City of Mankato

Leading the way...

Transit Development Plan

October 2023

Contents

Information contained in this document is for planning purposes and should not be used for final design of any project. All results and commentary contained herein are based on limited data and information and on existing conditions that are subject to change.

Acknowledgments

This Transit Development Plan is shaped by many voices, community input from transit users, institutions, businesses, social support agencies and community partners. This Plan represents a strategy for how the Mankato Transit System can modify services to better serve the community, within the fiscal constraints it operates.

To the Mankato community and all those who participated in this effort – Thank You.

Special thanks to the MTS Operators for their participation and for all they do to serve the community day to day.

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- Mankato Transit System staff and operators

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Executive Summary

Introduction

This update of the Mankato Transit System's Transit Development Plan (TDP) outlines a vision for the future of public transit in the Cities of Mankato and North Mankato. The plan builds on the goals, objectives, and transit system design guidelines established in the 2018 TDP. It makes recommendations for service changes to the fixed-route and Kato Flex systems, and a phased implementation of capital improvements and service changes, based on a comprehensive analysis of existing service performance and cost, community and stakeholder needs, and transit market analysis, with a focus on increasing service equity and access and cost effectiveness. The service change recommendations are designed to help ensure that MTS is a reliable, accessible, and affordable transportation option for all residents of Mankato and North Mankato.

Research Approach

This report is broken into three parts that reflect the three phases of study – research and analysis, goals, vision and financial capacity, and development of recommendations, that we are calling: where we are today, where do we want to go, and how do we get there.

Where we are today?

- This TDP conducted a comprehensive analysis of existing service modes (Citywide, University, Kato Flex, and Mobility Bus) to understand how the service is delivered every day and throughout the year, how many resources are required, whether it meets the needs of the residents of Mankato and North Mankato and the students of Minnesota State University – Mankato (MNSU), and whether resources are distributed in an equitable manner across service modes and across the service area.
- The feedback received from stakeholders and the community pointed to a general lack of service in the evenings and on weekends, not enough frequency of service, lack of bus stops along many important corridors and destinations, lack of amenities and safety-related issues at bus stops, and general difficulty of use because of limited service hours, access points, and route variations throughout the week and the year.
- A review of peer transit agencies shows that the MTS service offers a lower level of service than its peers, operating fewer hours of service per capita, and that it is spending more to transport each passenger than its peers. The system needs to attract more ridership to be effective.
- Even though the system's ridership has been rebounding from the pandemic, this is largely influenced by a rebound of activity at the MNSU-Mankato campus. The system has evolved over time to focus on the needs of students, while the service area has kept growing and increasing pressure on the fixed-route network to expand and cover more territory.
- This has resulted in a fixed-route network that although covers a lot of territory on the map, it cannot provide sufficient service hours to meet the needs of residents – particularly low-income residents, to travel to employment, service, and shopping opportunities in the periphery of the service area, as it is shown in the employment density and population density maps below.

Figure ES-1. Mankato Area Employment Density and Weekday Fixed-Route Service Network

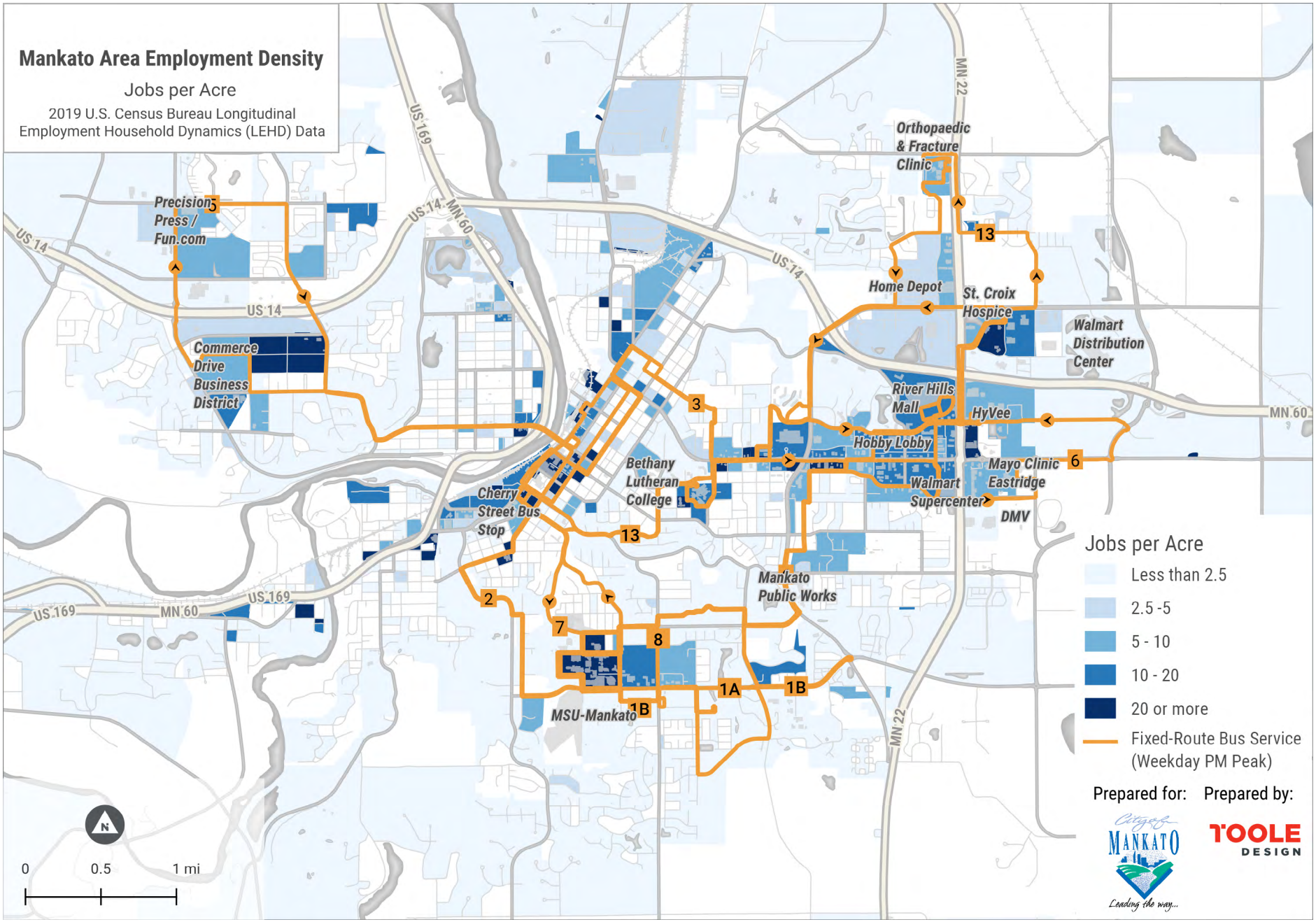
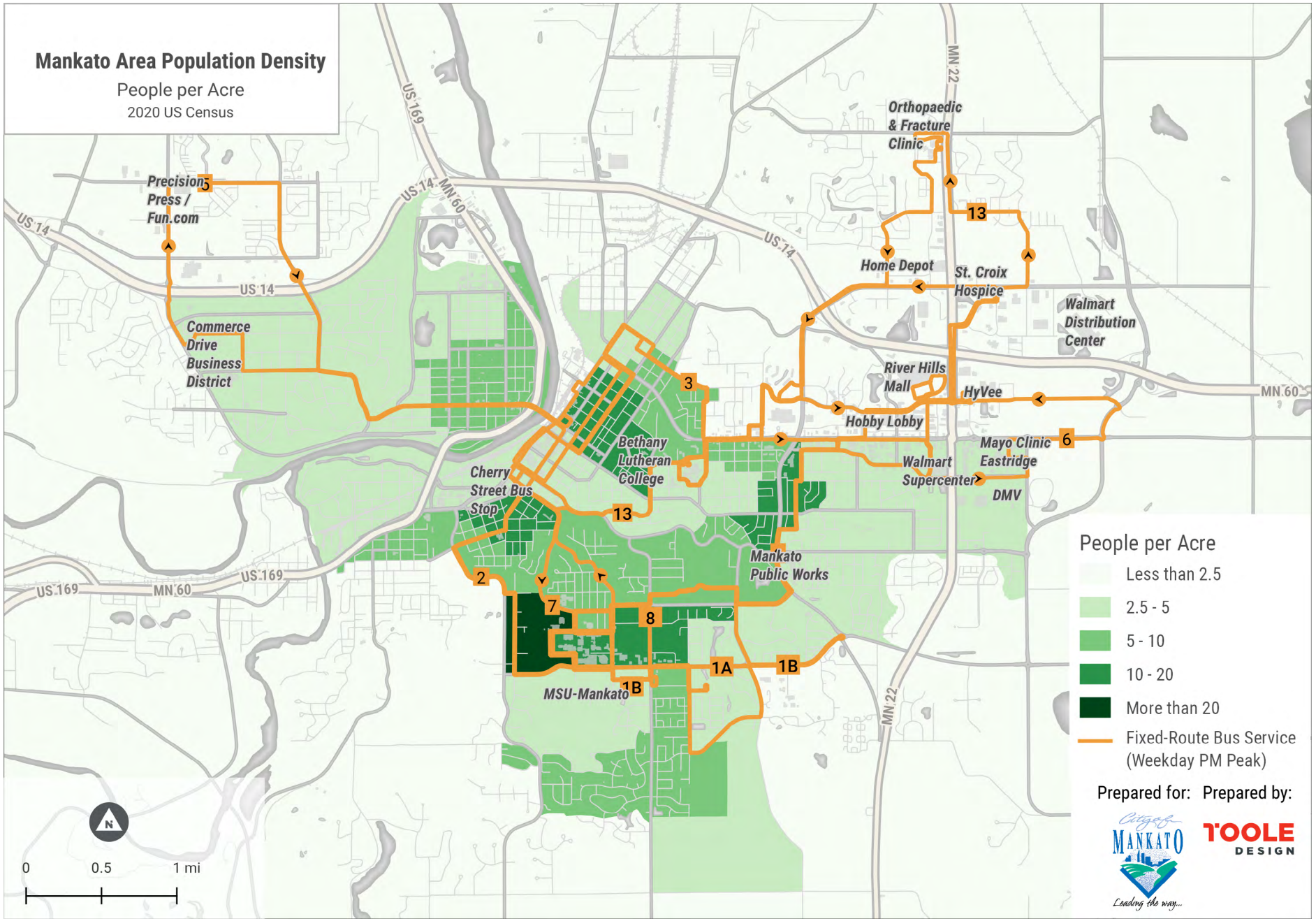


Figure ES-2. Mankato Area Population Density and Weekday Fixed-Route Service Network



Where do we want to go?

- The TDP explored the demographic and socio-economic characteristics of the service area to analyze current transit markets, explored origin-destination travel patterns, and land use and development density along major corridors, to identify opportunities to grow ridership in the system, provide transit supportive development along major travel corridors, and increase access to service.
- On the map, the current MTS fixed-route transit service network runs through the areas with the highest concentrations of population, employment, and special disadvantaged groups – low-income households, minority populations, and seniors, and most residential neighborhoods that are not served by the fixed-route network are served via Kato Flex.
- However, the service hours and frequency of service provided, the lack of access points (bus stops) along long stretches of routes, and operational characteristics of routes (many providing indirect travel paths via long loops), reduce the attractiveness and usability of service.
- To make the service more attractive and easier to use MTS needs to provide an effective route network that covers areas of highest need, and it needs to provide sufficient service hours and frequency of service to meet the largest travel demand patterns through the week. This requires making capital and service improvements to the system in addition to changing how service is distributed across service modes and routes.
- The TDP conducted a detailed analysis of the financial position of MTS for the next five years, forecasting future revenue and costs to understand whether MTS can expand service hours or maintain them. The main finding of this analysis was that MTS cannot increase service hours unless it can get increased funding from existing sources or new funding sources.

Figure ES-3. Baseline Five-Year Forecast of Operating Expenses and Revenue

	Current	Forecast				
	2023	2024	2025	2026	2027	2028
Operating Expenses (Baseline Scenario)						
Bus Service	$4,277,000	$4,491,000	$4,671,000	$4,811,000	$4,907,000	$5,005,000
Projected Fixed Route	$3,610,000	$3,791,000	$3,942,000	$4,061,000	$4,142,000	$4,225,000
Projected Flex	$667,000	$701,000	$729,000	$751,000	$766,000	$781,000
Paratransit Service	$1,422,000	$1,493,000	$1,553,000	$1,599,000	$1,631,000	$1,664,000
Expenses Total	**$5,699,000**	**$5,984,000**	**$6,224,000**	**$6,410,000**	**$6,539,000**	**$6,669,000**
Operating Revenues (Baseline Scenario)						
Federal and State Operating Subsidies						
Bus (5307 + MnDOT) Subsidy	$3,422,000	$3,593,000	$3,737,000	$3,849,000	$3,926,000	$4,004,000
Paratransit (MnDOT) Subsidy	$1,209,000	$1,269,000	$1,320,000	$1,359,000	$1,387,000	$1,414,000
Local Funding						
City of North Mankato	$126,000	$132,000	$138,000	$142,000	$144,000	$147,000
City of Mankato Tax Levy	$415,000	$415,000	$415,000	$415,000	$415,000	$415,000
Farebox Revenue						
Fares	$126,000	$130,000	$135,000	$140,000	$145,000	$150,000
MNSU Contribution	$556,000	$556,000	$556,000	$556,000	$556,000	$556,000
Non Farebox Revenue	$48,000	$48,000	$48,000	$48,000	$48,000	$48,000
Revenue Total	**$5,902,000**	**$6,143,000**	**$6,348,000**	**$6,509,000**	**$6,621,000**	**$6,735,000**
Net Operating Revenue (Revenues-Expenses)	**$202,000**	**$159,000**	**$124,000**	**$99,000**	**$82,000**	**$66,000**

How do we get there?

- The TDP identified service goals and network design principles to guide development of service change scenarios. Goals were developed in consideration of the last TDP, stakeholder and community feedback, and the technical analyses. Network design principles were developed in consideration of opportunities and tradeoffs, weighing the benefits and costs to a given change. This TDP proposes two service change scenarios: the Fiscally Constrained Scenario and the Illustrative Future Scenario.
- The Fiscally Constrained Scenario keeps the operating expenses of the transit system stable and maintains about the same amount of revenue service hours (within 1% of annual vehicle revenue hours). It assumes that resources continue at the same level they are today, but they are redistributed to meet revised service goals.
- The Illustrative Future Scenario imagines an increase in operating funding and resources. It assumes that resources are more than they are today (a 33% increase in vehicle revenue hours) and that they are applied to meet the new service goals.
- The Fiscally Constrained and Illustrative Future scenarios were evaluated to assess the impacts of the service changes on access to people and jobs, and also to disadvantaged population groups such as people of color, and people with low incomes. Both proposed service scenarios would provide consistent service levels throughout the week and the year and significantly increase access to more people and employment opportunities, especially during weekday evenings and weekends.
- A Service Implementation Plan was created to prioritize and stage the investments recommended in the Transit Development Plan. The service implementation plan outlines service change and activities in a phased manner through: Immediate Actions (within 1-3 years), Medium-Term Actions (within 5 years) and Long-Term Actions (within 10 years).

Service Recommendations

The TDP recommends service changes and improvements to address these findings. These include:

Increased frequency and reliability of fixed-route service

Fiscally Constrained Scenario

- Service hours extended to 8:30 pm M-F, 7:30 pm Sat, and 6:30 pm Sun
- All-day 30-minute service on Route 5 to North Mankato, Mon-Sat
- Route 2 stays as overlay to Route 6 providing a combined 30-minute frequency between downtown and MNSU
- New service to Sibley Park neighborhood
- Year-round connections for MNSU & South-Central students throughout the urban area

Illustrative Future Scenario

- Extend Sunday service to 7:30 pm, add Sunday service on Routes 5 and 13, and add Sat & Sun service on Route 1B
- 30-minute service on Routes 3, 5, and 6. No need for Route 2 overlay
- New fixed-route service to lower North Mankato, Germania Park, and southeast Mankato
- More neighborhoods in central part of urban area served with fixed-route and fewer with Kato Flex
- Kato Flex service in remaining areas extended to Sat & Sun

Figure ES-4. Proposed Service under Fiscally Constrained Scenario

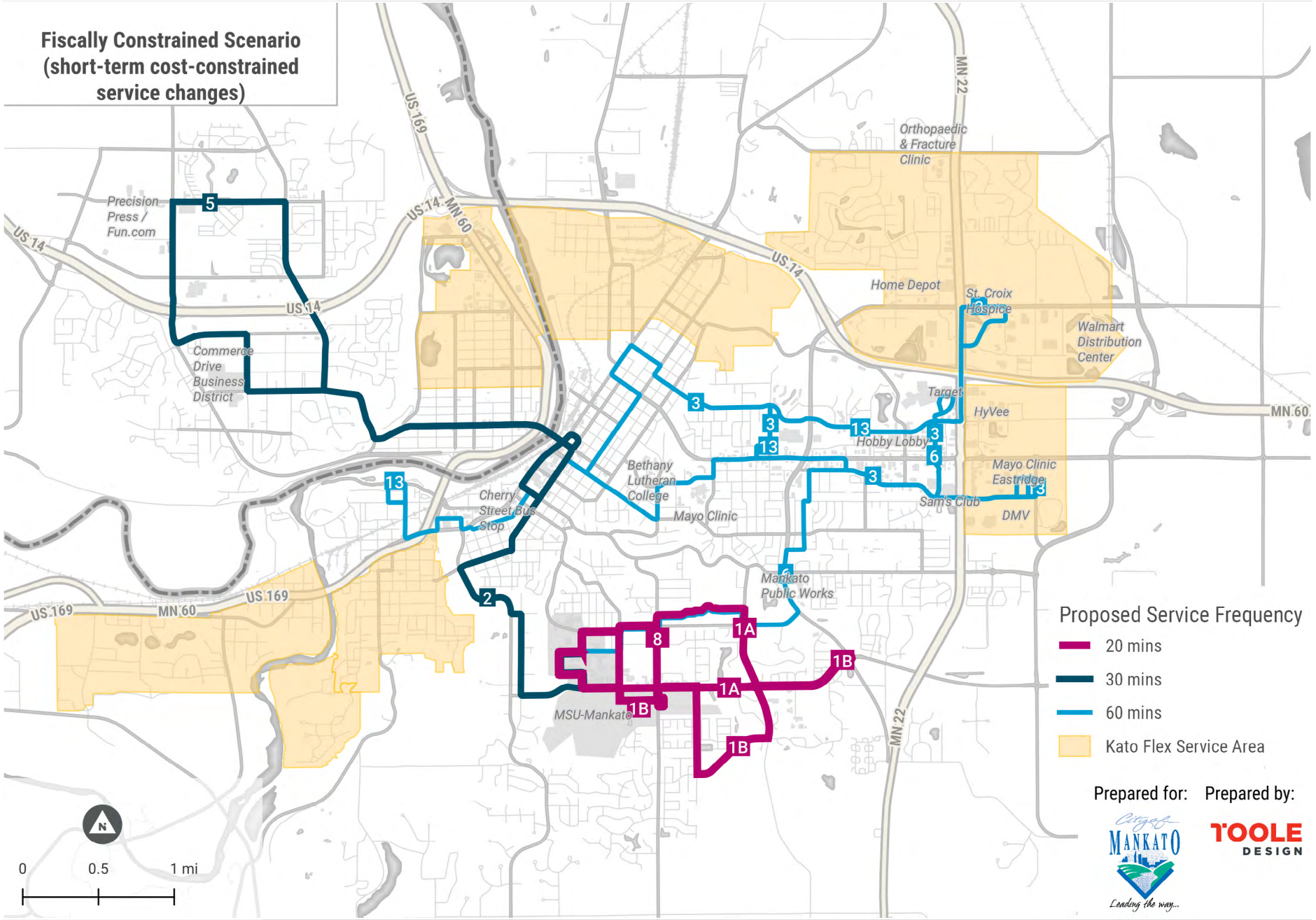
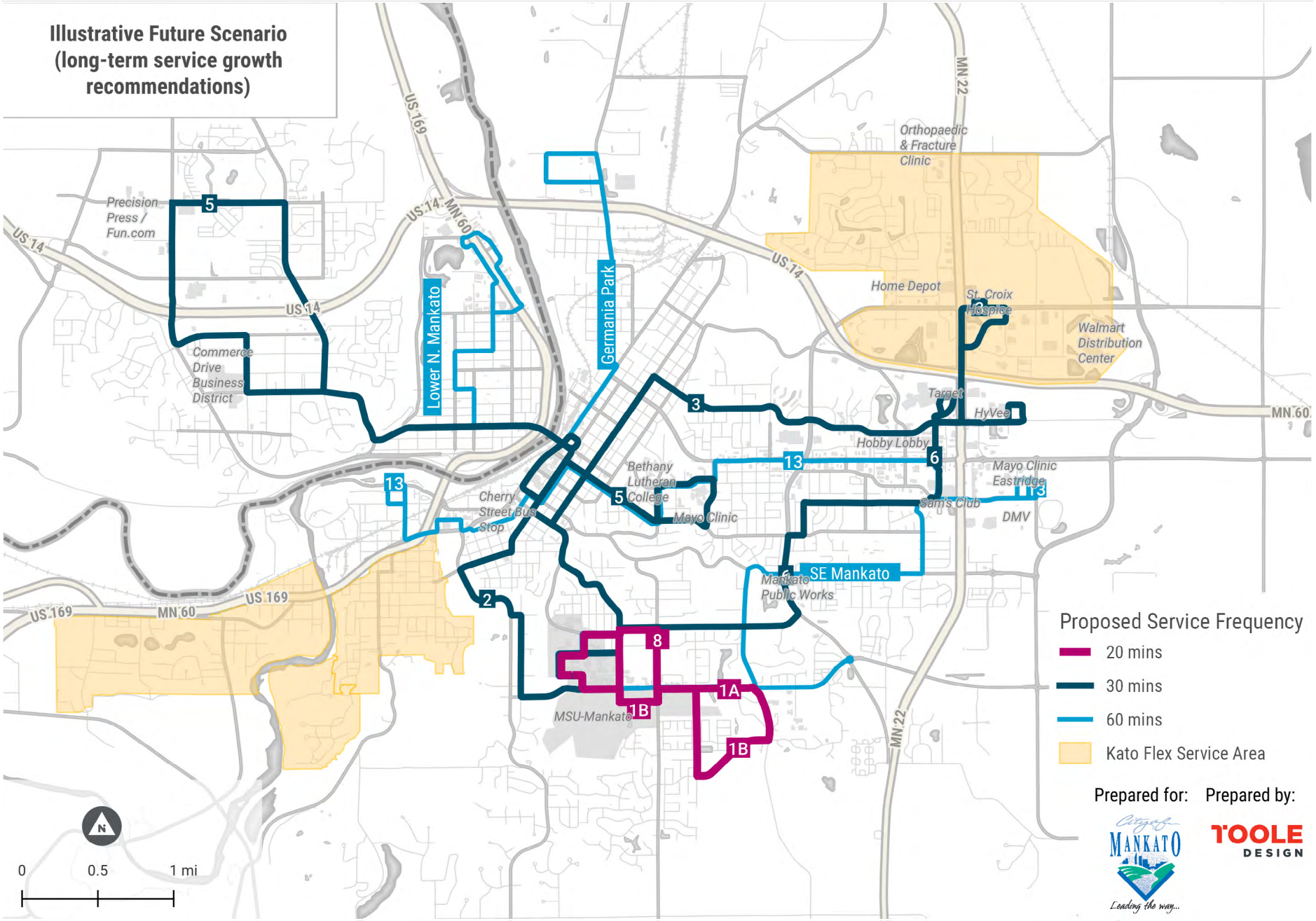


Figure ES-5. Proposed Service under Illustrative Future Scenario



Investments in transit infrastructure and access

- Add new bus stop signs, benches, and shelters
- Identify and improve bus stop access and infrastructure along key service corridors
- Create new bus stop spacing policy
- Create minimum bus stop design standards that include ADA accessibility

Improved marketing and outreach

- Provide unified branding online, in print, and all physical signage materials, including buses, stops, maps, schedules, and apps
- Engage with the public before any service changes

Service Implementation

These service changes and improvements will be implemented in a phased manner as follows:

Immediate Actions (0-1 years)

1. Conduct engagement for proposed service changes and develop a detail service change plan
2. Implement fixed-route service changes along the parameters of the fiscally constrained scenario
3. Implement changes to Kato Flex –service area, operations, and fare integration with fixed-route
4. Publish GTFS-RT data on the web to facilitate trip planning through common transit apps
5. Complete current bus stop improvement plan and develop a phased bus stop improvement plan for the new system
6. Implement temporary bus stops across new system to increase legibility and access of system (route signage and branding)

Medium Term (1-5 years)

1. Implement phase two of bus stop improvement plan
2. Conduct a fare study to assess fare structure, fare payment media, and supporting systems to ensure fairness and equity
3. Pursue additional funds to grow service
4. Increase frequency on Routes 3 and 6 to every 30 minutes
5. Provide Sat & Sun service on Kato Flex

Long Term (5-10 years)

1. Acquire new buses and equipment, according to fleet replacement schedule and asset management plan
2. Implement third phase of bus stop improvement plan to complete upgrade of system
3. Implement recommendations of fare study
4. Pursue additional funding and implement new fixed-route service, according to Illustrative Future scenario
5. Conduct a comprehensive review of system (2028-2033 TDP)

Conclusion

The updated Mankato Transit Development Plan is a roadmap for the future of public transit in Mankato. Overall, the two recommended service scenarios represent a balancing of the priorities of the community with financial and operational considerations. The TDP's recommendations will help to ensure that MTS is meeting the needs of the community and providing a vital transportation option for residents, students, and visitors alike.

Where We Are

Goals, Objectives, and Transit System Design Guidelines

The 2018 TDP provided a comprehensive update to the goals, objectives, and transit system design guidelines for the Mankato Transit System (MTS). The Goals below reflect the community's vision for a future transit system and were developed in consideration of goals from the Mankato/North Mankato Area Planning Organization (MAPO) Long-Range Transportation Plan (LRTP), Greater Minnesota Transit Investment Plan, peer transit agencies, federal legislation, and Title VI requirements.

Goal 1. Access and Reliability

Develop a transportation system that increases access and reliability options for all users.

- **Objective 1:** Maintain or increase service frequency
- **Objective 2:** Extend service hours further into the evening
- **Objective 3:** Improve service for New Americans and community members with low incomes
- **Objective 4:** Improve service for youth younger than 18 years old
- **Objective 5:** Increase system ridership each year

DESIGN GUIDELINES AND LEVELS

- Frequency and service hours:
  - Minimum frequency of 60 minutes on all routes, every day
  - Minimum span of service of 12 hours on all routes, every day
  - Service frequency of 30 minutes on "core network" routes, every day
  - Minimum span of service of 15 hours on "core network" routes, every day
- Increase system ridership by 3% each year
- On-time performance: 90% or greater

Goal 2. Economic Vitality

Maintain a transit system that promotes economic growth throughout the planning area.

- **Objective 1:** Provide service within ¼ mile of local commercial activity centers, educational institutions, and other major destinations that provide safe walking access to streets that are safe for the operation of fixed-route transit service
- **Objective 2:** Increase access to jobs, educational opportunities, and housing, with an emphasis on jobs, education, and housing for people that belong to minority groups and people with low- to moderate-incomes.
- **Objective 3:** Promote safe access to and convenient location of transit stops in the design phase of small area plans, master-planned developments, and site plans.

DESIGN GUIDELINES AND LEVELS

- Consider using the Greater Minnesota Transit Investment Plan's Population and Employment density guidelines:
  - Bus every 30 minutes: 12-22 households and/or 10+ employees per acre
  - Bus every 60 minutes: 7-12 households and/or 5-10 employees per acre
- Service availability:
  - 75% of service area population within ¼ mile of routes
  - 80% of affordable housing within ¼ mile of routes
  - 90% of major activity centers within ¼ mile of routes

Goal 3. Safety

Develop and maintain a transit system that promotes safety and mitigates risk.

- **Objective 1:** Promote safety through the agency safety plan and training.
- **Objective 2:** Include safety tips for riding the bus in marketing and educational outreach materials.
- **Objective 3:** Ensure safe waiting areas for passengers by providing transit-supportive infrastructure (e.g., lighting, benches, and/or shelters) at major stops.

DESIGN GUIDELINES AND LEVELS

- Crashes per 100,000 revenue miles: 0.4
- Shelters at stops with at least 20 boardings per day or major transfer points
- Benches at bus stops with 15 or more daily boardings
- Lighting at bus stops with 15 or more daily boardings

Goal 4. Preservation

Manage assets in a sustainable manner within the constraints of financial resources.

- **Objective 1:** Update the Transit Asset Management plan every 4 years.

DESIGN GUIDELINES AND LEVELS

- Fleet condition: At least 80% of all regular fleet available for operations
- Spare Ratio: Ratio of spare vehicles to fleet vehicles is less than 20%
- Equipment: 50% of non-revenue vehicles meet or exceed useful life
- Rolling Stock: 20% of revenue vehicles meet or exceed useful life
- Facilities: 50% of facilities adequate or better

Goal 5. Multimodal Transportation

Develop and maintain a multimodal transportation system that offers viable connectivity aligning with public health initiatives and land use plans.

- **Objective 1:** Connect to other local and regional transit services (e.g., True Transit)
- **Objective 2:** Provide bicycle parking at transit centers and major bus stops
- **Objective 3:** Provide ADA compliant pedestrian access routes at bus stops
- **Objective 4:** Support other last-mile connectivity options (e.g., transportation network companies)

DESIGN GUIDELINES AND LEVELS

- Bicycle parking at transit stops with 20 or more boardings per day
- Bicycle racks on all Fixed-Route and Kato-Flex vehicles
- Bus stop area connected to ADA compliant sidewalks or protected pedestrian path at least ¼ mile away from bus stop

Goal 6: Education

Educate the Mankato area on how to ride the transit system and the benefits of transit.

- **Objective 1:** Create how to ride materials, videos, and frequently asked questions
- **Objective 2:** Host travel training sessions at schools, senior living facilities, and community events
- **Objective 3:** Advertise travel training on the MTS website
- **Objective 4:** Collaborate with major employers to advertise and educate their employees directly

DESIGN GUIDELINES AND LEVELS

- None listed.

Goal 7. Environmental Conservation and Sustainability

Support transportation improvements that promote energy conservation to improve community quality of life, health, and character.

- **Objective 1:** Reduce CO2 emissions
- **Objective 2:** Integrate MTS into development of quality-of-life initiatives in the Mankato area

DESIGN GUIDELINES AND LEVELS

- Implement CO2 emission reduction technologies in the next five years.
- Evaluate the advancements in alternative fuel technologies in the next five years.

Goal 8. Funding and Implementation

- **Objective 1:** Maintain fixed-route service at less than $10.00 operating costs per passenger
- **Objective 2:** Promote cost efficiency by maintaining or increasing the system's farebox recovery ratio
- **Objective 3:** Promote cost efficiency by serving the areas of greatest residential density and need and avoid operating along roads and streets that do not provide direct access to land use destinations
- **Objective 4:** Monitor and reduce operating costs per passenger.

DESIGN GUIDELINES AND LEVELS

- **Passengers per revenue hour:**
  - Fixed-Route: Greater than 15
  - Kato Flex: Greater than 3
  - Paratransit: Greater than 2
- **Passengers per revenue mile:**
  - Fixed-Route: Greater than 2
- **Farebox recovery:**
  - Fixed-Route: Greater than 20%
  - Kato-Flex: Greater than 4%
  - Mobility Bus: Greater than 6%

Goal 9. Security

Increase security of the transportation system for motorized and non-motorized users in preparedness for emergency events and natural disasters.

- **Objective 1:** Coordinate with the County on its Emergency Event and Natural Disasters Plan
- **Objective 2:** Develop a security plan approved by a Transportation Security Agency
- **Objective 3:** Maintain or improve customer satisfaction regarding perceptions of safety and security

DESIGN GUIDELINES AND LEVELS

- None listed

Goal 10. System Management

Promote efficient system management and operations while increasing collaboration among businesses, community and industry groups, and federal, state, and local governments to better target investments and improve accountability.

- **Objective 1:**Establish service standards for each mode regarding vehicle loads, vehicle headways, on-time performance, and service availability, as required by Title VI.
- **Objective 2:** Establish systemwide service policies for transit amenities and vehicle assignment by mode, as required by Title VI.
- **Objective 3:** Annually review Title VI and the Greater Minnesota Transit Investment Plan performance indicators and related processes to ensure consistency with all requirements.

DESIGN GUIDELINES AND LEVELS

- **Service standards:**
  - Vehicle load standard: 1.2
  - Vehicle headway standard
    - Weekday: 30 minutes
    - Weekend: 60 minutes
  - On-time performance standard: 90%
  - Service availability standard: 75% of population within ¼ mile of routes

- **Service Policies:**
  - Transit amenities standards:
    - Shelters at stops with at least 20 boardings per day or major transfer points
    - Benches at bus stops with 15 or more daily boardings
    - Lighting at bus stops with 15 or more daily boardings
  - Vehicle assignment standard: Vehicles with greater capacity will be assigned to routes with the greater ridership

Service Performance Review

The MTS serves 26 square miles and a population of approximately 60,000 people in Mankato, North Mankato, Skyline, and South Bend Township. MTS service provides residents and visitors access to major activity and employment centers, including the Taylor Corporation, Mayo Clinic Health System, and the Minnesota State University's Mankato Campus (MNSU-Mankato). Since the 2018 Transit Development Plan, the MTS service area has changed to include outlying neighborhoods beyond the fixed-route network with the introduction of Kato Flex in 2019. As of March 2023, MTS operates 17 fixed-route bus lines, Kato Flex service in 9 different zones, and ADA paratransit service (Mobility Bus).

Service Modes

MTS operates three service modes – Fixed-Route bus service, Kato Flex and Mobility Bus

- **Fixed-Route –** Fixed-route service is the backbone of MTS's services and includes itywide and University service. Citywide service continues throughout the year while University service operates primarily during the MNSU Mankato academic year to connect staff, students, and faculty from off-campus locations to the center of campus.
- **Kato Flex –** Kato Flex is a shared ride, curb-to-curb service for individuals residing in areas where there is no fixed-route bus service. Kato Flex serves areas of North Mankato, Eagle Lake, Skyline, and the western and northern edge of the City of Mankato including Germania Park, LeHillier, Sibley Park, Tourtellotte Park and West Mankato neighborhoods.
- **Mobility Bus –** The Mobility Bus Service of the Mankato Transit System is a shared ride, origin-to-destination ADA complimentary service for eligible individuals with disabilities. This service serves as a "safety net" for individuals who, because of their disabilities, are unable to use fixed-route services.

NO CITY BUS SERVICE (2022 DATES)

New Year's Day - January 1

Easter Day - April 17

Memorial Day - May 30

Independence Day - July 4

Labor Day - September 5

Thanksgiving Day - November 24

Christmas Day - December 25

NO CAMPUS BUS SERVICE

Martin Luther King, Jr. Day - January 17

Friday After Thanksgiving - November 25

NO OFF-CAMPUS AND CAMPUS CIRCULATOR

Spring Break – March 7 - March 11

Fixed-Route

Fixed-route service is the backbone of MTS's services and includes Citywide and University. Citywide service continues throughout the year while University service operates primarily during the MNSU Mankato academic year to connect staff, students, and faculty from off-campus locations to the center of campus. The two types of fixed-route service operate on 17 routes that span as far north as Carlson Drive and Rolling Green Lane in North Mankato and as far south as the southernmost neighborhoods in the City of Mankato. Mankato State University (MNSU) service contributes a large portion of the system's riders, so MTS offers a different route system during the academic and summer season.

Most MTS routes operate Monday through Friday to bring residents and visitors in and out of the downtown and MNSU areas. **Citywide routes primarily operate five days a week, driven by the standard work week, while MNSU routes primarily operate four days a week**, reflecting student schedules where classes are primarily from Monday to Thursday.

MTS's 17 routes have more than five different configurations of hours of operation, but service is primarily provided between the hours of 6:00 AM to 6:00 PM. For example, three routes run 6:35 AM – 5:35 PM while another six routes run 7:00 AM – 6:00 PM. Routes 7, 10, and 11 start service in the 10:00 AM hour. PM service is MTS's

peak service when the most routes are operating in the system. There is one route (Route 5) that operates only peak-hour service (AM and PM) with a pause at midday. **Evening and late-night service, defined here as after 6:00 PM, is relatively sparse and primarily services the university area, student housing communities, and downtown Mankato.** Tables 1 and 2, and Figures 1 through 3 display the variability in route service.

MTS provides very limited weekend service with just three routes in operation including Routes 10, 11, and the Stomper Express during the academic season. As the two longest routes in the system, Routes 10 and 11 extend over 15-mile loops that essentially combine three weekday routes (Routes 2, 3 and 6). Their length serves to reach many of the key destinations in Mankato including MNSU, downtown Mankato, Mayo Clinic Health System Campus, River Hills Mall, and Mankato Heights Plaza. Route 10, which connects university destinations such as the Student Union to commercial destinations such as Walmart and River Hills Mall, is the only route that operates on Sunday. Because weekend service is limited, residents of Mankato are unlikely to be able to rely on MTS as their only transportation mode. Additionally, the wide variety of time-of-day service has the potential to confuse customers, especially those who are less connected to the Internet or those that do not own a smartphone.

Table 1. MTS Service by Season, Day of Week, and Time of day

Route	Service Type	Days Per Week	Time of Day
Route 2	Citywide Service	Monday - Friday	6:35 AM – 5:35 PM
Route 3		Monday - Friday	6:35 AM – 5:35 PM
Route 5		Monday - Friday	6:05- 8:35 AM, 3:05 - 5:05 PM
Route 6		Monday - Friday	6:33 AM – 5:55 PM
Route 7		Monday - Friday	10:00 AM – 10:00 PM
Route 10		Saturday – Sunday	10:00 AM – 5:00 PM (4:00 PM Sunday)
Route 11		Saturday	10:30 AM – 5:30 PM
Route 13		Monday - Friday	6:35 AM – 5:35 PM
Route 8 (MNSU)	University Service (academic season)	Monday - Friday	7:00 AM - 6:00 PM
Route 9 (MNSU)		Monday - Friday	7:00 AM - 10:00 AM
Route 12 (MNSU)		Monday - Thursday	6:02 PM - 10:00 PM
1A North (MNSU)		Monday - Thursday	7:00 AM - 6:00 PM
1A South (MNSU)		Monday - Thursday	7:00 AM - 6:00 PM
1B North (MNSU)		Monday - Friday	7:00 AM - 6:00 PM
1B South (MNSU)		Monday - Thursday	7:00 AM - 6:00 PM
Campus Express (MNSU)		Monday - Friday	6:00 PM - 10:00 PM M-Thu 7:00 AM - 6:00 PM Fri
Stomper Express (MNSU)		Monday - Saturday	6:00 PM - 11:00 PM

Figure 1. Fixed-Route Service

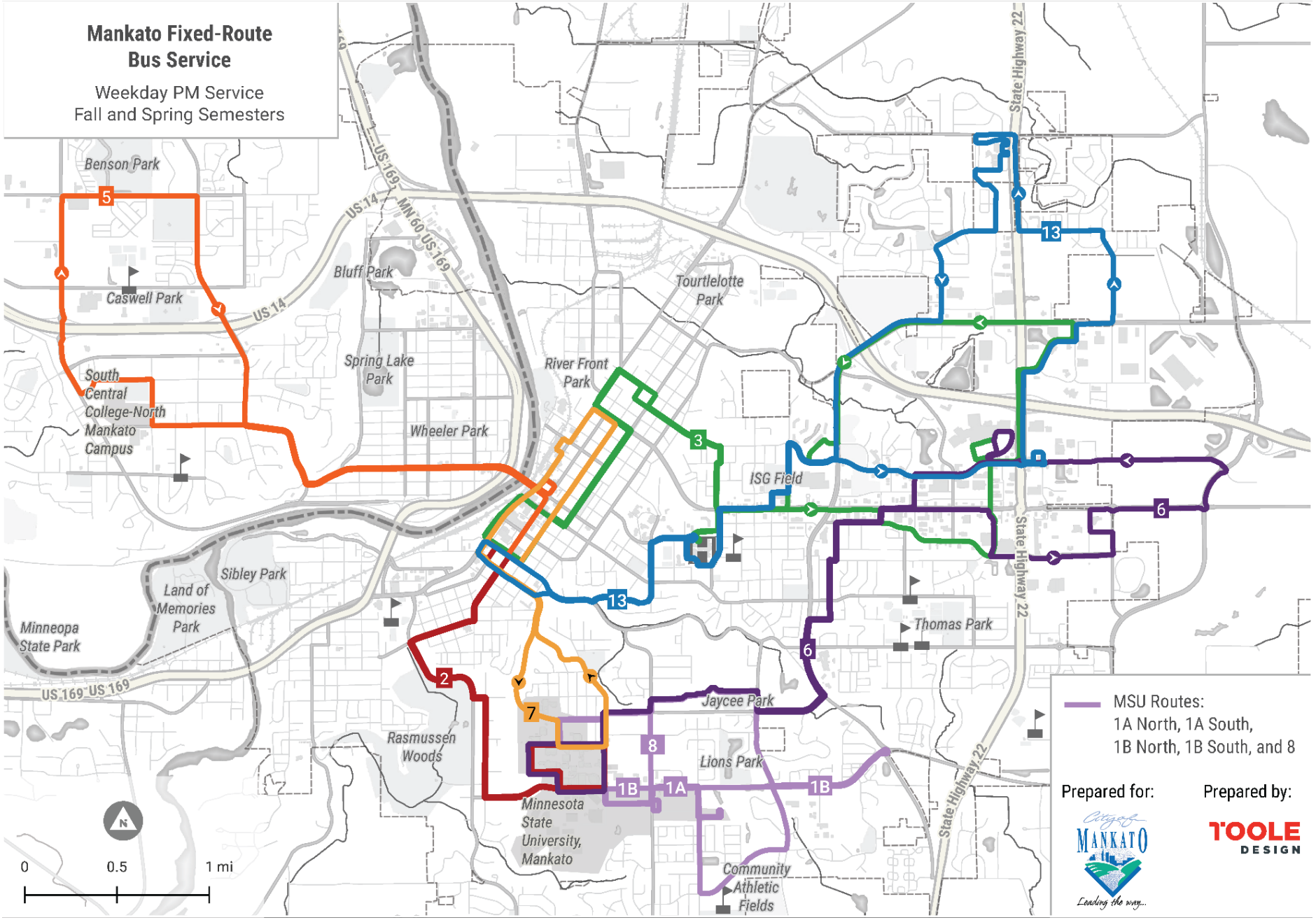


Figure 2. Fixed-Route Service by Time of Day and Day of Week – Academic Season

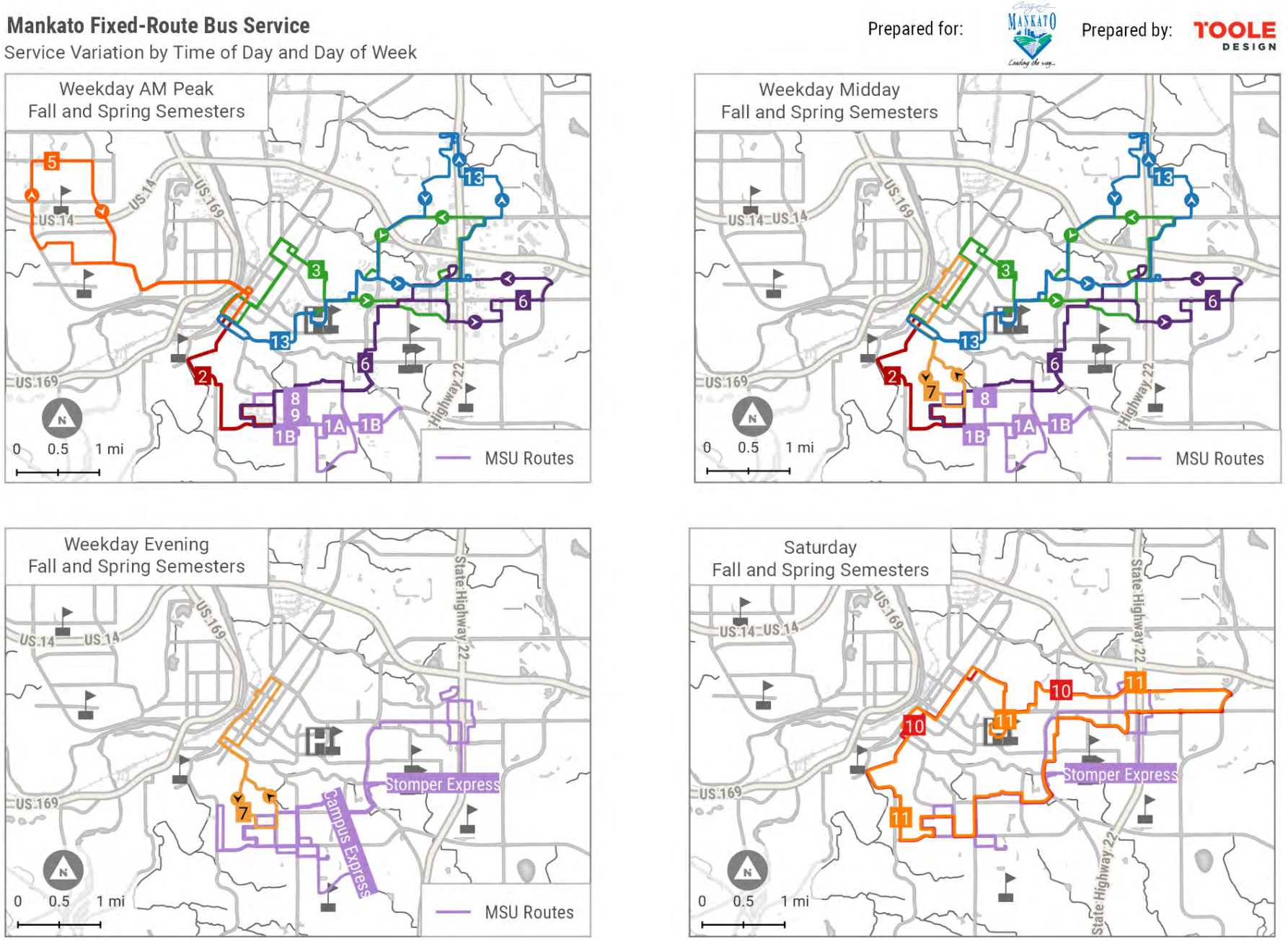
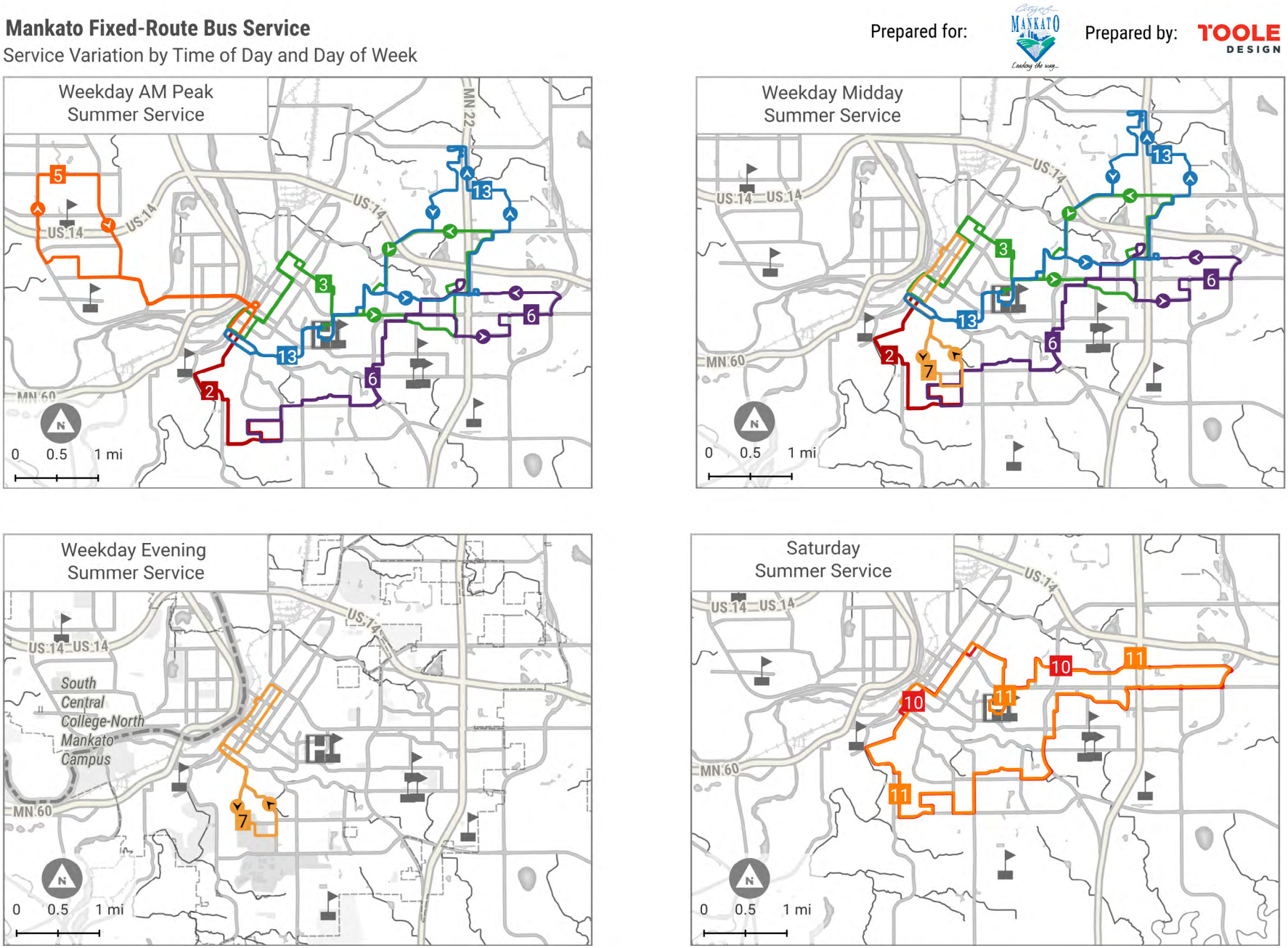


Figure 3. Fixed-Route Service by Time of Day and Day of Week – Summer Season



Frequency and Vehicles Per Route

The frequency of MTS service varies depending on whether a route is highly utilized with higher ridership. Table 2 displays each route by frequency of service and time of day. With high frequency routes – those that run every 10 minutes or less, riders can rely on a route to get them where they need to go without having to plan ahead. On the MTS system, the most frequent routes are provided in the University service (MNSU routes) that have 20 or 30-minute headways. Most MTS routes in the Citywide service operate less frequently with 60-minute headways. For riders on the least frequent routes, these longer headways may negatively impact customers' experience, since missing a bus could mean several minutes of wait time for the next one.

Each MTS route operates with only one bus no matter the frequency of the route. MTS operates up to 11 vehicles at a time during the AM and PM peak hour and 10 vehicles during the middle of the day. Just four vehicles operate during evening and late-night service, reflecting the limited utility of MTS' service after 6:00 PM.[1]

- **Approximately one half of MTS routes operate on 30-minute frequencies.** Nearly one-third of routes operate on 60-minute frequencies and the remaining 18% operate at 20-minute intervals.
- Route frequencies do not change at different times of day.
- Every route schedule is operated with just one vehicle. MTS operates the most vehicles during the AM and PM peaks (11 vehicles), followed by midday (10), and evening and late night (4 each).

Table 2. Frequency of Service (in Minutes) by Time of Day on Weekdays (Monday - Thursday)

Route	AM Peak (6-10)	Midday (10 - 3)	PM Peak (3-6)	Evening (6-9)	Late Night (9 - 12)
Route 2	30	30	30	-	-
Route 3	60	60	60	-	-
Route 5	30	-	30	-	-
Route 6	60	60	60	-	-
Route 7	-	30	30	30	30
Route 13	60	60	60	-	-
Route 8 (MNSU)	20	20	20	-	-
Route 9 (MNSU)	20	-	-	-	-
Route 12 (MNSU)	-	-	-	30	30
1A North (MNSU)	20	20	20	-	-
1A South (MNSU)	30	30	30	-	-
1B North (MNSU)	30	30	30	-	-
1B South (MNSU)	30	30	30	-	-
Campus Express (MNSU)	-	-	-	30	30
Stomper Express (MNSU)	-	-	-	60	60
Total vehicles required to operate the schedule	**11**	**10**	**11**	**4**	**4**

1 Supporting Late-Shift Workers: Their Transportation Needs and the Economy. Retrieved from https://www.apta.com/research-technical-resources/research-reports/supporting-late-shift-workers-their-transportation-needs-and-the-economy/

Service Performance

MTS monitors service performance with metrics such as ridership, on time performance, and operating costs. These types of measures foundationally describe whether any given route is underperforming. On a system level, these metrics describe year over year changes in performance. As part of that evaluation, the following section analyzes how ridership and system performance have shifted from pre-pandemic, during pandemic, and now in the COVID-19 recovery era. It is important to note that the value of each route isn't solely based on ridership and operating costs or financial performance: some routes may have poor performance but serve an important connection to areas with high concentrations of low-income households or other destinations that are important to disadvantaged communities. A more detailed discussion of the adequacy of the current fixed-route network in serving low income and disadvantaged communities is provided in the Transit Market Analysis section of this plan.

Fixed-Route Ridership Trends

Ridership is a strong measure of system performance and route-level performance because it indicates the number of system users that are choosing to ride MTS. Figure 4 and Figure 5 show the impact of the COVID-19 pandemic on overall system ridership and route ridership.

- Since the pandemic, ridership has plunged to approximately half of what it was pre-pandemic.
- Although ridership hit its lowest point in 2021 with about 260,000 riders, ridership slightly rebounded in 2022 to nearly 380,000 riders. That is an increase of 44% and more than 100,000 riders.
- The ridership rebound was largely driven by higher ridership on the University service routes and rebound in attendance to class on campus.
- Growth between 2021 and 2022 was driven by MNSU routes, particularly Route 8 which nearly doubled ridership between 2021 and 2022. In 2022, Route 8 ridership surpassed 71,000 riders.

Figure 4. MTS Ridership, 2018 - 2022

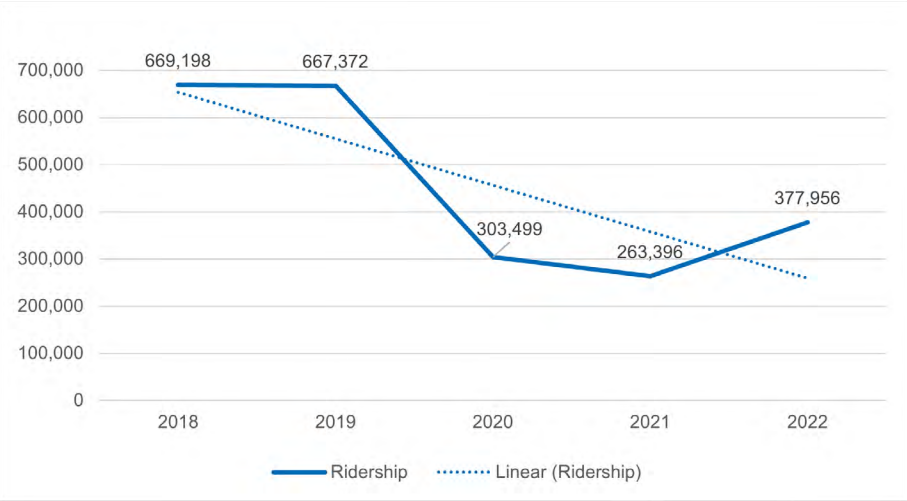
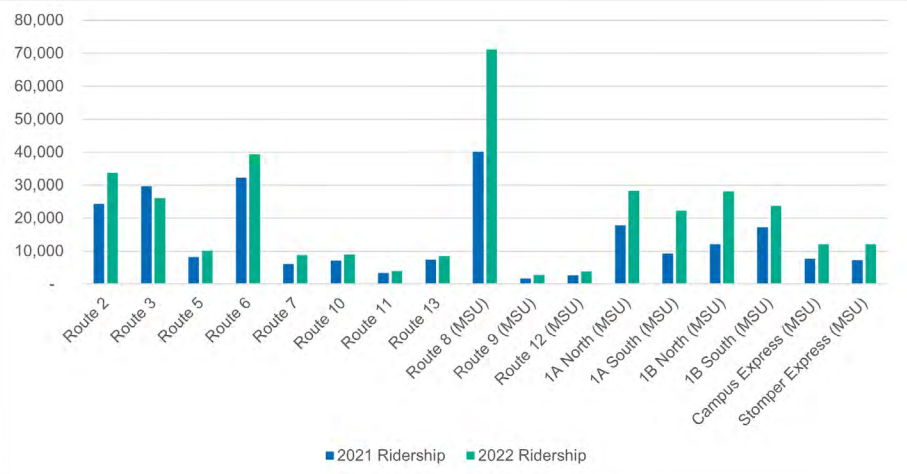
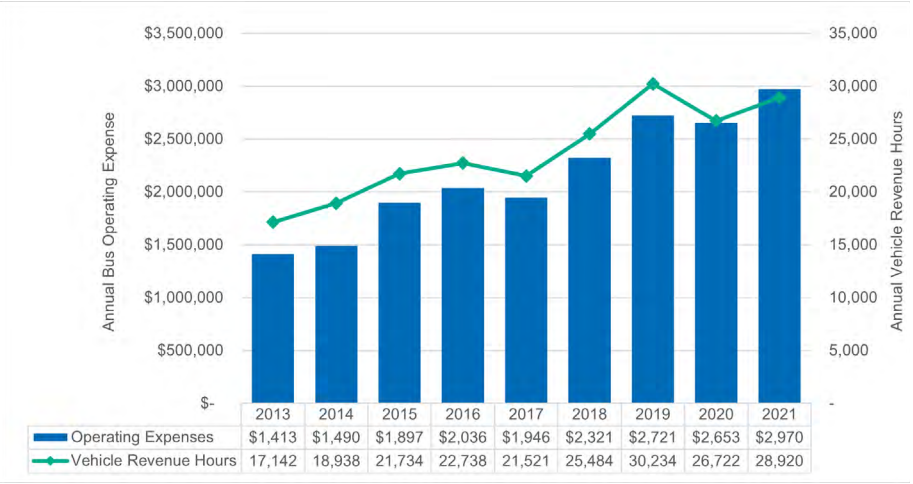


Figure 5. MTS System Ridership by Route, 2021-2022



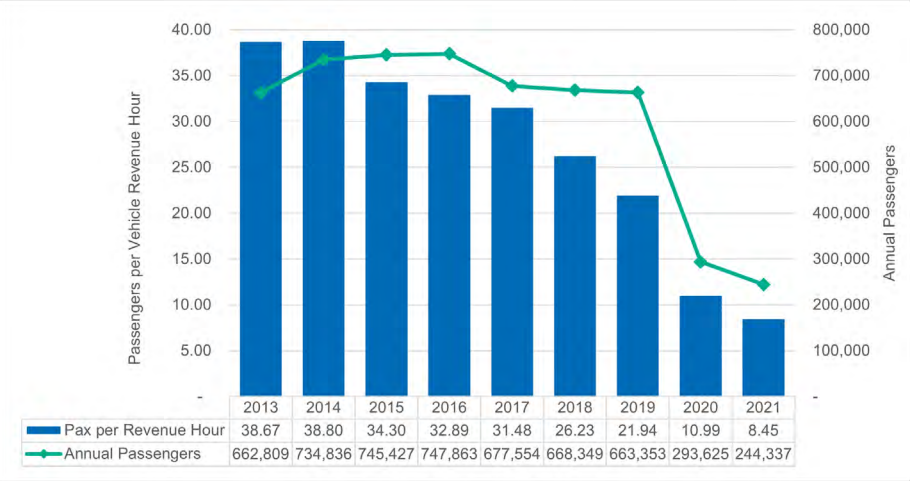
Service Efficiency and Effectiveness

Figure 6. Bus Operating Expense versus Vehicle Revenue Hours 2013-2021



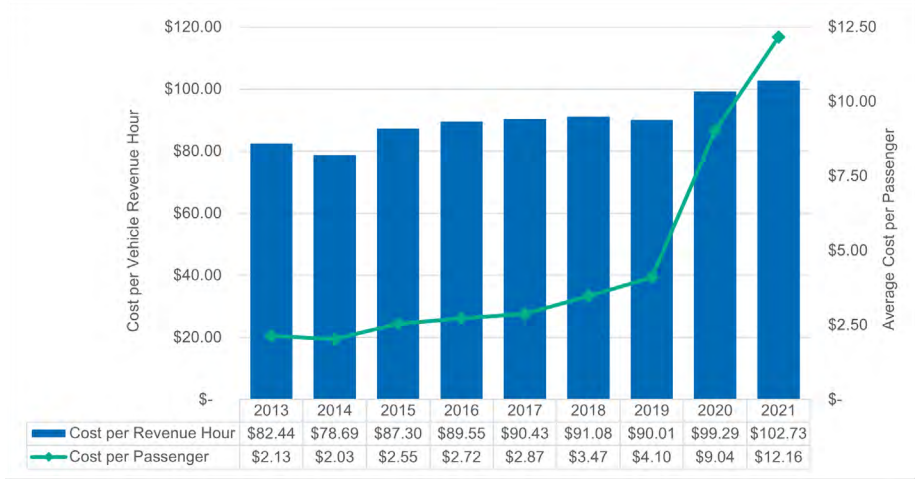
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Operating Expenses	$1,413	$1,490	$1,897	$2,036	$1,946	$2,321	$2,721	$2,653	$2,970
Vehicle Revenue Hours	17,142	18,938	21,734	22,738	21,521	25,484	30,234	26,722	28,920

Figure 7. Passengers per Vehicle Revenue Hour versus Annual Passengers 2013-2021



	2013	2014	2015	2016	2017	2018	2019	2020	2021
Pax per Revenue Hour	38.67	38.80	34.30	32.89	31.48	26.23	21.94	10.99	8.45
Annual Passengers	662,809	734,836	745,427	747,863	677,554	668,349	663,353	293,625	244,337

Figure 8. Cost per Vehicle Revenue Hour versus Cost per Passenger 2013-2021



	2013	2014	2015	2016	2017	2018	2019	2020	2021
Cost per Revenue Hour	$82.44	$78.69	$87.30	$89.55	$90.43	$91.08	$90.01	$99.29	$102.73
Cost per Passenger	$2.13	$2.03	$2.55	$2.72	$2.87	$3.47	$4.10	$9.04	$12.16

Ridership Variation

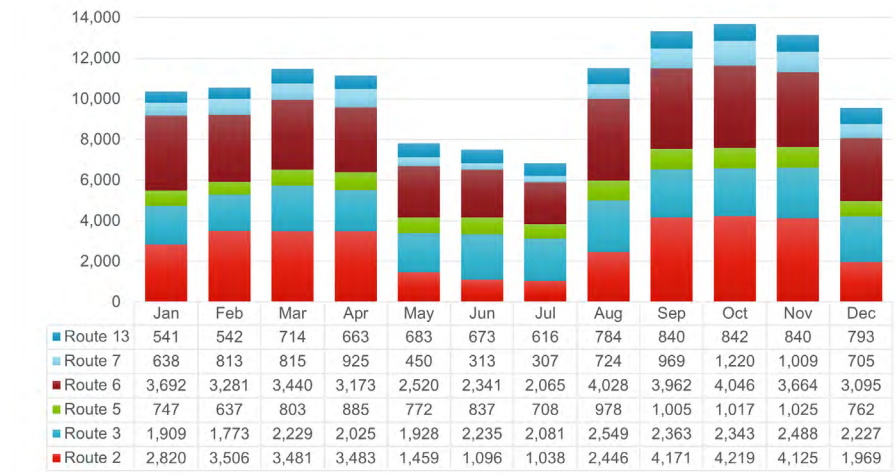
Citywide Service

Figure 9 shows the ridership of Citywide weekday routes and **Figure 10** shows the Citywide weekend routes. Ridership varies significantly based on when MNSU is in session since students ride MTS frequently during those times. Ridership is significantly lower in the summer months when the university is not in session. That drop is particularly notable with Route 6, Route 2, and Route 7. In 2022, ridership was highest in Fall on both weekday and weekend routes, particularly September through November. This trend is typical for university campuses since students arrive and explore campus in the fall months and begin taking transit for the first time before they have other options. These months are also optimal weather in Mankato, deterring fewer riders.

In 2022, the highest ridership Citywide routes were Route 6, Route 2, and Route 3. While Route 5 and Route 7 operated the same number of days annually, they had approximately one quarter of the ridership of Route 6, the route with the highest ridership citywide. Route 5 operated much fewer hours than Route 3, to cover morning and afternoon rush hour, so ridership figures appear to indicate latent demand for all-day service. Routes that justify further analysis due to its low ridership include Route 7 and Route 13.

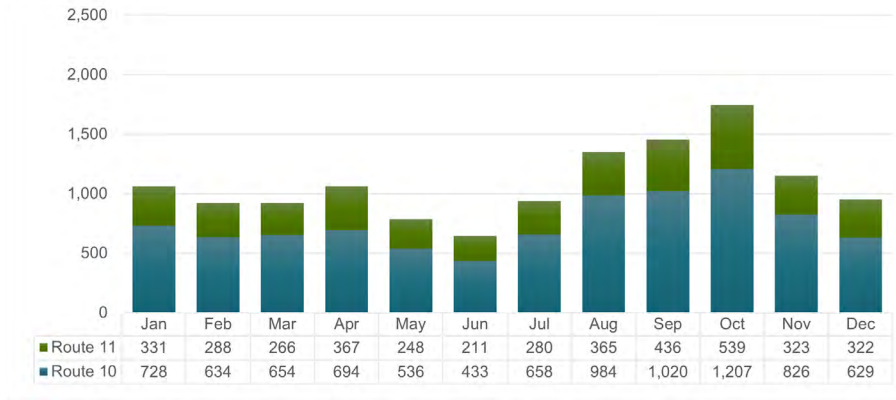
Two routes operate on Saturday – Routes 10 and 11, and only Route 10 operates on Sunday. They operate a reduced number of hours each day, but their ridership and performance numbers are comparable to Route 6, suggesting latent demand for more service on weekends.

Figure 9. Citywide Service Monthly Ridership – Weekday Routes, 2022



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Route 13	541	542	714	663	683	673	616	784	840	842	840	793
Route 7	638	813	815	925	450	313	307	724	969	1,220	1,009	705
Route 6	3,692	3,281	3,440	3,173	2,520	2,341	2,065	4,028	3,962	4,046	3,664	3,095
Route 5	747	637	803	885	772	837	708	978	1,005	1,017	1,025	762
Route 3	1,909	1,773	2,229	2,025	1,928	2,235	2,081	2,549	2,363	2,343	2,488	2,227
Route 2	2,820	3,506	3,481	3,483	1,459	1,096	1,038	2,446	4,171	4,219	4,125	1,969

Figure 10. Citywide Service Monthly Ridership – Weekend Routes, 2022

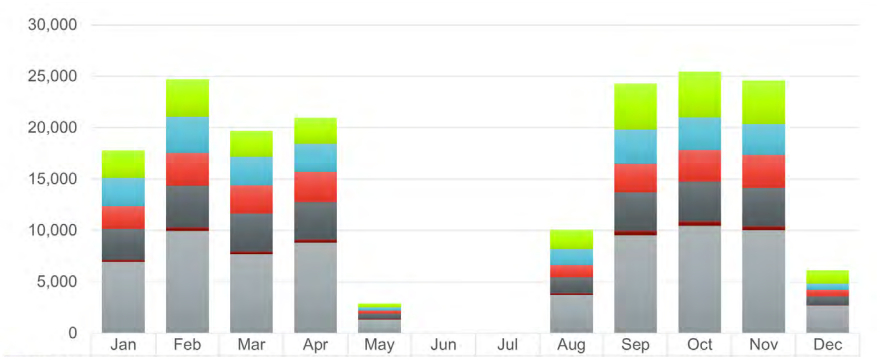


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Route 11	331	288	266	367	248	211	280	365	436	539	323	322
Route 10	728	634	654	694	536	433	658	984	1,020	1,207	826	629

Note: Route 11 operates on Saturdays only

University Service

Figure 11. University Service Monthly Ridership, 2022



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1BN (18)	2,704	3,649	2,516	2,545	411	0	0	1,886	4,477	4,462	4,243	1,281
1BS (16)	2,717	3,540	2,753	2,730	284	0	0	1,600	3,357	3,183	3,014	598
1AS (15)	2,234	3,156	2,759	2,953	322	0	0	1,184	2,744	3,066	3,197	656
1AN (14)	2,985	4,053	3,679	3,618	504	0	0	1,524	3,689	3,801	3,712	814
Route 9	239	352	268	337	51	0	0	151	494	471	416	66
Route 8	6,909	9,965	7,701	8,791	1,331	0	0	3,739	9,532	10,468	10,021	2,689

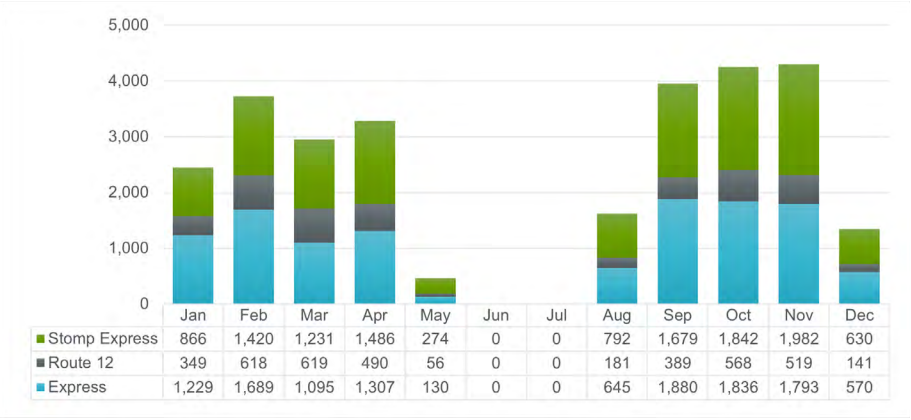
***Note: University buses do not operate in June and July.**

University ridership varies even more than Citywide routes month to month, likely reflecting the student schedule which has breaks that significantly affect ridership. Like Citywide routes, September to November are the highest ridership months hovering around approximately 25,000 monthly riders. February is also higher ridership, potentially due to it being the first full month where students are on campus. March has a full week of spring break, so ridership did not quite reach 20,000 that month.

- Route 8 ridership is more than double any of the other MNSU routes. This trend is relatively new since ridership on Route 8 doubled between 2021 and 2022. Routes 1AN and 1BN also have high ridership (over 28,000). Routes 9 and 12 have particularly low ridership with less than 3,000 and less than 4,000 riders respectively over 32 weeks of service. Other low ridership routes that justify further analysis include Route 1AS and Route 1BS.

The Stomper Express and Campus Express routes provide evening service on weekdays and weekends. Their ridership figures show that the system in general need more evening service, and not only MNSU service.

Figure 12. University Evening Service Monthly Ridership, 2022



Route Ridership and Costs

Over the more than 250 days of service provided on the MTS system, the number of fixed-route bus riders exceeded 230,000 in 2021 and 340,000 in 2022. Operating costs approached $2.9 million in 2022, as shown in Table 3. Key takeaways:

- Citywide routes are operated for more days in the year, so the operating costs are higher than MNSU and Saturday and Sunday routes. The highest ridership route in 2021 and 2022 was Route 8, an MNSU route, even though it only operates during the academic season. Routes 6 and 7 have the same operating costs, but vastly differently ridership.
- In 2022, the highest ridership Citywide routes were Route 6, 2 and 3. While Routes 5 and 7 operated the same number of days annually, they had approximately one quarter of the ridership of Route 6, the highest ridership Citywide route.
- Route 8 ridership (71,000) is more than double any of the other MNSU routes. Routes 1AN and 1BN also have relatively high ridership (over 28,000). Routes 9 and 12 have particularly low ridership with less than 3,000 and less than 4,000 riders respectively over 32 weeks of service.

Table 3. Annual Ridership, Days of Service, and Operating Cost (2022)

Route	Ridership	Days in Service	Annual Operating Cost
Route 2	33,813	256	$293,808
Route 3	26,150	256	$293,808
Route 5	10,176	256	$120,194
Route 6	39,307	256	$320,518
Route 7	8,888	256	$320,518
Route 10	9,003	101	$69,445
Route 11	3,976	51	$37,394
Route 13	8,531	256	$293,808
Citywide Routes Subtotal	**139,844**	**1,688**	**$1,749,492**
Route 8 (MNSU)	71,146	150	$186,284
Route 9 (MNSU)	2,845	150	$49,310
Route 12 (MNSU)	3,930	119	$52,598
1A North (MNSU)	28,379	119	$144,644
1A South (MNSU)	22,271	119	$144,644
1B North (MNSU)	28,174	150	$180,805
1B South (MNSU)	23,776	119	$151,219
Campus Express (MNSU)	12,174	150	$87,115
Stomper Express (MNSU)	12,202	181	$98,621
University Routes Subtotal	**204,897**	**1,257**	**$1,095,239**
Fixed-Route Subtotal	**344,741**	**2,945**	**$2,844,731**

*** Note: Annual Operating Cost is a projection based on NTD 2021 Cost per Revenue Hour and scheduling data for 2023 (extracted from the most recent GTFS feed).**

Route Financial Performance

MTS operates over 130 daily revenue hours and over 1,500 revenue miles. This service costs approximately $13,700 and generates over $800 in fare revenue for an average weekday service, as shown in Table 3.

- Core Citywide and MNSU routes operate 11 or 12 revenue hours and generally log over 100 revenue miles per day. Routes 6 and 7 operate 12 revenue hours and have the highest operating cost of over $1,200 per weekday.
- The MNSU routes operate for slightly more revenue hours (~72 as compared to ~62) while citywide routes operate more revenue miles (801 as compared to 728)

- The MNSU routes generally cost more to operate than the Citywide routes during a typical day.
- Fare revenue is low across the system, but generally much higher on MNSU routes.
- Saturday routes (Table 5) operate five to seven revenue hours. Routes 10 and 11 operate more than 110 revenue miles, while the Stomper Express operates more than 70 revenue miles.
- Saturday service hours total just eight percent of weekday service revenue hours and six percent of revenue miles.

Table 4. Average Weekday (Monday – Thursday) Revenue Hours, Miles, Operating Cost, and Fare Revenue (2002)

Route	Revenue Hours	Revenue Miles	Operating Cost	Fare Revenue*
Route 2	11.0	134.0	$1,130.0	$54.6
Route 3	11.0	150.9	$1,130.0	$42.3
Route 5	4.5	82.8	$462.3	$16.4
Route 6	12.0	151.7	$1,232.8	$63.5
Route 7	12.0	131.8	$1,232.8	$14.4
Route 13	11.0	149.8	$1,130.0	$13.8
Citywide Routes Subtotal	**61.5**	**801.0**	**$6,317.9**	**$205.0**
Route 8 (MNSU)	11.3	82.3	$1,164.3	$196.2
Route 9 (MNSU)	3.0	26.6	$308.2	$7.8
Route 12 (MNSU)	4.0	42.5	$410.9	$13.7
1A North (MNSU)	11.0	117.9	$1,130.0	$98.7
1A South (MNSU)	11.0	104.7	$1,130.0	$77.4
1B North (MNSU)	11.0	102.7	$1,130.0	$77.7
1B South (MNSU)	11.5	142.0	$1,181.4	$82.7
Campus Express (MNSU)	4.0	38.4	$410.9	$33.6
Stomper Express (MNSU)	5.0	71.2	$513.7	$27.9
University Routes Subtotal	**71.8**	**728.3**	**$7,379.4**	**$615.7**
Fixed-Route Subtotal	**133.3**	**1,529.1**	**$13,697.3**	**$820.7**

*** Note: Fare Revenue is a projection based on the estimated Monday – Thursday daily ridership average from 2022 ridership data and the average fare revenue per passenger from 2019 NTD reports, the last year for which there was complete fare revenue collection data.**

Table 5. Average Saturday Revenue Hours, Miles, Operating Cost, and Fare Revenue (2002)

Route	Revenue Hours	Revenue Miles	Operating Cost	Fare Revenue*
Route 10	7.00	110.2	$719.1	$36.9
Route 11	7.00	110.0	$719.1	$32.3
Stomper Express (MNSU)	5.00	71.2	$513.7	$27.9
Fixed-Route Subtotal	**19.00**	**291.4**	**$1,951.9**	**$97.0**

*** Note: Fare Revenue is a projection based on the estimated Monday – Thursday daily ridership average from 2022 ridership data and the average fare revenue per passenger from 2019 NTD reports, the last year for which there was complete fare revenue collection data.**

Route Ridership Performance

Customers are at the center of MTS's service. Several metrics displayed in Table 6 help us get at the number of passengers that MTS serves and the cost to provide transit service to MTS customers. The passengers per hour metric reflects the number of passengers in an operating hour while passengers per mile is the number of passengers over one mile. Farebox recovery, cost per passenger, and subsidy per passenger are additional metrics that highlight the financial strength of an MTS route for operating and service considerations. Farebox recovery is the percent of operations met by the fares paid, while cost per passenger is the operating cost divided by the passenger. Related to the cost per passenger, subsidy per passenger is the difference between cost per passenger and the average fare paid by an MTS customer (estimated at $0.41 from 2019 NTD Reports, the last year for which complete fare revenue collection data is available).

- MTS routes average almost 15 passengers per hour and 1.3 passengers per mile.
- Farebox recovery averages at six percent, meaning that six percent of operational costs are directly covered by paid fares. On Routes 7 and 13 that percentage was just over one percent.
- Route 8 is by far the best performing route on various passenger and cost per passenger metrics with almost 42 passengers per hour and nearly six passengers per mile. Route 8 has nearly 17 percent farebox recovery and a subsidy per passenger of just $2.00.
- Routes 9 and 12 are the worst performing of the University system with about six and eight passengers per hour, less than one passenger per mile, about three percent of farebox recovery, and an operating cost per passenger of more than $12.
- Saturday service performs moderately well given its limited hours of service, averaging more than 12 passengers per hour, for a farebox recovery of 5 percent and costing just over $8 per passenger.

Table 6. Average Weekday (Monday – Thursday) Passengers Served and Cost per Passenger (2002)

Route	Passengers per Hour	Passengers per Mile	Farebox Recovery	Cost per Passenger	Subsidy per Passenger
Route 2	12.0	1.0	4.8%	$8.6	$8.1
Route 3	9.3	0.7	3.7%	$11.1	$10.6
Route 5	8.8	0.5	3.6%	$11.6	$11.2
Route 6	12.8	1.0	5.2%	$8.0	$7.6
Route 7	2.9	0.3	1.2%	$35.5	$35.1
Route 13	3.0	0.2	1.2%	$33.9	$33.5
Citywide Routes Subtotal	**8.1**	**0.6**	**3.2%**	**$12.7**	**$12.3**
Route 8 (MNSU)	41.9	5.8	16.9%	$2.5	$2.0
Route 9 (MNSU)	6.3	0.7	2.5%	$16.2	$15.8
Route 12 (MNSU)	8.3	0.8	3.3%	$12.4	$12.0
1A North (MNSU)	21.7	2.0	8.7%	$4.7	$4.3
1A South (MNSU)	17.0	1.8	6.9%	$6.0	$5.6
1B North (MNSU)	17.1	1.8	6.9%	$6.0	$5.6
1B South (MNSU)	17.4	1.4	7.0%	$5.9	$5.5
Campus Express (MNSU)	20.3	2.1	8.2%	$5.1	$4.6
Stomper Express (MNSU)	13.5	0.9	5.4%	$7.6	$7.2
University Routes Subtotal	**20.7**	**2.0**	**8.3%**	**$5.0**	**$4.5**
Fixed-Route Subtotal	**14.9**	**1.3**	**6.0%**	**$6.9**	**$6.5**

Table 7. Average Saturday Passengers Served and Cost per Passenger (2002)

Route	Passengers per Hour	Passengers per Mile	Farebox Recovery	Cost per Passenger	Subsidy per Passenger
Route 10	12.7	0.8	5.1%	$8.1	$7.7
Route 11	11.1	0.7	4.5%	$9.2	$8.8
Stomper Express	13.5	0.9	5.4%	$7.6	$7.2
Fixed-Route Subtotal	**12.3**	**0.8**	**5.0%**	**$8.3**	**$7.9**

On-Time Performance

On-time performance is a measure of reliability. In the transit industry, on-time performance is defined as the percentage of trips that arrive or depart within a specific time frame or at a prescheduled time. When on-time arrival (OTA) is more than five minutes later than scheduled, MTS considers that trip late. Trips that arrive early are only considered on-time if they do not depart the location ahead of their scheduled time. Table 8 displays routes by on-time performance.

- On time performance was 89 percent for the system in 2021, indicating that the overall system is mostly on-time but could improve. This is slightly under the MTS target of 90 percent.
- Summer months are the most on-time, which is likely reflective of lighter traffic, the routes' lower ridership, more optimal weather conditions, and generally limited operations.

Table 8. On-Time Performance by Month, 2021

Month	Average OTA (%)
January	80.5
February	83.5
March	89.8
April	74.7
May	93.2
June	100.0
July	100.0
August	88.2
September	91.8
October	91.3
November	89.5
December	86.7
Year to Date	**89.1**

Major Highlights

- **Mankato Transit System (MTS) operates three service modes** – Fixed-Route bus service, Kato Flex and Mobility Bus and two types of fixed-route service. Fixed-route service includes citywide, and University (MNSU) routes. Citywide routes primarily operate five days a week while most MNSU routes operate four days a week.
- MTS's 17 routes have more than five different configurations of hours of operation, but **service is primarily provided from 6:00 AM to 6:00 PM.**
- **Evening and late-night service (after 6:00 PM) is sparse** and primarily reaches the university area, student housing communities, and downtown Mankato.
- **MTS routes average 14.9 passengers per hour and 1.3 passengers per mile.**
- **Farebox recovery, the operational costs covered by passenger fares, is 6 percent when averaged across the system**. On two routes that percentage is just over one percent.
- **About one half of MTS routes (8 routes) operate on 30-minute frequencies,** nearly one-third of routes (6 routes) operate on 60-minute frequencies and the remaining routes (3 routes) operate at 20-minute intervals.
- Every route schedule is operated with one vehicle. **MTS operates the most vehicles during the Am and PM peak (11 vehicles), followed by midday (10 vehicles), and evening and late night (4 vehicles each).**
- **On time performance was approximately 89 percent in 2021,** indicating that the overall system is mostly on-time but there is room for improvement.
- **Summer months are the most on-time.** This is likely reflective of their low ridership, more optimal weather conditions, and generally limited operations.
- Although system ridership hit its lowest point in 2021 with about 260,000 riders, **ridership slightly rebounded in 2022 to nearly 380,000 riders, an increase of 44 percent over 2021.**
- **Growth between 2021 and 2022 is driven by MNSU routes**, particularly Route 8, which nearly doubled its ridership between 2021 and 2022.
- **The highest ridership Citywide routes are Route 6, Route 2, and Route 3.** While Routes 5 and 7 operated the same number of days annually, they had approximately one quarter of the ridership of Route 6, the highest ridership citywide route. Routes 6 and 7 have the same operating costs, but vastly differently ridership.
- **Route 8 ridership is more than double the ridership of any other MNSU routes.** Routes 1AN and 1BN also have relatively high ridership (over 28,000).
- **Route 8 was by far the best performing route with 41.9 passengers per hour and nearly 6 passengers per mile. The subsidy per passenger was just $2.00.**
- Routes 9 and 12 had particularly low ridership with less than 3,000 and less than 4,000 riders respectively over 32 weeks of service.
- Other underperforming routes that justify further analysis include Route 7 and Route 13 which were as expensive to operate as Routes 3 and Route 6, but had very low performance with less than 3 passengers per revenue hour, 1 percent farebox recovery, and an operating cost per passenger of about $35.

Figure 13. University Service Bus at MNSU-Mankato

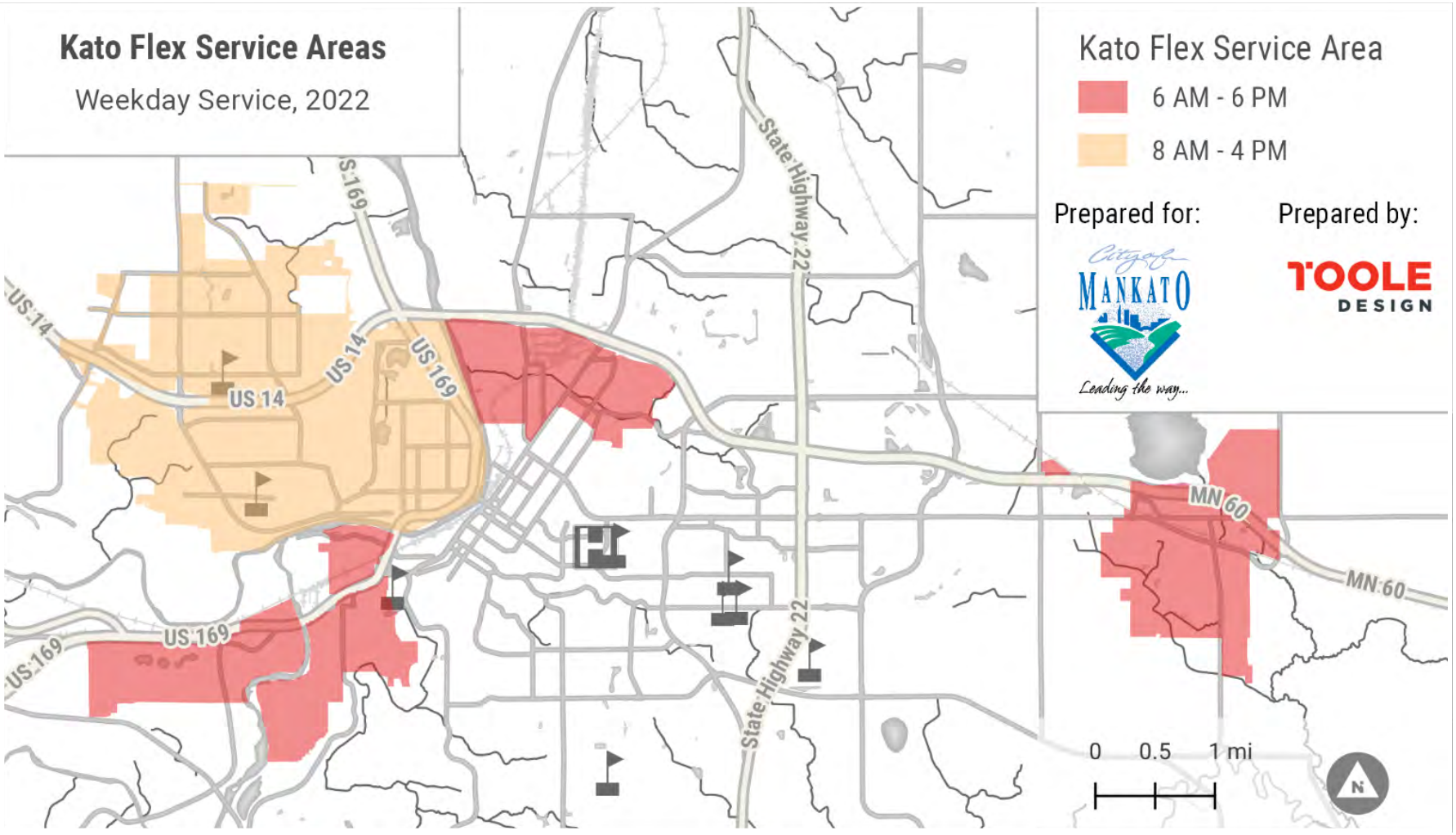
Kato Flex

After operations began in June of 2019, Kato Flex has been offering MTS customers a shared ride, curb-to-curb service for individuals residing in areas with no fixed-route service available. Rides are scheduled from a Flex Zone to another Flex Zone or to an area where fixed-route service exists in an effort to increase accessibility to the MTS network.

Kato Flex's only eligibility requirement is that customers must live within a Flex Zone to book a ride. There are currently eight different Flex Zones; these are shown in Figure 14 and include the following:

- Eagle Lake
- Skyline
- Select areas in the city of North Mankato
- Select neighborhoods in the city of Mankato (Tourtellotte Park, Germania Park, LeHillier in South Bend Township, Sibley Park, and West Mankato)

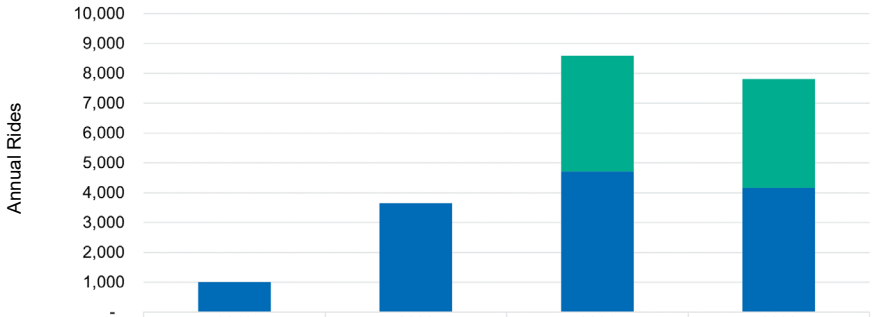
Figure 14. Kato Flex Zones, 2022



Ridership Trends

In 2022, a total of 7,811 rides were provided on the Kato Flex service. Of these rides, 46.5 percent were within the North Mankato Zone while 53.5 percent were within the remaining Flex Zones. As shown in Figure 15, annual ridership experienced a nine percent decrease compared to 2021 but remained above 2020 levels. Recent growth can be attributed to ridership in North Mankato, which began service in February 2021.

Figure 15. Kato Flex Annual Ridership, 2019-2022

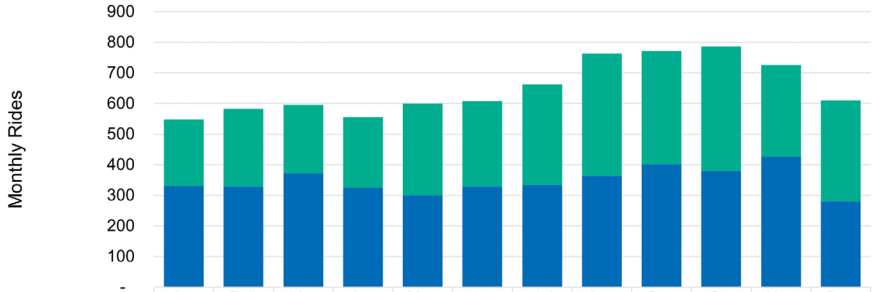


	2019	2020	2021	2022
North Mankato	-	-	3,880	3,636
Mankato	1,018	3,655	4,717	4,175

Ridership Variation

Monthly ridership observations trended upward throughout 2022, particularly during the fall months (see Figure 16). On average, 651 rides were provided per month on Kato Flex service or about 31 passenger rides per day.

Figure 16. Kato Flex Monthly Ridership, 2022



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
North Mankato	217	254	223	230	300	280	328	400	370	405	299	330
Mankato	331	329	373	326	300	328	334	363	402	381	427	281

Kato Flex followed a similar monthly ridership trend to the fixed-route service with slight differences explained most likely by MNSU calendars. However, Kato Flex had a less drastic drop in the summer as compared to the fixed-route services.

In general, North Mankato generated fewer rides than Mankato for most months, except in August – October and December, when ridership was higher or about the same. This also suggests latent demand for service in North Mankato, which is only served by one fixed-route (Route 5) at a very limited number of hours Monday to Friday only.

Service Quality

On-Time Performance

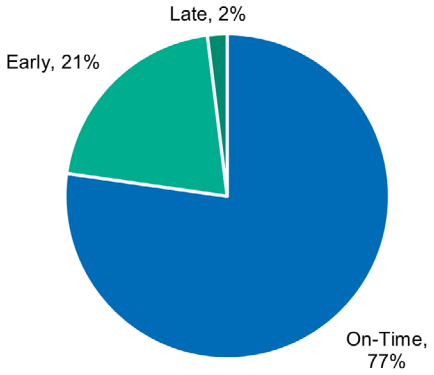
An on-time performance analysis was conducted using a subset of trips from January-February of 2023. In total, 255 trips were sampled over a two week period, capturing trips on all seven days of the week and in both North Mankato and Mankato. On-time performance is defined as no more than ten minutes early and no more than ten minutes late. The results of the analysis are shown in Table 9 and Figure 17. On average, Kato Flex trips arrived on time 77 percent of the time. Of the remaining trips, 21 percent arrived early while only 2 percent arrived late.

During the sample period, trips arrived 4.8 minutes earlier than the scheduled time on average. In the Mankato service areas specifically, trips averaged 8.5 minutes early. This suggests there is room in the schedule to book trips closer together and potentially gain additional daily riders.

Table 9. Kato Flex On-Time Performance, Jan-Feb 2023

Service Area	Trips Sampled	On-Time	Early (10+ minutes)	Late (10+ minutes)
Mankato	137	83%	15%	1%
North Mankato	118	70%	27%	3%
System	**255**	**77%**	**21%**	**2%**

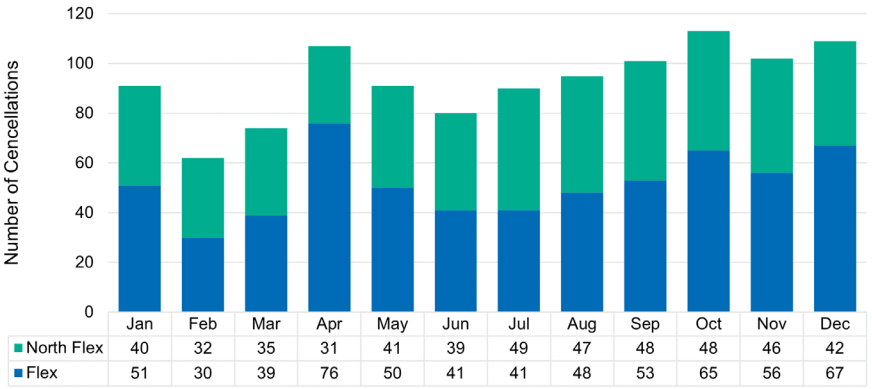
Figure 17. Kato Flex On-Time Performance, Jan-Feb 2023



Service Cancellations

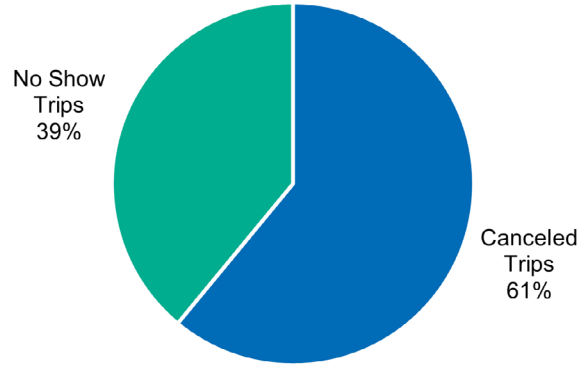
On average, Kato Flex experienced 93 trip cancellations per month. 39 percent of these cancellations occurred on North Mankato trips while the remaining 61 percent occurred in other areas. Of the 1,115 total cancellation in 2022, 439 (39%) were identified as no show, meaning the rider did not show up for their trip. In North Mankato specifically, 46 percent of all canceled trips were no show trips. Kato Flex will only wait for five minutes upon arrival at a scheduled pickup before determining a no-show to maintain a high quality of service for all users.

Figure 18. Kato Flex Service Cancellations



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
North Flex	40	32	35	31	41	39	49	47	48	48	46	42
Flex	51	30	39	76	50	41	41	48	53	65	56	67

Figure 19. Kato Flex No Show Trip Cancellations, 2022



Scheduling Practices

Kato Flex service operates Monday through Friday between the hours of 6:00 AM and 6:00 PM in all service areas except North Mankato, where hours of operation are 8:00 AM to 4:00 PM. Like paratransit, Kato Flex functions as a next day service, meaning customers are required to reserve a trip at least a day in advance by calling the customer service line. Reservations can be made Monday through Friday between the hours of 8:00 AM and 6:00 PM. Ride cancellations or changes must be received at least one hour prior to the scheduled pick-up time.

311 Customer Service currently manages Kato Flex reservations through a manual process. Rides are reviewed individually to determine if a vehicle is available at the requested trip time. If so, the trip gets assigned and placed in a driver's daily manifest. The manifest contains pertinent information related to trips, including customer names, pick-up/drop-off times, and pick-up/drop-off addresses or location. Throughout a driver's shift, actual times and any relevant notes for each trip will be recorded on the manifest. Like paratransit, the manual process lends itself to a more time intensive reporting process with room for error, partly due to a lack of detail on pick up and drop off locations and inconsistent data entries for trip notes, including actual times and cancellation notes.

Daily Revenue Hours

Kato Flex's typical weekday schedule operates four vehicles over 20.5 revenue hours, with a peak vehicle requirement of three, as shown in Table 10. Of those vehicles, one is designated for North Mankato and three for the remaining areas. Driver shifts are staggered throughout the day, with little overlap occurring between them. This leaves a single vehicle operating in the City of Mankato zones for much of the day. MTS has the vehicle capacity to increase ridership but will need to offer additional revenue hours during the day and consider transitioning from part-time to full-time operators to cover longer work shifts.

Table 10. Kato Flex Daily Revenue Service Hours

Route	6:00 a.m.				12:00 p.m.				6:00 p.m.				Revenue Hours
Flex-1	6:00a			10:00a									4.0
Flex-2					9:30a			2:00p					4.5
Flex-3									2:00p		6:00p		4.0
Flex-North Mankato			8:00a					4:00p					8.0
Number of Vehicles	1	1	2	2	3	2	2	2	2	2	2	1	1	20.5

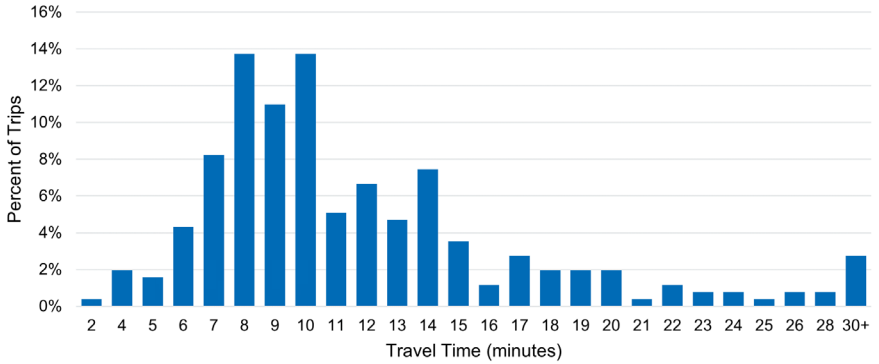
In-Vehicle Travel Times

On average, a Kato Flex rider spends 12.4 minutes onboard a vehicle to reach their destination (see Table 11 and Figure 20). In North Mankato, 11 percent of all trips are less than five minutes, in comparison to the remaining service areas where only one percent of trips are less than five minutes. 76 percent of trips systemwide range between 5-15 minutes.

Table 11. Kato Flex In-Vehicle Travel Time Ranges, Jan-Feb 2023

	Under 5 Minutes	5-15 Minutes	Over 15 Minutes	Average Trip Duration (minutes)
North Mankato	11%	75%	14%	12.8
Mankato	1%	78%	20%	12.0
System	6%	76%	18%	12.4

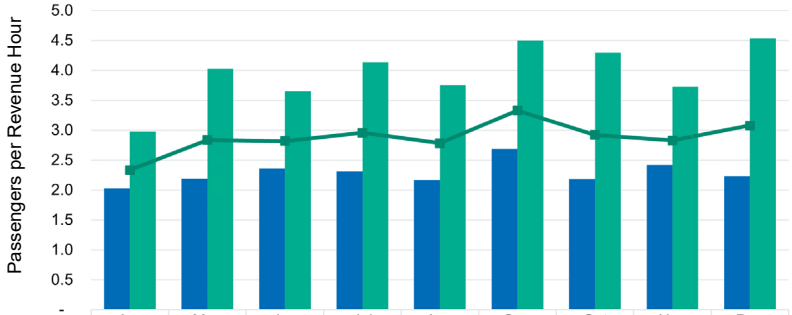
Figure 20. Kato Flex In-Vehicle Travel Times, Jan-Feb 2023



Service efficiency and effectiveness

To review Kato Flex's service efficiency and effectiveness, revenue hours for the months of April through December of 2022 were compared to ridership levels in both Mankato and North Mankato service areas. Operating expenses for Kato Flex were not available at the time of this review. On average, Kato Flex experienced 2.9 passengers per revenue hour during the 2022 sample period. North Mankato service performed a more effective service with 4.0 passengers per revenue hour while the remaining areas provided 2.3 on average. Monthly ridership increases throughout 2022 led to an upward trend in both service areas.

Figure 21. Kato Flex Passengers per Revenue Hour, Apr-Dec 2022

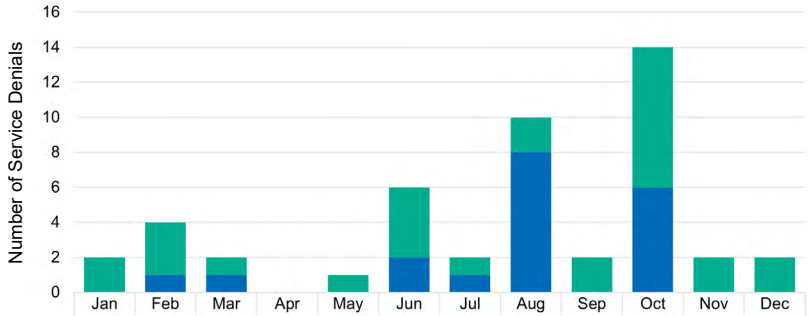


	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
					2022				
Mankato	2.0	2.2	2.4	2.3	2.2	2.7	2.2	2.4	2.2
North Mankato	3.0	4.0	3.6	4.1	3.8	4.5	4.3	3.7	4.5
System Average	2.3	2.8	2.8	3.0	2.8	3.3	2.9	2.8	3.1

Service Denials

Service denials occur when a customer requests a trip and MTS is not able to negotiate a time that both meets the customer's needs and fits within a driver's schedule. MTS records each of these events as they occur for both Paratransit and Kato Flex combined. In 2022, there were a total of 47 service denials, averaging around four per month between Mankato and North Mankato services (see Figure 22). Most months saw two or less trip cancellations in 2022.

Figure 22. Paratransit and Kato Flex Service Denials, 2022



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
						2022						
North Mankato	2	3	1	0	1	4	1	2	2	8	2	2
Mankato	0	1	1	0	0	2	1	8	0	6	0	0

Mobility Bus Service

The paratransit (Mobility Bus) service of the MTS is a shared ride, origin-to-destination service for eligible individuals who, because of their disabilities, are unable to use fixed-route services. The service runs seven days per week and operates only within the Mankato Urbanized Area, including all points within a 0.75-mile (three quarters of a mile) range of fixed-route service. Eligibility is based on categorical limitations of using the fixed-route system.

Ridership Trends

In 2022, a total of 25,185 trips were provided on the paratransit service. Of these trips, 19.5 percent originated in the City of North Mankato while the remaining 80.5 percent in the City of Mankato. Detail ridership trends for the past four years are displayed in Figure 23. Annual ridership experienced a 25 percent growth over 2021 and has nearly doubled pre-pandemic ridership levels from 2019. Some of that ridership growth was driven by a new customer base following a local non-profit agency's (MRCI) decision to end their transportation services. This forced many of MRCI's customers to transition over to MTS's paratransit service for their needs.

Ridership Variation

Mobility bus monthly ridership trends (Figure 24) generally show a stable ridership base throughout the year, with a slight decrease in the summer months followed by an uptick in the Fall. Like the other service types, the Fall increase is from August to October, but it is less drastic when compared to other services. Students make up a smaller proportion of paratransit users, so the fall increase might be more driven by weather in this case.

On average, the paratransit service provided 2,099 rides per month in 2022. Notably, North Mankato riders made up a greater portion of paratransit trips in the peak months from August to December.

Figure 23. Paratransit Service Annual Ridership, 2019 - 2022

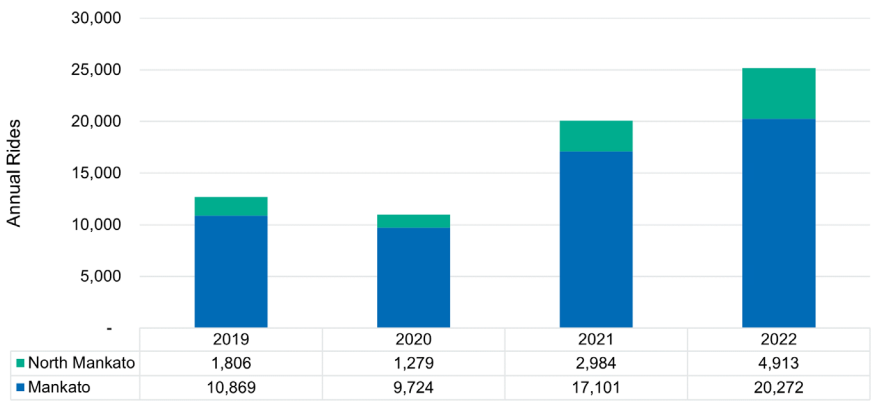
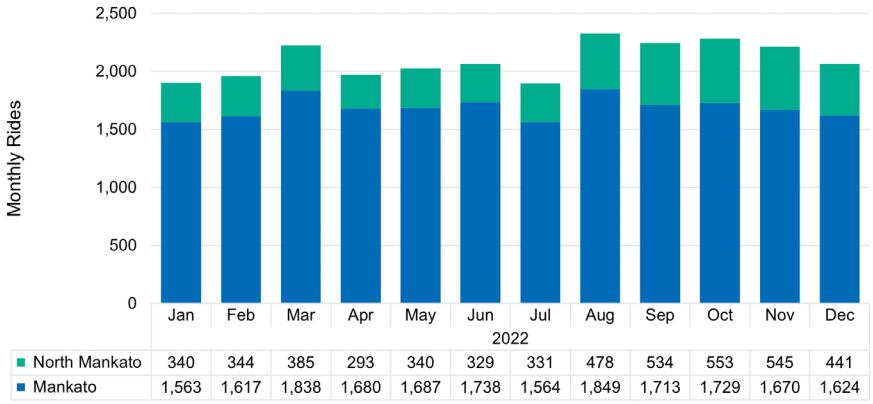


Figure 24. Paratransit Service Monthly Ridership, 2022



Service Quality

On-Time Performance

An on-time performance analysis was conducted using a subset of trips from January-February of 2023. In total, over 1,000 trips were sampled over a two-week period and reviewed for their on-time performance. On-time performance is defined as no more than ten minutes early and no more than ten minutes late. Based on that review (summarized in Table 12) 79 percent of trips systemwide were on-time while 18 percent were more than ten minutes early and 3 percent arrived more than ten minutes after the scheduled time. Sunday service experienced the highest on-time percentage, with 91 percent of trips arriving on time.

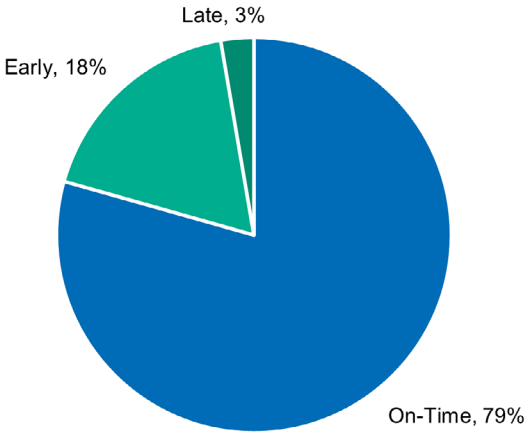
During the sample period, trips arrived 4.6 minutes earlier than the scheduled time on average. This suggests there is room in the schedule to book trips closer together and potentially gain additional daily riders.

Average trip durations varied between weekday and weekend service. On weekdays, the average trip duration was 18.0 minutes, while on Saturday and Sunday it averaged 12.2 and 13.5 minutes, respectively.

Table 12. Paratransit On-Time Performance and Average Trip Duration, Jan-Feb 2023

Service Type	Trips Sampled	On-Time	Early (10+ minutes)	Late (10+ minutes)	Average Trip Duration (minutes)
Weekday	957	79%	18%	2%	18.0
Saturday	93	77%	16%	6%	12.2
Sunday	22	91%	0%	9%	13.5
System	1,072	79%	18%	3%	17.4

Figure 25. Paratransit On-Time Performance, Jan-Feb 2023



Service Cancellations

In 2022, an average of 211 service cancellations occurred per month, as shown in Figure 26. These trended higher in the winter months and experienced a steady increase late in the year. Of the 2,542 trip cancellations in 2022, 769 (30.3%) were identified as "no show", meaning the rider did not show up for their trip (see Figure 27). **Paratransit will only wait for five minutes upon arrival at a scheduled pickup before determining a no-show to maintain a high quality of service for all users.** No show trips can be disruptive to service efficiencies and are costly when occurring on a regular basis.

Figure 26. Paratransit Monthly Cancellations, 2022

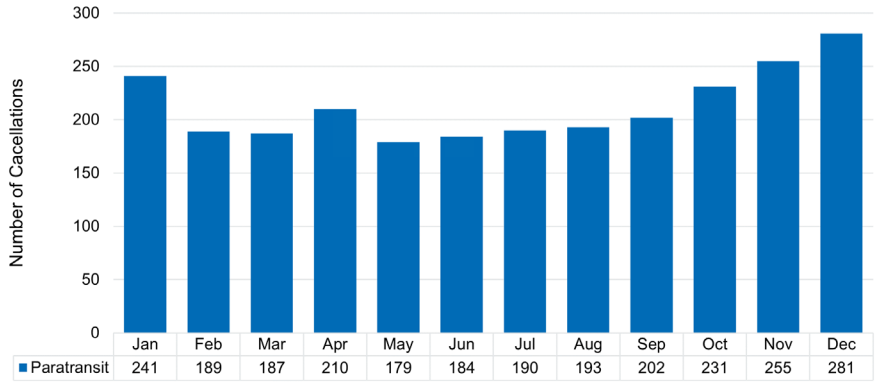
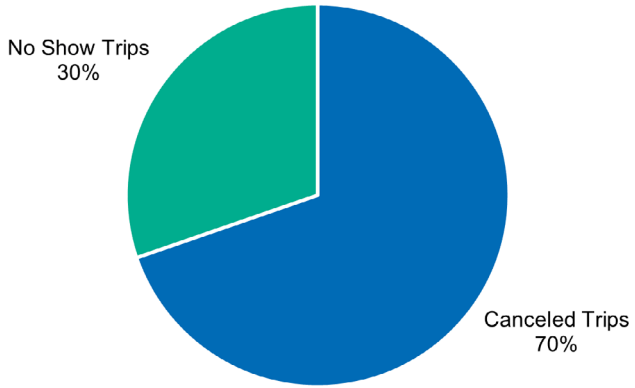


Figure 27. Paratransit No Show Trip Cancellations, 2022



Scheduling Practices

Paratransit service operates from 6:35 AM – 11:00 PM on weekdays, 10:00 AM – 11:00 PM on Saturdays, and 10:00 AM – 4:00 PM on Sundays while school is in session. During the summer months, the service ends earlier to coordinate with fixed-route service times. Paratransit functions as a next day service, meaning customers are required to reserve a trip at least a day in advance by calling the customer service line. Reservations can be made Monday through Friday between the hours of 8:00 AM and 6:00 PM. Ride cancellations or changes must be received at least one hour prior to the scheduled pick-up time.

311 Customer Service currently manages paratransit reservations through a manual process. Rides are reviewed individually to determine if a vehicle is available at the requested trip time. If so, the trip gets assigned and placed in a driver's daily manifest. The manifest contains pertinent information related to trips, including customer names, pick-up/drop-off times, and pick-up/drop-off addresses or location. Throughout their shift, drivers will record actual times and any relevant notes for each trip. The manual process lends itself to a more time intensive reporting process with room for error, partly due to a lack of detail on pick up and drop off locations and inconsistent data entries for trip notes, including actual times and cancellation notes.

Daily Revenue Hours

Paratransit's typical weekday schedule operates 50.25 revenue hours, with a peak vehicle requirement of six, as shown in Table 13. On Saturdays, two vehicles are in operation with a total of 14.25 revenue hours while Sunday has one vehicle operating 5.75 revenue hours. Driver shifts are staggered throughout the day, with most of the overlap occurring between 11:00 AM and 3:00 PM. Per the City of Mankato's 2023 operating budget, paratransit will receive an additional 0.5 FTE to increase daily revenue hours.

Table 13. Paratransit Daily Revenue Service Hours (May to August)

Daily Routes	6:00a	9:00a	12:00p	3:00p	6:00p	9:00p	Revenue Hours
Monday - Friday							
1	6:45a			2:30p			7.75
2		8:15a		4:15p			8.00
3		7:15a		3:00p			7.75
4			10:00a	5:45p			7.75
5				1:45p		9:45p	8.00
6		8:15a	11:30a				3.25
7			11:45a	7:30p			7.75
Weekday Vehicles	1 2	4 4	5 5	5 6 6	5 4	3 2 2 1 1	50.25
Saturday							
1			10:00a	4:45p			6.75
2			10:00a	5:30p			7.50
Sunday							
1			10:00a	3:45p			5.75

Service Efficiency and Effectiveness

Service efficiency and effectiveness are measured by comparing operating expenses to both hours of service and the number of passenger trips provided. The onset of the COVID-19 pandemic has impacted these metrics nationwide as operating expenses are on the rise while ridership of fixed-route services remains lower than pre-pandemic levels for most transit agencies. To determine MTS's paratransit service efficiency and effectiveness trends, the analysis compiled readily available data from the National Transit Database (NTD) for demand response service for the last 9 years (2013 to 2021). The results of this analysis are summarized in Figure 28 and Figure 29.

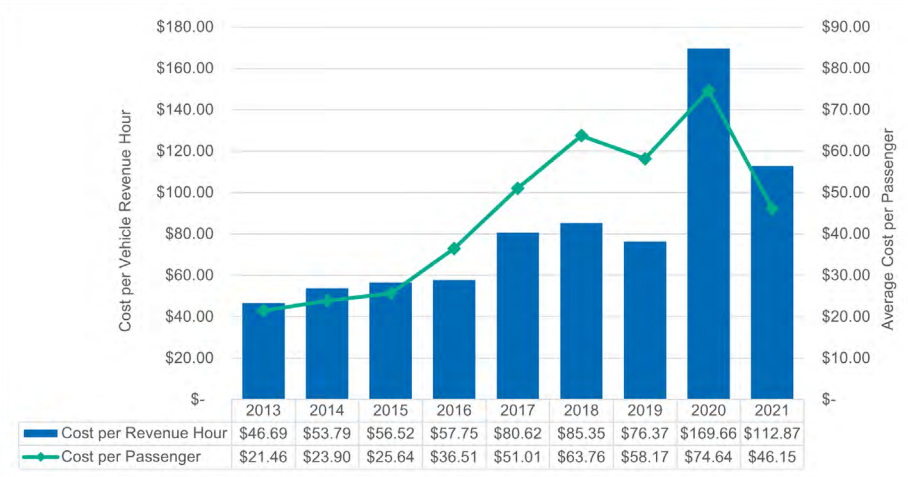
Figure 28. Paratransit Annual Operating Expenses versus Vehicle Revenue Hours, 2013-2021

Operating expenses have continued to grow and are at an all-time high at over $900,000 ($926,896) in year 2021. Vehicle revenue hours grew at similar rate between 2013 and 2019, achieving over 9,000 hours, but they have since decreased due to increases in cost per revenue hour (Figure 29) and budget limitations.

Vehicle revenue hours in year 2020 were underreported by not including deadhead trips between pickups. They likely exceeded 9,000 hours or were somewhere between 2019 and 2021 levels. This reporting error also impacts the cost per passenger, which was trending down in year 2020, and it impacts the cost per revenue hour which was likely closer to $100.

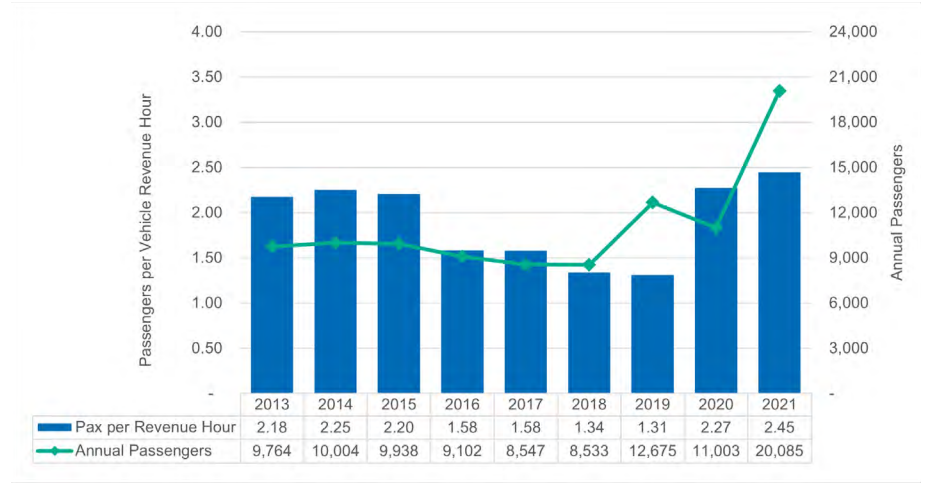
Figure 29 shows that the cost per revenue hour started to increase in 2017 and reached an all-time high of $112.87 per revenue hour, despite a reduction in the total vehicle revenue hours provided in 2021. While operating expenses are on the rise, passenger trips have increased at a higher rate and therefore improving effectiveness measures.

Figure 29. Paratransit Service Cost per Revenue Hour and Cost per Passenger, 2013-2021



	2013	2014	2015	2016	2017	2018	2019	2020	2021
Cost per Revenue Hour	$46.69	$53.79	$56.52	$57.75	$80.62	$85.35	$76.37	$169.66	$112.87
Cost per Passenger	$21.46	$23.90	$25.64	$36.51	$51.01	$63.76	$58.17	$74.64	$46.15

Figure 30. Paratransit Service Annual Ridership versus Passengers per Revenue Hour, 2013-2021



	2013	2014	2015	2016	2017	2018	2019	2020	2021
Pax per Revenue Hour	2.18	2.25	2.20	1.58	1.58	1.34	1.31	2.27	2.45
Annual Passengers	9,764	10,004	9,938	9,102	8,547	8,533	12,675	11,003	20,085

The paratransit service passenger per revenue hour average for 2021 was 2.4, which is about double the performance of 2019 just before the COVID-19 pandemic. This resulted in a cost per passenger average of $46.15, a 21 percent decrease compared to 2019.

The improvement in the productivity of paratransit service despite a significant increase in cost, between 2013 and 2021, was driven mostly by a ridership increase (**Figure 30**). Annual ridership nearly doubled pre-pandemic levels, increasing performance per revenue hours and offsetting increases in cost.

A review of 2022 sample data for the months of April through December resulted in an average passengers per revenue hour of 2.7, a 13 percent increase over 2022. It is important to note that the improvement in performance of the paratransit system was made possible by the knowledge of the service area and client base of dispatch and scheduling staff and bus drivers. They have demonstrated that the system can absorb growth with careful scheduling of trips and drivers.

Summary and Key Findings

MTS's Paratransit (Mobility Bus) and Kato Flex services have both experienced successes in recent years. When looking at ridership, both services have proven their need through continual growth. Paratransit is currently experiencing ridership levels above pre-COVID levels, despite operating fewer revenue hours. While monthly ridership leveled off in 2022, the overall positive trend indicates a latent

demand exists. MTS's plans to add service to Paratransit in 2023 will likely result in immediate ridership growth. Kato Flex has also experienced ridership growth since operations began in June 2019. 2021 brought a record ridership year after adding the North Mankato service area but was followed by a 9 percent decline in 2022. Monthly ridership in 2022, however, saw an increasing trend throughout the year. Future ridership growth on Kato Flex will be partially driven by the number of revenue hours operating on the service. MTS currently has enough vehicles to respond to growing demands but will need to allocate additional staffing time to increase daily ridership.

Both Paratransit and Kato Flex services provide a high quality of service and have proven to be a reliable option for MTS customers. Service denials remain low, averaging around four denials per month in 2022 on both services combined, and positive trends have been observed with on-time performance metrics. Trips were on time 79 percent of the time for Paratransit and 77 percent for Kato Flex. The high number of trips arriving on time provide reliability to customers and gives them confidence that they will reach their destinations on time, a key factor in maintaining and growing ridership. One observation that, if addressed, could lead to higher daily ridership is the number of trip cancellations. In total, both services experienced over 3,600 canceled trips in 2022. Of those trips, nearly a third were labeled as "no-show" trips. To lower these figures, MTS staff should consider additional training and outreach needs, with targeted efforts to customers with repeat cancellations to determine the underlying causes of not being able to ride the service as planned. Development of a no-show policy should also be considered to prevent excessive no-show trips for individuals riding the services.

A final observation relates to current scheduling practices for both Paratransit and Kato Flex services. Currently, 311 Customer Service manages trip reservations and bookings through a manual process. While manually scheduling trips has worked for MTS so far, there are limitations that come with this approach that may be impacting service efficiency. In addition, a manual process leaves room for error when reporting key metrics on the service provided, including ridership, on-time performance, trip notes, and cancellation data. MTS has an opportunity to review alternative scheduling methods through their upcoming Technical Assistance Plan. While reviewing scheduling tools, MTS staff should consider both the back-end management of an automated tool, including reporting tools and trip booking algorithms, and the overall user experience for customers. These factors play a key role in the success of the service being provided.

Peer Agency Review

This peer review compares Mankato Transit System's (MTS) operating characteristics against those of peer transit agencies with comparable service areas and characteristics. Five transit agencies located in Wisconsin, Iowa, Minnesota, and Illinois were chosen as peers. Contrasted metrics are:

- Urbanized and service area square mileage, population, and density
- Transit service provided
- Transit vehicles operated in maximum service
- Vehicle revenue miles and hours
- Total ridership and ridership per revenue mile and hour
- Farebox recovery
- Subsidy per passenger
- Funding sources of operating and capital expenses

All statistics presented in this analysis are derived from the National Transit Database's (NTD) dataset for Fiscal Year (FY) 2021, the most recent year for which annual data was available at the time of publication.

Peer System Selection

Peers were selected based on a comparison of operational characteristics (unlinked passenger trips, vehicles operated in maximum service) and service area characteristics (size of service area, service area population, service area density, UZA population, number of cities served, number of colleges/universities served, size of universities). This comparison found the highest scoring peers to be:

- Eau Claire Transit, Eau Claire, WI
- The Jule, Dubuque, IA
- CyRide, Ames, IA
- Dekalb Public Transit, Dekalb, IL
- Janesville Transit System (JTS), Janesville, WI

Urbanized Area and Service Area Characteristics

In comparison to the selected peers, MTS's UZA has a population of 57,584, 20 percent below the peer average. Of the peers, CyRide, which operates in Ames, IA has the smallest UZA population (60,438), while Eau Claire, WI served by Eau Claire Transit, has the largest (102,852). Table 14 details the urbanized area and service area characteristics for MTS and each of the five peer agencies.

Table 14. Systems Selected for Peer Analysis

Agency Name	Urbanized Area		Service Area		
	City	Population	Population	Square Miles	Population Density (pop/sq mile)
Mankato Transit System	Mankato, MN	57,584	59,793	32	1,868
Eau Claire Transit	Eau Claire, WI	102,852	77,027	28	2,750
The Jule	Dubuque, IA	67,818	60,140	26	2,313
CyRide	Ames, IA	60,438	54,445	15	3,629
Dekalb Public Transit	Dekalb, IL	68,545	50,091	19	2,636
Janesville Transit System	Janesville, WI	69,658	65,615	28	2,343
Peer Group Analysis					
Low Value		57,584	50,091	15	1,868
High Value		102,852	77,027	32	3,629
Average Value		71,149	61,185	25	2,590

Source: National Transit Database, Transit Agency Profiles for 2021

Comparing the service area population, Dekalb Public Transit serves the lowest population (50,091), while Eau Claire Transit serves the highest (77,027). MTS's service area population (59,793) is 3 percent lower than the peer average. Of the peers, The Jule serves the lowest population density (2,313 residents per square mile), while CyRide, located in Ames, IA serves the densest (3,629 residents per square mile). MTS's population density (1,868 residents per square mile) is 28 percent lower than the peer average (2,590 residents per square mile).

Finally, the CyRide located in Ames, IA, serves the smallest area (15 square miles), while the Eau Claire and Janesville Transit systems serve the largest (28 square miles). MTS's service area (32 square miles) is 28 percent larger than the peer average.

Overall, in terms of similarities, MTS is most similar to:

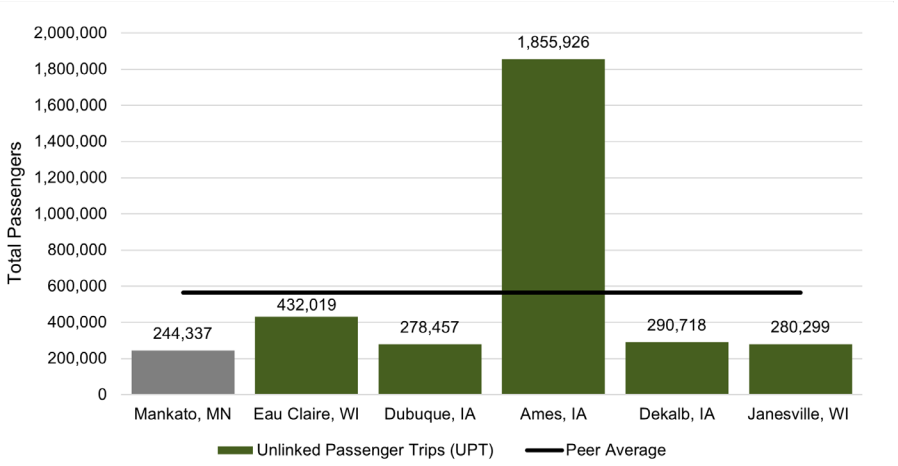
- UZA Population – CyRide, Ames, IA
- Service Area Population – The Jule, Dubuque, IA
- Service Area Square Miles – Eau Claire Transit System, Janesville Transit

Peer Analysis

Ridership Metrics

Total annual transit ridership is an indication of the number of people using the service and is often related to the size of the transit system and the size of the area served. In both the annual ridership and ridership per capita metrics, MTS ranked 6th out of 6 (**Figure 31**). MTS's unlinked bus passenger trips (244,337) was approximately 57 percent lower than the peer average (563,626). Of all peers, The Jule in Dubuque, IA reported the lowest number of annual passengers (278,457) and CyRide in Ames, IA reported the highest number (1,855,926).

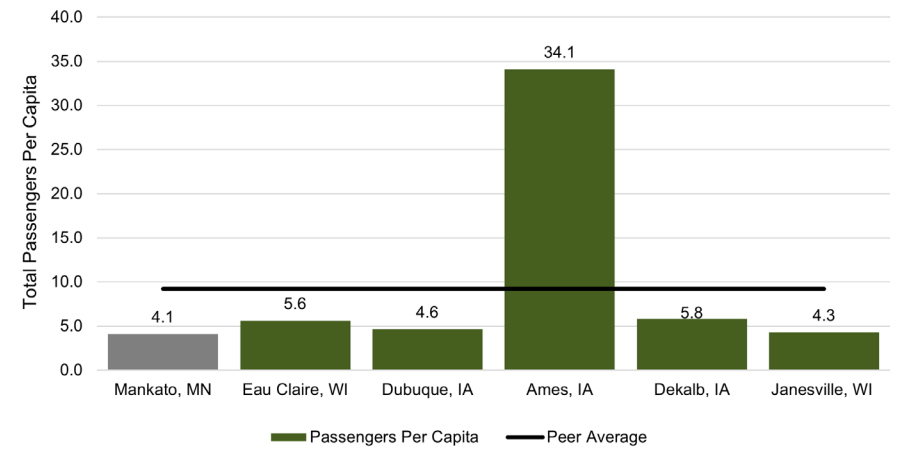
Figure 31. Annual Ridership



Source: National Transit Database, Transit Agency Profiles for 2021

Passengers per capita (**Figure 32**) shows the extent to which the service area population utilizes transit services, with a higher score indicating higher usage. MTS's passengers per capita (4.1) is 56 percent lower than the peer average (9.2). Janesville Transit System has the lowest number of passengers per capita (4.3) while the CyRide in Ames, IA has the highest (34.1).

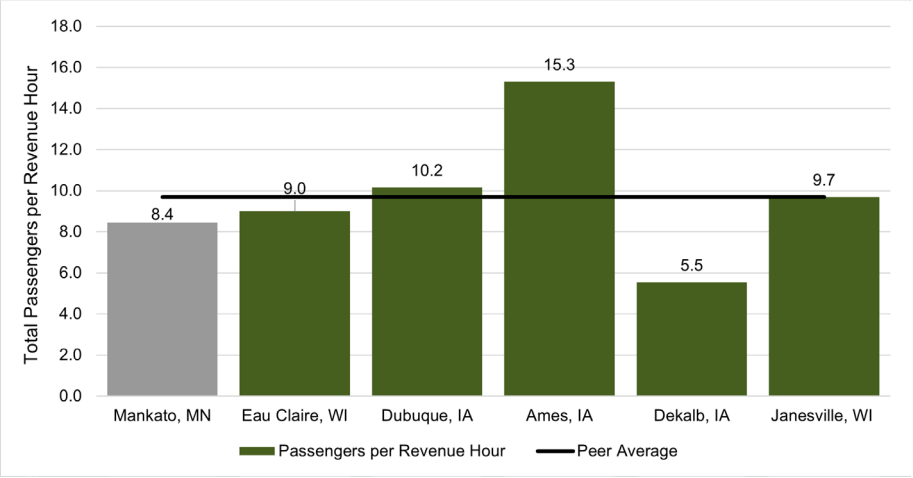
Figure 32. Passengers Per Capita



Source: National Transit Database, Transit Agency Profiles for 2021

Passengers per revenue hour (**Figure 33**) is calculated by dividing the total ridership by the number of revenue hours provided and quantifies the productivity of the service. MTS has 8.4 passengers per revenue hour, ranking 5th out of 6 and 14 percent lower than the peer average (9.7). Dekalb Public Transit has the lowest number of passengers per revenue hour (5.5).

Figure 33. Passengers per Revenue Hour



Source: National Transit Database, Transit Agency Profiles for 2021

Operational Statistics

The number of vehicles operated in maximum service highlights the level of service that each agency provides during peak periods. MTS operates 13 vehicles during maximum service, 39 percent below the peer average (21.3). The Jule in Dubuque, IA operates the lowest number of vehicles (11), while CyRide in Ames, IA operates the highest (55). Table 15 illustrates the operational statistics for MTS and each of its selected peer agencies.

The total number of annual revenue hours (the hours in which the bus is in service and open to the public and/or taking passengers) provided indicates the level of service available throughout the year. MTS's number of revenue hours (28,920) operated annually is lower than most the identified peers and is 44 percent lower than the peer average (51,180). CyRide in Ames, IA operates the highest (121,288) number of revenue hours. When analyzed at the service area level, MTS's revenue hours per capita (0.5) is lower than most identified peers, ranking 5th out of 6, and is 45 percent below the peer average (0.9). Revenue hours per capita indicates how much service is operated on a per person basis within the service area, with a higher value indicating more service per person. The CyRide in Ames, IA has the highest value (2.2) out of the peers.

Table 15. Peer Operational Metrics

Agency	Vehicles Operated in Maximum Service	Revenue Hours	Revenue Hours Per Capita
Mankato Transit System	13	28,920	0.5
Eau Claire Transit	16	47,998	0.6
The Jule	11	27,424	0.5
CyRide	55	121,288	2.2
Dekalb Public Transit	18	52,521	1.0
Janesville Transit System	15	28,927	0.4
Peer Group Analysis			
Low Value	11	27,424	2.2
High Value	55	121,288	0.4
Average Value	21.3	51,180	0.9

Source: National Transit Database, Transit Agency Profiles for 2021

Cost Efficiency

Between MTS and its peers, regular fares range from $0.50 to $1.75. Seniors and persons with disabilities pay reduced fare for all agencies. The cost of a monthly pass ranges from $35 to $50, with MTS' monthly pass ($40) falling slightly below the average ($42.50). Transfers are free in all agencies, and university students ride free in each agency that has a university in its vicinity. Table 16 depicts the fares of MTS and its peers. It should be noted that MTS suspended fare collection during the COVID-19 pandemic, specifically during FY2019, the time for which this Peer Analysis is conducted. For this reason, the consultant team will report relevant data but not draw conclusions on performance based on this metric.

Table 16. Fare Comparison

Fares	Regular	Seniors/ Persons with Disabilities	Monthly Pass	Transfers	University Students
Mankato Transit System	$1.50	$0.75	$40.00	FREE	FREE
Eau Claire Transit	$1.75	$0.85	$50.00	FREE	FREE
The Jule	$1.50	$0.75	$45.00	FREE	FREE
CyRide	$1.00	$0.50	$35.00	FREE	FREE
Dekalb Public Transit	$0.50	$0.25	N/A	FREE	FREE
Janesville Transit System	$1.50	$0.75	N/A	FREE	$2.25
Peer Group Analysis					
Low Value	$0.50	$0.50	$35.00	FREE	FREE
High Value	$1.75	$0.85	$50.00		$2.25
Average Value	$1.29	$0.64	$42.50		$2.25

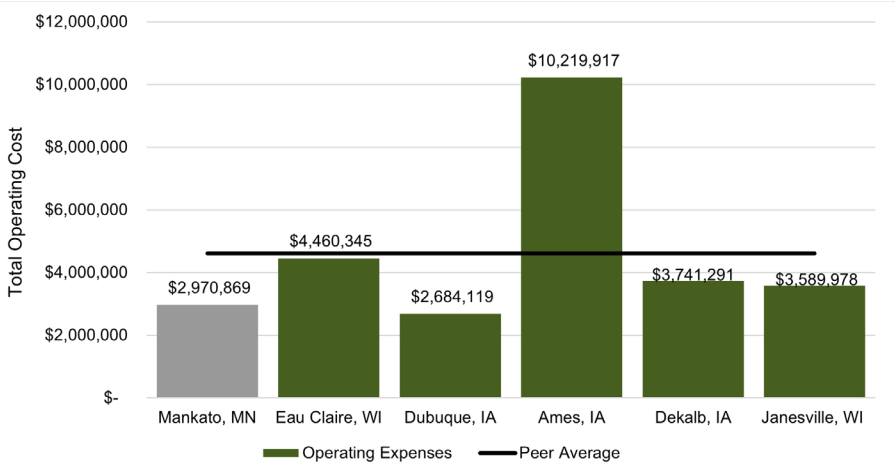
Source: National Transit Database, Transit Agency Profiles for 2021

MTS' operating costs ($2,970,869) are 36 percent below the peer average ($4,611,087) and are lower than most the identified peers. CyRide in Ames, IA has the highest operating costs ($10,219,917) and offers the most revenue hours. Figure 34 depicts total operating expenses for MTS and peer agencies. The differences in total operating cost are driven by the number of revenue hours in Table 15. More hours (service) mean more operating cost.

Operating costs per revenue hour depicts the cost of providing one hour of revenue service. On average, the peer agencies incurred an operating cost per revenue hour of $95.52. MTS' operating cost per revenue hour ($102.73) is 6 percent above the average, ranking the system 2nd out of 6 in terms of efficiency. The Dekalb Public Transit system had the lowest value ($71.23), while Janesville Transit System had the highest ($124.10).

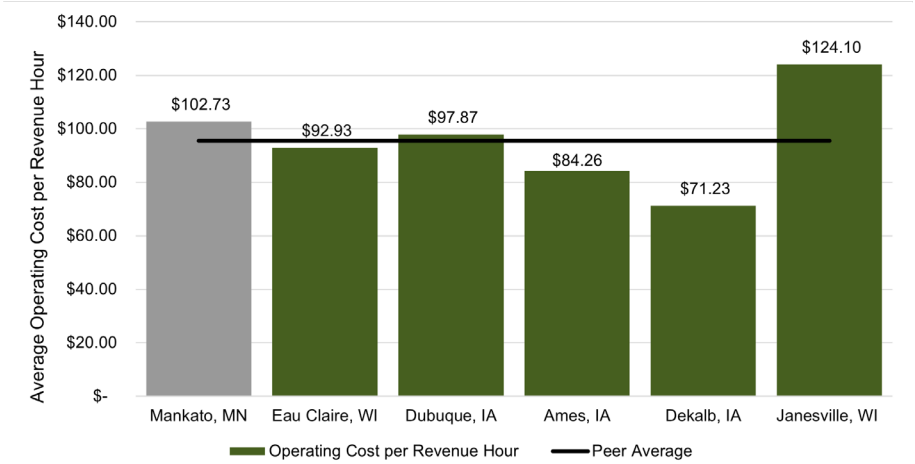
However, MTS' operating cost per passenger ($12.16) is 15 percent above the average ($10.55) and is as high as most of the peers (Figure 35). The Dekalb Public Transit System experienced the highest operating cost per passenger ($12.87).

Figure 34. Total Operating Expenses



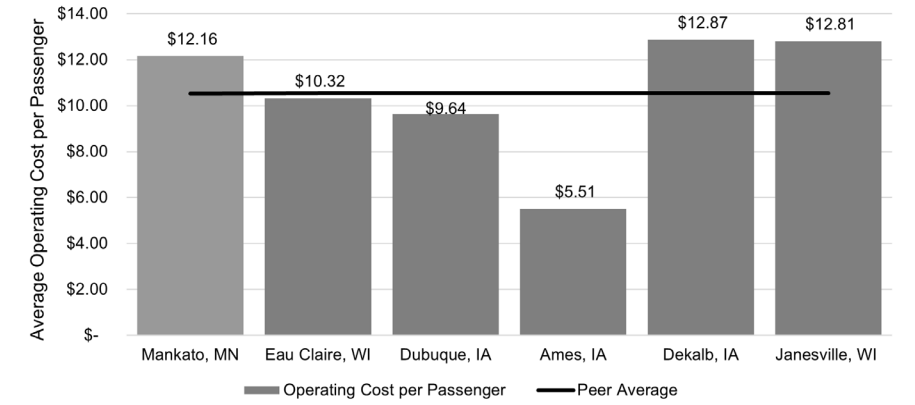
Source: National Transit Database, Transit Agency Profiles for 2021

Figure 35. Operating Cost per Revenue Hour



Source: National Transit Database, Transit Agency Profiles for 2021

Figure 36. Operating Cost per Passenger



Source: National Transit Database, Transit Agency Profiles for 2021

The farebox recovery ratio indicates the total share of operating costs that are covered by fare revenues. The higher the fare recovery rate, the lower the subsidy required. FTA guidelines recommend a farebox recovery ratio of 20 percent for efficient systems. The subsidy per passenger indicates how much it costs the transit agency to provide bus service to each passenger, after subtracting the fare revenue. This cost must be paid by other funding sources, such as local, state, and federal sources. Table 17 depicts service efficiency metrics for each peer agency in terms of total fare revenue, the farebox recovery ratio, and subsidy per passenger.

Table 17. Peer Service Efficiency

Agency Name	Fare Revenue	Farebox Recovery Ratio	Subsidy per Passenger
Mankato Transit System	$0	0%	$12.16[2]
Eau Claire Transit	$708,731	16%	$8.68
The Jule	$345	0%	$9.64
CyRide	$1,592,065	16%	$4.65
Dekalb Public Transit	$2,079,237	56%	$5.72
Janesville Transit System	$338,438	9%	$11.60
Peer Average			
Low Value	$0	0%	$4.65
High Value	$2,079,237	56%	$12.16
Average	$786,469	16%	$8.74

Source: National Transit Database, Transit Agency Profiles for 2021

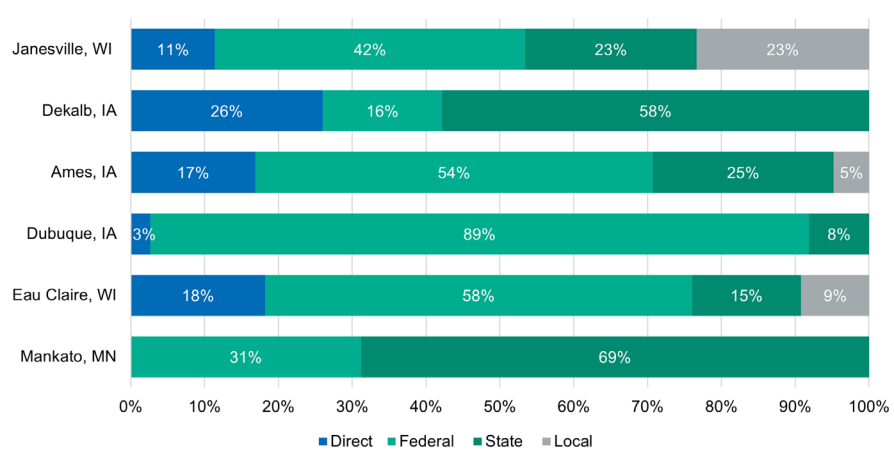
MTS received $0 in fare revenue in 2021 as a result of its pandemic-related policy. The peer average for fare revenue is $786,469 and the peer average farebox recovery ratio is 16 percent. Of the peers, the Dekalb Public Transit has the highest fare revenue ($2,079,237) and farebox recovery ratio (56 percent), with a similarly low subsidy per passenger ($5.72). Of the peers, The Jule in Dubuque, IA receives the least amount of fare revenue ($345), but Janesville Transit System has the highest subsidy per passenger ($11.60).

Resource Allocation

Funding sources are different for each agency, as each agency operates in a unique setting with differing political climates, available funding sources, and policies that dictate how funding can be used. MTS receives more funds from states sources than do the peer agencies but receives less from local sources. **Figure 37** illustrates the funding sources breakdown for each peer agency by federal, state, local, and directly generated funds. In 2021, directly generated funding reported to NTD is $47,218.53 from advertising revenue.

2 The subsidy per passenger reflects FY2021, a year during which no fares were collected. Fare collection has since been reinstated and it is anticipated that subsidy per passenger in future years may be less.

Figure 37. Operating Funds by Source



Source: National Transit Database, Transit Agency Profiles for 2021

Figure 38. Operating Funding per Capita

Source: National Transit Database, Transit Agency Profiles for 2021

Operating funding per capita (**Figure 38**) depicts the amount of operating funding expended per service area resident. MTS' operating funding per capita ($65.19) is 44 percent below the peer average ($115.64) and is lower than most identified peers, ranking 5th out of 6. The CyRide in Ames, IA has the highest operating funding per capita ($228.27).

Summary and Key Findings

- MTS offers a lower level of service than the peer average, operating fewer revenue hours and revenue hours per capita.
- MTS also experiences lower operating costs overall as well as higher operating costs per passenger compared to the peer group average.
- MTS' passengers per capita is 55 percent lower than its peers.
- MTS' passengers per revenue hour is also lower than the average, indicating that less service is offered overall, and fewer residents are utilizing the service.

Table 18 summarizes average peer values in service productivity and cost efficiency in comparison to MTS's metrics.

MTS did not charge fares in 2021 due to the pandemic but did charge fares before the pandemic and has since resumed charging fares. As a result, MTS required a higher subsidy per passenger than its peers and more outside funding. All peer agencies receive at least some federal money. In addition, MTS receives significantly less local and direct funding than its peers, indicating that this is another revenue source to explore.

Table 18. Summary of Average Peer Metrics as Compared to MTS Metrics

Characteristic	MTS Value	Peer Group Average	Difference
Service Productivity			
Vehicles Operated in Max Service	13	21	-38%
Unlinked Passenger Trips (UPT)	244,337	563,626	-57%
Passengers per Capita	4.1	9.2	-55%
Passengers per Revenue Hour	8.4	9.7	-13%
Cost Efficiency			
Operating Cost per Revenue Hour	$102.73	$92.52	11%
Operating Cost per Passenger	$12.16	$10.55	15%
Operating Funding per Capita	$65.19	$115.64	-44%
Operating Costs	$3,897,765	$6,848,419	-43%
Fare Revenue	$0.00[3]	$1,058,144	
Subsidy per Passenger	$12.16	$8.74	39%
Farebox Recovery Ratio	0%	16%	-100%

Source: National Transit Database, Transit Agency Profiles for 2021

3 Reflects temporary pandemic-related fare-free policy

First Round of Public Engagement

The project team heard **over 500 comments** from community members who shared their experiences, ideas, and concerns regarding the current transit system with the goal of improving the future of Mankato's transit and mobility. This phase of engagement included two focus group meetings, two in-person public engagement events, and two online engagement opportunities.

Timeframe and Activities

Engagement Activity	Date
Service Staff Meeting Session #1	March 29, 2023, 7:30 a.m. – 6 p.m.
Service Staff Meeting Session #2	March 30, 2023, 5:30 a.m. – 5:30 p.m.
Online Comment Map: INPUTiD™	April-May 2023
Online Survey #1	April 2023
Open House #1: Project Community Connect	April 18, 2023, 1:00-4:00 p.m.
Mankato State Pop-up Meeting	April 18, 2023, 3:00-4:00 p.m.
Business Group Meeting	April 27, 2023, 8:30-9:30 a.m.
Community Advisory Panel Meeting #1	June 2, 2023, 1:00-2:00 p.m.

What we heard

Throughout the first round of engagement, information was collected regarding the existing conditions of Mankato's Transit System. The project team documented comments received from our in-person and digital opportunities. From these engagement efforts, common themes emerged from community members for potential system change desires and opportunities for the future.

Communications

- Need more consistent and easier to understand branding across all City, MNSU, and North Mankato transit including logo consistency, bus route maps, branding on all buses, and benches/shelters
- Would be nice to have a simpler mapping system to show stores, places of

worship, post offices, etc. and where they are along the route
- Advertisement and education regarding available services – particularly curb-to-curb services
- There is a language barrier – Need for Somali and Spanish translated materials (entire transit site or program that can read the information on the site to them in their native language)

Schedule

- Mobility needs, construction, rush hour, and school buses greatly impact the ability to stay on schedule and should be considered in the schedule
- Consider adding summer night mobility service for basic access to activities and amenities
- Need for more evening/night routes for workers and students
- Many students have to sacrifice basic needs due to their inability to get around (lack of service), especially on the weekends

Safety

- Safety concerns when drivers feel rushed due to tight schedules
- General concern about not being able to see pedestrians due to poor lighting or large signage
- Safety concerns at the Downtown Central Hub at Cherry Street - riders do not want to wait in this sheltered stop due to odors, concern with safety and presence of homeless in the structure

Stops/Service Area

- Ensure clear signage at each stop
- Improve accessibility at bus stops
- Add stops at popular destinations – YMCA, stores/shopping centers, places of worship
- Greater connection between MNSU and downtown, particularly to grocery stores that cater to variety of budgets and dietary needs
- Additional stops by larger apartment/living complexes
- Further extend services to outer ranges of the city on the North, West, and South sides of the city

Staffing

- Concern about losing staff during the summer months causing tight schedules
- Overall interest between staff and operators in having a 311 operator at the transit center to make communication easier
- Operations and scheduling are very difficult and could use more help

Ridership

- General interest in more educational opportunities about how to use transit, service fares, accessibility, etc.
- Concern that easy access to parking downtown and chauffer services like Uber and Lyft makes transit less relevant

ADA

- Concerns about bus stops not being ADA complaint (only 7% are currently ADA complaint) and making sure maps are correctly showing stops
- Receiving a high number of paratransit applications and mobility services are rapidly growing – interest in why this is happening and what the criteria is for paratransit
- Residents with mobility limitations have difficulty accessing events and appointments in evening and weekends due to lack of service
- Like the ability to call ahead and book a time for service
- Lack of weekend service for those using mobility services

Technology

- Interest in improving technology on buses for automated ride trackers and milage entry
- Bus camera data should be stored in the cloud and protocol for overriding data should be standardized
- Interest in tablet-based tools for drivers to record information

Service Issues from Previous TDP

In the spring and summer of 2017, the Mankato TDP team actively engaged the public, community stakeholders and decision-makers, and technical experts to provide feedback and recommendations regarding the MTS. Information was gathered through pop-up events at Project Community Connect and at Minnesota State University, Mankato (MNSU-Mankato), rider and non-rider surveys, focus groups with universities and non-profits, operator interviews/surveys, data collection and analysis, community meetings, and the satisfaction surveys from Mankato and North Mankato.

Transit Service

- **Frequency and overloads:** Frequency of service is the primary source of public and stakeholder dissatisfaction. The desire for improved frequency of the existing service was cited more than any other issue. The performance issues that accompany less frequent service, such as long overall trip durations, long transfers, and overcrowded buses were also frequently identified.
- **Service area:** Equitable access to Mankato bus service was identified as another major public and stakeholder concern. The public and stakeholders provided comments on service area expansion and right-sizing needs. In terms of expansion, lack of both bus and ADA complementary paratransit service in North Mankato was identified as the greatest service area issue. Stakeholders and the public also identified potential to right-size bus service in some parts of the 2017 service area where bus service reductions could be made without negatively impacting Mankato Transit System ridership and customer experience. Stakeholders and the public identified parking lot stops at specific buildings as potential service reduction areas, due to the time the stop adds to the routes without serving many passengers.
- **Schedules:** The span of bus service (i.e. the hours per day, days of the week, and days of the year) was identified as one of the most limiting factors to passenger access. The desire for later evening routes was the second highest ranked improvement noted by the public, after service frequency. Although the route may exist, if the hours of operation do not align with when a trip needs to be taken, transit is not a viable option. Service span issues identified include:
  - Lack of early morning routes
  - Limited Saturday service, especially early morning service
  - Lack of Sunday service (bus and Mobility Bus)
  - Lack of service for 2nd shift workers
  - Lack of year-round service (for routes that service the MNSU-Mankato area)
  - Limited Mobility Bus nighttime service
  - Lack of year-round Mobility Bus service
- **Fare structure:** The current standard bus fare ($1.50 per ride) is considered too expensive for many people in the Greater Mankato area who are transit-dependent. High school students, people with low-incomes, and senior citizen passengers all indicated that the current fare inhibits transit access. The Mobility Bus fare ($3.00 one way) was also identified as too high for many passengers with disabilities.
- **Payment methods:** Fare options and payment flexibility were often cited as a barrier to riding MTS. The lack of fare options for those other than MNSU-Mankato students (i.e., a public Mav Card, senior pass card, or prepay card) was often cited as an issue. The lack of farebox flexibility (i.e., payment via a smartphone) was also noted as an issue.

Reliability and on-time performance

- **Schedule performance:** The dependability of the Mankato bus service was identified as an issue among the public and stakeholders, who shared that buses frequently run ahead of schedule and leave stops early. Based on arrival and departure data collected through the May 2017 ride-checks for this planning process, MTS systemwide average on-time performance was 69 percent, which is below the agency's target of 90 percent.
- **ADA complementary paratransit accessibility:** Several issues were identified for the Mobility Bus service. These included getting a ride with the service due to capacity issues, limited service to North Mankato, and difficult eligibility paperwork. It was also noted that there are many people who do not qualify for Mobility Bus services but still have mobility-related challenges that result in a difficult time accessing fixed-route services.

Route directness and simplicity

- **Directness:** While all MTS routes currently meet the standard, issues related to directness were identified by stakeholders. The public indicated that the travel times on some routes were too long, indicating potentially indirect or circuitous routes. For example, routes around the MNSU-Mankato campus were identified as being too indirect to major destinations.
- **Transfers:** The long duration of transfers (30 minutes to an hour in some cases) was identified as an issue by the public and stakeholders. This can indicate a few issues: 1) timing of connections are not well-coordinated to allow reasonable transfer times; or 2) the frequencies of connections are low.
- **Designated stops:** The lack of designated stops was identified as an issue. Flag stop operations, specifically, presented concerns:
  - Confusion on how the operation works, preference for establishing designated stops
  - Safety concerns regarding sudden and/or mid-block stops
  - Reliability of service (early or late bus arrivals, number of overall stops)

Infrastructure

- **Bus stop amenities:** MTS had 86 official bus stops in 2017. Outside of these locations, passengers can flag down routes and board the vehicles at any point along the route. The primary bus stop inadequacies identified were related to information dissemination and wayfinding. According to the public and stakeholders, MTS bus stops are generally deficient in providing adequate route information, real-time arrival information, and directional/destination information. Less frequently identified bus stop issues included unclear bus signage, lack of benches and shelters, and unappealing shelters. Disability access at bus stops was cited as a concern, such as the lack of landing pad space to accommodate extendable/retractable bus ramps.
    - For example, a comment received by a Route 3 operator cited the need for ADA accessible stops to eliminate the need to "stop in an intersection or in the middle of the street almost, to allow the ramp to come out". Sidewalks exist along much of Route 3, but these sidewalks are at times set far back from the road or located sparsely along one side of the street.
- **Vehicles:** Issues that were identified related to buses were primarily concerned with disability access. The public and stakeholders also identified issues pertaining to the vehicles' condition and features. The most cited vehicle feature and condition issues that were identified include unattractive bus exteriors, bland interiors, and the lack of Wi-Fi available on buses. Public and stakeholder comments generally cited clean and well-kept bus interiors. One exception identified was the need for updated seats in some buses that currently have worn and soiled textile-covered seats.

Safety

- **Lighting:** Lack of lighting at bus stops was cited as an issue by the public and stakeholders. Lack of lighting can be a safety issue (dark bus stops in the evenings and winter months can create an unsafe environment for waiting passengers) as well as a performance issue (drivers noted the difficulty of seeing passengers waiting at dark stops).
- **Unsafe crossings:** Unsafe pedestrian crossings were cited as a safety issue, primarily by bus operators observing passengers crossing the street directly in front of buses at locales without proper crosswalks.
- **Loitering:** Loitering was identified as an issue by operators who observe passengers loitering on buses (remaining on the bus for two or more trips). While loitering impacts seat availability, it can also impact the feeling of safety and security for drivers and passengers.

Where Do We Want to Go?

Transit Market Analysis

This section presents an analysis of current and potential transit service markets in the greater Mankato area. The purpose of the analysis is to understand whether the MTS is meeting the mobility needs of the community, whether there are gaps in service, and/or parts of the service area that are not receiving sufficient service to satisfy travel needs.

To this end, the analysis looks at demographic and socioeconomic characteristics that explain the origins of trips in the service area such as the distribution and relative concentration of the general population and subsets of the population that are typical users of transit – low-income individuals, persons of color, and seniors, who are disadvantaged groups that MTS may want to prioritize when designing transit service.

The analysis also looks at characteristics that explain trip destinations such as the distribution of jobs in the service area and the origin-destination travel patterns of work and school trips and all other trips – shopping, medical, social and recreational, errands, etc.

In looking at these variables, the analysis builds an assessment of whether MTS is providing adequate access to the areas of the city with the highest trip activity and personal mobility needs, and whether the design of the service is providing convenient travel options along major origin-destination trip patterns.

The findings of this analysis helped MTS rethinking its transit service offering to not only increase access to economic and quality of life opportunities to disadvantaged groups in the service area, but also to provide adequate service to the largest travel markets in the greater Mankato service area.

Job Distribution in Mankato Area

Figure 39 and Figure 40 below show two different ways of looking at the distribution of employment in the Mankato area. Figure 39 shows employment density (jobs per acre) or the relative concentration of employment for each census block group. Figure 40 shows the total number of jobs for each census block (or total jobs per block). Figure 39 helps to compare employment density with other census demographic and economic characteristics at the block group level. Figure 40 helps to provide a more accurate location of major employers and job opportunities in the service area.

Figure 39. Mankato Area Employment Density

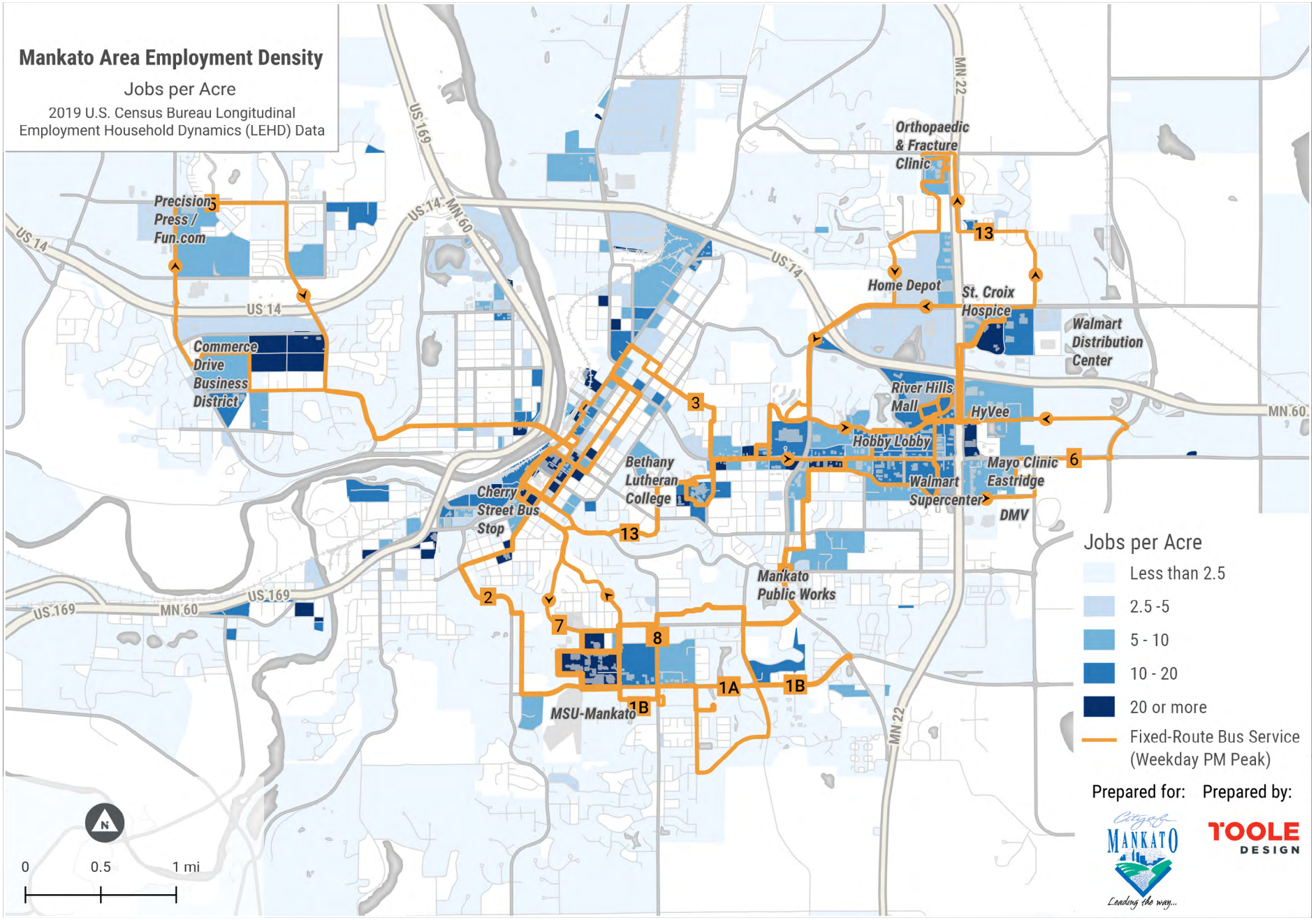
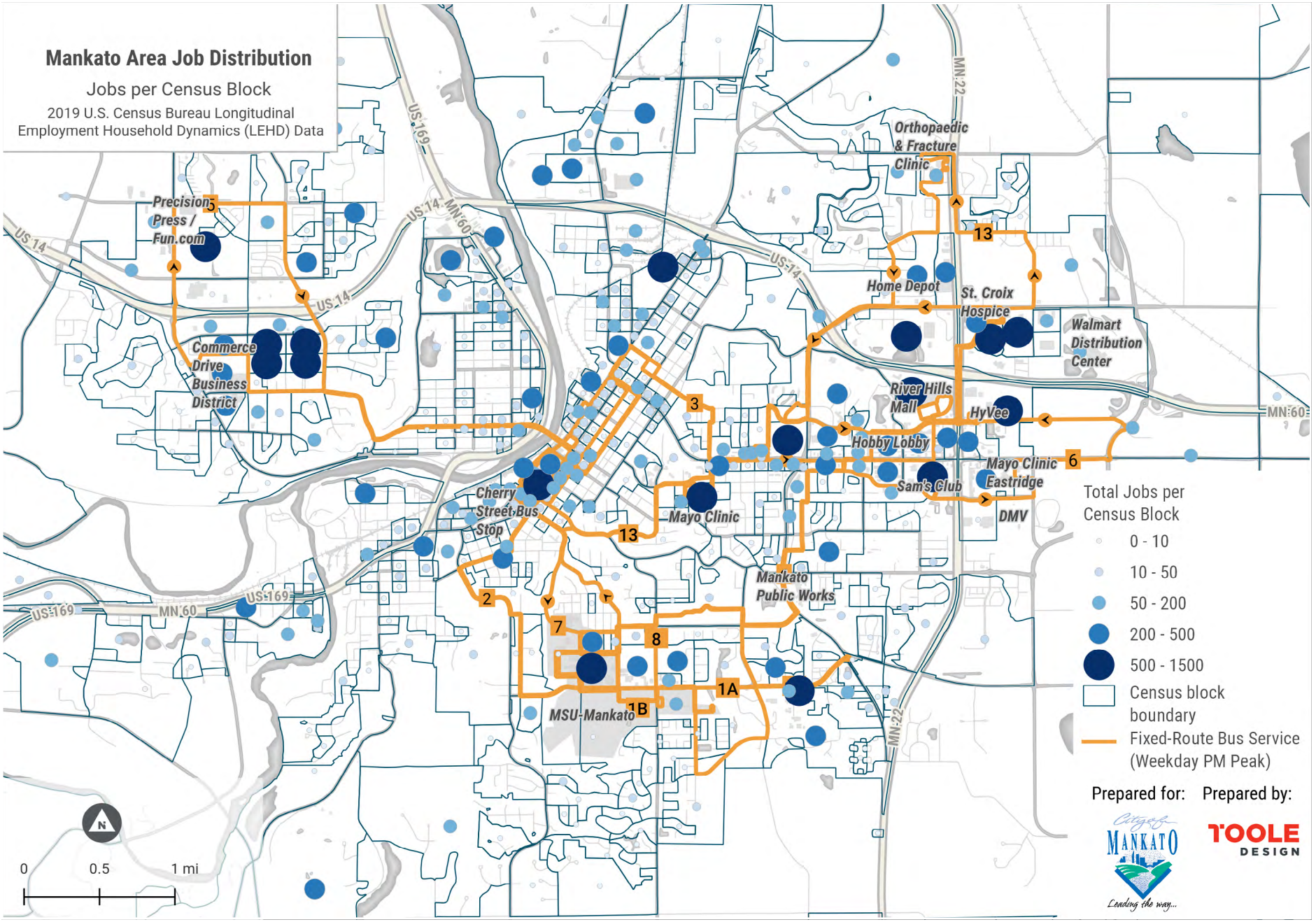


Figure 40. Mankato Area Job Distribution



The two figures highlight urban areas and corridors with major employment concentrations:

- In North Mankato:
  - South of US 14: South Central College and other employers in the Commerce Drive Business District
  - North of US 14: Precision Press and other employers in the Lookout Drive Business District
- Along N Riverfront Drive including Downtown Mankato, Germania Park, Tourtellotte Park, continuing south of downtown between the Minnesota River and Riverfront Drive to Sibley Park.
- At the MNSU-Mankato Campus and businesses supporting the campus environment.
- At the Mayo Clinic Health System Campus between Main and Madison and suburban business parks and big box retail shopping along Madison Avenue, including Madison East Center, Hobby Lobby, the River Hills Mall, Sam's Club, Walmart and others.
- On both sides of State Highway 22 north of US 14, including additional big box shopping such as the Home Depot, Menards, Fleet Farm, but also distribution centers for Walmart and FedEx.

Many of the densest employment areas are served by Mankato Transit, although service hours to major employment locations on the outskirts of the urban area are limited. For example, Route 5 and Kato Flex serve educational centers and employment hubs in North Mankato including the Taylor Corporation, and South Central College. However, Route 5's hours are Monday-Friday from 6:05 – 8:35 AM and 3:05 – 5:05 PM, while Kato Flex operates from 8:00 AM – 4:00 PM. These diverse employment areas have first, second and third shift work hours that are not well served by those limited times.

The MNSU-Mankato campus is well-served by the transit system. Downtown Mankato and the commercial areas in eastern Mankato are well-connected to several transit lines, but as noted above, the service to most of these areas ends before 6:00 PM on Citywide services and during the summer months. **Retail employees or shoppers are not well served by those limited times.**

Employment areas in Germania Park and south of downtown are not currently served by the fixed-route system. Employment locations in the northeast part of the service area such as the Orthopaedic & Fracture Clinic and Walmart Distribution Center are a distance from the next transit destination. Extensions of service to these locations put stress in the system by spreading service hours and miles through areas without much activity and poor accessibility for those on foot

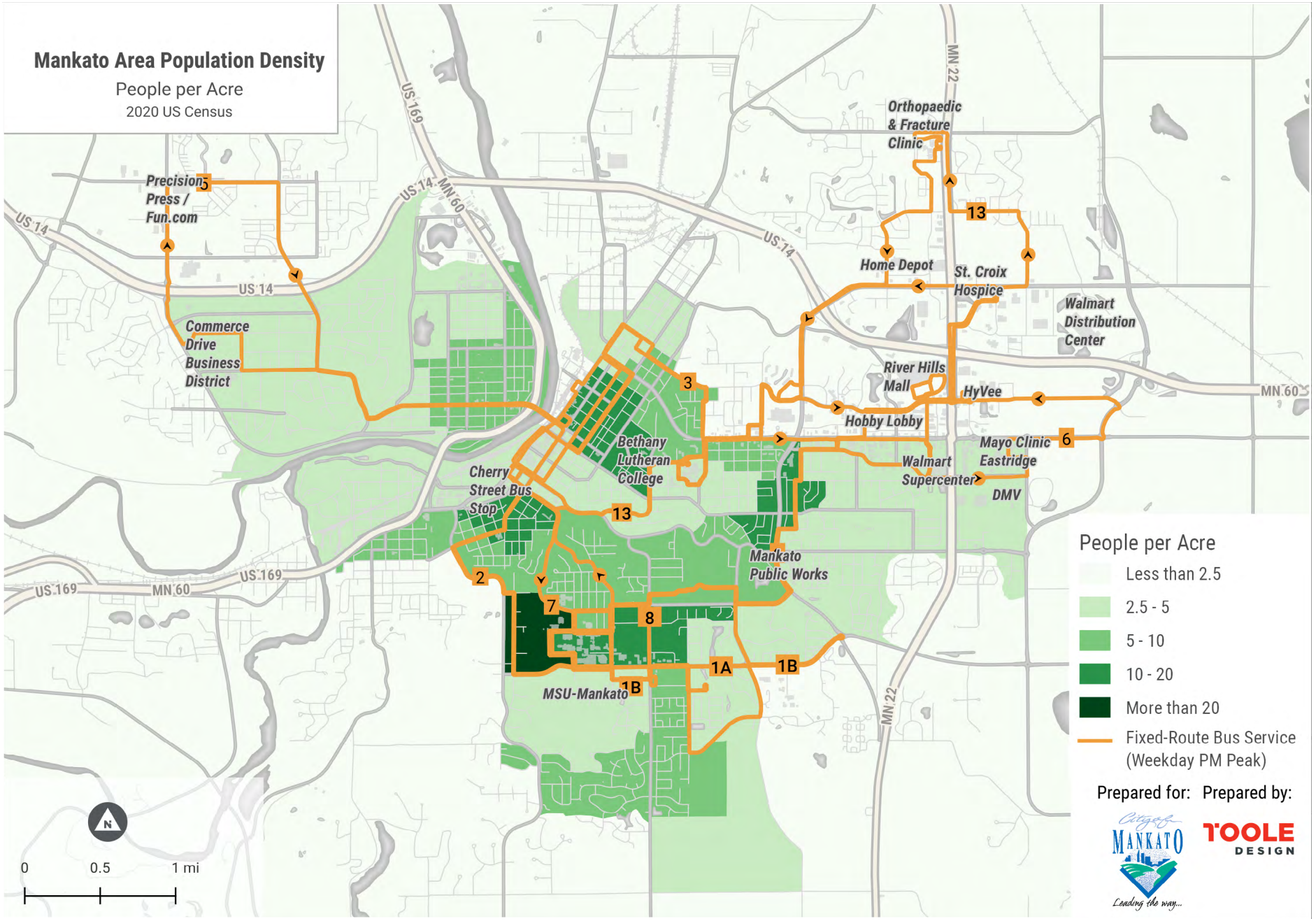
Population Density

Figure 41 displays the population density in the Mankato area by census block group. The area with the densest population is along Stoltzman Road downhill from the MNSU-Mankato campus. There are also areas with moderate density (10-20 people per acre) in the central part of Mankato (Lincoln Park, Washington Park, and around Bethany Lutheran College) and near Mankato East Senior High School.

Considering that areas with population density below 5 people per acre generate very low demand for transit service, the existing transit lines provide good coverage of the densest parts of Mankato. Most population concentrations are near existing transit lines. However, there are some areas of moderate-to-low density (5-10 persons per acre) where there is no transit service or extremely limited access to service. Those include:

- Lower North Mankato and the Belgrade Avenue Central Business District
- The residential neighborhoods south of MNSU-Mankato Campus
- The residential neighborhoods north of MNSU-Mankato Campus between Glenwood Avenue, Stadium Road, and Victory Drive, which get limited access to service, only few stops and points of access along major avenues; and
- West Mankato, west of Mankato West High School.

Figure 41. Mankato Area Population Density



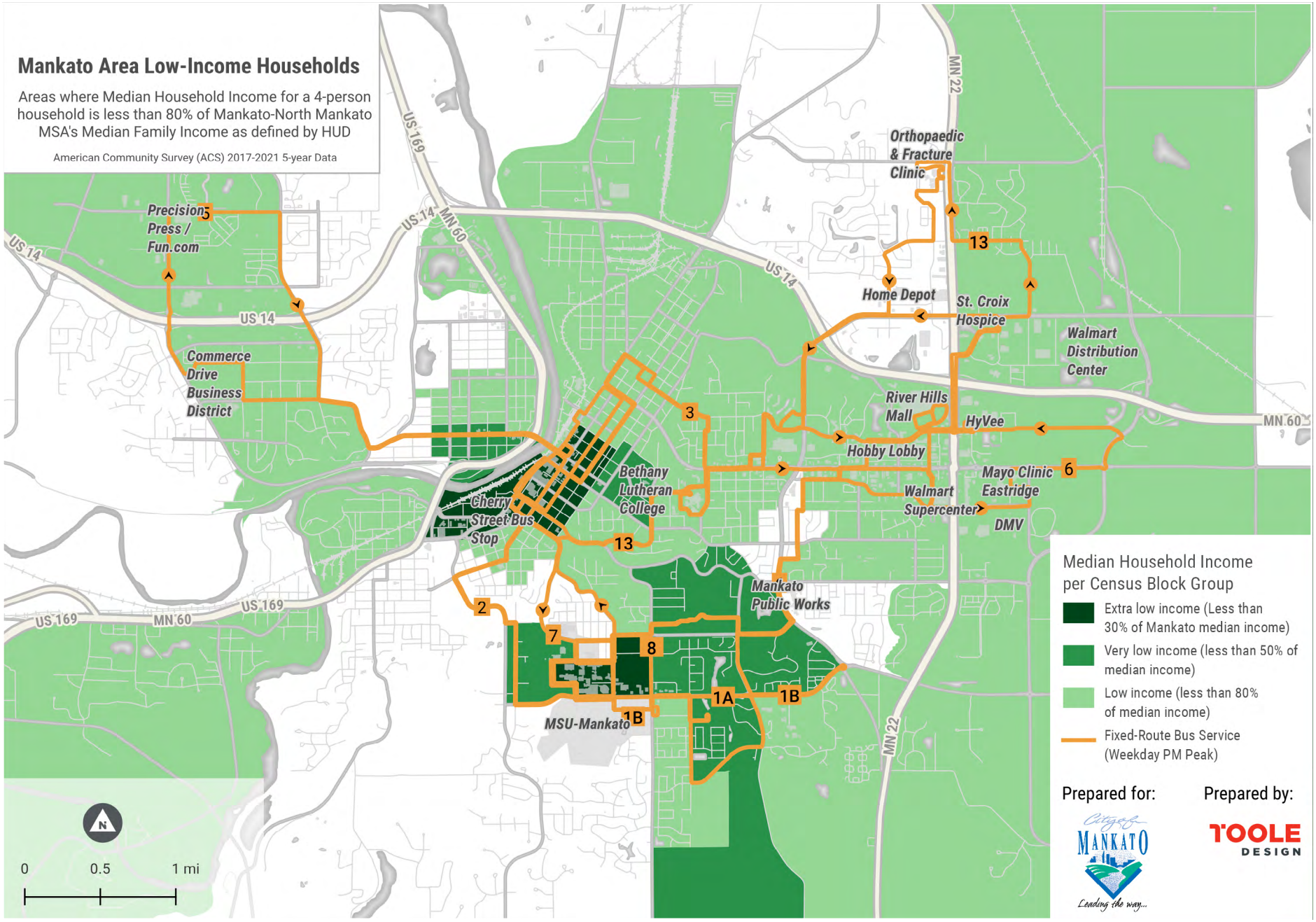
Poverty & Median Income

Mankato may be considered a low-to-middle income community, partly due to the student population. Figure 42 shows the distribution of neighborhoods with median household incomes of 30, 50, and 80 percent of the median household income (MHI) in the urban area. The areas on the map that appear very low (50% of MHI) and extra low income (30% of MHI) provide a reliable base of people who depend on transit for their mobility needs, because there is an established need for transit to provide service to families that may not be able to afford a vehicle or a second vehicle.

The areas around the MNSU campus are populated by undergraduate and graduate students who have very limited incomes, as well as other households with low incomes who live in the area due to affordable rents. The central part of the city (Washington Park and Lincoln Park) has older housing stock that is more affordable to students and households with very low incomes. Southwest of the central city—near the Children's Museum—median household income is less than $27,750. There is a shelter for the unhoused and transient population and a large apartment complex being built in this area, set to open in fall 2023, that is targeted for low-income and senior populations.

Most of the very low and extra low-income areas are served by fixed-route transit service, with the exception of the area around the Children's Museum. There is an opportunity to better connect this area with the greater system by extending service along S Riverfront Drive to the Sibley Park neighborhood.

Figure 42. Mankato Area Low-Income Households



Senior Population Density

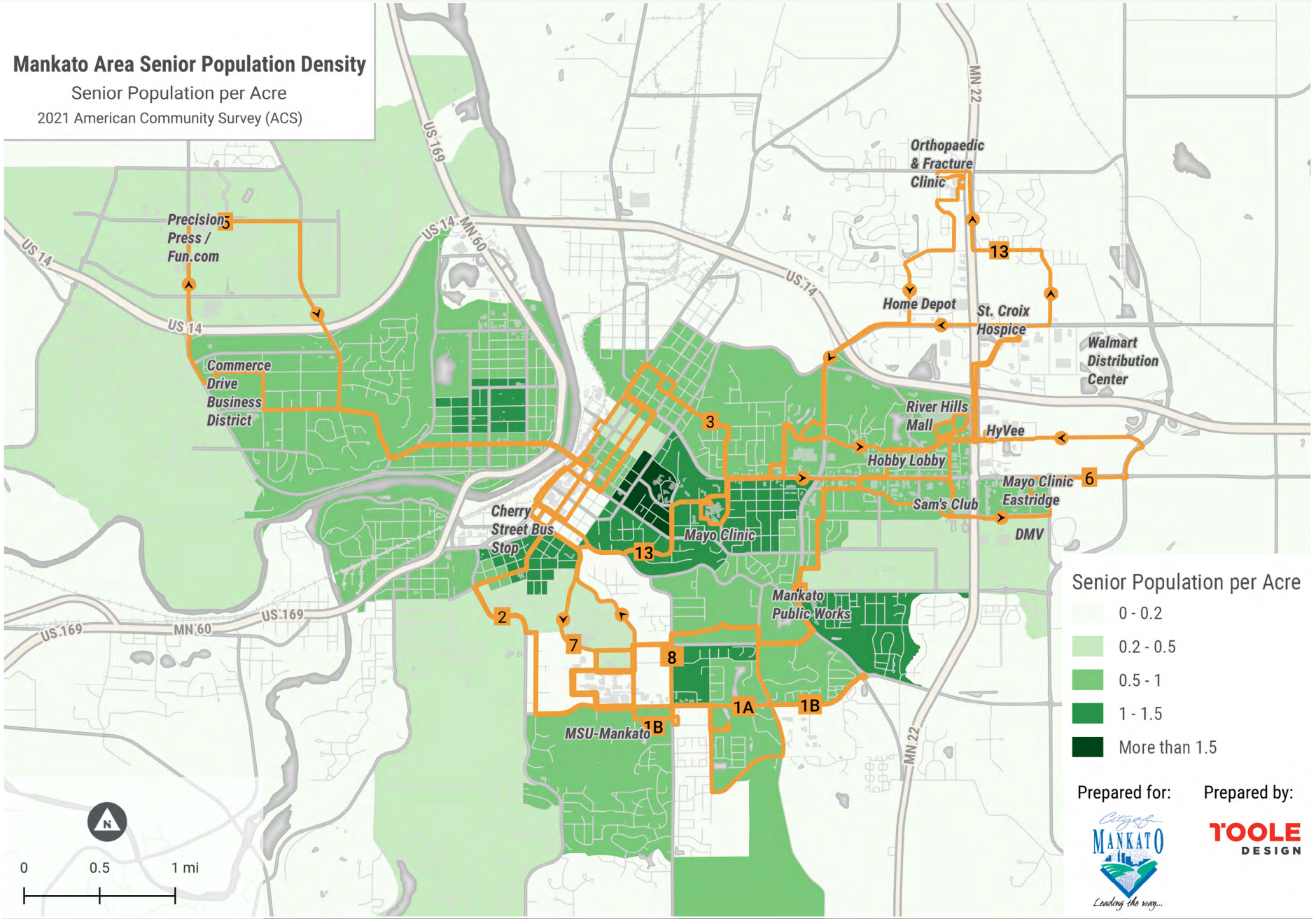
Transit access for senior populations and senior housing are important because they include people with physical disabilities and limited mobility. Seniors in Mankato comprise only about 10 percent of the overall population. The map symbology reflects this scale, as the density values on Figure 43 are about 1/10th that of the population density map (Figure 41).

Many seniors' apartment locations, such as Orness Plaza and Mankato Lodge, are in low density suburban residential areas. Urban areas with higher concentrations of seniors also correspond to concentrations of low-income populations in the central part of Mankato and Lower North Mankato, and around the Bethany Lutheran College and Mayo Clinic Health System Campus.

The densest concentration of senior population is surrounding the Bethany Lutheran College in an area that does not get good access to transit service due to lack of stops and limited service. This area is served by Route 13 which runs Monday – Friday, from 6:35 AM – 5:35 PM. Route 13 also serves other block groups that have moderate concentrations of senior population (more than 1 per acre), including the area around the Mayo Clinic Health System.

The other area with moderate senior population concentration is the area south of Hoffman Road and east of S Victory Drive. This area has a mobile home park that does not have access to transit service.

Figure 43. Mankato Area Senior Population Density



Minority Population

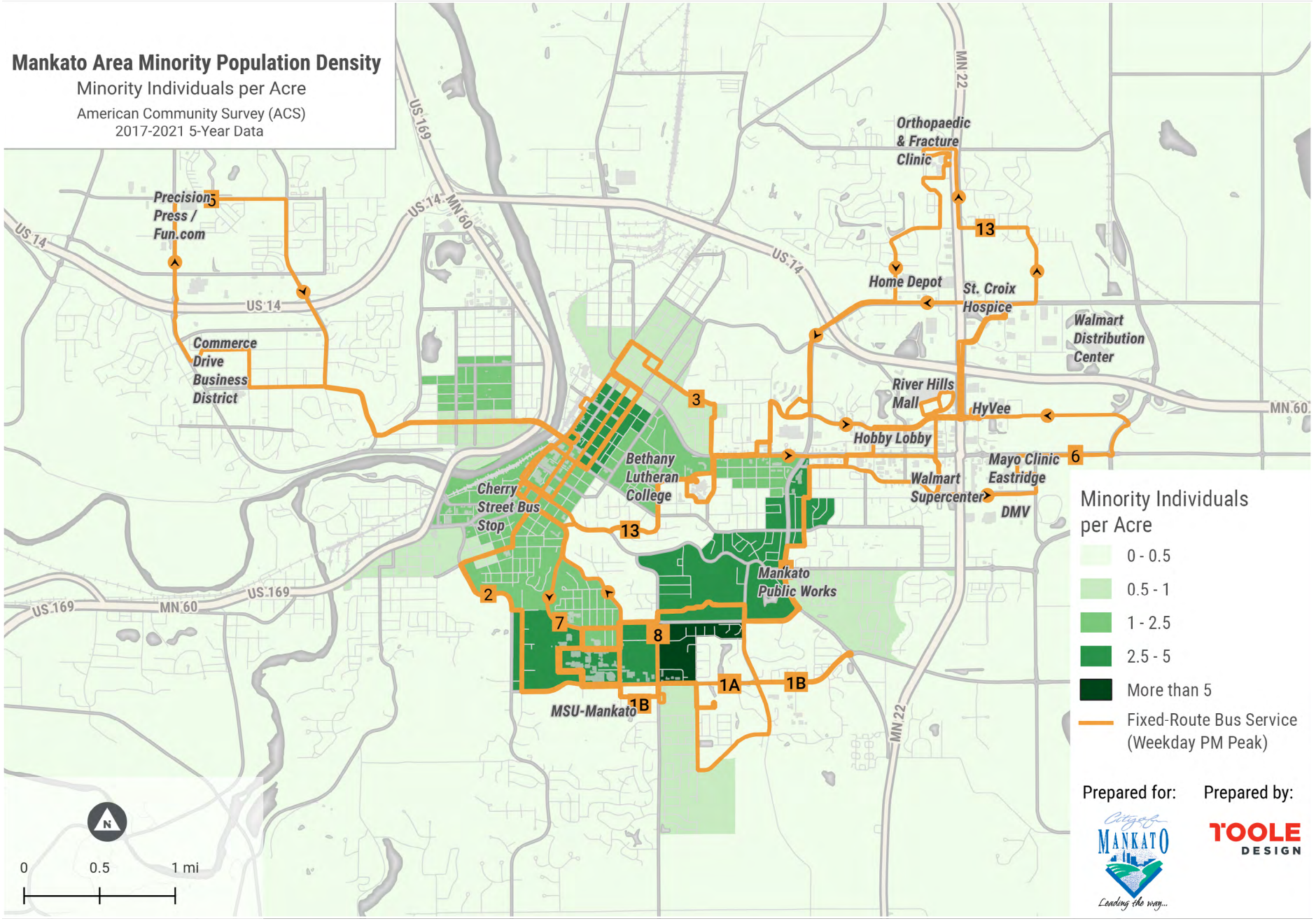
Historically and into the present, investments in transportation and transit have reflected discrimination against people of color. White residents are often more empowered and able to advocate for transit service than people of color. The result of this dynamic was often a transit system designed around the priorities of white-collar commute travel patterns and not the priorities of minorities and low-income individuals, which rely more heavily on the transit system to access economic and quality of life opportunities.

Moreover, the post great-recession economy and in particular the post-pandemic economy shows signs of a complete re-arrangement of commercial activities and employment markets, and commute patterns outside of traditional commute hours, which call for a re-assessment of the design of transit networks and level of service.

Figure 44 shows that the population living in and around the MNSU campus area is more diverse than the population in the rest of the service area. This is likely explained by a large presence of students who are younger and more racially diverse than previous generations. It is likely explained as well by the presence of year-round minority residents of the city who live near campus because there are many apartments and affordable housing.

Other areas of the city with higher minority populations include older parts of the city such as Washington Park, and eastern Mankato along S Victory Drive. These areas are also areas with higher population density and concentrations of low-income households and seniors. MTS routes are generally providing good coverage of minority population and low-income areas. The key question is whether levels of service, connectivity, and bus travel times are adequate to meet the travel needs of these population groups.

Figure 44. Mankato Area Minority Population Density



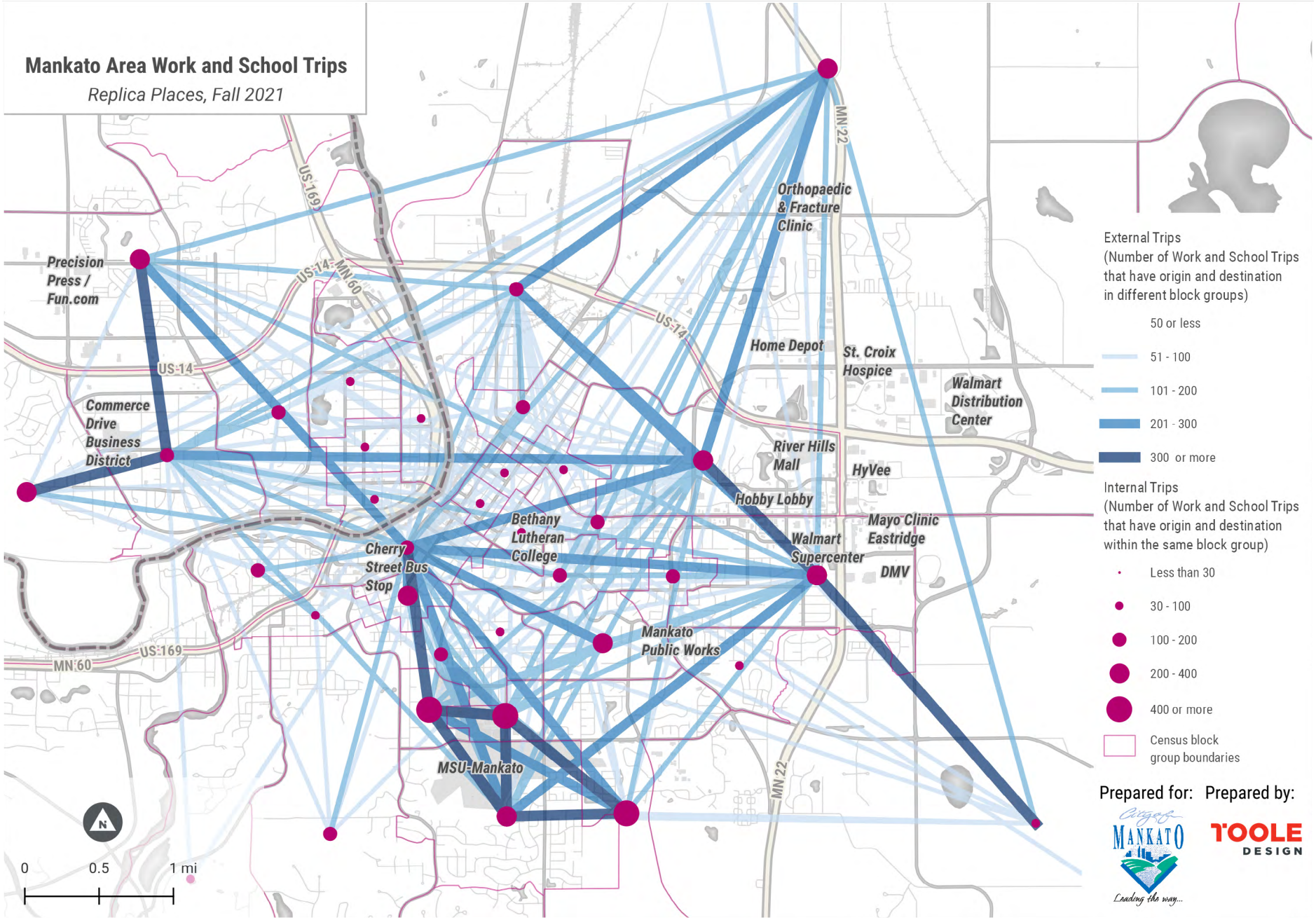
Origin-Destination Travel Analysis

The project team conducted an analysis of origin-destination travel flows for trips in Mankato using "Replica." Replica is a "big data" platform that models travel and transportation trends, economic activity, and other consumer behavior data. For the origin-destination travel analysis, the team used Replica's "Places" data set, which is a high-fidelity activity-based travel model, based on the anonymous tracking of cell phone GPS data. Replica re-runs its travel prediction model twice yearly, compiling daily activity data for about six months for millions of cell phones, to create fall and spring travel demand model updates for mega-regions of the United States; the greater Mankato area is in the Great Lakes mega-region and the most recent Replica model season available for the analysis was Fall 2021. The smallest zone available for origin-destination travel analysis is the census block group. More information about Replica's methodology is available at replicahq.com.

The results of this origin-destination travel analysis highlight areas that generate and attract a large number of trips, the market base for those trips, whether they are internal trips (trips that start and end within the same block group), short trips from adjacent block groups, or longer trips from non-contiguous block groups or from opposite ends of the urban area. The purpose of the analysis is to understand whether the current network of bus routes is serving the major travel markets and destinations, and how the system may potentially provide better connections, meet more travel needs, and attract more users.

Figure 45 shows the modeled trips for "work and school" purposes, and Figure 46 shows the modeled trips for "all other" trips (shopping, medical, social, recreation, etc.). Trips that are modeled as internal to a census block group are shown as a graduated magenta dot in the centroid (or geometrical center) of the block group. Trips that are modeled to flow between each pair of block groups are shown as a graduated blue line connecting each pair of block group centroids. The centroid of each block group does not represent the actual start/end location of trips, it is only a representation of the overall volume of trips that start and/or end at each block group. In the larger census block groups on the outskirts of the urban area, the centroid is generally "off center" and does not reflect the accurate location of most trips.

Figure 45. Mankato Area Work and School Trips



Work and School Trips

There is a large amount of work and school trips happening in the MNSU-Mankato campus area on both trips that are internal to each block group, and trips between the block groups that make up the university campus and associated residential areas. There is also a large amount of work and school trips happening between downtown and the university campus area.

Additionally, there are significant work and school travel flows between the MNSU-Mankato campus and associated residential areas and employment opportunities north and south of Madison Avenue in east Mankato. The two block groups that define this high employment area (see Figure 39 and Figure 40) also attract a large number of trips from Upper North Mankato, downtown Mankato, and places north of US 14 and east of State Highway 22.

Downtown Mankato also attracts many trips from most block groups in the urban area, highlighting its major importance as an employment center.

North Mankato, especially the South Central College campus, Commerce Drive Business District, and Lookout Drive Business District, appear to be generating significant trips within North Mankato but also cross-town trips between North Mankato and the MNSU-Mankato campus, east Mankato north of Madison Avenue, and northeast Mankato north of US 14.

Finally, there is a large number of trips going in and out of northeast Mankato, north of US 12, from all parts of town. This is a very large block group that includes many suburban residential developments as well as major employers such as big box retail centers, Walmart and FedEx distribution centers and the business park along Premier and Excel Drives.

The current fixed-route transit system is well-suited to serve the work and school trips happening in the MNSU-Mankato campus area, and between downtown and the university campus and nearby residential areas. The route network is also providing connections between employment areas north and south of Madison Avenue in east Mankato and downtown and the university campus area. However, except for direct access to Walmart and Target, access to other east Mankato destinations appears to be hampered by a lack of safe places to stop for vehicles and convenient locations for riders to access destinations.

The spread-out nature of urban development in the northeastern part of the urban area, creates pressure to extend routes to provide transit access to new employment destinations. However, without safe and convenient places to stop buses and the ability to serve multiple trip purposes and patterns, along urban street corridors with safe and convenient pedestrian access, the service is being stretched thin and resulting in long travel times, insufficient frequency, and inadequate service hours to provide effective and attractive service.

There are also other parts of the urban area that are not getting service or insufficient service such as Germania Park, that shows significant work and school trips, and North Mankato, which is attracting many work and school trips but currently getting service during traditional rush hour times only. As indicated before, many work and school trips to North Mankato seem to be cross-town in nature and related to industrial sites. The current service is not only offering reduced service hours that do not cover shift work, but also it requires a transfer in downtown to access North Mankato from any part of the City of Mankato.

All Other Trips

There are about five times more trips in the all-other origin-destination flows than in the work and school trips dataset. This distribution of trips follows trends recorded in the rest of the state and the country. There are more trips being made for non-work and non-school purposes, and they comprise a strategic market opportunity for transit service.

The highest number of all-other internal trips occur in the MNSU-Mankato campus and in east Mankato, in the block groups north and south of Madison Avenue where the River Hills Mall and Walmart are located respectively, and in the northeast corner of the city, north of US 14, where the Home Depot, Menards, Fleet Farm, VA Clinic and Orthopaedic & Fracture Clinic are located.

Northeastern Mankato attracts the highest number of trips from all parts of the urban area. There are significant origin-destination (OD) travel flows between the three block groups that summarize travel in this part of the service area (see dark green triangle in Figure 46), and there is relatively equal measure of travel flows between each of these block groups and all other parts of the service area. So, not only there are strong OD travel pairs between the big box retail opportunities in the northeast and the university campus area, but also with downtown, Lower North Mankato and Germania Park.

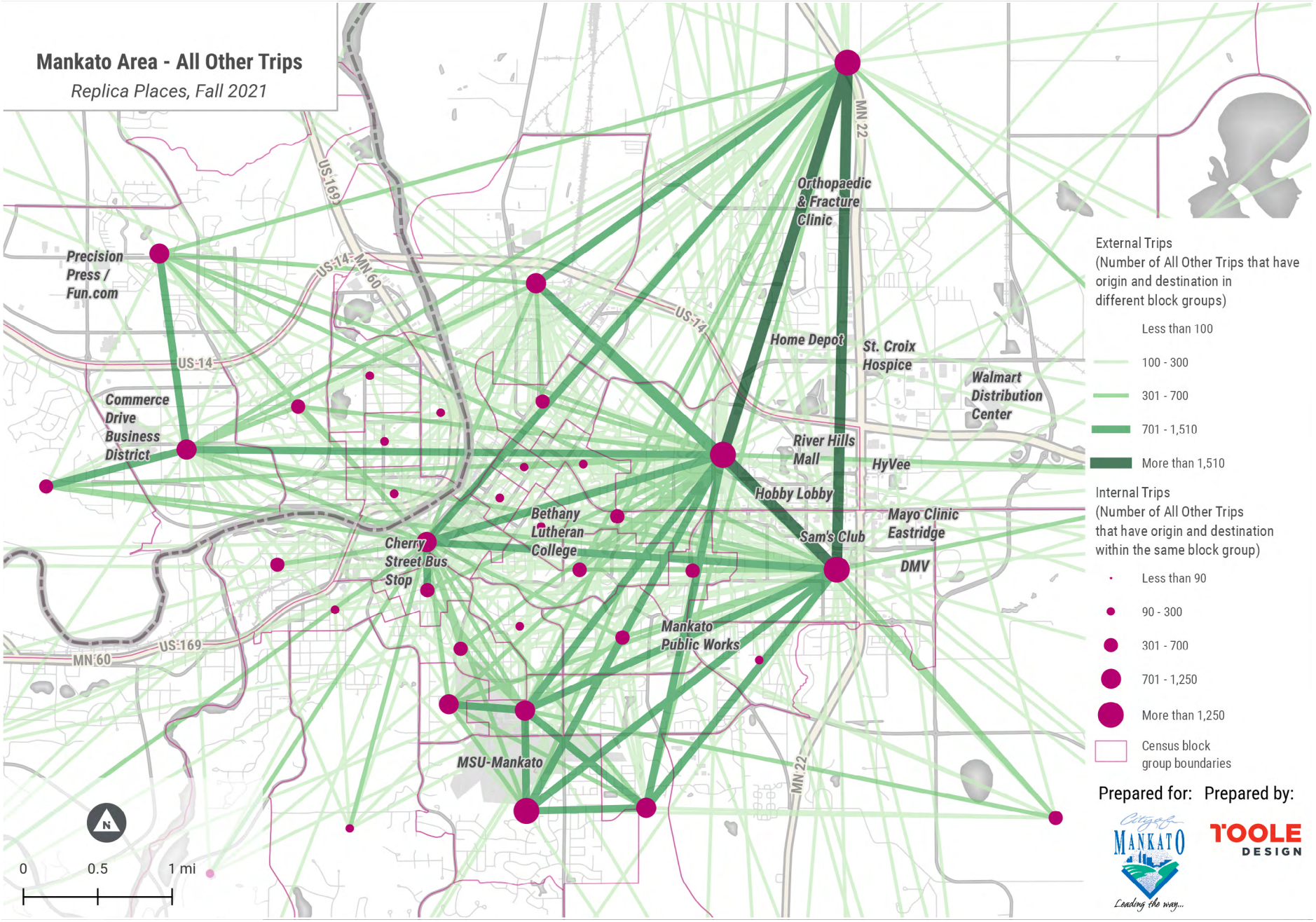
The all-other trips origin-destination analysis also shows that OD travel patterns to/from downtown, and northeast block groups are more regional in nature, attracting trips from a larger number of block groups outside of the urban area. Downtown also appears as a significant center for errands and recreational trips, attracting many regional trips and from northeast block groups that contain suburban residential areas. Block groups in northeast Mankato also show significant travel flows with MNSU-Mankato campus and residential areas near campus.

Also, the all-other trips analysis shows a different origin-destination matrix of trips and a larger volume of trips between OD pairs that are not well served by the current transit network. For instance, the analysis shows cross-town travel flows, from North Mankato (across the Minnesota River) to Germania Park, northeast Mankato, and the university campus, which are currently not served or served during limited hours or served with a transfer in downtown.

In general, the hours of service in the current system are not well aligned with the hours of operation and demand times for many of these trips. Most big box retail and other non-work destinations are open until 9:00 PM on weekdays while most service routes are ending service at 5:30 – 6:00 PM. Routes serving the MN-SU-Mankato campus provide service in the evening between campus and retail opportunities in northeast Mankato, but this is only available during academic season, 32 weeks of the year, and for a specific group of riders.

MTS operates a simplified route network during Saturday and Sunday, Routes 10 and 11 that combine several weekday routes into a large loop that provides a continuous connection between most centers of activity including downtown, the MNSU campus, and retail destinations in northeast Mankato. Although this service provides limited hours of service (10:00 AM – 5:00 PM), it achieves a higher passenger per revenue hour performance metric than weekday service, which seems to indicate that there is demand for the operation of a continuous route that travel between areas of high OD travel volume, without needing to transfer between routes.

Figure 46. Mankato Area - All Other Trips



Conclusions

Overall, the MTS fixed-route transit service runs through the areas with the highest concentrations of population, employment, and special disadvantaged groups – low-income households, minority populations, and seniors, that rely on transit for their mobility needs in higher proportion than the rest of the population. However, there are several parts of the service area and aspects of service that are worth re-examination, in the next phase of the study, for development of recommendations to change and improve the utility of transit service in Mankato:

- There are many large employers located in North Mankato and northeastern Mankato that are difficult to serve due to low density of development and lack of bus stop facilities and safe walking access to destinations.
- Service routes in east Mankato have been modified to deviate from the main street and circulate through parking lots to serve the biggest locations.
- Also, service hours do not coincide with work shifts at industrial job locations in North Mankato or retail job locations in northeast Mankato.
- Residential neighborhoods with higher population density (more than 10 persons per acre) get service from one or more fixed-route service throughout the week, but access to service is limited along key corridors such as Main Street and Victory Drive because of lack of bus stops and pedestrian crossings.
- MTS is providing service to concentrations of low-income households present in the older parts of the city of Mankato and Lower North Mankato, and in residential apartments developments around the MNSU campus. A significant pocket of very low-income individuals, south of downtown and around the Children's Museum, does not have adequate access to service.
- The highest concentrations of senior population are in the midtown section of the City of Mankato, near Bethany Lutheran College and the Mayo Clinic Health System Campus. Only one route is serving this area once an hour and along streets that do not provide sufficient opportunities to access service.
- Most concentrations of minority population coincide with low-income households and seniors and are served by MTS routes except for the section of the city along Main Street and Glenwood Avenue is not covered by any route.
- The distribution of origin-destination trips for work and school reflects the concentration of large employment sites in the periphery of the urban area, as well as the importance of the MNSU campus as a work and education center.
- Downtown is still a major employment center, but work and school trips are spatially dispersed in multiple centers, and in multiple work shifts outside of traditional commute hours.
- The travel patterns for "all other" trips show that the growing retail and commercial areas in northeastern Mankato attract and generate a large number of trips to/from all parts of the urban area, and strong connections with downtown, the MNSU campus, and residential areas south of campus, but also from areas that get limited fixed-route bus service such as North Mankato and Germania Park.

Transit Supportive Land Use

As the Mankato region continues to evolve its transit system, there are growing opportunities and needs to leverage the existing system towards maximizing land use and infrastructure investments in a manner that supports lasting benefits to North Mankato and Mankato. This section outlines the elements and benefits of Transit Supportive Development (TSD) and identifies a preliminary set of key locations and implementation steps to further transit supportive land use approaches in the region. This is accomplished by:

- Understanding the core components that comprise TSD
- Identifying the benefits of TSD to the community
- Reviewing existing conditions to determine where to focus efforts for most impact
- Developing preliminary recommendations for how to proceed in focus areas to help realize the benefits

Transit Supportive Development

Description

Transit Supportive Development (also known as transit-oriented development) is an approach of arranging public and private development, public spaces, and public infrastructure in a manner that prioritizes the proximity and connectivity of these elements around transit. TSD is defined by districts, neighborhoods, or similarly scaled areas that contain a mix of land uses with pedestrian orientated buildings, public spaces, and streets – all centered around comfortable access to transit stops. TSD is often concentrated within a 10–20-minute walking distance (1/4 to 1/2 mile) around a transit stop.

Many elements make up a strong TSD:

- **Development Style:** Generally compact, TSD-style development consists of small-to-medium sized blocks and high lot coverage that maximizes the efficient use of land, while containing an either horizontal or vertical mix of uses. Buildings in this style contain pedestrian-oriented first floors and frontages, with entrances that front major public streets.
- **Development Density:** TSD districts can often be more compact and dense places in a city. Multifamily or compact single-family housing, multistory commercial, and major civic, job, or entertainment destinations are common uses found within TSD areas. Generally, the densest development in a TSD area is located immediately around a transit stop, while progressively transitioning to lower densities around the edges. Lots may be smaller in TSD areas, but the floor area ratio of a project (a method of measuring density) is often higher.
- **Orientation and Quality of the Public Realm:** The public realm of TSD areas is the "glue" that holds everything together, and can consist of parks, plazas, and similar gathering spaces. Due to the typically compact, pedestrian-oriented nature of TSD, the public Right of Way plays a critical role through attractive streetscape, placemaking, wayfinding, and pedestrian and bike facilities. Public space design in these areas should be scaled to match the context of surrounding buildings, while creating multiple attractive and safe places throughout the area to encourage walking, biking, and transit use.
- **Connective Infrastructure:** Providing safe, comfortable, and attractive connective infrastructure is critical to a successful TSD area. Such infrastructure design includes sidewalks, bike lanes, paths, and trails, and is oriented towards promoting safe walking, biking, and transit access while calming vehicle speeds. Street alignment is often in a grid or similar pattern that promotes clear access and sight lines to buildings, and transit. To further promote walking and biking, it is not uncommon to have wayfinding and similar signage throughout the TSD area. Importantly, buildings and spaces immediately adjacent to transit stops have direct and clear access to the stops, generally incorporating pedestrian scale lighting and enhanced crossing to promote comfort and safety.

A unique element of TSD is not to follow a one-size-fits-all blueprint, but rather to contextually apply the above elements to the local context. As such, future TSD areas in Mankato and North Mankato are likely to each have their own look, feel, and scale as appropriate to context of each area.

Figure 47. Falcon Heights Town Square mixed use district oriented to transit along adjacent corridors. Falcon Heights, MN

Benefits

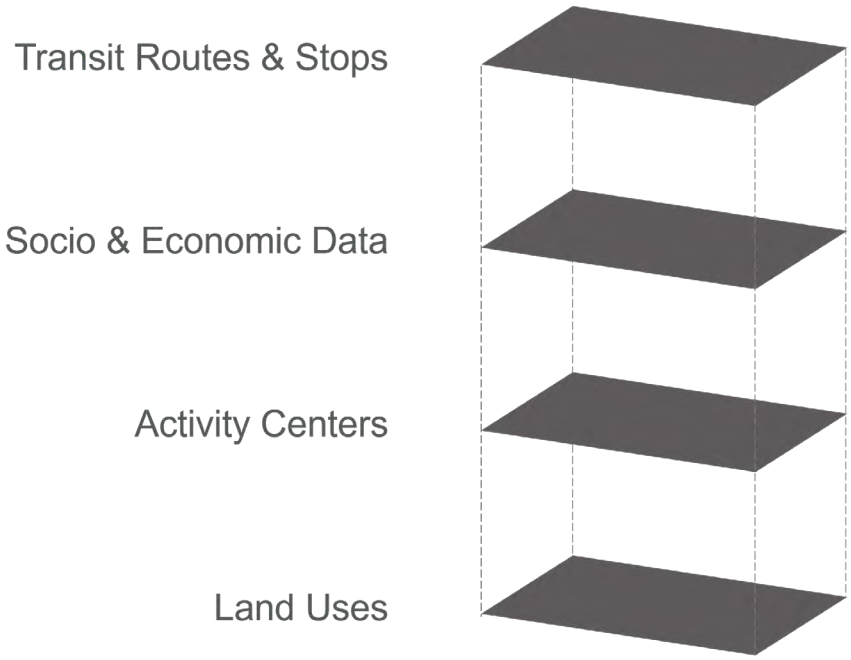
A TSD approach provides many benefits, including:

- Accommodating and promoting sustainable models of growth, including a diversity of housing types to meet the needs of a changing and growing population.
- Building local tax base through efficient uses of land that often produce higher per-acre values.
- Supporting livable communities that are walkable and provide attractive places to gather, while promoting multiple forms of transportation for people in different places in life, different incomes, and/or different transportation preferences.
- Environmental benefits from reduced car dependent lifestyles, and more sustainable land use style.
- Health promoting community design through promotion of walking, biking, and transit, while locating more jobs, housing, and services in accessible distances.
- Supporting economically sustainable transit service by increasing and concentrating ridership within efficient service areas that can be well connected between areas.
- Advancing local economic development goals via improved access between workers and employers, access to major destinations, and improved connections with MNSU.

Transit Supportive Development Framework

As described above, TSD is more than a single element – it is the sum of many complementary parts working together to create a cohesive and connective whole. As such, a successful approach to TSD requires many things, foremost of which is an understanding of the relationship between Development, Place, and Connectivity.

DEVELOPMENT	PLACE	CONNECTIVITY
Private and public development, and the spaces between them, create the stage in which life plays out. TSD style development can support local businesses, provide needed housing, and enhance the local tax base – but requires thoughtful guidance and partnerships to make happen.	The arrangement and connections between development and transit should elevate local identity, sense of place, and strengthen public spaces. Through this, a TSD area may be understood as a unique place locally and regionally.	Connections into and within a TSD area should be convenient, safe, and comfortable for multiple users, while reinforcing local AND regional connections of all types. Transit infrastructure can be a major investment and requires strong connections to maximize use.



Existing Conditions

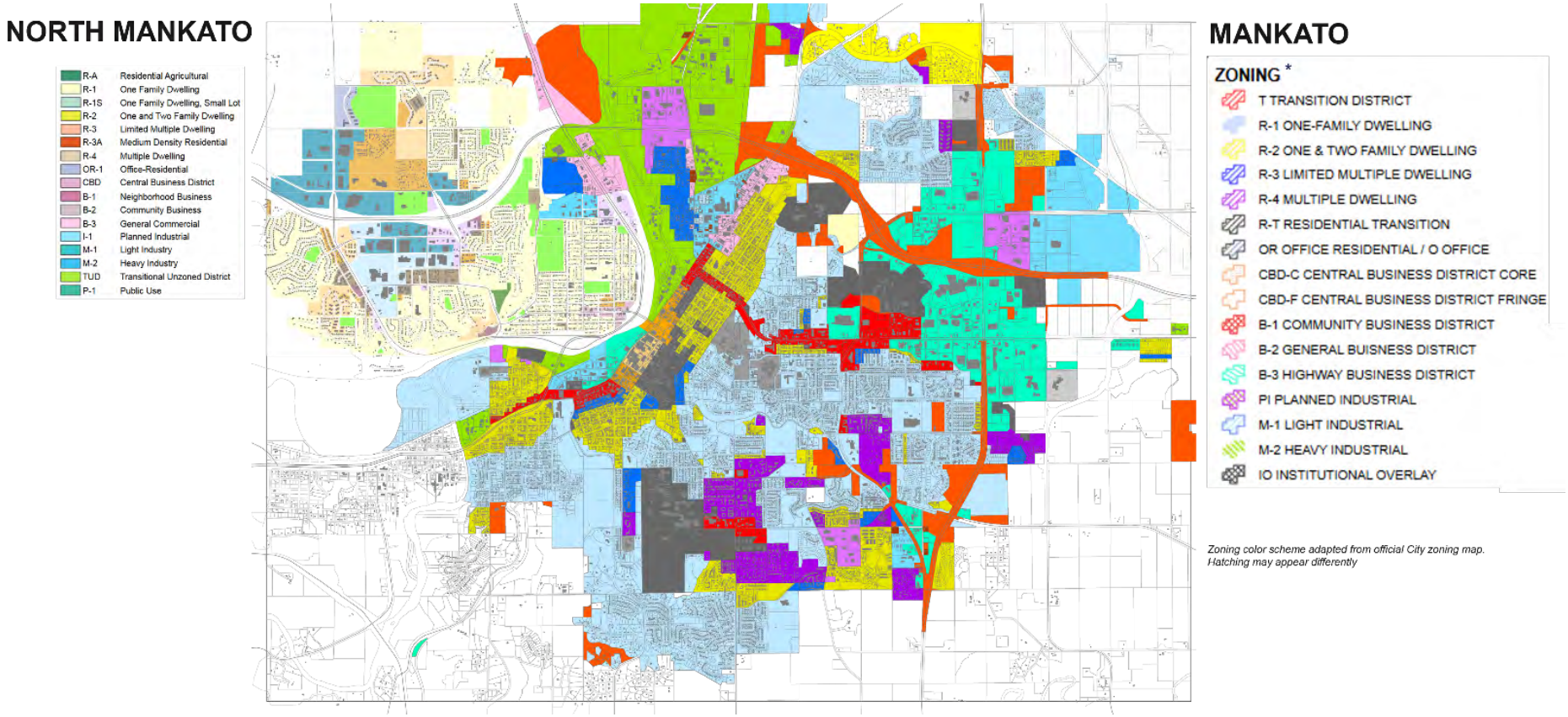
Understanding potential areas within the Mankato region most conducive to supporting TSD requires an understanding of the interrelated nature of land use, activity centers, socio and economic data, and existing transit routes, stops, and related infrastructure.

Locations which hold a concentration of multiple conditions, as described below, informed the identification of TSD priority areas recommended for further study and exploration.

Area Land Use and Zoning

The foundational component to TSD, area zoning sets land use and design regulations for what can be built where. In both cities, single family residential is the dominant land use, with concentrations of varying use mixes and densities along major corridors and at major destination areas. Neither city currently has a transit supportive/oriented zoning district, and they both have limited or conditional use allowances for residential mixed use.

Figure 48. Mankato and North Mankato Zoning Maps



Activity Centers

Activity centers are locations in which a dense mix of uses intersect, and/or major destinations are located that draw concentrations of people. Often informed by supportive zoning, activity centers may include large scale employment, education, or retail destinations, downtowns, or medium scale commercial hubs.

The list of Activity Centers provided in the 2019 TDP were reviewed and updated based on recent land use or related changes to inform the below list. Additional vetting was done based on land use composition and build density, to further identify a list of Activity Centers that, generally speaking, may be supportive of transit supportive development.

Activity centers were ranked by timeline of favorability of ease of transition towards TSD areas.

Near Term (0-5 years)	**Medium-Term** (5-10 years)	**Long Term** (10+ years)
Hoffman Rd / Victory Dr	Bethany Lutheran College / Mayo Clinic	Caswell Complex
Madison East Center	Eastwood Center	Mankato Industrial District
Mankato Downtown		Webster Avenue Business District
Mayo Clinic Health System Event Center		Wickersham Health Campus
Mankato Downtown West		
MNSU Campus		
MNSU Housing Area		
Commerce Drive Business District		
River Hills Mall		
Walmart / Sam's Club		

Socio & Economic Data

To understand potential ridership demands and areas of transportation needs, socio and economic data was compiled and mapped, purposefully overlapping key indicators to focus on areas of concentration.

Selected data included:

- **Employment density:** Area of high employment density suggests the possibility of locations supporting and benefiting from a comfortably connected mix of use, and the potential for strong ridership demand to those locations.
- **Population density:** Existing concentrations of people suggest locations that could support, and benefit from, a comfortably connected mix of uses, while also being places of potential high transit ridership.
- **No/low car ownership:** Groups without car ownership are more reliant on transit for mobility needs, and benefit greatly from a mix of jobs, housing, entertainment, services, and daily needs being located in near proximity to each other where the need for a personal vehicle is not as critical.
- **Low income:** Traditionally more reliant on transit for their mobility needs, those with low incomes often benefit more from a mix of jobs, housing, entertainment, services, and daily needs being located in near proximity to each other.

Figure 49. Mankato and North Mankato Activity Centers

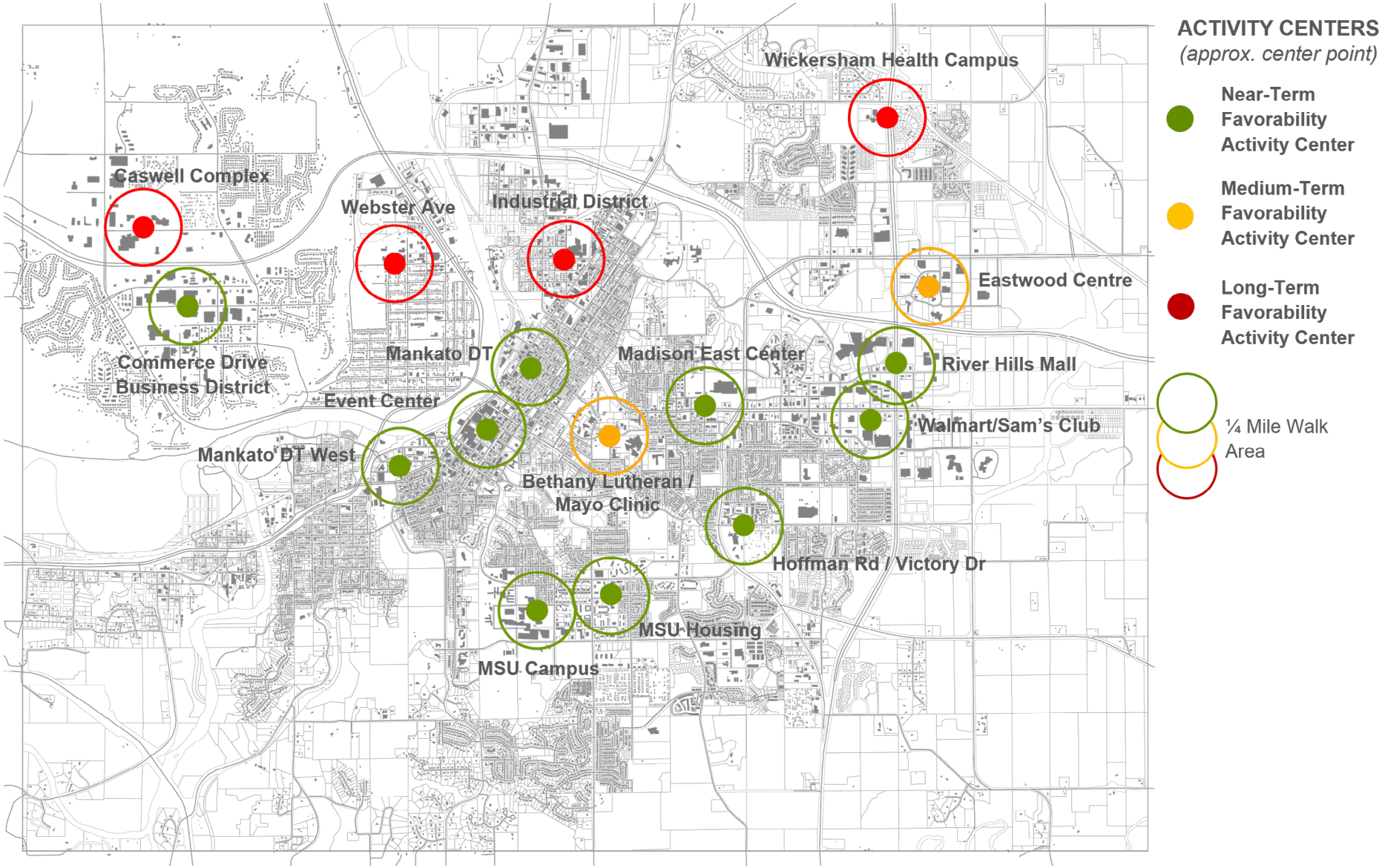
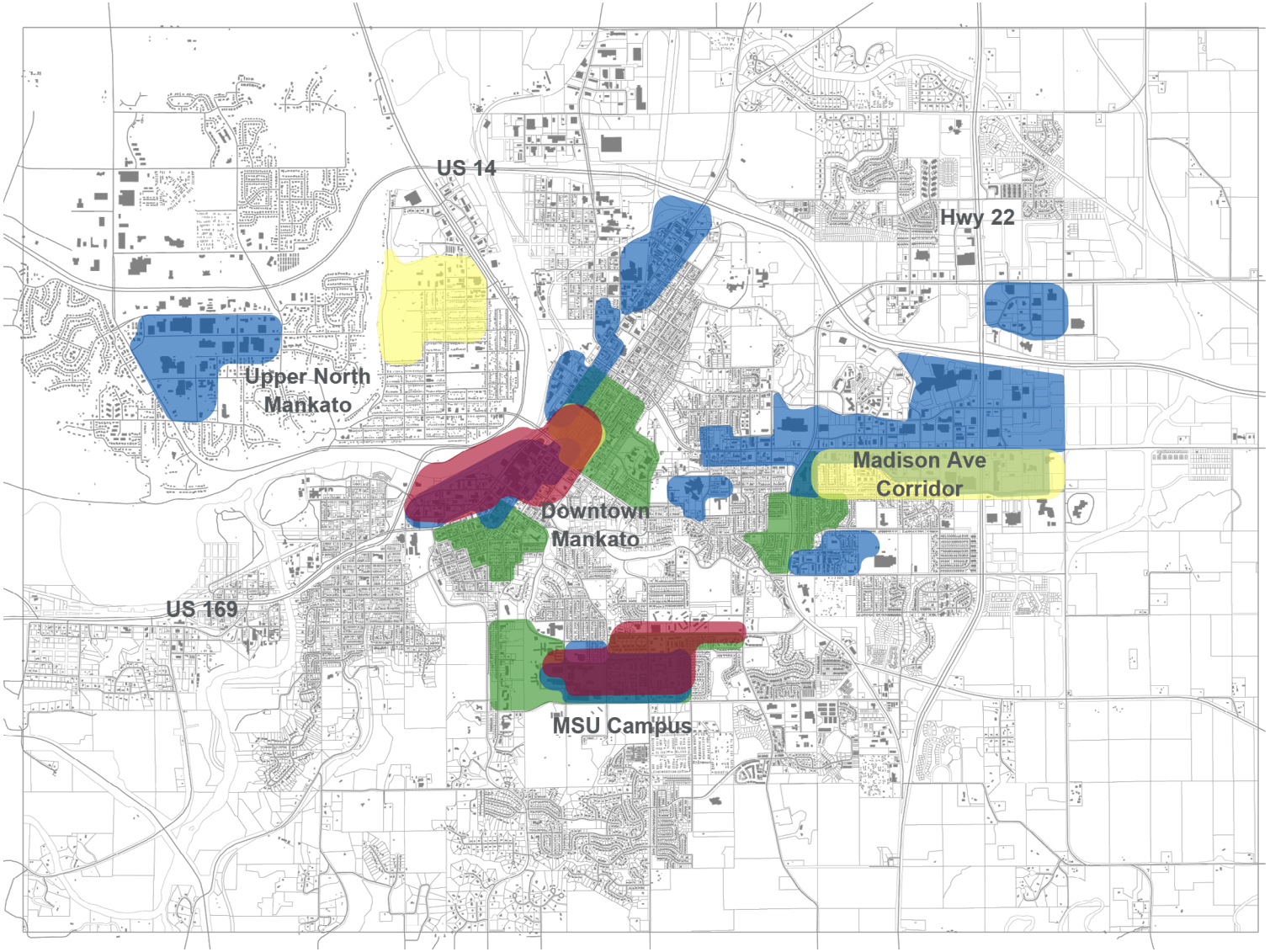


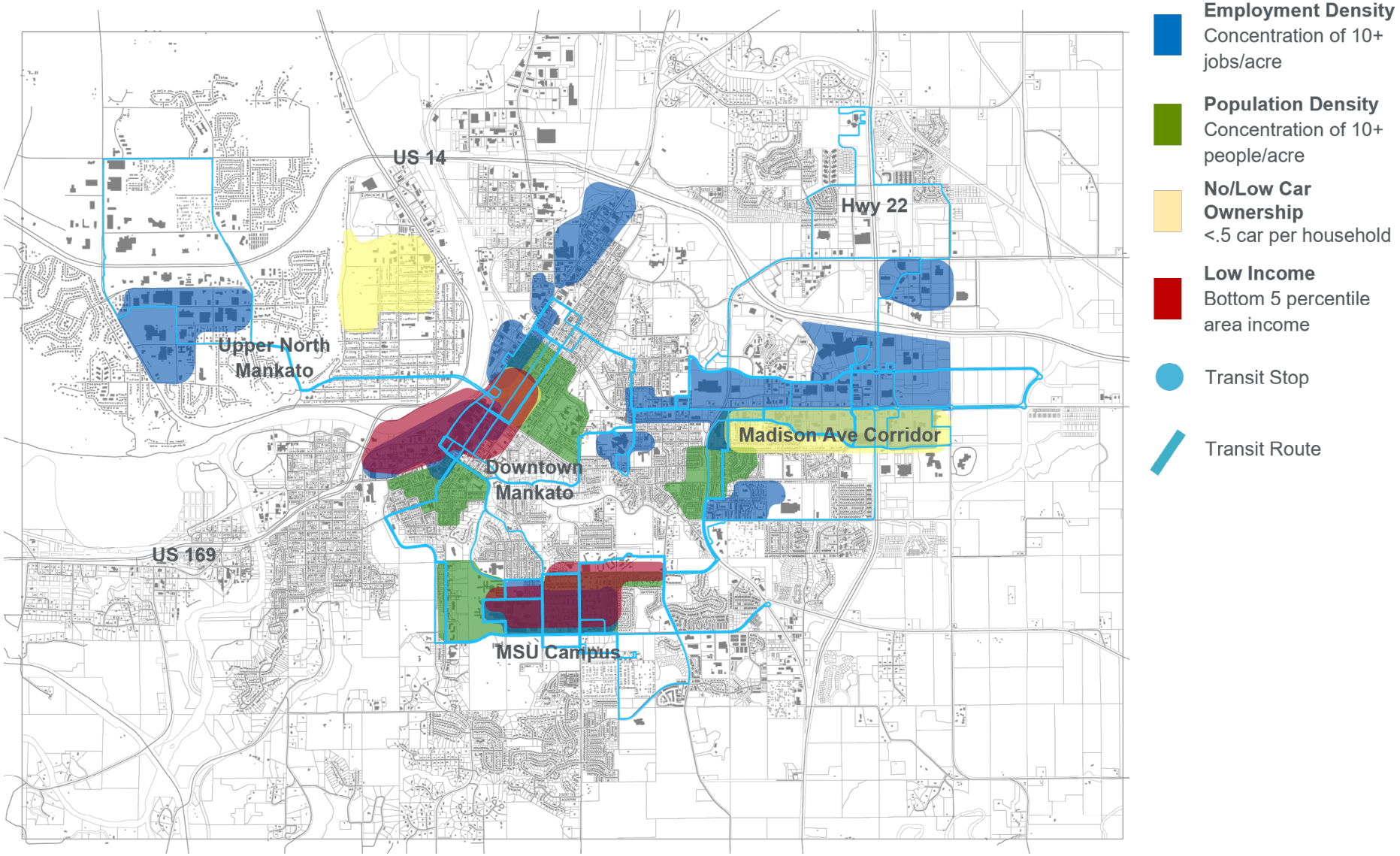
Figure 50. Select Mankato and North Mankato Socio & Economic Data



Transit Routes & Stops

Existing transit routes and stops were overlaid upon the Socio & Economic data to further correlate where along the existing system there is an alignment of TSD favorable indicators with existing transit service.

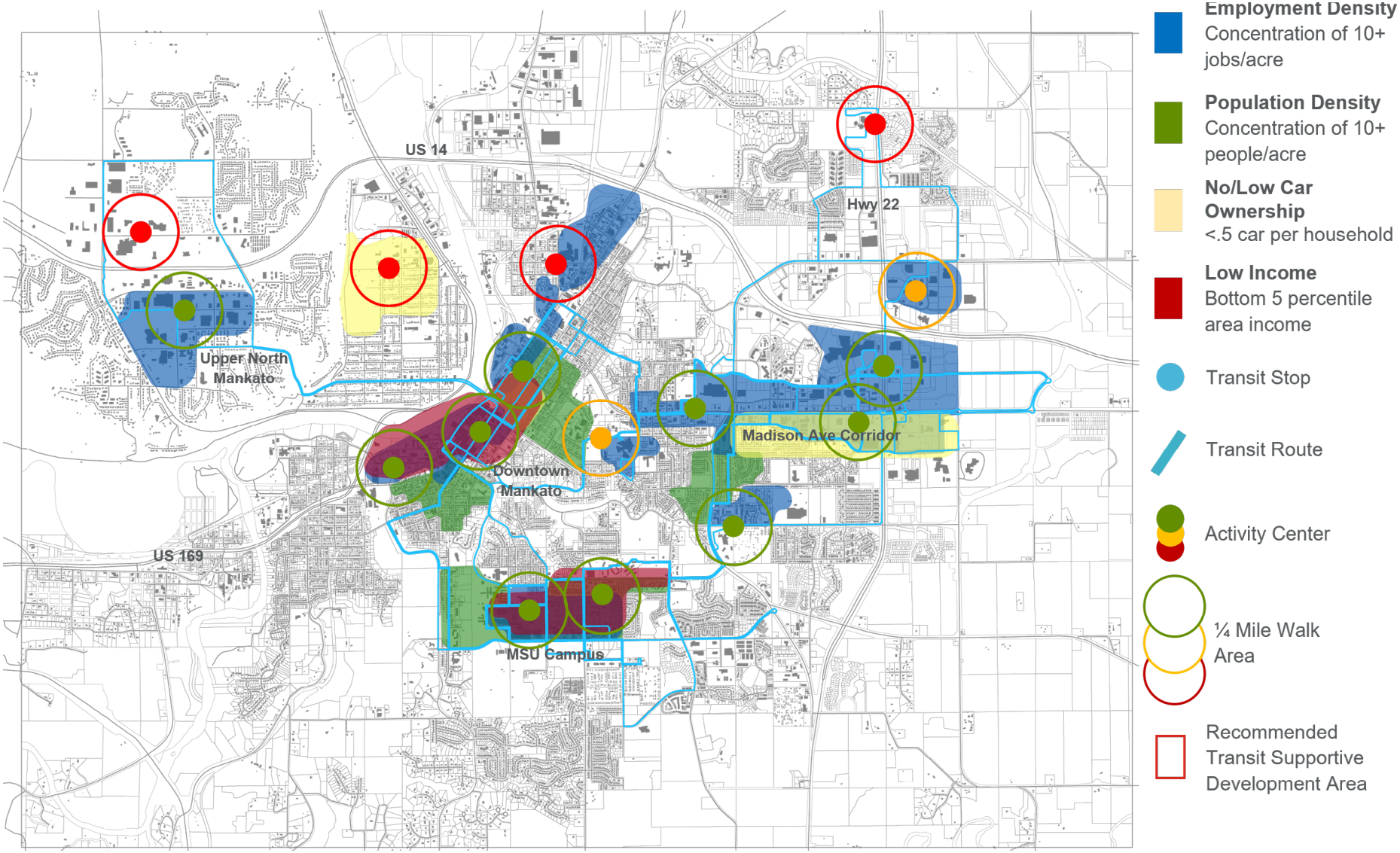
Figure 51. Mankato and North Mankato Transit System with Socio & Economic Data



Layered

Lastly, all data was layered to identify locations in which TSD style development and infrastructure is likely most favorable, based on these preliminary indicators, and should be further studied, planned for, and implemented.

Figure 52. Mankato and North Mankato Recommended TSD Areas for Further Study



Recommended Transit Supportive Development Locations

Madison Ave Corridor

Figure 53. Madison Ave and Hwy 22

The Madison Ave Corridor is a major commercial corridor stretching from Downtown Mankato to Hwy 22. The TSD Priority location spans from Hope St. to Hwy 22, and it is bookended by opposing major destinations of the Madison East Center to the west, and River Hills Mall/Sam's Club/Walmart to the east. The corridor has limited residential uses with heavy auto-oriented street, building and block design. Existing transit service runs along Basset Dr, Madison Ave, and Adams St, but with limited and poorly connected stop locations. Transitioning the major employment and retail area towards TSD will require significant zoning and infrastructure changes. However, allowing for and thoughtfully guiding commercial infill or redevelopment around designated transit stops could provide a transformative next step for the area, while moving towards neighborhood-scale development that supports an efficient, high-value, and sustainable use of land.

Hoffman Rd / Victory Dr

Figure 54. Hoffman Rd and Victoria Dr

Containing Mankato Public Works and the Mankato Transit System, Hoffman Rd / Victory Dr is a moderate sized neighborhood scale node. Apartments, assisted living, and modest retail run along/near Victory Dr, with apartments and manufactured homes lining Hoffman Rd to the east, eventually giving way to Mankato East Senior High. Existing transit service does not operate on either roadway but runs along adjacent single family neighborhoods streets. Realigning transit service to major roadways, adding safe crossings, promoting denser uses along both Hoffman Rd and Victory Dr, and pursuing better multi-modal connectivity through protected bike and pedestrian infrastructure throughout the area could dramatically move the area closer to a transit supportive future.

MNSU Campus

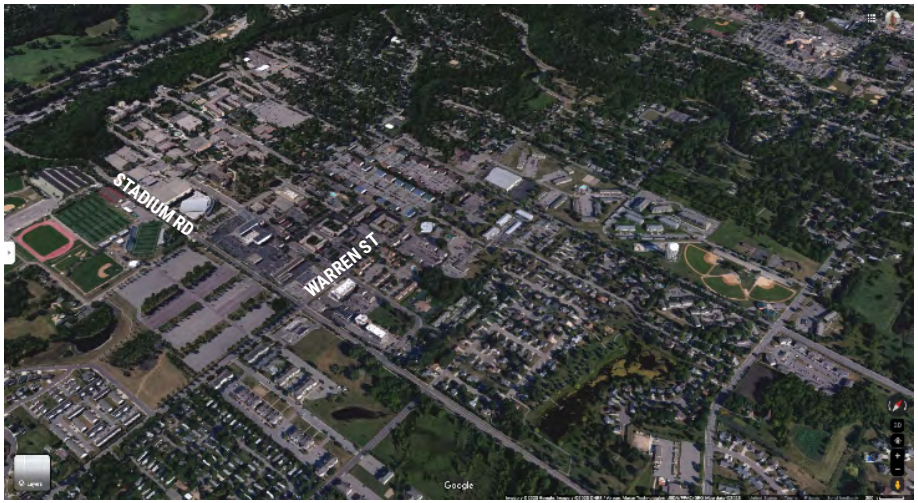


Figure 55. Stadium Rd and Warren St

The MNSU Campus area generally consists of the academic facilities to the west, and supportive housing and commercial uses to the east. Most housing is dense student housing, with retail concentrated primarily along Stadium Rd between Warren St and Monks Ave. Prioritizing areas of dense, mixed used buildout along transit routes and stops through the campus area could both promote usage, while supporting more student serving uses in near proximity. In partnership with MNSU, strategic and creative placemaking could be employed to further distinguish specific gathering and destinations areas, while guiding people along attractive routes to/from transit facilities.

Mankato "Downtown West"

Figure 56. Riverfront Dr

"Downtown West" is a transitioning industrial district, with many new developments planned. Upcoming projects include an expansion of the Children's Museum and a new homeless service center. These will join the Cub Foods grocery store, all of which are immediately north of Mankato West High School. Transit service is not currently provided through this area but it has been identified as a priority area to receive service. As planned area buildout and development occurs, prioritizing strong pedestrian scale frontages with clear, comfortable connections to current and future transit stops should be pursued.

Mankato Downtown

Figure 57. S 2nd St and Riverfront Dr

Encompassing both Downtown Mankato and the City Center areas, this is arguably already a strong TSD location. Mixed-use, pedestrian-scale development is served by transit and multi-modal facilities. These transit routes are centered on Riverfront Dr, 2nd St, and Broad St. Going forward, the continued maintenance and promotion of connections between land uses and transit stops should be prioritized, while continuing to explore opportunities for unique placemaking and wayfinding.

Upper North Mankato

Figure 58. Tower Blvd and Lorray Dr

Fully built out, Commerce Drive Business District, North Mankato is comparatively more oriented to large industrial sites, with modest-scale commerical and residential uses around the periphery. Transit service is provided along a single service route through the center of the business district, with limited stop locations. Considering the economic importance and success of these industrial uses, opportunity-driven TSD should be further explored and implemented at strategic locations.

Table 19. Transit Supportive Development Implementation Table

NEXT STEP	JURISDICTIONAL LEAD	JURISDICTIONAL SUPPORT
Commission feasibility and small area study(ies) for recommended TSD areas, to identify area development, public space, and infrastructure needs and opportunities to guide private and public investment towards more transit supportive patterns. Area studies should culminate in direct and specific implementation steps, while continuing to build stakeholder consensus towards TSD support.	**City of Mankato / City of North Mankato**	**Mankato Transit System** **Blue Earth and Nicollet County** **Others as needed**
Review and update area zoning to support mixed use, transit supportive development patterns. A zoning review should consider necessary revisions to commercial and multifamily site design standards, expanding districts with allowable and by-right allowances for residential mixed uses, and the feasibility of establishing a transit supportive zoning district or overlay(s), to promote TSD areas.	**City of Mankato / City of North Mankato**	**Mankato Transit System** **Blue Earth and Nicollet, County** **Watershed, state agencies, and others as needed**
Identify and coordinate with public and private stakeholders necessary to explore, establish, and support, TSD areas within both cities.	**City of Mankato / City of North Mankato**	**Mankato Transit System**
Continue existing development coordination between the City of Mankato, Mankato Transit System, and private area stakeholders.	**City of Mankato / City of North Mankato**	**Mankato Transit System**
As TSD areas are further refined and prioritized, consider coordinating CIPs between both cities and Mankato Transit System to leverage and align public investment impacts.	**City of Mankato / City of North Mankato** **Mankato Transit System**	**N/A**
Work with MNSU to review existing transit stop locations, aligning with strategic land use opportunities to promote TSD opportunities, connectivity, and placemaking in coordination with long-term MNSU goals.	**Mankato Transit System**	**MNSU** **City of Mankato**
Review and develop residential and commercial density guidelines for providing transit service.	**Mankato Transit System**	**City of Mankato / City of North Mankato**

Marketing and Communications

MTS uses a variety of strategies to communicate information to the greater Mankato area and connect riders to the transit services that help them reach key destinations. The purpose of this report is to assess the current marketing and communications strategies of the Mankato Transit System (MTS) and to provide recommendations that connect riders to the system. When riders understand their local transit network and its benefits, they make use of the system more often.

The 2018 TDP provided a series of marketing and branding recommendations that MTS has been implementing with recent changes to the website and branding, installation of bus stop signs, and plans to strip advertising wraps from vehicles. This section provides a high-level review and assessment of MTS marketing and branding strategies to identify additional opportunities for change. The City recently completed a MTS Advertising Plan. Future steps should include a full communications plan and marketing strategy that extends from the findings documented here.

Service Branding

Figure 59. Mankato Transit System Logo

Figure 60. City of Mankato Logo

The Mankato Transit System is commonly referred to by the acronym MTS, and the logo is a simple "T", a change that simplified the previous 'MTS' logo. The "T" in the logo references the iconic "T" symbol used by other major cities in Minnesota, most notably Metro Transit in the Twin Cities metropolitan area and Metro Bus in St. Cloud. By using the recognizable "T" symbol, MTS creates a connection to other transit systems in the State.

The system's branding has relied on three standard graphic and visual elements that draw on MTS, City of Mankato, and Minnesota State University – Mankato (MNSU-Mankato) branding. Red and blue are used on the MTS logo and bus stop signs (see next page), the City of Mankato logo is used prominently on the Citywide routes map, and purple and yellow, the colors of MNSU-Mankato, are used on the U-Zone routes map and to wrap most MTS fixed-route buses (standard 35- and 40-foot heavy duty transit vehicles).

Wrapping of buses make them look like another agency's property, but MTS has plans to remove the wrapping and make the buses fit better with the City's branding (see next page). Blue, green, and white colors are used frequently on the system route and schedule documents which mimics the official city logo and branding. An Advertising Plan is being formalized to assist in advertising sales and branding.

Recommendations

Figure 61. View of Cherry Street Bus Stop with new bus stop signs including the T logo

Select one branding style to be the primary branding across all online, print, and physical signage materials, including buses, stops, maps, schedules, and apps. Branding and informational materials should prioritize the "T" logo to provide a unified branding for the North Mankato and City of Mankato urban area.

Develop a branding guideline that includes references to the City of Mankato to improve the sense of place and identification.

Completely remove MNSU-Mankato's bus full wrapping from all buses (in progress). MNSU-Mankato branding colors can be included as secondary branding and used for MNSU-Mankato focused services, although one consistent branding across all vehicle types will be better to improve management of the fleet. MTS is working on an Advertising Plan which will allow for improved branding and advertising revenue.

Improve bus stops with consistent addition of landing pads, branded bus stop signs, benches and shelters, and information that residents and visitors can understand, and recognize that there is a full transit system available to them.

- Recommend identifying and improving bus stop access and infrastructure along key service corridors.
- Recommend investing in physical infrastructure that reflects the MTS service such as bus stop signs, benches, and shelters. For instance, branding newly purchased bus stop benches with the MTS "T" logo.
- Create a bus stop spacing policy to increase access and presence of service along routes and corridors, and minimum design standards that include ADA

accessibility, such as having a landing pad that is ADA accessible, and connections to sidewalks and street crossings.

Use the "T" logo on all key assets, and especially on vehicles. City of Mankato or MNSU-Mankato logo and information should be secondary and subordinated to the "T" logo. The photos below show examples of T logo use and branding color schemes on Metro Transit and St. Cloud buses. MTS could follow these examples and differentiate from St. Cloud and Metro Transit by using white and blue, and could consider applications of purple and yellow to develop a unique branding, and recognize the MNSU-Mankato campus, which is an important component of the MTS system.

The current wrapping of MTS on purple and yellow dilutes the recognition of the MTS brand and T logo. On the other hand, removing all wrapping and leaving buses white color only is perhaps a weak brand that does not stand out from commercial buses or trucks. Developing a unique brand and color scheme that emphasizes the T logo will likely get better recognition from riders and identification of the service with the greater Mankato area.

Figure 62. View of Metro Transit system bus with T logo application and brand color scheme

Figure 63. View of St. Cloud system bus with T logo application and brand color scheme

Figure 64. View of MTS bus with full wrap of MNSU-Mankato Student Involvement

Figure 65. View of MTS bus without any wrapping

MTS Website

MTS information is displayed on the City's website and on the MNSU-Mankato website, meaning that it is easily accessible to the MNSU-Mankato community and greater Mankato residents and visitors. The City's website is customer focused with the City of Mankato branding. The MNSU-Mankato website is branded for the university but includes the City and MTS logos and links prominently to the MTS page on the City of Mankato site.

The MTS site is one section embedded within the City's general website. The site is organized with subpages for each of MTS's three core services (Kato Flex, paratransit, and fixed-route transit). The information is well-organized, standardized with fonts and graphics, and presented clearly, with no need to click or rely on PDF viewing capabilities to see it.

One key feature of the website is an interactive map that includes live tracking of buses across the system. The live bus tracker is available through the "Bus Mankato" app – developed in partnership with the City of Mankato and MNSU-Mankato – and available on the Android and Apple app stores, and it is also available as a standalone page that is linked to the MTS and MNSU-Mankato websites.

Figure 66. MTS landing page information about Live Bus Tracker App

Live Bus Tracker App

Download 'Bus Mankato,' a live bus tracker app to help reach your destination on time. The app helps pinpoint Mankato buses and view scheduled stops using real-time information. Included is a trip planner, schedule information, and a link to transit routes.

Download the app on Google Play and the Apple Store.

Transit riders in general have come to rely on live tracking and real-time information about their transit services. While MTS has a live-tracker, real-time information is not yet published and disseminated to integrate into other mobile app providers such as the Transit app or Citymapper app. This is a recommended best practice, so that users can access the live route tracking from multiple platforms depending on what is most convenient for them.

Recommendations

- Move the “Routes and Resources” to the top of the list (see website structure below), before Kato Flex and Paratransit.

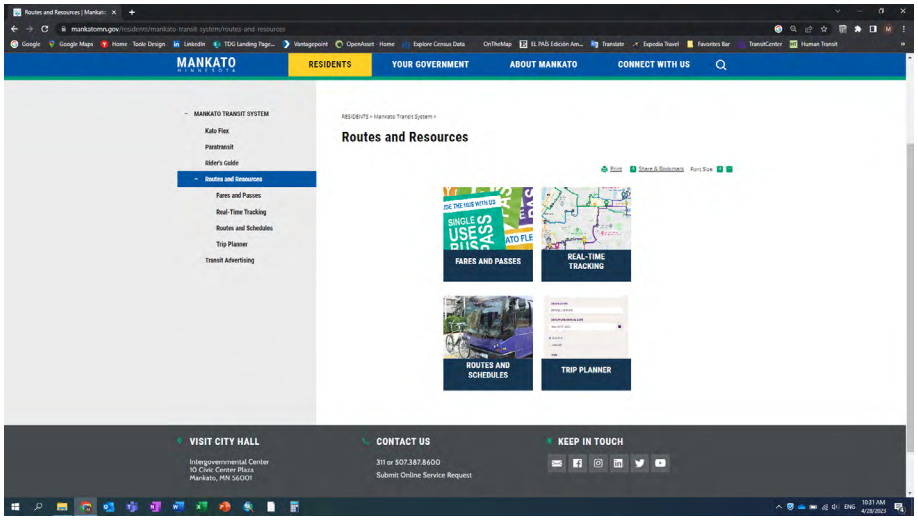


Figure 67. View of “Routes and Resources” page including tiles with links to real-time tracking and subpages

- Display link to the live bus tracker more prominently on the landing page so that it is easily accessible. For instance, moving the “Routes and Resources” page to the top will provide a direct link to the live bus tracker, as well as to the trip planner, route schedules, and fare and passes information.
- Move all maps for citywide services, U-Zone services, Kato Flex, weekend service, and summer routes to one centralized location. For instance, use the “Routes and Resources” page, including additional tiles to link to relevant information such as maps, summer routes, and service disruptions.
- Eliminate old content from individual route schedule pages such as Route 5, which still includes a link to a map of the old route.
- Eliminate the “Transit Advertising” page. Move away from advertising outside wrapping of buses, minimize advertising to a limited space below the windows, and keep a clean and consistent brand and look that is connected to stops, maps, and website. MTS is working on an Advertising Plan which will allow for improved branding and advertising revenue.
- Add the “T” logo. It is not present in any page of the website.
- Draw customers’ attention to the route schedules and any changes in schedules. Route changes or disruptions should be highlighted anywhere that that information is shared most immediately. For example, if that information is shared on social media, direct customers to find real-time information about disruptions in those locations.

Maps and Schedule

The City’s website has a “Routes and Resources” page that provides a detailed level of information with links to citywide and university route maps and to individual route schedule pages with timetables. Route maps and schedules are essential information for transit riders, and therefore MTS delivers them in multiple forms, such as through their virtual platforms, brochures on buses, the live bus tracker, and the “Bus Mankato” app.

While most route and schedule information are accessible online and through the app, many riders seek information offline and it is important to have the information readily available and convenient for any customer, including customers without smartphones, on board buses and at transit stops.

Webpages for individual routes and schedules (on the MTS website) have a relatively standard look and feel, they are simple and graphically appealing. The Citywide service and U-Zone service maps have all the key information but are visually different in the application of color, route symbology and nomenclature. There is room for design improvement of maps, to reduce text, increase iconography, and most importantly achieve more consistency and connection between maps.

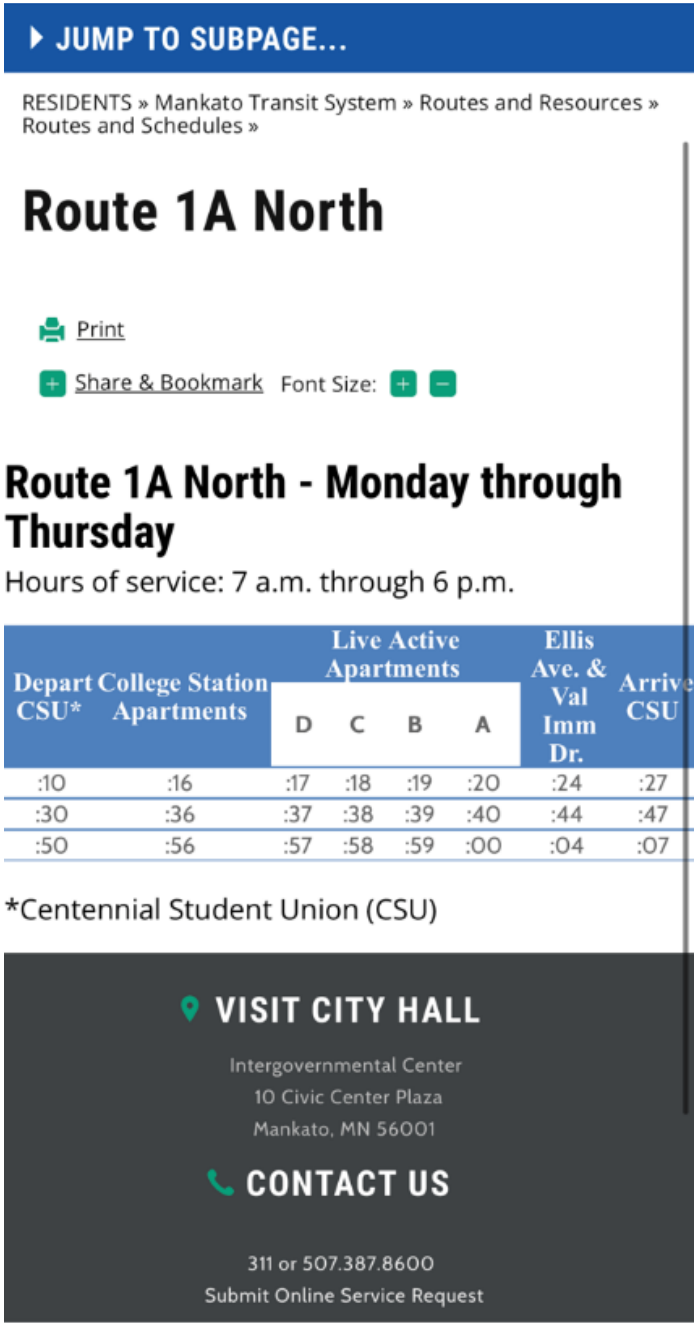
Currently, they describe two completely different systems, when in fact they are both part of an integrated system. Many riders use both systems to travel through the service area and circulate through campus daily. Most notably, the U-Zone system map does not show the alignment of evening routes – Campus Express and Stomper Express, which provide critical access to students and residents to shopping opportunities in northeast Mankato when all other routes are not in service.

Individual route schedule pages could be more smartphone friendly since part of the timetable gets cut off on a smartphone, as shown to the right.

Recommendations

- Create one map that shows all routes and services in the system, including the U-Zone routes, evening routes, weekend routes, and Kato Flex service areas.
- Improve the citywide transit map to make it more graphically compelling and consistent with logos, colors, and less text (this is in progress).
- Improve the U-Zone system map to provide compatibility with the citywide service map, show points of connection with citywide service, and show evening service routes. Consider changing route symbology and nomenclature to facilitate reading and understanding of map and services.
  - The U-Zone routes are generally over-specialized in their design, loop through many parking lots, and have a considerable amount of overlap in service. Routes could be simplified with creation of on-street bus stop facilities at a few key locations.
  - Improve the route and schedule pages for smartphone accessibility.

Figure 68. Website view of Route 1A North schedule on a mobile phone



Communication and Promotion of Service

MTS uses the City's website, social media (Facebook and Twitter accounts), MNSU-Mankato communication channels, the City of Mankato Communications Team, and local advertising to promote transit services.

On the brochures provided to riders off-campus, only 311 and 507-625-RIDE phone numbers are listed as contact methods, with the added option to call to make mobility bus reservations. The City of Mankato website allows visitors to submit a general customer service comment or request online through a general phone number (311 service). The generic 311 number or 387-8600 is used to prevent customers from calling administrative staff for schedule changes. This number generates an email to the administrative staff who have 24-hours to respond to the communication. These communications are also tracked for easy referral.

However, on the MNSU-Mankato U-Zone map, riders are invited to email questions or comments directly to sshlosser@mankatomn.gov or to call 311 or 507-625-RIDE (see image below). The MNSU-Mankato U-Zone map needs to be updated to align with current communications and contact data policies.

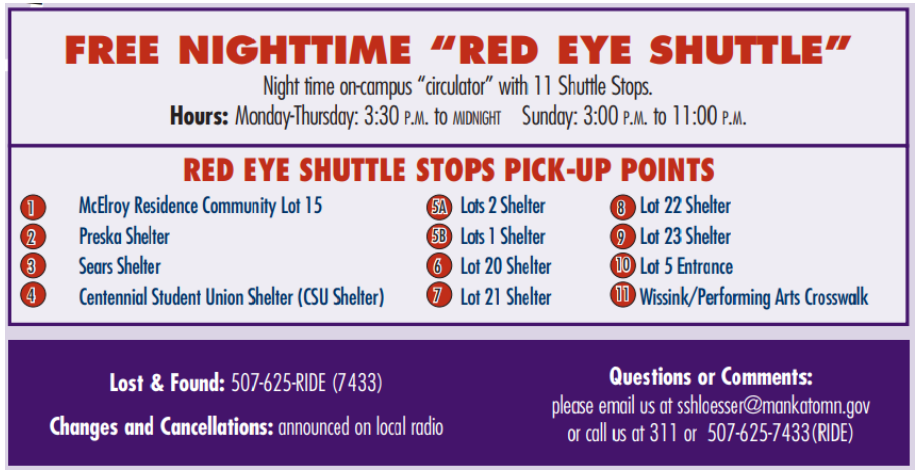


Figure 69. View of contact information on MNSU-Mankato Route Map on board MTS

The MTS website has a link to the City's Facebook page with 12,000 followers and the City's Twitter account with more than 5,000 followers. The social media pages do not present much information about MTS. The City of Mankato's YouTube account includes a couple of videos about MTS services, including an interview of a bus driver. All of Mankato's accounts are active with posts every month, but there's very sporadic MTS related content.

Recommendations

- Create and execute a social media strategy in partnership with the City and MNSU-Mankato to increase presence of MTS and promote its services.
- Unify and increase consistency of contact methods across print and social media (phone number, email, and handles).
- Market and advertise the summer routes widely.
- Consider adding route numbers to signs at major bus stops and key route information such as service hours and schedule.

Outreach and Educational Programs, Campaigns

The City of Mankato does outreach and engagement with the community to increase visibility and promote service. For instance, it holds annual events, such as Project Community Connect and Night to Unite, that advertise and increase MTS visibility in Mankato. MTS should look for more opportunities to partner with local businesses or pay for promotion at local events.

Recommendations

- Initiate middle and high school transit service demonstrations such as how to plan a trip, how to track bus location, and how to load a bike on buses.
- Establish a promotional program that includes a marketing campaign and create consistent events throughout the year.
- Promote the service with large employers in the service area and with colleges including MNSU-Mankato, South-Central College, and Bethany Lutheran College.
- Promote and communicate the safety and reliability of MTS buses and services, including training of drivers to act as service ambassadors.

Summary

MTS' buses, bus stops, and online and print communication materials can be improved and coordinated through a comprehensive re-branding effort and marketing strategy. This review shows that there are many aspects of the current brand and communication materials that need continuous attention and that aligning them into a comprehensive and cohesive information system will provide immense benefit to current riders and prospective riders of the system.

One of the major barriers to entry to any transit system is the ability of non-riders to easily understand how the system works, what are its routes, where do they go, when is the service available, where can it be accessed, and how much it costs. This information would allow anyone that is considering transit as a potential travel option to quickly assess whether the system will be able to provide them with a usable service option.

Generally, lack of information, inconsistent information, lack of access points, and complexity will deter people from even considering transit as a potential travel option and could generate a negative image of public transit. Clear and consistent information is essential for a successful transit system. It benefits both riders and the transit agency by improving the overall experience, fostering a positive perception of public transportation, increasing confidence in the transit system, and ultimately increasing use and ridership in the system.

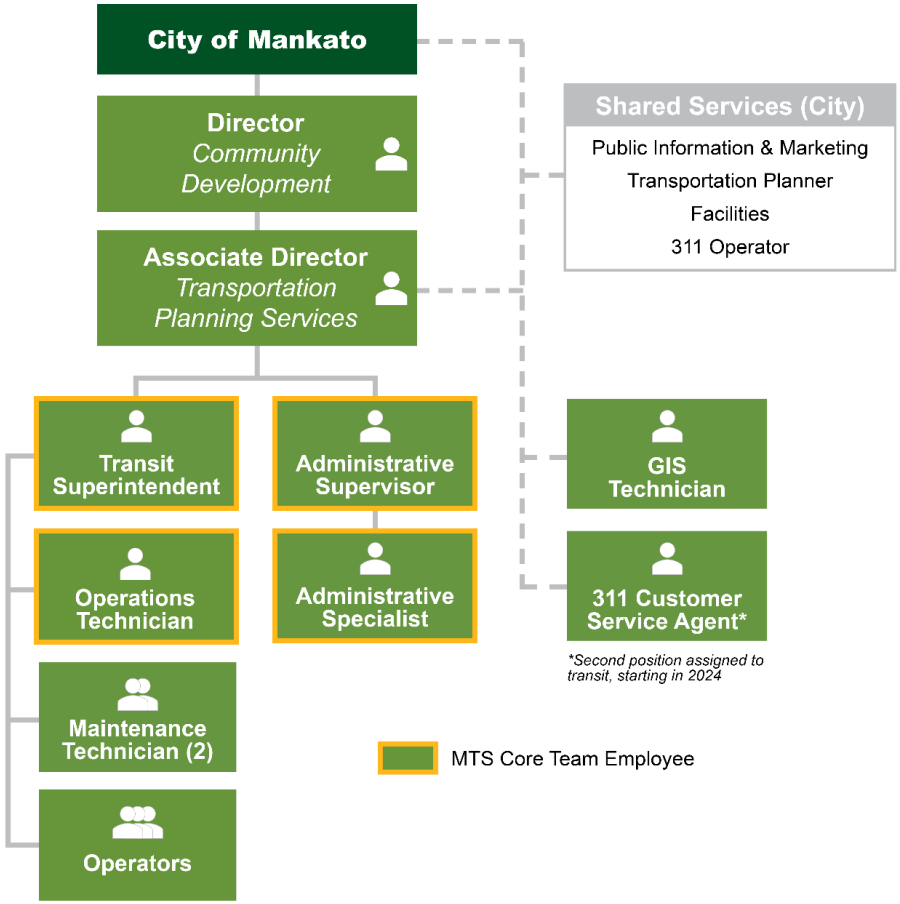
Organization and Staffing

This technical memorandum describes the organizational structure and staffing for the MTS. It provides a review of current staffing levels and lays out recommendations for the future needs of the organization.

Current Organizational and Staffing Framework (2023)

The MTS is a division within the Community Development Department at the City of Mankato, as seen in Figure 70. It is led by the Associate Director of Transportation Planning Services, with a core team of four who focus on administrative, planning, and operational support. While the MTS itself is made up of a smaller team, they operate like an integrated service within the City of Mankato, sharing services that include planning, information technology, human resources, finance, communications, and 311/scheduling, among others.

Figure 70. 2023 Organization Chart



Existing Employee Counts

In Table 20, we can see there are currently 8.65 FTE positions assigned to roles supporting transit. Within those roles, there are four core employees that manage daily administrative, planning, and operations tasks. These include a Transit Superintendent, Operations Technician, Administrative Supervisor, and Administrative Specialist. Additional support roles assigned to transit include a GIS Technician, 311 Customer Service Agent, and Maintenance Technicians, all of which also share their services with the City of Mankato. Beginning in 2024, an additional 311 Operator FTE will be dedicated for Transit. The transit team is led by the Associate Director of Transportation Planning Services, a position that dedicates half of its time to transit and the other half to airport and MPO planning services. Additional shared services that aren't assigned to transit but assist as needed include planning, public information, marketing, information technology, additional 311 customer service support, and facility maintenance.

Staffing Framework

In 2022, the MTS was given an opportunity to review their staffing framework following the departure of two core team members who filled the Transit Scheduler and Transportation Development Planner positions. As a result of the review, the MTS restructured its core team to replace these two positions with a Transit Administrative Specialist and Transit Operations Technician. These changes were fully implemented in January 2023. Furthermore, staff have secured one additional FTE going into 2024 to support the 311 Operator role to fill in a gap left from the elimination of the Transit Scheduler position, bringing the total 311 Operators supporting Transit to two.

As with any small team, even small staffing changes can have big impacts on daily operations. At the MTS, challenges were initially observed following staff turnovers and the implementation of the new staffing framework. Through focus group discussions with staff, held in March 2023, key values were expressed, including providing reliable and punctual service, quality of service for paratransit and demand response service, coordination among shared services, and general service development and operations support. Follow up discussions with City staff in May 2023 identified recent changes in their staffing framework, are already proving to be a success. Two new positions have addressed critical needs within the MTS, including more dedicated staff to service development efforts and greater support for daily operations. The addition of these staff members also brought the MTS back to full staffing levels, greatly improving daily workflows and coordination with operators and among other departments within the City.

Recommendations

Based on the review of the MTS's current organizational and staffing framework, our team offers the following recommendations for staffing and organizational framework.

Staffing

Given that the MTS recently implemented a new staffing framework, maintaining the existing staffing levels while continuing to monitor staffing needs over the next five years is recommended. As noted previously, the new framework has already proven to improve conditions at the MTS. Moving forward, the MTS leadership should closely monitor how the four positions within the core transit team are responding to changing conditions within the system. As new needs arise, staffing may need to be reviewed in close coordination with other departments at the City of Mankato to identify potential gaps. For instance, as new technologies become more prevalent in our modern-day transit systems, additional IT support will become more necessary and additional hires may be required in the IT department to support transit. In addition, the MTS should continue cross-training efforts related to procurement processes, collaborating with other departments within the City of Mankato as necessary. Through this collaboration and continued training focused on FTA-compliant procurement, the MTS will be able maintain transit-related procurement within existing staffing.

One potential position to monitor over the next five years and consider for inclusion in the staffing framework if needs persist or increase, is a position that would provide planning and promotion services. The MTS identified a need for rider education and service promotion. Creating a Planner position that also focuses on promotion of the service may help achieve ridership growth through both route planning support and public education to spread awareness of the services the MTS has to offer.

Several positions within the MTS currently participate in a variable rotation in support of transit operations. This support allows operations to keep functioning while staff are out sick, on vacation, leave, etc. It is recommended to continue sharing this responsibility among all members of the MTS team. By having this back up support in place, it allows the MTS to be more resilient and ultimately help with driver retention.

Organizational Framework

The shared services model used by the MTS leverages existing services within the City of Mankato to carry out tasks that would otherwise require several additional

FTEs. The shared service model still has significant value and should continue to be part of the organizational framework. Coordination among these shared services will remain a key factor in the success of the MTS. Our team believes this coordination will be successful through dedicated team members leading the effort, as well as through formalized processes to ensure the necessary teams have established methods of collaboration.

Ongoing coordination should include regular communication from the Assistant Director of Transportation Services with funding partners, particularly the Cities of Mankato and North Mankato, and Minnesota State University. This coordination should focus on matters related to funding commitments, strategic visioning, and goal setting for the MTS.

Table 20. 2023 Employee Counts

Position	FTE	PTE/ Shared	City/ MPO Staff	Additional Notes
Director of Community Development	0.15	-	-	
Associate Director - Transportation Planning Services *Responsible for oversight of MTS and coordination with other City departments*	0.50	-	-	Responsible for leading transit in addition to airport and MPO planning. Assists with grant writing
Transit Superintendent *Supervises operators, mechanics, and bus maintenance*	1.00	-	-	Prepares bid packages 3 times per year
Transit Operations Technician *Supports the operations and maintenance of fixed-route, paratransit, demand response bus service and equipment.*	1.00	-	-	Majority of time spent scheduling fixed-route drivers
Maintenance Technician *Bus preventative maintenance and repair, maintenance of other equipment*	2.00	-	-	Staffing support available from the City (mechanics) and permanent facilities maintenance support is provided by City's Public Works Department
Transit Administrative Supervisor *Responsible for management of administrative tasks and personnel*	1.00	-	-	Financial administration, grant writing and reporting, procurement
Transit Administrative Specialist *Supports technical transit organizational functions, primarily for paratransit and demand response.*	1.00	-	-	Performs tasks related to planning, technology, procurement, financial, engagement/marketing
Operators *Interior and exterior cleaning and fueling of the buses, fixed-route, paratransit, and demand response*	17.00	14.29	-	Fixed-Route: 11.0 FTE / 12.49 PTE Mobility: 6.0 FTE / 1.8 PTE
GIS Technician Responsible for spatial analysis and route map production	1.00	-	-	Route planning assistance
Transportation Planner (MPO)	-	-	1.00	
311 Operators *Responsible for dispatch and customer service calls, paratransit/Kato Flex scheduling*	1.00	-	5.00	Transit funds support one FTE in 311. 2024 Budget includes one additional FTE for Transit.
Public Information and Marketing	-	-	3.00	
Facility Maintenance	-	-	4.00	
Total Employees	25.65	14.29	13.00	

Capital Improvement Needs

This section describes the MTS current assets that together serve the greater Mankato region with a reliable and safe system that is operated and maintained effectively. MTS assets include bus stops and amenities, facilities and yards, vehicles (revenue and non-revenue), and equipment. When capital assets are routinely operated and maintained, MTS is best equipped to provide high-quality service, and accommodate growing ridership and expanded service.

This capital improvement topic is divided into two sections: MTS's capital assets today –a detailed documentation of the assets that MTS owns, and MTS's capital asset needs and opportunities –an overview of recommendations for future growth of the system. This report includes a blueprint for maintaining a reliable bus, paratransit, and support vehicle fleet and supporting facilities. It also identifies bus stop improvements and standards to enhance service.

Capital Assets Today

The MTS system is made up of 25 revenue vehicles, seven (7) non-revenue vehicles, and a maintenance and administration facility that deliver an efficient and reliable transit system for the greater Mankato region.

Figure 71. MTS Heavy-Duty Transit Bus (Class 700)

Vehicle Fleet

Bus Fleet

In the 2018 TDP, MTS was managing a bus fleet shortage that was threatening the potential to expand service in the region. As of 2023, the bus fleet is effectively accommodating service as it exists today. MTS has developed a bus vehicle replacement schedule and transit asset management plan which guides the future capital asset growth.

MTS delivers Citywide, University, Mobility and Kato Flex bus services on two primary bus classes:

- *11 Large*, Heavy-Duty Transit Buses (Class 700)
- *14 Medium-Sized*, Light Duty Transit Buses (Class 400)

Figure 72. MTS Medium-Sized, Light Duty Transit Bus (Class 400)

The vehicle replacement schedule details a timeline for bus replacements and additions leading into 2027. Through 2024, MTS plans to replace 11 Class 400 and Class 700 vehicles and add four Class 400 vehicles to the fleet. While vehicle replace-

ments are scheduled, there are no plans as of now to electrify the revenue vehicle fleet. The current fleet includes biodiesel (17) and gasoline (9) fuel types, but the bus vehicles being added in 2023 and 2024 are primarily biodiesel.

The revenue vehicle fleet is on average eight (8) years old, reflecting a range of older and newer vehicles. The 400 Class vehicles are on a 5-to-7-year replacement cycle while the 700 Class vehicles are on a 12-year replacement cycle (**Table 21**). Expected funding revenue meets the fleet replacement schedule. Details on average miles and years of vehicles are shown below. The vehicle condition ratings are highest for the 40-foot Class 700 buses. The only class of buses approaching their useful life are the 35-foot Class 700 vehicles. An asset is deemed to be in good repair if it has a rating of 3, 4, or 5 on the FTA scale. Likewise, an asset is deemed to not be in good repair if it has a rating of 1 or 2.

Table 21. Revenue Vehicles Mileage, Age, and Condition

Type of Vehicle	Average Mileage of Vehicles	Average Age of Vehicles	Vehicle Condition Average Rating*
Class 400 (length 24' seating capacity 12)	114,328	6 years	3.6
Class 400 (length 26' seating capacity 16)	162,098	8 years	3.3
Class 700 (length 35' seating capacity 32)	240,706	11 years	2.6
Class 700 (length 40' seating capacity 38)	136,250	8 years	4.0
Total	160,296	8 years	3.4

*** As of December 31st, 2021**

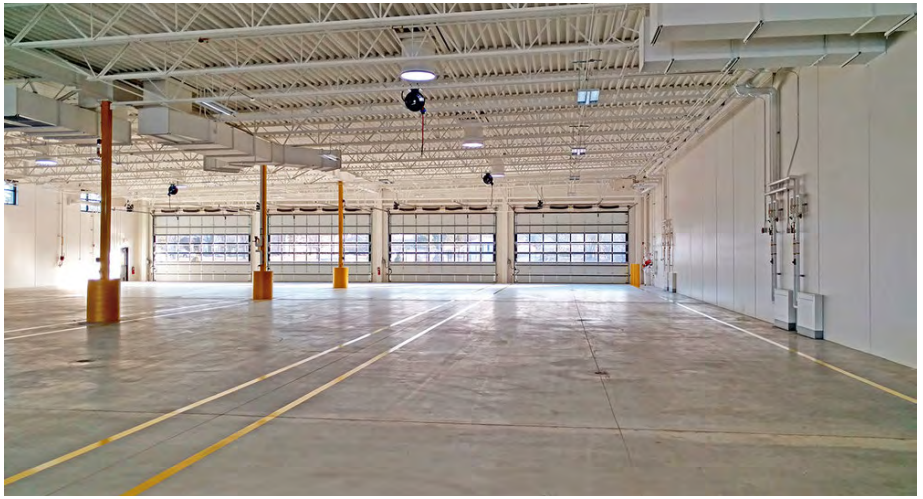
Non-Revenue Fleet

The non-revenue vehicle fleet includes seven (7) total vehicles between six (6) and 18 years old. All of the vehicles have an 8-year useful life benchmark. All of the vehicles except one are past that benchmark based on their model year but only three of the vehicles are over their useful life mileage benchmark of 100,000 miles. The transit asset management (TAM) plan proposed an electric vehicle charging station at the MTS bus yard for 2026.

Table 22. Revenue and Non-Revenue Vehicles Mileage, Age, and Condition

Asset Category/ Class	Total Number	Average Age	Average Mileage	Average State of Good Repair	Average Replacement Cost/Value	Total Replacement Cost/Value
Class 400 Buses	14	5.9	124,376	3.7	$188,000	$2,632,000
Class 700 Buses	11	9.2	183,730	2.5	$557,000	$6,127,000
Revenue Vehicles	***25***	***7.55***	***154,053***	***3.1***	***$372,500***	***$8,759,000***
Non-Revenue/ Service Automobile	7	12.6	91,909	N/A	$1,000	$7,000
Other Rubber Tire Vehicles	3	3.33	N/A	N/A	$14,000	$42,000

Figure 73. MTS bus maintenance facility



Administration & Maintenance Facilities

MTS has its administration offices, bus maintenance facility, and bus yard within the City of Mankato's Public Works Center on South Victory Drive, in east Mankato. Like its vehicles, MTS maintains a transit asset management tracking to ensure that their facilities are in a state of good repair and in compliance with FTA useful life guidance, which establishes a range of 40-50 years for facilities. MTS garage and maintenance facilities are six years old and in a state of good repair.

The administrative offices were recently renovated to expand the Public Works Center offices and provide a space dedicated to operations.

The maintenance facility was recently constructed to include four bus bays, a shop, and vehicle wash station. This facility is essential to keeping buses clean and in good repair and when vehicles are in good repair, they are more reliable and provide higher quality service. The expanded space now includes a Driver Lounge, shared-use computer area, and restrooms to enhance employee satisfaction. The newer setup of this facility gives MTS flexibility to grow service by supporting additional transit vehicles with more space to park and maintain vehicles.

Figure 74. MTS bus washing station

Bus Stops and Amenities

MTS owns and maintains 124 bus stops across the MTS service area. Currently, most of the stops have some type of amenity, even if minimal, such as a shelter, sign, or bench. Still, there are nearly one-quarter of stops that are unmarked. This is reflective of the current transition from a flag-stop system to a stop-based system.

Table 23 shows the distribution of amenities across stops. More than one-half have signs and shelters, which provide a basic level of information to riders about where to wait, the route they're riding, and shelter from weather conditions. Notably, there is still room to improve the stops that are unmarked, such as the 23 stops that are in parking lots. Most stops are on City of Mankato property, but 12 percent are on MNSU property, reflecting the strong partnership with MNSU to deliver quality service.

Like many systems across the country, MTS is putting substantial effort into improving bus stops to enhance customer experience, safety, and make the system accessible to persons with disabilities. MTS has secured a grant that will make 20 stops ADA compliant in 2023 and will include more significant improvements to stops in 2025. This will be a huge improvement to the system since just more than 40 percent of stops are ADA compliant.

Figure 75. MNSU-Mankato Hub (Transit Center)

Table 23. Stops by Type of Amenity

Type of Amenity	Percent
Bench	17%
Hub (Transit Center)	2%
Shelter	27%
Sign	31%
Unmarked	23%
Other	1%
Total	**100%**

Transit Center Locations

The 2018 TDP identified three transit center areas that act as primary transfer and terminal locations for bus services – Cherry Street, MNSU-Mankato, and River Hills Mall:

- **Cherry Street Transit Center:** The Cherry Street location is an open bus stop that includes TV screens with real-time arrival information and access to a parking ramp. It was originally chosen as a transfer location since it is adjacent to the Civic Center area – a regional employment and activity center for multiple levels of government and includes several civic offices and services.
- **MNSU-Mankato Transit Center:** The MNSU-Mankato Transit Center is currently located on the south side of Centennial Student Union. The MNSU-Mankato location has one enclosed shelter on the south side of the street. On the north side, students often use the Student Union lobby as a waiting room. Transit information is available inside the Union, and this site works well for the University and MTS.
- **River Hills Mall Stop:** The River Hills Mall area is a regional employment and activity center for Greater Mankato and is the primary retail center for south-central Minnesota and northern Iowa. The River Hills Mall is served by a single bus shelter. The need for a transit center in the River Hills Mall Area was identified through public and stakeholder engagement and service planning. The MTS team have agreed to move the location of the stop to the corner, away from the doors. As planning for this site continues, MTS should consider formalizing a transit center with additional amenities, such as heated shelters and real time information displays, so that riders can choose to wait in the store or at the stop.

Equipment and Technology

Maintaining a modern transit system like MTS requires equipment and technology to operate efficiently and communicate effectively with customers. For general equipment, MTS owns and tracks three assets including a scrubber, skyjack and stand-on skid steer which are all under five years old.

- **Scrubber Power Sweeper:** A tool for cleaning floors that is battery-operated and functions on both hard floors and carpeted spaces. The useful life is eight years, so the sweeper will be replaced in four years if replaced according to TAM standards. The scrubber has a $54,000 replacement cost.
- **Skyjack Scissors Lift:** The scissor lift is used to elevate workers and/or their tools. MTS applies a useful life of 8-years, but scissors lifts often last up to 30 years. This equipment has a $19,000 unit replacement cost and will need to be replaced in four years if replaced on the eight-year cycle.
- **Stand-on Skid Steer:** A skid steer is a piece of construction equipment that digs and hauls materials. They are used to do heavy tasks in small spaces. The stand-on skid steer will cost approximately $29,000 to replace, but does not need to be replaced for another six years.

MTS currently has limited use of technologies such as AVL, APC, video cameras, voice annunciation and user interface applications. The future presents many more opportunities to integrate technology into MTS service to meet the needs of a modern transit system. For a system of MTS's size, the following technologies are appropriate and have various benefits:

- **On-board camera systems.** Transit agencies use a variety of onboard camera systems to monitor and evaluate their systems. The camera systems are setup to automate video recording that can be reviewed later to investigate complaints, incidents, safety concerns, and driver behavior. Video is typically recorded and stored on devices that require some maintenance.[4] Each bus has an on-board camera system.
- **Vehicle mechanics monitoring (such as Zonar).** Would allow MTS to remotely manage every bus, vehicle, route and available operator and keep up each vehicle's health so it stays rolling day and night.
- **Automatic Vehicle Locator (AVL) Systems.** AVL systems allows transit agencies to track and collect real-time data on where their vehicles are and when. The data that AVL systems provide aid service disruption management and recovery, service coordination, and improve on-time performance. On-time performance is one of the most important performance measures for transit

4 Muskegon Area Transit System. Transit Technology Implementation Plan. August 2019. Accessed from https://www.michigan.gov/-/media/Project/Websites/MDOT/Travel/Mobility/Public-Transportation/SDNT-Reports/Study-2019/MATS-Transit-Technology-Implement-Plan-Project-Reports.pdf?rev=63acb72676e54178956f6e3596c7ce68

agencies, so technology like AVL systems are essential tools to increasing speed and reliability of fixed-route service. Typically, these systems are deployed on fixed-route service, but there is potential to use them with demand response systems as well. Like equipment and other assets, AVL technology requires maintenance and monitoring. Each bus has an AVL system.

- **Sharing of vehicle positioning with transit planning apps.** With AVL technology, transit agencies like MTS can share the location of their vehicles with third party apps. The recommended practice is to share the real time location of buses through the GTFS-RT standard, which is open source and can be picked up by widely used transit applications and platforms such as the Transit App. MTS is currently using live data only through its Bus Mankato App and Live Tracking website[5] and not sharing with others.
  - **BUS MANKATO.** is a mobile application built for Apple and Android phones available free in the Apple App Store and Google Play Store. This app is a partnership between the city of Mankato and Minnesota State University, Mankato. The app includes a trip planner, schedule information and a link to transit routes.
  - **BUS TRACKING WEBSITE.** Live bus tracking is available on the web. It is also a product of the partnership between the City of Mankato and Minnesota State University, Mankato. This solution is best when using a device that doesn't support the Bus Mankato or Mav Life mobile applications.
- **Automatic Passenger Counters (APCs).** APCs are devices used for counting the number of passengers boarding and alighting and they are a critical technology to collect ridership data. During the Covid-19 pandemic, this technology became more popular for analyzing real-time crowding data for the purposes of social distancing.[6] This technology would allow MTS to have stop level ridership to prioritize future investments and consider eliminating low ridership stops.
- **Automatic Voice Annunciation.** Taking public transportation can be a challenge for passengers with hearing and vision impairments. An Automatic Voice Annunciation (AVA) system provides on-board passenger announcements such as next stop and time, and information to passengers waiting at the stop on arrival related to bus number and route. This information is usually coordinated with LED on-board signage to make transit easy to use and more accessible for everyone. Included as part of the capital improvement plan for 2024.
- **Wi-Fi infrastructure.** Wi-Fi infrastructure is useful for communication of large amounts of data between buses and systems when buses return to the yard. For instance, on-board camera systems collect large amounts of video data during a service day that is better transferred through Wi-Fi than cellular-based systems that communicate continuously with the cloud. APC and vehicle mechanics monitoring systems are another example of information that can be collected when the bus returns to the yard and transferred to the cloud through Wi-Fi. Passengers can also access Wi-Fi systems to improve cell service. MTS sought support from the National Center for Applied Transit Technology and will use their guidance for future technology acquisitions tailored to the system's needs.

5 https://www.mnsu.edu/about-the-university/maps-and-transportation/buses-and-shuttles/live-bus-tracking/

6 https://www.nctr.usf.edu/wp-content/uploads/2011/03/77803.pdf

Capital Asset Needs & Opportunities for Future Growth

MTS has capital needs that when addressed, will continue to improve operations and delivery of service to transit customers, existing and future. The following sections speaks to the need and the opportunities to grow the system from today's assets to a larger, more comprehensive system in the future.

Vehicle Fleet

Maintaining vehicles and replacing them when they reach the end of their useful life is essential to establishing a safe and reliable MTS system. MTS maintains a detailed fleet tracking for current vehicle fleets and vehicle fleet replacement. The replacement plan documents vehicle IDs, types, fuel types, make, cost, State Transportation Improvement Program (STIP) and Capital Improvement Program (CIP) information and expected arrival date. Table 24 shows the vehicle replacement inventory as of 2023 Q2. The tracking shows vehicle replacements planned through 2024, but MTS has a replacement plan that extends to 2027 with expected costs (adjusted for inflation) as part of its long-range financial forecasts.

Table 24. Vehicle Replacement Inventory

Type of Vehicle	Total Ordered	Expected Arrival	Cost
Class 400 (Length 24 Seat 12)	3	2023 Q3 and Q4	$154,753 - $162,157
Class 400 (Length 26 Seat 16)	8	2023 Q4 - 2028	$154,753 - $263,000
Class 700 (Length 35 Seat 32)	3	2024 – 2025	$557,000 - $688,800
Class 700 (Length 40 Seat 38)	1	2024	$557,000

Best Practices[7,8]

Using data more effectively, proactively maintaining the fleet, optimizing fleet size, and advancing training are key best practice opportunities for MTS.

- **Use data and tracking to make better decisions.** Tracking metrics can include fuel costs, types, and quantities, vehicle maintenance work orders and costs, and vehicle utilization. MTS can also identify key KPIs, such as vehicle usage, and track those as a way of monitoring the fleet.
- **Perform and prioritize preventative maintenance.** Preventative maintenance of the fleet means predicting when a bus component will fail and being able to plan for that maintenance and cost. MTS can create a preventative maintenance schedule and checklist to systematize this process.
- **Optimize fleet size to right-size the system.** Owning more vehicles than MTS needs can be costly.
- **Train drivers as technology changes.** As the fleet evolves and new vehicles are added, MTS must keep drivers up to date on operating any new technology through training opportunities.

Facilities and Yards

To grow the MTS system and prepare for future service as the greater Mankato area evolves, there is an opportunity to maximize the current facilities for people management, vehicle storage and vehicle maintenance. With the newer facilities, there is more capacity to host and train staff and provide amenities to MTS to improve job quality, such as providing healthy foods or food storage options. In a time when hiring drivers is quite difficult, there is an opportunity to use the newer facility space to incentivize drivers and improve job satisfaction by providing a quality workspace and additional resources.

Best Practices

- **Plan proactively for maintenance of MTS facilities.** Proactive maintenance of the administrative offices and bus maintenance and yard facility will ensure that MTS maintains its facility in a state of good repair for its 40–50-year useful life.
- **Leverage facilities for employee wellness.** There is potential to use the administrative facility for additional employee activities such as trainings and employee wellness programs to attract and retain drivers.
- **Consider performance measures beyond condition metrics.** Additional metrics such as usage patterns can help MTS understand how facilities are contributing to overall MTS goals to provide high-quality service.

Bus Stops

The MTS system can make significant improvements by developing a comprehensive strategy around bus stops. While MTS is very detailed in their bus stop improvement plan, this is an excellent area of focus since there are many quick wins that would greatly improve the system by simply tackling the bus stop locations, design, and amenities. Bus stop location optimization can improve service speed and reliability, while design and amenities are the more obvious upgrade to customers to enhance their feeling of safety and comfort as an MTS rider.

Below we've detailed a few high-level takeaways about bus stop needs and corresponding best practices to improve stop access, spacing and amenities.

Bus Stop Access

Currently, many MTS bus stops are in driveways or parking lots (e.g., River Hills Mall, Walmart, Mayo Clinic, MNSU Lot 20-23, The Grove, Summit and Stadium Heights Apartments). The bus stop inventory identifies 23 different locations with this condition of placement in a parking lot. Parking lot bus stops create several hurdles for riders and operators, such as limited feeling of safety for riders, and slow, meandrous, and inefficient operating for drivers, and potential crash liabilities for MTS.

Additionally, many stops are needed in places that do not have a safe place to stop the bus, do not have safe pedestrian street crossings and/or direct access to sidewalks. For instance, Madison Avenue, a key transit corridor, does not have a single bus stop on street. Bus stops are points of access to service, like subway stations. There is a service strategy behind them. The placement and accessibility of bus stops determines whether riders can make trips on transit.

RECOMMENDATIONS FOR ACCESS

- **Enhance crossing treatments at unsignalized locations:** These can be targeted at high ridership stops pairs and destinations.
- **Design high-visibility crosswalks and leading pedestrian intervals at signalized intersections:** Most riders cross the transit corridor on one or both ends of their trips.

7 ABI Research https://www.abiresearch.com/blogs/2023/01/23/effective-fleet-management-best-practices/

8 Transit Fleet Maintenance. TRB.

Bus Stop Spacing

Bus stop spacing is also a critical component of an efficient and reliable fixed-route system. When stops are adequately spaced, riders can feel the system is much more accessible. General guidance is that stops should be spaced at one-quarter mile intervals to provide adequate walking access to destinations along the transit corridors. Bus stop spacing is both a science and an art. If stops are spaced too close together, it can substantially slow down service but too few stops make the system inaccessible. Ultimately, adequate stop placement improves the utility and dependability of service.

RECOMMENDATIONS FOR SPACING

- **Reference national guidance for bus stop position.** Mankato Transit's Bus Stop Design Guide outlines advantages and disadvantages of stop placement. Bus stop position is important to enhance service reliability, move people and cars through transit corridors without delay, and minimize crash risk.
  - In MNSU or downtown areas, stops may be placed more often such as every two blocks, and near landmarks. The more suburban areas of the MTS service may need different spacing to locate stops at safe, lighted intersections.
- **Add bus stops in between two arterial roadways.** This may be an opportunity for a far-side stop. A far-side stop has the following advantages (see more information in Mankato Transit's Regular-Route Bus Stop Design Guide):
  - Far side pull-out stops allow bus drivers to use the space in the intersection to merge into the bus stop zone, providing the shortest total bus stop zone length for pull-out stops.
  - At stop sign controlled or uncontrolled intersections, appropriately designed far side stops do not block sightlines between people walking across the intersection and people in vehicles, minimizing the multiple threat crash risk.
  - At signal-controlled intersections, the red signal phase facilitates bus reentry, stopping only one time and enabling faster travel times.
  - On two-way streets, high volumes of right-turning vehicles can be accommodated with less conflict.

Bus Stop Amenities

MTS can improve bus stops for safer and better access, including ADA access. The City of Mankato has secured a grant that will result in improving ADA compliance and access at 20 stops in 2023 and will include more significant improvements to stops in 2025. Some of the types of changes to stops that can be enhanced include:

- Landing pads for front-door loading and rear-door alighting of passengers.
- Direct access to sidewalks and sidewalk connections to destinations
- High-visibility crosswalks at signalized intersections

One approach to bus stop improvement is developing minimum bus stop amenity guidelines for improved facilities. These can be minimum standards such as a pole, sign, and landing pad. On the most essential corridors, such as Madison Avenue, Main Street or Balcerzak Drive, shelters, lighting, heating, and passenger information (displayed digitally if possible). Real-time arrival information can be prioritized at the top 10-20 high-priority locations.

RECOMMENDATIONS FOR AMENITIES

The recommendations for bus stop amenities including minimum requirements are shown in **Table 25**. Recommendations are based on three tiers of improvement categories with the most amenities and investment in Tier 1 (High Priority). Tier 1 recommendations are for bus stops that have relatively high numbers of boardings or serve destinations that cater to people who may have particular needs for shelters or benches (such as a public health clinic or an independent living facility). Improvement projects should begin as soon as possible in these locations.

Table 25. Tiered Bus Stop Amenity Recommendations

Description	Tier 1 (High Priority) *Begin bus stop improvement project ASAP; begin looking for specific funding options.*	Tier 2 (Proactive) *Location merits bus stop improvements: funding opportunities should be considered.*	Tier 3 (Opportunistic) *Address bus stop needs when scoping other projects or as funding becomes available.*
Landing pad (ADA compliant)	Required	Required	Required
Transit stop signage	Required	Required	Recommended
Seating	Required	Recommended	As available
Shelters	Required	As available	As available
Tactile warning surfaces	Required	Recommended	Recommended
Passenger information and wayfinding	Recommended	As available	As available

	Tier 1 (High Priority)	Tier 2 (Proactive)	Tier 3 (Opportunistic)
Real-time arrival information	Recommended	As available	As available
Lighting	As available	As available	As available
Artwork	As available	As available	As available
Landscaping	As available	As available	As available

Financial Analysis and Projection

This section reviews and forecasts the financial position of the MTS for the next five years. This analysis helps MTS forecast future revenue and costs to understand whether the agency is able to expand service, reduce service hours, or maintain them. The baseline analysis also helped the planning team to identify capital or operating funding gaps in the development of service change scenarios and the service implementation plan.

Assumptions for Baseline Scenario

Fiscal Analysis

Operating Costs for Fixed-Route, Kato Flex, and Mobility Bus

The 2023 Operating Budget formed the starting point for the baseline forecast presented in this memo. MTS typically breaks its operating costs into two categories: bus and paratransit service. For overhead costs that are used by both categories (such as administration or maintenance) 75% is allocated towards bus service, and 25% is allocated to paratransit. Kato Flex service has traditionally been included in the bus service, but because the planning team was interested in future scenarios that might expand flex service, the baseline scenario uses the share of 2023 revenue hours for fixed-route (84%) and flex service (16%) and projects those costs out five years.

Due to high inflation rates in 2022 and early 2023, expenses are projected to increase by 5% in 2023, then increase by 4% in 2024, with the projected inflation rate slowly falling to 2% by 2027.

Federal and State Operating Subsidies

Operating subsidies from MnDOT and FHWA are predicted to stay at the same percentage of operating costs over the next five years. MnDOT typically pools Federal Urbanized Area Formula Grants (5307) and state operating assistance to pay for 80% of bus operating costs and pay for 85% of paratransit operating costs.

Farebox Revenue for Baseline Scenario

Farebox revenues have declined dramatically since the last transit development plan was completed: the COVID-19 pandemic and the ensuing shift to remote work have reduced ridership and therefore, fares. MTS is hoping for a modest increase in farebox revenue (about $5,000 annual increase) through better wayfinding, marketing, and improved service hours and routes as a result of this Plan.

MNSU Contribution

MNSU-Mankato paid $556,000 for the transit service provided to and around its campus in 2023. This amount is based on the number of vehicle revenue hours that are operated in the MNSU Campus routes multiplied by an assumed cost of $105/service hour which is based on a formula that charges MNSU for a portion of the actual cost of service. As reported in the Service Performance Review section of this document, the actual costs of providing transit service to MNSU in the current route structure is estimated to be around $1.1 million annually, not including capital. The service change scenarios explore ways to reallocate some of the service hours that are dedicated exclusively to routes circulating through the MNSU campus, and nearby parking facilities and residential areas, to service routes that connect the MNSU Campus with other parts of the greater Mankato area and outlying residential areas. Making changes to the route network around the MNSU Campus will have an impact on the number of routes that are operated through campus but likely not on the number of vehicle revenue hours and level of service to the MNSU community. Due to the uncertainty around the future MNSU network structure and potential changes to the cost share agreement, the baseline scenario pegs the MNSU contribution to $556,000 for the next five years.

Additional Local Funding Mechanisms or Strategies

- The remainder of operating costs are covered through local contributions or advertising revenues. A property tax levy within the City of Mankato supplied $165,000 until 2022, when it was increased to $415,000 in 2023. This amount

remains constant in the baseline scenario, because the City will not reassess the amount of this levy in the next five years. The City of North Mankato's contribution is based on a formula based on the net cost per hour, which is projected to increase at the rate of inflation. Non-farebox revenues (mostly from advertising) are predicted to increase in the short term, based on Mankato Transit's new Advertising Plan, however for budget purposes advertising revenues are held steady at $48,000 per year, same as budgeted for 2023.

Capital Needs

For annual capital needs in the next five years, the planning team relied on costs and state and federal financial assistance calculated by MTS staff in the 2024-2029 Capital Improvement Plan. Typically, federal and state assistance covers between 80% to 90% of the costs of major capital purchases such as buses and facilities. Other projects such as bus stop maintenance, overhead door replacement, and replacement of some transit facilities need to be paid entirely with local funds.

Baseline Projection

To forecast the financial capacity available for the capital and operating recommendations to be provided by this Plan, the planning team prepared a baseline forecast that illustrates the annual operating costs and revenues using the assumptions outlined in the previous section. The baseline model (shown in Table 26) estimates that MTS will have operating revenue surpluses of about $110,000 in 2024, which would fall to $18,000 by 2028. For capital needs (shown in Table 27) the local share of capital equipment will vary between $141,000 and $556,000. The baseline scenario is one where MTS's projected revenues will cover its projected expenses exactly, with the City of Mankato covering the local share of capital expenses through rolling stock and transit capital replacement reserves.

Table 26. Baseline Forecast of Operating Expenses and Revenue

	Forecast					
	2023	2024	2025	2026	2027	2028
Operating Expenses (Baseline Scenario)						
Bus Service	$4,277,000	$4,491,000	$4,671,000	$4,811,000	$4,907,000	$5,005,000
Projected Fixed-Route	$3,610,000	$3,791,000	$3,942,000	$4,061,000	$4,142,000	$4,225,000
Projected Flex	$667,000	$701,000	$729,000	$751,000	$766,000	$781,000
Paratransit Service	$1,422,000	$1,493,000	$1,553,000	$1,599,000	$1,631,000	$1,664,000
Expenses Total	**$5,699,000**	**$5,984,000**	**$6,224,000**	**$6,410,000**	**$6,539,000**	**$6,669,000**
Operating Revenues (Baseline Scenario)						
Federal and State Operating Subsidies						
Bus (5307 + MnDOT) Subsidy	$3,422,000	$3,593,000	$3,737,000	$3,849,000	$3,926,000	$4,004,000
Paratransit (MnDOT) Subsidy	$1,209,000	$1,269,000	$1,320,000	$1,359,000	$1,387,000	$1,414,000
Local Funding						
City of North Mankato	$126,000	$132,000	$138,000	$142,000	$144,000	$147,000
City of Mankato Tax Levy	$415,000	$415,000	$415,000	$415,000	$415,000	$415,000
Farebox Revenue						
Fares	$126,000	$130,000	$135,000	$140,000	$145,000	$150,000
MNSU Contribution	$556,000	$556,000	$556,000	$556,000	$556,000	$556,000
Non Farebox Revenue	$48,000	$48,000	$48,000	$48,000	$48,000	$48,000
Revenue Total	**$5,902,000**	**$6,143,000**	**$6,348,000**	**$6,509,000**	**$6,621,000**	**$6,735,000**
Net Operating Revenue (Revenues-Expenses)	**$202,000**	**$159,000**	**$124,000**	**$99,000**	**$82,000**	**$66,000**

Table 27. Baseline Forecast of Capital Expenses and Revenue

	Capital Improvement Plan					
	2023	2024	2025	2026	2027	2028
Capital Expenses						
Total Expenses	$2,140,000	$1,023,000	$675,000	$3,160,000	$828,000	$800,000
Federal and State Capital Subsidies	$1,423,000	$787,000	$300,000	$2,722,000	$687,000	$244,000
Local Share	**$717,000**	**$237,000**	**$375,000**	**$439,000**	**$141,000**	**$556,000**

Fare Analysis

Current Fares

MTS has several different fare types, which are shown in Table 28.

Table 28. Fare Types and Prices

Fare Type	Fixed-Route	Flex	Paratransit
Cash fare	**$1.50**	**$2.00**	**$3.00**
Discount riders cash fare			
Youth	No cost		
Seniors 60 and older	$0.75		
Person with disabilities and Medicare cardholders	$0.75		
Prepaid fares			
8 Tokens	$10 ($1.25/ride)	N/A	N/A
Multi-ride cards and passes	$40/30 days ($1.33/day)	$20/11 rides ($1.82/ride)	$30/11 rides ($2.73/ride)

Most of the fares for fixed-route and paratransit service have remained unchanged since the previous 2018 TDP, except for discount riders, some of whom have seen their fares reduced. Youth now ride free with a school ID.

As described above, MTS also receives fare revenue from MNSU-Mankato which is calculated based on an assumed cost of $105/service hour. Since 2012, MNSU-Mankato has charged each student a transportation fee which goes towards the amount that MNSU-Mankato pays to MTS for student, faculty, and staff MavCARDS. MavCARDS can be used by faculty, staff, students on any fixed-route bus instead of paying a fare each time. MavCARDS are not eligible for Flex or Mobility service.

Farebox Recovery

Farebox recovery measures the percent of operating costs recovered through fares. Previous sections included an analysis of the fare revenue per route based on the reported average fare revenue from the 2019 National Transit Database Annual agency profile, which—due to the drop in ridership during the COVID-19 pandemic—was dated. The planning team used the more detailed operating expenses and revenue information in the 2023 Operating Budget to provide an accurate measure of farebox recovery for the entire fixed-route, flex-route, and paratransit service, which is displayed in Table 29.

Typically, demand-response services have lower farebox recovery than fixed-route service, but it is interesting to note that Kato Flex provided in North Mankato and other areas has even lower farebox recovery than paratransit service. This may be a function of the way that the operating expenses are "assigned" between bus services and paratransit. The actual costs of running Kato Flex should be close to paratransit on a cost per hour basis, but—as Table 29 also shows—the way that operating expenses are calculated makes it seem that paratransit is much lower to operate per hour than Kato Flex.

Table 29. Farebox Recovery Ratio for MTS Service Types

Service Type	2023 Operating Expenses Reported in 2023 Budget	2023 Fares & MNSU Contribution	% Of Expenses Covered by Fares	2023 Revenue Hours	Operating Expenses/ Hour
Bus Service					
Fixed-Route	$3,610,000	$559,300	15.5%	26,359	$137.0
Kato Flex	$667,000	$10,200	1.5%	5,110	$130.5
Paratransit Service					
Mobility Bus	$1,422,000	$58,000	4.1%	14,455	$98.4

Fare Collection Options

MTS's current fare collection system is out of date and needs to be replaced. The transit agency has included farebox technology upgrades in the 2024 CIP, estimating it will cost a total of $400,000, with 80% of the cost covered by federal 5307 capital funds, and the balance of $80,000 paid for with a local funding. Due to the expense of the replacement compared to the fares (only $126,000 was actually collected at the farebox in 2023) MTS has asked the planning team to present information on alternative fare collection options for the agency to consider. In general, transit systems have two options to consider beyond the traditional farebox that can collect cash, bills, tokens, and cards: going fare-free, and going cash-free. These options are discussed below.

FARE FREE

As ridership and farebox revenue plummeted during the COVID-19 pandemic, MTS went fare-free. Many transit agencies made this switch, partly driven by safety concerns. MTS also installed clear plastic shields/barriers to protect drivers and passengers from exposure and blocked selected seats for social distancing. The fare-free policy during the COVID-19 pandemic has prompted MTS to question whether it makes sense to invest in replacing current fareboxes, which are old, or return to a fare-free policy.

Zero fare operations have several benefits: they increase access and remove barriers for riders; they reduce delay and dwell time during passenger boardings, they avoid disputes between drivers and passengers regarding fares, and can result in increased ridership.

However, running a fare-free transit system also provides challenges. In the case of Mankato, losing the $126,000 provided at the farebox will leave a hole in the budget that will need a source of funding. It should be noted that if MTS chose to go fare-free it would not need to replace the farebox equipment. However, as farebox equipment and technology is a capital expense, these funds could not then be applied to operational needs. Some options to consider are described below:

- **Partnerships.** The transit agency could look for additional partnerships like the MNSU contract, where transit users such as MNSU provide an annual payment that covers the gap. If paratransit fares are also reduced to zero, MTS should anticipate ridership increases for paratransit service, which is more expensive to operate.
- **Additional State Funding.** On May 24, 2023, the Transportation Omnibus Bill was signed into law, which includes $1.3 billion in funding for state transportation, including transit. Once regulations and guidelines are published by MnDOT, it may become apparent that more state funding could fill the budget gap.

CASH FREE

Many transit agencies are deciding to replace their aging fareboxes with cashless systems that would require riders to use a chip-embedded tap card and/or their phones to pay. Cash-free systems have the benefit of reducing delay and dwell time, making the drivers job easier, and can facilitate collecting data on fares and boardings. However, they have drawbacks too, primarily around issues of equity: not everyone owns smart phones or has bank accounts, and some studies have indicated that cashless fare systems pose challenges for people with low incomes or without bank accounts. Cashless systems also pose challenges for the elderly because seniors are less likely to own smartphones. Other potential issues include the lack of a back-up system that cash offers (if a rider's smartphone runs out of battery or freezes); additional coordination and time required to distribute cards and provide places to reload cards; or more fare disputes as people without access to smartphones or without smartcards simply ignore the new fare collection system. MTS can consider two options for going cash-free.

- **Smartcards.** Smartcards, unlike the MavCARDs that MNSU students and faculty use, are connected to users' bank accounts or credit cards. If linking to a bank account is not an option, most Smartcard systems will allow the option of setting up a personal account that can be refilled with cash at retail locations or ticketing kiosks. Passengers need to tap their smartcards on the fareboxes as they are boarding.
- **Fully digital mobile phone system.** A mobile phone system would require transit riders to download an app (like the Transit app) to their phone. As with smartcards, the application would connect to users' bank accounts, and could provide cash-paying customers with locations where they can refill their accounts. As they board, passengers tap their phones on a small validation device that typically uses Bluetooth to connect to the account on the user's phone. The Duluth Transportation Authority adopted a fully digital mobile phone system in 2021.

How Do We Get There?

Service Change Recommendations

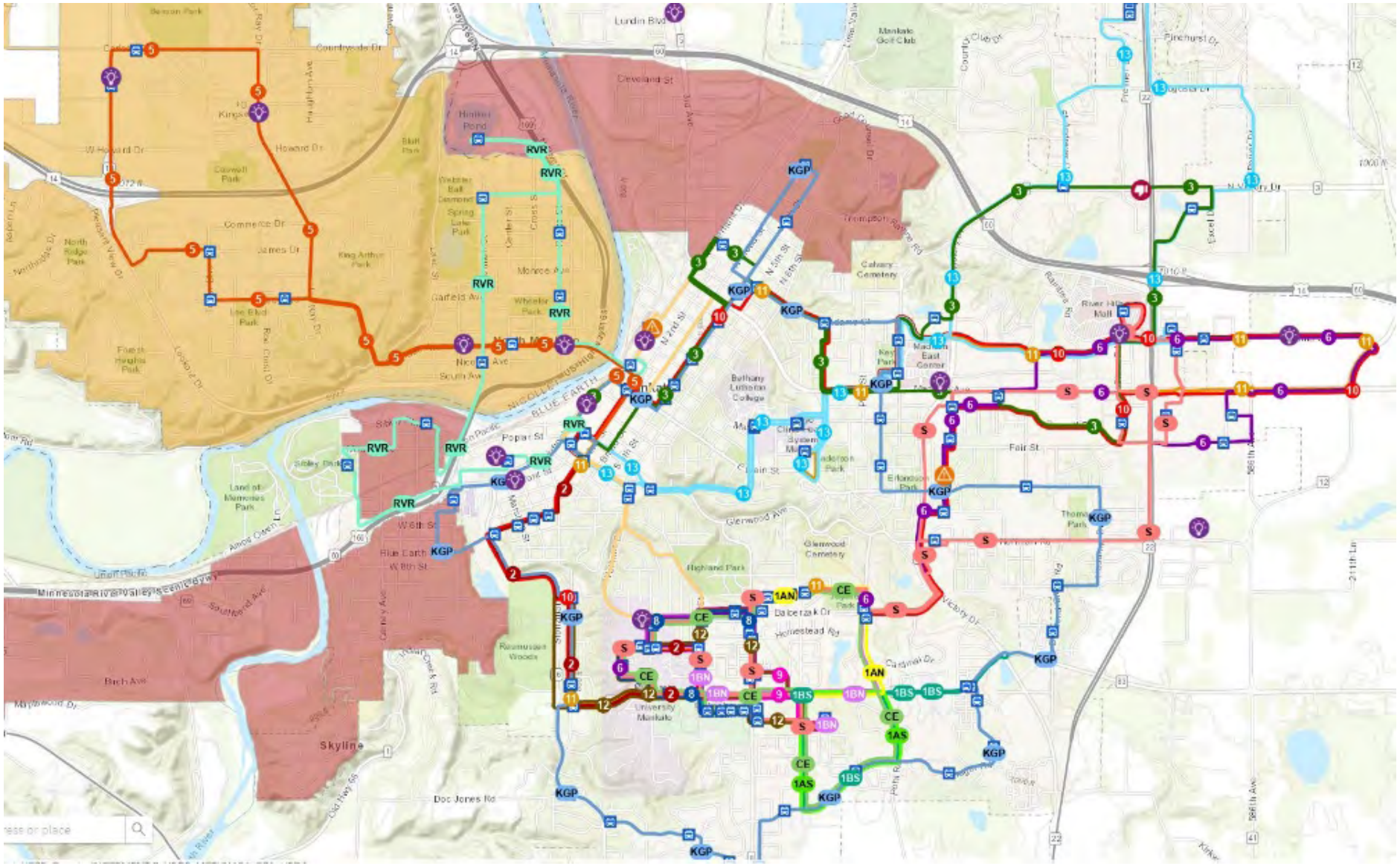
The following paragraphs provide a recap of what the project team learned through public engagement efforts, technical analysis, field visit, riding the system, multiple project management meetings and discussions with the MTS project steering committee, and relevant stakeholders.

What did we learn in our field visit and meetings with drivers and MTS staff?

At the outset of the project, the consulting team conducted a field visit to study and learn the MTS network. The field visit reinforced feedback from the public and the previous TDP, and it revealed issues with service. General route design and operations confirmed the public's comments about routes being long in duration and having limited-service hours. Site visits in areas outside of the downtown area revealed that lower density areas are not best served by fixed-route service. The extended one-direction fixed-route loops of Routes 3, 6, and 13, operating in low density areas outside of the core are not providing adequate service to riders, while Kato Flex service is providing a competing service mode to travel throughout the service area, as opposed to focusing on providing service to specific zones of low development density.

The field visit also confirmed the shortage of bus stops. Buses travel along many miles of streets with no stops and no direct access to development. Many stops are being provided inside parking lots which make the MTS service feel like shuttles that provide front-door service. In parts of the service area, routes operate through private property in order to provide adequate access. This is the case of River Hills Mall, Walmart, Hy-Vee, and the Wickersham Health Campus in east Mankato.

Figure 76. Comment Map



Comment Map. *Over 120 comments & interactions made on the digital map which allowed individuals to pinpoint specific locations and leave their feedback (likes, dislikes, ideas, etc.)*

What have we heard from the Public?

Residents in and around Mankato who know the system best have valuable input on how to improve service. Through two rounds of public feedback, the public commented on general service issues including a lack of evening service, a lack of weekend service, and that there are not enough boarding points or stops to enter the system. The comments about lacking stops showed an interest in more stops at popular destinations such as the YMCA, stores and shopping centers, places of worship, large apartments, and better connections between MNSU and downtown.

In the later stages of public outreach, folks were asked to weigh in on various service tradeoffs. Their preferences guided the proposed service change scenarios described in the latter half of this chapter.

What have we learned from technical analyses?

The series of technical analysis revealed opportunities for network design and performance improvements. The current MTS system has overextended its routes in the outskirts of the service area, especially in east Mankato. Performance data such as ridership, cost per service hour, and cost per boarding show that the system has many strengths and that there is notable room for improvement with careful re-allocation of service hours and operational resources. Many lower performing routes spend resources in the outer areas where development is sparse and discontinuous, such as Route 13, but also in the central part of the urban area, around MNSU, where routes are short in length and scope, highly duplicative and overspecialized, or designed to serve a specific function with limited appeal to the general public, such as Routes 7, 9, and 12.

MTS fixed-route service today does not reach many key sections of the urban area that contain residential and employment opportunities such as Lower North Mankato, Germania Park, and Sibley Park. Many contiguous urban areas are not receiving fixed-route service because resources have been highly concentrated to serve MNSU or used to extend routes to areas with sparse development. The current allocation of resources limits the ability of the service to provide extended hours in the evening and on weekends. This constrains the MTS service utility and appeal to City residents, especially those that do not own a car.

The fixed-route system is also heavily reliant on timed transfers that limit the ability to travel across town in a competitive manner with car travel. Transfers in both downtown and MNSU can create excessive idle time for vehicles and routes and reduce convenience for many riders wanting to travel through downtown and MNSU campus. Multiple transfer points along common origin-destination patterns can degrade customer experience, reduce attractiveness of service and system performance can be strongly impacted. For a system to best provide access and meet customer needs, stops are generally placed every one-quarter of a mile along bus routes. MTS's transition from a flag stop system means that stops are still being improved and placed at key locations to meet customer needs.

The technical analyses also highlighted the lack of consistency in the network of services throughout the system. The route network changes by day of week and time of year, which is difficult for the public to follow and understand. Most routes also do not have evening service, creating a gap in overall service, and contributing to inconsistency.

Service Delivery Evaluation

The intention of this section is to describe the reasons for the differences in service performance that were observed in the Service Performance Evaluation across different service types (citywide service and university service) and delivery models (Fixed-Route and Kato Flex). The analysis allows us to extract the key elements that explain the performance of service and routes and use those elements that are working towards improving the delivery of service and optimize customer experience. The underlying premise is that the MTS service will need to balance the financial constraints of MTS with the need to provide high-quality, comprehensive service that gets people where they want to go. This section sets the foundation for understanding those types of tradeoffs and the future recommendations for the MTS.

Citywide Service

- The following section describes the performance of the citywide routes, the backbone of the MTS system. The route alignments, destinations, and markets served are all components of how well the route is performing and together they inform future service delivery recommendations. This section categorizes and describes higher performing and lower performing routes to recommend opportunities to improve the citywide services.

SERVICE TODAY – KEY TRENDS

Today, MTS fixed-route provides more than 340,000 rides annually (in 2022) and is an essential transportation option between morning and afternoon peak hours. MTS is particularly effective at connecting riders to MNSU, Downtown Mankato, and other key destinations. Still, there are many opportunities for MTS to improve service. Today's MTS citywide service can be summarized with the following key trends:

- **Limited Evening Service.** Since core service primarily ends by 5:30 PM, there are limited options using MTS to access the commercial centers and shops that are open until 9:00 PM. There are opportunities to extend service to best meet the needs of shoppers and workers so that they can access key destinations and rely on MTS for all essential trips.
- **Extended Routes with Long Loops.** Route 3, Route 6, and Route 13 have been extended to cover new areas of development. These extensions resulted in large loops that operate one direction and degrade the rest of the service on those routes. Further, these changes have concentrated resources to areas where there is very little return on investment.
    - On the one hand, the extension of routes to outlying areas with scarce development precludes the service to operate extended hours and frequency to the core part of the urban area where most people live.
    - On the other hand, service is being pulled to new areas of development while areas that have more density and continuous development such as Hiniker Park, Germania Park, West Mankato, and Sibley Park, do not get fixed-route service today.
- **Significant Variability.** Route alignments, route schedules and headway differences between weekday and weekend, day and evening, and summer and the rest of the academic year are hard for customers to understand, they create confusion, uncertainty, and a real barrier to riding.
- **Transition from Flag Stop.** MTS is still transitioning from being a flag stop system, so many routes have segments without any designated stops for several miles. This creates significant gaps in coverage and access to service.
    - In many cases, the system design has out of direction routing due to a lack of on-street stop facilities. This adaptation lengthens the route and slows down service further, which also precludes the service from extending hours in the evening and adding frequency.
    - The system needs to invest in more bus stops to provide adequate coverage and access. That alone will be an improvement of service for many people. Bus stops are an important piece of infrastructure to operate the service. In addition to being access points, they provide the physical presence of service, its branding and legibility.
- **Transfer Points.** Routes today are organized around three major transfer points – downtown, MNSU, and the River Hills Mall. Given the area's origin-destination travel patterns shown in Transit Market Analysis section, many trips are cross-region trips from North Mankato to East Mankato.
    - The emphasis of downtown and MNSU as transfer locations appears to be forcing unnecessary transfers to complete many trips.
    - The system should look into combining or interlining routes across these points to facilitate end to end travel across the service area.

CITYWIDE SERVICE CHARACTERISTICS AND PERFORMANCE

The citywide bus service is characterized by the following service parameters and general performance metrics:

- Service is primarily provided on six routes between the hours of 6:30 AM and 5:30 PM.
- Peak service is during the afternoon rush hour (3:00 – 5:30 PM) when the most routes are operating.
    - Route 5 in North Mankato operates only peak-hour service (AM and PM) with a pause at midday.
    - Citywide routes average 8 passengers per hour of revenue service, Monday to Friday, and 12 passengers per hour of service on weekends.
    - The highest ridership routes were Route 2, 3 and 6 with 25,000-40,000 boardings in 2022.
    - The lowest ridership routes were Routes 5, 7, and 13 with 8,000-10,000 boardings in 2022.
    - The cost per passenger boarding average for Citywide services was close to $13. It was lowest on Routes 2, 3, 5, and 6, at $8-$12 per boarding, and highest on Routes 7 and 13, at over $30 per boarding.

ROUTE LEVEL CHARACTERISTICS AND PERFORMANCE

Higher Performing Routes (Route 2, Route 3, and Route 6)

Higher performing routes are defined as routes that have higher ridership and lower cost per passenger boarding. On MTS these routes are Route 2, 3, and 6, based on measures of ridership, passengers per hour, and cost per boarding. These three routes operate Monday to Friday at core travel hours (6:30 AM – 5:30 PM). Route 2 and Route 6 ridership is especially high and increased from 2021 to 2022. There are many reasons that these routes perform well, including their access to destinations, non-redundant routing, route alignments, and transfer opportunities.

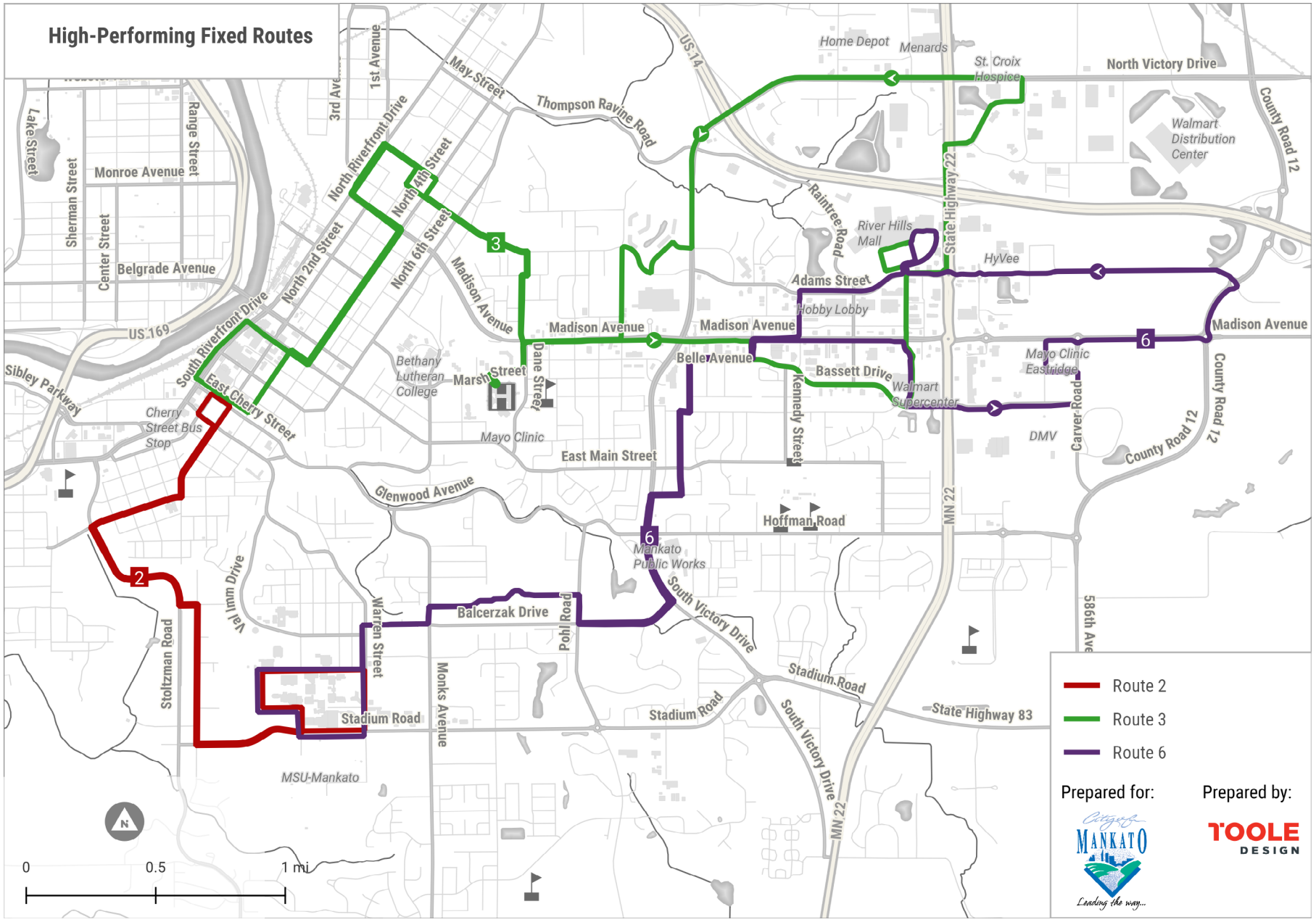
- **Access to Destinations –** Route 2, Route 3, and Route 6 are higher ridership routes because they reach key destinations. Route 2 and Route 3 both connect to downtown Mankato. Route 2 and Route 6 both connect to MNSU. Route 6 also connects to key commercial centers at Mankato Heights Plaza and River Hills Mall. All three of the performing routes reach major destinations, even if they extend out on loops to reach those locations.
- **Non-Redundant Routing –** The routes that are best performing generally do not overlap with other routes, and when they do, they are the more appealing option for riders. Notably, Route 3 has some overlap with Route 13. Route 2 also overlaps with Route 7 by reaching the same central destinations including downtown and MNSU. The performing routes all intersect at key destinations or transit centers, but they create a circle around central Mankato as shown in the map below.
- **Transfers – Route 2 provides opportunities to transfer to Route 3 and Route 5.** Because Route 2 operates on 30-minute frequencies, this makes transferring to other routes or Kato Flex service a possibility. Route 2 is also an efficient and short route, so transfers are more likely.

Lower Performing Routes (Route 5, Route 7, and Route 13)

Lower performing routes are defined as routes that have lower ridership and higher cost per passenger boarding. These citywide routes are Route 7 and Route 13 on measures of ridership, passengers per hour, and cost per boarding. There are several reasons that these routes perform less well including their frequencies, redundancies with other routes, routing with long loops, and limited access to destinations.

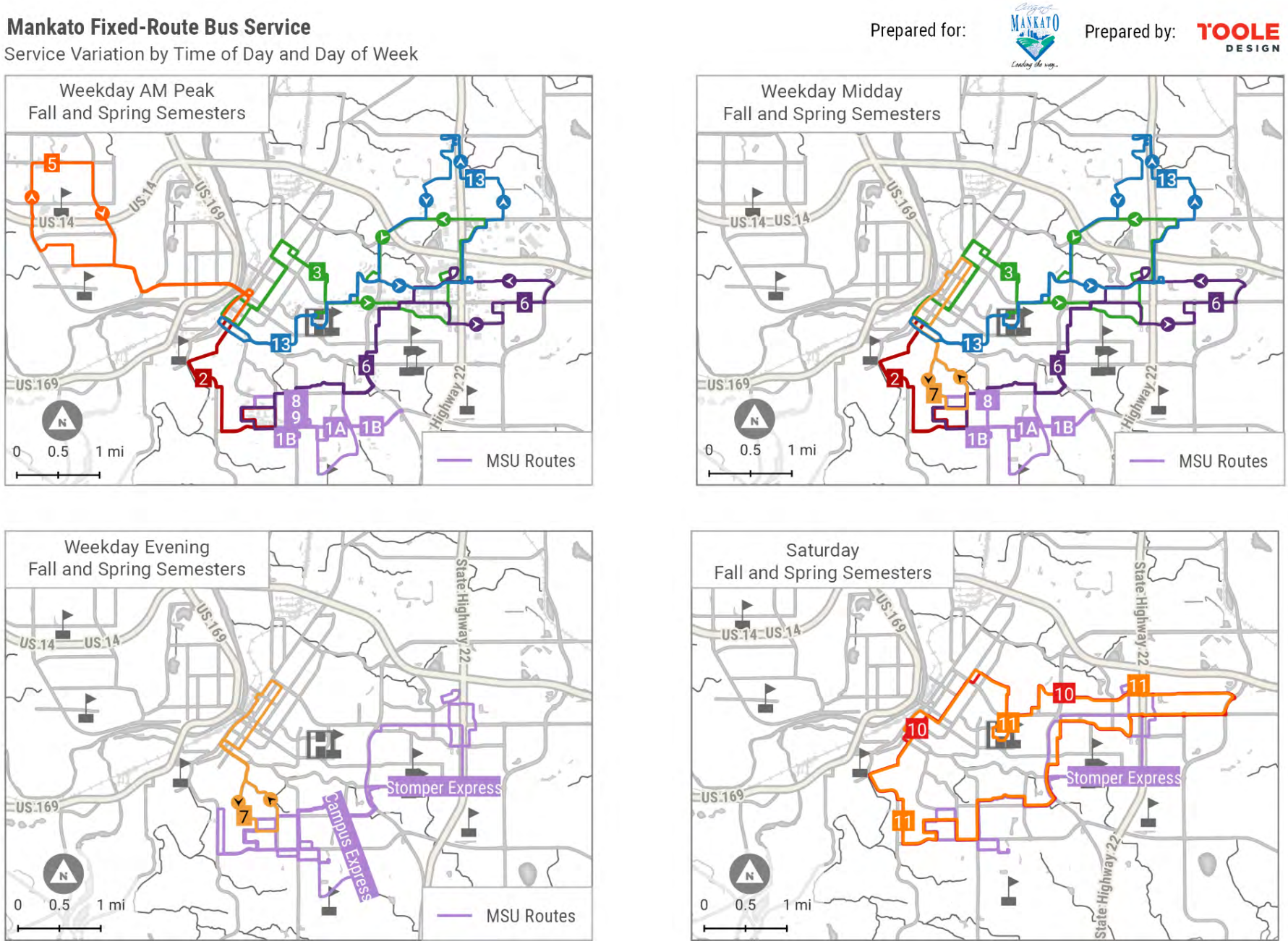
- **Inefficient Routes and Frequency –** Route 3 and Route 13 have been extended to cover new areas of development but that creates large loops that operate one direction and degrade the rest of the service on their routes. It also degrades additional MTS routes by drawing resources to areas where there is very little return on investment. These areas, such as North Mankato, are also high-ridership Kato Flex areas. Additionally, Route 3 and Route 13 have 60-minute frequencies, so they are less appealing for riders who would have to wait for 60 more minutes if they miss the bus.
- **Non-standard Schedules and Redundancy –** Route 5 and Route 7 have slightly challenging design and schedules that appear to be hampering performance. Route 5 operates only during the morning peak and afternoon peak, in short, two-hour windows. Despite its limited hours, people use this route, and it seems that more service hours could attract more use and ridership. Route 7 does not operate until 10:00 AM and it is a short route that travels through a hilly area with no access to destinations. Also, Route 7 does not connect MNSU with the Cherry Street transit center, like Route 2. These two issues are hampering its utility and attractiveness.
- **Limited Access to Destinations –** Notably, all of the lower performing routes still reach at least one key destination. In the case of Route 7 and Route 13, they both reach two or more key destinations but less than some of the routes that they compete with.

Figure 77. High Performing Routes



Route Alignments - The performing routes are generally shorter in distance without extended loops that reach newer, more far-flung destinations. Of all the best performing routes, Route 3 travels a route with the least-density and destinations when it reaches the Business Development Center stop north of Highway 14.

Figure 78. Weekend Routes



Weekend Routes (Route 10 and Route 11)

There are just two weekend routes that run as part of the citywide service, both of which perform relatively well. Route 10 has higher ridership but both routes have about 12-14 passengers per hour and a cost of $7-$8 per boarding, which is in line with the citywide performing routes. Even though Route 10 is a weekend route it has higher ridership than some of the underperforming city routes including Route 7 and Route 13. Route 10 and Route 11 are particularly well-designed routes that reach many key destinations without being overspecialized, such as Downtown Mankato, MNSU, residential pockets, and commercial centers. This route design is a potential model for future citywide routes to provide connectivity between essential locations within Mankato.

University Service

The university routes make up about half of overall MTS service and drive ridership in a significant way. Like the citywide routes, the alignments, destinations, and markets served are all components of how well university routes perform and future service delivery recommendations. This section categorizes and describes better performing and underperforming university routes to set the stage for recommendations to scale back and reroute university services.

SERVICE TODAY – KEY TRENDS

MTS university service is particularly effective at connecting riders to MNSU from their residential communities. Many of the areas around MNSU are student and low-income housing that are served well by the current system. Still, the system has redundant routes that loop in very similar locations and inefficiencies that present improvement opportunities. Unique to university routes' performance, significant ridership is drawn from one stop. If a route includes the main campus bus stop at the student union, it generally performs better. The following key trends summarize university service today:

- **Sparse Evening and Late-night Service.** Core service primarily ends by 6 PM and primarily reaches the university area, parking lots, and student housing communities. Connections off campus are not widely accessible in off-peak times of day.
- **Duplicative Routes.** Route 1AN, Route 1BN, 1AS, and 1BS are loops that operate at similar times of day (7:00 AM - 6:00 PM) and relatively similar loops around campus. They primarily reach different student housing communities. Route 8 is a similar loop that has almost three times the ridership of any of the Route 1s.
- **Significant Variability.** Schedule and headway variations between weekday and weekend and time of day is challenging for customers to understand. For example, most of the Route 1s operate just Monday through Thursday but route 1BN also operates on Friday.
- **Complicated Routes.** Several of the university routes are overcomplicated by smaller loops that extend travel times. Route 1BN is the best performing of the Route 1s and is the simplest loop.

UNIVERSITY SERVICE CHARACTERISTICS AND PERFORMANCE

The university bus service is characterized by the following service parameters and general performance metrics:

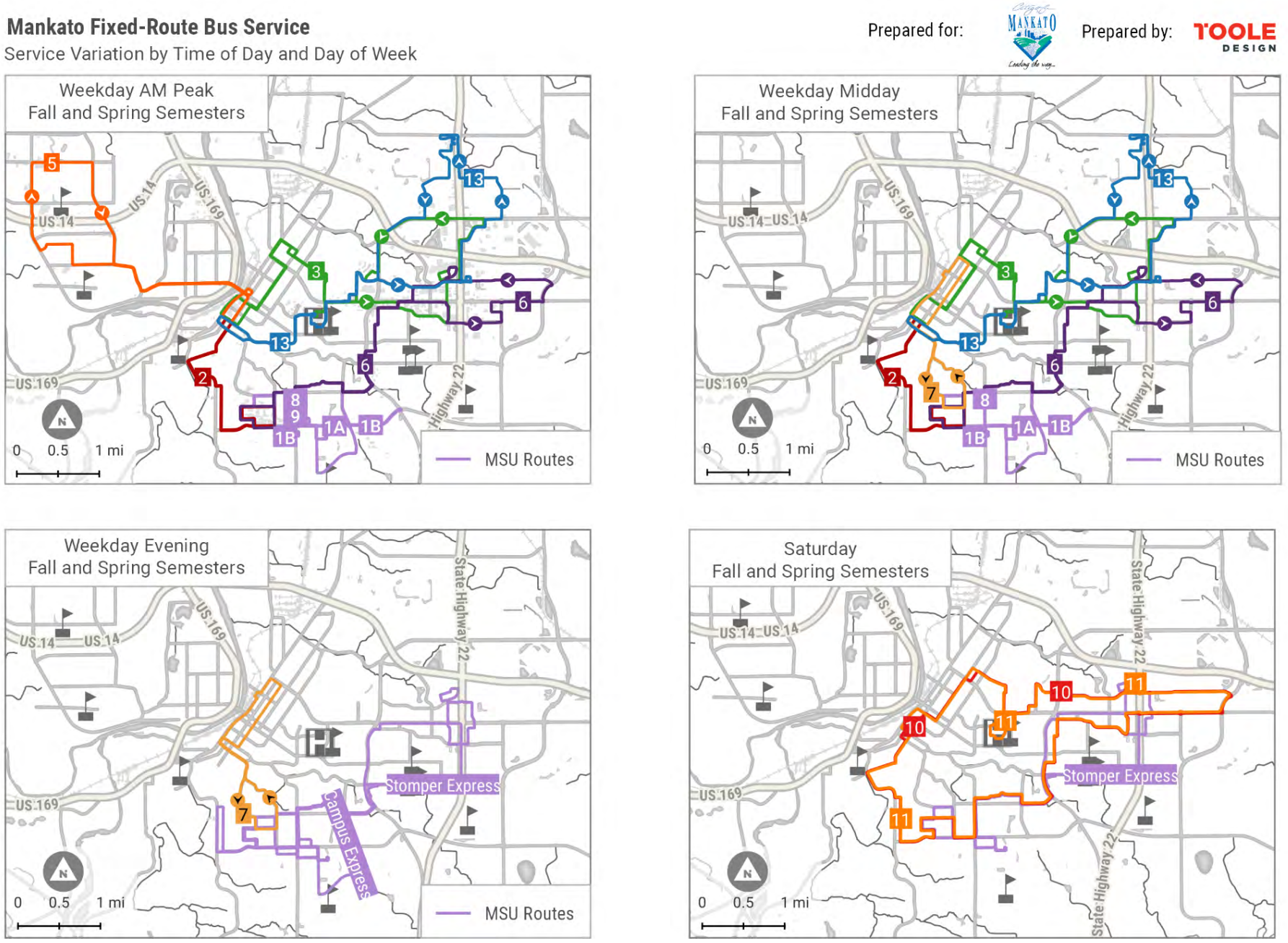
- Service is primarily provided between the hours of 7:00 AM and 6:00 PM.
- Morning service (6:00 – 10:00 AM) is peak service when slightly more university routes are operating, but service is evenly distributed throughout the day.
- There are three routes that operate evening service including Route 12, Campus Express and Stomper Express. Together they have about 4,000 riders in months when students are in session.
- Route 8 is by far the best performing route with 21 passengers per hour and nearly three passengers per mile. The cost per passenger is under $3.00.
- University routes average 20 passengers per hour and cost $5 per passenger boarding, better than citywide routes. Route 8, 1AN, 1BS, and the Campus Express all exceed that average.
- Systemwide ridership growth between 2021 and 2022 was driven by MNSU routes, particularly Route 8 which nearly doubled ridership between 2021 and 2022. In 2022, Route 8 ridership surpassed 71,000 riders and recorded an average of 42 passengers per revenue hour.

ROUTE LEVEL CHARACTERISTICS AND PERFORMANCE

Higher Performing Route (Route 8)

- Route 8 is the best performing route on nearly every metric across the entire fixed-route system because it hits key destinations and is a direct route. Notably, Route 8 serves the university stop at the student union parking lot that is popular and drives higher ridership. It also connects to residential areas with a higher propensity for ridership, such as The Summit Apartments. The directness of the route is also advantageous to its performance. Route 8 carries the same ridership as three Route 1's combined because of these reasons.

Figure 79. Lower Performing Routes



Lower Performing Routes (Route 9, 1AN, 1AS, 1BN, 1BS)

On the university system, more routes have lower performance results generally because they are overlapping each other at the same times of day. Still, there are slight variations in performance within this group of routes that can be telling for future planning. 1AN and 1BS have slightly higher ridership than 1AS and 1BN, for example. One reason might be that 1AN is the simplest of the Route 1 loops, so it performs better. It also connects the Grove and Campus. 1BS is the second best performing, most likely because it serves the student union parking lot stop and three residential areas whereas 1BN does not go through the parking lot. All the Route 1s traverse Stadium and Pohl Road which do not have bus stops.

Evening Routes (Stomper Express, Campus Express, Route 12)

- Evening routes to campus provide access to destinations in off-peak hours for students who want to reach destinations such as malls and commercial centers. The Campus Express performs particularly well since it is a combination of a several of Route 1s and operates in the evening. Its performance demonstrates a demand for evening service and direct routing, by being a combination of the best two Route 1s. The Stomper Express performs relatively well by supplementing Route 6 which does not operate in the evening. Like the Campus Express, its performance demonstrates demand for service in the evening especially connecting MNSU to Mankato. Route 12 does not hit as many key destinations and has an extended loop, so it carries fewer riders and has lower performance.

Kato Flex Service Evaluation

Kato Flex is a shared ride, curb-to-curb service for individuals residing in areas where there is no fixed-route bus service. Kato Flex serves a handful of zones:

- North Mankato
- Eagle Lake
- Skyline
- The western and northern edge of the City of Mankato including Germania Park, LeHillier, Sibley Park, Tourtellotte Park and West Mankato neighborhoods.
- Overall Kato Flex is demonstrating that it can be an appealing and low-cost transportation option that supplements fixed-route service, but there is lots of room to improve the efficiency and profitability of the service.

SERVICE TODAY – KEY TRENDS

In 2022, a total of 7,819 rides were provided on the Kato Flex service, supplementing fixed-route service with a small proportion of overall MTS trips. Kato Flex today sees the following key trends:

- **Low fares.** It is in essence operating as a dial-a-ride taxi service at a lower fare ($2 per trip) than the actual paratransit service – Mobility Bus, which costs $3 per trip.
  - Although, this is an attractive option for riders it is not a sustainable option in the long run. The system is not pooling rides and cannot scale up efficiently.
  - For the service to be sustainable, there needs to be better cost efficiency by narrowing its scope to specific service areas and pooling of rides. The way to achieve that is operate it as a first/last mile supplemental service to fixed-route.
- **Opportunities to Scale.** Operating the system as a personal taxi service doesn't create any efficiencies and there are no opportunities to scale.
  - The system should operate as an extension of fixed-route service to areas of low demand and scarce development. It can do this by reducing its fare to $1.50, the same cost of any other fixed-route, and by tethering the service to a specific transfer point or connection point with fixed-route service.
- **Operate for First/Last Mile Trips.** The way to achieve that is operate it as a first/last mile / supplemental service to fixed-route.
  - Each Kato Flex area becomes like another route feeding into the network
  - Making these updates will make MTS service more cost efficient for everybody.
- **Target Low-Density neighborhoods.** Kato Flex should be targeted to low density where the fixed-route network would not work.
  - Kato Flex should provide point A to point B service only within a pre-determined area and require a transfer to the fixed system for any trip going outside that area.
  - This will allow the service to provide good coverage and frequency of each area of service and increase its use and pooling of rides.

KATO FLEX SERVICE CHARACTERISTICS AND PERFORMANCE

The Kato Flex service is characterized by the following service parameters and general performance metrics:

- It operates 20 hours of service each day over 9 different service areas totaling about 12 square miles.
- Of 7,819 rides, 46.5 percent were within North Mankato while 53.5 percent were within the remaining Flex Zones.

- On average, 655 rides were provided per month on Kato Flex service. That is an average of about 31 rides per day.
- The average boardings per hour of revenue service was 1.5 passengers at an average cost per passenger boarding of $85.
- Annual ridership experienced a 9 percent decrease in 2022 compared to 2021 but remains above 2020 levels.
- Recent growth can be attributed to ridership in North Mankato, which began service in February 2021.
- Monthly ridership observations trended upward throughout 2022, particularly during the fall months.

Service Design Principles

Service Change Goals

The feedback received on MTS service combined with the technical analyses inform five primary goals for improving MTS services. These goals draw and expand on the previous TDP and focus on key service network design, customer service and operational sustainability elements.

1. **Accessibility and Safety:** Develop a transit system that increases access to opportunities throughout the service area
    a. Improve bus stops to be accessible and safe. Provide sidewalks to connect bus stops with building access points. Develop specific guidelines and priorities.
    b. Improve bus stops to provide safe waiting areas and safe street crossings. Place bus stops at major street intersections and access points to large developments and destinations.
    c. Ensure bus stops provide adequate access to all origins and destinations along routes. Avoid running along streets that do not provide direct access to land uses.
    d. Promote transit stops in the development of corridors. Avoid placing them in parking lots and avoid deviating off main street to provide service because of lack of stops. Rely on people walking to the transit corridor.
    e. Tie investments in transit service and infrastructure with increases in density and multimodal operation of corridors.
2. **Legibility and Reliability:** Develop a transit system that is consistent in its design and operation that is easy to understand and rely on to move around the service area
    a. Increase the physical presence and legibility of service through development of bus stops, amenities, and branding, that are easily recognizable and legible.
    b. Reduce complexity of route network and increase consistency in design throughout the week and the year to facilitate understanding and lower barriers of use.
    c. Provide simple, easy to read, and consistent information to users in print and online materials, and across multiple mobile platforms or apps.
    d. Extend hours of service to cover needs throughout the week, make transit usable, a real option to travel through the service area.
    e. Increase frequency of service on key corridors. Designate a core network of routes that will provide service throughout the week and the year and invest in longer hours of service and frequency of service along them.
3. **Equity and inclusion:** Focus service resources in areas of greatest need
    a. Increase access to jobs, education, services, shopping, health and community life opportunities throughout the day and the week. Most trips in urban areas are non-work and occur outside traditional commute hours.
    b. Ensure areas that have high concentration of low-income households are within walking distance of all-day fixed-route service.
    c. Ensure that areas that have high concentration of minority populations and seniors are within walking distance off all-day fixed-route service.
    d. Create crosstown travel options, connecting residents and opportunities in North Mankato with the rest of the service area.
4. **Cost-Effectiveness:** Increase the productivity and effectiveness of the system
    a. Reduce the cost per passenger of different service types. The system has very limited resources and needs to increase the return on investment of every dollar spent in service operations.
    b. Focus fixed-route transit operations resources to areas that provide access to population and employment density.
    c. Reduce the specialization of services and provide routes that allow for cross-town connections and access to multiple transit markets and opportunities.
    d. Focus operations of on-demand services to extend fixed-route service and provide access to low density areas that are still in development.
5. **Financial Sustainability:** Ensure long-term sustainability of service
    a. Increase fare revenue and farebox recovery ratio across services. By making adjustments to the design of service, increasing its legibility and usability, the service will be more attractive and easier to use and bring more ridership and revenue.

b. Find new sources of funding. Pursue local and state grants and renewed partnerships with educational institutions.
c. Explore implementation of cashless fare payment options such as mobile apps or wallets.
d. Simplify the fare structure to integrate fixed-route and on-demand services across the service area, to provide mobility options and trip connections across any origin-destination pair.
e. Manage assets and use capital investments to improve service accessibility, legibility, and reliability.

Network Design Principles

The proposed revision of service routes in this TDP were developed by considering opportunities and tradeoffs and weighing benefits and costs to a given change. Balancing tradeoffs to optimize transit customer satisfaction and operate efficiently is a challenge. To navigate those difficult decisions, the redesign of MTS's transit network is guided by a handful of key principles. The below principles guide MTS service to meet the Service Change Goals.

1. Reduce the current footprint of the fixed-route network, as it is not possible to increase service hours in its current format. Prioritize serving areas with higher density of population and employment.
2. Strengthen the network in the central part of the urban area to concentrate service along major streets and corridors that provide more extensive walking access to neighborhoods and destinations.
3. Include North Mankato in the fixed-route service network and coordinate service to integrate and connect with the rest of the MTS system.
4. Reduce transfers in downtown and MNSU and increase crosstown travel opportunities.
5. Straighten route alignments to provide direct travel paths on the way in and back (two-way service). This will facilitate legibility of service, focus investment on bus stops, and improve efficiency of operations.
6. Reduce loops and operation of fixed-route services along unproductive miles; defined as streets without direct access to land uses or that do not have development.
7. Build better access to service; build bus stops and provide better facilities for ADA access, and safe walking access to stops.
8. Simplify the network; reduce the number of routes and maintain the same route network throughout the week and the year (to increase network legibility and customer understanding of service).
9. Rely on Kato Flex to serve outlying areas; leverage its advantage to serve sparse development areas of very low density and demand; tether Kato Flex to a single transfer location to pool rides and increase efficiency and financial performance.

Trade-Offs

Trade-offs are central to MTS's service changes. Network design principles guide service change recommendations but because funding and resources are constrained, accomplishing every network principle is challenging. The following tradeoffs detail where network redesign principles meet the reality of the operating constraints.

1. **Crosstown travel vs. zone-by-zone connections.** Longer crosstown routes minimize transfers for riders and provide increased access to multiple transit markets and destinations, but they are more difficult to coordinate transfers with other routes midpoint through the route. For instance, a route that travels from North Mankato to Walmart. Zone-to-zone connections allow for shorter routes that can meet at a central point to coordinate transfers, however they require dedicating time for connections which adds idle time to schedules and impacts route cost efficiency and rider travel time. For instance, Routes 2 and 6 at MNSU.
2. **High-frequency arterials vs. low-frequency neighborhood streets.** Keeping routes on major streets means buses can travel at faster speeds, shorter travel times, and higher frequency of service, but they generally require a longer walk from residential neighborhoods to reach destinations. Dispersing service to penetrate neighborhoods often results in shorter walks to service but slower speeds and lower frequency of service.
3. **Bus stops on street vs. off street stops.** Bus stops that are placed closer together and with direct access to destinations are more convenient for riders, especially the most vulnerable riders on the system such as children, older adults, and people with mobility devices. However, stops that are too close together or stops that force an off-street deviation to the route increase running time and slow down service for everyone. Stops on street are more convenient for the operation of service because they avoid turning movements and allow the bus to more easily stay on schedule and provide a convenient travel option for people.
4. **First & last mile connections vs. point-to-point service for Kato Flex.** Kato Flex is currently operated flexibly across geographic boundaries providing point-to-point service throughout the service area. This type of unconstrained flex service is very expensive to operate on a per passenger basis and allows for fewer passenger trips and lower revenue per hour, as compared to a first/last mile service operation that provides point-to-point service within a specific zone and timed connections to a fixed transfer point with the fixed-route network,

which will be able to provide more vehicle trips per hour, more passenger trips, and sharing of transit resources. The latter option will improve the cost efficiency and long-term sustainability of Kato Flex.

The feedback and findings collected through the various technical analyses, engagement efforts and discussions with MTS staff and stakeholders, provided the foundation to develop service change recommendations to improve MTS services with the goal of increasing its utility in meeting mobility needs, provide a viable transportation option to travel throughout the service area, increase ridership, increase customer satisfaction, and increase the financial performance of service.

Service Development Scenarios

This TDP explored two service change scenarios to achieve the stated service goals and in consideration of the network design principles and policy trade-offs described above, with the purpose of making MTS service easier to understand and use, more cost efficient, and more attractive and usable. The two scenarios are: a Fiscally Constrained Scenario that proposes a significant reallocation of operating resources between modes and substantial changes to the design of routes to meet service goals while staying within the constraints of current funding levels; and an Illustrative Future Scenario that assumes additional funding and resources for operation and invests them in reinforcing network design and meeting service goals and desired standards for service.

Fiscally Constrained Scenario

The Fiscally Constrained Scenario keeps the operating expenses of the transit system stable and maintains about the same amount of operator hours (within 1% of annual vehicle revenue hours). It assumes that resources continue at the same level they are today, but they are redistributed to meet revised service goals. Highlights of the fiscally constrained scenario include:

- Service hours are extended to 8:30 PM Monday to Friday; 7:30 PM Saturday, and 6:30 PM Sunday
- It provides a consistent fixed-route service along Route 5 to North Mankato, Monday to Saturday
- Adds new service to the Sibley Park neighborhood (on Route 13)
- Reduces the length of Route 3 to operate between downtown and River Hills Mall.
- Extends Route 6 along Route 2's alignment to also operate between downtown and River Hills Mall.
- These changes save resources and allow to operate Route 3 and 6 as a continuous bi-directional route, like the operation of Routes 10 and 11 today.
- Route 2 stays as an overlay of Route 6 to provide additional frequency of service between downtown and MNSU
- It eliminates Route 7 and reallocates those resources to additional evening service on Routes 2, 3, 5, 6 and 13
- It reduces the number of routes operating in MNSU to just three routes – Route 8, Route 1A North and Route 1B South. All other resources are used to provide additional evening service and weekend service to city routes.
- The changes reduce transfers at Cherry Street because of the interlining of Routes 3 and 6, and provide year-round connections for MNSU & South-Central students throughout the urban area.
- It may be possible to interline Routes 5 and 2 to provide a seamless connection between North Mankato and MNSU. This requires further research and ground truthing.
- Kato Flex resources currently dedicated to Eagle Lake and North Mankato are reallocated to provide increased Kato Flex service in remaining areas.

Detailed Changes

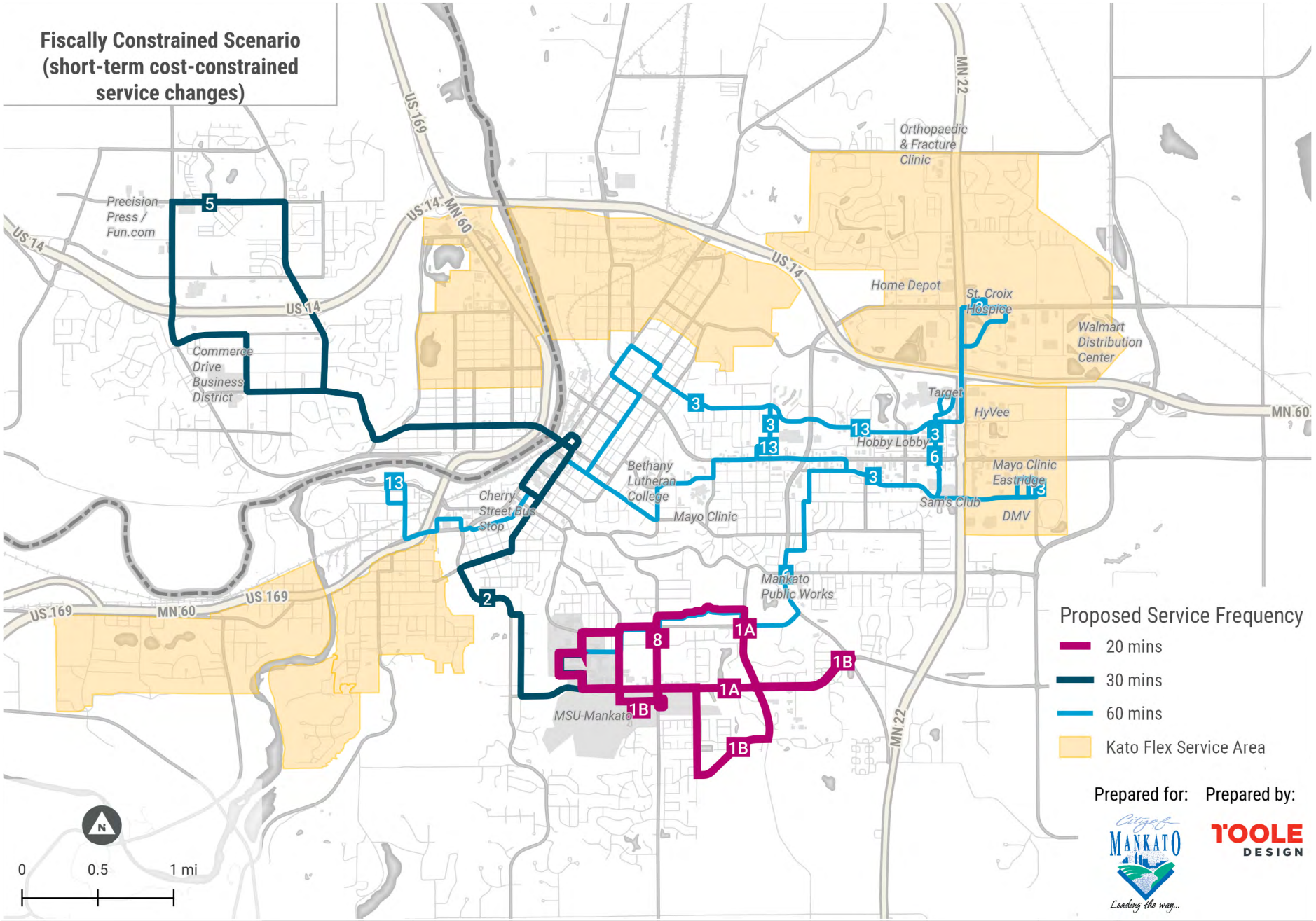
- Monday to Friday service is extended on all city routes (2, 3, 5, 6 and 13) from 6:30 am to 8:30 pm
- Saturday service is extended on city routes 2, 3, 5, and 6, from 7:30 am to 7:30 pm
- Sunday service is extended to the core city routes 2, 3 and 6, from 8:30 am to 6:30 pm
- Routes 3 and 6 are continuous (interlined and not requiring transfers) with service once per hour
- Route 2 is provided as an overlay of Route 6 once per hour and resulting in a combined frequency of 30 minutes between downtown and MNSU
- Route 5 (North Mankato) maintains operation every 30 minutes with longer service hours and additional stops. Additional stops on Route 5 will slow down service and require additional resources to maintain a 30-minute headway. A combination with Route 2 may provide additional resources while creating a continuous route between North Mankato and MNSU. This needs to be explored further.
- Route 13 is shortened at Rivers Hills Mall and extended to Sibley Park via Sibley Parkway with service once per hour
- MNSU gets citywide connections on Routes 2 and 6 until 8:30 pm, and it retains service on three shuttles – Routes 8, 1A and 1B, focused on campus mobility service at current frequencies
- Route 1A to The Quarters and Stadium Heights operates year-round to provide service to the non-university community

- Cherry Street, MNSU and River Hills Mall remain as transit centers but with reduced number of routes making timed connections
- All routes operate on straightened alignments – in both directions, without loops, except for Route 5 in North Mankato and MNSU shuttles
- Kato Flex Zones change with a reduced zone in North Mankato and a new zone in NE Mankato. The overall area covered by Kato Flex services is reduced by 5 square miles, from 12 to 7 square miles
- Kato Flex service stops providing point-to-point connections and instead provides connections to the fixed-route system at the closest transit center – Cherry Street or River Hills Mall, from 7:00 AM to 7:00 PM, Monday to Friday only.

Table 30. Fiscally Constrained Scenario

Route	Service Type	Wkdy Hours	Sat Hours	Sun Hours
60 Minute Frequency			*60 Minute Frequency*	
Route 3	Citywide service	6:30 am - 8:30 pm	7:30 am - 7:30 pm	8:30 am - 6:30 pm
Route 6	Citywide service	6:30 am - 8:30 pm	7:30 am - 7:30 pm	8:30 am - 6:30 pm
Route 13	Citywide service	6:30 am - 8:30 pm		
30 Minute Frequency			*60 Minute Frequency*	
Route 2	Citywide service	6:30 am - 8:30 pm	7:30 am - 7:30 pm	8:30 am - 6:30 pm
Route 5	Citywide service	6:30 am - 8:30 pm	7:30 am - 7:30pm	
Route 1B	University service	6:30 am - 8:30 pm		
20 Minute Frequency				
Route 8	University service	7:00 am - 6:00 pm		
Route 1A	University service	7:00 am - 6:00 pm		

Figure 80. Fiscally Constrained Scenario



Illustrative Future Scenario

The Illustrative Future Scenario imagines an increase in operating funding and resources. It assumes that resources are more than they are today (a 33% increase in vehicle revenue hours) and that they are applied to meet the new service goals. Highlights of the Illustrative Future Scenario include:

- More frequent service on Routes 3 and 6, every 30 minutes to provide a core network of services – Routes 2, 3, 5 and 6 every 30 minutes, Monday to Friday, from 6:30 – 8:30 PM
- More neighborhoods in central part of urban area served with fixed-route and fewer with Kato Flex
- New fixed-route service to Lower North Mankato, Germania Park, and southeast Mankato
- Kato Flex service in remaining areas extended to Saturday and Sunday to match fixed-route service hours

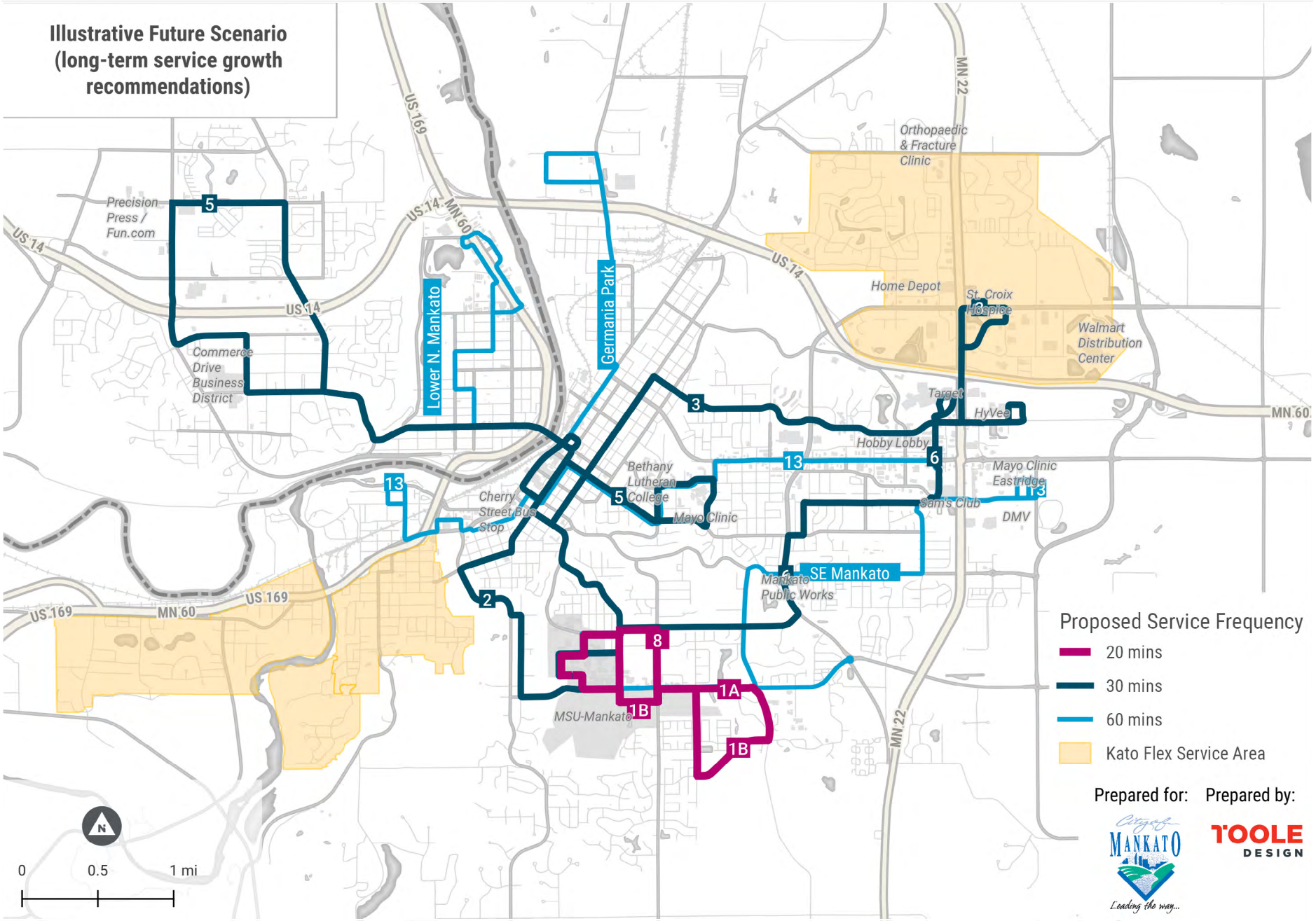
Detailed Changes

- Three new routes are added to the city system – Lower North Mankato, Germania Park, and Southeast Mankato with service once per hour
- Kato Flex service areas are reduced to West Mankato/South Bend and Northeast Mankato only, but service hours are extended to match city routes on weekdays, Saturday, and Sunday
- Monday to Friday service is extended on all city routes and Kato Flex from 6:30 am to 8:30 pm
- Saturday service is extended on all city routes and Kato Flex from 7:30 AM to 7:30 PM
- Sunday service is extended on all city routes and Kato Flex from 8:00 AM to 7:00 PM
- Routes 3 and 6 are continuous (interlined and not requiring transfers) with service increased to every 30 minutes
- Route 5 (North Mankato) gets extended to provide a direct connection to MNSU and the Mayo Clinic Health System Campus, all day and every 30 minutes.
- Additional service hours are prioritized to provide 30-minute frequency to a core group of routes (2, 3, 5, and 6) that operate from Monday to Sunday throughout the year
- MNSU gets citywide connections on Routes 2 and 6 every 30 minutes, and two new routes serving The Quarters, Stadium Heights, and Stadium Road, once per hour.
- MNSU also retains service on two shuttles – Routes 8 and 1A South, that add seat capacity and provide specific campus mobility service at current frequencies
- Cherry Street, MNSU and River Hills Mall remain as transit centers but with reduced number of routes making timed connections
- All routes operate on straightened alignments in both directions and without loops, except for MNSU shuttles

Table 31. Illustrative Future Scenario

Route	Service Type	Wkdy Hours	Sat Hours	Sun Hours
60 Minute Frequency			*60 Minute Frequency*	
Route 13	Citywide service	6:30 am - 8:30 pm	7:30 am - 7:30pm	8:00 am - 7:00 pm
Germania Park	Citywide service	6:30 am - 8:30 pm	7:30 am - 7:30pm	8:00 am - 7:00 pm
Lower N. Mankato	Citywide service	6:30 am - 8:30 pm	7:30 am - 7:30pm	8:00 am - 7:00 pm
SE Mankato	Citywide service	6:30 am - 8:30 pm	7:30 am - 7:30pm	8:00 am - 7:00 pm
30 Minute Frequency			*60 Minute Frequency*	
Route 2	Citywide service	6:30 am - 8:30 pm	7:30 am - 7:30pm	8:00 am - 7:00 pm
Route 3	Citywide service	6:30 am - 8:30 pm	7:30 am - 7:30pm	8:00 am - 7:00 pm
Route 6	Citywide service	6:30 am - 8:30 pm	7:30 am - 7:30pm	8:00 am - 7:00 pm
Route 5	Citywide service	6:30 am - 8:30 pm	7:30 am - 7:30pm	8:00 am - 7:00 pm
20 Minute Frequency				
Route 1B	University service	7:00 am - 6:00 pm		
Route 8	University service	7:00 am - 6:00 pm		

Figure 81. Illustrative Future Scenario



Second Round of Public Engagement

Our team heard **over 200 comments** from community members who shared their priorities for the future of the transit system based on proposed changes created by the project team. This phase of engagement included focus group meetings, two in-person public engagement events, and two online engagement opportunities.

Timeframe and Activities

Engagement Activity	Date
Online Comment Map: INPUTiD™	August-September 2023
Online Survey #2	August 2023
Community Advisory Panel #2	August 8, 2023, 12:00 – 1:30 p.m.
Popup #1: Blue Earth County Library	August 17, 2023, 11:00 a.m.- 2:00 p.m.
Popup #2: Alive After 5	August 17, 2023, 5:00-7:30 p.m.

What we heard

Tradeoff Priorities

These results reflect the responses collected from the online survey and the pop-up events conducted at the Blue Earth County Library and at Alive After 5.

Priority 1: Shorter routes with more transfers versus longer routes with less transfers

- **43.5%:** Shorter routes that stop at hubs where I can transfer to another route that is more direct to my destination
- **39.1%:** Longer routes that loop around the city so I don't have to transfer to get to my destination
- **17.4%:** Neutral

Priority 2: More direct, shorter routes vs. longer routes that travel a further distance

- **67.2%:** Routes that go more directly to my destination and do not take me on a loop
- **9.9%:** Routes that go in a long loop and take me out of my way before getting to my destination
- **23.9%:** Neutral

Priority 3: Lower frequency routes inside neighborhoods, requiring more transfers vs. High frequency routes on busy corridors, requiring farther walks

- **40.3%** Lower frequency routes inside neighborhoods even though it would require me to transfer
- **38.8%** High frequency routes on busy corridors and main roads even though I may have to walk further to a stop
- **20.9%:** Neutral

Priority 4: Less frequent stopping, but farther walks vs. More frequent stops, but requires less walking

- **70.6%:** Stops are close, so buses stop frequently, but I don't have to walk far to get where I'm going
- **10.3%:** Stops are farther apart so buses stop less frequently, but I have to walk farther to get where I'm going
- **19.1%:** Neutral

Priority 5: On-demand door-to-door service with scheduled rides vs. Regular bus routes with consistent service – no door-to-door service

- **79.7%:** Regular bus routes provide consistent service without needing to schedule a ride
- **13.0%:** On-demand service where riders are scheduled in advance and may not be able to travel at the exact time I need or want to go
- **7.3%:** Neutral

Priority 6: Less frequent service and more hours of the day vs. More frequent service and less hours of the day

- **57.6%:** More frequent daytime service (e.g., every 30 minutes between 6:30 AM to 5:30 PM)
- **27.3%:** Less frequent service but more hours of the day (e.g., every 1 hour between 6 AM and 9 PM)
- **15.1%:** Neutral

Priority 7: Citywide service with stops at the edge of the MNSU campus vs. MNSU specific routes to services near campus

- **68.8%:** Citywide routes that serve one or two stops on the edge of the MNSU campus and connect with housing and shopping in other parts of the city.
- **9.3%:** MNSU specific routes that connect campus to student housing and nearby services frequented by students
- **21.9%:** Neutral

Service Change Priorities

These results reflect the responses collected from the online survey and the pop-up events conducted at the Blue Earth County Library and at Alive After 5. All results are shown on a highest to lowest priority ranking.

1. How far are you willing to walk to get to a bus stop? (Select all)
    a. **26.6%:** 2 blocks
    b. 21.5%: 4 blocks
    c. 16.5%: Less than 1 block
    d. 16.5%: 3 blocks
    e. 13.9%: 1 block
    f. 2.5%: 5 blocks
    g. 2.5%: 6 blocks
2. What would you be willing to pay a higher fare for? (Select all)
    a. **22.7%:** More frequent service
    b. 21.2%: Later service at night
    c. 21.2%: Weekend service
    d. 18.7%: More bus shelters
    e. 10.1%: Earlier service
    f. 6.1%: None (would not pay more)
3. If transit service hours were extended, when would you prioritize extending services?
    a. Later at night on the weekdays (M-F)
    b. Saturday Service
    c. Sunday Service
    d. Earlier service on the weekdays (M-F)

Fiscally Constrained Scenario

The fiscally constrained scenario proposed changes that could be made within the existing budget including:

- Service hours extended to 8:30 p.m. Monday—Friday, and to 7:30 p.m. on Saturday and Sunday
- Consistent fixed-route service to North Mankato, Monday through Sunday
- New service to Sibley Park Neighborhood
- Reduced need for transfers at Cherry Street station
- Year-round connections for Minnesota State University Mankato and South-Central College students throughout the urban area
- However, the extension of service later in the evening and on weekend days means that service can only be provided at a frequency of 60 minutes on all routes

COMMENT SUMMARY

High-Priority

- Consider new stop on existing Route 13 to more easily access Cub Foods
- Add a timed transfer to an existing route in downtown Mankato to connect with the Land to Air service.
- Keep the current frequency of Route 2 (currently 30 minutes), rather than changing it to 60 minutes. During the school year a lot of students use the route and extending the route to every hour would make it very difficult to use.
- The all-day service to North Mankato on Route 5 will be a big improvement
- Make route 1B a year-round fixed-route. Many people in the southeast part of town lack access to transportation.
- Service Route 3 one hour earlier in the day

Mid-Priority

- Use the stop at Bethany Lutheran College for Routes 3 & 13 to service a greater area and allows for people to catch the bus more frequently
- Place Routes 3 and 13 on opposite schedules so one route services shared stations every half hour

Illustrative Future Scenario

In addition to the fiscally constrained service changes, the illustrative future vision would be to make additional improvements, if or when additional funding is identified. These potential changes include:

- More frequent service on Routes 2, 3, 5 and 6
- More neighborhoods in the central part of the urban area served with fixed-route and fewer with Kato Flex
- New fixed-route service to Lower North Mankato, Germania Park, and south-east Mankato
- Kato Flex service in remaining area extended to Saturday and Sunday

COMMENT SUMMARY

High-Priority

- Stops need to be improved (greater shelters against rain, cold, and snow)
- There are many tenants of apartment buildings near Lee Boulevard Park. The

area is underserved with only Route 5 running and need greater frequency and later service hours to get to work at late shifts

Mid-Priority

- Route 7 is getting more use and needs to be serviced more frequently. Prioritize commitment to improving Route 7 in the proposed future changes

Low-Priority

- Create a stop on Route 13 at Cub Foods on Linder Street

How we used what we heard

The feedback and findings collected through the various engagement efforts was used to adjust service the Fiscally Constrained service scenario to better respond to needs and input from stakeholders.

Recommended Service Definitions and Service Standards

The service changes proposed in the Fiscally Constrained and Illustrative Future Scenario include changes to the service standards that are recommended for each service type in the system, as follows:

Citywide Service

The role of citywide service is to be the main network of fixed-route services in MTS. Therefore, the citywide service is the primary public transit service type provided to residents of Mankato and North Mankato. All other service types will complement the citywide network – university service will provide service in the university area during times of day and year that require additional capacity, Kato Flex will provide service in urban areas of Greater Mankato that are sparsely populated and in development, and Mobility Bus will continue providing complementary ADA paratransit service to individuals with disabilities.

The citywide service primary service area includes the urban areas of North Mankato and Mankato but more specifically the urban areas south of Hwy 14, west of State Road 22, north of Stadium Road, and east of the Blue Earth River and Lookout Drive. This area is ideally served by routes that operate Monday to Sunday, from 6:00 AM to 9:00 PM, or at least 15 hours of service per day, year-round. At a minimum, these routes operate every 30 minutes between 7:00 AM and 7:00 PM, or at least for 12 hours on weekdays and 8:00 AM to 6:00 PM on weekends. To accommodate the core city service, MTS operates large 35' or 40' heavy duty transit vehicles. Ideally, these routes would have spacing of stops at a minimum every 0.20 mile and maximum 0.25 mile.

University Service

University service provides service in the university area during times of day and year that require additional capacity and service to provide adequate mobility options to students and staff. It augments service along routes and times that the citywide service frequency is not enough to handle peak demand and bus loads, typically during university morning and afternoon rush hour periods – 7:00-10:00 AM and 3:00-6:00 PM. University Service is in the university zone primarily on Balcerzak Dr, Val Imm Dr, Stadium Rd, Warren St., Monks Ave, Heron Dr, and Pohl Rd.

University Service operates Monday to Friday during the academic season, from 7:00 AM – 6:00 PM, and for about 32 weeks of the year. Service standards for this segment of the network includes 20-minute frequencies for at least eight hours of the day. To meet this demand, large 35' or 40' heavy duty transit vehicles are appropriate. To allow for express trips without excessive stops on city streets, university service is intended to provide stops on main access points to apartments and destinations.

Kato Flex Service

The role of Kato Flex in the transit system is to provide service to the urban areas of Greater Mankato that are less dense and more suburban in form. Kato Flex is complementary to the fixed-route service because it covers low-density areas that require long distance travel between destinations without stops or access opportunities in between due to road networks and lack of bus stop infrastructure. This curb-to-curb service allows riders flexible routing and shared rides. The purpose of service is to pool rides and avoid individual trips.

Operating in southeast and northwest corners of the region, Kato Flex offers dedicated/timed transfer connections for trips outside the service area at a designated transfer center or fixed-route bus stop. This flexible service is offered at a minimum at the same frequency and operating hours as fixed-route service so that it is an extension of fixed-route service that allows for more seamless transfers in and out of the service area.

Kato Flex is ordered primarily via mobile app where users can request a ride. Users can also call in to request a trip. Kato Flex is run on smaller buses 25' medium-duty vehicles that meet the higher capacity buses at key locations. In the future, fare integration and transfer windows will enhance the feeling of Kato Flex being an extension of citywide service.

Mobility Bus Service

Mobility Bus Service is a shared ride, origin-to-destination ADA complimentary service for eligible individuals with disabilities. This service serves as a "safety net" for individuals who, because of their disabilities, are unable to use fixed-route services. The service runs seven days per week and operates only within the Mankato Urbanized Area, including all points within a 0.75-mile (three quarters of a mile) range of fixed-route service. Eligibility is based on categorical limitations of using the fixed-route system.

Paratransit service operates from 6:30 AM - 8:30 PM on weekdays; 7:30 AM - 7:30 PM on Saturdays, and 8:30 AM - 7:30 PM on Sundays. Paratransit functions as a next day service, meaning customers are required to reserve a trip at least a day in advance by calling the customer service line. Reservations can be made Monday through Friday between the hours of 8:00 AM and 6:00 PM. Ride cancellations or changes must be received at least one hour prior to the scheduled pick-up time.

Equity Impact Analysis

This section presents an analysis of the two service change scenarios in the Transit Development Plan, with a focus on the impacts of the service changes on disadvantaged population groups protected by Title VI of the Civil Rights Act: people of color, and people with low incomes. The analysis will help the City of Mankato ensure that no person, on the ground of race, color, or national origin, will have disproportionately negative impact from the proposed changes to the transit system.

This memorandum does not provide a full Title VI review of the entire transit system operations; instead, it's a planning-level analysis of the overall impacts of the two service change scenarios to overall population and employment in Mankato, as well as the impacts of route adjustments on the neighborhoods and areas where there are concentrations of non-white and Hispanic population and low-income households.

Mankato Transit System Title VI Plan

The Mankato Transit System 2023 Title VI Plan was reviewed to determine the guidelines, standards, and evaluation criteria the City needs to consider when making service changes to hours, routes and schedules. The relevant standards and criteria in the Title VI Plan for this analysis are summarized below.

Fixed-Route Service Guidelines

- **Vehicle Headway Standards:** Mankato Transit will provide bus transit service a minimum of every 60 minutes for citywide routes (all service periods and days), and 30 minutes for MNSU campus routes during the weekday.
- **Service Availability Standards:** Mankato will distribute transit service so that 75 percent of all residents in the service area are within a ¼ mile walk of the bus service for weekdays. Citizens that are outside a ¼ mile walk from fixed-route bus service and are in the Flex Zone are eligible for Kato Flex, a shared ride curb to curb service.

Disparate Impact Analysis

- Mankato Transit's Title VI Plan states that the analysis will use the population of the service area as the comparison population, comparing the population in Census blocks or block groups served by the affected route(s) with the population in the service area to determine disparate impact.

Disproportionate Burden Analysis

- Low-income populations are not a protected class under Title VI. However, the FTA requires transit service agencies to determine whether low-income populations will bear disproportionate burden of the changes. Mankato's Title VI Plan states that the analysis will use the population of the service area as the comparison population, comparing the population in the Census blocks or groups served by the affected routes with population in the service area to determine disproportionate impact.

The second half of this memo will present comparisons of population of non-white/Hispanic served by the transit service change scenarios, and concentrations of low-income populations.

Transit Development Plan, Overall Population and Employment

Both service change scenarios reallocate transit service so that a more consistent level of service is provided during midday, evenings, and weekends. The impact of these transit service changes to overall population and employment is described below.

Population

Table 32 and Table 33 show the population served by fixed-route transit, both by measuring the population within ¼ mile of the entire route, as well as within ¼ mile of bus stops. Regardless of how it is measured, the current transit system provides service to significantly fewer people during the evenings and weekends, which makes it difficult for people who need to make trips at off-peak hours to rely on the transit service. The Fiscally Constrained Scenario maintains the total population served by the current system does at peak hour, but keeps the service much more constant, resulting in much higher population served on evenings and weekends compared to the current system. The Illustrative Future Scenario would provide service to an even larger number of people in the service area.

Table 32. Total Population Served within ¼ Mile of Fixed-Route Service

	Time or Day of Service			
Service Scenario	**Peak Hour**	**Midday**	**Evening**	**Weekend**
Current System	32,800	27,800	21,800	24,154
Fiscally Constrained Scenario	31,700		28,500	
Illustrative Future Scenario	36,300		36,200	

Table 33. Total Population Served within ¼ Mile of Bus Stops

	Time or Day of Service			
Service Scenario	**Peak Hour**	**Midday**	**Evening**	**Weekend**
Current System	23,700	21,500	14,200	18,600
Fiscally Constrained Scenario	27,000		25,600	
Illustrative Future Scenario	30,300		29,100	

Employment

Table 34 and Table 35 show the number of jobs served by fixed-route transit, both by measuring the jobs within ¼ mile of the entire route, as well as within ¼ mile of bus stops. As with population, the current transit system provides service to significantly fewer jobs during the evenings and weekends, which makes it difficult for people who work at retail or service jobs (or second or third shifts) to rely on the transit service. The Fiscally Constrained Scenario maintains the number of jobs served by the current system at peak hour. It also keeps the service much more constant, resulting in much higher service to jobs on evenings and weekends compared to the current system. The Illustrative Future Scenario would provide service to an even larger number of jobs—nearly doubling the number of jobs served on evenings and weekends.

Table 34. Total Jobs Served within ¼ Mile of Fixed-Route Service

	Time or Day of Service			
Service Scenario	**Peak Hour**	**Midday**	**Evening**	**Weekend**
Current System	21,300	17,100	12,600	15,500
Fiscally Constrained Scenario*	21,600		21,000	
Illustrative Future Scenario*	24,700		24,700	

***Both future scenarios include "dummy" bus stops that were created to represent possible bus stop locations for the purpose of estimating population and employment served.**

Table 35. Total Jobs Served within ¼ Mile of Bus Stops

	Time or Day of Service			
Service Scenario	**Peak Hour**	**Midday**	**Evening**	**Weekend**
Current System	14,900	12,800	7,700	10,700
Fiscally Constrained Scenario*	18,600		18,300	
Illustrative Future Scenario*	20,900		20,600	

***Both future scenarios include "dummy" bus stops that were created to represent possible bus stop locations for the purpose of estimating population and employment served.**

Impacts of Service on Disadvantaged Population Groups

The service design principles and goals (as described in the Service Change Recommendations) for the two fixed-route service changes included the goal of equity and inclusion: focus service resources in areas of greatest need. Both service change scenarios, therefore, are designed to increase access to jobs, education, services, shopping, health, and community life opportunities. They also ensure that areas that have high concentrations of low-income and minority populations are within walking distance of all-day fixed-route service.

Fiscally Constrained Scenario

IMPACT ON NON-WHITE AND HISPANIC RESIDENTS

Figure 82 illustrates the impact of the fixed-route service changes in the Fiscally Constrained Scenario on areas that have higher concentrations of non-White and Hispanic residents compared to areas with low concentrations.

- In northwest Mankato in the MN STH 22 corridor, there is low concentration of non-White and Hispanic residents. The Fiscally Constrained Scenario would cut service significantly in that area by rerouting both Routes 13 and 6.
- The Washington Park area in central Mankato has medium-to-high concentrations of non-White and Hispanic residents. The current midday-only running Route 7 is proposed to be discontinued, but the residents living in the downtown area would continue to have access to the unchanged alignment of Route 3, which is currently an all-day route.
- A new alignment of Route 13 on East Main Street would provide service to the area near Bethany Lutheran College, where there is a medium-to-high concentration of non-White and Hispanic residents.
- The area around Highland Avenue/Warren Street and Val Imm Drive has medium concentrations of non-white and Hispanic residents. The current midday-only running Route 7 is proposed to be discontinued in the Fiscally Constrained Scenario, which would negatively impact those residents.
- The area southwest of downtown has medium concentrations of non-white and Hispanic residents. The Fiscally Constrained Scenario proposed a new route that would serve this part of Mankato, which would positively impact those residents.

Figure 82. Fiscally Constrained Scenario: Service to Concentrations of Non-White/Hispanic Residents

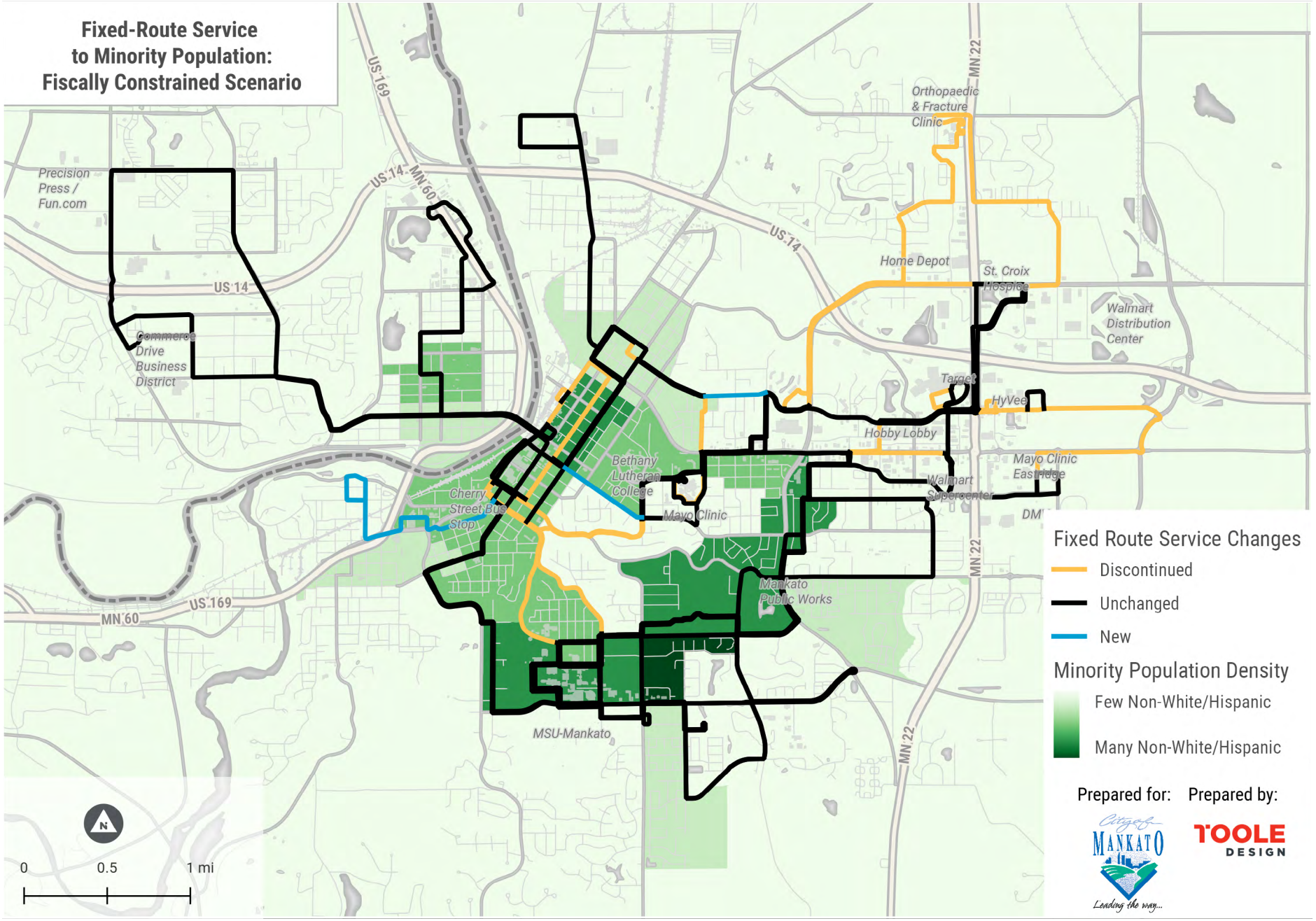
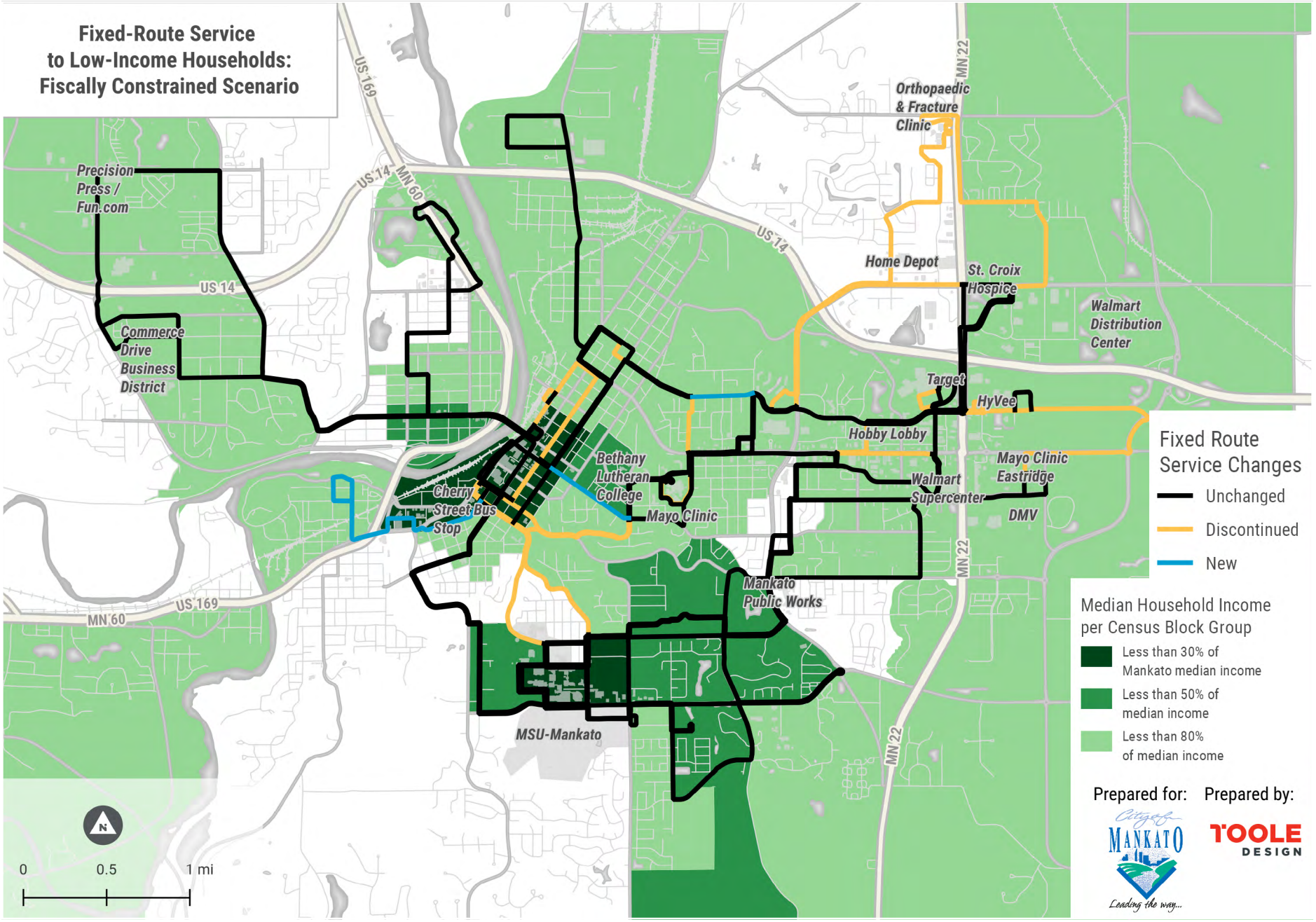


Figure 83. Fiscally Constrained Scenario: Service to Concentrations of Low-Income Households



IMPACT ON LOW-INCOME HOUSEHOLDS

Figure 83 illustrates the impact of the fixed-route service changes in the Fiscally Constrained Scenario on areas that have median household income of less than 80 percent of the Mankato median income.

- In northwest Mankato in the MN STH 22 corridor, the median household income is in some areas above the median, and in other areas about 80 percent. Households are also dispersed. The Fiscally Constrained Scenario would cut service significantly in that area by rerouting both Routes 13 and 6.
- The Washington Park area in central Mankato has very low median household income of less than 30 percent of the median income in Mankato. The current midday-only running Route 7 is proposed to be discontinued, but households in the downtown area would continue to have access to the unchanged alignment of Route 3, which is currently an all-day route.
- The area around Highland Avenue/Warren Street and Val Imm Drive is mostly above the 80 percent median income cutoff point. The current midday-only running Route 7 is proposed to be discontinued in the Fiscally Constrained Scenario, which would negatively impact those residents.
- A new alignment of Route 13 on East Main Street would provide service to the area near Bethany Lutheran College, where the household income is 50 percent of the median.
- The area southwest of downtown has a median income of less than 30 percent. The Fiscally Constrained Scenario proposed a new route that would serve this part of Mankato—including service to the homeless shelter and a new affordable apartment complex--which would positively impact those residents.

Illustrative Future Scenario

IMPACT ON NON-WHITE AND HISPANIC POPULATION GROUPS

Figure 84 illustrates the impact of the fixed-route service changes in the Illustrative Future Scenario on areas that have higher concentrations of non-White and Hispanic residents compared to areas with low concentrations.

- In northwest Mankato in the MN STH 22 corridor, there is low concentration of non-White and Hispanic residents. The Illustrative Future Scenario also cuts service significantly in that area by rerouting both Routes 13 and 6.
- In Lower North Mankato, there are medium concentrations of non-White and Hispanic residents. The Illustrative Future Scenario would add a route to this area, improving service.
- The Washington Park area in central Mankato has medium-to-high concentrations of non-White and Hispanic residents. The Illustrative Future Scenario would add a route to Germania Park, providing another bus route to serve that neighborhood and balance the removal of Route 7.
- A new alignment of Route 13 on East Main Street would provide service to the area near Bethany Lutheran College, where the household income is 50 percent of the median.
- The area around Val Imm Drive has medium concentrations of non-white and Hispanic residents. The current midday-only running Route 7 is proposed to be redesigned so it is not a loop route. This would improve service along Highland Avenue/Warren Street but reduce service along Val Imm Drive.
- The area southwest of downtown has medium concentrations of non-white and Hispanic residents. The Illustrative Future Scenario also includes a new route that would serve this part of Mankato, which would positively impact those residents.

IMPACT ON LOW INCOME HOUSEHOLDS

Figure 85 illustrates the impact of the fixed-route service changes in the Illustrative Future Scenario on areas that have median household income of less than 80 percent of the Mankato median income.

- In northwest Mankato in the MN STH 22 corridor, the median household income is in some areas above the median, and in other areas about 80 percent. Households are also dispersed. The Illustrative Future Scenario also cuts service significantly in that area by rerouting both Routes 13 and 6.
- In Lower North Mankato, the median household income is in some areas about 50 percent of the Mankato median. The Illustrative Future Scenario would add a route to this area, improving service.
- The Washington Park area has median incomes of less than 30 percent of the Mankato median. The Illustrative Future Scenario would add a route to Germania Park, providing another bus route to serve that neighborhood and balance the removal of Route 7.
- A new alignment of Route 13 on East Main Street would provide service to the area near Bethany Lutheran College, where the household income is 50 percent of the median.
- The area southwest of downtown has household income of less than 30 percent of the Mankato median. The Illustrative Future Scenario also includes a new route that would serve this part of Mankato, which would positively impact those residents.
- A new route in Southeast Mankato would provide additional service to the areas in southeast Mankato with less than 50 percent of the median income.

Figure 84. Illustrative Future Scenario: Service to Concentrations of Non-White/Hispanic Residents

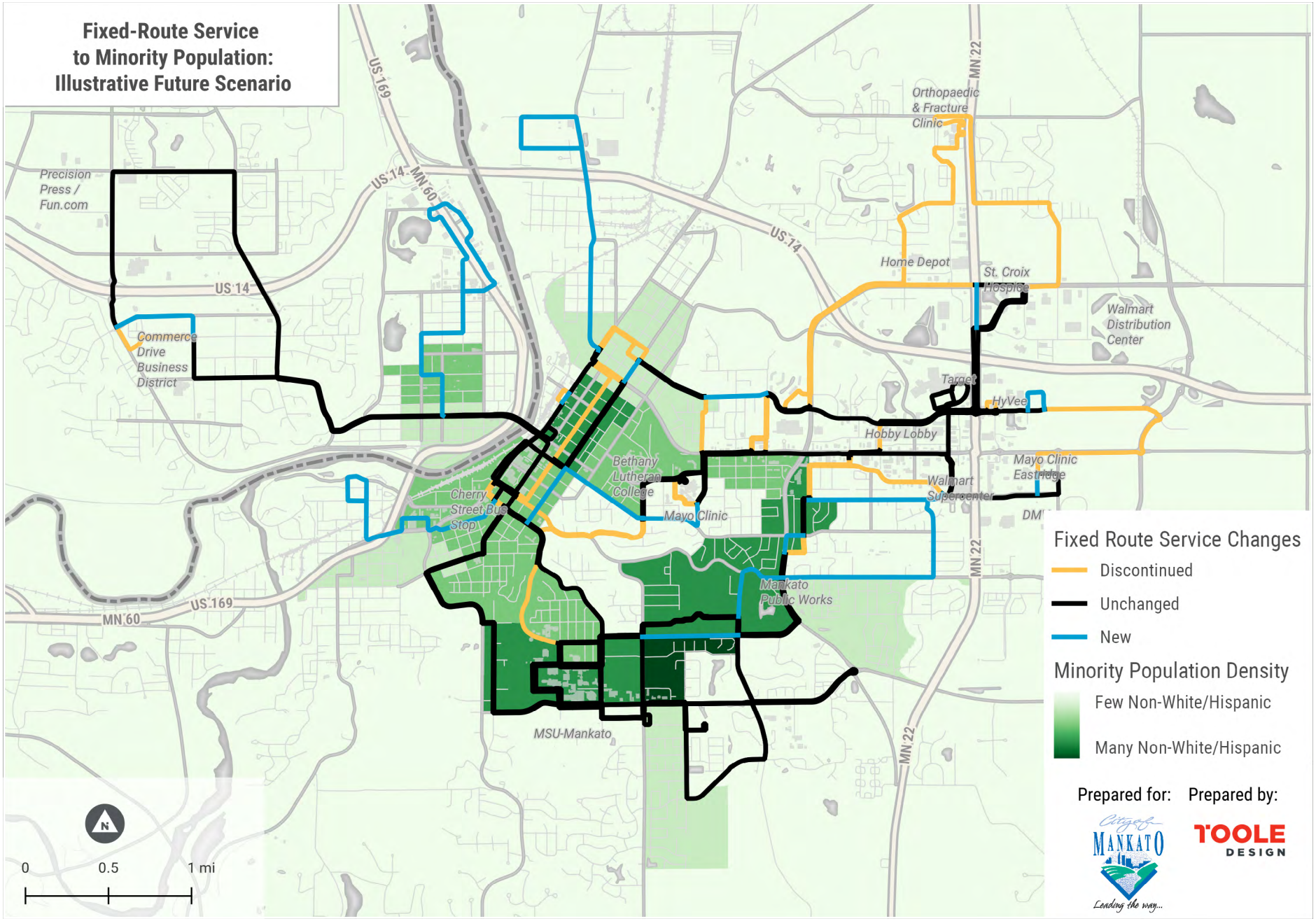
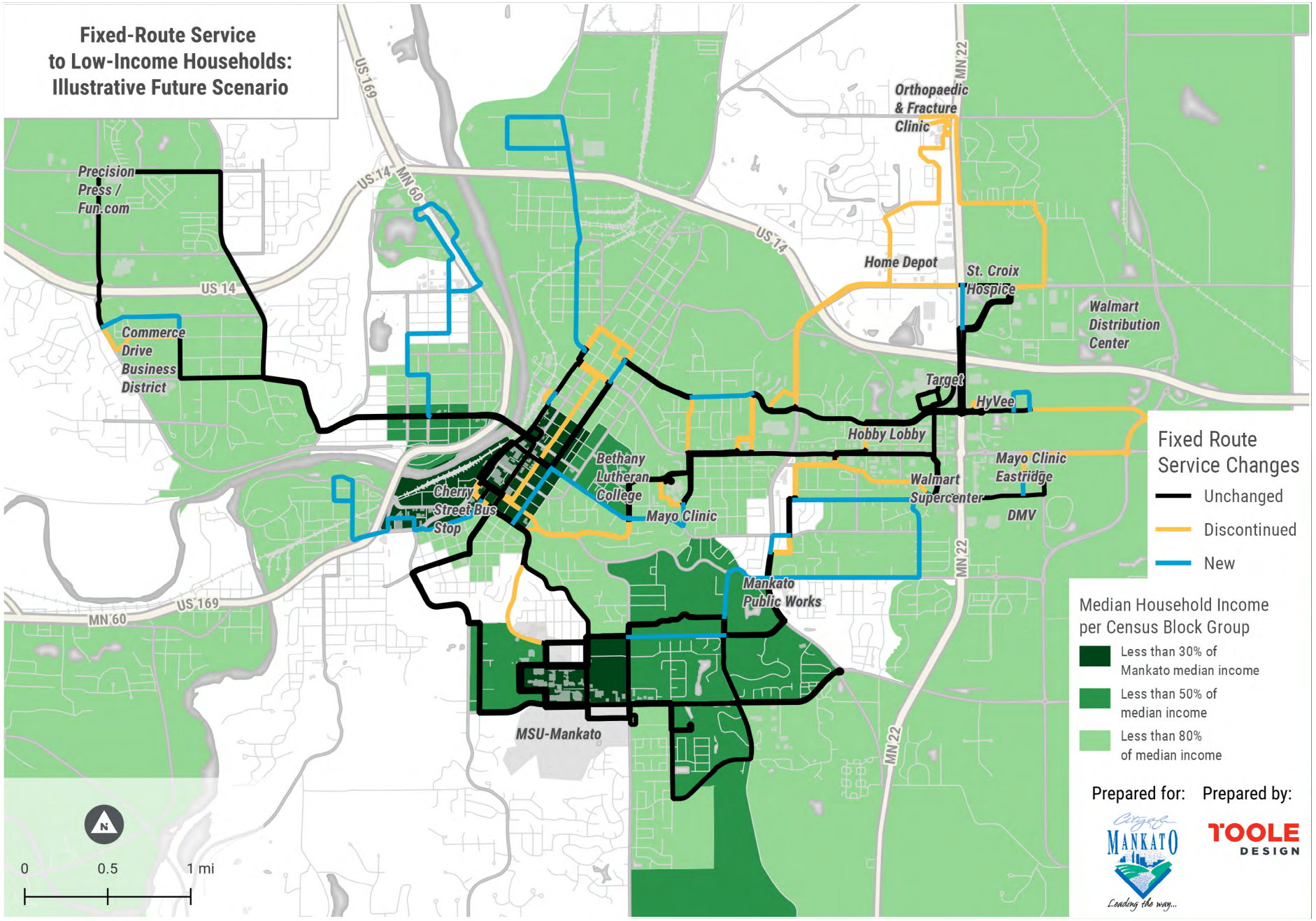


Figure 85. Illustrative Future Scenario: Service to Concentrations of Low-Income Households



Service Implementation Plan

As the City of Mankato plans for future transit, it is important to prioritize and stage the investments recommended in this Transit Development Plan. Limited funding is an ongoing challenge, so the proposed changes are crafted to achieve "more bang for the buck" with existing services while strategically planning for expansion. This memo outlines a succinct implementation plan for the detailed changes recommended in the Service Change Recommendations. These projects stem from public input, community partner meetings, discussions with City staff and the Project Management Team, field visits, local plans, and city priorities. Projects selected for immediate action are higher priority because they correspond to three or more of the five primary goals for MTS service:

1. Accessibility and Safety
2. Legibility and Reliability
3. Equity and Inclusion
4. Cost-Effectiveness
5. Financial Sustainability

Immediate Actions Quick Wins

Within the next one to three years, the Mankato Transit System should implement the changes to service and operations identified in the following table.

Table 36. Immediate Action Items

Action	Accessibility and Safety	Legibility and Reliability	Equity and Inclusion	Cost Effectiveness	Financial Sustainability
Implement the changes to routes and schedules recommended in the Fiscally Constrained Scenario, mainly to reduce the footprint of the fixed-route network, concentrate service hours in fewer routes and corridors, and allow the system to extend service hours on weekday evenings and weekend days, year-round.	✓	✓	✓	✓	✓
Implement service area, operational schedule, and fare changes to Kato Flex to increase utilization, fare revenue, and integration with the fixed-route system. Integrate fare and transfer windows with fixed-route system. Kato Flex becomes an extension of fixed-route system to cover low density areas, and all areas not served by fixed-route network.	✓	✓	✓	✓	✓
Publish vehicle AVL (real time GTFS) to public repositories such as GitHub, for use by cloud-based mobility planning aggregators such as the Transit App and others. Partner with MNSU and MNDOT to publish data or procure a new technology vendor if necessary.	✓	✓	✓		✓
Implement temporary bus stops everywhere in the system, with at least a pole and a sign, to establish physical presence of service and increase bus stop coverage area on all routes.	✓	✓	✓		✓
Complete current bus stop improvement plan (Phase 1).	✓	✓	✓		✓
Identify tiers of investment for remaining bus stops, prioritize remaining bus stops, and identify bus stop amenities and locations for Phase 2 of bus stop improvements.	✓	✓	✓		✓

Medium-term Actions

Within the next 5 years, the Mankato Transit System should implement the following changes to service and operations.

Table 37. Medium-Term Action Items

Action	Accessibility and Safety	Legibility and Reliability	Equity and Inclusion	Cost Effectiveness	Financial Sustainability
Construct and install physical amenities to bus stops in the Phase 2 bus stop improvement plan.	✓	✓	✓		✓
Identify tiers of investment for remaining bus stops, prioritize remaining bus stops, and identify bus stop amenities and locations for Phase 3 of bus stop improvements.	✓	✓	✓		✓
Construct and install physical amenities to bus stops in the Phase 3 bus stop improvement plan.	✓	✓	✓		✓
Conduct a fare study to assess adequate technology and media to facilitate fare payments, and adjust existing fare structure and products to reduce barriers to access and increase participation from disadvantaged groups.	✓	✓	✓	✓	✓
Secure additional funding: Pursue local and state grants and renewed partnerships with universities and schools. Explore new partnerships with employers, and opportunities for enhanced collaboration with existing partners.				✓	✓
Increase service frequency to every 30 minutes on Routes 3 and 6, which (after Route 2) have the highest ridership of the current system. Provide continuous (interlined, through-routed service) on these routes. Routes 3, 6 and 5 form the core network of fixed-route services that will get priority in allocation of resources to increase service hours and frequency of service.		✓	✓	✓	
Provide weekend service on Kato Flex.	✓	✓	✓	✓	✓

Long-term actions

Within the next 10 years, the Mankato Transit System should implement the following changes to service and operations.

Table 38. Long-Term Action Items

Action	Accessibility and Safety	Legibility and Reliability	Equity and Inclusion	Cost Effectiveness	Financial Sustainability
Secure additional funding: Pursue local and state grants and renewed partnerships with universities and schools.				✓	✓
Acquire buses consistent with asset management plan and the number necessary to provide expanded service under the Illustrative Service Scenario.	✓	✓			✓
Expand fix-route transit service as recommended in the Illustrative Future Service Scenario, with new routes to Lower North Mankato, Germania Park, West Mankato and southeast Mankato.	✓	✓	✓	✓	✓
Install physical bus stops on all new routes; identify tiers of investment for bus stops on new routes.	✓	✓	✓		✓
Construct and install physical amenities to bus stops on new routes.	✓	✓			✓
Review and revise network based on new developments in urban area, using the service design principles described in this Transit Development Plan.	✓	✓	✓	✓	✓
Implement recommendations of fare study. Explore implementation of cashless fare payment options such as mobile apps or wallets.	✓	✓	✓	✓	✓


City of
MANKATO
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