



AGENDA

**City Council Work Session
Monday, May 27, 2025
Mankato Room
(following the Regular Meeting at 6 p.m.)**

1. Hilltop Engagement Plan Summary
2. Zero Emission Bus Fleet Transition Study
3. Update on Climate Action Plan
4. Adjournment



AGENDA RECOMMENDATION

City Council Work Session

1.

Meeting Date: 05/27/2025

Agenda Item:

Hilltop Engagement Plan Summary

Recommendation/Action(s):

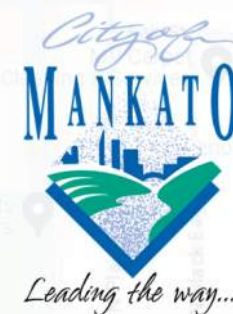
Information only.

Summary:

The Council will receive a presentation from our staff to summarize the Hilltop Planning work and a review of the transportation elements from Angie Bersaw from Bolton & Menk.

Attachments

Hilltop Results Presentation



Mankato City Council Presentation May 27, 2025

Study Overview



Purpose

Evaluate the Hilltop Planning Area, addressing issues and opportunities related to land use transitions and neighborhood traffic characteristics.

Study Elements

- Identify existing issues and concerns through:
 - Neighborhood and public input
 - Traffic and pedestrian/bicycle data collection
 - Crash history
- Develop a future land use plan
- Identify transportation improvement options



Study Timeline



May - September 2024

- Community Open House #1 in May to explain planning purpose and begin collecting input.
- Neighborhood engagement, including pop-up events and online input through Every Voice Mankato.
- Meetings with organizations and businesses in the neighborhood.
- Community Open House #2 in September to review emerging themes, issues and opportunities identified through community, business and organization outreach.
- Plan studies and data collection begins.

October - March 2025

- Plan studies and data collection.

March - April 2025

- Review study data.
- Draft plan development.
- Review draft plan and collect community input at Community Open House #3.

April -May 2025

- Community feedback incorporated into plan.
- Present to City Council Work Session
- Plan revision/finalization.

June-July 2025

- Plan presentation to Planning Commission.
- Plan presentation to City Council.
- Plan adoption.



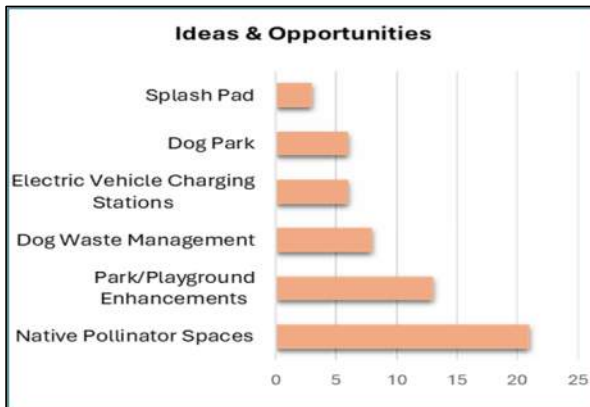
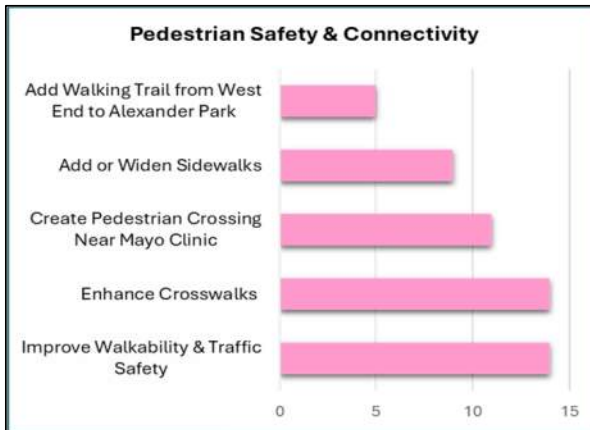
2024 Community Engagement Events



- May 16, 2024 – Washington Elementary
- June 11, 2024 – Erlandson Park
- August 21, 2024 – Alexander Park
- November 14, 2024 – Bethany Lutheran College
- Online Engagement – Every Voice Mankato



What We Heard (2024)



Public Open House #3

- April 29, 2025 – Bethany Lutheran College
- Online Engagement – Every Voice Mankato



HILLTOP PLANNING AREA STUDY OPEN HOUSE



Tuesday, April 29 4:00-6:00 p.m.

Bethany Lutheran College
Bethany Activity Center Alumni Lounge
905 Marsh St., Mankato



Join us for a Hilltop Planning Area Study Open House. Study data and draft plan content will be presented for review and feedback.

everyvoice.mankato.mn.gov



Transportation Data Collection

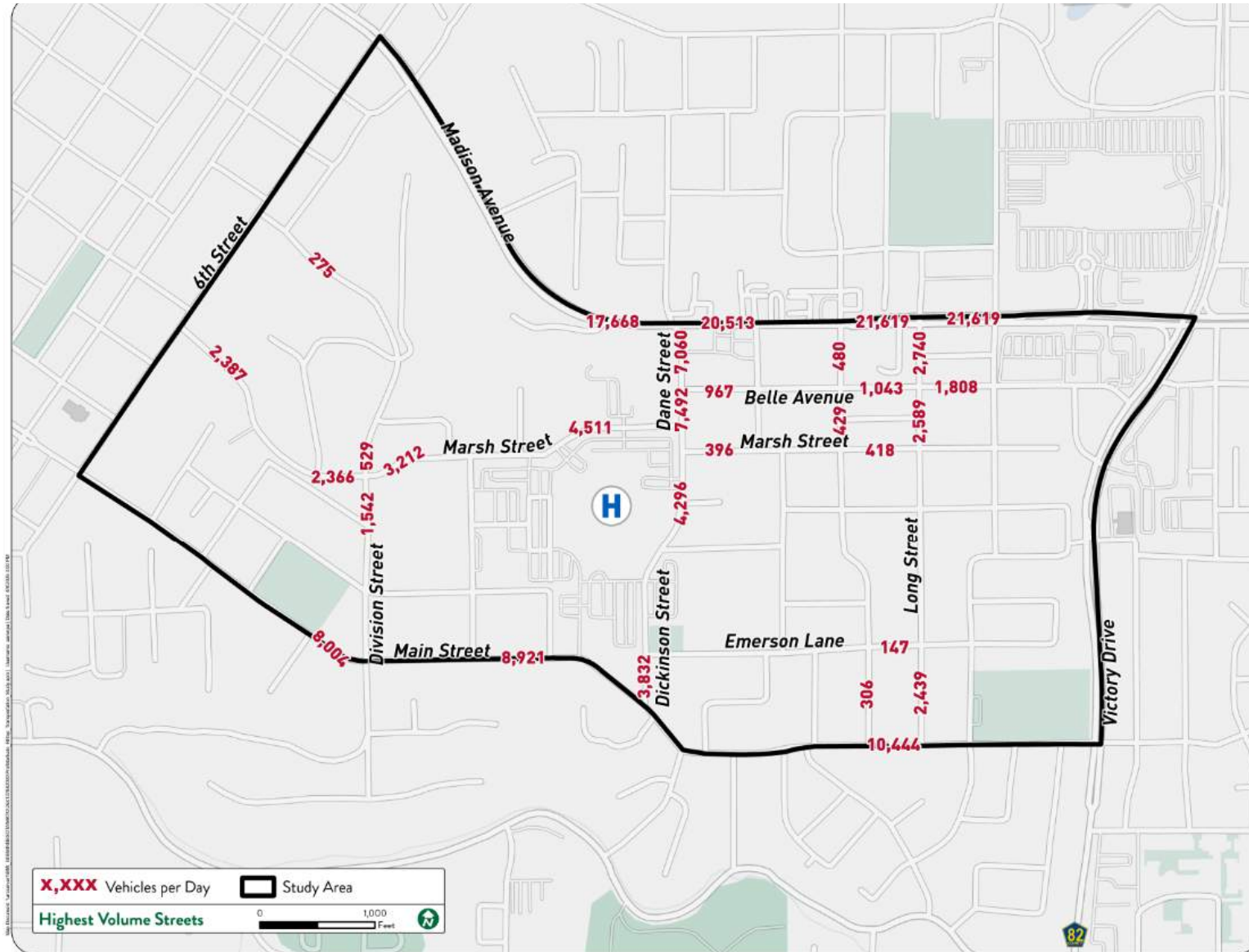


- Traffic Volumes
- Traffic Origin/Destination (Cut-Through)
- Intersection Operations
- Pedestrian/Bicycle Volumes and Network
- Traffic Speeds
- Crash History (2020-2024)
- Transit Network
- Public Feedback



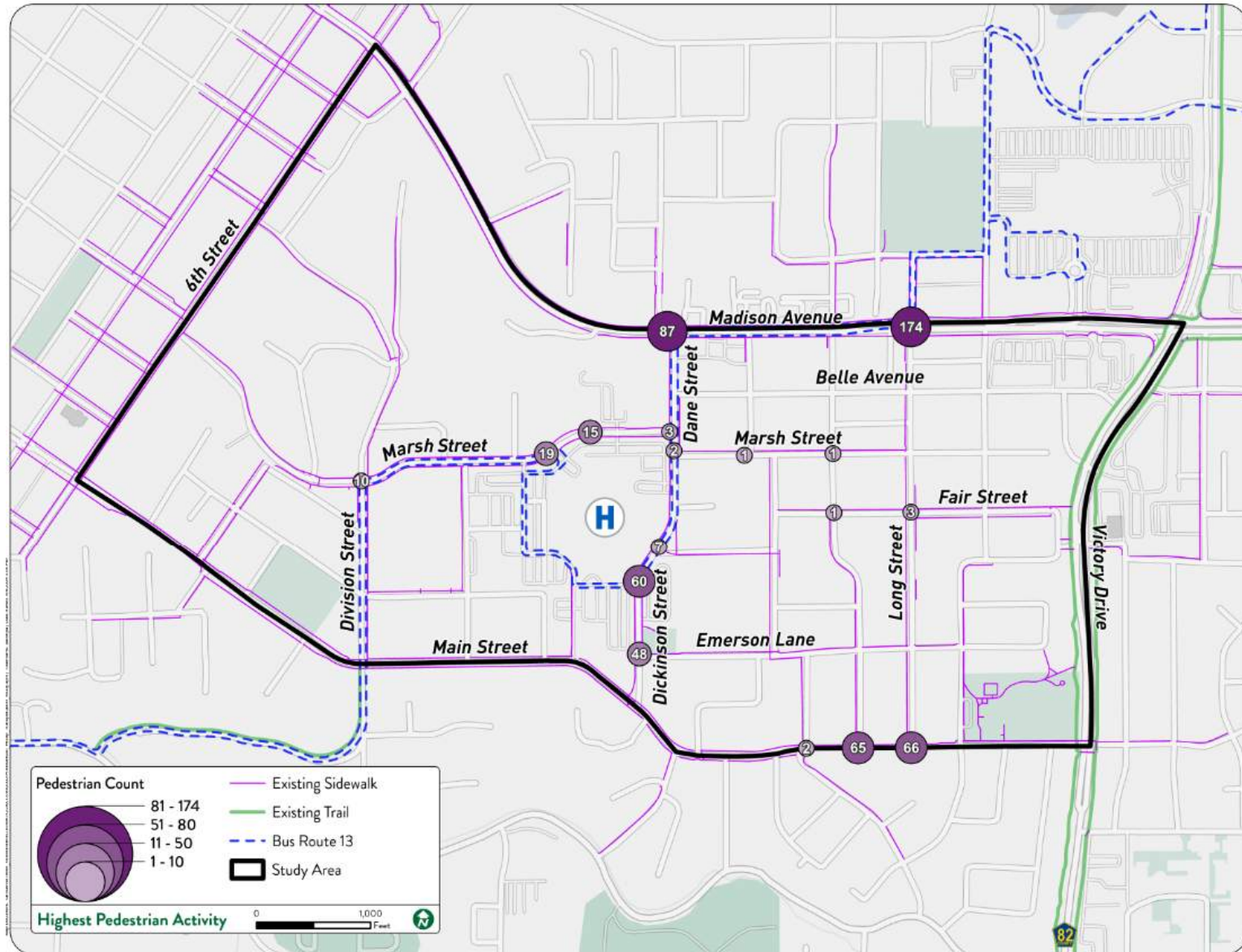
Highest Volume Streets (vehicles/day)

- Marsh St.
- Dickinson St./Dane St.
- Long St.



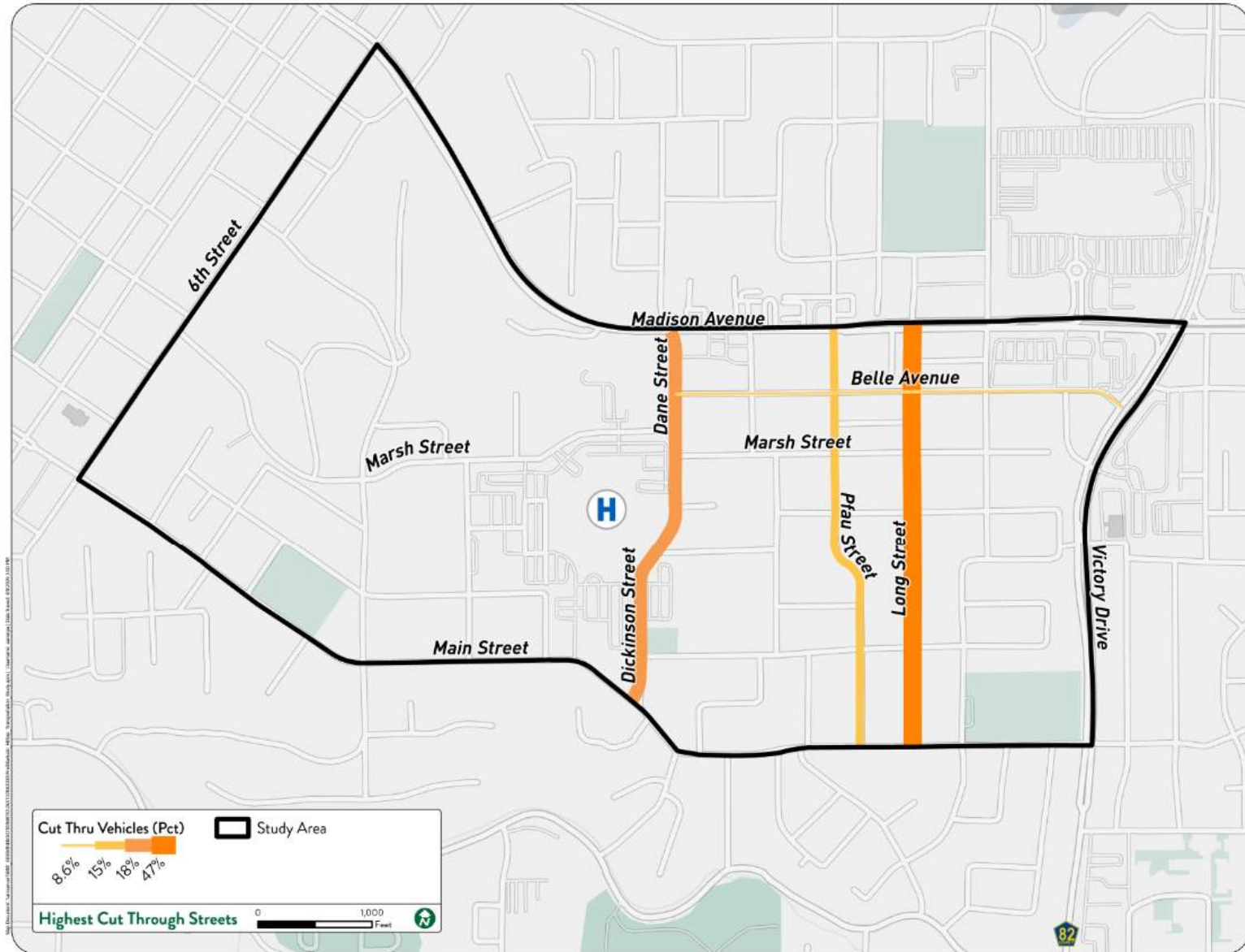
Highest Pedestrian Activity

- Dickinson St./Dane St.
- Marsh St.
- Madison Ave.
- E Main St.



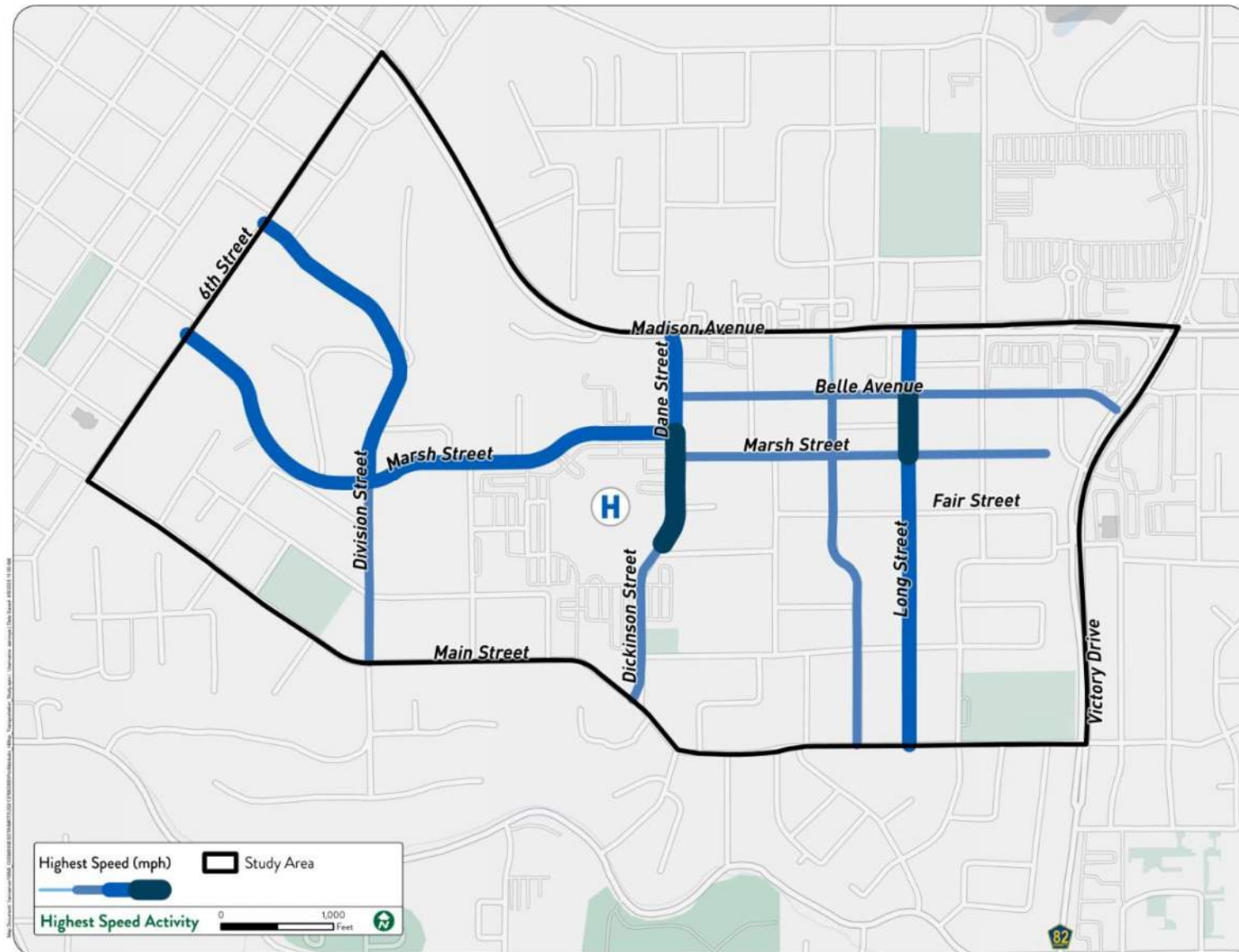
Highest Cut-Through Streets

- Dickinson St./Dane St.
- Long St.
- Pfau St.
- Belle Ave.



Highest Speed Activity

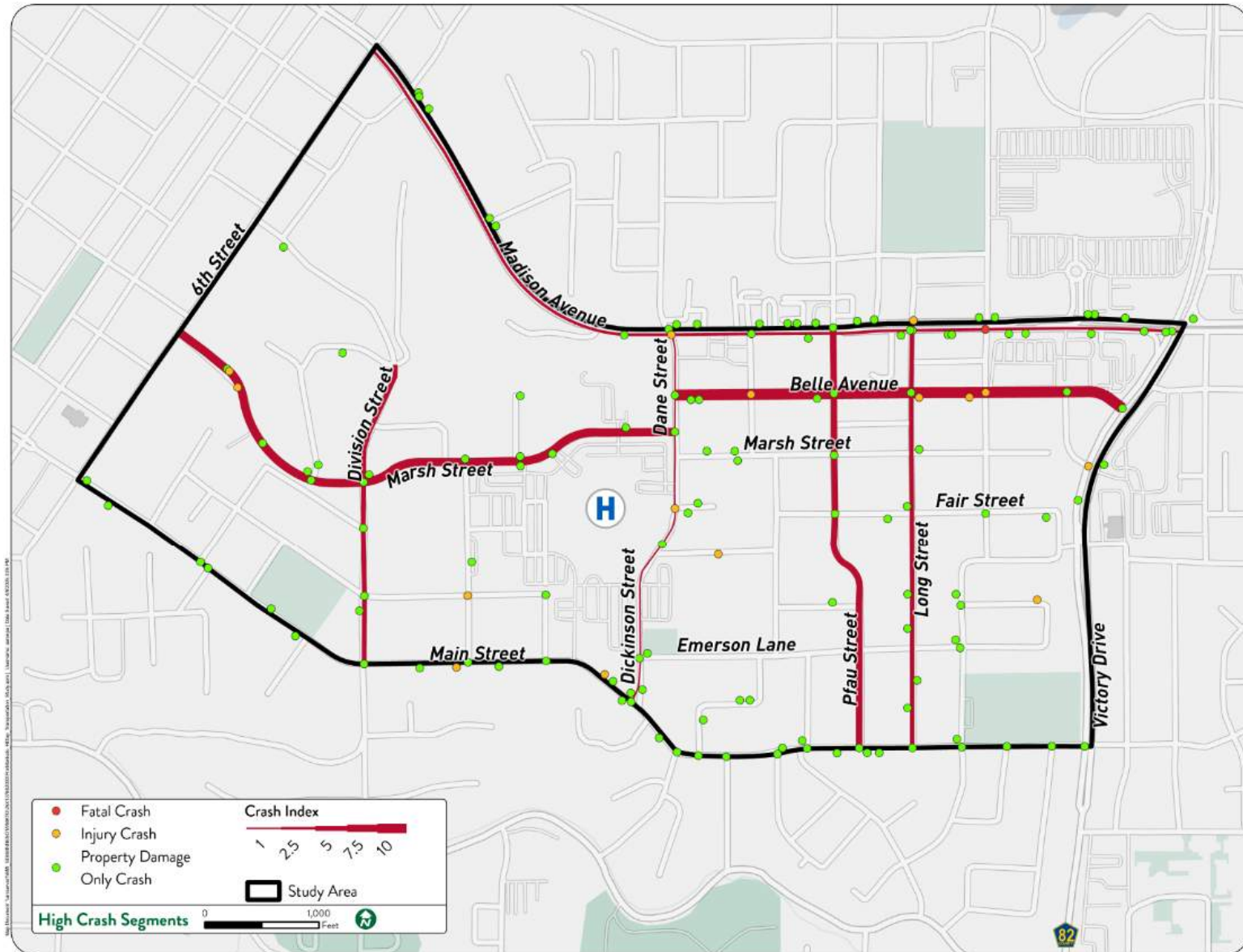
- Dickinson St./Dane St
- Long St.
- Marsh St.



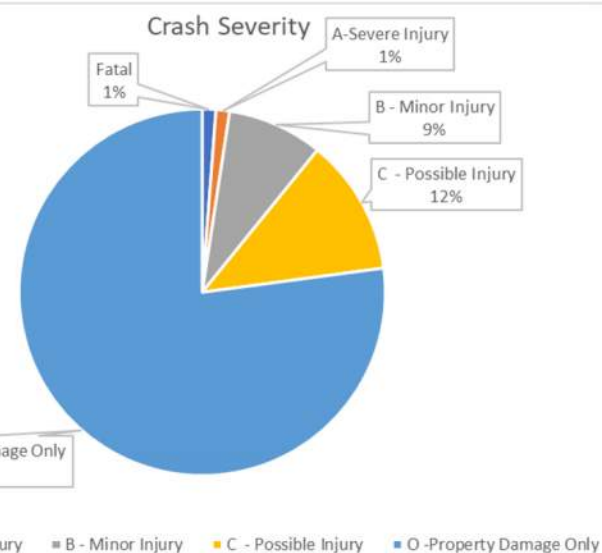
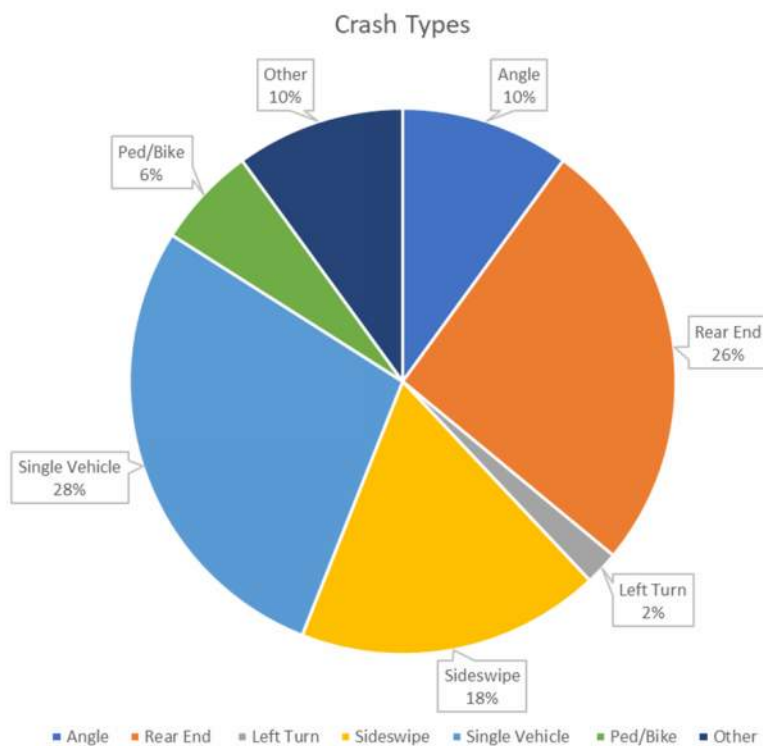
Highest Crash Streets

- Marsh St.
- Division St.
- Belle Ave.
- Pfau St.
- Long St.

A crash index above 1.0 indicates that the street operates outside the expected, normal range.



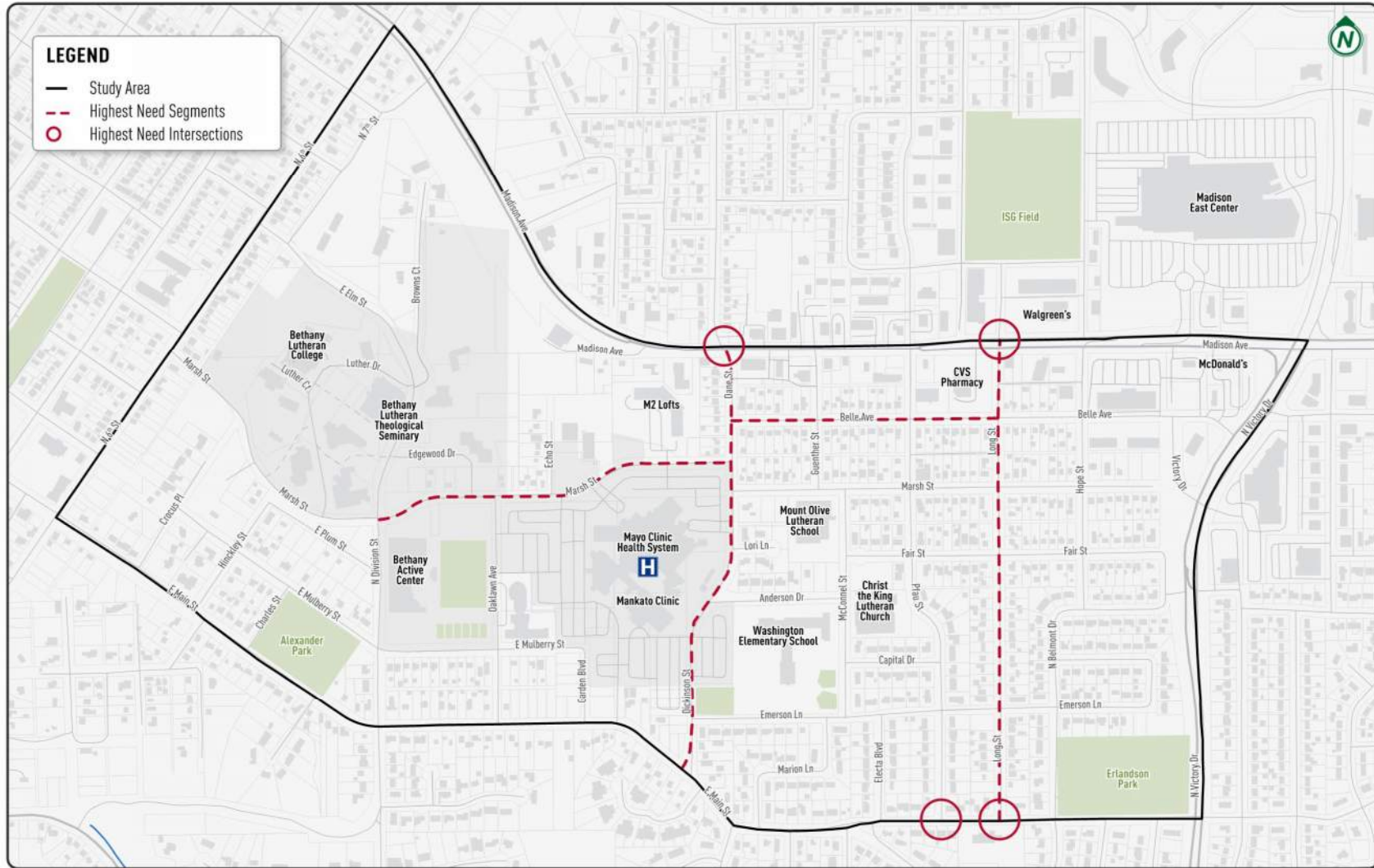
Crash History – Types and Severity (2020-2024)



Focus Areas

Why these?

- Higher Speeds compared to other neighborhood roads
- More cut through traffic
- Higher number peds crossing
- Higher crash index



Dickinson St./Dane St.

- 4,100 to 7,300 vehicles per day
- 18% cut-through traffic
- 108 pedestrians crossing per day
- Crash Index 1.18

Community Input Themes:

- Bike lanes are desired
- Traffic on Dane does not stop for pedestrians, traffic flying by
- Pedestrian crossing concerns on Dane
- Add a sidewalk on the east side of Dane to complete the sidewalk connection

Dickinson/Dane St. Location Map



Dickinson St./Dane St. – Potential Improvement Options



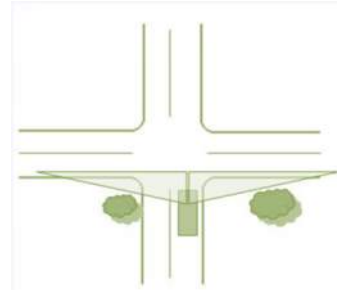
Enhanced crosswalks;
Hi-visibility striping;
Advanced pedestrian
crossing warning signs



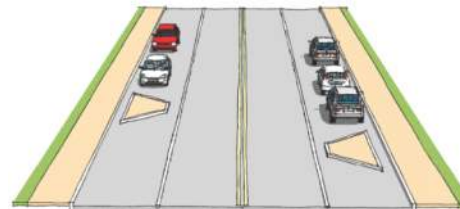
Rectangular Rapid
Flashing Beacon (RRFB)



Fill in missing sidewalk
to reduce crossing
needs



Improve intersection sight
distance by reviewing and
trimming vegetation at
corners of all side streets
and near crosswalks



Add white stripe to
define parking, narrow
travel lanes. Could
include bump-outs at
corners. Striped or raised.



Remove on-street parking
on one or both sides of
street to add bike lanes.



Dickinson St. /Dane St.

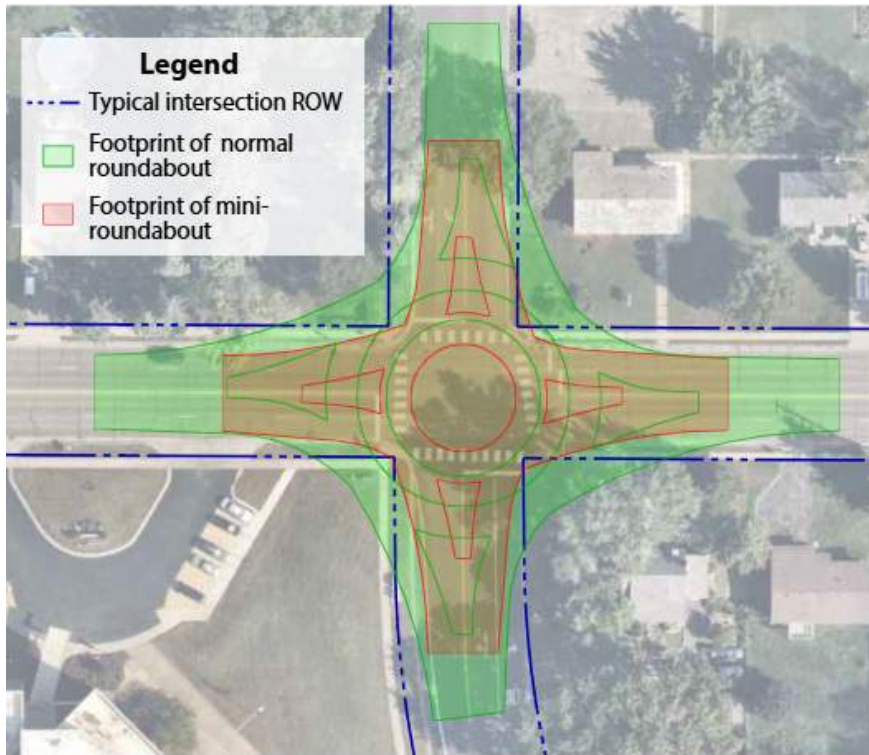
LEGEND

- Add White Parking Stripe, Narrow Travel Lanes and Bike Lanes (optional)
- Enhanced Crosswalk
- Existing Sidewalk
- Fill in Sidewalk
- ▲ Improve Sight Distance/Trim Vegetation
- Mini Roundabout
- Study Area
- ★ Rectangular Rapid Flashing Beacon (RRFB)

Potential Improvement Locations



What is a Mini Roundabout?



Source: MnDOT Local Road Research Board FAQ, 2024



Marsh Street

- 2,400 vehicles per day
- 34 pedestrians crossing per day
- Crash Index 8.78

Community Input Themes:

- Several comments on the Dane/Marsh Intersection. Consider a roundabout.
 - Existing intersection analysis showed PM Peak Hour at Level of Service A
- Improve pedestrian crossings near Mayo Clinic and Mankato Clinic
- Traffic speeds and volumes on Marsh St.

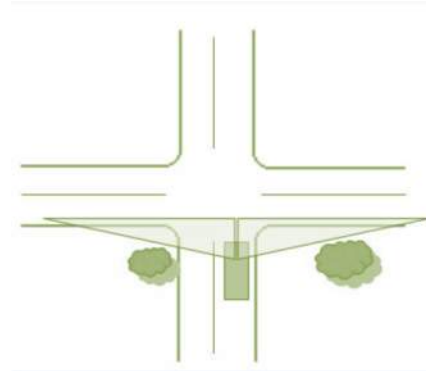
Marsh Street Location Map



Marsh Street - Potential Improvement Options



Enhanced crosswalks;
Hi-visibility striping;
Advanced pedestrian
crossing warning signs;
Add overhead lights at
crosswalk



Improve intersection sight
distance by reviewing and
trimming vegetation at
corners of all side streets
and near crosswalks



Install Speed Feedback Signs



Mini Roundabout



Marsh Street

LEGEND

-  Enhanced Crosswalk
-  Existing Sidewalk
-  Improve Sight Distance/Trim Vegetation
-  Mini Roundabout
-  Study Area
-  Speed Feedback Sign

Potential Improvement Locations



Long Street

- 2,700 vehicles per day
- 47% cut-through traffic
- 66 pedestrians crossing per day
- Crash Index 4.37

Community Input Themes:

- Improve pedestrian crossings at Madison Ave and Emerson Lane
- Speeding traffic concerns
- Drivers Running Belle Ave stop signs at Long St



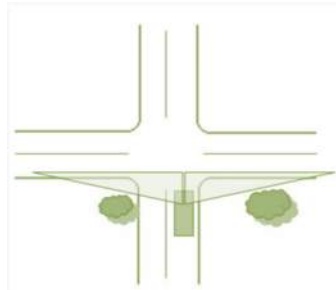
Long Street Location Map



Long Street - Potential Improvement Options



Restrict On-Street parking to improve visibility of ped crossing



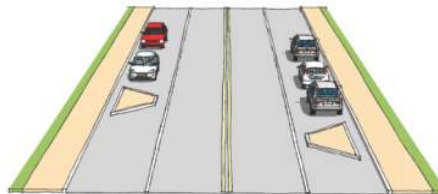
Improve intersection sight distance by reviewing & trimming vegetation at corners of all side streets



Install Speed Feedback Signs



Supplement stop signs with reflective tape or flags. Add Advanced Stop Ahead signs.



Add white stripe to define parking, narrow travel lanes.



Enhanced Crosswalk Hi-Visibility Striping at Ped Crossings



Mini Roundabout



GU0 Speed Table*

**Would require MSAS variance if recommended*



Slide 23

GU0

find different photo

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Long Street

LEGEND

-  Add White Parking Stripe and Narrow Travel Lanes
-  Enhanced Crosswalk
-  Existing Sidewalk
-  Improve Sight Distance/Trim Vegetation
-  Mini Roundabout
-  No Parking Here to Corner
-  Study Area
-  Speed Feedback Sign
-  Enhanced Stop Signs

Potential Improvement Locations



Belle Avenue

- 1,000 to 1,800 vehicles per day
- 9% cut-through traffic
- Crash Rate 11.74

Community Input Themes:

- Concerns with speeding and reckless driving
- Desire all-way stops at Belle Ave./Pfau St. and Belle Ave./Guenther St.



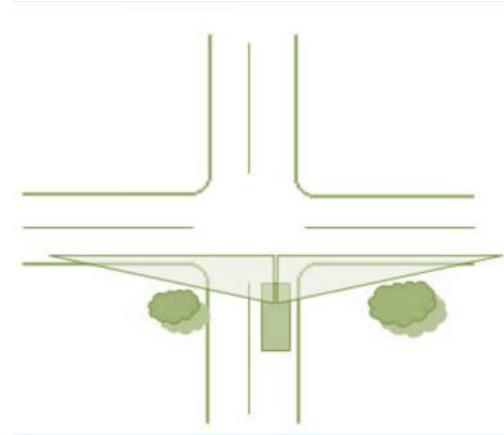
Belle Ave Location Map



Belle Avenue - Potential Improvement Options



Restrict on-street parking to improve visibility of cross-street traffic at intersections



Improve intersection sight distance by reviewing & trimming vegetation at corners of all side streets



Add sidewalk on one side so vehicles and pedestrians don't have to share the same space



Mini Roundabout

Belle Avenue – Why not proposing additional stop signs?

- Warrants not met for stop signs on Belle Ave
- Stop signs are not designed for speed control
- Studies have shown:
 - Stop signs are not effective in controlling or reducing mid-block speeds
 - Instead of slowing down, drivers may speed up between stop signs to make up for “lost” time



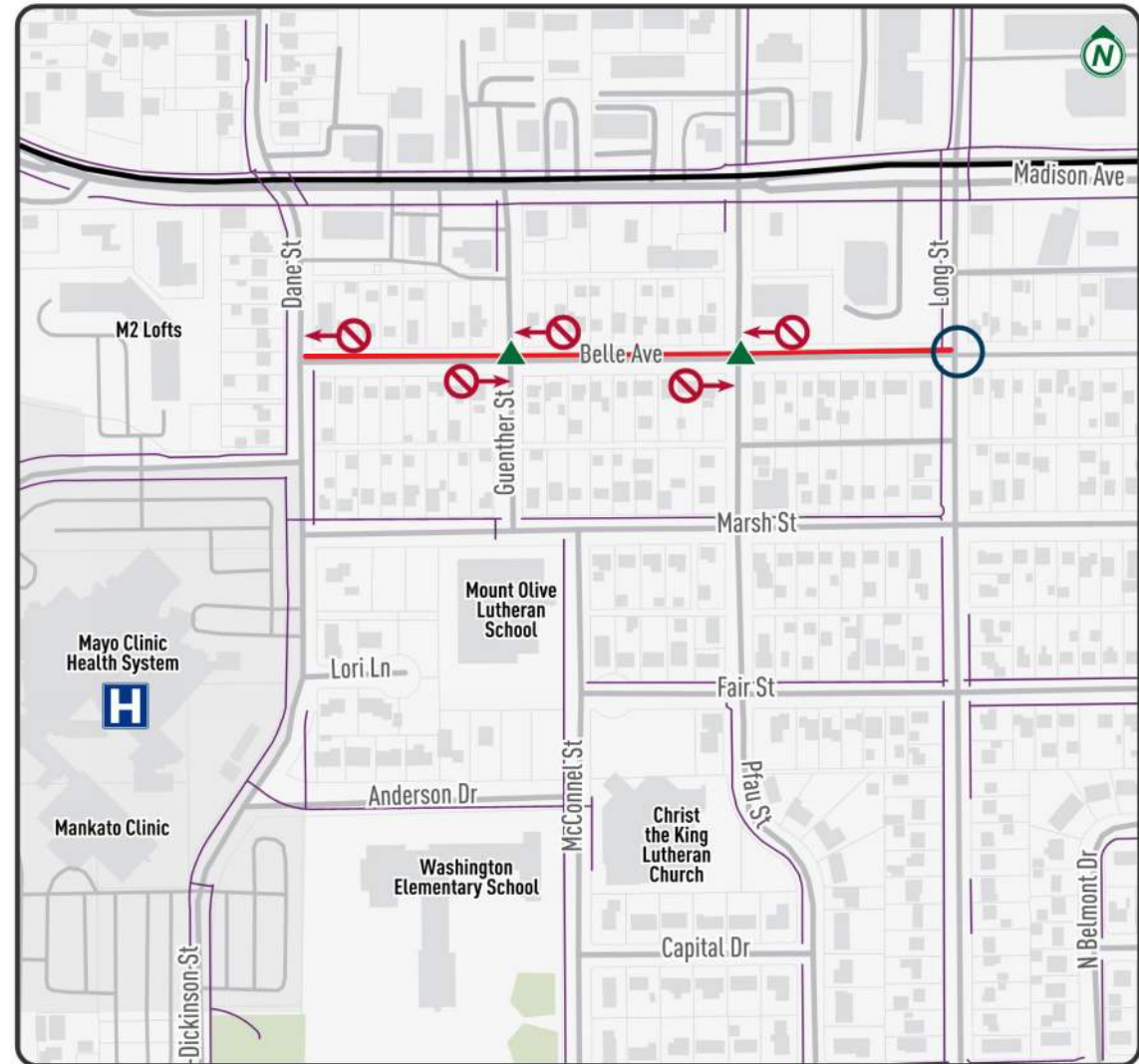
Google: June 2024



Belle Avenue

LEGEND

- Add Sidewalk
- Existing Sidewalk
- ▲ Improve Sight Distance/Trim Vegetation
- Mini Roundabout
- ⊘ No Parking Here to Corner
- Study Area



Next Steps

June-July 2025

- Present Plan to the Planning Commission
- Present Plan to the City Council
- Adopt Plan





AGENDA RECOMMENDATION

City Council Work Session

2.

Meeting Date: 05/27/2025

Agenda Item:

Zero Emission Bus Fleet Transition Study

Recommendation/Action(s):

Information only.

Summary:

In mid-2024, the City Council authorized staff to work with the Center for Transportation and the Environment on a study to review our bus fleet and a possible transition to alternative fuels. During the work session, the Council will receive the presentation.

Attachments

Presentation

City of Mankato

Zero Emission Bus Fleet Transition Study

May 21, 2025

Rebecka Moreno

Lead Engineering Associate

Aaron Wright

Managing Consultant

Grace Leslie

Lead Associate

Todd Walton

Senior Engineering Consultant

Center for Transportation and the Environment



Introduction

- Goal:
Feasibility of transitioning City of Mankato's fixed-route fleet to 100% zero-emission technology by 2040



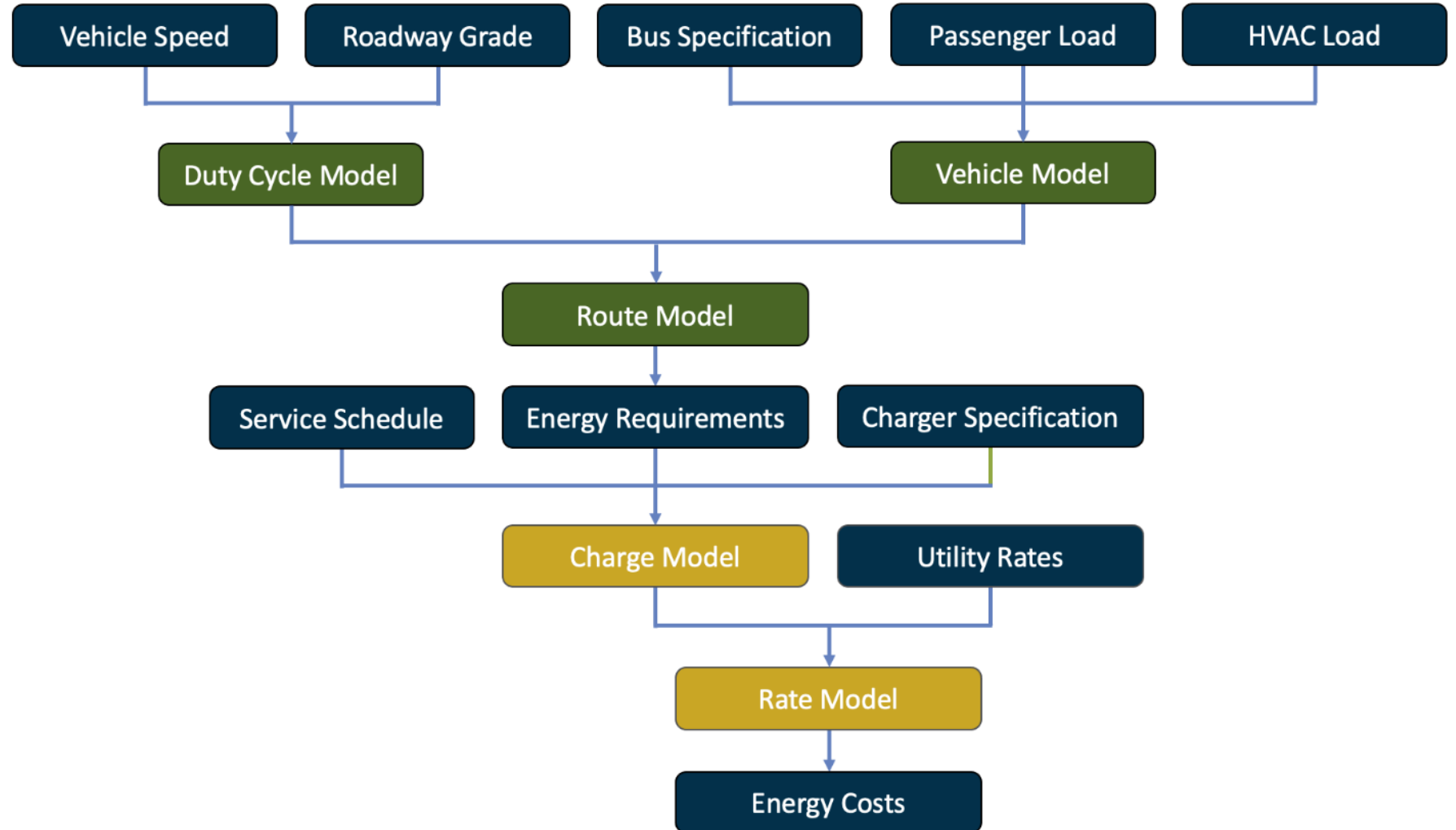
Service Assessment



Modeling & Analysis Methodology

Service Assessment:

- Determines the percentage of the agency's blocks that will be achievable each year





Assumptions: Vehicle Performance

Assumption Category	Assumption Details
Usable Energy	80% of nameplate battery capacity
Battery Degradation Estimate	69% of nameplate battery capacity
Vehicle Efficiency	All-electric heater
Battery Capacity	Increases 5% every 2 years based on anticipated technology improvements
Strenuous Conditions	HVAC loads at 17°F and auxiliary loads between 12-18 kW
Nominal Conditions	HVAC loads at 65°F and auxiliary loads between 3-5 kW

BEB Block Feasibility Percentage by Year

Bus Size [ft]	Block Quantity	Max. Block Distance (mi)	% Feasible in 2024	% Feasible in 2026	% Feasible in 2028	% Feasible in 2030	% Feasible in 2032	% Feasible in 2034	% Feasible in 2036	% Feasible in 2038	% Feasible in 2040
Cutaway	3	219	0%	0%	0%	0%	0%	0%	0%	0%	0%
35'	8	213	13%	13%	13%	13%	13%	13%	13%	25%	25%
40'	4	200	75%	75%	75%	75%	75%	75%	75%	75%	75%

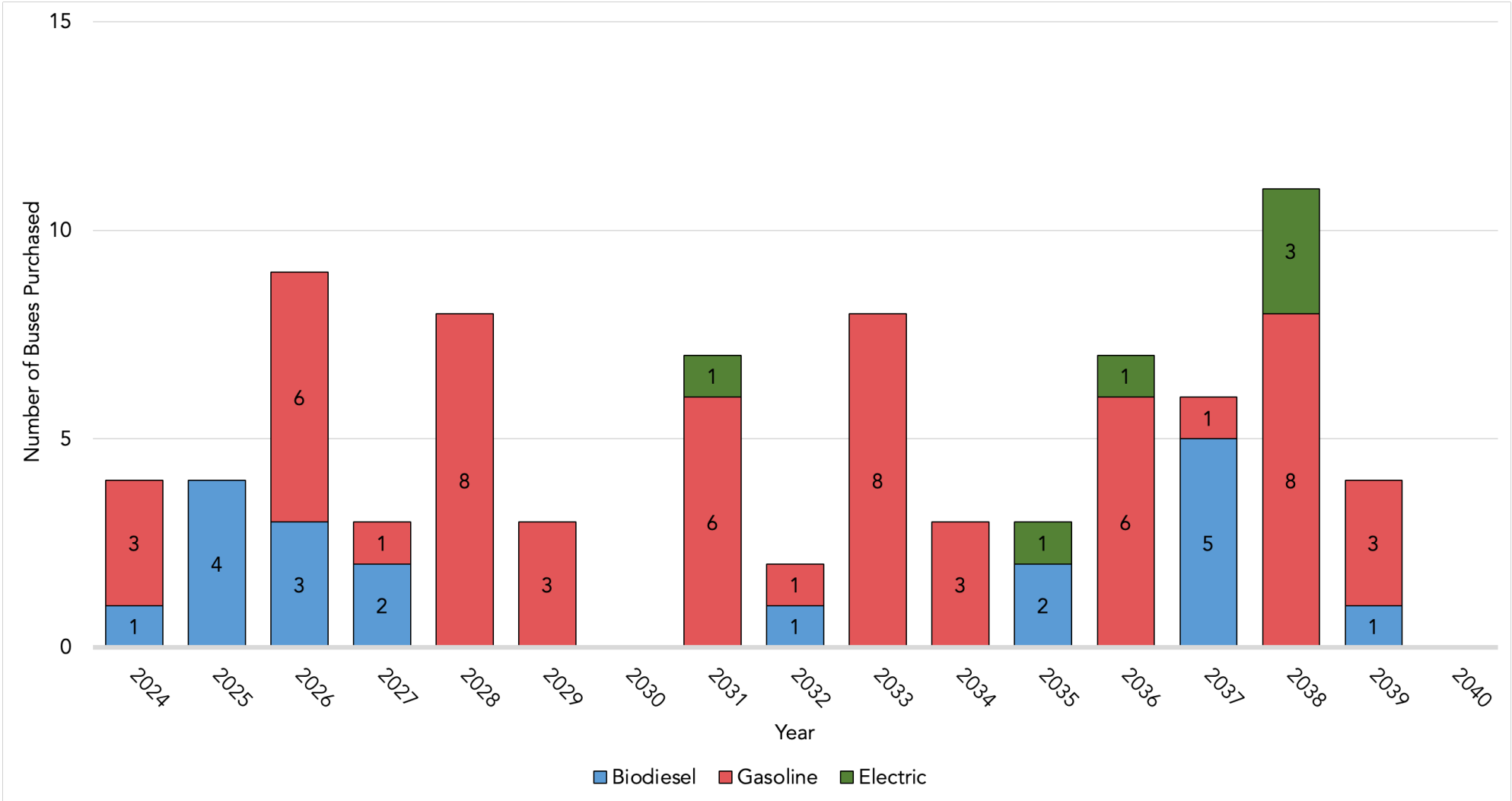
- Results are shown for every 2 years of transition (2024-2040)

Service Assessment - Summary

- Cutaway vehicles achieve 0% of all blocks by 2040
- 35' BEBs achieve 13% by 2035 and 25% by 2040
- 40' BEBs achieve 75% by 2035 and 75% by 2040
- Overnight charged BEBs cannot complete all current Mankato blocks by 2040
- CTE and Mankato decided on the following scenarios:
 - **BEB Depot Only**
 - **BEB Depot and On Route Charged**
 - **FCEB Only**
- All blocks are assumed feasible with FCEBs

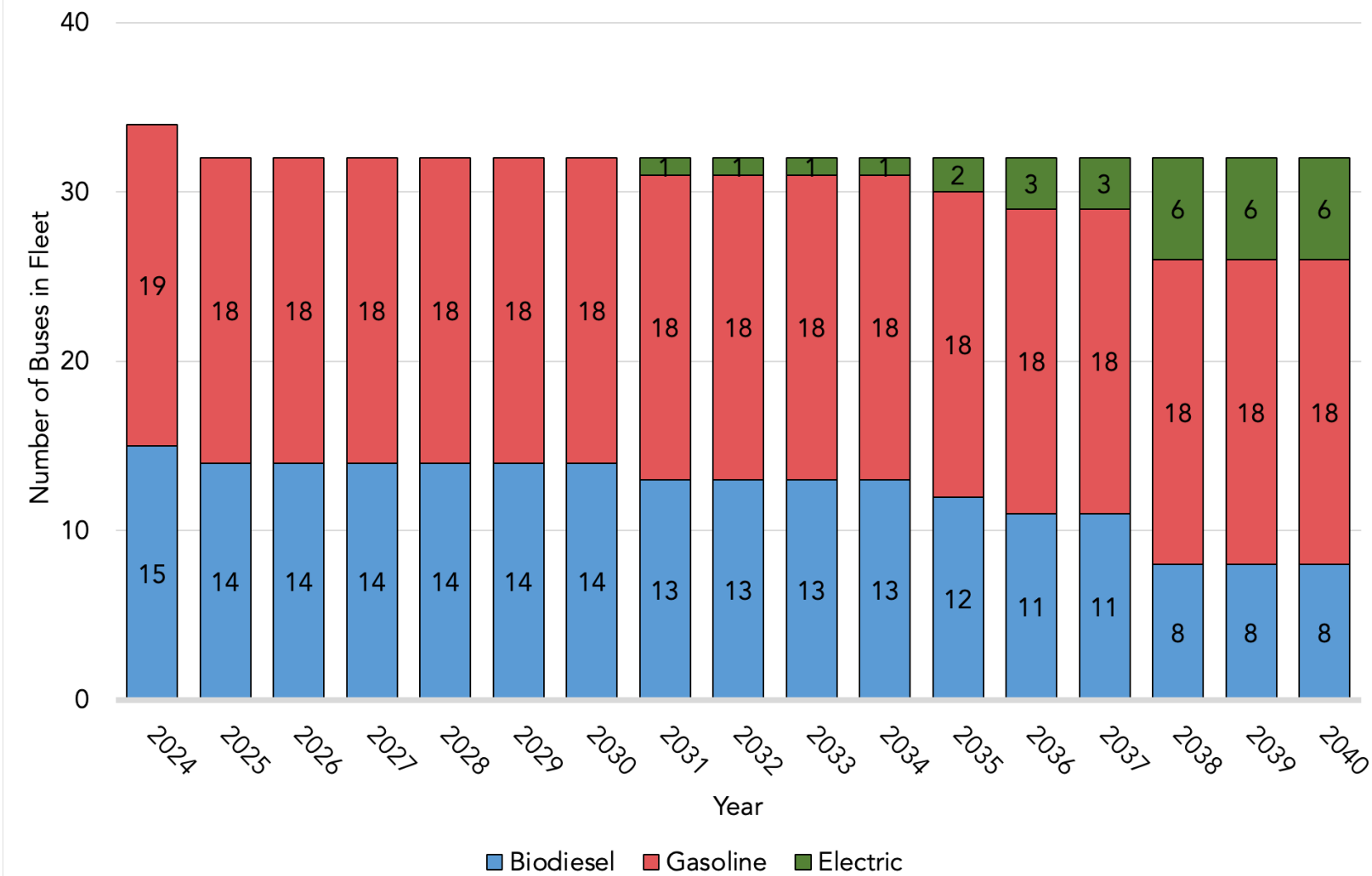
Procurement Phase-In Projection

BEB Depot Only



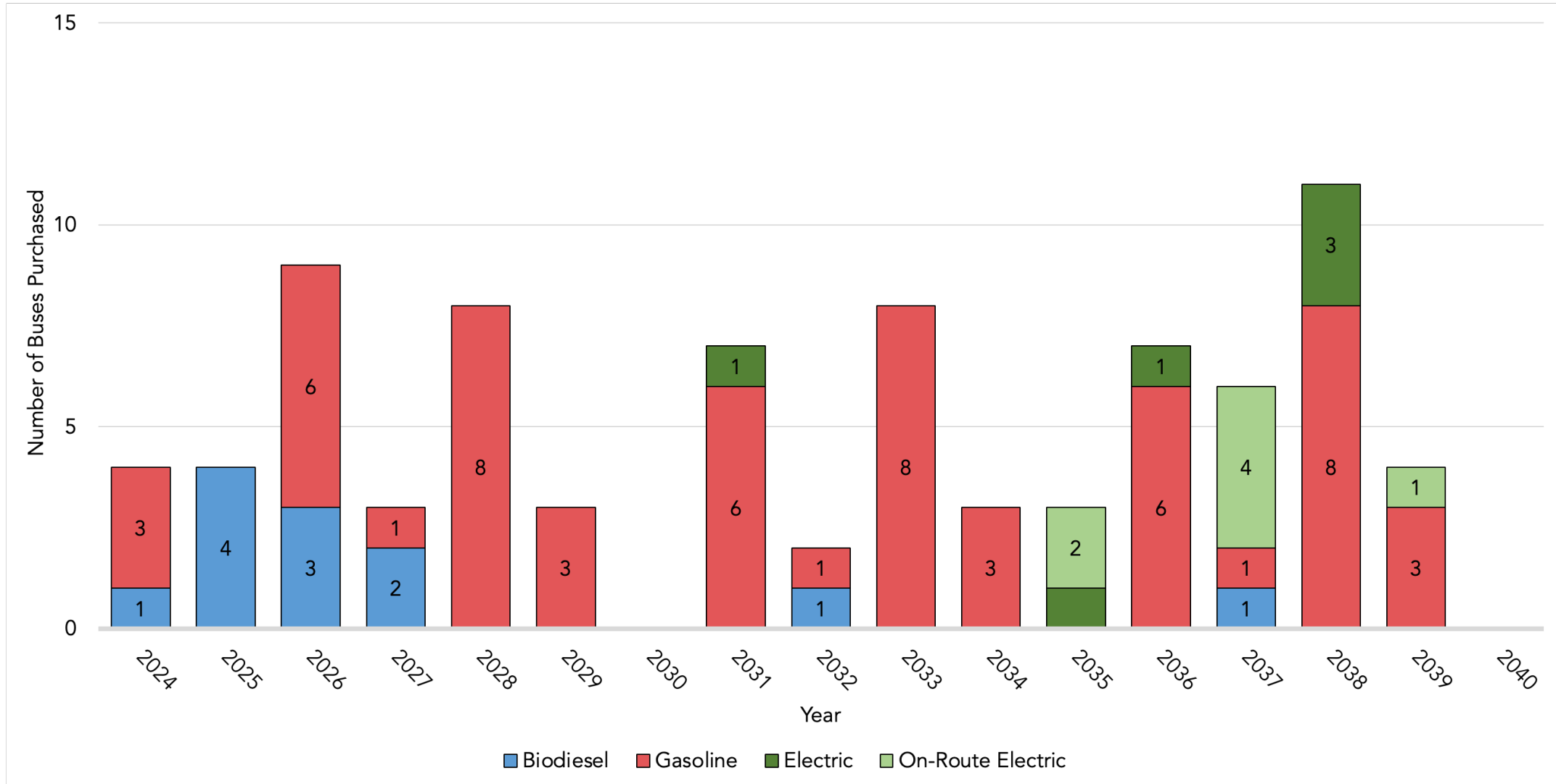
Fleet Composition

BEB Depot Only



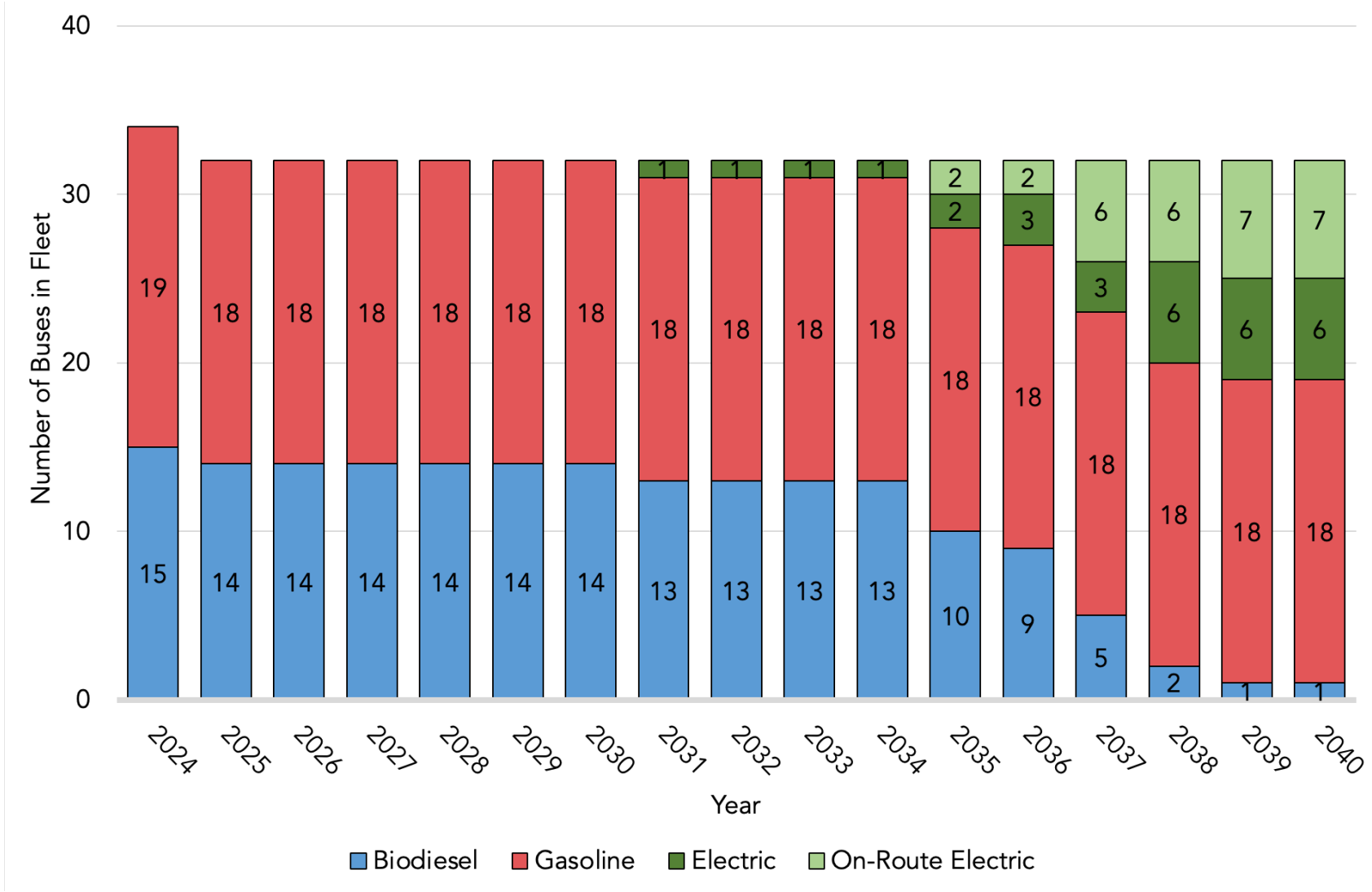
Procurement Phase-In Projection

BEB Depot and On Route



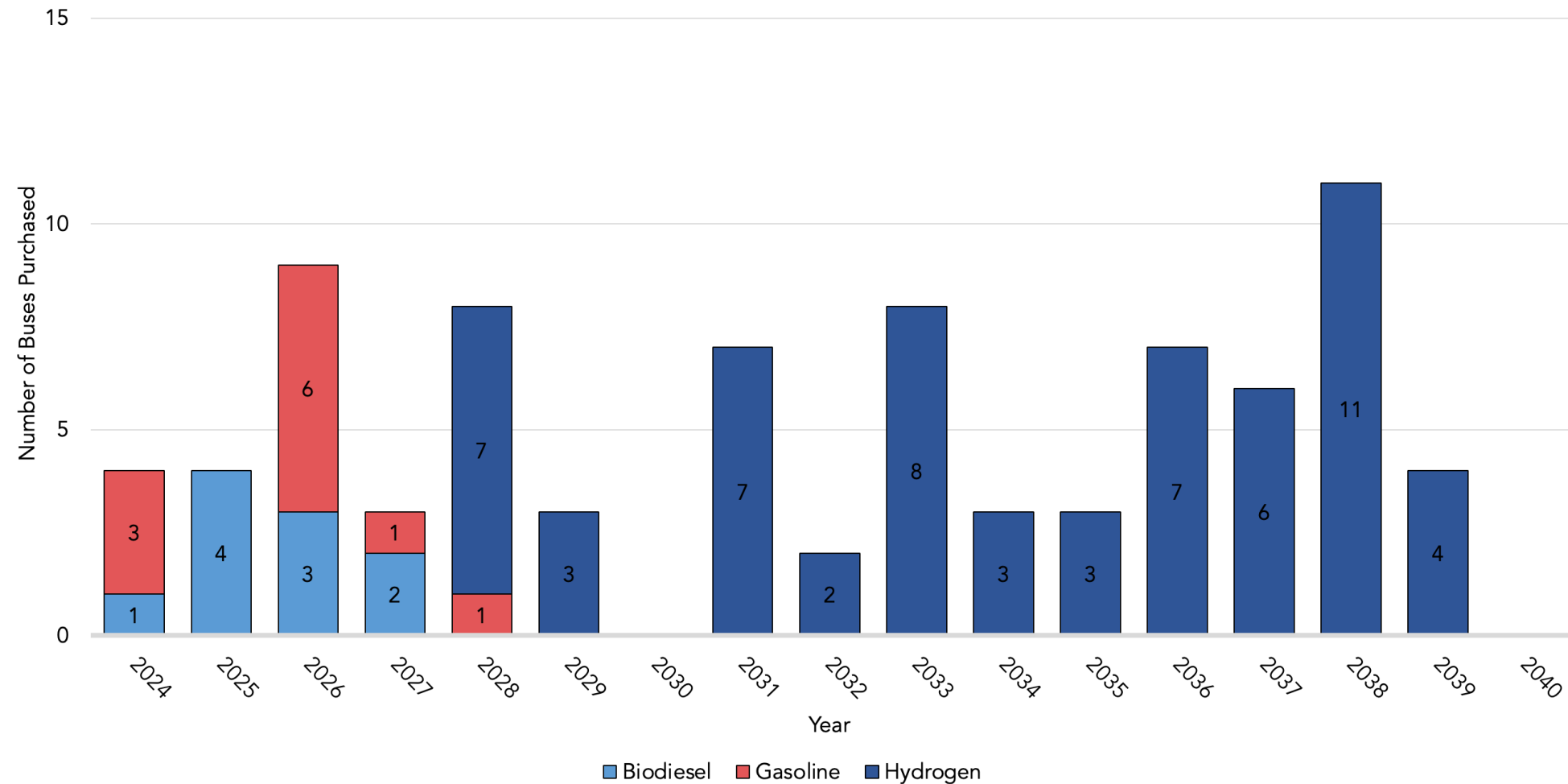
Fleet Composition

BEB Depot and On Route



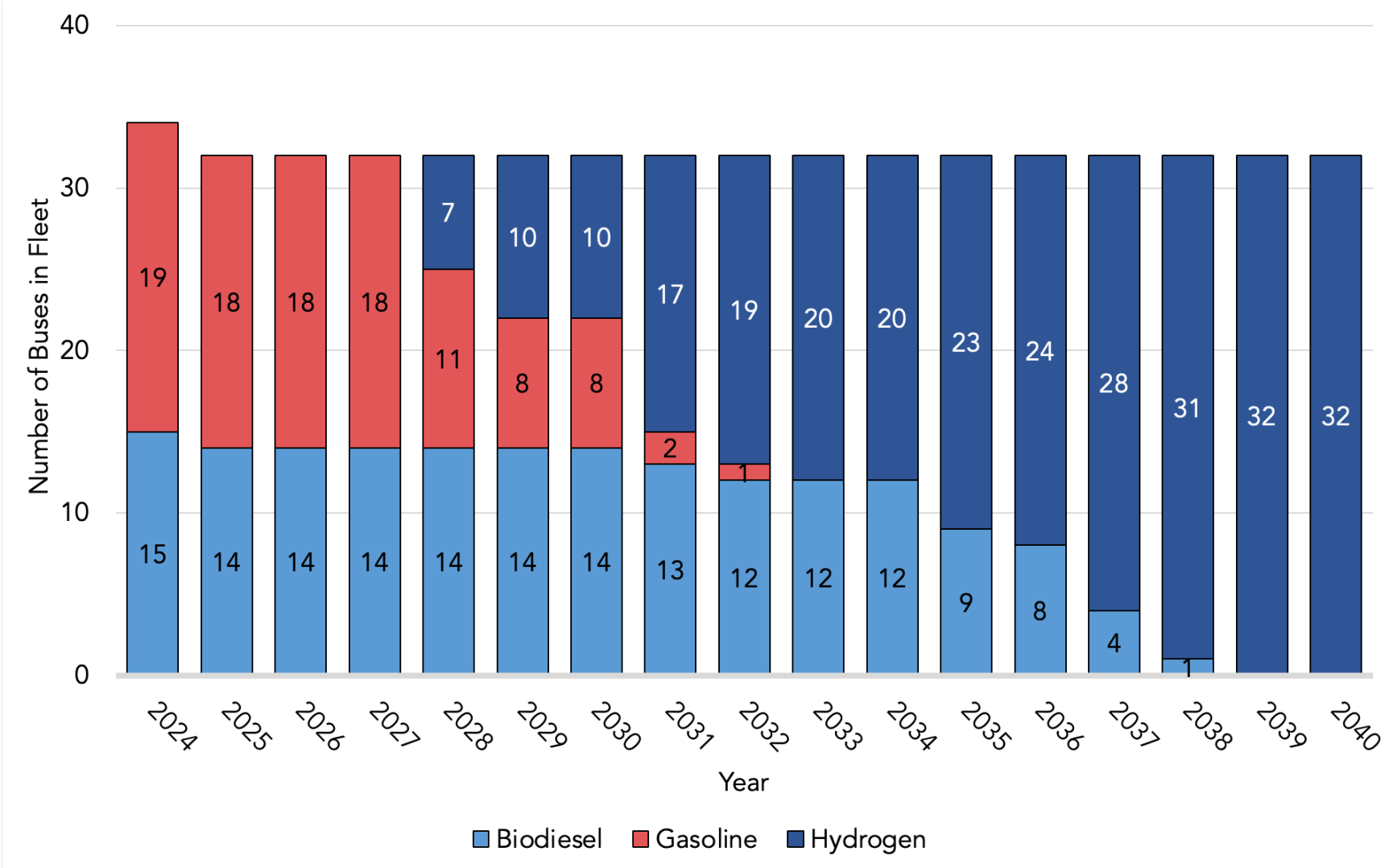
Procurement Phase-In Projection

FCEB Only



Fleet Composition

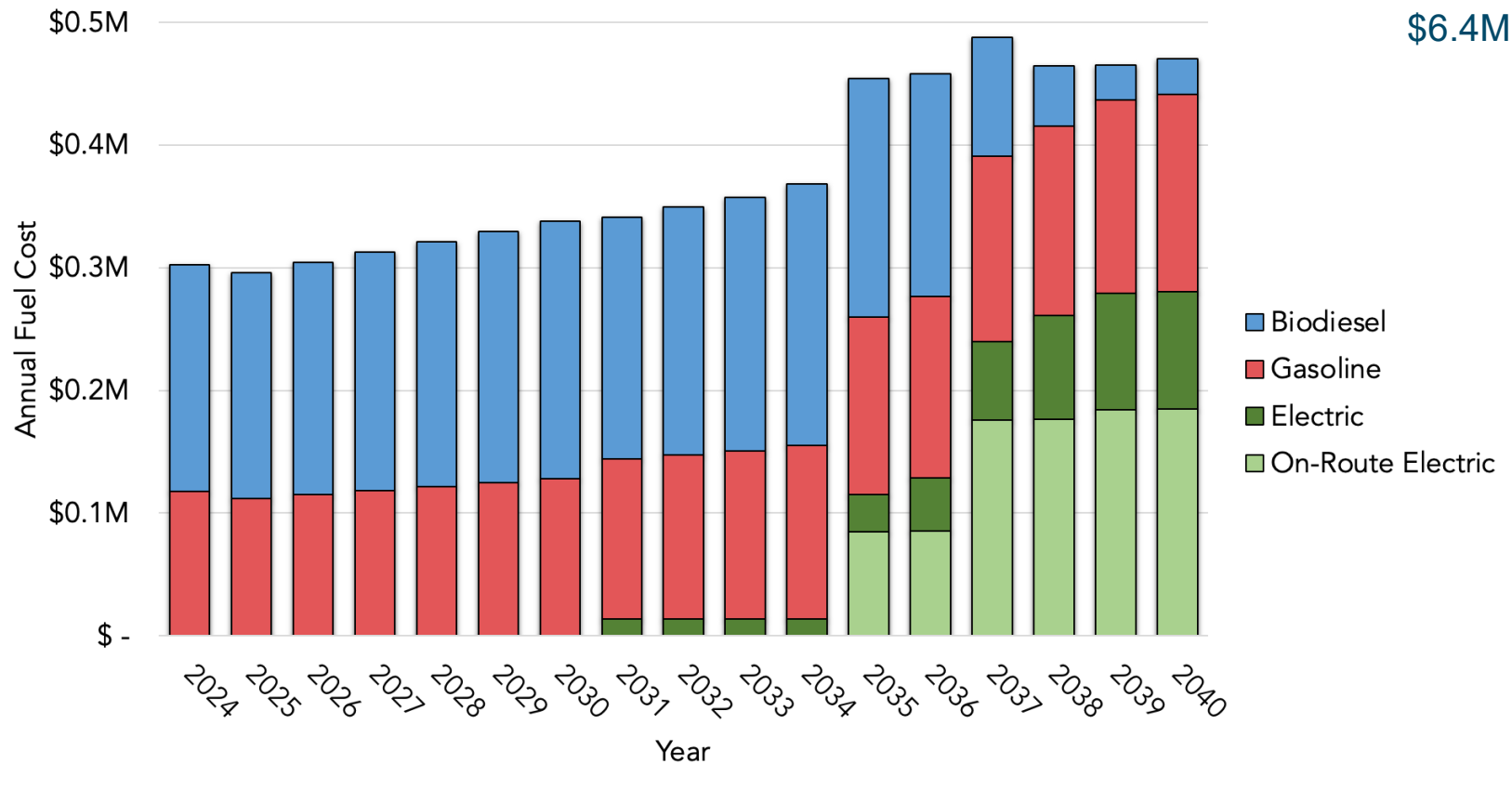
FCEB Only



Fuel Assessment

Annual Fuel Costs by Fuel Type

BEB Depot and On Route



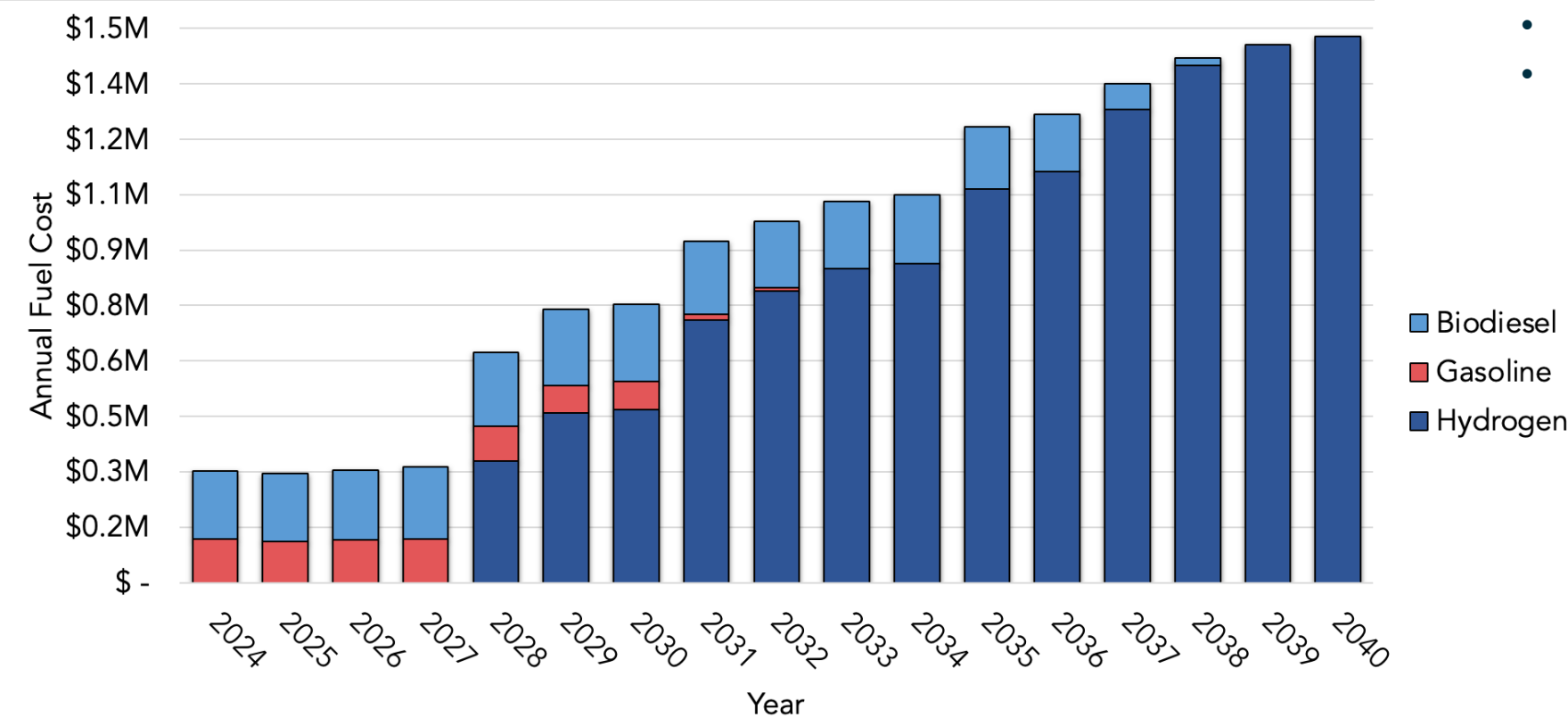
\$6.4M total expenditures from 2024-2040

- \$2.8M – Biodiesel
- \$2.3M – Gasoline
- \$469K – Electric
- \$891K – Electric (On Route)

Annual Fuel Costs by Fuel Type

FCEB Only

- \$15.5M total expenditures from 2024-2040
 - \$2.5M – Biodiesel
 - \$734K – Gasoline
 - \$12.3M – Hydrogen



Maintenance Assessment

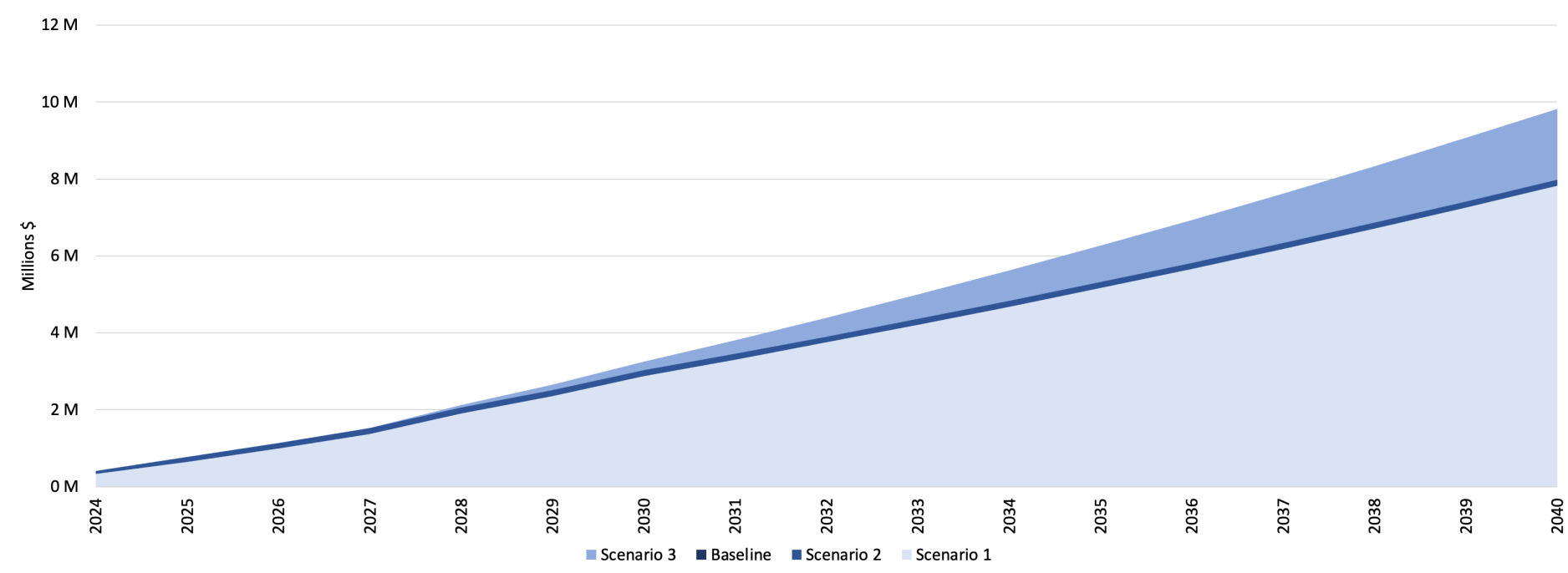
Maintenance Assessment Assumptions: Cost

Fuel Type	\$/mi	Source
Bio-Diesel	\$0.72	Mankato Maintenance Cost
Gasoline	\$0.33	Mankato Maintenance Cost
Electric	\$0.72	Equal to Bio-Diesel
Fuel Cell	\$0.56	Industry Average



Cumulative Comparison

All Scenarios

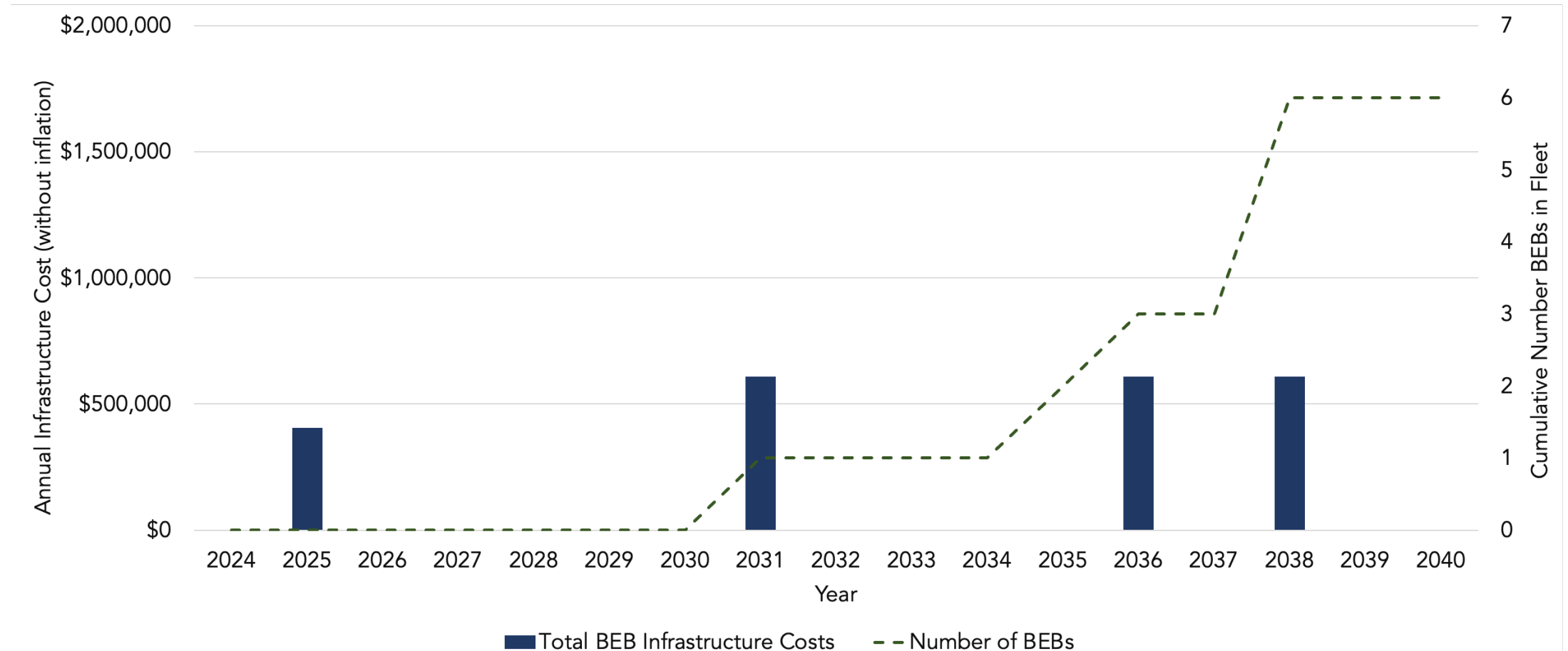


Costs	Baseline	ZEB Scenario 1 (BEB Depot)	ZEB Scenario 2 (BEB Depot & ORC)	ZEB Scenario 3 (FCEB)
Cumulative (\$)	\$8M	\$7.8M	\$8M	\$9.8M
Incremental over Baseline (\$)	-	-\$154K	-	+\$1.8M
% ZEB Fleet by 2040	0%	19%	41%	100%

Facilities Assessment

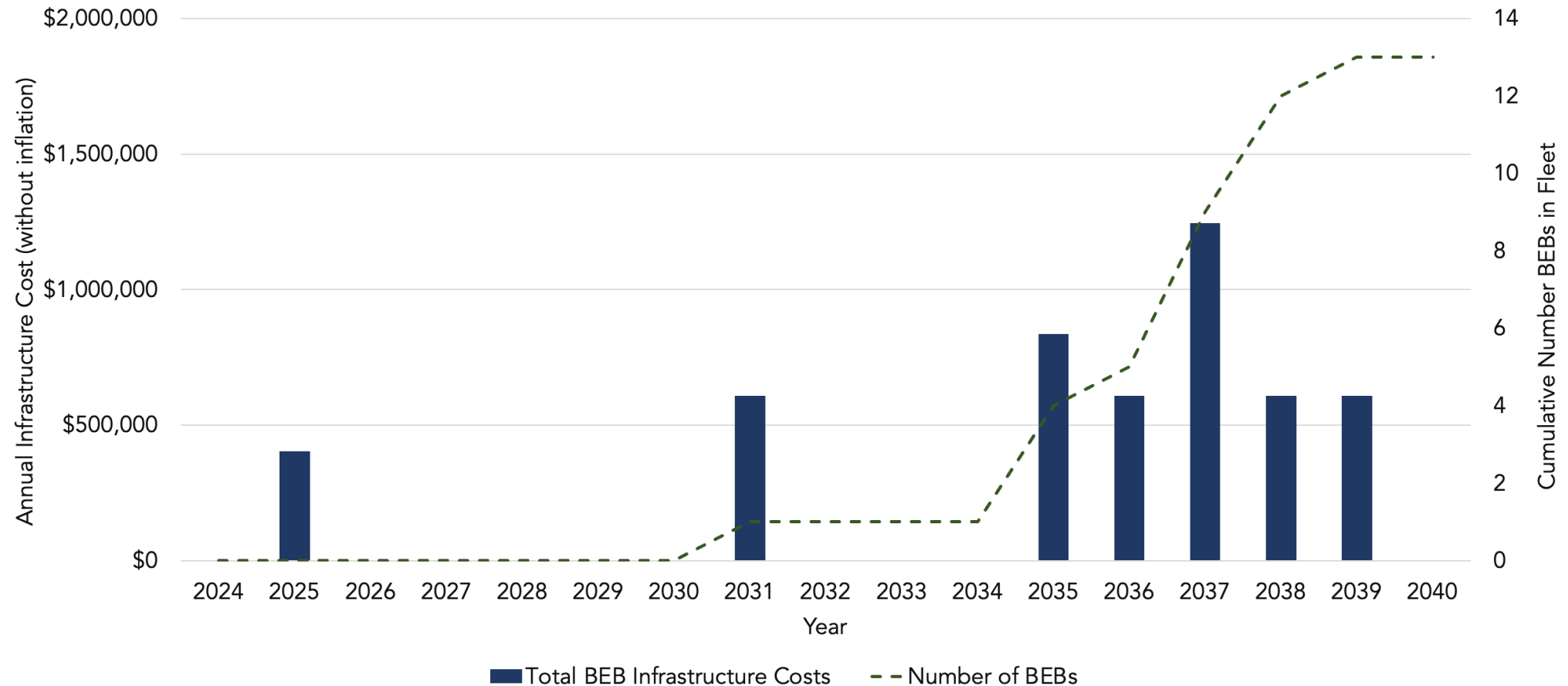
Facilities Assessment – Annual Costs

BEB Depot Only Scenario



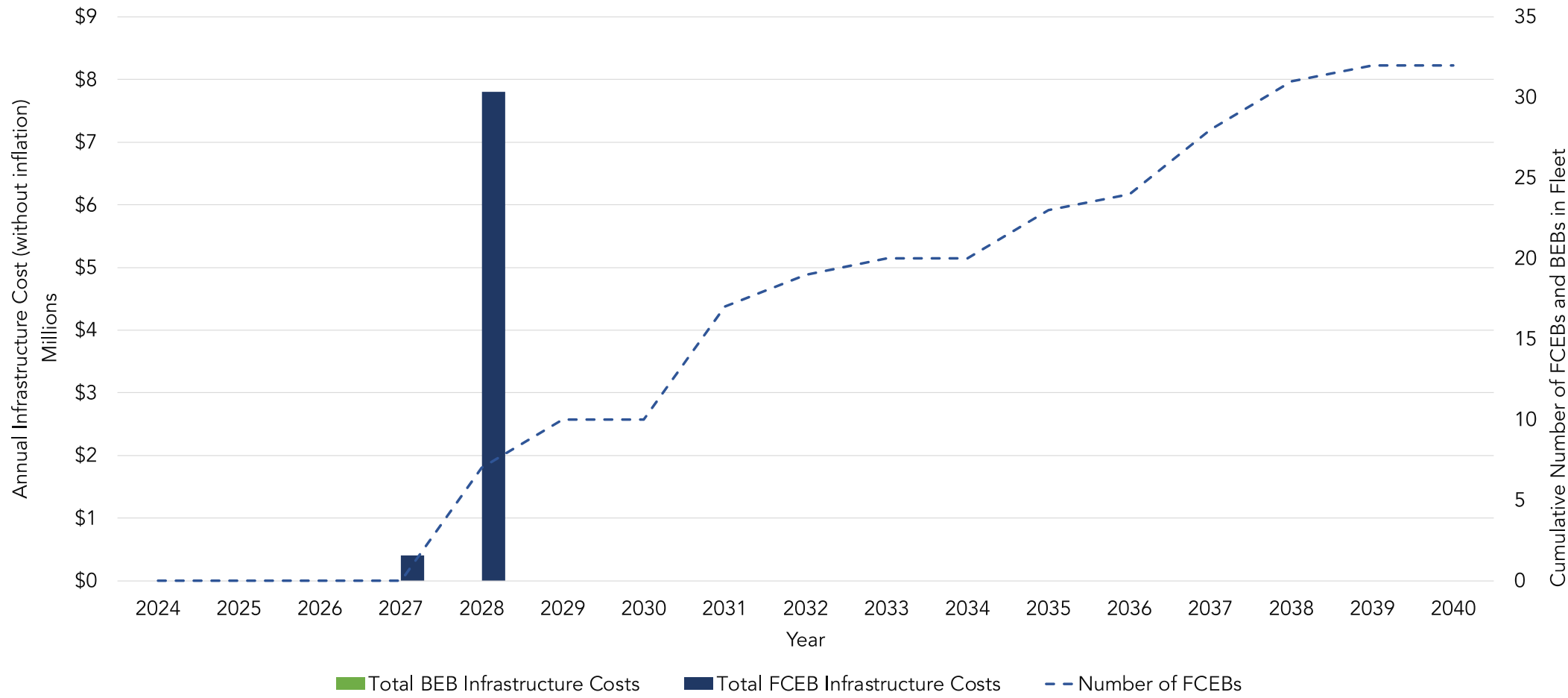
Facilities Assessment – Annual Costs

BEB Depot and On Route



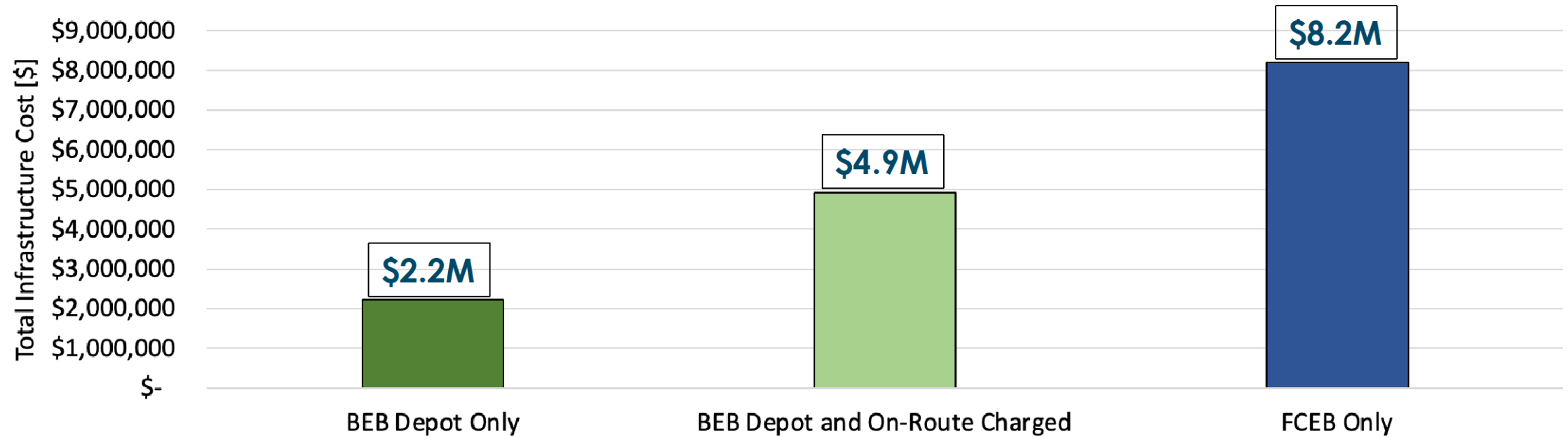
Facilities Assessment – Annual Costs

FCEB Depot Only Scenario



Cumulative Comparison

All Scenarios



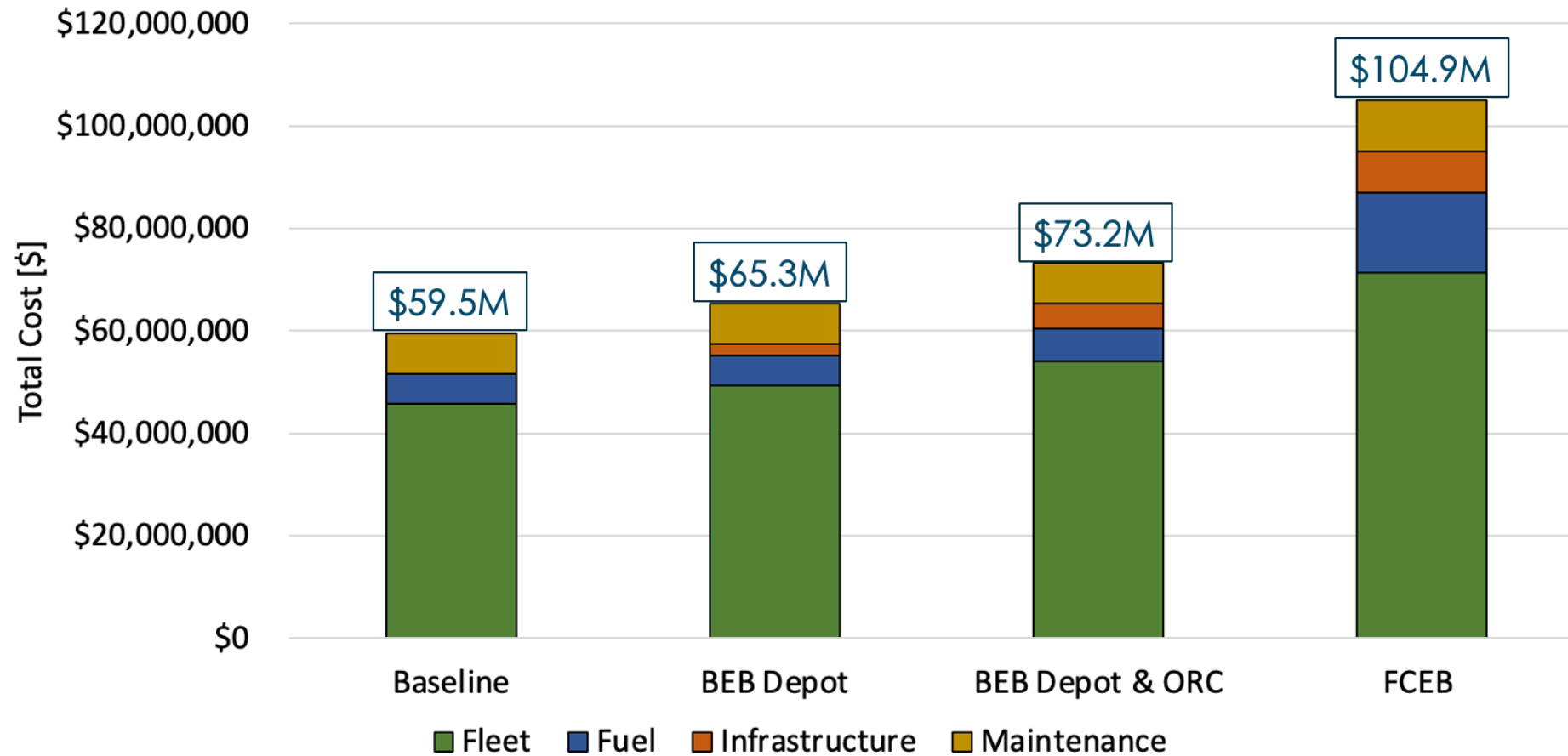
Total Cost of Ownership Assessment



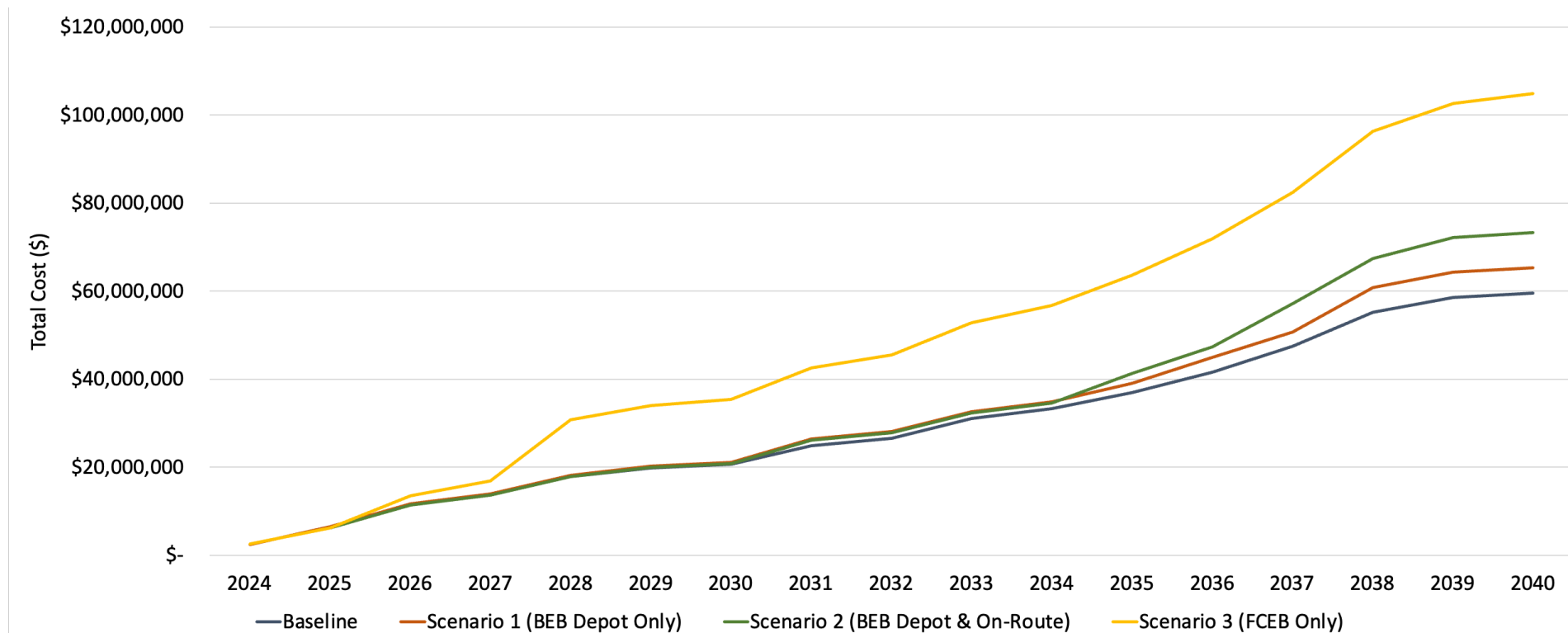
Total Cost of Ownership Assessment Methodology

- Compiles total cost results from Fleet, Fuel, Facilities, and Maintenance Assessments to show cumulative and annual costs through 2040
- Includes selected capital and operating costs of each fleet scenario
- Assumes no cost escalation or any cost reduction due to economies of scale for ZEB technology
- Future changes to Mankato's service level, depot locations, route alignments, and block scheduling were kept consistent

Total Cost of Ownership by Assessment Type



Total Cost of Ownership by Scenario



Total cost from 2024-2040:

- \$59.5M – Baseline
- \$65.3M – BEB Depot Only
- \$73.2M – BEB and ORC
- \$104.9M – FCEB Only



Total Cost of Ownership by Scenario and Assessment

Assessment	Baseline	ZEB Scenario 1 (BEB Depot)	ZEB Scenario 2 (BEB Depot & ORC)	ZEB Scenario 3 (FCEB Only)
Fleet	\$45,665,000	\$49,270,000	\$53,934,000	\$71,401,000
Fuel	\$5,904,000	\$5,930,000	\$6,422,000	\$15,521,000
Infrastructure	-	\$2,228,000	\$4,916,000	\$8,200,000
Maintenance	\$7,977,000	\$7,823,000	\$7,977,000	\$9,824,000
Total	\$59,546,000	\$65,251,000	\$73,250,000	\$104,946,000
Compared to Baseline	-	+\$5,705,000	+\$13,703,000	+\$45,400,000
% ZEB	0%	19%	41%	100%

Conclusion

BEB Depot Only scenario

- Total cost: \$65,251,000
- \$5,705,000 more than Baseline
- 19% ZEB fleet by 2040

BEB Depot and On Route Charged scenario

- Total cost: \$73,250,000
- \$13,703,000 more than Baseline
- 41% ZEB fleet by 2040

FCEB Only scenario

- Total cost: \$104,946,000
- \$45,400,000 more than Baseline
- 100% ZEB fleet by 2040

Recommendations

CTE recommends:

- Select a preferred scenario to refine and remain proactive with ZEB deployment grants
- Monitor local and regional developments
- Evaluate requirements for workforce and stakeholders
- Match the individual bus technology to the individual route and blocks

Thank you.

Questions?





AGENDA RECOMMENDATION

City Council Work Session

3.

Meeting Date: 05/27/2025

Agenda Item:

Update on Climate Action Plan

Recommendation/Action(s):

Information only.

Summary:

The Climate Action Plan is nearing conclusion. Staff will walk the Council through the Climate Action Plan presentation from the last engagement, provide any preliminary feedback received on the full document, and receive feedback from the Council.

Attachments

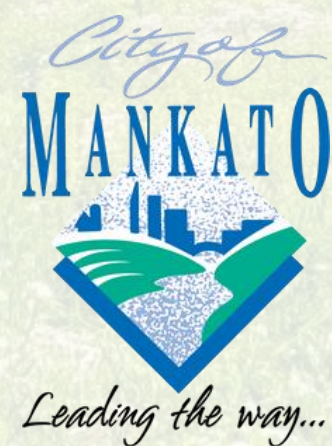
Climate Action Plan

CITY OF MANKATO

CLIMATE ACTION PLAN



www.mankatomn.gov



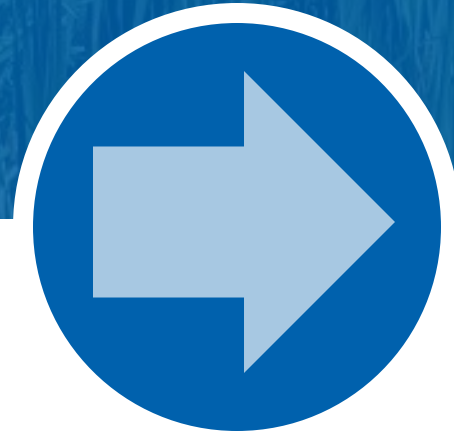
Climate Action Plan Stages



Awareness

Community Engagements:

- March 18
- April 21
- May 19



Consideration

- Community-proposed actions represent ideas based on perceived issues
- Further research required
- Evaluate to determine if aligned with Strategic Plan
- Clear priorities will be identified



Pilot

- Actions have potential viability
- Assess feasibility of implementing actions
- Actions warrant pilot phase



Program

- Actions expected to meet Climate Action Plan, Strategic Plan, Community Needs
- Reviewed for applicability and readiness to be implemented

Essential Services

25 essential services every city needs to function and thrive, especially in the face of climate change and growing inequality according to the United Nations Human Settlements Programme.

**Physical
Infrastructure**

**Cross-cutting
Services**

**Governance &
Planning**

**Environmental
Infrastructure**

**Social
Infrastructure**

UN-Habitat was developed by the UN General Assembly to promote socially and environmentally sustainable towns and cities.

PERIODIC TABLE OF BASIC URBAN SERVICES



Ws Water Supply	Sn Sanitation	Hs Health Services	Ed Education	Ps Public Safety
Sw Stormwater Management	Wm Waste Management	Sp Social Protection	Re Recreation (parks etc)	Cc Community Centres
En Energy	Hi Housing Infrastructure	Gi Green Infrastructure	Bi Blue Infrastructure	Aq Air Quality Monitoring
Tp Transport	ICT Information & Comms	Zu Zoning & Urban Land Use	Up Urban Planning	Es Ecosystem Services
Cs Climate Services	In Inclusion Services	Dr Disaster Risk Reduction Systems	Go Governance Infrastructure	Ft Financing Tools

Environmental Justice

RECOMMENDATIONS:

- Create Emergency Response Toolkit for residents to increase their emergency preparedness
- Develop communication plan to reach vulnerable populations with limited access to the internet, have language barriers or disabilities
- Create an accessible guide for vulnerable communities to access basic and emergency services
- Partner with community networks to test strategies that support vulnerable populations



Social Vulnerability Index

Socioeconomic Status

Below 150% Poverty

Unemployed

Housing Cost Burden

No High School Diploma

No Health Insurance

Household Characteristics

Aged 65 & Older

Aged 17 & Younger

Civilian with a Disability

Single-Parent Households

English Language Proficiency

Racial and Ethnic Minority Status

Hispanic or Latino (of any race)

Black or African American, Not Hispanic or Latino

Asian, Not Hispanic or Latino

American Indian or Alaska Native, Not Hispanic or Latino

Native Hawaiian or Pacific Islander, Not Hispanic or Latino

Two or More Races, Not Hispanic or Latino

Other Races, Not Hispanic or Latino

Housing Type and Transportation

Multi-Unit Structures

Mobile Homes

Crowding

No Vehicle

Group Quarters

Social Vulnerability

RECOMMENDATIONS:

- Evaluate transportation networks in highest vulnerability areas
- Evaluate access to critical services in highest vulnerability areas
- Identify food deserts characterized by lack of grocery stores and access to fresh foods

Critical Services and Critical Infrastructure

RECOMMENDATIONS:

- Identify critical infrastructure and conduct assessments to determine vulnerabilities
- Develop facility specific flood risk analysis
- Development plans to ensure critical facilities continue to provide vital services during and after extreme weather events
- Identify emergency shelters, including cooling and heating shelters

Parks - Recreation and Food Programs

RECOMMENDATIONS:

- Evaluate feasibility of a permanent Farmers' Market location, including four-season market
- Develop conservation plan for existing green spaces; open City owned land
- Develop a native species/desired species vegetation plan
- Evaluate potential partnerships with community groups to create vegetation planting, gardening and composting events/classes
- Support community farms, local food systems and food production programs
- Support cooking, pollinator friendly vegetation classes/workshops in libraries and neighborhood parks
- Re-evaluate the City's code of ordinances to allow urban chickens



Community Livability

A livable community is one with multiple modes of transportation, different types of housing and destinations located within an easy distance of homes.

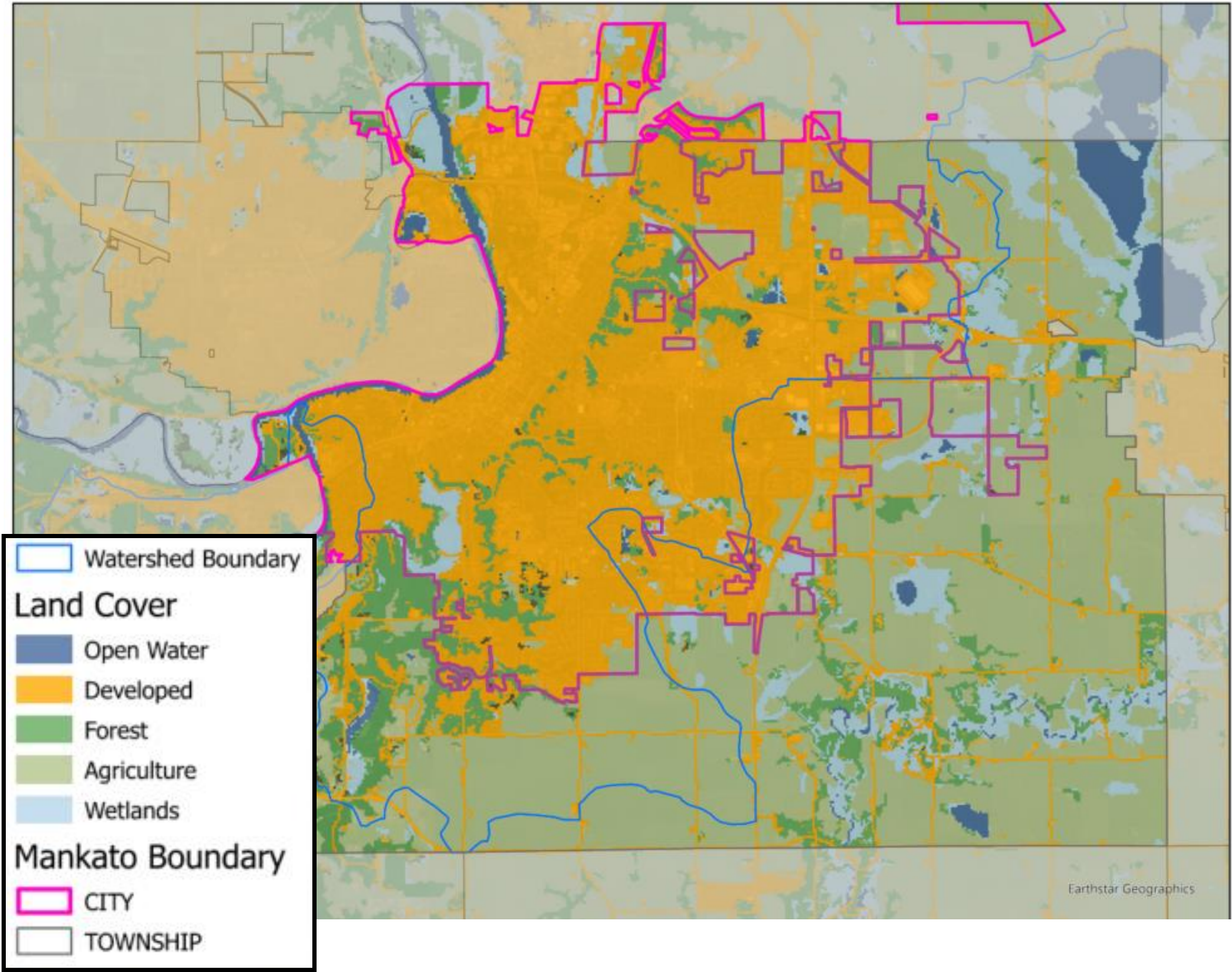
RECOMMENDATIONS:

- Develop a walkability plan for downtown and commercial districts
- Support affordable family home subdivisions
- Centralize economic development along high-use corridors such as Madison Avenue, Riverfront Drive and Stadium Road, developing walkability/bikeability plans
- Educate developers on potential grant funding sources for sustainable development practices

Land Use

Land use decisions directly affect community health and the environment. In Mankato, land use analysis tracks impervious surface (*hard surfaces that prevent water from soaking into the ground like roadways and sidewalks*) growth and its impact on natural resources.

Land Use by Type		
	Area (Acres)	Ratio %
City of Mankato	12,735	--
Impervious/Developed	9,209	72%
Wetland	628	5%
Open Water	281	2%
Forest	877	7%
Agriculture/Crop	1,681	13%



Land Use

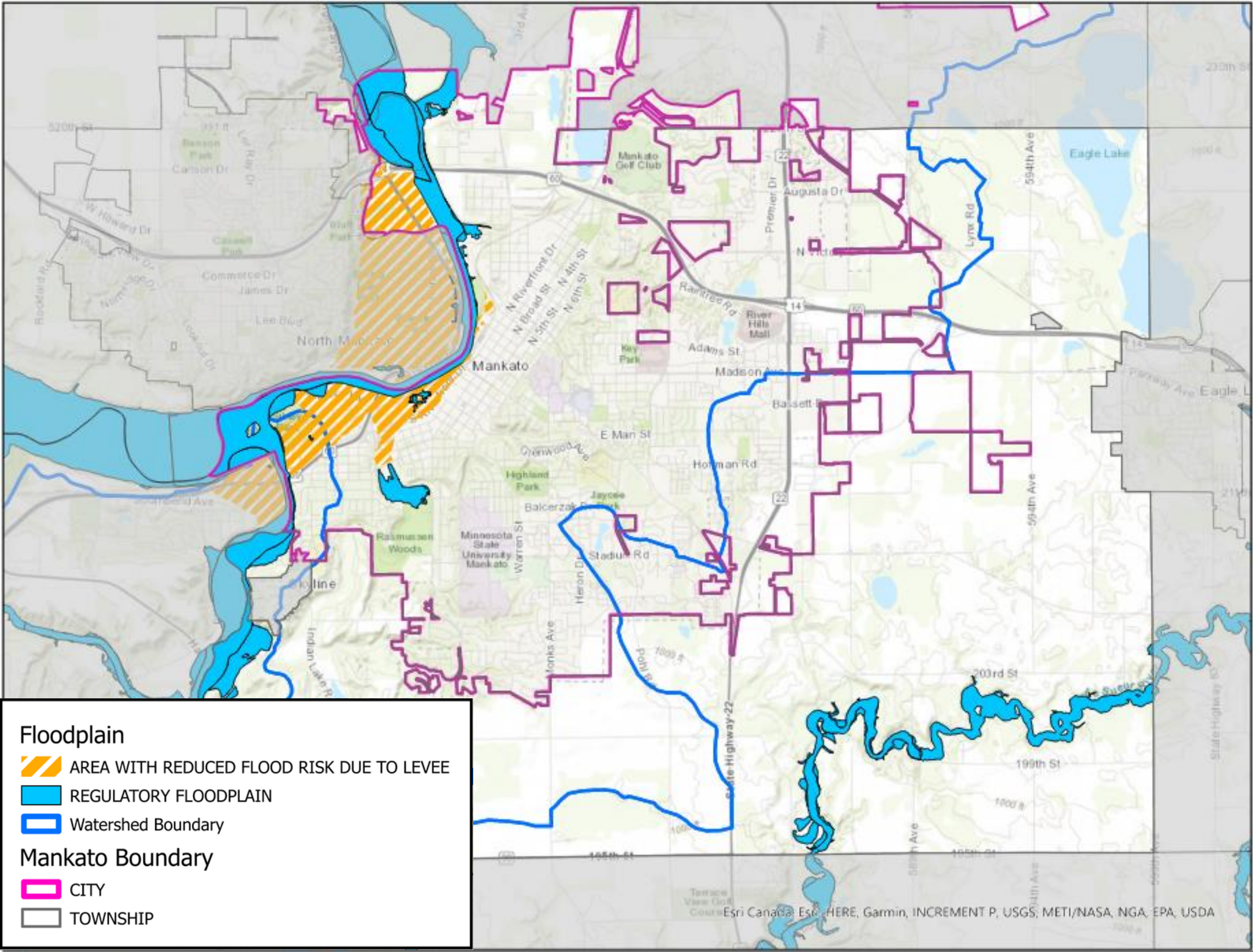
RECOMMENDATIONS:

- Continue to update protection and conservation methods, including limitations on new development within wetland, floodplains and forest areas
- Identify wetland, floodplain, and forest restoration opportunities
- Develop a Natural Resource Inventory to track gains and losses of wetlands, forest and open water
- Develop an inventory of City owned parking lots and buildings to evaluate impervious surfaces retrofit opportunities
- Increase urban tree and prairie planting density, using natural ecosystem services to capture carbon and reduce heat island effects

Floodplains

Floodplains are analyzed based on the National Flood Hazard Layer provided by FEMA. The data has been used to understand the level of flood risk and type of flooding in each area.

Floodplains		
	Area (Acres)	Ratio %
City of Mankato	<u>12,739</u>	==
Minnesota River Regulatory Floodplain	<u>658</u>	<u>4%</u>
Area with reduced flood risk due to Levee	<u>490</u>	<u>5%</u>



Floodplains

RECOMMENDATIONS:

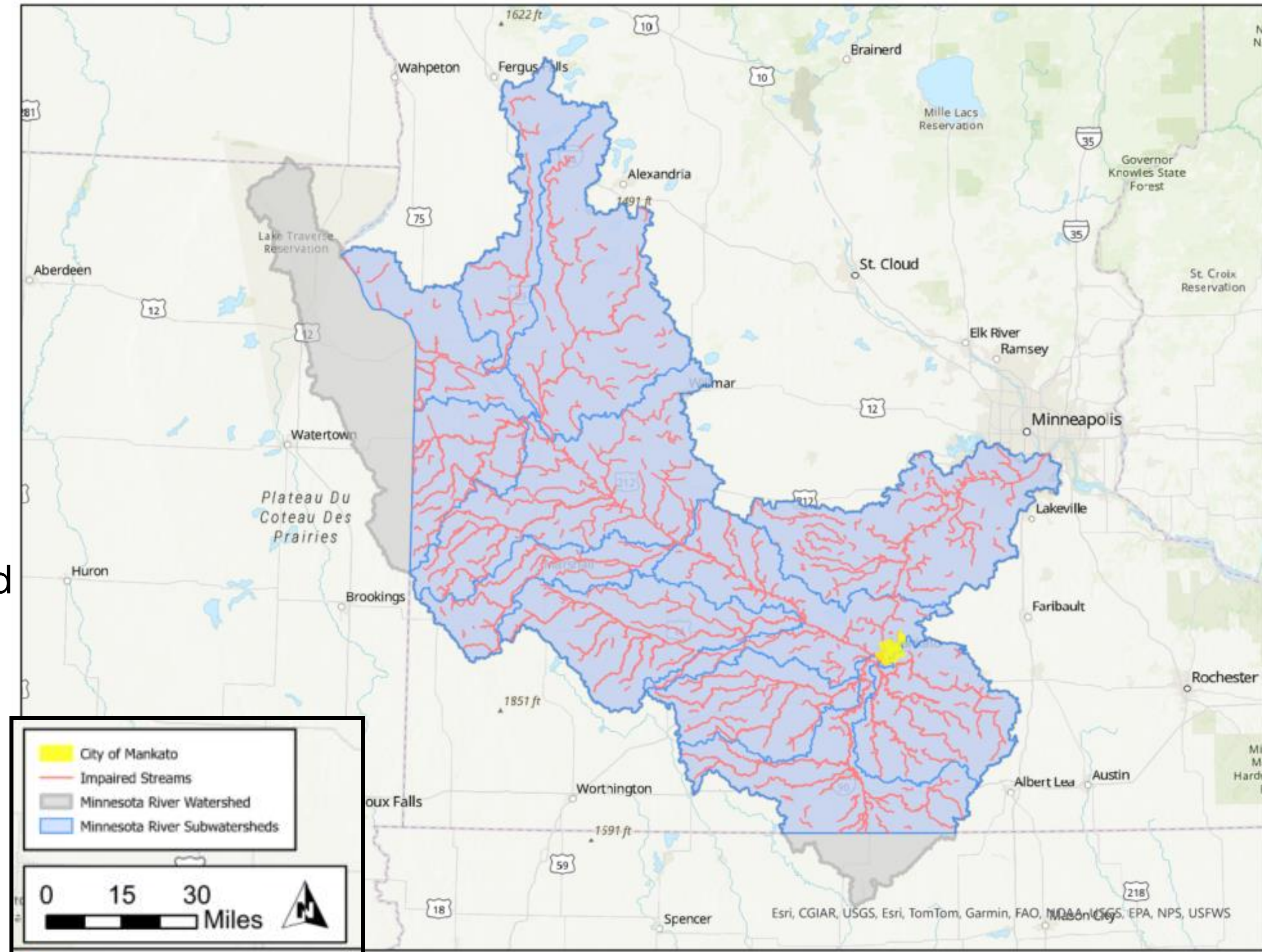
- Analysis of riverine floodplain restoration opportunities within the City, including stream buffers, stream bank erosion mitigation and ecological habitat enhancement
- Incorporate floodplain restoration into stormwater management projects
- Evaluate opportunities on City owned land and properties within the floodplain
- Inventory infrastructure within regulatory floodplains and vulnerability analysis.
- Expand existing stormwater retention areas within floodplains and heavily developed areas

Water Management

Minnesota River Watershed

- 860,000 Acres
- 1,564 Miles of Streams

The watershed is diverse in landscape, topography and land use. As such the goals and values of water quality vary across the watershed, making consensus a challenge.



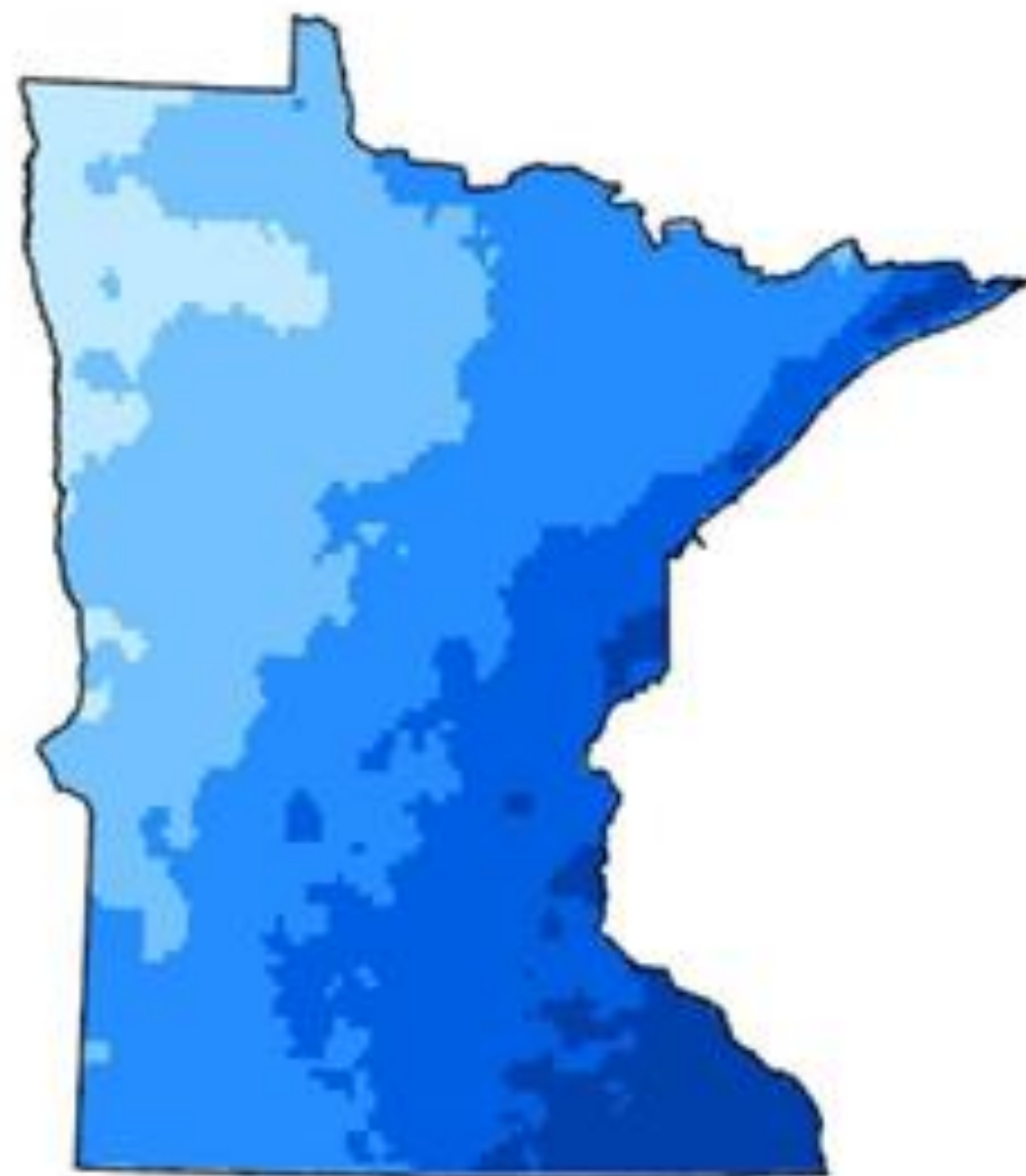
Water Quality and Wetlands

RECOMMENDATIONS:

- Analyze water quality parameters to identify best management practices as part of watershed specific and permanent stormwater management projects and improvements
- Seek partnerships with local soil and water conservation groups to educate landowners to implement agricultural and urban best management practices
- Consider a rate differential for irrigation water to discourage unnecessary water usage
- Wetland analysis to identify wetland restoration opportunities
- Continue to seek funding for implementation of the South Mankato wetland restoration project



Projected Difference in Annual Average Precipitation by End-of Century (2080 - 2099)



Intermediate Emissions Scenario
(SSP 245)



Very High Emissions Scenario
(SSP 585)

Difference (in.) from Historical Simulations (1994-2014)



**Stormwater
Management
Green and Blue
Infrastructure**

Stormwater Management

RECOMMENDATIONS:

- Develop a stormwater resilience plan that includes analysis of existing infrastructure, vulnerability assessment, flood risk analysis, climate projections
- Incorporate stormwater reuse and bioretention practices in City owned facilities and properties
- Build water storage into City parks and lands including rain gardens, vegetated swales, bioretention cells
- Integrate green infrastructure into roadways and street reconstruction projects
- Improve soil health by reducing use of nutrients, fertilizers and herbicides
- Re-evaluate code of ordinance to diversify lawns and increase native vegetation (trees, shrubs, vegetables and flower gardens)

Green and Blue Infrastructure

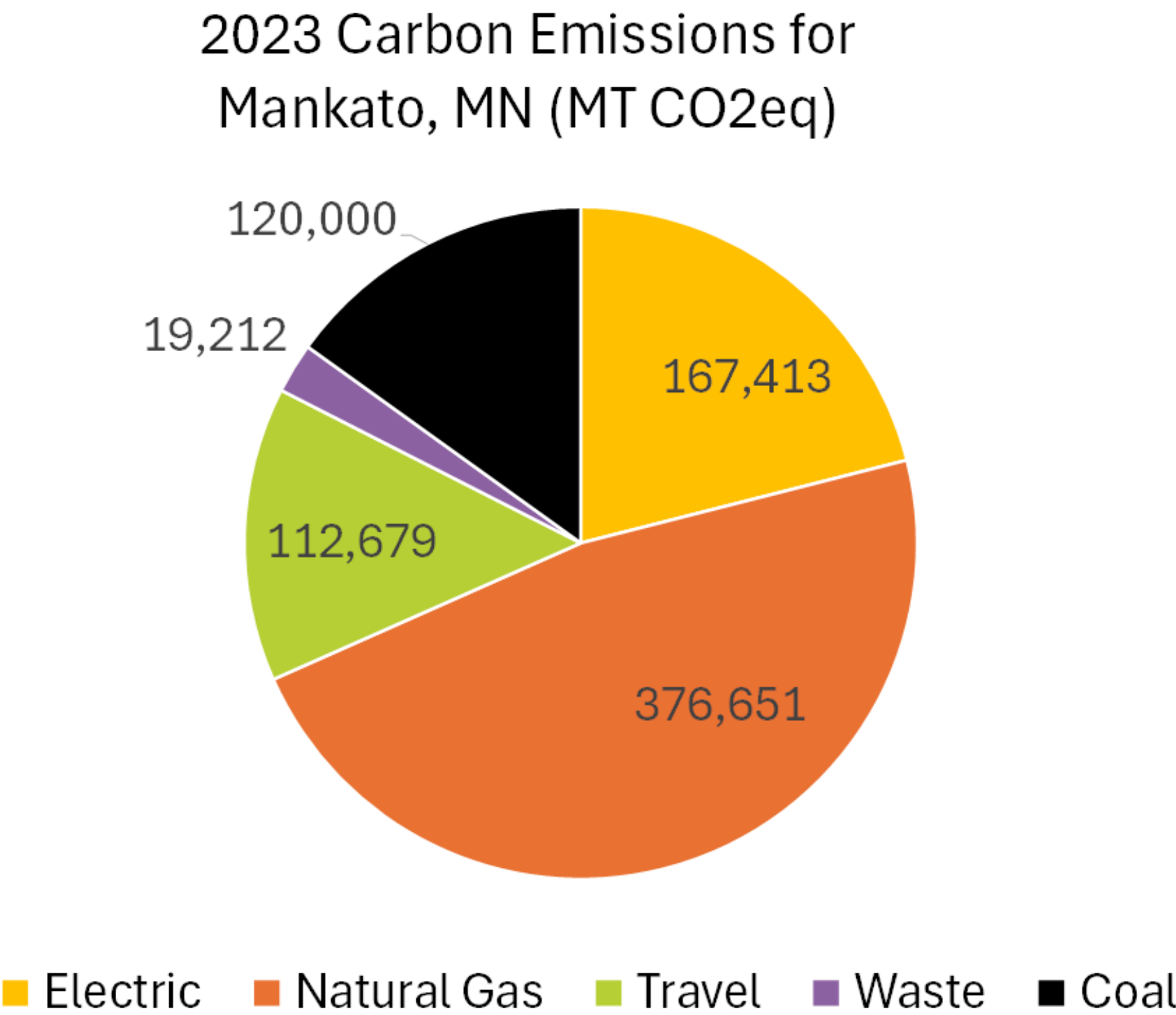
RECOMMENDATIONS:

- Integrate vegetation and urban trees into roadways and street reconstruction projects
- Integrate tree trenches into street and parking lot development and redevelopment projects
- Replace mowed grass areas along City streets and roadways with native vegetation including wildflowers, providing habitat for pollinators
- Evaluate bus stops tree coverage and integrate tree planting with Transportation Improvement Plan

Greenhouse Gas Emissions

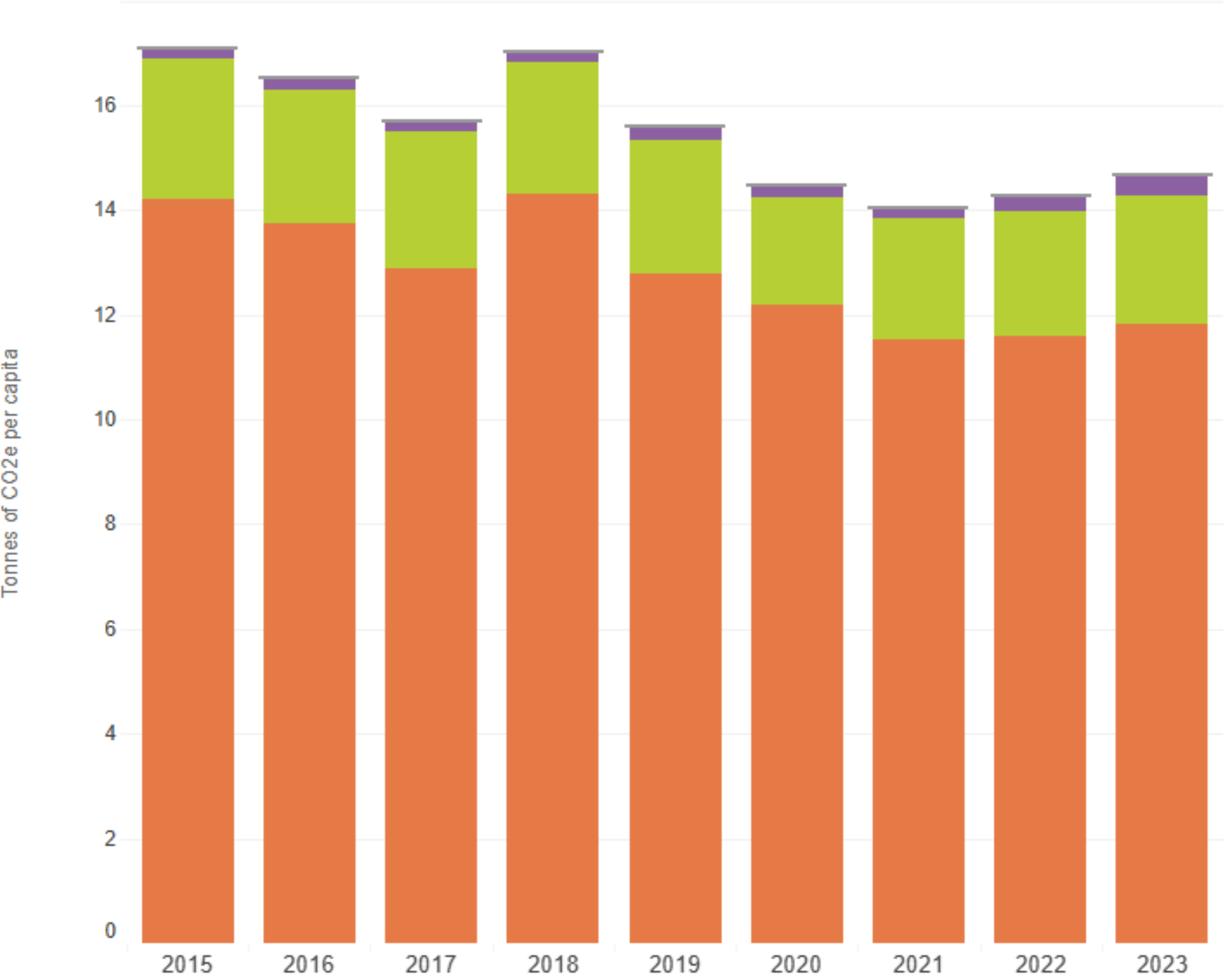
We reviewed historical, current emission inventories, their trends and community comments.

Note: 2023 was the last complete year that coal was used in Mankato.



Greenhouse Gas Emissions

community-wide greenhouse gas emissions from building energy, vehicle travel, and the management of municipal solid waste



Key

 Waste

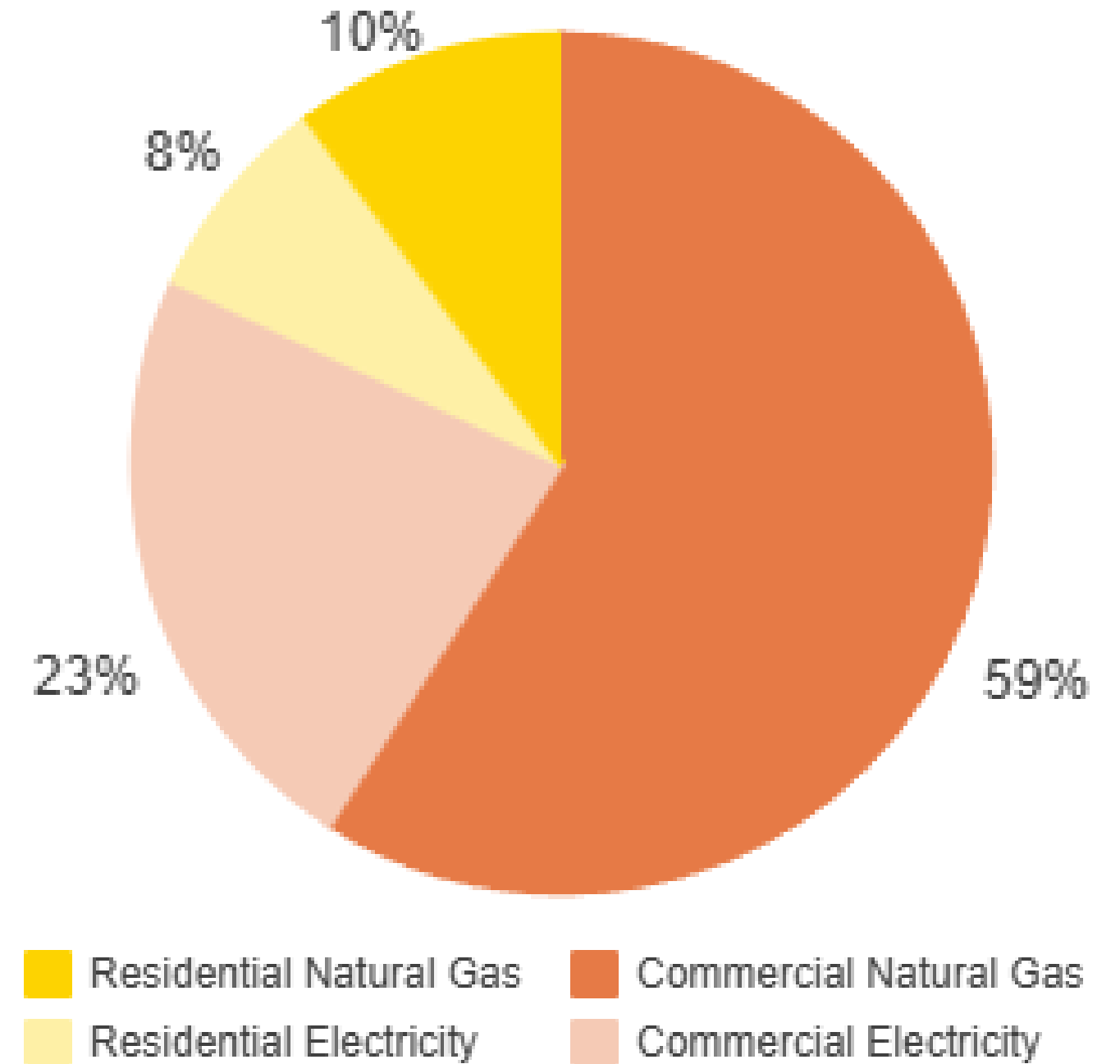
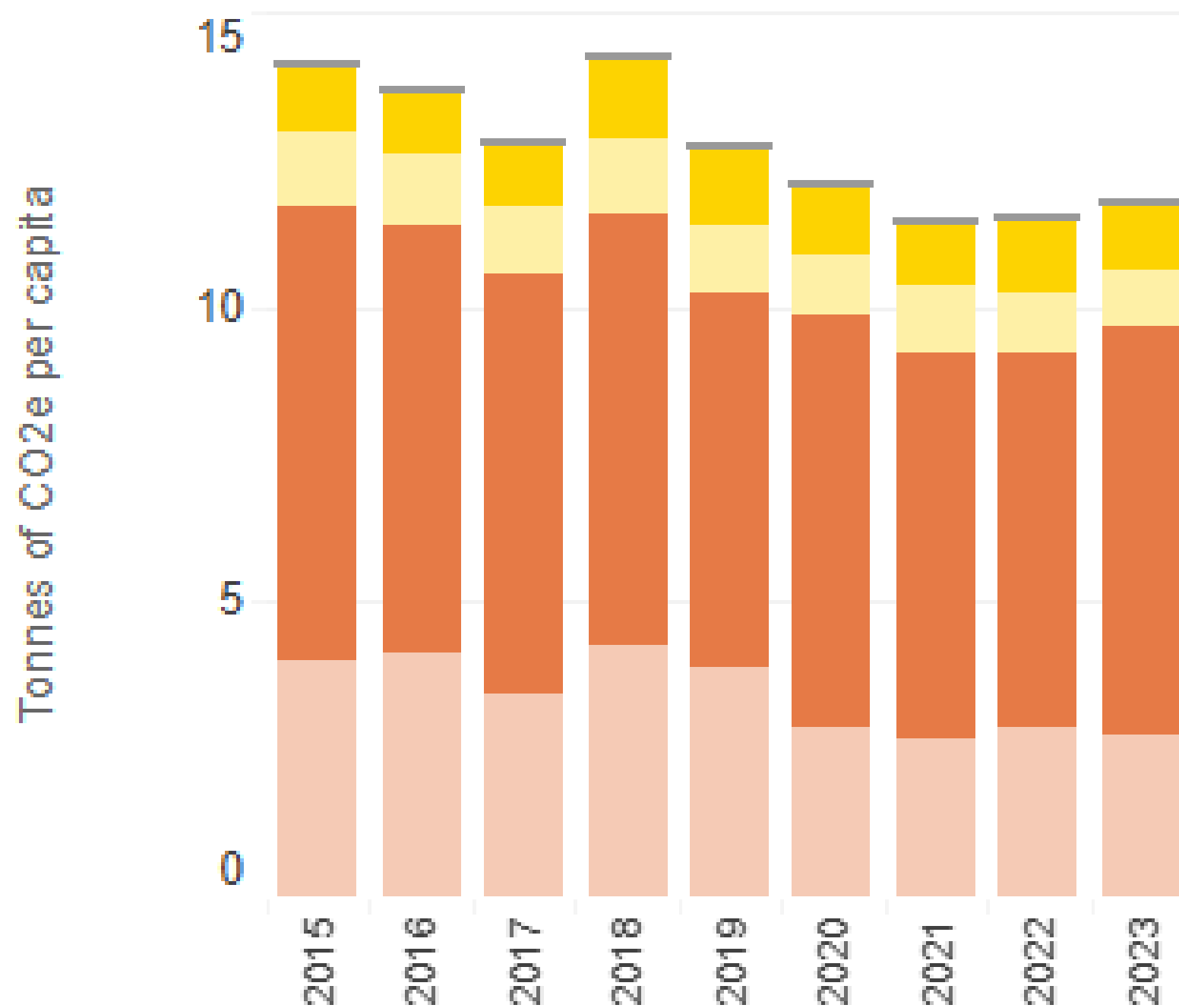
 Travel

 Energy



**The Regional Indicators Initiative provides local governments and community members with city-wide data and tools to inform their climate planning and action.*

Energy Emissions

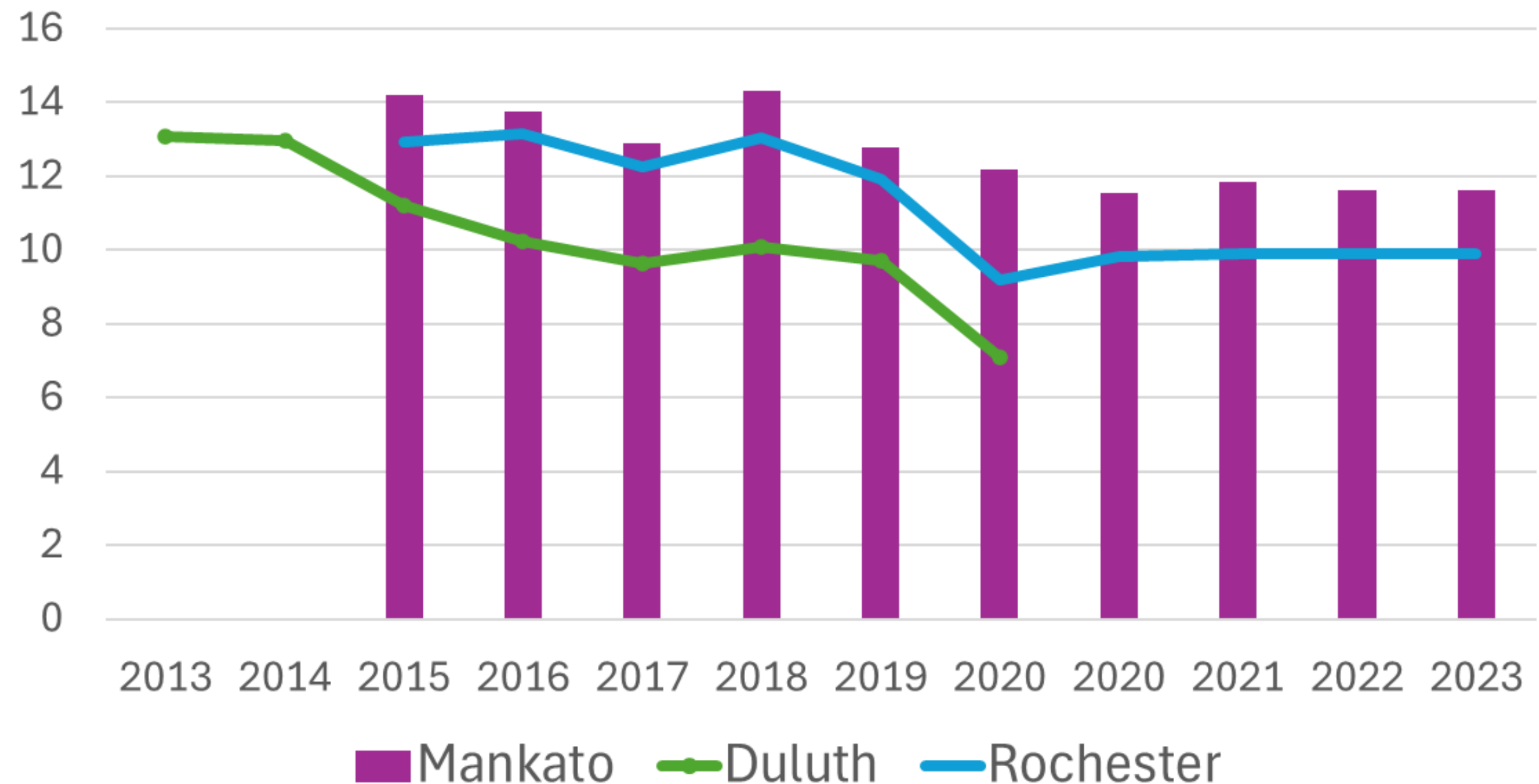


- Residential gas use up about 10%
- Residential electric use down about 10%
- Commercial gas use unchanged
- Commercial electric use down 25%

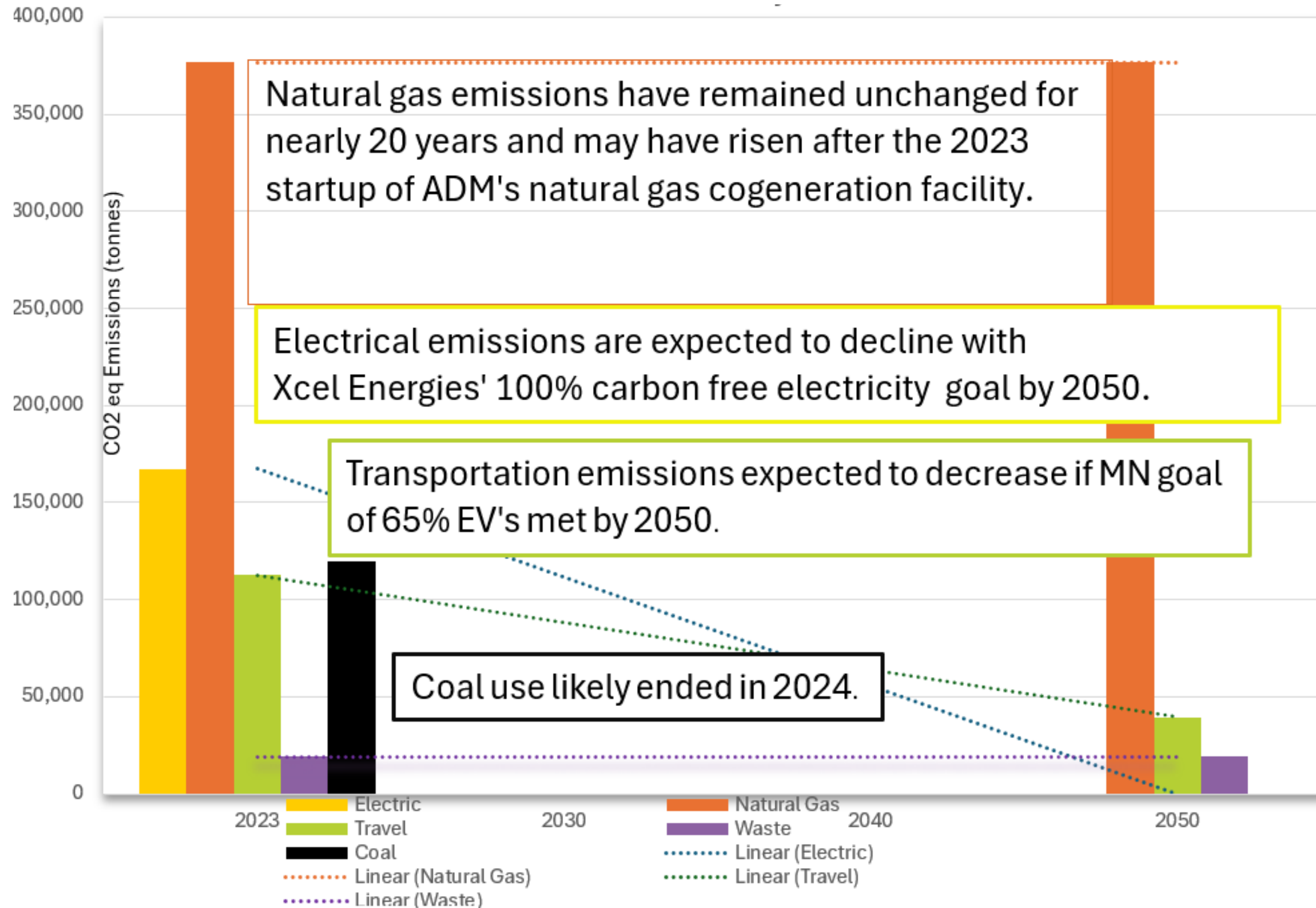
Energy Emissions

- **Mankato** trends similar to Duluth and Rochester
- **Mankato** *decreased* energy emissions about **10%** since 2015

City of Mankato Emissions Trends
Compared with Similar Minnesota
Communities (MT/Person/Yr)



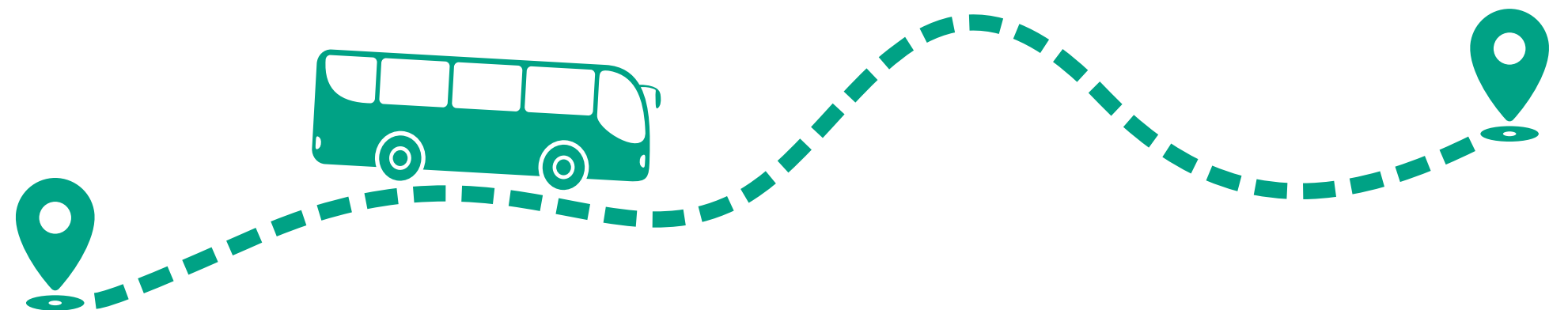
Mankato Emission Projections



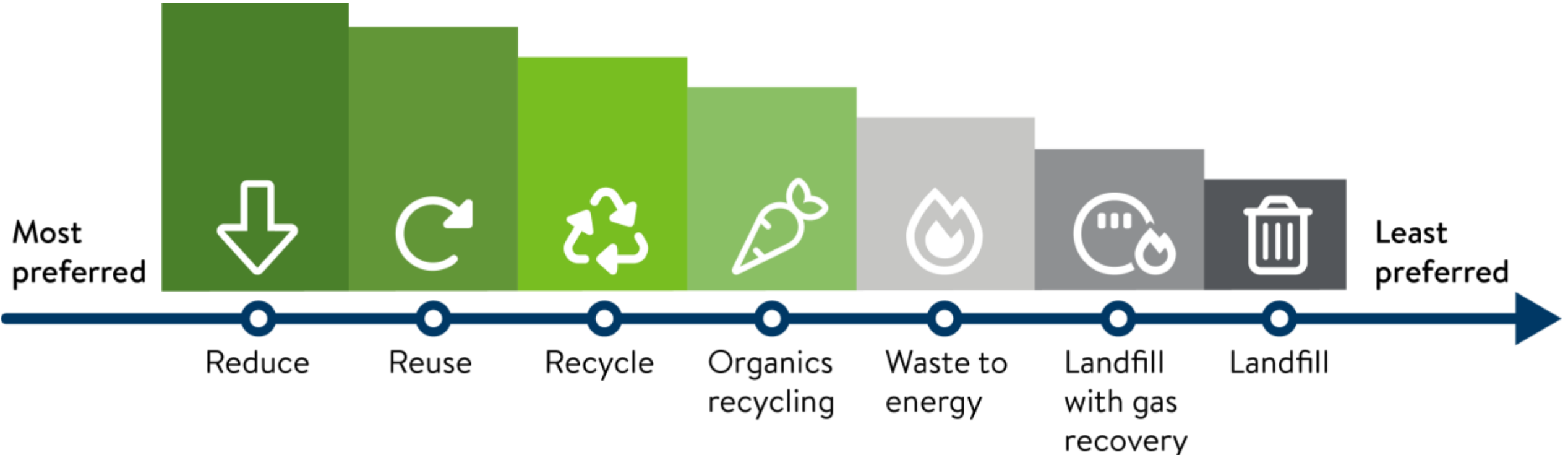
Energy Emissions

RECOMMENDATIONS:

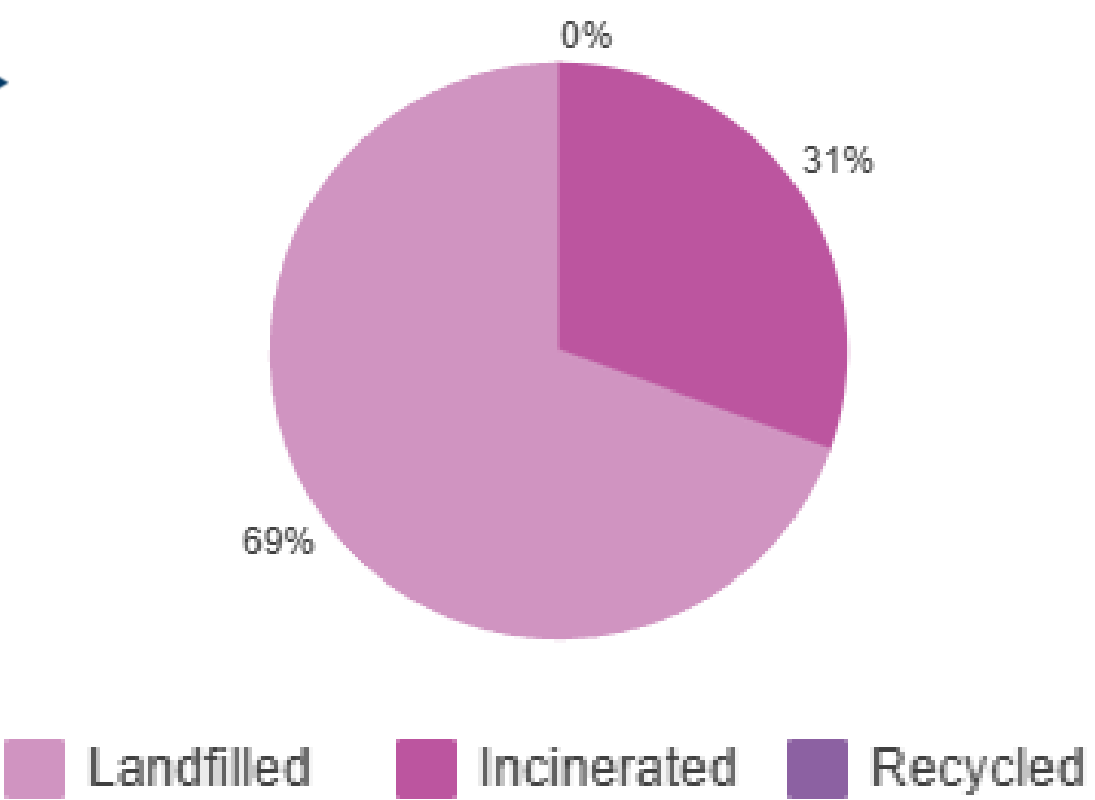
- Continue identifying funding opportunities to enhance the City's fleet with alternative energy vehicles
- Improve energy efficiencies of existing buildings and systems as budgets allow through equipment and management software upgrades
- Consider updating City ordinances regarding acceptable use of "last mile" transportation alternatives
- Consider development of sustainable materials procurement plan which can reduce the impact of material procurement, use and re-use/disposal



Minnesota's Waste Management Hierarchy



Management of municipal solid waste generated within City boundaries

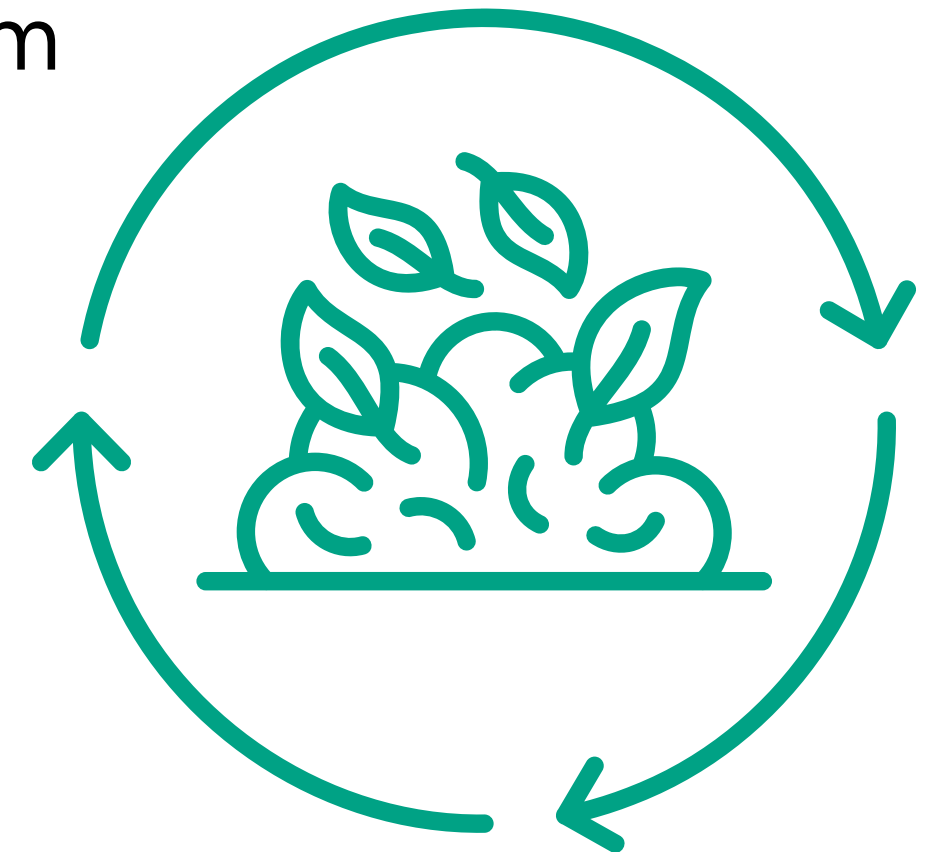


NOTE: 0% recycled due to recyclables processed outside City limits

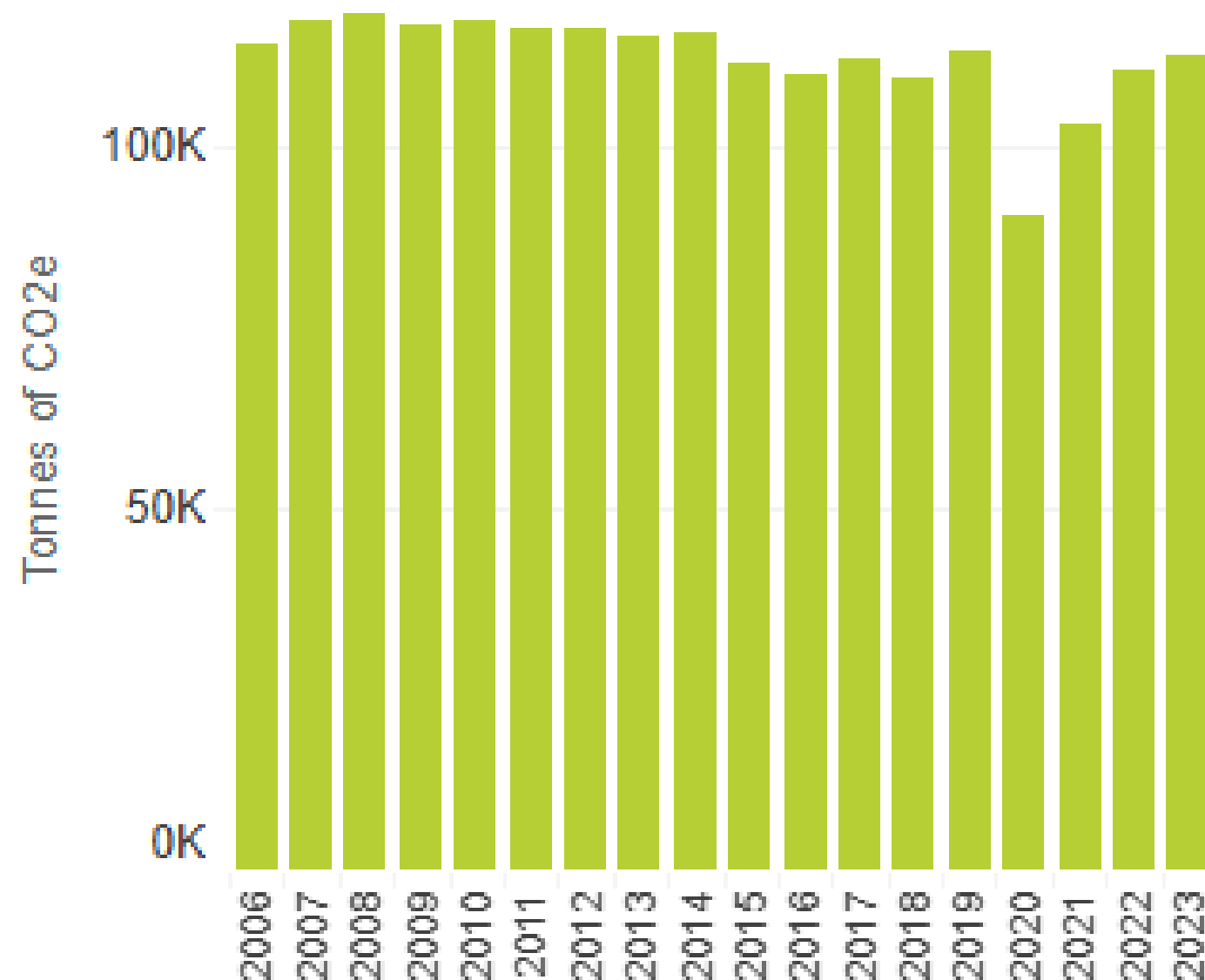
Waste Management

RECOMMENDATIONS:

- Identify local initiatives to increase participation in recycling programs
- Educate community on effects of using single use plastic bags and Styrofoam
- Evaluate additional options for community composting programs
- Continue supporting Blue Earth County compost bin program



Transportation



In-town travel in Mankato has returned to pre-pandemic levels

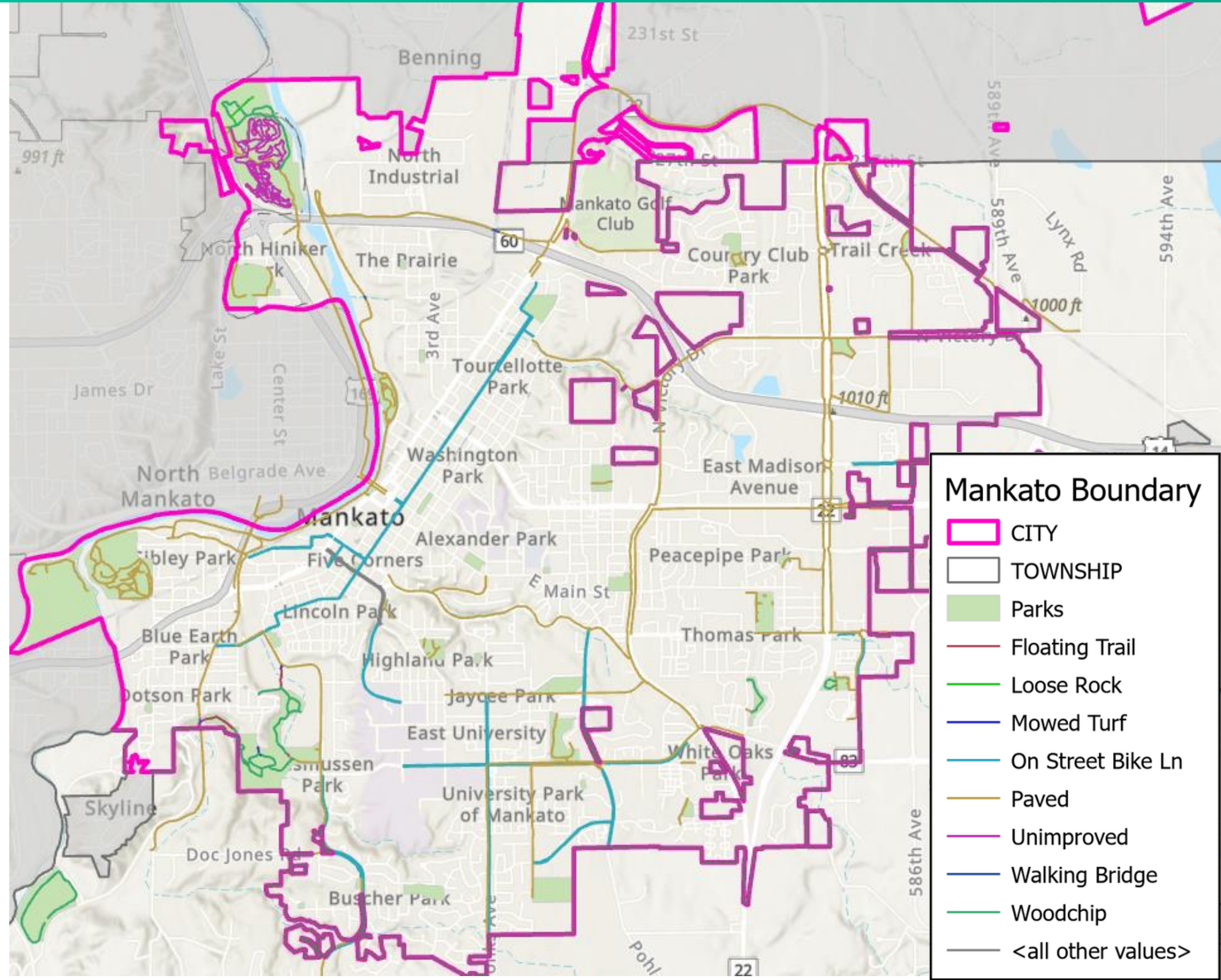
- Public transportation
- Personal vehicles
- Low emission vehicles
- Electric vehicles and charging stations
- Biking corridors

RECOMMENDATIONS:

- Evaluate the feasibility of a microtransit system to increase ridership, reduce emissions and improve service
- Continue to expand City's hybrid and electric vehicles fleet
- Monitor grant programs for opportunities to upgrade the City's fleet or charging infrastructure
- Support continued expansion of electric vehicle charging stations

Biking Corridors

Investments in transit and infrastructure for pedestrian and cyclist help lower emissions and offer additional benefits making communities healthier and more options for travel.



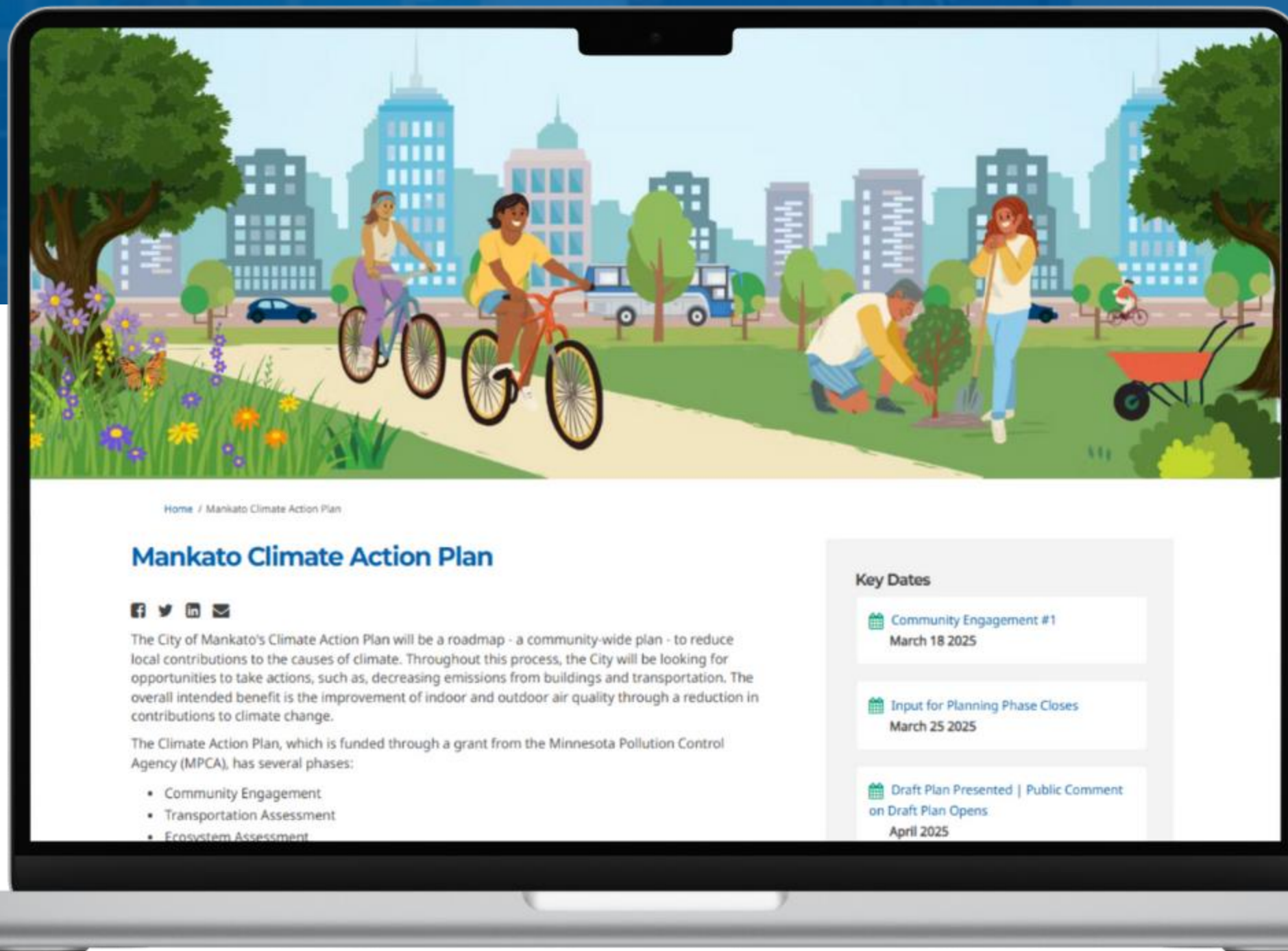
Biking Corridors

RECOMMENDATIONS:

- Analyze upcoming road reconstruction projects for the opportunity to incorporate additional bike lanes
- Further analyze and develop metrics by neighborhood to assess the need and benefit of providing more bike lane infrastructure
- Seek opportunities to provide bike parking in common destination areas to encourage biking as an alternative mode of transportation



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everyvoice.mankatomn.gov