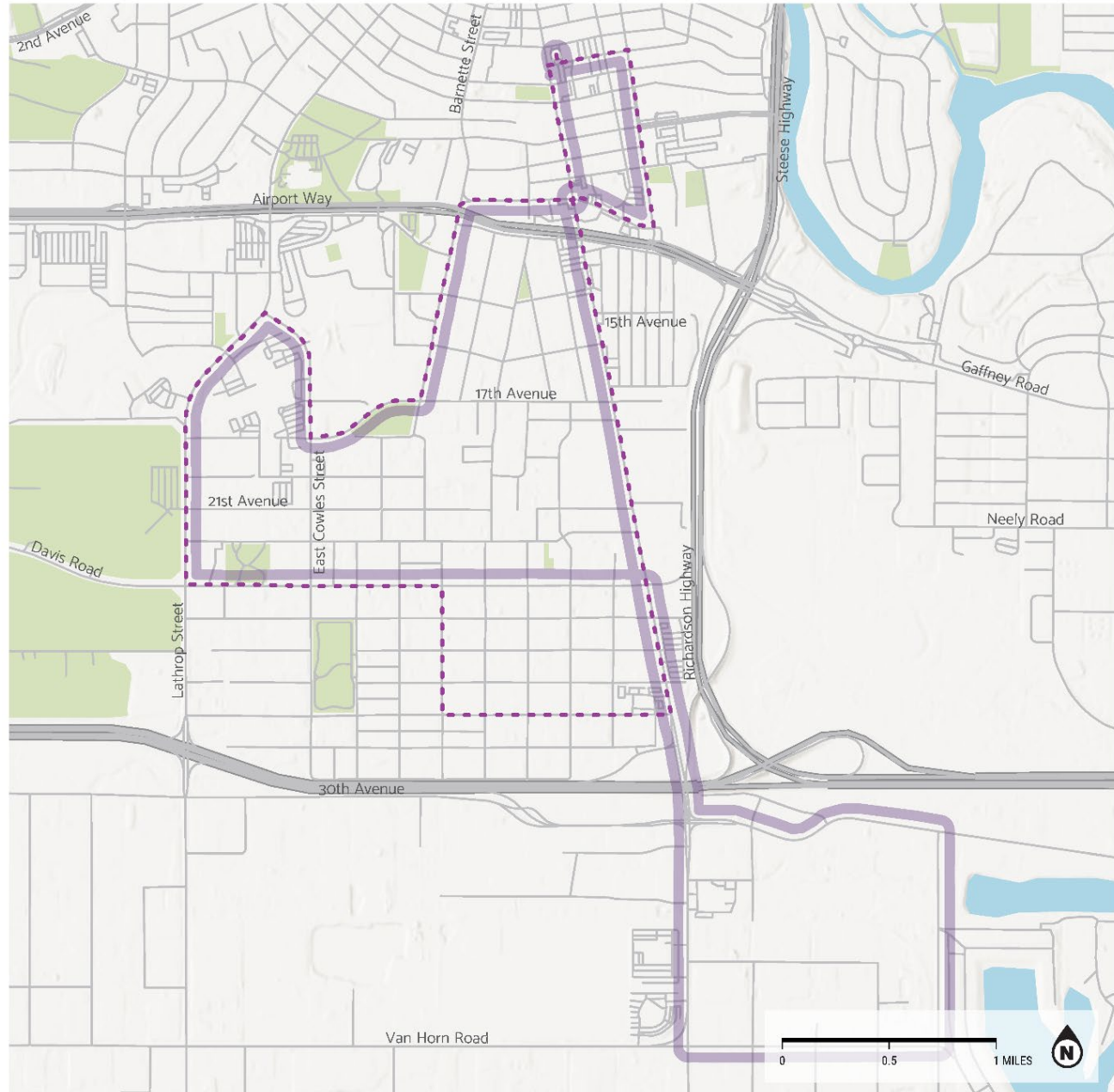


Figure 4 - Potential Changes to the Purple Line

Yellow Line

Existing service on the Yellow Line provides coverage to many destinations west of Fairbanks, but this service is infrequent and circuitous. This route provides extensive coverage, but for round trips riding the Yellow Line may require considerable out of direction travel that makes trips less convenient. For example, someone living at the River Edge RV Park on Boat Street can easily travel from Fred Meyer West to the RV Park; however, travel in the reverse direction requires them to go through the Fairbanks International Airport terminal and then to the East Ramp Parking Lot #2 on the south side of the airport before arriving at Fred Meyer West. Providing bidirectional service along this section may offer more utility to travelers traveling to and from these stops along Boat Street and Hoselton Road.

Ridership for the bus stops on University Avenue South on the south side Fairbanks International Airport is low and the stops have poor connectivity. Ending service along this segment may help relieve capacity and would allow for bidirectional bus service on the sections of the Yellow Line on Boat Street and Hoselton Road.

In the past, the Yellow Line provided service to downtown Fairbanks. This service was discontinued, however, and travelers must now transfer at the Fred Meyer West transfer point to reach downtown. Restoring Yellow Line service between west of Fairbanks and downtown may make the route more useful for more people, including airport travelers.

Considering airport travelers, staff at MACS Transit have noted that Yellow Line buses rarely line up with popular arrival and departure times at Fairbanks International Airport. A respondent in the Riders Survey also noted the desire to have more service at the "Airport when planes come in." Consider optimizing the Yellow Line schedule to line up with common airline arrival and departure times, which may involve late night or early morning service.

Currently, the Yellow Line provides service coverage to both University of Alaska Fairbanks and the neighborhood bounded by Chena Pump Road, Palo Verde Avenue, the Chena River, and the Parks Highway (Amherst / Chena Pump neighborhood) via University Avenue and Johansen Expressway. The University of Alaska Fairbanks is already provided service with the Red and Blue Lines and the Amherst / Chena Pump neighborhood could be served by an extended Orange Line as described in this document (See Orange Line). Consider discontinuing this section of the Yellow Line to streamline and simplify the Yellow Line.

Implementing all the changes suggested in this section would leave Yellow Line service between Fairbanks International Airport and Downtown Fairbanks via Boat St and Fred Meyer West (See Figure 5).

Supports: Transit Plan Goals 1, 3, 4, and 8.



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METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

EXISTING YELLOW LINE



PROPOSED YELLOW LINE



Figure 5 - Potential Changes to the Yellow Line










2023 Transit Plans Update

Fairbanks North Star Borough

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

Potential Route Changes

-  Combined Red/Blue Line
-  Orange Line
-  Purple Line
-  Yellow Line
-  Discontinued Service

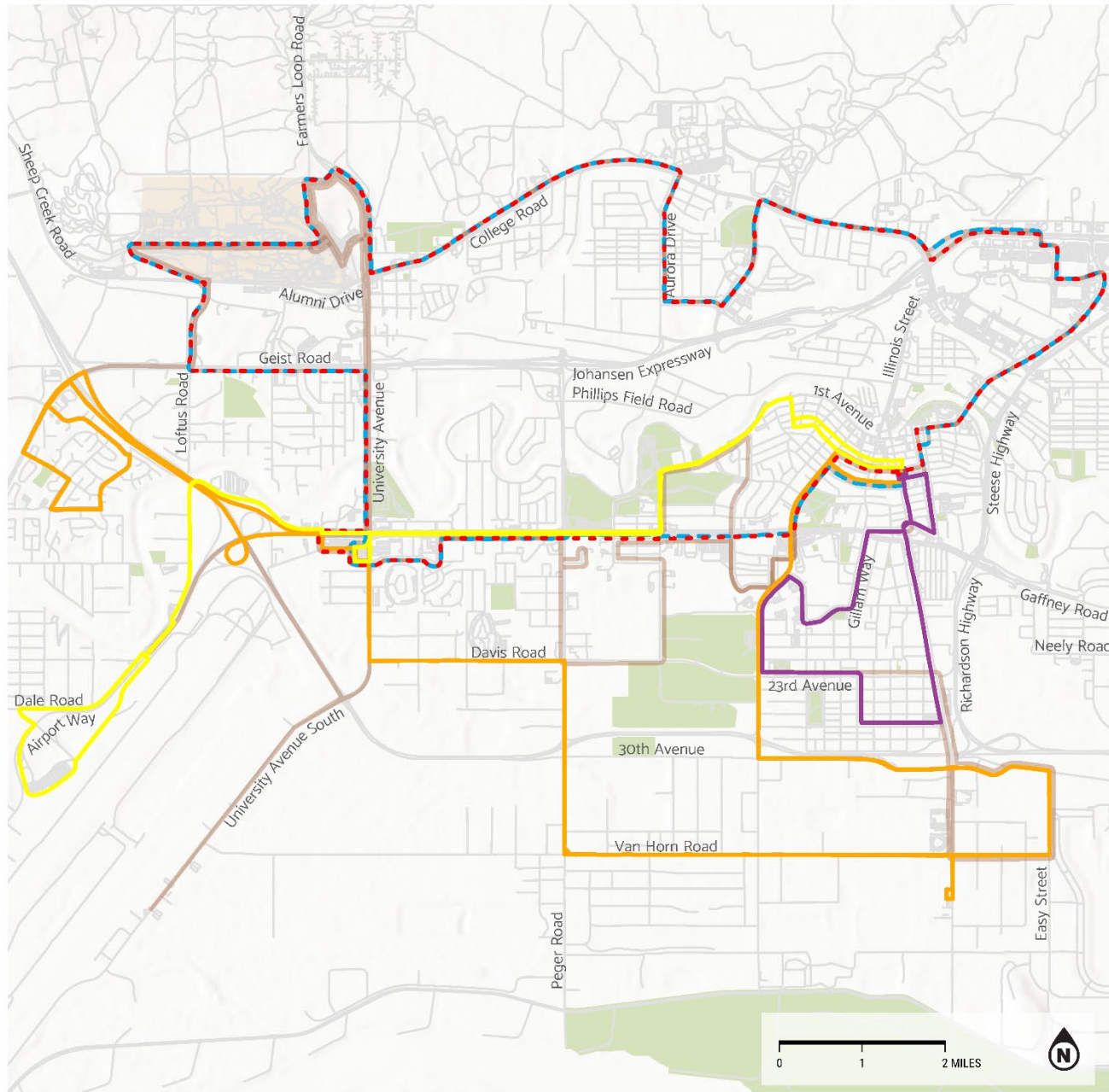


Figure 6 - Overview of All Potential Route Changes



New Fixed Route Services

Rethink service to Fort Wainwright through Steering Committee consultations. MACS Transit has provided fixed route bus service to Fort Wainwright in the past, most recently via the Gold Line, which implemented a recommendation in the 2013 Long Range Transit Plan. This line has been discontinued, and today there is no fixed route bus service between Fairbanks and Fort Wainwright. This planning process can investigate the reasons for its low ridership and determine appropriate long-term actions. For example, was the Gold Line's low ridership a reflection of a simple lack of demand for bus travel between Fort Wainwright and Anchorage, or was it related to route logistics or other factors that may be addressed in the future? Close coordination with Fort Wainwright personnel on the project Steering Committee may help clarify these questions.

Supports: Transit Plan Goal 5.

Provide a connection to the Alaska Railroad Fairbanks Depot. Previous studies have noted the need to connect MACS service with the Alaska Railroad Fairbanks Depot, which currently consists of one train from Fairbanks to Anchorage on the southbound Denali Star Train departing at 8:20 AM and northbound service arriving at 8:00 PM. The service operates seasonally between May and September. A new seasonal fixed route service operating between downtown Fairbanks and the railroad depot could be created to align with railroad service. A version of this service has also been explored in the 2013 Long Range Transit Plan. **Supports: Transit Plan Goals 3 and 4.**

DEMAND RESPONSE NEEDS

Expand capacity for "B" and "C" service categories. The minimum required demand response service area extends $\frac{3}{4}$ mile on both sides of the fixed route bus system and operates during the same hours. However, transit agencies may provide demand response service beyond the minimum required locations and times if they have sufficient resources. For example, MACS Transit continued to run Saturday Van Tran service even after Saturday fixed route bus service was discontinued. It also provides a lower priority "B" category of service outside of the minimum service area.

Considering the FNSB's low population density, aging population segments, and high equity needs that extend outside of the existing Van Tran service area, MACS Transit should explore funding and staffing to expand category "B" and "C" coverage to improve accessibility for people living outside the minimum $\frac{3}{4}$ mile service radius and for people without disabilities that are over 60 years old. **Supports: Coordinated Human Services Transportation Plan Goal 4.**

Simplify the Van Tran application process or provide even more application support.

Stakeholders have noted the Van Tran application process may be burdensome for some prospective riders. In particular, the requirement that a medical provider to fill out part of the form can be difficult for some people to meet when they are not able to secure adequate transportation to and from those medical providers prior to obtaining Van Tran service. To address this, MACS Transit can simplify the application form and advertise MACS Transit's ability to provide application assistance. MACS Transit can also offer to connect applicants directly

with hospital / medical facility transportation providers to facilitate application-related transportation to their medical providers. **Supports: Coordinated Human Services Transportation Plan Goals 1, 3, and 4.**

Develop a “clearinghouse” and create a Human Services Transportation Coordinator role to help riders navigate multiple providers. There are a wide variety of transportation service providers in the FNSB in addition the MACS Transit fixed route system, from hospitals, community centers, and Native Associations to the University of Alaska Fairbanks, taxis, and transportation network companies (TNCs). This myriad of providers can make it very difficult for people to determine their transportation options. A “clearinghouse” paired with a Human Services Transportation Coordinator would help centralize transportation provider information and allow riders to easily determine available transportation options. For example, the Human Services Transportation Coordinator could keep track of transportation providers throughout the FNSB, which would make it easier for the FNSB to provide a virtual and/or telephonic clearinghouse serving as a “one-stop” website or phone number for transportation information. **Supports: Coordinated Human Services Transportation Plan Goals 1, 3, 4, and 5.**

TRANSIT CORRIDOR NEEDS

Systemwide Accessibility Improvements

Focus on improving pedestrian and bicycle connections to high need MACS Transit bus stops.

The connectivity analysis in the Existing Conditions Report shows how difficult it can be for riders to reach bus stops. It also noted that some bus stops are much more difficult for pedestrians and bicyclists to reach than others. The Transit Stop Accessibility Assessments section of this Needs Analysis Report lists and maps MACS Transit bus stops that are in the most need of pedestrian and bicycle accessibility improvements. Any transit accessibility improvements considered for MACS Transit bus stops should be coordinated with the 2021 *Connect Fairbanks Non-Motorized Plan* **Supports: Transit Plan Goals 1, 2, 3 and 8.**

Upgrade select high-ridership MACS Transit bus stops with amenities that enhance the ridership experience. The project team has identified a series of bus stops that have a comparatively high level of ridership and high pedestrian need. MACS Transit may also consider upgrading improvements at transfer points. MACS Transit could construct improvements at these stops such as

- Seating
- Shelters
- Route maps
- Arrival information
- Trash can
- Lighting
- Real time bus tracking

Once these improvements are constructed, it will be important for MACS Transit to continue maintaining the facilities to a high standard. These facilities should be maintained to the same standard in winter as well to ensure that riders have a consistent experience riding transit year-round. **Supports: Transit Plan Goals 1, 2, and 8.**

Improve winter maintenance practices to provide year-round bus stop accessibility. Snow clearance practices have a huge impact on bus stop accessibility for much of the year. The Winter Maintenance Recommendations section of this Needs Analysis Report goes into detail on existing winter maintenance practices, relevant case studies, and recommendations for FAST Planning and MACS Transit to consider. As progress towards this, MACS has already hired a position to assist with snow clearance efforts. **Supports: Transit Plan Goals 1, 2, 3, and 8 and Coordinated Human Services Transportation Plan Goal 5.**

Corridors

Corridor-level improvements could increase accessibility more broadly and efficiently for some MACS Transit lines. Several corridors were identified through the Transit Stop Accessibility Assessments and Existing Conditions Report as having a variety needs that may be addressed by FAST Planning and its partners. Improvements made to these corridors could include enhancements that make it easier to walk or bike to bus stops, cross the roadway to access bus stops, or benefit from roadway improvements that otherwise improve transit service. Any transit accessibility improvements considered along these corridors should be coordinated with the 2021 *Connect Fairbanks Non-Motorized Plan*. **Supports: Transit Plan Goals 1, 2, 3, and 5, Connect Fairbanks Non-Motorized Plan, Fairbanks North Star Borough Complete Streets Policy.**

Farmers Loop Road between Steese Highway and Alumni Drive

Farmers Loop Road is the main roadway connecting neighborhoods in unincorporated FNSB with northern Fairbanks and the University of Alaska Fairbanks area. While not included among the high pedestrian or bicycle need bus stops due to a low number of boardings, many of the stops score low for pedestrian LTS-adjusted connectivity and especially low for bicycle LTS-adjusted connectivity. Staff also noted in the Staff Survey that many of the roadway's curves feature corners that make it difficult to see people waiting at transit stops, and that the 45mph posted speed limit also contributes to that. Consider making bicycle and pedestrian improvements along the roadway and decreasing the posted speed limit.

Airport Way between Fairbanks International Airport and Steese Highway

Airport Way is a major thoroughfare connecting Fairbanks International Airport with Downtown Fairbanks and Fort Wainwright. The roadway provides a major east-west connection across the city; however, the route does not provide consistent multimodal connections and can sometimes act as a barrier. The Red and Blue Lines also travel on this road; however, they do not have any stops on the road itself. The current configuration of the roadway, a limited access highway with two frontage roads, increases the distance and number of times pedestrians and bicyclists must cross the roadway to travel to bus stops, increasing traffic stress for those travelers. For example, someone traveling from Downtown Fairbanks to Pioneer Park can get off at Peger

Road, but then would have to cross six lanes of traffic and then a frontage road to access the park. In addition, the fact that the frontage road provides access to some destinations rather than on Airport Way itself requires MACS Transit to run circuitous bus routes to serve destinations in this area. Consider removing excess vehicle lane capacity on this roadway that could be put to other uses and making other pedestrian and bicyclist improvements.

[Badger Road between Richardson Highway and North Pole City Limits](#)

Badger Road provides an essential roadway connection between North Pole, the unincorporated community of Badger, and Fort Wainwright and is where much of the Green Line runs. The roadway features a sidepath on one side of the road along much of its length; however, there marked pedestrian crossings are infrequently provided where the sidepath crosses adjoining streets. Improving those locations with marked crossings would improve access to bus stops along Badger Road. Pedestrian enhancements such as marked crosswalks should also be considered across Badger Road itself in areas of high demand such as Plack Road, Peede Road, and Bradway Road.

Future transit accessibility planning on this corridor should coordinate with the 2019 *Salcha-Badger Road Area Plan*.

[Danby Street between Wembley Avenue and College Road](#)

Danby Street provides a connection between Alaska Railroad Fairbanks Depot, College Road, and two schools. Blue and Red lines travel along this roadway. There is a side path on the west side of the roadway and marked continental crosswalks at major crossings such as Hampstead Avenue and Bainbridge Boulevard where there are also bus stops. The stops along this segment, however, ranked high on pedestrian and bicycle need, so providing additional improvements may benefit many riders. Consider constructing the types of pedestrian crossing enhancements recommended in the *Connect Fairbanks Non-Motorized Plan* at Bainbridge Boulevard and Hamstead Avenue, where there is elevated bus ridership. Also consider constructing a pedestrian facility such as a sidewalk or side path along the east side of Danby Street to provide additional connectivity. Consider also filling the sidewalk gaps on nearby side streets at lead to Danby Street, to the west on both Bainbridge Boulevard and Hamstead Avenue.

[College Road between University Avenue and Johansen Expressway](#)

College Road provides an essential connection between northern Fairbanks and the University of Alaska Fairbanks area and supports Red and Blue Line bus service, while connecting many neighborhoods and businesses along the way; however, the roadway may act as a barrier for pedestrians, bicyclists, and people crossing the roadway to access bus stops. The roadway has four to five vehicle travel lanes for much of its length and few signalized crossings, notably in the following locations:

- Margaret Avenue
- Danby Street
- Aurora Drive

- University Avenue

At these locations, pedestrians can cross with a signal; however, they often must cross five lanes of traffic (two travel lanes and a turn lane) and there are no marked crosswalks at any of these intersections except for College Road and University Avenue. At locations beyond these four intersections, pedestrians and bicyclists must cross the travel lanes without a signal and wait for traffic to clear to reach bus stops on the opposite side of the street. Additionally, this area was identified through the Transit Stop Accessibility Assessments as having a considerable number of high pedestrian and bicycle need stops. Consider increasing the number of marked crossings along this roadway, especially where there is an existing bus stop with high ridership such as stops on College Road at Westwood Way and Kathryn Street. At the highest ridership locations, consider constructing the types of signalized pedestrian treatments recommended in the *Connect Fairbanks Non-Motorized Plan*, such as a pedestrian hybrid beacon (PHB). Also, consider improving existing signalized crossings by installing continental crosswalk striping to increase pedestrian comfort at those locations. In the long term, consider reallocating excess roadway width for other uses that enhance multimodal travel, such a center median with opportunities to create pedestrian crossing islands.

Any future planning for this corridor should coordinate with the 2014 *College Road Corridor Study*.

[30th Avenue between Lathrop Street and Cushman Street](#)

30th Avenue provides a roadway connection to businesses directly south of the Parks Highway; however, this roadway has no dedicated pedestrian or bicycle facilities, increasing travel stress for those travel modes. In addition, the road has an off-ramp for the Parks Highway, on which vehicles may be traveling at very high speeds. Consider constructing a pedestrian facility such as a sidewalk on the south side of 30th Avenue between Lathrop Street and Cushman Street to provide improved access for businesses along that street and improve access to transit.

[University Avenue between College Road and Davis Road](#)

University Avenue serves as a major north-south thoroughfare for areas west of Fairbanks and crosses the Chena River. Additionally, the road currently supports three fixed-route bus lines. There is an incomplete sidewalk or sidepath along much of the east and west sides of University Avenue, however, the four to five travel lanes can make crossing the roadway particularly stressful for people walking or biking. Notably, bus stop pairs along this road are not served by marked crosswalks, which may make it stressful for riders to reach these stops. Consider adding marked crossings at bus stop pair locations, especially at high pedestrian or bicyclist need stops such as Sophie's Station and Sandvik Street. At some of these locations, consider constructing the types of signalized pedestrian treatments recommended in the *Connect Fairbanks Non-Motorized Plan*, such as a pedestrian hybrid beacon (PHB). Consider performing sidewalk infill in locations where it is missing, such as the segment between Rewak Drive and Holden Road. In the long term, consider reallocating excess roadway width for other uses that can enhance multimodal travel, such a center median with opportunities to create pedestrian crossing islands.

SPECIAL STUDIES

WINTER MAINTENANCE

Snow and ice on transportation facilities throughout the Fairbanks North Star Borough (FNSB) can make traveling by transit difficult and hazardous during the winter months. The roadway authorities not only must clear roadways and transit stops, but also the pedestrian routes that riders use to access stops from their origination and destination. Additionally, the work of clearing snow and ice in the FNSB is complicated by a patchwork of different roadway authorities that each have a different snow removal priority schedule. The following sections discuss existing winter maintenance conditions, policies, capabilities, and needs as well as best practices and cost studies that may improve the process, especially those that enhance the transit experience.

CURRENT MAINTENANCE CONDITIONS

In the FNSB, winter conditions are becoming increasingly intense and unpredictable due to the ongoing impacts of climate change. At the same time, local agencies are finding it difficult to hire and retain staff who can operate snow removal equipment during periods of inclement weather and increasing costs to maintain existing snow removal service levels. Given these circumstances, local agencies must make tough decisions about where and when to deploy resources each winter season. Historically, snow removal from motor vehicle facilities has been prioritized over clearing multi-modal facilities such as bike lanes, sidewalks, and bus stops which can result in inaccessible or hazardous conditions for people accessing transit.

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:

- Fat tire bikes are not currently accommodated on bus bike racks, but the agency is working to accommodate them in the future.
- Bus stops can become covered in snow and ice until the snow is removed by the roadway authority. MACS Transit has a designated employee who removes snow from bus shelters as well as sidewalk immediately between the bus shelter and the street where boarding would occur. 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.



Snow-covered MACS transit stop.

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 has reported that they are unable to provide service to certain areas during periods of heavy snowfall.

Public Comment

Winter weather can have an impact on all aspects of transportation and is often cited as an issue during local planning efforts. Notably, “lack of winter maintenance for sidewalks and paths” is the top comment received by FAST Planning on a regular basis. More specifically, members of the public have voiced concerns about the following transit-related winter maintenance issues¹⁴:

- Berms of snow and ice at bus stops.
- Trash cans and other objects blocking ADA-accessibility at bus stops.
- ADA-compliance of facilities surrounding bus stops.
- Difficulty accessing bus stops from neighborhoods.

¹⁴ Fast Planning, “Winter Maintenance Forum 2023.” November 14, 2023.

Another concern involves cleanup once the snow has melted. Gravel, sand, and other materials may remain on sidewalks and paths for some time and can become an impediment for those walking or traveling by bike.

Comments shared during the recent Transit Plans Riders Survey echo recurrent themes shared in the past. In general, many commenters express that they would ride transit more often or that it would be easier if snow were more consistently cleared from bus stops during winter. Other comments relate to the frequency and span of service. Some of the comments relating to winter maintenance include:

- “Transfers and standing outside in the street in winter with snow berms is dangerous last time I ride.”
- “Better snow removal on sidewalks to get to/from the stops. Hours on weekends & later hours too (would be nice to take the bus to town for errands or events & not have to drive. Where I am in North Pole is a long walk to the library in winter, so closer stops toward Keeney Rd.”
- “Clear the bus stops of snow. I am elderly & some people are disabled, sick, chronically ill or have children (& strollers). Many people have bags & some have numerous bags. None of these people should have to climb over the snow berms that build up! Even a young, healthy rider has trouble with the snow berms!”
- “In winter, a lot of stops are treacherous with snow, icy, very hard to board/deboard if person isn’t reasonably agile.”
- “I see people waiting for the bus standing on top of snow, because there is nowhere for them to stand. This is unacceptable.”
- “Waiting for the bus isn’t the part that feels unsafe: it’s the crossing farmer’s loop in the dark to stand in snow that I’ll sink into in the winter.”
- “make sure bus stops are free of snow berms so people aren’t waiting in the street.”
- “Use juvenile delinquents for snow removal, coordinate with dot plowing.”
- “My home is too far from a bus stop in the winter.”
- “Find a way to get bike racks that can accommodate fatbikes to help encourage more people to bike in winter. “
- “It would be nice if i were able to make it to work. It makes it impossible to get to the pump house in the winter and I end up finding another way.”
- “My biggest suggestions is to have more stops, especially areas outside of city limits like Farmers Loop, and for those stops to be maintained. All of the stops on Farmers Loop at just at the side of the road. There are not huts or pull offs for the buses, so we are constantly dodging traffic. And in the winter, the berms cover the stop signs, if not take them out completely. So not only do we not have a safe place to wait, but dodging traffic in the dark on ice is even more dangerous.”

WINTER MAINTENANCE POLICIES

There are several roadway authorities in Fairbanks North Star Borough that work to clear local roadways during winter conditions including:

- Alaska Department of Transportation & Public Facilities (AKDOT)
- City of Fairbanks Public Works
- City of North Pole Public Works
- MACS Transit
- University of Alaska Fairbanks
- City of Fairbanks Parks and Recreation
- Road Service Areas (RSAs)

Each agency covers snow and ice removal for facilities under their jurisdiction. Elsewhere, road service areas are separate taxing jurisdictions that are established at the request of voters within a geographical area to provide road construction, maintenance, and lighting services in a particular area. In addition, there are "orphan roadways" that have no designated maintenance authority. Figure 6 summarizes facility ownership throughout Fairbanks North Star Borough.



2023 Transit Plans Update

Fairbanks North Star Borough

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

● MACS Transit Stop

▭ VanTran Service Area

ROAD AUTHORITIES

— City Roads

— AKDOT Roads

— Road Service Area Roads

— Orphan Roads

OTHER JURISDICTIONS

▭ Fort Wainwright

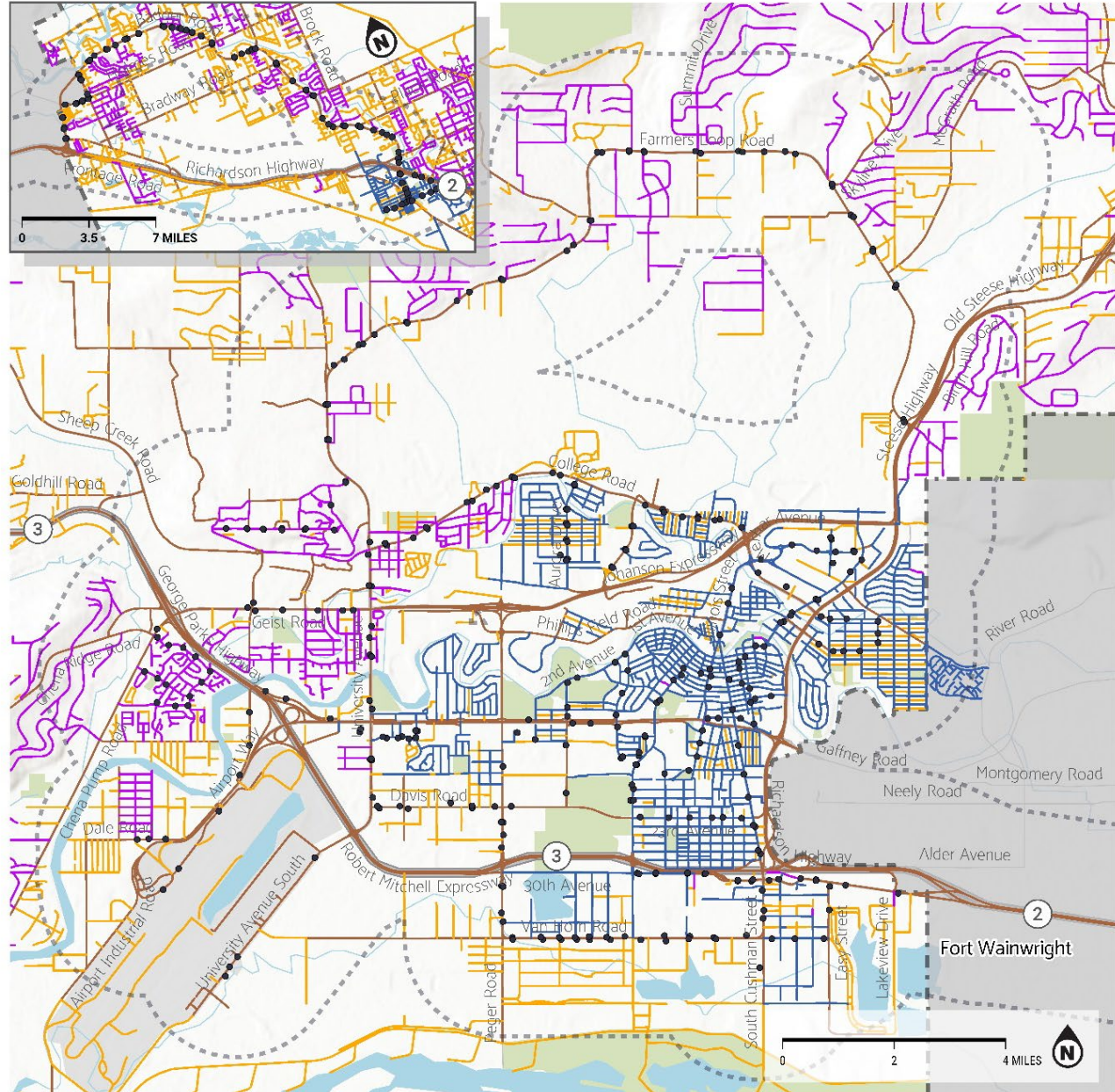


Figure 7 – Map of Roadway Ownership, FNSB



AKDOT & PF

AKDOT removes snow from State of Alaska facilities in the FNSB. Fairbanks is the headquarters for AKDOT's Northern Region and from there the agency manages facilities throughout northern Alaska. MACS Transit runs service on roads that AKDOT owns and maintains, such as:

- Airport Way
- University Avenue
- College Road
- Farmers Loop Road
- Badger Road

AKDOT has developed a methodology for prioritizing snow removal on their facilities that relies primarily on annual average daily traffic (AADT). Roadways are categorized between priority levels 1 and 5, which AKDOT describes as the following:

- PRIORITY LEVEL 1: High-volume, high-speed highways, expressways, minor highways, all safety corridors and other major urban and community routes. May take up to 12 hours to clear after a winter storm.
- PRIORITY LEVEL 2: Routes of lesser priority based on traffic volume, speeds and uses. Typically, these are major highways and arterials connecting communities. May take up to 18 hours to clear after a winter storm.
- PRIORITY LEVEL 3: Major local roads or collector roads located in larger urban communities. May take up to 24 hours to clear after a winter storm.
- PRIORITY LEVEL 4: Minor local roads that provide residential or recreational access. May take up to 30 hours to clear after a winter storm.
- PRIORITY LEVEL 5: Roadways that are designated as "No Winter Maintenance" routes, e.g. Denali Highway or Taylor Highway. Generally cleared only in spring to open road for summer traffic.



Snow removal on major highway

Given these prioritization levels, certain AKDOT facilities are likely to be cleared before others during snow events. Some AKDOT roadways with MACS service have lower priority, such as Dennis Road between Holmes Road and Badger Road with a priority level 4, which may result in longer wait times to have snow removed from transit stops on those facilities.

Sidewalks are assigned the same priority level as the adjacent roadway but have different levels of service and response times depending on the availability of resources. Thus, a sidewalk along a priority level 1 roadway would likely be cleared before a sidewalk along a priority level 2 roadway. However, in general, snow clearing for sidewalks would likely occur after snow clearing for roadways.



2023 Transit Plans Update

Fairbanks North Star Borough

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

• MACS Transit Stop

⋯ VanTran Service Area

ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES (AKDOT)

Winter Maintenance Route Priority

- 1 - Highest Priority
- 2
- 3
- 4
- 5 - Lowest Priority

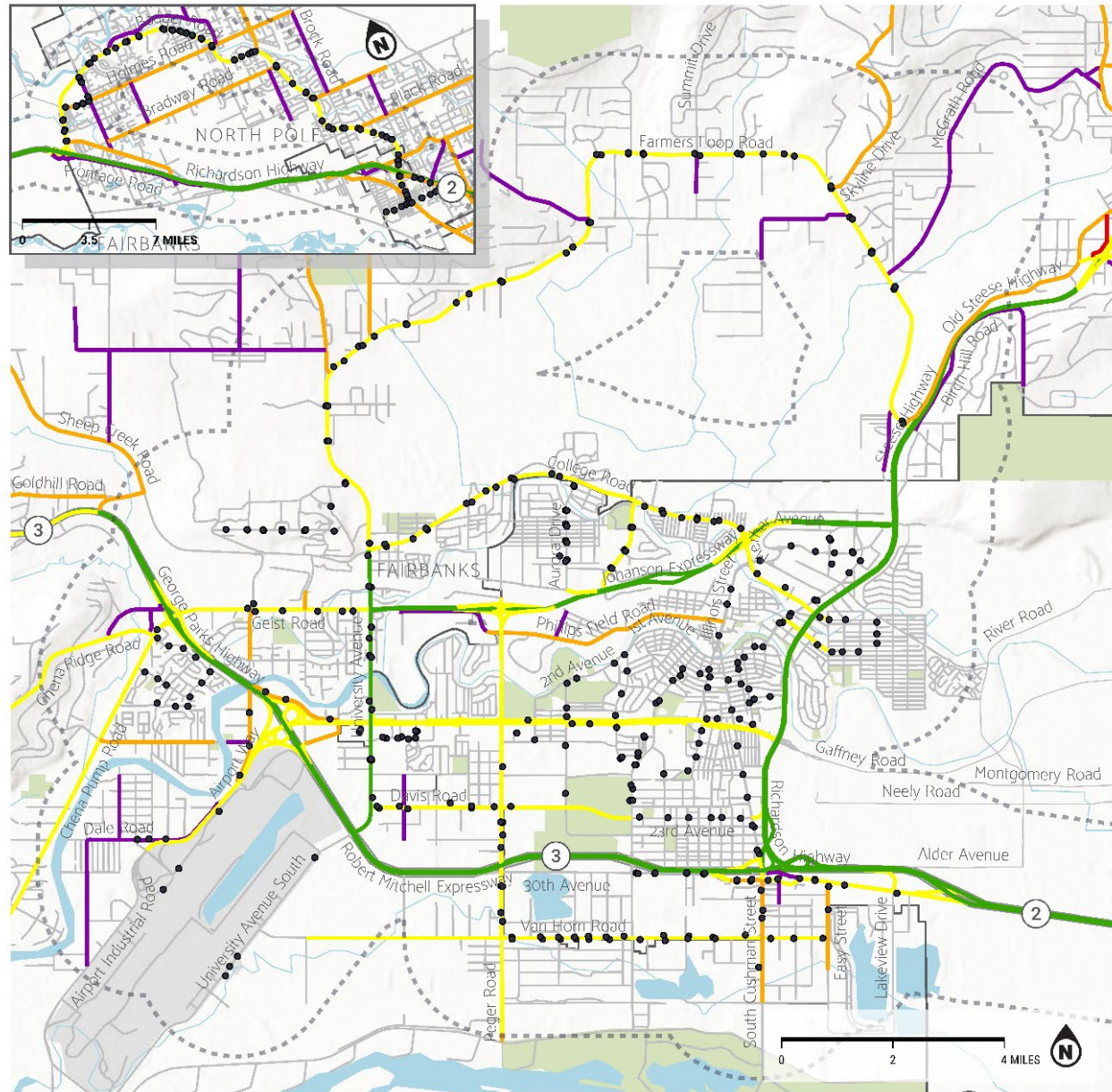


Figure 8 - Map of AKDOT & PF Facilities and Winter Maintenance Route Priority

Gaps in AKDOT Maintenance Coverage

Figure 7 above shows the locations of MACS bus stops in Fairbanks and AKDOT facilities. While the majority of AKDOT facilities are major roads, many others are smaller roads that provide connectivity through neighborhoods for people walking, biking, and accessing transit. In many cases, these roads have been categorized as priority 3, 4 or 5, meaning that it may take longer for them to be cleared during a winter weather event than priority 1 or 2 facilities. Given this prioritization, the following road segments that carry MACS service may take longer than other facilities to be cleared during a winter snow event:

- Holmes Road between Badger Road and Dennis Road (priority level 3) (Green Line)
- Dennis Road between Badger Road and Holmes Road (priority level 4) (Green Line)
- Dale Road between Elliot Lane and Western Avenue (priority level 4) (Yellow Line)
- Boat Street between Sportsman Way and Airport Way (priority level 3) (Yellow Line)
- Old Richardson Highway between 30th Avenue and Cushman Street (priority level 3) (Orange Line)
- Cushman Street between Old Richardson Highway and Sanduri Street (priority level 3) (Orange Line and Purple Line))
- St Nicolas Drive between 8th Avenue and Santa Claus Lane (priority level 3) (Green Line)

In other cases, roads that have been designated as lower priority for snow removal may also be key routes for people accessing bus stops. Some of these roads include:

- Alston Road between 19th Avenue and Picket Place (priority level 4) (Orange Line)
- Western Avenue between Dale Road and Fouts Avenue (priority level 3) (Yellow Line)
- Loftus Road between Geist Road and Driftwood Court (priority level 3) (Yellow Line)
- Holmes Road between Holmes Road and Lakloey Drive (priority level 3) (Green Line)
- Dennis Road between Holmes Road and Copper Street (priority level 4) (Green Line)
- Old Badger Road (priority level 4) (Green Line)

City of Fairbanks

The City of Fairbanks Public Works Department removes snow from City facilities in Fairbanks. The agency employs a streets supervisor who monitors daily weather forecasts and deploys staff once snow reaches 3 inches deep. The City first plows "priority routes" and then plows neighborhood streets. An area of particular concern is the downtown core, where crews work overnight to clear snow to ensure daytime business operations can continue.

Staff at the agency have noted a need for new equipment and more skilled labor. 80% of permanent staff have less than 4 years of experience. During peak winter season, 90% of permanent and temporary staff have less than 4 years of experience.

City of North Pole

The City of North Pole Public Works removes snow from the City-owned transportation facilities in North Pole. The agency reports that they clear the 11 miles of pedestrian facilities throughout the city regardless of whether they are City or state-owned.

FAST Planning

As a metropolitan planning organization (MPO), Fairbanks Area Surface Transportation (FAST) Planning does not directly own or maintain any transportation facilities in the FNSB but plays a role in coordination between the other agencies on transportation matters. Recognizing the challenge of winter weather on transportation, FAST Planning has begun convening a Seasonal Mobility Task Force and kickstarted having conversations about winter maintenance with other committees.

Notably, The Bicycle and Pedestrian Advisory Committee developed an aspirational Non-Motorized Winter Maintenance Prioritization Map (See Figure 8). This map provides guidance on potential prioritization of facilities across several jurisdictions. The map covers most of the major roadways in the FNSB; however, there are significant gaps in the network where a priority level has not yet been assigned. Completing the network and providing additional refinement may enable FAST Planning to garner support for this prioritization scheme among stakeholders and the numerous jurisdictions involved. In particular, there may be an opportunity to take into consideration where there is existing MACS bus service or walking routes that provide access to those stops.

WINTER MAINTENANCE CASE STUDIES

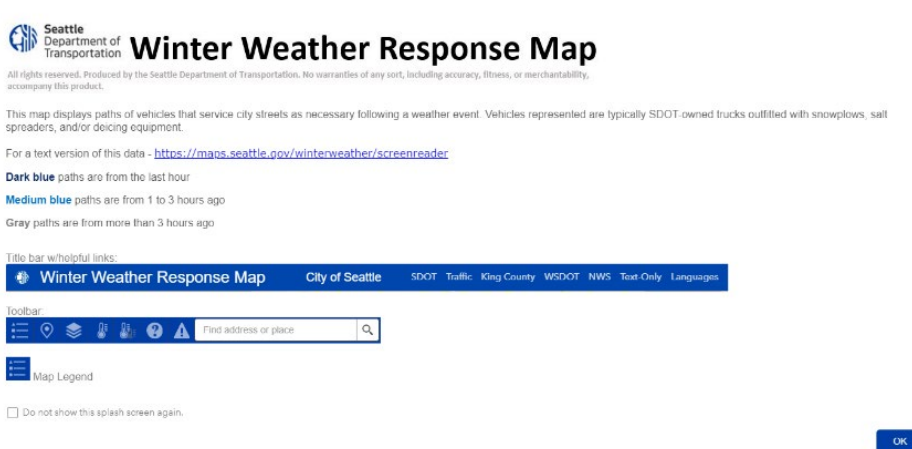
Examining the policies and procedures, challenges, and successes of other communities can help inform winter maintenance in Fairbanks.

Coordination Strategies

City of Seattle (Seattle Disaster Readiness and Response Plan)

While not pertaining entirely to winter weather conditions, the Seattle Disaster Readiness and Response Plan gives Seattle clear guidance on how to proceed under a variety of scenarios which include heavy snowfall. The plan has a strategy to clear snow from high priority sidewalks, bridges, and transit zones. The City also informs and educates the public through the following means:

- Interactive website with snowplow locations



- Social media (Twitter, blog)
- Fliers to parents of school-age children
- Outreach in multiple languages

City of Chicago, IL (Chicago Shovels program)

The Chicago Shovels program is a program that gives residents the tools to collaborate and tackle the challenges of the winter season.¹⁵ The program includes positive messages and information on how residents can get involved personally with snow removal. The following programs and strategies are part of Chicago Shovels:

- Adopt-a-Sidewalk - online mapping and encouragement tool for property owners to maintain sidewalk adjacent to their property.
- Snow Corps - pairs volunteers with low-income elderly or disabled people
- You Name a Snowplow - an opportunity for residents to learn and have some fun by naming each vehicle in the City's snowplow fleet.
- Mobile weather alerts
- Instructional brochures

¹⁵ https://www.chicago.gov/city/en/depts/streets/supp_info/chicagoshovels.html



Community member plowing piled snow by hand.

Enforcement Strategy

City of Boston, MA

The City of Boston has specifications on how property owners, managers, and tenants must remove snow and ice and will fine violators for non-compliance on a regular basis.¹⁶ Fines depend based on land-use category and multiple days of snow accrual will result in multiple violations with fees ranging from \$50 to \$200 per day. Fees collected from non-compliance fund the snow removal program. The City also has parking bans to ensure that roads remain clear for plows and emergency vehicles. The City tickets and tows cars parked on posted snow emergency arteries during a declared snow emergency.

City of Rochester, MN

Another example of placing compliance on the property owner is in Rochester, Minnesota, where when property owners do not comply with city standards, the City hires an outside contractor and then bills the associated costs and administrative fees to the property owner.¹⁷ Enforcement is primarily complaint-driven and the fines will only occur once the complaint has been inspected and verified. The City has a flowchart that describes the process.

¹⁶ <https://www.boston.gov/winter-boston>

¹⁷ <https://www.rochestermn.gov/government/departments/public-works/sidewalks-paths/sidewalk-snow-removal>

Transit Agency Strategies

Metro Transit - Minneapolis, MN

Metro Transit is the agency tasked with providing transit service to Minneapolis, Minnesota, a city that regularly experiences heavy snowfall during the winter. The agency states on its website that it is not responsible for snow removal at its bus stops, but instead relies primarily on municipalities and other agencies to clear bus stops within their jurisdictions based on their local ordinances.¹⁸ The agency, however, oversees clearing snow at their facilities. The agency lists the following as their priorities when deciding where to removal snow to best serve their customers:

- Bus and rail operations
- High-use facilities
- Customers with limited mobility
- Shelters
- Revisiting and grooming

TriMet – Portland, OR

TriMet provides transit service to the Portland metropolitan area, which experiences snowfall on occasion. The agency has published a set of guidelines dictating how the agency will operate service during periods of heavy snowfall.¹⁹ These guidelines include the cancellation of a predetermined set of bus lines. The agency also has instructions on how the traveling public can safety use their services during winter weather conditions.

¹⁸ <https://www.metrotransit.org/snow-removal-procedures>

¹⁹ <https://trimet.org/alerts/winterweather.htm>

WINTER MAINTENANCE RECOMMENDATIONS

Considering the unique challenges of winter maintenance in Fairbanks and the methods employed elsewhere, FAST Planning can implement changes or coordinate changes among other agencies to make improvements to winter maintenance. The following section provide recommendations to FAST Planning on different ways that winter maintenance can be improved.

Regional Coordination of Snow Removal

While there is already existing coordination between roadway agencies on matters of snow removal, there may be room for improvement to strengthen these ties. As seen in Figure 2, AKDOT already has a comprehensive set of routes that guide snow removal. These designations typically reflect the goal to maximize vehicle throughput and do not prioritize many neighborhood streets where there may be bus service or people getting to transit stops.

FAST Planning can coordinate with MACS to identify which bus routes can be prioritized for snow removal, and those in turn can be reflected in a map other than AKDOT's prioritization map to ensure that essential bus routes are being cleared in an expedient manner during winter weather events. These routes may include some of the highest frequency lines in the MACS system including the blue, red, purple, and brown lines. This mapping could be a joint effort of FAST Planning, the Cities of Fairbanks and North Pole, and AKDOT.

Additionally, there may be the opportunity to share staff and equipment across the FNSB region among the different agencies. When the resources of one jurisdiction are strained, another agency can lend resources or staff. This may be achieved through a memorandum of understanding (MOU) or by creating a shared pool of funding for the FNSB region specific to snow removal efforts.

Removal of Snow on Active Transportation Facilities

The buildup of snow on sidewalks, trails, bicycle paths, and other active transportation facilities in the FNSB has been a problem identified through public comment and by the agencies themselves. Part of the problem may be that active transportation facilities are often considered only after vehicle lanes or not considered at all when it comes to snow removal. FAST Planning and local agencies can take the following actions to develop systems for coordinating the removal of snow on active transportation facilities:

- Create a winter maintenance prioritization of the region's active transportation facilities with buy-in from the local agencies involved.
- Invest in additional equipment and new technology dedicated to removing snow from active transportation facilities.
- Direct staff that clear roadways not to leave excess snow buildup on active transportation facilities.

Van Tran Service

During periods of heavy snowfall, Van Tran vehicles have difficulty reaching many residences in their service area that would be otherwise accessible during typical weather conditions. Van Tran already has data on where its users live based on the original application that was submitted to the agency. This data can be used to better understand routes that may need to be cleared during a winter weather event. Van Tran can 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 something similar.

Behavior Change

While many changes can be taken on the part of local agencies, there are other measures that can be employed to boost community enthusiasm towards snow removal efforts and others that impose responsibilities on property owners.

The cities of Fairbanks and North Pole could institute programs that encourage a collective spirit around snow removal efforts at the neighborhood-level. AKDOT has an existing Adopt-A-Highway Program; however, this program primarily pertains to roadways. A modified version called "Adopt-A-Sidewalk," similar to an existing program in Chicago, could be adopted at the local level by each city to encourage residents to take ownership of their local sidewalks. The Cities could undertake other efforts to spur collectivism around snow removal, such as creating neighborhood teams for snow removal, and having competitions among neighborhoods for snow removal from sidewalks among other activities.

Another piece to behavior change may include adopting ordinances that fine property owners who do not cooperate with City-led snow removal efforts. The City already has a prohibition on the transfer of snow from private properties and driveways into the street, City right of way, or drainage ditches, subject to a \$200 fine, as well as a requirement for sidewalks to be cleared of snow and ice by adjacent property owners. However, similar to cities such as Boston, MA and Rochester, MN, the City of Fairbanks and North Pole could also institute fines for non-compliance with snow removal regulations. Funds from this program could be used to fund snow removal activities.

FTA Flex Funding Use for Snow Removal Program

Federal-Aid highway funds that do not have specific transit eligibility may be flexed (or transferred) to other programs that enhance transit or access to transit. According to the FTA's 2011 policy statement, any pedestrian improvement within half a mile of a transit station or stop and any bicycle improvement within three miles of a transit station or stop improves access to transit and is therefore "physically or functionally related to transit." Funds are often "flexed" from the Surface Transportation Block Grant (STBG) program, however other programs such as the Congestion Mitigation and Air Quality (CMAQ) program, the Tribal Transportation Program (TPP), and the National Highway Performance Program (NHPP) can also be flexed for transit-related projects.

These funds could be allocated towards programmatic projects that enhance transit or access to transit, including programs that remove snow along routes that serve public transit. They may also be used for a program that removes snow from sidewalks within three miles of MACS transit stops. Notably, Metro, the Metropolitan Planning Organization for the Portland, Oregon metropolitan area, flexes Surface Transportation Block Grants (STBG) for use through the FTA's flex transfer process in programs such as Portland Transportation Demand Management Activities, demonstrating the flexibility of the FTA's flex funding process.^{20, 21} 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).

²⁰ <https://www.oregonmetro.gov/sites/default/files/2022/10/04/MTIP-formal-amendment-FY2023-October2022-20221004.pdf>

²¹ <https://www.oregonmetro.gov/sites/default/files/2023/10/13/MTIP-Adoption-Draft-2024-2027-rev0.pdf>

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.

The project team also used a concept called Level of Traffic Stress (LTS) to estimate the level of comfort for people biking or walking on given roadway segment and to identify the degree to which some roadways must be improved to provide a more comfortable experience for pedestrians, bicyclists, and bus riders of all ages and abilities. In turn, bus stops can also be ranked using this metric by examining the roads that must be used to access that bus stop, creating an LTS-adjusted connectivity score.

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 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.

Table 1 and Figure 9 display the 20 bus stops with the lowest LTS-adjusted pedestrian connectivity scores among high ridership bus stops, defined as 45 median boardings per month or greater. These are defined as “high pedestrian need” bus stops. The table shows if the stop also appears among the top 20 bus stops identified for bicycle need. Three of these 20 high need bus stops were in the top 5 bus stops overall in terms of ridership (see Table 3).

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.

Table 2 and Figure 10 display the 20 bus stops with the lowest bicycle connectivity among bus stops having high ridership, defined as 45 median boardings per month or greater. The table shows if the high bicycle need stop also appears among the top 20 bus stops identified for pedestrian need. Two of these 20 high bicycle need bus stops were in the top 5 bus stops in terms of ridership (see Table 3).

Table 1 – Top 20 High Pedestrian Need Stops

Transit Stop	Stop #	Disconnected Street Grid / Long Blocks	Number of Vehicle Travel Lanes	Absence of Active Transport Facilities	Ped Connectivity Score	Bicycle Need	Median Monthly Ridership	Notes
Airport	728	x		x	0.021	x	46	
Old Steese @ Safeway Gas	284	x	x	x	0.021	x	110	
College Rd. @ Aurora Motel	262	x	x		0.022	x	47	
Bentley Mall parking lot	475		x		0.022	x	206	
Old Steese @ Cornerstone Mall	112		x		0.022	x	87	
University Ave @ Holiday Apts	164	x	x	x	0.032		54	Lacks marked pedestrian crossing of University Avenue
Herb Miller Rd Eastside - (Walmart/Lowes)	117	x			0.034	x	446	
Herb Miller Rd Westside - (Walmart/Lowes)	279	x			0.034	x	625	
- College Rd @ Geraldo's Rest.	275		x	x	0.037	x	100	

Transit Stop	Stop #	Disconnected Street Grid / Long Blocks	Number of Vehicle Travel Lanes	Absence of Active Transport Facilities	Ped Connectivity Score	Bicycle Need	Median Monthly Ridership	Notes
Old Steese @ Timberland (Gavora Mall)	110	x			0.042	x	86	
College Rd. @ Hayes Ave	153		x	x	0.048	x	76	Lacks marked pedestrian crossing of College Rd
College Rd. @ Mike's Chevron	254		x	x	0.050		61	Lacks marked pedestrian crossing of College Rd
College Rd. @ Creamer's Field	127	x	x	x	0.051	x	53	
Davis Rd @ Jillian Square Apts	714	x	x	x	0.051	x	84	Serves a large apartment complex. Lacks marked pedestrian crossing of Davis Rd.
Fred Meyer West	167	x			0.053		1446	
College Rd. @ Kathryn	271	x			0.055	x	71	Lacks marked pedestrian crossing of College Rd

Transit Stop	Stop #	Disconnected Street Grid / Long Blocks	Number of Vehicle Travel Lanes	Absence of Active Transport Facilities	Ped Connectivity Score	Bicycle Need	Median Monthly Ridership	Notes
University Ave @ Sandvik	240	x			0.056		71	Lacks marked pedestrian crossing of University Ave
Aurora Dr. @ Tamarack St.	263				0.066	x	48	
College Rd. @ Westwood Way	256	x	x		0.066	x	91	Lacks marked pedestrian crossing of College Rd
Cowles St @ Fbks Mem. Hospital	439	x			0.069		78	

Table 2 – 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	x		x	0.028	X	46	
Bentley Mall parking lot	475		x		0.037	x	206	
College Rd @ Geraldo’s Rest.	275		x	x	0.060	x	100	
Herb Miller Rd Eastside - (Walmart/Lowes)	117				0.071	X	446	
Herb Miller Rd Westside - (Walmart/Lowes)	279	x			0.071	X	625	
College Rd. @ Kathryn	271	x			0.080	X	71	Lacks marked pedestrian crossing of College Rd
College Rd. @ Creamer’s Field	127	x	x	x	0.080	X	53	
Davis Rd @ Jillian Square Apts	714	x	x	x	0.081	X	84	Serves a large apartment complex. Lacks marked pedestrian crossing of Davis Rd.

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
Aurora Dr. @ Tamarack St.	263				0.100	X	48	
College Rd. @ Aurora Motel	262	x	x		0.104	X	47	
College Rd. @ Hayes Ave	153		x	x	0.124	X	76	
College Rd. @ Westwood Way	256	x	x		0.130	X	91	Lacks marked pedestrian crossing of College Rd
University Ave. @ Sophie Plaza	752		x	x	0.135		71	No pedestrian crossing until Rewak Dr
Old Steese @ Safeway Gas	284	x	x	x	0.152	X	110	
Washington @ Bank	228	x			0.156		72	
Old Steese @ Cornerstone Mall	112		x		0.157	X	87	
Helmericks Ave @ Mt McKinley Bank	115	x		x	0.159		98	
Helmericks Ave (Mt McKinley Bank)	281	x		x	0.160		150	

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
College Rd. @ Hess St.	250	x	x		0.161		217	No pedestrian crossing of College Rd
Old Steese @ Timberland (Gavora Mall)	110	x			0.167	X	86	

Table 3 – 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

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).

- Danby Street between Wembley Avenue and College Road
- University Avenue between College Road and Davis Road
- 30th Avenue between Lathrop Street and Cushman Street
- Badger Road between Dennis Road and Bradway Road
- 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 facility; 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.

DISCUSSION

The project team's analysis of bus stop connectivity and accessibility reveals that there are certain areas of high connectivity and other areas where connectivity and accessibility could be improved. In particular, the areas around downtown Fairbanks have high connectivity and accessibility scores, while some of the outlying areas, and areas with more of a rural land-use typology have lower connectivity scores. The majority of high needs bus stops were located on roads that have a high level of pedestrian traffic stress; these roads typically have multiple travel lanes and often lack sidewalks or bike lanes. Notably, none of the stops on Badger Road or in North Pole ranked high enough in ridership to be included among the high need bus stop. FAST Planning can work with local agencies to identify projects around these bus stops that improve bus stop access by constructing pedestrian crossings across major roadways and sidewalks.



2023 Transit Plans Update

Fairbanks North Star Borough

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

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

High Pedestrian Need Bus Stops

- Bus Stop

High pedestrian need bus stops defined as the twenty bus stops with the lowest LTS-adjusted pedestrian connectivity scores among high ridership bus stops, defined as 45 median boardings per month or greater.

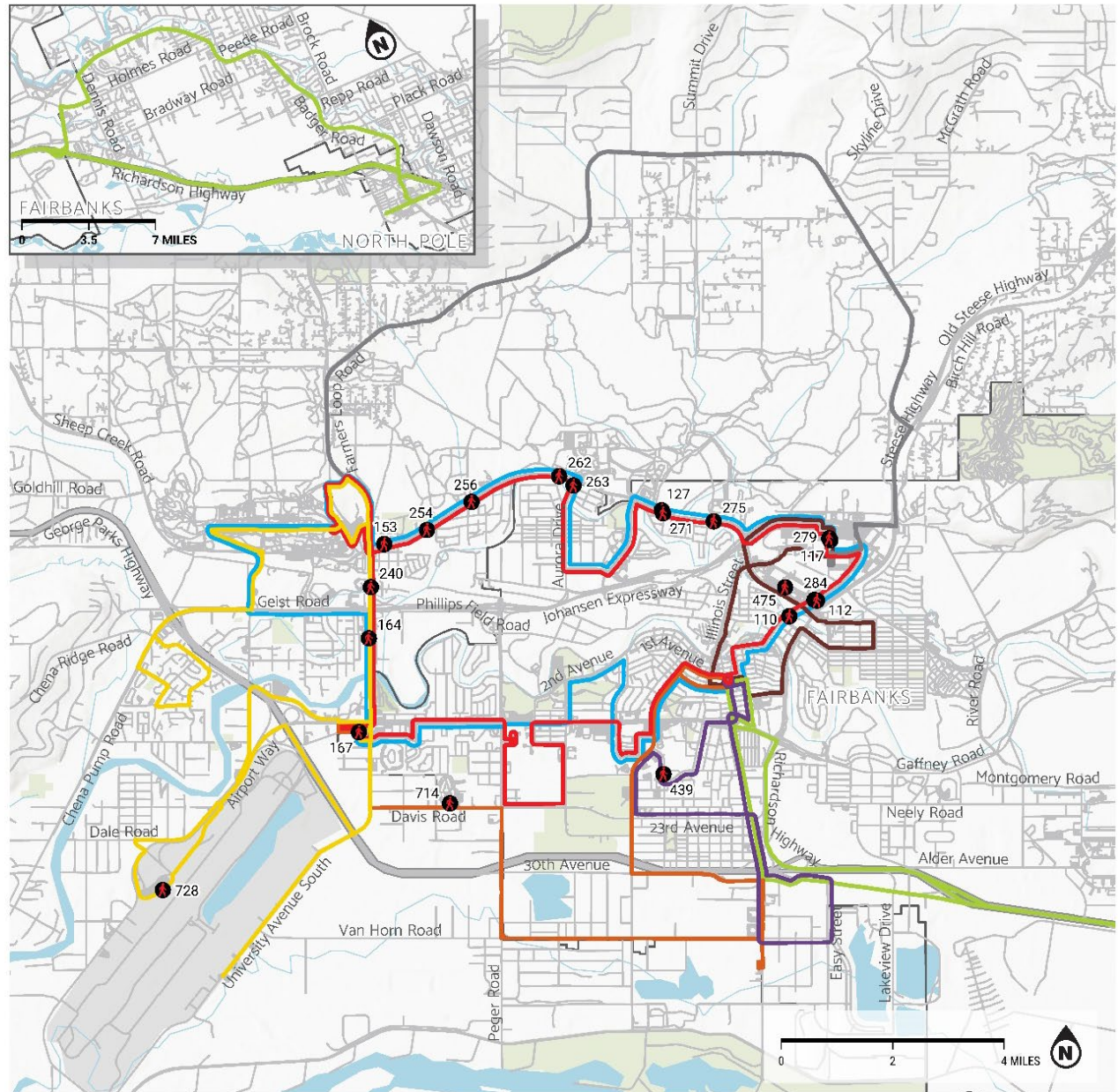


Figure 10 - High Pedestrian Need Bus Stops



2023 Transit Plans Update

Fairbanks North Star Borough

METROPOLITAN AREA COMMUTER SYSTEM (MACS) SYSTEM

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

High Bicycle Need Bus Stops

- Bus Stop

High bicycle need bus stops defined as the twenty bus stops with the lowest LTS-adjusted bicycle connectivity scores among high ridership bus stops, defined as 45 median boardings per month or greater.

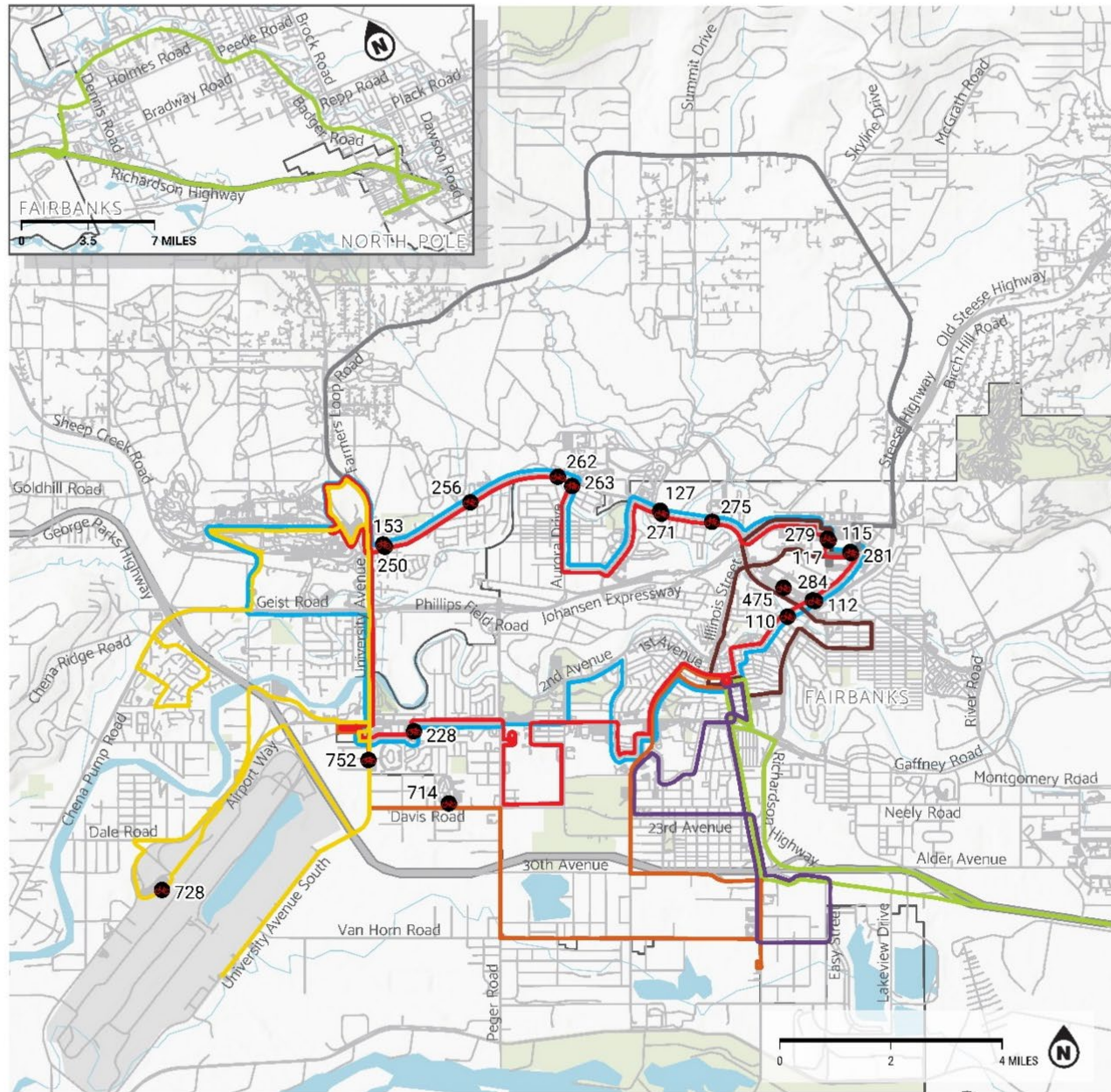


Figure 11 - High Bicycle Need Bus Stops



2023 Transit Plans Update

Fairbanks North Star Borough

UNADJUSTED PEDESTRIAN CONNECTIVITY

Raw connectivity ratio

- <.06 (Least connectivity)
 - 0.06 - 0.13
 - 0.14 - 0.25
 - 0.26 - 0.42
 - > 0.43 (Most connectivity)
- Highway
 - Arterial
 - Collector
 - Cities of Fairbanks and North Pole
 - Parks
 - 10 minute stop walked

The unadjusted walk ratio compares the area reachable by a person walking 10 minutes along the street network to the area within a 10-minute walk as the crow flies. This metric does not account for Level of Traffic Stress. A ratio of 1 would be optimal.

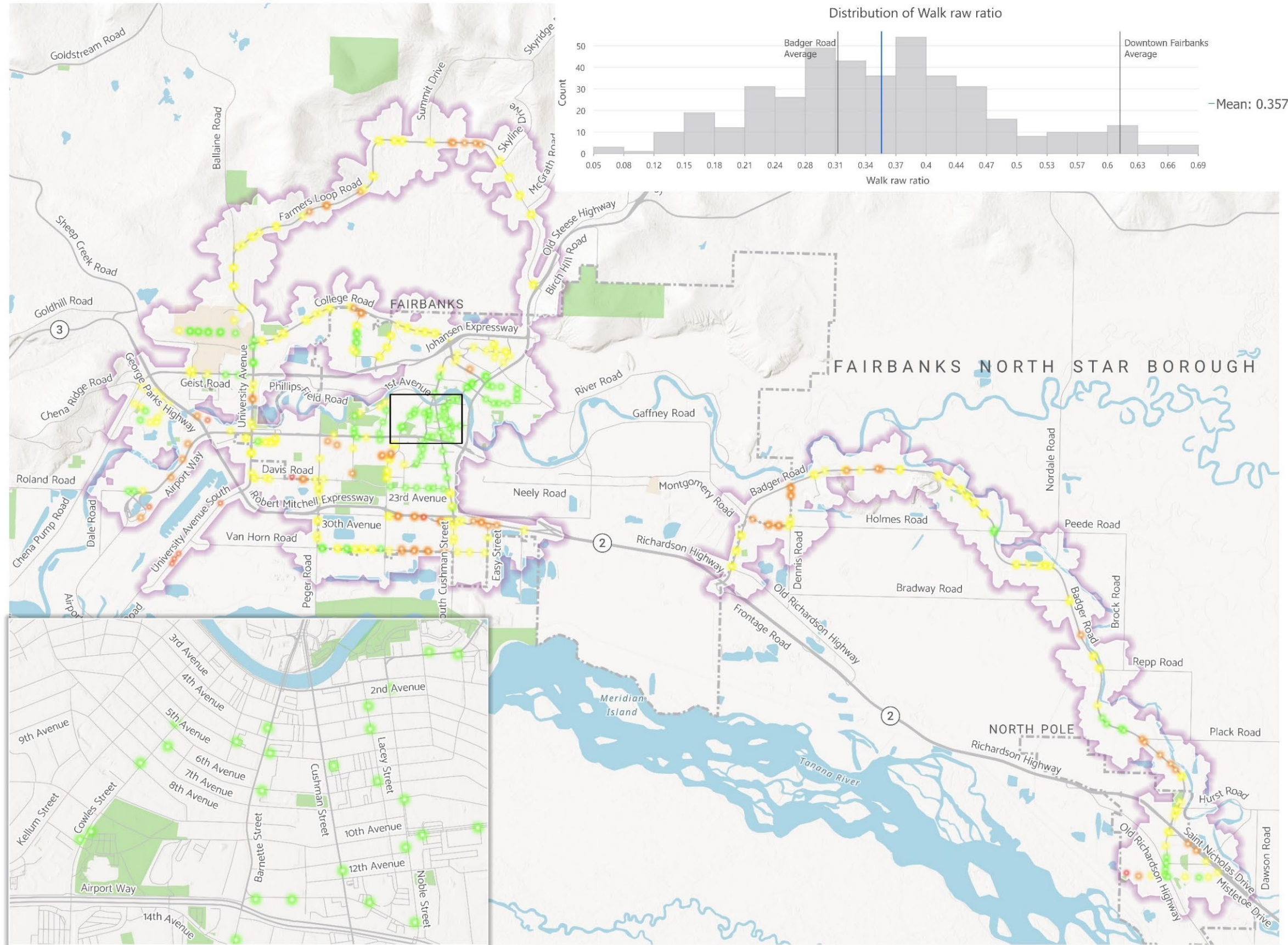


Figure 12 -Map of Unadjusted Pedestrian Connectivity



2023 Transit Plans Update

Fairbanks North Star Borough

LOW-STRESS ADJUSTED PEDESTRIAN CONNECTIVITY

Level of Traffic Stress connectivity ratio

- < 0.06 (Least connectivity)
- 0.06 - 0.13
- 0.14 - 0.25
- 0.26 - 0.42
- > 0.43 (Most connectivity)

- Highway
- Arterial
- Collector
- Cities of Fairbanks and North Pole
- Parks
- 10 minute stop walkshed

The LTS-adjusted walk connectivity ratio compares the area reachable by a person walking 10 minutes along the street network to the area within a 10-minute walk as the crow flies. This ratio further adjusts for level of traffic stress, assuming that perceived or actual travel times are longer in higher-stress contexts. A ratio of 1 is optimal.

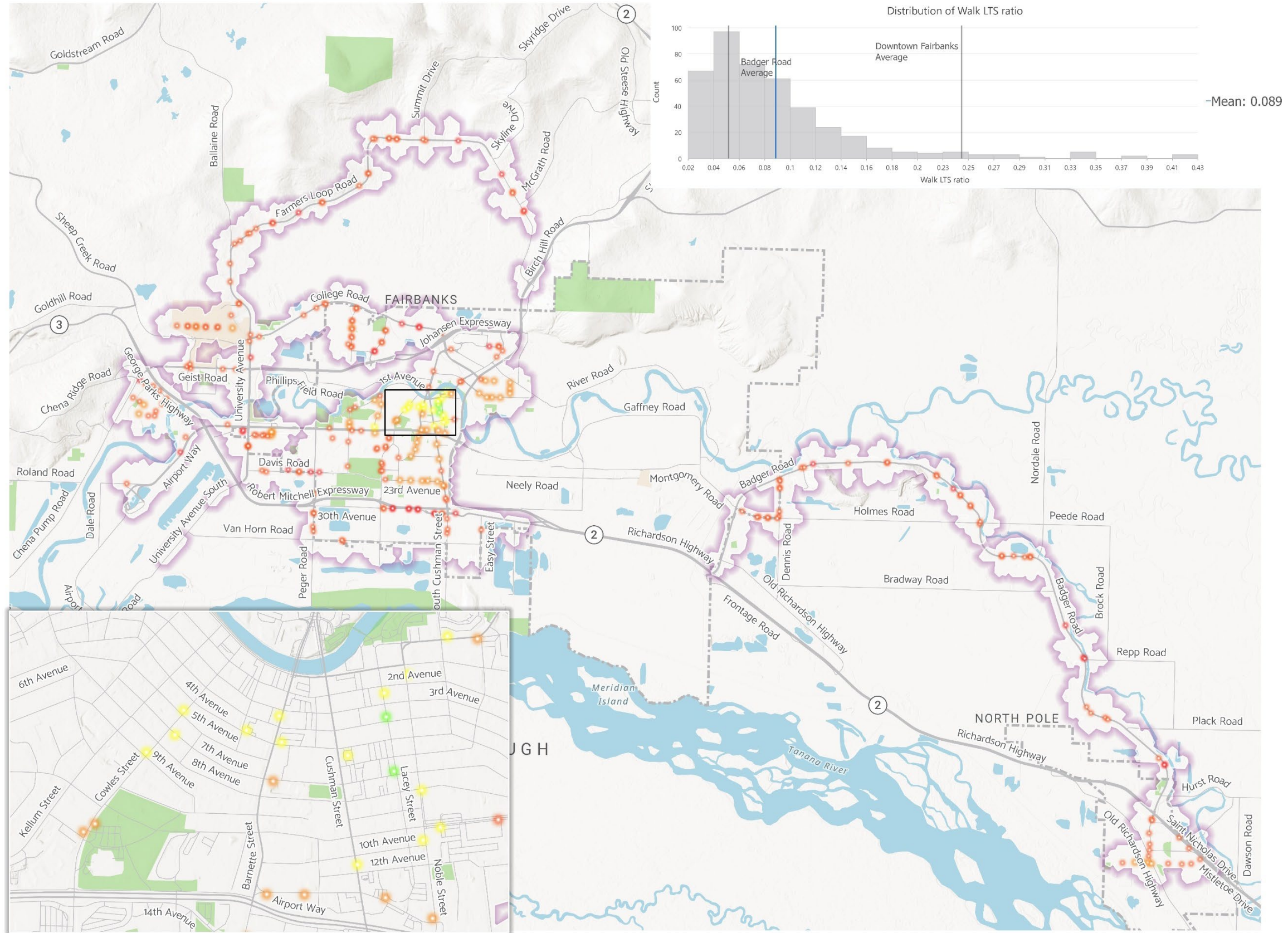


Figure 13 - Map of LTS-Adjusted Pedestrian Connectivity



2023 Transit Plans Update

Fairbanks North Star Borough

UNADJUSTED BICYCLE CONNECTIVITY

Raw connectivity ratio

- < 0.1 (Least connectivity)
 - 0.11 - 0.19
 - 0.20 - 0.26
 - 0.27 - 0.35
 - > 0.35 (Most connectivity)
- Highway
 - Arterial
 - Collector
 - Cities of Fairbanks and North Pole
 - Parks
 - 10 minute stop bikeshed

The unadjusted bike ratio compares the area reachable by a person biking 10 minutes along the street network to the area within a 10-minute ride as the crow flies. This metric does not account for Level of Traffic Stress. A ratio of 1 would be optimal.

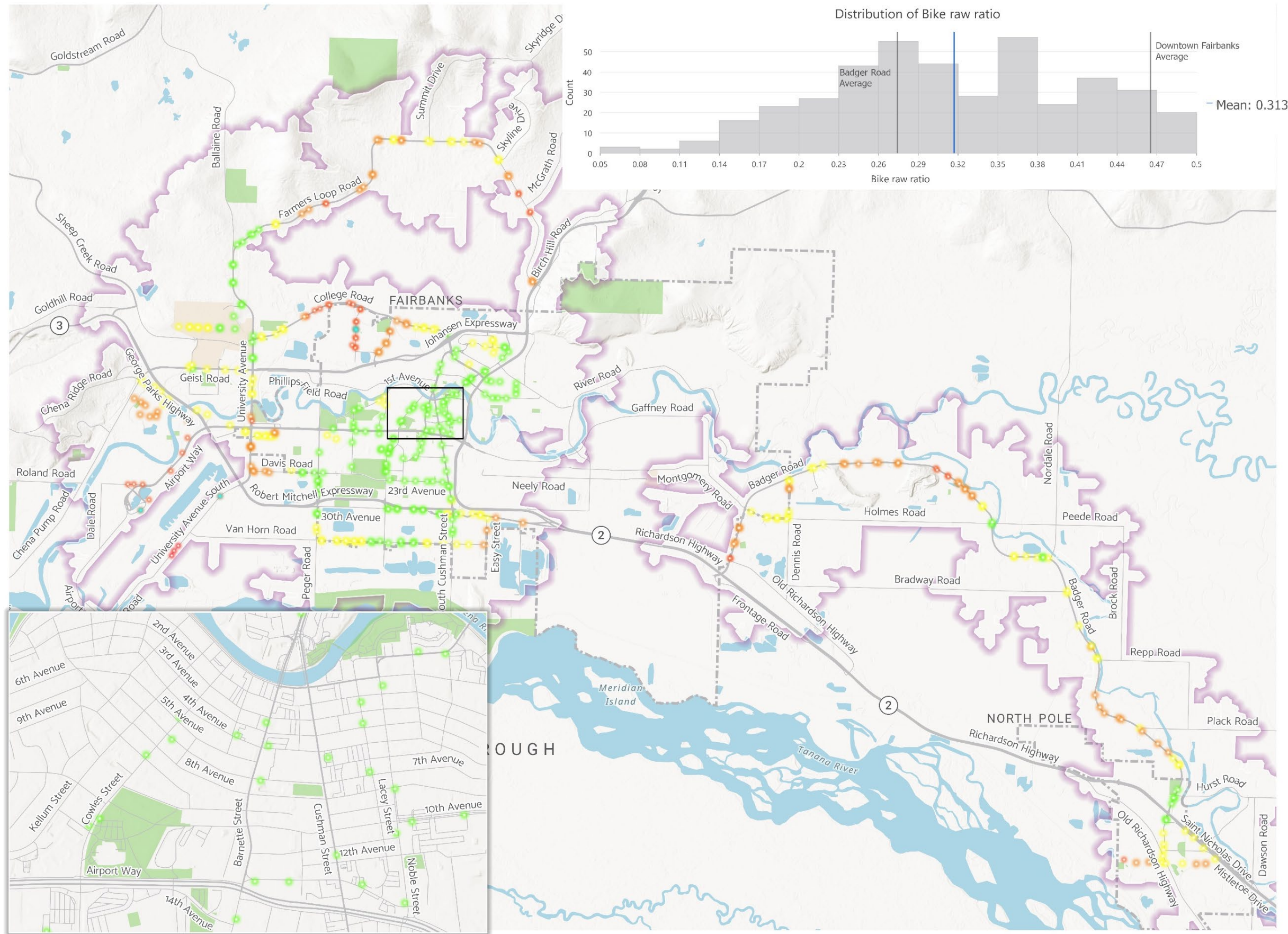


Figure 14 - Map of Unadjusted Bicycle Connectivity



2023 Transit Plans Update

Fairbanks North Star Borough

LOW-STRESS ADJUSTED BICYCLE CONNECTIVITY

Level of Traffic Stress connectivity ratio

- < 0.1 (Least connectivity)
 - 0.11 - 0.19
 - 0.20 - 0.26
 - 0.27 - 0.35
 - > 0.35 (Most connectivity)
- Highway
 - Arterial
 - Collector
 - Cities of Fairbanks and North Pole
 - Parks
 - 10 minute stop bikeshed

The LTS-adjusted bike ratio compares the area reachable by a person biking 10 minutes along the street network to the area within a 10-minute ride as the crow flies. This ratio further adjusts for level of traffic stress, assuming that perceived or actual travel times are longer in higher-stress contexts. A ratio of 1 would be optimal.

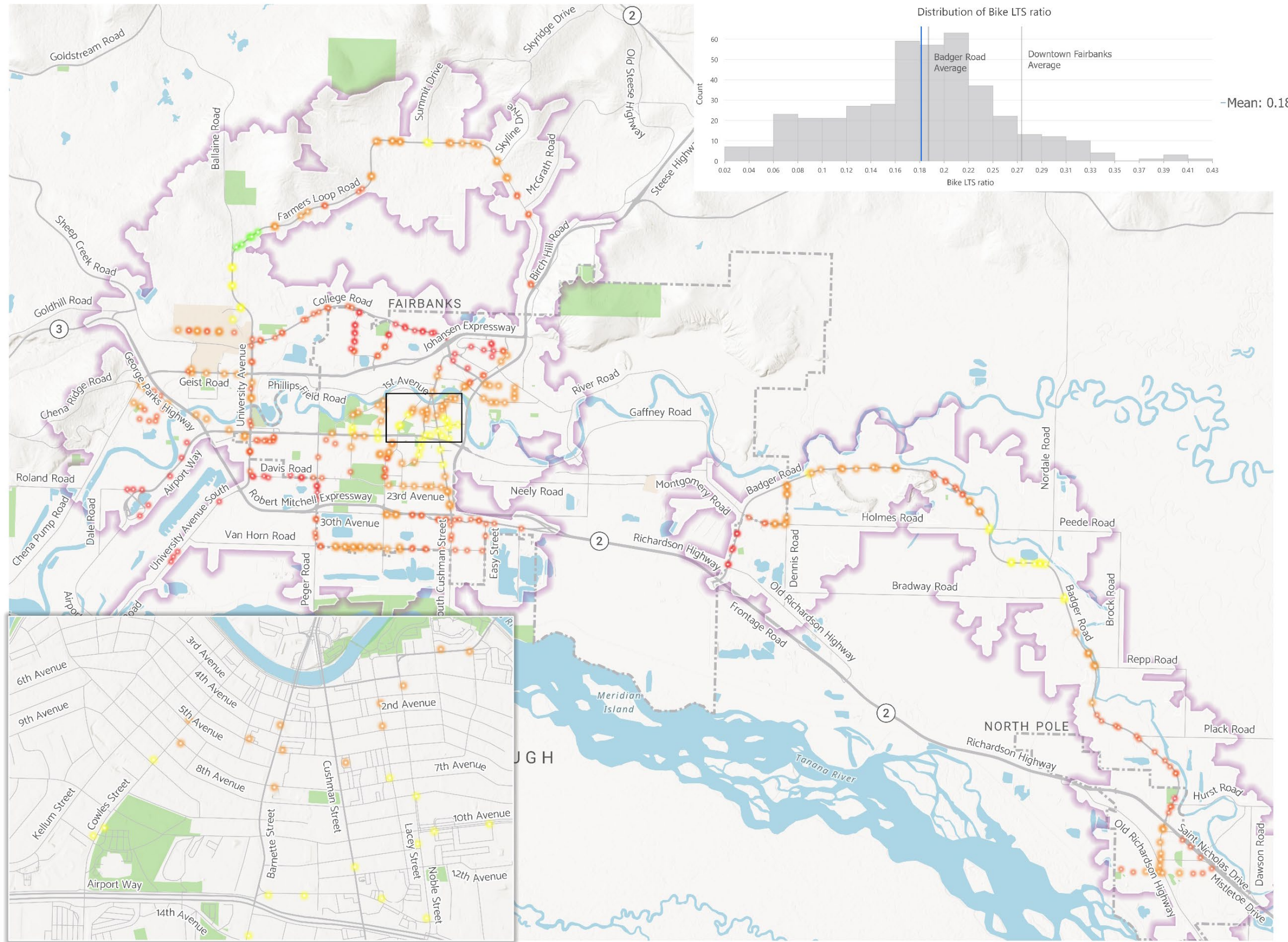


Figure 15 - Map of LTS-Adjusted Bicycle Connectivity

Appendix D: Transit Rider and Staff Survey Reports



2023 Transit Plans Update

Fairbanks North Star Borough

DRAFT SURVEY REPORT

Prepared for:



FAST Planning

Prepared by:



R&M Consultants, Inc.

IN COOPERATION WITH
Alta Planning + Design, Inc.

February 2024

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INTRODUCTION & SURVEY PURPOSE

The Fairbanks North Star Borough (FNSB) partnered with Fairbanks Area Surface Transportation (FAST) Planning and the Alaska Department of Transportation & Public Facilities (DOT&PF) to update the Short- and Long-Range Transit Plan and the Coordinated Human Services Transportation Plan (CHSTP). This singular planning effort is accordingly referred to as the “Transit Plans Update.”

As a part of this planning process, FAST Planning and R&M Consultants conducted a Rider Survey for riders of the Metropolitan Area Commuter Systems (MACS) Transit. The purpose of the survey was to:

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

EXECUTIVE SUMMARY

A total of 255 people responded to the survey about riding transit, including 63 (25%) who never ride transit. Many results 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.

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 investigate potential demand for transit to and from the areas of West Fairbanks/Chena Pump, the Goldstream Valley, and throughout North Pole.

METHODS

The survey period took place from December 6, 2023, through December 30, 2023. The survey was available online and paper copies were available upon request. The survey was open to the public and anyone could respond. The survey was targeted at riders of MACS and those with unmet transportation needs. Access to the online survey was advertised on FAST Planning's project website and through flyers, emails, and social media. Flyers about the survey were distributed on the buses, and at various bus stops including the downtown transit center, UAF, and Fred Meyers. An email invitation to take the survey was sent to FAST Planning newsletter subscribers and to FNSB Assembly members to share with their constituents. FAST Planning also posted to their Facebook and Instagram social media pages.

ONLINE SURVEY

The online survey was developed using ArcGIS Survey123 and a link was hosted at <https://arcg.is/1G8aq00>. The online survey was open for the entire survey period and sampling was voluntary.

ONBOARD SURVEY

Staff conducted intercept surveys onboard MACS bus routes and at bus stops. Surveys were distributed in-person to willing participants who were riding or waiting on the bus between December 7, 2023, through December 27, 2023. All bus lines were traveled by staff at various times of day for a total of 21 rides. Participants were offered a card with a link or scannable QR code to take the survey on their own device or staff administered the survey by guiding the participant through the survey questions and recording the responses on a mobile tablet. A free bus token was given to any in-person respondent who took the survey. Intercept surveys took place in person at the following locations:

- On board the buses
- Transit Center
- Bus stops
- Transfer locations

SURVEY CONTENT

Fourteen multiple choice and open-response questions gathered information about:

- Ridership: how often, how long, and where
- Demographics: age, gender identity, residence
- Perceptions of service: safety, dependability, coverage, schedules, convenience, etc.
- Suggested improvements
- Demographic information

Respondents who indicated they “never” ride the bus or take transit were not asked three of the questions about their riding patterns; the online survey automatically skipped these questions after a “never” response.

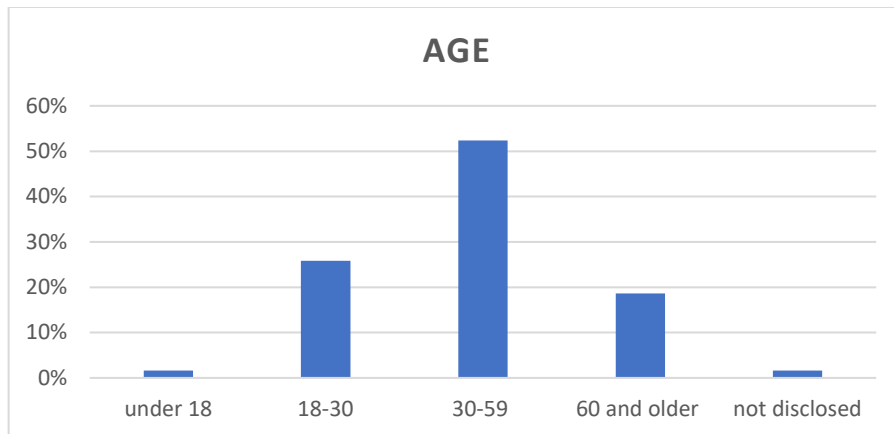
RESULTS

RESPONSE RATE

The sampling effort accumulated 255 complete responses. The overall 2020 population of the Fairbanks North Star Borough was 95,655. The overall response rate was 0.27% of the boroughwide population. The 2020 Urbanized Area (UZA) population was 71,396. The response rate for the UZA was 0.35%.

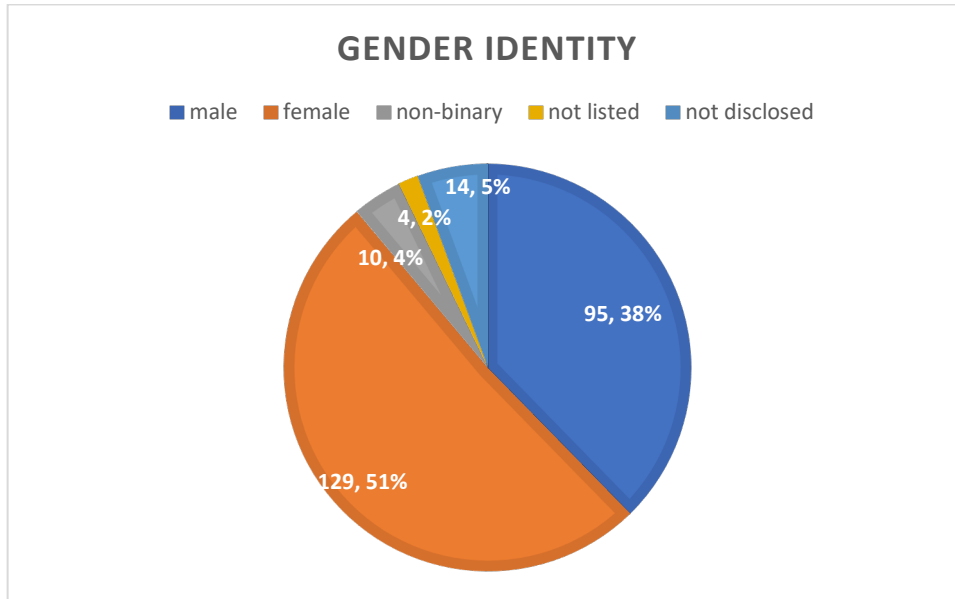
DEMOGRAPHICS

AGE



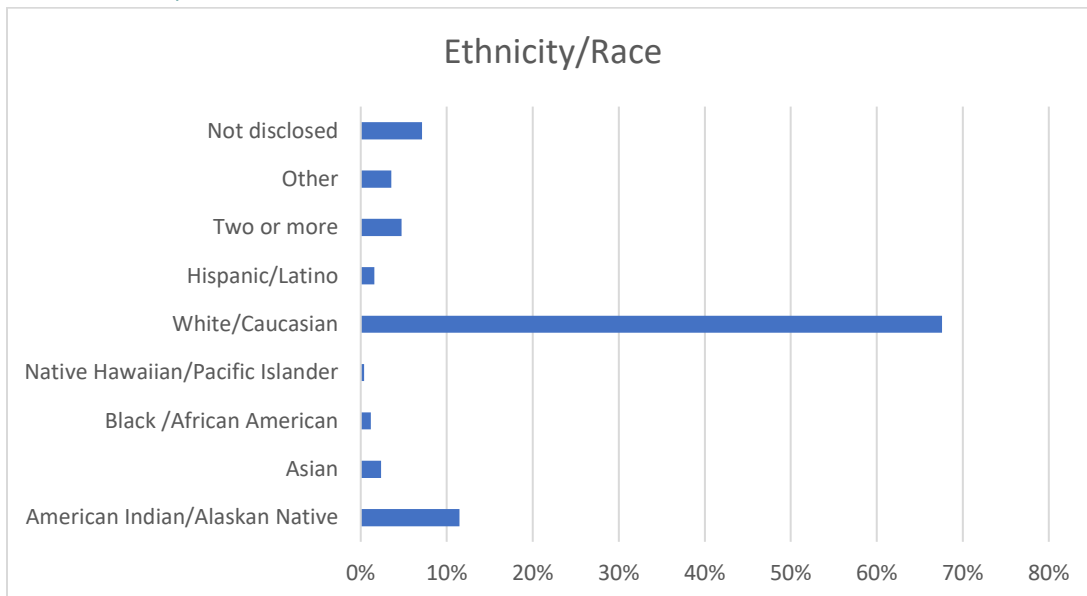
The largest age group represented is those 30-59 years of age (51.8%) followed by those 18-30 years of age (25.5%) and age 60 and older (18.4%). Only 1.5% of respondents were 18 or younger.

GENDER IDENTITY



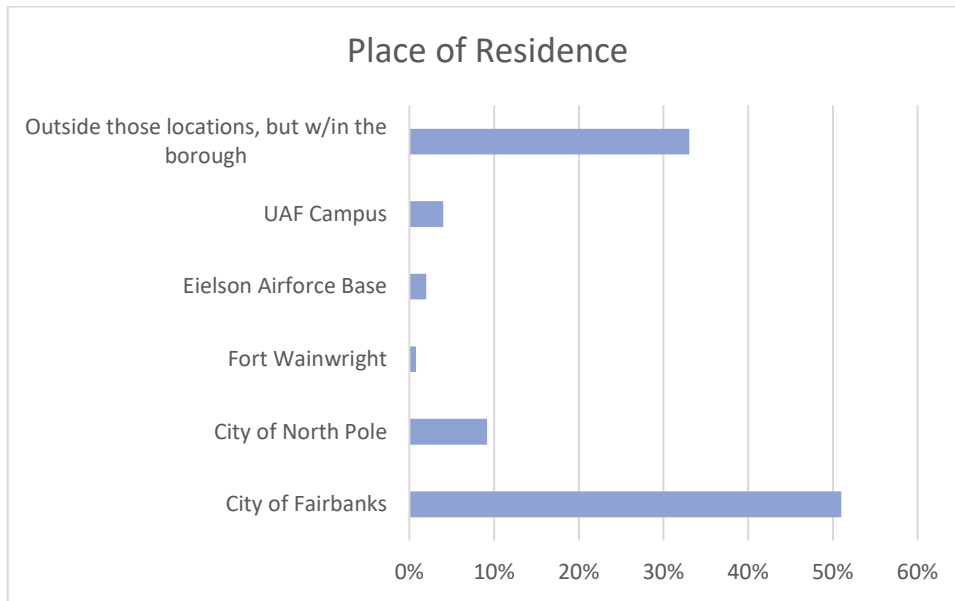
Most of the survey respondents identify as female (129) or male (95). Fourteen of those surveyed chose to not disclose their gender identity, and 10 identify as non-binary and 4 indicate not listed.

ETHNICITY/RACE



Most of those surveyed are white/Caucasian (60.7%). Alaskan Native/American Indians make up the next largest group (11.4%).

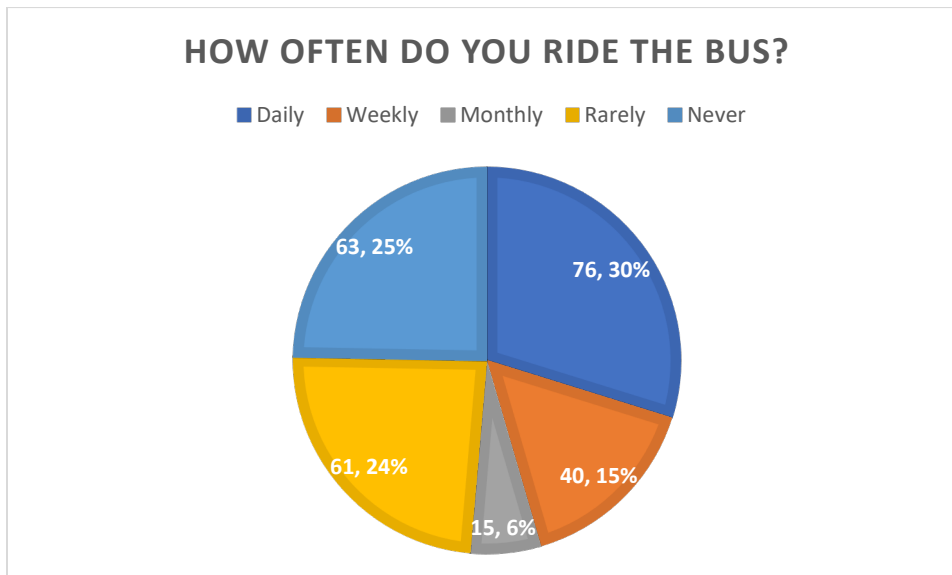
WHERE DO YOU LIVE



The majority of those surveyed live in the City of Fairbanks. A large portion of the respondents live outside the options provided, UAF campus, Eielson Air Force Base, Fort Wainwright, Cities of North Pole and Fairbanks.

RIDERSHIP

HOW OFTEN DO YOU RIDE THE BUS

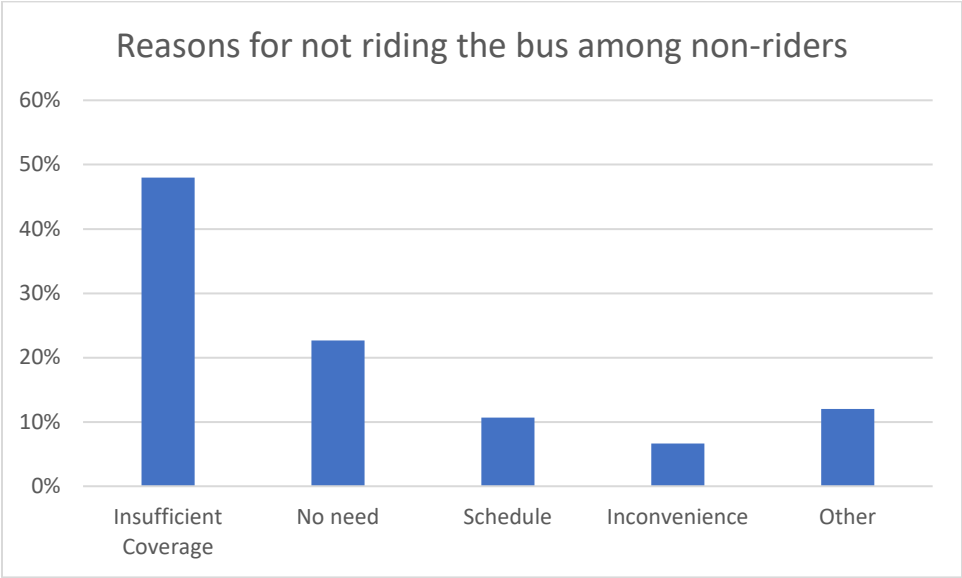


Most of those surveyed are daily bus riders (29.8%). Of those surveyed 24.7% indicate they never ride the bus and 23.9% rarely ride the bus. Weekly riders made up 15.7% of respondents, and nearly 6% ride monthly.

Respondents can be sorted into two groups: riders and non-riders. Analyzing rider responses can help determine how to improve service based on the preferences and opinions of current users. Analyzing non-rider responses separately will highlight perspectives, assumptions, and preferences of those who do not ride the bus to improve overall ridership.

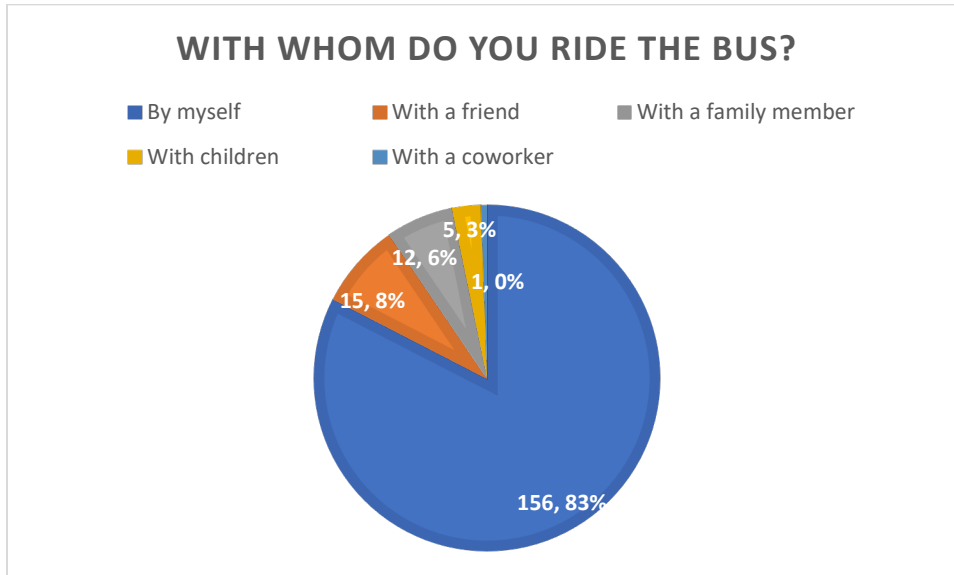
REASONS FOR NOT RIDING THE BUS

Respondents who said they “never” ride the bus gave different reasons (each respondent could give multiple reasons). Open responses were categorized and coded to understand the most common reasons. Sixty-one (61) respondents gave 75 reasons for not riding the bus. The most common reason was insufficient coverage (48%): the bus does not go where they want or need to go. For example, several said that bus service is not available where they live, or the bus stop is too far from their home. The next most common reason (22.7%) was a lack of need, typically due to owning a vehicle. Scheduling (bus not being available during the days or times of need) and general inconvenience also contributed to the decision to forego transit. Other reasons included infrequent service, slow speeds, lack of fat tire bike rack, discomfort, payment methods and safety at winter bus stops.



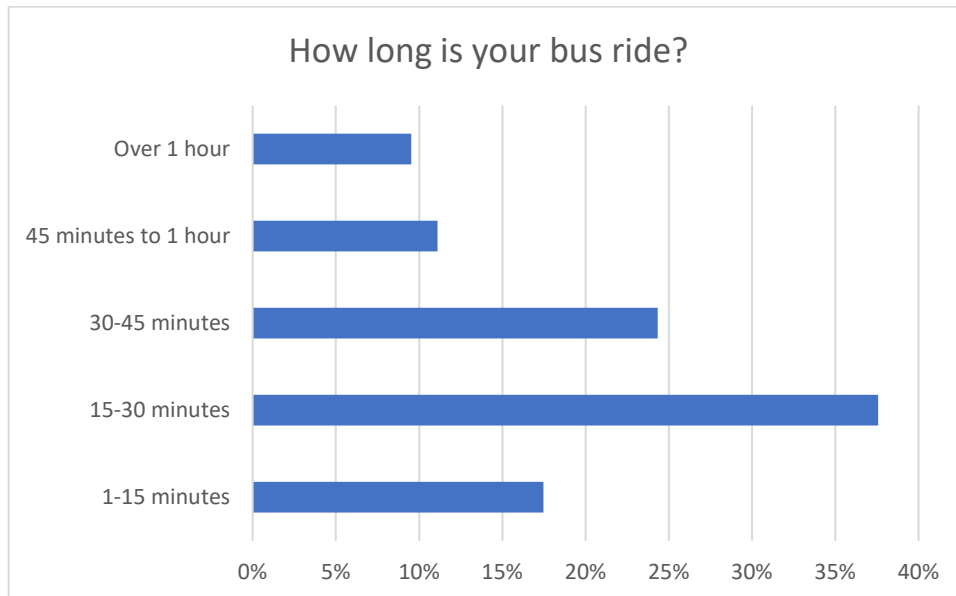
RIDER PATTERNS

WITH WHOM DO YOU RIDE THE BUS?



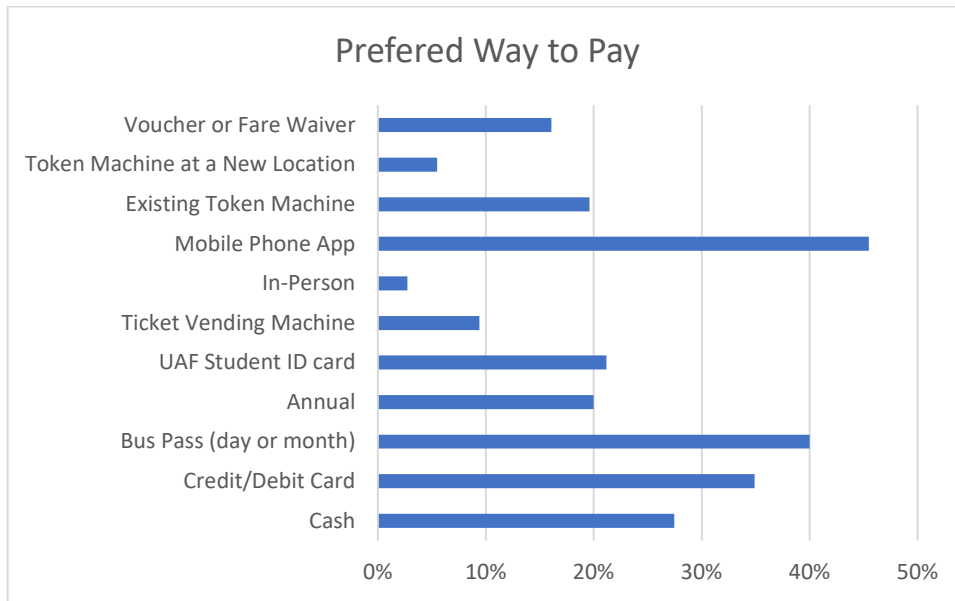
When asked how they most often ride the bus, of the 189 survey respondents who answered this question most (156) ride by themselves. Only 15 ride with a friend, 12 with a family member, and 5 with children.

HOW LONG IS THE AVERAGE BUS TRIP



Most respondents ride the bus for fewer than 45 minutes, with most having an average bus ride of 15-30 minutes (27.8%). Only 7% have an average bus ride of over an hour.

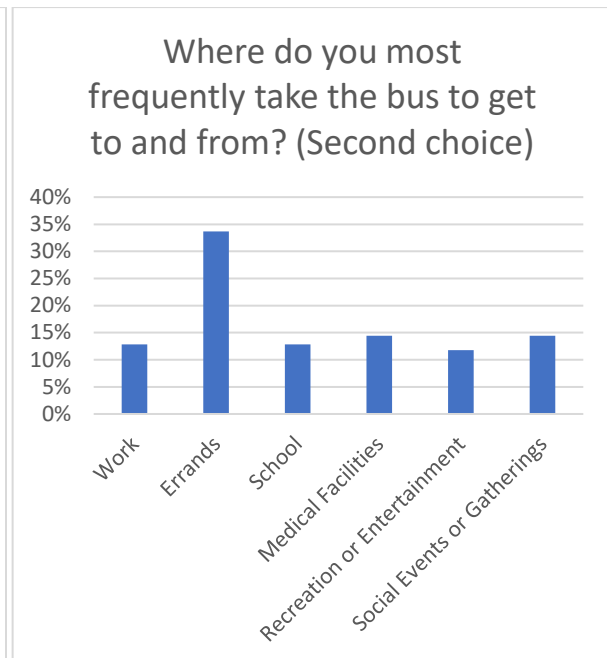
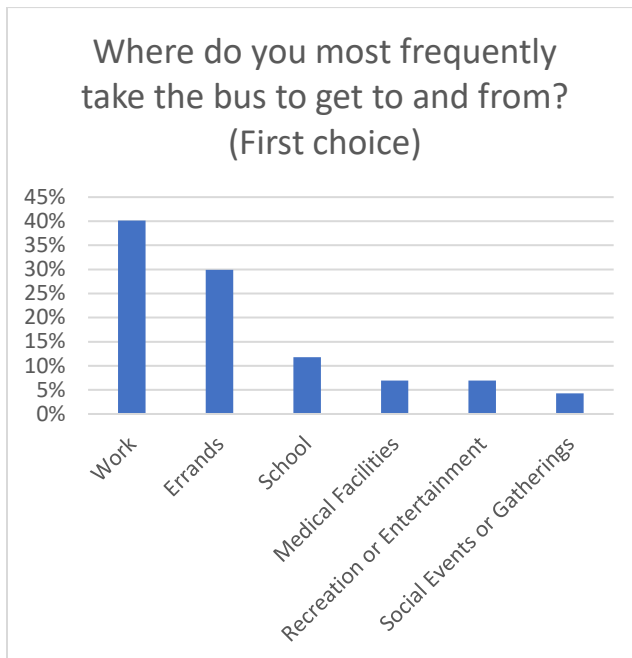
PREFERRED METHOD OF FARE PAYMENT



Being able to pay using a mobile application is the preference of 45.5% of survey respondents, including riders and non-riders. Monthly or daily bus passes are preferred by 40%. Paying in-person is the least preferred method of payment.

ROUTING

WHERE TRAVELING BY BUS

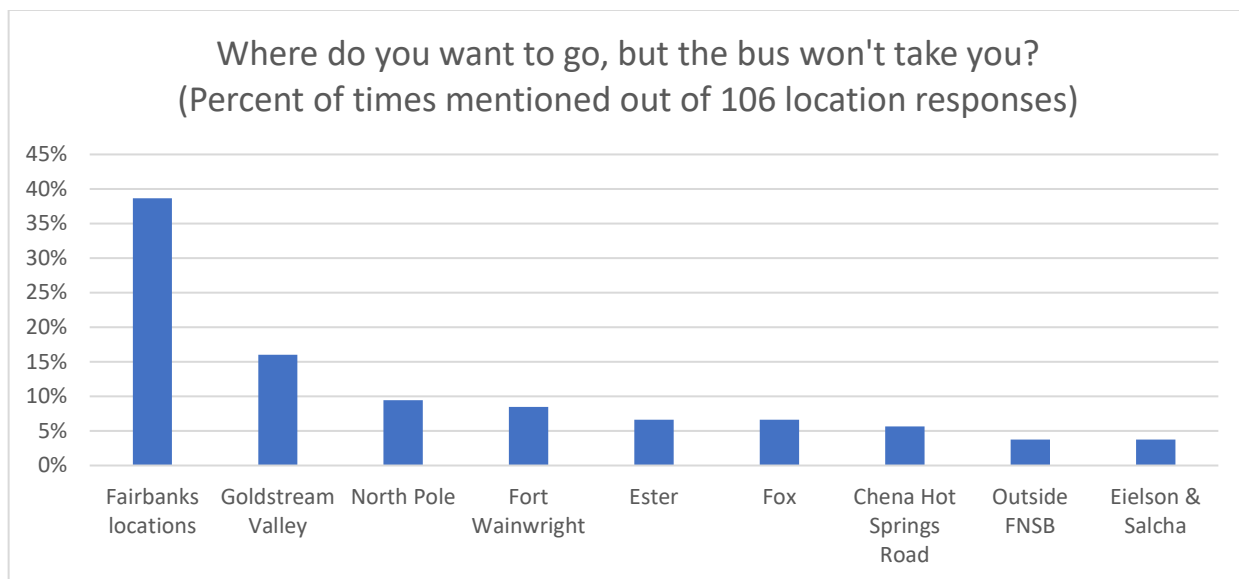


Respondents were asked to rank which destinations they most frequently used transit to get to and from. Work was listed most often (40%) as the most frequent reason for using transit, and errands (shopping, grocery, pharmacy, etc.) were second highest (30%). A noteworthy number of respondents (64%) ranked errands second among reasons for riding the bus.

For this question, respondents were asked to rank their choices as one through five. During onboard intercept surveys, staff observed that respondents were not able to rank locations beyond their top one or two destinations. For this reason, only the top two destinations from each survey are reported. The chart above shows the percent of respondents (out of 187) who ranked each destination as their first- or second-most frequented destination.

WHERE DOES THE BUS NOT CURRENTLY GO BUT SHOULD

Respondents listed a variety of destinations when asked where the bus does not currently go but should. Destinations were mentioned by respondents in open-response format as a community, general area, specific road, or precise locale. 94 respondents provided a total of 106 actual location recommendations that were categorized by the location community.



Locations in Fairbanks were mentioned most frequently (41 times), followed by the Goldstream Valley (17 times), North Pole (10 times), and Fort Wainwright (9 times).

Among those who mentioned locales in and around Fairbanks, 38 respondents mentioned specific places they would like to travel to or from, either through new or expanded service. Some of these locations already have service, but respondents mentioned difficulty getting to their exact destination or issues with poor connections or timing.

Desired Locations in Fairbanks	Times mentioned by respondents
--------------------------------	--------------------------------

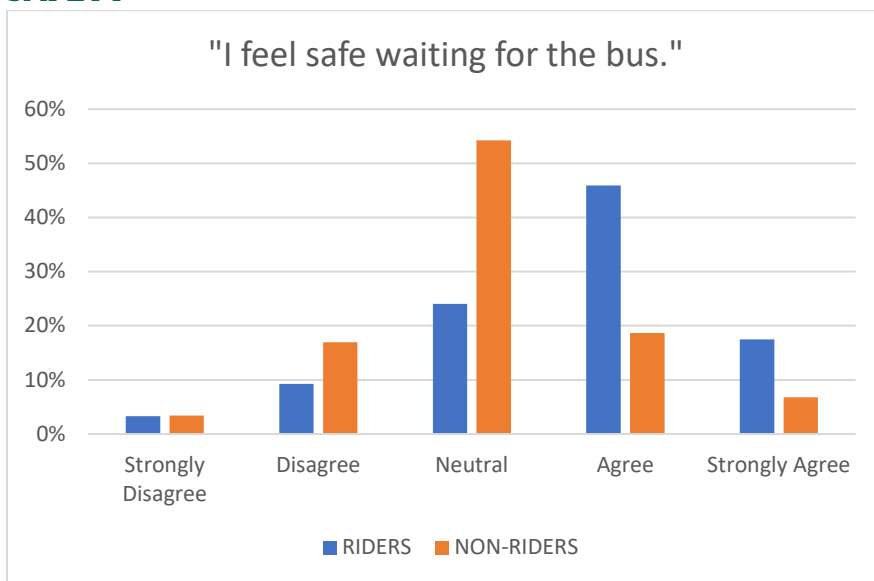
Fairbanks International Airport	7
Chena Pump and Chena Ridge Roads area	5
Van Horn Road (far east and far west extents)	3
Johansen Expressway	2
Shopping and grocery centers	2
Wal-Mart	2
West Phillips Field Road	2
Trainor Gate Road	2
Other	13

Four (4) respondents mentioned struggling to access Veteran’s Affairs (VA) services via transit, though it was unclear whether this meant the medical clinic on Fort Wainwright or at west Phillips Field Road, or the VA Center on the Old Richardson Highway.

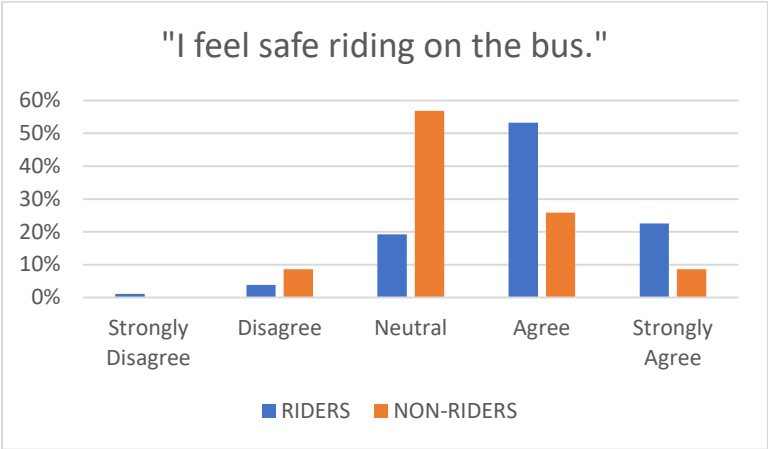
OPINIONS ON CURRENT BUS SERVICE

All respondents, including those who ride and never ride transit, were asked their opinions about local transit service. Respondents were asked to rate whether they agreed or disagreed with various positive statements about MACS. Each statement reflects important qualities of good transit service as identified during visioning and goal setting of the planning process. Results for each question are broken into rider and non-rider responses to identify potential differences in perspectives. Non-riders are more likely to have a neutral stance on each question. This may be in place of a non-response due to their lack of first-hand experience using the system.

SAFETY

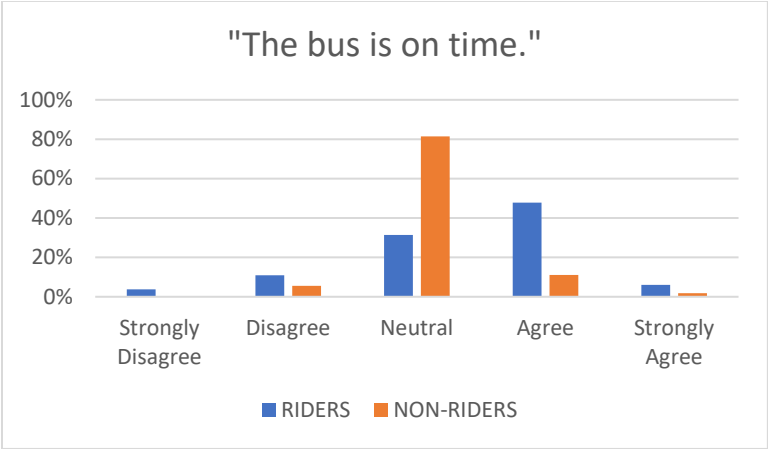


Most of the survey respondents feel safe while waiting for the bus. Current riders were more likely to agree or strongly agree (63.4%) while non-riders were more closely split (25.4% agree or strongly agree, 20.3% disagree or strongly disagree).



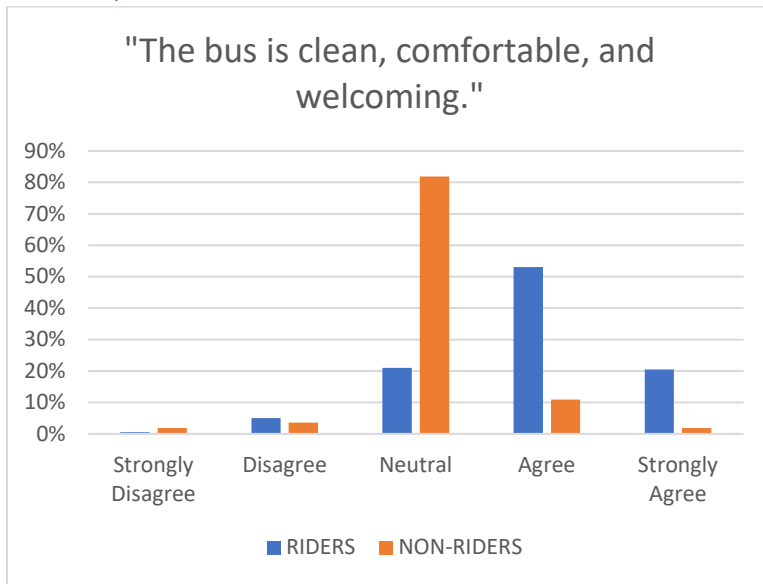
Additionally, most respondents indicated they feel safe while riding the bus, with riders being overall more in agreement (75.8%) than non-riders (34.5%). Of all those who responded, 11.8% indicated they do not feel safe while riding the bus.

TIMELINESS



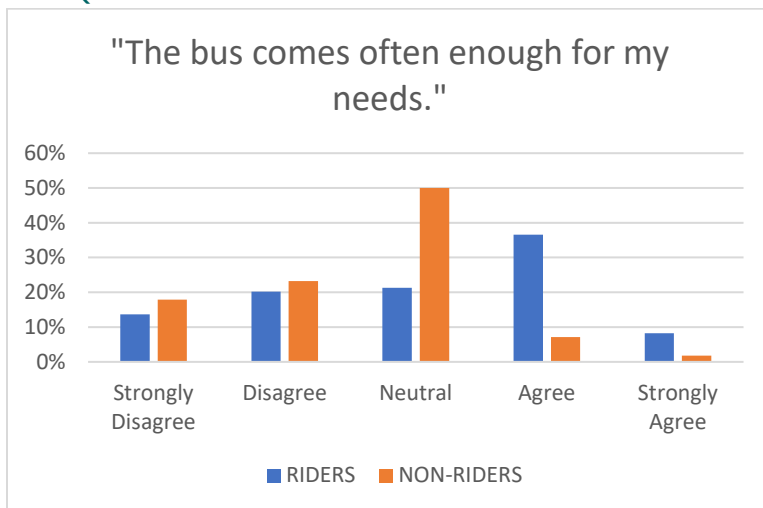
Most of those surveyed were either neutral or think the bus is on time. However, 9.8% did not agree that the bus is on time.

CLEAN, COMFORTABLE & WELCOMING



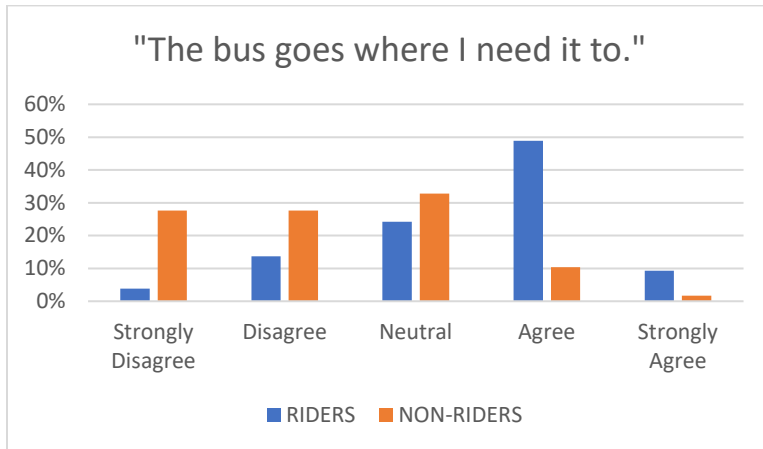
Those surveyed feel the bus is clean, comfortable, and welcoming. Most respondents (55%) indicated they agree or strongly agree with this statement while 5.1% disagreed with this statement.

FREQUENCY

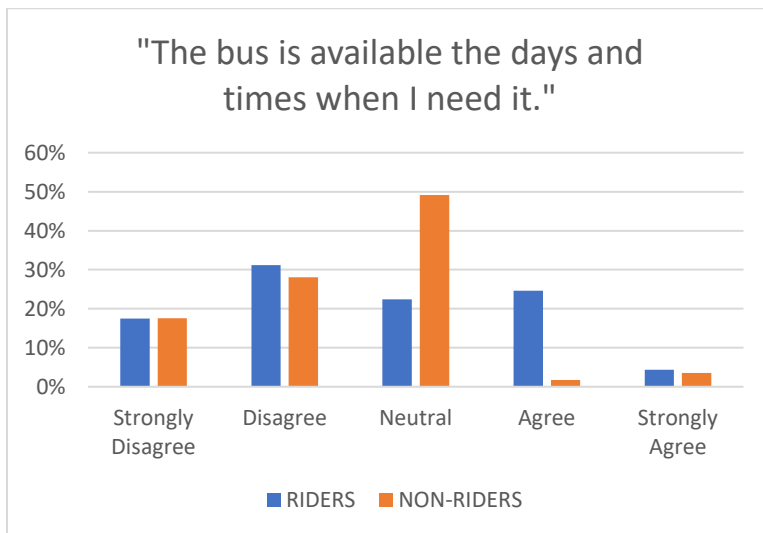


Respondents did not seem to agree on whether the bus comes often enough. Overall responses split nearly in thirds between those who disagree, were neutral, or agreed that the bus came frequently. Riders were more likely to agree (44.8% agree/strongly agree vs. 33.9% disagree/strongly disagree) that the bus comes often enough while non-riders more often disagreed (41.1% disagree/strongly disagree vs 8.9% agree/strongly agree). However, it is noteworthy that over a third (33.4%) of those surveyed did not agree that bus service is frequent enough to meet their needs.

COVERAGE & AVAILABILITY

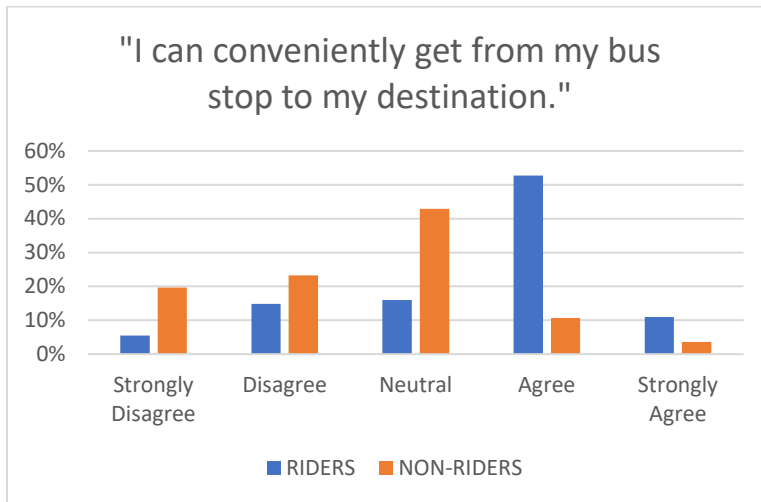


When asked if bus service meets their needs and provides service to locations they need to travel to, riders and non-riders were split again. Where 58.2% of riders agreed/strongly agreed with the statement, 55.2% of non-riders disagreed/strongly disagreed.

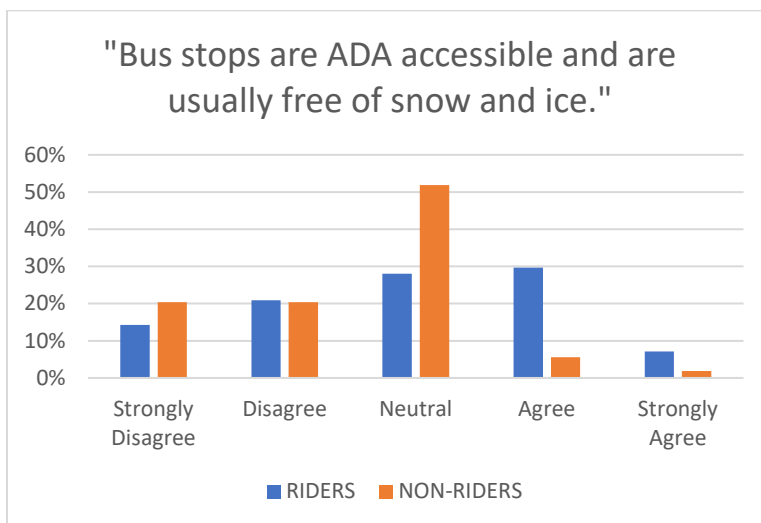


Overall respondents are critical of lack of availability on days and times when people need transportation. When asked if bus service is available for the days and times needed nearly 45% responded that they disagreed or strongly disagreed. Current riders were more likely to agree (29%) that the bus is available than non-riders (5.3%).

ACCESSIBILITY

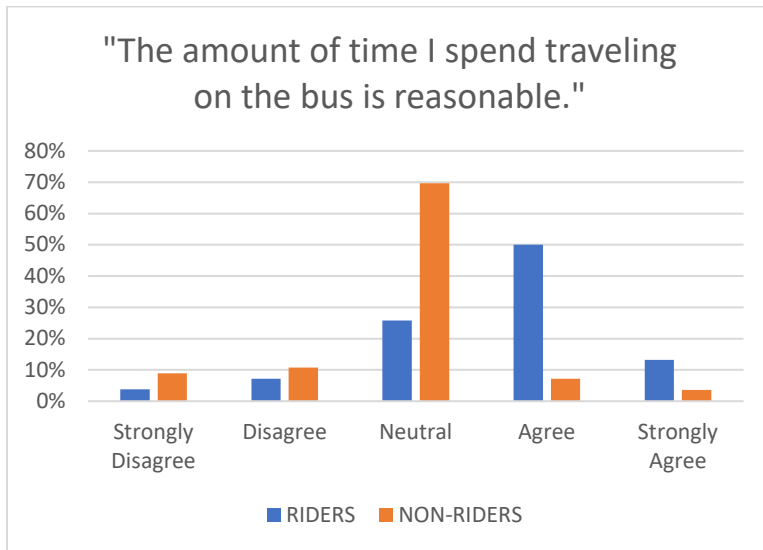


Riders were more likely to consider bus stop locations convenient (63.7% agreed/strongly agreed) while non-riders did not consider locations convenient (42.9% disagreed/strongly disagreed with the statement). A total of 24% do not feel they can easily get from the bus stop to their destination.



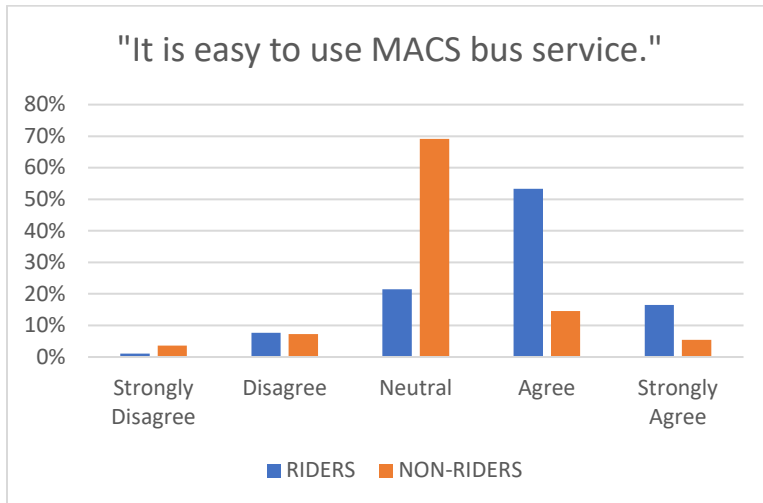
Survey respondents were split on their thoughts about ADA accessibility and general bus stop accessibility. Riders were split between agreeing (36.8%) and disagreeing (35.2%) while non-riders overall disagreed (40.7%). A total of 26% strongly disagreed that bus stops are ADA accessible and usually free of ice and snow.

TRAVEL TIME

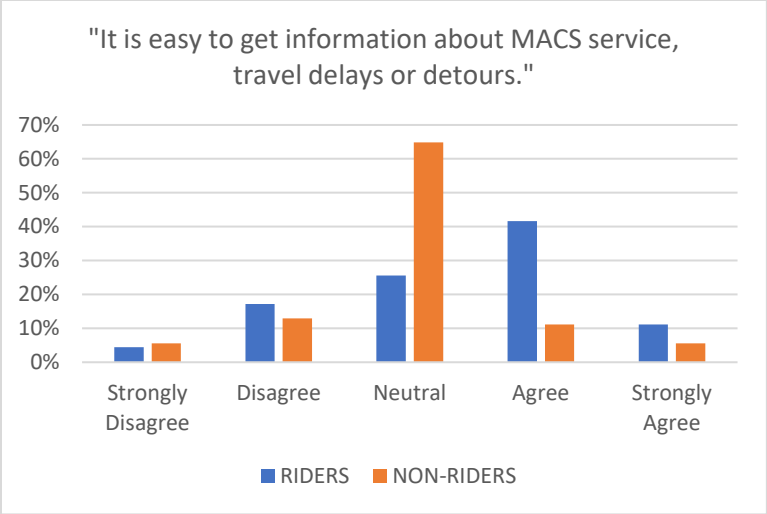


When asked if they felt the amount of time spent traveling on the bus is reasonable 47% agreed or strongly agreed and 12% disagreed or strongly disagreed. Non-riders were mostly neutral (69.6%).

EASE OF USE & INFORMATION

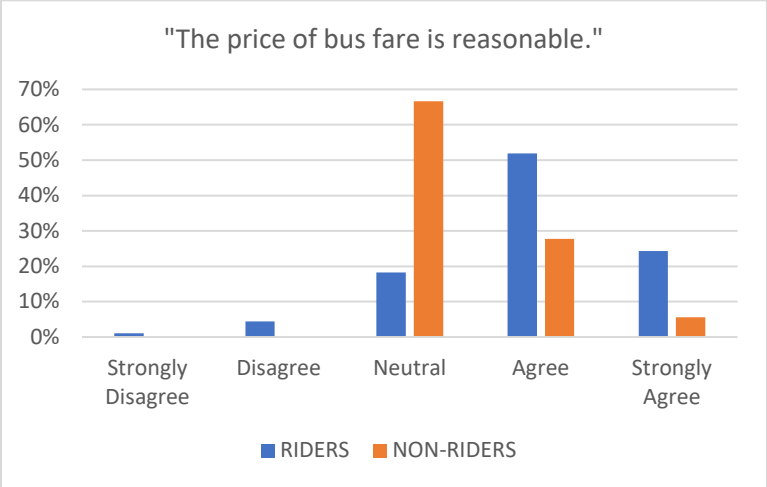


Riders overall agreed (69.8%) that MACS bus service is easy to use. Non-riders were less opinionated, with 69.1% neutral.

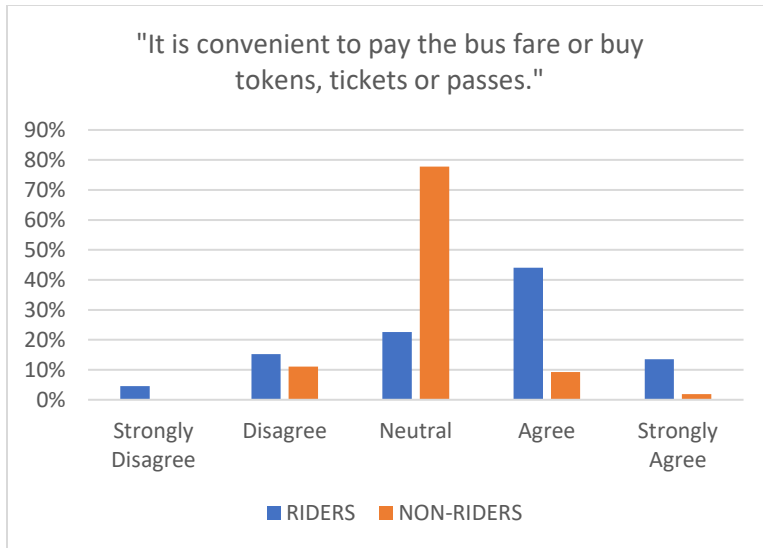


Riders also generally find it easy to get information about MACS service while non-riders were again less opinionated with 64.8% neutral and the remainder split between agreeing and disagreeing.

PRICE



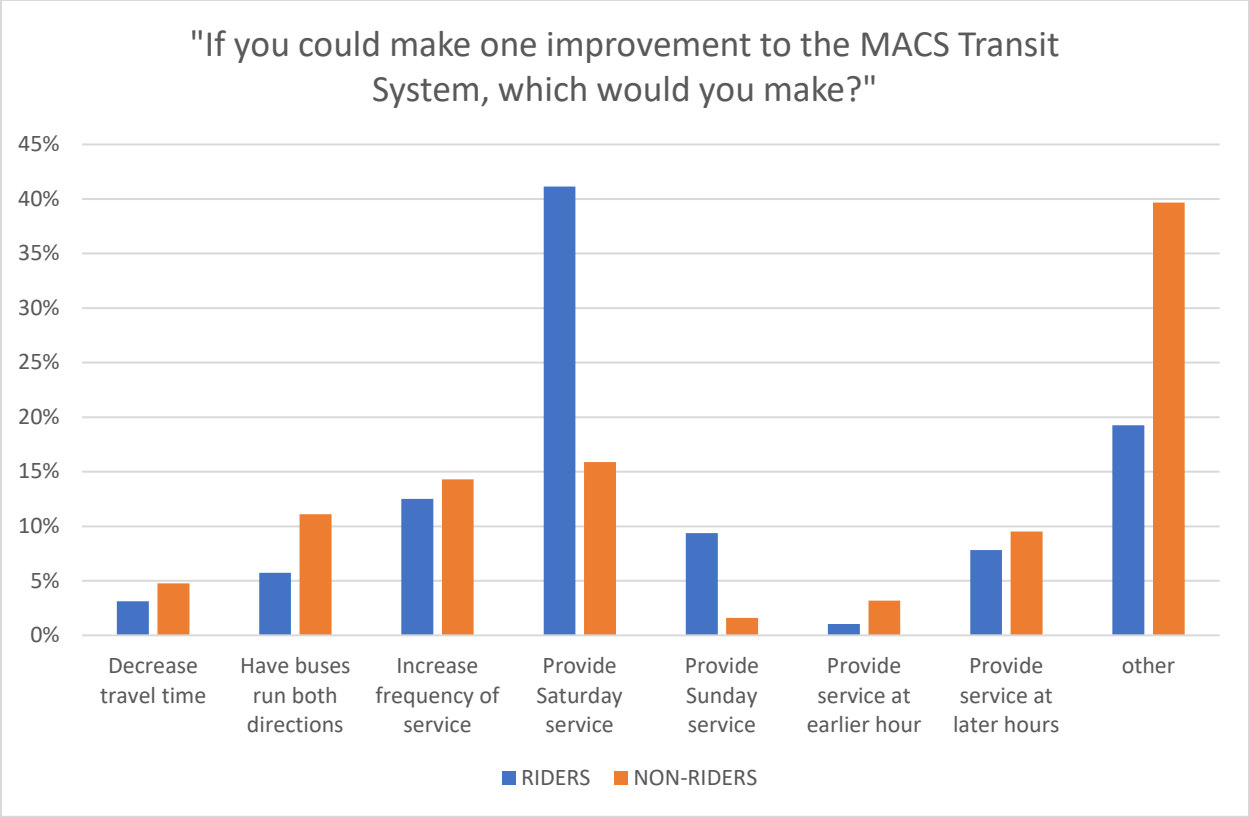
Most of the survey respondents (61%) agreed or strongly agreed that the price of bus fare is reasonable. Only 3.9% of respondents disagreed or strongly disagreed that bus fare is reasonable.



When asked about the convenience of purchasing bus fare, tokens or passes most (42.4%) agreed or strongly agreed. While 32% indicated they were neutral on this question, 15% disagreed or strongly disagreed with this statement. Most non-riders (77.8%) did not have opinions about these forms of payment.

SUGGESTED IMPROVEMENTS

Respondents were asked to suggest improvements to local transit. Adding Saturday service was the most-often recommended change, followed by “other/not-listed” recommendations and increasing frequency of service. Those who selected “other” most frequently suggested expanded coverage, adding weekend service, (both days), adding contactless or alternate payment options, extending service hours, or were unsure or unable to pick a single improvement.



When asked to which route they would apply the one improvement, of the 89 respondents who suggested adding Saturday service, 55.1% recommended Blue line and 53.9% recommended Red line, followed by Green line (24.7%) and Yellow line (20.2%). Respondents who suggested increasing frequency favored Blue line (57.6%) but also indicated a desire to increase frequency on all routes if possible (ranging from 48.5% recommending Red line to 33.3% recommending Orange line).

The survey also asked for suggested improvements in an open response format. 125 respondents provided 162 suggestions which were categorized for analysis. Schedule-related changes, mostly adding weekend service (33 of 43 schedule-related suggestions), were the most-often recommended improvement. Increased and expanded coverage was the next-most-often recommended improvement. Other suggestions that were offered frequently include: adding and improving bus stops, increasing stop frequency, improvements to how fares (purchase and use) are handled, and improvements to communication (e.g. real-time bus tracking software).

DISCUSSION & CONCLUSION

GIVEN LIMITED RESOURCES, HOW AND WHERE SHOULD MACS EXPAND OR IMPROVE?

By analyzing results based on riders and non-riders, we can better approach two similar but distinct questions: *What changes can improve current service? What service changes are more likely to increase ridership?*

Opinions about bus service can highlight areas where Fairbanks transit services can improve and differences between rider and non-rider perspectives. When it comes to current service, however, **riders were generally very positive about the MACS bus system**, agreeing with positive statements about safety, timeliness, frequency, coverage, comfort, and convenience; **those who use on MACS transit can rely on it to get them safely and comfortably where they need to go when they need to be there.**

Without expanding routes or schedules **current service can be improved through technology upgrades and better, safer, and more accessible stops**: Respondents indicated an interest in adding cashless or mobile phone payment options and a desire for better real-time bus tracking. Both riders and non-riders alike expressed concern about winter bus stop conditions regarding accessibility, snow removal, exposure and visibility.

In contrast to riders, non-riders were more neutral and even negative about some aspects of service. Non-riders indicated they thought the bus system is/does:

- NOT frequent enough.
- NOT go where they need to.
- NOT available the days and times needed.
- NOT have stops a convenient distance from destinations.
- NOT have accessible bus stops.

Service Category	Riders	Non-Riders
Stops are safe	Agree	Neutral
Rides are safe	Agree	Agree
Bus is on time	Agree	Neutral
Clean, comfortable, welcoming?	Agree	Neutral
Bus comes often enough	Agree	Disagree
Bus goes where I need it	Agree	Disagree
Available when I need it	Disagree	Disagree
Convenient stop locations	Agree	Disagree
ADA accessible stops	Neutral	Disagree
Bus is on time	Agree	Neutral

Easy to use	Agree	Neutral
Easy to get information	Agree	Neutral
Reasonable price	Agree	Neutral
Convenient to pay	Agree	Neutral
Respectful staff	Agree	Agree

Riders and non-riders alike were critical about the days and time of service and expressed desire for weekend service, preferring Saturday over Sunday if resources are limited. **If or when resources allow, adding Saturday service may have potential for increasing ridership, with Blue and Red lines showing the most promise.**

When asked why they don't use transit, non-riders most frequently cited a lack of coverage farther from the City of Fairbanks core: A lot of people live beyond the geographic scope of Fairbanks transit and it's too far to get to a bus stop and/or easier to use one's own vehicle. **If considering new routes and broader coverage to increase ridership, survey results point to specific areas of Fairbanks (Chena Pump/Chena Ridge Roads, farther extents of Van Horn Road, West Phillips Field Road, and more frequent trips to the Airport), and potential demand for expanded coverage in the Goldstream Valley and in North Pole.**

LIMITED METHODS – WHO ARE WE MISSING?

This survey likely provides less insight into the specific needs and preferences of paratransit users and potential military riders. An important aspect of the survey was to have it open to community members who do not ride the bus to understand what barriers they encounter. While anyone could take the survey, the questions focused on the MACS fixed-route bus service (asking about specific bus lines and opinions related to bus stops) and the onboard intercept surveys took place on the buses. Sampling did not include a specific effort to reach out to users of Van-Tran paratransit service.

Given the relatively large military population in and around Fairbanks, a deeper understanding about the transit needs of those communities may also be warranted. The Black line and Gold line, no longer in service, used to serve military communities at Fort Wainwright Army Post and Eielson Air Force Base. It is unknown whether previous use of Black and Gold lines was displaced to other MACS routes or to other means of transportation altogether. Again, while the online survey was open to anyone, there was not an explicit outreach effort to gather feedback from the military community through this survey. Future or continued efforts to reach out to the military community may better reveal the impacts of ending service on Black and Gold lines and to understand how to serve Fort Wainwright and Eielson.

Fairbanks Transit Plans Update: Staff Survey

Questionnaire for MACS & Van Tran Drivers, Dispatchers & Supervisors



Fairbanks Area Surface Transportation (FAST) Planning and the Fairbanks North Star Borough (FNSB) are partnering to update local transit plans and improve coordination between public transportation and human service providers in the community. FAST wants to know about your experience keeping local MACS and Van Tran services operating all year.

The survey has 12 questions that will ask you about issues you encounter. Your feedback will help the planning team identify system needs and make recommendations. We understand that FNSB staff are not responsible for everything that makes a good transit and transportation system. We rely on many partners from different agencies, organizations, and trades. The final plan will be a resource for all partners and providers. **Survey responses will be kept anonymous.** Questions or comments can be directed to Bryant Wright, R&M Consultants; bwright@rmconsult.com; 907-458-4307

Thank you for your time and thoughtful responses, and for keeping our town moving!

You can also *take this survey online (preferred)* at: <https://forms.gle/PKFo35i3d8UqJNUj9>

* *Indicates required question*

About You

- 1) *How long have you been a professional driver? (Select one)
 - a. Less than 5 years
 - b. 5-9 years
 - c. 10-19 years
 - d. 20 or more years



[Scan for Online Survey]

- 2) OPTIONAL: Tell us ONE thing you wish the community knew (passengers, public, drivers, Borough Assembly, etc.) about MACS and Van Tran service or operations?

Fairbanks Transit Plans Update: Staff Survey

Routes & Stops

3) *Are there any stops on your route (or any existing route that you have driven) that you feel are difficult to serve?

- a. Yes
- b. No

● If “Yes,” Please list the route(s) and/or stop location(s):

● What makes this situation challenging? If you recommend changes, suggest them here.

Maintenance for Roads & Bus Stops

4) *Drivers: During inclement winter weather, which of these issues is most challenging to you? Please select your TOP THREE (where 1=first choice, 2=second choice, 3=third choice).

- a. ___ Delays during road maintenance.
- b. ___ Delays due to poor road conditions.
- c. ___ Bus stops blocked by snow and ice.
- d. ___ Vehicle problems (heaters, doors, wipers, etc.).
- e. ___ Getting information about weather and road conditions.
- f. ___ Poor visibility, or hard to see bus riders at their stops (icy shelter windows).
- g. ___ Extra pre/post-trip duties.
- h. ___ Unpredictable drivers & traffic.
- i. ___ Other: _____

●OPTIONAL: Please explain your answer to the question above about your winter maintenance challenges.

Fairbanks Transit Plans Update: Staff Survey

Operations

5) *In Summer (or snow-free seasons): How often do you feel challenged to arrive on time at timed stops? Select one:

- a. Multiple times per day
- b. Once per day
- c. Weekly
- d. Monthly
- e. Rarely
- f. Never

• OPTIONAL: Please explain your answer: Tell us which Summer route(s) and time(s) of day, if applicable. What is the challenge and do you have a solution?

6) *In Winter (or snowy seasons): How often do you feel challenged to arrive on time at timed stops? Select one:

- a. Many times per day
- b. Once per day
- c. Weekly
- d. Monthly
- e. Rarely
- f. Never

• OPTIONAL: Please explain your answer: Tell us which Winter route(s) and time(s) of day, if applicable. What is the challenge and do you have a solution?

Fairbanks Transit Plans Update: Staff Survey

- 7) *This Transit Plan Update can suggest areas for MACS, Van Tran and other agencies to prioritize when making improvements. In your opinion, which area, if improved, would make the greatest impact on your organization's ability to provide quality service to your riders?

Please select your TOP THREE (where 1=first choice, 2=second choice, 3=third choice).

- a) ___ Routing
- b) ___ Policies
- c) ___ Stop locations or conditions
- d) ___ Street maintenance
- e) ___ Communications and information sharing
- f) ___ Schedules
- g) ___ Fleet and equipment maintenance
- h) ___ Hiring and retaining staff
- i) ___ Security
- j) ___ Facilities (stops, transit center, bus storage, maintenance garage, etc.)
- k) ___ Other: _____

Staffing

- 8) *Staff shortages can impact a community's ability to provide transit for those in need. What suggestions do you have to recruit and retain drivers?

Fairbanks Transit Plans Update: Staff Survey

Equipment

- 9) *Available technologies can improve and ease operations. Which of the following technologies would you like to see to make your tracking, scheduling, onboarding, or reporting better and/or easier? (Select all that apply)
- Mobile phone payment options or automatic fare.
 - Better vehicle Mobile Data Terminals (like the RouteMatch screen device).
 - Better information for passengers (e.g. maps of routes, times, connection schedule) through digital signage, mobile applications, push notifications, etc. This could cover frequently asked questions.
 - Something to indicate to drivers and dispatch that a passenger is at a bus stop (for example a blinking light at a stop, or a GPS-based indicator on a digital map).
 - Better automatic passenger counters onboard the busses.
 - Better or upgraded hardware/software for collecting and reporting information about passengers and vehicles (Like a different version of Routematch).
 - NONE OF THE ABOVE.
 - Other: _____

Riders

- 10) *Based on your experience and interactions with riders, if you could improve ONE aspect of MACS operations or service for riders, what would it be? (Select one)
- a) Expand route(s) to cover other road(s) or area(s)
 - b) Reduce time between bus arrivals at stops
 - c) Expand service hours (earlier or later)
 - d) Expand service days (e.g. add weekends)
 - e) Make bus stops more accessible
 - f) Have better busses
 - g) Have better facilities for riders (transit center, bus stops, pedestrian paths, etc.)
 - h) Increase security on busses and/or at transit facilities
 - i) Other: _____

Fairbanks Transit Plans Update: Staff Survey

- OPTIONAL: Please explain your selection. Are there any specific route(s) or stop(s) to which you would you apply the improvement? If you have other ideas to improve rider experience on your route, please explain.

Policies

- 11) Considering factors such as time, equipment, and staff, how would you rate the resources available to you for the following (Check one box in each row):

	Insufficient time/resources	Adequate time/resources	More than enough time/resources	Not Applicable
Pre-trip duties				
Post-trip duties				
Technology time				
Training to handle difficult riders or dangerous situations				
Security to handle difficult riders or dangerous situations				
Training to operate equipment for which I am responsible				
Time to converse and share experiences with other drivers; mentoring or shared learning time				

Fairbanks Transit Plans Update: Staff Survey

Conclusion

12) Are there any other suggestions, challenges, or insights you would like to mention about how to improve MACS and Van Tran service and operations?

Thank you for your time and thoughtful responses, and for keeping our town moving!





2023 Transit Plans Update

Fairbanks North Star Borough

DRAFT STAFF PERSPECTIVES STUDY REPORT

Prepared for:



FAST Planning

Prepared by:



R&M Consultants, Inc.

IN COOPERATION WITH
Alta Planning + Design, Inc.

February 2024

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INTRODUCTION & STUDY PURPOSE

The Fairbanks North Star Borough (FNSB) partnered with Fairbanks Area Surface Transportation (FAST) Planning and the Alaska Department of Transportation & Public Facilities (DOT&PF) to update the Short- and Long-Range Transit Plan and the Coordinated Human Services Transportation Plan (CHSTP). This singular planning effort is accordingly referred to as the “Transit Plans Update.”

As a part of this planning process FAST Planning and R&M Consultants conducted a Staff Survey for drivers, dispatchers, 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.

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.

METHODS

Two efforts studied staff needs and experiences: A survey for drivers, dispatchers, and supervisors (Driver Survey); and a group interview with maintenance shop staff and supervisors. The study period took place from January 8-22, 2024. The Driver Survey could be taken online, and paper copies were available at two transportation facilities.

DRIVER SURVEYS

The online survey was developed using Google Forms and a link was shared with staff. The survey was open for the entire survey period between January 8-22, 2024. MACS Staff were invited to take the survey via an email from their director on January 8. Participation was optional. Surveys could be completed using the online form or handwritten on paper surveys provided at the transportation building driver’s locker room and at the downtown

transit center break room. Flyers were placed in each driver's mailbox to notify them of the survey purpose, link, schedule, and instructions.

Survey Content

Twelve multiple-choice, ranked choice, and open-response questions gathered information about:

- Routes and bus stops;
- Maintenance for roads and bus stops;
- Operations;
- Staffing;
- Equipment;
- Riders;
- Policies.

MAINTENANCE STAFF INTERVIEWS

Project team members also conducted a group interview with FNSB Transportation Department maintenance staff. It was determined that a group interview would gain higher participation and provide an opportunity for staff to identify and explain the issues they encounter. The group interview took place January 11 from 10:30am-12:00pm and included all available shop staff and supervisors (a total of ten staff). Two planning team members asked guiding questions to encourage conversation and understand day-to-day challenges, systemic issues, and troubleshoot solutions. Planners kept notes and recorded an audio file of the conversation.

RESULTS

DRIVER SURVEY

From roughly 30 drivers, dispatch, and supervisory staff, seven survey responses were returned. Among them, three (3) have worked in the profession less than 5 years, two (2) have worked between 10-19 years, and two (2) have worked in the profession 20 or more years.

What we wish the community knew

"...That we are doing the best we can with what we have to work with" was a shared sentiment among respondents.

Difficult Stops

Drivers were asked about stops that were especially challenging.

Route	Location	Respondent challenges and recommendations
Grey	Farmer's Loop	Bus stops right after curves in the road have poor visibility, making it easy to miss waiting passengers. These are dangerous locations to pull over and stop due to visibility and 50mph speed limit.
Yellow	Fairbanks International Airport	The route timing provides poor service to the airport. Bus service rarely coincides with popular arrival and departure times.
Green		Two stops on a curve have poor visibility. The respondent recommends a warning light or occupancy indicator so the bus driver knows from a distance to slow down to pick up a passenger waiting at the stop.
Green	Topaz Ave. & Badger Road	Bus stops are often blocked by snow and ice

Weather Challenges

The survey asked which of eleven winter weather-related challenges cause the most problems. Respondents indicated that vehicle problems (heaters, doors, wipers, etc.), delays due to poor road conditions, unpredictable drivers and traffic, and poor visibility (including being able to see riders at stops) posed the greatest challenges. When asked to elaborate, drivers provided the following detail and recommendations:

- The vehicle fleet is old and experiences more problems in winter. One driver recommended having a board in the maintenance room for vehicle problem write-ups rather than re-writing the same persistent problems daily.
- Keeping bus stops clear of snow and ice (and not plowing it into the bus lane) will help riders stand in the appropriate spot and be visible.
- Dispatchers and schedulers should take road conditions into consideration so that timetables are feasible in poor weather.

Seasonal Timing Challenges

Drivers reported rarely having trouble keeping up with timed stop schedules in the summer, but **frequently (“many times per day”) are challenged to make timed stops many times per day in the winter.** The Purple and Brown routes were noted as especially challenging for meeting timelines and signal timing was cited as a possible reason.

Priority Improvements

When asked what among a list of ten improvements would make the greatest impact to operations, drivers prioritized (in order): **1. hiring and retaining staff, 2. fleet and equipment maintenance, 3. routing, 4. communications and information sharing, and 5. scheduling.**

Staff Recruitment and Retention

Recent reductions in service have been attributed in part to a lack of drivers. Staff were asked their recommendations for recruiting and retaining enough employees to service routes, and offered the following:

- Provide good compensation, hiring bonuses, and CDL training;
- Pay respect to seasoned drivers;
- Take care to not overwork drivers to avoid “burnout;”
- Evaluate and improve scheduling between routes, such as inconsistent lunch break times and unbalanced split shifts;
- Make driver schedules more attractive by offering a wider variety (e.g. shorter part-time shifts and longer full-time shifts);
- Encourage and support van drivers to get CDLs so they can help with bus routes.

Available Technology

Drivers were offered six types of technological upgrades to consider. They recommended (in order) mobile phone payment options or automatic fare, an occupancy indicator at bus stops, and better mobile data terminals.

RIDER EXPERIENCE

When asked how to best improve rider’s experience, drivers prioritized the following: **increasing security on buses and/or at transit facilities; expanding routes** to cover other roads or areas; and having **newer buses**.

Resources

Drivers were asked if they have adequate support or resources to perform their duties. Respondents mostly indicated adequate resources. However, they indicated that they have inadequate resources and support **when it comes to having training and security to handle difficult riders or dangerous situations**. Three respondents also indicated not having enough time or support to engage in peer learning and mentorship.

Suggestions

Respondents offered several suggestions to address identified issues or otherwise improve operations and rider experience:

- Show appreciation for long-term employees;
- Install a secure enclosure around the cockpit to protect drivers from dangerous passengers;
- Realign Red and Blue routes so more area is served;
- Evaluate and overhaul routes to eliminate unnecessary redundancy and wasted time. For example, review overlaps such as Orange, Red and Purple lines;
- Install thick door skirts at wheelchair ramps on vans and busses to keep heat in;

- Provide a wheeled grocery cart that can be taken on and off the bus for elderly and mobility-challenged riders;
- Install seats or benches at stops.

MAINTENANCE STAFF INTERVIEW

Group interviews identified a handful of key problems that affect operations, service and efficiency: **old fleet; insufficient and poorly designed indoor space; and overstretched staff.**

Large and diverse fleet management

The maintenance staff is made up of a Shop Lead, Heavy Duty Mechanics, Light Duty Mechanics, Mechanic Helper, Bus Stop Maintenance/Groundskeeper, and a Shop Administrator. This team cares for the entire vehicle fleet owned by the FNSB, including MACS buses, VanTran vans, Emergency Operations vehicles, all other department vehicles (cars and trucks used by Animal Control, Parks & Recreation, Public Works, Assessors, Air Quality, etc.).

Staff capacity

Staff capacity to care for transit vehicles is limited because they are responsible for the entire FNSB Transportation fleet. If transit vehicles are prioritized, staff believe they can keep the fleet in service. However, labor and space often must go to other vehicles, even if transit is the priority. For example, instances of having to finish servicing a non-transit vehicle because it occupies a lift or shop space needed to repair a transit vehicle. Staff acknowledged they are often one staff injury, illness, or vacation away from being short-handed. Staff often work overtime to cover transit repairs. Often vehicles are sent out with only the minimum repair and service to avoid having to cancel routes. Despite a clear dedication to ensuring the community has rides when needed, the combination of limited staff and an old fleet create frequent and unnecessary situations of barely keeping the wheels on the road.

Fleet age

Most of the MACS fleet has surpassed its serviceable life. For example, diesel buses have a serviceable lifespan of 250K miles and multiple buses have now exceeded 750K miles. At this age, preventive maintenance schedules lose meaning and inordinate amounts of maintenance must go to part replacements and major service rather than routine maintenance. A newer fleet is expected to arrive in 2024 funded through the FNSB's Capital Improvement Program project. New buses will reduce the time and unpredictability associated with repairing old equipment and allow staff to reliably follow a preventive maintenance schedule.

Environmental factors

The winter climate causes two major challenges: the need for extra time and indoor space to warm engines and the corrosive impact of salt brine from road maintenance. Vehicles need to be warmed up before service in the winter. Without adequate indoor space, staff spend a significant amount of time warming, rearranging, and parallel parking multiple buses to be able to service just one. Second, salt brine causes significant damage to many vehicles' parts. In addition to rust and seized and broken fasteners, dried salt dust makes its way up into the bus cabin via ventilation systems and foot traffic, causing early and unusual corrosion of electrical parts.

Space

Limited working space reduces how much an already limited staff can accomplish. Staff have less ability to adjust priorities when non-transit vehicles take up lift space and mechanic time. Much of mechanics' time is spent warming and rearranging vehicles due to limited indoor space and a layout not designed for servicing a fleet of buses. Aside from square footage and layout, one lacking feature is a more efficient undercarriage wash to help address the corrosion from salt brine.

Parts & organization

Restocking takes time, especially when parts (and their names and part numbers) continuously change and vary from one supplier to another or are superseded by the manufacturer. This adds time to every single maintenance task. A barcode system could help index the whole supply and simplify many steps such as filing, retrieval, sourcing, ordering, and restocking. There is no dedicated staff for managing parts, which was acknowledged as simultaneously a weakness and a point of flexibility. Mechanics spend a lot of time tracking down parts and would appreciate assistance, but at the same time appreciate not having to wait on another staff member. Each maintenance staff member cultivates their own relationship with local suppliers which has created an efficient, albeit fragile system.

Specific Equipment

RouteMatch software has been challenging to work with and the Automatic Passenger Counters (APCs) break down regularly. Staff stressed that among their mechanical duties, they are also responsible for maintaining hardware associated with the technological upgrades installed in the buses. While there are technological upgrades that can outfit each bus and improve passenger information and operations, the cost associated with maintenance staff having to learn, train, and maintain any new systems must be accounted for.

Software & servicing

Staff identified bottlenecks when a vehicle component requires dealer-level access to firmware to be serviced. Even when staff can get access, it can be cost prohibitive. Staff are at the mercy of verified Service Centers or out-of-town vendors and must retain positive relationships to get responsive customer service. Repairs are slowed by lack of access to firmware and miscommunications or internal policies within FNSB. For example, IT security measures such as automatic screen locks interrupt and abandon hours-long firmware update processes.

Training

Training largely happens on the job on a problem-by-problem basis as employees troubleshoot. Preplanned training is appreciated but is impractical except for when new technology or equipment is introduced. For example, staff will take dedicated time to receive formal training on the new fleet, as the FNSB adopts Gillig's compressed natural gas buses.

Relocation & new fleet

Relocating to a new, purpose-built facility will alleviate major issues with space and weather. New buses promise to drastically reduce maintenance hours and ultimately improve transit service. But the changes come at a cost. Relocating the current shop, including all the tools, parts, and equipment, will take a significant amount of time and effort from an already overstretched staff. New CNG buses will present a learning curve and require formal training outside of Alaska, taking time away from regular maintenance duties. While all staff expressed support for these changes, they acknowledged that the transition will be challenging.

Stop maintenance

One staff member is dedicated to maintaining bus stops and signs. Staff identified issues: locations where signs are frequently run over; limits to the scope of their maintenance authority (e.g. not doing any structural work without an engineer); and problems with specific equipment (e.g. challenges replacing bus stop glass and plexiglass).

DISCUSSION & CONCLUSION

STAFF CAPACITY

Transit service is limited by the capacity of both operations (drivers, dispatch, and supervisors) and maintenance staff. Service expansions requested by riders, such as additional routes and days and extended hours, are not possible without more drivers. Investments in driver recruitment and retention are an essential step in meeting riders' needs. Maintenance staff are stretched thin with responsibility for the entire FNSB transit and transportation fleet. This situation is made worse by unpredictable repair needs and

limited space in which to work. To reliably maintain current levels of service, especially with current staff levels, a new transportation facility and new CNG buses are necessary. These changes will maximize current staff levels and reduce the need to add personnel until the fleet grows.

OLD FLEET & TRANSPORTATION BUILDING

Both drivers and mechanics struggle with the age of the current fleet. Repairs are more difficult due to insufficient and inefficient maintenance space. New buses and a purpose-built transportation building promise to alleviate many of these issues. Some problems will persist. Staff shortages will still limit how many buses can be in service, corrosion from salt brine will affect new and old buses alike, a system of organizing and managing parts will be necessary and lack of access to component firmware may still slow maintenance service. The transition to a fresh space and fleet may be a productive time to evaluate old organizational systems and develop more effective systems.

NEW TECHNOLOGY

Drivers are agreeable to new technology such as mobile or cashless payment options and mobile data terminals. Both drivers and maintenance staff support changing from RouteMatch technology. The transition to any new technology must include adequate and dedicated time and resources for formal training of all staff.

SECURITY

Onboard security from dangerous or unruly passengers is a primary driver concern. Drivers indicate they do not feel adequately trained or supported to handle this issue. Regular and focused training on this subject and protecting the driver's cockpit will help protect drivers and other passengers and may improve recruiting efforts.

STOP CONDITIONS AND SAFETY

Several drivers expressed concern for passengers' safety in the winter. Passengers cross busy icy streets in the dark, hike over snow and ice berms to wait at bus stops, are exposed to the extreme cold, and sometimes are barely visible at a stop due to darkness, rider position, or fogged windows on the bus stop shelter. Given that one transportation staff member is tasked with maintaining stops, winter maintenance protocol and capacity should be evaluated to ensure sufficient resources are available to keep stops available during inclement weather.

STUDY LIMITATIONS

Drivers mentioned the survey targeted bus drivers and not Van-Tran drivers. Efforts to better understand the first-hand experience of Van-Tran drivers and riders should be incorporated into the planning effort.

Fairbanks Transit Plans Update: Staff Survey

Questionnaire for MACS & Van Tran Drivers, Dispatchers & Supervisors



Fairbanks Area Surface Transportation (FAST) Planning and the Fairbanks North Star Borough (FNSB) are partnering to update local transit plans and improve coordination between public transportation and human service providers in the community. FAST wants to know about your experience keeping local MACS and Van Tran services operating all year.

The survey has 12 questions that will ask you about issues you encounter. Your feedback will help the planning team identify system needs and make recommendations. We understand that FNSB staff are not responsible for everything that makes a good transit and transportation system. We rely on many partners from different agencies, organizations, and trades. The final plan will be a resource for all partners and providers. **Survey responses will be kept anonymous.** Questions or comments can be directed to Bryant Wright, R&M Consultants; bwright@rmconsult.com; 907-458-4307

Thank you for your time and thoughtful responses, and for keeping our town moving!

You can also *take this survey online (preferred)* at: <https://forms.gle/PKFo35i3d8UqJNUj9>

* *Indicates required question*

About You

- 1) *How long have you been a professional driver? (Select one)
 - a. Less than 5 years
 - b. 5-9 years
 - c. 10-19 years
 - d. 20 or more years

- 2) OPTIONAL: Tell us ONE thing you wish the community knew (passengers, public, drivers, Borough Assembly, etc.) about MACS and Van Tran service or operations?



[Scan for Online Survey]

Fairbanks Transit Plans Update: Staff Survey

Routes & Stops

3) *Are there any stops on your route (or any existing route that you have driven) that you feel are difficult to serve?

- a. Yes
- b. No

● If “Yes,” Please list the route(s) and/or stop location(s):

● What makes this situation challenging? If you recommend changes, suggest them here.

Maintenance for Roads & Bus Stops

4) *Drivers: During inclement winter weather, which of these issues is most challenging to you? Please select your TOP THREE (where 1=first choice, 2=second choice, 3=third choice).

- a. ___ Delays during road maintenance.
- b. ___ Delays due to poor road conditions.
- c. ___ Bus stops blocked by snow and ice.
- d. ___ Vehicle problems (heaters, doors, wipers, etc.).
- e. ___ Getting information about weather and road conditions.
- f. ___ Poor visibility, or hard to see bus riders at their stops (icy shelter windows).
- g. ___ Extra pre/post-trip duties.
- h. ___ Unpredictable drivers & traffic.
- i. ___ Other: _____

●OPTIONAL: Please explain your answer to the question above about your winter maintenance challenges.

Fairbanks Transit Plans Update: Staff Survey

Operations

5) *In Summer (or snow-free seasons): How often do you feel challenged to arrive on time at timed stops? Select one:

- a. Multiple times per day
- b. Once per day
- c. Weekly
- d. Monthly
- e. Rarely
- f. Never

• OPTIONAL: Please explain your answer: Tell us which Summer route(s) and time(s) of day, if applicable. What is the challenge and do you have a solution?

6) *In Winter (or snowy seasons): How often do you feel challenged to arrive on time at timed stops? Select one:

- a. Many times per day
- b. Once per day
- c. Weekly
- d. Monthly
- e. Rarely
- f. Never

• OPTIONAL: Please explain your answer: Tell us which Winter route(s) and time(s) of day, if applicable. What is the challenge and do you have a solution?

Fairbanks Transit Plans Update: Staff Survey

- 7) *This Transit Plan Update can suggest areas for MACS, Van Tran and other agencies to prioritize when making improvements. In your opinion, which area, if improved, would make the greatest impact on your organization's ability to provide quality service to your riders?

Please select your TOP THREE (where 1=first choice, 2=second choice, 3=third choice).

- a) ___ Routing
- b) ___ Policies
- c) ___ Stop locations or conditions
- d) ___ Street maintenance
- e) ___ Communications and information sharing
- f) ___ Schedules
- g) ___ Fleet and equipment maintenance
- h) ___ Hiring and retaining staff
- i) ___ Security
- j) ___ Facilities (stops, transit center, bus storage, maintenance garage, etc.)
- k) ___ Other: _____

Staffing

- 8) *Staff shortages can impact a community's ability to provide transit for those in need. What suggestions do you have to recruit and retain drivers?

Fairbanks Transit Plans Update: Staff Survey

Equipment

- 9) *Available technologies can improve and ease operations. Which of the following technologies would you like to see to make your tracking, scheduling, onboarding, or reporting better and/or easier? (Select all that apply)
- Mobile phone payment options or automatic fare.
 - Better vehicle Mobile Data Terminals (like the RouteMatch screen device).
 - Better information for passengers (e.g. maps of routes, times, connection schedule) through digital signage, mobile applications, push notifications, etc. This could cover frequently asked questions.
 - Something to indicate to drivers and dispatch that a passenger is at a bus stop (for example a blinking light at a stop, or a GPS-based indicator on a digital map).
 - Better automatic passenger counters onboard the busses.
 - Better or upgraded hardware/software for collecting and reporting information about passengers and vehicles (Like a different version of Routematch).
 - NONE OF THE ABOVE.
 - Other: _____

Riders

- 10) *Based on your experience and interactions with riders, if you could improve ONE aspect of MACS operations or service for riders, what would it be? (Select one)
- a) Expand route(s) to cover other road(s) or area(s)
 - b) Reduce time between bus arrivals at stops
 - c) Expand service hours (earlier or later)
 - d) Expand service days (e.g. add weekends)
 - e) Make bus stops more accessible
 - f) Have better busses
 - g) Have better facilities for riders (transit center, bus stops, pedestrian paths, etc.)
 - h) Increase security on busses and/or at transit facilities
 - i) Other: _____

Fairbanks Transit Plans Update: Staff Survey

- OPTIONAL: Please explain your selection. Are there any specific route(s) or stop(s) to which you would you apply the improvement? If you have other ideas to improve rider experience on your route, please explain.

Policies

- 11) Considering factors such as time, equipment, and staff, how would you rate the resources available to you for the following (Check one box in each row):

	Insufficient time/resources	Adequate time/resources	More than enough time/resources	Not Applicable
Pre-trip duties				
Post-trip duties				
Technology time				
Training to handle difficult riders or dangerous situations				
Security to handle difficult riders or dangerous situations				
Training to operate equipment for which I am responsible				
Time to converse and share experiences with other drivers; mentoring or shared learning time				

Fairbanks Transit Plans Update: Staff Survey

Conclusion

12) Are there any other suggestions, challenges, or insights you would like to mention about how to improve MACS and Van Tran service and operations?

Thank you for your time and thoughtful responses, and for keeping our town moving!

