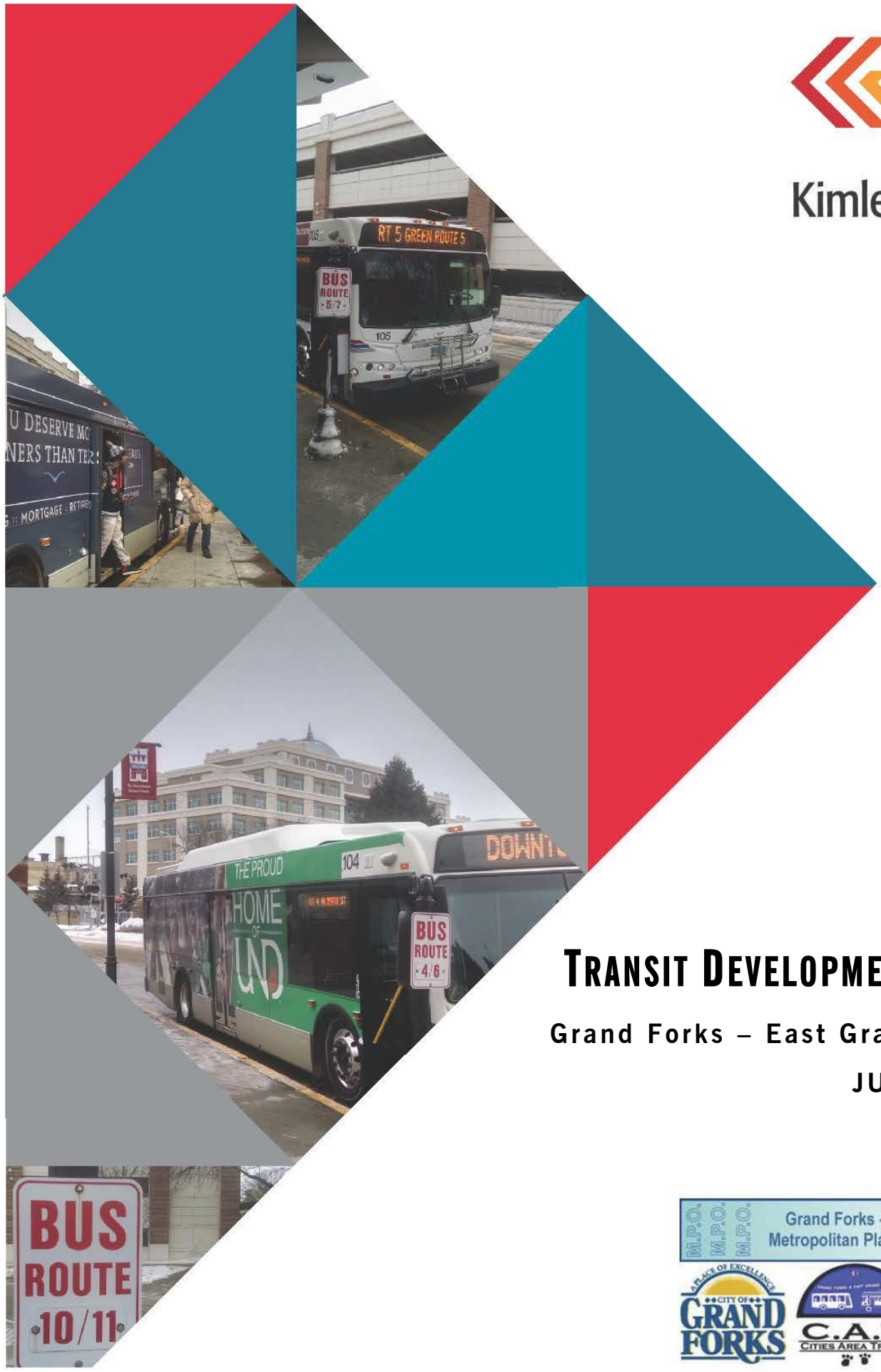

KLJ

Kimley»Horn

TRANSIT DEVELOPMENT PLAN

Grand Forks – East Grand Forks

JULY, 2017

M.P.O. M.P.O. M.P.O. Grand Forks - East Grand Forks Metropolitan Planning Organization

A PLACE OF EXCELLENCE CITY OF GRAND FORKS

C.A.T. CITIES AREA TRANSIT

The preparation of this document was partially financed by FHWA/FTA Planning funds through the North Dakota Department of Transportation and Minnesota Department of Transportation. The opinion, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the MPO, NDDOT, MnDOT, or the FHWA/FTA.

ORDINANCE NO. **4620**

AN ORDINANCE AMENDING THE COMPREHENSIVE PLAN, AMENDING CHAPTER XVIII, ARTICLE 8, COMPREHENSIVE PLAN; SECTION 18-0802, ELEMENTS OF THE GRAND FORKS CITY CODE OF 1987, AS AMENDED, PERTAINING TO THE GRAND FORKS-EAST GRAND FORKS 2040 TRANSPORTATION PLAN UPDATE.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF GRAND FORKS, NORTH DAKOTA, THAT:

Section 1. Amending Clause

Section 18-0802 (1) is hereby amended as follows:

(C) The Grand Forks-East Grand Forks 2040 Long Range Transportation Plan Update, which contains the following sections.

1. 20*17* ~~13~~ Alternative Transportation Modes Element, together with all maps, information and data contained therein; with the exception that the following not be declared a part of the comprehensive plan:
   A. Fare Structure for transit
   B. Vehicle Types for transit
   C. Bus Routes

Section 2. Effective Date

This ordinance shall be in full force and effect after its passage and approval as provided by law.

Michael R. Brown, Mayor

ATTEST:

Maureen Storstad, City Auditor

Introduction and first reading: May 15, 2017
Public Hearing: June 19, 2017
Second reading and final passage: June 19, 2017
Approved: June 19, 2017
Published: Not required by law.
Recorded:

A RESOLUTION UPDATING THE GRAND FORKS MASTER PLAN FOR THE CITY OF GRAND FORKS, NORTH DAKOTA, AND PROVIDING FOR THE AMENDMENT THEREOF, PURSUANT TO CHAPTER 40-48, NORTH DAKOTA CENTURY CODE, AND FOR THE REPEAL OF ALL SECTION CONFLICT HEREWITHIN.

WHEREAS, the governing body of the City of Grand Forks has created a Planning & Zoning Commission in accordance with state law, and

WHEREAS, Chapter 40-48, North Dakota Century Code, empowers the Planning & Zoning Commission to make and adopt an official Master Plan and to provide for its administration, enforcement, and amendment thereof, and

WHEREAS, the Grand Forks Year 2040 Transportation Plan Update was made with the general purpose of providing a program for the orderly growth of the City of Grand Forks and its environs in the future, which in accordance with present and future needs will provide amenities of life, health, safety, morals, order, convenience, prosperity, and general welfare, and

WHEREAS, the existing Alternative Modes element of the Grand Forks Master Plan is due for update which is planned to occur every five years, and

WHEREAS, the Grand Forks City Planning & Zoning Commission has given due public notice of the hearing related to amending the Alternative Modes element of the Master Plan, and

WHEREAS, all requirements of Chapter 40-48, North Dakota Century Code, with regard to the preparation of the plan have been adhered to and met:

NOW, THEREFORE, BE IT ORDAINED BY THE GRAND FORKS CITY PLANNING & ZONING COMMISSION OF GRAND FORKS, NORTH DAKOTA, THAT WE DO ADOPT THE 2017 ALTERNATIVE TRANSPORTATION MODES ELEMENT OF THE GRAND FORKS – EAST GRAND FORKS 2040 LONG RANGE TRANSPORTATION PLAN AS AN AMENDMENT TO THE GRAND FORKS MASTER PLAN.

Dated this 25th day of July 2017

Alex Reichert
Secretary, Grand Forks Planning Commission

Steve Wasvick
President, Grand Forks Planning Commission

RESOLUTION NO. 17 – 06 - 38

Council member DeMers, supported by Council member Vetter, introduced the following resolution and moved its adoption:

WHEREAS, the city of East Grand Forks has an adopted East Grand Forks Comprehensive Plan; and

WHEREAS, the proposed plan update is in general agreement with the other elements of the East Grand Forks Comprehensive Plan, those other elements being the following:

1. The Grand Forks – East Grand Forks River Forks Plan Element, together with all Maps, information and data contained therein.
2. The Grand Forks – East Grand Forks 2040 Long Range Transportation Plan Update, which contains the following sections:
    a. Bikeway Element, together with all Maps, information and data contained therein.
    b. Pedestrian Element, together with all Maps, information and data contained therein.
    c. Transit Element, together with all Maps, information and data contained therein.
    d. Street and Highway Element, together with all Maps, information and data contained therein.
    e. Intelligent Transportation Systems (ITS) Strategy Element, together with all Maps, information and data contained therein.
3. The 2000 Urban Design Plan, together with all Maps, information and data contained therein.
4. Greenway Plan Element, together with all Maps, information and data contained therein.
5. The 2045 Land Use Plan, together with all Maps, information and data contained therein.

And

WHEREAS, The Grand Forks – East Grand Forks Metropolitan Planning Organization IS preparing a 2017 Transit Development Plan Update Element to the East Grand Forks Comprehensive Plan; and

WHEREAS, 2017 Transit Development Plan Element of the East Grand Forks Comprehensive Plan is a guide for future growth for the downtowns of the Cities of Grand Forks and East Grand Forks; and

WHEREAS, the 2017 Transit Development Plan Update may be amended to reflect changes to the community; and

WHEREAS, the Transit Development Plan Update is a representation of the goals and values of the city; and

WHEREAS, the City Planning and Zoning Commission further held a public meeting on **May 25, 2017** to get input from the citizens of the community; and

WHEREAS, the East Grand Forks Planning and Zoning Commission forwards a recommendation that the 2017 Transit Development Plan Update to the East Grand Forks Comprehensive Plan, be hereby approved and adopted; now therefore

BE IT RESOLVED, By the City Council of the City of East Grand Forks, Minnesota, that the 2017 Transit Development Plan Update to the East Grand Forks Comprehensive Plan, and proposed amendments, be hereby approved and adopted with any further amendments as stated:

Voting Aye: *Grassel, DeMers, Vetter, Pokrzywinski, Riopelle, Tweten, and Olstad.*
Voting Nay: *None.*
Absent: *None.*

The President declared the resolution passed.

Passed: June 6, 2017

Attest:

City Administrator/Clerk-Treasurer

President of Council

I hereby approve the foregoing resolution this 6th day of June, 2017.

Mayor

A RESOLUTION ADOPTING THE YEAR 2045 TRANSIT DEVELOMENT ELEMENT of the LONG RANGE TRANSPORTATION PLAN FOR THE GRAND FORKS – EAST GRAND FORKS METROPOLITAN AREA

WHEREAS, the U.S. Department of Transportation requires the development of a Long Range Transportation Plan by a Metropolitan Planning Organization for each urbanized area and area expected to have growth over a twenty year period; and

WHEREAS, the Grand Forks – East Grand Forks Metropolitan Planning Organization (MPO) has been designated as the policy body with responsibility for performing transportation planning in the Grand Forks – East Grand Forks Metropolitan Area; and

WHEREAS, the MPO is designated by the Governors of North Dakota and Minnesota as the body responsible for making transportation planning decisions in the Grand Forks – East Grand Forks Metropolitan Area; and

WHEREAS, the existing Long Range Transportation Plan was adopted in 2008 and, as in accordance with 23 U.S.C. 135 and 23 CFR 450.322, is being updated to remain current and maintain a twenty year horizon; and

WHEREAS, the Long Range Transportation Plan, in accordance with 23 CFR 450.322, is multimodal in scope and accounts for all travel modes in the four elements of the plan: Street &Highway, Transit, and Bike and Pedestrian; and

WHEREAS, the MPO adopted a 2040 Long Range Transportation Plan in December 2013, and the Long Range Transportation Plan being considered today is an update of the Transit sections of that plan; and

WHEREAS, the Long Range Transportation Plan, in accordance with 23 CFR 450.322, shall be financially constrained to demonstrate that proposed projects have existing and/or reasonably projected sources of funds; and

WHEREAS, the MPO followed its adopted Public Participation Plan to proactively involved the public early and often in the transportation planning process and requests the planning commissions and city councils from each community consider adoption of the Long Range Transportation Plan; and

WHEREAS, the By-Laws of the MPO allow the MPO Executive Board to take action upon adoption of the Long Range Transportation sixty (60) days after said plan had been submitted to the representative city and the 60 day period ended on June 19, 2017; and

WHEREAS, the Technical Advisory Committee of the MPO held public meetings on the proposed Long Range Transportation Plan; and

WHEREAS, the Planning Commission for Grand Forks, North Dakota, held a public hearing on June 7, 2017, on the proposed MPO Long Range Transportation Plan; and

WHEREAS, the City Council for Grand Forks, North Dakota, held a public hearing on June 19, 2017, on the proposed MPO Long Range Transportation Plan; and

WHEREAS, the Planning Commission for East Grand Forks, Minnesota, held a public hearing on May 25, 2017, on the proposed MPO Long Range Transportation Plan; and

WHEREAS, the City Council for East Grand Forks, Minnesota, held a public meeting on June 6, 2017, on the proposed MPO Long Range Transportation Plan; and

WHEREAS, the Executive Policy Board of the Grand Forks – East Grand Forks Metropolitan Planning Organization considered the actions taken by the above referenced local governmental agencies; and

NOW, THEREFORE, BE IT RESOLVED, that the Executive Policy Board of the Grand Forks – East Grand Forks Metropolitan Planning Organization hereby adopts the proposed Year 2045 Transit Development Element to the Long Range Transportation Plan as presented with the following amendments: None.

6/21/17
Date

Ken Vien Chairman

Earl Haugen Ex. Director

A RESOLUTION ADOPTING THE YEAR 2045 TRANSIT DEVELOMENT ELEMENT- 2018 AMENDMENT of the METROPOLITAN TRANSPORTATION PLAN FOR THE GRAND FORKS - EAST GRAND FORKS METROPOLITAN AREA

WHEREAS, the U.S. Department of Transportation requires the development of a Metropolitan Transportation Plan by a Metropolitan Planning Organization for each urbanized area and area expected to have growth over a twenty year period; and

WHEREAS, the Grand Forks - East Grand Forks Metropolitan Planning Organization (MPO) has been designated as the policy body with responsibility for performing transportation planning in the Grand Forks - East Grand Forks Metropolitan Area; and

WHEREAS, the MPO is designated by the Governors of North Dakota and Minnesota as the body responsible for making transportation planning decisions in the Grand Forks - East Grand Forks Metropolitan Area; and

WHEREAS, the existing Metropolitan Transportation Plan was adopted in 2008 and, as in accordance with 23 U.S.C. 135 and 23 CFR 450.322, is being updated to remain current and maintain a twenty year horizon; and

WHEREAS, the Metropolitan Transportation Plan, in accordance with 23 CFR 450.322, is multimodal in scope and accounts for all travel modes in the four elements of the plan: Street &Highway, Transit, and Bike and Pedestrian; and

WHEREAS, the MPO adopted a 2045 Metropolitan Transportation Plan in June 2017, and the Metropolitan Transportation Plan Amendment being considered today is an amendment of the Transit sections of that plan; and

WHEREAS, the Metropolitan Transportation Plan, in accordance with 23 CFR 450.322, shall be financially constrained to demonstrate that proposed projects have existing and/or reasonably projected sources of funds; and

WHEREAS, the MPO followed its adopted Public Participation Plan to proactively involved the public early and often in the transportation planning process and requests the planning commissions and city councils from each community consider adoption of the Metropolitan Transportation Plan; and

WHEREAS, the By-Laws of the MPO allow the MPO Executive Board to take action upon adoption of the Metropolitan Transportation sixty (60) days after said plan had been submitted to the representative city and the 60 day period ended on September 28, 2018;and

WHEREAS, the Technical Advisory Committee of the MPO held public meetings on the proposed Metropolitan Transportation Plan; and

WHEREAS, the MPO submitted a request to each City to consider an amendment to its respective City Comprehensive Plan and both Cities indicated no need for an amendment; and

WHEREAS, the Executive Policy Board of the Grand Forks - East Grand Forks Metropolitan Planning Organization considered the actions taken by the above referenced local governmental agencies; and

NOW, THEREFORE, BE IT RESOLVED, that the Executive Policy Board of the Grand Forks - East Grand Forks Metropolitan Planning Organization hereby adopts the proposed Year 2045 Transit Development Element- 2018 Amendment to the Metropolitan Transportation Plan as presented with the following amendments: None.

November 21, 2018
Date

Ken Vein Chairman

Earl Haugen Ex. Director

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1) INTRODUCTION

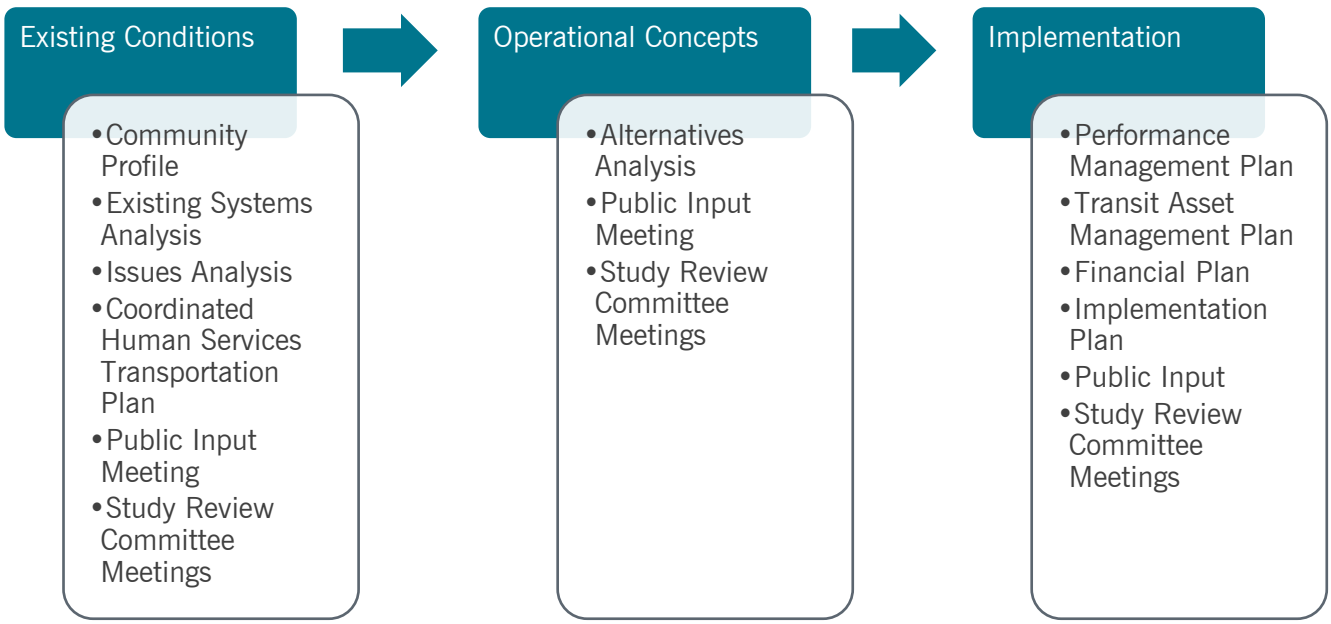
Cities Area Transit (CAT) is the public transportation provider for the Grand Forks-East Grand Forks metro. Public transit in the Grand Forks-East Grand Forks area is provided through a combination of services provided by Cities Area Transit (CAT). CAT, an agency of the City of Grand Forks, provides fixed route and dial-a-ride services throughout its two-city service area. Services provided in East Grand Forks are supported through cost sharing agreements with the City of East Grand Forks which account for the distribution of local, state and federal funds to support the overall CAT system operations in East Grand Forks.

Currently, CAT operates 13 routes serving major employment, education, shopping and entertainment centers in the metro and offers demand-response service for senior riders and those with disabilities. CAT provides a valuable community service, providing over 390,000 rides in the metro in 2015.

As part of a comprehensive multimodal transportation system plan, CAT works with the Grand Forks – East Grand Forks Metropolitan Planning Organization to complete the Transit Development Plan (TDP). Every five years, the TDP is updated to identify new transit system needs and issues, redefine goals and objectives and create a framework for implementation.

This TDP was completed through a series of three broad steps, as shown in Figure 1-1.

Figure 1-1: Transit Development Plan Update Process



2) COMMUNITY PROFILE

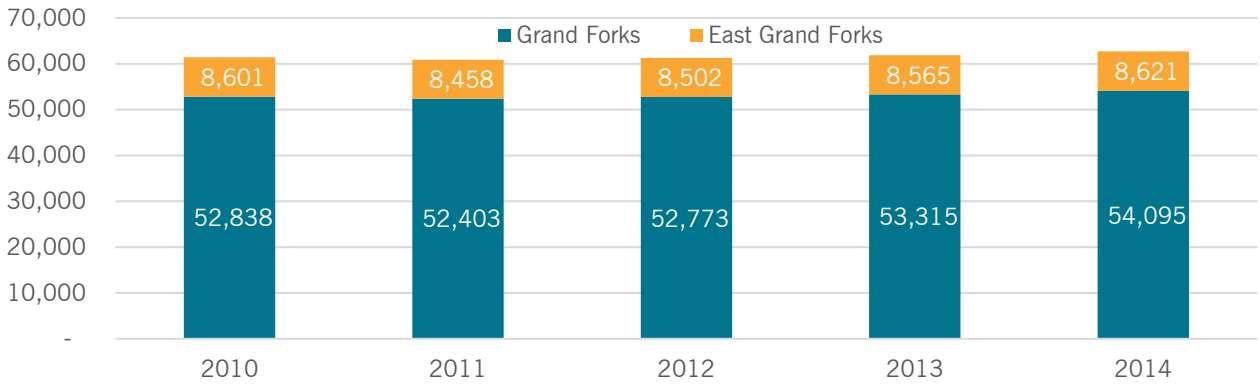
This section details the demographics and general characteristics of Grand Forks and East Grand Forks and how they relate to transit operations.

DEMOGRAPHICS

Population and Households

Since the 2010 Census, East Grand Forks' population has remained stable while Grand Forks' population has seen low, but increasing annual growth since 2011 (Figure 2-1). These numbers are based on the American Community Survey 5-Year Estimates, which are slightly lower estimates than the annual Census estimates used in the recently updated land use plans. Total population reach 62,700 in 2014, its highest level since before 2010.

Figure 2-1: Population for Grand Forks and East Grand Forks Cities



Source: American Community Survey 5-Year Estimates (2014)

There are nearly 23,000 households in Grand Forks and 3,500 in East Grand Forks (Table 2-1).

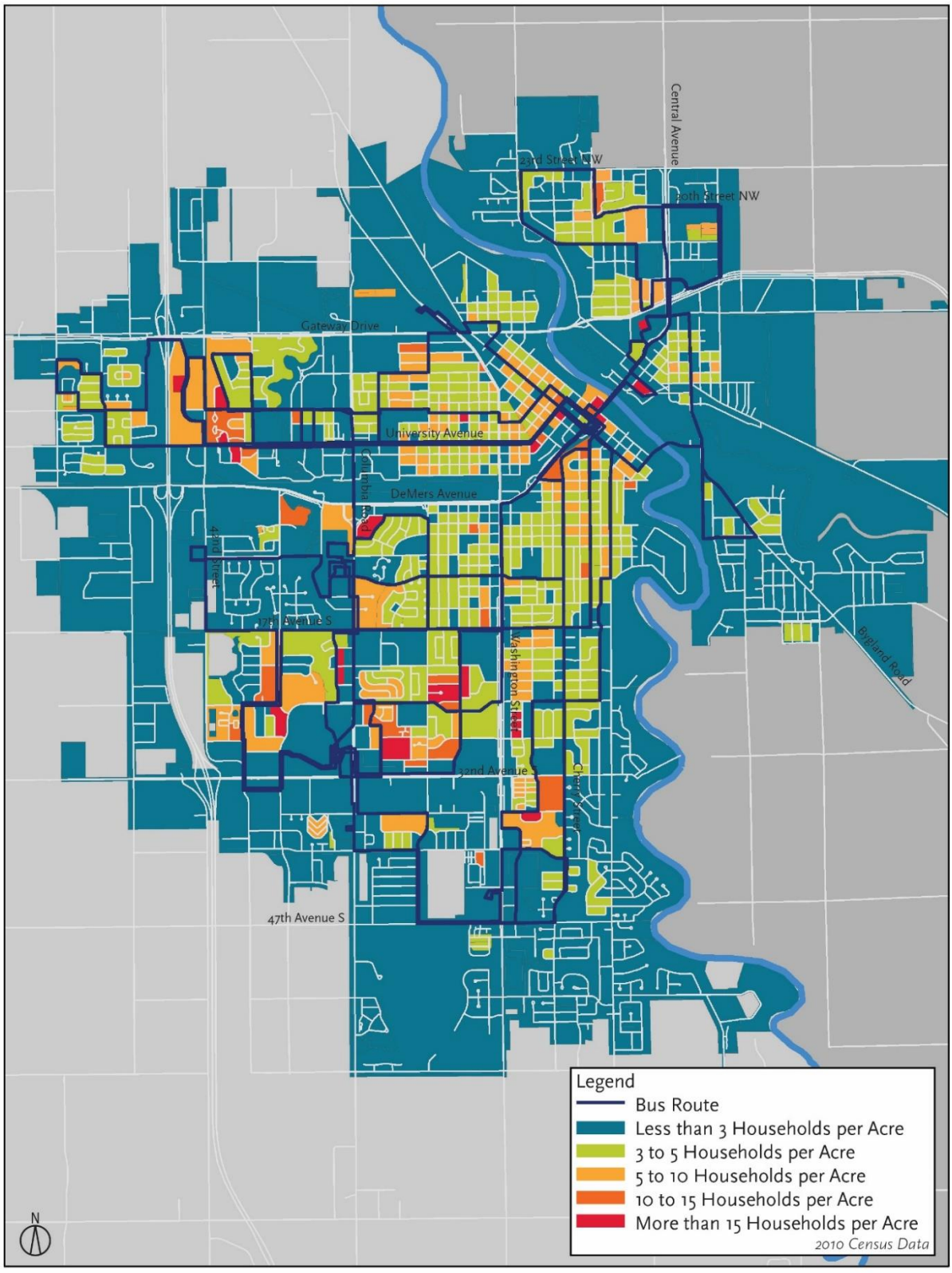
- The average household size is 2.19 in Grand Forks and 2.46 in East Grand Forks, both are lower than their respective state average.
- 22.2 percent of Grand Forks and 30.6 percent of East Grand Forks households have children under 18.
- Over half, 53.3 percent, of Grand Forks and a third, 37.2 percent, of East Grand Forks housing units are renter-occupied.
- Most of the metro is low density housing, less than three households per acre, but there are pockets of medium and high densities, most closely associated with the older neighborhoods and multi-family housing developments (Figure 2-2).

Table 2-1: Housing Characteristics

	Grand Forks	East Grand Forks
Households	22,844	3,460
Average Household Size	2.19	2.46
Households With Children Under 18	22.2%	30.6%
Households with Someone 60 Year or Over	24.6%	33.2%
Renter Occupied	53.3%	37.2%

Source: American Community Survey 5-Year Estimates (2014)

Figure 2-2: 2010 Household Density per Acre



Age

Grand Forks and East Grand Forks are younger than the United States and their respective state average. The median age in Grand Forks is just 28.1 years while in East Grand Forks it is 34.1 years. Certain ages are more likely to use transit, like primary and secondary students who may bus to school and seniors who are unable or unwilling to drive themselves. School Age and Senior populations represent 41 percent of Grand Forks' total population and 54.8 percent of East Grand Forks' population. Another group perceived to be more inclined to use transit is the college-age population, which is 25.8 percent of Grand Forks and 7.3 percent of East Grand Forks. The age profile of Grand Forks and East Grand Forks is shown in Table 2-2; Figure 2-3 shows the percent of population aged 65 or older by block group.

Table 2-2: Age Profile

	Grand Forks	East Grand Forks
Median Age	28.1	34.1
School Age (5 to 17)	12.5%	17.1%
18 to 24	25.8%	7.3%
Seniors (62+)	28.6%	37.7%

Source: American Community Survey 5-Year Estimates (2014)

Income

The median household income in Grand Forks just exceeds $44,000, while in East Grand Forks the median household income is just slightly above $51,000. Both Grand Forks and East Grand Forks have lower median household incomes when compared to their respective state.

Table 2-3: Income Profile

	Grand Forks	East Grand Forks
Median Household Income	$44,134	$51,167
Below Poverty: All People	21.4%	10.6%
Below Poverty: Under 18	21.3%	9.9%
Below Poverty: Over 65	10.3%	11.6%

Source: American Community Survey 5-Year Estimates (2014)

In terms of poverty, more than 21 percent of all Grand Forks residents have incomes below the poverty line, compared to just 9.9 percent in East Grand Forks. While East Grand Forks' population in poverty is about one-half a percentage point lower than Minnesota statewide, Grand Forks' population in poverty is 80 percent higher than North Dakota statewide. The income profile of Grand Forks and East Grand Forks is shown in Table 2-3; Figure 2-4 shows the percent of population under the poverty line by block group.

Vehicle Access

The inability to access a private auto is often considered one of the strongest components of transit ridership. In Grand Forks, 8.4 percent of all households do not have access to a vehicle and nearly 20 percent of 2-person or more households only have access to one vehicle. In East Grand Forks, 10.6 percent of all households do not have access to a vehicle and 23.1 percent of 2-person or more households only have access to one vehicle. Vehicle access characteristics are shown in Table 2-4; Figure 2-5 shows the percent of zero vehicle households by census tract.

Table 2-4: Vehicle Access

	Grand Forks	East Grand Forks
No vehicle available	8.4%	10.6%
1 vehicle available	37.9%	31.0%
2 vehicles available	35.6%	42.4%
3 vehicles available	13.3%	12.5%
4 or more vehicles available	4.9%	3.5%

Source: American Community Survey 5-Year Estimates (2014)

Environmental Justice Areas

Environmental justice refers to the fair treatment and meaningful involvement of people from all races, cultures, abilities and incomes during the development of projects. It seeks to ensure that transportation planning and policies do not disproportionately burden minority and low-income populations. Environmental justice areas included in Figure 2-6 was provided by the Grand Forks – East Grand Forks Metropolitan Planning Organization.

Figure 2-3: Percent of Population 65 or Over by Census Block Group

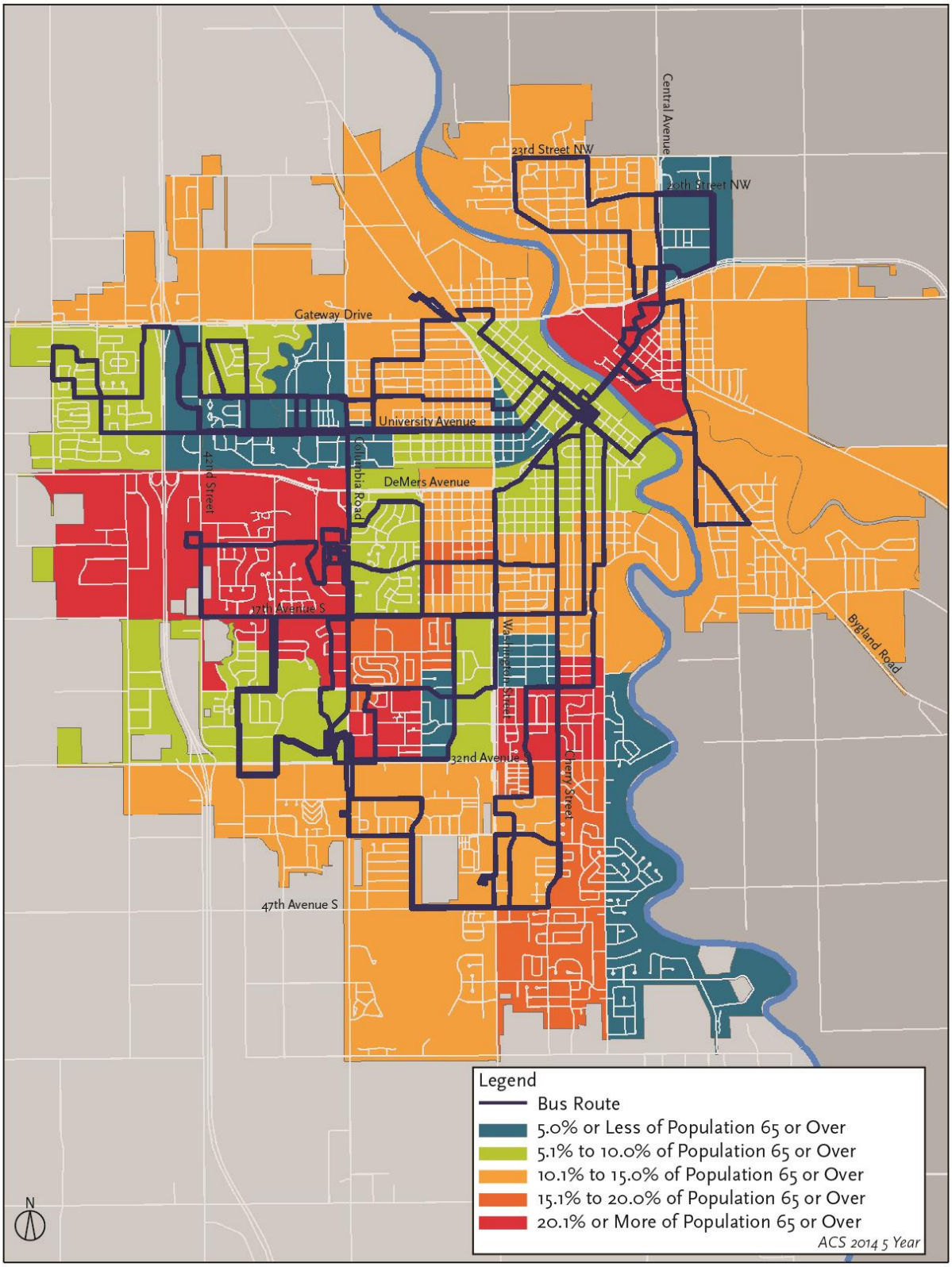


Figure 2-4: Poverty Characteristics by Census Block Group

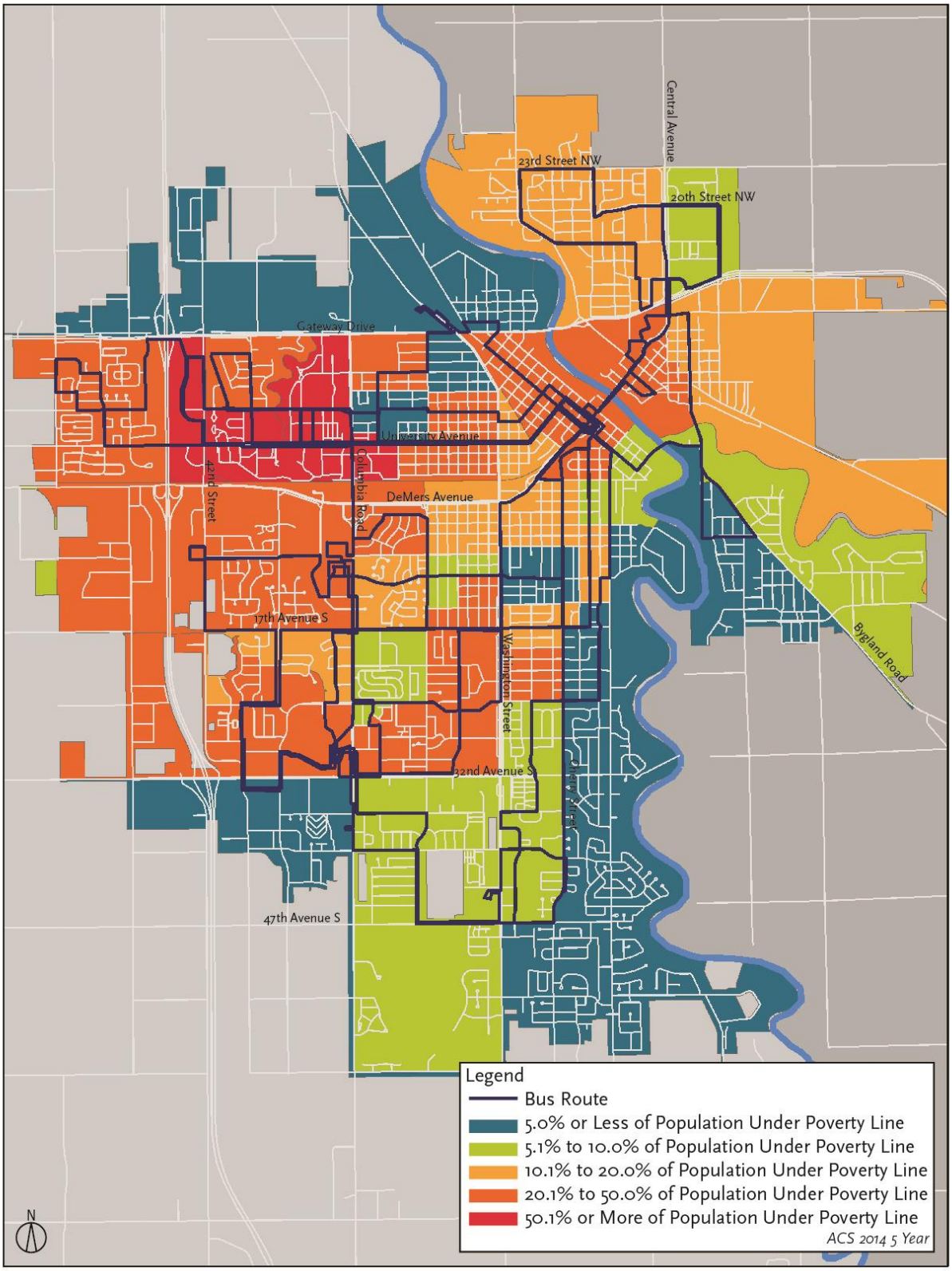


Figure 2-5: Zero Vehicle Households by Census Tract

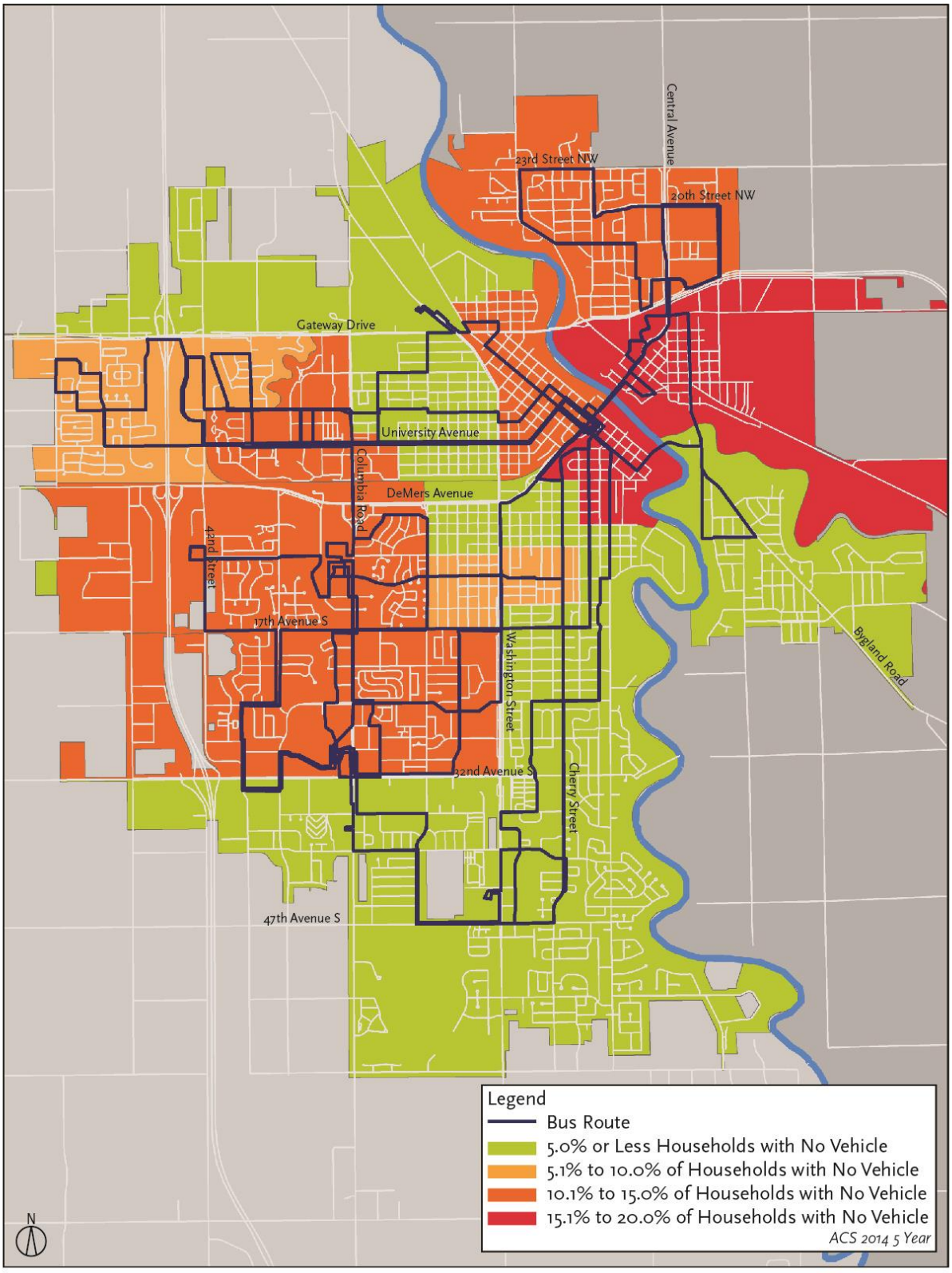
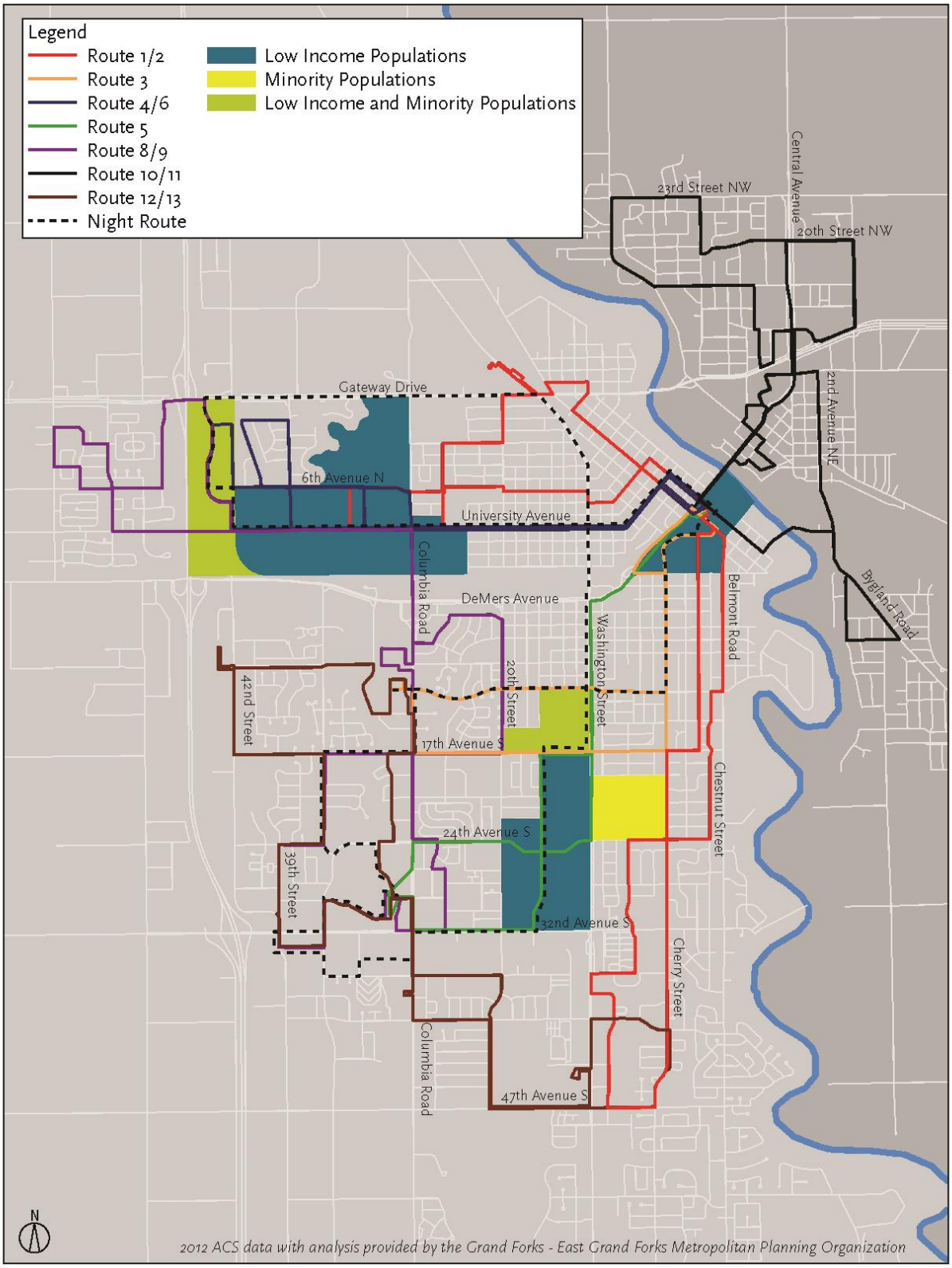


Figure 2-6: Environmental Justice Areas



Employment and Commuting

The Grand Forks – East Grand Forks metro area has very low unemployment. In Grand Forks the unemployment rate is 3.3 percent and in East Grand Forks it is just 1.5 percent.

Just 1.4 percent of Grand Forks and 1.7 percent of East Grand Forks residents use transit for their daily commute, compared to 0.5 percent of North Dakota residents and 3.5 percent of Minnesota residents. Commuting patterns for Grand Forks and East Grand Forks are shown in Table 2-5.

Table 2-5: Commuting Patterns

	Grand Forks	East Grand Forks
Drove Alone	80.8%	85.5%
Carpooled	7.8%	7.8%
Public Transit	1.4%	1.7%
Walked	4.1%	2.0%
Other	2.1%	1.1%
Worked from Home	3.8%	1.9%

Source: American Community Survey 5-Year Estimates (2014)

The 2040 Long Range Transportation Plan has a stated objective to promote alternatives to single occupancy vehicles and to reduce VMT and VHT growth rates. The 2045 Grand Forks Land Use Plan Update also includes objectives to improve access for alternative modes of transportation and continuing to build on the multi-modal transportation systems, among other alternative mode objectives.

Community Destinations

Major Employers

Commuting patterns are relatively consistent day-to-day. Identifying top employers within the community helps to understand travel patterns and potential transit destinations (Figure 2-7). Some top employers are concentrated in one or two locations, like Altru and their new South Campus, while other top employers in distributed throughout the metro, like Hugo's with four in Grand Forks and one in East Grand Forks.

Of the largest employers in the metro, just five are directly adjacent to regular daytime routes, with an additional three within one-quarter mile, the typical walking threshold. This leaves just three major employers unserved, two of which are in the Grand Forks industrial park and one in East Grand Forks (American Crystal Sugar).

Community Facilities

Other locations within the Grand Forks – East Grand Forks metro provide value, like grocery and shopping, recreation, government services, support agencies and health care. CAT provides a vital link between individuals and these community destinations.

There are 31 major social service providers, all of which are on or adjacent to regular day routes (Figure 2-8).

Additional destinations were identified and are presented in Figure 2-9. These destinations represent major facilities for government services, education, cultural, religious, shopping and recreational opportunities in the community. Many of these community facilities are served by hourly transit service, however efforts are made through the TDP to improve access to these kinds of facilities.

Figure 2-7: Largest Employers

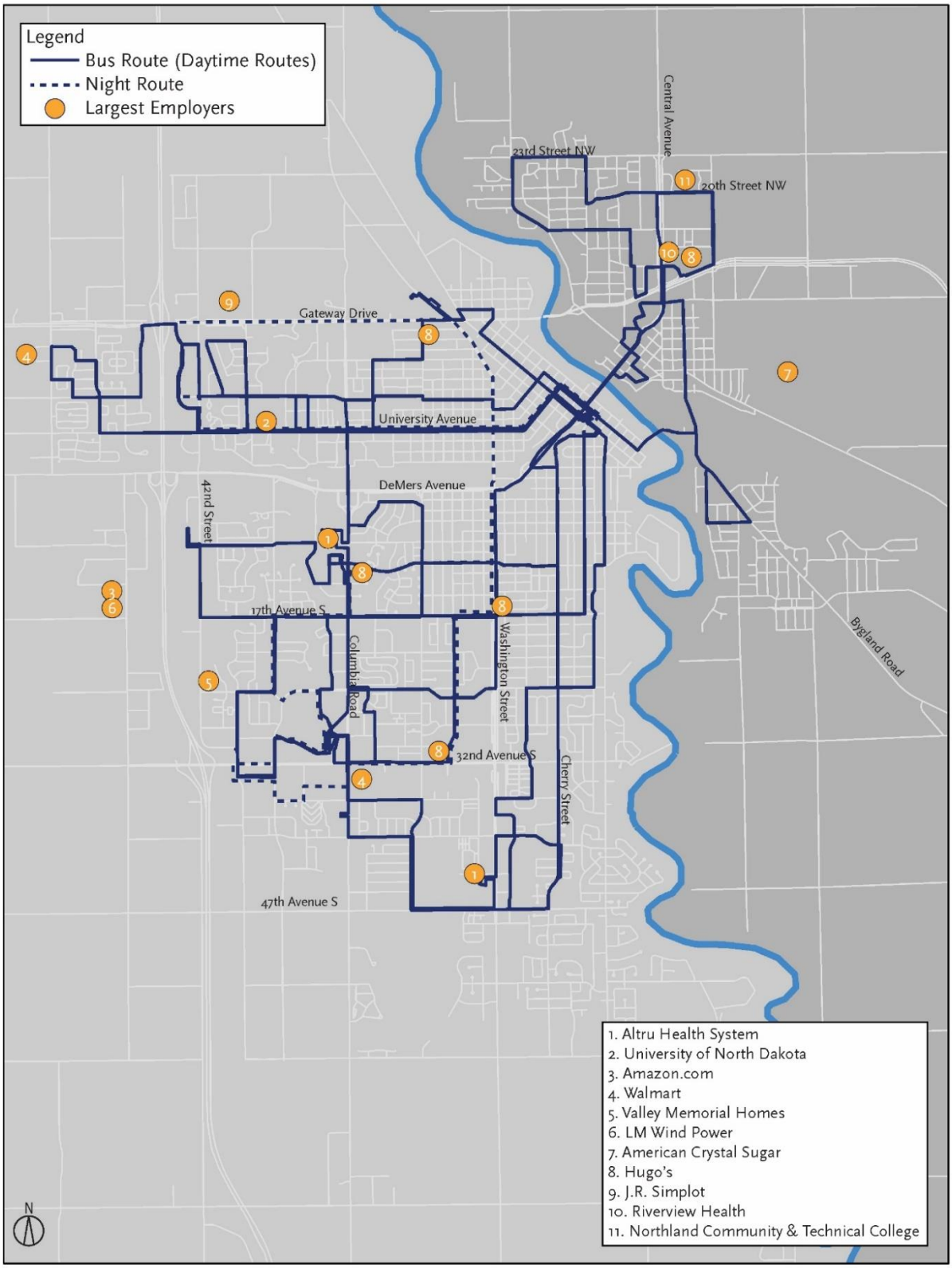


Figure 2-8: Social Service Providers

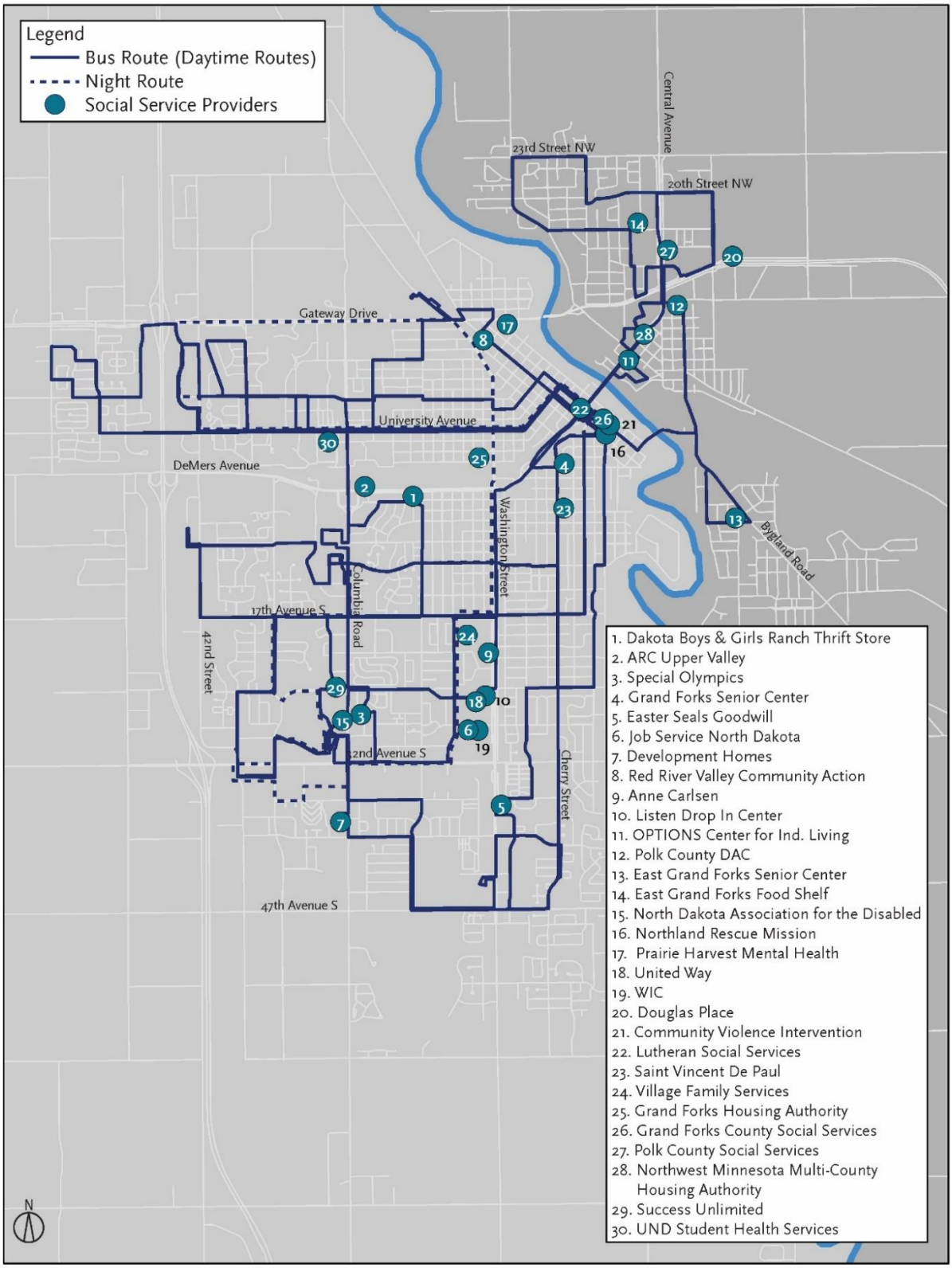
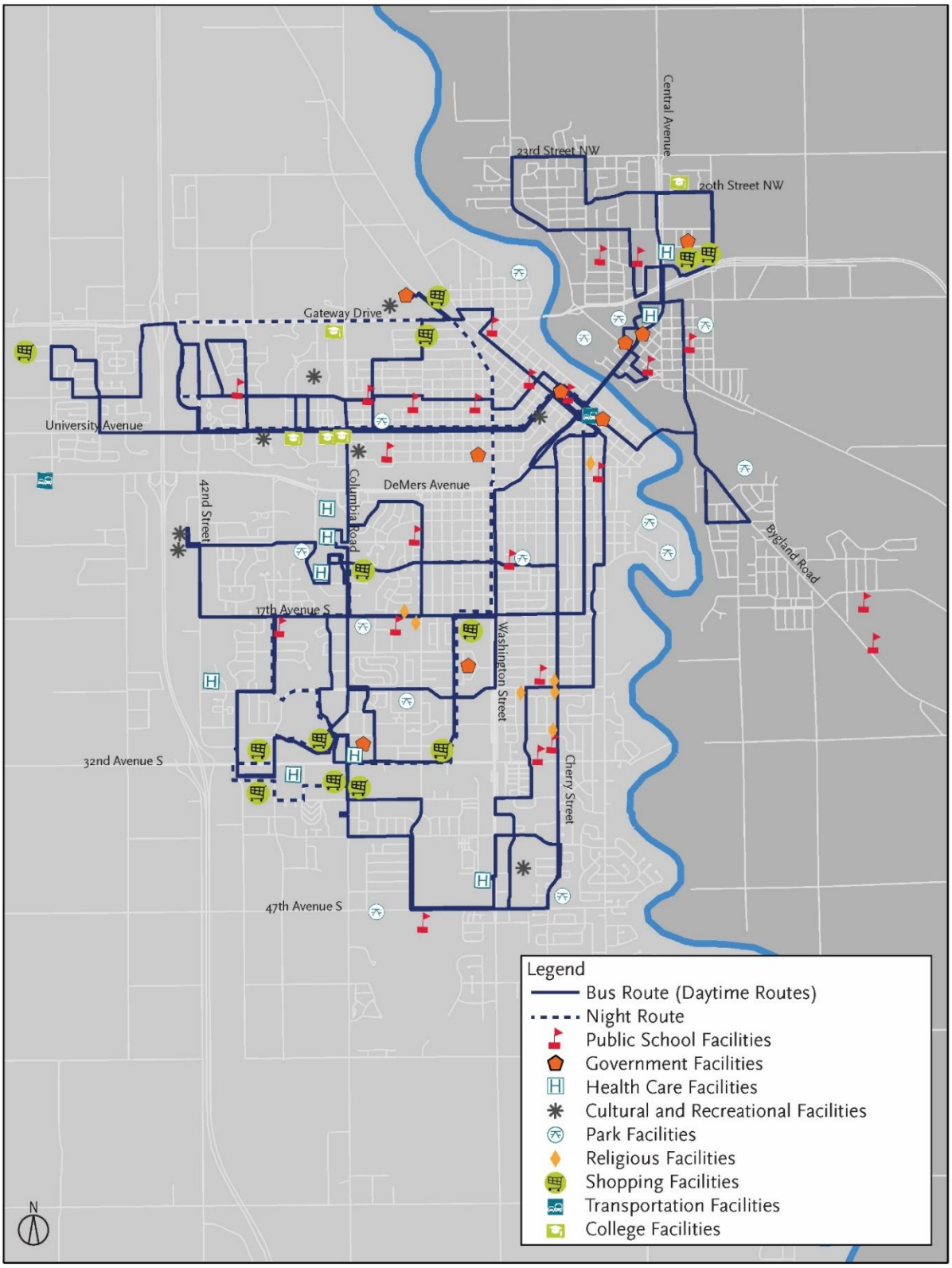


Figure 2-9: Major Destinations

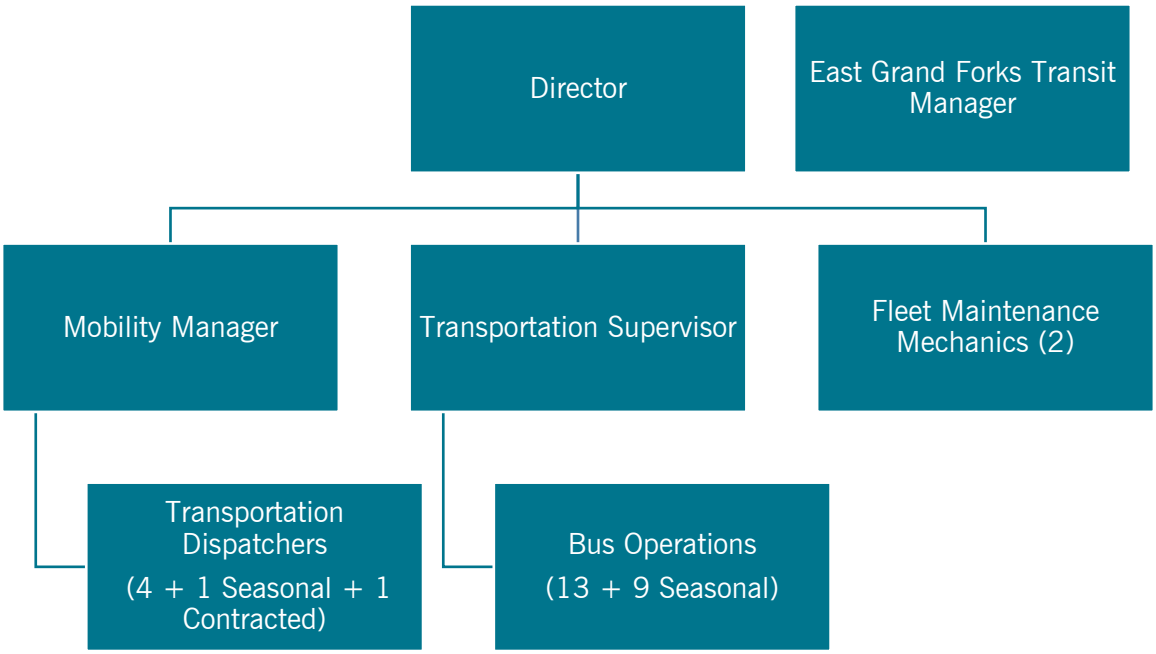


3) EXISTING SYSTEMS ANALYSIS

ADMINISTRATIVE SUMMARY

The administration of CAT is quite simple, the Public Transportation Superintendent, an employee of the City of Grand Forks, oversees the transportation supervisor, maintenance mechanics and mobility manager. The East Grand Forks manager provides oversight of East Grand Forks routes and operating revenue and expenses. Refer to Figure 3-1 for the current organizational chart.

Figure 3-1: Cities Area Transit Organizational Chart



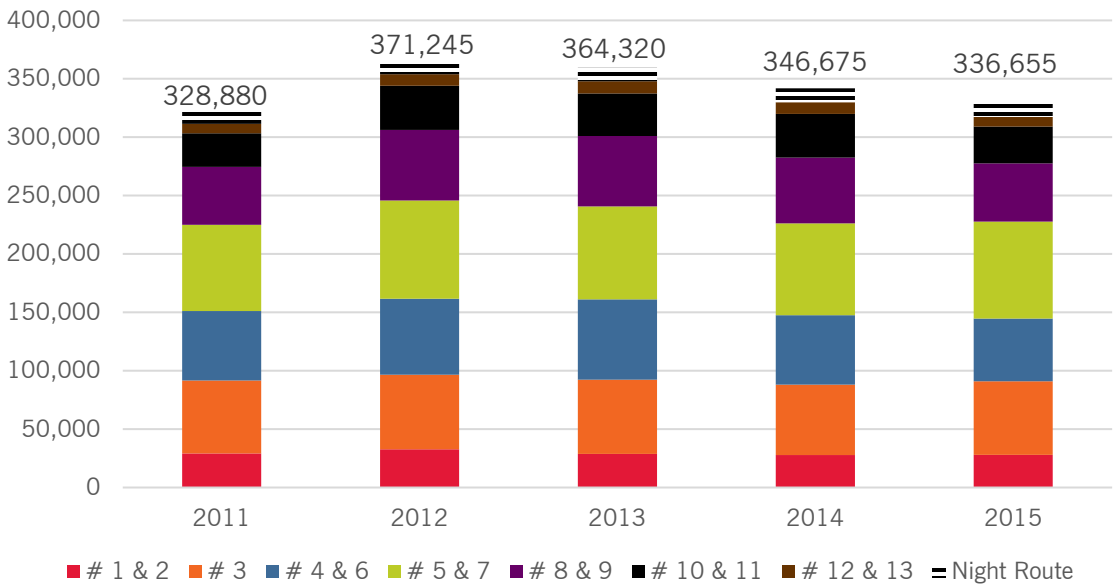
FIXED ROUTE SYSTEM

The Fixed Route system operates 12 regular routes Monday through Saturday. Weekday service, Monday through Friday begins between at 6:30 A.M. and ends around 6 P.M. Saturday service begins at 8 A.M. and ends around 6 P.M. A night route, available only in Grand Forks, begins around 6 P.M. running until approximately 10 P.M. Monday through Saturday. There is no Sunday service available in the metro.

HISTORICAL TRENDS

Since 2011, ridership has grown just 2.4 percent; 2012 was the highest ridership year, surpassing 371,000 rides (Figure 3-2). Since 2012, annual ridership has declined. Most of the average annual growth can be attributed to Route 5, where ridership has increase 12.5 percent since 2011. Route 10/11 and the Night Route have also experienced significant growth, 9.7 percent and 21.6 percent respectively.

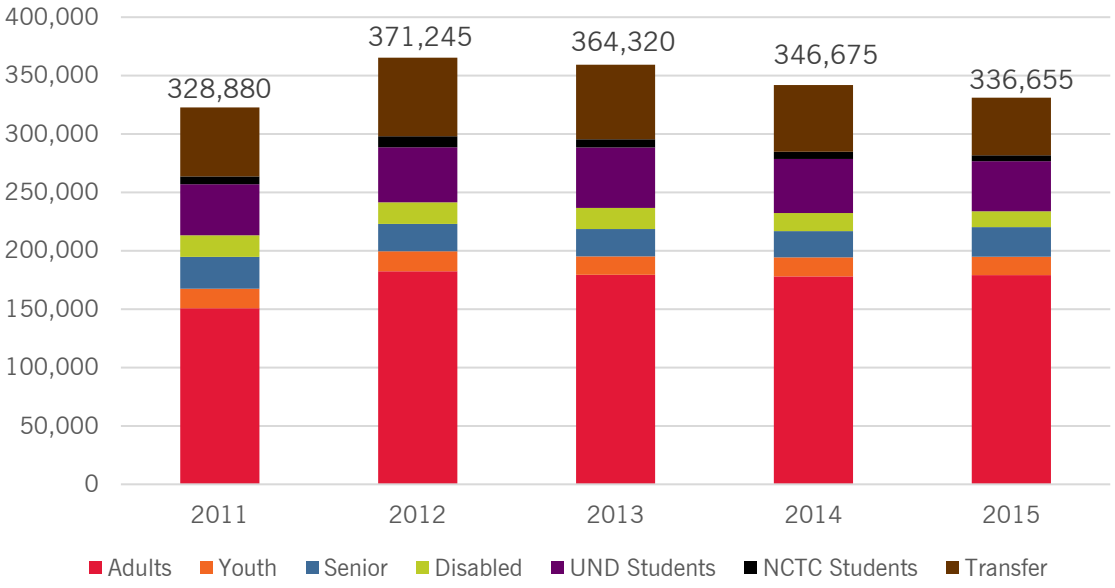
Figure 3-2: Fixed Route Annual Ridership by Route



2015 Annual Fixed Route Ridership: 336,655

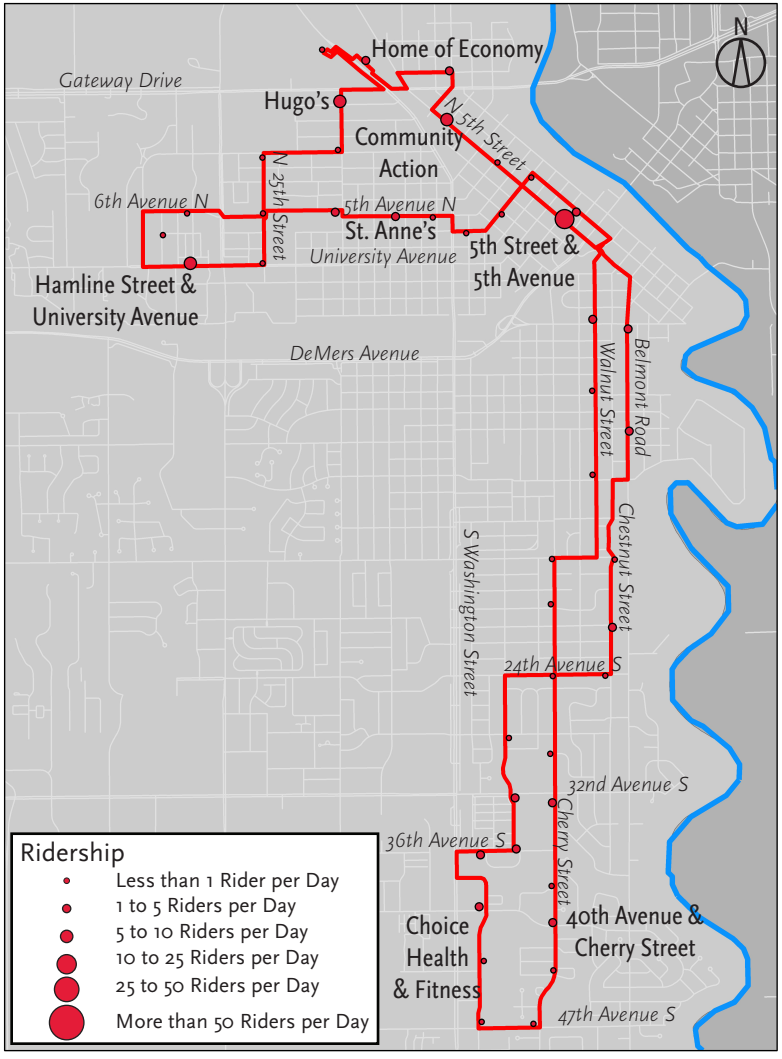
As shown in Figure 3-3, adults made up more than half of all ridership in 2015 (53.2 percent). This is up from 45.9 percent in 2011. Excluding transfers, seniors and disabled riders made up the largest decline in ridership. Senior ridership declined from just over 27,000 in 2011 to 25,350 in 2015; riders with disabilities declined from 18,540 in 2011 to 13,540 in 2015.

Figure 3-3: Fixed Route Annual Ridership by Rider Type

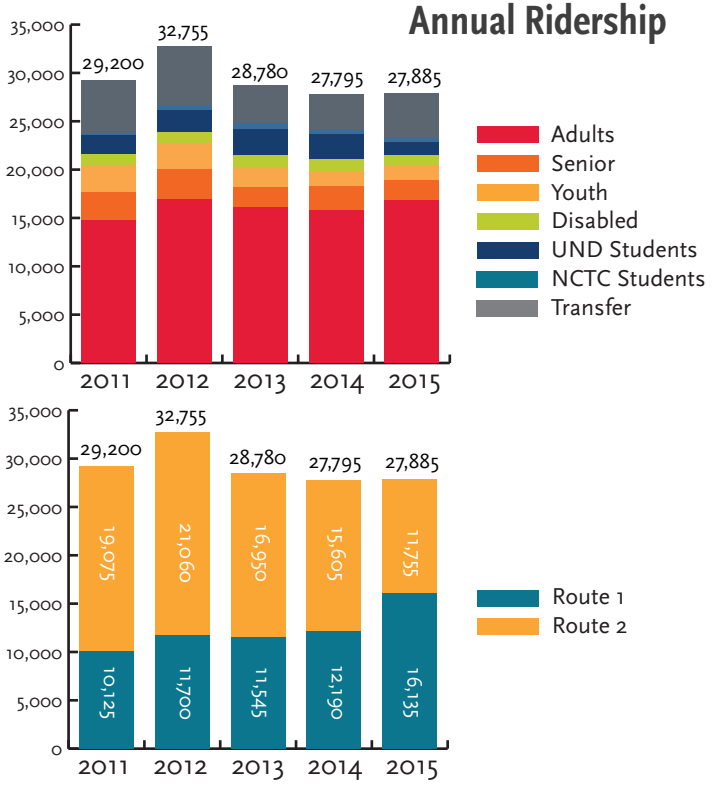


GRAND FORKS/EAST GRAND FORKS MPO TRANSIT DEVELOPMENT PLAN UPDATE

Route 1/2



Annual Ridership



Ridership Growth Since 2011: -4.5%

Rider Type	% of 2015 Ridership
Adults	60.2%
Youth	7.6%
Senior	5.5%
Disabled	3.6%
UND Students	5.1%
NCTC Students	1.5%
Transfer	16.5%

2015 Cost of Service:

- Cost of Service: $327,185
- Cost per Passenger: $11.73

Route Highlights

Major Stop Locations

Route 1
- Tufte Manor
- 36th Avenue & 10th Street
- 40th Avenue & 11th Street
- 40th Avenue & Cherry Street

Route 2
- N 5th Street & 2nd Avenue
- Hugo's
- Hamline & University Avenue
- Valley Middle School

2015 Revenue Metrics

Revenue Hours
- Revenue Hours: 3,450
- Rides per Revenue Hour: 8.1
- CAT System Average: 12.7

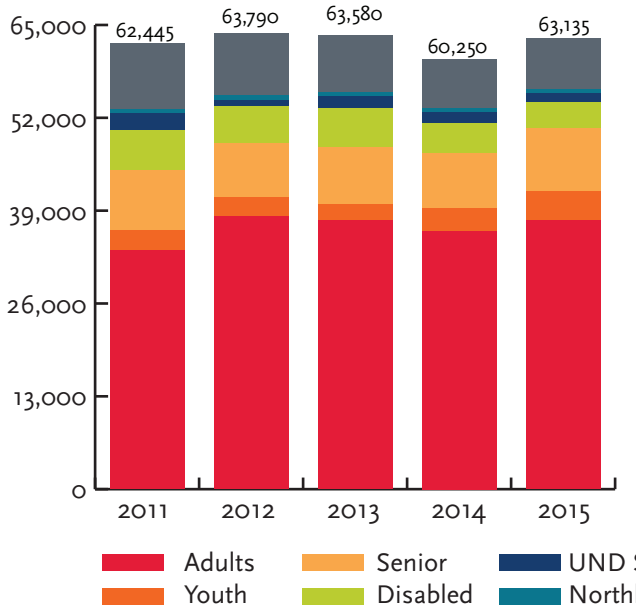
Revenue Miles
- Revenue Miles: 51,016
- Rides per Revenue Mile: 0.55
- CAT System Average: 0.94

GRAND FORKS/EAST GRAND FORKS MPO TRANSIT DEVELOPMENT PLAN UPDATE

Route 3

Annual Ridership

Ridership Growth Since 2011:
+0.6%



Rider Type	% of 2015 Ridership
Adults	59.0%
Youth	6.5%
Senior	14.0%
Disabled	5.8%
UND Students	1.9%
NCTC Students	0.8%
Transfer	11.4%

2015 Cost of Service:

› Cost of Service: $309,470
› Cost per Passenger: $4.90

Route Highlights

Major Stop Locations

Route 3
› 1st Avenue S
› 13th Avenue Hugo's
› Altru Rehab
› 17th Avenue & S 12th Street
› Grand Cities Mall
› The Link
› 4th Avenue & Cherry Street

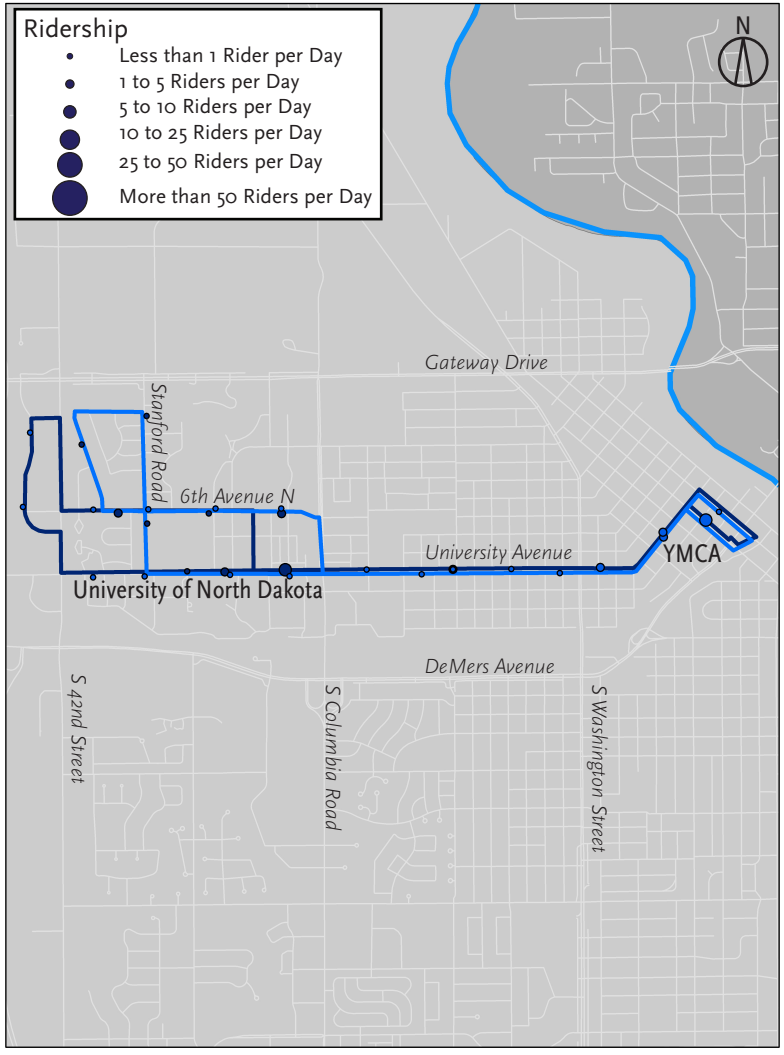
2015 Revenue Metrics

Revenue Hours
› Revenue Hours: 3,444
› Rides per Revenue Hour: 18.3
› CAT System Average: 12.7

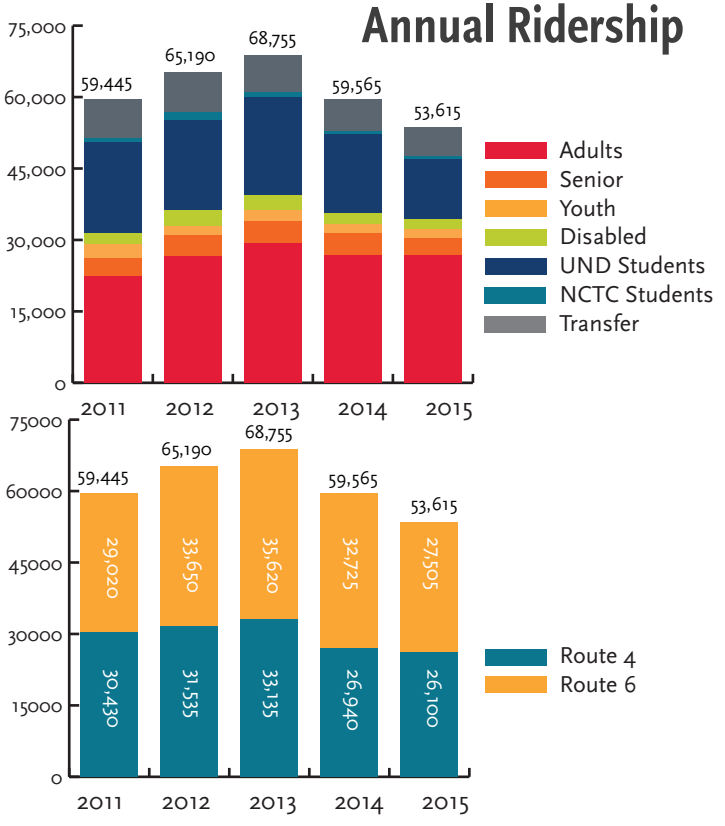
Revenue Miles
› Revenue Miles: 46,514
› Rides per Revenue Mile: 1.36
› CAT System Average: 0.94

GRAND FORKS/EAST GRAND FORKS MPO TRANSIT DEVELOPMENT PLAN UPDATE

Route 4/6



Annual Ridership



Ridership Growth Since 2011: -9.8%

Rider Type	% of 2015 Ridership
Adults	49.8%
Youth	6.8%
Senior	3.5%
Disabled	3.9%
UND Students	23.6%
NCTC Students	1.1%
Transfer	11.1%

2015 Cost of Service:

- Cost of Service: $311,440
- Cost per Passenger: $5.81

Route Highlights

Major Stop Locations

Route 4
- Hamline & University Avenue
- Stanford Center
- N 5th Street & 2nd Avenue
- 12th Street & University Avenue

Route 6
- N 5th Street & 2nd Avenue
- Hamline & University Avenue
- Memorial Union

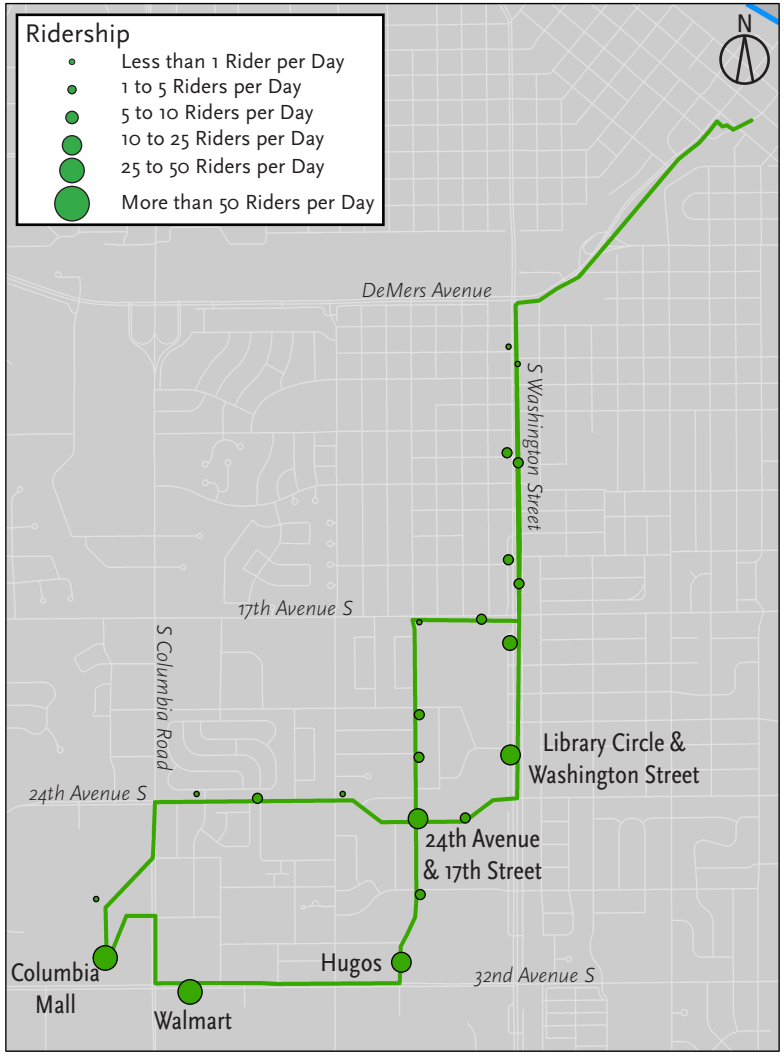
2015 Revenue Metrics

Revenue Hours
- Revenue Hours: 3,344
- Rides per Revenue Hour: 16.0
- CAT System Average: 12.7

Revenue Miles
- Revenue Miles: 47,405
- Rides per Revenue Mile: 1.13
- CAT System Average: 0.94

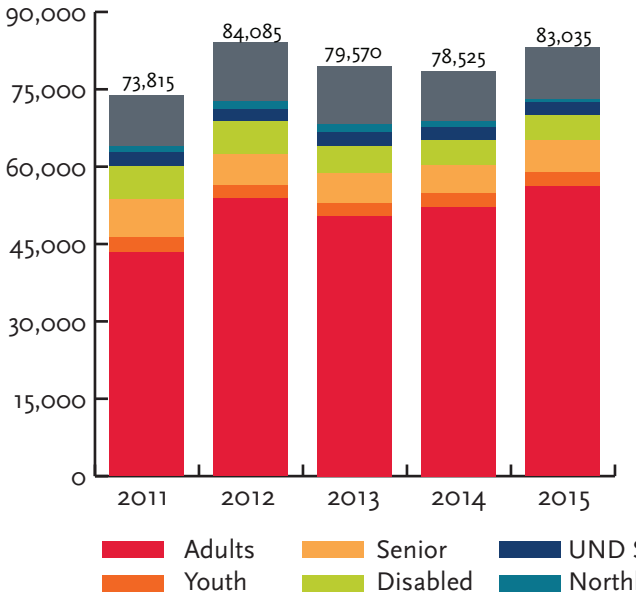
GRAND FORKS/EAST GRAND FORKS MPO TRANSIT DEVELOPMENT PLAN UPDATE

Route 5



Annual Ridership

Ridership Growth Since 2011:
+ 12.5%



Rider Type	% of 2015 Ridership
Adults	67.7%
Youth	3.2%
Senior	7.7%
Disabled	5.7%
UND Students	3.0%
NCTC Students	0.8%
Transfer	11.9%

Route Highlights

Major Stop Locations

Route 5
- Library Circle & Washington Street
- McDonalds
- Walmart
- S 17th Street & 24th Avenue
- 32nd Avenue Hugo's

2015 Revenue Metrics

Revenue Hours
- Revenue Hours: 3,260
- Rides per Revenue Hour: 25.5
- CAT System Average: 12.7

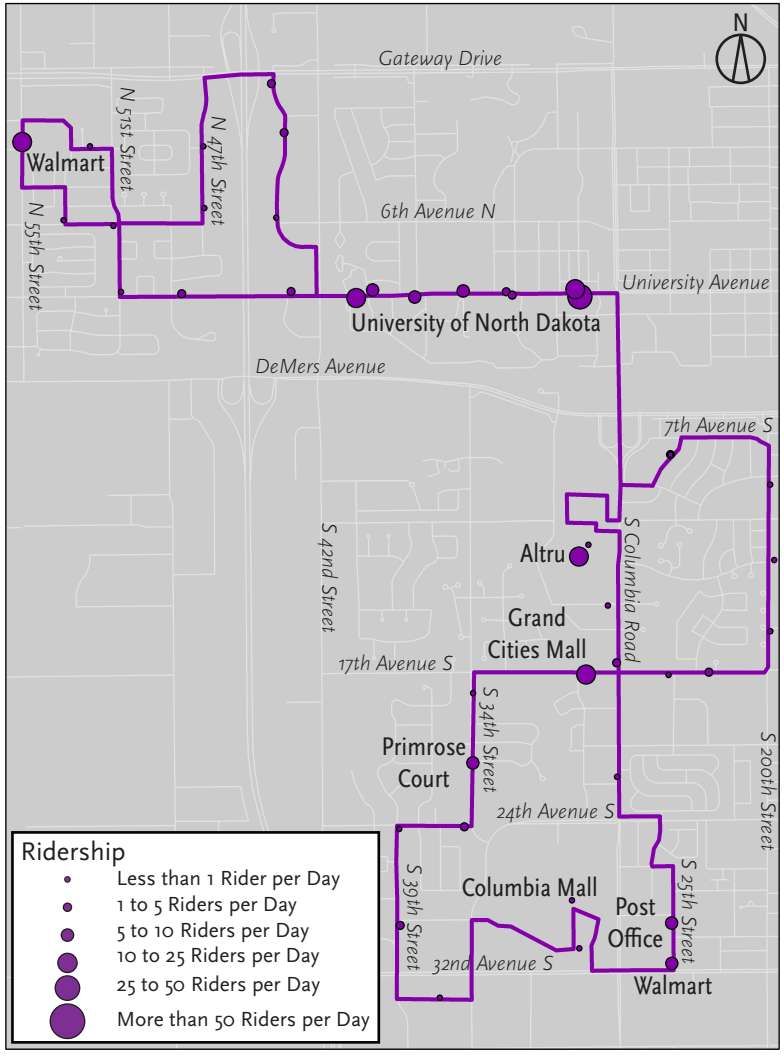
Revenue Miles
- Revenue Miles: 26,275
- Rides per Revenue Mile: 3.16
- CAT System Average: 0.94

2015 Cost of Service:

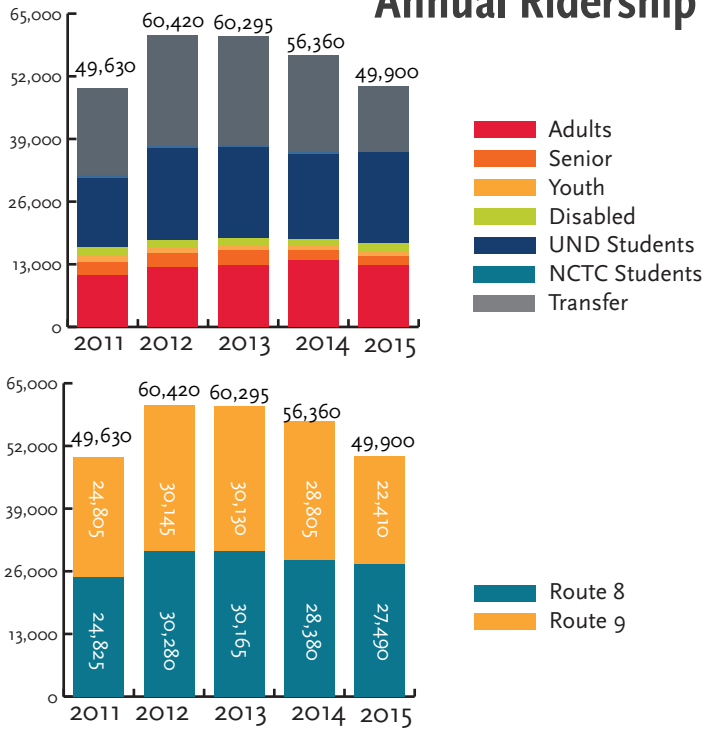
- Cost of Service: $318,985
- Cost per Passenger: $3.84

GRAND FORKS/EAST GRAND FORKS MPO TRANSIT DEVELOPMENT PLAN UPDATE

Route 8/9



Annual Ridership



Ridership Growth Since 2011:
+ 0.5%

Rider Type	% of 2015 Ridership
Adults	25.7%
Youth	3.7%
Senior	2.2%
Disabled	3.0%
UND Students	38.0%
NCTC Students	0.3%
Transfer	27.1%

2015 Cost of Service:

- Cost of Service: $307,825
- Cost per Passenger: $6.17

Route Highlights

Major Stop Locations

Route 8
- Memorial Union
- Hamline & University
- Odegard Hall
- Walmart West

Route 9
- Super Target
- Altru Rehab
- S 34th Street & Primrose Court
- Post Office

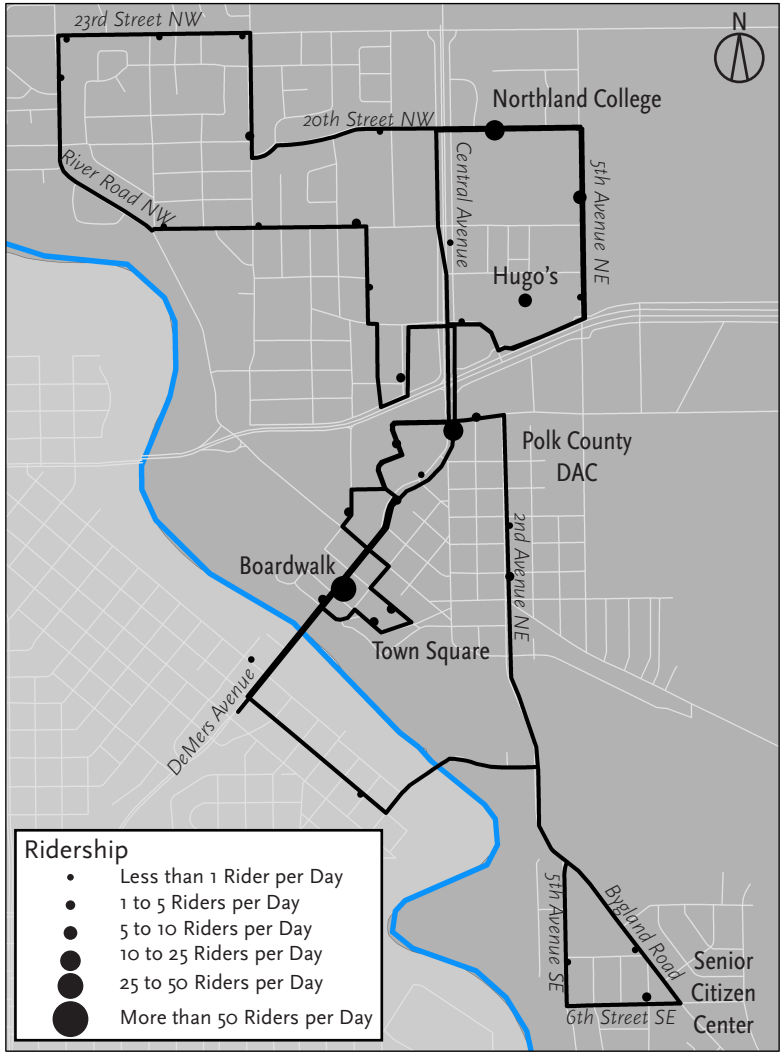
2015 Revenue Metrics

Revenue Hours
- Revenue Hours: 3,240
- Rides per Revenue Hour: 15.4
- CAT System Average: 12.7

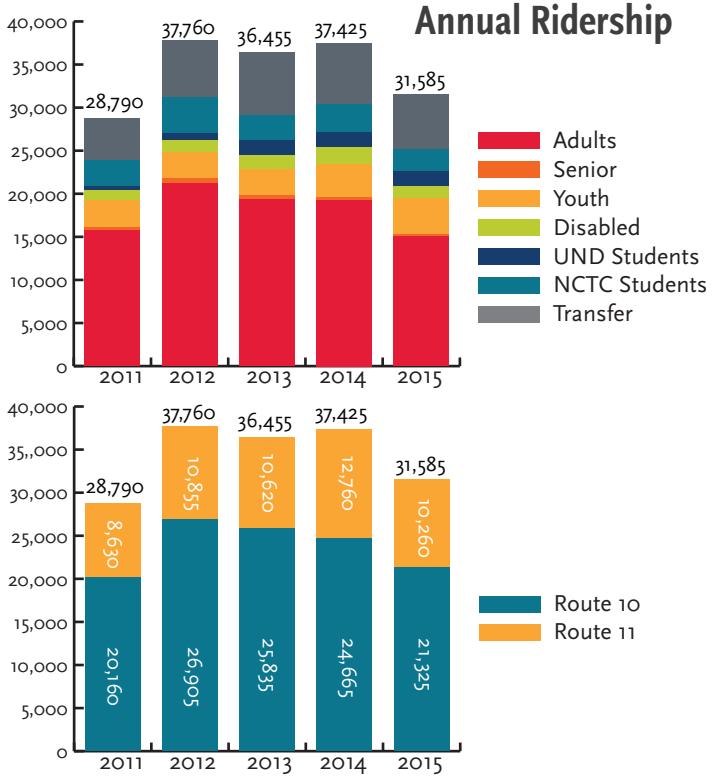
Revenue Miles
- Revenue Miles: 47,792
- Rides per Revenue Mile: 1.04
- CAT System Average: 0.94

GRAND FORKS/EAST GRAND FORKS MPO TRANSIT DEVELOPMENT PLAN UPDATE

Route 10/11



Annual Ridership



Ridership Growth Since 2011:
+ 9.7%

Rider Type	% of 2015 Ridership
Adults	47.7%
Youth	0.8%
Senior	13.0%
Disabled	4.6%
UND Students	5.4%
NCTC Students	8.2%
Transfer	20.4%

2015 Cost of Service:

› Cost of Service: $306,910
› Cost per Passenger: $9.72

Route Highlights

Major Stop Locations

Route 10
› Boardwalk
› Northland College
› Central Avenue & 10th Street NE
› Hugo's

Route 11
› Gertrude & S 4th Street
› Hugo's
› Sacred Heart School
› Town Square Apartments

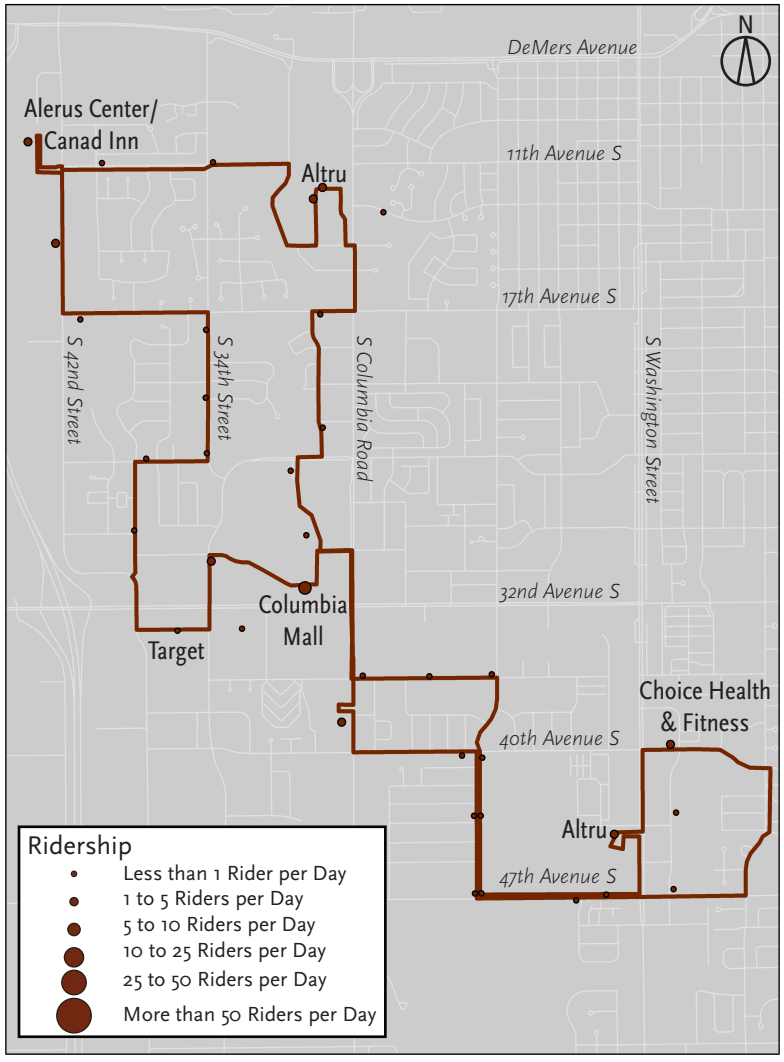
2015 Revenue Metrics

Revenue Hours
› Revenue Hours: 3,336
› Rides per Revenue Hour: 9.5
› CAT System Average: 12.7

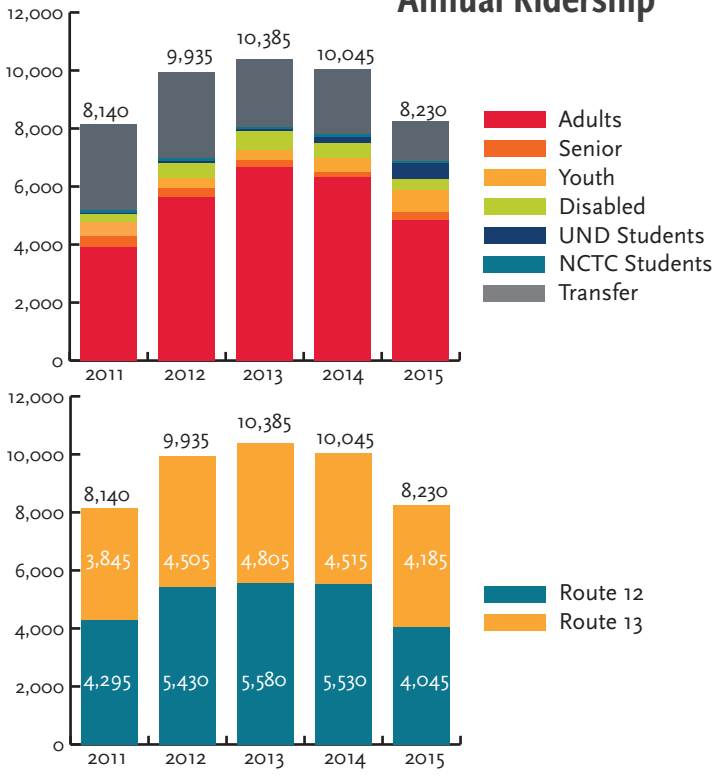
Revenue Miles
› Revenue Miles: 50,100
› Rides per Revenue Mile: 0.63
› CAT System Average: 0.94

GRAND FORKS/EAST GRAND FORKS MPO TRANSIT DEVELOPMENT PLAN UPDATE

Route 12/13



Annual Ridership



Ridership Growth Since 2011:
+ 1.1%

Rider Type	% of 2015 Ridership
Adults	58.8%
Youth	3.3%
Senior	9.4%
Disabled	4.5%
UND Students	6.4%
NCTC Students	1.1%
Transfer	16.4%

2015 Cost of Service:

- Cost of Service: $321,530
- Cost per Passenger: $39.07

Route Highlights

Major Stop Locations

Route 12
- Sleep Inn
- Columbia Mall
- 34th Street & 30th Avenue

Route 13
- McDonalds
- Altru Rehab
- South Medical
- 40th Avenue & 11th Street

2015 Revenue Metrics

Revenue Hours
- Revenue Hours: 3,578
- Rides per Revenue Hour: 2.3
- CAT System Average: 12.7

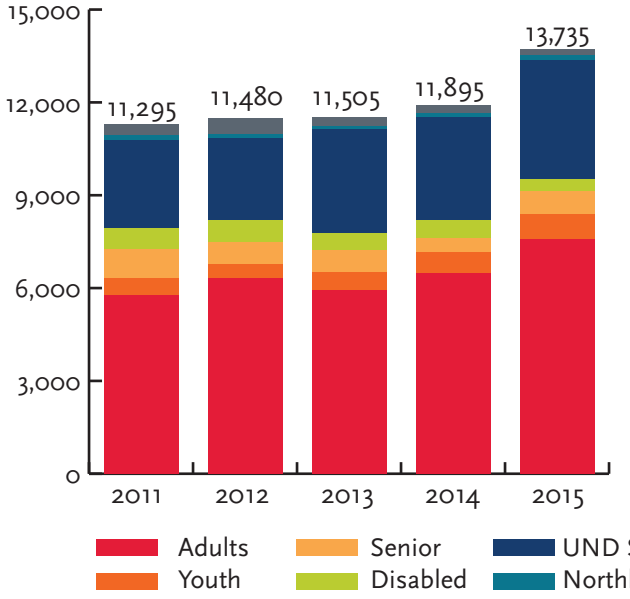
Revenue Miles
- Revenue Miles: 49,790
- Rides per Revenue Mile: 0.17
- CAT System Average: 0.94

GRAND FORKS/EAST GRAND FORKS MPO TRANSIT DEVELOPMENT PLAN UPDATE

Night Route

Annual Ridership

Ridership Growth Since 2011: + 21.6%



Rider Type	% of 2015 Ridership
Adults	55.3%
Youth	5.8%
Senior	5.3%
Disabled	2.9%
UND Students	28.1%
NCTC Students	1.1%
Transfer	1.5%

Route Highlights

Major Stop Locations

› Unavailable

2015 Revenue Metrics

Revenue Hours

› Revenue Hours: 896
› Rides per Revenue Hours: 15.3
› CAT System Average: 12.7

Revenue Miles

› Revenue Miles: 16,921
› Rodes per Revenue Mile: 0.81
› CAT System Average: 0.94

2015 Cost of Service:

› Cost of Service: $121,450
› Cost per Passenger: $8.84

System Performance

System performance and quality of service measures use annually collected data to understand how efficient and effective CAT operates and how attractive it is to riders. These numbers can be compared to other peer systems and provide benchmarks to measure progress against system goals and objectives based on local, state and industry standards. Where available, quality of service metrics are assigned a Level of Service ranging from "A" which is the best possible service or "F" which is the lowest possible service. These thresholds are provided by the *Transit Capacity and Quality of Service Manual Second Edition.* All analysis included in this system performance uses 2015 data.

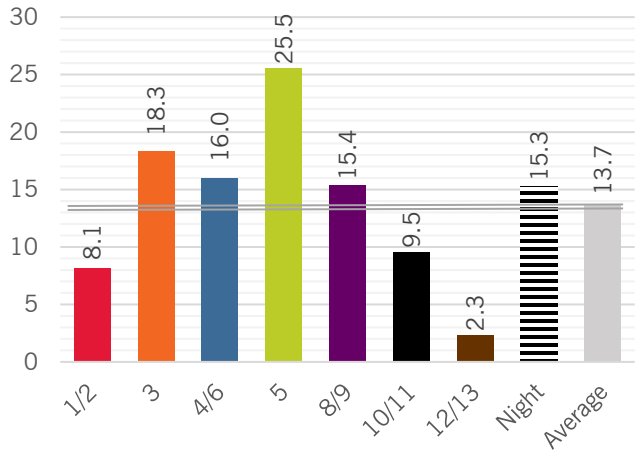
Rides per Revenue Hour and Revenue Mile

Rides per revenue hour is a simple calculation based on the number of riders per each hour a bus is available to carry passengers (revenue hour). Rides per revenue mile is based on the number of riders per mile each bus travels when the bus is available to carry passengers. In 2015, CAT's Fixed Route system provided 13.7 rides per revenue hour and 1.00 per revenue mile. The most efficient routes operate on 30-minute headways; Route 5, provided 25.5 rides per revenue hour and 3.16 rides per revenue mile and Route 3 provided 18.3 rides per revenue hour and 1.36 rides per revenue mile. The revenue hour, revenue mile and ridership analysis is shown in Table 3-1 and is broken down by route in Figure 3-12 and Figure 3-14.

Table 3-1: 2015 Fixed Route System Revenue Hour and Ridership Analysis

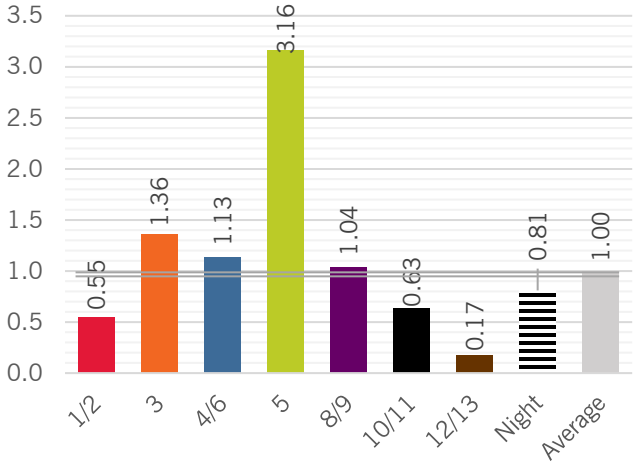
Route	Ridership	Revenue Hours	Revenue Miles	Rides/Revenue Hour	Rides/ Revenue Mile
1/2	27,890	3,450	51,016	8.1	0.55
3	63,135	3,444	46,514	18.3	1.36
4/6	53,615	3,344	47,405	16.0	1.13
5	83,035	3,260	26,275	25.5	3.16
8/9	49,900	3,240	47,792	15.4	1.04
10/11	31,585	3,336	50,100	9.5	0.63
12/13	8,230	3,578	49,790	2.3	0.17
Night Route	13,735	896	16,922	15.3	0.81
Total	336,655	24,547	335,814	-	-
Average	-	-	-	13.7	1.0

Figure 3-12: 2015 Fixed Route Rides per Revenue Hour



2015 Rides per Revenue Hour Total System: 13.7
2015 Rides per Revenue Hour East Grand Forks: 9.5

Figure 3-13: 2015 Fixed Route Rides per Revenue Mile

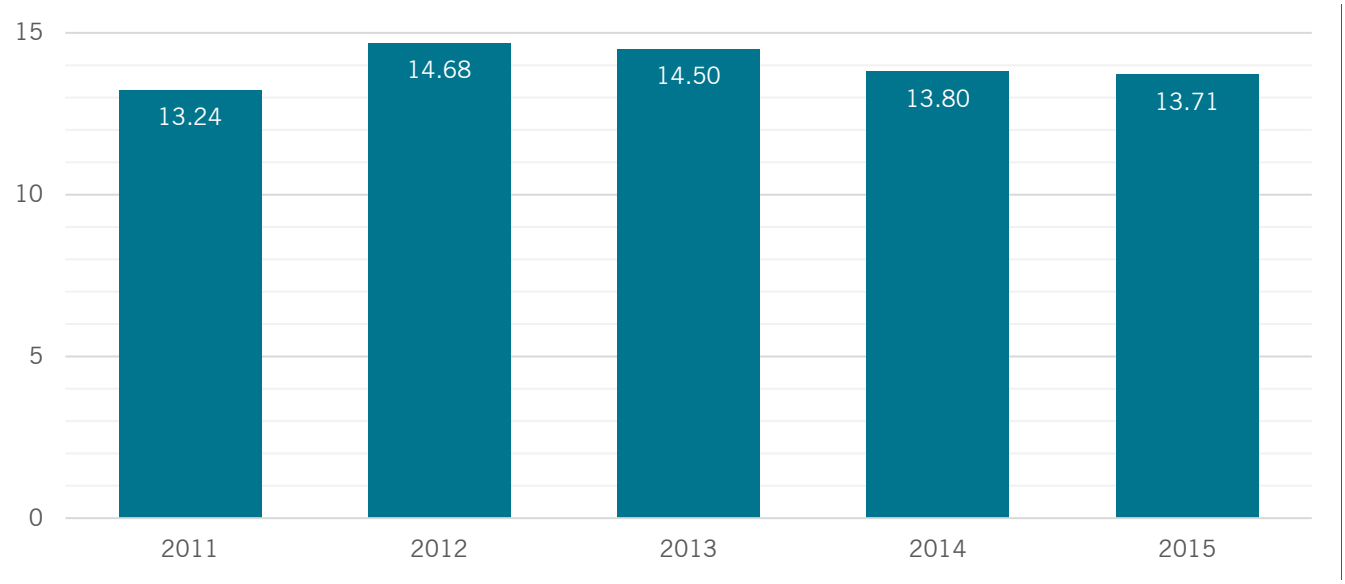


2015 Rides per Revenue Mile Total System: 1.00
2015 Rides per Revenue Hour East Grand Forks: 0.63

Historic Rides per Revenue Hour

2015 Rides per Revenue Hour is only higher than 2011 Rides per Revenue Hour; 2012 saw the highest Rides per Revenue Hour at 14.68 (Figure 3-14).

Figure 3-14: Historical Fixed Route Rides per Revenue Hour



Historic Cost per Revenue Hour

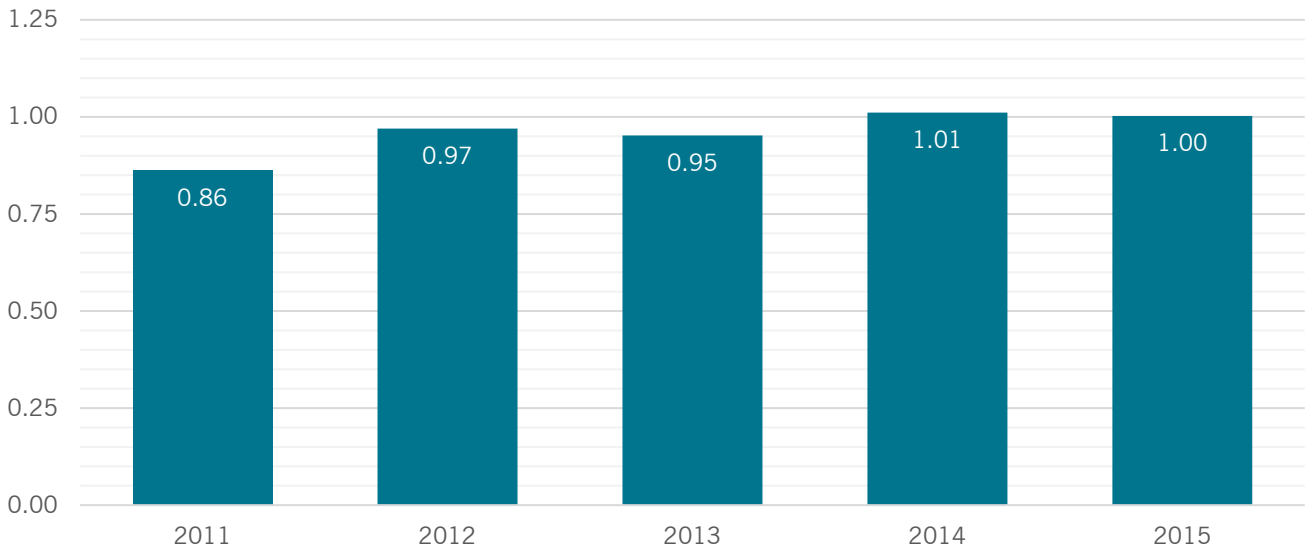
Cost per Revenue Hour was relatively stable from 2011 to 2013, with 2012 experiencing the lowest Cost per Revenue Hour at $73.38, while 2015 experienced the highest Cost per Revenue Hour at $83.94, or 14.4 percent higher than 2012 (Figure 3-15).

Figure 3-15: Historical Fixed Route Cost per Revenue Hour

Historic Rides per Revenue Mile

2011 saw the lowest Rides per Revenue Mile at 0.86, with 2014 experiencing the highest Rides per Revenue Mile at 1.01; 2015 saw a very slight decline to 1.00 Rides per Revenue Mile (Figure 3-16).

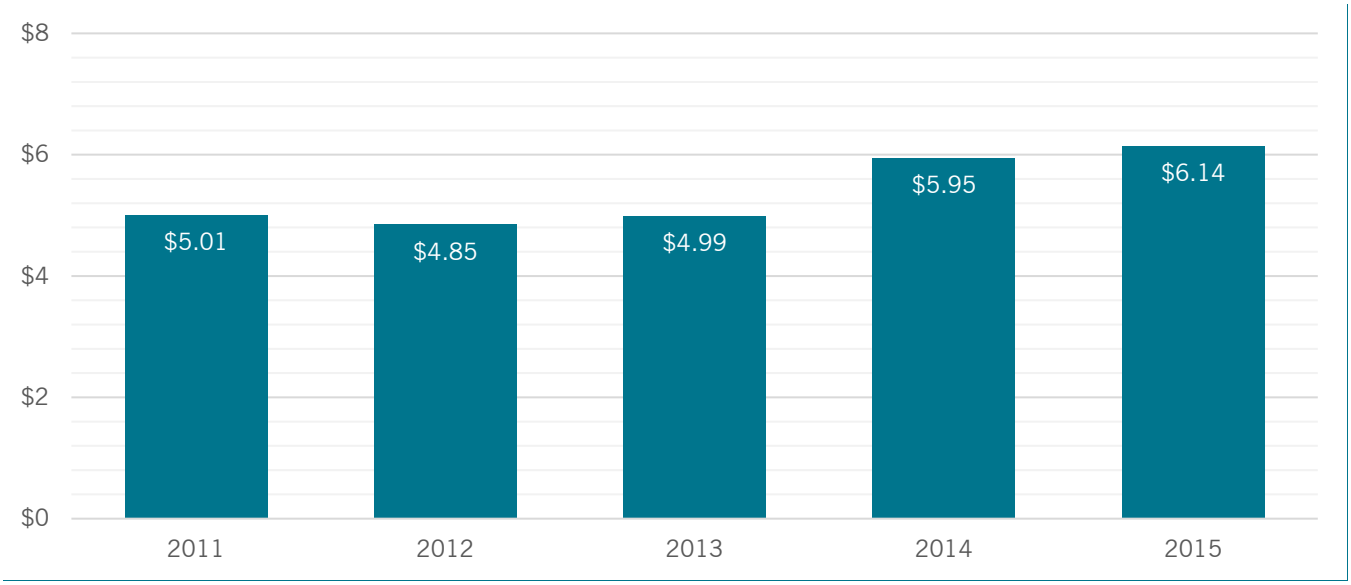
Figure 3-16: Historical Fixed Route Rides per Revenue Mile



Historic Cost per Revenue Mile

Similar to Cost per Revenue Hour, 2015 saw a large increase over previous annual cost per revenue mile from 2011 to 2014. 2012 experienced the lowest Cost per Revenue Mile at $4.85, while 2015 experienced the highest Cost per Revenue Mile at $6.14, 26.6 percent higher than 2013 (Figure 3-17).

Figure 3-17: Historical Fixed Route Cost per Revenue Mile



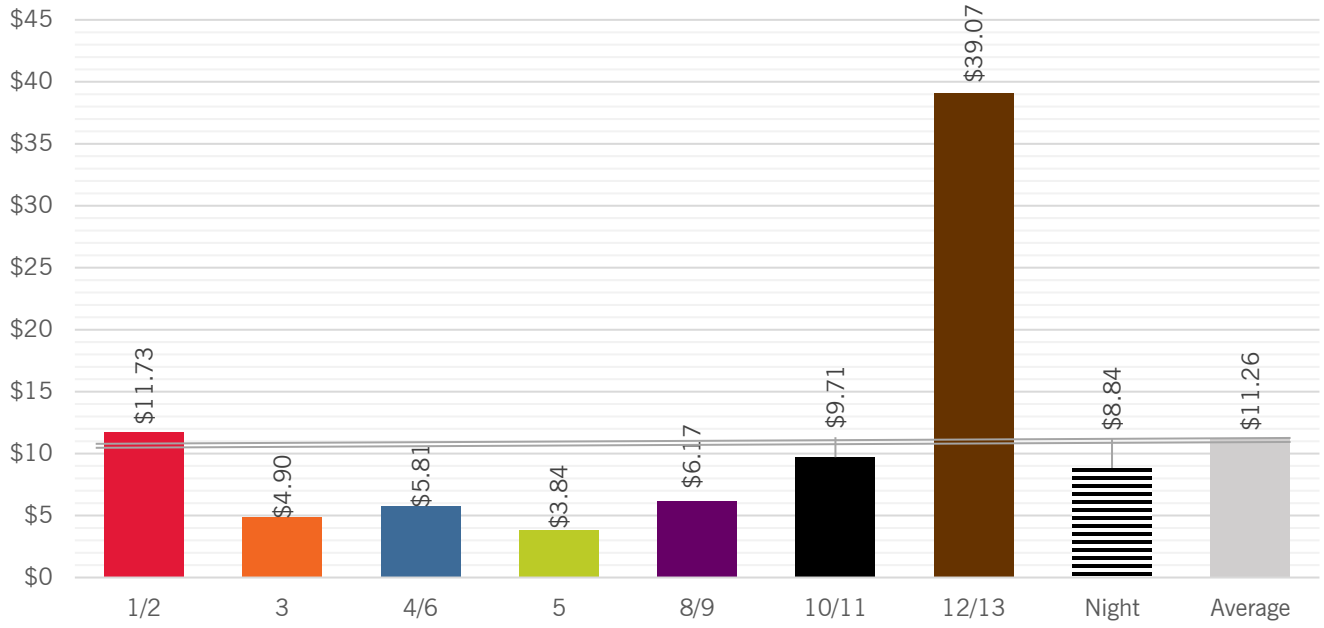
Cost per Passenger

As more people ride CAT, the system becomes more cost-efficient in terms of cost per passenger. Since 2012, the average cost per passenger has increased from $5.00 in 2012 to $6.12 in 2015. The least cost-effective route is also the route with the lowest ridership, Route 12/13 costs $39.07 per passenger, while Route 5, the route with the highest ridership costs just $3.84 per passenger. The average cost per passenger by route is $11.26. This is summarized in Figure 3-18 and broken down by route in Figure 3-19.

Figure 3-18: Historical Fixed Route Cost per Passenger

2015 Total System Cost per Passenger: $6.12
2015 East Grand Forks Cost per Passenger: $9.71

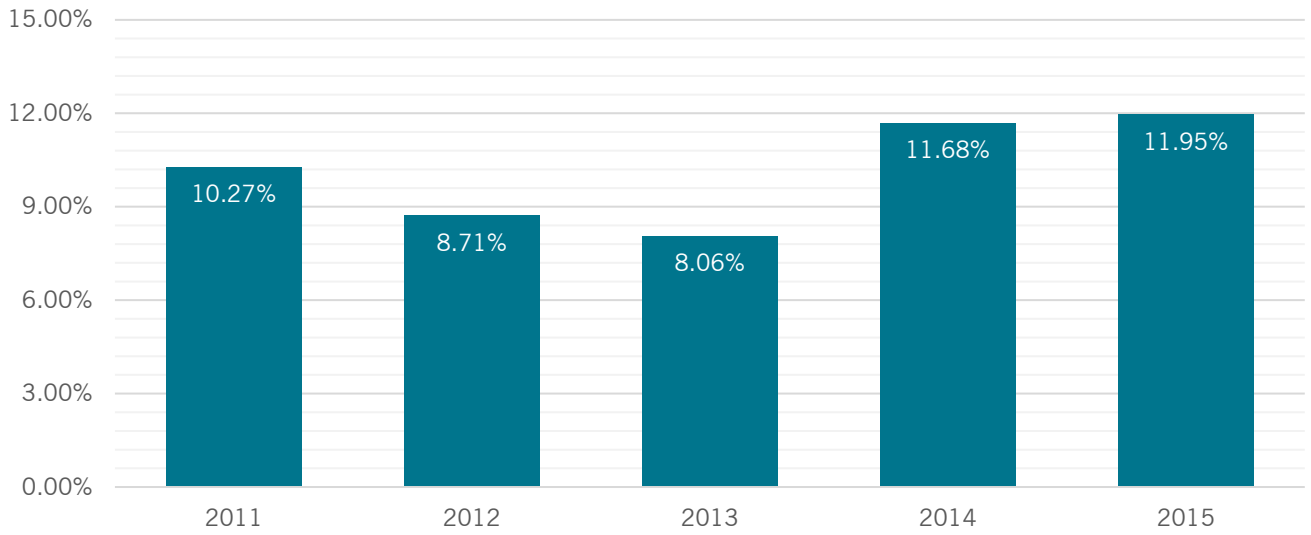
Figure 3-19: 2015 Cost per Passenger by Route



Farebox Recovery

Farebox recovery is a ratio of fares collected relative to the total cost of the service, which has ranged from 8.06 percent in 2013 to 11.95 percent in 2015 (Figure 3-20). In 2015, $246,300 was collected in fares.

Figure 3-20: Fixed Route System Farebox Recovery



2015 Total System Farebox Recovery: 11.95%
2015 East Grand Forks Farebox Recovery: 6.61%

Frequency

Service frequency is a measure of how often a user has access to bus service. This is an important consideration to choice users who may not want to give up the freedom to choose when they travel and do not want to plan their day around transit availability, as described in Table 3-2. Currently, just two routes, Route 3 and Route 5 operate at 30-minute headways. The remaining routes operate at 60-minute headways. Overall, CAT operates at LOS "E".

Table 3-2: Fixed Route System Frequency Level of Service

LOS	Average Headway (Min)	Vehicles Per Hour	Comments
A	< 10 Minutes	> 6	Passengers do not need schedules.
B	10 to 14 Minutes	5 to 6	Frequent service, passengers consult schedules.
C	15 to 20 Minutes	3 to 4	Maximum desirable time to wait if bus is missed.
D	21 to 30 Minutes	2	Service unattractive to choice riders.
E	31 to 60 Minutes	1	Service available during the hour.
F	> 60 Minutes	< 1	Service unattractive to all riders.

2015 Average Headway: 55 Minutes, LOS E.
2015 East Grand Forks Headway: 60 Minutes, LOS E.

Service Coverage

The presence of transit service near a potential users origin *and* destination impact whether an individual can use transit. However, not every location is suitable for transit provision, given low job and household densities do not lend themselves to transit use. An area is considered transit supportive if it has a household density of three per acre or job density of four per acre. Because the system operates with designated stops, "near" was defined as one-quarter mile from any designated stop, per industry standards. Table 3-3 shows the Fixed Route system coverage level of service thresholds.

Using the traffic analysis zones from the travel demand model, allows comparative analysis for 2015 existing transit supportive area. In 2010, 89.0 percent of the nearly 5,900 acres of transit supportive acres were served within one-quarter mile of designated stops (Table 3-4 and Figure 3-21).

Table 3-3: Fixed Route System Coverage Level of Service

LOS	Transit Supportive Area Covered	Comments
A	90% to 100%	Virtually all major origins and destinations served.
B	80% to 89.9%	Most origins and destinations served.
C	70% to 79.9%	About three-quarter of higher-density areas served.
D	60% to 69.9%	About two-thirds of higher-density areas served.
E	50% to 59.9%	At least one-half of the higher-density areas served.
F	< 50%	Less than one-half of the higher-density areas served.

Table 3-4: 2010 Transit Supportive Areas

	Total System	East Grand Forks
Total Area	72,635	
Transit Supportive Area	5,897	642
Within ¼ Mile of Stop	5,246 (89.0%)	536 (83.5%)
Not Within ¼ Mile of Stop	651 (11.0%)	106 (16.5%)

2015 Total System Transit Supportive Area Covered: 89.0%, LOS B
2015 East Grand Forks Transit Supportive Area Covered: 83.5%, LOS B

Span of Service

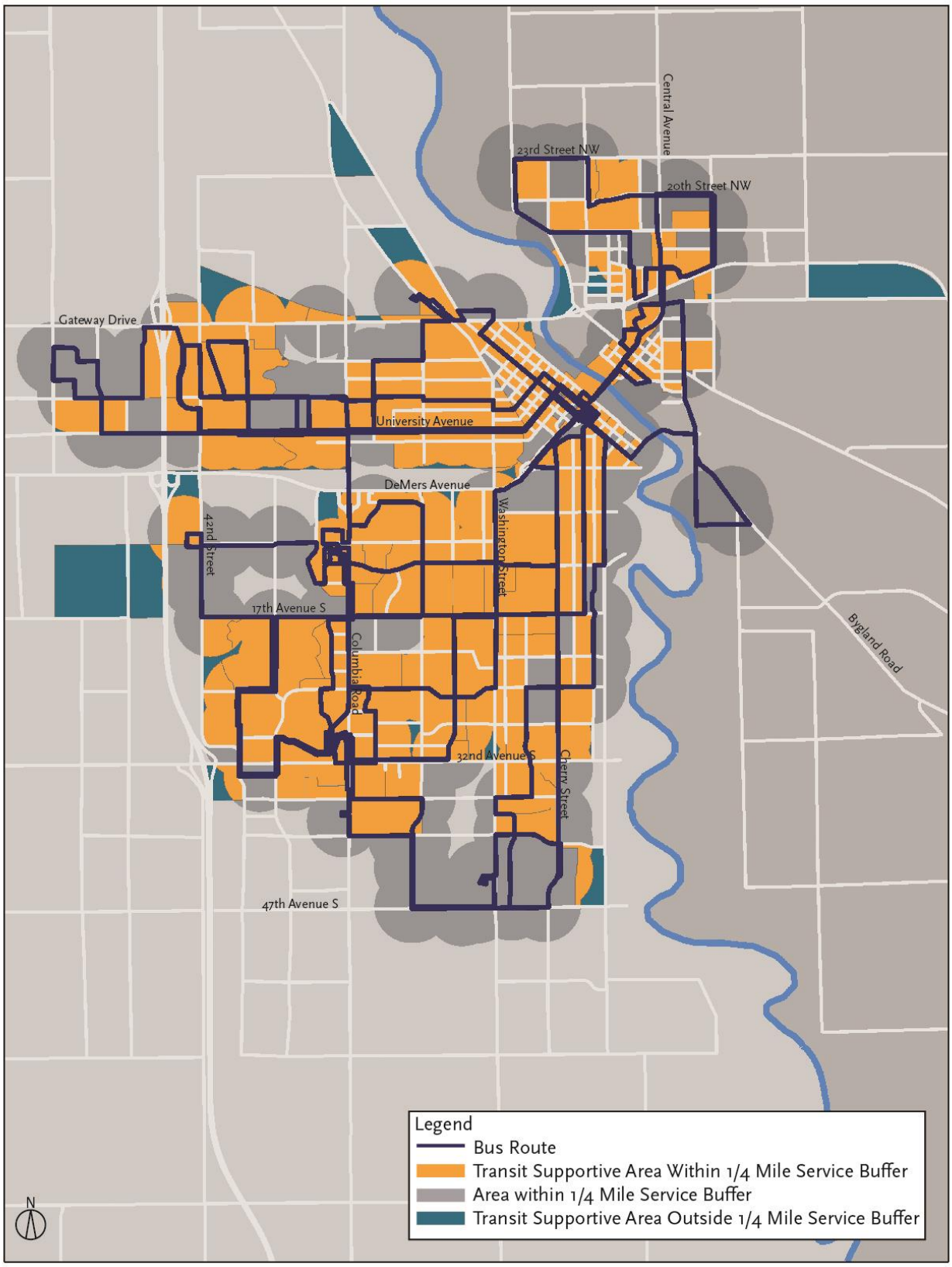
Span of service reflects the number of hours that transit is available. This metric may be important to those who work non-traditional hours or who would like to use transit for shopping, dining or other events. The Fixed Route system hours of service level of service thresholds are shown in Table 3-5. This factor is different for Grand Forks, which offers the Night Route service, increasing its span of service to 15.5 hours, or LOS "C"; East Grand Forks runs service from 6:30 A.M. until 6 P.M. for a span of service of 11.5 hours, or LOS "E".

Table 3-5: Fixed Route System Hours of Service Level of Service

LOS	Hours per Day	Comments
A	19 to 24	Night or owl service provided.
B	17 to 18	Late evening service provided.
C	14 to 16	Early evening service provided.
D	12 to 13	Daytime service provided.
E	4 to 11	Peak hour service/ limited midday service.
F	0 to 3	Very limited or no service.

2015 Hours of Service (Grand Forks): 15.5 Hours, LOS C.
2015 Hours of Service (East Grand Forks): 11.5 Hours, LOS E.

Figure 3-21: 2010 Transit Supportive Areas



Service Hours per Capita

Cities Area Transit provides 0.391 service hours per capita. Broken down, that is 0.392 for Grand Forks and 0.386 for East Grand Forks.

2015 Total System Service Hours Per Capita: 0.391
2015 East Grand Forks Service hours per Capita: 0.386

Transit-Auto Travel Time

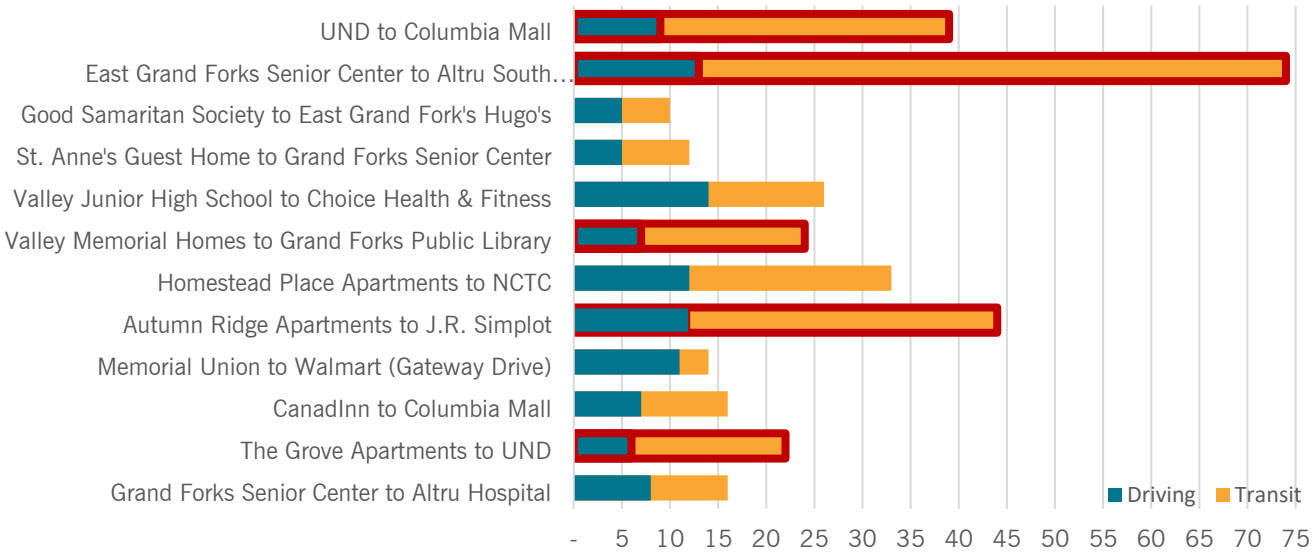
Riders often consider how long transit will take when compared to auto when deciding whether they can reasonably take transit to their destination. Transit travel time includes the time it takes to walk to and from the stop, the bus travel time and any layover that may be necessary. Auto travel times in small cities like Grand Forks and East Grand Forks are often very short, not limited by severe congestion. Table 3-6 shows the level of service thresholds for travel time difference.

Table 3-6: Fixed Route System Transit-Auto Travel Time Level of Service

LOS	Travel Time Difference (Minutes)	Comments
A	0	Faster by transit than by automobile.
B	1 to 15	About as fast by transit as by automobile.
C	16 to 30	Tolerable for choice riders.
D	31 to 45	Round-trip at least an hour longer by transit.
E	46 to 60	Tedious for all riders; may be best possible in small cities.
F	> 60	Unacceptable to most riders.

Using Google Maps and the scheduling information from CAT, the following transit-auto travel times were estimated for a very small sample of major origins and destinations within the metro, as shown in Figure 3-22. On average, transit in Grand Forks – East Grand Forks is about three times longer than driving. However, on average with this sample, the average travel time difference is eighteen minutes.

Figure 3-22: Transit-Auto Travel Time



Red outline indicates transit is more than three times longer than driving.

2015 Average Transit-Auto Travel Time Difference: 18 Minutes, LOS C.

On-Time Performance

Transit riders expect transit to run on time to maintain their own schedules and make transfers when necessary. When routes do not run on schedule it can be indicative of other issues within the system like ineffective transit signal priority, long routes, congested routes, longer than expected boarding time, etc. Transit systems with high on-time performance levels of service are highly reliable and attractive to choice users, while systems with low levels of service may result in users choosing earlier trips to ensure their arrival. Table 3-7 shows the level of service thresholds for on-time performance. For the purposes of this analysis, on-time performance is defined as within five minutes of the posted time. Based on a 30-day sample from September 2016, provided by CAT, CAT's Fixed Route system operates on-time 82.73 percent of the time.

Table 3-7: Fixed Route System On-Time Performance

LOS	On-Time Percentage
A	95% to 100%
B	90% to 94%
C	85% to 89%
D	80% to 84%
E	75% to 79%
F	< 75%

2015 On-Time Performance: 82.73%, LOS D.

Summary of Fixed Route System Performance

The previously described metrics, summarized in Table 3-8, represent a variety of qualities that demonstrate the quality, effectiveness and efficiency of the current Fixed Route System. Later in this report, performance targets will be developed for these metrics.

Table 3-8: Fixed Route System Performance

Metric	2015 Total System	East Grand Forks
Annual Ridership	336,655	31,585
Revenue Hours	24,547	3,336
Revenue Miles	335,815	50,100
Rides per Revenue Hour	13.7	9.5
Rides per Revenue Mile	1.00	0.63
Cost per Passenger	$6.12	$9.71
Farebox Recovery	11.95%	6.61%
Average Headway	55 Minutes	60 Minutes
Transit Support Areas Covered	89.0%	83.5
Hours of Service (Grand Forks)	15.5 Hours	11.5
Service Hours per Capita	0.391	0.386
Average Transit-Auto Travel Time Difference	18 Minutes	
On-Time Performance	82.73%	

DEMAND RESPONSE SYSTEM

CAT's Demand Response system includes Paratransit service and Senior Rider service.

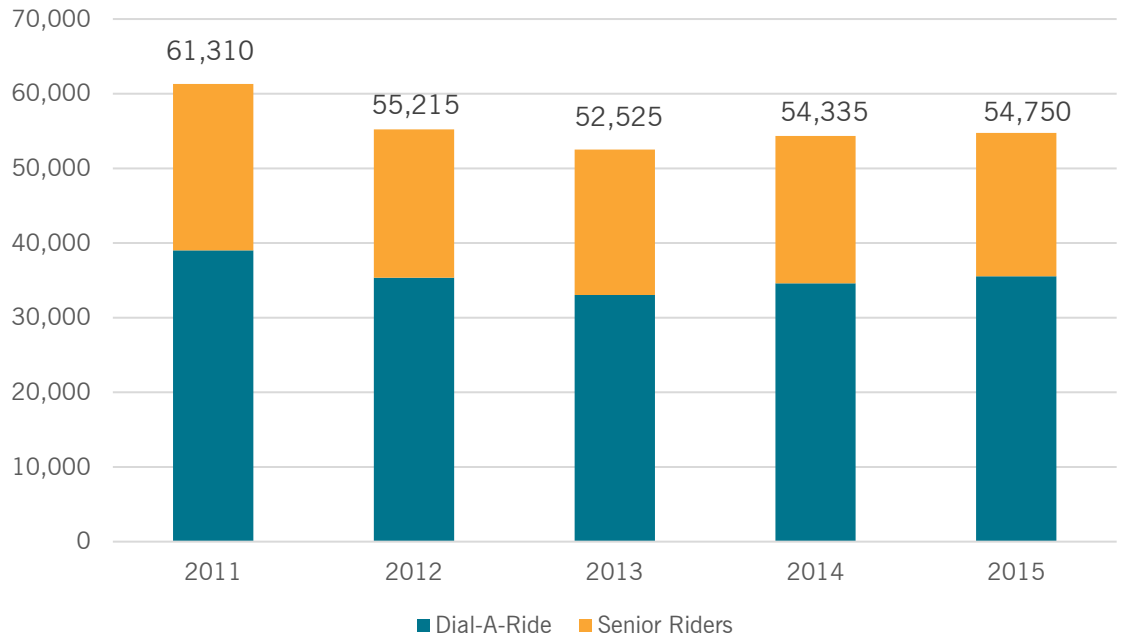
Paratransit service is an origin-to-destination service for all eligible people who are unable to access the Fixed Route service due to a disability. Eligible riders schedule rides within the city limits of Grand Forks and East Grand Forks at a cost to the rider of $3.00 per trip. Paratransit service is available beginning at 6 A.M. until 10 P.M. Monday through Friday and 8 A.M. until 10 P.M. on Saturdays. To request a trip, an eligible rider must schedule all one-way trips by 5:30 P.M. the day before; if the ride needs to be canceled it must be done in advance, at least two hours.

Senior Rider service is an origin-to-destination service for all eligible people who are 62 and older. Again, Senior Rider services can be scheduled within the city limits of Grand Forks and East Grand Forks at a cost to the rider of $3.00 per trip. It operates from 6 A.M. until 10 P.M. Monday through Friday and 8 A.M. until 10 P.M. on Saturdays. To request a trip, an eligible rider must schedule all one-way trips by 5:30 P.M. the day before; if the ride needs to be canceled it must be done in advance, at least two hours.

HISTORICAL TRENDS

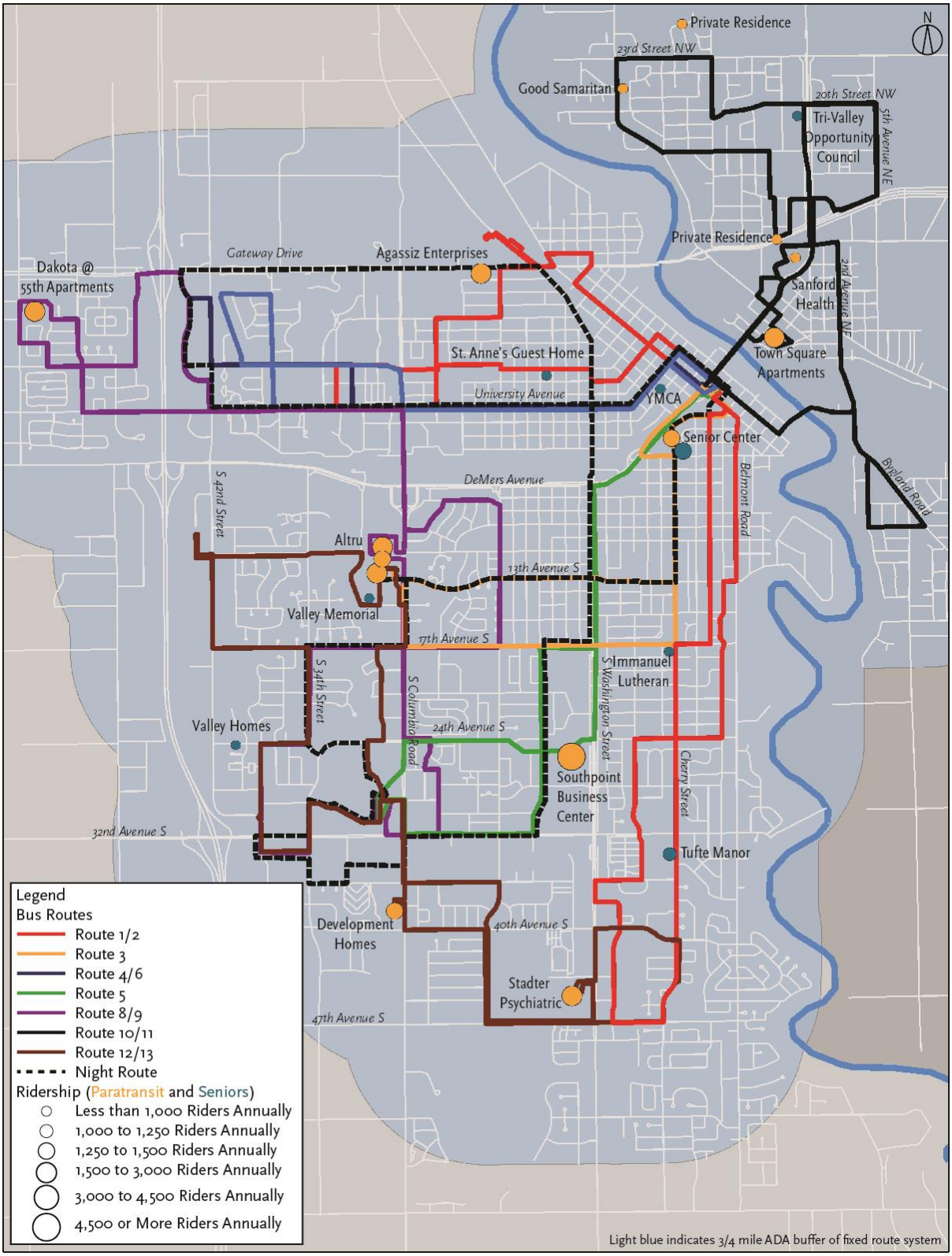
Since 2011, ridership has decreased nearly 12 percent (Figure 3-23). This decline in ridership is likely related to the change in dispatching functions and rider certification. The ridership decline is fairly evenly split between Paratransit and Senior Rider, with ridership declines of 3,460 and 3,100 respectively. 2013 was the lowest ridership year, with ridership growing slightly in both 2014 and 2015. Senior Riders made up just 35.1 percent of 2015 ridership. In 2015, just 7.3 percent of riders originated in East Grand Forks. The Demand Response service area with the largest origins and destinations are shown in Figure 3-24.

Figure 3-23: Historical Trends in Demand Response Ridership



2015 Annual Demand Response Ridership: 54,750

Figure 3-24: Demand Response Service Area with Largest Origins and Destinations



System Performance

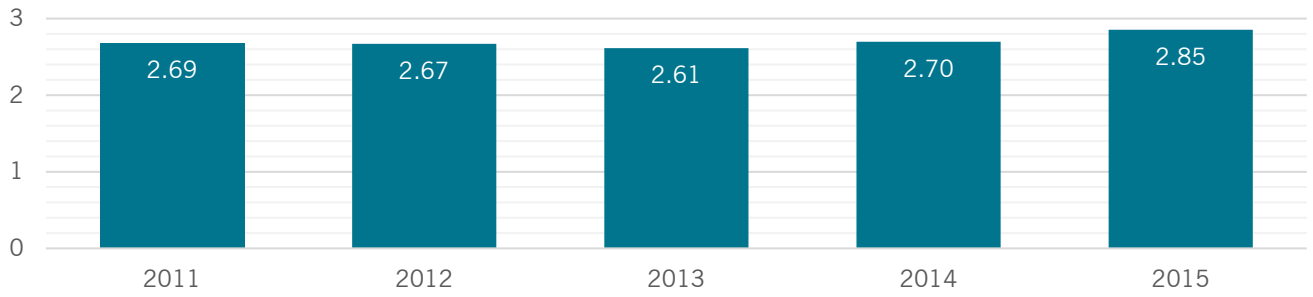
System performance and quality of service measures are slightly different for Demand Response systems. Many of these systems are provided in accordance with strict Americans with Disabilities Act requirements and are not available to the general public. Therefore, the considerations in trying to attract choice riders are not applicable, but this does not mean though that the system should not strive to maximize efficiency, effectiveness and quality of service.

System performance and quality of service measures for the Demand Response system used annually collected data. These numbers can be compared to other peer systems and provide benchmarks to measure progress against system goals and objectives based on local, state and industry standards. Quality of service metrics are assigned a Level of Service ranging from "1" which is the best possible service or "8" which is the lowest possible service. These thresholds are provided by the *Transit Capacity and Quality of Service Manual Second Edition.*

Rides per Revenue Hour

Rides per revenue hour is a simple calculation based on the number of riders per each hour a bus is available to carry passengers (revenue hour). Rides per revenue mile is based on the number of riders per mile each bus travels when the bus is available to carry passengers. In 2015, CAT's Demand Response system had 19,200 Revenue Hours, down 15.7 percent from 2011, and provided 54,750 rides. This results in 2.85 rides per revenue hour for 2015, which is the highest since before 2011. The revenue hour, revenue mile and ridership analysis is shown in Figure 3-25.

Figure 3-25: Historical Demand Response Rides per Revenue Hour

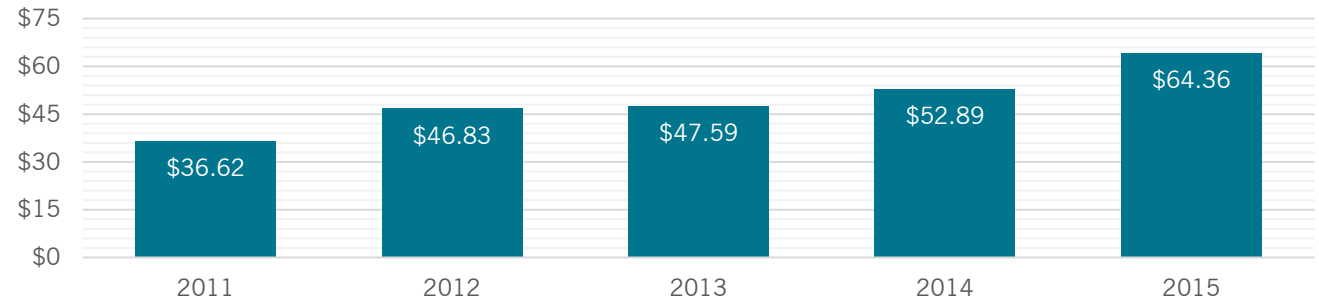


2015 Rides per Revenue Hour: 2.85

Cost per Revenue Hour

Cost per Revenue hour for the Demand Response system has been steadily increasing since 2011, as shown in Figure 3-26. In 2015, it reached $64.36, which is 75.8 percent higher than the 2011 Cost per Revenue Hour.

Figure 3-26: Historical Demand Response Cost per Revenue Hour

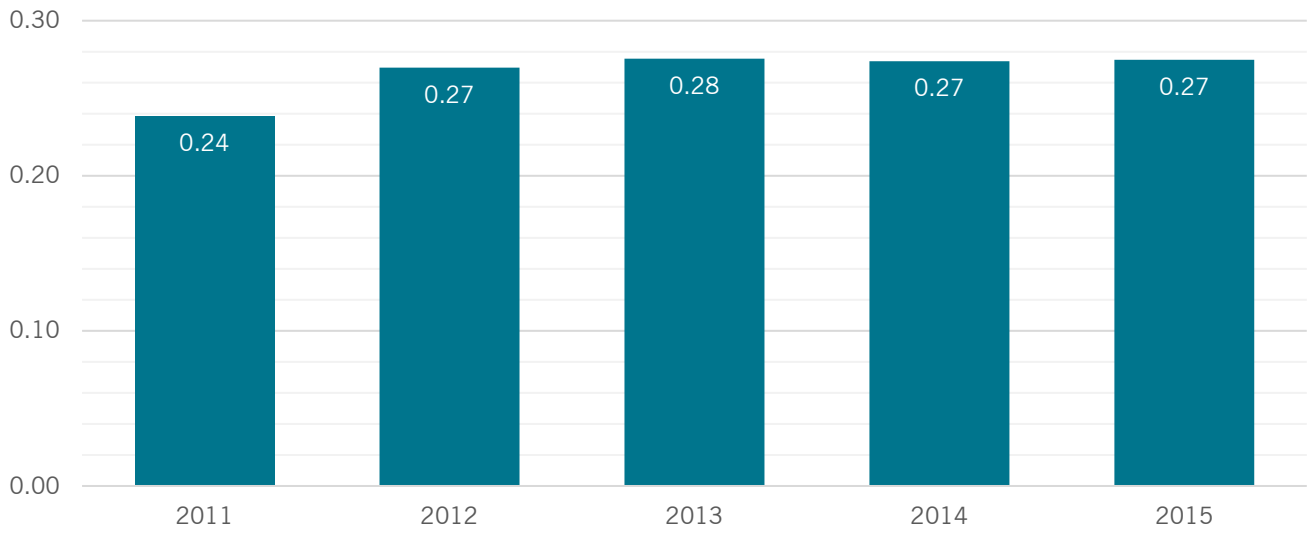


2015 Cost per Revenue Hour: $64.36

Rides per Revenue Mile

Rides per revenue mile is based on the number of riders per mile each bus travels when the bus is available to carry passengers. In 2015, CAT's Demand Response system had 199,250 Revenue Miles and provided 54,750 rides. This results in 0.27 rides per revenue mile for 2015. Rides per Revenue Mile has remained nearly constant since 2012, as shown in Figure 3-27.

Figure 3-27: Historical Demand Response Rides per Revenue Mile

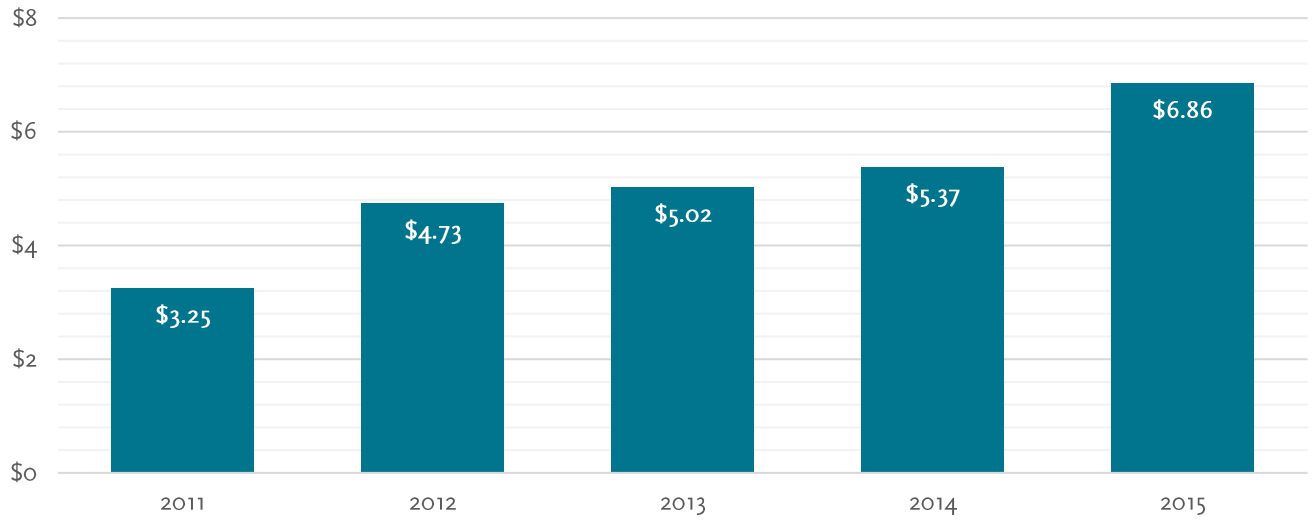


2015 Rides per Revenue Mile: 0.27

Cost per Revenue Mile

Similar to Cost per Revenue Hour, Cost per Revenue Mile has been increasing since 2011. As shown in Figure 3-28, Cost per Revenue Mile reached $6.86 per mile in 2015, or 90.8 percent higher than 2011 Cost per Revenue Mile.

Figure 3-28: Historical Demand Response Cost per Revenue Mile

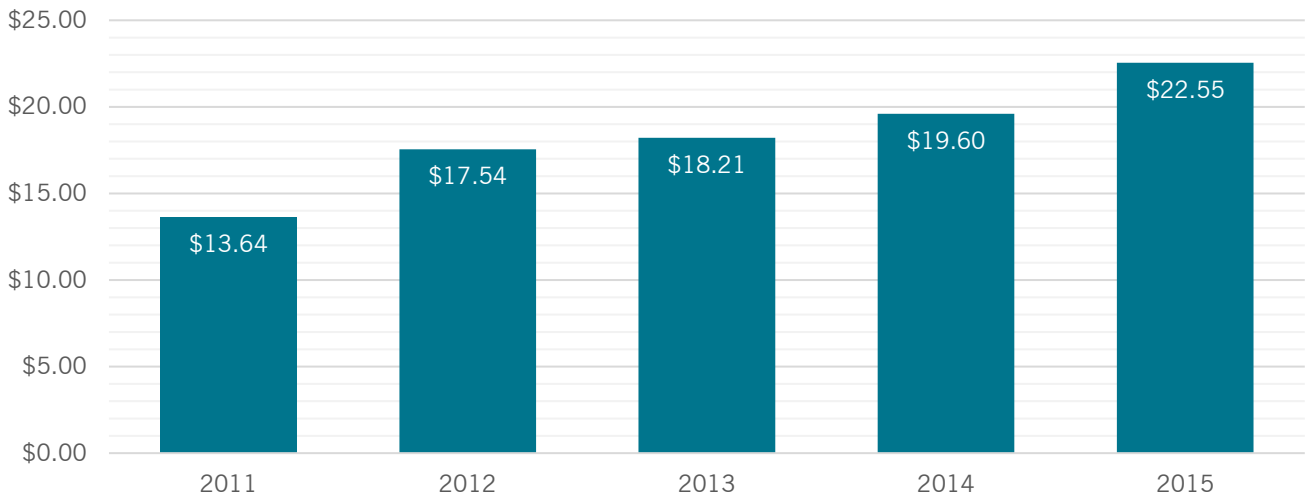


2015 Cost per Revenue Mile: $6.86

Cost per Ride

In 2015, the operating cost of the Demand Response System surpassed $827 thousand and provided 54,750 rides. In 2015, the average Cost per Ride rose to $22.55, which is 65.3 percent higher than 2011's Cost per Ride, the five-year low at $13.64 (Figure 3-29).

Figure 3-29: Historical Demand Response Cost per Ride

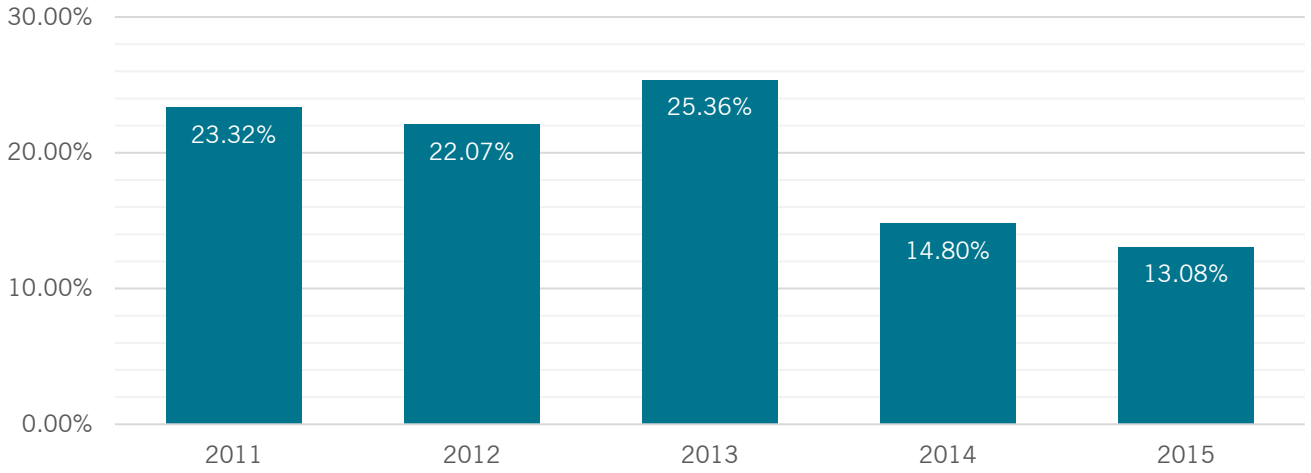


2015 Cost per Ride: $22.55

Farebox Recovery

The Demand Response system has traditionally recovered more costs through the farebox than the Fixed Route system. The farebox recovery rate has fallen from its five-year high in 2013 at 25.36 percent to just 13.08 percent in 2015 (Figure 3-30). This is a 48.4 percent decline in farebox recovery.

Figure 3-30: Demand Response Farebox Recovery



2015 Farebox Recovery: 13.08%

Service Coverage

The Demand Response system serves all areas within the city boundaries of Grand Forks and East Grand Forks, which exceeds the ¾ mile service buffer required by the Americans with Disabilities Act.

Span of Service

Like Fixed Route service, the span of service for Demand Response service is a measure of the number of hours the service is available. Unlike the Fixed Route service, the Demand Response performance measure includes the number of days per week the service is available. The CAT Demand Response system runs from 6 A.M. to 10 P.M. Monday through Friday and 8 A.M. to 10 P.M. on Saturdays. There is no service on Sunday. The average hours of service is 15.67, or Level of Service 2, as shown in Table 3-9.

Table 3-9: Demand Response System Hours of Service Level of Service

Hours per Day	6 + Days per Week	5 Days per Week	3 to 4 Days per Week	2 Days per Week	1 Days per Week	0.5 Days per Week	< 0.5 Days per Week
≥ 16.0	LOS 1	LOS 2	LOS 4	LOS 5	LOS 6	LOS 7	LOS 8
12.0 – 15.9	LOS 2	LOS 3	LOS 4	LOS 5	LOS 6	LOS 7	LOS 8
9.0 – 11.9	LOS 3	LOS 4	LOS 4	LOS 6	LOS 6	LOS 7	LOS 8
4.0 – 8.9	LOS 5	LOS 5	LOS 5	LOS 6	LOS 7	LOS 7	LOS 8
< 4.0	LOS 6	LOS 6	LOS 6	LOS 7	LOS 8	LOS 8	LOS 8

2015 Hours of Service: 15.67 Hours, LOS 2.

Service Hours per Capita

With just over 19,000 revenue hours, the CAT Demand Response system has 0.31 service hours per capita.

2015 Service Hours per Capita: 0.31.

Unserved Trips

This performance measure seeks to understand two components of reliability. First, if trips are denied due to lack of capacity and second, if trips are booked and scheduled but do not show up for the trip. In 2015, CAT had zero unserved trips, for LOS 1, as shown in Table 3-10.

Table 3-10: Demand Response System Unserved Trips

LOS	Unserved Trips
1	0 to 1%
2	1% to 2%
3	2% to 4%
4	4% to 6%
5	6% to 8%
6	8% to 10%
7	10% to 12%
8	More than 12%

2015 Unserved Trips: 0, LOS 1.

Response Time

Response time is a measure of how much advance planning a rider must undergo to schedule a ride on the Demand Response system. Fast and convenient service should be a goal, but limitations in service, fleet and funding can limit these characteristics. Level of Service "1" represents very prompt service, similar to a taxi ride, while Level of Service

"8" requires weeks of preplanning, as shown in Table 3-11.CAT provides next day service, requiring an appointment and some planning. At this time, it is unlikely that CAT will drastically change its response time.

Table 3-11: Demand Response System Response Time

LOS	Response Time	Comments
1	Up to ½ Hour	Very prompt response, similar to exclusive-ride taxi service.
2	More than ½ Hour, up to 2 Hours	Prompt response; considered immediate response for service.
3	More than 2 Hours, Same Day Service	Requires planning, but can still travel the day trip is requested.
4	24 Hours in Advance	Requires some advance planning.
5	48 Hours in Advance	Requires more advance planning.
6	48 Hours in Advance, Up to 1 Week	Requires advance planning.
7	More than 1 Week, Up to 2 Weeks	Requires considerable advance planning, may still work for some trips.
8	More than 2 Weeks, or Unavailable	Requires significant advance planning or service is unavailable.

2015 Response Time: 24 Hours in Advance, LOS 4.

Summary of Demand Response System Performance

The previously described metrics, summarized in Table 3-12, represent a variety of qualities that demonstrate the quality, effectiveness and efficiency of the current Demand Response System. Later in this report, performance targets will be developed for these metrics.

Table 3-12: 2015 Demand Response System Performance

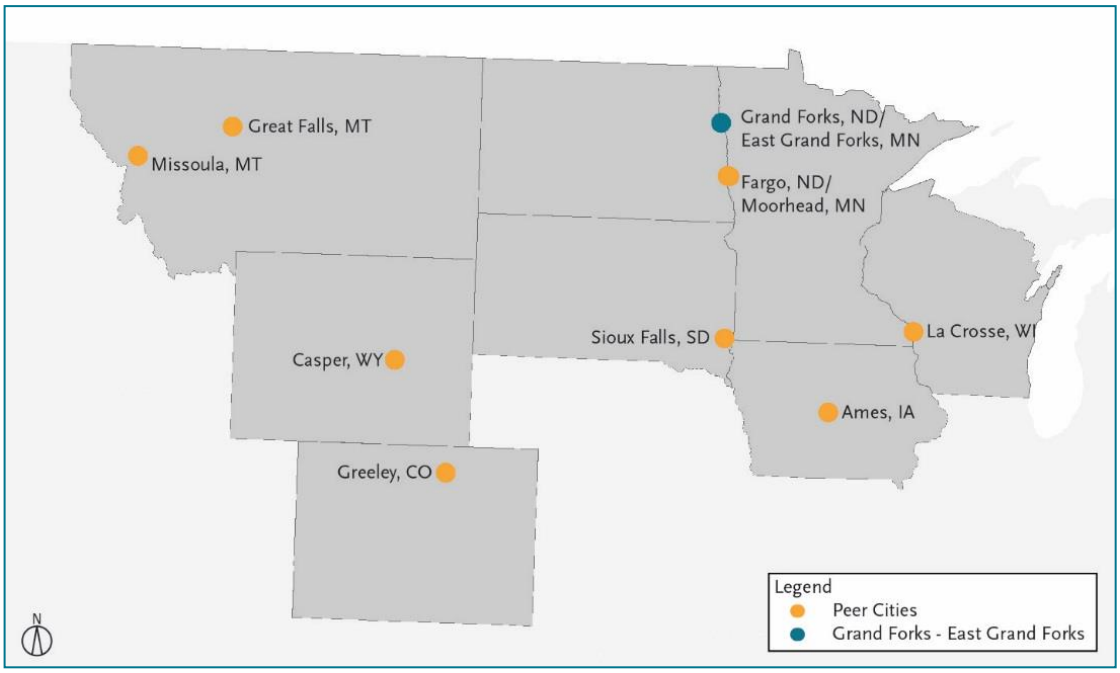
Metric	2015 Performance
Annual Ridership	54,750
Rides per Revenue Hour	2.85
Rides per Revenue Mile	0.27
Cost per Ride	$22.55
Span of Service	15.67 Hours
Service Hours per Capita	0.31
Unserved Trips	0
Response Time	24 Hours in Advance

PEER ANALYSIS

Comparing CAT's performance measures year-over-year is a way to measure progress towards a set of goals, however comparing performance measures against peer systems' performance is a way to establish whether CAT is performing well when compared to similar geographical, demographic and economic systems. The performance of CAT was compared to eight peer systems relative to system characteristics and efficiencies. The seven peer systems include

- LaCrosse, Wisconsin
- Sioux Falls, South Dakota
- Missoula, Montana
- Greeley, Colorado
- Ames, Iowa
- Great Falls, Montana
- Fargo, North Dakota/Moorhead, Minnesota
- Casper, Wyoming

Figure 3-31: Peer Cities



The 2014 Reports from the National Transit Database were used as the basis of the peer analysis to ensure that the comparisons are equal for all systems. The 2014 system performance measures used in this peer analysis include:

- Farebox Recovery is the percentage of total operating costs collected from users. The higher this percentage is, the more cost effective the system.
- Cost per Revenue Mile is the cost per mile traveled while the bus was in service. The lower this number is, the more cost effective the system.
- Cost per Revenue Hour is the cost per hour the bus was in service. The lower this number is, the more cost effective the system.
- Cost per Rider is the cost per passenger served by the system. The lower this number is the more cost effective the system.
- Riders per Revenue Mile is the number of passengers per mile traveled while the bus was in service. The higher this number is, the more effective the system.
- Riders per Revenue Hour is the number of passengers per hour the bus was in service. The higher this number is, the more effective the system.

Fixed Route Peer Analysis

Within the peer systems, CAT operates in the second smallest metro, just 61,270 people, only Ames is smaller, with 60,440 people. It is the third densest metro at 2,553 people per square miles, only Ames and Greeley are denser. The Fixed Route characteristics are shown in Table 3-13 and performance in Table 3-14; productivity per revenue hour is shown again in Figure 3-32 and productivity per revenue mile in Figure 3-33. In 2014, CAT's Fixed Route system:

- Recovered about 11.7 percent of operating costs through farebox revenue. Excluding Ames, CAT is 4.8 percent higher than the Peer Cities Average. Including Ames, CAT is 27.3 percent lower than the total Peer Cities Average.
- Cost $5.95 per revenue mile, which is 2.4 percent higher than the total Peer Cities Average.
- Cost $81.21 per revenue hour, which is 12.0 percent higher than the total Peer Cities Average.
- Cost $5.89 per rider, which is 27.1 percent higher than the Peer Cities Average excluding Ames and 39.6 percent higher than the total Peer Cities Average.
- Had 1.01 rides per revenue mile, which is 28.2 percent lower than the Peer Cities Average excluding Ames. Including Ames, CAT is 55.3 percent lower than the total Peer Cities Average.
- Had 13.80 rides per revenue hour, which is 23.7 percent lower than the Peer Cities Average excluding Ames. Including Ames, CAT is 50.1 percent lower than the total Peer Cities Average.

Table 3-13: Fixed Route Peer Characteristics

City	Population Density	Fleet Size	Ridership	Fare Revenue	Operating Expenses	Revenue Hours	Revenue Miles
LaCrosse, WI	1,978	14	1,192,752	$633,582	$4,661,352	54,215	766,569
Sioux Falls, SD	2,450	28	955,357	$573,128	$4,234,877	62,669	748,928
Missoula, MT	1,826	18	901,166	$246,052	$3,953,204	44,728	580,130
Greeley, CO	2,874	12	532,094	$381,046	$2,513,415	32,384	422,461
Great Falls, MT	2,103	13	436,041	$237,839	$2,304,985	33,357	419,762
Fargo, ND/Moorhead, MN	2,524	30	2,223,701	$1,015,343	$7,646,574	102,428	1,314,805
Casper, WY	2,152	7	165,734	$61,322	$1,032,593	24,621	299,041
Ames, IA	2,628	74	6,609,229	$4,384,130	$8,679,250	116,077	1,200,141
Total Peer Cities Average	2,317	24.5	1,627,009	$941,555	$4,378,281	58,810	718,980
Peer Cities Average excl. Ames	2,272	17.4	915,264	$449,759	$3,763,857	50,629	650,242
Grand Forks-East Grand Forks	2,553	8	346,673	$238,360	$2,040,284	25,125	342,846

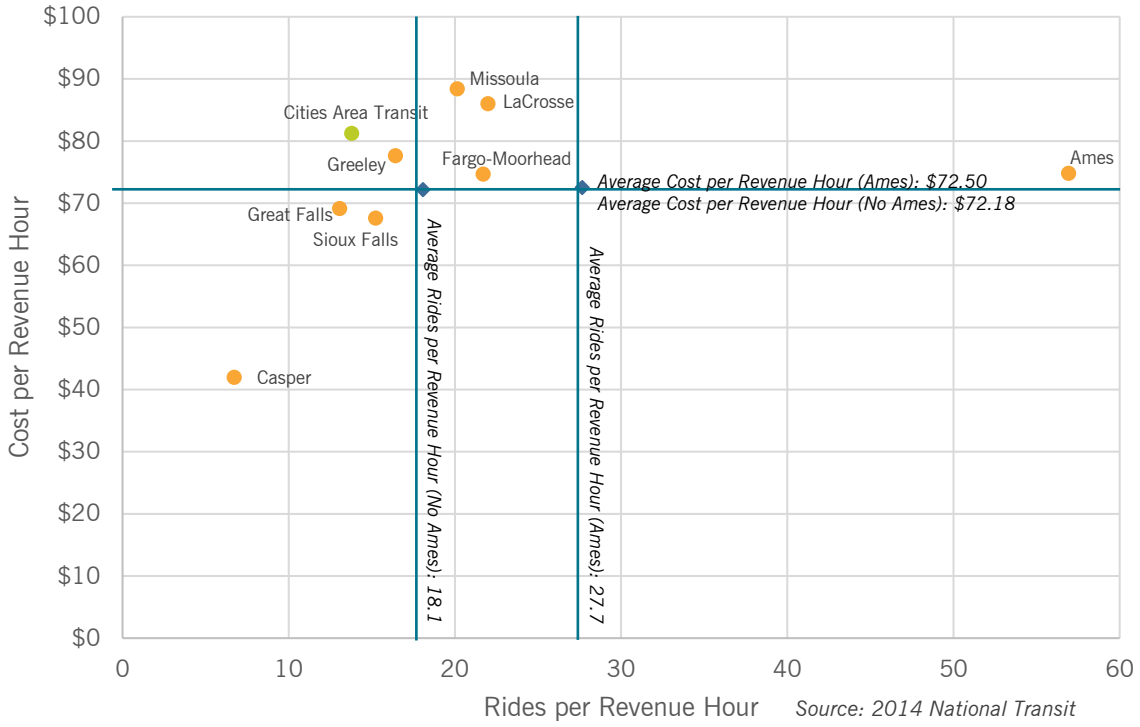
Source: 2014 National Transit Database

Table 3-14: Fixed Route Peer Performance

City	Farebox Recovery	Cost per Revenue Mile	Cost per Revenue Hour	Cost per Ride	Ride per Revenue Mile	Ride per Revenue Hour	Average Fleet Age
LaCrosse, WI	13.6%	$6.08	$85.98	$3.91	1.56	22.00	9.5
Sioux Falls, SD	13.5%	$5.65	$67.58	$4.43	1.28	15.24	8.6
Missoula, MT	6.2%	$6.81	$88.38	$4.39	1.55	20.15	6.9
Greeley, CO	15.2%	$5.95	$77.61	$4.72	1.26	16.43	4.3
Great Falls, MT	10.3%	$5.49	$69.10	$5.29	1.04	13.07	4.8
Fargo, ND/Moorhead, MN	13.3%	$5.82	$74.65	$3.44	1.69	21.71	8.55
Casper, WY	5.9%	$3.45	$41.94	$6.23	0.55	6.73	5.2
Ames, IA	50.5%	$7.23	$74.77	$1.31	5.51	56.94	8.8
Total Peer Cities Average	16.1%	$5.81	$72.50	$4.21	2.26	27.67	7.1
Peer Cities Average excl. Ames	11.1%	$5.61	$72.18	$4.63	1.41	18.08	6.8
Grand Forks-East Grand Forks	11.7%	$5.95	$81.21	$5.89	1.01	13.80	6.2

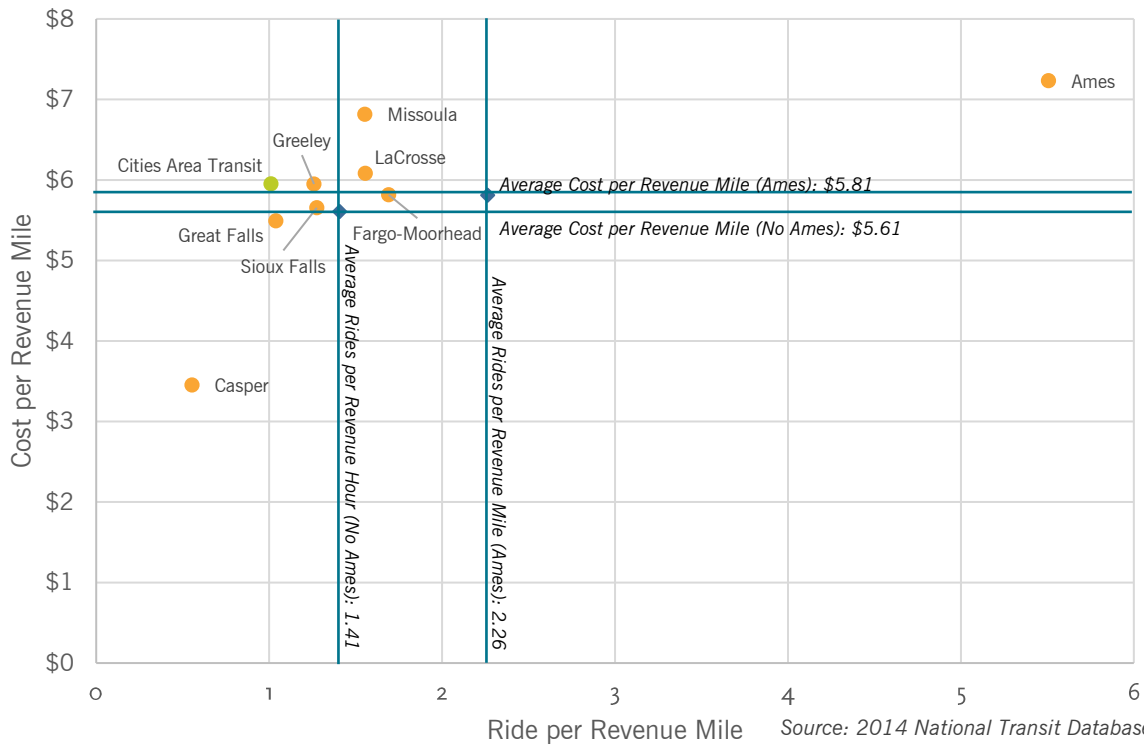
Source: 2014 National Transit Database

Figure 3-32: Fixed Route Peer Analysis Productivity per Revenue Hour



Source: 2014 National Transit

Figure 3-33: Fixed Route Peer Analysis Productivity per Revenue Mile



Source: 2014 National Transit Database

Demand Response Peer Analysis

The Demand Response characteristics are shown in Table 3-15 and performance in Table 3-16; productivity per revenue hour is shown again in Figure 3-35 and productivity per revenue mile in Figure 3-34. In 2014, CAT's Demand Response system

- Recovered about 14.8 percent of operating costs through farebox revenue. Excluding Ames, CAT is 16.6 percent lower than the Peer Cities Average. Including Ames, Iowa, CAT is 9.1 percent lower than the total Peer Cities Average.
- Cost $5.37 per revenue mile, which is 18.0 percent higher than the total Peer Cities Average.
- Cost $52.89 per revenue hour, which is 1.8 percent higher than the total Peer Cities Average.
- Cost $19.60 per rider, which is 16.8 percent lower than the total Peer Cities Average.
- Had 0.27 rides per revenue mile, which is 49.7 percent higher than the Peer Cities Average excluding Ames. Including Ames, CAT is 38.9 percent higher than the total Peer Cities Average.
- Had 2.7 rides per revenue hour, which is 25.8 percent higher than the Peer Cities Average excluding Ames. Including Ames, CAT is 19.5 percent higher than the total Peer Cities Average.

Table 3-15: Demand Response Peer Characteristics

City	Population Density	Fleet Size	Ridership	Fare Revenue	Operating Expenses	Revenue Hours	Revenue Miles
LaCrosse, WI	1,978	14	30,430	$352,457	$528,698	27,032	346,965
Sioux Falls, SD	2,450	22	132,387	$224,100	$3,751,509	53,154	625,026
Missoula, MT	1,826	7	21,602	$88,374	$678,057	9,896	120,069
Greeley, CO	2,874	6	23,881	$48,281	$847,463	13,496	136,604
Great Falls, MT	2,103	6	31,965	$59,000	$445,408	12,058	141,479
Fargo, ND/Moorhead, MN	2,524	16	62,222	$211,421	$1,634,340	30,682	392,458
Casper, WY	2,152	7	52,202	$63,768	$958,523	18,833	215,582
Ames, IA	2,628	3	10,552	$11,100	$183,149	3,461	34,737
Total Peer Cities Average	2,317	10	45,655	$132,313	$1,128,393	21,077	251,615
Peer Cities Average excl. Ames	2,272	11	50,670	$149,629	$1,263,428	23,593	282,598
Grand Forks-East Grand Forks	2,553	10	54,336	$157,631	$1,065,005	20,136	198,365

Source: 2014 National Transit Database

Table 3-16: Demand Response Peer Performance

City	Farebox Recovery	Cost per Revenue Mile	Cost per Revenue Hour	Cost per Ride	Ride per Revenue Mile	Ride per Revenue Hour	Average Fleet Age
LaCrosse, WI	66.7%	$1.52	$19.56	$17.37	0.09	1.13	7.4
Sioux Falls, SD	6.0%	$6.00	$70.58	$28.34	0.21	2.49	4.3
Missoula, MT	13.0%	$5.65	$68.52	$31.39	0.18	2.18	5.6
Greeley, CO	5.7%	$6.20	$62.79	$35.49	0.17	1.77	5.5
Great Falls, MT	13.2%	$3.15	$36.94	$13.93	0.23	2.65	3.6
Fargo, ND/Moorhead, MN	12.9%	$4.16	$53.27	$26.27	0.16	2.03	5.2
Casper, WY	6.7%	$4.45	$50.90	$18.36	0.24	2.77	4.8
Ames, IA	6.1%	$5.27	$52.92	$17.36	0.30	3.05	5.8
Total Peer Cities Average	16.3%	$4.55	$51.93	$23.56	0.20	2.26	5.275
Peer Cities Average excl. Ames	17.7%	$4.45	$51.79	$24.45	0.18	2.15	5.2
Grand Forks-East Grand Forks	14.8%	$5.37	$52.89	$19.60	0.27	2.70	3.6

Source: 2014 National Transit Database

Figure 3-35: Demand Response Peer Analysis Productivity per Revenue Hour

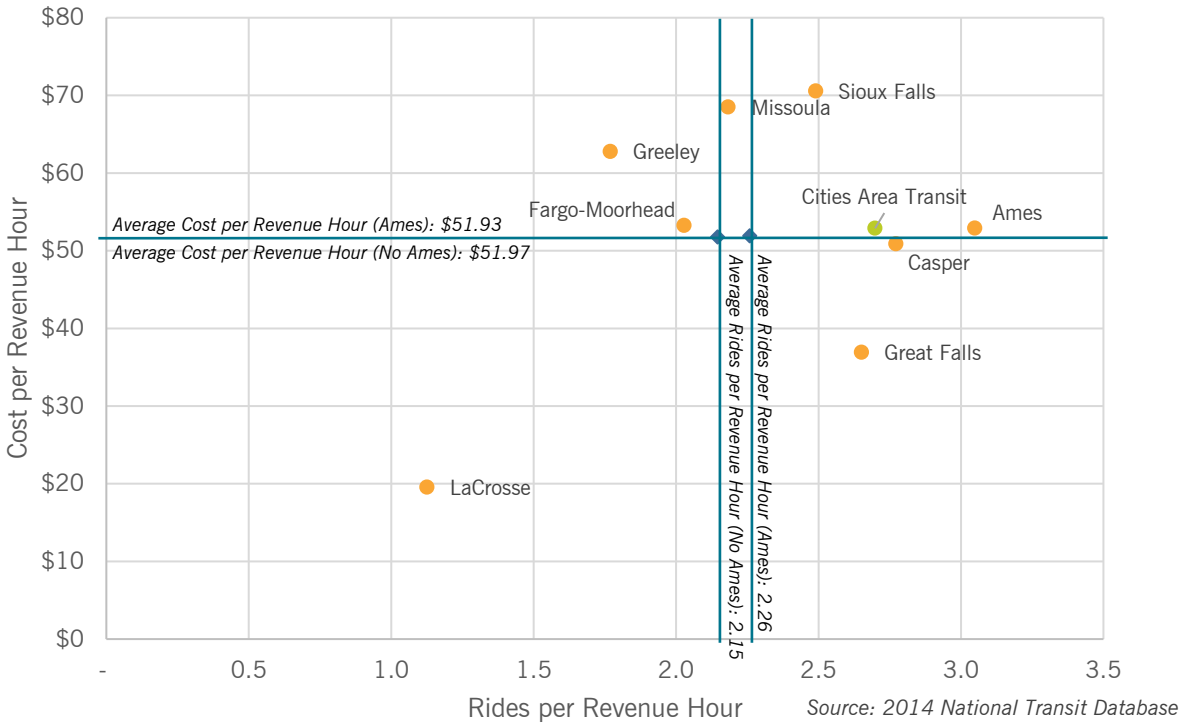
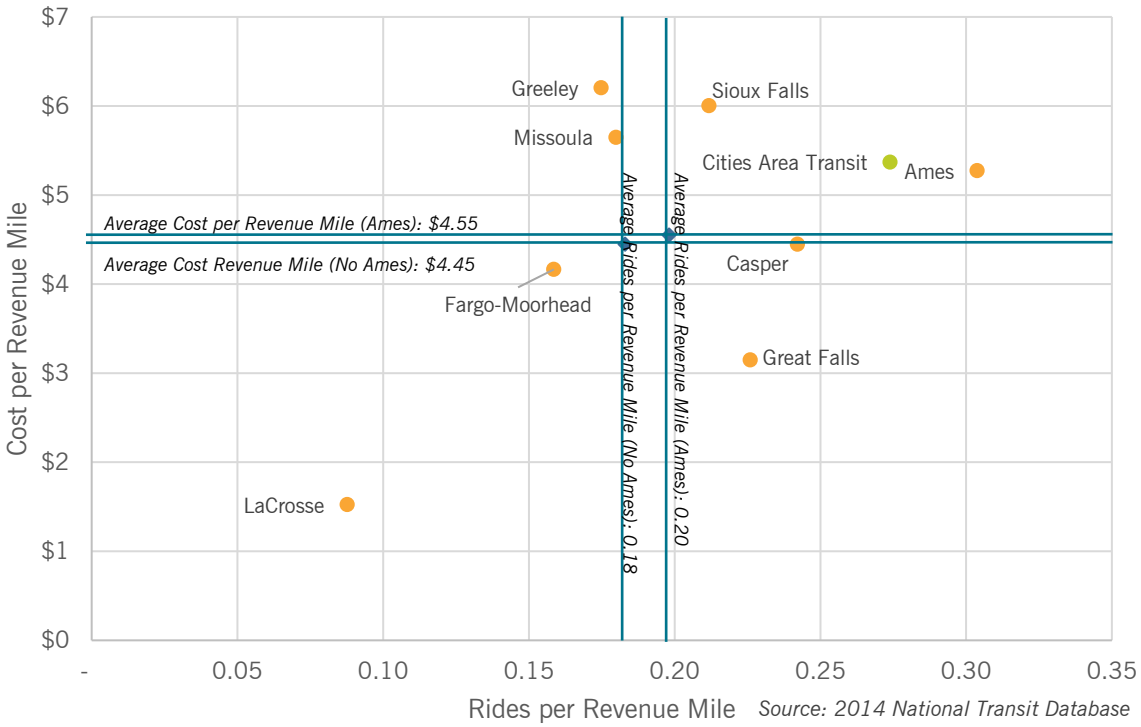


Figure 3-34: Demand Response Peer Analysis Productivity per Revenue Mile



CAPITAL SUMMARY

CAT has a fleet of 21 vehicles, detailed in Table 3-17 and Table 3-18, 11 Fixed Route vehicles and 10 Demand Response vehicles. All vehicles are accessible and feature bicycle racks. These vehicles are housed at the City Bus Garage and Administrative Office. In 2016, CAT applied for a Bus & Bus Facilities Discretionary Grant and a TIGER Grant for an $8.5 million renovation and expansion project for the 33-year-old building.

Figure 3-36: Heavy-Duty Bus (Top) and Medium-Duty Bus (Bottom)

The Fixed Route fleet includes seven large heavy-duty buses, and three smaller light- and medium-duty buses. Examples are shown in Figure 3-36. The average age of the Fixed Route fleet is 7.10 years, with four buses scheduled for replacement in 2016. With these replacements, the average age will be just 3.4 years. The Demand Response fleet includes two light-duty buses and nine vans. The average age of the Demand Response fleet is 2.45 years.

Table 3-17: Fixed Route Fleet Inventory

Vehicle Number	Vehicle Type	Vehicle Year	Mileage	Useful Life (Months)	Actual Service (Months)	Remaining Months	Useful Life (Mileage)	Remaining Life (Mileage)
103	New Flyer	2010	236,007	144	68.4	75.6	500,000	52.8%
104	New Flyer	2010	245,119	144	68.4	75.6	500,000	51.0%
105	New Flyer	2010	231,284	144	68.6	75.4	500,000	53.7%
106	New Flyer	2010	248,673	144	68.6	75.4	500,000	50.3%
976	New Flyer	1997	563,980	144	217.6	(73.6)	500,000	-12.8%
42	Gillig	2004	414,074	144	139.3	4.7	500,000	17.2%
31	Gillig	2003	407,051	144	156.6	(12.6)	500,000	18.6%
91	Chevy Arboc	2009	259,091	84	83.9	0.1	200,000	-29.5%
112	Chevy Arboc	2011	170,504	84	60.1	23.9	200,000	14.7%
161	Ford Starcraft	2016	8,103	60	1.8	58.2	150,000	95.0%
162	Chevy Arboc	2016	5,367	85	1.0	84.0	200,000	97.0%
Average			253,568	120.1	84.9	35.2	386,363	37.1%

Red text indicates an East Grand Forks revenue vehicle.
Source: Cities Area Transit

Table 3-18: Demand Response Fleet Inventory

Vehicle Number	Vehicle Type	Vehicle Year	Mileage	Useful Life (Months)	Actual Service (Months)	Remaining Months	Useful Life (Mileage)	Remaining Life (Mileage)
107	Dodge Entervan	2010	129,370	48	63.7	(15.7)	100,000	-29.4%
108	Dodge Entervan	2010	120,046	48	63.6	(15.6)	100,000	-20.0%
109	Dodge Entervan	2010	127,330	48	63.6	(15.6)	100,000	-27.3%
121	Dodge Entervan	2012	80,068	48	41.5	6.5	100,000	19.9%
141	Dodge Entervan	2014	47,166	48	21.0	27.0	100,000	52.8%
142	Chevy Arboc	2014	7,691	85	15.9	69.1	200,000	96.2%
151	Dodge Entervan	2015	10,847	48	6.2	41.8	100,000	89.2%
152	Dodge Entervan	2015	9,480	48	6.2	41.8	100,000	90.5%
153	Dodge Entervan	2015	10,300	48	6.2	41.8	100,000	89.7%
154	Dodge Entervan	2015	8,695	48	6.2	41.8	100,000	91.3%
Average			55,099	51.7	29.4	22.3	110,000	45.3%

Red text indicates an East Grand Forks revenue vehicle.
Source: Cities Area Transit

2015 FINANCIAL SUMMARY

A critical component of the TDP update will involve a future revenue forecast to ensure a fiscal constraint test upon a five-year program of projects for CAT. Table 3-19 represents the baseline assessment of existing revenue broken out by city and funding source.

East Grand Forks

Assumptions used to develop local, state and federal revenues were based on information reported by the City of East Grand Forks. To develop existing revenue, a composite review of calendar year (CY) 2011, 2012 and 2013 general ledgers were used, as provided by the City of East Grand Forks. Additionally, CY 2015 MnDOT grant reporting materials were used to further refine a baseline existing revenue assumption for the City of East of Grand Forks.

Grand Forks

Assumptions used to develop local, state and federal revenues reported by the City of Grand of Forks were based on the CY 2015 balance sheets provided by the City of Grand Forks. These materials were reviewed with city staff to ensure appropriate accounting for various revenue funds. Additionally, adjustments were made to account for current guidance for both state and federal funding based on recent information from the North Dakota Department of Transportation and the Federal Transit Administration.

Existing and baseline revenues for CAT exclude special grants or revenues which may have been reflected in the data sets. Examples would be one time funding for the VCLTI project or federal capital funds. Funding CAT is done through a variety of sources on both the Minnesota and North Dakota side of the metro. In 2015, CAT had $3.02 million in revenue:

- Federal funding is 37.8 percent of all funding
  - Federal funding is 38.9 percent of Grand Forks funds but just 28.7 percent of East Grand Forks funds
- State funding is 14.6 percent of all funding
  - NDDOT provides just 10.5 percent of Grand Forks funds while MnDOT provides 46.9 percent of East Grand Forks funds
- All local sources cover the remaining 47.7 percent, of which general fund/property taxes are the largest revenue source
  - Local funds make up 50.6 percent of Grand Forks funds while local funds are just 24.4 percent of East Grand Forks funds

Each different funding source has unique expectations for growth over time. These growth expectations will guide the development of future revenue scenarios that will be used to cost constrain alternatives.

Table 3-19: 2015 Total Revenue

East Grand Forks			Grand Forks			CAT System	
Local Revenue							
NCTC	$3,600	1.1%	UND*	-	-	$3,600	0.1%
Farebox	$16,700	4.9%	Farebox	$240,100	9.0%	$256,800	8.5%
Ad Revenue	$0	0.0%	Ad Revenue	$25,700	1.0%	$25,700	0.9%
General Fund/ Property Tax	$62,070	18.4%	General Fund/ Property Tax	$1,043,800	39.0%	$1,105,870	36.7%
Miscellaneous Revenue	$0	0.0%	Miscellaneous Revenue	$46,000	1.7%	$46,000	1.5%
Subtotal Local	*$82,370*	*24.4%*	*Subtotal Local*	*$1,355,600*	*50.6%*	*$1,437,790*	*47.7%*
State Revenue							
MnDOT	$158,590	46.9%	NDDOT	$281,243	10.5%	$439,833	14.6%
Federal Revenue							
FTA 5307	$97,140	28.7%	FTA 5307	$1,042,326	38.9%	$1,139,466	37.8%
Total Revenue	$338,100	100.0%	Total Revenue	$2,679,169	100.0%	$3,017,269	100.0%

**2015 UND revenue was $32,100. However, this was included in the Farebox line item for Grand Forks.*

4) PUBLIC INPUT

Through a variety of activities, public input was collected on both the Fixed Route and Demand Response services of CAT. A summary of the activities is included in this chapter, with full details contained in Appendix A.

INFORMATION GATHERING

The information gathering activities were opportunities designed to provide general insight into the CAT system.

Route Reconnaissance

On April 28th, 2016, members of the study team spent the day interacting with CAT riders and drivers to begin identifying preliminary system issues. The following themes emerged:

- Passengers frequently carry more on the bus than they physically can and what is allowed per CAT policy.
- On-time performance is perceived as an issue for a variety of reasons including ineffective signal priority, long routes, peak hour traffic, difficult turning movements and inclement weather.
- Shelters are either in the wrong locations or there are not enough.
- Inconsistent stop announcements and some missed stops.

Survey

As part of the outreach efforts for this plan, a survey was developed which included questions for both current riders and non-users to understand the needs and perceptions of the system. The survey was distributed through various channels, including but not limited to:

- Grand Forks – East Grand Forks Metropolitan Planning Organization's website.
- Cities Area Transit's website.
- Grand Forks – East Grand Forks Transit Development Plan's Facebook page.
- On-board during the route reconnaissance event. Additional surveys were left at the MTC.
- At the Focus Groups and Open House events.

In total, 77 responses were received via the on-line version of the survey and 62 responses were received via the paper copy version of the survey.

Key Results

The purpose of the survey was to supplement the other public input activities. Its responses should be analyzed with caution given the small, non-randomized sample; this survey is not statistically valid and should not be treated as such for the purpose of making large system improvements or changes. However, this does not mean the survey cannot provide insight into the existing issues and perceptions regarding CAT service.

Non-users were asked four questions about transit in general and their perceptions of CAT:

- Non-users do not use transit because they believe it takes too long and do not know where the bus goes.
- Non-users would consider taking transit if they had more information on routes and schedules and their travel time did not increase by more than 50 percent.
- More than 80 percent of non-users find 10 to 20 minutes a reasonable time for a bus trip.
- Non-users believe CAT provides an essential service that is important for the local economy. They also perceive CAT to be safe, clean and reliable, but not user friendly or convenient.

Current users of CAT were asked questions about their use patterns and perceptions of CAT. In terms of riding patterns:

- Fifty percent of users have used CAT for more than five years.

- Nearly seventy percent of users ride most days a week or more and walk two blocks or less to get to their bus stop.
- More than sixty percent of respondents have a bus trip less than 30 minutes with more than 75 percent requiring just one transfer. Conversely, over 40 percent of non-users indicated they would be willing accommodate a transit trip lasting between 15 to 20 minutes.
- The most important reasons users ride CAT is because of its affordability and convenience, but also because they do not have a vehicle and it provides fast service to their destinations.
- Shopping, work and medical appointments make up nearly 70 percent of trips.
- The most important improvements CAT could make include Sunday service, more frequent evening service and better or more bus shelters.
- Current users found on time performance, courtesy and helpfulness of drivers, safety and security, cleanliness of buses and ease of use to be very good.

Both users and non-users were asked a similar set of preference and demographic questions.

- 53 percent of total respondents prefer to emphasize service changes that give more people access to transit, but save some resources for changes that will serve the most people.
- 92 percent of non-users reported they had a vehicle available for their use at most times, while just 32.2 percent of users have a vehicle available for their use at most times.

It should be noted that participation among UND and Northland students was low for the initial TDP survey deployment. With that in mind, the CAT and the MPO suggested using the 2011 UND Student survey as a relative proxy in certain areas. As such, that survey is occasionally referenced through this document. While five years old, the 2011 UND Student Survey is still likely valid in terms of macro level perceptions regarding CAT. The study team intends to complete additional survey work once system alternatives are developed. Part of future survey and outreach in later stages of the TDP development will focus on UND and Northland students and faculty.

Drivers Meeting

During the Alternatives Analysis phase of this TDP, the bus operators were asked for their input. During these meetings operators were asked to comment on routes they felt operated well, opportunities to improve routes and develop new route concepts. This input was used to refine the route concepts included in this TDP.

Operator Meetings

Initial analysis and concepts were vetted through a small group of transportation operators representing CAT (Director, Mobility Manager), East Grand Forks, UND and the MPO. This small group met five times throughout TDP process to discuss the following issues and project milestones:

- Project Kickoff – Current Fixed Route and Demand Response services and public input process.
- Existing Systems Analysis – Review Draft Existing Systems and Issue Analysis, UND coordination opportunities
- Preliminary Route Concepts and Performance Management – Review universe of route alternatives and performance measures
- Demand Response Concepts – Review Coordinated Human Services Transportation Plan and System Strategies
- Confirm Concepts – Revise and update Fixed Route service and operational concepts, Demand Response service concepts and strategies

STUDY REVIEW COMMITTEE

The Study Review Committee (SRC) consisted of a broad range of local, state and federal stakeholders:

- CAT User
- UND – Parking and Transportation Director and Student Representative
- Northland Community and Technical College
- City of Grand Forks (City Council, Finance, Planning, Engineering)
- City of East Grand Forks (City Council, Planning, Public Works)
- East Grand Forks Economic Development Association
- Grand Forks Economic Development Association
- Cities Area Transit
- Grand Forks – East Grand Forks Metropolitan Planning Organization
- Minnesota Department of Transportation, Office of Transit
- North Dakota Department of Transportation, Local Government and Transit Program
- Federal Highway Administration – North Dakota Division
- Federal Transit Administration – Region 8

Each meeting presented the technical analysis of that phase, giving the SRC the opportunity to provide guidance, oversight and input into the TDP. Appendix A contains the meeting minutes for each SRC meeting.

SRC Meeting #1

The first SRC Meeting presented the Existing Systems Analysis, focusing on areas of high productivity, where service should be maintained or improved and areas of low productivity, suggesting service could be changed to better serve the metro.

SRC Meeting #2

The second SRC Meeting presented the Issues Analysis and a summary of the first public input meeting. The SRC reviewed and refined preliminary route concepts and prioritized the Goals and Objectives, that would be used to develop operational concepts in this TDP.

SRC Meeting #3

The third SRC Meeting presented the work products developed to that point, including Existing Systems Analysis, Issues Analysis, Route and Operational Alternatives and the Performance Management Plan.

PUBLIC INPUT MEETINGS

Appendix A contains details of the public input meetings.

Public Input Meeting #1

On June 8th and 9th, 2016 the first series of public input meetings was held in Grand Forks, North Dakota and East Grand Forks, Minnesota. The series consisted of three stakeholder meetings held at Grand Forks City Hall on June 8th and three open house style public input meetings held on June 9th at various locations in the metro area, including

- Hugo's in East Grand Forks from 10:00 A.M. to 2:00 P.M.
- Metro Transit Center in Grand Forks from 10:00 A.M. to 2:00 P.M.
- Grand Cities Mall in Grand Forks from 4:00 P.M. to 7:00 P.M.

Focus Groups and Open Houses

The Grand Forks-East Grand Forks MPO contacted nearly 50 stakeholders directly to invite them to one of the three focus groups, one of which was directed specifically towards human service providers. Attendance was light, with only 6 invitees attending. Each focus group included a short presentation on the existing conditions, discussion on system needs and an activity to connect desired origins and destinations. The open houses let the study team engage members of the general public and current riders at the three locations above. There were approximately 20 to 30 individuals who participated in the open houses. Most participants were passersby at either Hugo's or the Metro Transit Center and did not sign in.

Through these activities, a variety of system issues and needs were developed and are summarized below.

- Seniors would prefer to ride the Fixed Route system, but some have had to start riding Demand Response because designated stops are too far from where people live or do not have amenities that allow seniors to wait comfortably.
- Some areas of the metro are not well served, like new senior housing in southern Grand Forks, Veterans Affairs clinic, 42nd Street corridor, industrial park.
- Route indirectness is a barrier for use.
- Knowledge gap regarding Fixed Route accessibility, how to ride, where it goes, etc.
- Riders would benefit from earlier, later and Sunday service.
- Perceived safety issues at stops and on the bus.

Figure 4-1: Photos from the Open Houses Held in June

Public Input Meeting #2

On December 8th, 2016 the second series of public input meetings for the TDP was held in Grand Forks, North Dakota. The series consisted of two stakeholder meetings held at Grand Forks City Hall, one meeting for drivers only and two open-house style public input meetings held at two locations in the metro area:

- UND Memorial Union from 10:00 A.M. to 2:00 P.M.
- Metro Transit Center in Grand Forks from 10:00 A.M. to 2:00 P.M.

Focus Groups

The Grand Forks-East Grand Forks MPO contacted stakeholders directly to invite them to one of the two focus groups, one of which was directed specifically towards human service providers. Each focus group included a short presentation on the existing system and proposed route alternatives.

What had originally been planned to encompass two days had to be combined into one day due to inclement weather. It is likely that continuing inclement weather and difficult winter driving conditions resulted in lower turnout. However, a variety of service issues and destination needs were developed and are summarized below.

FOCUS GROUP 1: ECONOMIC GENERATORS

Representatives from Grand Forks Planning, Economic Development, the Chamber of Commerce and social services attended the first focus group. Their concerns were as follows:

- Potential park-and-ride service at Altru and Grand Cities Mall
- Bring service to Industrial Park
- Provide Sunday Service
- Evaluate 45-minute headways
- Convert to 30-foot low-floor buses
- Focus on improving headways

FOCUS GROUP 2: HUMAN SERVICE PROVIDERS

Only one person attended this group, representing Community Options, an employment agency for people with disabilities

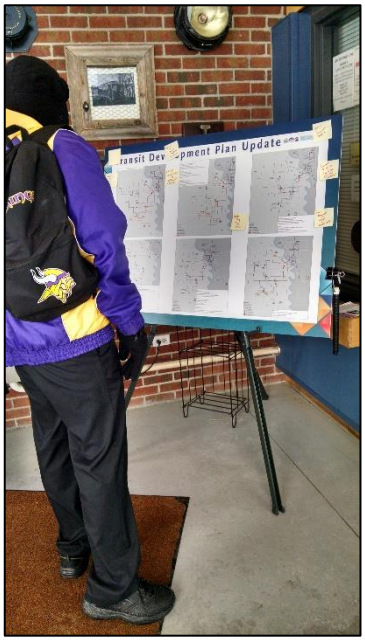
- Need for announced bus stops
- Better training for disabled users
- Consider family passes
- Evaluate 42nd Street and DeMers Avenue train conflicts' impact on transit

FOCUS GROUP 3: DRIVERS ONLY

Two CAT drivers attended this focus group. The following issues were discussed:

- Proposed route alternatives
- Evaluate 42nd Street and DeMers Avenue train conflicts' impact on transit

Figure 4-2: Photo from Open House in December



Open Houses

Throughout the day, the study team engaged members of the general public and current riders on the issue of transit in the Grand Forks – East Grand Forks metro area. Specific issues discussed included:

- Desired destinations including the industrial park, airport, train station, Simplot, Garden View Drive/42nd Street area
- Snow removal at stops and MTC
- More ways to purchase passes
- Better mobile app
- Provide Sunday service

Public Input Meeting #3

On April 20th, 2017 the third series of public input meetings for the TDP was held in Grand Forks, North Dakota. The series consisted of two open houses at two locations:

- Metro Transit Center from 10:00 A.M. to 2:00 P.M.
- Grand Forks City Hall – Council Chambers from 4:30 P.M. to 6:30 P.M.

5) SYSTEM NEEDS AND ISSUES

Based on the Existing Systems Analysis and the Public Input received, a variety of needs and issues were identified on the current CAT system, including both Fixed Route and Demand Response services. Some of these issues have been identified through past planning efforts and are still relevant to the current system, while others have been identified through planning efforts completed during this TDP update. All can be effectively addressed within the TDP framework.

PREVIOUSLY IDENTIFIED SYSTEM BARRIERS

The previous TDP update and the current Coordinated Human Services Transportation Plan (CHSTP) identified several system barriers that impacts the effectiveness and desirability of the CAT system, both Fixed Route and Demand Response. The early stages of public involvement meetings validated these barriers.

Information Gap

The most common barrier for potential transit ridership is lack of information. When residents do not know where, when or how a system runs, how much it costs or if it is accessible, they are apprehensive to try to use it. The current CHSTP acknowledged that an information gap is a more impactful barrier for the New American population. Early public input provided significant evidence that more outreach and information is needed among existing and future potential CAT users.

Accessibility to Routes

Demand Response service is provided within the entire Grand Forks and East Grand Forks city limits, which exceeds the Americans with Disabilities complementary paratransit service requirements. Previous and current analysis found many Demand Response system origins and destinations are very near a regular bus route. This suggests that environmental barriers, like ice and snow buildup or lack of sidewalks, and physical ability prevent riders from using the Fixed Route system. Early public input suggested the need to evaluate the effectiveness of the current designated stop policy implemented since the 2012 TDP.

Coverage Area

As Grand Forks and East Grand Forks have grown out from their central core, providing service in these new areas has continued to be a challenge. Specific areas in Grand Forks, like 42nd Street, Gateway Drive, the industrial park and southern residential neighborhoods have no or low service coverage. While more service area is likely justifiable, early public input suggested that new service needs to be measured against improved levels of service to known transit hot spots.

Cost

While the fare for riding does not cover the full cost of providing the transportation, it remains a burden for some riders, especially when CAT does not fully meet their transportation needs. Early public input suggested the need to streamline current fare methods and policies.

Hours of Service

CAT does not provide any service from 10 P.M. to 6:30 A.M. Monday through Friday morning and begins at 8 A.M. on Saturday. A single night route provides service in Grand Forks only from 6 P.M. to 10 P.M. with one hour headways.

Specifically, the CHSTP identified that many employers in the industrial park have shifts that start at 5 A.M. and that lack of affordable transportation during the later hours impedes workers' ability to take the overnight shift. More

consideration is needed to how evening routes are operated, and the general frequency and geographic coverage of evening service.

Frequency of Routes

Most CAT routes operate with one hour headways, with the exception of Route 3, 5 and parts of the Route 4/6 and Route 10/11 service area. When a user misses their bus, due to a variety of reasons, there are very few other affordable options if a user is unwilling or unable to wait for the next bus. This makes it difficult to rely solely on the public transit system. The Existing Systems Analysis and early public input suggested the need for prioritizing future service improvements to high productivity areas to ensure on-time performance and a level of service commensurate with demand.

Indirectness of Routes

The convenience of transit is greatly reduced when routes do not follow a similar path as riders would take in a personal auto. Adding walk time and transfers to indirect routes makes the time commitment of transit too great for many users. The productivity analysis completed as part of the Existing Systems Analysis, coupled with early public input, supported a reevaluation of how routes operate and the identification of service concepts that provides efficient crosstown connections.

Summary of Previously Identified Issues

The breadth and depth of the barriers developed in the 2012 TDP and the current Coordinated Human Services Transportation Plan are expanded upon as part of the current TDP update process. These barriers provided the foundation of the needs analysis completed prior to the system alternatives analysis.

Each of these seven previously identified issues resonated throughout the development of the System Needs and Issues analysis for the TDP update. The most significant barrier previously identified, also continues to be, the information gap between the CAT system and existing and potential users. There is a strong sentiment among current and potential users that information about the system is lacking, most specifically information via electronic means and tools. The lack of response to the online survey used as part of the public input process exposed a clear digital gap between CAT and its most reliable customers.

Moving forward, there is a substantial need identified to develop a balanced approach to address the barriers presented through hours of operation, frequency of service and the overall CAT service area. A balanced approach must be accomplished through performance metrics, outlined by both the FAST Act and MnDOT's Greater Minnesota Transit Investment Plan, and be fiscally constrained to reasonable forecasts for future local, state and federal revenue streams.

The smaller, yet no less significant issues of cost, accessibility to routes and indirectness of routes remained an undertone of the issues which drove the update of the TDP.

UPDATED ISSUES FRAMEWORK

Moving forward, the TDP update seeks to address the most prevalent and important issues on the CAT system. Based on the Existing Systems Analysis and Public Input, the major issues areas were grouped and stratified as shown in Figure 5-1.

Figure 5-1: Updated Issues Framework

Community Support	• 2045 Grand Forks and East Grand Forks Land Use Plan • Downtown Vibrancy Report • High Frequency System Needs (Bus Rapid Transit)
System Interface	• Marketing and Information • Reputation and Image • Fare Media
System Performance and Operations	• Designated Stops and Layovers • On-Time Performance • Transit Signal Priority System Evaluation
System Effectiveness	• Productivity • Transfer Demand (System Connectivity) • Greater Minnesota Transit Investment Plan Performance Measures
Balancing System Needs	• New Service Areas • Frequency of Service • Route Connectivity • Sunday Service • Evening Service
UND Coordination	• Perceptions of CAT Service • Existing University Transit System Alignments • Operational Analysis
Capital Needs Evaluation	• Vehicle Inventory • Cities Area Transit Garage • Bus Stop Amenities

Community Support

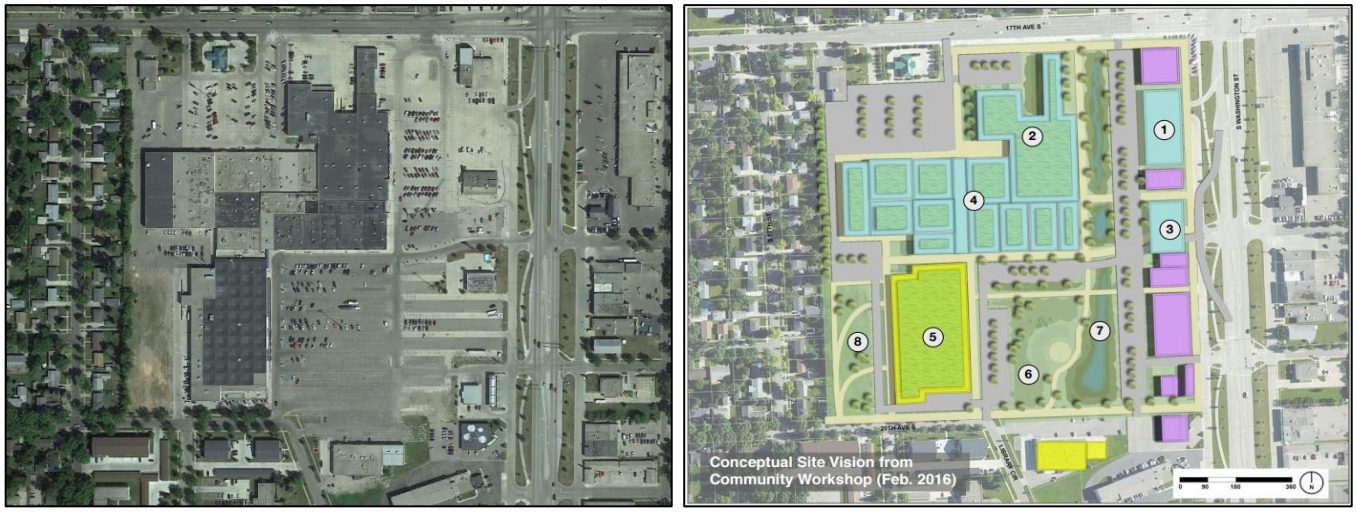
Nationally, transit has gained favorability with the public. The American Public Transportation Association found seven in 10 Americans support using tax dollars to create, expand and improve public transportation in their communities, regardless of community size. The same survey found that 77 percent of Millennials aged 17 to 34 and 75 percent of Boomers aged 65 and older support increased public transportation funding to provide access to community amenities and attract companies and workforce. Locally, transit has been highlighted in the most recent land use plans for both Grand Forks and East Grand Forks and the Grand Forks Downtown Vibrancy Report.

2045 Grand Forks Land Use Plan Update

As part of the public involvement for the 2045 Grand Forks Land Use Plan Update, a survey question asked "If you could change one thing about Grand Forks – what would it be?" The second most popular response was enhancing and improving multi-modal options for taking transit, walking and biking. The survey also asked the question "What should Grand Forks' transportation goals be for the near future?" where 30 percent of respondents selected to improve public transit.

Additionally, the land use plan included three pilot sites. Most relevant is the pilot site at the Grand Cities Mall that would include a new transit hub (3), the public library (1), community service organizations (4) and multi-family housing (5), as shown in Figure 5-2. While the plan acknowledged many challenges with the site, the Grand Cities Mall is centrally located with access from two major roadways.

Figure 5-2: Grand Cities Mall Current (Left) and Envisioned (Right)



2045 East Grand Forks Land Use Plan Update

While not as thorough as the 2045 Grand Forks Land Use Plan Update in regards to transit, the 2045 East Grand Forks Land Use Plan Update includes consideration for additional transit, including the General Land Use Goals and Policies:

- Target funding toward existing neighborhoods through strategies like transit-oriented, mixed-use development and land recycling in accordance with the land use plan.
- Expand access to affordable housing, particularly for housing located near transit facilities.

Grand Forks Downtown Vibrancy Report

The Community Vibrancy Initiative started in early 2015 out of the Grand Forks Mayors Office with a focus on improving local arts and events, downtown development and the relationship between the city and the University of

North Dakota (UND). The report for the downtown development element, *Engage. Animate. Catalyze: A Plan for Downtown Grand Forks* highlights the need to improve transportation links between downtown Grand Forks and the rest of the city. Its recommendations include:

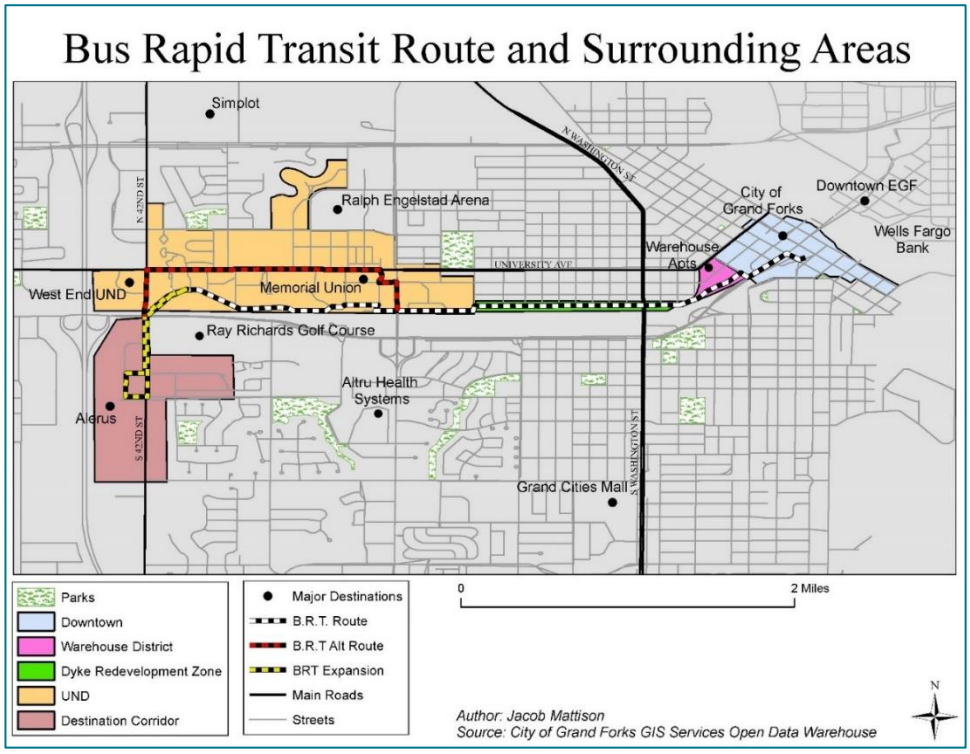
- Improve direct transit links between downtown and the UND which could include increased frequency, dedicated bus lanes and bus queue jumps as well as a dedicated, frequent transit connection between the campus and downtown that would run during late night hours.
- Improve transit connections between downtown and the Alerus Center/ 42nd Street Corridor which would improve access to downtown and connect downtown to the Alerus Center during special events and allow for park-and-ride facilities, alleviating perceived parking congestion in downtown.

Bus Rapid Transit Concepts

The last few years have seen increased interest in improved frequency bus service in Grand Forks. Much of this interest ties back to community sustainability and livability initiatives being developed at the grass roots and city government level. Livable Grand Forks has been at the forefront of pushing more sustainable transportation options for the community.

Through the efforts of Livable Grand Forks, Bus Rapid Transit (BRT) in Grand Forks has been discussed, and concepts developed by local grass roots organizations interested in seeing more progressive transit service being developed between perceived major generators. BRT is a high-capacity, high-frequency specialized bus route with improved infrastructure and limited stops. A BRT corridor was conceptually identified, shown in Figure 5-3, between downtown to the UND via University Avenue or Dyke Avenue, with an expansion option to the Alerus Center.

Figure 5-3: Bus Rapid Transit Concept



While BRT concepts are commendable, they cannot be fiscally constrained to the short or midterm revenue projections developed. Additionally, the BRT connections do not appear to line up with some of the "node" concepts identified in the current 2045 Land Use Plan for the City of Grand Forks. Within the TDP, these concepts for BRT can be used to support improved Fixed Route headways as frequent as 10 to 15 minutes between major hotspots along existing high productivity transit corridors in the metropolitan area. Further, future high frequency bus connections should also focus on areas transit supportive mixed use supported through the 2045 Land Use Plan. A more refined discussion on potential candidate corridors for more frequent transit service will be discussed later.

System Interface

Marketing and Information

Many users and non-users highlighted the need for improved marketing and information regarding CAT service. Thirty percent of non-users indicated they do not know how to use CAT. Twenty percent indicated they do not know where CAT routes run. This sentiment was also echoed in the 2011 survey of UND students related to their perceptions of CAT.

The lack of information on many elements of CAT system operations for both users and non-users is concerning. First, because it makes attracting choice riders and current non-users difficult, because of the perceptions that it does not serve the area an individual needs to travel to and that it may take too long. Second, it further amplifies challenges to providing quality, easy-to-use for existing customers and regular riders.

Marketing could include items as small as dates on map materials and making them readily available in a variety of formats or marketing the accessibility of all transit vehicles. The education component of a large marketing campaign would address information gaps including how to ride the bus and where the bus goes. Transit ambassadors could visit locations like Mindful Mondays at the Senior Center to demonstrate how to get on the bus, what services are available or ride along with first-time riders.

Reputation and Image

Perceptions on safety, cleanliness and timeliness of the system is often a barrier to new and senior riders. Based on the survey data collected as part of the TDP update, these issues didn't appear to be significant for current CAT users, but were for non-users. Based on data collected from UND students in 2011, perceptions on CAT were generally positive.

Fare Media

Currently, CAT uses a variety of fare media:

- Cash Fare
- One Ride Card
- 10 Ride Card – Adult
- 10 Ride Card – Student
- One Day Pass
- 14 Day Pass
- 31 Day Pass
- UND/Northland Student

Each fare media also has sub types with different fares. For example, a 10 Ride Card has an adult, youth, senior, Medicare and disabled card, while a 31-day pass is a flat fee for all user types. Each of the different media and fare types result in difficulties tracking users and encourages users to find the best deal.

System Performance and Operations

Designated Stops and Layovers

The previous TDP recommended, and CAT ultimately implemented, designated stops. Designated stops were intended to help address on-time performance, but has resulted in perceived consequences to senior riders. Before designated stops, seniors could hail a bus at any corner along the route which limited the amount of walking and waiting they had to do. Once implemented, designated stops require waiting, often at stop locations with no amenities like a shelter or bench. In some instances, these difficulties may have resulted in senior riders switching to the Demand Response system or stop using the system altogether. The ridership data, shown in Table 5-1, suggests a slight decline from 2011 to 2012 in senior ridership on the Fixed Route system; senior ridership on the Demand Response system saw slight declines in both 2011 and 2012, but does not appear to have absorbed the loss in senior ridership from the Fixed Route system. Designated stops implemented after the previous TDP may have contributed to some ridership fluctuation among senior riders.

Table 5-1: Historical Senior Ridership for Fixed Route and Demand Response Systems

	Fixed Route Seniors	Demand Response Seniors	CAT System Seniors	% Change	CAT Total Ridership	% of Total CAT System
2010	24,518	24,999	49,517	5.9%	315,919	15.67%
2011	23,950	22,296	46,246	-6.6%	356,842	12.96%
2012	20,880	19,854	40,734	-11.9%	392,501	10.38%
2013	20,755	19,485	40,240	-1.2%	384,239	10.47%
2014	20,145	19,733	39,878	-0.9%	368,594	10.82%
2015	22,356	19,195	41,551	4.2%	355,773	11.68%

With the implementation of designated stops, it is important that drivers follow the timed stops. Riders reported that buses left the stop early and they were unable to use transit that day, while drivers reported they would rather leave the stop late as to not miss any riders. Designated stops, when properly measured, should provide an opportunity to get back on schedule, when running early and help mitigate frequent stops and improve on-time performance when running late. On-time performance was not collected before the implementation of designated stops.

On-Time Performance

Congestion

Designated stops help mitigate frequent stopping to improve on-time performance, but some routes (e.g. routes 3, 4 and 5) use heavily congested roadways or are slightly too long to have reliable on-time operations. Routes can and should be adjusted to ensure drivers do not need to speed to maintain on-time performance.

Figure 5-4: Transit Vehicle in Traffic

Transit Signal Priority (TSP)

Another element in on-time performance is transit signal priority (TSP). During the Route Reconnaissance efforts and discussions with drivers, the TSP system is perceived as not being effective to the drivers for routes that run on the major roadways like Columbia Road, Washington Street and 32nd Avenue.

TSP systems are programmed to receive signals from transit vehicles and alter the signal timing. TSP does not change the signals to green like an Emergency Vehicle preemption would, but instead shortens red lights or extends green lights to accommodate the vehicle when possible. TSP was deployed in Grand Forks to improve major arterial operations. Routing CAT routes in respect to these corridors with TSP may improve its utility to CAT.

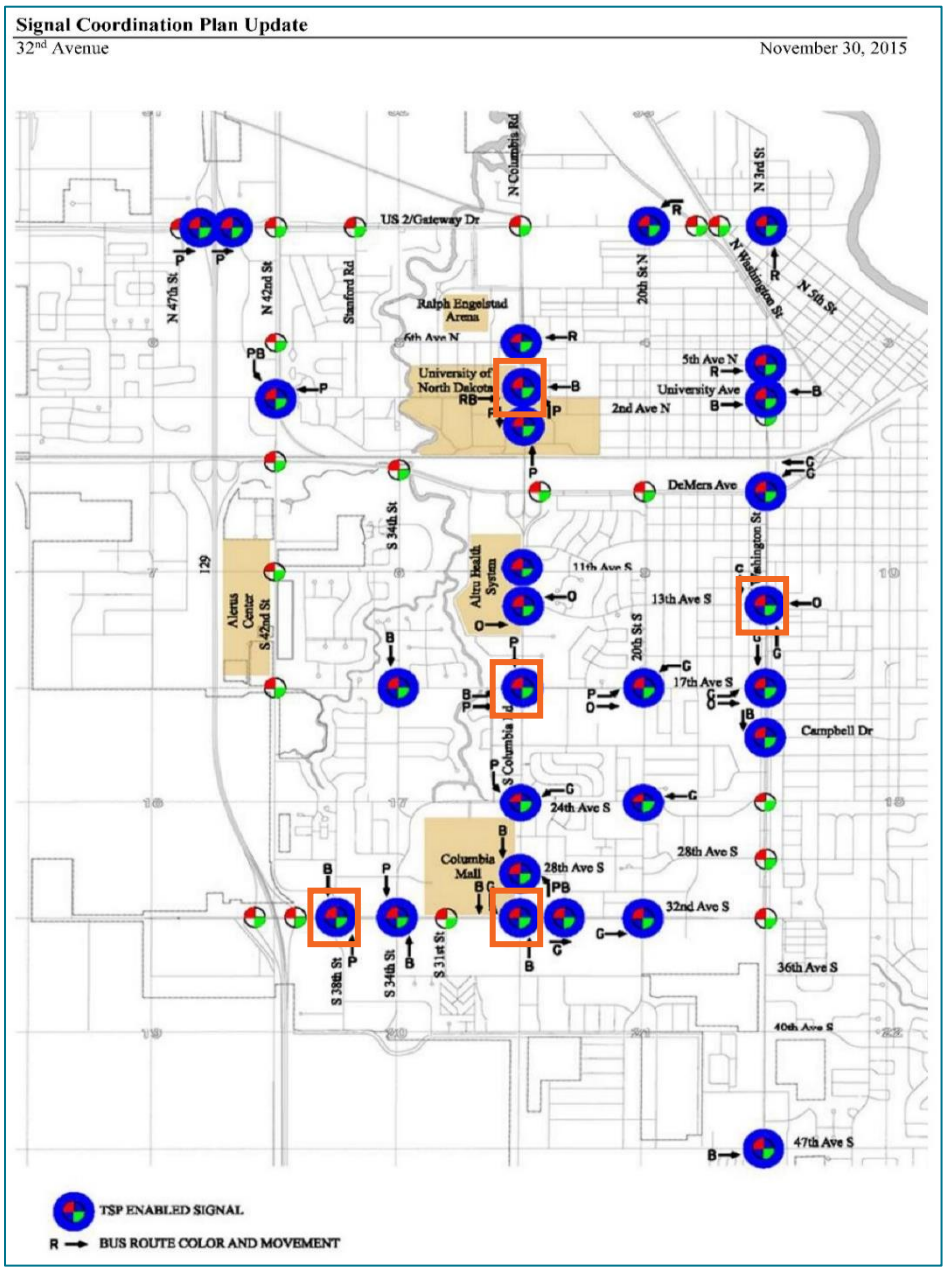
TSP enabled signal controllers are present at 28 intersections in Grand Forks (Figure 5-5). The TSP enabled signals have Opticom GPS radio systems that detect the location and speed of GPS equipped buses to estimate bus arrival times to best ensure that green signal indications are presented to buses as they arrive at these signalized intersections. Existing TSP equipment in Grand Forks does not utilize conditional priority, meaning that all buses request priority at applicable signals regardless of the status of transit routes (on-time or delayed).

TSP logs were requested for signal controllers at five TSP enabled intersections in Grand Forks (32nd Avenue and 38th Street; Columbia Road and 17th Avenue; 32nd Avenue and Columbia Road; Columbia Road and University Avenue; Washington Street and 13th Avenue, as identified with orange boxes on Figure 5-5) to verify that TSP is operating properly. A review of these logs indicates that TSP is working as intended, with logs listing the following time-stamped events:

- TSP call received
- TSP active
- TSP terminated
- TSP inhibited

Additionally, as part of the recently completed *32nd Avenue Signal Coordination Plan Update*, it was determined that TSP was not active and functioning properly at all applicable signals along the 32nd Avenue South and Columbia Road Corridors. Adjustments were made to the TSP system at that time. This situation indicated the need for periodic monitoring and evaluation of the TSP system.

Figure 5-5: TSP Equipped Intersections in Grand Forks



Source: Grand Forks – East Grand Forks Metropolitan Planning Organization and Alliant Engineering

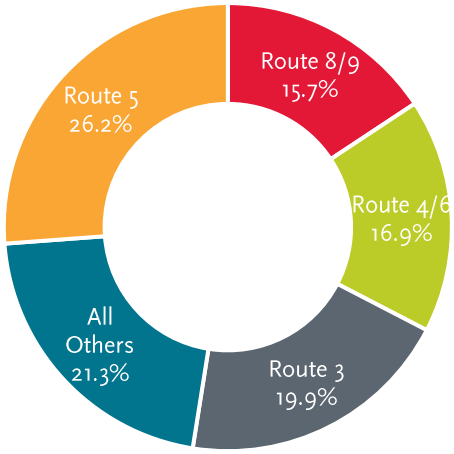
System Effectiveness

Productivity

In 2015, Route 5 generated nearly 25 percent of all ridership, with higher ridership than Routes 1/2, 10/11 and 12/13 combined. As shown in Figure 5-6, Routes 3, 5, 4/6 and 8/9 account for nearly 80 percent of the Cities Area Transit ridership. These routes serve the largest destinations in Grand Forks including the Senior Center, Altru, Columbia Mall, Grand Cities Mall and UND.

These major destinations underscore the idea that the current route structure and balance of system headways may not best serve the needs of the communities. Figure 5-7 shows routes with ridership data, where the lowest ridership routes like 12/13 and 1/2 are least effective and routes 3 and 5 are more productive.

Figure 5-6: Route Productivity



Transfer Demand

Transfers are an important component of the transit system and help to identify typical connections and trip chains for transit users. These desired connections will help develop new or revised routes to eliminate transfers and ultimately reduce travel time, while at the same time developing desired connections between productive routes segments.

A transfer analysis was completed for one hundred 31-day pass cards for the month of October 2015. This sample period coincides with the route-by-route stop analysis conducted for the TDP update. More than one thousand (1,021) transfers were analyzed to identify the biggest route transfer pairs. The six most significant route transfer pairs make up 55.0 percent of all transfers surveyed. They are shown in Table 5-2 with all transfer pairs in October 2015 shown in Table 5-3.

Table 5-2: Significant Route Transfer Pairs

Route Pairs	Total Transfers	Percent of Surveyed Transfers
Route 4/ Route 5	130	12.7%
Route 3/ Route 5	114	11.2%
Route 6/ Route 5	97	9.5%
Route 3/ Route 4	92	9.0%
Route 1/ Route 5	74	7.2%
Route 5/ Route 9	55	5.4%
Total	562	55.0%

The combination of the Route 4/Route 5 and Route 6/Route 5 transfers result in 22.2 percent of all transfers surveyed. This transfer pattern generally represents demand from south Columbia Drive to UND through the MTC (downtown). This same route path is available on Route 8, however it only operates on a 60-minute headway currently. The most significant route transfer pairs suggest improved north-south connections may benefit riders by providing a more direct route.

Figure 5-7: Route Productivity

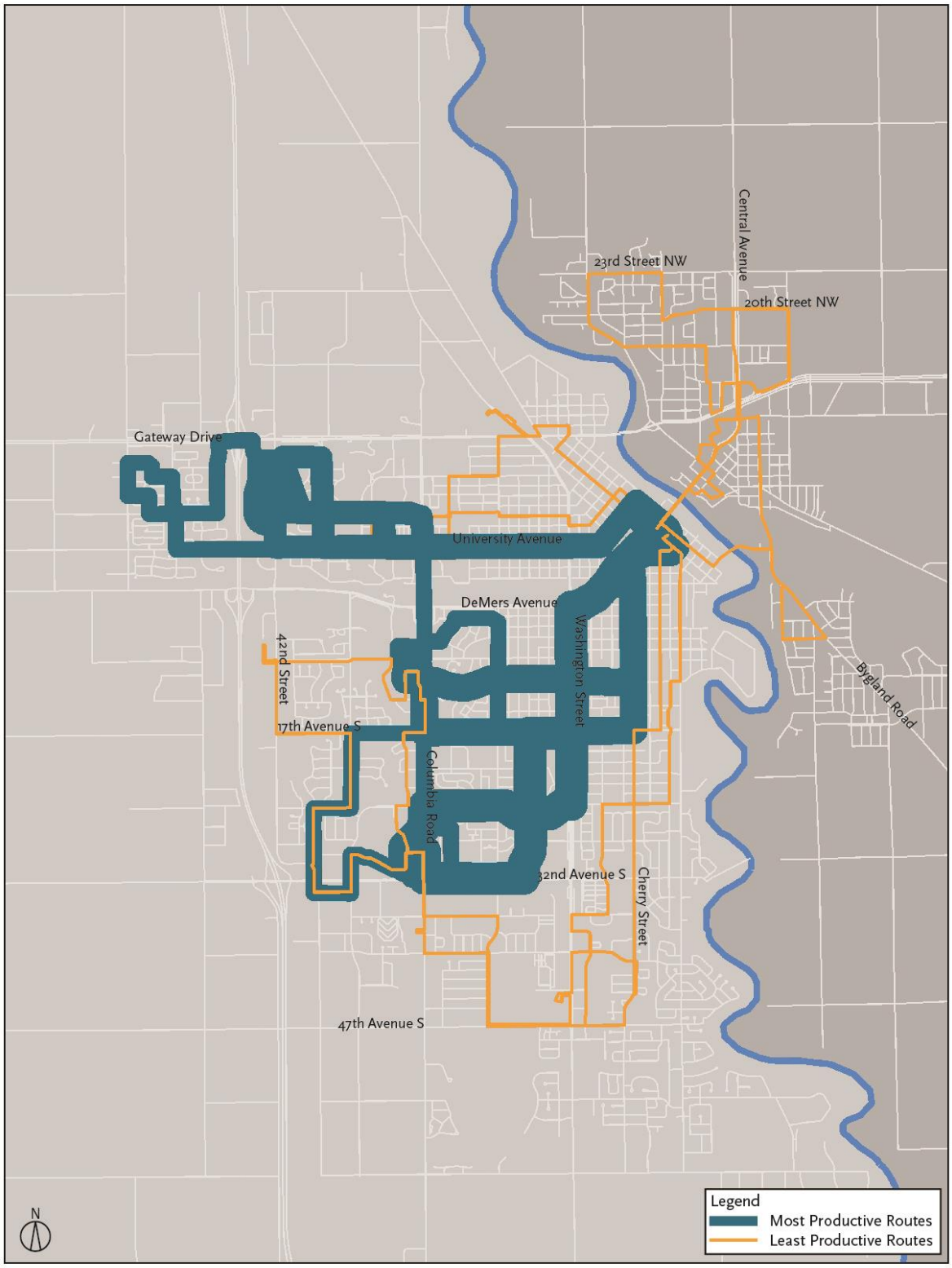


Table 5-3: Transfer Analysis for October 2015

From Route	To Route	Transfers	From Route	To Route	Transfers	From Route	To Route	Transfers
1	3	28	2	3	7	3	1	18
	4	23		4	1		2	3
	5	37		5	7		4	56
	11	1		6	1		5	56
	12	1		10	1		6	23
	13	1		11	7		8	1
							9	20
							10	7
							11	5
							13	3
Total Transfers		91	Total Transfers		24	Total Transfers		192
From Route	To Route	Transfers	From Route	To Route	Transfers	From Route	To Route	Transfers
4	1	12	5	1	37	6	1	1
	2	1		2	5		2	1
	3	36		3	58		3	17
	5	73		4	57		4	3
	8	34		6	65		5	32
	10	4		9	42		8	8
	11	14		10	26		10	1
				11	5			
				12	1			
				13	2			
Total Transfers		174	Total Transfers		298	Total Transfers		63
From Route	To Route	Transfers	From Route	To Route	Transfers	From Route	To Route	Transfers
8	2	1	9	2	3	10	1	2
	3	8		3	7		3	6
	4	2		5	13		4	3
	5	19		6	1		5	21
	6	2					6	1
	13	11						
Total Transfers		43	Total Transfers		24	Total Transfers		33
From Route	To Route	Transfers	From Route	To Route	Transfers	From Route	To Route	Transfers
11	1	5	12	1	12	13	3	6
	2	1		3	1		5	2
	3	3		5	11		9	10
	4	25		9	1			
	5	4						
	6	3						
Total Transfers		41	Total Transfers		25	Total Transfers		18

MnDOT Greater Minnesota Transit Investment Plan

The 2016 Greater Minnesota Transit Investment Plan updated the previous plan to refine the investment priorities and strategic directions for rural transit in Minnesota. The plan focused on seniors, low income populations, homeless populations, individuals with disabilities, veterans, New Americans and commuters. The FAST Act requires performance based planning, for which MnDOT developed performance measures and targets where applicable, as shown in Table 5-4.

The MnDOT guidance was considered the minimum standards to use for the development of performance measures later in this TDP update. Many of the proposed MnDOT metrics were establish in the Existing Systems Analysis, however some of these metrics are not easily available with existing datasets or are not tracked. These thresholds should be considered the basis of goals and performance measures set in the update of the TDP.

BALANCING SYSTEM NEEDS

Through public involvement completed for the previous and current TDP, a variety of system needs have been identified that include the following:

- New Service Areas
- Frequency of Service
- Route Connectivity
- Sunday Service
- Night Service

Developing a balanced approach within current and projected funding constraints will be critical to this current TDP update. While new service can be developed in this plan, it was ultimately prioritized and cost-constrained, which did not include all new service desires.

New Service Areas

A number of currently developed or developing areas receive little or no service from CAT. Interstate 29 is a major barrier for transit service. Only Route 8, which serves the Gateway Drive Walmart and other locations between University Avenue and Gateway Drive, operates west of I-29. Potential grade separations of I-29 between 32nd Avenue South and Demers Avenue may facilitate improved transit service to areas west of I-29. Based on the public input, new service is a low priority when compared against the need to provide better service to current demand areas. New or expanded services to currently developed areas would require the modification/realignment of existing routes.

Figure 5-8: The Grove Bus

Currently Unserved Areas

The 42nd Street corridor has multiple high density multi-family housing developments, commercial and special event facilities. Currently, these areas have limited or indirect transit service that are unappealing to choice users, specifically at places like The Grove student housing development. The Grove requested transit service during its developments process but was ultimately not approved by the City; The Grove purchased their own bus and provides direct service to the UND campus.

Table 5-4: MnDOT Performance Measures

Metric	Fixed Route Description	Included in Analysis	Demand Response Description	Included in Analysis
Span of Service	Provided as demand warrants.	✓	Provided as demand warrants.	✓
Service Frequency	60 minutes or better, 30 minutes during peak hours	✓	-	-
Service Availability	75% of service area population within ¼ mile of transit route.	✓	75% of population covered by service area.	✓
Service Hours per Capita	2.0	✓	0.45	✓
Information Availability	Standard requirements: Title VI, Riders Guide, Service Schedules, trip reservation process.	N/A	Standard requirements: Title VI, Riders Guide, Service Schedules, trip reservation process.	N/A
Planning Requirements	Identified and analyzed as part of Transit Development Plan. Service expansions must be determined through alternatives analysis.	N/A	Identified and analyzed as part of Transit Development Plan. Service expansions must be determined through alternatives analysis.	N/A
Number of Shelters Installed	Shelters at stops with at least 20 boardings per day or major transfer points.	✓	Shelters at stops with at least 20 boardings per day or major transfer points.	N/A
Bicycle Parking at Transit Stops	Bike parking at stops with at least 20 boardings per day or more.	x	Bicycle access on buses.	N/A
Continuous Walking Route and Crossings	Pedestrian facilities within ¼ mile of stops with at least 20 boardings per day.	x	-	-
Public Transportation and Human Services Coordination	All public transit providers are required to coordinate with Regional Transportation Coordination Councils.	N/A	All public transit providers are required to coordinate with Regional Transportation Coordination Councils.	N/A
Passengers per Service Hour	15	✓	3	✓
On-Time Performance	90% of schedule stops on-time (within 5 minutes).	✓	90% on-time within published pickup window.	✓
Advance Reservation Time	-	-	Minimum two hours in advance.	✓
Reservation Negotiation Window	-	-	Maximum: Up to one hour before/after requested time.	x
Trip Denials	-	-	Must follow ADA trip denial definitions and process.	✓
Trip Cancellations	-	-	Bus or vanpool trips should only be canceled from lack of riders or weather.	✓
Passenger Complaints	Six complaints per 100,000 boardings.	x	Six complaints per 100,000 boardings.	x
Road Calls	One road call per 14,000 revenue miles.	x	One road call per 14,000 revenue miles.	x
Accidents	Fewer than 1 accident per 100,000 revenue miles.	◊	Fewer than 1 accident per 100,000 revenue miles.	◊
Fleet Maintenance	At least 75% of all regular fleet available for operations.	◊	At least 75% of all regular fleet available for operations.	◊
Spare Ratio	Spare vehicles to regular fleet vehicles less than 20%.	◊	Spare vehicles to regular fleet vehicles less than 25%.	◊
Cost per Revenue Hour	$85.00	✓	$60.00	✓
Cost per Ride	$5.00	✓	$15.00	✓
Farebox Recovery	15%	✓	15%	✓

✓ = Included in Existing Conditions or Issues Analysis ◊ = Data available but not included x = Data not available N/A = Metric not applicable for analysis

Industrial Park

At both the focus group meetings and the open houses, industrial park service was identified as a need in the community. This need was also identified in the previous TDP. Representatives from the Economic Development Corporation and the Grand Forks – East Grand Forks Chamber of Commerce cited businesses in the industrial park are interested in transit as they have limited parking spaces available and workforce retention issues when individuals cannot get to work because they do not have a driver's license or access to a vehicle. There are identified challenges to serving the industrial park

- Employees of the industrial park desire fast and direct access.
- Differences in shift start and end times make it difficult to serve all businesses equally.
- On-time performance is key.

To effectively serve the industrial park, ridership would need to be relatively high. To accomplish this, partnerships from benefitting businesses are needed that coordinate service with shift changes and explore financial cost sharing options for various service delivery methods.

New Growth Areas

The 2045 Grand Forks Land Use Plan includes major growth areas, primarily west of I-29 and further south

- Commercial, urban residential and industrial uses between 55th and 69th Streets and Gateway Drive and DeMers Avenue.
- Mixed uses and industrial uses between 55th and 62nd streets and DeMers and 17th Avenues.
- Mixed uses and urban residential uses between I-29 and approximately 55th Street and 32nd and 47th Avenues.
- Continued southward growth between 47th Avenue and 62nd Avenue

While development in these locations is unlikely to be developed before the next TDP update, with a complete system reconstruction, consideration should be given to extending service into these areas.

Frequency of Service

The primary operational issue facing the CAT system is the need for improved frequency of service. This need is most glaring on the current day time Fixed Route operations. Only Route 3 and Route 5 operate on 30-minute headways. Route 4/6 and parts of Route 10/11 operate on a de-facto 30-minute headway given the interlined pairs have very similar route structure. Outside of these route segments, the balance of the CAT system is interlined with 60-minute headways.

The most productive routes, Route 3, Route 4/6, Route 5, Route 8/9 should be considered for improved headways as well as the Central Avenue/DeMers Avenue segments of Route 10/11. In general future frequency of service improvements should focus both on corridors experiencing high productivity today and also on connecting existing system generators.

Route Connectivity

Related to frequency of service is the need to improve connectivity between routes. The routes as currently operated can be confusing to new users and frustrating to long-time users.

The transfer connections discussed earlier, coupled with the current productivity, public input and on-time performance issues suggested the need to fully evaluate the current route alignments and structure. With the Existing Systems Analysis and public input, conceptual opportunities emerged.

- Route 1/2 could be modified to better address existing demand areas and improve frequency.

- Route 4/6 is not logical for riders and could be restructured for a quick and easy connection from downtown to UND. Coordinating this route with the UND shuttle service could result in improved service area and frequency.
- Route 8/9 is currently very productive, but modifications could streamline the north-south connection.
- Route 10/11 has a very productive spine along DeMers Avenue and Central Avenue, connecting the MTC to Northland Community College and Hugo's, but the alternating loops are less productive. Restructuring this route to connect major Grand Forks destinations could create a more seamless crosstown function.
- Route 12/13 is the least effective route in the system. In general, this route could be reconfigured to provide a connection between the southeast area of Grand Forks to Columbia Mall/Altru/Alerus Center/UND.

Sunday Service

CAT does not provide service on Sundays. This prevents people from social activities like church, cultural and arts events, food access, employment and medical care. A system of Sunday service should be evaluated that operates akin to the system currently running in the evening.

Night Service

Currently, the regular day route service runs from 6:30 or 7 A.M. and ends at 6 or 6:30 P.M., depending on the route. At 6 P.M. the Night Route starts, ending at 10 P.M. The Night Route is an hourly one-way loop that serves many of the biggest destinations in Grand Forks. East Grand Forks has no night service.

Service alternatives for the Night Route could include either extending the more product regular routes later into the evening or adding another bus to the Night Route for improved frequency or in the other direction. Either way, alternatives needs to consider options for expanded night bus service not only in Grand Forks, but in East Grand Forks, too.

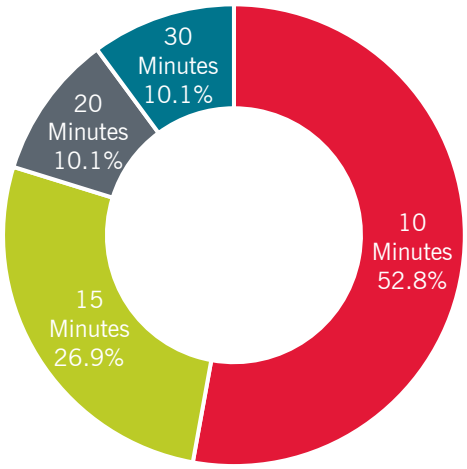
UND COORDINATION

Figure 5-10: UND Shuttle

The intent of this TDP was to develop a structural framework between CAT and the UND for transit service delivery. Previous TDP efforts have included substantial analysis on the shuttle service and recommendations for routing, but very little focus was given to improving effectiveness between the campus shuttle and CAT.

In 2011, the Small Urban and Rural Transit Center (SURTC) developed an assessment of the UND campus shuttle. The report highlighted the need for the development of a larger partnership agreement between UND and CAT. Changes to CAT and the UND shuttle system could be made for the overall transit system work more effectively.

Figure 5-9: Willingness to Wait for CAT Bus (SURTC Survey)



Further macro level analysis and coordination is needed to determine policy and programming opportunities for coordination between CAT and UND. As discussed earlier, several CAT routes

could undergo substantial positive change if done with coordinated modifications to the UND Shuttle Service.

Perceptions of CAT Service

SURTC's assessment of the shuttle service included a survey of students' perception of CAT. That survey process alluded to several possible concerns and barriers from the UND student population regarding the utility of the CAT system. The most relevant results include wait time, factors negatively affecting CAT service and preferred communication methods.

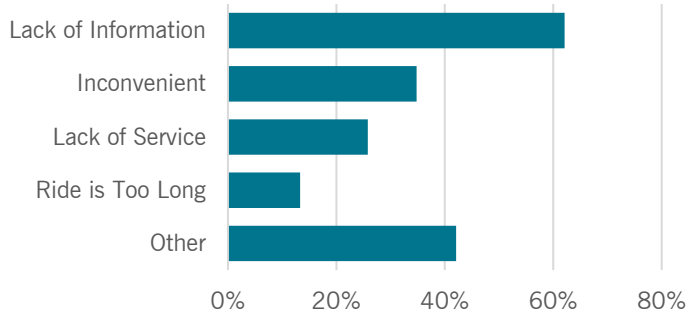
Wait Time

SURTC asked students "If you miss the CAT, how long are you willing to wait for the next bus?" The results are summarized in Figure 5-9. Over half, 52.8 percent, indicated they would only be willing to wait 10 minutes for the next bus; another 26.9 percent indicated they would only be willing to wait 15 minutes. Only 10.1 percent were willing to wait 30 minutes. Given that bus service is effectively on a 30-minute headway through the campus, these headways are very unattractive to students.

Negative Factors

SURTC asked students "If you are not using CAT buses, what factors are keeping you from using the bus service?" The results are summarized in Figure 5-11. The primary factor was lack of information cited by 62.1 percent, followed by inconvenience cited by 34.8 percent and lack of service cited by 25.8 percent. This parallels the information and perceptions gathered through the initial public involvement where lack of information and communication was identified as a major barrier.

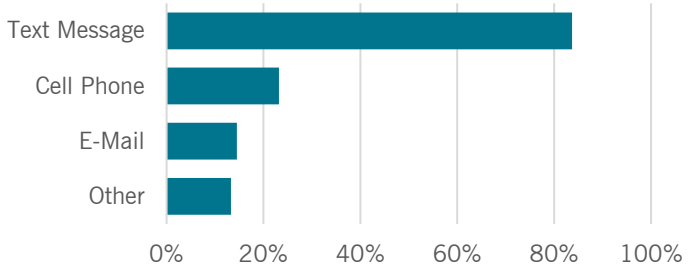
Figure 5-11: Factors Negatively Affect CAT Usage (SURTC Survey)



Preferred Method of Communication

SURTC asked students "What is the best way to notify you if the bus will be late?" The results are summarized in Figure 5-12. Text messages were preferred by 83.7 percent of students that completed the survey, followed by a phone call at 23.2 percent and email at 14.5 percent. CAT has no way currently to communicate in real-time with its riders.

Figure 5-12: Preferred Method of Communication (SURTC Survey)



Existing University Transit System Alignments

UND was recently mandated by the State of North Dakota to make significant budget cuts after drastic state budgetary shortfalls; the budget shortfalls combined with changing personnel, provided an opportunity to reevaluate system coordination with the University.

Currently, UND provides free on-campus transportation during the fall and spring semester. They offer four daytime routes at 15- or 20-minute headways from approximately 7:30 A.M. to approximately 4:30 P.M. and one Monday-through-Thursday night route that operates at 30-minute headways from 4:30 P.M. to 10:30 P.M.

At any given time, there could be as many as five buses on University Avenue through UND's campus, including four UND shuttle route buses and one CAT bus. Selected timetables are shown in

Existing UND Shuttle frequency (15 to 20 minutes) appears to be less than is perceived ideal by UND students (10 minutes) based on recent survey data collected in 2012.

Table 5-5. Not only does it lead to congestion issues, it also results in duplicative service. Currently through campus, Route 4/6 runs on University Avenue for one direction and 6th Avenue the other, effectively serving the primary east-west routes on campus at 30-minute headways. Route 4/6 almost entirely duplicates the Green Route #3 and Purple Route #4 campus shuttle routes. Service improvements to Route 4/6 could eliminate the need for most of the existing campus shuttle routes.

Existing UND Shuttle frequency (15 to 20 minutes) appears to be less than is perceived ideal by UND students (10 minutes) based on recent survey data collected in 2012.

Table 5-5: Selected Timetables through UND Campus

Route	Stanford Road/ 6th Avenue		Odegaard Hall		Memorial Union	
	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
CAT Route 4	:39	x	-	-	x	:36
CAT Route 6	x	:09	:16	x	:17	x
CAT Route 8	-	-	:08	:45	:06	:42
UND Route 1	x	x	:58, :08, :23, :38	x	:59, :14, :29, :44	x
UND Route 2	x	x	x	:31, :46, :01, :16	x	:39, :54, :09, :24
UND Route 3	x	:43, :03, :23	:31, :51, :11	x	:37, :57, :17	x
UND Route 4	:41, :01, :21	x	x	:36, :56, :16	x	:48, :08, :28

Figure 5-13: UND Routes 1 and 3

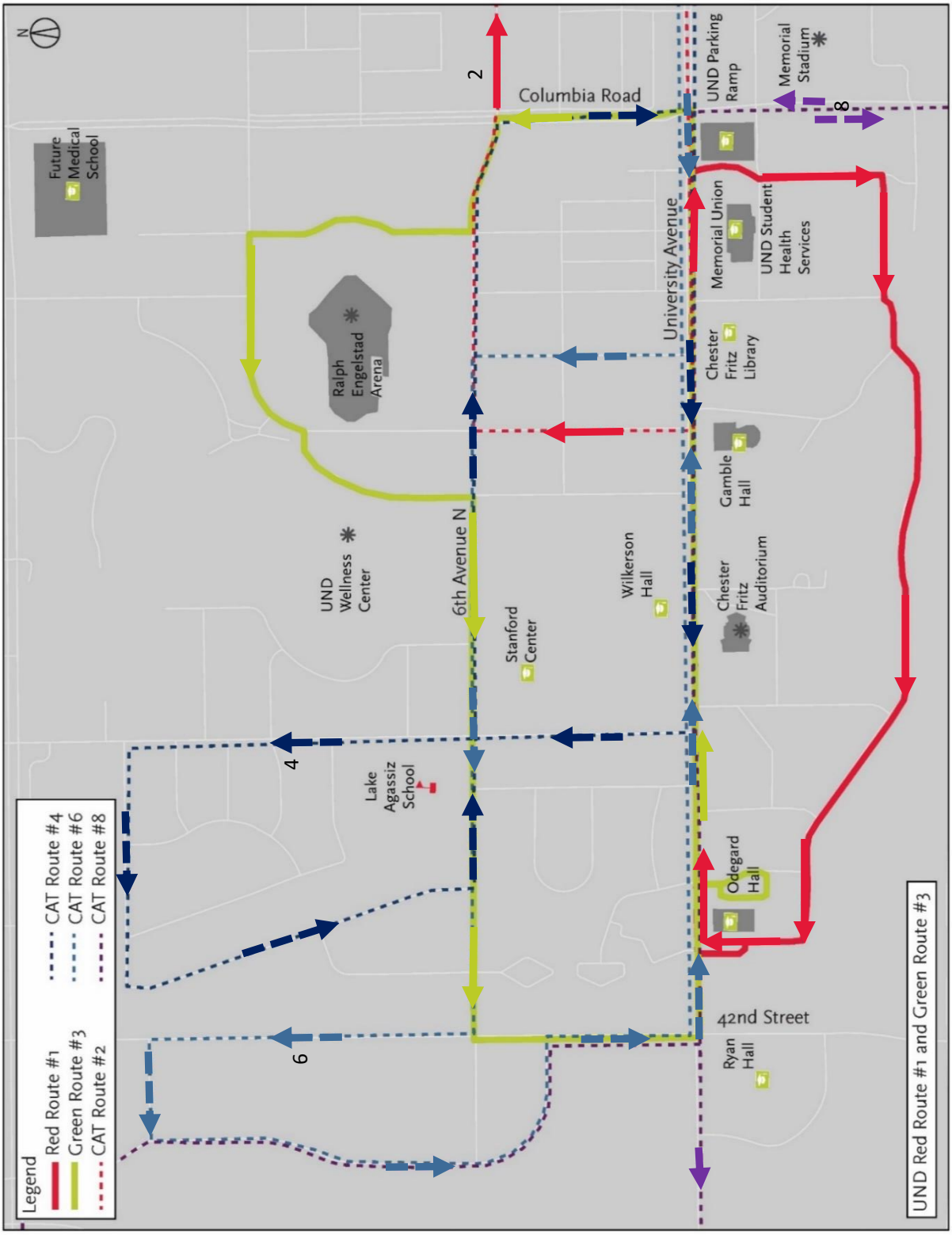
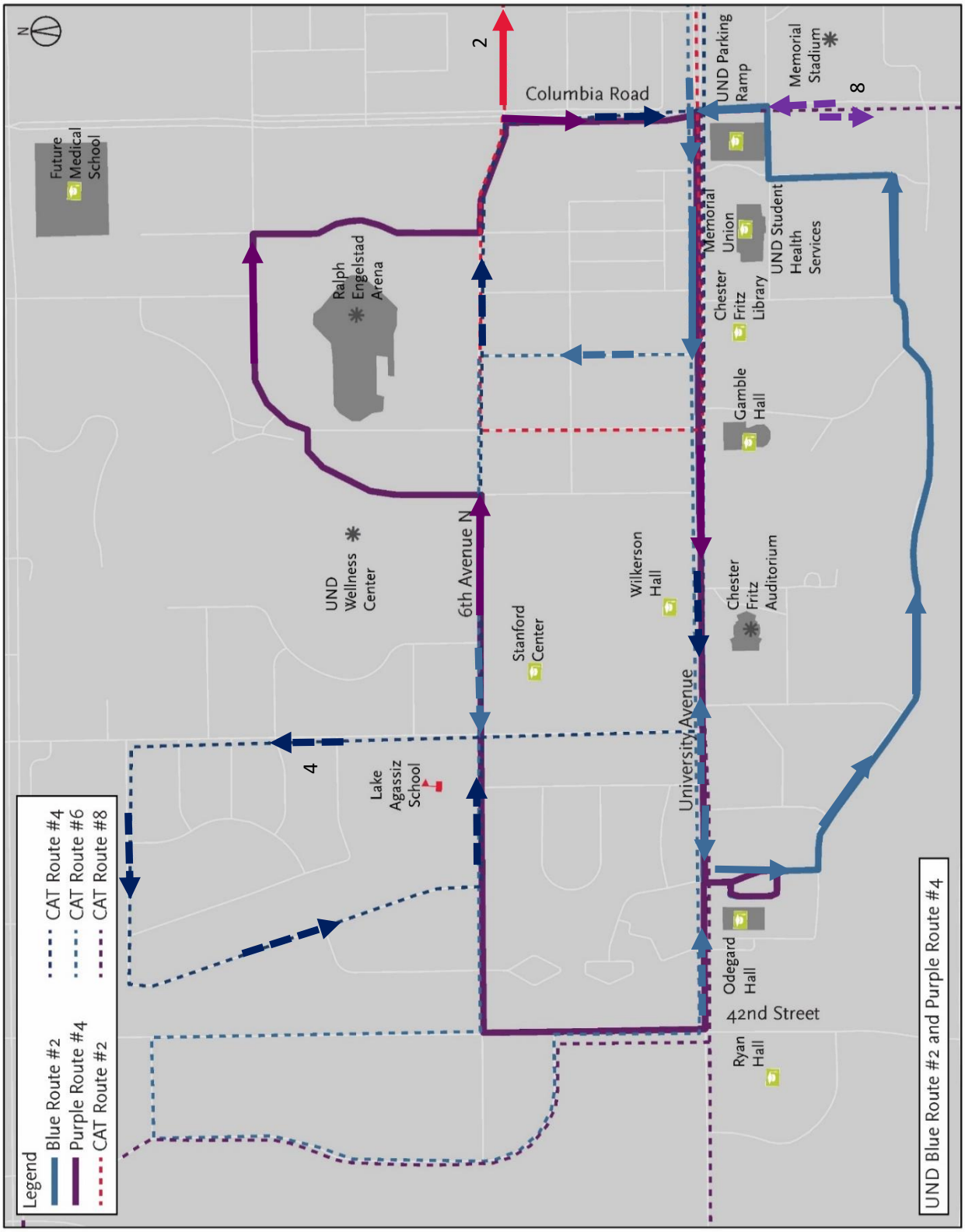


Figure 5-14: UND Routes 2 and 4



Operational Analysis

UND provided operational data including ridership from 2011 to 2016, revenue hours for 2015 and 2016, revenue miles for 2015 and 2016 and operating costs for 2015 and 2016. Analysis for each is provided below.

Ridership

UND maintains ridership numbers that are coordinated with school years (i.e. 2011 is the 2010-2011 school year). Ridership on the UND shuttle system has ranged from 178,500 rides in 2012 to 263,700 rides in 2013. Ridership also roughly follows student enrollment, whereas 2013 was the highest student enrollment in the six-year period and also the highest ridership.

Figure 5-15: UND Shuttle Ridership

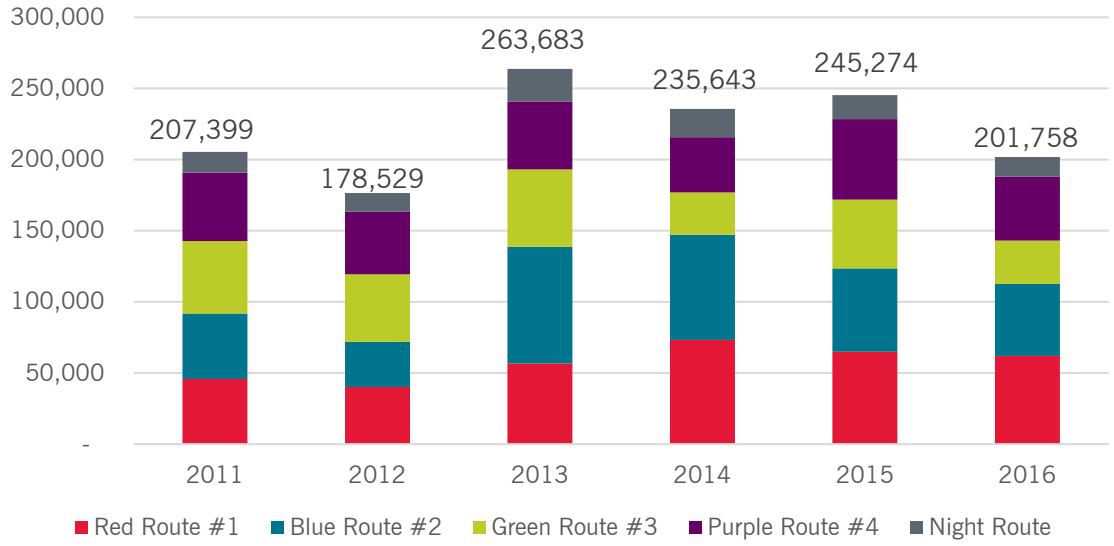
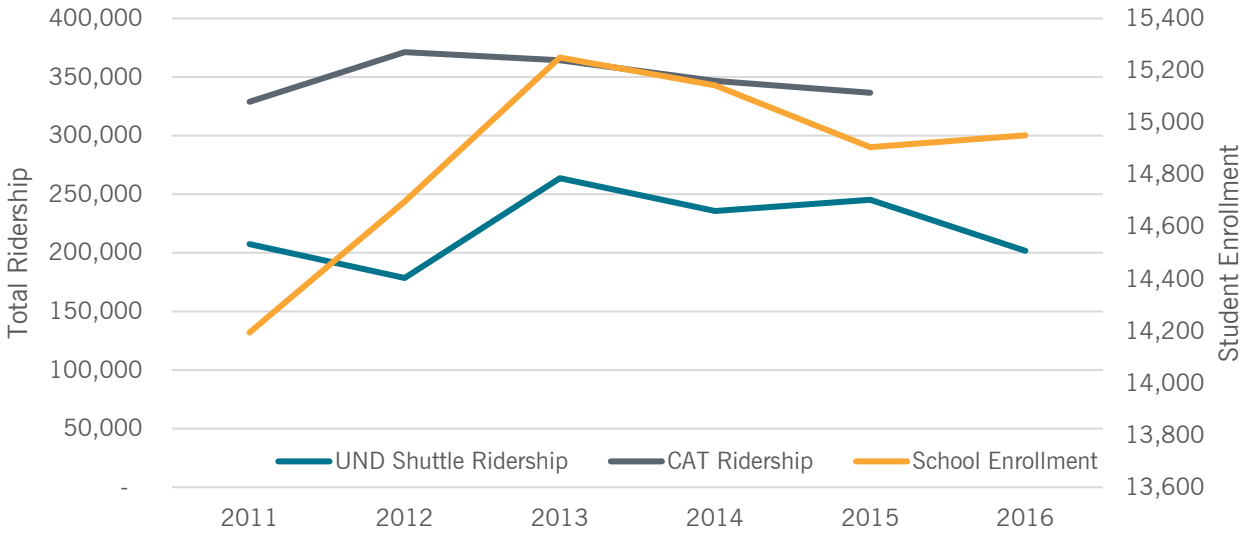


Figure 5-16: UND Ridership and Student Enrollment

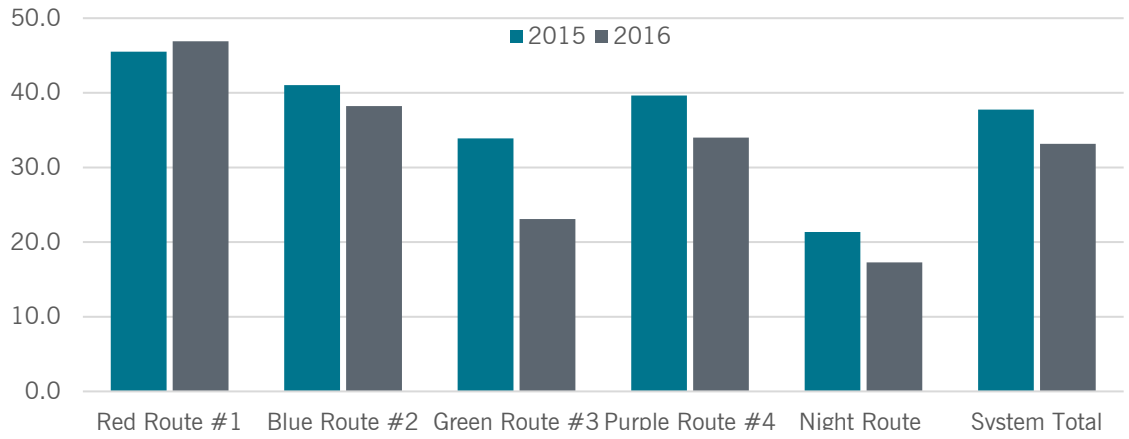


Revenue Hours

Revenue hours were approximated based on information provided by UND (ridership by route, revenue hours by combined day routes and night route) by dividing annual revenue hours by four, should in Figure 5-17.

Daytime revenue hours decreased by nearly 500 hours in 2016, compared to 2015; the night route revenue hours increased by six hours. For all but the Red Route #1, rides per revenue hour declined in 2016, when compared to 2015.

Figure 5-17: UND Rides per Revenue Hour

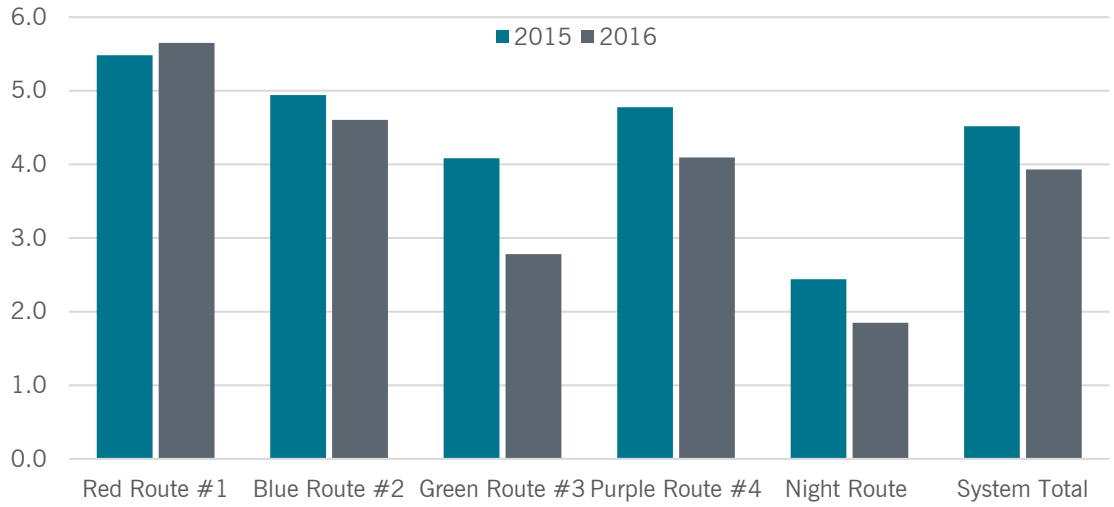


In 2016, UND revenue hours exceeded 6,000, resulting in a cost per revenue hour of $49.30.

Revenue Miles

Revenue miles was calculated using the same methodology as revenue hours. Similar to revenue hours, revenue miles for daytime routes decreased nearly 3,500 miles but the night route increased more than 500 miles in 2016 compared to 2015. Again, all routes excluding Red Route #1 saw declines in rides per revenue miles in 2016 compared to 2015, as shown in Figure 5-18.

Figure 5-18: UND Rides per Revenue Mile



UND Fleet Inventory

UND operates six vehicles which are owned by the North Dakota State Fleet Service and leased to the University at a rate of $25 per hour. The average age of the fleet is 11 years with 14,895 miles (Table 5-6). The North Dakota State Fleet Service maintains its shuttle vehicles on a 15-year depreciation schedule. Based on this schedule, four of the six vehicles would be candidates for replacement between 2016 and 2020.

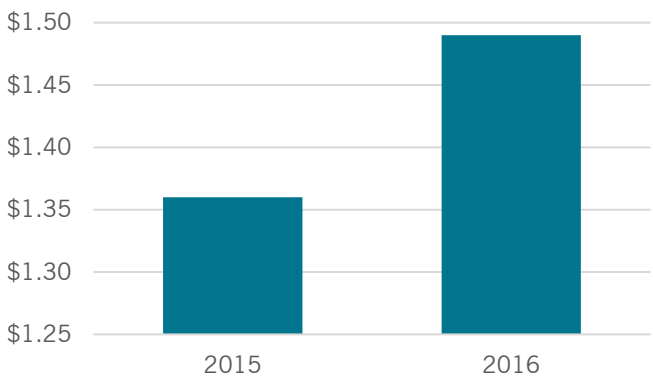
Table 5-6: UND Fleet Inventory

Vehicle #	Capacity	Wheel Chair Positions	Age	Mileage
SF 9048	40	2	2001	20,808
SF 9044	40	2	2002	19,916
SF 9043	40	2	2004	161,34
SF 9042	40	2	2004	15,321
SF 9041	40	2	2009	9,510
SF 9040	40	2	2011	7,684
Average			11	14,895

Operating Costs

UND's operating costs for 2016 declined 10.3 percent to just under $300,000. This is likely associated in part with the decrease in revenue hours through fewer lease hour costs and wages. Even with reduced expenditures, the cost per ride increased 9.1 percent to $1.49 in 2016 from $1.36 in 2015, as shown in Figure 5-19: UND Cost per Ride.

Figure 5-19: UND Cost per Rides



Total Investment

As shown in Table 5-7, in addition to the $300,000 UND pays to operate their shuttle system, they pay nearly $31,000 to CAT for access. This increases the total investment to $331,000, or $22.12 per student. This investment provides 6,082 revenue hours annually. If CAT were to take over providing all transit services on campus, at a rate of $100 per revenue hour, they would be able to provide 3,307 service hours, just 54.4 percent of service hours offered now.

Table 5-7: UND Investment

2015-2016 Academic Year	
UND Shuttle Cost	$299,834
UND Shuttle Revenue Hours	6,082
UND Cost per Revenue Hour	$49.30
CAT Access Costs	$30,839
Total UND Transit Costs	$330,673
CAT Cost per Revenue Hour	$100
UND Service Hours at CAT Cost	3,307
UND Shuttle Cost per Student	$20.05
CAT Access Cost per Student	$2.06
Total UND Transit Cost per Student	$22.12

CAPITAL NEEDS EVALUATION

VEHICLE INVENTORY

The fleet inventory analysis in the Existing Systems Analysis found the average remaining service life for the Fixed Route fleet was just 24.6 months and the Demand Response fleet had an average remaining service life of 24.2 months. It also showed two vehicles in the Fixed Route fleet one year and six years past the planned service life and four vehicles in the Demand Response fleet one to two years past their planned service life. With six vehicles in the Fixed Route fleet and five vehicles in the Demand Response fleet reaching or exceeding their planned service life, the need for expanded capital investment will be significant just to maintain service over the next two years.

The following investments are currently programmed in the 2016 to 2019 Transportation Investment Plan:

- North Dakota
  - 2016: Purchase three Fixed Route bus replacements using FTA 5339 funds
  - 2016: Purchase four Demand Response vehicles using FTA 5310 funds awarded July, 2015
- Minnesota
  - 2016: Purchase one Fixed Route vehicle with MnDOT funds
  - 2016: Purchase one Demand Response vehicle with Section 5307 funds
  - 2017: Purchase one Demand Response vehicle with Section 5307 funds
  - 2018: Purchase one Demand Response vehicle with Section 5307 funds
  - 2019: Purchase one Demand Response vehicle with Section 5307 funds

Based on currently programmed replacements alone, the average remaining service life for the Fixed Route fleet at the end of 2020 would increase to 29.5 months but the Demand Response fleet would decline to 7.9 months. To replace all vehicles through 2020 that reach their useful service life, four additional Fixed Route fleet vehicles and four Demand Response fleet vehicles would need to be replaced. The summary of the CAT fleet is shown in Table 5-8.

Table 5-8: Summary of CAT Fleet

Fixed Route		Demand Response	
Year	Number	Year	Number
2010	4	2015	3
2011	2	2016	5
2016	4	2017	1
		2018	1
		2019	1
Total	10	Total	11

CITIES AREA TRANSIT GARAGE

The single highest capital priority for CAT is a major upgrade and rehabilitation of the storage and maintenance facility. The current CAT garage is well beyond its useful life and is no longer operationally or structurally sufficient to meet current needs. Total costs to upgrade the facility were recently estimated at nearly $8.0 million dollars.

Bus Stop Amenities

When riders were no longer able to flag the bus on any corner, bus stop amenities became an important consideration for riders, especially those with mobility issues. Bus stop amenities can help improve rider satisfaction and bring visibility to the CAT system. Currently, there are 50 shelters out of 210 total designated stops, meaning 23.8 percent of dedicated stops in the CAT system have shelters. The other stops are signed. Examples of shelters are shown in Figure 5-20. Specific stop location and average daily boardings are shown in Figure 5-21, Figure 5-22 and Figure 5-23.

Thresholds for improved bus stop amenities typically depend on location (rural, suburban urban), using national standards based on *Transit Cooperative Research Program Report 19: Guidelines for the Location and Design of Bus Stops*, a small urban or suburban system like CAT is recommended to place shelters at any stop where there are 25 boardings per day. This is comparable to the threshold used in TDPs for Fargo-Moorhead Metro Area Transit; Mankato, Minnesota; and La Crosse, Wisconsin and the Greater Minnesota Transit Investment Plan.

Given that just twelve stop locations have 20 average daily boardings, and just nine have 25 average daily boardings, additional criteria should be used to evaluate the need for shelters, including:

- Number of transfers at a stop
- Availability of space for shelters
- Number of individuals in the area with mobility concerns
- Proximity to major activity centers
- Headways greater than 30 minutes
- Adjacent land use compatibility

Figure 5-20: CAT Bus Stops

Figure 5-21: Average Daily Boardings and Shelter Type in East Grand Forks

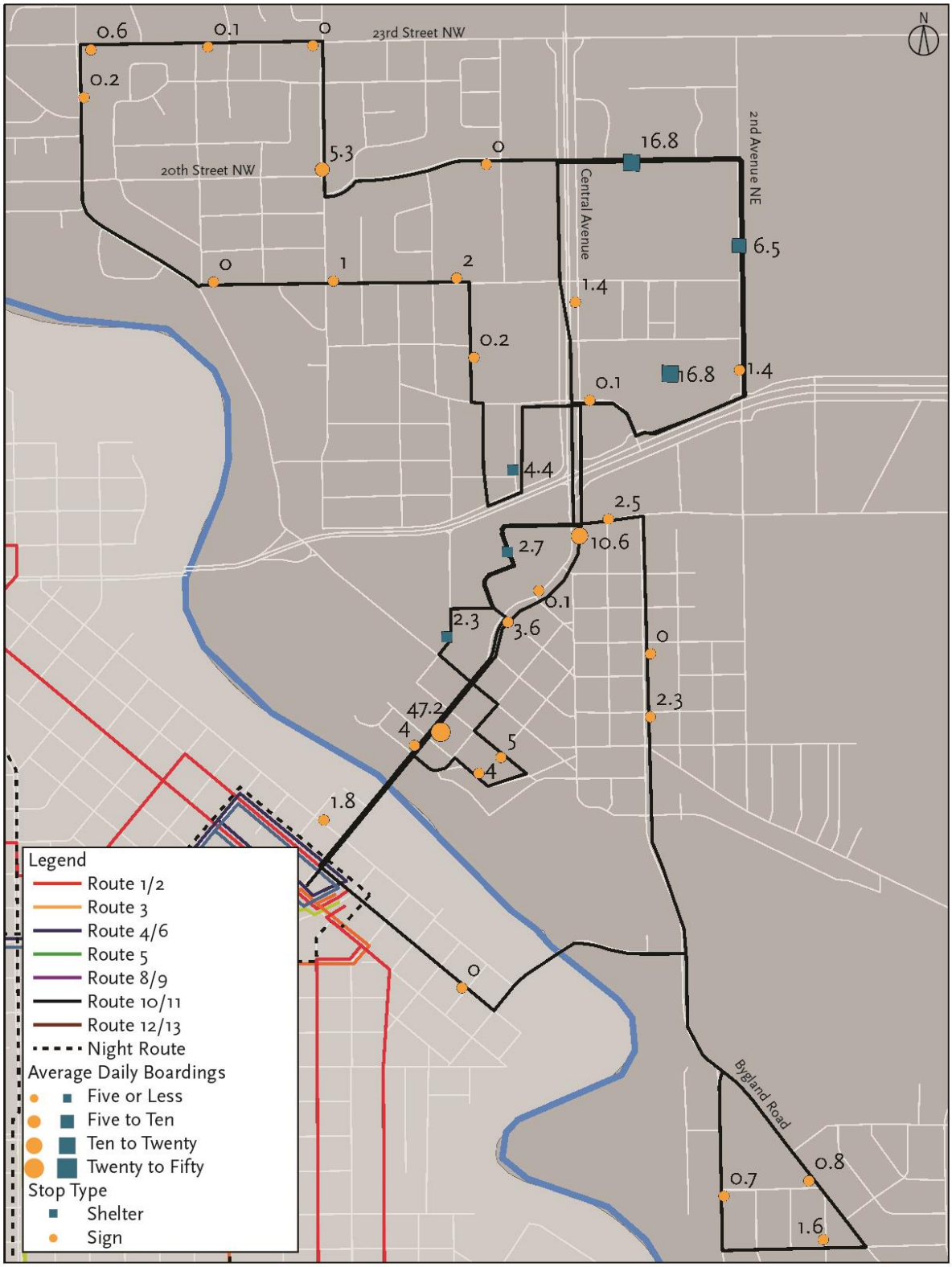


Figure 5-22: Average Daily Boardings and Shelter Type for North Grand Forks

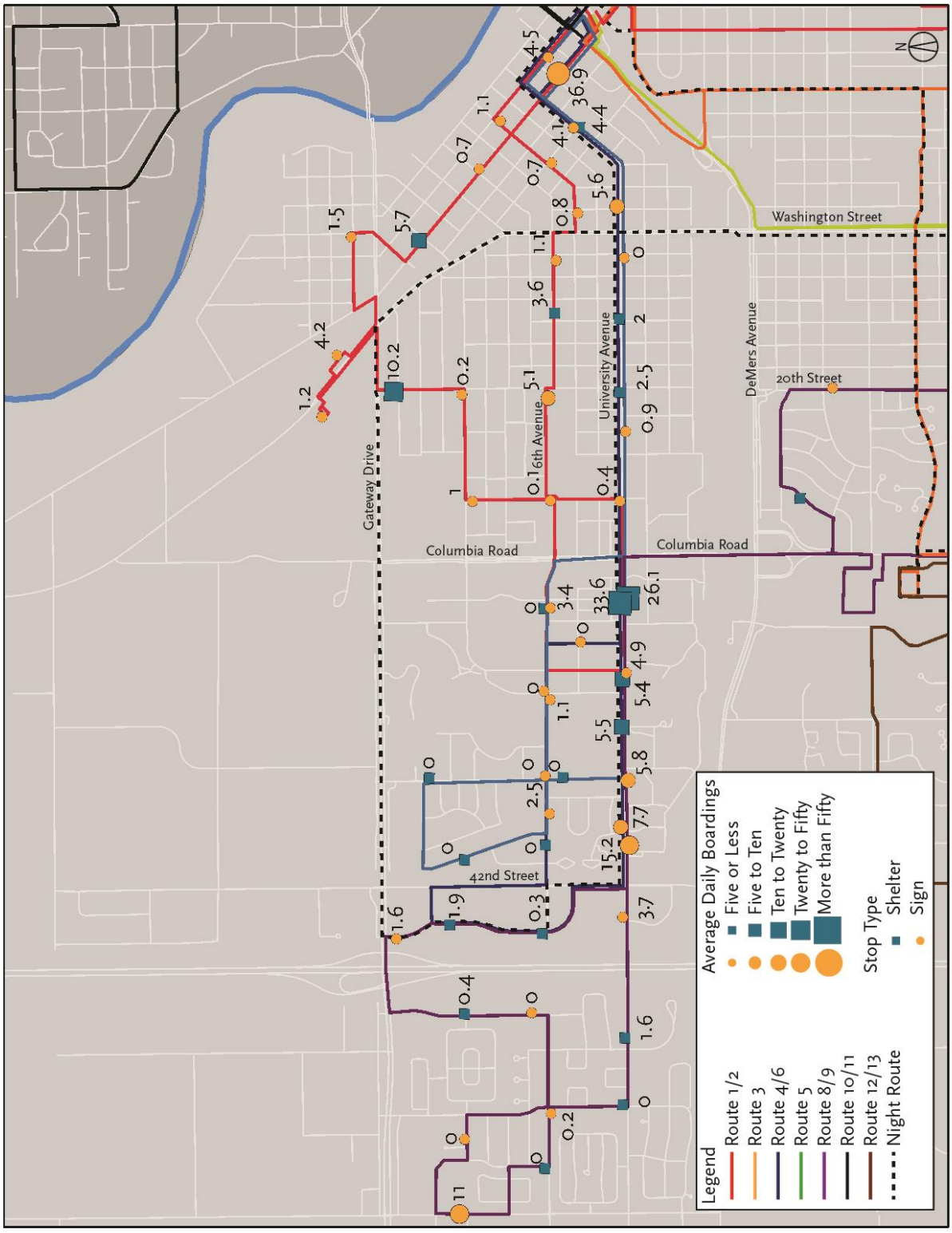
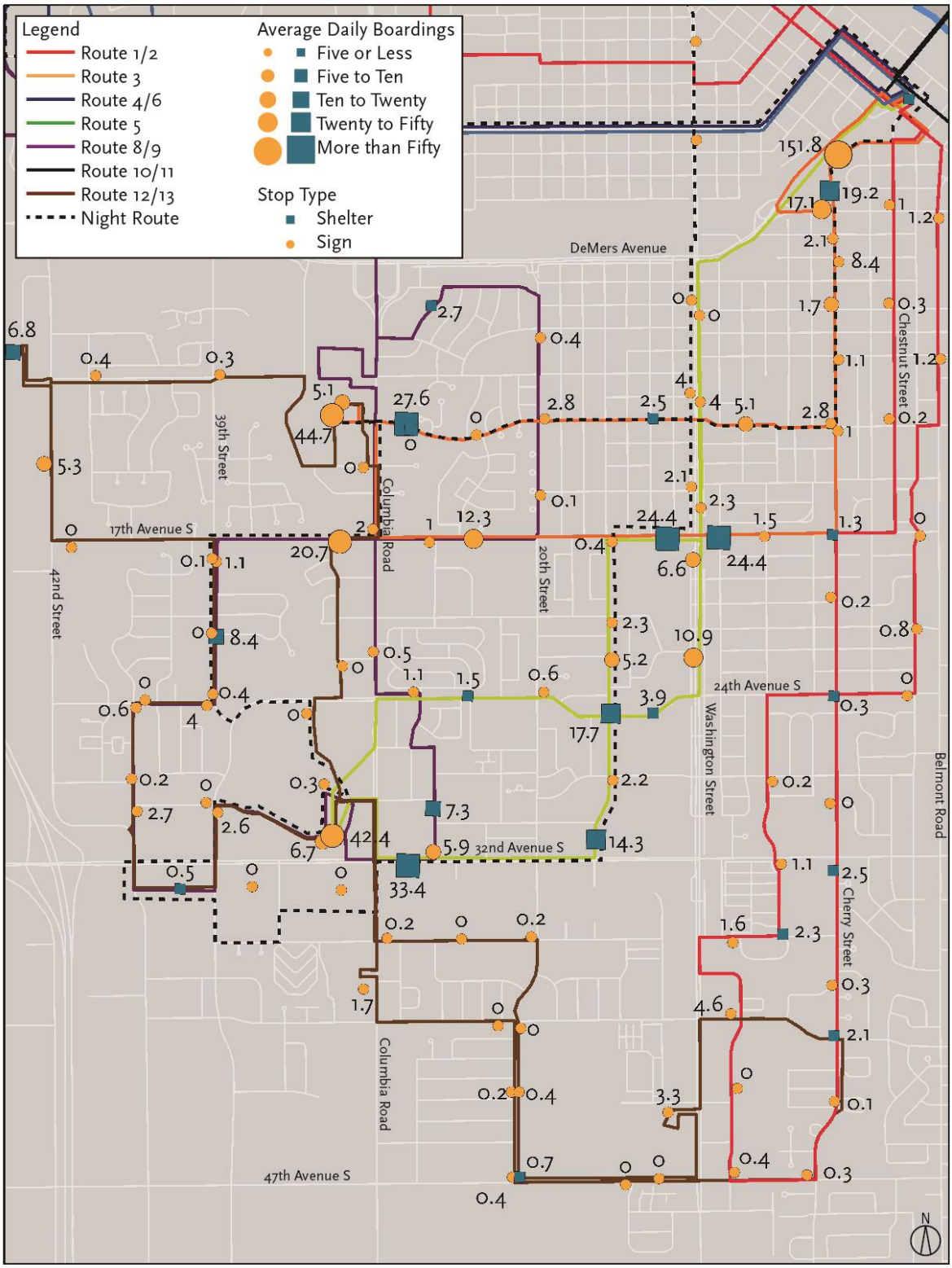


Figure 5-23: Average Daily Boardings and Shelter Type for South Grand Forks



6) COORDINATED HUMAN SERVICES TRANSPORTATION PLAN

INTENT

The Coordinated Human Services Transportation Plan (CHSTP) looks at specific needs and opportunities to improve the transportation options for low income, senior and disabled individuals. This CHSTP also outlines the framework for the funding of specialized transportation systems, which aim to improve mobility for the special needs population within the larger community.

In keeping with Executive Order 13330, the CHSTP will address the following goals:

- Promote interagency cooperation and the establishment of appropriate mechanisms to minimize duplication and overlap of Federal programs and services so that transportation-disadvantaged persons have access to more transportation services.
- Facilitate access to the most appropriate, cost-effective transportation services within existing resources.
- Encourage enhanced customer access to the variety of transportation and resources available.
- Formulate and implement administrative, policy, and procedural mechanisms that enhance transportation services at all levels.

The CHSTP is developed as a framework approach to addressing mobility management, a guidebook for initiatives and strategies to improve transportation options through outreach with and coordination of the network of community groups and agencies in the larger community. This approach is catered specifically to the Grand Forks-East Grand Forks metropolitan area.

TARGETED POPULATIONS & NEEDS ANALYSIS

The CHSTP as a subset of the overall TDP focuses on addressing transportation needs for three specific target groups: elderly, low income and minority and individuals with disabilities. The demographic and geographic context of these populations was more clearly discussed in the Existing Systems Analysis.

However, to more clearly understand the context of these populations related to the current transit infrastructure in the Grand Forks-East Grand Forks MPO area, Figure 6-1 shows the composite geographies with the most extreme potential need for public transit services, particularly for low income, minority, zero vehicle households and seniors.

A key feature of the CHSTP is a refined assessment of key transportation destinations for these target populations. The Existing Systems Analysis established the location of Social Service agencies, large employers and major community destinations and in relation of the current CAT Fixed Route services. The CHSTP aims to distill these larger needs into a more refined assessment of need. Figure 6-2 demonstrates significant potential generators for public transit to determine the degree to which these areas are currently served. Currently these areas are generally well served by Fixed Route operations provide by CAT.

Figure 6-1: Composite Areas of Need

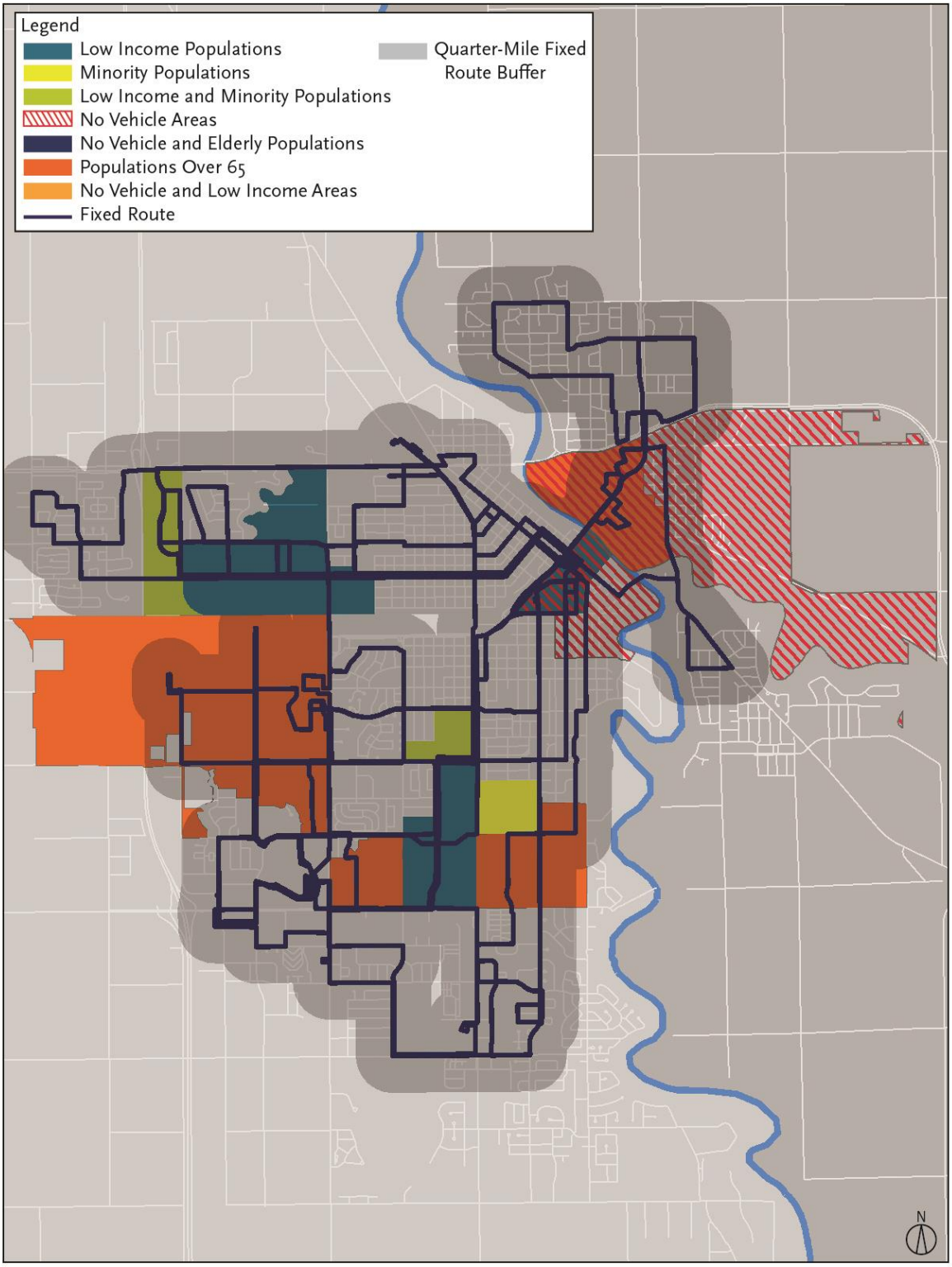
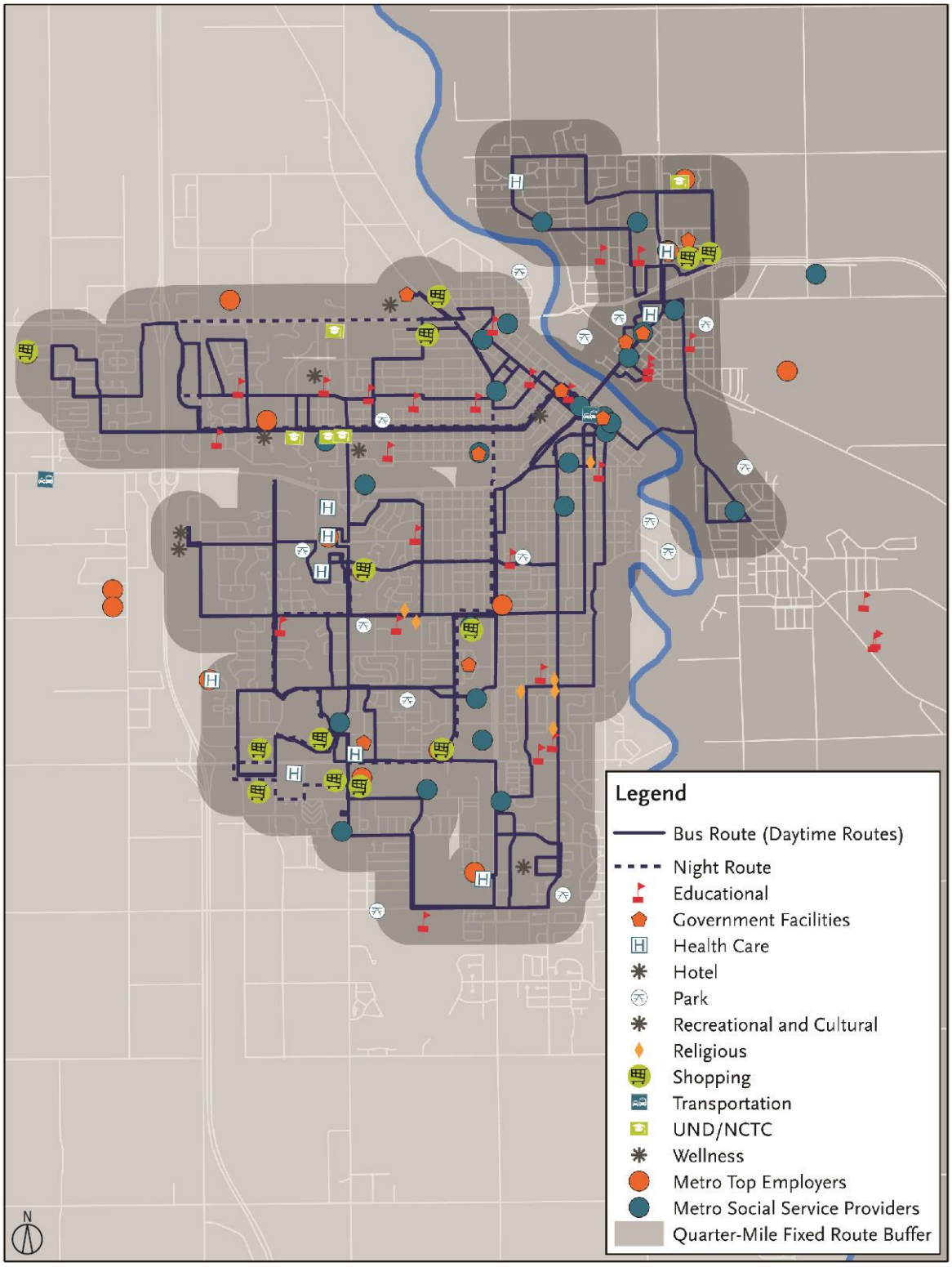


Figure 6-2: Major Destinations in the Grand Forks - East Grand Forks Metro Area



EXISTING PROVIDERS & DEMOGRAPHICS

Assembling a mobility management framework starts first with a documentation of current transportation assets in the community. To a large degree these are providers of more niche services and in many cases transportation provided by these groups are available only for clients specific to a facility or organization. Table 6-1 shows the current system of other significant transportation providers serving the Grand Forks-East Grands MPO area.

Table 6-1: Transportation Providers in the Grand Forks - East Grand Forks MPO Area

Public	General Public	Clients Only	Intra City	Inter City	Major Demand Response Generator
Tri-Valley	X			X	NA
Pembina County	X			X	
Valley Senior	X			X	
Walsh County	X			X	
Nelson County	X			X	
Private	General Public	Clients Only	Intra City	Inter City	Major Demand Response Generator
Jefferson	X			X	NA
Dietrich Bus Service	X	X	X		
Red White and Blue Taxi	X		X		
Grand Forks Taxi	X		X		
Nodak Radio Cab Co.	X		X		
City Cab Taxi	X		X		
Hengwa Taxi			X		
Yellow Cab Company			X		
S & S Taxi			X		
Agency Services	General Public	Clients Only	Intra City	Inter City	Major Demand Response Generator
Development Homes		X			X
Disabled American Veterans		X		X	
Northlands Rescue Mission		X			
REM North Dakota		X			
Valley Memorial Homes		X			
Polk County DAC		X			
Parkwood Place		X			
Altru		X			
Success Unlimited		X			
Good Sam - Heritage Grove		X			
St. Anne's Guest House		X			X
University of North Dakota		X			

PUBLIC PROVIDERS

- **Tri-Valley Heartland Express** is a curb-to-curb service and provides public transportation services to the general public in eight Minnesota counties: Polk, Red Lake, Norman, Marshall, Kittson, Pennington, Mahnomen and Clearwater.
- **Pembina County** provides public transit with priority given to medical appointments and people with disabilities. Service runs within the county and to cities in Walsh County, Grand Forks and Fargo.

- **Valley Senior** provides service to residents of Traill and Steele counties and some rural residents of Grand Forks county on a fixed route.
- **Walsh County** provides service in Walsh County and to Grand Forks with one monthly trip to Fargo.
- **Nelson County** provides service to all of Nelson county and some of rural Grand Forks county along US Highway 2.Private Providers
- **Jefferson Lines** provides regional bus service from Grand Forks to points in Minnesota, west as far as Missoula, Montana, east to Milwaukee, Wisconsin and south to the Texas-Oklahoma border.
- **Dietrich Bus** provides contract bus service to the City of Grand Forks for school busing and provides service to other clients as needed.
- **Taxi Service (Red White and Blue Taxi; Grand Forks Taxi; Nodak Radio Cab Co.; City Cab Taxi; Hengwa Taxi; Yellow Cab Company; S & S Taxi)** are typical traditional taxi cab services in Grand Forks and East Grand Forks with fleets ranging from one to 10 vehicles and providing service in the city and to the airport.

Agency Providers

- **Development Homes** provides service to their clients to-and-from Development Homes properties.
- **Disabled American Veterans** provides weekly transportation for DAV members to the VA Medical Center in Fargo.
- **Northlands Resue Mission** provides transportation to residents for medical appointments and jobs.
- **REM North Dakota** provides service to REM homes residents and clients.
- **Valley Memorial Homes** has shuttle service for residents for medical, social and recreational visits.
- **Polk County DAC** provides rides to-and-from home to the DAC and from the DAC to jobs for program clients.
- **Parkwood Place** has fixed schedule transportation for medical appointments.
- **Altru** provides transport to Altru Rehab within Grand Forks and East Grand Forks.
- **Success Unlimited** gives rides to jobs at Grand Forks Air Force Base.
- **Good Sam - Heritage Grove** provides transportation for residents.
- **St. Anne's Guest House** provides transportation for clients to medical appointments.
- **University of North Dakota** runs on-campus shuttle service and shuttle service to airport for aviation students.

DEMAND RESPONSE CHARACTERISTICS

There were nearly 55,000 rides given on the Demand Response system in 2015 (Table 6-2). About two-thirds of Demand Response trips were paratransit and one-third senior rides. Table 6-2 shows the demand response system usage by rider type.

Table 6-2: 2015 Demand Response System Usage

	2011		2012		2013		2014		2015	
Type	Total	% Total	Total	% Total	Total	% Total	Total	% Total	Total	% Total
Senior	22,295	36.4%	19,855	36.0%	19,485	37.1%	19,735	36.3%	19,195	35.1%
Paratransit	39,010	63.6%	35,360	64.0%	33,040	62.9%	34,605	63.7%	35,535	64.9%
Total	61,310	100.0%	55,215	100.0%	52,525	100.0%	54,335	100.0%	54,750	100.0%

Paratransit Riders

To understand demand for paratransit riders on the Demand Response system, major ridership generators were reduced to the top 15 combined origin-destination points, as shown in Table 6-3. Orange shaded addresses represent trip generation based on Day Training and Habilitation (DT&H) providers or Medicaid funded residential providers. The top fifteen paratransit generators are 77.3 percent of the total paratransit system, and half of the total Demand Response system. Figure 6-5 shows the major paratransit generators in the Grand Forks – East Grand Forks Metro.

Table 6-3: Major Paratransit Generators

2015 Paratransit System Usage				
Rank	**Service**	**Address**	**Location**	**Count**
1	Paratransit	1407 24th Avenue S	L.I.S.T.E.N Services	6,825
2	Paratransit	3880 S Columbia Road	Development Homes	2,460
3	Paratransit	2105 Gateway Drive	Agassiz Enterprises	2,207
4	Paratransit	300 Cherry Street	The Link	2,100
5	Paratransit	1100 N 55th Street	Dakota @ 55th Apartment Complex	1,765
6	Paratransit	1300 S Columbia Road	Altru Rehab	1,454
7	Paratransit	1000 S Columbia road	Altru Clinic	1,414
8	Paratransit	1451 44th Avenue S	Altru South/Stadter Center	1,401
9	Paratransit	2900 14th Avenue S	Valley Memorial Homes – Valley Eldercare	1,373
10	Paratransit	2675 32nd Avenue S	Red Lobster	1,238
11	Paratransit	208 2nd Street NW	Town Square Apartments	1,115
12	Paratransit	2720 S 17th Street	Development Homes	1,106
13	Paratransit	2401 36th Avenue S	Ashland Apartment Complex	1,090
14	Paratransit	430 Princeton Street	UND/Squires Hall	978
15	Paratransit	802 N 4th Street	Development Homes	928
Total				27,454
% Total Paratransit System				77.3%
% of Total DAR System				50.1%

Table 6-4 demonstrates the relationship between Medicaid funded residential or DT&H providers noted in Table 6-3. As shown, these trips to-and-from work and residential sites comprise more than one-third of all paratransit trips and nearly one-quarter of all Demand Response system trips.

Table 6-4: Medicaid Related Paratransit Generators

Development Homes				
	L.I.S.T.E.N.	**Agassiz**	**Other**	**Total**
802 N 4th Street	889	0	63	952
210 Chestnut	628	0	241	869
1211 10th Avenue S	307	487	4	798
1551 24th Avenue S	887	0	18	905
2720 17th Street	1,024	0	82	1,106
101 Chestnut Street	208	0	6	214
3880 S Columbia Road	177	228	2,055	2,460
Subtotal	**4,120**	**715**	**2,469**	**7,304**
Other Residential Locations				
	L.I.S.T.E.N.	**Agassiz**	**Other**	**Total**
1100 55th St	1,464	36	265	1,765
2401 36th Ave	467	524	99	1,090
300 Cherry	89	241	1,770	2,100
1310 Dyke	0	479	0	479
Subtotal	**2,020**	**1,280**	**2,134**	**5,434**
Total	6,140	1,995	4,603	12,738
% of Total Paratransit Use				35.8%
% of Total Demand Response System				23.3%
Total Cost of Major Users				$305,712

Senior Riders

Table 6-5 demonstrates the overall major origin-destination points for Senior Rider trips on the Demand Response system. The top 15 generators make up 64.0 percent of the total Senior Rider system and 22.5 percent of the total

Demand Response system. The YMCA (number 8), Immanuel Lutheran Church (number 9), United Lutheran Church (number 11) and University Children's Center (number 12) are related almost exclusively to the Foster Grandparents Program. Figure 6-4 shows the major Senior Rider generators within the study area in relation to the existing CAT Fixed Route system. All but one major Senior Rider generator are adjacent to the current CAT Fixed Route system.

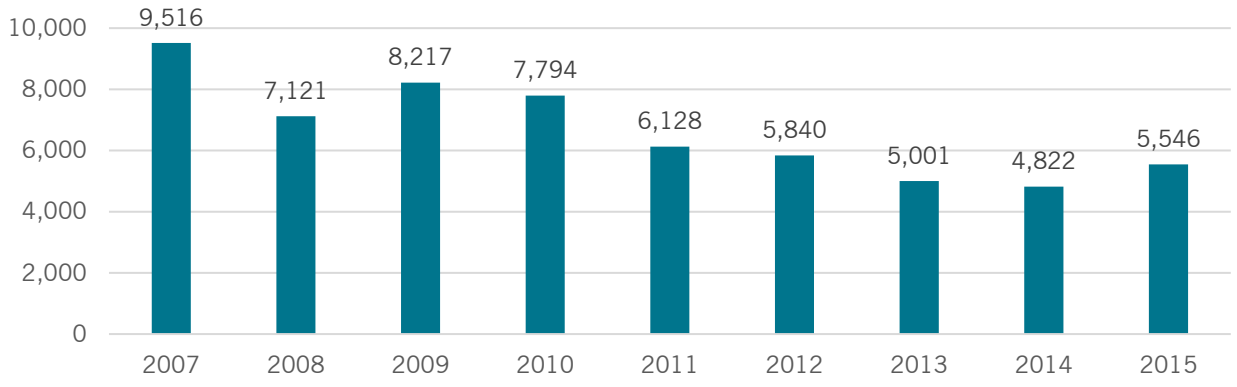
Table 6-5: Major Senior Ride Generators

Rank	Service	Address	Location	Count
1	Senior	620 4th Avenue S	Grand Forks Senior Center	1,403
2	Senior	3300 Cherry Street	Valley Memorial Homes – Tufte Manor	1,349
3	Senior	1451 44th Avenue S	Altru South/Stadter Center	955
4	Senior	1200 S Columbia Road	Altru Hospital	915
5	Senior	524 N 17th Street	St. Anne's Guest Home	824
6	Senior	2900 14th Avenue S	Valley Memorial Homes – Valley Eldercare	815
7	Senior	1000 S Columbia Road	Altru Clinic	810
8	Senior	215 N 7th Street	YMCA	803
9	Senior	1710 Cherry Street	Immanuel Lutheran Church	801
10	Senior	300 Cherry Street	The Link	664
11	Senior	324 Chestnut Street	United Lutheran Church	615
12	Senior	525 Stanford Road	University Children's Center/Housing Office	600
13	Senior	2505 13th Avenue S	Columbia Square East Apartments	585
14	Senior	4002 24th Avenue S	Valley Memorial Homes – Country Estates	579
15	Senior	1224 Walnut Street	Alcott Manor Apartments	574
Total				12,292
% Total Senior System				64.0%
% of Total DAR System				22.5%

TRIPPER

CAT operates an A.M. and P.M. tripper service, a Fixed Route with five stops that operates one run from 7:35 A.M. to 8:15 A.M. and one from 3:30 P.M. to 4:15 P.M. As shown in Figure 6-3, ridership has been gradually decreasing since 2007, with modest fluctuations in recent years.

Figure 6-3: Tripper Ridership 2007 to Present



Based on the focused demand from a handful of Paratransit users, the Tripper concept appears to be a realistic operational model, as shown in Figure 6-6. However, as currently structured it neither appears to be meeting

significant demand points nor are costs truly allocated to CAT for the dedicated level of service provided to its primary client, Agassiz Industries, shown in Table 6-6. ***The Tripper service should be discontinued and reevaluated in coordination with area agencies and human service stakeholders.***

Table 6-6: Tripper Operational Variables Compared to Fixed Route and Demand Response

System Variable	Tripper	Fixed Route	Demand Response
Total Hours	530	-	-
Revenue Hours	250	-	-
Total Cost	$23,320	-	-
Cost per Revenue Hour	$93.28	$83.94	$64.36
Cost per Ride	$4.20	$6.12	$22.55
Cost per Revenue Mile	$4.96	$6.14	$6.20
Rides per Revenue Mile	1.18	1.00	0.27
Rides per Revenue Hour	22.18	13.71	2.85

Figure 6-4: Major Senior Ride Generators and Fixed Route System

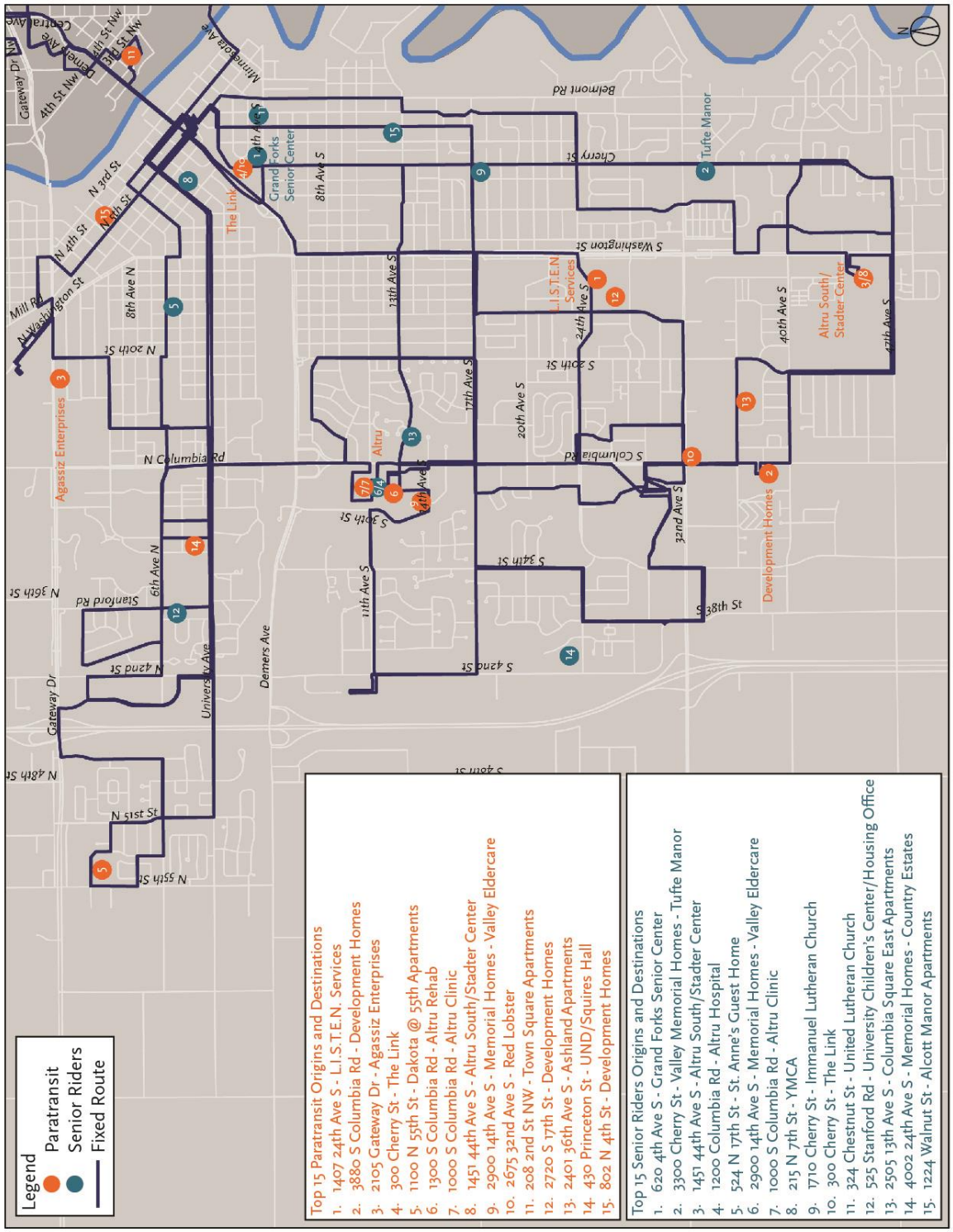


Figure 6-5: Major Senior Ride and Paratransit Ridership Generators

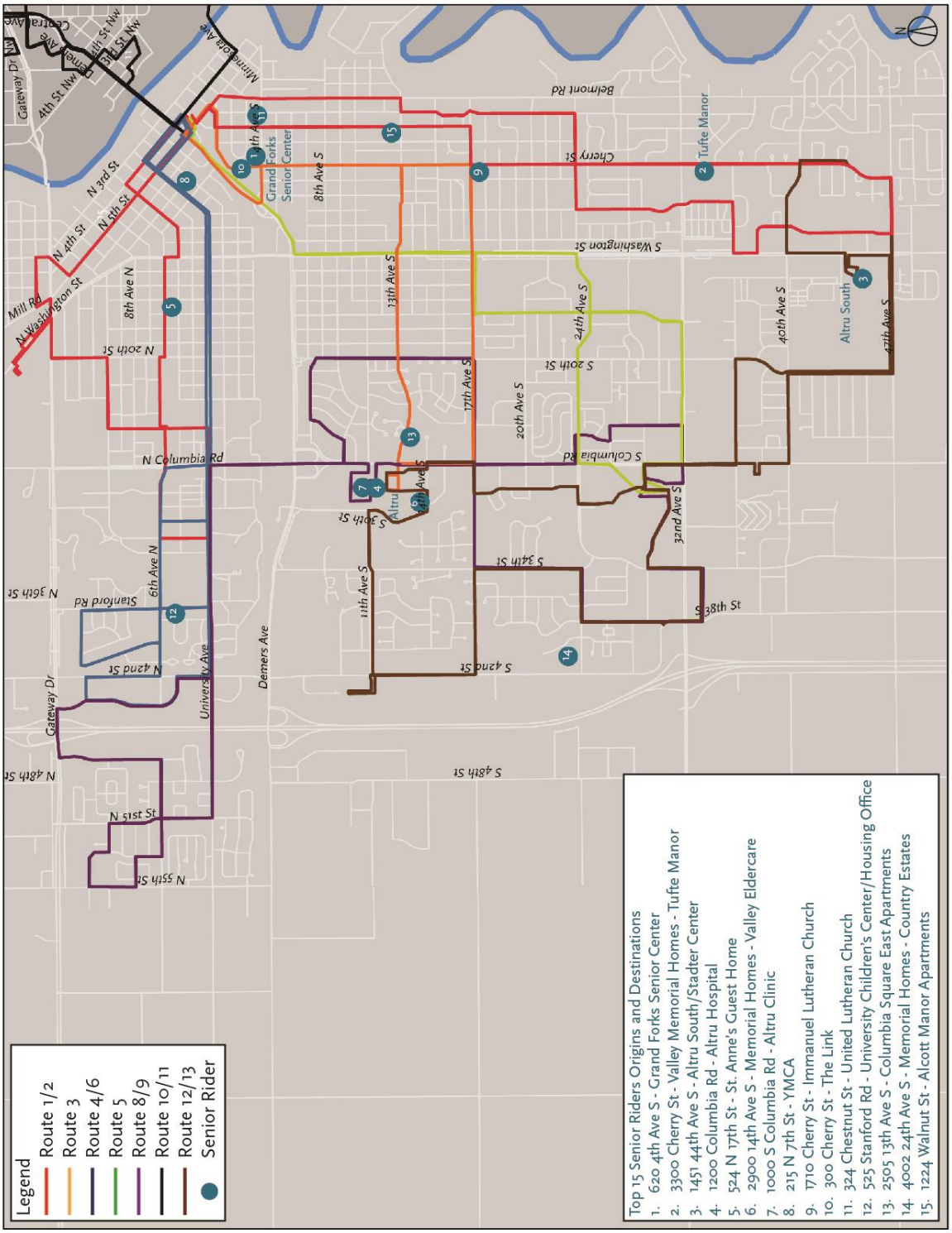
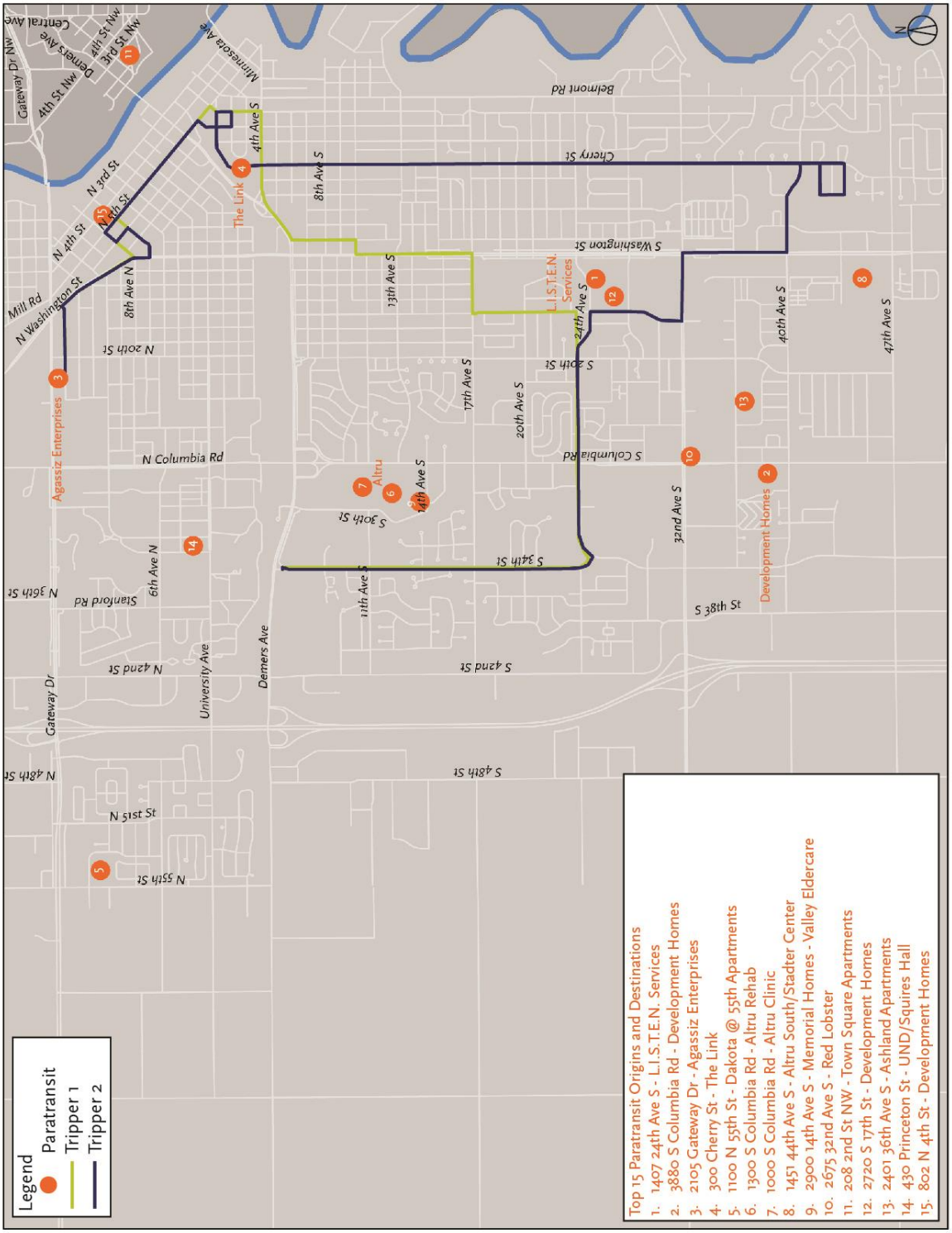


Figure 6-6: Major Paratransit Generators and Tripper Routes



SYSTEM NEEDS & ISSUES

Human Service Barriers

Previously Identified Barriers

As part of the public input process, the base set of transportation barriers from the 2012 CHSTP were discussed and evaluated. Based on the input received from key stakeholders, including CAT and the MPO, those barriers were validated for development of an updated framework.

- **Information Gap.** A common barrier to accessing public transit is a simple lack of information about services provided. Many potential riders don't know where to get on the bus, how much it costs, etc.
- **Accessibility of Fixed Routes.** ADA requires accessibility to routes. Some routes and bus stops present difficulties to segments of the population who cannot overcome some physical barriers which are exacerbated during cold weather months.
- **Coverage Area.** A Fixed Route system necessarily has limited coverage capacity. Some areas of Grand Forks/East Grand Forks remain underserved.
- **Frequency of Service.** Frequency has a great impact on riders' lives. Waiting for a bus on a 30- or 60-minute headway can eat up significant portions of time and require users to schedule their lives around bus service.
- **Hours of Operation.** Current CAT Fixed Route service runs day routes from roughly 6 A.M. to 6 P.M. and then a single night route bus until 10 P.M. Saturday service is from 8 A.M. to 6 P.M.; there is no Sunday service. These hours present significant difficulties to potential users who work outside of traditional nine to five hours.
- **Route Indirectness.** Related to coverage area, route indirectness creates barriers to riders who must sit through winding bus routes to reach their destinations.
- **Cost of Service.** Paying full cost will be perceived as too high for most users. Although fares are subsidized, many target users may still see fare prices as prohibitive.

New Transit System Issues

As part of this TDP, a refined set of Transit System Issues were developed to guide formation of the key elements of transit system needs in Grand Forks-East Grand Forks. These issues were more specifically discussed in the Issues Analysis chapter. However, each can be viewed more specifically through the lens of the CHSTP.

- **System Interface (Marketing & Outreach)**. The single most significant opportunity within the context of the CHSTP is the need to greatly improve outreach and marketing to targeted populations.
- **System Effectiveness.** An effective public transit system is critical to the quality of the transit dependent populations including the targeted populations.
- **System Performance & Operations.** For those most dependent on public transit systems, a well performing and operated public transportation system is the key to access to employment, education and quality of life opportunities.
- **UND Coordination.** UND is a major transit generator, significant employer and the region's premier educational institution. Improved coordination and service options between CAT and UND can only serve to improve the overall mobility needs of targeted populations.
- **Capital Needs**. A critical need facing CAT will be sustaining capital inputs to support existing and potentially expanded service levels. Related to the targeted populations, the need to identify potential capital assets may also serve to improve mobility of these populations and also reduce demand on the Demand Response system.
- **Balancing System Needs.** Needs to grow the CAT system cover the full spectrum, including frequency of service, hours of service, days of service, etc. While investment in all these areas are not possible, thoughtful deliberation is needed to understand which of these investments may best serve the needs of the targeted populations.

» **Community Support**. As noted in early chapters, there has been an uptick in support for the public transit in the Grand Forks-East Grand Forks area. The targeted populations, including those agencies and organizations who represent them should be considered critical champions for increased support and investment in the public transit infrastructure.

Relationship of Transit System Needs

Based on a review of both the system needs and issues, two significant items needing to be addressed through the CHSTP is System Interface (Marketing) and Balancing System Needs. As shown in Table 6-7, most validated Human Service Barriers relate directly back to the need to provide an improved balance of new services throughout the study area. New service levels will directly impact the target populations. The Information Gap barrier applies, almost without exception, to each significant transportation issue identified in the TDP. Most importantly, the Information Gap ties directly into the need to improve the System Interface through improved marketing and outreach. Increasing the level of information available to target populations increases informed decision making and mobility management efforts.

Table 6-7: Relationship of Transit System Needs

		Transit System Issues						
		System Interface	System Effectiveness	Performance & Operations	UND Coordination	Capital Needs	Balancing Needs	Community Support
Human Service Barriers	Information Gap	X	X	X	X			X
	Accessibility of Fixed Routes		X	X				
	Coverage Area						X	
	Frequency of Service						X	
	Hours of Operation						X	
	Route Indirectness		X	X			X	
	Cost of Service							

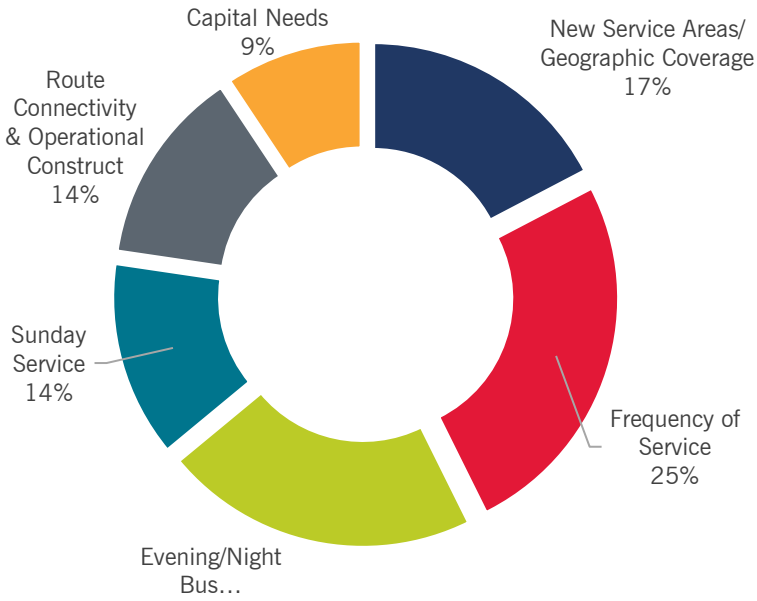
Balancing System Needs

Comparing the existing Human Service barriers and Transit System Issues identified a significant relationship to the need to balance system needs, detailed in Figure 6-7. As discussed in earlier, balancing transit system investments is a large part of the overall strategy.

Significant new resources are needed to meet future needs for perceived acceptable levels of service. When viewing the prioritization of future system needs the following prioritization was developed. In an order of priority, the following set of needs would serve to address over 50 percent of the identified barriers outlined for Human Service Transportation needs:

» **Frequency of Service.** Most CAT routes, current and proposed, operate with 60-minute headways. If a rider misses their bus, there are few other affordable options if

Figure 6-7: Balancing System Needs



they are unwilling or unable to wait for the next bus, making it difficult to rely solely on the public transit system. The Transit Capacity and Quality of Service Manual Second Edition classifies the CAT system's route frequency as LOS "E".

- **Evening/Night Service.** CAT does not provide any service from 10 P.M. to 6:30 A.M. Monday through Friday morning and begins at 8 A.M. on Saturday. A single night route provides service in Grand Forks only from 6 P.M. to 10 P.M. with one hour headways. A majority of employers in the industrial park have shifts that start at 5 A.M. and that lack of affordable transportation during the later hours impedes workers' ability to take the overnight shift. More consideration is needed to how evening routes are operated, and the general frequency and geographic coverage of evening service.
- ***Coverage Area*.** As growth extends from the cores of Grand Forks and East Grand Forks, providing service in new areas has been a challenge. Specific areas in Grand forks like 42nd Street, Gateway Drive, the industrial park and southern residential neighborhoods have no or low service coverage. While more service area is likely justifiable, recent input gathered through the TDP development process suggests that new service needs to be measured against improved levels of service to known transit hot spots.
- **Sunday Service.** CAT does not provide service on Sundays. This prevents people from social activities like church, cultural and arts events, food access, employment and medical care. A system of Sunday service should be evaluated that operates akin to the system currently running in the evening.
- **Route Connectivity/Operational Construct.** Improved connectivity between routes and major transit generators can address barriers to riders and help make transit ride times comparable to private auto by streamlining the route alignments and eliminating timely transfers.

PROGRAM GUIDANCE

Having considered the range of most significant transit system issues and human service barriers, the following set of programmatic actions and initiatives would serve to improve the overall transportation options for targeted populations. Further, these efforts would improve the dialogue among human service agencies and significant transportation providers in the Grand Forks-East Grand Forks area.

System Interface (Marketing)

A major overall issue identified is the system interface, or more specifically system marketing. A number of initiatives should be explored to improve outreach and marketing to target populations with in the larger community.

Quarterly "Major Users" Meetings

CAT should meet quarterly with the significant users of the Demand Response system, specifically those agencies and entities discussed earlier. The MPO should be party to these meetings in so far as they are related to the overall metropolitan transportation planning program. This includes both paratransit and senior rider component of Demand Response. These quarterly meetings provide for valuable information exchange on transportation needs and opportunities within the targeted populations in the larger community.

Community Agency Networking Association

CAT should look to build upon the Community Agency Networking Association (CANA) to improve outreach and marketing to key agency representatives from critical user groups from the larger community. CANA is a consortium of local service agencies and organizations and provides a direct network of information sharing and resource coordination. These venues offer CAT and participating agencies an opportunity to review system operations and discuss efforts to better coordinate and streamline services to targeted populations.

Interagency Forum

Attend the regular monthly meetings of the Interagency Forum (IAF). The IAF is a consortium of local human and social service agencies from around the community. The venue is a great outreach opportunity, but also an opportunity to

build consensus among key agencies on potential new strategies for improve and enhance all elements of CAT, specifically Demand Response.

Targeted Mobility Management & Niche Marketing Materials

Directory of Transportation Services (Annual Update) - Print + Web

CAT and the MPO should annually develop a Directory of Specialized Transportation Services. The Directory would serve to provide a one stop reference of available transportation providers in the larger community. The Directory should be published in print and be made available online.

Senior Ride Guides

Provide updated ride guides and route information on the CAT System to key users groups such as senior citizens. Senior transportation needs are typically focused on quality of life trips such a shopping, medical and social destinations. Focus should be on illustrating how the CAT system can improve access to critical destinations that sustain and improve the quality of life for seniors.

How to Ride Seminars

CAT should hold monthly rider orientation meetings to assist agency clientele in learning about the CAT system. These "how to ride" seminars are helpful in improving both case worker and client's familiarity with the public transit system. In some cases, these seminars are helpful in communicating the variation in eligibility requirements for access to the Demand Response system and demonstrate how Fixed Route options may be more convenient for certain rider types.

Rural Transportation Collaborative

The Rural Transportation Collaborative (RTC) is a volunteer driver program focused on transportation rural residents into the urban settings. CAT should increase coordination with the RTC operated by the Tri-Valley Opportunity Council.

Intercity Service Coordination

T.H.E. Bus and Jefferson lines provide significant intercity bus services to-and-from East Grand Forks. Increased coordination with both entities is important to ensuring a match between transfers and to maximize the ability of CAT to integrate with both.

Paratransit Eligibility Screening

CAT should incrementally review and recertify current registered Paratransit users. Part of this effort would relate to the development of an expanded and more robust eligibility screening process to ensure those who need Paratransit services are provided mobility options they require. At the same, an emphasis on certifications allows an opportunity for CAT to manage demand between Senior Ride, Paratransit and the Fixed Route system more efficiently.

These eligibility reviews need to be closely coupled with the previously mentioned marketing and outreach efforts to key agencies and constituents. Many specialized users such as seniors migrate immediately to the Senior Rider program without adequate consultation and consideration of the Fixed Route options. Increased education and awareness of Fixed Route options will assist in easing negative responses from potentially effected clients and agencies if more consistency and thoughtful eligibility certifications are implemented.

Service & Program Development Coordination

Capital & Operating Needs (Agencies)

CAT and the MPO should look to develop capital and operational support to improve service delivery systems for special needs populations. Several agencies within the Grand Forks-East Grand Forks area may benefit from access to funding to assist with both operational and capital funding. Funding for these programs could be sought through the

FTA Section 5310 programs administered by both the NDDOT and the MnDOT. Additional options exist through the Community Development Block Grant (CDBG) Program administered by the City of Grand Forks.

Community Capital Assistance Program

More specifically, a Community Capital Assistance Program (CCAP) could be developed to provide capital funding to agencies with a proven ability to improve mobility options for targeted populations. Additionally, the CCAP would be structured to support capital programs to benefit service providers who demonstrate an ability to reduce demand on Demand Response.

Coordinated Service Delivery Initiative

Like the CCAP, the Coordinated Service Delivery Initiative (CSDI) would look to allocate federal, state or local resources to provide coordinated transportation programs and services. Programs would be developed through existing or new provider consortiums aimed at developing more coordinated service delivery concepts. Prioritization would be given to programs that serve to coordinate existing duplicated service or service initiatives which could reduce demand on the Demand Response system through more cost effectiveness delivery methods to key generators.

Related to the current Tripper system, coordinating among potential benefiting agencies on a similar service either between CAT and related agencies or between related agencies would meet the intent of the CSDI.

Full Cost Allocation

The CHSTP is focused on outlining system improvements which will generally improve mobility options for the targeted populations discussed above. Specifically, the framework focuses on understanding system alternatives to better maximize investments in the CAT Demand Response system. CAT is currently investing nearly a third of its resources into this system. To manage existing resources and to grow the overall CAT system, cost allocation strategies have been developed to capture new potential revenue from agencies who are currently utilizing CAT at a disproportionately high level.

Full cost allocation models look to partner with agencies who receive the benefit of CAT services for their clients, but are not currently sharing in the cost of those services. As demonstrated earlier, a very small number of agencies are putting about 25 percent of the total demand for paratransit related usage of Demand Response. Additionally, programs such as Foster Grandparents (operated by Grand Forks County) place a measurable demand on the Senior Rider component of the CAT system. While full cost allocation options could be considered for medical related trips for certain skilled nursing facilities, those issues do not appear to be prevalent in the existing condition.

Agency Rates

Special focus for increased financial coordination and cooperative partnership should be aimed at agencies involved in Day Training & Habilitation (DT&H) related programs. As noted earlier, a large portion of the Paratransit trip generation relates specifically back to DT&H provider transportation. Implementing a cost allocation model to the Paratransit system could develop a two-tiered approach.

- Tier I of this effort would be to explore funding or financial partnerships with these agencies to assist in offsetting the cost of paratransit. When presented with the financial and operating limitations of CAT, agencies may be willing to more progressively look for funding cooperation. Further this level of discussion between CAT and local agencies may reveal other options to cooperatively streamline service delivery methods and approach to reduce cost to CAT while maintaining acceptable levels of service to agencies and their clients.
- Tier II options would relate to the development of an Agency Rate for these organizations. Typically, agency rates are applied to agencies' transportation for individuals who otherwise qualify for human service or transportation-related programs or services due to disability, income or advanced aged coordination, consistent with Executive Order 13330, referenced earlier.

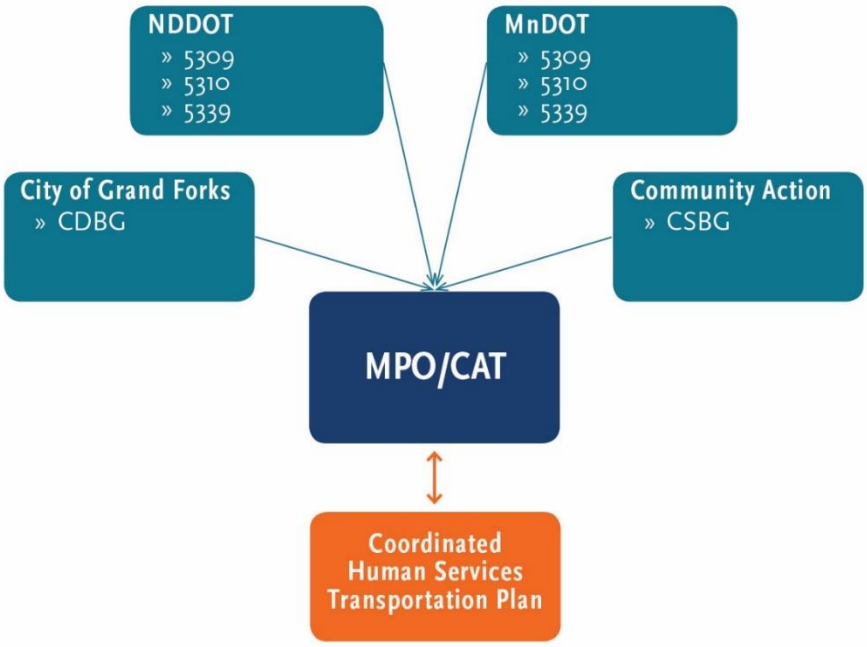
Pricing for agency rates can range anywhere from a full cost allocation of the ride, currently about $22.00, to a price brokered between CAT and affected agencies. To effectively implement an agency rate, the following considerations should be closely reviewed:

- *USC 49 Part 37.131 (c)* – Agency fares are permissible, however must be tied to an agreement in which the transit agency is guaranteeing a certain number of rides at a certain rate.
- DT&H providers in North Dakota are not always provided transportation costs through the state, who administers Medicaid funding.
- North Dakota based DT&H providers are not currently required to provide transportation to their clients. Therefore, North Dakota based DT&H agencies may be hesitant, if not hostile, to the suggestion of an agency rate.
- Given Medicaid funding rules in Minnesota related to DT&H, Minnesota based agencies may be more open to agency rates.

Funding

Funding typically used to implement this element of the Transit Development Plan would come from five Federal aid programs (Figure 6-8): Section 5310, Section 5539, Section 5309, CDBG and CSBG.

Figure 6-8: Programming Coordination



PROJECT PROGRAMMING & PRIORITIZATION

The following section of CHSTP provides an overview of the project programming and prioritization process for implementation of this element of the Transit Development.

Funding to Support the Mobility Management Framework

Section 5310 – Enhanced Mobility of Seniors & Induvial with Disabilities

Section 5310 are funds targeted at providing funding to improve transportation options for seniors and individual with disabilities. Both MnDOT and NDDOT use different project solicitation and selection processes for this program.

- MnDOT – Project solicitation, prioritization and selection is led by the Central Office in coordination with public transportation providers in each MnDOT District. Typically, projects provide capital vehicles purchases for Day Training & Habilitation (DTH) transportation needs operated by smaller agencies or public transit providers.
- NDDOT – Solicits projects through each MPO (and statewide through rural providers) to support the purchase of vehicles which support public transportation services. Projects are solicited by the MPO and prioritized prior to final project selections by NDDOT.

Section 5339 – Bus and Bus Facilities Grants Program

Section 5339 funds support the purchase of transit capital (typically buses) to support the operation of public transportation services. Section 5339 funds are realistic source of funds to implement capital needs identified in this CHSTP and TDP.

- MnDOT – Project selection is typically made by central office based on needs identified by each transit operators as expressed through internal needs determinations made by MnDOT's Office of Transit.
- NDDOT – Projects are solicited through each MPO (and statewide through rural transit providers) to support the support the purchase of public transit rolling stock or other capital needs.

Section 5307 – Urbanized Area Funds

These funds are apportioned to each designated recipient. In the case of the Grand Forks - East Grand Forks MPO area, funds are apportioned to both Grand Forks (through NDDOT) and East Grand Forks (through MnDOT). Section 5307 funds are realistic source of funds to implement operational (including marketing and mobility management) needs identified by this CHSTP and TDP.

CAT develops a program of projects in cooperation with the MPO Transportation Improvement Plan to implement the public transit system and identifies the expenditure of Section 5307 funds. Many small scale programmatic and marketing efforts are realized through the overall integration of Section 5307 into the CAT operating budget.

Community Development Block Grant

Community Development Block Grant (CDBG) funds are apportioned to and administered by the City of Grand of Forks. CDBG funds are allocated to specific project needs identified through the development of the Consolidated Planning process. Increased consultation is needed between CAT, the MPO and the City of Grand Forks regarding coordinating programmatic opportunities between the CDBG Consolidated Planning process and this CHSTP and TDP.

The Grand Forks 2015-2019 Consolidated Plan suggests transportation is a strong component of workforce retention. Additionally, programming to assist New Americans in making cultural adjustments is an important need identified by the current plan. New Americans usually make use of the CAT system once they arrive in Grand Forks-East Grand Forks and programming aimed at improving the mobility of New Americans is critical to their success. Consider coordinating funding requests for CDBG funds through the City of Grand Forks to assist with development of niche services or capital needs of smaller agencies, which would serve to improve transportation options for certain populations. Such a request would meet the intent of the *non-housing community development needs*, specifically and *service to promote self-sufficiency/economic dependence*, currently included in the Grand Forks 2015-2019 Consolidated Plan.

A number of goals from the 2015-2019 Consolidated Plan can be linked to the transportation needs also identified in this CHSTP and TDP.

- HO2 – Provide Operational Support to agencies that assist people who are at risk of becoming homeless.
- SN1 – Support facilities and services that assist special needs populations.
- CD1 – Remove barriers to self-sufficiency.
- CD4 – Enhance public facilities and improve services in at-risk neighborhoods.

Both the MPO and CAT should integrate themselves into the planning and programming activities related to CDBG funds.

Community Service Block Grant

Community Service Block Grant (CSBG) funds are typically used by Community Action Agencies (CAAs) to implement their multi-year work programs. Similar to CDBG, these program funds are targeted at meeting needs of low income individuals. Increased consultation is needed between CAT, the MPO and the Region VI Community Agency and the Tri-Valley Opportunity Council regarding coordinated programmatic opportunities between CSBG needs development and programming process and this CHSTP and TDP. CAT specifically should integrate itself into the planning and programming related to CSBG funds.

Project Prioritization

Implementation of this CHSTP will require that projects are scored and prioritized through the MPO Transportation Improvement Program (TIP) development process. Project prioritization should be developed in very close coordination with this CHSTP. Targeted projects should look to advance initiatives which generally meet the project needs and concepts identified in the overall TDP.

The programming process to support implementation of this CHSTP must be coordinated with both MnDOT and NDDOT. Each state implements a uniquely different project prioritization and selection process. However, the scoring and prioritization of projects locally through the MPO process is a signal to each DOT of local preferences for project investments.

Project Scoring

To assist with scoring projects submitted for funding through programs discussed here, the following weighting system should be considered. It is assumed the scoring is initially completed by the MPO. These scoring criteria relate specifically to trying to ensure projects and programs are designed to meet the needs identified in this TDP. Additionally, these scoring criteria also factor into a relationship to the four highest prioritized goals discussed earlier in this section, plus the goal of System Preservation which is closely linked to state of good repair principles inherent in the FAST Act:

- Economic Vitality
- Integration & Connectivity
- Efficient System Management
- Accessibility & Mobility
- System Preservation

PROJECT SCORING & WEIGHTING

A weighting system is suggested, independent of potential possible total points to suggest the relative influence each potential scoring metric would have relative to the each other, and is detailed in Table 6-8. For example, under a 100 point system, the percentage below would/could be directly translated into points.

Table 6-8: CHSTP Project Scoring and Weighting

Criteria	Weight	Goals Targeted	Project Concepts
Maintain CAT in a State of Good Repair	40%	» System Preservation	» Replacement of Fixed Route or Demand Response rolling stock. » Replacement of ancillary capital or facility needs.
Programs/Projects Which Serve to Preserve Existing Service Levels	20%	» Efficient System Management » Integration & Connectivity » Accessibility & Mobility	» Dedicated mobility management efforts and programs. » Marketing and outreach campaigns and programs.
Programs/Projects Which Provide Expanded Service Options	10%	» Accessibility & Mobility » Economic Vitality	» New Sunday, evening or other Fixed Route Service Needs » Service to Industrial Park, Airport or other major employment areas not currently served.
Capital Coordination and Operational Partnership Among/Between Agencies and CAT	10%	» Efficient System Management » Integration & Connectivity » Accessibility & Mobility	» Purchase rolling stock to be shared among agencies to reduce users of Demand Response, to replace agency capital, which if not replaced would increase users of Demand Response. » Programming cooperatives between agencies which would serve to manage or reduce users on Demand Response.
Program/Project Which Reduces Users on Demand Response	10%	» Integration & Connectivity » Accessibility & Mobility » Efficient System Management	» Any marketing or technology investments which are focused on managing demand on the Demand Response system, or increasing coordination among local agencies and CAT.
Program/Project Which Address Issues, Needs or Concepts Discussed in TDP	10%	» Various	» Projects which can point to a need, issue or concept within the TDP.

It is important to note that these weighting/scoring criteria provide the scoring of projects. Following a scoring of each project, projects are then to be prioritized through the MPO process. However, the scoring should be considered a litmus test to the overall value of a project and its relative prioritization prior to submission to each DOT.

7) ALTERNATIVES ANALYSIS

Some of the 12 current regular routes operate very effectively and efficiently, while other routes have low ridership and a high cost. New route alternatives were based on the performance of the existing route alignments and issues identified through the Existing Systems Analysis, Public Input and Issues Analysis. These alternatives have been vetted by the public, bus operators, city staff and other stakeholders and revised based on their feedback.

PROPOSED ROUTE ALTERNATIVES

Operational Construct

Fixed Route alternatives were developed for weekday and Saturday service and weeknight and Saturday night service. Routes were also explored for an industrial park route and a Sunday service route but are not recommended at this time. Figure 7-1 shows the overview of the proposed Weekday and Saturday routes. Figure 7-2 shows the overview of the proposed Weeknight and Saturday night routes. Figure 7-3 shows route concepts for future consideration.

Weekday and Saturday Routes

Route 1

Route 1 is proposed to operate between the Grand Cities Mall and the 13th Avenue N. Hugo's via the Metro Transit Center (MTC) and Home of Economy. The proposed route shortens and consolidates the current Routes 1 and 2. The proposed Route 1 would also provide connections to other routes at the MTC and Grand Cities Mall. Two of these proposed connections include Route 1, Route 1SE and Route 1SW. To maintain 60-minute circuity of the interlined Routes 1SE and 1SW, 30-minute service is recommended on Route 1. The Route 1 concepts are shown in Figure 7-4.

ROUTE 1U

Route 1U would be a part of the overall interlined systems recommended for Routes 1, 1SE and 1SW. The Route 1U portion of the route would provide service between the Downton and the UND campus on a 60-minute headway. With the proposed interline for the Route 1 systems developed as part of the TDP, Route 1U would provide a one-seat ride between the UND campus, downtown, Grand Cities Mall and destinations on the southside depending on if it were lined with the Route 1SE or 1SW.

ROUTE 1SE

The proposed Route 1SE is a circulator in the southeast area of Grand Forks. The route would serve Grand Cities Mall, Altru South, Walmart and the 32nd Avenue Hugo's. The route is proposed to interline with every other trip of the Route 1, alternating with Route 1SW.

ROUTE 1SW

The proposed Route 1SW is a circulator in the southwest area of Grand Forks. The route would serve Grand Cities Mall, the 32nd Avenue Hugo's, Columbia Mall, Target and 32nd Avenue Walmart. The route is proposed to interline with every other trip of the Route 1, alternating with Route 1SE.

Route 3

Route 3 is proposed to operate between Altru and Northland Community College via Grand Cities Mall, the MTC and the East Grand Forks Hugo's. The route merges the most productive elements of the current Routes 10 and 11 with the current Route 3. The Route 3 concept is shown in Figure 7-5.

Route 4

Route 4 is proposed to operate between the MTC and the Gateway Drive Walmart via the University of North Dakota (UND). This route is a modification and consolidation of the current service on Routes 4 and 6. The Route 4 concept is shown in Figure 7-6.

Route 5

Route 5 is proposed to operate between northland college and the Columbia Mall via the MTC. The route is a streamlined combination of the current Routes 5, 10 and 11. The Route 5 concept is shown in Figure 7-7.

Route 6

Route 6 is proposed as an interlined route that includes Routes 6E and 6W and operates between Columbia Mall and UND. The Route 6E and Route 6W concepts are shown in Figure 7-8.

ROUTE 6E

Route 6E is proposed to operate between Columbia Mall and UND via Altru. The route provides a direct connection between UND and the Columbia Mall along Columbia Road. Additional coordination with UND will be necessary as operations on campus are planned.

ROUTE 6W

Route 6W is proposed to operate between Columbia Mall and UND via the Alerus Center. The route provides a direct connection between UND and the Columbia Mall along 42nd Street. Additional coordination with UND will be necessary as operations on campus are planned.

Route 8

Route 8 is proposed to operate between northwest East Grand Forks and the East Grand Forks Senior Citizens' Center via the East Grand Forks High School and downtown East Grand Forks. The route provides service to those wishing to travel within East Grand Forks and connects to the proposed Routes 3 and 5. The Route 8 concept is shown in Figure 7-9.

Weeknight and Saturday Night Routes

Stop level ridership data is currently unavailable for weeknight ridership. Therefore, the proposed weeknight routes are based on high demand weekday transit stops and reflect proposed weekday routes or portions of proposed weekday routes.

Route 1

The Route 1 night route is proposed to operate between the 13th Avenue Hugo's and the 32nd Avenue Walmart via the MTC, Grand Cities Mall, Columbia Mall and Target. The proposed route is a combination of the proposed weekday Routes 1SE and 1SW.

Route 3

The Route 3 night route is proposed to operate between Altru and Northland Community College via Grand Cities Mall, the MTC and the East Grand Forks Hugo's. The route merges the most productive elements of the current Routes 10 and 11 with the current Route 3.

Route 6

The Route 6 night route is proposed as an interlined route that includes Routes 6E and 6W and operates between Columbia Mall and UND.

Figure 7-1: Proposed Weekday and Saturday Route Overview

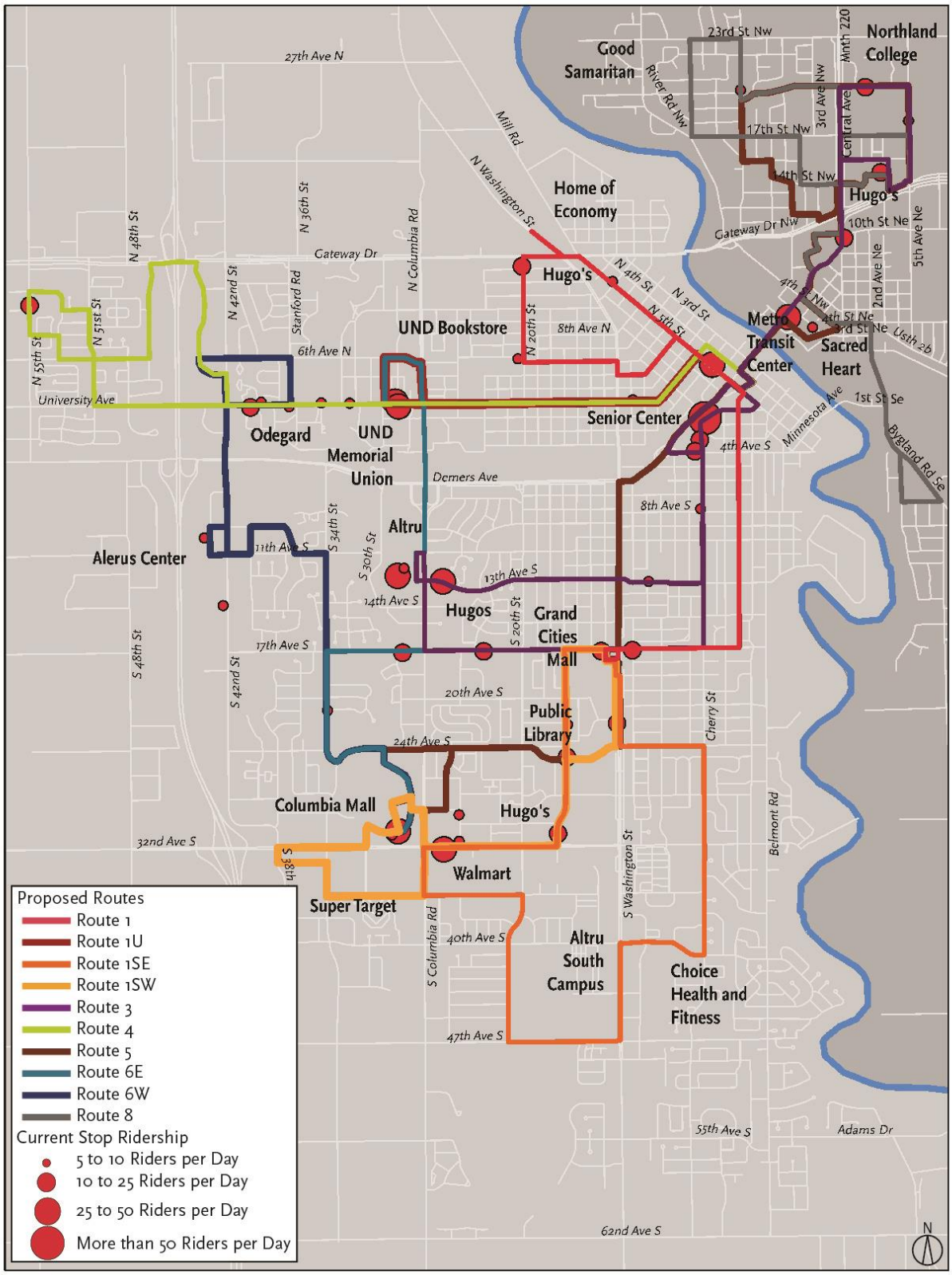


Figure 7-2: Proposed Night Routes Overview

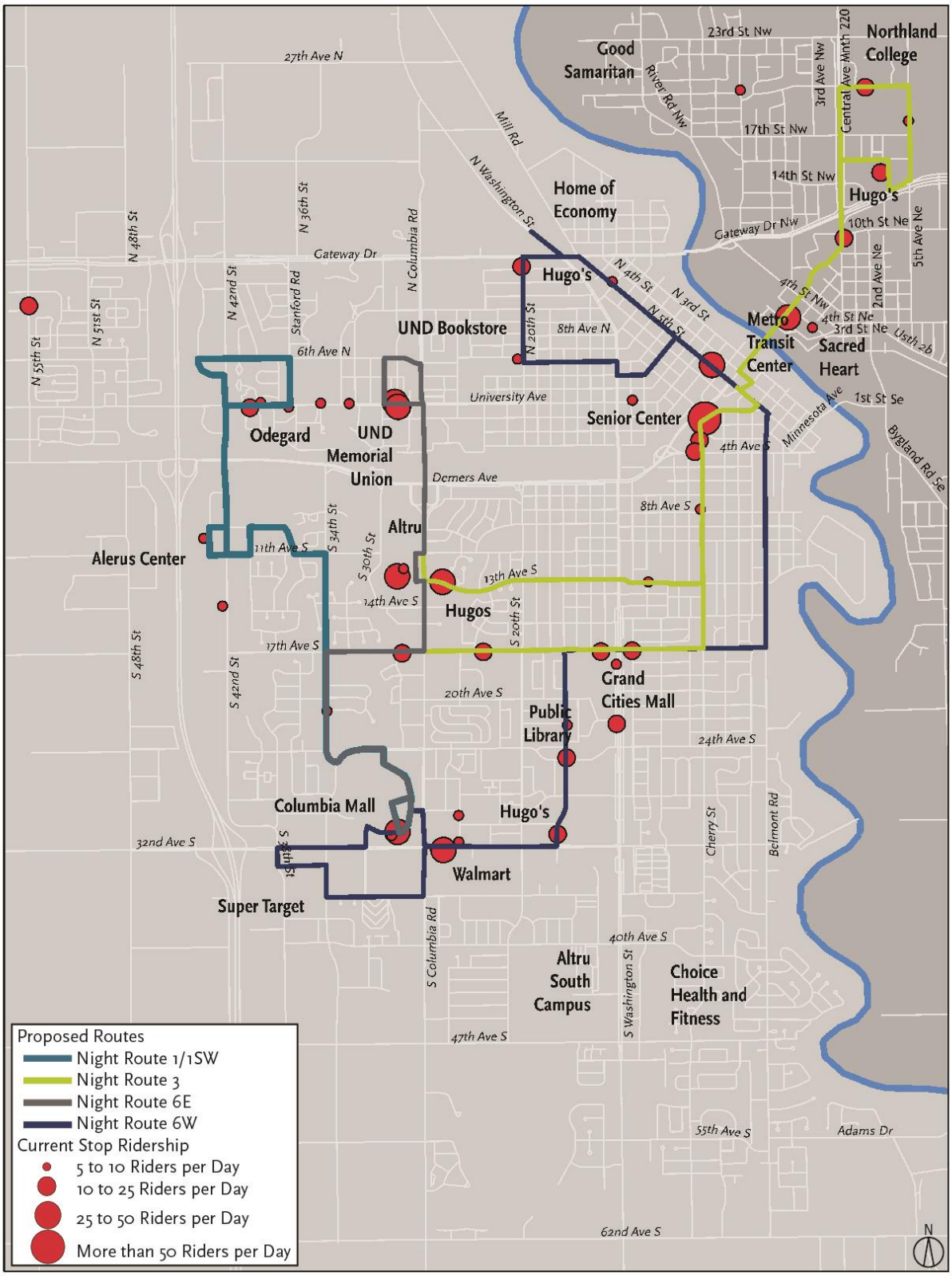


Figure 7-3: Routes for Future Consideration

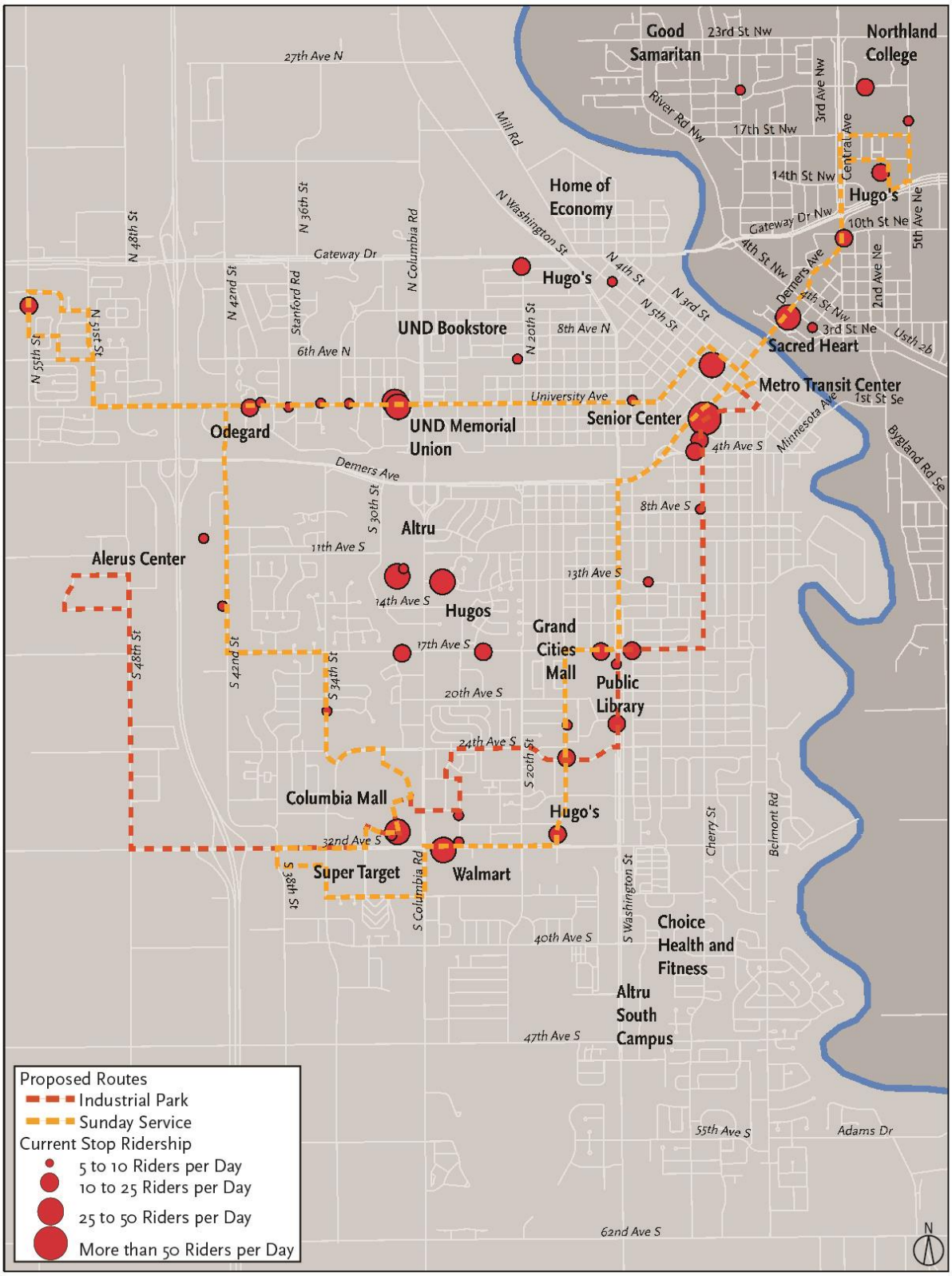


Figure 7-4: Route 1, Route 1U, Route 1SE and Route 1SW Route Concepts

Figure 7-5: Route 3 Concept

Figure 7-6: Route 4 Concept

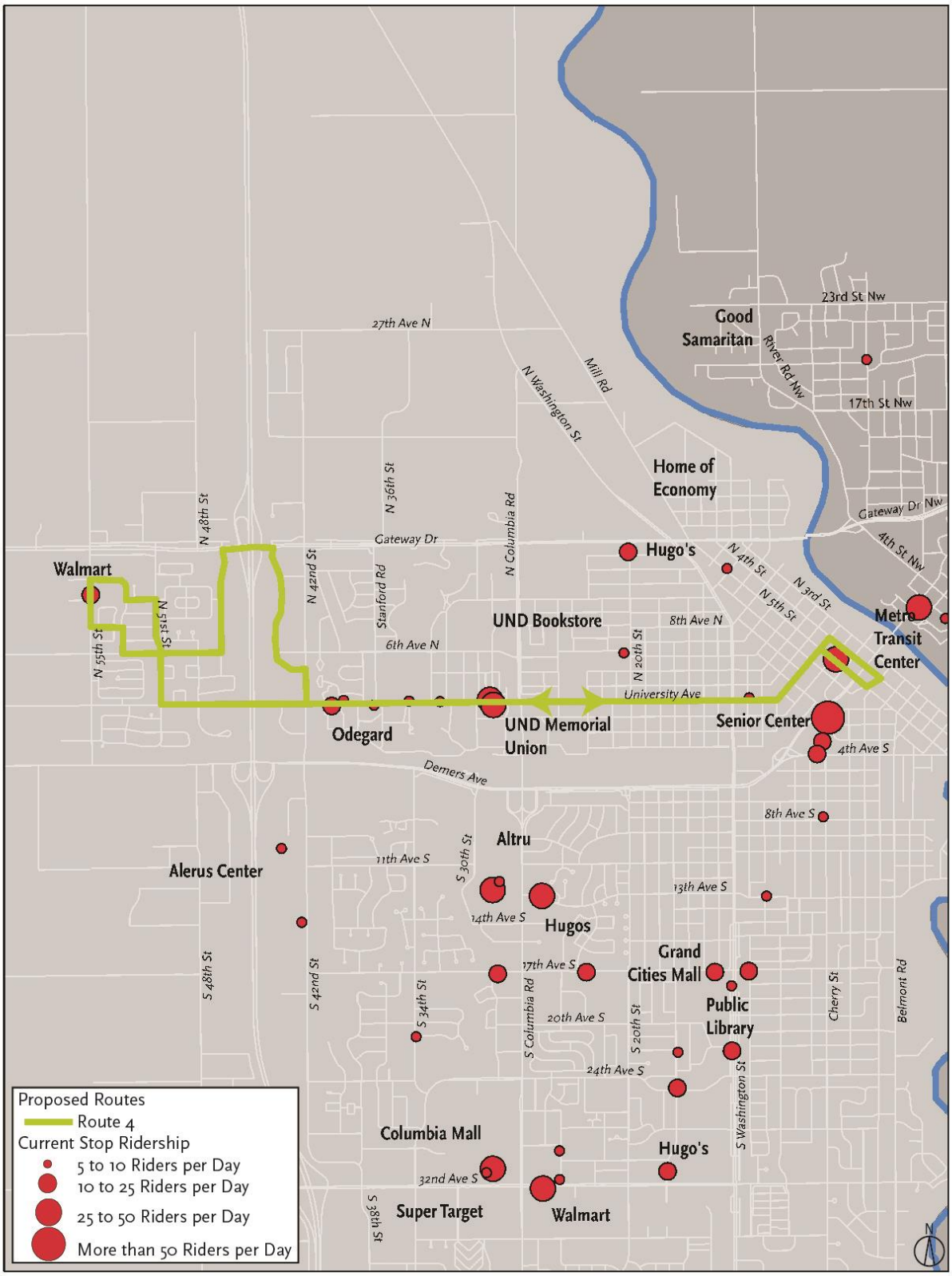


Figure 7-7: Route 5 Concept

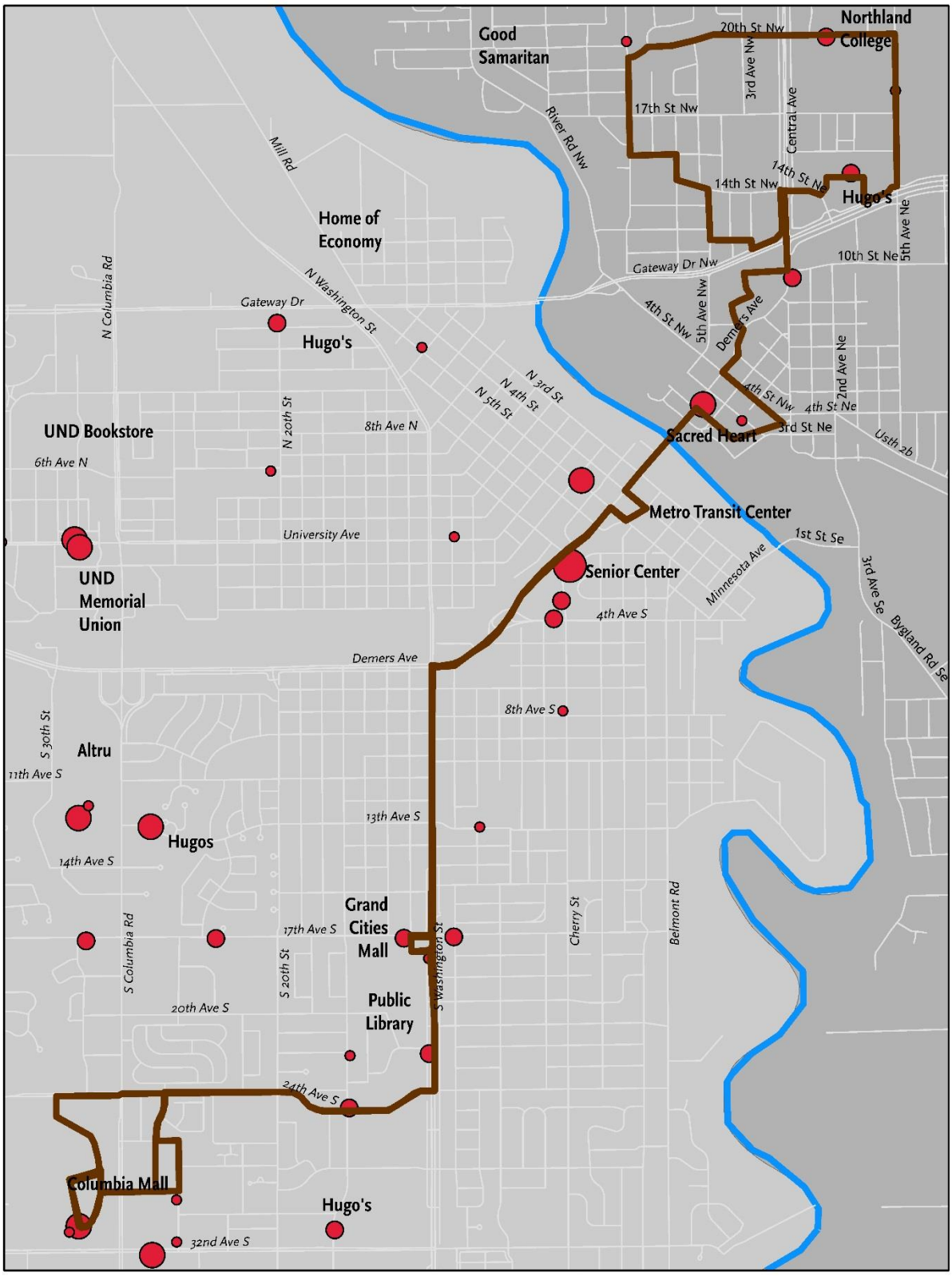


Figure 7-8: Route 6E and Route 6W Concepts

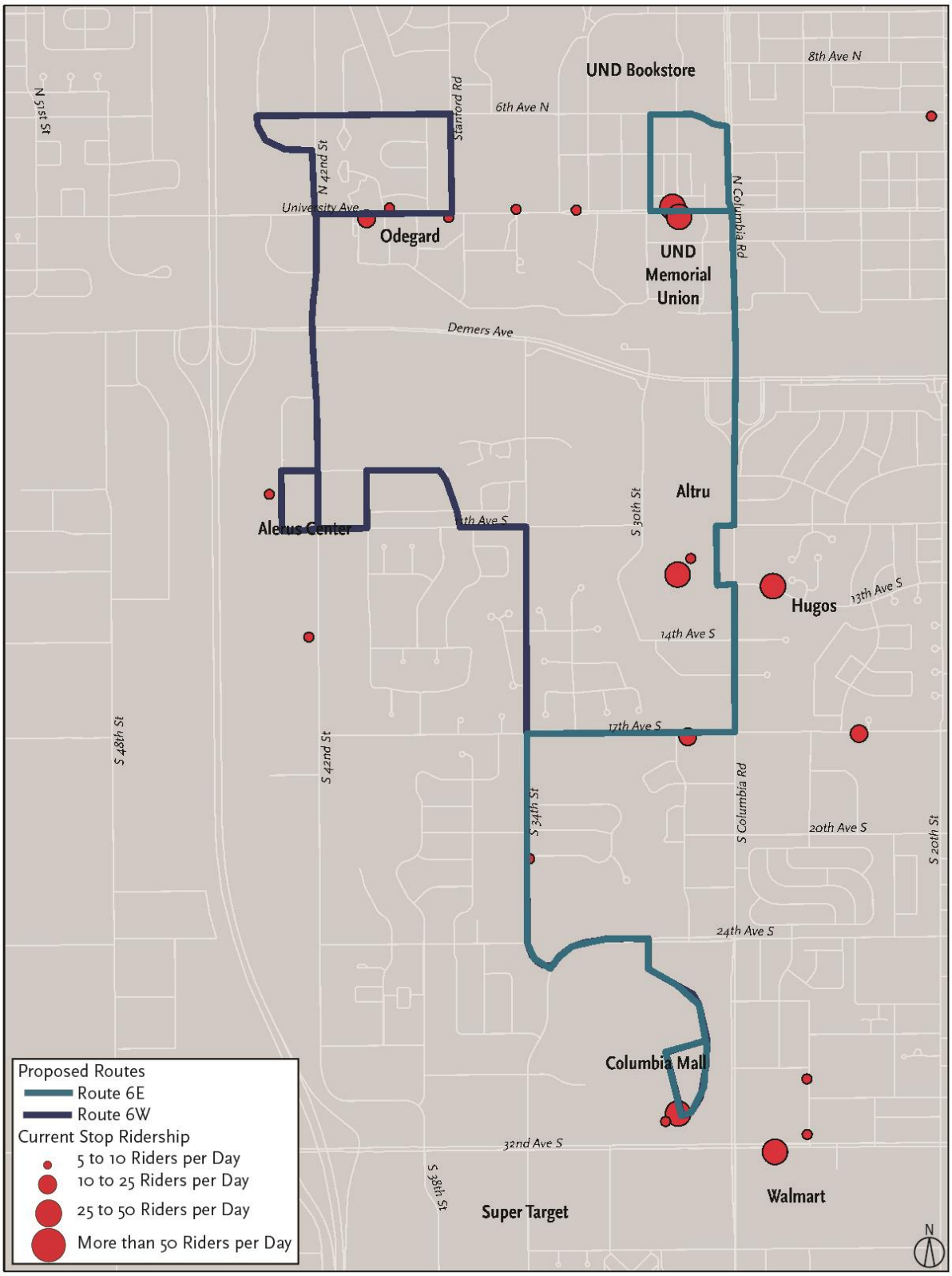
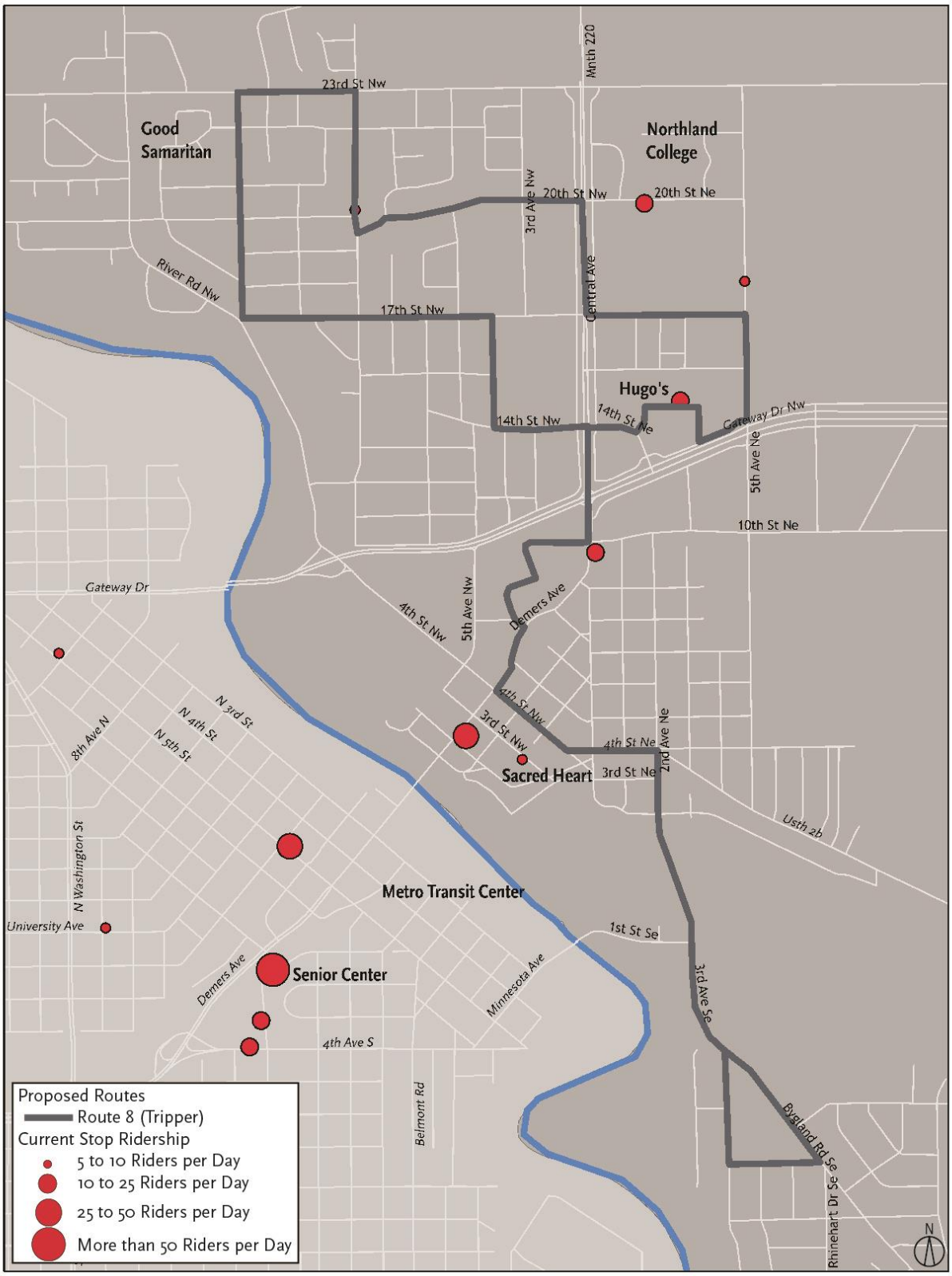


Figure 7-9: Route 8 Concept



Routes for Future Consideration

Industrial Park Route

Based on feedback received from the Grand Forks business community, a concept route was developed to serve the Grand Forks Industrial Park. The Industrial Park Route is a proposed route that would operate between the MTC and the Grand Forks Industrial Park via the Grand Cities Mall and the Columbia Mall. The route would provide a direct connection between downtown Grand Forks and the industrial park and would access the industrial park from 32nd Avenue South and South 48th Street. The Industrial Park Route would connect major employers to the transit system and would provide additional transit service to an area that is currently relatively poorly served.

The Industrial Park Route is not considered a part of any of the future Operational Alternatives discussed later. It is viewed as a standalone special service which would be additive to future service alternatives implemented by CAT.

Sunday Service Route

Based on feedback received from the public, a concept route was developed for Sunday service. To use resources efficiently and effectively, this route is proposed as a circulator service that would serve Grand Forks and East Grand Forks. The proposed route is similar to the existing night route and is proposed to serve:

- The MTC
- East Grand Forks
- UND
- Gateway Drive Walmart
- Alerus Center
- 32nd Avenue retail

The Sunday Route is not considered a part of any of the future Operational Alternatives discussed later. It is viewed as a standalone special service which would be additive to future service alternatives implemented by CAT.

OPERATIONAL ALTERNATIVES

To develop a range of potential system investment options, three Operational Alternatives were proposed for CAT: each system builds upon the route framework discussed earlier. The change in new service is measured as a function of ***revenue hours*** between the base, current system and each of the three proposed operational scenarios. Each Operational Alternative builds upon the next by adding additional levels of service by increasing frequency.

- Cost Constrained: Implements proposed new route structure. Assumes some new service (mostly in East Grand Forks), but only to levels reasonably expected to be fundable in the in the very immediate future. System is right sized and scaled to meet regional needs balanced with new system route structure.
- Cost +: Build on system restructure and focuses on improved headways and frequency of service.
- Cost ++: Builds on Cost + by further improving service frequency.

The East Grand Forks operational alternatives remain unchanged throughout the Cost Constrained, Cost + and Cost ++ scenarios. During the development of the TDP, the City of East Grand Forks was awarded 100 percent funding from MnDOT to support certain services identified through the planning process. Reference is made to these funds throughout this section.

Operational Scenarios

- The Cost Constrained Scenario assumes a roughly cost constrained investment relative to revenue hours and reflects investments in new revenue hours assumed to be constrained. Total new investment of nearly $270,000 is needed to support the Cost Constrained Scenario. The details of these costs by city are shown in Table 7-2 and Table 7-3.
- The Cost + Scenario reflects an increased investment of approximately $530,000 annually, which includes costs for the expansion of the Fixed Route fleet by one (1) vehicle. Required costs to support the addition of

one new expansion vehicle is covered by recent MnDOT funding to the City of East Grand Forks. The details of these costs by city are shown in Table 7-5 and Table 7-6.

» The Cost ++ Scenario reflects an increased investment of approximately $2.2 million annually, which includes the purchase of one (1) new Fixed Route vehicle (in addition to the planned replacement paid for with recent MnDOT funding to East Grand Forks). The details of these costs by city are shown in Table 7-8 and Table 7-9.

Cost Constrained Scenario

As noted, the Cost Constrained Scenario is based on guidance from the cities of Grand Forks and East Grand Forks for existing and potential revenue to support these system investments. Most of the new cost for the Cost Constrained Scenario falls on East Grand Forks. The Cost Constrained Scenario includes most of the weekday/Saturday proposed routes operating at a 60-minute headway, with the exception of Routes 1, 4 and 8.

» Route 1 is proposed to operate on a 30-minute headway.
» Route 4 is proposed to operate on a 30-minute headway during the peak period and a 60-minute headway during off-peak period.
» Route 8 is a peak period only route that is proposed to operate on a 45-minute headway.

The Cost Constrained Scenario proposes the operation of the Route 1 night route and the Route 6 night route on a 75- to 90-minute headway and the Route 3 night route on a 60-minute headway.

Level of service information for the Cost Constrained Scenario is shown in Table 7-1. The cost of this scenario was estimated based on the assumed level of service in Table 7-1; the estimated additional annual cost (beyond the current system costs) of the Cost Constrained Scenario for day and night service is approximately $266,500 annually. Additional information regarding the cost estimate for the Cost Constrained Scenario is shown in Table 7-2 and Table 7-3.

Table 7-1: Cost Constrained Scenario Level of Service

Route	Weekday/Saturday Headway	Weeknight/Saturday Night Headway
Route 1/1U	30	75-90
Route 1SE	60	X
Route 1SW	60	75-90
Route 3	60	60
Route 3 (EGF)	60	60
Route 4	30/60	X
Route 5	60	X
Route 5 (EGF)	60	X
Route 6W	60	75-90
Route 6E	60	75-90
Route 8	45	X
Peak Vehicles	8	3

*30/60 indicates routes that run on 30-minute headways during the peak period (assumes additional cost to account for deadhead and driver change out) and 60-minute headways during the off-peak period
** Route 8 is a peak period only route that runs on a 45-minute headway

Table 7-2: Cost of the Cost Constrained Scenario Weekday/Saturday Service

Existing Condition			
	Total	Grand Forks	East Grand Forks
Revenue Hours	24,123	20,769	3,355
Peak Vehicles	7	6	1
Proposed Day Structure			
	Total	Grand Forks	East Grand Forks
Revenue Hours	25,574	21,020	4,554
Peak Vehicles	8	6	2
New Investment	System-Wide	Grand Forks	East Grand Forks
Revenue Hours	1,451	251	1,200
New Operating Cost ($95/hr)	$137,807	$23,854	$113,953
Additional Vehicles	0	No Rolling Stock Needed	
New Capital Cost	$0	$0	$0
Total New Cost (Day)	$137,807	$23,854	$113,953

Table 7-3: Cost of the Cost Constrained Scenario Weeknight/Saturday Night Service

Existing Condition			
	Total	Grand Forks	East Grand Forks
Revenue Hours	1,086	1,086	0
Peak Vehicles	1	1	0
Proposed Night Structure			
	Total	Grand Forks	East Grand Forks
Revenue Hours	2,440	1,220	1,220
Peak Vehicles	2	1	1
New Investment	System-Wide	Grand Forks	East Grand Forks
Revenue Hours	1,354	134	1,220
New Operating Cost ($95/hr)	$128,630	$12,730	$115,900
Additional Vehicles	Assumes CAT has adequate fleet capacity to sustain proposed evening operations.		
New Capital Cost			
Total New Cost (Night)	$128,630	$12,730	$115,900

Cost + Scenario

The Cost + Scenario includes most of the weekday proposed routes operating either on 60-minute headways all day and a 30-minute headway during the peak period and a 60-minute headway during the off-peak period.

- Route 1 is proposed to operate at a 30-minute headway all day.
- Route 3, Route 4 and Route 5 are proposed to operate at 30-minute headways during the peak period and 60-minute headways during the off-peaks.
- Route 8 is proposed at a 45-minute headway during the peak period only.

The Cost + Scenario includes the operation of the Route 1 night route, Route 3 night route and Route 6 night route at 60-minute headways. Level of service information for the Cost + Scenario is shown in Table 7-4.

The cost of the Cost + Scenario was estimated based on the assumed level of service in Table 7-4. The estimated additional annual cost (beyond the cost of the current system) of the Cost + Scenario for day and night service is $526,000. Additional information regarding the cost estimate for the Cost + Scenario is shown in Table 7-5 and Table 7-6.

Table 7-4: Cost + Scenario Level of Service

Route	Weekday/Saturday	Weeknight/Saturday Night
Route 1/1U	30	60
Route 1SE	60	X
Route 1SW	60	60
Route 3	30/60	60
Route 3 (EGF)	60	60
Route 4	30/60	X
Route 5	30/60	X
Route 5 (EGF)	60	X
Route 6W	60	60
Route 6E	60	60
Route 8	45	X
Peak Vehicles	9	4

*30/60 indicates routes that run on 30-minute headways during the peak period (assumes additional cost to account for deadhead and driver change out) and 60-minute headways during the off-peak period
** Route 8 is a tripper route that runs on a 45-minute headway during the peak period

Table 7-5:Cost of the Cost + Scenario Weekday/Saturday Service

Existing Condition			
	Total	Grand Forks	East Grand Forks
Revenue Hours	24,123	20,769	3,355
Peak Vehicles	7	6	1
Proposed Day Structure			
	Total	Grand Forks	East Grand Forks
Revenue Hours	27,092	22,538	4,554
Peak Vehicles	9	7	2
New Investment	System-Wide	Grand Forks	East Grand Forks
Revenue Hours	2,969	1,769	1,200
New Operating Cost ($95/hr)	$282,017	$168,065	$113,953
Additional Vehicles	1	Covered by MnDOT 2018 Purchase	
New Capital Cost	$0		
Total New Cost (Day)	$282,017	$168,065	$113,953

Table 7-6: Cost of the Cost + Scenario Weeknight/Saturday Night Service

Existing Condition			
	Total	Grand Forks	East Grand Forks
Revenue Hours	1,086	1,086	0
Peak Vehicles	1	1	0
Proposed Night Structure			
	Total	Grand Forks	East Grand Forks
Revenue Hours	3,660	2,440	1,220
Peak Vehicles	3	2	1
New Investment		Grand Forks	East Grand Forks
Revenue Hours	2,574	1,354	1,220
New Operating Cost ($95/hr)	$244,530	$128,630	$115,900
Additional Vehicles	Assumes CAT has adequate fleet capacity to sustain proposed evening operations.		
New Capital Cost			
Total New Cost (Night)	$244,530	$128,630	$115,900

Cost ++ Scenario

The Cost ++ Scenario includes about half of the proposed weekday/Saturday routes operating on 30-minute headways and the other half operating on 60-minute headways. The Cost ++ Scenario also maintains Route 8 as a peak period route on a 45-minute headway.

The Cost ++ Scenario proposes that all weeknight/Saturday night routes, except Route 8, operate on 60-minute headways. Level of service information for the Cost ++ Scenario is shown in Table 7-7.

The cost of the Cost ++ Scenario was estimated based on the assumed level of service in Table 7-7. The estimated additional annual cost (beyond the cost of the current system) of the Cost ++ Scenario for day and night service is approximately $2,208,000. Additional information regarding the cost estimate for the Cost ++ Scenario is shown in Table 7-8 and Table 7-9.

Table 7-7: Cost ++ Scenario Level of Service

Route	Weekday/Saturday	Weeknight/Saturday Night
Route 1/1U	30	60
Route 1SE	60	60
Route 1SW	60	60
Route 3	30	60
Route 3 (EGF)	60	60
Route 4	30	60
Route 5	30	60
Route 5 (EGF)	60	60
Route 6W	30	60
Route 6E	30	60
Route 8	45	X
Peak Vehicle	10	6

** Route 8 is a tripper route that runs on a 45-minute headway during the peak period

Table 7-8: Cost of the Cost ++ Scenario Weekday/Saturday Service

Existing Condition			
	Total	Grand Forks	East Grand Forks
Revenue Hours	24,123	20,769	3,355
Peak Vehicles	7	6	1
Proposed Day Structure			
	Total	Grand Forks	East Grand Forks
Revenue Hours	33,294	28,740	4,554
Peak Vehicles	10	8	2
New Investment	System-Wide	Grand Forks	East Grand Forks
Revenue Hours	9,171	7,971	1,200
New Operating Cost ($95/hr)	$871,208	$757,255	$113,953
Additional Vehicles	1	Prorated based on Service Miles	
New Capital Cost	$400,000	$345,287	$54,713
Total New Cost (Day)	$1,271,207	$1,102,542	$168,665

Table 7-9: Cost of the Cost ++ Scenario Weeknight/Saturday Night Service

Existing Condition			
	Total	Grand Forks	East Grand Forks
Revenue Hours	1,086	1,086	0
Peak Vehicles	1	1	0
Proposed Night Structure			
	Total	Grand Forks	East Grand Forks
Revenue Hours	6,732	5,512	1,220
Peak Vehicles	6	5	1
New Investment	System-Wide	Grand Forks	East Grand Forks
Revenue Hours	5,646	4,426	1,220
New Operating Cost ($95/hr)	$536,370	$420,470	$115,900
Additional Vehicles	1	$327,510	$72,490
New Capital Cost	$400,000		
Total New Cost (Night)	$936,370	$747,980	$118,390

Routes for Future Consideration

Additional routes for future consideration were developed outside of any of the above scenarios. The cost breakdown for additional revenue hours and new capital are provided in Table 7-10 and Table 7-11.

Table 7-10: Future Considerations: Sunday Service

New Investment	Total	Grand Forks	East Grand Forks
Revenue Hours	624	544	80
New Operating Cost ($95/hr)	$59,280	$51,633	$7,647
Additional Vehicles	-	-	-
New Capital Cost	-	-	-
Total New Cost	$59,280	$51,633	$7,647

Table 7-11: Future Considerations: Industrial Park

New Investment	Total	Grand Forks	East Grand Forks
Revenue Hours	1,830	1,830	0
New Operating Cost ($95/hr)	$173,850	$173,850	-
Additional Vehicles	1	1	-
New Capital Cost	$150,000	$150,000	-
Total New Cost	$323,850	$323,850	-

CAPITAL NEEDS ANALYSIS

As part of developing the Operational Analysis an assessment was conducted of the current inventory of CAT Fixed Route Vehicles. Table 7-12 demonstrates the current inventory of the Fixed Route vehicles operated by CAT. Based on this current inventory, CAT currently operates a fleet of 11 total Fixed Route vehicles.

Table 7-12: CAT Fixed Route Inventory Summary

Veh. #	Year	Make	Programming	Owner
103	2010	New Flyer	Replace 2022	GF
104	2010	New Flyer	Replace 2022	GF
105	2010	New Flyer	Replace 2022	GF
106	2010	New Flyer	Replace 2022	GF
976	1997	New Flyer	2017 (Programmed)	GF
42	2004	Gillig	2018 (Programmed)	GF
31	2003	Gillig	2017 (Programmed)	GF
91	2009	Chevy Arboc	2017 (Programmed)	GF
112	2011	Chevy Arboc	2018 (Programmed)	GF
161	2016	Ford Starcraft	2021	GF
162	2016	Chevy Arboc	2021	EGF
Pending	2018	40' Coach	2018	EGF

SPARE RATIO ANALYSIS

Table 7-13 below demonstrates the CAT Fixed Route fleet analysis relative to each Operational Scenario. These scenarios assume peak vehicle requirements with and without the HC Tripper and assume the addition of zero to two new Fixed Route vehicles.

Fixed Route Assessment

Based on the existing CAT fleet inventory

- Zero (0) new buses are needed to operate the Cost Constrained Scenario.
- With the 2018 purhcase of the 40' coach, zero (0) new buses are needed to operate the Cost + Scenario.
- One (1) new buses are needed to operate the Cost ++ Scenario.

These assumptions are based on the discontinuation of the HC Tripper before any of the Fixed Route concepts are implemented.

Evening Route Assessment

Based on the existing CAT fleet inventory

- If the Cost Constrained evening routes are implemented, it will add an additional 15,000 miles annually, or a total of 71,000 miles over the five-year life of this TDP, to the current CAT fleet. Based on this assumption, no additional rolling stock needs are suggested to support the Cost Constrained evening service.
- If the Cost + Scenario evening routes are implemented it would add 29,000 service miles annually, or a total of 142,000 miles over the five-year life of this TDP. Based on this assumption, no additional rolling stock needs are suggested to support Cost + evening service.
- If the Cost ++ Scenario for evening service is implemented, it would add 75,000 service miles annually, or a total of 376,000 miles over the five-year life of this TDP. Therefore, one additional expansion vehicle would be recommended midway through the planning horizon if the Cost ++ Evening service were implemented.

Table 7-13: Spare Ratio Analysis

Spare Ratio Analysis (No HC Tripper)		
	Fleet Requirement	Spare Ratio
Total Fleet (Fixed)	12	X
Peak - Existing Condition	7	71.4%
Peak - Cost Constrained	8	50.0%
Peak - Cost +	9	33.3%
Peak - Cost ++	10	20.0%
Spare Ratio Analysis (No HC Tripper) + 1 Vehicle		
	Fleet Requirement	Spare Ratio
Total Fleet (Fixed)	13	x
Peak - Existing Condition	7	85.7%
Peak - Cost Constrained	8	62.5%
Peak - Cost +	9	44.4%
Peak - Cost ++	10	30.0%
Spare Ratio Analysis (No HC Tripper) + 2 Vehicle		
	Fleet Requirement	Spare Ratio
Total Fleet (Fixed)	14	x
Peak - Existing Condition	7	100.0%
Peak - Cost Constrained	8	75.0%
Peak - Cost +	9	55.6%
Peak - Cost ++	10	40.0%

SHELTER NEEDS

SHELTERS FOR RELOCATION

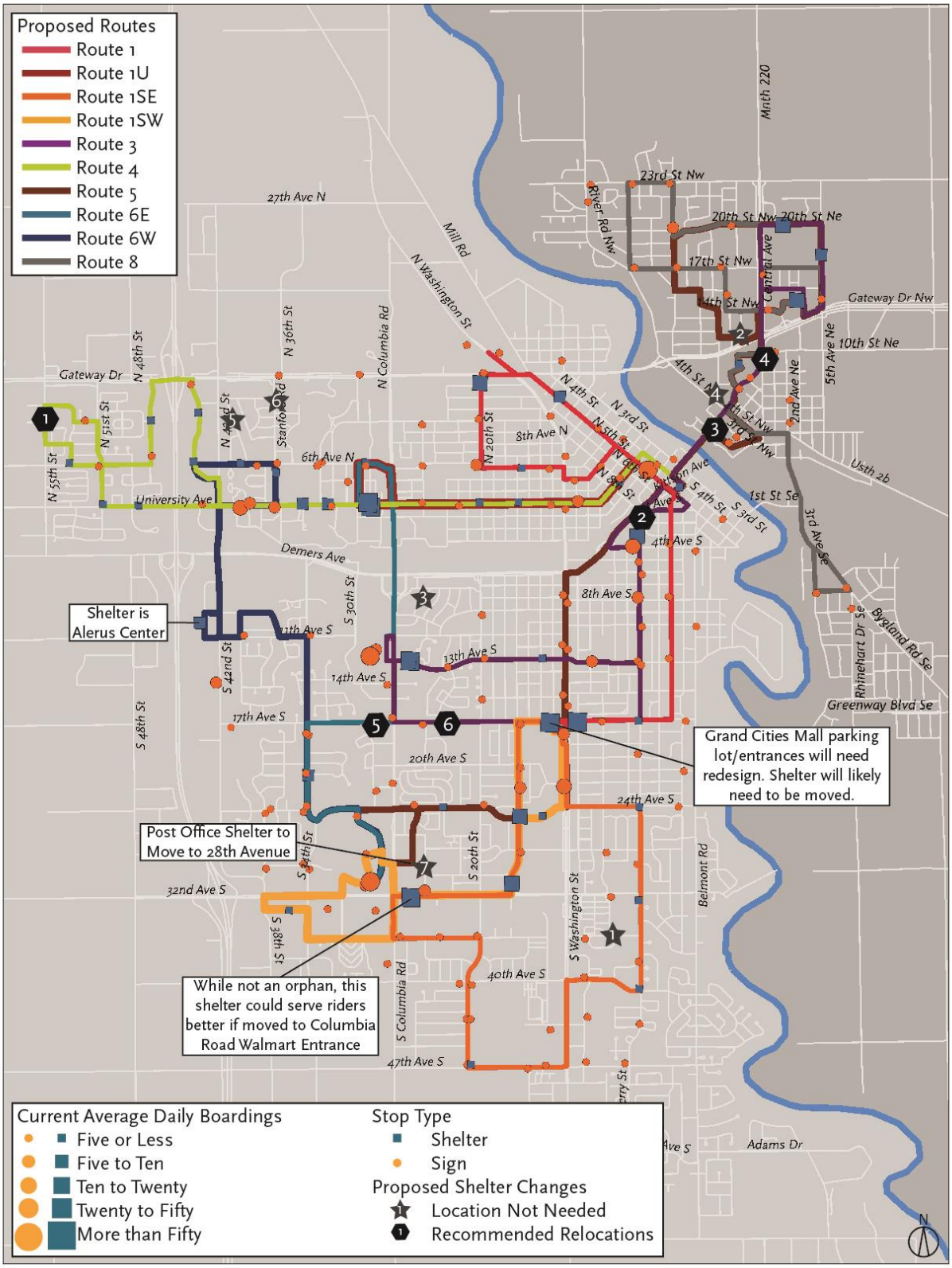
As part of the development of new route alternatives, bus shelter locations along existing routes were studied to determine whether they are still beneficial to the system and to evaluate more appropriate locations, if necessary. With the proposed route structure, there are seven shelters that are no longer adjacent to a route, as shown in Table 7-14. Orphaned shelters can be seen in Figure 7-10 below.

Costs associated with the relocation and realignment of shelters should be coordinated with public works and engineering to ensure accommodations for adjacent sidewalk improvements and stop related amenities such as lighting. CAT's share of these costs should be considered part of the annual Miscellaneous capital and safety line in their financial plan.

Table 7-14: Shelters for Relocation

ID #	Location	Context	Current Route	Nearest Proposed Route
1	36th Avenue S & S 10th Street	West of Cherry Street, Near Apartments	Route 1	1SE on Cherry Street
2	3rd Avenue NW & 11th Street NW, East Grand Forks	Evergreen Estates	Route 10	Route 5
3	700 block S 25th Street	Amberwood Apartments	Route 8, Route 9	Route 6E on Columbia Road
4	422 4th Street NW, East Grand Forks	Campbell Library	Route 10	Within one block of Routes 3, 5 and 8
5	1100 block N 39th Street	Apartments area	Route 6	.25 miles from Route 6W. Route 4 is across 42nd Street
6	Stanford Road & 13th Avenue N	Apartments area	Route 6	.36 miles from Route 6W
7	2800 block S 25th Street	Post Office	Route 9	Route 5 on 28th Avenue S

Figure 7-10: Recommended Shelter Relocations and Proposed Routes



Shelter Relocations

These seven shelters should be moved to better accommodate proposed routes with the goal of maximizing use at high-volume stops which have no current shelter. Assuming the post office shelter moves around the corner to 28th Avenue to make use of the new Route 5, the other six remaining shelters can be placed at the following locations:

1. Gateway Drive Walmart.
2. 1st Avenue South and Cherry Street.
3. Downtown East Grand Forks along DeMers Avenue.
4. Central Avenue and 10th Street NE, East Grand Forks (Burger King).
5. 17th Avenue and S 29th Street.
6. 2211 17th Avenue South at the Red River High School.

Other Issues

Shelter Realignments

In addition to bus shelters no likely needed, two shelters will likely need to be realigned to better accommodate the proposed routes.

The current shelter at the 32nd Avenue Walmart is a high-volume stop location but is directly on 32nd Avenue and is a long walk from Walmart's front door across lawns and parking lots, a straight-line distance of approximately 0.12 miles. While it is within an acceptable walking distance, the walk is not accessible to many users. Figure 7-11 shows the distance and difficulty of the current shelter location relative to Walmart's front doors. It is proposed to move this shelter to where buses will stop for Walmart along S. Columbia Road. This will shorten the walk by nearly half and provide a sidewalk for most of the distance.

Figure 7-11: Current Shelter at 32nd Avenue Walmart

The Grand Cities Mall shelter will also likely need realignment. It is currently on the south side of 17th Avenue on the sidewalk, west of the driveway. Fine tuning of Grand Cities Mall stops will be required to determine the best location for this shelter; it may remain in at its current location.

Figure 7-12: Shelter at Grand Cities Mall - Facing East

Figure 7-13: Current Shelter at Grand Cities Mall – Facing South

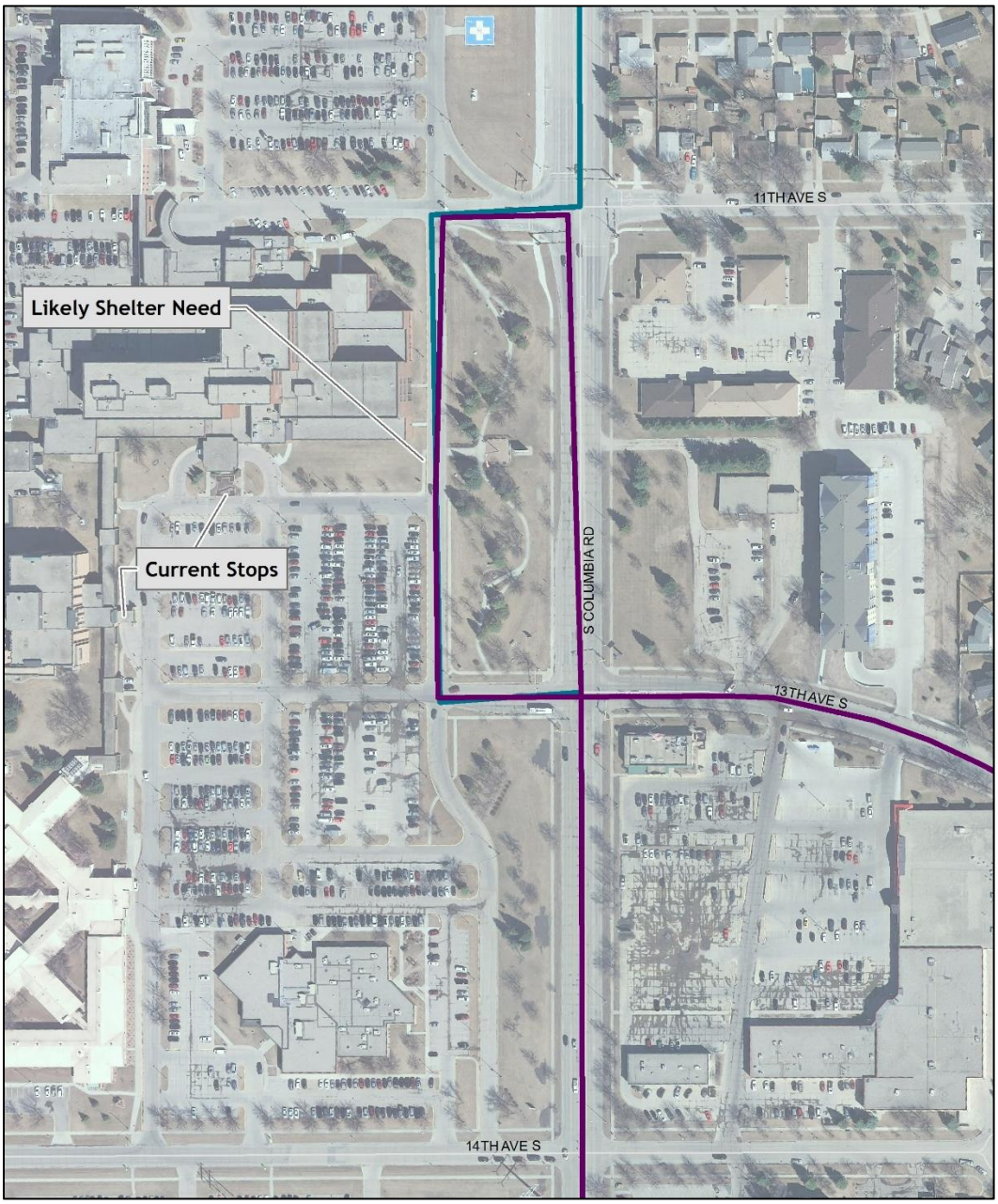
Stops Warranting Shelter

Both the Altru campus and Columbia Mall are major stops without shelters.

ALTRU

Current routes take riders to the front door of Altru Hospital and Altru Rehab. Proposed routes serving Altru would circle around using a frontage road. Likely some new sidewalk or a new shelter would need to be placed along this frontage road as shown in Figure 7-14. Additional coordination with Altru is needed to ensure this routing option works with future expansion of the facility.

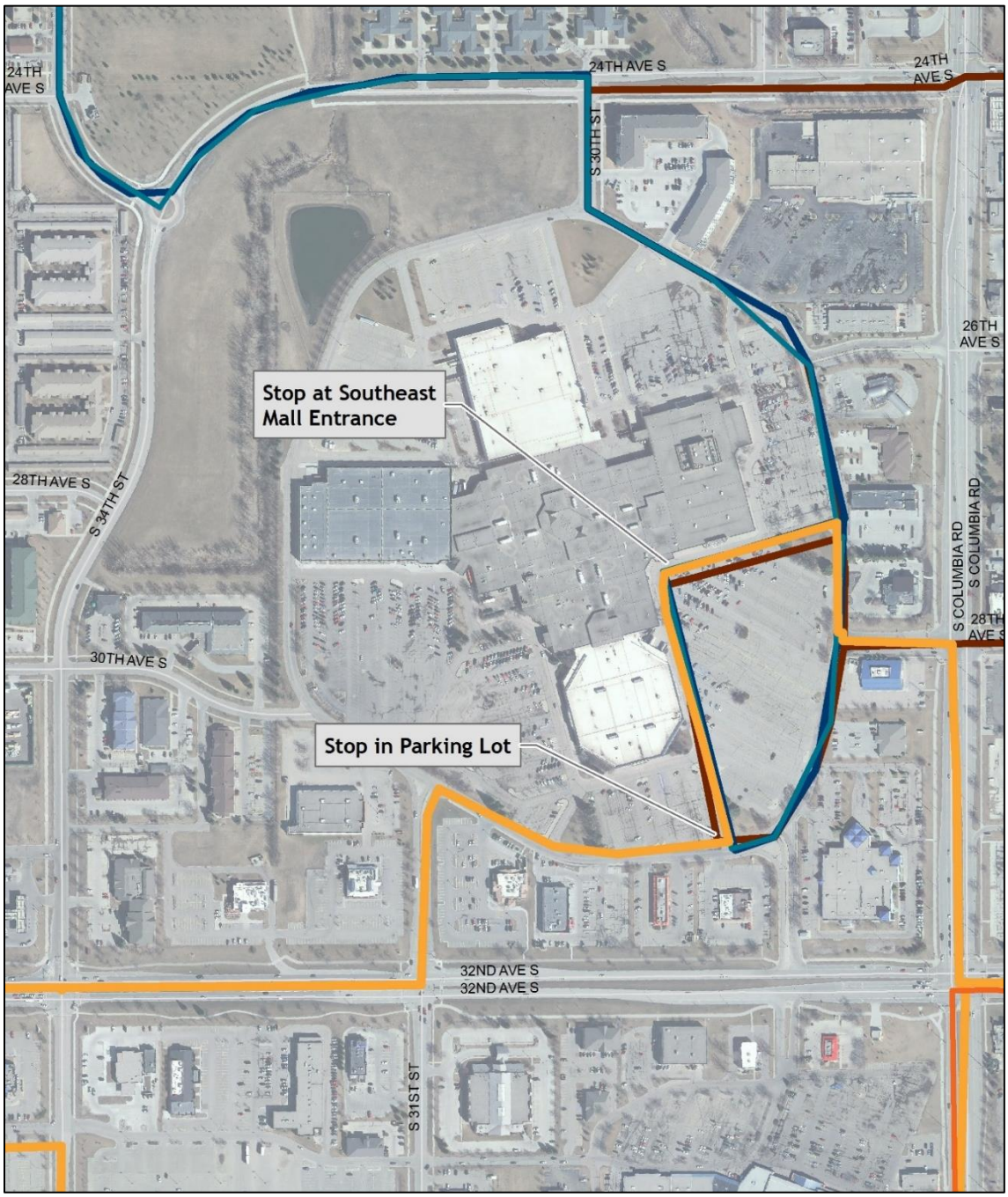
Figure 7-14: Altru Campus Stops



COLUMBIA MALL

Columbia Mall routes stop at the southeast entrance to the Mall and a stop in the parking lot south of the mall as shown in Figure 7-15. Under the proposed routes, stops will all take place at the southeast entrance thus negating the need for an outdoor shelter.

Figure 7-15: Columbia Mall Stops



BICYCLE AND PEDESTRIAN CONNECTIVITY

A common problem of transit is often referred to as the first-mile/last-mile problem. It refers to the distance people must travel before and after their transit ride from their origins and destinations. Often, a bus stop is located for easy and efficient bus operations, but may be difficult to access due to sidewalk deficiencies or location.

While a transit user is likely to walk one-quarter mile to the bus stop, the walk must be accessible to all users. If not, it presents a barrier to use. Discussions to the shelter locations above should be considered to improve the pedestrian connections. For distances longer than one-quarter mile and up to three miles, bicycle connections can provide improved accessibility to transit.

Figure 7-16: Bicycle Rack on Fixed Route Bus

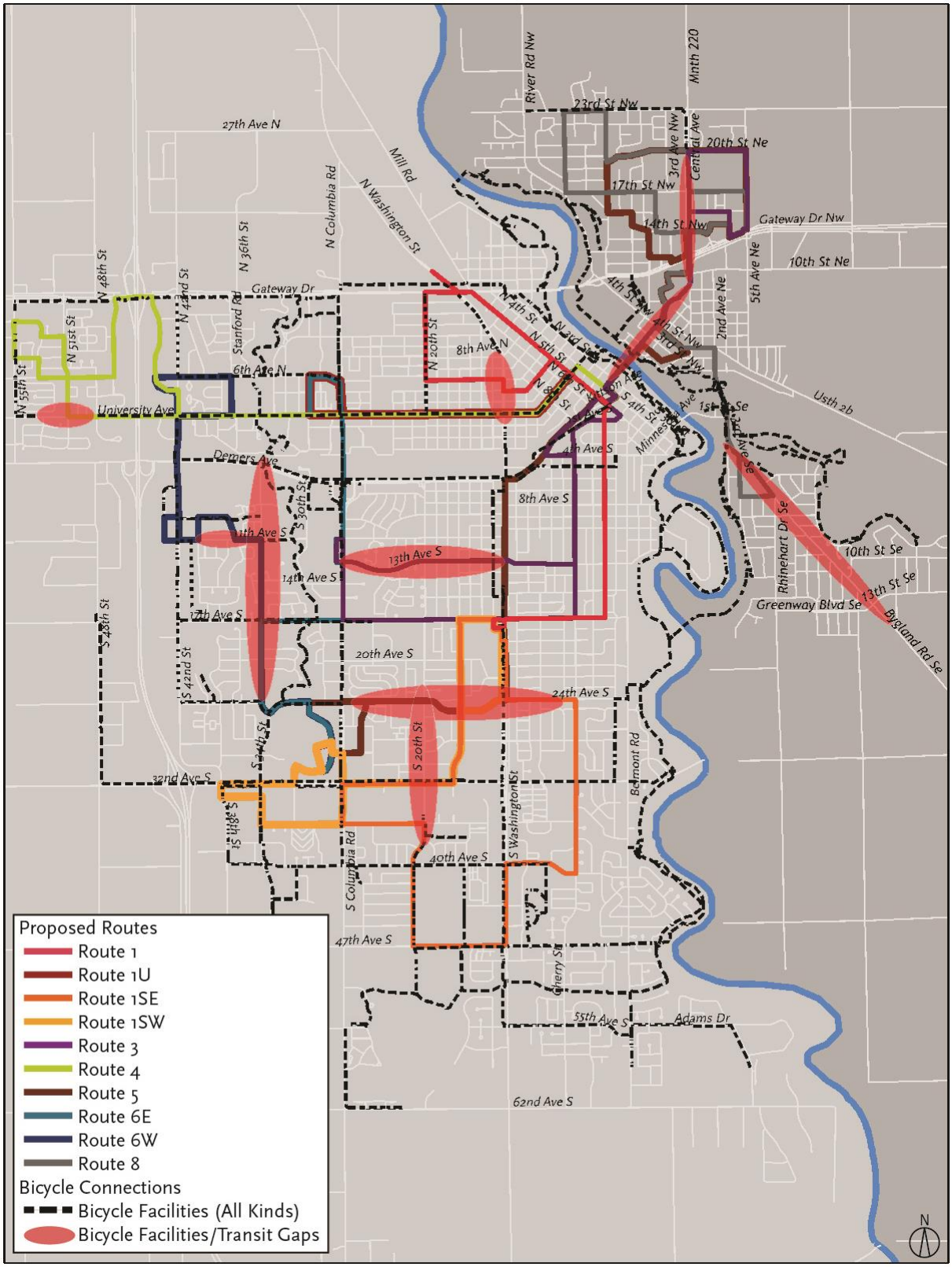
All Fixed Route vehicles are equipped with bicycle racks (Figure 7-16), but require a certification card. For new or infrequent users, this may be a barrier to use. Additional barriers may include lack of dedicated bicycle facilities to reach the proposed routes.

A simple gaps analysis was completed to identify important bicycle connections in relation to the proposed transit routes. The following assumptions were made for the analysis.

- All bike facilities are equally desirable (sharrow, bike lane, multi-use path)
- Per Grand Forks ordinances, bicyclists can ride on the sidewalk in residential areas only. All residential areas have sidewalks on both sides of the roadway. While some residential developments have been grand fathered in under the new sidewalk ordinance, and some new neighborhoods are not fully developed, the roadways in these areas are low-volume and low-speed and would not prevent a bicyclist from using the roadway.
  - In East Grand Forks, bicyclists are prohibited to ride on a sidewalk in a business area, but are required to ride on a sidewalk or shared-use path where available. All residential areas are assumed to have sidewalks.
- Functionally classified roadways have the highest need for dedicated bicycle facilities because of their relative high speeds and volumes.

Figure 7-17 shows the bicycle facilities in Grand Forks and East Grand Forks and major gaps in the network, as they relate to proposed transit routes. Most gaps found would complete two existing facilities, like on University Avenue or North Washington Street; or connect two parallel facilities, like the gap noted on 13th Avenue S. Others would provide entirely new facilities in new areas like on Central Avenue and Bygland Road in East Grand Forks. Opportunities to address these gaps could occur as special projects or attached to reconstruction or maintenance projects.

Figure 7-17: Bicycle Gaps



8) PERFORMANCE MANAGEMENT PLAN

To meet the guidance established by Fixing America's Surface Transportation Act's (FAST Act), the TDP was developed with a performance management element. This element was driven, in large part, through close consultation with the 2016 Minnesota Department of Transportation (MnDOT) Greater Minnesota Transit Investment Plan. The 2012 North Dakota Department of Transportations (NDDOT) TransAction III Long Range Transportation Plan was consulted, but has yet to be updated to reflect the FAST Act.

Because the FAST Act requires performance based planning, the MnDOT Plan provided a very reasonable framework for identification of performance measures and targets for use by CAT.

The FAST Act establishes a set of national goals to guide the development of surface transportation investments. The FAST Act focuses on performance-based approach to transportation planning and has developed seven national performance goals.

- Safety
- Infrastructure condition
- Congestion reduction
- System reliability
- Freight movement and economic vitality
- Environmental sustainability
- Reduced project delivery delays

Goals one through eight from Moving Ahead for Progress in the 21st Century Act (MAP-21) Act, the authorization bill before the FAST Act, were incorporated in the 2040 Long Range Transportation Plan (LRTP) completed by the Grand Forks-East Grand Forks MPO. The approved LRTP for the MPO area provides the background architecture for the development of goals for the development this TDP. Goals nine and ten were added later to comply with the FAST act. To ensure consistency with the LRTP, the TDP has integrated with overall goals from the LRTP.

The 10 overall goals from the LRTP integrated into the TDP are summarized as follows:

1) Economic vitality – economic vitality, competitiveness, access to jobs, education and markets
2) Security – increase security for motorized and non-motorized users
3) Accessibility and mobility – provide more transportation choices
4) Environmental/energy/quality of life – protect the environment, promote conservation, value unique qualities
5) Integration and connectivity – across and between modes for people and freight
6) Efficient system management – collaboration among stakeholders to target investments, improve accountability
7) System preservation – target funds towards existing infrastructure, promote urban landscapes, protect rural landscapes
8) Safety – increase safety for motorized and non-motorized users
9) Resiliency – resiliency and reliability of the system and reduce impacts of surface transportation
10) Tourism – enhance travel and tourism

ISSUES IDENTIFICATION & GOAL DEVELOPMENT

Through the Existing Systems Analysis, Issues Analysis and Public Input, seven primary issues were identified for the CAT system. These issues related to the overall public transit system and primarily identified opportunity areas for improvement of the system. The issues were compared with the overall LRTP Goals to develop a responsive set of goals, and ultimately a Performance Management Plan for CAT. The system issues and their corresponding goals matrix is shown in Table 8-1.

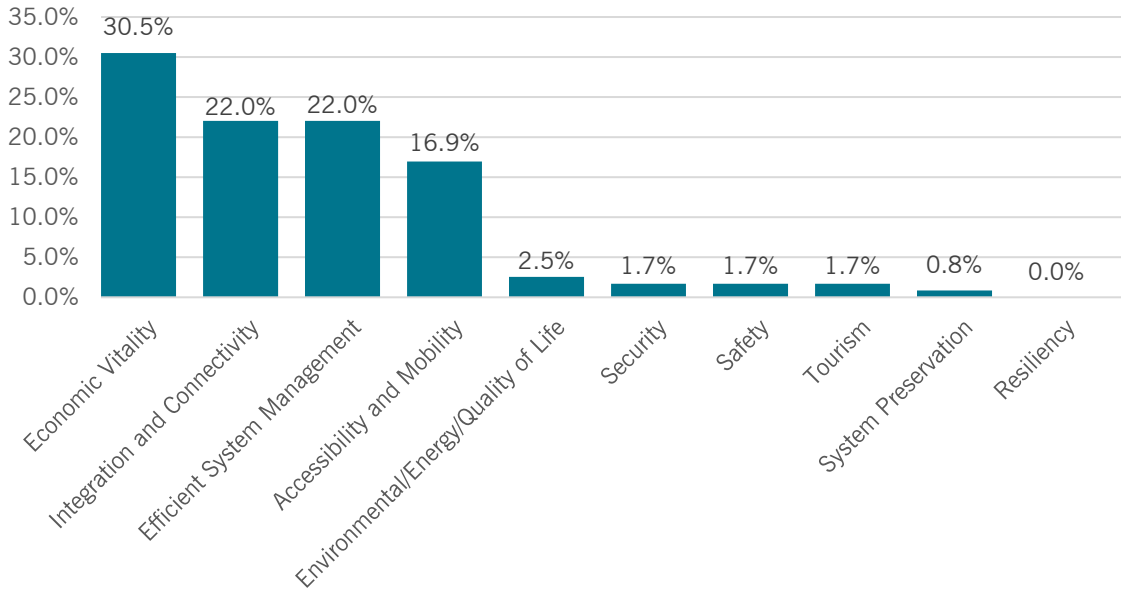
Table 8-1: Cities Area Transit Issues and TDP Goals Matrix

TDP Goals	TDP Identified Issues							
		Effectiveness	System Interface	Performance & Operations	UND Coordination	Capital Needs	Balance System Needs	Community Support
	Economic Vitality				◆		◆	◆
	Integration/Connectivity	◆	◆		◆		◆	◆
	Efficient System Management		◆		◆			◆
	Accessibility/Mobility				◆		◆	
	Environmental/Energy/Quality of Life		◆	◆				
	Tourism				◆			◆
	Safety					◆		
	Security					◆		
	System Preservation					◆		◆
	Resiliency							◆

GOAL PRIORITIZATION

Through public and stakeholder input, the existing LRTP goals were prioritized to ensure a more consistent and streamlined integration into the plan. Because the TDP addresses primarily the public transit infrastructure, attention was given to ensure a more unique performance management program tailored to primarily the CAT system. The prioritization process was guided by the overall Steering Committee and was reflective of the Existing Systems Analysis and Issues Analysis. As the TDP was further refined, additional public and stakeholder input was gathered to confirm the prioritized list of goals, as shown in Figure 8-1.

Figure 8-1: Prioritized Goals for Transit Development Plan



Based on this prioritization process, shown in Figure 8-1, the most significant priority was given to the following overall surface transportation goals:

- Accessibility/Mobility
- Integration/Connectivity
- Efficient System Management
- Economic Vitality

These four prioritized goals also align closely with the prioritized list of System Issues which provided an overall framework for developing the operational analysis. While the goal of System Preservation scored poorly, it none the less must be a critical consideration in future investment and programming decision making for CAT.

DEFINING PERFORMANCE MANAGEMENT

The following terminology will be used to guide the development of the Performance Management Plan.

- **Goal** – Overall guiding result or outcome related to the surface transportation system. These are derived directly from the current LRTP which have been developed in consultation with the FAST Act.
- **Objective** – Desired action or initiative that is perceived as meeting the intent of the overall goal. Further, the objective is also designed to assist in achieving the defined performance level.
- **Performance Measure** – Measure used to evaluate system performance.
- **Performance Level** – Measurement of system performance.
- **Consistency Monitoring** – Effort used to monitor, evaluate and track performance levels.

Linking System Operational Alternatives to Performance Targets

Table 8-2 links the goals described above to the performance measures set for the CAT system, as described in Table 8-4 and Table 8-5.

The Performance Levels for certain operation variables were developed using system growth projections based on 2015 NTD data and the Cost + Alternative Scenario developed as part of the TDP. Growth projections and assumptions are shown in Table 8-3. The performance levels assume implementation of the Cost + Operational Scenario, such that it would be 50 percent implemented by Year 3 and fully implemented by Year 5. The resulting Year 5 system performance levels were tagged as the operational performance levels for relevant elements of this element of the TDP.

Table 8-4 and Table 8-5 establish the performance measures for the Fixed Route and Demand Response systems.

Table 8-2: Goals and Performance Measures Matrix

TDP Goals	Fixed Route Performance Measures	Demand Response Performance Measures
Economic Vitality	3	2
Integration/Connectivity	4, 7, 8, 9, 13	3, 6, 7, 14
Efficient System Management	5, 6, 10, 11, 12, 18, 19, 20	4, 5, 8, 9, 10, 11, 12, 13, 19, 20, 21
Accessibility/Mobility	1, 2, 21, 22	1, 22
Environmental/Energy/Quality of Life	X	X
Security	X	x
Safety	15	16
Tourism	x	X
System Preservation	14, 16, 17	15, 17, 18
Resiliency	x	x

Table 8-3: Performance Level Growth Projections

Ridership	Base*	Year 1	Year 2	Year 3	Year 4	Year 5	Change	% Change	Notes
Fixed Route	336,665	353,498	371,173	389,732	409,218	429,679	93,014	27.6%	5% annual growth in FR ridership
Demand Response	54,750	53,838	52,925	52,013	50,644	49,275	-5,475	-10.0%	5% reduction in DR ridership to Year 3 (Y3); 10% by Y5.
Population	Base	Year 1	Year 2	Year 3	Year 4	Year 5	Change	% Change	Notes
Service Area (2010)	56,534	58,746	59,451	60,164	60,886	61,617	5,083	0.09%	Use NTD defined service area pop. (2010) with 1.2% growth per year to base; and then same % to Y5.
Revenue Hours	Base	Year 1	Year 2	Year 3	Year 4	Year 5	Change	% Change	Notes
Fixed Route	24,547	24,547	26,987	26,987	26,987	26,987	2,440	9.9%	Revenue hours for Cost Constrained Alternative implemented in Year 2.
Demand Response	19,183	18,991	18,801	18,613	18,427	18,243	-940	-4.9%	1% annual decrease in DAR revenue hours
Budget	Base	Year 1	Year 2	Year 3	Year 4	Year 5	Change	% Change	Notes
Fixed Route	$2,060,372	$2,101,579	$2,410,048	$2,458,249	$2,507,414	$2,557,562	$497,190	24.1%	Growth in base cost 2% annually (per TIP). Cost Constrained Alternative implemented in Year 2.
Demand Response	$1,234,626	$1,259,319	$1,284,505	$1,310,195	$1,336,399	$1,363,127	$128,501	10.4%	Growth in base cost 2% annually (per TIP)
Cost/Ride	Base	Year 1	Year 2	Year 3	Year 4	Year 5	Change	% Change	Notes
Fixed Route	$6.12	$5.95	$6.49	$6.31	$6.13	$5.95	-$0.17	-2.7%	Function of other variables.
Demand Response	$22.55	$23.39	$24.27	$25.19	$26.39	$27.66	$5.11	22.7%	
Revenue Hours/Capita	Base	Year 1	Year 2	Year 3	Year 4	Year 5	Change	% Change	Notes
FR (NTD pop.)	0.43	0.42	0.45	0.45	0.44	0.44	0.01	0.9%	Function of other variables.
DR (NTD pop.)	0.34	0.32	0.32	0.31	0.30	0.30	-0.04	-12.7%	
Cost/Revenue Hour	Base	Year 1	Year 2	Year 3	Year 4	Year 5	Change	% Change	Notes
Fixed Route	$83.94	$85.61	$89.30	$91.09	$92.91	$94.77	$10.83	12.9%	Function of other variables.
Demand Response	$64.36	$66.31	$68.32	$70.39	$72.52	$74.72	$10.36	16.1%	
Rides/Revenue Hour	Base	Year 1	Year 2	Year 3	Year 4	Year 5	Change	% Change	Notes
Fixed Route	13.72	14.40	13.75	14.44	15.16	15.92	2.21	16.09%	Function of other variables.
Demand Response	2.85	2.83	2.81	2.79	2.75	2.70	-0.15	-5.36%	

Table 8-4: CAT Performance Standards for Fixed Route System

Performance Measures	Performance Level
1) Span of Service	18 hours a day for six days a week.
2) Service Frequency	30-minute headways AM/PM peak hour on at least 4 of 9 CAT Routes (Equal to Cost + Service Scenario).
3) Service Availability	75% of the service area population within ¼ mile of transit route.
4) Service Hours per Capita	0.44
5) Information Availability	Standard requirements: Title VI, Riders Guide, Service Schedules, trip reservation process.
6) Planning Requirements	Identified and analyzed as part of Transit Development Plan. Service expansions must be determined through alternatives analysis.
7) Number of Shelters Installed	Shelters at stops with at least 20 boardings per day, major transfer points or facilities serving disabled and or senior populations.
8) Bicycle Parking at Transit Stops	Bike parking at stops with at least 20 boardings per day or more.
9) Continuous Walking Route and Crossings	Pedestrian facilities within ¼ mile of stops with at least 20 boardings per day.
10) Public Transportation and Human Services Coordination	Update Coordinated Plan once every five years; establish outreach targets in coordination with the Coordinated Plan. Assess annually.
11) Passengers per Service Hour	15.92
12) On-Time Performance	90% of schedule stops on-time (within 5 minutes).
13) Passenger Complaints	Six complaints per 100,000 boardings.
14) Road Calls	New data collection system implemented in 2017. Measure for one year and set target in cooperation with MPO.
15) Accidents	One accident per 100,000 revenue miles.
16) Fleet Maintenance	At least 75% of all regular fleet available for operations.
17) Spare Ratio	Spare vehicles to peak requirement less than 20%
18) Cost per Revenue Hour	$94.77
19) Cost per Ride	$5.95
20) Farebox Recovery	15%
21) Ridership	Increase ridership 5% per year.
22) Transit Auto Travel Time	Transit travel time should be no more than 3 times auto travel time.

Table 8-5: CAT Performance Standards for Demand Response System

Performance Measures	Performance Level
1) Span of Service	18 hours a day for six days a week.
2) Service Availability	75% of population covered by service area.
3) Service Hours per Capita	0.30
4) Information Availability	Standard requirements: Title VI, Riders Guide, Service Schedules, trip reservation process.
5) Planning Requirements	Identified and analyzed as part of Transit Development Plan. Service expansions must be determined through alternatives analysis.
6) Number of Shelters Installed	Shelters at stops with at least 20 boardings per day or major transfer points.
7) Public Transportation and Human Services Coordination	Update Coordinated Plan once every five years; establish outreach targets in coordination with the Coordinated Plan. Assess annually.
8) Passengers per Service Hour	2.70
9) On-Time Performance	90% on-time within published pickup window.
10) Advance Reservation Time	Minimum two hours in advance.
11) Reservation Negotiation Window	Maximum: Up to one hour before/after requested time.
12) Trip Denials	Must follow ADA trip denial definitions and process.
13) Trip Cancellations	Bus or vanpool trips should only be canceled from lack of riders or weather.
14) Passenger Complaints	Six complaints per 100,000 boardings.
15) Road Calls	New data collection system implemented in 2017. Measure for one year and set target in cooperation with MPO
16) Accidents	Once accident per 100,000 revenue miles.
17) Fleet Maintenance	At least 75% of all regular fleet available for operations.
18) Spare Ratio	Spare vehicles to regular fleet vehicles less than 25%.
19) Cost per Revenue Hour	$74.72
20) Cost per Ride	$27.66
21) Farebox Recovery	15%
22) Ridership	Ridership growth commensurate with eligible rider growth.

GOALS

GOAL: ECONOMIC VITALITY

Support the economic vitality through enhancing the economic competitiveness of the metropolitan area by giving people access to jobs, and education services as well as giving business access to markets.

- Objective 1: Provide transit service within 1/4 mile of residential areas and to major activity and employment centers.
- Objective 2: Integrate economic development plans, programs and initiatives into the development of the transit planning process.
- Objective 3: Improve the understanding of CAT among key economic development, community development and community building groups and organizations through periodic outreach and marketing.

Table 8-6: Economic Vitality Performance Measures and Targets

Performance Measure	System	Performance Level	CAT System Performance	CAT – EGF Performance
Service Availability	Fixed Route	90% of transit supportive areas within ¼ mile of transit route.	89.0%	83.5%
	Demand Response	75% of population covered by service area.	100%	

GOAL: INTEGRATION AND CONNECTIVITY

Enhance the integration and connectivity of the transportation system, across and between modes for people and freight, and housing, particularly affordable housing located close to transit.

- Objective 1: Expand transit service hours to better serve existing and future potential users.
- Objective 2: Improve bus stop infrastructure to include shelters, bicycle parking and pedestrian amenities where warranted.
- Objective 3: Improve access to transit via sidewalks, multi-use paths and dedicated bicycle facilities around transit stops.
- Objective 4: Ensure transit stops are accessible for all pedestrians and bicyclists.
- Objective 5: Engage in coordinated outreach with key agencies and consortiums to better coordinate Demand Response services with social and human service providers.
- Objective 6: Train employees on customer service to minimize passenger complaints.

Table 8-7: Integration and Connectivity Performance Measures and Targets

Performance Measure	System	Performance Level	CAT System Performance	CAT – EGF Performance
Service Hours per Capita	Fixed Route	0.44	0.39	0.39
	Demand Response	0.30	0.39	
Number of Shelters Installed	Fixed Route	Shelters at stops with at least 20 boardings per day, major transfer points and facilities serving disabled and or senior populations.	45% (based on stop locations only)	0%
Bicycle Parking at Transit Stops	Fixed Route	Bike parking at stops with at least 20 boardings per day or more	<0% Bike Parking at MTC and racks within ¼ mile of many stops.	
Continuous Walking Route and Crossings	Fixed Route	Pedestrian facilities within ¼ mile of stops with at least 20 boarding's per day.	100% However, not all pedestrian facilities ADA compliant.	
Public Transportation and Human Services Coordination	Demand Response	Update Coordinated Plan once every five years; establish outreach targets in coordination with the Coordinated Plan. Assess annually.	Updated plan recommends program of outreach and mobility coordination.	
Passenger Complaints	Fixed Route	Six complaints per 100,000 boarding's.	No data	
	Demand Response		No data	

GOAL: EFFICIENT SYSTEM MANAGEMENT

Promote efficient system management and operation by increasing collaboration among federal, state, and local government to better target investments and improve accountability.

- Objective 1: Annually review Title VI, Riders Guide, Service Schedules and related processes to ensure consistency with all requirements.
- Objective 2: Review and track public participation to improve information availability and decision making.
- Objective 3: Establish twice annual working meetings and roundtables with key human and social service agencies and other organizations who utilize CAT services or provide ancillary service in the MPO area.
- Objective 4: Improve efforts to attract and retain riders through marketing, information and quality of service.
- Objective 5: Annually evaluate Demand Response processes to ensure ADA compliance and cost-effective management.
- Objective 6: Carry out goals and objectives stated in the respective Land Use Plan to increase transit supportive developments.
- Objective 7: Develop process to incorporate new service to transit supportive developments. This process should include service and assessment options.
- Objective 8: Collaborate across city and state boundaries to create a seamless transportation networks including service and performance management.
- Objective 9: Track performance measures annually to determine progress.

Table 8-8: Efficient System Management Performance Measures and Targets

Performance Measure	System	Performance Level	CAT System Performance	CAT – EGF Performance
Information Availability	Fixed Route	Standard requirements: Title VI, Riders Guide, Service Schedules, Trip Reservation Process	Meets Criteria	
	Demand Response		Meets Criteria	
Planning Requirements	Fixed Route	Identified and analyzed as part of TDP. Service expansions determined through alternatives analysis.	2012 (Currently Being Updated)	
	Demand Response		2012 (Currently Being Updated)	
Public Transportation and Human Services Coordination	Fixed Route	Update Coordinated Plan once every five years; establish outreach targets in coordination with the Coordinated Plan. Assess annually.	2012 (Currently Being Updated)	
Passengers per Service Hour	Fixed Route	15.92	13.7	9.5
	Demand Response	2.70	2.85	
On-Time Performance	Fixed Route	90% of schedule stops on time (within 5 minutes).	82.73% *(September 2016 sample)*	
	Demand Response	90% on-time within published pickup window.	>95%	
Advance Reservation Time	Demand Response	Minimum two hours in advance.	5:30 P.M. the day before reservation (not same day)	
Reservation Negotiation Window	Demand Response	Maximum: Up to one hour before/after requested time.	Meets Criteria	
Trip Denials	Demand Response	Must follow ADA trip denial definitions and process.	Meets Criteria	
Trip Cancellations	Demand Response	Bus or vanpool trips should only be canceled from lack of riders or weather.	No data provided	
Cost per Revenue Hour	Fixed Route	$94.77	$83.94	$91.99
	Demand Response	$74.72	$64.36	
Cost per Ride	Fixed Route	$5.95	$6.12	$9.71
	Demand Response	$27.66	$22.55	
Farebox Recovery	Fixed Route	15%	12.0%	6.6%
	Demand Response	15%	13.1%	

Goal: Accessibility and Mobility

Increase the accessibility and mobility options for people and freight by providing more transportation choices.

- Objective 1: Increase ridership on the Fixed Route system through improved information availability and service quality.
- Objective 2: Manage system demand between Fixed Route and Demand Response system through eligibility screening and better coordination with hand demand users.
- Objective 3: Operate 40 percent of fixed routes at 30-minute headways.
- Objective 4: Encourage transit travel time to be competitive with auto, no more than three times auto travel.

Table 8-9: Accessibility and Mobility Performance Measures and Targets

Performance Measure	System	Performance Level	CAT System Performance	CAT – EGF Performance
Span of Service	Fixed Route	18 hours a day for six days a week.	15.5 Hours	11.5 Hours
	Demand Response	18 hours a day for six days a week.	15.67 Hours	
Service Frequency	Fixed Route	30-minute headways on 40% of routes.	16%	0%
Ridership	Fixed Route	Increase ridership 5% per year.	336,655	31,585
	Demand Response	5% reduction in three years; 10% in 5 years.	54,750	
Transit-Auto Travel Time Difference	Fixed Route	Transit travel time should be no more than 3 times auto travel time.	No systemwide sample available.	

GOAL: ENVIRONMENTAL/ENERGY/QOL

Protect and enhance the environment, promote energy conservation, and improve quality of life by valuing the unique qualities of all communities – whether urban, suburban or rural.

- Objective 1: Avoid, minimize and/or mitigate adverse social, environmental, and economic impacts resulting from existing or new transportation facilities by incorporating elements of the Environmental Justice, Title VI and Limited English Proficiency plans.
- Objective 2: Integrate CAT into development of quality of life initiatives such as updates to Downtown Vibrancy Report or other community livability efforts.
- Objective 3: Integrate CAT as a consideration into future updates to the UND Climate Action Plan.
- Objective 4: Increase alternate fuel vehicles in the CAT fleet.

GOAL: SECURITY

Increase security of the transportation system for motorized and non-motorized uses.

- Objective 1: Identify and incorporate state and regional emergency, evacuation and security plans into transportation plans and TIP project selection.
- Objective 2: Ensure all applicable employees undergo incident response training.

GOAL: SAFETY

Increase safety of the transportation system for motorized and non-motorized users.

- Objective 1: Reduce the number, severity and rate of crashes compared to previous years.
- Objective 2: Develop an agency safety plan and certify the plan meets FTA requirements.
- Objective 3: Identify high-incident crash locations and seek opportunities to mitigate safety issues.

Table 8-10: Safety Performance Measures and Targets

Performance Measure	System	Performance Level	CAT System Performance	CAT – EGF Performance
Accidents	Fixed Route	1.0 Accidents per 100,000 Revenue Miles	1.12 Accidents per 100,000 Revenue Miles	
	Demand Response		1.30 Accidents per 100,000 Revenue Miles	

GOAL: SYSTEM PRESERVATION

Emphasize the preservation of the existing transportation system by first targeting federal funds towards existing infrastructure to spur revitalization, promote urban landscapes and protect rural landscapes.

- » Objective 1: Achieve "State of Good Repair" performance levels agreed to between MnDOT, NDDOT and the MPO.
- » Objective 2: Ensure daily transit operations without interruption for fleet maintenance or repair.
- » Objective 3: Implement and periodically update Transit Asset Management plan.

Table 8-11: System Preservation Performance Measures and Targets

Performance Measure	System	Performance Level	CAT System Performance	CAT – EGF Performance
Road Calls	Fixed Route	New data collection system implemented in 2017. Measure for one year and set target in cooperation with MPO	(N/A) Data Collection Started in 2017	
	Demand Response			
Fleet Maintenance	Fixed Route	At least 75% of all regular fleet available for operations.	100% Available	
	Demand Response			
Spare Ratio	Fixed Route	Spare vehicles to peak requirement less than 20% (fixed)	37.5% (Fixed) (assumes HC Tripper)	
	Demand Response			
Equipment	Non-Revenue Support Vehicles	50% of vehicles meet or exceed useful life	33%	
Rolling Stock	Revenue Vehicles	20% of vehicles meet or exceed useful life	0% (following programmed purchases)	
Facilities	Maintenance, Administration & Stations	50% of facilities at TERM rating of 3.0 (adequate) or better by the year 2025	100% Stations (3.0) 100% of Shelters (1.0) CAT Garage (1.0)	

GOAL: TOURISM

Enhance travel and tourism.

- » Objective 1: Seek 60-minute headways between major regional destinations.
- » Objective 2: Ensure CAT services are included in regional travel and tourism marketing materials.

GOAL: RESILIENCY

Improve resiliency and reliability of the transportation system and reduce or mitigate storm water impacts of surface transportation.

- » Objective 1: Consider reduction of surface parking and other related impervious surfaces through the better utilization of CAT as a demand management tool during the land development process.
- » Objective 2: Avoid transit routing on roadways that are frequently subjected to closure due to flooding.
- » Objective 3: When routes are on roadways frequently subjected to closure due to flooding, collaborate with city, county and state departments of transportation to inform route changes and operations to minimize impacts.

CONSISTENCY MONITORING

FTA SECTION 5340 SMALL TRANSIT INTENSIVE CITIES (STIC) APPORTIONMENTS

FTA Section 5340 STIC funding provides additional operating funds apportioned to transit systems which meet or exceed system averages based on all UZA providers with a population between 200,000 – 999,999. Most recently CAT has been able to attain target levels in Vehicle Revenues per Capita. Based on FY 2016 funding, this amounted to an additional $189,000 in FTA operating funds.

The most recent targets for the FTA Section 5340 program and the performance for CAT (2016) are shown in Table 8-12 below. Performance tracking on FTA Section 5340 program can be reviewed annually with each submittal of the NTD reporting process.

Table 8-12: FY 2016 Small Transit Intensive Cities Performance Data and Apportionments

Urbanized Area	Passenger Miles/ Revenue Mile	Passenger Miles/ Revenue Hour	Revenue Mile/ Capita	Revenue Hour/ Capita	Passenger Miles/ Capita	Passenger Trips/ Capita	Number of Performance Factors Met or Exceeded	STIC Funding
Grand Forks, ND-MN	2.6	31.4	8.8	0.7	23.2	6.5	1	$189,432
Average	6.3	106.0	11.1	0.7	84.2	12.9	-	-

Performance Tracking

The MPO should integrate an annual summary report of CAT performance related measures and performance levels included in the TDP. Data used for the development of this element of the TDP is sourced from annual data developed by CAT and NTD datasets.

Reporting could be done through a simple and easy to follow dashboard format which shows historic and existing performance levels. Similar charts and tables were used in the Existing Systems Analysis.

9) TRANSIT ASSET MANAGEMENT

The mission statement of CAT is to "promote mobility by developing, providing, maintaining, and supporting the development and delivery of public transportation services. These services will be geared toward improving the quality of life for residents and increasing the economic vitality of Grand Forks and East Grand Forks." Having a Transit Asset Management (TAM) plan which assesses current and future needs and prioritizes investments to resolve those needs is critical to meeting this mission statement.

OVERVIEW

To comply with FTA guidance, CAT must use inventory and condition data and well-defined objectives to provide a systematic process for improving resource allocation decision-making. This chapter will:

- Assess the existing asset management practice at CAT
- Present an asset management framework and business model that defines and communicates best practices of similar agencies around the country
- Assist CAT in developing measurable goals and objectives for providing a systematic process for inventorying and assessing assets
- Provide guidance for developing an FTA-compliant, high-level condition assessment for advancing asset management and guiding resource allocation decision-making within CAT

BEST PRACTICES IN ASSET MANAGEMENT

Transition to Preventative Maintenance

Traditionally, asset management was a reactive find-and-fix maintenance method. Improved transit asset management uses a predict-and-prevent approach to reduce cost and improve safety and reliability of the system. This new approach to asset management aligns with the guidance of the Federal Transit Administration (FTA), which requires that recipients of federal funding report on:

- The condition of their system
- Any change in condition since the last report
- Targets set for the state-of-good-repair performance measures
- Progress towards meeting those targets

Conduct Regular Inspections

In addition to reporting the data, inspections should be conducted on all assets. These inspections are critical to maintaining an accurate database that can help make investment decisions. Regular vehicle and equipment inspections should be conducted based upon vehicle type, mileage, road conditions and other policies.

- Vehicle type: Due to deterioration from stop frequency and wear and tear from congestion and general use, revenue vehicles used for Fixed Route or Demand Response service require a more frequent and in-depth preventative maintenance inspection than other vehicles.
- Mileage: Vehicles with the highest mileage should be inspected frequently.
- Road conditions: Vehicles used in inclement weather or road conditions, such as ice, snow, or gravel, should be inspected more frequently than the manufacturer recommendation.

Inspections should occur on a regular schedule and be fully documented. Many agencies identify a specific staff person to manage this task.

Review and Adjust

Finally, CAT staff should continually review these maintenance practices to identify improvements to the program. The current condition assessment portion of this chapter includes the first iteration of a FTA-compliant report on state of good repair (SOGR). Continually updating this section of the report with current numbers, budgets and the SOGR is the first recommended change.

EXISTING ASSET MANAGEMENT PRACTICES AT CAT

CAT currently has a robust and thorough vehicle maintenance program. Lead by the Transportation Supervisor, this program employs two full-time fleet maintenance mechanics who are responsible for the mechanical operation of the bus fleet. In addition to conducting daily repairs on the diesel engines and all related parts, they perform scheduled preventive maintenance according to a full-service checklist. To ensure safe, reliable operations, a vehicle inspection is performed every 4,000 miles on diesel and 3,000 miles on gas vehicles.

Any defect found during an inspection that would adversely affect the safe operation of the vehicle is to be repaired prior to release for service. Defects not affecting safe vehicle operation will normally be repaired prior to the vehicle being released for service. However, buses requiring parts not in stock, unavailable outside vendor services or excessive repair time, may be released at the discretion of the supervisor.

Bus operators are responsible for daily morning inspections of transit vehicles and operating a fixed route while providing excellent customer service. Operators also have a Driver's Check Sheet to make the inspection more consistent and routine.

INVESTMENT FRAMEWORK: GOALS AND OBJECTIVES

Achieving balance between maintaining current stock and replacing the oldest assets is a priority to CAT. Providing a safe and secure ride, operating a reliable transit system and making financial maintenance decisions at the most cost-effective time are also important to CAT. These goals will be balanced as financial operating and maintenance needs are suggested based on asset condition.

One initial desire of CAT is to remodel and expand the bus garage, originally built in 1984, for added garage and administrative space and become ADA compliant. In addition to this significant financial investment, maintaining an efficient, effective and high-quality transit coach fleet is also a top priority.

CURRENT CONDITION ASSESSMENT – GRAND FORKS

Methodology

The FTA Transit Economic Requirements Model (TERM) Lite tool estimates transit capital investment needs over an extended time horizon. It estimates asset condition based on age, useful life and asset decay curves. This tool was used to identify the current condition of the CAT transit system features and create recommendations for resource allocation to reach and maintain a SOGR for years to come. The assumptions used for the base model were:

- 20-year horizon
- All assets have the same priority
- Expansion assets include five vehicles (two revenue vehicles and three non-revenue vehicles)

- Agency soft costs are 10 percent across all asset types
- Inflation is set at four percent
- Agency capital budget is set at $200,000 in 2017 and increases with inflation each year. This $200,000 is for capital expenditures only; it is beyond the operation and maintenance budget of the agency.

Inputs

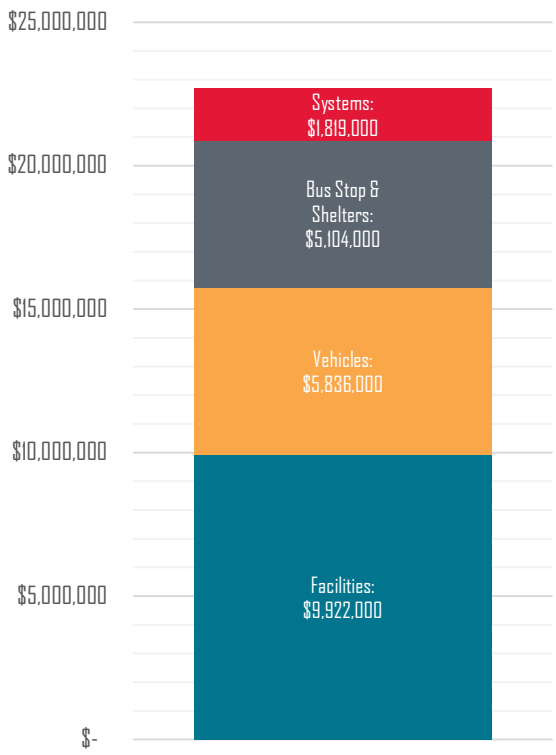
The inputs for this TERM Lite model are based on an inventory report from February 7, 2016. These inputs included 118 lines items, including fixed route and demand response rolling stock, associated ITS equipment, bus shelters, one bus garage, various office equipment and supplies and many maintenance and repair equipment pieces.

Useful lives were individualized for every asset. Revenue buses assumed useful lives between 10 and 12 years, other vehicles were closer to five years, maintenance equipment ranged from five to seven years.

Asset Inventory Replacement Value

Figure 9-1 shows the existing replacement value of CAT's capital assets at $22.7 million. Facilities, which include the existing bus garage, make up the largest single asset type at nearly $10 million. Vehicles and bus shelters each make up around one-quarter of the value of CAT's assets.

Figure 9-1: Value of CAT Grand Forks Capital Assets by Category (2016 $)



Asset Conditions

An asset is in a SOGR if it has not reached the end of its useful life. The SOGR backlog represents the value of all assets in the transit system that are beyond their useful life and should be replaced. Based on the provided inventory, 68 percent of the total value of CAT's transit system is in backlog (Figure 9-2). This backlog is largely due to the bus garage being beyond its 30-year design life, many bus stops and shelters surpassing their design life, and the GFI fareboxes nearing the end of their useful life. If the bus garage is excluded from the analysis, 50 percent of the total value of CAT's transit system is in backlog.

Figure 9-2: CAT Assets in State of Good Repair Backlog

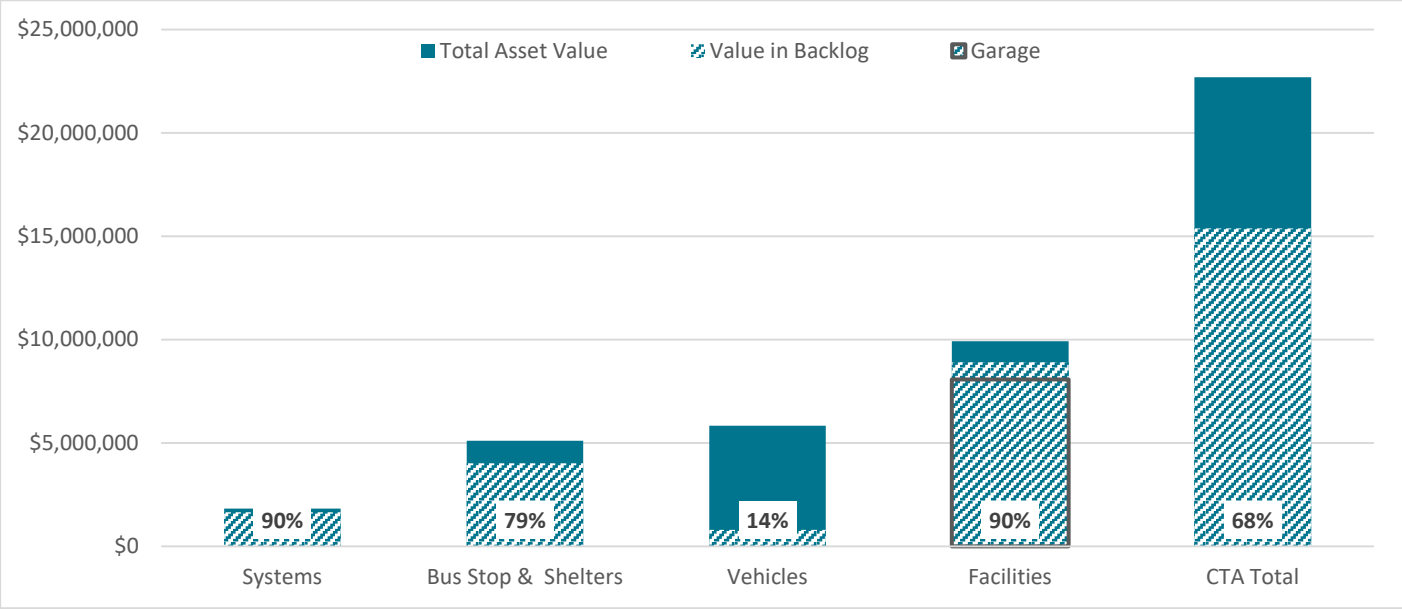


Table 9-1 shows how each FTA Category, Sub-Category and Element fits into the five FTA defined asset-condition categories based on how soon it will reach its useful life. For example, the CAT Maintenance Garage (Facilities, Buildings, Maintenance) is beyond its useful/functional life, thus it is classified as poor whereas the Fixed Route buses category (Vehicles, Revenue Vehicles, Bus) shows 24 percent of assets in excellent condition, 63 percent in marginal condition and 13 percent in poor condition. Even though CAT has applied for and received incremental funding for small-scale improvements at its Storage and Maintenance Facility, the facility itself is not likely in a SOGR. However, a detailed facility assessment was not within the scope of the TDP, and should be conducted to assist with prioritizing future investments. Based on input from CAT and the MPO, the overall capital need is for a full-scale upgrade and expansion of this CAT facility (as discussed in previous sections of this report).

Table 9-1: Asset Condition by Category and Type (Grand Forks)

Category	Sub-Category	Element	Useful Life	Replacement Value (2016 $)	Excellent	Good	Adequate	Marginal	Poor*
Facilities	Buildings	Maintenance	30	$8,081,000					100%
Facilities	Equipment	-	5 to 10	$198,000	3%		5%	77%	15%
Facilities	Equipment	Maintenance	5 to 7	$804,000		18%	3%	30%	49%
Facilities	Equipment	MIS/IT/Network Systems	3 to 7	$839,000			21%	77%	3%
Vehicles	Revenue Vehicles	Bus	10 to 12	$4,005,000	24%			63%	13%
Vehicles	Revenue Vehicles	Vans, Cutaways, and Autos	4 to 7	$1,488,500	69%	22%	3%	3%	3%
Vehicles	Non-Revenue Vehicles	-	6	$343,000	25%		14%	5%	56%
Stations	Bus Stop & Shelters	Bus Stops	20	$1,091,000			100%		
Stations	Bus Stop & Shelters	Bus Stop Shelters	7	$4,013,000					100%
Systems	Communications	Phone System	5	$38,000		100%			
Systems	Communications	Radio	7	$52,000					100%
Systems	Communications	Safety and Security	5 to 7	$214,000		24%	15%	38%	23%
Systems	ITS	-	5 to 7	$52,000			100%		
Systems	Revenue Collection	-	7	$1,462,395				100%	

**Poor condition indicates the asset has reached the end of its useful life and is not in a state of good repair*

CURRENT ASSET CONDITION – EAST GRAND FORKS

To reflect that East Grand Forks owns a limited amount of its own capital, a smaller analysis looked exclusively at the East Grand Forks capital inventory. Currently East Grand Forks owns a total inventory of four bus shelters and two revenue vehicles. Those assets were evaluated to determine the current assets by category as well as the current State of Good Repair Backlog. Table 9-2 demonstrates the current asset condition by category and type for East Grand Forks.

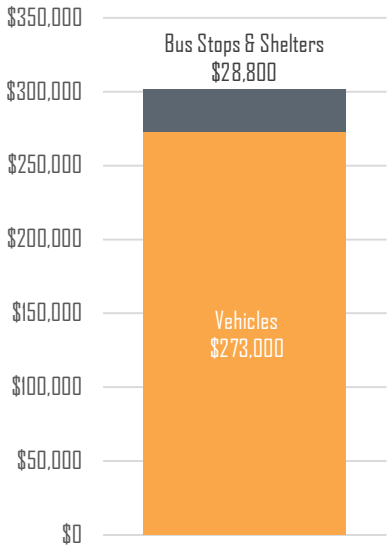
Table 9-2: Asset Condition by Category (East Grand Forks)

Category	Sub-Category	Element	Useful Life	Replacement Value (2016 $)	Excellent	Good	Adequate	Marginal	Poor
Vehicles	Revenue Vehicles	Bus	7	$273,000	50%	50%			
Facilities	Bus Stop & Shelters	Bus Stop Shelters	4 to 7	$38,800			100%		

The East Grand Forks' revenue vehicles are currently in either Good or Excellent condition, and they currently have zero percent of their vehicle inventory in backlog. Given historic and projected programming through the MPO TIP and MnDOT, no replacement backlog for East Grand Forks over the planning horizon of this TDP is anticipated.

The entire current inventory of shelter assets owned by East Grand Forks is in adequate condition. Investments are needed in the long term to maintain a state of good of repair. However, East Grand Forks has no state of good repair backlog for shelters.

Figure 9-3: Value of CAT East Grand Forks Capital Assets by Category (2016 $)

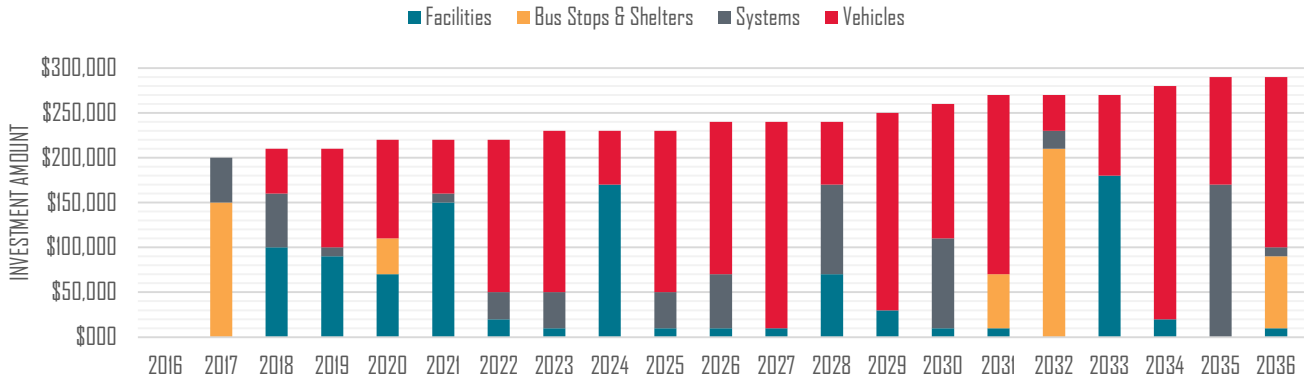


RECOMMENDATIONS FOR GUIDING RESOURCES

CURRENT FUNDING SCENARIO

If CAT had unlimited funding, assets would be replaced as soon as they reach the end of their useful life. However, with funding remaining constant at its current $200,000 value for 20 years (adjusted for inflation), capital improvement decisions need to be made with limited funding. Figure 9-4 shows the investment schedule if funding stays constant. The bus garage expansion, valued at over $8 million, is removed from this investment schedule analysis as it is assumed that this one-time renovation would

Figure 9-4: Proposed Investment Schedule Assuming $200,000 Annual Capital Investment Budget



come from other funding sources beyond the $200,000 per year budget.

The capital funding schedule under this scenario assumes over $7 million is total investments over the next 20 years with Investments ranging from $250,708 to $499,579 per year. This funding scenario does not resolve the SOGR backlog. As expected, the backlog grows significantly over time when funding levels only increase with inflation (Figure 9-5).

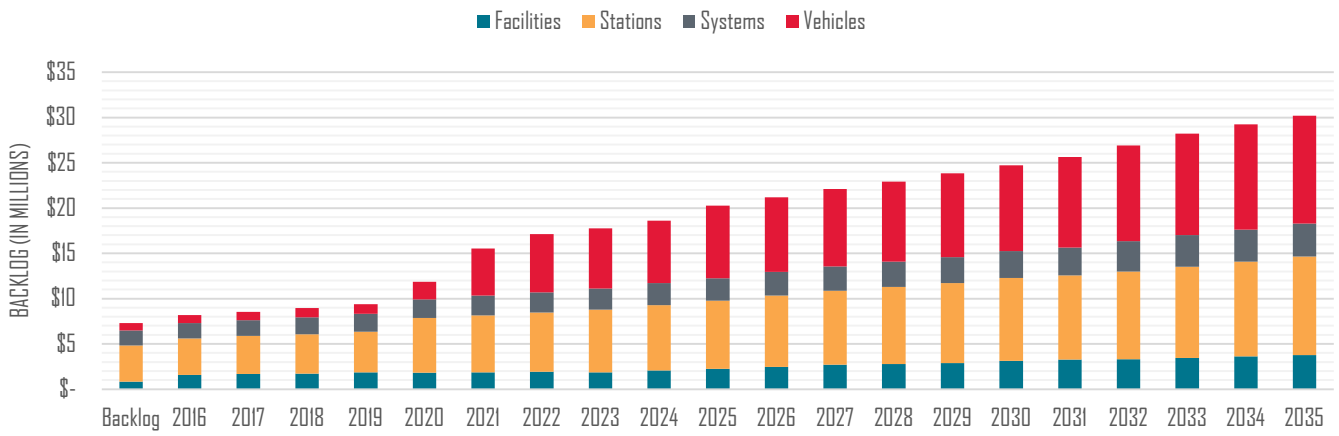
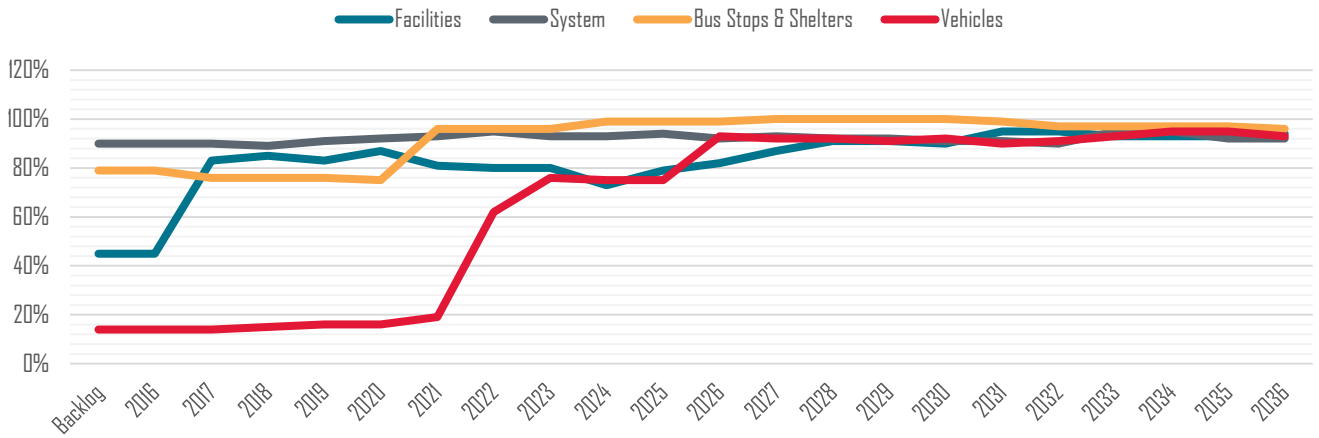


Figure 9-5: State of Good Repair Backlog with Current Annual Funding

Not all assets are in a consistent backlog given this funding scenario. Vehicles continue to rise from 20 percent in backlog in 2021 to over 90 percent beyond 2026 (Figure 9-6).

Figure 9-6: Percent of Replaceable Assets That Exceed Their Useful Life by Category in Current Funding Conditions



Backlog Management Scenarios

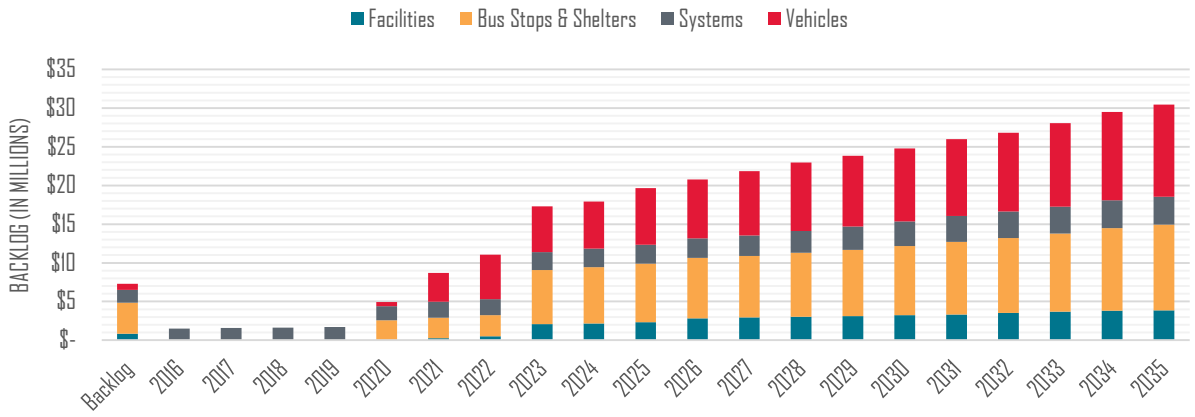
Three scenarios demonstrate how different funding levels and investment patterns could affect the SOGR at CAT.

Scenario 1: Eliminate Backlog with Immediate Cash Infusion

Without the bus garage expansion, the entire existing backlog is $7.3 million (50 percent of the value). The first funding scenario presented eliminates this backlog with an immediate cash infusion. It is assumed that annual spending on capital improvement following this one-time correction remains steady at $200,000 adjusted for

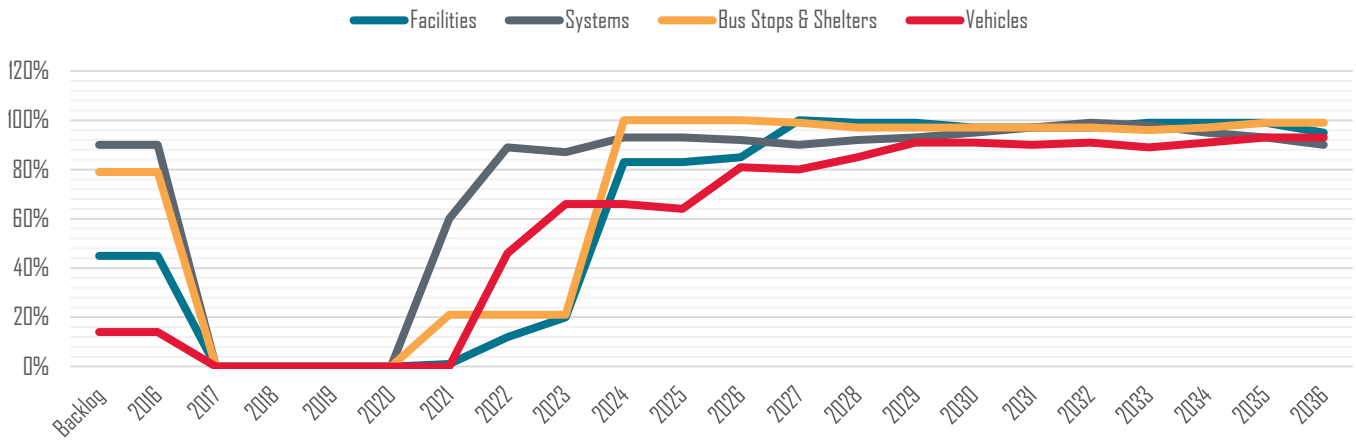
inflation. This cash infusion eliminates the backlog for four years, but without increased capital spending, the backlog returns to over $7 million by 2021 (Figure 9-7).

Figure 9-7: State of Good Repair for Scenario 1: Backlog Assuming Immediate Cash Infusion



Vehicles are the first replaceable asset type to return to a backlog greater than 50 percent (Figure 9-8).

Figure 9-8: Percent of Replaceable Assets That Exceed Their Useful Life by Category Assuming Immediate Cash Infusion

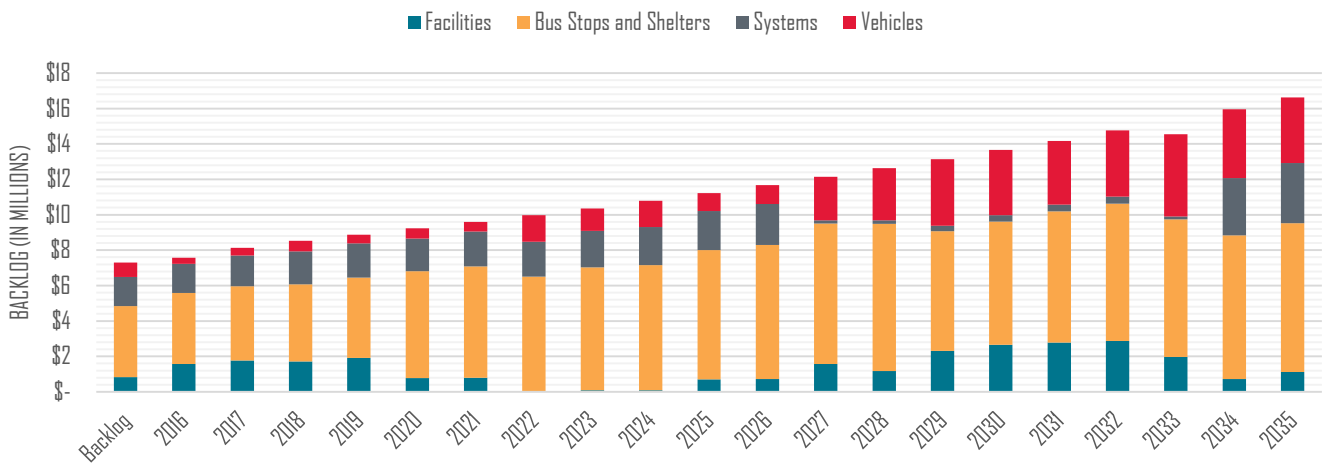


Although this immediate cash infusion scenario resolves the existing backlog today, it is not a realistic or effective capital funding solution for the agency in the long term.

Scenario 2: Maintain Backlog for Fifteen Years

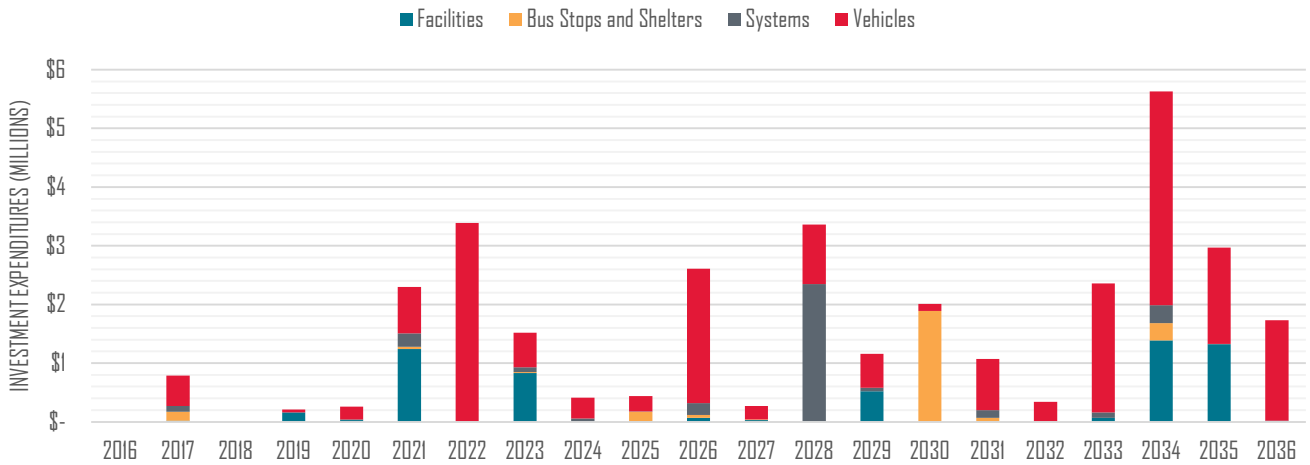
The goal of the second funding scenario is to maintain the current 50 percent backlog for 15 years (Figure 9-9). Although the dollar value of the backlog rises over time, this value, given inflation, remains at nearly 50 percent of the asset's total value.

Figure 9-9: State of Good Repair for Scenario 2: Maintain Backlog at 50 percent



To achieve this consistent backlog of 50 percent, investments per year will vary significantly. While some years need little or no capital expenditures, other years will require large investments to maintain more expensive assets. For instance, while 2018 needs no capital investments, 2021 is slated for vehicle maintenance, fuel tank replacements and communication system upgrades that total $2.3 million (Figure 9-10). The average annual investment over the 15 years that the 50 percent backlog is being maintained in this scenario is $1.24 million.

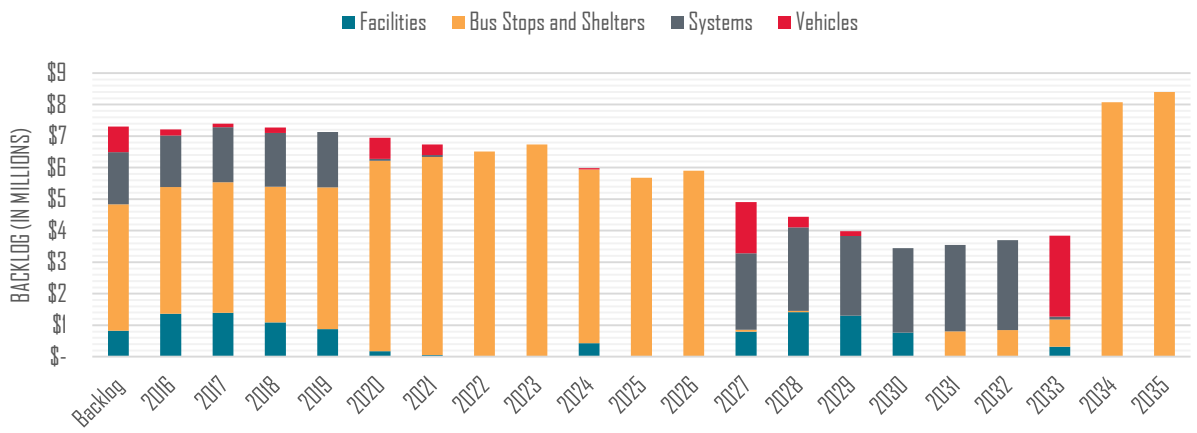
Figure 9-10: Investment Schedule to Maintain 50 Percent Backlog for 15 Years



Scenario 3: Reduce Backlog Incrementally

The goal of the last scenario is to reduce the backlog over 15 years to 25 percent of its current value (Figure 9-11).

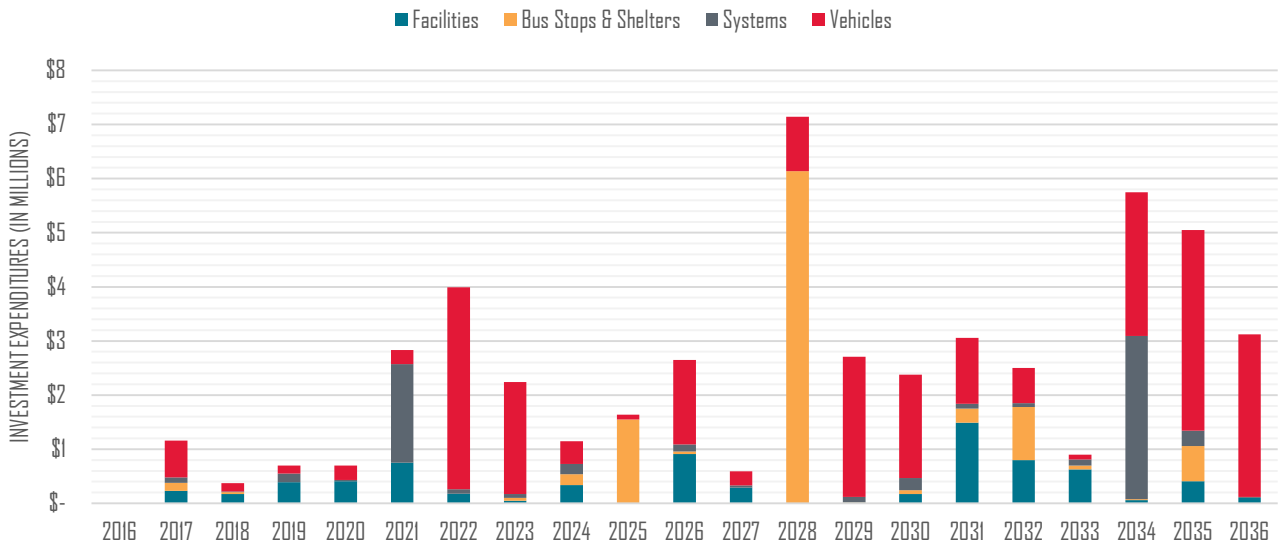
Figure 9-11: Backlog in the Incremental Reduction Scenario



To achieve this incremental backlog reduction, investments per year need to increase over time. While the first four years would require around one million in capital expenditures per year, following years need consistently more than $2 million in expenditures per year (Figure 9-12). The average annual investment over the 15 years that the backlog is being incrementally reduced in this scenario is $2.08 million.

2028 is a unique year in the scenario, where $6.4 million is spent replacing 17 bus shelters. Although the model replaces all the shelters in one year, it is likely that the bus shelters would be incrementally replaced so that those costs could be spread over many years and be less of a burden on the transit agency's annual budget.

Figure 9-12: Investment Schedule to Reduce Backlog Incrementally for 15 Years



Summary of Transit Asset Management and State of Good Repair

Several themes emerge from the analysis:

- The current assumed level of capital investments ($200,000 per year) will not improve the SOGR. Without increasing funding levels, the backlog could increase dramatically over twenty years.
- Investments will need to be made strategically. A single investment level is not practical. Targeting specific, costlier improvements in a certain year, such as vehicle replacements or bus shelter upgrades, will be more effective at reducing the backlog over time.
- Targeting a specific backlog reduction—such as one percent per year—can help drive investment decisions.

Annual investments between $1 and $2 million per year will reduce the backlog in CAT's inventory. Focusing investments in opportune years will help bring the agency's assets into a SOGR.

CAT Bus Garage

CAT has received the expert opinion from a local engineering and architectural firm as well as an energy use evaluation consultant; the facility itself is not in a state of good repair. Based on these expert opinions, the overall capital need is for a full-scale upgrade and expansion of the CAT storage and maintenance facility (as discussed in previous sections of this report). CAT has applied for many separate grant opportunities to accomplish the full scale project; none have been awarded funds. Facing inability to find full funding, CAT has recently focused on addressing the most critical conditions. CAT has applied for and received incremental funding for small scale improvements at its Storage and Maintenance Facility, recent short term investments are targeted at addressing high priority health and safety issues which have been identified as needs for the CAT Garage. CAT is approaching these incremental improvements as capable of being reuse if a full remodel and expansion of the facility is done.

2018 Update: Performance Base Planning and Programming and MTP

TRANSIT ASSET MANAGEMENT

MAP-21 and FAST ACT requires incorporation of performance based planning and programming in the development of the Grand Forks – East Grand Forks Metropolitan Planning Organization's (Forks MPO) Metropolitan Transportation Plan (MTP). The requirement in these US Laws defined that the MTP shall include, to the maximum extent practicable, a description of the anticipated effect of the MTP toward achieving the performance measures by linking them with the investment priorities. The Forks MPO is a bi-state MPO with area included in parts of Minnesota and North Dakota included within its study area.

Performance based planning and programming is fairly new to the Forks MPO. Although the current 2040 Metropolitan Transportation Plan (MTP) introduced performance measures and targets, the federally required measures were not yet fully available. As the federal requirements were being promulgated, MPO staff kept abreast of their development via webinars, workshops and trainings. The Forks MPO is developing and defining the organizational framework and roles in meeting the performance requirements. One example has been the adoption of a MOA with each state dot and each local transit operator that identifies the roles and responsibilities of each in achieving the necessary requirements. Performance based planning and

programming is varied between the two state dots. Minnesota has used its version of performance measures and target setting for a decade or more. Whereas, North Dakota has just started emerging with its performance based planning and programming. The Minnesota side MOA includes more of the measures that are federally required and identifies more roles and responsibilities. The North Dakota side MOA will be expanded as additional measures are cooperatively developed.

Another example of the efforts of the Forks MPO in meeting the federal performance requirements is the current updating of the MTP. The 2045 MTP will be developed and adopted in time to meet the timelines for all federally required performance measures and target setting. This effort will continue to expand the Forks MPO abilities in furthering the use of performance in our decision making.

There is allowed a phase in period for the required performance base measures and targets. As of October, 2018, the only required transit performance measures (PM) to have the description of anticipated effect are those related to the Transit Asset Management (TAM). The performance goal, as stated from a national perspective, is to achieve a state of good repair of the transit assets. Therefore, this section of the MTP – TDP Element will address them. The FTA 5307 and 5339 Programs are the core Federal-aid programs with the purpose to achieve a state of good repair. The TAM PM Final Rule supports the data-driven performance focus on the state of good repair. The TAM PM Final Rule establishes four performance measures, of which only three apply to the Forks MPO area.

In regards to the TAM PM, there are three specific measures that must be considered to carry out the TAM.

1. Condition of Rolling Stock
2. Condition of Equipment
3. Condition of Facilities

The initial targets were to be set by January 1, 2017. None were submitted to the MPO. At that time, the development of the 2045 TDP was coming to conclusion. Within the TDP, the transit operators and MPO were developing components of the TAM and did identify targets.

In June 2017, after close coordination with both states and including several discussions occurring at numerous MPO Technical Advisory Committees (TAC) and Executive Board meetings, the Forks MPO adopted TAM targets specific to the MPO study area (see Table 1). The general purpose of the Forks MPO is to establish a uniform transportation plan and program for planning investments in the transportation system. Further, one overall transportation plan covering the entire metropolitan area, including area for future growth, establishes the goals, objectives, and standards to achieve the plan.

TABLE 1

Performance Measure	**Target**
Condition of Rolling Stock	50% of Useful Life Benchmark
Condition of Equipment	80% of Useful Life Benchmark
Condition of Facilities	50% of facilities rated at 3 or better

The two transit operators have been working on TAM documents. A deadline of October 1, 2018, existed for transit operators to submit a TAM. An option for the transit operators was to join a state sponsored TAM (Tier II Group TAM). During the month of September, a decision was made to join the ND TAM. Despite East Grand Forks being in Minnesota and that there exists a MN TAM, the decision was to have it participate in the ND TAM. The lead agency is Grand Forks as East Grand Forks purchases transit services from them. This decision came too late to process respective approvals to meet the October 1st deadline. Each transit operator has requested a one month extension to submit a TAM. Once the Forks MPO receives the TAM, it will work with its partners to determine whether an adjustment is needed to the TDP targets. One distinguishing factor is that the transit operator TAM targets are an annual target whereas the MPO targets are considered five year targets.

As the TAM PM is an annual target setting requirement, the States, transit operators, and Forks MPO have identified methods to assist in achieving target setting. Annually, assessment of each asset condition is to be documented. This work is reported to the National Transit Database. This annual report will provide the basis for the annual target setting and the reporting of progress towards achieving the state of good repair.

The current metropolitan Transit Development Plan is the 2045 Plan. It was developed and adopted under the guidance available for the MAP-21 and FAST ACTs. The established measures specific to TAM were not finalized until after the 2045 Plan was adopted. In that Plan, the Forks MPO did establish performance targets regarding TAM. State of Good Repair is one of the explicit goals of the 2045 Plan. Many objectives were adopted to support this goal. In addition, standards were approved that assist in reaching the objectives and overall goal.

These measures and targets were developed prior to the final federal required measures and target setting process. Therefore, an exact comparison cannot be made. The Forks MPO is currently updating the 2045 Plan. Under this process, the new Plan will implement the now promulgated required national performance measures. Particular attention is being done to integrate the various TAM plans being promulgated by respective agencies.

As stated previously, the national TAM performance effort is to achieve a state of good repair. The predominant program that Congress has created to achieve this is the FTA 5339 Program. Most notably, each state has an adopted TAM Plan. As noted above, the North Dakota TAM Plan has been adopted by our two transit operators even though one is located in Minnesota. State of good repair targets are identified within each and specific strategies are adopted.

The Forks MPO MTP – TDP Element has been recently amended to update the potential capital projects to maintain a state of good repair for transit assets. This list will be the primary candidate projects for the annual solicitation of federal and state capital funds. Periodically, new, unanticipated funding solicitations are made and this list will be reviewed and adjusted if appropriate.

The Forks MPO has a project selection process adopted to assist it in planning and programming projects. Each possible project is reviewed through several criteria pertinent for the projects likely funding source. State of good repair is one of the primary considered criteria for transit capital requests. The application form requests the project sponsor to indicate whether the proposed projects are furthering the respective TAM plans that exists.

In the current TIP, the FTA 5339 program has many projects programmed towards state of good repair for transit assets. Several vehicle replacements are on schedule to keep the fleet up-to-date. Equipment is

programmed as well as components of facilities. A recent award will bring the main Public Transportation Facility into a state of good repair. Significant investment is being made to modernize, renovate and expand the facility. Candidate projects are currently being vetted through the TIP process for bus shelters, equipment and other items to bring additional assets into a state of good repair.

Besides the FTA programs, the state Of Minnesota provides state funds to assist the East Grand Forks transit operator to maintain state of good repair. Minnesota funds have been used and are programmed to be used to purchase replacement vehicles and replacement fare machines.

In conclusion, the Forks MPO understands that they are in the early stages of developing a fully compliant performance based MTP and TIP. This amendment to the MTP – TDP Element serves to codify existing baseline TAM PMs in the MTP – TDP Element, as cooperatively developed with NDDOT, MnDOT, and local transit operators. Through the current MTP update process, the Forks MPO will fully integrate TAM PM into their prioritization methodology for projects based on the performance measures and targets.

As multiple years of data is collected for the performance measures and their targets, the Forks MPO will be able to see if the performance of their transportation system is moving in the right direction to meet the desired targets. Adjustments can be made to the strategies to meet the performance targets if the desired results are not being met.

10) FINANCIAL PLAN

INTRODUCTION

This section provides an overview and summary of the five-year (2018-2022) financial analysis related to implementation of the recommended operational strategy for CAT. The fiscally constrained implementation of the TDP would result in the implementation of the Cost Constrained Scenario for Grand Forks and East Grand Forks.

This plan provides guidance to move towards implementing the Cost Constrained Scenario by the 2nd Quarter of 2018. The system restructure proposed by the TDP allows for a new route structure to be implemented, with varying levels of new revenue investment by each major CAT funding partner. However, based on existing funding projected to be available, it is recommended that the Cost Constrained Scenario be implemented as outlined in Alternatives Analysis element of the TDP.

ASSUMPTIONS

Assumptions used in the development of this element of the TDP are as follows.

- Implementation of the TDP starts April 1, 2018, and therefore cost for calendar year 2018 are assumed at ¾ of those shown in the Operational Analysis in the Alternatives Analysis chapter above. Operations costs were initially inflated in the Operational Analysis, so for this element of the TDP, they again grown four percent annually from 2019 on. Revenue projections match those discussed below.
- The selection of April 1, 2018 as the implementation window was developed to match recent funding provided by MnDOT to support CAT service improvements in East Grand Forks.
- Revenue assumptions were based on the current approved 2017-2020 Grand Forks – East Grand Forks Transportation Improvement Program (TIP). These revenue assumptions were augmented to account for recent 100 percent State funding provided to the East Grand Forks by MnDOT. Revenue projections for East Grand Forks also assume slightly elevated annual revenue as reported by MnDOT for the years 2020 and 2021 (and extrapolated to 2022) to support with TIP and STIP development.
- The tripper service should be discontinued and reevaluated in coordination with area agencies and human service stakeholders.

OPERATIONS

Operational costs are broken out by system. Based on MnDOT funding provided to East Grand Forks, the Cost Constrained Scenario is fully fundable through the year 2019 in East Grand Forks. Implementation of the Cost Constrained Scenario for Grand Forks is essentially cost neutral through the five-year planning horizon.

Grand Forks

Table 10-1 shows the overall operation analysis for the Grand Forks portion of the TDP for the years 2017 to 2022. No new funds are needed for the Grand Forks portion of the CAT system to implement the Cost Constrained Scenario over the life of the TDP. If Grand Forks were wishing to reach the Cost + Scenario, total new Grand Forks revenue to support implementation of the Cost + Scenario is projected to be between $225,000 and $330,000 annually over the five-year life of the TDP. Not moving forward with the Cost + Evening Service implementation would reduce this by between $97,000 and $150,000 annually over the life of the TDP.

2018 Update

Table 10-1 has been updated to reflect the most current cost of service and estimated incoming revenue. Grand Forks has implemented the Cost+ Scenario of the proposed new route alternatives. The City was also to find some cost savings when implementing this new route structure. The final routes look different from the ones proposed in this plan due to test runs

and on the ground verification of current ridership. The riders had a month and multiple meeting opportunities to provide input. This input also change routing and time tables that are part of the final route structure.

Table 10-1: Grand Forks Financial Analysis

	2017	2018	2019	2020	2021	2022
~~Other~~	~~$338.4~~	~~$345.20~~	~~$352.10~~	~~$359.14~~	~~$366.33~~	~~$373.65~~
~~Local~~	~~$1,765.1~~	~~$1,800.37~~	~~$1,836.38~~	~~$1,873.11~~	~~$1,910.57~~	~~$1,948.78~~
~~State~~	~~$253.1~~	~~$258.18~~	~~$263.35~~	~~$268.61~~	~~$273.99~~	~~$279.46~~
~~Federal~~	~~$1,112.0~~	~~$1,134.21~~	~~$1,156.89~~	~~$1,180.03~~	~~$1,203.63~~	~~$1,227.70~~
~~Total Revenue~~	~~$3,468.6~~	~~$3,538.0~~	~~$3,608.7~~	~~$3,680.9~~	~~$3,754.5~~	~~$3,829.6~~
~~Existing Service~~						
~~Existing Cost~~	~~$3,468.6~~	~~$3,538.0~~	~~$3,608.7~~	~~$3,680.9~~	~~$3,754.5~~	~~$3,829.6~~
~~New Service~~						
~~Cost Constrained (Day)~~	~~$0.0~~	~~-$18.0~~	~~-$24.0~~	~~-$25.0~~	~~-$26.0~~	~~-$27.0~~
~~Cost Constrained (Night)~~	~~$0.0~~	~~$9.0~~	~~$12.0~~	~~$12.5~~	~~$13.0~~	~~$13.5~~
~~Total Cost~~	~~$3,468.6~~	~~$3,529.0~~	~~$3,596.7~~	~~$3,668.4~~	~~$3,741.5~~	~~$3,816.1~~
~~Total Shortfall/Surplus~~	~~$0.0~~	~~$9.0~~	~~$12.0~~	~~$12.5~~	~~$13.0~~	~~$13.5~~

**All values shown as $1,000s*

2018 Operational Costs Table- Grand Forks

	2017	2018	2019	2020	2021	2022
Other	$338.4	$345.20	$372.20	$379.64	$387.24	$394.98
Local	$1,765.1	$1,703.57	$1,615.3	$1,669.7	$1,725.6	$1,783.1
State	$250.0	$210.0	$255.0	$255.0	$255.0	$255.0
Federal	$1,112.0	$1,134.2	$1,155.5	$1,178.6	$1,202.2	$1,226.2
Total Revenue	***$3,465.5***	***$3,393.0***	***$3,398.0***	***$3,483.0***	***$3,570.0***	***$3,659.3***
Cost of Service	*$3,468.6*	*$3,393.0*	*$3,398.0*	*$3,483.0*	*$3,570.0*	*$3,659.3*
Total Shortfall/Surplus	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**

**All Values Shown as $1,000s*

East Grand Forks

Table 10-2 shows the overall operational analysis for the East Grand Forks portion of the TDP for the years 2017 to 2022. For years 2018 and 2019, East Grand Forks can meet anticipated revenue needs to support the Cost Constrained Scenario. Even with the assumption in increased revenues from MnDOT over life the planning horizon, East Grand Forks will run between $135,000 and $150,000 deficit following loss of the one-time MnDOT money. Therefore, Table 10-2 shows the investment in new services ending at the end of 2019. New funds would be needed to operate the Cost Constrained Scenario following the end of the two year MnDOT funding.

2018 Update

Table 10-2 has been updated to reflect the most current cost of service and estimated incoming revenue. MnDOT has committed to increasing the funding to East Grand Forks from MnDOT. Initially, MnDOT was only going to fund the additional service for a two year period. MnDOT is now indicating they will fund the added service for the remaining years as well. With the implementation of the new routes, a new cost allocation model was produced. This allowed for an easier understanding of the division of the cost and fare box revenue.

Table 10-2: East Grand Forks Financial Analysis

	2017	2018	2019	2020	2021	2022
~~Local~~	~~$99.3~~	~~$101.3~~	~~$103.3~~	~~$98.5~~	~~$106.0~~	~~$108.1~~
~~State~~	~~$226.5~~	~~$288.0~~	~~$523.8~~	~~$234.8~~	~~$263.0~~	~~$268.3~~
~~Federal~~	~~$80.6~~	~~$82.2~~	~~$83.9~~	~~$186.7~~	~~$191.0~~	~~$194.8~~
~~Total Revenue~~	~~$406.4~~	~~$471.6~~	~~$711.0~~	~~$520.0~~	~~$560.0~~	~~$571.2~~
~~Existing Service~~						
~~Existing Cost~~	~~$406.4~~	~~$414.6~~	~~$422.8~~	~~$431.0~~	~~$439.7~~	~~$448.4~~
~~New Service~~						
~~Cost Constrained (Day)~~	~~$0.0~~	~~$28.5~~	~~$114.0~~	~~$0.0~~	~~$0.0~~	~~$0.0~~
~~Cost Constrained (Night)~~	~~$0~~	~~$28.5~~	~~$116.0~~	~~$0.0~~	~~$0.0~~	~~$0.0~~
~~Total Cost~~	~~$406.4~~	~~$471.6~~	~~$652.8~~	~~$431.0~~	~~$439.7~~	~~$448.4~~
~~Total Shortfall/Surplus~~	~~$0.0~~	~~$0.0~~	~~$58.2~~	~~$89.0~~	~~$120.3~~	~~$122.8~~

**All values shown as $1,000s*

2018 Operational Costs Table- East Grand Forks

	2017	2018	2019	2020	2021	2022
Local	$99.3	$105.6	$101.2	$103.2	$105.3	$107.5
State	$226.5	$294.0	$448.8	$457.8	$466.9	$476.3
Federal	$80.6	$85.0	$85.0	$86.7	$88.4	$90.2
Total Revenue	***$406.4***	***$484.6***	***$635.0***	***$647.7***	***$660.7***	***$674.0***
Cost of Service	*$406.4*	*$414.6*	*$550.0*	*$563.8*	*$577.8*	*$592.3*
Total Shortfall/Surplus	$0.0	$70.0	$85.0	$84.0	$82.8	$81.7

**All Values Shown as $1,000s*

CAPITAL

Grand Forks

Table 10-3 shows the current projected capital expenditures needed to support the Grand Forks side of the CAT System over the life of this TDP through year 2022.

SHORT-TERM NEEDS

Over the life of the TDP Grand Forks will face an estimated need for $4.0 million in capital funding to meet short-term capital needs. Nearly $1.4 million of these funds are currently programmed, with another $700,000 currently submitted for 2018 Federal funding through NDDOT. The largest chunk of this unfunded need will be four large vehicle replacements in 2022.

LONG-TERM NEEDS

The Grand Forks capital analysis is not inclusive of needed ongoing upgrades and expansion to the CAT Bus Garage. The full expansion and upgrade of the CAT Bus Garage is estimated at $8.0 million. A multi-year funding strategy for this facility is needed, and should consider the potential for a MnDOT share in the eligible portions of the facility.

Based on the Asset Management analysis developed as part of the TDP, it is suggested that an additional $1.25 million in new capital revenues are needed per year to maintain a backlog of roughly 50 percent for the next 15 years. Some of this backlog may already be addressed through capital replacements included in Table 10-3. Given the current split in overall service and revenue miles of the CAT System, approximately 85 percent of this backlog, or $1.062 million would be Grand Forks' burden.

2018 Update

Table 10-3 has been updated to reflect the most current capital investment schedule. In 2018 Grand Forks was awarded 5339 competitive grant funding for the expansion and remodel of the Transit Administration and Maintenance facility for a total cost $4.87 million. This is a one-time funding for a project that this plan could not see being done with current traditional funding sources. CAT had the floor plans redone so that the new cost of the expansion/renovation will be covered by the awarded grant amount. There have been additional 5339 formula funds being solicited for projects. CAT has a list of projects that will start working on the Transit Assets that are need of being brought back into a state of good repair. CAT will use this list to apply for future 5339 formula funds.

Table 10-3: Grand Forks Capital Investment Schedule

Grand Forks							
Item	Status	2017	2018	2019	2020	2021	2022
~~Replace Fixed Route (976)~~	~~Programmed~~	~~$368.0~~					
~~Replace 2 Fixed Route (Replace 31 & 91)~~	~~Programmed~~	~~$416.0~~					
~~Replace 2 DAR Vehicles (Replace 109 & 121)~~	~~Candidate - 5310~~		~~$107.0~~				
~~Replace 3 DAR Vehicles (153-154)~~	~~Illustrative~~				~~$120.0~~		
~~Replace Fixed Route (Replace 42 & 112)~~	~~Programmed~~		~~$480.0~~				
~~Replace 1 Fixed Route (161)~~	~~Illustrative~~					~~$68.0~~	
~~Replace 4 Fixed Route (103-106)~~	~~Illustrative~~						~~$1,600.0~~
~~Misc. Capital + Safety~~	~~Programmed -5307~~	~~$35.0~~	~~$15.0~~	~~$15.0~~	~~$15.0~~	~~$15.0~~	
~~Fixed Route Video System~~	~~Candidate - 5339~~		~~$60.0~~				
~~GFI Ticket Vending Machines~~	~~Candidate 5339~~		~~$38.0~~				
~~Shop Maintenance Software~~	~~Candidate - 5339~~		~~$100.0~~				
~~Ticket Vending Machine~~	~~Illustrative~~			~~$98.0~~			
~~Transit Garage Upgrades~~	~~Candidate 5339~~		~~$387.0~~				
~~Replace Shop Vehicles (2)~~	~~Illustrative~~			~~$64.7~~			
~~Grand Cities Mall Shelter Improvements~~	~~Illustrative~~			~~$100.0~~			
~~Programmed~~		~~$819.0~~	~~$495.0~~	~~$15.0~~	~~$15.0~~	~~$15.0~~	~~$0.0~~
~~Illustrative/Candidate~~		~~$0.0~~	~~$692.0~~	~~$262.7~~	~~$120.0~~	~~$68.0~~	~~$1,600.0~~
~~Total - Grand Forks~~		~~$819.0~~	~~$1,187.0~~	~~$277.7~~	~~$135.0~~	~~$83.0~~	~~$1,600.0~~

**All values shown as $1,000s*

2018 Capital Investment Schedule- Grand Forks

Grand Forks							
Item	**Status**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Fixed Route Vehicles	Programmed	$784.0	$480.0	$490.0			
Paratransit Vehicles	Programmed		$107.0	$110.0			
Safety & Security	Programmed -5307	$35.0	$15.0	$15.0	$15.0	$15.0	$15.0
Fixed Route Video System	Programmed		$60.0				
Shop Mtce. Software	Programmed		$100.0				
Shop Tools/Equipment	Programmed			$16.0			
Digital Way Signs	Programmed			$25.0			
Destination Signs	Programmed			$20.0			
Transit Admin/Garage Upgrades	Programmed		$387.0	$4,784.4			
Bus Stops/Buildings Improvements/Maintenance	Programmed			$10.0			
Paratransit Vehicles	Candidate - 5310/Illustrative				$160.0		$80.0
Fixed Route Vehicles- Replacement	Candidate - 5339/Illustrative					$1,060.0	$1,250.0
Fixed Route Vehicles- Expansion	Candidate- 5339/Illustrative			$1,521.0			

Non-Revenue Vehicles	Candidate - 5339/Illustrative			$63.0		$30.0	
Capitalized Vehicle Maintenance	Candidate - 5339/Illustrative				$80.0		
Shop Tools/Equipment	Candidate - 5339/Illustrative			$20.0		$80.0	
Bus Fare Boxes	Candidate - 5339/Illustrative			$200.0			
Fare Collection Vault/Software & Servers	Candidate - 5339/Illustrative			$106.3			
Transit Admin/Garage Upgrades	Candidate - 5339/Illustrative			$150.0			
Bus Stops/Buildings Improvements/Maintenance	Candidate - 5339/Illustrative			$186.0	$20.0	$45.0	$20.0
Programmed		*$819.0*	*$1,149.0*	*$5,470.4*	*$15.0*	*$15.0*	*$15.0*
Candidate/Illustrative		*$0.0*	*$0.0*	*$2,246.3*	*$260.0*	*$1,215.0*	*$1,350.0*
Total - Grand Forks		**$819.0**	**$1,149.0**	**$7,716.7**	**$275.0**	**$1,230.0**	**$1,365.0**

**All Values Shown as $1,000s*

East Grand Forks

Table 10-4 shows the current projected capital expenditures needed to support the East Grand Forks side of the CAT System over the life of this TDP through year 2022.

SHORT-TERM NEEDS

Over the life of the current TDP, East Grand Forks has a total capital need of $1.23 million. Of this amount, $610,000 is currently programmed. The unfunded elements of the East Grand Forks capital analysis relate to vehicle needs in 2021 for replacement of vehicles 142 and 162.

LONG TERM NEEDS

The East Grand Forks capital analysis is not inclusive of needed ongoing upgrades and expansion to the CAT Bus Garage. Based on current services provided by CAT, MnDOT may potentially consider funding some portion of this facility. These discussions should be included in future investment planning for upgrade and expansion of the CAT Bus Garage.

The East Grand Forks capital analysis is not reflective of the needed additional investments to maintain a state of good repair. Based on the earlier discussion of the Asset Management analysis for CAT, an additional $187,000 in revenue is needed from East Grand Forks to maintain their proportional share (based on percent of system revenue miles) of the current CAT capital infrastructure.

2018 Update

Table 10-3 has been updated to reflect the most current capital investment schedule. This reflects the change in year when a bus replacement will happen. There has been added card/ticket vending machines to help the system improve the ability for customers to access new fare cards or reload current ones.

Table 10-4: East Grand Forks Capital Investment Schedule

East Grand Forks							
Item	Status	2017	2018	2019	2020	2021	2022
~~Replace DAR Vehicle (Replace 141 w/cutaway)~~	~~Programmed~~		~~$150.0~~				
~~Replace DAR Vehicle (142)~~	~~Illustrative~~					~~$220.0~~	
~~Replace 1 Fixed Route (162)~~	~~Illustrative~~					~~$400.0~~	
~~Expansion Fixed Route (MnDOT 100% $)~~	~~Programmed~~		~~$460.0~~				
~~Programmed~~	-	~~$0.0~~	~~$610.0~~	~~$0.0~~	~~$0.0~~	~~$0.0~~	~~$0.0~~
~~Illustrative/Candidate~~	-	~~$0.0~~	~~$0.0~~	~~$0.0~~	~~$0.0~~	~~$620.0~~	~~$0.0~~
~~Subtotal - East Grand Forks~~	-	~~$0.0~~	~~$610.0~~	~~$0.0~~	~~$0.0~~	~~$620.0~~	~~$0.0~~

**All values shown as $1,000s*

2018 Capital Cost Investment Schedule- East Grand Forks

East Grand Forks							
Item	**Status**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Paratransit Vehicle	Programmed		$150.0				$170.0
Fixed Route Vehicles	Programmed					$170.0	
Safety & Security	Programmed		$3.8				
Ticket Vending Equipment	Programmed			$220.0			
Bus Stops/Buildings Improvements/Maintenance	Programmed				$200.0		
Card Vending Equipment	Programmed						$250.0
Expansion Fixed Route (MnDOT 100% $)	Programmed		$460.0				
Programmed		**$0.0**	**$613.8**	**$220.0**	**$200.0**	**$170.0**	**$420.0**
Illustrative/Candidate		$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Subtotal - East Grand Forks		**$0.0**	**$613.8**	**$220.0**	**$200.0**	**$170.0**	**$420.0**

**All Values Shown as $1,000s*