



Operations Committee Agenda

Tuesday, October 15, 2024

Tom Davies Square

Councillor Signoretti, Chair

2:00 p.m. Open Session, Council Chamber / Electronic Participation

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1.	Call to Order	
2.	Roll Call	
3.	Declarations of Pecuniary Interest and the General Nature Thereof	
4.	Presentations	
4.1	Waste Collection - 2024 Participation Study	
	This presentation by Robyn White and Nataly Wissell provides information regarding the 2024 Waste Collection Participation Study.	
5.	Managers' Reports	
5.1	Ash Tree Removal and New Tree Replanting Project	3
	This report provides an update on the ongoing work being completed to remove and replant all known Ash trees located on municipal properties.	
6.	Referred & Deferred Matters	
6.1	2024 Gateway Speed Limit Pilot Project Update	9
	This report provides a recommendation regarding the 2024 Gateway Speed Limit Pilot Project.	
6.2	Active Transportation Winter Maintenance Plan 2024	13
	This report provides a recommendation regarding the plan for winter maintenance services for the active transportation network (sidewalks, bicycle paths and off-road recreational trails) for the upcoming winter season (November 1, 2024, to April 30, 2025).	
7.	Members' Motions	
8.	Correspondence for Information Only	
8.1	WWW Linear Infrastructure Performance Review 2024	51
	This report provides information regarding the performance of the City's Water and Wastewater Linear Infrastructure for 2023.	
9.	Addendum	
10.	Civic Petitions	
11.	Question Period	
12.	Adjournment	

Ash Tree Removal and New Tree Replanting Project

Presented To:	Operations Committee
Meeting Date:	October 15, 2024
Type:	Managers' Reports
Prepared by:	Tony De Silva Linear Infrastructure Services
Recommended by:	General Manager of Growth and Infrastructure

Report Summary

This report provides an update on the ongoing work being completed to remove and replant all known Ash trees located on municipal properties.

Resolution

THAT the City of Greater Sudbury directs staff to present a report in the first quarter of 2025 that provides an update on the removal of ash trees in the community and the anticipated schedule for replanting, as outlined in the report entitled “Ash Tree Removal and New Tree Replanting Project”, from the General Manager of Growth and Infrastructure, presented at the Operations Committee meeting of October 15, 2024.

Relationship to the Strategic Plan, Health Impact Assessment and Climate Action Plans

The project supports the Asset Management and Service Excellence and Climate Change strategic objectives as well as Goal 18: Increase the reforestation efforts of the Regreening Program of the Community Energy & Emissions Plan by supporting ecological sustainability and building climate resiliency through the reforestation of areas impacted by the Emerald Ash Borer within the urban areas of the community.

Financial Implications

The estimated cost to remove and replant all known Ash trees on municipal property is \$1,750,000. Of this, approximately \$1,200,000 is required for the removal and stumping of existing Ash trees. This work will be funded from the existing Tree Removal operating budget within Linear Infrastructure Services and will result in an over expenditure at year end. With this over expenditure, it is anticipated that the City will continue to project a net year-end surplus. Approximately \$550,000 is required for the replanting of trees throughout the community. A subsequent report will be brought forward in Q1 of 2025 which will provide information on how this phase of the project will be funded. An application has been made to the Federation of Canadian Municipalities for grant funding in the amount of \$875,000. If the City is successful, the grant funds will reduce the anticipated over expenditure at year end.

Background

Ash trees used to be a tree species that were suitable for urban planting in Greater Sudbury. They contributed to a healthy urban canopy, were integral to air quality, ecological health of soil and watersheds and were resistant to road maintenance activities (e.g. salt and sand application). Unfortunately, the Ash tree population in Greater Sudbury and large parts of North America have been decimated by the Emerald Ash Borer. The Emerald Ash Borer (EAB) is an invasive wood-boring beetle that attacks and kills Ash trees. According to the Invasive Species Centre, EAB was first detected near Detroit, Michigan and Windsor, Ontario in 2002, but has likely been in North America since the 1990s. The beetle has been rapidly spreading across North America since its arrival, posing a serious threat to all species of Ash. Up to 99% of Ash trees within a specific location are killed by EAB within 8-10 years of its establishment. EAB affects and eventually kills all ash species, including Green Ash and White Ash, that occur frequently in Greater Sudbury as street trees, in parks and private properties, and in rural areas. Black Ash, although a wetland species not planted as street trees, has succumbed to EAB to the point that it is now listed as 'Endangered' and protected by the Endangered Species Act. Figures 1 through 4 depict typical characteristics of the EAB infestation of Ash trees in Greater Sudbury.

Figure 1 – Typical Diseased Ash Tree



Figure 2 – Typical Dead Ash Tree



Figure 3 – Emerald Ash Borer and its Larvae

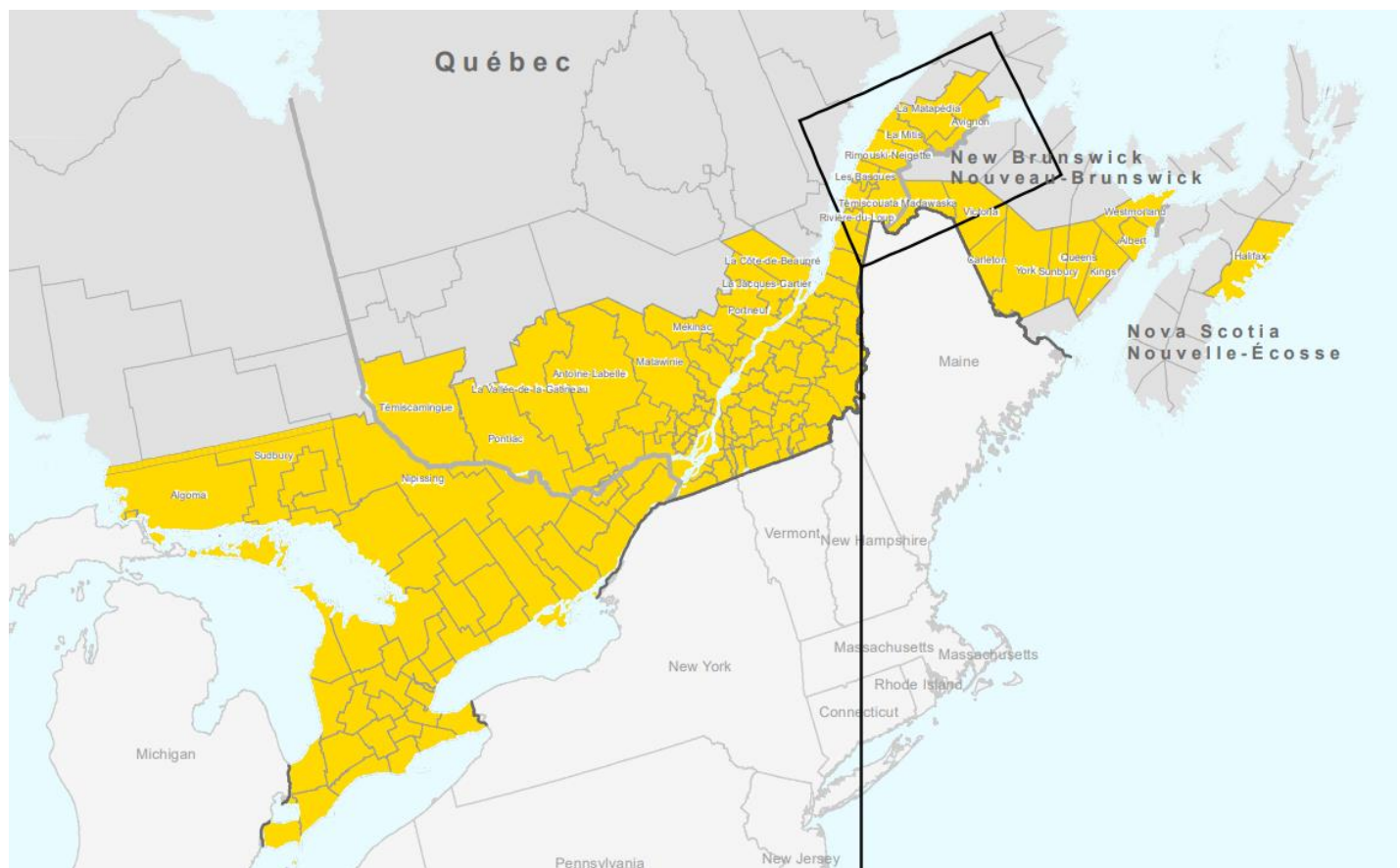


Figure 4 – Typical Ash Tree Trunk Damage



The Canadian Food Inspection Agency (CFIA) regulates the EAB infestation. The CFIA monitored the presence of EAB in Greater Sudbury from 2009 to 2013 and subsequently regulated the area on April 1, 2014. However, the CFIA never actually detected EAB in the Greater Sudbury area during its monitoring period. Rather, a decision was made to regulate the area at large due to EAB detection in other nearby communities. The federal regulatory measures strive to reduce human-mediated spread of EAB and contain their populations to infested areas. The regulations prohibit movement of Ash tree material and firewood outside the regulated area to mitigate the spread of the EAB. The highlighted area in Figure 5 depicts the regulated area in eastern Canada.

Figure 5 – EAB Regulated Area per Canadian Food Inspection Agency



Analysis

Trees in decline can become a hazard to people and property, especially when extreme weather events are experienced. This was evident during the 2018 and 2021 microbursts and several ice storms that caused hundreds of trees, many of them Ash trees, to fall and cause significant damage in the community. The City's Forestry section actively removes, plants and prunes trees as part of their daily activities. On average, Forestry staff remove 300 to 400 street trees annually and since 2022, staff have removed approximately 250 Ash trees. There are an estimated 1,000 Ash street trees remaining within the City that will require removal. Ash street trees in rural areas where they pose no risk of harm to people or risk of property damage will not be removed. There are also an approximate 500 additional diseased and dead Ash trees located on Sudbury Housing, Parks and Cemetery facilities that will require removal. Appendix A to this report contains a map showing the location of known Ash trees throughout the community.

A comprehensive plan was formulated to accelerate diseased and dead Ash street tree removals using existing budgets and resources. The plan had the Forestry section removing all Ash street trees by 2027 in a priority-based approach. The plan yielded flexibility to address other priorities that presented itself during the Ash tree removal program. Over the course of 2024, it became apparent to staff that the health of Ash trees in the community had declined more rapidly than was anticipated and an accelerated community wide response was required.

To assist with accelerating the Ash tree removal program, the City made application to the Federation of Canadian Municipalities (FCM) Growing Canada's Community Canopies (GCCC) grant on July 12, 2024. This federal grant's objective is to help municipalities grow their urban canopy. To facilitate this objective, qualifying projects could receive up to 50% of all eligible costs, up to a maximum of \$10 Million Dollars. Eligible costs include preparing a site to receive a new tree which includes removal of an existing diseased or dead tree. This grant is well aligned with two of the City's primary objectives as it relates to its urban canopy:

- Remove its diseased and dead Ash trees, as described in this report; and
- Grow its urban canopy, as described in the Urban Forestry Master Plan that is anticipated to be brought forward to the Operations Committee in Q4 of 2024.

The City's application to the FCM includes removal and replanting of approximately 1,500 diseased and dead Ash street trees and those found on Greater Sudbury Housing, Parks, and Cemetery facilities. Diversity of new trees planted is seen as an important factor in making the urban forest more resilient to environmental changes, diseases, and infestations. Therefore, it is the City's intent to plant 18 different species of new trees in place of the Ash trees removed. The application for funding was based on using a combination of contract and City resources.

The total project cost is estimated to be \$1.75 million, with \$1.2 million for tree removals and \$550,000 for replanting. It is possible the City will be awarded a maximum grant award of \$875,000 (50% of the total eligible cost). It is anticipated that the City will be advised if it is successful with its application as early as October 2024.

If the FCM funding application is successful, the project must be completed within a 3-year time frame. The key project milestones include completing all tree planting within the first two years of the project (2025 and 2026) and to utilize the third year (2027) for maintenance and monitoring of newly planted trees. The maintenance and monitoring period includes replanting trees that may not have survived during the initial planting period due to incompatible environmental conditions (ex. incompatible existing soil), poor initial tree health (ex. weakened trees received from suppliers), tree damage during handling and after-care (ex., damage that occurs during planting / lack of water after planting).

The removal of Ash trees will be funded from the existing Tree Removal operating account within Linear Infrastructure Services with the over expenditure forming part of the year end position. As the exact number of Ash trees to be removed and the removal and stumping schedule are unknown at this time, staff will bring forward an additional report in Q1 of 2025 updating the progress of the removal and stumping of trees and the anticipated replanting schedule.

Next Steps

It is expected that more than 90% of the tree removals will be completed by contract resources. To prepare for the need to remove diseased and dead Ash trees from the aforementioned City sites, an Ash tree removal tender was recently issued. The target completion date for the contract is set for December 31, 2024, with stump removal potentially extending into 2025.

New tree planting activities will be completed by City staff. On average, Forestry staff plant between 400 and 450 new trees each spring. A temporary upstaffing of Forestry staff will be initiated to be able to meet the needs of replanting approximately 1,500 new trees. The City's Tree Warden will oversee tree removals and new tree planting with support from other City service areas such as Parks, Cemeteries, Housing, Construction Services and the Strategic and Environmental Planning Section. Any future detection of Ash trees will be addressed through existing operational budgets. A subsequent report on the progress made in removing Ash trees and the anticipated schedule for the planting of new trees will be brought forward in Q1 of 2025.

Property owners are responsible for Ash trees on their private property which includes maintenance, treatment and removal as deemed necessary. Staff will implement an extensive public communication strategy that will include providing information to residents about the project. It will provide information to residents on how they can manage their own private trees that are in decline and how they can assist with growing the City's urban canopy. The City will use mediums such as the City website, social media, and public service announcements to communicate its plan. Residents that front a municipal Ash tree requiring removal will receive more specific instructions pertaining to the tree removal and new tree replanting plan.

Resources Cited

1. City of Greater Sudbury's Tree Maintenance Practices and Policies:
<https://www.greatersudbury.ca/live/my-property/tree-maintenance/>
2. Canadian Food Inspection Agency:
[Emerald Ash Borer - inspection.canada.ca](https://inspection.canada.ca/emerald-ash-borer/)
3. Invasive Species Centre:
[Emerald Ash Borer - Profile | Invasive Species Centre](https://www.invasivespeciescentre.ca/emerald-ash-borer/)
4. FCM / GMF Funding Opportunity:
<https://greenmunicipalfund.ca/funding/tree-planting>

Appendix
Approximate Locations of the City-wide Ash Tree Removal Project

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Street Tree Removal

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Greater Sudbury Housing Facility Removal

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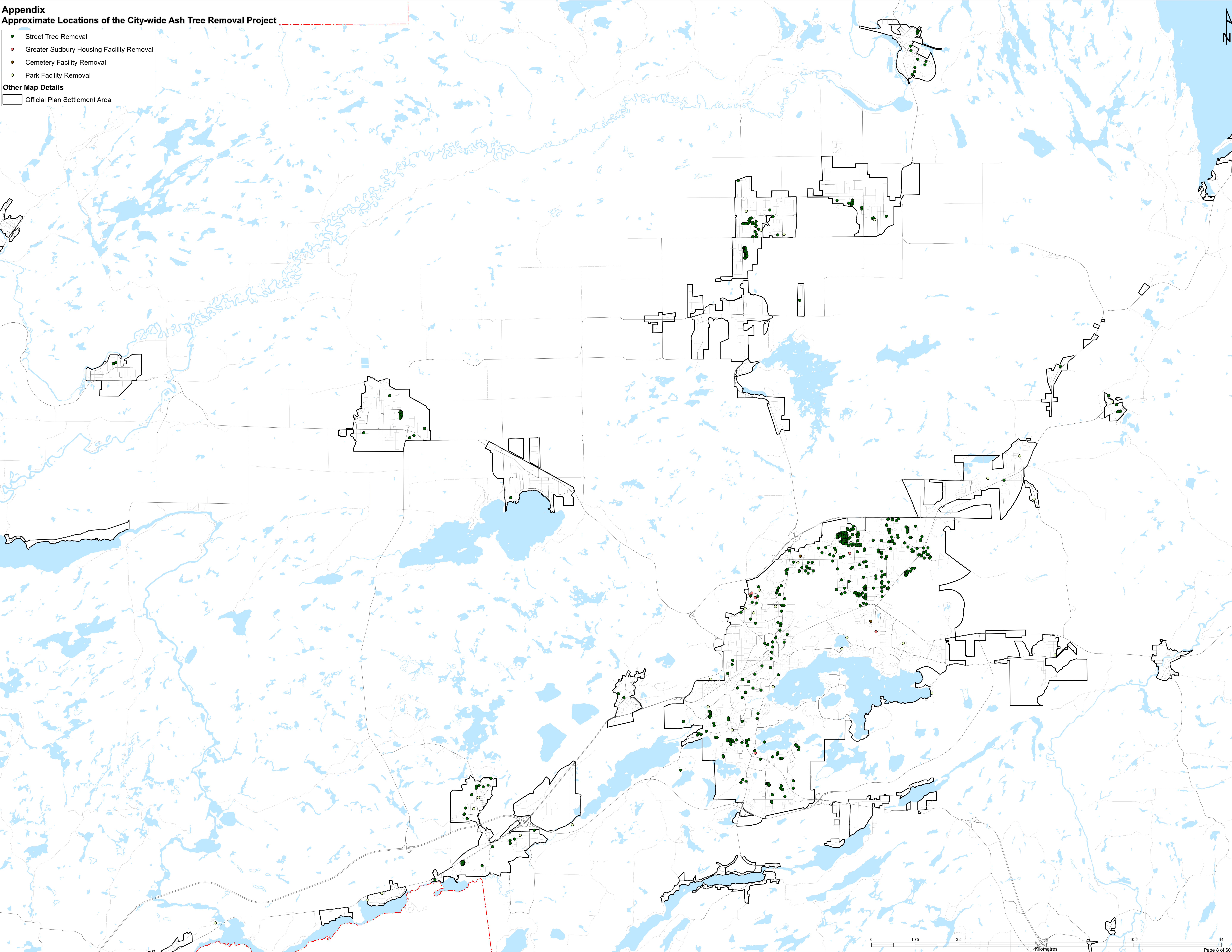
Cemetery Facility Removal

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Park Facility Removal

Other Map Details

Official Plan Settlement Area



2024 Gateway Speed Limit Pilot Project Update

Presented To:	Operations Committee
Meeting Date:	September 9, 2024
Type:	Managers' Reports
Prepared by:	David Knutson Linear Infrastructure Services
Recommended by:	General Manager of Growth and Infrastructure

Report Summary

This report provides a recommendation regarding the 2024 Gateway Speed Limit Pilot Project.

Resolution

THAT the City of Greater Sudbury extends the Gateway Speed Limit Pilot Project until 2025 as outlined in the report entitled “2024 Gateway Speed Limit Pilot Project Update”, from the General Manager of Growth and Infrastructure, presented at the Operations Committee meeting on September 9, 2024.

Relationship to the Strategic Plan, Health Impact Assessment and Climate Action Plans

This report refers to the Create a Healthier Community strategic initiatives as identified in the Strategic Plan and Goal 8: Achieve 35% active mobility transportation mode share by 2050 in the Community Energy and Emissions Plan. Reducing operating speeds on residential roads will make residents more comfortable using active modes of transportation and sharing the road with motorized vehicles.

Financial Implications

Recommendations of this report may be carried out within the existing approved operating budget and staffing resources.

Background

At the May 2022 Operations Committee meeting, Transportation and Innovation Support staff brought a report outlining an estimate of cost and scope for a pilot project to implement a Gateway Speed Area in each ward in the city. Based on the report resolution OP2022-14 was passed. The resolution stated:

THAT the City of Greater Sudbury directs staff to prepare a business case for consideration during

the 2023 Budget process to fund the Gateway Speed Limit pilot project, as outlined in the report entitled “Gateway Speed Limits in Residential Areas”, from the General Manager of Growth and Infrastructure, as presented at the Operations Committee meeting on May 16, 2022;

AND FURTHER THAT an option be presented in the business case that updates the 2019 estimates to provide the cost to introduce Gateway Speed Limits across the Municipality;

AND BE IT FURTHER RESOLVED THAT the City of Greater Sudbury directs staff to proceed with a pilot project in 2022, in 1 area to be identified by staff which differs from those identified in the report so they can capture as many of the different factors (school zone, permanent traffic calming and temporary flexible bollards) as possible, to be funded from the existing operating budget;

AND THAT the City of Greater Sudbury directs staff to prepare a by-law to amend the Traffic and Parking By-law 2010-1 in the City of Greater Sudbury to implement the Gateway Speed Limit pilot project.

In response to resolution OP2022-14 staff completed a business case entitled “Implement Gateway Speed Limits in Residential Areas” that outlined the costs and scope for two options, one to install signs in one area for each ward and the second was to install signs across the entire city. That business case was submitted for the 2023 Budget process and the option to install signs in one area for each ward was passed during budget deliberations.

Analysis

Following the approved business case staff worked with each Ward Councillor to finalize the location of the Gateway Speed Limits areas within each ward and the Gateway Speed Limit signs were erected during the summer of 2023. Since installation, staff have been monitoring the effectiveness of the Gateway Speed Limit areas to see what effect the signs had on the operating speeds of the roadways within these areas. The data demonstrates that the impact to operating speeds is inconsistent between locations. Several roadways have seen significant reductions in operating speeds while others have seen increases. Roadways which had ASE units deployed on a nearby roadway or existing traffic calming features have also yielded varying results. It should be noted that the speed studies conducted were done so prior to the installation of the seasonal temporary traffic calming bollards and their impacts to the operating speeds of the roadways is not captured within the data. Table 1 below summarizes the before and after speeds for a sample of roadways within each ward.

Location	Pre sign Installation 85th Percentile Speed (km/h)	Post Sign Installation 85th Percentile Speed (km/h)	Change in Speed (km/h)	ASE on Road or Adjacent	Traffic Calming on Road
Ward 1					
Kelly Lake Rd	59	58	-1	No	No
Martindale Rd	57	49	-8	No	No
Robinson Dr	57	58	1	No	No
Ward 2					
Hillcrest Dr	56	39	-17	Yes, on road	No
Ward 3					
Errington Ave	58	56	-1	No	No
Ward 4					
Notre Dame St E	67	56	-11	No	No
Notre Dame St W	68	66	-2	No	No
Marier St	59	66	7	No	No
Ward 5					
Herve St	46	46	0	No	No
Lina St	48	49	1	No	No
Ward 6					
Jeanne D'Arc St	49	51	1	No	No
Frost Ave	54	56	2	No	No
Ward 7					
Ravina Ave	50	49	-1	No	No
Ward 8					
Auger St	59	57	-1	No	No
Westmount Ave	49	58	9	No	No
Ward 9					
Algonquin Rd	60	38	-22	Yes, on road	No
Algonquin Rd (340m from ASE unit)	62	51	-10	Yes, adjacent	No
Countryside Dr	53	57	4	Yes, adjacent	No
Ward 10					
Boland St	50	50	-1	No	No
Wembley Dr	53	47	-6	No	No
Ward 11					
Attlee St	56	57	1	No	Yes
Dublin St	46	45	-1	No	No
Soloy Dr	51	49	-1	No	No
Ward 12					
Holland Rd	55	54	-1	No	No
Lamothe St	45	50	5	No	No

Table 1 – Gateway Speed Limit Area Speed Statistics

As noted in previous reports, only changing the speed limit sign has a limited impact on the operating speeds of roadways. Additional measures such as speed enforcement or traffic calming are required to have a lasting impact on operating speeds. With the deployment of the Automated Speed Enforcement (ASE) program by the City in 2024, this measure offers an effective way at reducing vehicle speeds on the roadway in which they are placed. However, seeing as Gateway Speed Limits are in affect for an entire neighbourhood, placing an ASE unit on every roadway is not practical.

Staff will continue to monitor the effect the ASE units have on adjacent roadways. Seeing as the ASE program is new to Greater Sudbury and only a limited number of roadways have had an ASE unit placed on them thus far, a fulsome picture of the halo effect they are having is not yet seen. Extending the pilot project until 2025 would allow staff to complete additional data collection in these areas and better determine the effect the ASE units are having.

Lowering the posted speed limit without having a reasonable expectation that there will be adequate motorist compliance with the new posted speed limit, or the additional measures put in place to achieve compliance should be cautioned. Lower posted speed limits change resident expectations to what is seen as an acceptable operating speed of a roadway. A roadway which had an operating speed at or near the original posted speed would now be operating at 10km/h over the limit. As a result, increased requests for speed reduction measures such as traffic calming, and speed enforcement would be expected from area residents. These requests will impact the availability of staff resources and budget available for road safety as more roadways become eligible for speed reduction measures. Staff have already started to see this trend in areas within the pilot project.

Next Steps

If approved, in addition to conducting before and after speed studies on roadways which have an ASE unit placed, staff will also conduct before and after speed studies on adjacent roadways within the Gateway Speed Limit area. These studies will better determine if a halo effect is seen on the adjacent roadways to the ASE unit and if so, how far that effect is seen from the unit. Staff will bring forward a report in Q4 of 2025 outlining the findings of the continued traffic studies and the impact of the Gateway Speed Limit Pilot Project.

Resources Cited

City of Greater Sudbury, Gateway Speed Limits in Residential Areas, Accessed online:

pub-greatersudbury.escribemeetings.com/filestream.ashx?DocumentId=44306

Active Transportation Winter Maintenance Plan 2024

Presented To:	Operations Committee
Meeting Date:	September 9, 2024
Type:	Managers' Reports
Prepared by:	Tony De Silva Linear Infrastructure Services
Recommended by:	General Manager of Growth and Infrastructure

Report Summary

This report provides a recommendation regarding the plan for winter maintenance services for the active transportation network (sidewalks, bicycle paths and off-road recreational trails) for the upcoming winter season (November 1, 2024, to April 30, 2025).

Resolution

THAT the City of Greater Sudbury approves the winter maintenance plan for the active transportation network as outlined in the report entitled “Active Transportation Winter Maintenance Plan 2024”, from the General Manager of Growth and Infrastructure, presented at the Operations Committee meeting of September 9, 2024.

Relationship to the Strategic Plan, Health Impact Assessment and Climate Action Plans

This report refers to operational matters and has no direct connection to the Community Energy & Emissions Plan.

Financial Implications

There are no Financial Implications associated with this report.

Background

On August 12, 2019, by resolution (OP2019-14) the Operation Committee passed the “Active Transportation Winter Maintenance Policy” which was subsequently ratified by Council on August 13, 2019. The report recommended the following:

1. Designated cycling facilities be closed by By-law seasonally during the winter months;
2. Any changes to the existing sidewalk winter maintenance routes be consistent with the criteria

established in Table 2 of the Active Transportation Winter Maintenance Policy;

3. Winter maintenance of sidewalk and off-road trails be annually approved, through Operations Committee, subject to the annual budget process.

This report seeks to fulfill the requirements of the Active Transportation Policy by returning to Operations Committee to approve minor changes to the winter-maintained portion of the Active Transportation network for the upcoming winter season (November 1, 2024, to April 30, 2025). Table 1 summarizes the said changes and a map of the same is included in the appendices. It also lists the off-road trails that are officially included as part of the winter-maintained portion of the Active Transportation Network. It should be noted that asphalt boulevards are not considered to be part of the Active Transportation Network and will not be maintained as such.

Table 1 – Active Transportation Winter Maintenance Changes for the 2024 / 2025 Winter

Sidewalks			
Additions to Winter Maintenance in 2024 / 2025:	Location of Route	Bus Stops on Route	Reason for Change
1. David Street (south side), Paris Street to Marion Street	Sudbury	None	Meets Criteria #3 and #7 of the Active Transportation Winter Maintenance Policy - Local Road that forms a connected route.
2. Marion Street (west side), David Street to Wembley Drive	Sudbury	None	Meets Criteria #3 and #7 of the Active Transportation Winter Maintenance Policy - Local Road that forms a connected route with a pedestrian cut-through.
3. Lamothe Street (south side), Paquette Street to 50m westerly	Sudbury	None	Meets Criteria #5 and #7 of the Active Transportation Winter Maintenance Policy. Local Road that forms a connected route and leads to a school.
4. Elm Street (south side), Edward Avenue N to Westend of Street	Coniston	None	Meets Criteria #5 and #7 of the Active Transportation Winter Maintenance Policy - Local Road that forms a connected route and leads to 'not for profit seniors housing'.
5. Sixth Avenue (west side), Main Street to Ash Street	Lively	None	Meets Criteria #1 and #7 of the Active Transportation Winter Maintenance Policy - Collector Road that forms a connected route.
6. Ninth Avenue (north side), Main Street to B Street	Lively	None	Meets Criteria #7 of the Active Transportation Winter Maintenance Policy - Local Road that forms a connected route.
Sidewalks			

Deletions to Winter Maintenance in 2024 / 2025:	Location of Route	Bus Stops on Route	Reason for Change
None			
Cycling Facilities			
All 29 centreline-kilometres of the designated cycling facilities (includes multiuse trails, bike lanes and cycle tracks) will not be maintained from November 1 to April 30.			
Off-road Trails			
Continue Winter Maintenance in 2024 / 2025:	Location	Comments	
1. Jim Gordon Boardwalk by Ramsey Lake	Sudbury	No change from past years	
2. Ramsey Lake Road multiuse path	Sudbury	No change from past years	
3. Delki Dozzi multiuse path, off Glover Avenue	Sudbury	No change from past years	

Schedule 1 provides a complete list of sidewalks that will be maintained during the upcoming winter season (November 1, 2024, to April 30, 2025).

Recommendation:

It is recommended that the City of Greater Sudbury approves the winter maintenance plan for the active transportation network as outlined in the report entitled “Active Transportation Winter Maintenance Plan 2024”, from the General Manager of Growth and Infrastructure, presented at the Operations Committee meeting of September 9, 2024.

Next Steps:

If approved, staff will conduct the following:

1. Update By-law 2020-152 that will temporarily close all unmaintained portions of the Active Transportation network during the winter months (November 1, 2024, to April 30, 2025).
2. To ensure the public is made aware of any approved changes to the winter maintenance of active transportation facilities, staff will ensure that all relevant information, including lists of closed sidewalks and cycling facilities be posted to the City’s website, be communicated by Public Service Announcement (PSA) each year as well as by sending letters to residents (directly adjacent to the active transportation infrastructure) who will be impacted by the changes to the active transportation winter maintenance plan.

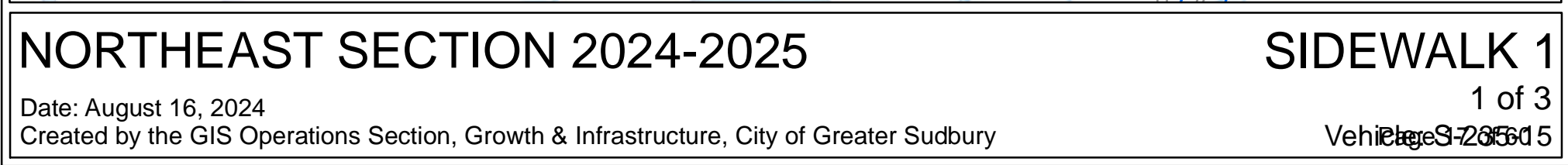
Resources Cited

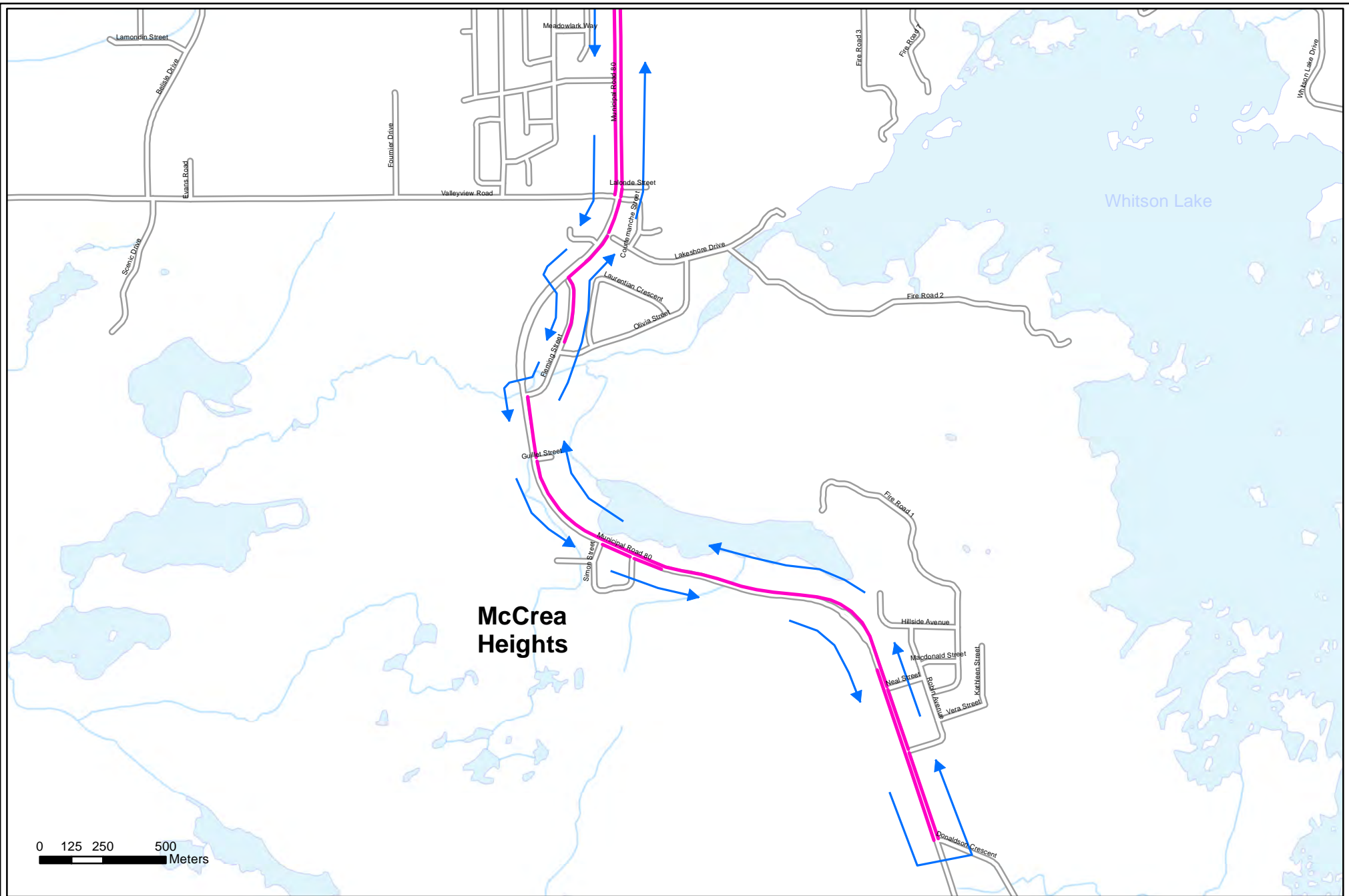
1. City of Greater Sudbury, Operations Committee Resolution No. 2019-14, Active Transportation Winter Maintenance Policy
pub-greatersudbury.escribemeetings.com/FileStream.ashx?DocumentId=30113
2. City of Greater Sudbury, Council Ratification No. 2019-238
pub-greatersudbury.escribemeetings.com/FileStream.ashx?DocumentId=30057

3. City of Greater Sudbury's Winter Maintenance Practices and Policies:
www.greatersudbury.ca/live/transportation-parking-and-roads/road-maintenance/
4. Minimum Maintenance Standards for Municipal Highways, O. Reg. 239/02:
canlii.org/en/on/laws/regu/o-reg-239-02/latest/o-reg-239-02.html#document

Appendix

Map Indicating Changes to Active Transportation Winter Maintenance Plan for 2024/2025 Season





NORTHEAST SECTION 2024-2025

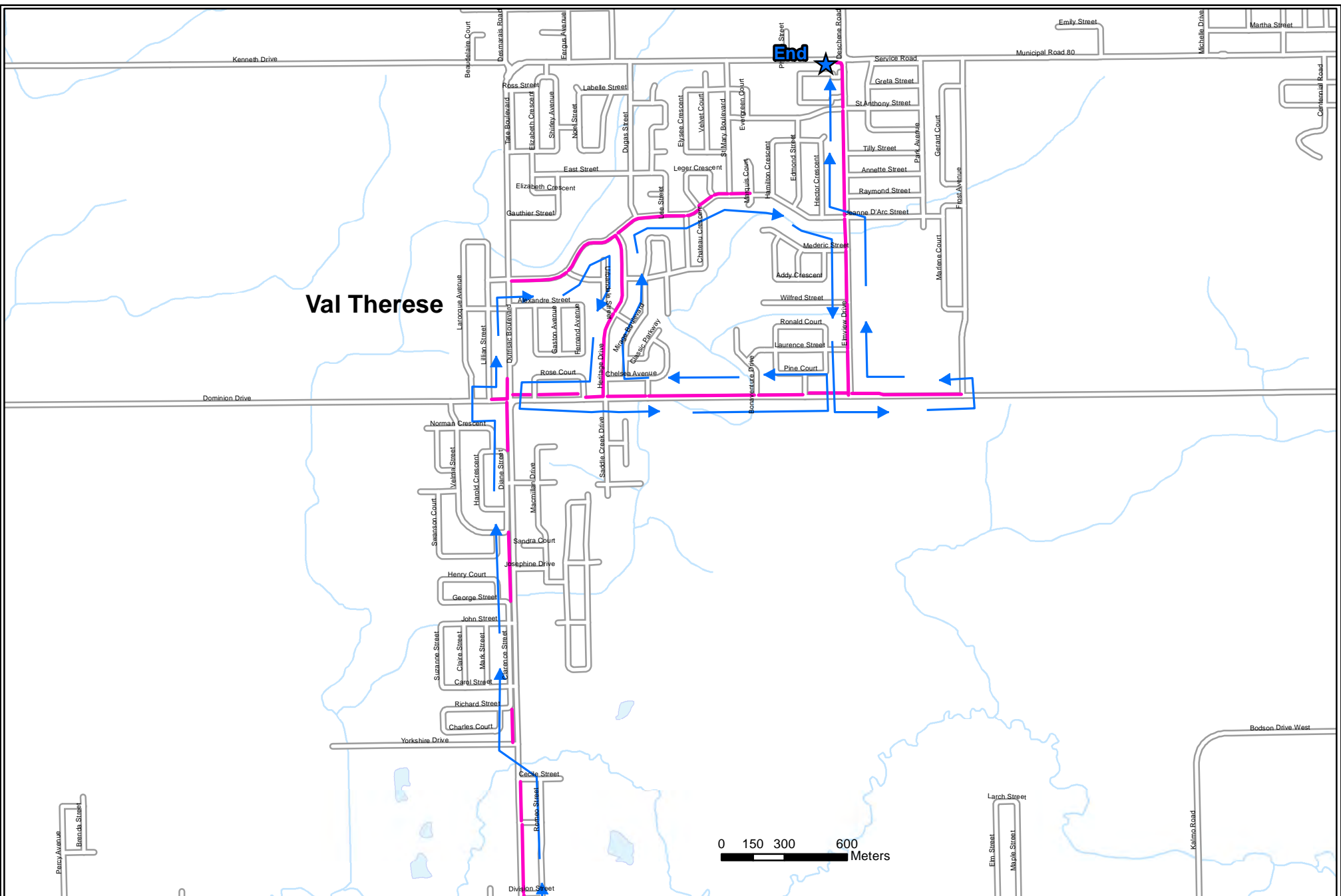
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SIDEWALK 1

2 of 3

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NORTHEAST SECTION 2024-2025

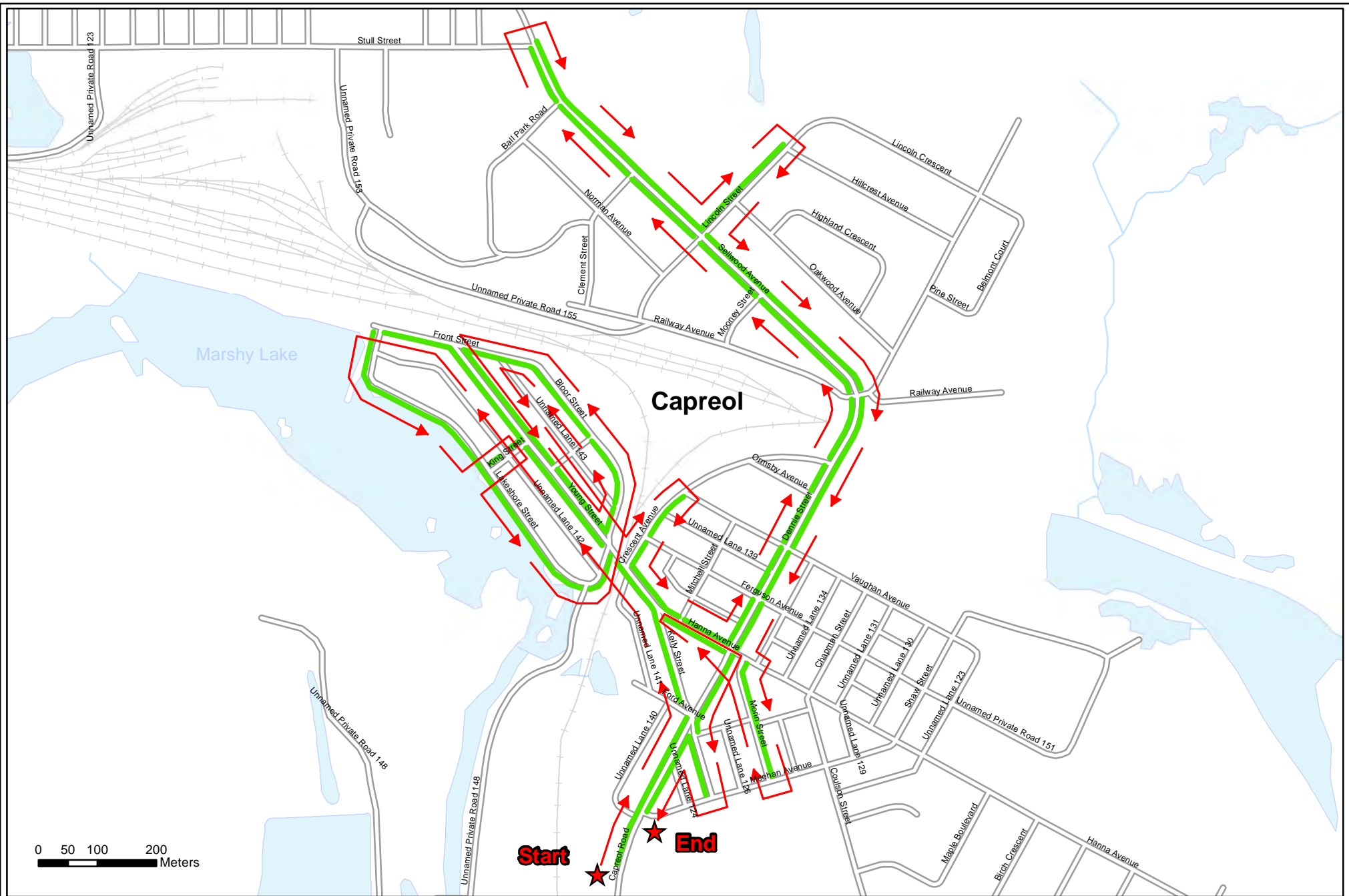
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NORTHEAST SECTION 2024-2025

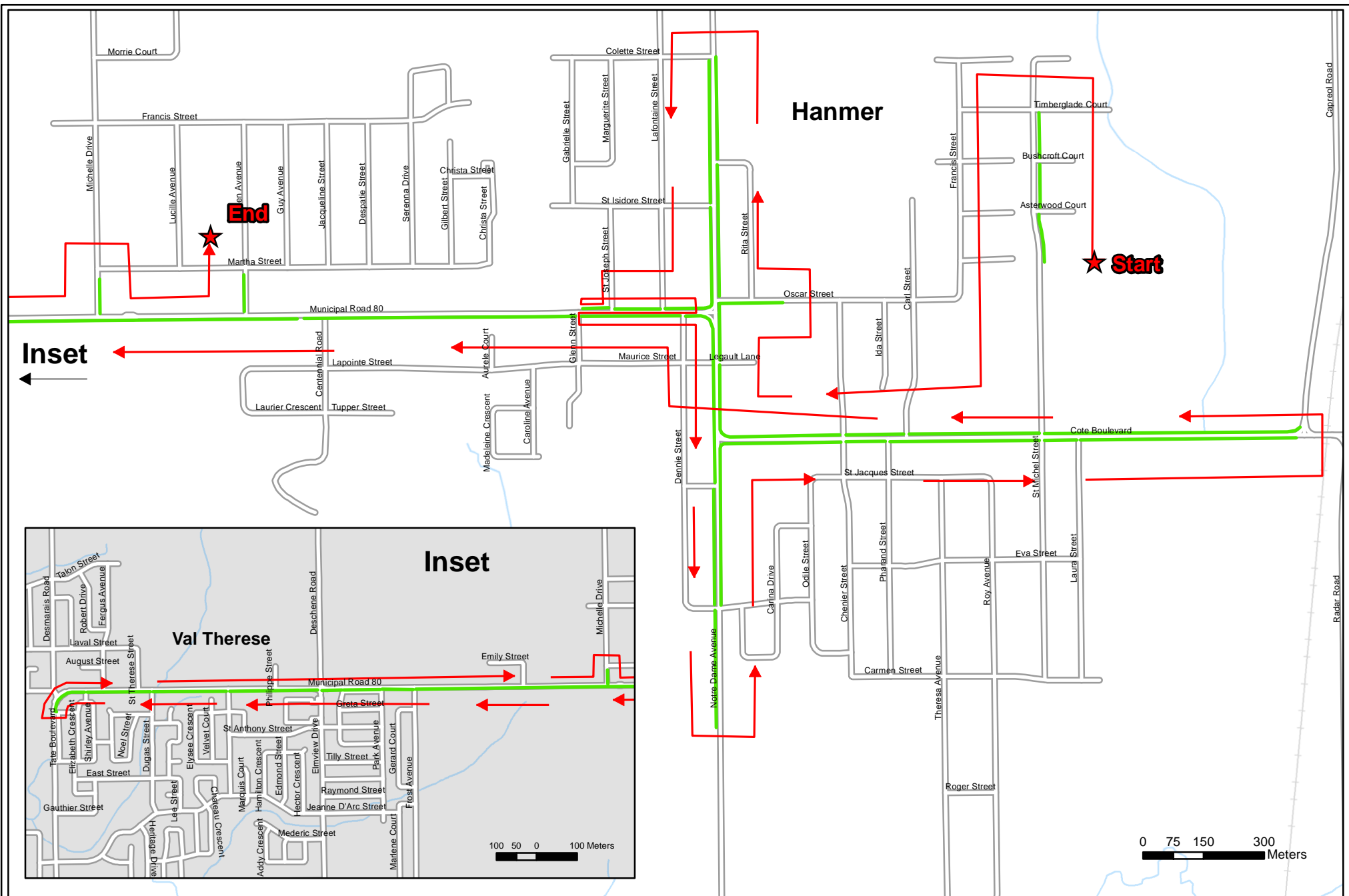
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NORTHEAST SECTION 2024-2025

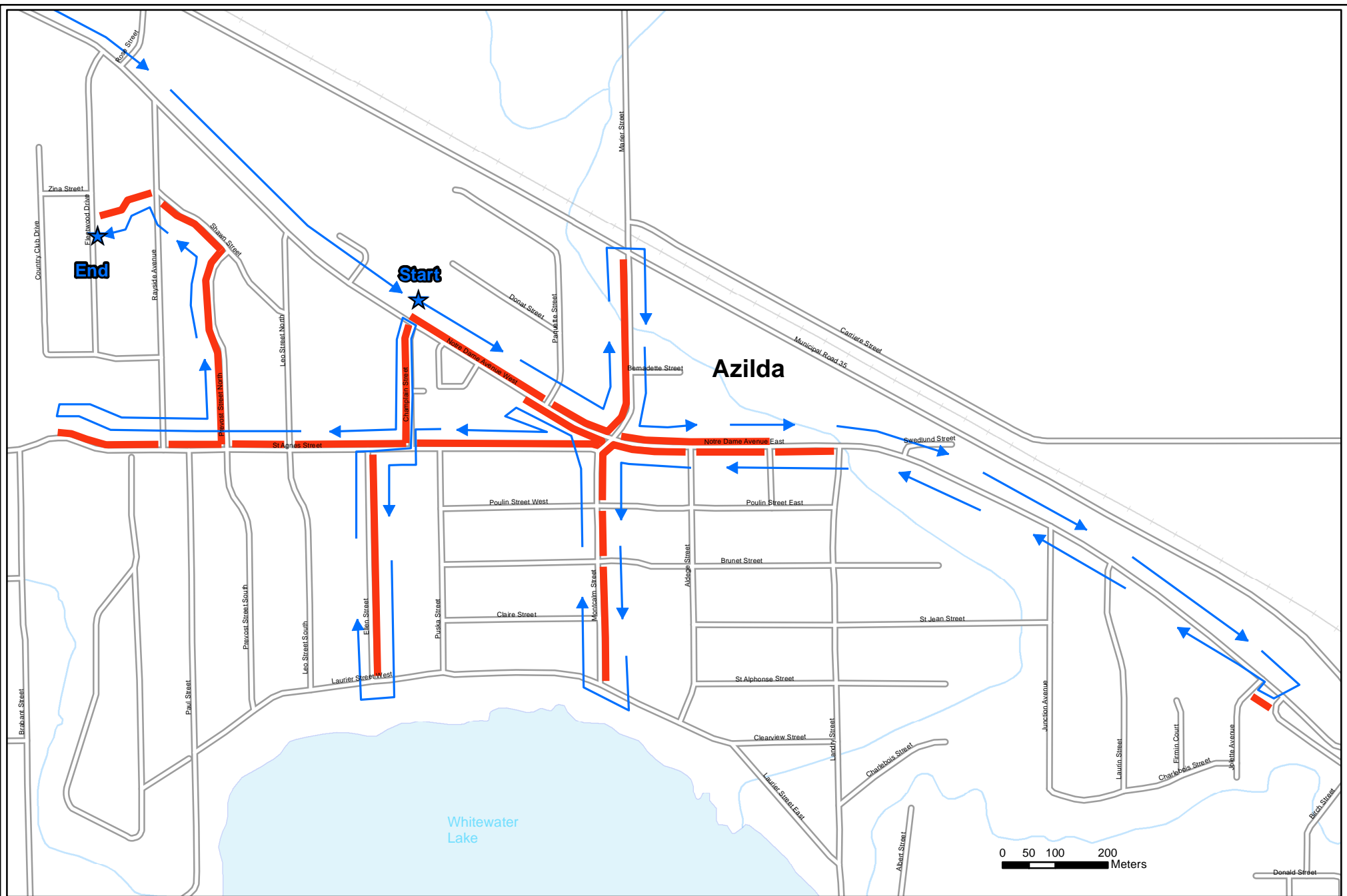
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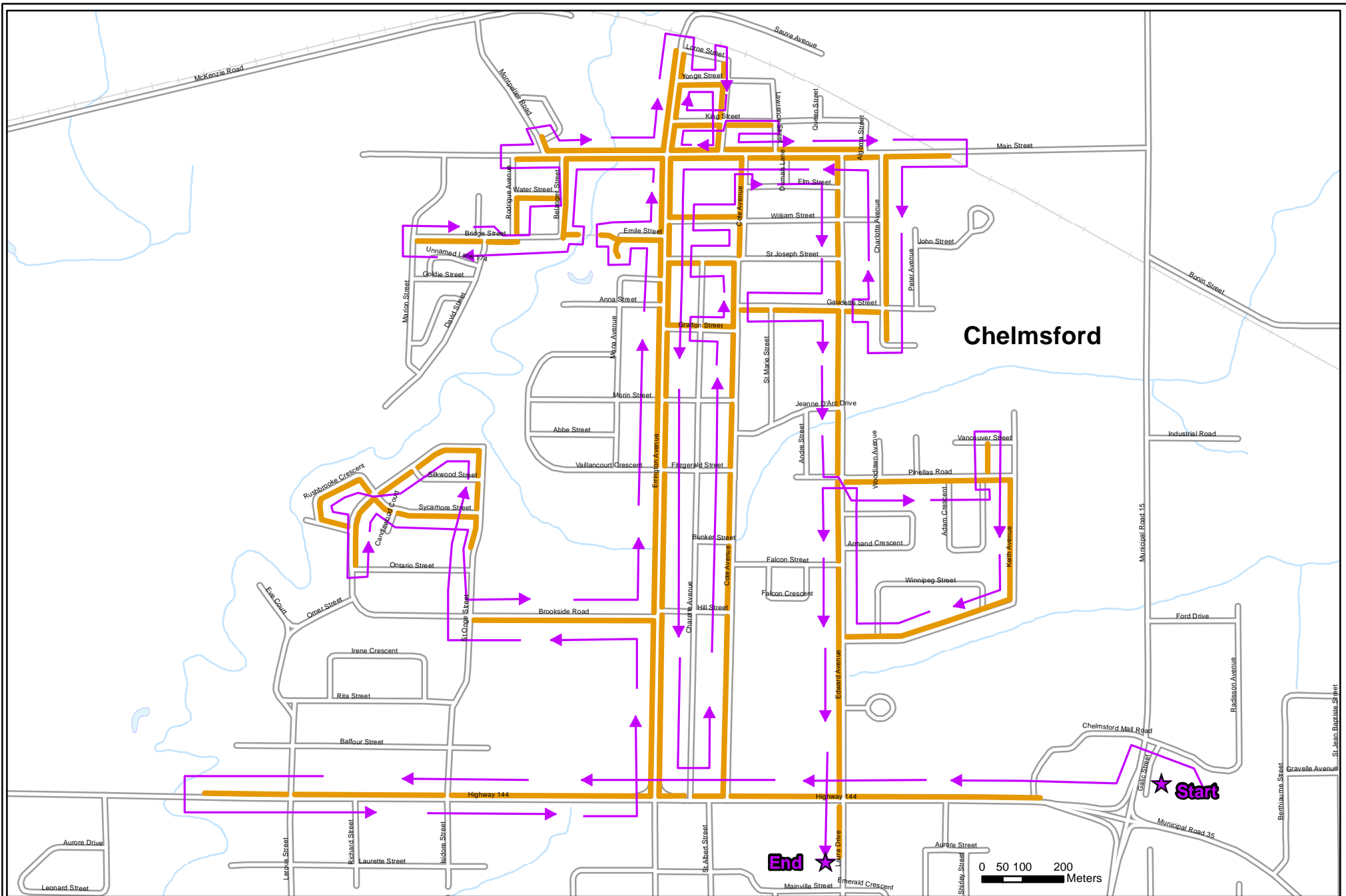
NORTHWEST SECTION 2024-2025

SIDEWALK 1

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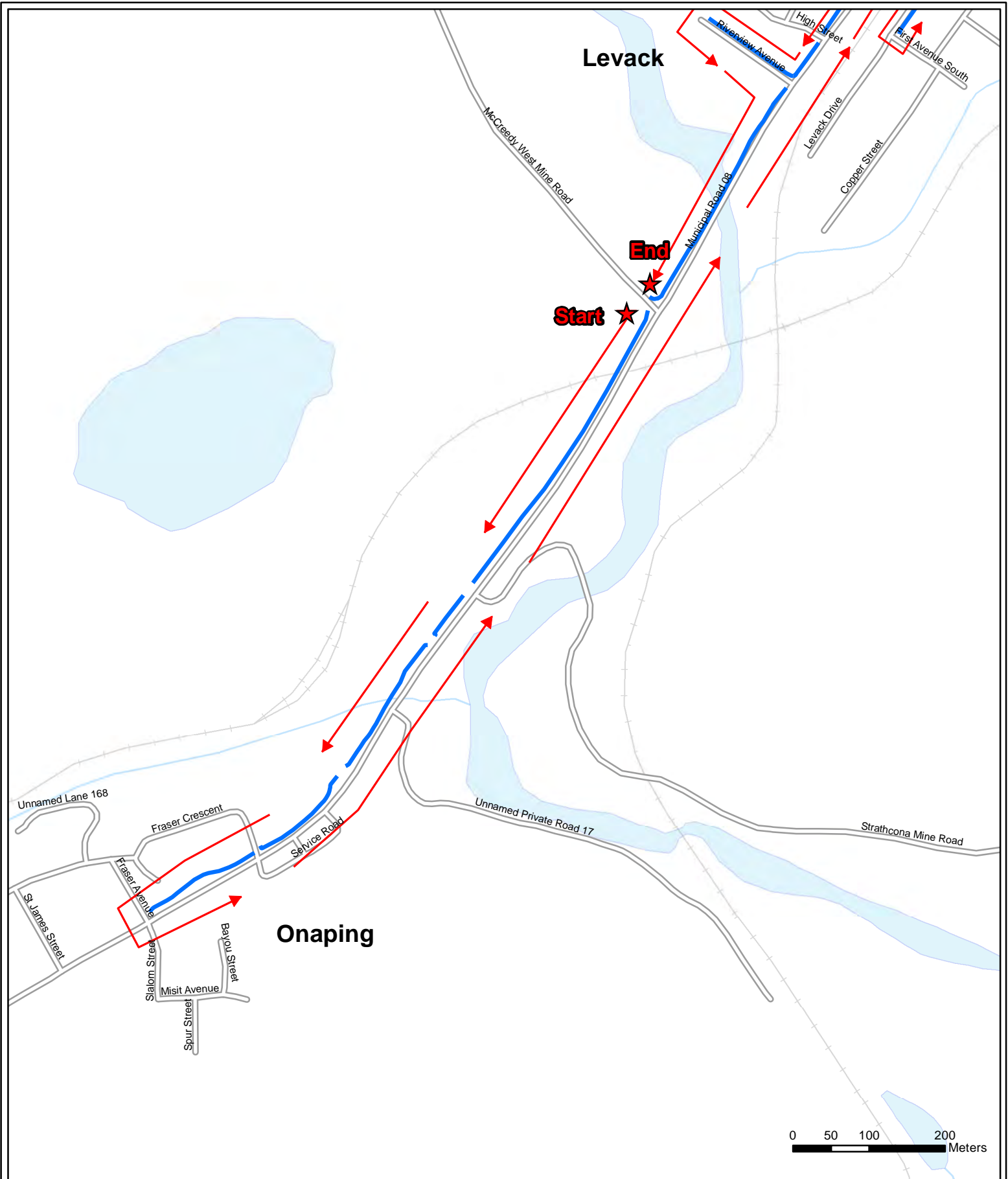
NORTHWEST SECTION 2024-2025

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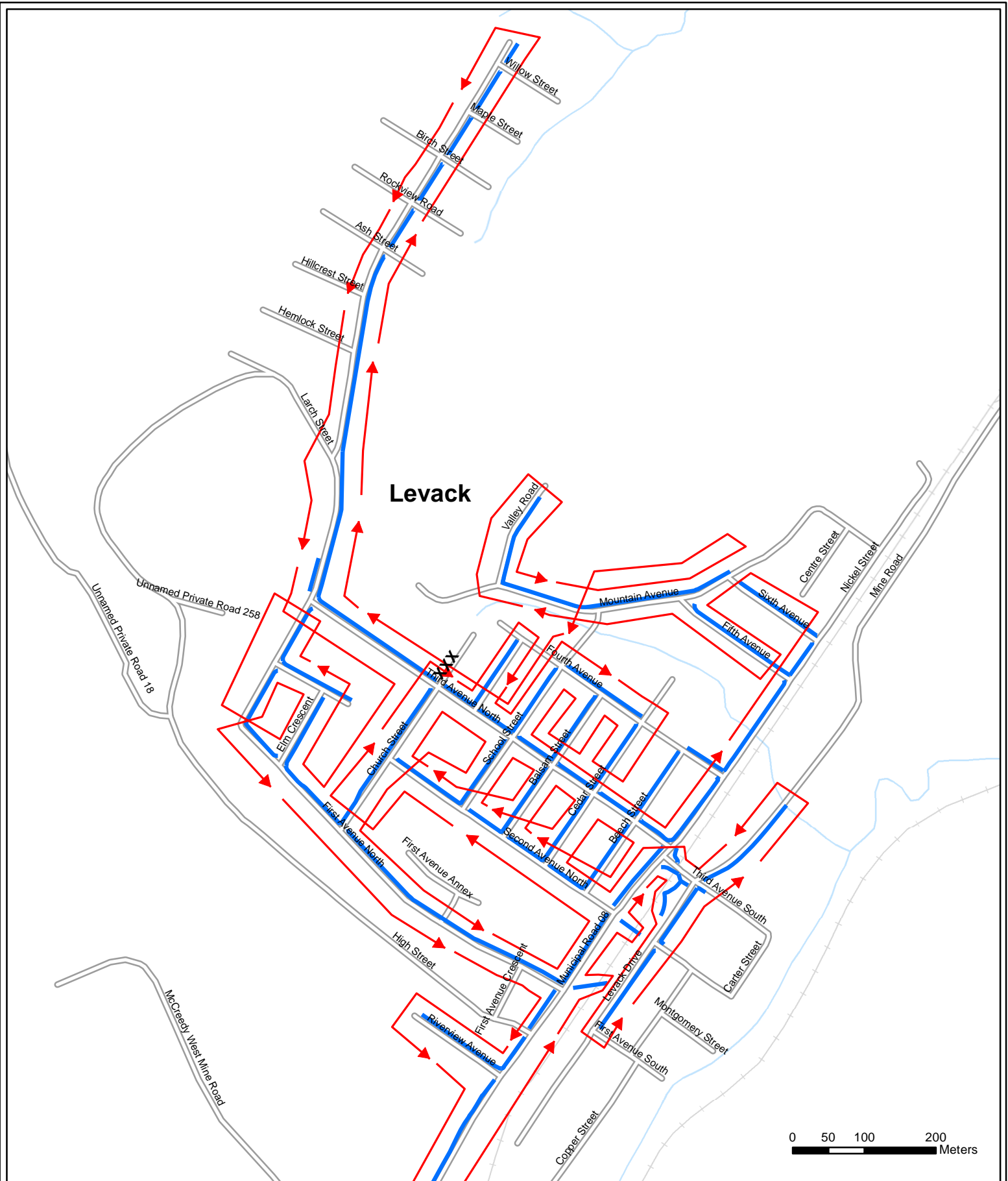
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Vehicle Page 2 of 16



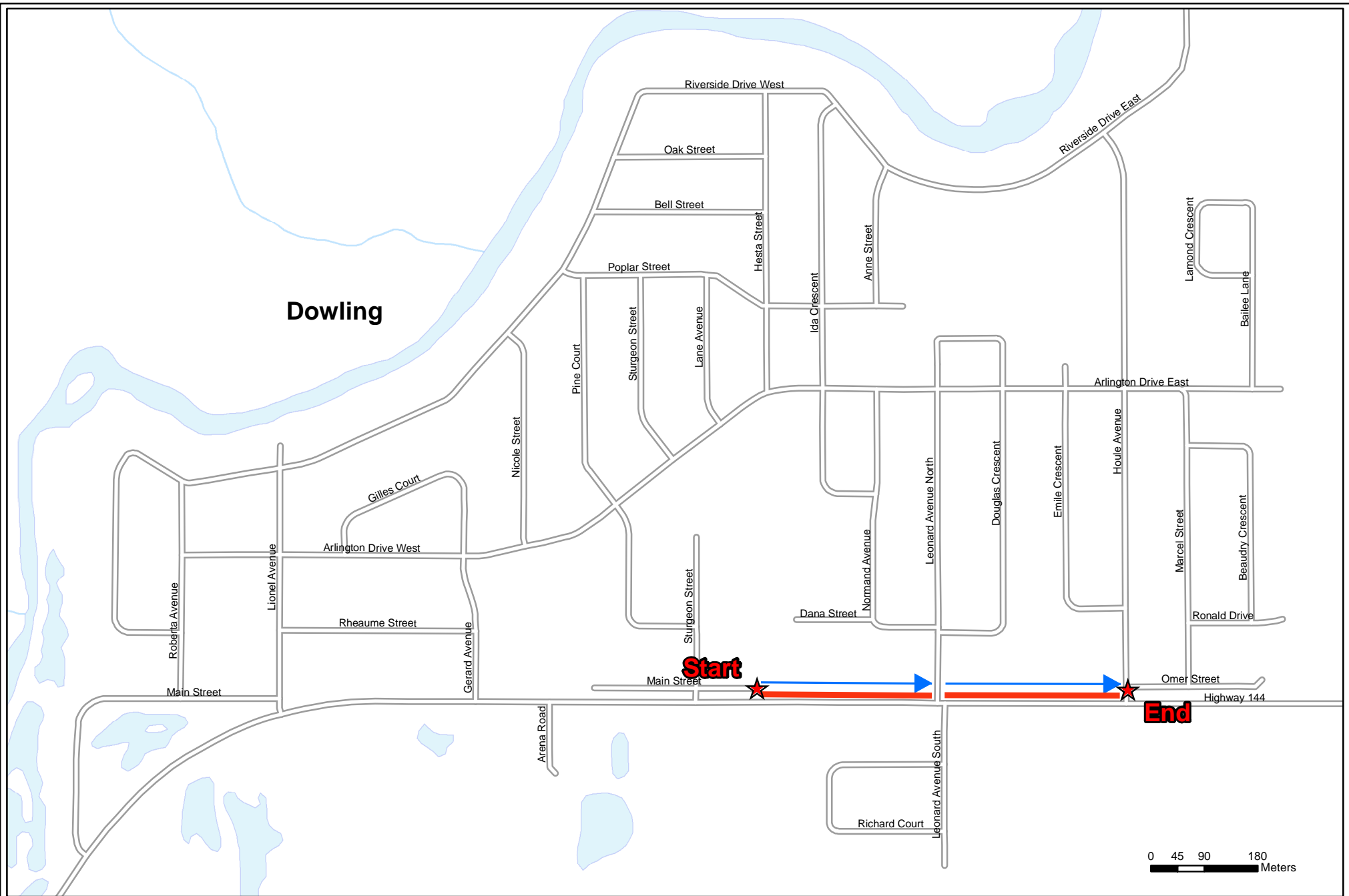
NORTHWEST SECTION 2024-2025

SIDEWALK 3



NORTHWEST SECTION 2024-2025

SIDEWALK 3



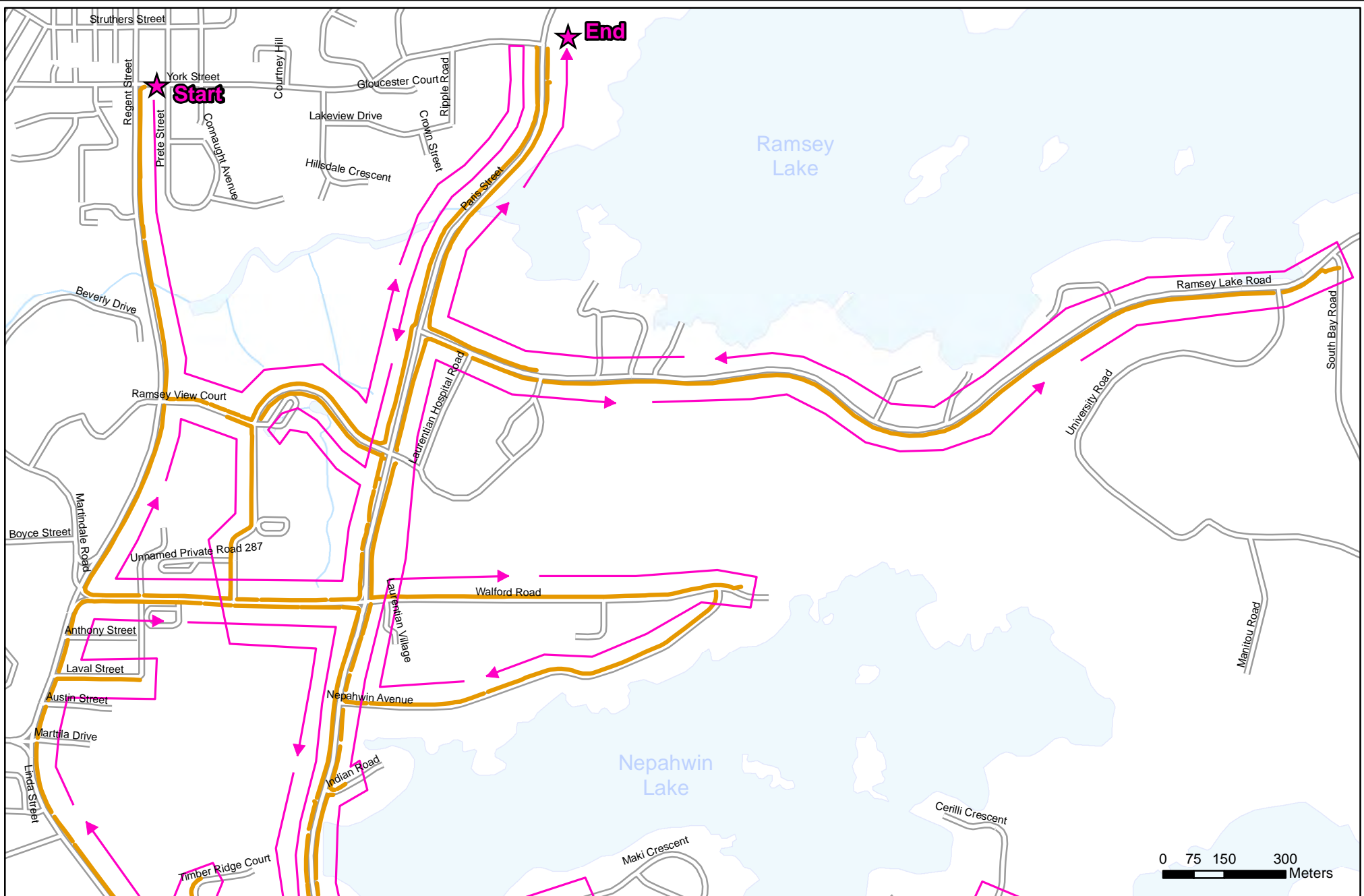
NORTHWEST SECTION 2024-2025

SIDEWALK 4

Date: August 16, 2024

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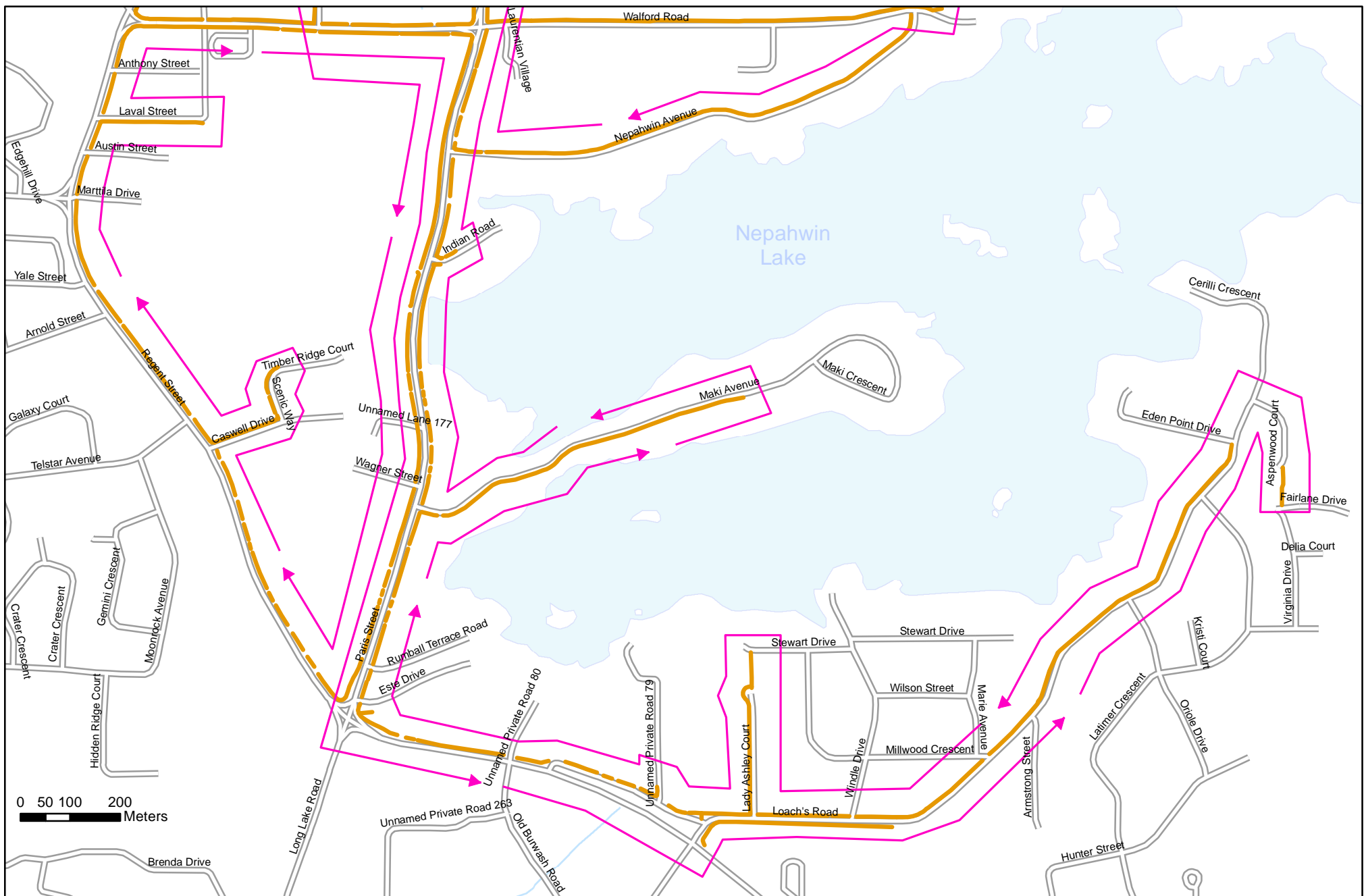


SOUTH SECTION 2024-2025

SIDEWALK 1

Date: August 16, 2024

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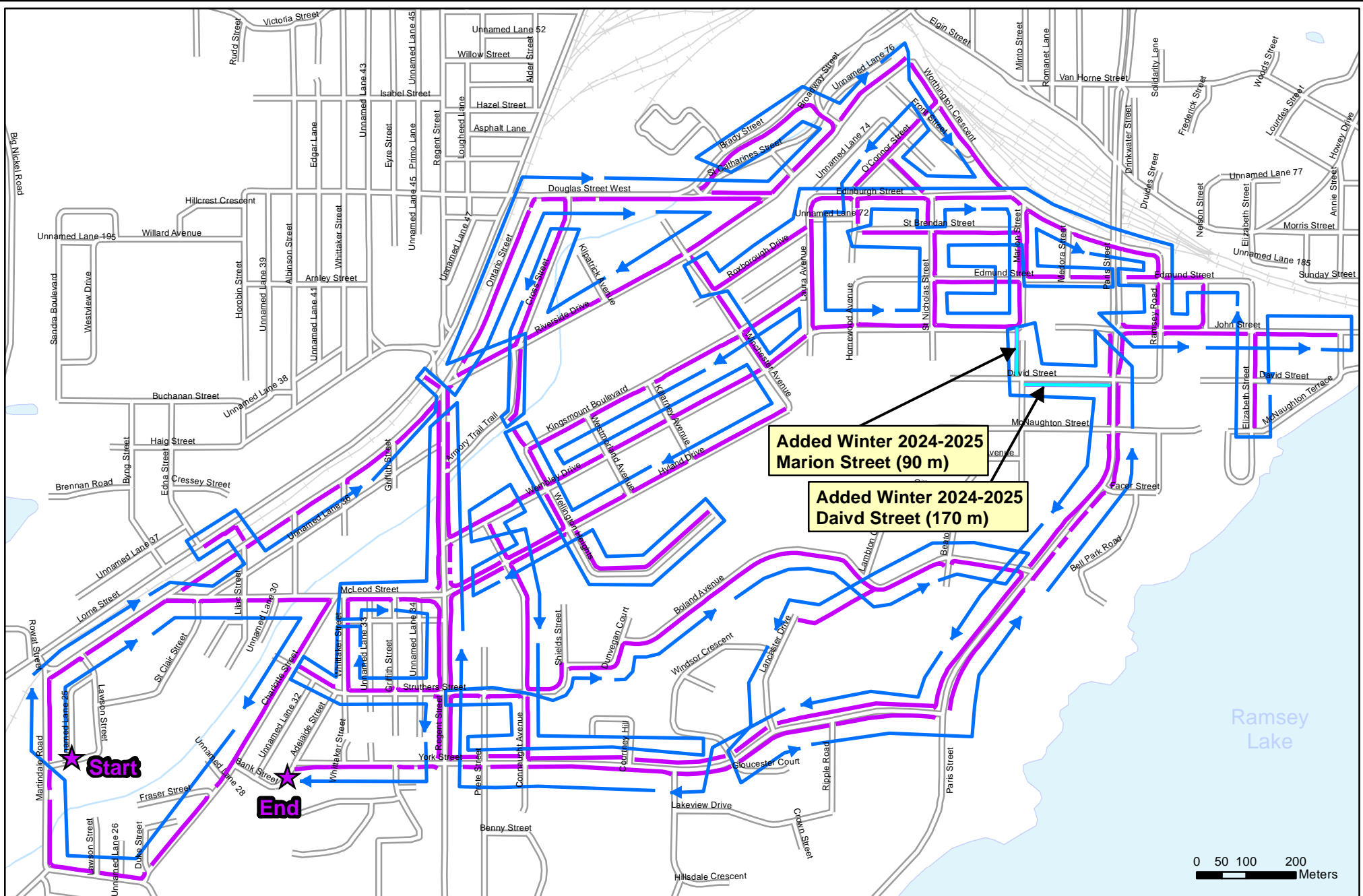


SOUTH SECTION 2024-2025

SIDEWALK 1

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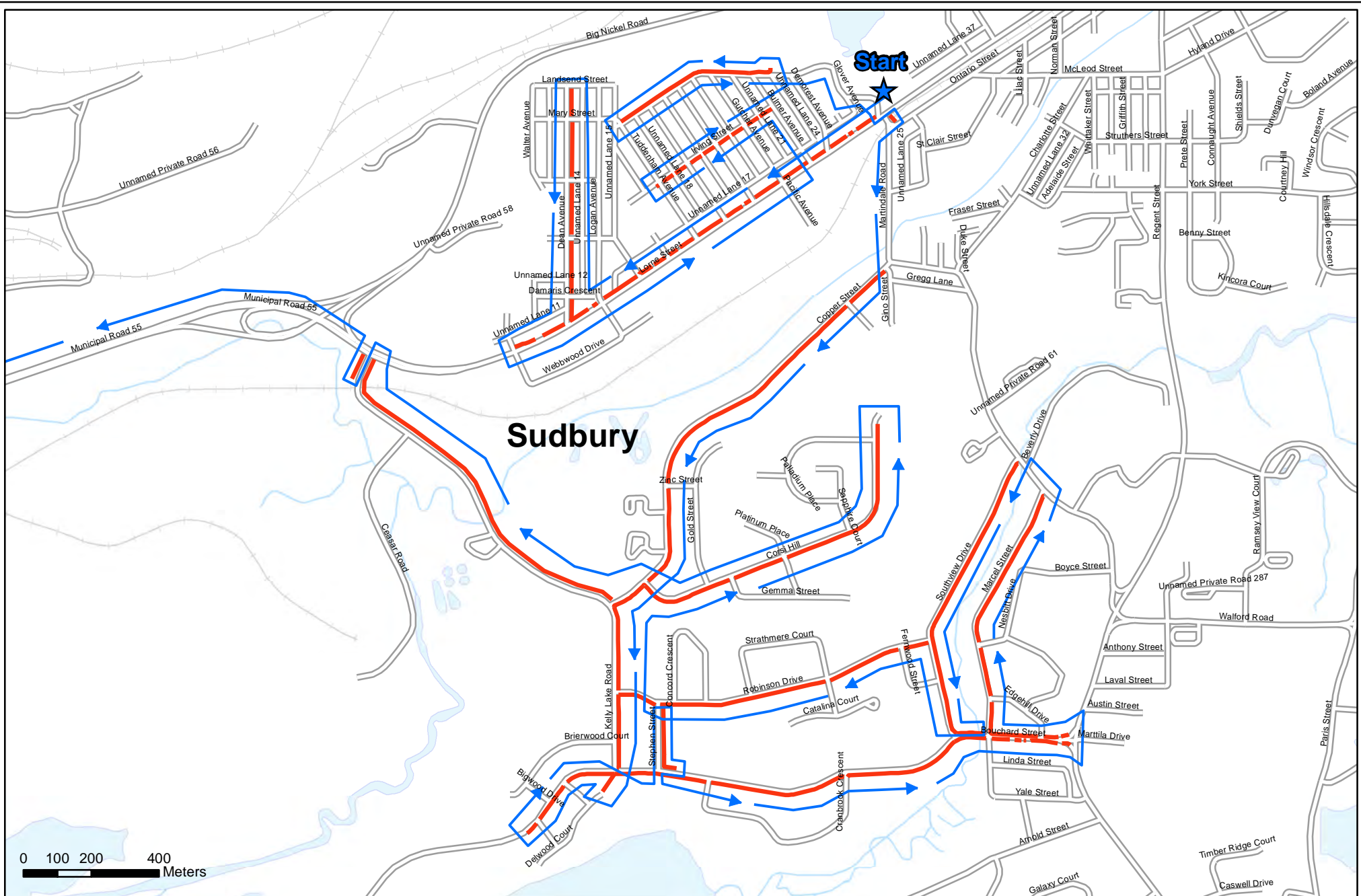


SOUTH SECTION 2024-2025

SIDEWALK 2

Date: August 16, 2024

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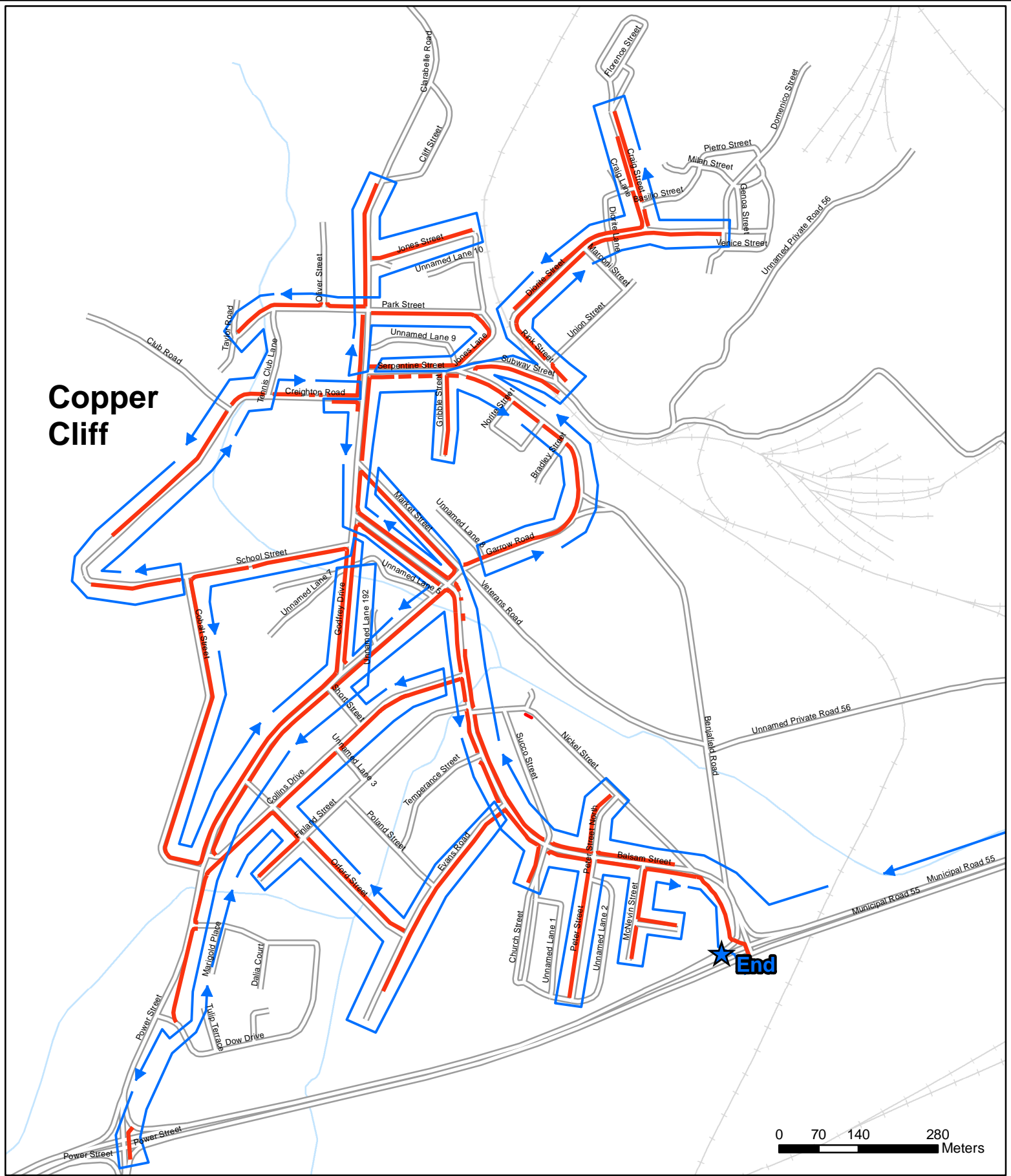


SOUTH SECTION 2024-2025

SIDEWALK 3

Date: August 16, 2024

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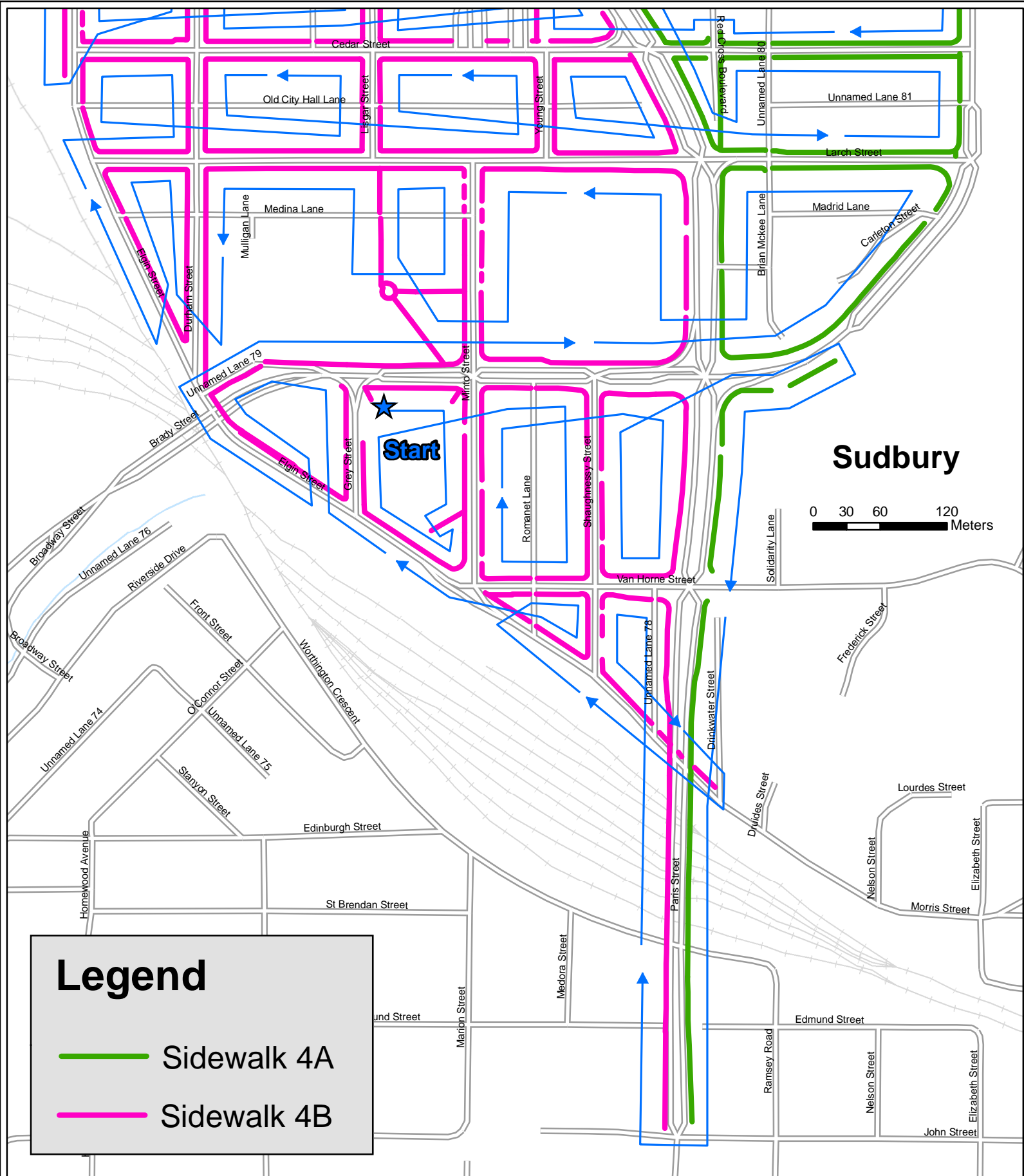


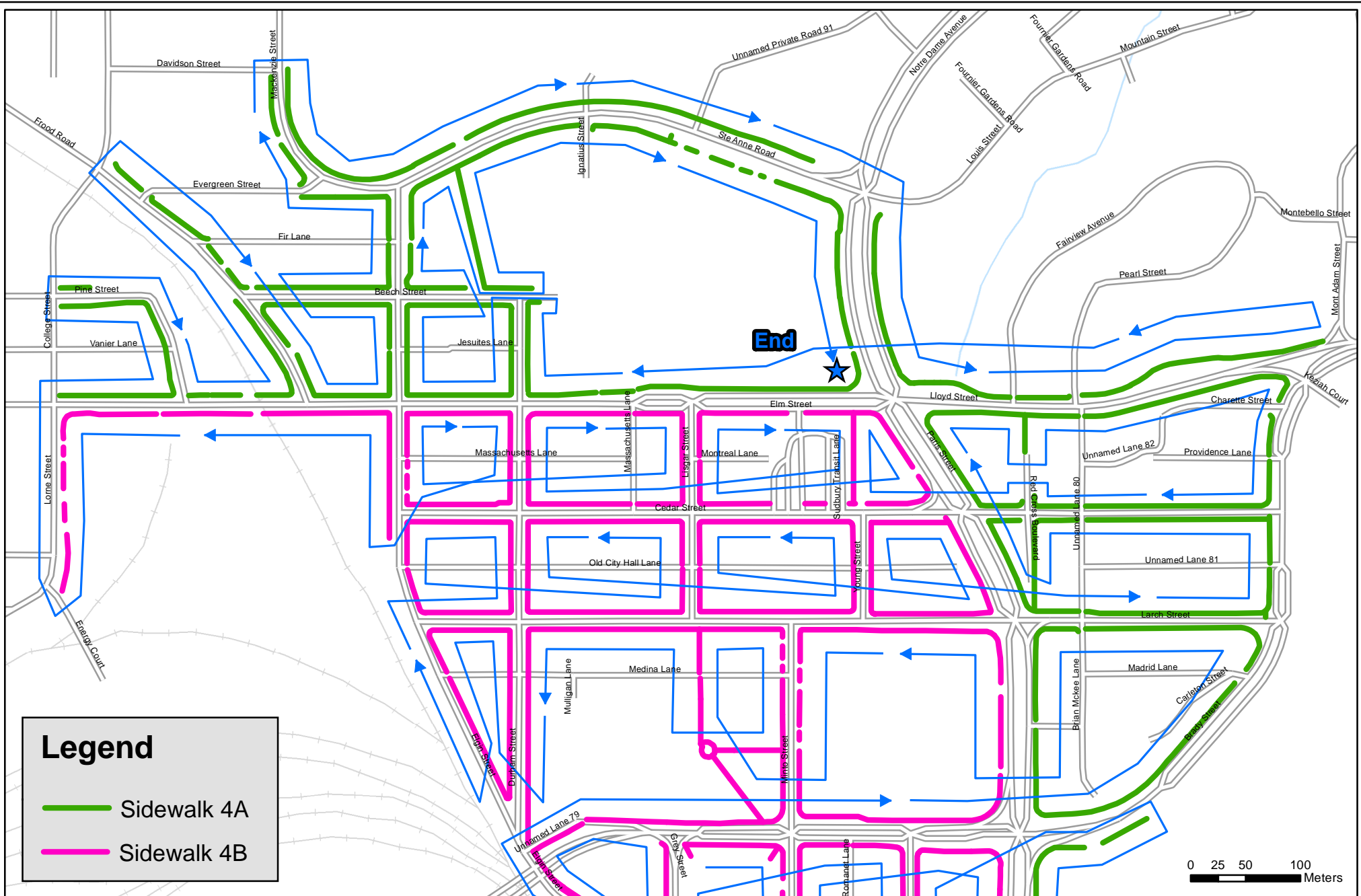
SOUTH SECTION 2024-2025

SIDEWALK 3

Date: August 16, 2023

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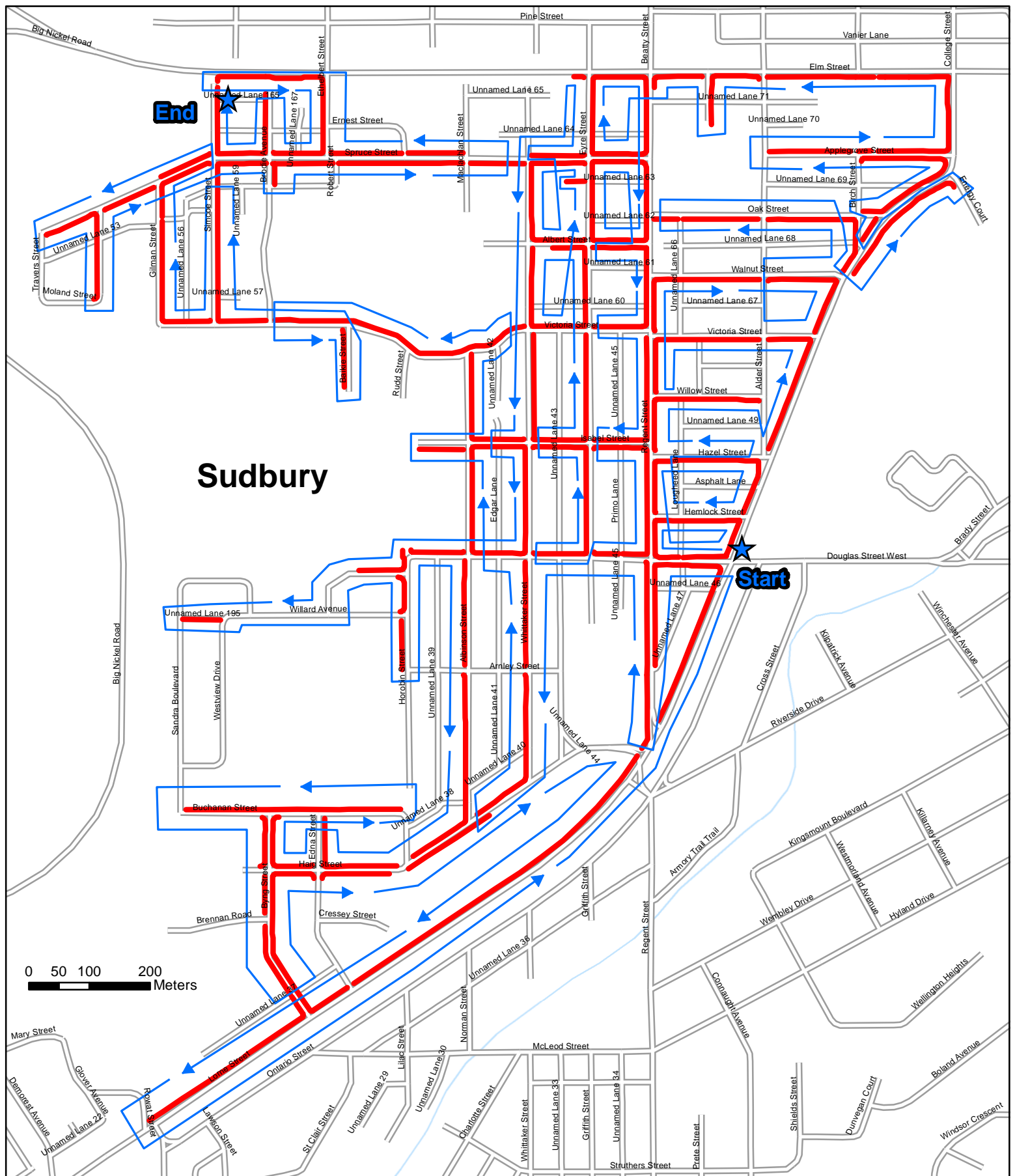


SOUTH SECTION 2024-2025

SIDEWALK 4

Date: August 16, 2024

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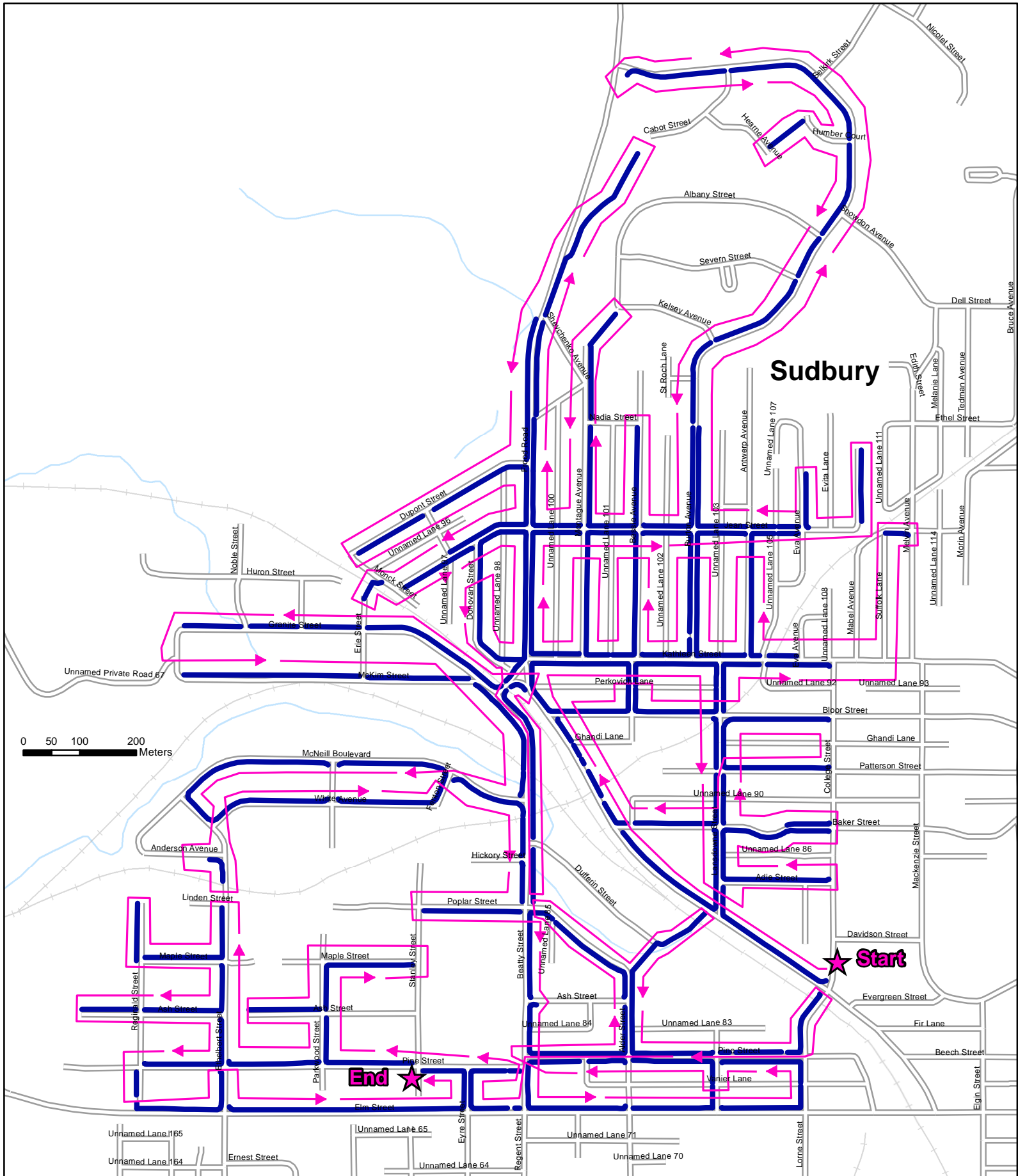
SOUTH SECTION 2024-2025

SIDEWALK 5

Date: August 16, 2024

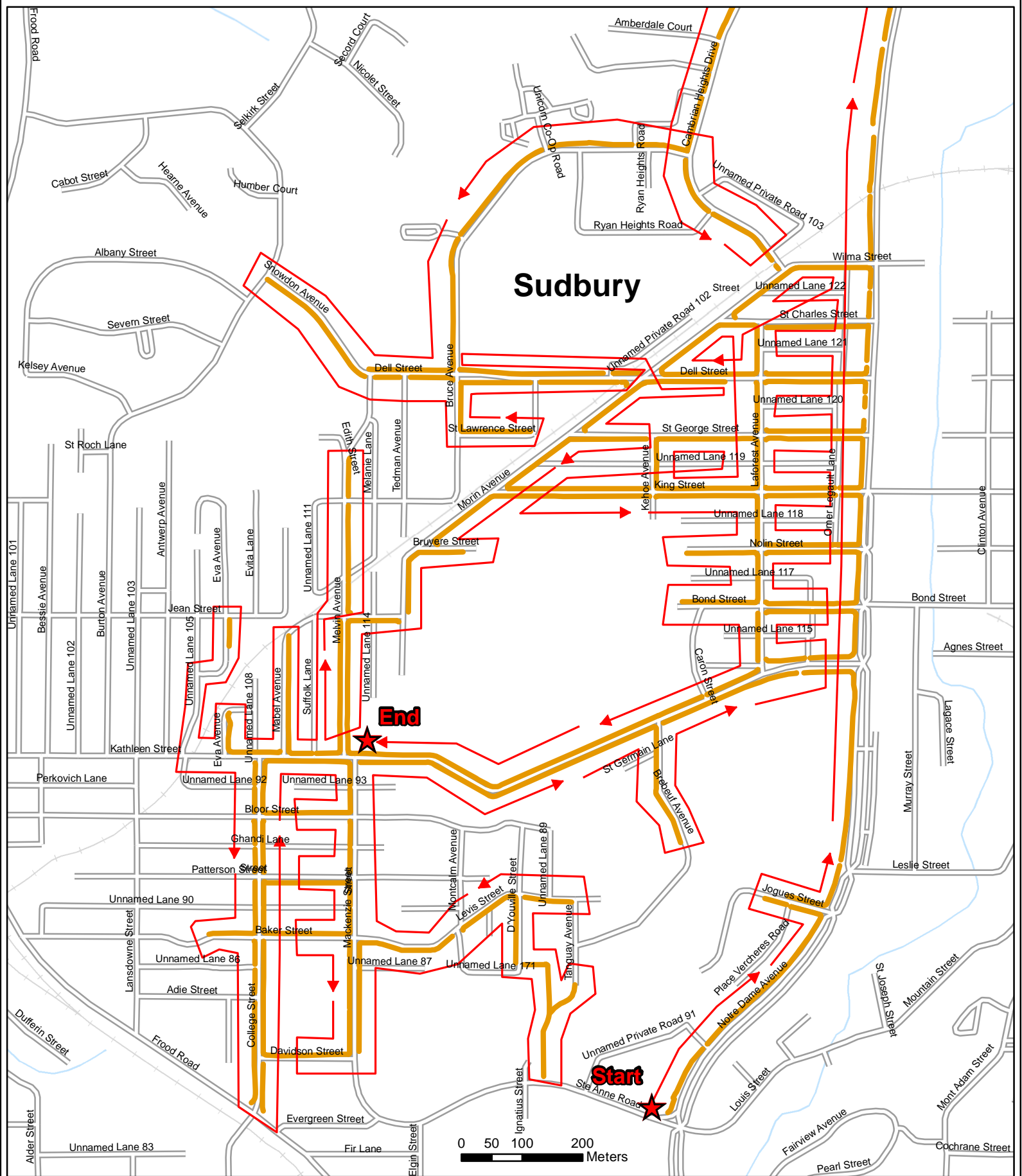
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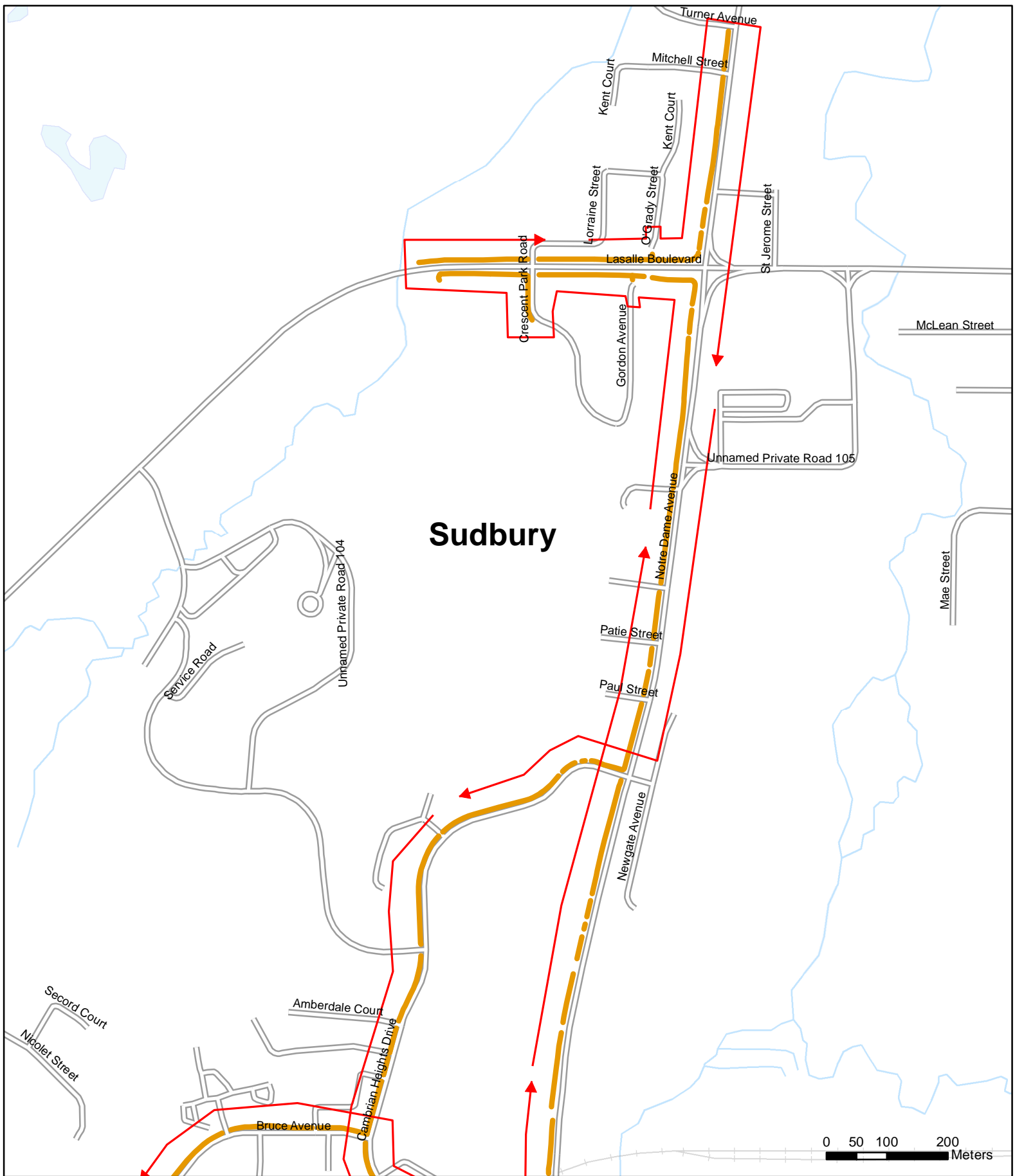
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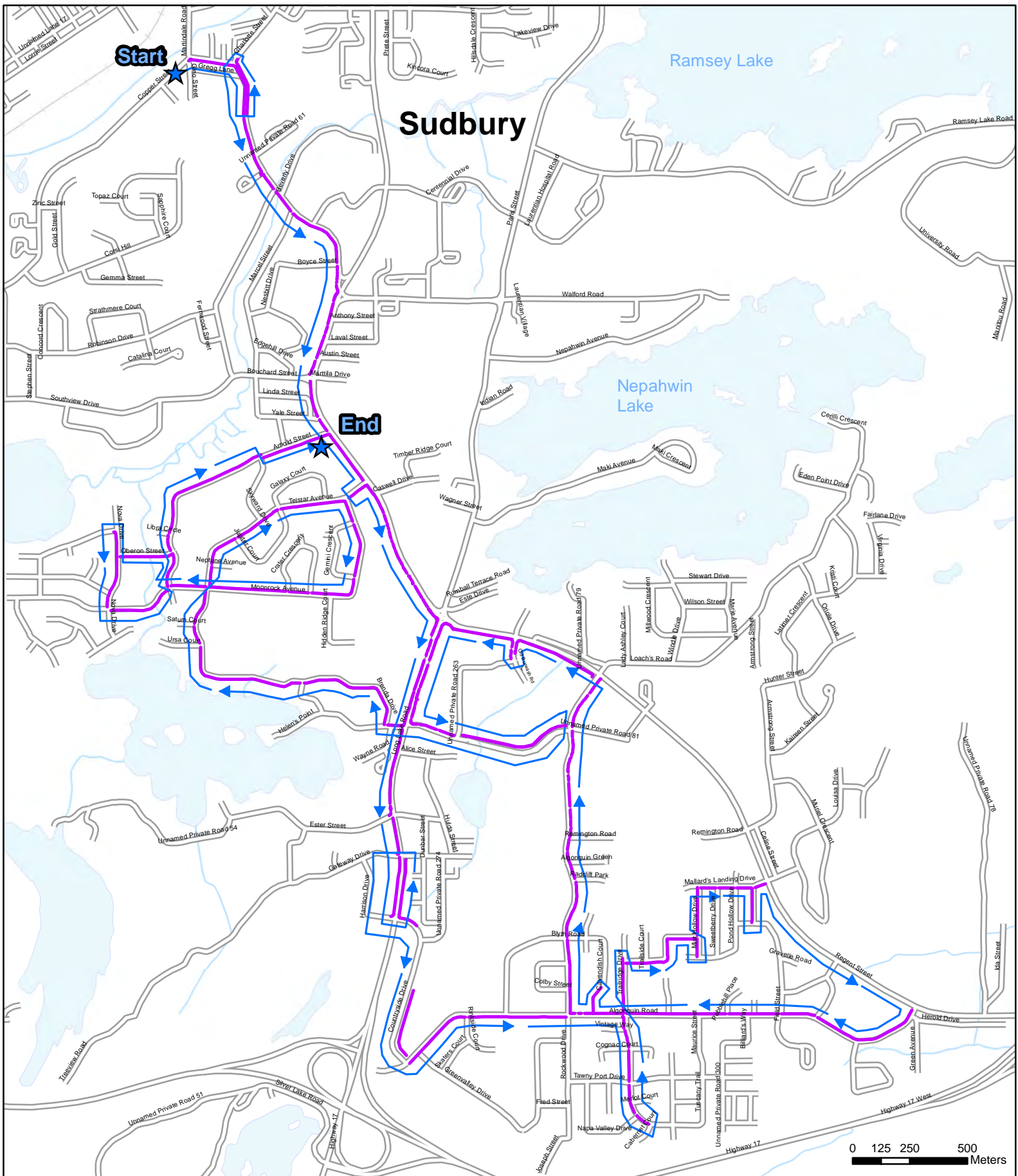
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SIDEWALK 7



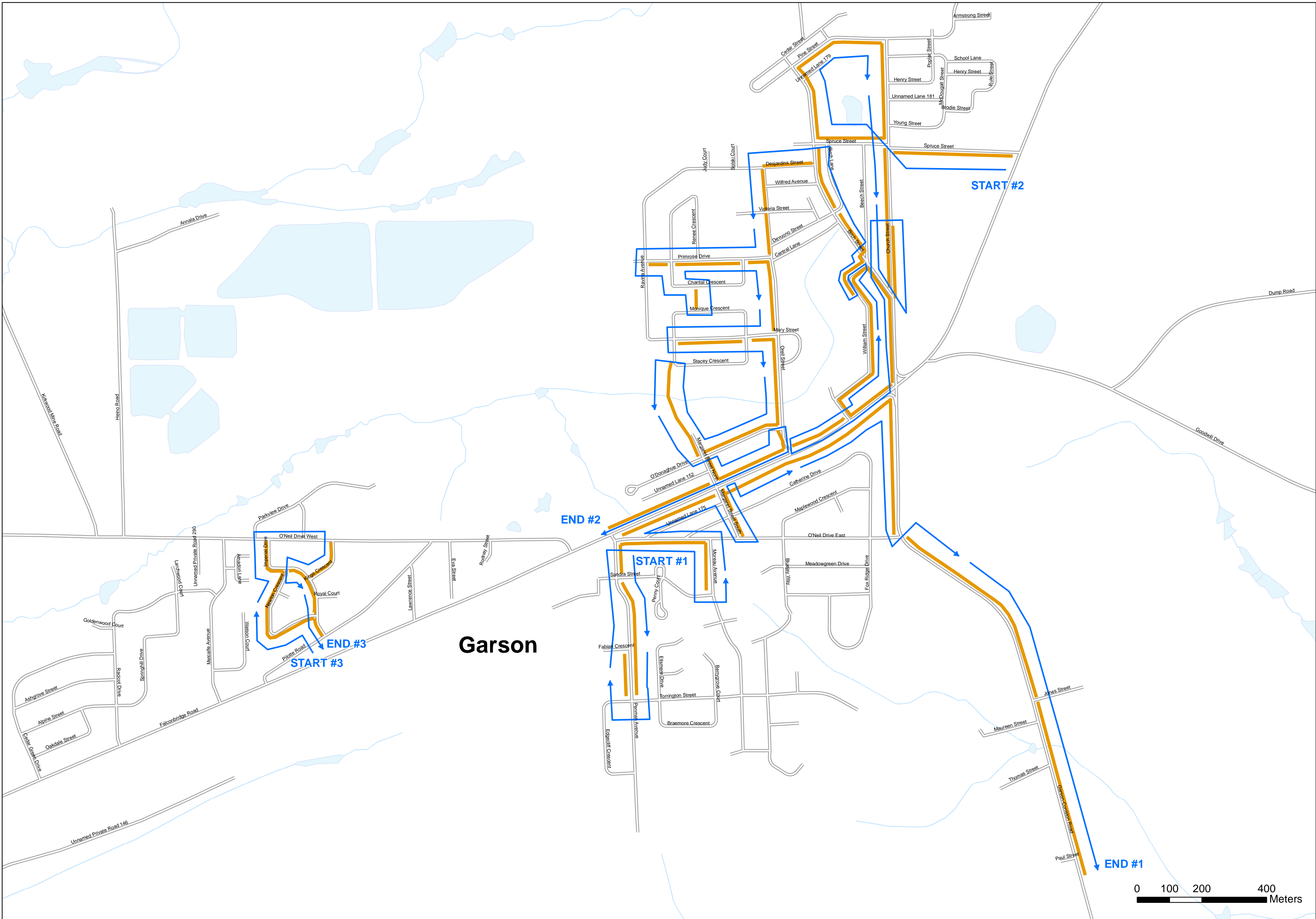
SOUTH SECTION 2024-2025

SIDEWALK 7



SOUTH SECTION 2024-2025

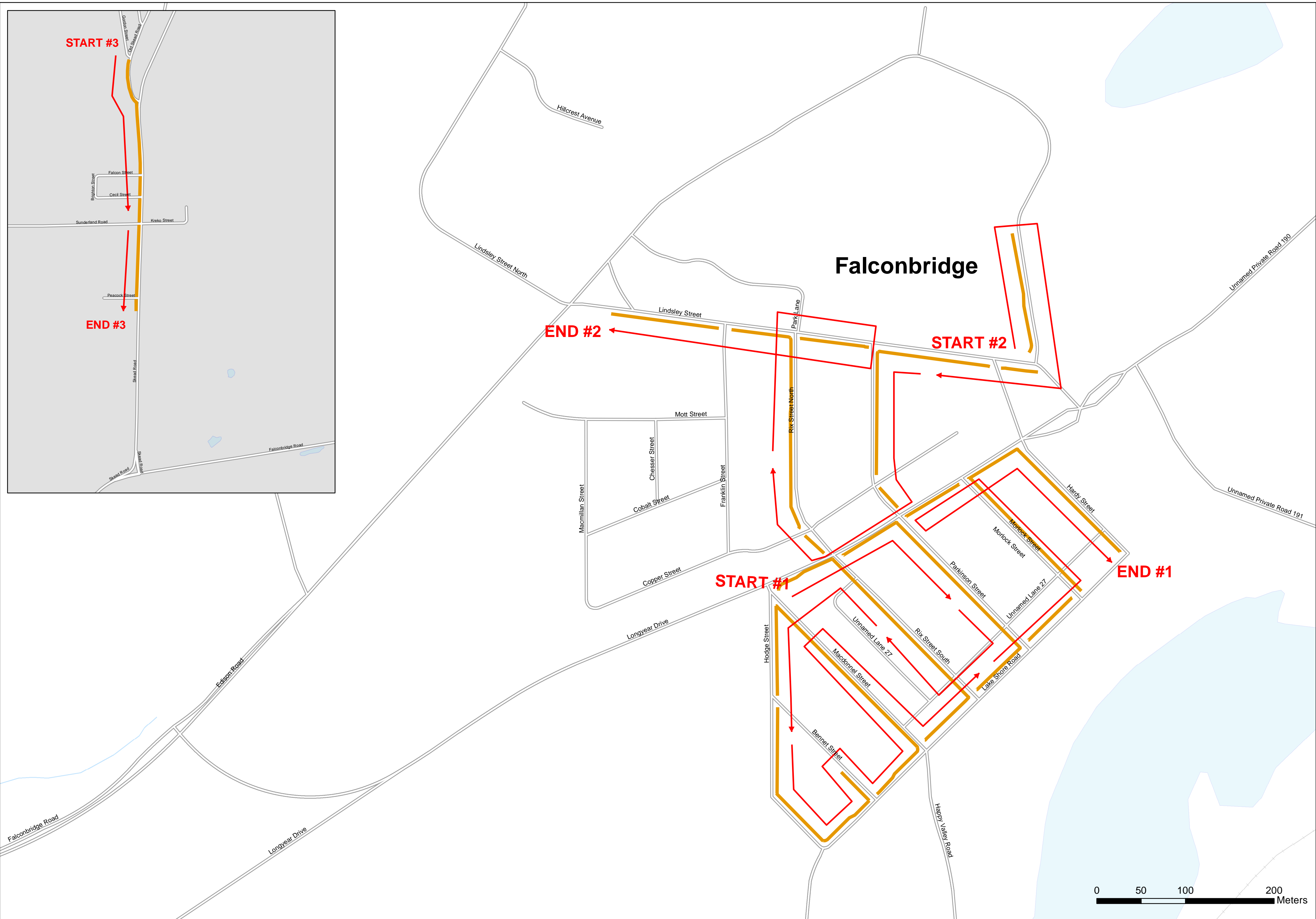
SIDEWALK 8



SOUTHEAST SECTION 2024-2025

Date: August 16, 2024
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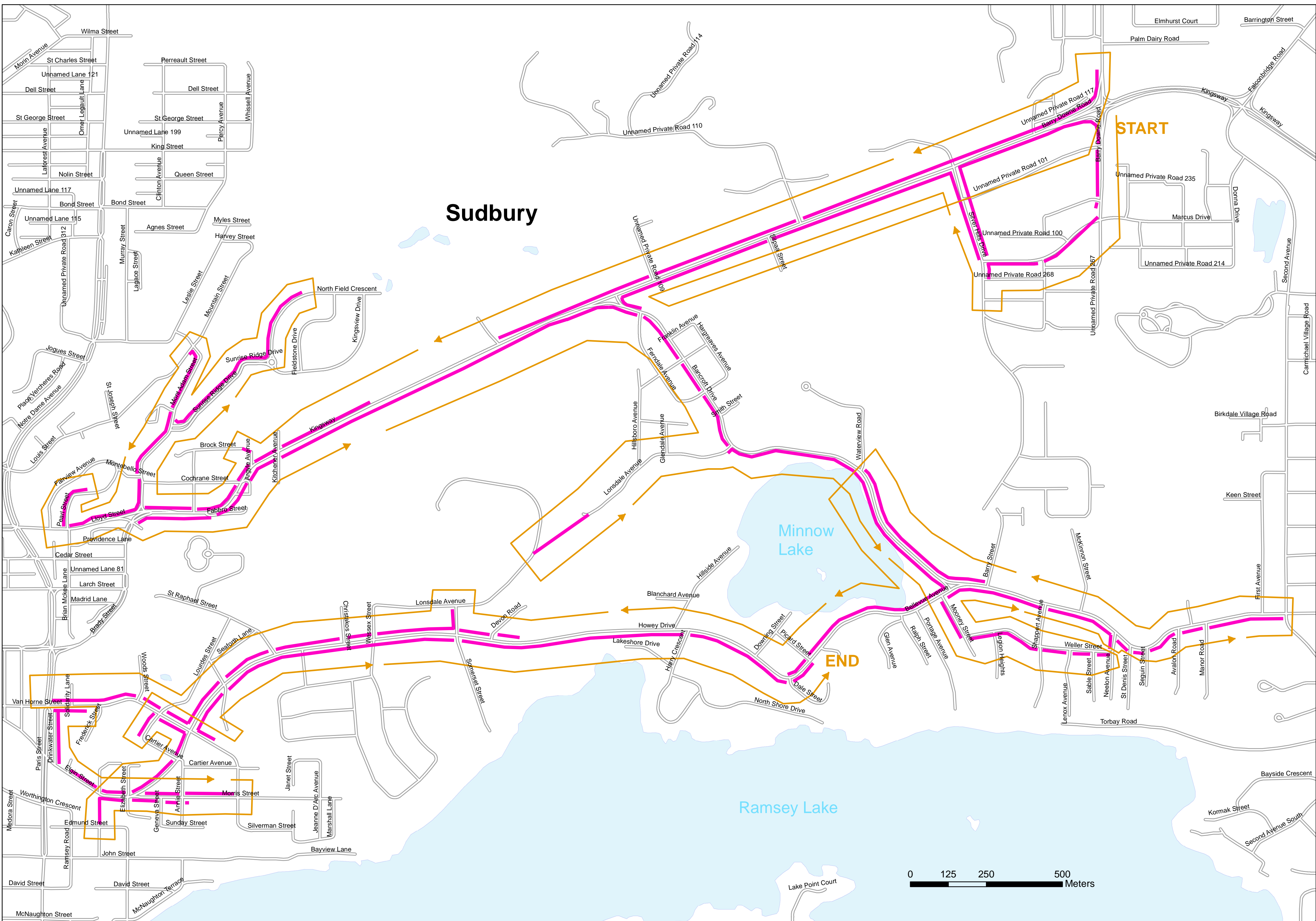
SOUTHEAST SECTION 2024-2025

Date: August 16, 2024
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SIDEWALK 1

2 of 2

Vehicle:

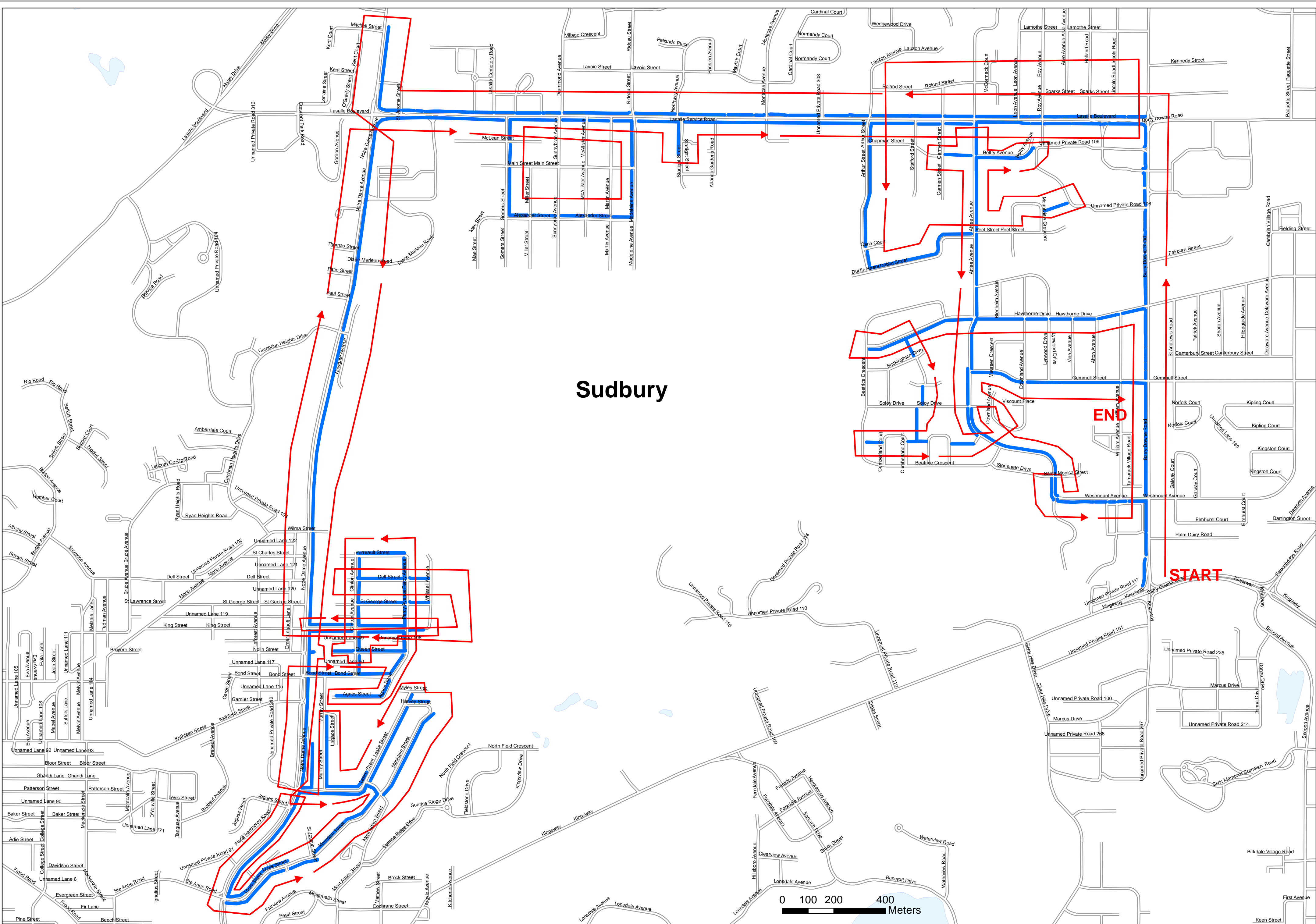


SOUTHEAST SECTION 2024-2025

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SIDEWALK 2

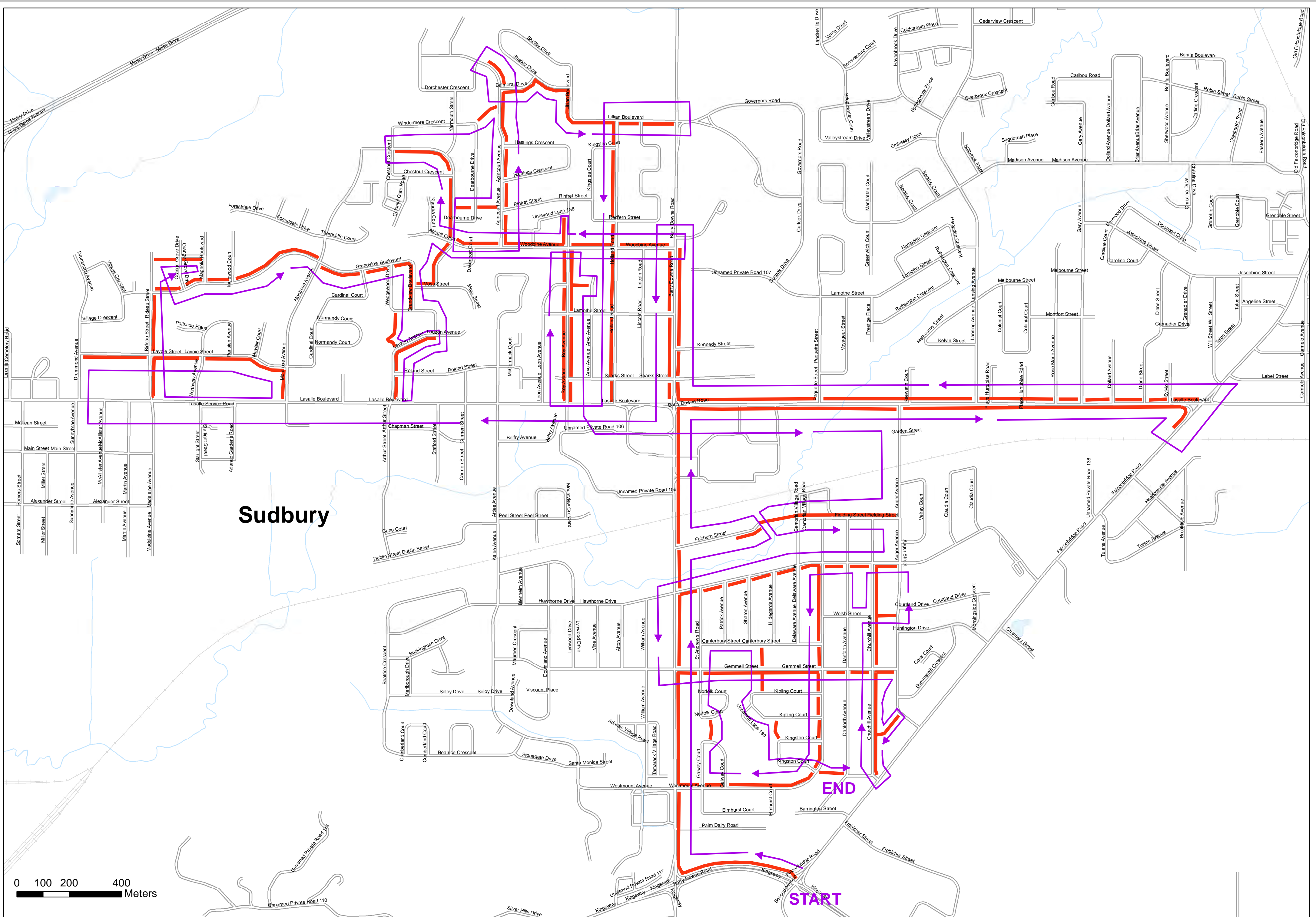
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SOUTHEAST SECTION 2024-2025

Date: August 16, 2024
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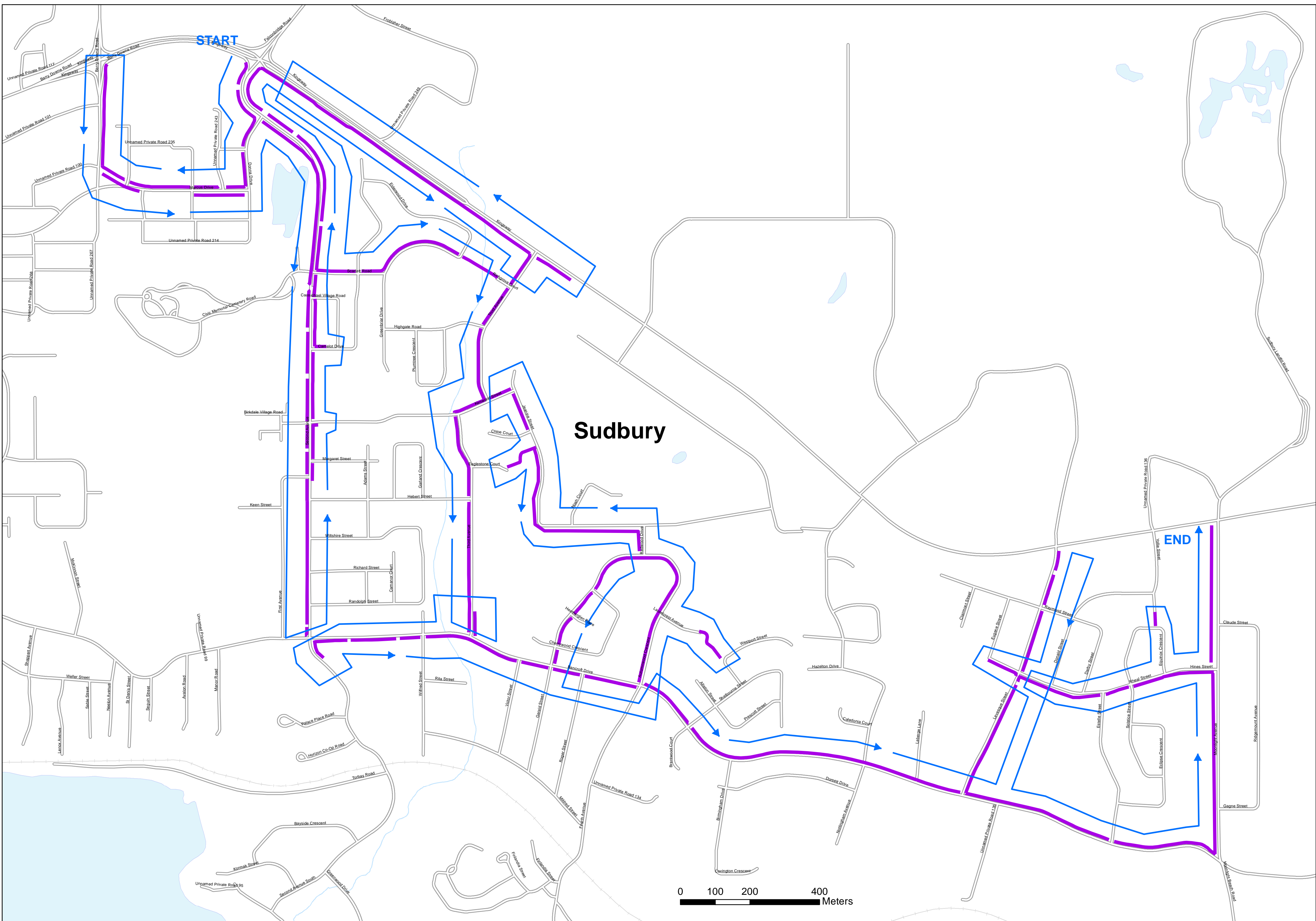
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SIDEWALK 4



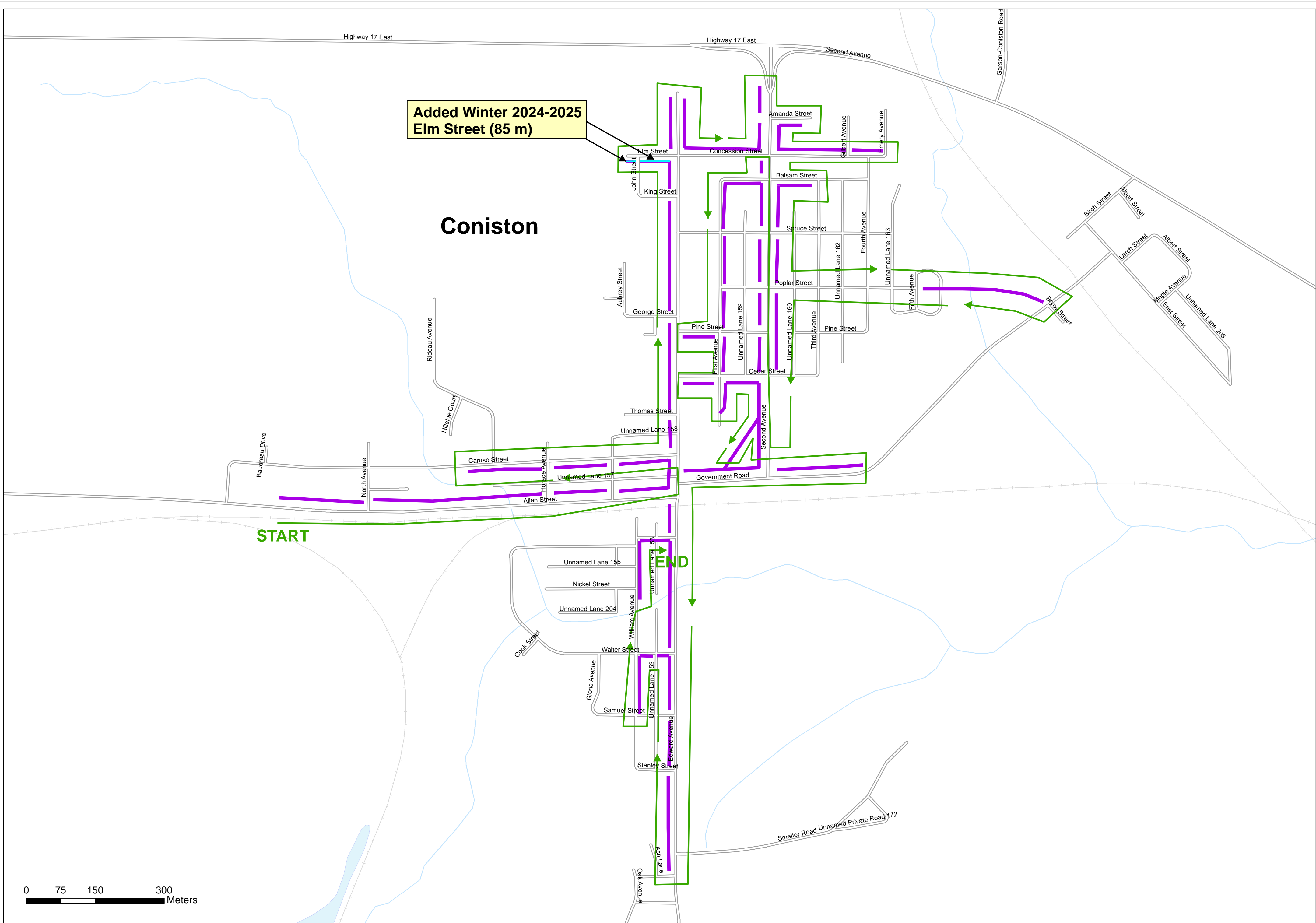
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Date: August 16, 2024
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SIDEWALK 5

1 of 2

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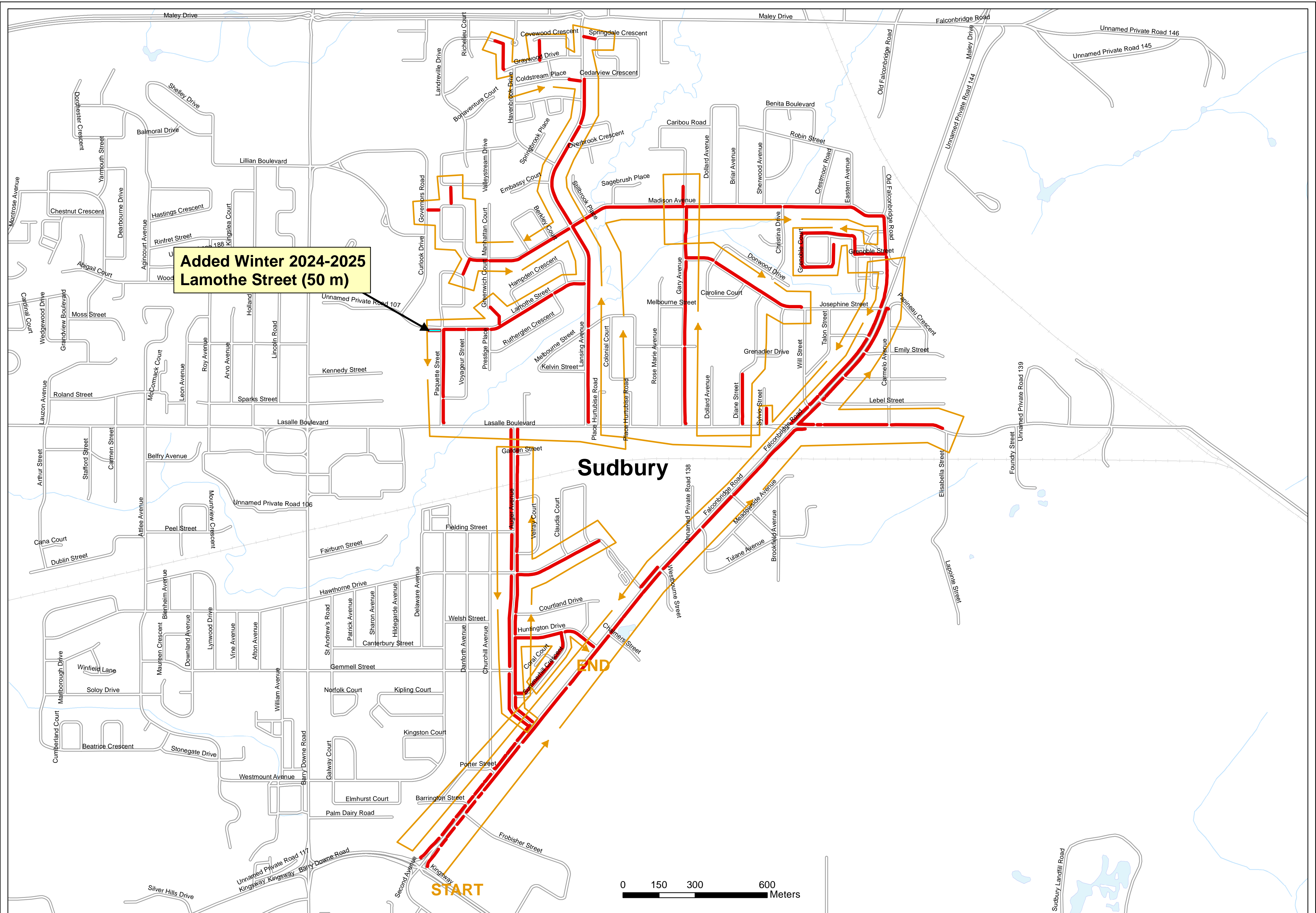


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Date: August 16, 2024
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SIDEWALK 5

2 of 2
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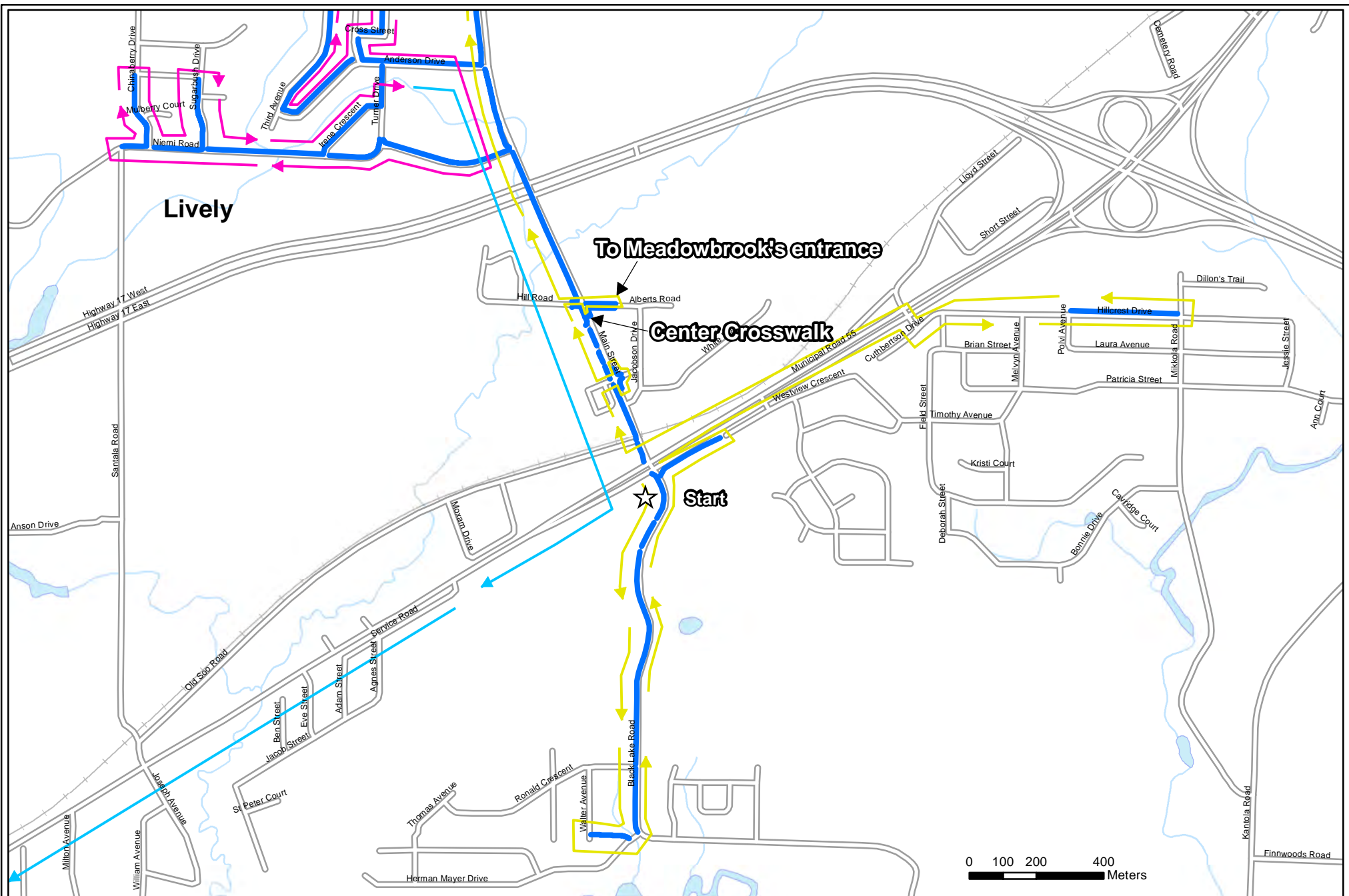
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SIDEWALK 6

1 of 2

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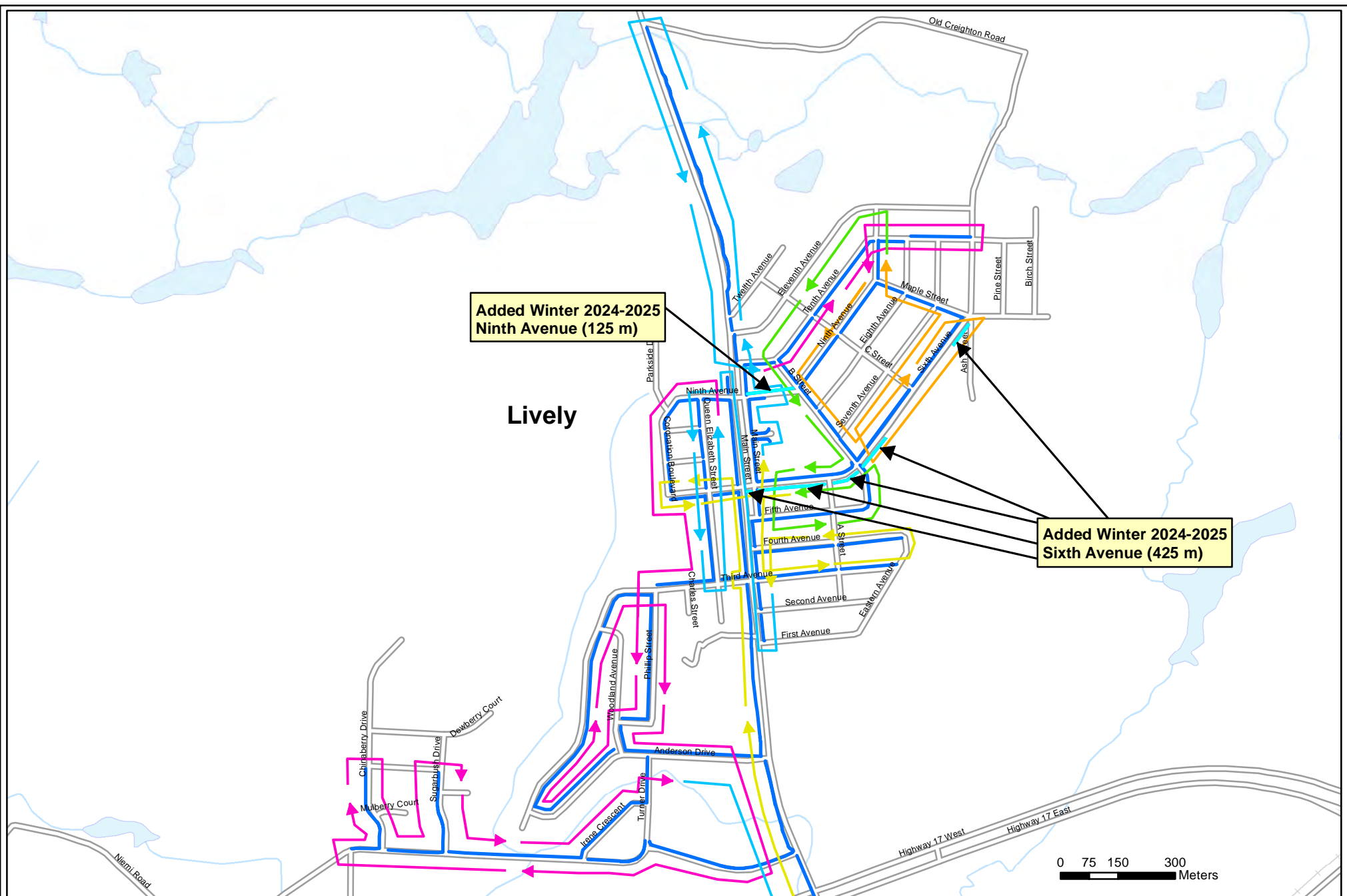


SOUTHWEST SECTION 2024-2025

SIDEWALK 1

Date: August 16, 2024

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SOUTHWEST SECTION 2024-2025

SIDEWALK 1

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SOUTHWEST SECTION 2024-2025

SIDEWALK 1

Date: August 16, 2023

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WWW Linear Infrastructure Performance Review 2024

Presented To:	Operations Committee
Meeting Date:	October 15, 2024
Type:	Correspondence for Information Only
Prepared by:	Drew MacDonald Linear Infrastructure Services
Recommended by:	General Manager of Growth and Infrastructure

Report Summary

This report provides information regarding the performance of the City's Water and Wastewater Linear Infrastructure for 2023.

Relationship to the Strategic Plan, Health Impact Assessment and Climate Action Plans

This report relates to the Asset Management and Service Excellence pillar within the Strategic Plan and has no direct connection to the Community Energy & Emissions Plan.

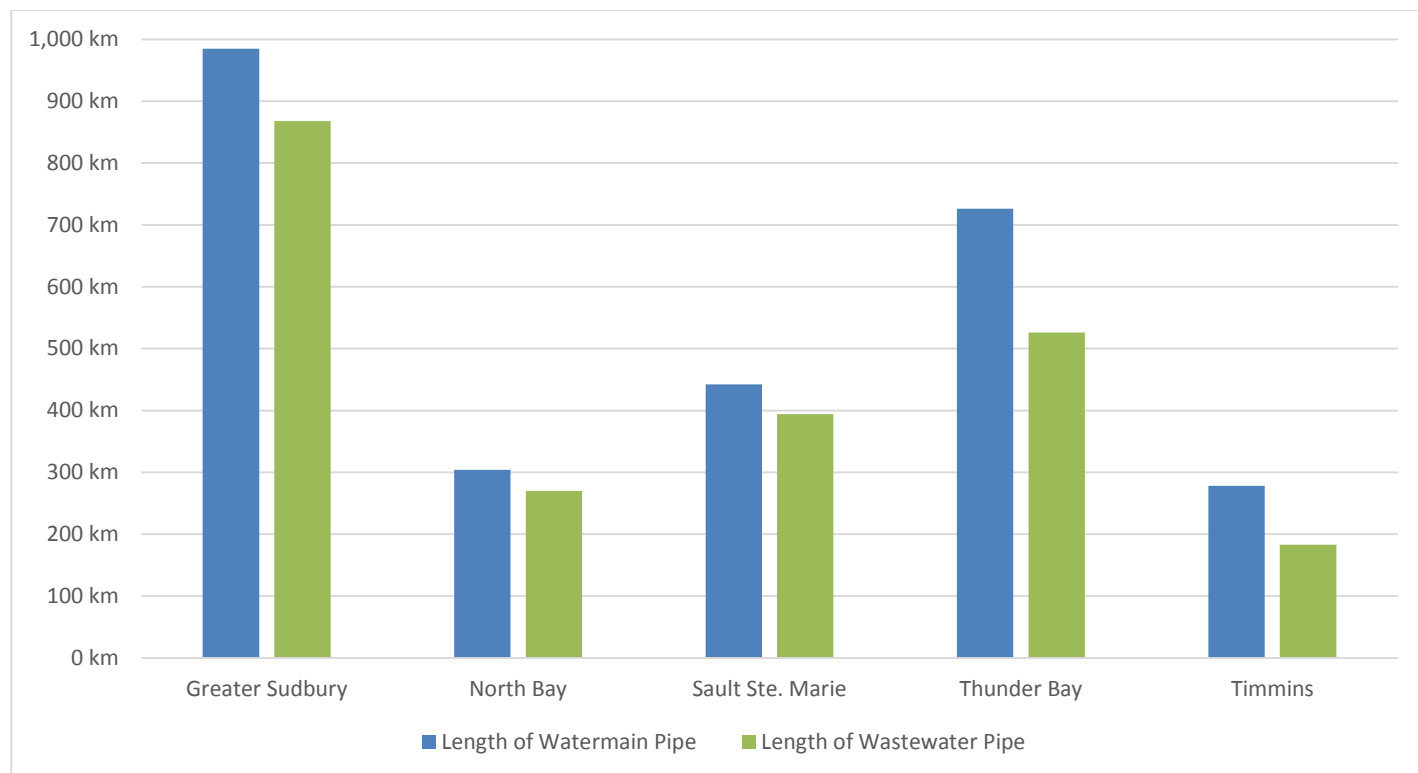
Financial Implications

There are no financial implications associated with this report.

Background

The City of Greater Sudbury provides drinking water and wastewater collection services to approximately 48,000 residential, industrial, commercial, and institutional properties throughout the City. Those services are delivered through water and wastewater (WWW) linear infrastructure composed of approximately 1,000 km of watermain, 800 km of gravity wastewater collection main and 70 km of wastewater force main. Figure 1 provides a comparison of the City's linear pipe network inventory to those of other Northern Ontario communities.

Figure 1 – Northern Ontario Municipal WWW Linear System Inventory



The Distribution and Collection (D&C) Section of Linear Infrastructure Services operates and maintains this infrastructure, including response to 311 inquiries and emergency repairs 24/7, 365 days a year, with support from the Infrastructure Capital Planning division which includes the WWW Condition Assessment and Analytics Section which was made permanent during the 2023 Budget.

Water and Wastewater Pipe Materials

The City's water and wastewater pipe networks were developed incrementally over time as communities were established and grew. Construction materials changed and evolved during that time leaving us with networks comprised of various pipe material types. Pipe materials include metallic (cast iron, ductile iron), non-metallic (polyvinyl chloride, high density polyethylene, asbestos cement, vitrified clay, concrete), and composite (prestressed concrete cylinder pipe). The expected service life of each pipe material can vary depending on manufacturing process and operating conditions (e.g. soil/groundwater properties, subjected pressures/forces) but generally accepted values are provided in Table 1 below.

Table 1 – Water and Wastewater Pipe Expected Service Life (in years)

Pipe Material	Water Pipe	Sewer Pipe
Asbestos Cement (AC)	55	55
Cast Iron (CI)	60	60
Concrete (non-reinforced)	N/A	90
Prestressed Concrete Cylinder Pipe (PCCP)	95	N/A
Ductile iron	60	N/A
High Density Polyethylene (HDPE)	80	80
Poly Vinyl Chloride (PVC)	100	100
Vitrified Clay (VC)	N/A	55

With recent, widely publicized trunk watermain failures in Calgary and Montreal, particular attention is being focused around Prestressed Concrete Cylinder Pipe (PCCP) watermains. There is approximately 56 km of larger diameter (400mm to 900mm) PCCP watermains currently within the City's drinking water network. While service life of PCCP watermain can be beyond 100 years, premature failures, such as those experienced in Calgary and Montreal can occur. Common modes of failure of PCCP include leaks at joints and blowout failures where the barrel of the pipe ruptures. While both failure modes can be costly to repair and result in isolation of key water supply lines, blowout failures can result in immediate and catastrophic release of water from the system. In most cases failure of PCCP is a result of corrosion of the internal steel reinforcement and joints.

The City has experienced a limited number of PCCP breaks primarily resulting from joint/connection failures. Observed failures were generally in areas of shallower pipe installations, which were more heavily trafficked and as a result, prone to higher frost penetration. Pipe movement brought on by frost and ground movement, coupled with the low tolerance of PCCP joints to deflect and rotate is expected to have led to the accelerated deterioration of the joint and ultimate failures.

The City's approach to managing these critical large diameter watermains and associated risks involves four primary strategies which include:

- 1) Continued monitoring and control of system pressures and pump outputs to ensure undue stress is not applied to the system.
- 2) Detailed pipe condition assessment studies.
- 3) Targeted asset renewal/replacement of pipelines identified as a risk due to condition assessments and/or documented failures.
- 4) Building redundancy in the system by identifying critical, single-feed mains and implementing plans to provide parallel or secondary systems to increase available flow and reduce reliance on a single pipeline.

A prime example of these strategies in practise would be the management of the 13 km of 750 mm diameter PCCP trunk watermain running from the Wanapitei Water Treatment Plant (WTP) to the Sudbury Drinking Water System. To date:

- 1) Work has been completed at the WTP to better manage and regulate output pressures.
- 2) A detailed condition assessment of the pipe is underway by AECOM Canada Ltd.
- 3) Capital works to replace approximately 140 metres of trunk watermain in an area that has experienced multiple joint failures is in progress and will be completed this fall.
- 4) An Environmental Assessment and preliminary design for future 'twinning' of this watermain to improve redundancy as well as position the drinking water network to better support the City's long-term population and employment growth objectives is underway.

Annual Performance Review

This report is intended to provide an annual performance review of the WWW linear infrastructure systems. This review will utilize performance measurements with benchmark comparisons to municipal peers taken from the Municipal Benchmarking Network Canada (MBNCan) annual performance reporting initiative. Membership in MBNCan provides the City access to shared expertise and data from contributing municipalities from across the country. Where practical, data from multiple years and municipalities may be used to identify trends.

The overall performance of WWW linear infrastructure systems is influenced by factors such as:

- Age of infrastructure
- Historical design/construction methods of existing systems
- Changing climate conditions (e.g. seasonal temperature variations and severe storm events)
- Capital replacement/rehabilitation programs
- Proactive maintenance initiatives

Wastewater Collection System Performance Review

The City of Greater Sudbury owns and operates 13 independent wastewater collection systems, including 69 lift stations, that service the various communities throughout the City. Those independent systems include:

- Onaping - Levack Wastewater System
- Dowling Wastewater System
- Chelmsford Wastewater System
- Valley Wastewater System
- Azilda Wastewater System
- Copper Cliff Wastewater System
- Lively/Walden Wastewater System
- Sudbury Wastewater System
- Coniston Wastewater System
- Wahnapiatae Wastewater System
- Garson Wastewater System
- Falconbridge Wastewater System
- Capreol Wastewater System

The three MBNCan Performance Measurements that will be discussed within this review for wastewater collection systems are:

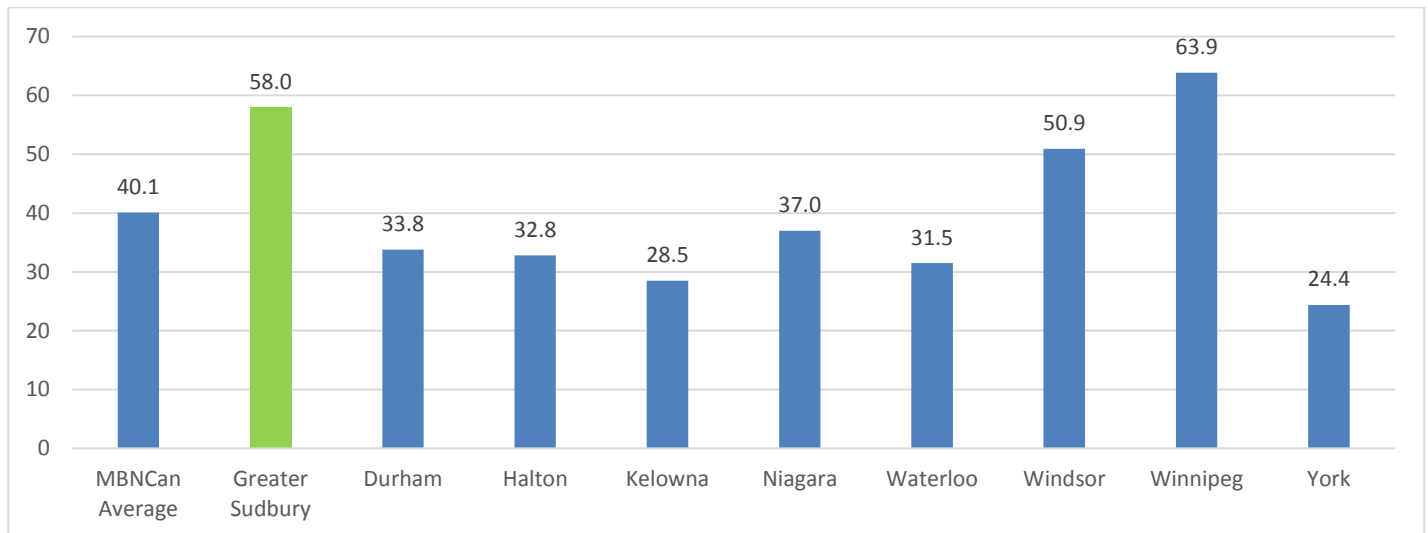
- Average Age of Wastewater Pipe
- Annual Number of Wastewater Main Back-ups per 100 km of Pipe
- Total Cost of Wastewater Collection/Conveyance per km of Pipe

Average Age of Wastewater Pipe

Older wastewater pipes are more susceptible to degradation and can contain cracks, leaking/separated joints and broken/failing pipe sections which can permit the intrusion of debris and roots into the system resulting in blockages and back-ups. Additionally, these deficiencies can also permit the inflow of groundwater into the system potentially increasing flows beyond the pipes capacity, again resulting in a main back-up.

Figure 2 below shows the estimated average age of the City's collection system with comparisons to municipal peers from the latest MBNCan reporting year of 2023. With an average pipe age of 58 years, the City's system is among the oldest of the reporting municipalities and approximately 18 years older than the MBNCan average age of 40.1 years. What is not currently represented in this measurement is the inventory of existing wastewater pipes which have been rehabilitated through structural pipe lining. For over 10 years the City has operated a program utilizing trenchless pipe rehabilitation (i.e. structural lining) to extend the service life of aging pipes and reduce the risk of underground failures.

Figure 2 – Average Age of Wastewater Pipes in Years

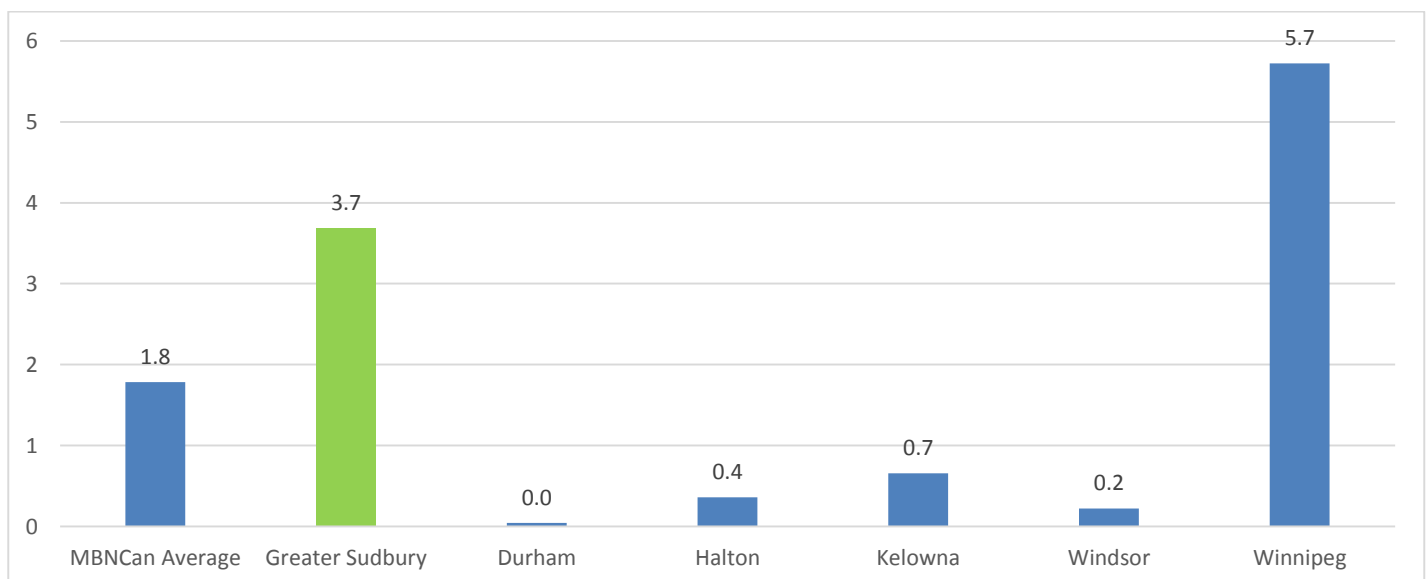


Annual Number of Wastewater Main Back-ups per 100km of Pipe

In addition to pipe age and overall condition, the total number of wastewater system back-ups is also heavily influenced by seasonal variations in precipitation and runoff. Infiltration and inflow of surface runoff and groundwater into the wastewater system during severe storm events or during times of rapid snow melt can contribute to overloading the system leading to wastewater back-ups.

Figure 3 below shows the annual number of wastewater sewer main back-ups per 100 km of pipe in 2023 with comparison to municipal peers (Note: Regional municipalities of Niagara, Waterloo and York do not report on this measure as they do not provide local wastewater collection which is the responsibility of the local municipalities within their boundaries). While back-up rates within Greater Sudbury are higher than the MBNCan average (i.e. 3.7 vs. 1.8 back-ups per 100km of pipe), City initiatives aimed at reducing inflow and infiltration as well as an extensive wastewater pipe flushing program have resulted in a general decreasing trend in recent years.

Figure 3 – Annual Number of Wastewater Sewer Main Back-ups per 100 km of Pipe

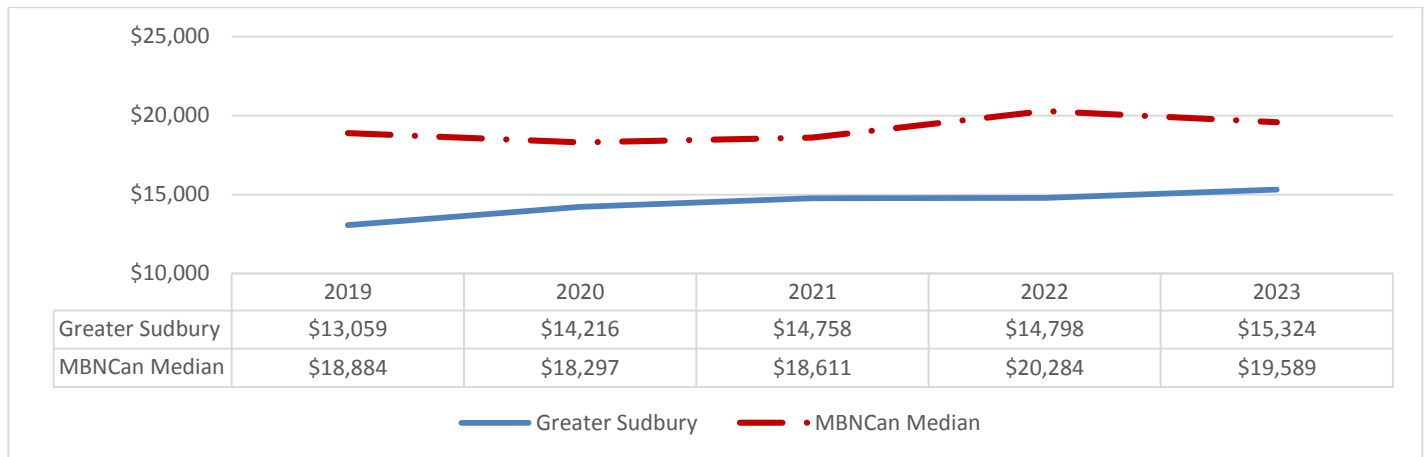


Annual Costs of Wastewater Collection/Conveyance

The MBNCan Performance Measurement for the Total Cost of Wastewater Collection/Conveyance reflects the costs associated with the operation and maintenance of the City's wastewater collection system. Included in these costs is the amortization of the assets which can vary significantly from year to year depending on the type of infrastructure and capital fund expenditures.

Municipalities like Greater Sudbury which provide services over broad geographic areas generally have higher operating costs due to the number of wastewater facilities and pumping stations required. Despite these challenges, the City's operating costs remain below the MBNCan median rate as illustrated by Figure 4.

Figure 4 – Total Cost for Wastewater Collection/Conveyance per km of Pipe



Water Distribution System Performance Review

The City of Greater Sudbury owns and operates six distinct municipal drinking water supply systems, including 12 booster stations, spread over a large geographic area servicing the communities throughout the City. The City's Distribution network is made up of the following systems:

- Valley Drinking Water System
- Onaping-Levack Drinking Water System
- Dowling Drinking Water System
- Vermillion Distribution System
- Sudbury Drinking Water System
- Falconbridge Drinking Water System

The three MBNCan Performance Measurements that will be reported on within this review for the drinking water distribution systems are:

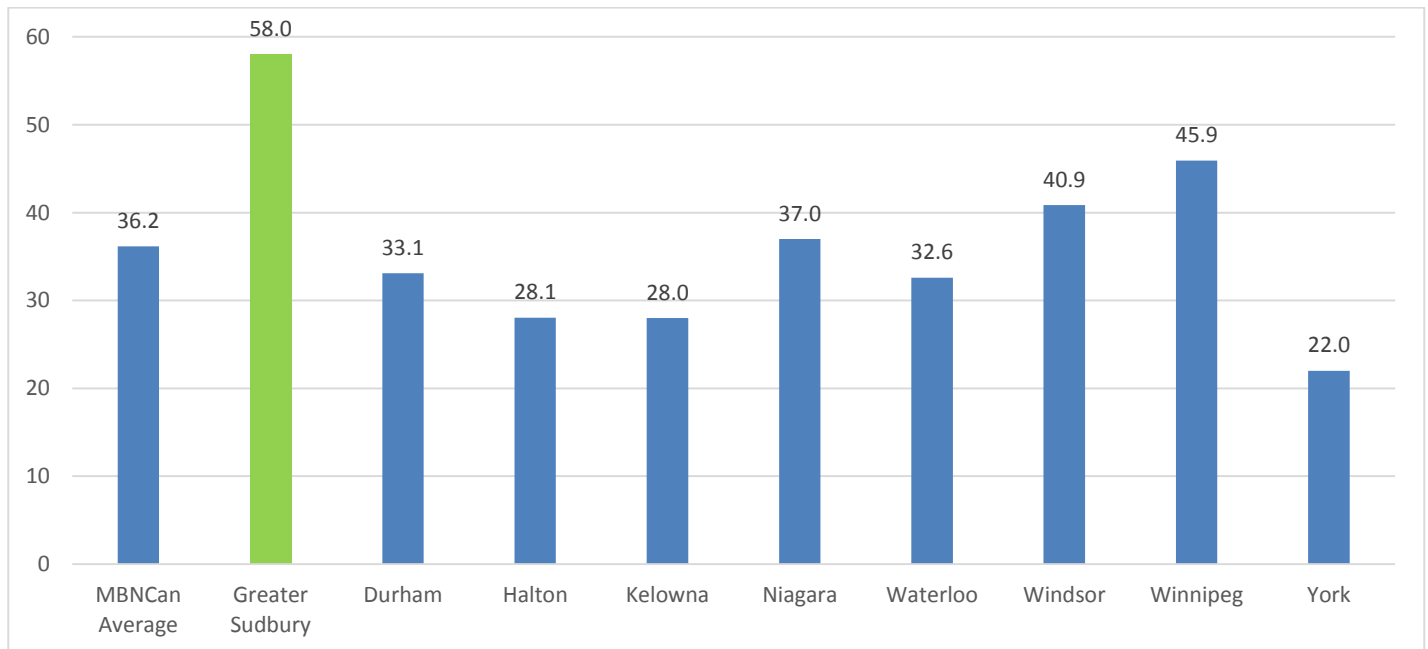
- Average Age of Watermain Pipe
- Annual Number of Watermain Breaks per 100 km of Pipe
- Total Cost for the Distribution/Transmission of Drinking Water per km of Pipe

Average Age of Watermain Pipe

Older watermain pipes, typically those constructed of metallic materials (i.e. cast iron or ductile iron), are susceptible to corrosion, fractures and leakage at pipe joints and service connections which contribute to an increased frequency of watermain breaks relative to newer systems that do not have such deficiencies.

Figure 5 below provides the estimated average age of the City's distribution system with comparisons to MBNCan peers. With an average watermain pipe age of 58 years, the City's system is the oldest of the current reporting municipalities and approximately 22 years older than the MBNCan average of 36.2 years. Similar to the City's lining program for wastewater pipe, the City oversees trenchless pipe rehabilitation (i.e. structural lining) of existing watermains which has been shown to extend the service life and significantly reduce the break frequency of the rehabilitated pipes however, this is not necessarily represented in this performance measure.

Figure 5 – Average Age of Water Main Pipe in Years

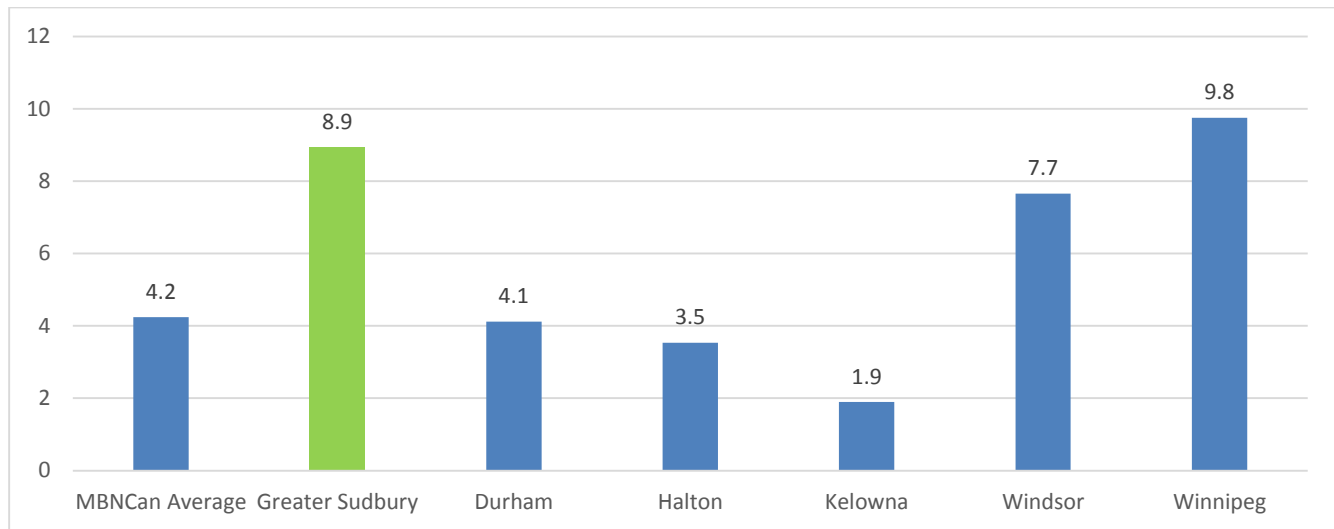


Distribution System Watermain Breaks

Aside from age and general pipe condition, the number of watermain breaks within a particular year is often more significantly impacted by environmental aspects like temperature fluctuations and soil moisture (i.e. groundwater) conditions. Winters with sustained cold temperatures, or those that experience frequent freeze-thaw cycles will result in an increase in the number of watermain breaks within. Colder temperatures lead to deeper frost penetration which in turn produces more soil movement around the pipes. This movement produces additional stresses/strains on the pipe walls which, when coupled with the potentially weakened state due to pipe age, can result in more frequent leaks and breaks.

Figure 6 identifies the annual number of watermain breaks per 100 km of watermain pipe in 2023 with comparison to MBNCan peers (Note: Regional municipalities of Niagara, Waterloo and York do not report on this measure as they do not provide local water distribution which is the responsibility of the local municipalities within their boundaries). The City's watermain break rate per 100 km of pipe lies above the MBNCan average (i.e. 8.9 vs. 4.2 breaks per 100km of pipe) which is likely attributed to the pipe network age and the severity of winter freeze-thaw cycles we experience when compared to our MBNCan peers.

Figure 6 – Annual Number of Watermain Breaks per 100 km of Pipe

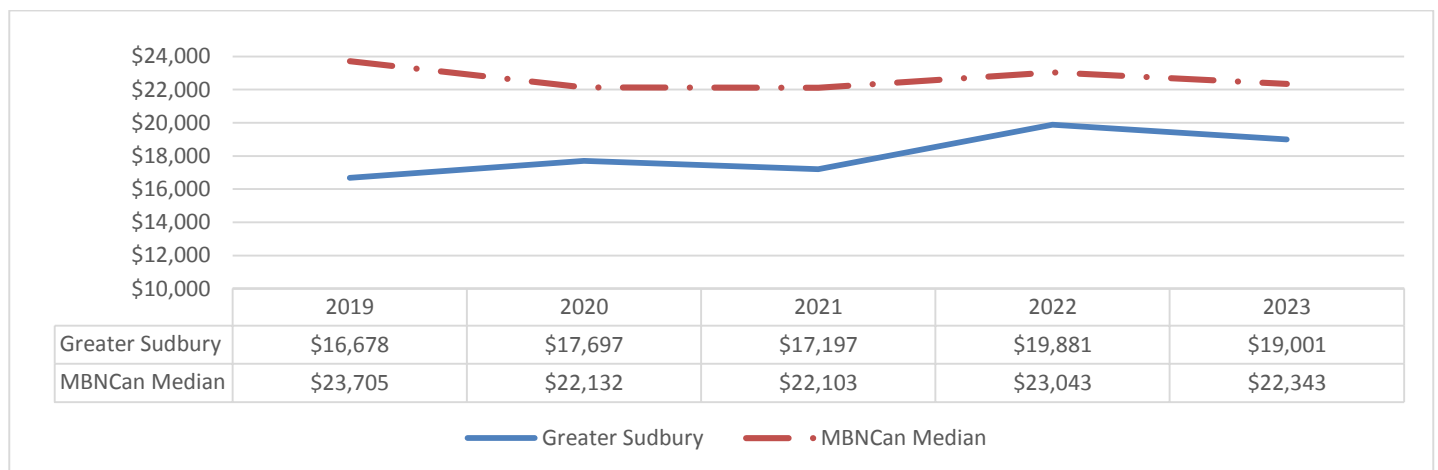


Annual Costs for the Distribution/Transmission of Drinking Water

The MBNCan performance measure for the Total Cost for the Distribution/Transmission of Drinking water reflects the costs associated with the operation and maintenance of the City's distribution system and includes amortization of the assets which can vary significantly from year to year depending on the type of infrastructure and capital fund expenditures.

Similar to wastewater collection systems, municipalities like Greater Sudbury which provide water services over broad geographic areas generally have higher operating costs due to the number of facilities and pressure boosting stations required. Again, the City's total costs per km of pipe remain below the MBNCan median rate of its peers as illustrated by Figure 7.

Figure 7 – Total Cost for Distribution of Drinking Water per km of Watermain



WWW Infrastructure Replacement, Rehabilitation and Maintenance Programs

2023 saw continued efforts towards replacement, rehabilitation, and maintenance of the City's WWW linear infrastructure. Capital construction projects involving water and sewer main replacement were undertaken throughout the City including, but not limited to Bancroft Drive, Sparks Street, Struthers Street, Armstrong Street, Loach's Road, Larch Street and Anderson Drive.

In addition to asset replacement works, rehabilitation of the City's pipe network was completed through the structural lining of approximately 1.12 km of watermain and 3.95 km of wastewater main. These methods of trenchless pipe rehabilitation reduce the risk of underground failures and extend the life of aging infrastructure by approximately 60-80 years while minimizing cost and impact to traffic during construction.

Ongoing preventative maintenance programs for the City's WWW linear infrastructure include annual watermain leak detection, water system valve and air release inspections and preventative wastewater pipe flushing and condition assessments.

Summary

The City of Greater Sudbury's wastewater collection system generally experiences above average number of wastewater back-ups and watermain breaks when compared to our MBNCan peers. These results are not unexpected when considering the age of our pipe network and climatic and geographic challenges we face. Continued commitment to current and expanded replacement, rehabilitation and maintenance programs will be required to maintain current operating conditions. This is particularly valid when considering the changing weather and climate conditions which are expected in the future.

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