



TRANS CANADA TRAIL ROUTE INVESTIGATION: SAULT STE. MARIE CYCLING DESIGN STUDY

JULY 2014



TABLE OF CONTENTS

TABLE OF CONTENTS..... i

1.0 Introduction..... 1

1.1 Study Approach 1

1.2 Cycling Facility Design..... 1

1.3 Cycling Facilities and the Class EA Process..... 3

1.4 Pavement Markings and Signage 3

2.0 Proposed Route Mapping and Probable Costs..... 5

West Route: Drawing WR-1 Plan 1 and 2..... 7

West Route: Drawing WR-2 Plan 3 and 4..... 9

West Route: Drawing WR-3 – WR-5 Plan 5 to Plan 11 11

West Route: Drawing WR-5 – WR-7 Plan 11 to Plan 16 13

West Route: Drawing WR-8 Plan 17..... 15

North Route: Drawing NR-1 – NR-2 Plan 1 to Plan 4 17

North Route: Drawing NR-3– NR-4 Plan 5 to Plan 8 19

North Route: Drawing NR-5 Plan 9..... 21

North Route: Drawing NR-6 Plan 10..... 23

East Route: Drawing ER-1 Plan 1 and 2..... 25

East Route: Drawing ER-2 Plan 3 and 4..... 27

East Route: Drawing ER-3 Plan 5..... 29

3.0 Details 31

4.0 Summary – Opinion of Probable Cost 32

1.0 INTRODUCTION

In June of 2013, MMM Group was retained by the City of Sault Ste. Marie to assist staff with the preparation of a cycling route design study for three network links identified in the Sault Ste. Marie City’s Cycling Master Plan. Since Council approval of this master plan in 2007 the City has made significant progress in implementing several key routes, one of which includes the highly successful 25 km John Rowswell HUB Trail. The three routes being examined in this study are considered the next priorities and will building upon work that has been completed since 2007.

The three priority routes are illustrated in the Key Plan and are referred to in this report as the East Route, North Route and West Route.

The East Route provides a connection between the John Rowswell HUB Trail and the western terminus of the North Channel Cycling Route, a regional connection between Sault Ste. Marie and Sudbury that was envisioned a number of years ago. Recently a feasibility study was completed which addresses its alignment and “next steps” towards implementation. This route will also serve as the Trans Canada Trail connection from the east city limit to the HUB Trail / Trans Canada Trail along the waterfront in the city core.

The North Route which has two distinct “spokes”. One provides a connection between the John Rowswell HUB Trail, the Hiawatha Highlands and the Trans Canada Highway heading north from the City. The second spoke connects the Northern Avenue East and the Sault College area with the Strathclair Sports Complex.

The West Route provides a connection between the John Rowswell HUB Trail and Gros Cap in Prince Township. It should be noted that approximately one third of the west route (approximately 8 km) is located in Prince Township. Prior to commencing this study City staff consulted with Prince Township staff and received their endorsement to undertake the necessary investigations. A portion of this route will also serve as the Trans Canada Trail.

1.1 Study Approach

This study illustrates each of these routes in detail and includes preliminary design and cost information to enable their implementation. The study approach included the following:

- Assembling base information using the City’s GIS database, AutoCAD and 2012 high resolution aerial imagery;
- Conducting site visits for each route and collecting field data, digital photographs, GPS data and measurements (where applicable). Data collected was used to document existing site conditions, to inform preliminary design and to identify issues that may affect detailed design, approvals, constructability and implementation cost;
- Preparation of a design plate and corresponding information sheet for each project which included

- o Location of the project;
- o Presentation of preliminary design including facility type, typical design details and site specific design considerations;
- o An opinion of probable construction cost;
- o Where applicable, identification of stakeholders and agencies which have an interest and / or regulatory approval role for the identified project; and
- o Suggested next steps to advance the project.

The Priority Cycling Route Design Study provides a design feasibility level of analysis and recommendations for each route. In terms of process, some sections of the routes can be implemented using information contained in this document, while other sections will require additional design, and in some cases collection of additional background data to inform further design (e.g. detailed topographic survey).

1.2 Cycling Facility Design

Consistency in the application of facility design alternatives is paramount. The way facilities are selected, documented and implemented should be consistent and based on existing standards, guidelines and best practices. In April 2014, the Ontario Traffic Council (OTC) published the provincially endorsed design guidelines – Ontario Traffic Manual (OTM) Book 18: Cycling Facilities.

The guidelines were developed by the OTC collaboratively with representatives from the Ontario Ministry of Transportation (MTO) and a number of contributing municipalities from across Ontario. They are intended to be used by municipal staff to facilitate the selection, design, implementation and maintenance of both on and off-road cycling facilities. OTM Book 18 was used as the primary resource by the consulting team when developing facility recommendations in the Sault Ste. Marie Cycling Design Study, and it should continue to be the primary reference used by City to ensure that a consistent approach is used to inform the decision making process in the future.

For ease of reference, the following section provides information from OTM Book 18 regarding key on-road facility types recommended in the Sault Ste. Marie Cycling Design Study.

Signed Cycling Routes

The Signed Cycling Route is typically installed on quiet, residential local/collector streets. Cyclists share the street with motor vehicles and generally no changes are made to the roadway outside of the application of a Bicycle Route Sign, provided that there is adequate pavement width to safely accommodate both motor vehicles and cyclists and when adequate sight lines exist and vehicle traffic volume (Average Annual Daily Traffic – AADT) are within acceptable ranges. Where this is not the case, alternative routes should be investigated or paved shoulders/bike lanes implemented.

Signed cycling routes may include the “Sharrow” pavement symbol, which provides added route guidance and helps cyclists position themselves appropriately in the travelled lane, increase driver awareness of the presence of cyclists and help deter unsafe passing maneuvers by motorists. The symbols are placed on the pavement surface in the intended area of bicycle travel. The placement of the Sharrow symbol indicates to cyclists where they should be traveling on the road (e.g., approximately 1.0 m from the curb where there is no on-street parking and 3.4 m from the curb where there is on-street parking on a multi-lane road).

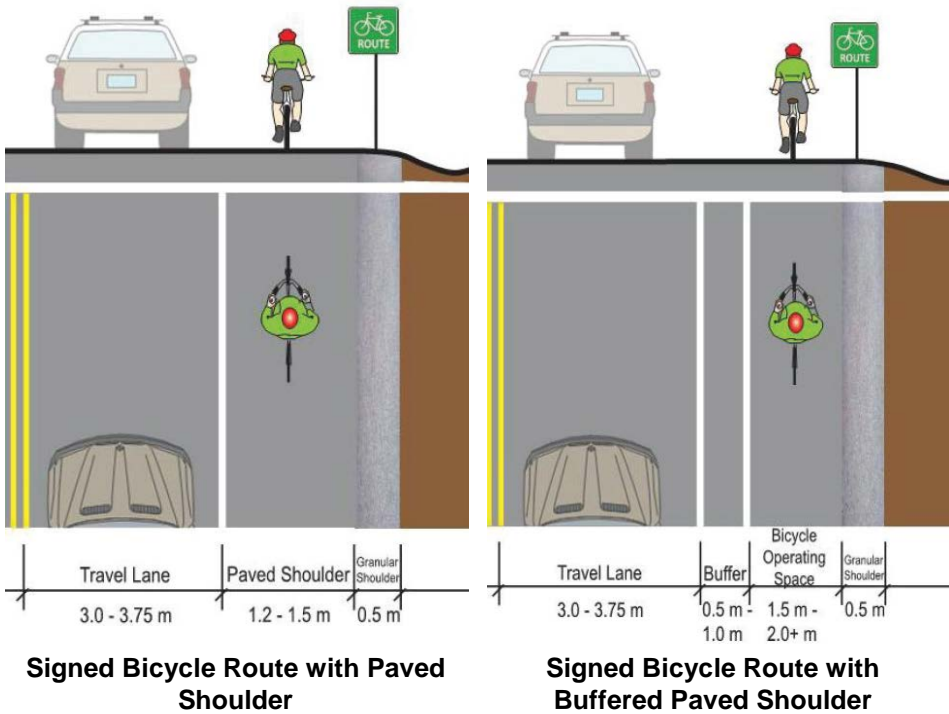
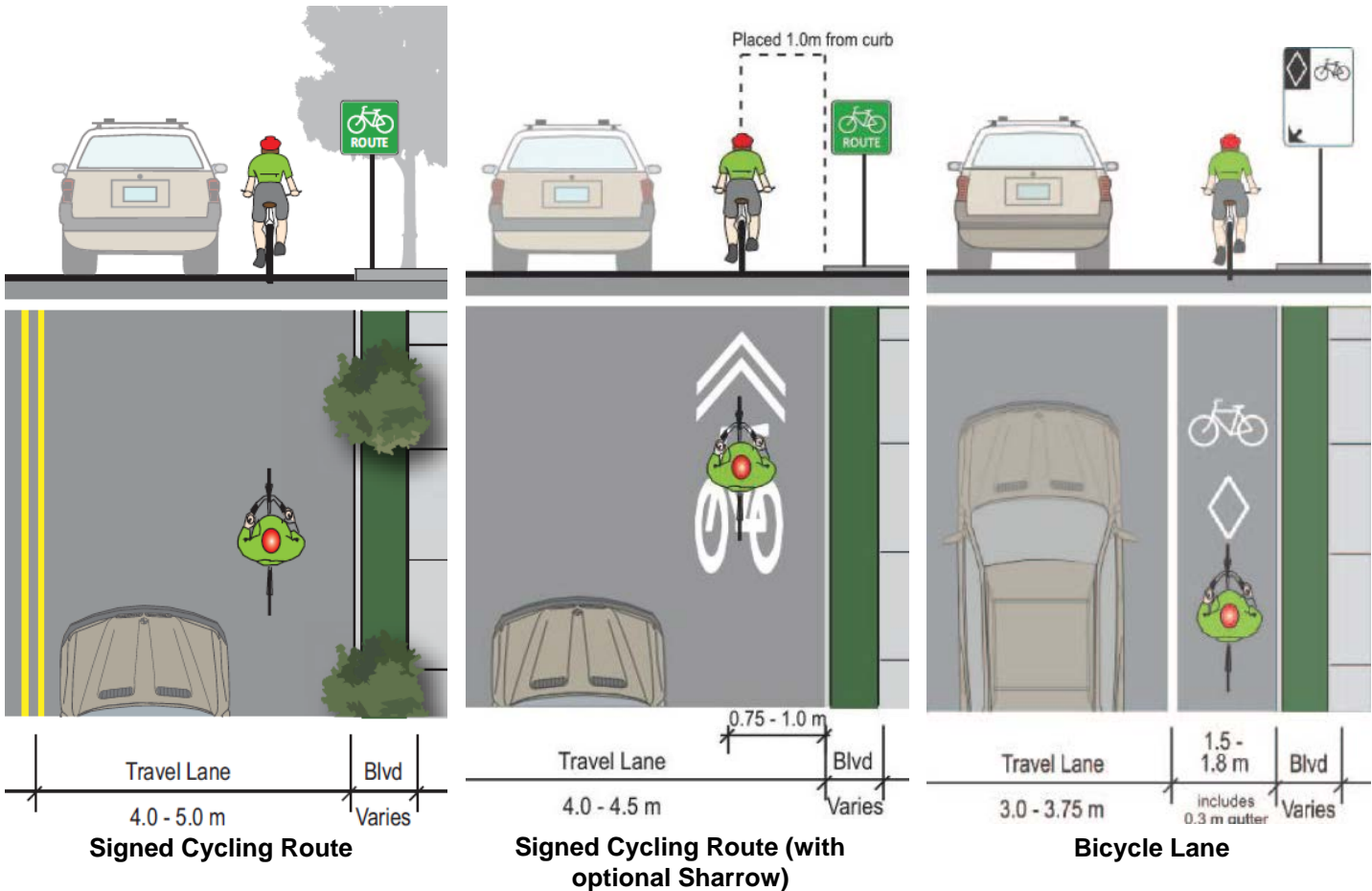
Bicycle Lanes

The Bicycle Lane is a portion of a roadway which has been designated by pavement markings and signage for preferential or exclusive use by one-way cyclist traffic often along the right-most curb or edge of the road. Typically they are provided on urban arterial and major collector roads that are part of the cycling network where traffic volume and speed are higher. Bicycle Lanes should also be clearly identified on roadways with bicycle symbol pavement markings and ‘Reserved Bicycle Lane’ signs.

Bicycle Lanes can be added to roads when they are reconstructed (i.e. road widening), or retrofitted on urban cross-section roads by reallocating existing space (i.e. adjusting lane widths, reducing the number of lanes, removal of on-street parking).

Signed Cycling Routes with Paved Shoulders

Adding or improving existing paved shoulders can be the best way to accommodate cyclists in rural areas and benefit motor vehicle traffic. Where funding is limited, adding or improving shoulders on uphill sections will give slow moving cyclists needed maneuvering space and will decrease conflicts with faster moving motor vehicle traffic. Paved shoulders offer other advantages: they can extend the service life of the road surface through improving the lateral support for the roadway structure and reducing edge deterioration, they may reduce maintenance costs associated with the grading of gravel shoulders, serve as a refuge for disabled vehicles, accommodate emergency vehicles, improve accommodation of agricultural and horse-drawn vehicles which sometimes travel along roadway shoulders, and can reduce run-off-the-road collisions.



Guidance regarding Signed Bicycle Routes, and when provided, the width, type and application of Paved Shoulders to support cycling, is provided in Ontario Traffic Manual Book 18. Book 18 provides suggested guidelines, and not standards. The application of these guidelines and / or any variation from them should be informed by the local context and good engineering judgement.

The following excerpt from OTM-18 provides some guidance regarding the width of paved shoulders. “Signed bicycle routes with paved shoulders should typically have shoulders between 1.5 and 2.0 metres in width depending on the volume, speed and mix of vehicular traffic. As motor vehicle volumes increase, practitioners may consider wider paved shoulders or a buffered zone. However, in situations where the facility type selection process has identified the need for a paved shoulder within a constrained corridor, practitioners may consider providing a minimum paved shoulder width of 1.2 metres after applying good engineering judgement and consideration of the context specific conditions.

Where a signed bicycle route with paved shoulders has a shoulder width of 2.0 metres or wider, the shoulder must include a minimum 0.5 metre wide buffer zone. The buffer zone may consist of a marked buffer or a rumble strip on rural roads. On roadways where the speed or volume of motor vehicles in the adjacent travel lane is high, the shoulder width and buffer zone may be increased to provide greater separation between motorists and cyclists.”

Note that pedestrians are expected to use sidewalks in the urban area. In rural areas pedestrians are permitted to use road shoulders (i.e. walking facing traffic as per the Highway Traffic Act). In urban and rural areas where multi-use pathways are the recommended facility cyclists share the pathway with pedestrian users.

1.3 Cycling Facilities and the Class EA Process

The Municipal Engineers Association (MEA) Class Environmental Assessment was formally updated by the Ministry of Environment in 2010. Under the amended Class EA, the construction or operation of sidewalks, bicycle paths or bicycle lanes designed within an “existing” road right-of-way is considered pre-approved. These types of projects fall into the category Schedule A+ or A projects and do not require a full Class EA to be completed but rather formal notification at the commencement of the project.

In December 2013 the MEA proposed to the Ministry of the Environment a number of additional amendments to the MEA Class EA process. One of these amendments would permit the addition of cycling lanes through the conversion of a General Purpose Lane (GPL) by way of a “road diet”. This operational change would be considered a Schedule A+ with no financial limitation.

A road diet is the “redesignation” of linear paved facilities through signage or pavement marking modifications and does not require any physical construction. For example the addition or removal of parking or turning lane markings, the conversion of a roadway one-way or two-way, the conversion of a GPL to a High Occupancy Vehicle (HOV) lane or cycling lane or the creation or removal of a cycling lane

would be considered operational improvements and deemed to be Schedule A or A+, if the project is determined to have a value of \$3.5M or less.

Regarding road diets, it can generally be concluded that 4 lane roads with an AADT of less than 15,000 may be considered “good candidates” for a road diet consistent with the recommendations found in AASHTO 2012 and OTM Book 18: Cycling Facilities (2014).

The development of multi-use trails / pathways within and outside of the road right-of-way are further reinforced through proposed 2013 amendments to the MEA Class EA document. Within a road right-of-way, municipalities may construct or remove sidewalks and add a multi-use trail or replace a sidewalk with a multi-use trail. These types of projects are preapproved (Schedule A) with no financial limit and do not require the completion of a Class EA.

The amendments also effect the construction or removal of a sidewalk, multi-use pathway or cycling facility outside of the road right-of-way (e.g. in a greenway or park system). Prior iterations of the MEA Class EA stipulated that for all new trail constructions an individual Class EA would be required if the project cost was greater than \$3.5 million. However, the 2013 proposed amendment would preapprove individual projects of this nature (including water crossings) with a value of \$3.5M or less. Off-road trail projects that have a budget between \$3.5 million and \$9.5 million would require a Schedule B Class EA. Trail projects exceeding a cost of \$9.5 million would require a Schedule C Class EA.

Future amendments to the MEA Class EA process and requirements should be followed and applied where appropriate.

1.4 Pavement Markings and Signage

Section 182 of the Highway Traffic Act of Ontario provides the legal authority regarding roadway signs and markings and states that “Every driver or operator of a vehicle or street car shall obey the instructions or directions indicated on any sign so erected.” (HTA, Section 182(2), 2002). In Ontario guidance regarding road signs and pavement markings are provided through the Ontario Traffic Manual, which consists of a series of books published by the Ministry of Transportation of Ontario.

Pavement Markings

Ontario Traffic Manual Book 11: Marking and Delineation is the primary source for guidance on pavement markings in Ontario. Pavement markings are advisory and do not have legal force on their own but are used to complement other regulatory traffic control devices, including Regulatory (OTM Book 5) and Warning (OTM book 6) signs. The following is an excerpt from OTM Book 11:

“Provincial legislation provides that markings may be placed by the road authority having jurisdiction for the purpose of regulating, warning or guiding traffic (Section 182 of the Highway Traffic Act (R.S.O.1990)). Pavement and curb markings, being exclusively within the boundaries of public highways, should only be placed by the road authority. Delineators and object markers that are within the highway right-of-way are subject to the same jurisdictional regulations.

Markings and delineation serve an advisory or warning function, and do not have legal force of their own. They may be used to complement other traffic control devices enforceable under the HTA, its Regulations, or a municipal by-law, but their enforceability derives from the main regulatory traffic control device, not from the markings or delineation. To avoid possible conflict or confusion, the meaning of markings and delineation should be checked against the prevailing traffic laws and regulations before they are installed or removed.” (OTM Book 11 (2000) pg. 13)

Regulatory Signs

Ontario Traffic Manual Book 5: Regulatory Signs, is the primary reference in Ontario for regulatory type signs, such as stop signs, speed limit signs and designated bike lane signs. As stated on OTM Book 5, “Regulatory signs are intended to instruct road users on what they must or should do (or not do) under a given set of circumstances. The term regulatory sign describes a range of signs that are used to indicate or reinforce traffic laws, regulations or requirements which apply either at all times or at specified times or places upon a street or highway, the disregard of which may constitute a violation. The regulatory signs described in this Book have different levels of legal status, enforcement regime and penalties for violation, depending on their individual governing authority.

Some signs are enforceable directly under specific sections of the Highway Traffic Act (HTA) or other legislation, others under more general provisions of the HTA and its Regulations and still others only under duly enacted municipal by-laws. Some of the regulatory signs in this Book are not directly enforceable themselves but are used to reinforce regulatory conditions contained in legislation, such as Rules of the Road. The term “prescribed signs” refers to signs described in HTA Regulations, while the term “official signs” refers to signs not included in the HTA Regulations, but approved by the Ministry of Transportation of Ontario and appearing in the Ontario Traffic Manual.” (OTM Book 5 (2000) pg. 11

Warning Signs

Warning signs inform road users of dangerous or unusual conditions ahead such as a curve, turn, dip or side road. They are usually diamond-shaped and have a yellow background with black letters or symbols. Ontario Traffic Manual Book 6: Warning Signs is the primary reference for the application of warning signs in Ontario. Warning signs are considered “official signs” approved by the Ministry of Transportation of Ontario and include the Share the Road sign.

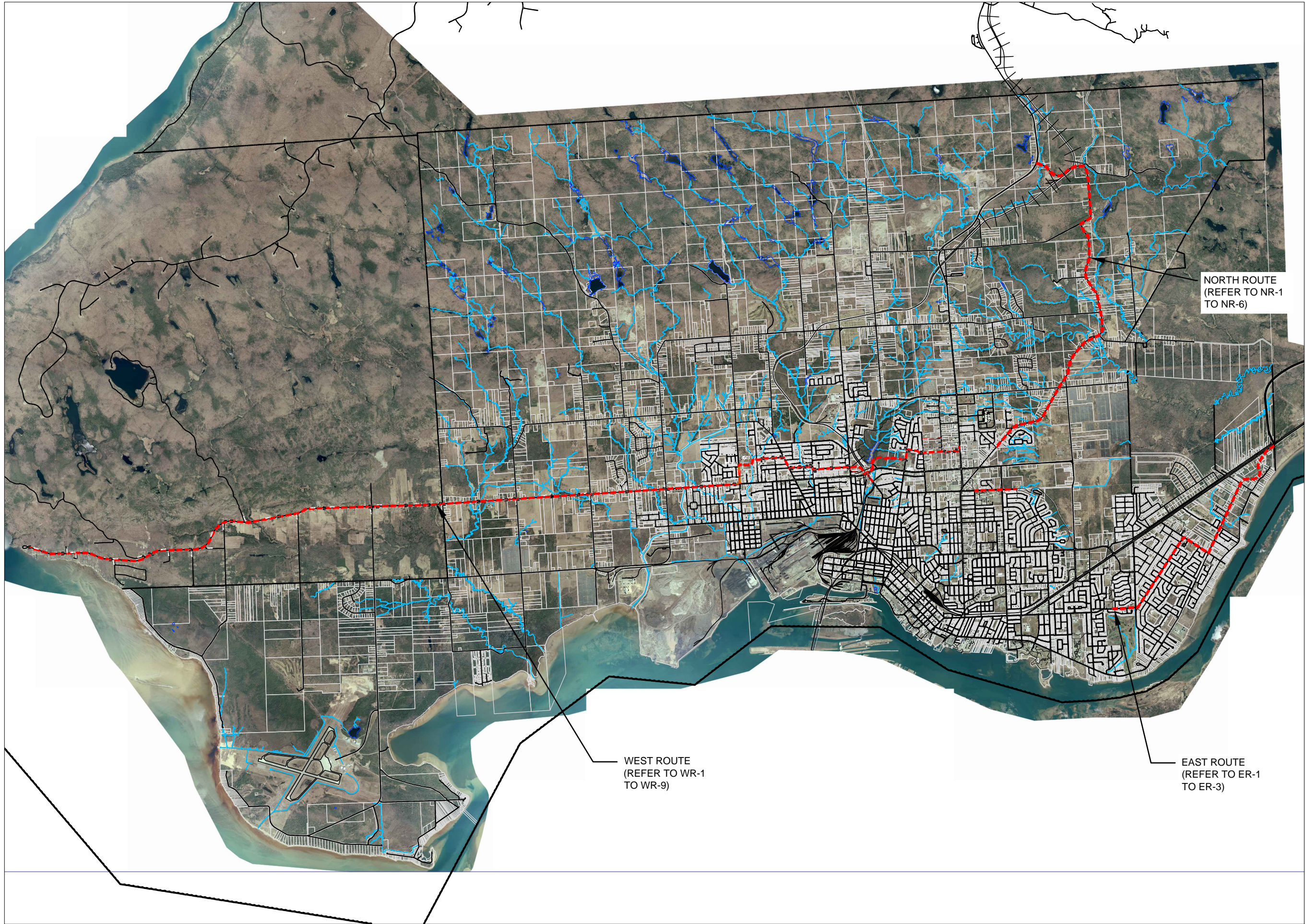
Approach to Signing Routes

Additional details regarding signage types and potential application can be found in section 4.0 of OTM Book 18 and should be considered. In addition to the guidelines, the City is also encouraged to consider the following design principles for signage pertaining to select cycling facilities.

Share the Road “warning” signs should typically only be implemented on designated network routes and where there are perceived or real hazards such as sightlines or where the road condition such as a narrow width or poor surface could be considered a hazard. Share the Road signage should not be implemented as a wayfinding sign or route designation sign or in substitution of any other provincially recognized regulatory sign. Signed Routes identified as part of the network should be designated by implementing the standard green bike route sign.

The following considerations were used in recommending locations for Share the Road signage in the Sault Ste. Marie Cycling Design Study and may also assist staff in the future when selecting locations along other cycling routes.

- Where sightlines are limited, such as where there are changes to the horizontal or vertical alignments (hills and/or curves);
- Where busy street activity occurs which has the potential to distract motorists, such as on-street parking;
- Where the cycling facility transitions, for example where a bike lane transitions to a shared curb lane (discontinuation of a bicycle lane);
- On rural roads, especially where no paved shoulders are present and where a significant presence of cyclists is observed;
- Where unusual road characteristics exist, such as very narrow lanes or where a road configuration or cross section changes; and
- Where the Share the Road signs may serve to provide motorist with advance notice of the presence of cyclists beyond the motorist’s immediate line of sight.



KEY MAP

NO.	DATE	DESCRIPTION	BY
1	07/31/2014	FINAL REPORT	

REVISIONS

CLIENT:

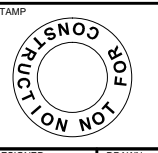
CITY OF
SAULT STE. MARIE

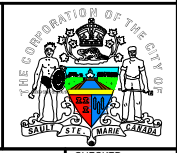


Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

PROJECT TITLE:
**SAULT STE. MARIE
CYCLING DESIGN STUDY**

DRAWING TITLE:
KEYPLAN

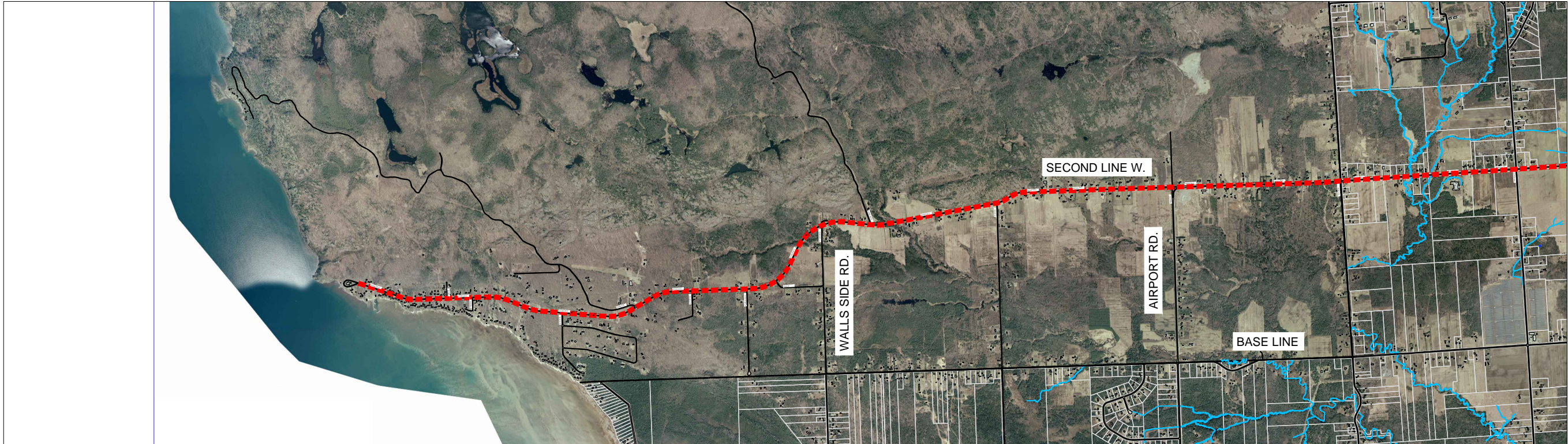
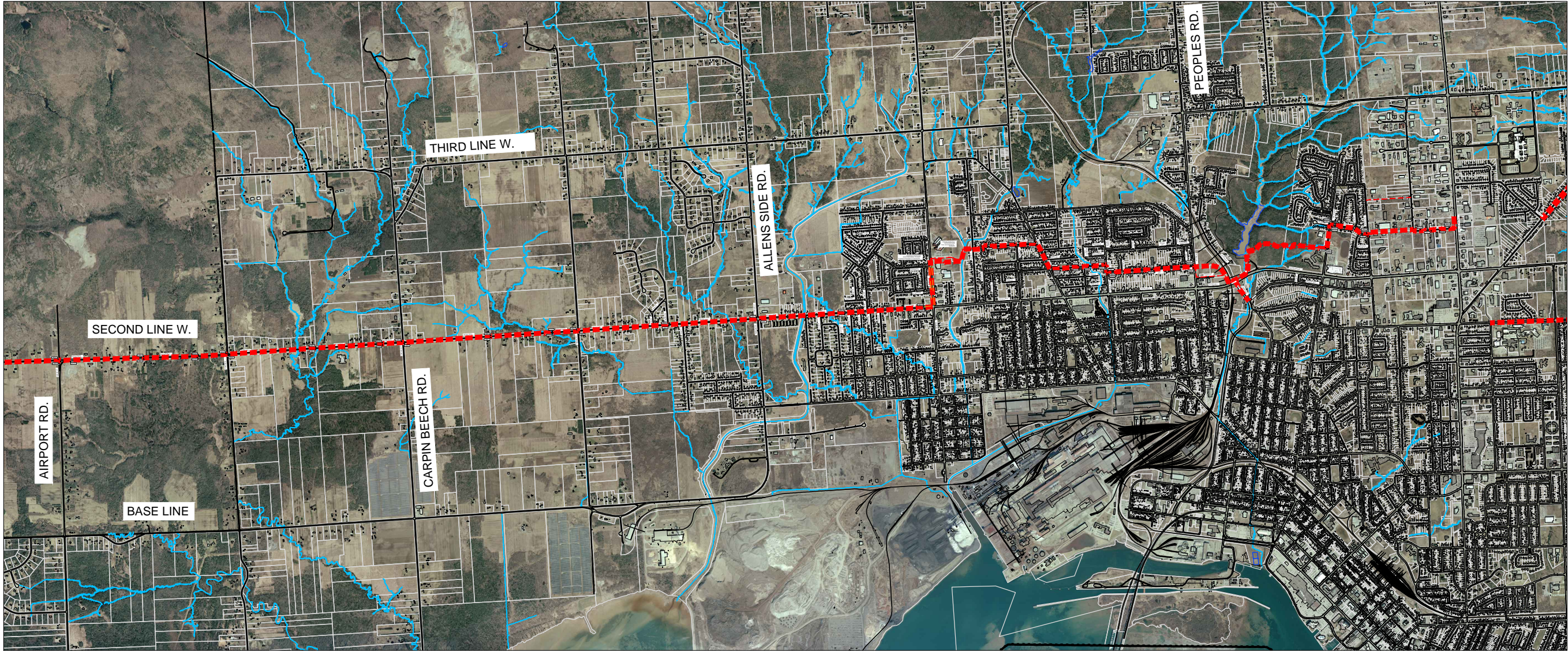




DESIGNED	PR	DRAWN	PR	CHECKED	JC
SCALE 1:40,000		DATE AUGUST 2013			
PROJECT NUMBER		DWG. NUMBER			
14.13.058.001		FIG.1			

2.0 PROPOSED ROUTE MAPPING AND PROBABLE COSTS

The following section provides details for each of the 3 priority routes. Specifically, the colour plate illustrates the proposed alignment and contains photographs at key locations along with notes regarding the existing conditions and considerations for design and implementation. Where applicable the colour plates reference design details that are contained in Section 3. The accompanying information page provides additional information on segment location and length, facility type and design, and probable cost for implementation.



KEY MAP

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY

REVISIONS

CLIENT:

CITY OF
SAULT STE. MARIE

MMM GROUP
Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

PROJECT TITLE:

SAULT STE. MARIE
CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED
WEST ROUTE
KEY PLAN

STAMP



DESIGNED	PR	DRAWN	PR	CHECKED	JC
----------	----	-------	----	---------	----

SCALE 1:40,000	DATE	AUGUST 2013
----------------	------	-------------

PROJECT NUMBER	DWG. NUMBER
----------------	-------------

14.13.058.001	WR-0
---------------	------

West Route: Drawing WR-1 Plan 1 and 2

1. Location

- Start: Home Depot Entrance Intersection on Great Northern Road
End: Peoples Road and Churchill Avenue
- Approximate Length:
 - 600 m Proposed On-Road
 - 3030 m Proposed Off-Road
- Connects with:
 - Existing HUB Trail in Fort Creek and on Second Line East

2. Observations and Considerations

- Refer to accompanying drawing sheet WR-1.

3. Detail Design Notes

- Facility Type: Off-road multi-use pathway and On-Road signed route
- Typical Detail:
 - 3.0m Multi-Use Pathway
 - Signed Cycling Route
 - Signed Cycling Route with Paved Shoulder
- Key Design Elements to be Considered:
 - Cost provided for Industrial Park Ct. applies only to paving of shoulder. Consideration should be made repaving entire roadway along proposed route when the road is scheduled for reconstruction.
 - Bridges will be required to accommodate the pathway through Fort Creek;
 - Installation of a traffic signal will improve the crossing for route users when crossing the road at Peoples Rd. and Churchill Ave. (requires EA)
 - At the base of the trail in Fort Creek (at the Second Line West sidewalk) move boulders away from the edge of the trail and add a 15-20m section of cyclist rubrail (refer to detail 1, drawing D-5), beginning at the existing hydro pole and running up hill on the east side of the trail. Remove existing vegetation on the inside of the trail radius at the bottom of the hill and widen the trail radius to the improve sight line for trail users.
 - Bike Route signage should be included along the length of the proposed route to alert drivers and provide cyclists with directions.
- Key Constraints: None
- Seek approval to proceed through Development Services
- Tender and construct

4. Opinion of Probable Cost

Opinion of Probable Cost (Capital)						
Item	Description	Length (KM)	Unit Cost (per KM)	Extended Cost	Additional Works	TOTAL
1	Great Northern Road: Home Depot to Industrial Park Ct. Facility Type: MUP West Blvd.	0.11	\$350,000	\$38,500		\$38,500
2	Industrial Park Ct: Great Northern Road to Woodlot north of Works Yard Facility Type: Paved Shoulder	0.70	\$55,000	\$38,500		\$38,500
3	Woodlot Trail: Industrial Park Ct. to Sackville Rd. Facility Type: MUP	0.42	\$275,000	\$115,500		\$115,500
4	Sackville Road: Woodlot to Niagara Rd. Facility Type: Signed Route	0.32	\$1,500	\$480		\$480
5	Niagara Drive: Sackville Rd. to North St. Facility Type: Signed Route	0.36	\$1,500	\$540		\$540
6	North Street: Niagara Dr. to Finnish Rest Home Entry Facility Type: Signed Route	0.22	\$1,500	\$330		\$330
7	Finnish Rest Home Trail: North St. to Fort Creek Boundary. Facility Type: MUP	0.20	\$275,000	\$55,000		\$55,000
8	Fort Creek Path: Fort Creek Boundary to Main Trail in Fort Creek Facility Type: MUP	0.65	\$275,000	\$178,750	\$220,000 (Allowance for 3-10m long bridges)	\$398,750
9	Second Line West: HUB Trail to West Side of Railway Facility Type: Blvd MUP	0.18	\$350,000	\$63,000		\$63,000
10	Snow Dump Trail: West of Railway to Peoples Road at Churchill Ave. Facility Type: MUP	0.44	\$275,000	\$121,000	\$100,000 (Traffic Signal) plus \$50,000 for EA ⁽¹⁾	\$271,000
(1) Additional work that is not included in the cost summary table in Section 4.0 Total:						\$981,600

MATCHLINE - SEE PLAN '2' ON THIS SHEET



START OF WEST CYCLING ROUTE

KEY MAP

LEGEND

- PROPOSED BIKE LANE
- PROPOSED SIGNED ROUTE
- PROPOSED PAVED SHOULDER ROUTE
- PROPOSED MULTI-USE TRAIL
- EXISTING MULTI-USE TRAIL
- WP 37 WAYPOINT
- WC-47/S PROPOSED SIGN (REFER TO D-1)

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY

REVISIONS

CLIENT:

CITY OF SAULT STE. MARIE

MMM GROUP

Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

PROJECT TITLE:

SAULT STE. MARIE CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED WEST ROUTE

STAMP

CONSTRUCTION NOT FOR

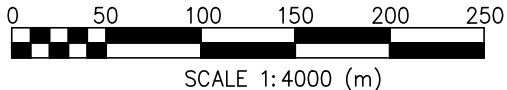
THE CORPORATION OF THE CITY OF SAULT STE. MARIE

DESIGNED PR	DRAWN PR	CHECKED JC
SCALE 1:4000	DATE AUGUST 2013	
PROJECT NUMBER 14.13.058.001	DWG. NUMBER WR-1	

MATCHLINE - SEE PLAN '3' ON THIS SHEET WR-2



MATCHLINE - SEE PLAN '1' ON THIS SHEET



West Route: Drawing WR-2 Plan 3 and 4

1. Location

- Start: Peoples Road and Churchill Avenue
End: Goulais Avenue and St. Basils Drive
- Approximate Length:
 - 1930 m Proposed On-Road
 - 1420 m Proposed Off-Road
- Connects with:
 - Korah Collegiate and Vocational School

2. Observations and Considerations

- Refer to accompanying drawing sheet WR-2.

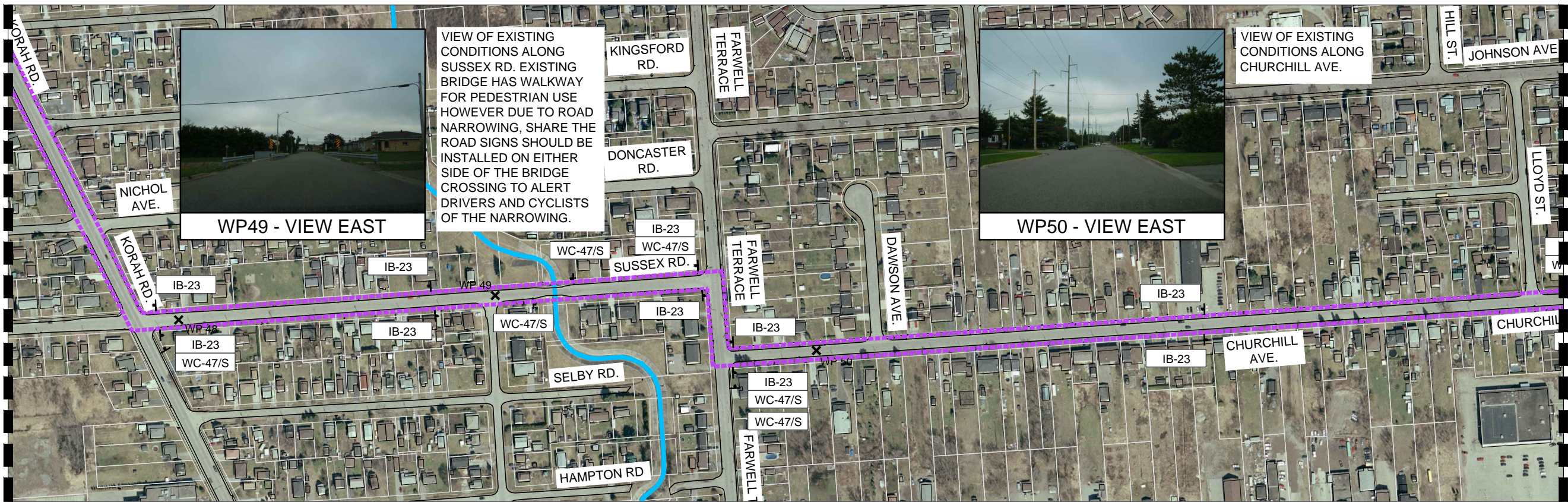
3. Detail Design Notes

- Facility Type: Off-road multi-use pathway, signed cycling route and bicycle lane
- Typical Detail:
 - 3.0m Multi-Use Pathway
 - Signed Cycling Route
 - Bicycle Lane
- Key Design Elements to be Considered:
 - Installation of a traffic signal will improve crossing for route users when crossing the road at Goulais Ave. and Rushmere Dr. (requires an EA).
 - A bridge will be required to cross the existing drainage ditch by the running track at Korah Collegiate and Vocational School.
 - Bike Route signage should be included along the length of the proposed route to alert drivers and provide cyclists with directions.
 - Share the Road signage on Korah Rd. and in advance of the section used by cyclists between Sussex Rd. and Henry St.
 - Confirm if an EA will be required to assess the potential to reduce Goulais Avenue from 4 travel lanes to 3 travel lanes with dedicated bike lanes. If an EA is required the study area should include Second Line West from Goulais Avenue to approximately 100m west, to accommodate the widening of Second Line West so bike lanes can be added
 - Consider the addition of a multi-use pathway on the west side of Goulais Avenue from the proposed multi-use pathway at the recreation centre/Korah Collegiate Vocational School to St. Basils Drive as part of the reconstruction of Goulais Avenue (long term)
- Key Constraints: None

4. Opinion of Probable Cost

Opinion of Probable Cost (Capital)						
Item	Description	Length (KM)	Unit Cost (per KM)	Extended Cost	Additional Works	TOTAL
1	Churchill Avenue: Peoples Rd. to Farwell Terrace Facility Type: Signed Route	0.80	\$1,500	\$1,200		\$1,200
2	Farwell Terrace: Churchill Rd. to Sussex St. Facility Type: Signed Route	0.07	\$1,500	\$105		\$105
3	Sussex Road: Farwell Terrace to Korah Rd. Facility Type: Signed Route	0.50	\$1,500	\$750		\$750
4	Korah Road: Sussex Dr. to Henry St. Facility Type: Signed Route with Edgeline	0.26	\$7,500	\$1,950		\$1,950
5	Henry Street: Korah Rd. to Walkway/Cut through Facility Type: Signed Route	0.50	\$1,500	\$750		\$750
6	Cut Through: Henry St. to Cooper St. Facility Type: Signed Route	0.10	\$1,500	\$150	\$15,000 (Pathway upgrades)	\$15,150
7	Recreation Centre MUP: Cooper St. to Goulais Ave. Facility Type: MUP	0.65	\$275,000	\$178,750	\$90,000 (15m bridge over creek)	\$268,750
8	Goulais Avenue: Recreation Centre MUP to Rushmere Dr. Facility Type: MUP in East Boulevard	0.07	\$350,000	\$24,500	\$100,000 (Traffic Signal) plus \$50,000 for EA ⁽¹⁾	\$174,500
9	Goulais Avenue: Rushmere Dr. to St. Basils Dr. Facility Type: MUP in West Boulevard	0.20	\$350,000	\$70,000		\$70,000 ⁽¹⁾
10	Goulais Avenue: Rushmere Dr. to St. Basils Dr. Facility Type: Bicycle Lanes	0.20	\$35,000	\$7,000		\$7,000
	(1) Additional work that is not included in the cost summary table in Section 4.0 Total:					\$540,155

MATCHLINE - SEE PLAN '4' ON THIS SHEET



'PLAN 3'

MATCHLINE - SEE PLAN '5' ON THIS SHEET WR-3



'PLAN 4'

MATCHLINE - SEE PLAN '2' ON SHEET WR-1

MATCHLINE - SEE PLAN '3' ON THIS SHEET

KEY MAP

LEGEND

- PROPOSED BIKE LANE
- PROPOSED SIGNED ROUTE
- PROPOSED PAVED SHOULDER ROUTE
- PROPOSED MULTI-USE TRAIL
- EXISTING MULTI-USE TRAIL
- WP 37 WAYPOINT
- WC-47/S PROPOSED SIGN (REFER TO D-1)

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY
REVISIONS			

CLIENT:

CITY OF SAULT STE. MARIE

MMM GROUP

Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1K3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

PROJECT TITLE:

SAULT STE. MARIE CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED WEST ROUTE

STAMP

DESIGNED PR DRAWN PR CHECKED JC

SCALE 1:4000 DATE AUGUST 2013

PROJECT NUMBER 14.13.058.001 DWG. NUMBER WR-2

West Route: Drawing WR-3 – WR-5 Plan 5 to Plan 11

1. Location

- Start: Goulais Avenue and St. Basils Drive
End: Airport Road and Second Line West
- Approximate Length:
 - 8020 m Proposed On-Road
 - 140 m Proposed Off-Road
- Connects with:
 - Korah Collegiate and Vocational School

2. Observations and Considerations

- Refer to accompanying drawing sheet WR-3 to WR-5.

3. Detail Design Notes

- Facility Type:
 - Bike Lane from Goulais Avenue to approximately 70m west of the intersection to the paved shoulder transition point
 - Buffered paved shoulder with rumble strip route from the transition point to Airport Rd.
- Typical Detail:
 - Paved Shoulder Route with Double Painted Line and Rumble Strip (detail 2, drawing D-4)
- Key Design Elements to be Considered:
 - Bike Lane from Goulais Avenue / Second Line West intersection to approximately 70m west to be considered in the mid-long term, associated with future intersection improvements and minor widening. Sharrow pavement markings could be considered in the short term, supplemented by Share the Road signage in advance of paved shoulder transition point.
 - Wide existing paved shoulder runs along both sides of Second Line West, a double painted line with rumble strip should be added to provide further clearance from vehicles on roadway.
 - Bike Route signage should be included along the length of the paved shoulder route.
 - Confirm if an EA will be required to assess the potential to reduce Goulais Avenue from 4 travel lanes to 3 travel lanes with dedicated bike lanes. If an EA is required the study area should include Second Line West from Goulais Avenue to approximately 100m west, to accommodate the widening of Second Line West so bike lanes can be added.
- Key Constraints: None

4. Opinion of Probable Cost

Opinion of Probable Cost (Capital)						
Item	Description	Length (KM)	Unit Cost (per KM)	Extended Cost	Additional Works	TOTAL
1	Goulais Avenue: St. Basils Dr. to Second Line West Facility Type: MUP in West Boulevard	0.14	\$350,000	\$49,000		\$49,000 ⁽¹⁾
2	Goulais Avenue: St. Basils Dr. to Second Line West Facility Type: Bicycle Lane	0.14	\$35,000	\$4,900		\$4,900
3	Second Line West: Goulais Ave. to Start of paved shoulder Facility Type: Bicycle Lane	0.07	\$250,000	\$17,500		\$17,500 ⁽¹⁾
4	Second Line West: Goulais Ave. to Start of paved shoulder Facility Type: Sharrow (interim)	0.07	\$15,000	\$1,050		\$1,050
5	Second Line West: Start of paved shoulder to Municipal Boundary Facility Type: Paved Shoulder with Rumble Strip	7.95	\$15,000	\$119,250		\$119,250
	(1) Additional work that is not included in the cost summary table in Section 4.0				Total:	\$191,700








MATCHLINE - SEE PLAN '7' ON THIS SHEET WR-4

'PLAN 6'

- PAVED SHOULDER WITH RUMBLE STRIP

KEY MAP

LEGEND

	PROPOSED BIKE LANE
	PROPOSED SIGNED ROUTE
	PROPOSED PAVED SHOULDER ROUTE
	PROPOSED MULTI-USE TRAIL
	EXISTING MULTI-USE TRAIL
	WP 37 WAYPOINT
	WC-47/S PROPOSED SIGN (REFER TO D-1)

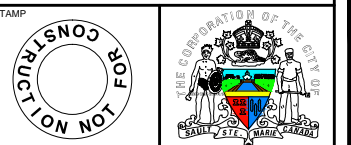
07/31/2014	FINAL REPORT	
D. DATE	DESCRIPTION	BY
REVISIONS		

CLIENT:

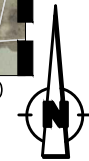
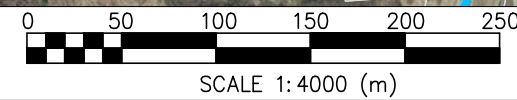
 Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
t. 519-743-6625
f. 519-743-8778
www.mmm.ca

DRAWING TITLE:

PROPOSED
WEST ROUTE



DESIGNED	PR	DRAWN	PR	CHECKED	JC
SCALE 1:4000			DATE AUGUST 2013		
PROJECT NUMBER			DWG. NUMBER		
14.13.058.001			WR-3		



MATCHLINE - SEE PLAN '8' ON THIS SHEET

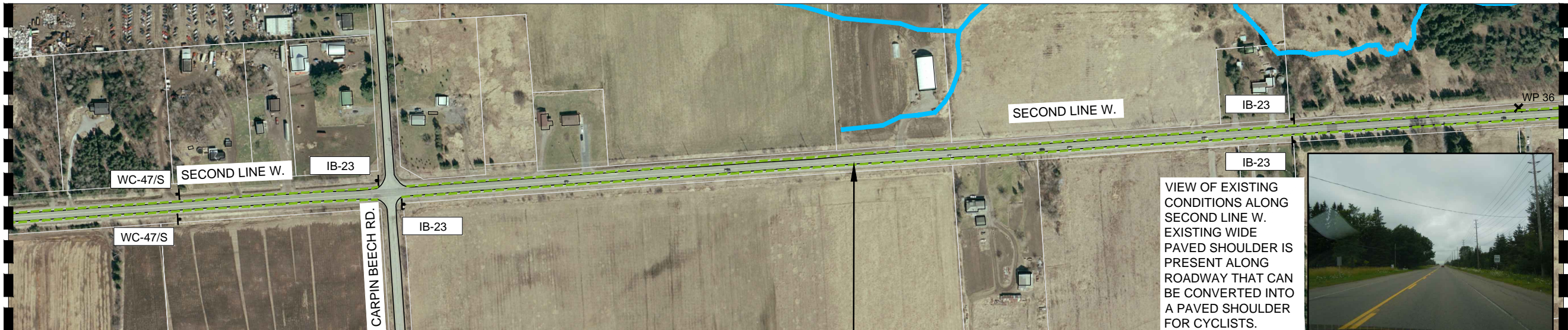


MATCHLINE - SEE PLAN '5' ON SHEET WR-3

'PLAN 7'

PAVED SHOULDER WITH RUMBLE STRIP

MATCHLINE - SEE PLAN '9' ON THIS SHEET



MATCHLINE - SEE PLAN '7' ON THIS SHEET

'PLAN 8'

PAVED SHOULDER WITH RUMBLE STRIP

VIEW OF EXISTING CONDITIONS ALONG SECOND LINE W. EXISTING WIDE PAVED SHOULDER IS PRESENT ALONG ROADWAY THAT CAN BE CONVERTED INTO A PAVED SHOULDER FOR CYCLISTS.



WP36 - VIEW WEST

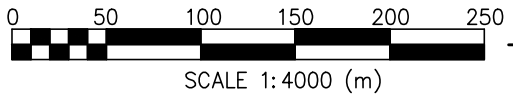
MATCHLINE - SEE PLAN '10' ON SHEET WR-5



MATCHLINE - SEE PLAN '8' ON THIS SHEET

'PLAN 9'

PAVED SHOULDER WITH RUMBLE STRIP



SCALE 1:4000 (m)

KEY MAP

LEGEND

- PROPOSED BIKE LANE
- PROPOSED SIGNED ROUTE
- PROPOSED PAVED SHOULDER ROUTE
- PROPOSED MULTI-USE TRAIL
- EXISTING MULTI-USE TRAIL
- WP 37 WAYPOINT
- PROPOSED SIGN (REFER TO D-1)

NO.	DATE	DESCRIPTION	BY
1	07/31/2014	FINAL REPORT	

REVISIONS

CLIENT:

CITY OF SAULT STE. MARIE



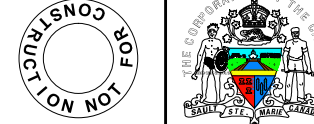
PROJECT TITLE:

SAULT STE. MARIE CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED WEST ROUTE

STAMP



DESIGNED PR	DRAWN PR	CHECKED JC
SCALE 1:4000	DATE AUGUST 2013	
PROJECT NUMBER 14.13.058.001	DWG. NUMBER WR-4	

West Route: Drawing WR-5 – WR-7 Plan 11 to Plan 16

1. Location

- Start: Airport Road and Second Line West
End: Gros Cap Loop
- Approximate Length:
 - 8200 m Proposed On-Road
- Connects with:
 - Prince Township and the Trans Canada Trail route west towards Thunder Bay

2. Observations and Considerations

- Refer to accompanying drawing sheet WR-5 to WR-7.

3. Detail Design Notes

- Facility Type: On-road paved shoulder route
- Typical Detail:
 - Paved Shoulder Route
- Key Design Elements to be Considered:
 - Narrow existing paved shoulder runs along both sides of Second Line West from Airport Road to Gros Cap. Existing shoulder should be repaired and new line paint should be added to delineate the new paved shoulder route.
 - Bike Route signage should be included along the length of the paved shoulder route.
- Key Constraints: None

4. Opinion of Probable Cost

Opinion of Probable Cost (Capital)						
Item	Description	Length (KM)	Unit Cost (per KM)	Extended Cost	Additional Works	TOTAL
1	Second Line West: <i>Municipal Boundary to Gros Cap Loop (1)</i> Facility Type: <i>Paved Shoulder</i>	8.2	\$55,000	\$451,000		\$451,000 ⁽¹⁾
	(1) This link is in Prince Township and the costs is itemized separately in the cost summary table in section 4 of the report Total:					\$451,000

MATCHLINE - SEE PLAN '11' ON THIS SHEET



'PLAN 10'

PROPOSED PAVED SHOULDER CYCLING ROUTE WITH RUMBLE STRIP (REFER TO DETAIL 1 AND 2, DRAWING D-4)

PROPOSED PAVED SHOULDER CYCLING ROUTE WITH RUMBLE STRIP (REFER TO DETAIL 1 AND 2, DRAWING D-4)

MATCHLINE - SEE PLAN '12' ON THIS SHEET



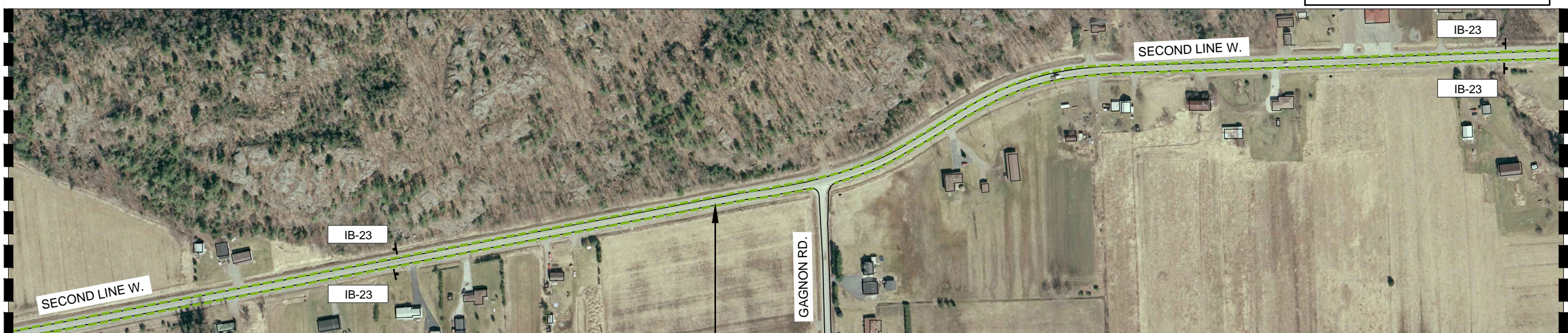
'PLAN 11'

PROPOSED PAVED SHOULDER CYCLING ROUTE 1.5m WIDE

VIEW OF EXISTING CONDITIONS ALONG SECOND LINE W.

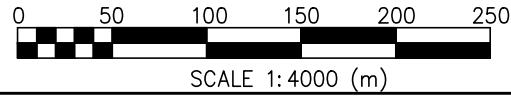


MATCHLINE - SEE PLAN '13' ON SHEET WR-6



'PLAN 12'

PROPOSED PAVED SHOULDER CYCLING ROUTE 1.5m WIDE



MATCHLINE - SEE PLAN '10' ON THIS SHEET

KEY MAP

LEGEND

- PROPOSED BIKE LANE
- PROPOSED SIGNED ROUTE
- PROPOSED PAVED SHOULDER ROUTE
- PROPOSED MULTI-USE TRAIL
- EXISTING MULTI-USE TRAIL
- WP 37 WAYPOINT
- WC-47/S PROPOSED SIGN (REFER TO D-1)

NO.	DATE	DESCRIPTION	BY
1	07/31/2014	FINAL REPORT	
REVISIONS			

CLIENT:

CITY OF SAULT STE. MARIE

MMM GROUP

Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

PROJECT TITLE:

SAULT STE. MARIE CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED WEST ROUTE

STAMP

DESIGNED PR DRAWN PR CHECKED JC

SCALE 1:4000 DATE AUGUST 2013

PROJECT NUMBER 14.13.058.001 DWG. NUMBER WR-5

MATCHLINE - SEE PLAN '14' ON THIS SHEET

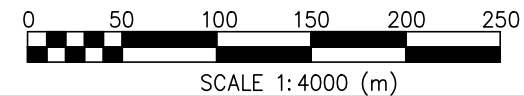


'PLAN 13'

MATCHLINE - SEE PLAN '15' ON SHEET WR-7



'PLAN 14'



MATCHLINE - SEE PLAN '12' ON SHEET WR-5

KEY MAP

LEGEND

- PROPOSED BIKE LANE
- PROPOSED SIGNED ROUTE
- PROPOSED PAVED SHOULDER ROUTE
- PROPOSED MULTI-USE TRAIL
- EXISTING MULTI-USE TRAIL
- WP 37 WAYPOINT
- WC-47/S PROPOSED SIGN (REFER TO D-1)

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY

REVISIONS

CLIENT:

CITY OF SAULT STE. MARIE

MMM GROUP

Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

PROJECT TITLE:

SAULT STE. MARIE CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED WEST ROUTE

STAMP

CONSTRUCTION NOT FOR

THE CORPORATION OF THE CITY OF SAULT STE. MARIE

DESIGNED PR	DRAWN PR	CHECKED JC
SCALE 1:4000	DATE AUGUST 2013	
PROJECT NUMBER 14.13.058.001	DWG. NUMBER WR-6	

MATCHLINE - SEE PLAN '16' ON THIS SHEET



WP145 - VIEW EAST

'PLAN 15'

MATCHLINE - SEE PLAN '14' ON SHEET WR-6

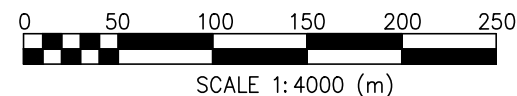
END OF WEST ROUTE



WP143 - VIEW EAST

'PLAN 16'

PROPOSED PAVED SHOULDER CYCLING ROUTE 1.5m WIDE



KEY MAP

LEGEND

- PROPOSED BIKE LANE
- PROPOSED SIGNED ROUTE
- PROPOSED PAVED SHOULDER ROUTE
- PROPOSED MULTI-USE TRAIL
- EXISTING MULTI-USE TRAIL
- WP 37 WAYPOINT
- WC-47/S PROPOSED SIGN (REFER TO D-1)

NO.	DATE	DESCRIPTION	BY
1	07/31/2014	FINAL REPORT	

REVISIONS

CLIENT:
CITY OF SAULT STE. MARIE

PROJECT TITLE:
SAULT STE. MARIE CYCLING DESIGN STUDY

DRAWING TITLE:
PROPOSED WEST ROUTE

STAMP	
DESIGNED PR	DRAWN PR
CHECKED JC	CHECKED JC
SCALE 1:4000	DATE AUGUST 2013
PROJECT NUMBER 14.13.058.001	DWG. NUMBER WR-7

West Route: Drawing WR-8 Plan 17

1. Location

- Start: Carmen`s Way and White Oak Drive West
End: Carmen`s Way and Second Line East
- Approximate Length:
 - 200 m Proposed Off-Road
- Connects with:
 - Existing HUB Trail Route

2. Observations and Considerations

- Refer to accompanying drawing sheet WR-8.

3. Detail Design Notes

- Facility Type: Off-road multi-use pathway
- Typical Detail:
 - 3.0m Multi-Use Pathway
- Key Design Elements to be Considered:
 - Asphalt Multi-Use Path along edge of curb. Remove concrete and unit paver surface treatments, replace with asphalt so the surface is visually consistent with other boulevard multi-use pathways in the city. Sign clearly as a multi-use pathway and part of the HUB Trail route.
 - Note this will require narrowing in some locations to avoid conflict with existing utilities along edge of roadway.
 - Add Object Marker signs to utility poles at narrow trail points to prevent cyclists from contacting poles.
- Key Constraints: None

4. Opinion of Probable Cost

Opinion of Probable Cost (Capital)						
Item	Description	Length (KM)	Unit Cost (per KM)	Extended Cost	Additional Works	TOTAL
1	Carmens Way: White Oak Dr. W to Second Line E. Facility Type: MUP East Blvd.	0.20	\$350,000	\$70,000		\$70,000
	Total:					\$70,000



'PLAN 17'

KEY MAP

- LEGEND
- PROPOSED BIKE LANE
 - PROPOSED SIGNED ROUTE
 - PROPOSED PAVED SHOULDER ROUTE
 - PROPOSED MULTI-USE TRAIL
 - EXISTING MULTI-USE TRAIL
 - WP 37 WAYPOINT
 - WC-47/S PROPOSED SIGN (REFER TO D-1)

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY

REVISIONS

CLIENT:

CITY OF SAULT STE. MARIE



MMM GROUP

Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

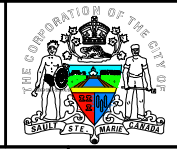
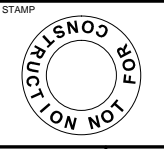
PROJECT TITLE:

SAULT STE. MARIE CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED WEST ROUTE

STAMP



DESIGNED	PR	DRAWN	PR	CHECKED	JC
SCALE 1:4000		DATE AUGUST 2013			
PROJECT NUMBER 14.13.058.001		DWG. NUMBER		WR-8	



KEY MAP

NO.	DATE	DESCRIPTION	BY
1	07/31/2014	FINAL REPORT	

REVISIONS

CLIENT:

CITY OF
SAULT STE. MARIE



Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

PROJECT TITLE:

SAULT STE. MARIE
CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED
NORTH ROUTE
KEY PLAN

STAMP



DESIGNED PR	DRAWN PR	CHECKED JC
-------------	----------	------------

SCALE 1:30,000	DATE AUGUST 2013
----------------	------------------

PROJECT NUMBER	DWG. NUMBER
----------------	-------------

14.13.058.001

NR-0

North Route: Drawing NR-1 – NR-2 Plan 1 to Plan 4

1. Location

- Start: Old Garden River Road and Terrance Avenue
End: Landslide Road and Fourth Line East
- Approximate Length:
 - 4080m Proposed On-Road
- Connects with:
 - Existing HUB Trail Network

2. Observations and Considerations

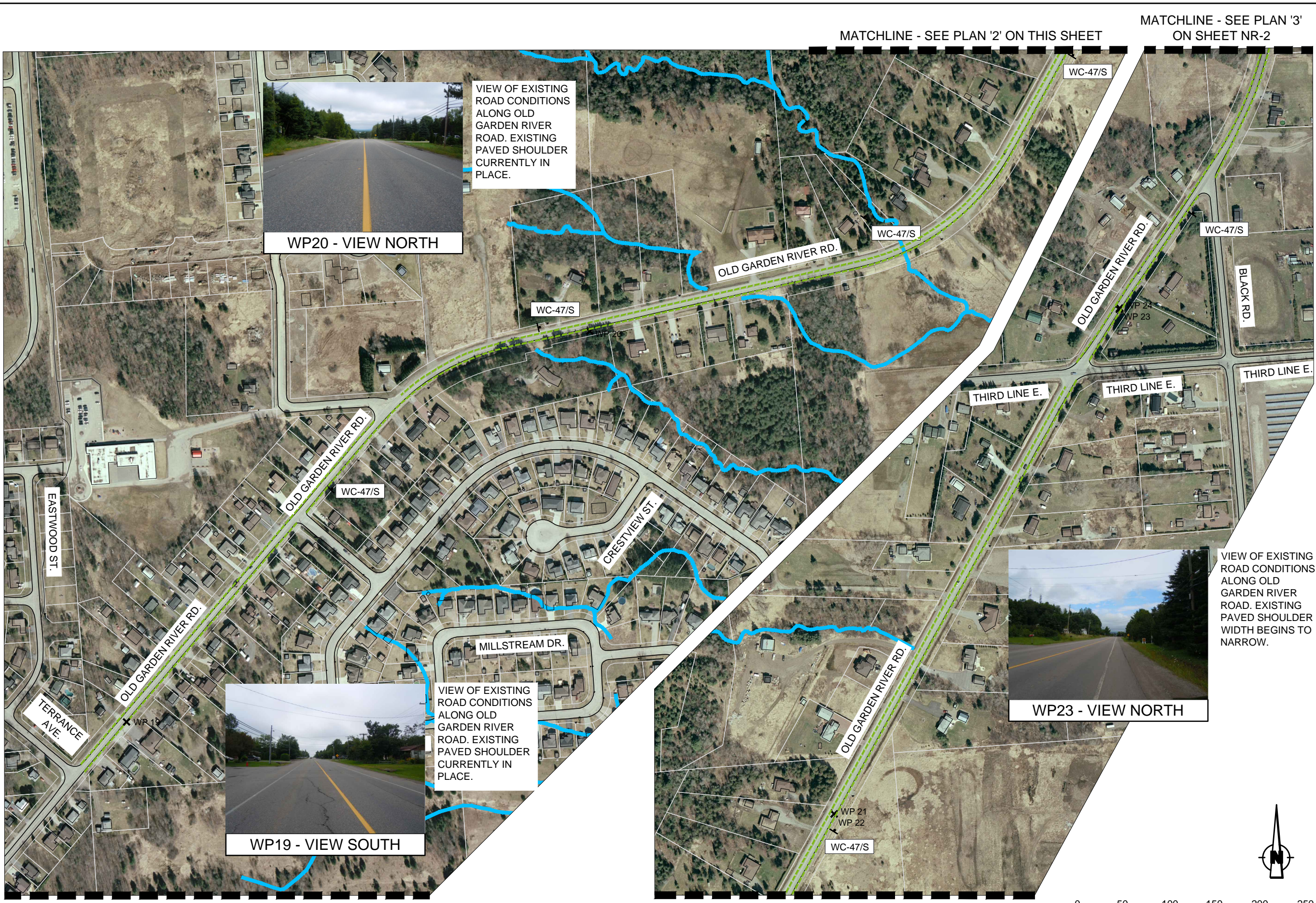
- Refer to accompanying drawing sheet NR-1 to NR-2.

3. Detail Design Notes

- Facility Type: On-road paved shoulder route
- Typical Detail:
 - Paved Shoulder Route
- Key Design Elements to be Considered:
 - Existing shoulders exist along length of roadway “Share the Road” signage should be added in appropriate locations (refer to drawings NR1 and Nr2 for recommended locations).
 - Spot improvements/additions to existing paved shoulder from Terrance Avenue to Third Line (existing paved shoulder is adequate width given traffic volume).
 - Pave additional shoulder from Third Line to Fourth Line to achieve 1.5m width the next time the road is resurfaced.
- Key Constraints:
 - Narrow point at Root River bridge will require Share the Road signage (refer to drawings NR1 and NR2 for placement). The existing bridge cannot be retrofitted easily or cost effectively, however consideration could be given to providing additional width when the bridge is reconstructed in the future.

4. Opinion of Probable Cost

Opinion of Probable Cost (Capital)						
Item	Description	Length (KM)	Unit Cost (per KM)	Extended Cost	Additional Works	TOTAL
1	Old Garden River Road: Terrance Ave. to Third Line E. Facility Type: Paved Shoulder	2.0	\$15,000 (signing plus allowance for spot improvements)	\$30,000		\$30,000
2	Old Garden River Road: Third Line E. to Black Rd. Facility Type: Paved Shoulder	0.25	\$15,000 (signing plus allowance for spot improvements)	\$3,750		\$3,750
3	Old Garden River Road: Black Rd. to Old Garden River Rd./Landslide Rd. Facility Type: Paved Shoulder	1.30	\$55,000	\$71,500		\$71,500
4	Landslide Road: Old Garden River Rd. to Fourth Line. Facility Type: Paved Shoulder	0.53	\$55,000	\$29,150		\$29,150
	Total:					\$134,400



START OF NORTH CYCLING ROUTE

'PLAN 1'

MATCHLINE - SEE PLAN '1' ON THIS SHEET

'PLAN 2'

MATCHLINE - SEE PLAN '2' ON THIS SHEET

MATCHLINE - SEE PLAN '3' ON SHEET NR-2

050100150200250

SCALE 1:4000 (m)

KEY MAP

LEGEND

PROPOSED BIKE LANE

PROPOSED SIGNED ROUTE

PROPOSED PAVED SHOULDER ROUTE

PROPOSED MULTI-USE TRAIL

EXISTING MULTI-USE TRAIL

WP 37

WAYPOINT

WC-47/S

PROPOSED SIGN (REFER TO D-1)

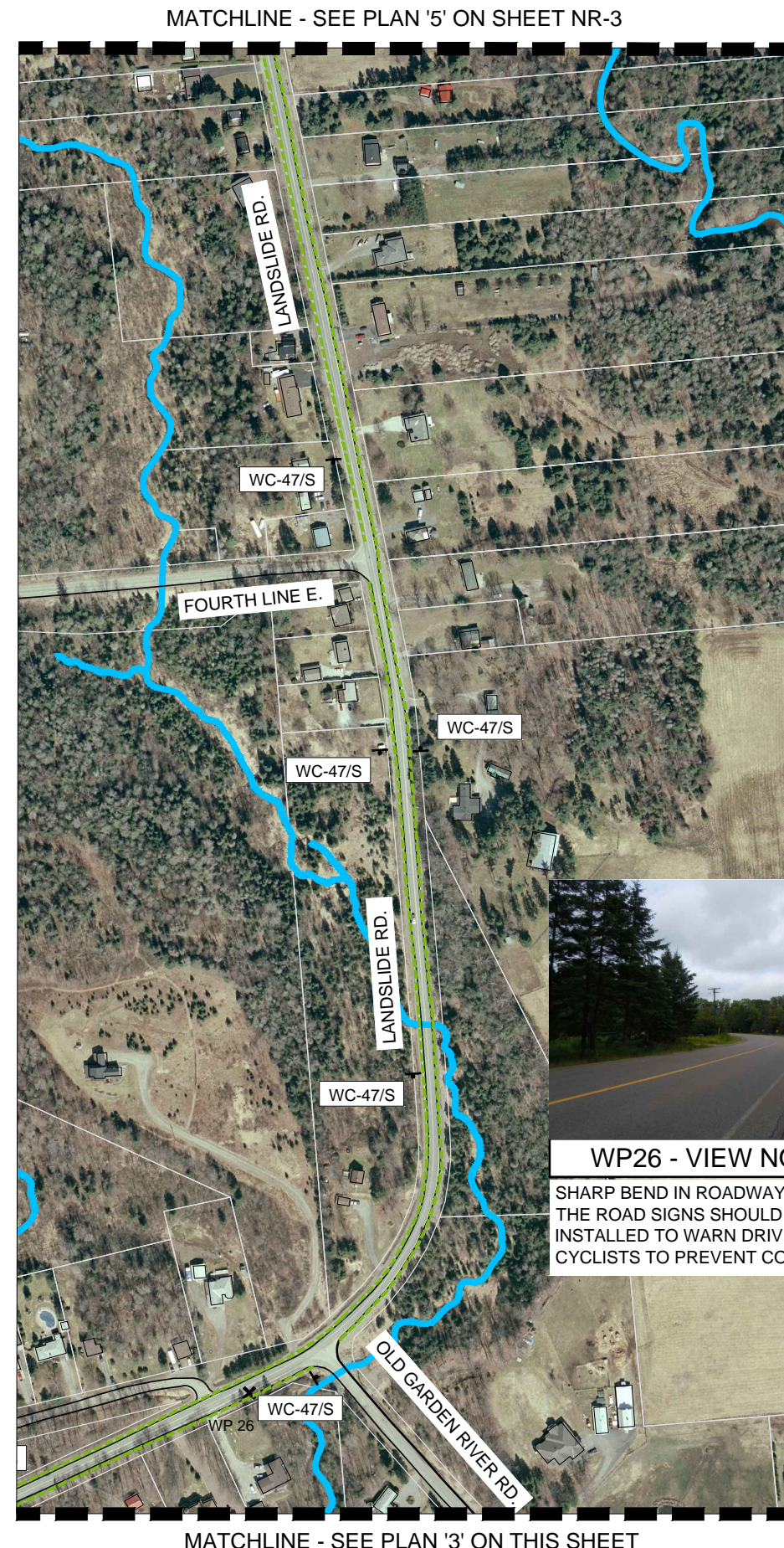
1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY
REVISIONS			
CLIENT:			
CITY OF SAULT STE. MARIE			
<div><div><div></div></div><div><div>Landscape Architecture</div><div>582 Lancaster Street West</div><div>Kitchener, ON N2K 1M3</div><div>T. 519-743-6625</div><div>F. 519-743-8778</div><div>www.mmm.ca</div></div></div>			
PROJECT TITLE:			
SAULT STE. MARIE CYCLING DESIGN STUDY			
DRAWING TITLE:			
PROPOSED NORTH ROUTE			
STAMP			
<div><div>CONSTRUCTION NOT FOR</div></div>		<div><div>THE CORPORATION OF THE CITY OF SAULT STE. MARIE</div></div>	
DESIGNED PR	DRAWN PR	CHECKED JC	
SCALE 1:4000	DATE AUGUST 2013		
PROJECT NUMBER 14.13.058.001	DWG. NUMBER NR-1		

Y:\MM\058\B1\2014\851\AM L:\jordan\0731\1413058-000 SSN Priority Cycling Design Study\Drawings\SSM Cycling North Route_R3.dwg

Y:\MMD\01\2014\811 AM
L:\joh007\31\13095-000 SSN Priority Cycling Design Study\Drawings\SSM Cycling North Route_R3.dwg



'PLAN 3'



'PLAN 4'

KEY MAP

- LEGEND
- PROPOSED BIKE LANE
 - PROPOSED SIGNED ROUTE
 - PROPOSED PAVED SHOULDER ROUTE
 - PROPOSED MULTI-USE TRAIL
 - EXISTING MULTI-USE TRAIL
 - WP 37 WAYPOINT
 - WC-47/S PROPOSED SIGN (REFER TO D-1)

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY

REVISIONS

CLIENT:

CITY OF
SAULT STE. MARIE

MMM GROUP

Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

PROJECT TITLE:

SAULT STE. MARIE
CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED
NORTH ROUTE

STAMP		THE CORPORATION OF THE CITY OF SAULT STE. MARIE	
DESIGNED PR		DRAWN PR	
SCALE 1:4000		DATE AUGUST 2013	
PROJECT NUMBER 14.13.058.001		DWG. NUMBER NR-2	

North Route: Drawing NR-3– NR-4 Plan 5 to Plan 8

1. Location

- Start: Landslide Road and Fourth Line East
End: Sixth Line East and Great Northern Road
- Approximate Length:
4700 m Proposed On-Road
- Connects with:
 - Existing HUB Trail Network

2. Observations and Considerations

- Refer to accompanying drawing sheet NR-3 to NR-4.

3. Detail Design Notes

- Facility Type: On-road signed route and On-road paved shoulder
- Typical Detail:
 - Signed On-Road Route
- Key Design Elements to be Considered:
 - Existing shoulders exist along length of roadway; “Share the Road” signage should be added in appropriate locations.
 - Pave additional shoulder along Landslide Road to achieve 1.5m width from Fourth Line to Finnish Nordic Ski Club parking area, next time the road is resurfaced.
 - Provide additional hard surface width from Finnish Nordic Ski Club Parking lot to Great Northern Road next time chip seal surface is reapplied. Consider adding centre line and edgeline.
- Key Constraints: None
 - Narrow point at Root River bridge will require Share the Road signage (refer to drawings NR1 and NR2 for placement). The existing bridge cannot be retrofitted easily or cost effectively, however consideration could be given to providing additional width when the bridge is reconstructed in the future.

4. Opinion of Probable Cost

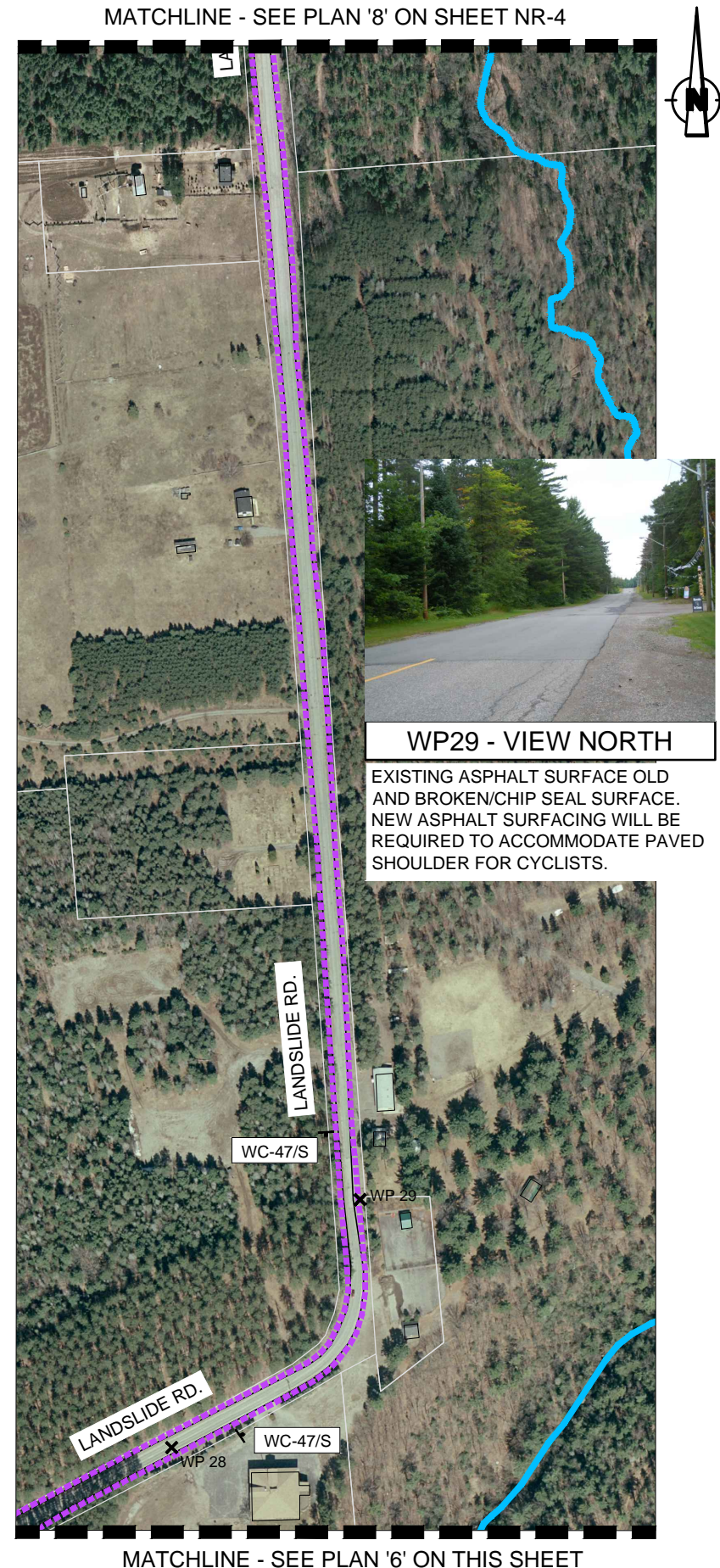
Opinion of Probable Cost (Capital)						
Item	Description	Length (KM)	Unit Cost (per KM)	Extended Cost	Additional Works	TOTAL
1	Landslide Road: Fourth Line to Fifth Line Facility Type: Paved Shoulder	2.10	\$55,000	\$115,500		\$115,500
2	Landslide Road: Fifth Line to 600m north of 5 th Line (Kinsmen Park entrance) Facility Type: Paved Shoulder	0.60	\$55,000	\$33,000		\$33,000
3	Landslide Road: Kinsmen Park entrance to Highway 17/Great Northern Rd. Facility Type: Signed Route	2.00	\$25,000	\$50,000		\$50,000
	Total:					\$198,500



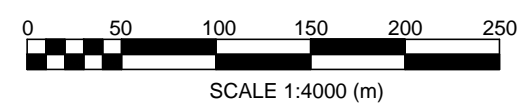
'PLAN 5'



'PLAN 6'



'PLAN 7'



KEY MAP

LEGEND

- PROPOSED BIKE LANE
- PROPOSED SIGNED ROUTE
- PROPOSED PAVED SHOULDER ROUTE
- PROPOSED MULTI-USE TRAIL
- EXISTING MULTI-USE TRAIL
- WP 37 WAYPOINT
- WC-47/S PROPOSED SIGN (REFER TO D-1)

NO.	DATE	DESCRIPTION	BY
1	07/31/2014	FINAL REPORT	

REVISIONS

CLIENT:

CITY OF SAULT STE. MARIE

PROJECT TITLE:

SAULT STE. MARIE CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED NORTH ROUTE

STAMP

DESIGNED PR DRAWN PR CHECKED JC

SCALE 1:4000 DATE AUGUST 2013

PROJECT NUMBER 14.13.058.001 DWG. NUMBER NR-3

North Route: Drawing NR-5 Plan 9

1. Location

- Start: Northern Avenue East and Willow Avenue
End: Northern Avenue East and Pine Street
- Approximate Length:
 - 600 m Proposed On-Road
- Connects with:
 - Existing HUB Trail Network
 - Sault College

2. Observations and Considerations

- Refer to accompanying drawing sheet NR-5.

3. Detail Design Notes

- Facility Type: On-road bike lane
- Typical Detail:
 - On-Road Bike Lane
- Key Design Elements to be Considered:
 - On-Road Bike Lane can be developed for this section of the HUB Trail by reducing the number of lanes or overall lane widths.
 - Confirm if an EA will be required to assess the potential to reduce Northern Avenue from 4 travel lanes to 3 travel lanes with dedicated bike lanes.
 - Consider replacing existing sidewalk with wider sidewalk along south side of Northern Avenue between Pine Street and Willow Avenue (in front of Sault College).
 - Consider options to accommodate cyclist movement at the Willow Avenue – Northern Avenue intersection and implement recommended solution once a decision has been made
 - Sign HUB Trail to indicate to cyclists that they must dismount and walk through intersection
 - Add cyclist signals to assist the south movement to Willow and east/west movement to Northern Avenue East. Also consider a crossride as a pilot project at this location
 - Add full traffic signals at intersection including a pedestrian crosswalk on the west leg of the intersection
- Key Constraints: None

4. Opinion of Probable Cost

Opinion of Probable Cost (Capital)						
Item	Description	Length (KM)	Unit Cost (per KM)	Extended Cost	Additional Works	TOTAL
1	Northern Avenue East: Willow Ave. to Pine St. Facility Type: Wide Sidewalk	0.60	\$150,000	\$90,000		\$90,000 ⁽¹⁾
2	Northern Avenue East: Willow Ave. to Pine St. Facility Type: Bike Lanes	0.60	\$35,000	\$21,000		\$21,000
(1) Additional work that is not included in the cost summary table in Section 4.0 Total:						\$111,000



KEY MAP

LEGEND

- PROPOSED BIKE LANE
- PROPOSED SIGNED ROUTE
- PROPOSED PAVED SHOULDER ROUTE
- PROPOSED MULTI-USE TRAIL
- EXISTING MULTI-USE TRAIL
- WP 37 WAYPOINT
- WC-47/S PROPOSED SIGN (REFER TO D-1)

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY

REVISIONS

CLIENT:

CITY OF
SAULT STE. MARIE

Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

PROJECT TITLE:

SAULT STE. MARIE
CYCLING DESIGN STUDY

DRAWING TITLE:

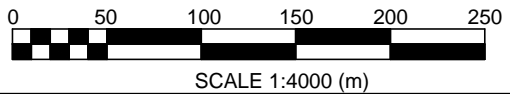
PROPOSED
NORTHERN AVE. CYCLING ROUTE

DESIGNED PR	DRAWN PR	CHECKED JC
SCALE 1:4000	DATE AUGUST 2013	
PROJECT NUMBER 14.13.058.001	DWG. NUMBER NR-5	

'PLAN 9'

INTERSECTION IMPROVEMENT AT
WILLOW AVE. AND NORTHERN AVE. E.
SEE NOTES ON FOLLOWING PAGE FOR
DISCUSSION OF OPTIONS.

ADD BIKE LANES TO NORTHERN AVE. E. BY
MODIFYING 4-LANE CROSS SECTION TO 2 TRAVEL
LANES, CENTRE LEFT TURN LANE AND BIKE LANES.



North Route: Drawing NR-6 Plan 10

1. Location

- Start: Strathclair Spokes
End: Northern Avenue East and Pine Street
- Approximate Length:
 - 3590 m Proposed Off-road
 - 500 m Proposed On-road
- Connects with:
 - Existing HUB Trail Network

2. Observations and Considerations

- Refer to accompanying drawing sheet NR-6.

3. Detail Design Notes

- Facility Type: Off-road multi-use pathway
- Typical Detail:
 - 3.0m Multi-Use Pathway
- Key Design Elements to be Considered:
 - Drainage improvements to the existing connection from Millcreek Drive.
 - A number of culverts will be required throughout this section to ensure proper drainage of the site is maintained once the Multi-Use Path has been installed.
 - A bridge will need to be installed to cross the streams through the existing woodlot between the existing HUB Trail between Pawating Place and Second Line East (Item 1 in the Opinion of Probable Cost)..
 - Signalize entrance at Strathclair Park if recommended in the EA currently underway
 - Consider MUP loop at Strathclair Park as part of the long-term development of the Strathclair Sports Complex (Item 4 in the Opinion of Probable Cost)
 - Investigate purchasing additional property along the east side of Pine Street to accommodate a future MUP in the long term
 - Link # 6 is currently being constructed as part of the Second Line East EA project.
- Key Constraints: None

4. Opinion of Probable Cost

Opinion of Probable Cost (Capital)						
Item	Description	Length (KM)	Unit Cost (per KM)	Extended Cost	Additional Works	TOTAL
1	South Spoke: HUB Trail near Northern Ave. to intersection of Second Line and Black Road Facility Type: MUP	1.26	\$250,000	\$315,000	\$75,000 (allowance for MUP bridge)	\$390,000
2	Crossing into Strathclair: Entrance at Second Line Signalized Intersection	n/a	\$150,000	\$150,000 ⁽¹⁾		\$150,000
3	North Spoke: Millcreek Dr. to Strathclair Park Facility Type: MUP	0.13	\$250,000	\$32,500	\$40,000 (allowance for drainage improvements and culvert)	\$72,500
4	Strathclair Loop: Loop around outside of park Facility Type: MUP	2.65	\$250,000	\$662,500	\$25,000 (Allowance for 10 culverts)	\$687,500 ⁽¹⁾
5	Pine St.: Northern Ave. to Second Line East Facility Type: Bike Lanes	0.50	\$35,000	\$17,500		\$17,500
6	Second Line East: End of existing blvd MUP to Strathclair Park Facility Type: MUP	0.84	\$350,000	\$294,000		\$294,000
7	Pine St.: Northern Ave. to Second Line East Facility Type: MUP	0.50	\$350,000	\$175,000		\$175,000 ⁽¹⁾
(1) Additional work that is not included in the cost summary table in Section 4.0						Total: \$1,786,500



KEY MAP

PROPOSED STRATHCLAIR MULTI-USE TRAIL LOOP TO BE CONSIDERED AS PART OF LONG TERM IMPROVEMENT TO STRATHCLAIR SPORTS COMPLEX.

- LEGEND
- PROPOSED BIKE LANE
 - PROPOSED SIGNED ROUTE
 - PROPOSED PAVED SHOULDER ROUTE
 - PROPOSED MULTI-USE TRAIL
 - EXISTING MULTI-USE TRAIL
 - WP 37 WAYPOINT
 - WC-47/S PROPOSED SIGN (REFER TO D-1)
 - PROPOSED ROUTE (OPINION OF PROBABLE COST CHART)
 - PROPOSED STRATHCLAIR MULTI-USE TRAIL LOOP

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY
REVISIONS			

CLIENT:

CITY OF SAULT STE. MARIE

MMM GROUP

Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

PROJECT TITLE:

SAULT STE. MARIE CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED STRATHCLAIR SPOKES

STAMP

DESIGNED PR DRAWN PR CHECKED JC

SCALE 1:5000 DATE AUGUST 2013

PROJECT NUMBER 14.13.058.001 DWG. NUMBER NR-6

NOT FOR CONSTRUCTION

THE CORPORATION OF THE CITY OF SAULT STE. MARIE

'PLAN 10'

CONSIDER MULTI-USE TRAIL AS PART OF LONG TERM ROUTE DEVELOPMENT



Y:\MMD\0817\2014\8171 AM Priority Cycling Design Study\Drawings\SSM Cycling North Route_R3.dwg
L:\jdo\071311\13058-000 SSM



KEY MAP

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY

REVISIONS

CLIENT:

CITY OF
SAULT STE. MARIE



Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
t. 519-743-6625
f. 519-743-8778
www.mmm.ca

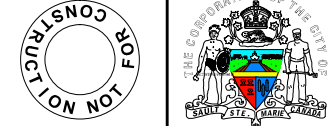
PROJECT TITLE:

SAULT STE. MARIE
CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED
EAST ROUTE
KEY PLAN

STAMP



DESIGNED PR	DRAWN PR	CHECKED JC
SCALE 1:20,000	DATE AUGUST 2013	
PROJECT NUMBER 14.13.058.001	DWG. NUMBER ER-0	

East Route: Drawing ER-1 Plan 1 and 2

1. Location

- Start: Bennett Boulevard and Heath Avenue
End: Chambers Avenue and Dacey Road
- Approximate Length:
 - 2380 m Proposed On-Road
 - 480 m Proposed Off-Road
- Connects with:
 - Existing HUB Trail Network

2. Observations and Considerations

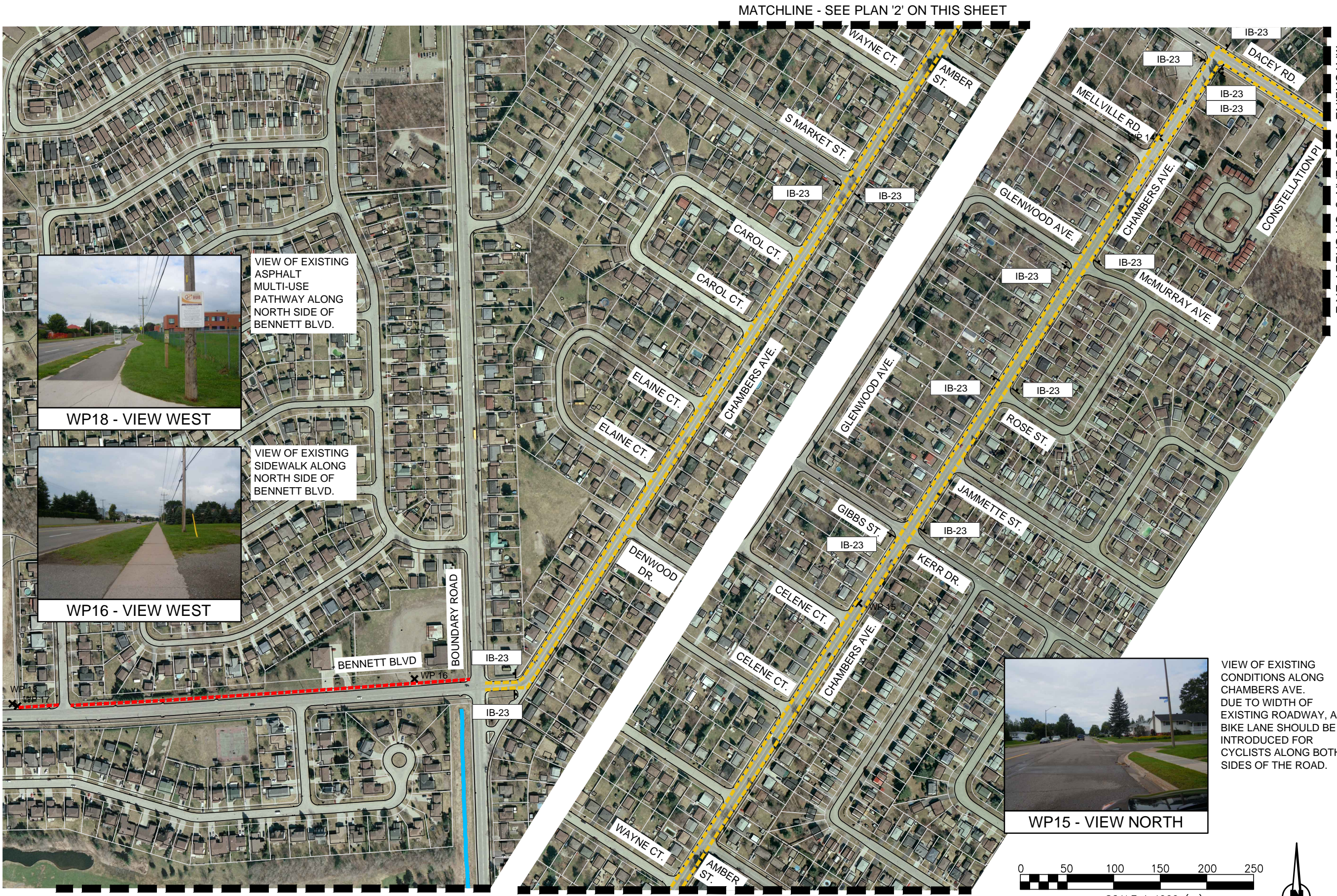
- Refer to accompanying drawing sheet ER-1.

3. Detail Design Notes

- Facility Type: Off-road multi-use pathway and On-road bike lane
- Typical Detail:
 - 3.0m Multi-Use Pathway
 - On-Road Bike Lane
- Key Design Elements to be Considered:
 - Existing sidewalk along Bennett Boulevard to be removed for implementation of Multi-Use Path.
 - Reallocate existing lane markings to add a bike lane along both sides of the roadway. Note that this will require the removal of on street parking
 - Consider conversion of Bennett Boulevard from 4 lane cross-section the 3-lane cross-section with dedicated bike lanes
 - Confirm if an EA will be required to assess the potential to Bennett Boulevard from 4 travel lanes to 3 travel lanes with dedicated bike lanes.
- Key Constraints: None

4. Opinion of Probable Cost

Opinion of Probable Cost (Capital)						
Item	Description	Length (KM)	Unit Cost (per KM)	Extended Cost	Additional Works	TOTAL
1	Bennett Boulevard: HUB Trail to Boundary Rd. Facility Type: MUP	0.48	\$350,000	\$168,000	Budget to include sidewalk removal	\$168,000
2	Bennett Boulevard: HUB Trail to Boundary Rd. Facility Type: Bike Lane	0.48	\$35,000	\$16,800		\$16,800 ⁽¹⁾
3	Chambers Avenue: Boundary Rd. to Dacey Rd. Facility Type: Bike Lane	1.90	\$35,000	\$66,500		\$66,500
	(1) Additional work that is not included in the cost summary table in Section 4.0				Total:	\$251,300



VIEW OF EXISTING ASPHALT MULTI-USE PATHWAY ALONG NORTH SIDE OF BENNETT BLVD.



VIEW OF EXISTING SIDEWALK ALONG NORTH SIDE OF BENNETT BLVD.



VIEW OF EXISTING CONDITIONS ALONG CHAMBERS AVE. DUE TO WIDTH OF EXISTING ROADWAY, A BIKE LANE SHOULD BE INTRODUCED FOR CYCLISTS ALONG BOTH SIDES OF THE ROAD.

KEY MAP

LEGEND

- PROPOSED BIKE LANE
- PROPOSED SIGNED ROUTE
- PROPOSED PAVED SHOULDER ROUTE
- PROPOSED MULTI-USE TRAIL
- EXISTING MULTI-USE TRAIL
- WP 37 WAYPOINT
- WC-47/S PROPOSED SIGN (REFER TO D-1)

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY
REVISIONS			

CLIENT:

CITY OF SAULT STE. MARIE

MMM GROUP

Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

PROJECT TITLE:

SAULT STE. MARIE CYCLING DESIGN STUDY

DRAWING TITLE:

PROPOSED EAST ROUTE

STAMP

DESIGNED PR DRAWN PR CHECKED JC

SCALE 1:4000 DATE AUGUST 2013

PROJECT NUMBER 14.13.058.001 DWG. NUMBER ER-1

East Route: Drawing ER-2 Plan 3 and 4

1. Location

- Start: Chambers Avenue and Dacey Road
End: Queen Street East and Fournier Road
- Approximate Length:
 - 2300 m Proposed On-Road
- Connects with:
 - Existing HUB Trail Network

2. Observations and Considerations

- Refer to accompanying drawing sheet ER-2.

3. Detail Design Notes

- Facility Type: On-road bike lane and On-road signed route with paved shoulder
- Typical Detail:
 - On-Road Bike Lane
 - Paved Shoulder Route
- Key Design Elements to be Considered:
 - Dacey Road: Reallocate existing lane markings to add a bike lane along both sides of the roadway. Note that this will require the removal of on street parking.
 - Partial paved shoulders (approximately 0.6m width) already exist on Queen Street east of Dacey Road. In the short term, lane markings could be readjusted to allow for a slightly narrower travel lane and slightly wider paved shoulder. Over the long term, when the road is reconstructed, the shoulder may be widened to allow for more separation between vehicles and cyclists. Note that the existing roadside drainage infrastructure presents challenges in achieving a full 1.5m paved shoulder width; therefore a 1.2m shoulder should be implemented wherever possible, with Share the Road signs added where conditions make it impossible to implement the minimum 1.2m shoulder plus 0.5m granular shoulder rounding.
- Key Constraints:
 - The rural cross section, numerous private driveways and deep ditches in some locations make it cost prohibitive to implement a full 1.5m wide paved shoulder. Note that the low traffic volume and good sight lines make the 1.2m shoulder an appropriate and acceptable solution

4. Opinion of Probable Cost

Opinion of Probable Cost (Capital)						
Item	Description	Length (KM)	Unit Cost (per KM)	Extended Cost	Additional Works	TOTAL
1	Dacey Road: <i>Chambers Avenue. to Queen St.</i> Facility Type: Bike Lane	0.63	\$35,000	\$22,050		\$22,050
2	Queen Street E: <i>Dacey Rd. to Fournier Rd.</i> Facility Type: Paved Shoulder	1.67	\$55,000	\$91,850		\$91,850
	Total:					\$113,900

East Route: Drawing ER-3 Plan 5

1. Location

- Start: Queen Street East and Fournier Road
End: Trunk Road and Trans-Canada Highway
- Approximate Length:
 - 1200 m Proposed On-Road
 - 360 m Proposed Off-Road
- Connects with:
 - Existing HUB Trail Network

2. Observations and Considerations

- Refer to accompanying drawing sheet ER-3.

3. Detail Design Notes

- Facility Type: Off-road multi-use pathway and On-road bike lane
- Typical Detail:
 - 3.0m Multi-Use Pathway
 - On-Road Bike Lane
- Key Design Elements to be Considered:
 - Intersection modifications will be required to assist trail users to navigate the intersection of Trunk Road and the Trans-Canada Highway.
 - The new development will be providing bike lanes along both sides of the roadway at no cost to the City.
- Key Constraints: None

4. Opinion of Probable Cost

Opinion of Probable Cost (Capital)						
Item	Description	Length (KM)	Unit Cost (per KM)	Extended Cost	Additional Works	TOTAL
1	Queen Street Extension: Fournier Rd. to HWY #17 Facility Type: Bike Lane	1.20	\$250,000	\$300,000	No cost to city, completed by developer	\$300,000 ⁽¹⁾
2	Hwy #17/Trunk Road: Queen St. Extension to Hwy #17 North Facility Type: MUP	0.40	\$350,000	\$140,000	\$20,000 (allowance for intersection modifications), plus \$75,000 allowance for retaining wall	\$235,000
(1) Additional work that is not included in the cost summary table in Section 4.0 Total:						\$535,000



VIEW OF EXISTING
CONDITIONS ALONG
EAST SIDE OF TRUNK
RD.



VIEW OF EXISTING
CONDITIONS ALONG
EAST SIDE OF TRUNK
RD.

VIEW OF EXISTING
CONDITIONS ALONG
EAST SIDE OF TRUNK
RD.

PROPOSED MULTI-USE TRAIL ON
SOUTH SIDE OF TRUNK ROAD
(REFER TO DETAIL 1 AND 2,
DRAWING D-3)

- LEGEND
- PROPOSED BIKE LANE
 - PROPOSED SIGNED ROUTE
 - PROPOSED PAVED SHOULDER ROUTE
 - PROPOSED MULTI-USE TRAIL
 - EXISTING MULTI-USE TRAIL
 - WP 37 WAYPOINT
 - PROPOSED SIGN (REFER TO D-1)

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY

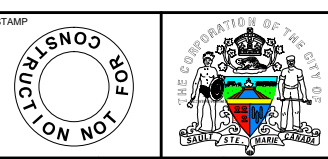
REVISIONS

CLIENT:
**CITY OF
SAULT STE. MARIE**

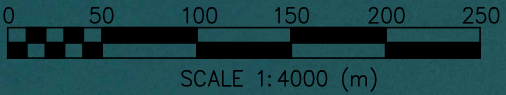
MMM GROUP
Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
T. 519-743-6625
F. 519-743-8778
www.mmm.ca

PROJECT TITLE:
**SAULT STE. MARIE
CYCLING DESIGN STUDY**

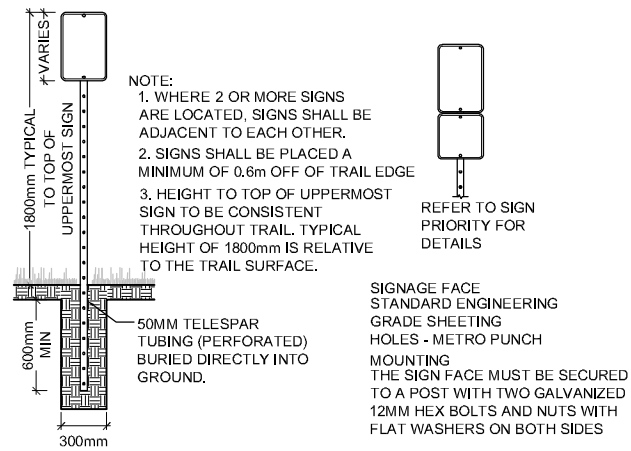
DRAWING TITLE:
**PROPOSED
EAST ROUTE**



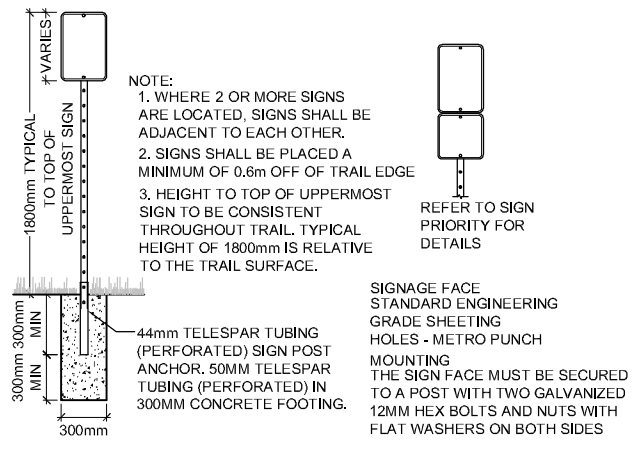
DESIGNED PR	DRAWN PR	CHECKED JC
SCALE 1:4000	DATE AUGUST 2013	
PROJECT NUMBER 14.13.058.001	DWG. NUMBER ER-3	



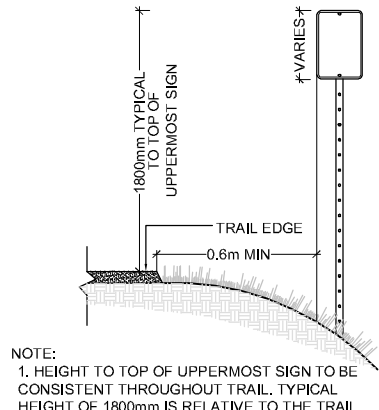
3.0 DETAILS



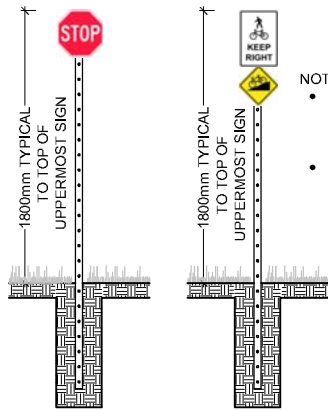
SIGN MOUNT DIRECTLY INTO GROUND



SIGN MOUNT WITH CONCRETE FOOTING



SIGN MOUNT DOWN SLOPE OF TRAIL

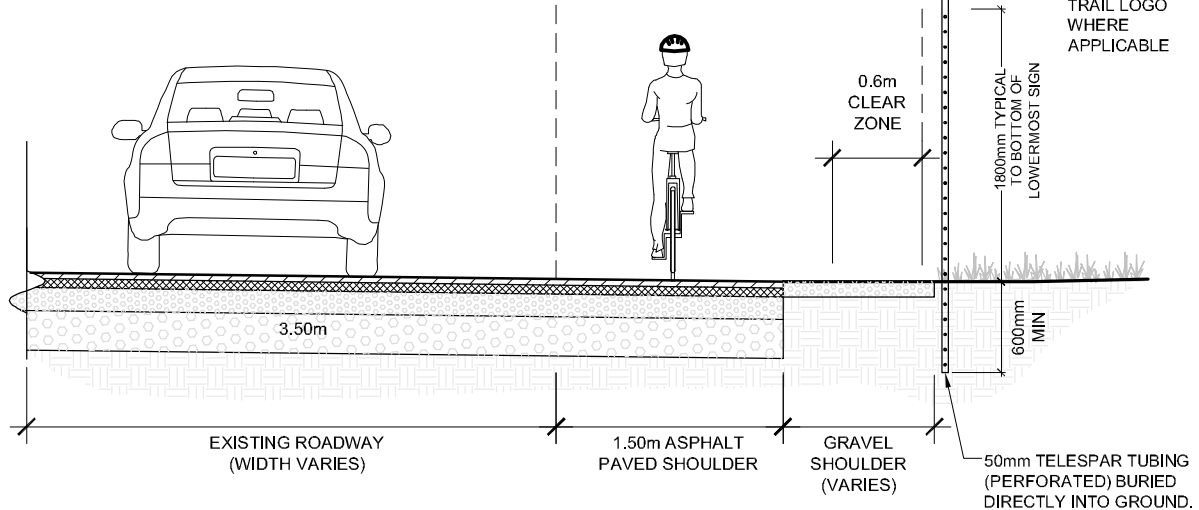
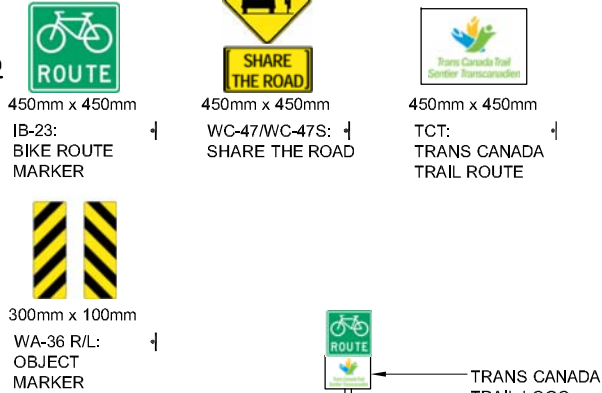


SIGN PRIORITY

- NOTE:
1. HEIGHT TO BOTTOM OF LOWERMOST SIGN TO BE CONSISTENT THROUGHOUT ROUTE. TYPICAL HEIGHT OF 1800mm IS RELATIVE TO THE PATHWAY SURFACE. THEREFORE A LONGER SIGN POST WILL BE REQUIRED WHERE THE SIGN POST IS LOCATED DOWN SLOPE FROM THE PATHWAY SURFACE.
 2. WHERE 2 OR MORE SIGNS ARE LOCATED, SIGNS SHALL BE STACKED VERTICALLY. (AS SHOWN)
 3. SIGNS SHALL BE PLACED A MINIMUM OF 0.3m OFF OF PATHWAY EDGE.

SIGNAGE FACE
STANDARD ENGINEERING GRADE
SHEETING HOLES - METRO PUNCH
MOUNTING
THE SIGN FACE MUST BE SECURED TO A POST
WITH TWO GALVANIZED 12MM HEX BOLTS AND
NUTS WITH FLAT WASHERS ON BOTH SIDES

PROPOSED
SIGNS

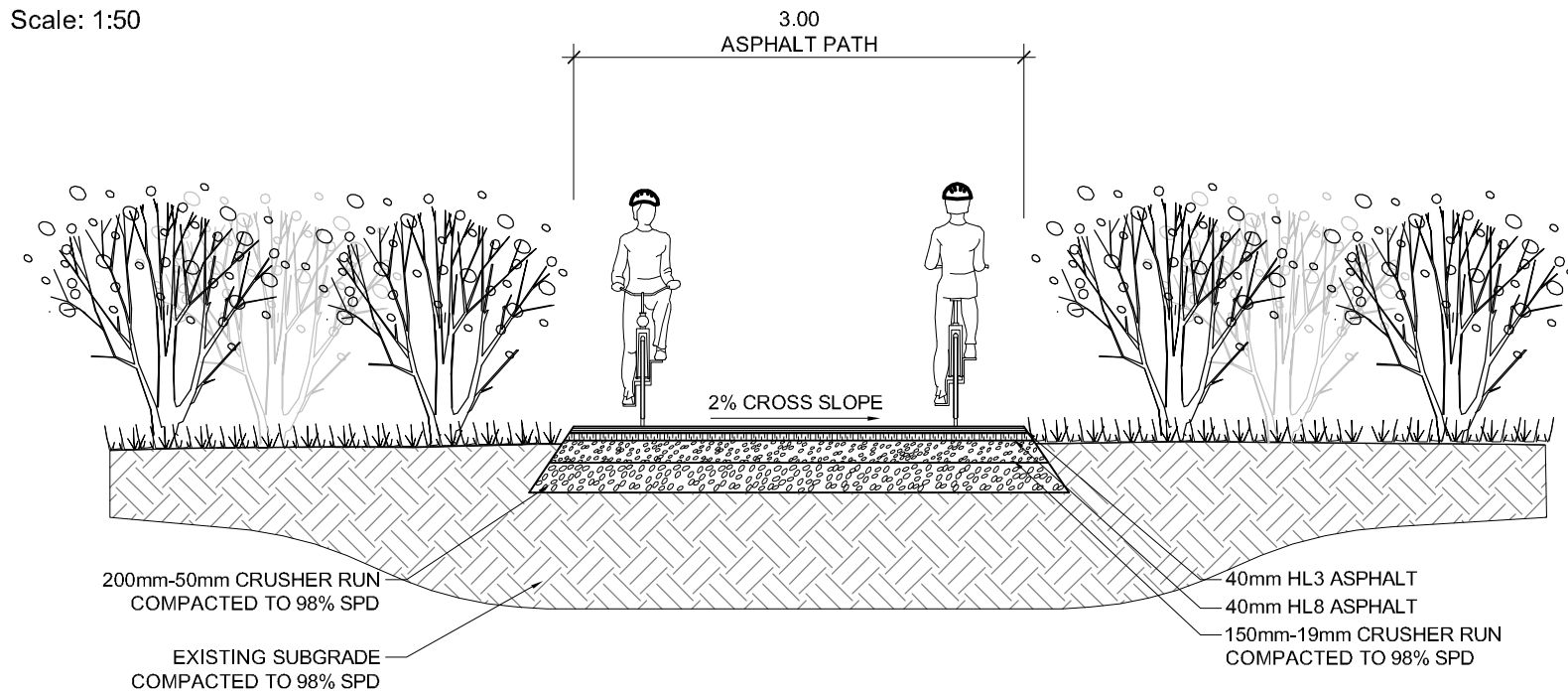


TYPICAL SIGNAGE INSTALLATION ALONG ROADWAY

Scale: 1:50

1
D-1
TYPICAL SIGNAGE INSTALLATION ALONG TRAIL

Scale: 1:50



TYPICAL MULTI-USE PATH OUTSIDE ROAD RIGHT-OF-WAY

Scale: 1:50

KEY MAP

NO.	DATE	DESCRIPTION	BY
1	07/31/2014	FINAL REPORT	

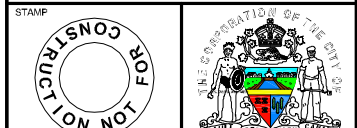
REVISIONS

CLIENT:
CITY OF
SAULT STE. MARIE

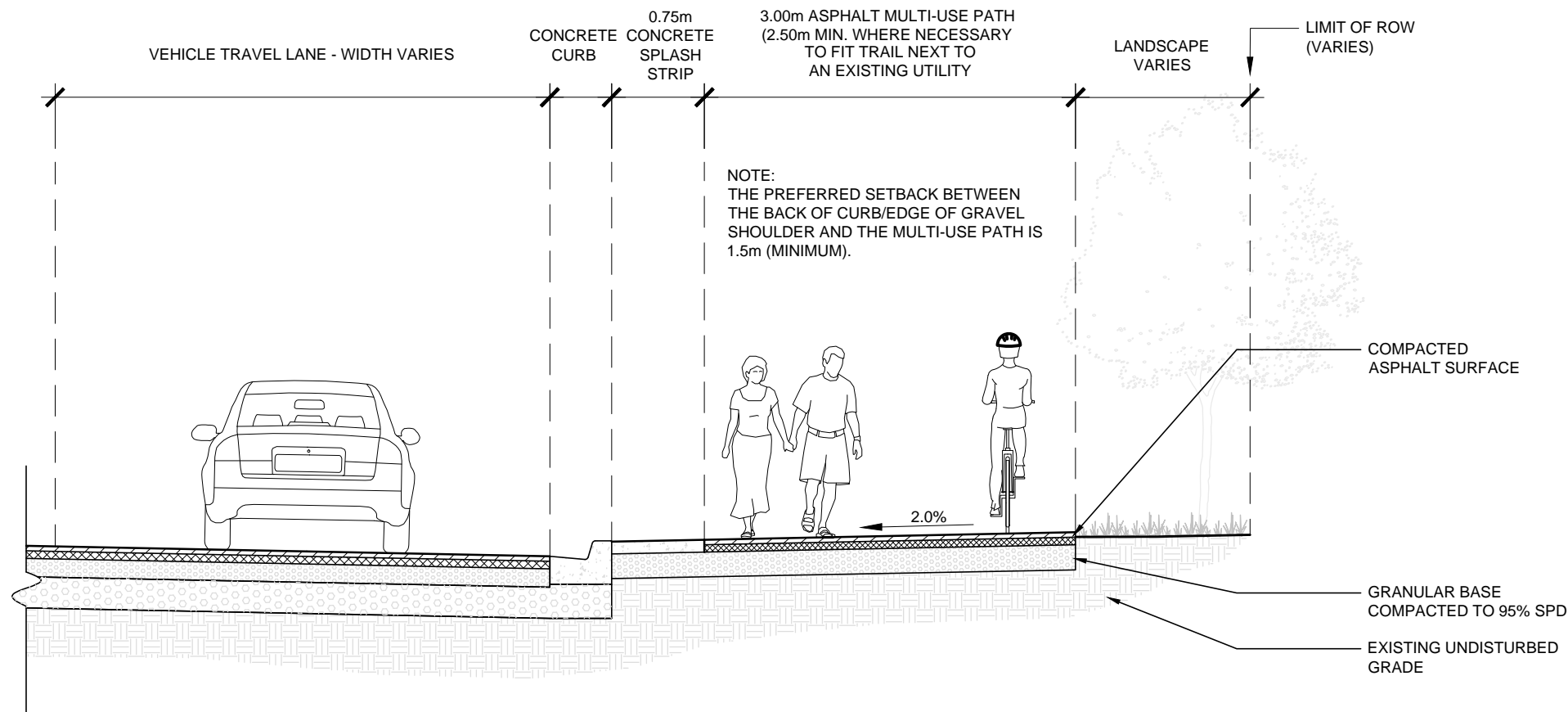
MMM GROUP
Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1K3
t. 519-743-8825
f. 519-743-8778
www.mmm.ca

PROJECT TITLE:
SAULT STE. MARIE
CYCLING DESIGN STUDY

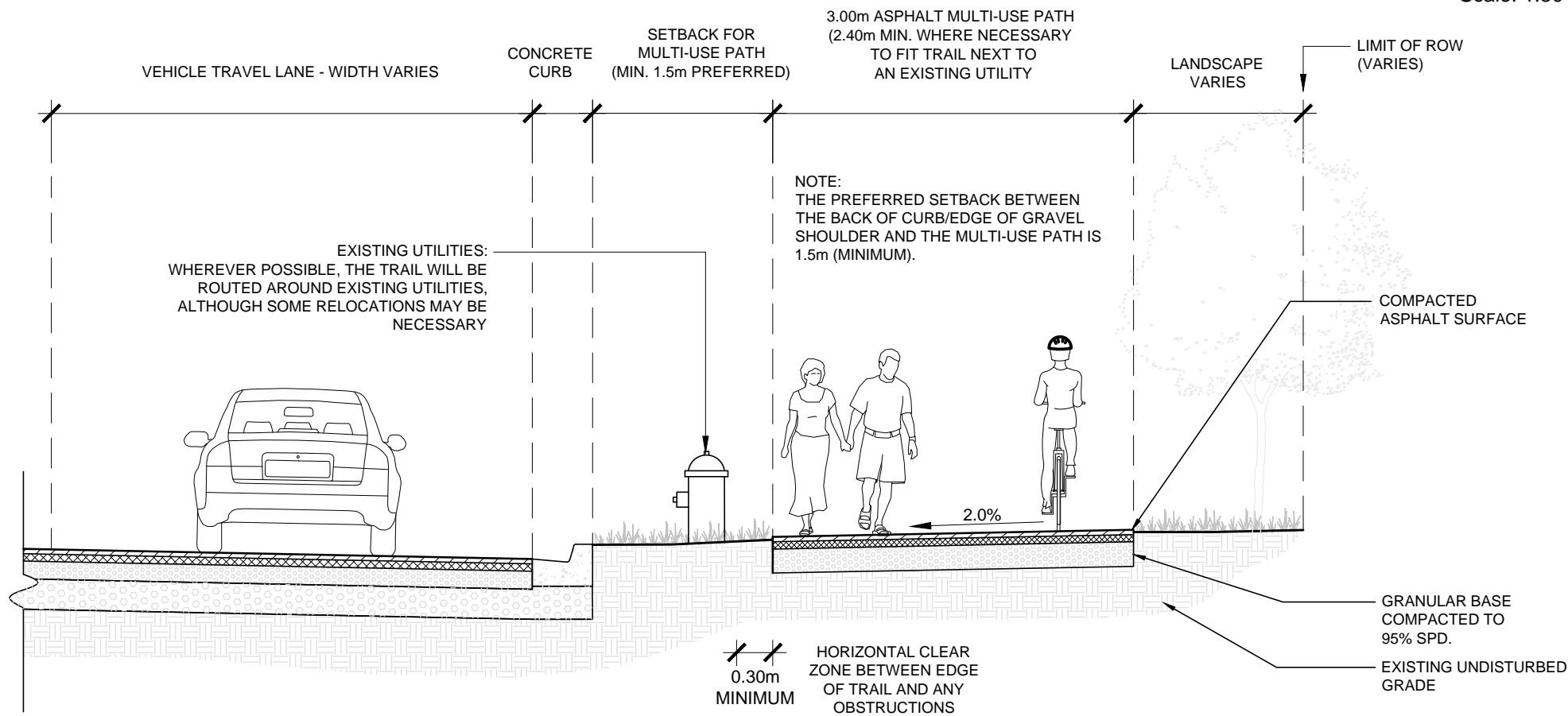
DRAWING TITLE:
DETAILS



DESIGNED	PR	DRAWN	PR	CHECKED	JC
SCALE	AS SHOWN	DATE	AUGUST 2013	PROJECT NUMBER	DWG. NUMBER
14.13.058.001					D-1



1
D-2 MULTI-USE PATH WITH SPLASH STRIP Scale: 1:50



2
D-2 MULTI-USE PATH SETBACK FROM CURB Scale: 1:50

KEY MAP

NO.	DATE	DESCRIPTION	BY
1	07/31/2014	FINAL REPORT	

REVISIONS

CLIENT:

CITY OF
SAULT STE. MARIE

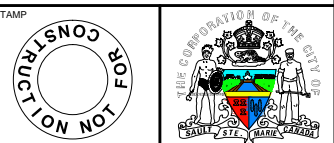


PROJECT TITLE:

SAULT STE. MARIE
CYCLING DESIGN STUDY

DRAWING TITLE:

DETAILS



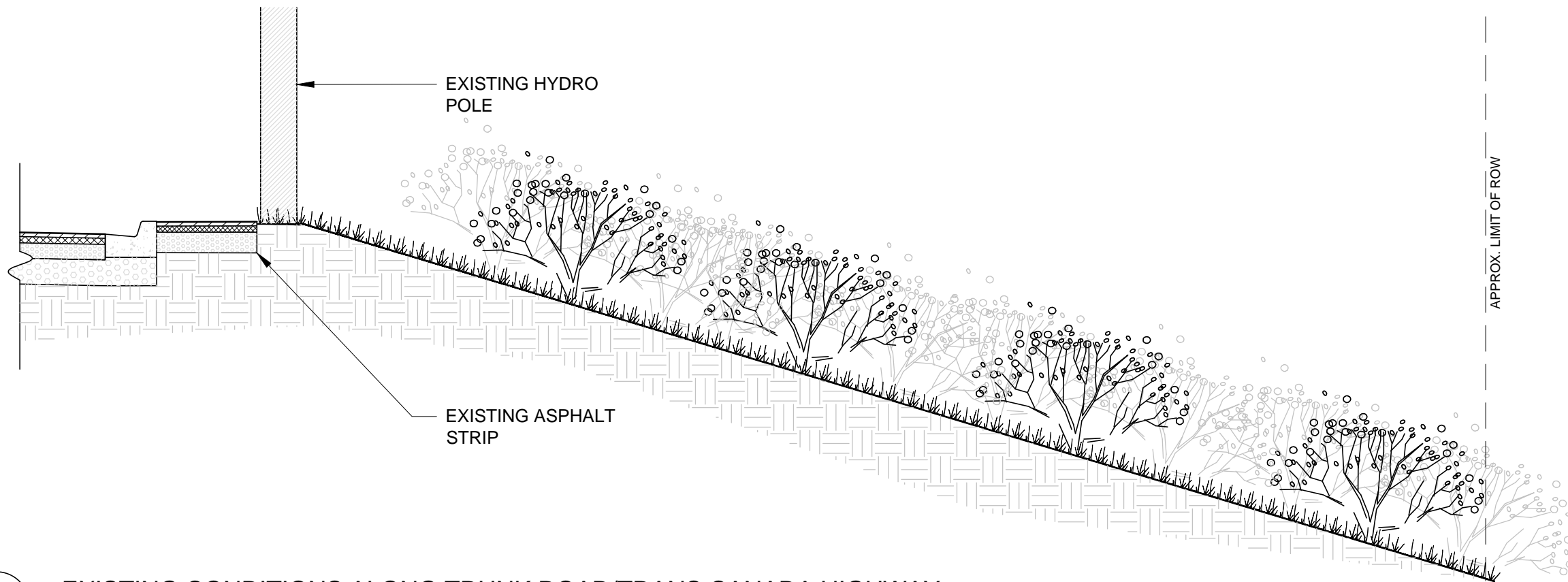
DESIGNED PR DRAWN PR CHECKED JC

SCALE AS SHOWN DATE AUGUST 2013

PROJECT NUMBER DWG. NUMBER

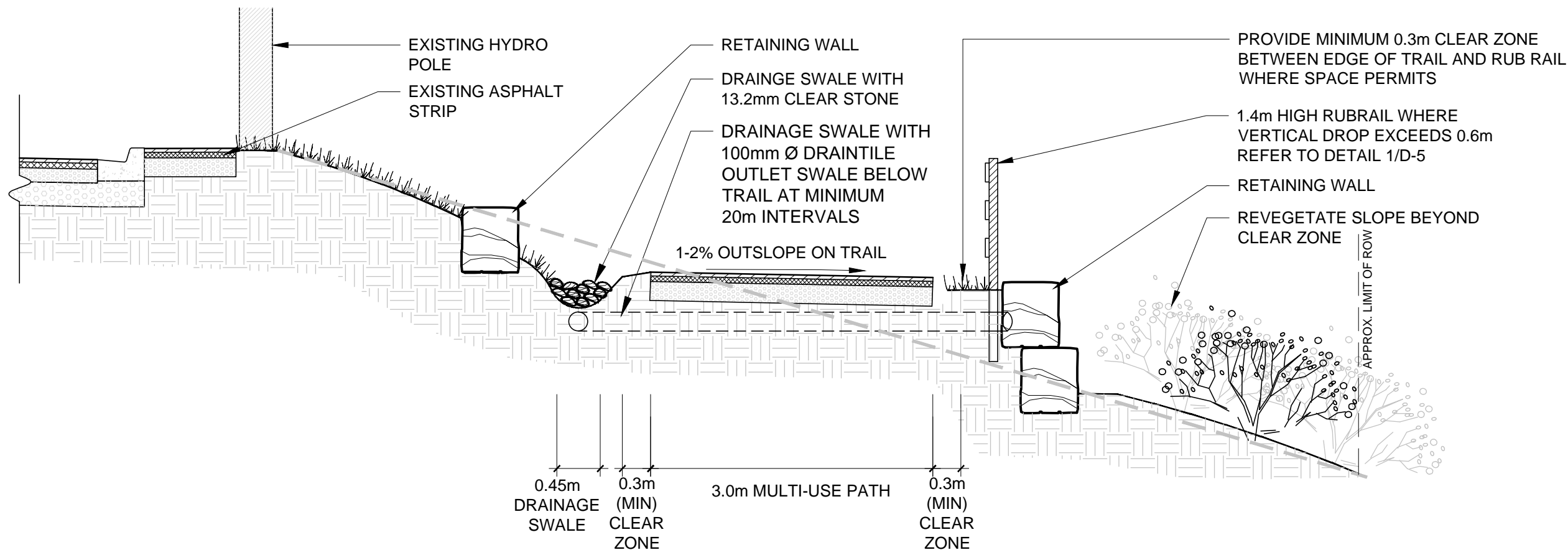
14.13.058.001 D-2

Y:\MMMO\B1\2014\9-20-AM-L\14.13.058-000-SSM-Philly Cycling Design Study\Drawings\SSM-Cycling Details.dwg



1
D-3
EXISTING CONDITIONS ALONG TRUNK ROAD/TRANS CANADA HIGHWAY

Scale: 1:50



2
D-3
PROPOSED MULTI-USE PATH ALONG TRUNK ROAD/TRANS CANADA HIGHWAY

Scale: 1:50

KEY MAP

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY



REVISIONS			
CLIENT:			
CITY OF SAULT STE. MARIE			

 Landscape Architecture
582 Lancaster Street West
Kitchener, ON N2K 1M3
t. 519-743-6625
f. 519-743-8778
www.mmm.ca

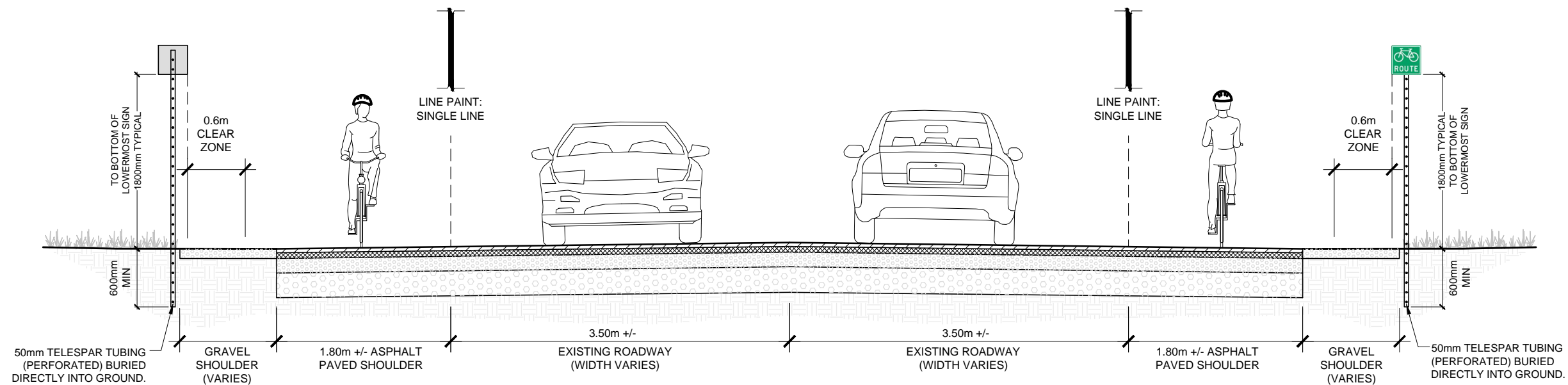
PROJECT TITLE:
SAULT STE. MARIE
CYCLING DESIGN STUDY

DRAWING TITLE:
DETAILS

STAMP



DESIGNED	PR	DRAWN	PR	CHECKED	JC
SCALE	AS SHOWN	DATE	AUGUST 2013	PROJECT NUMBER	DWG. NUMBER
14.13.058.001					D-3

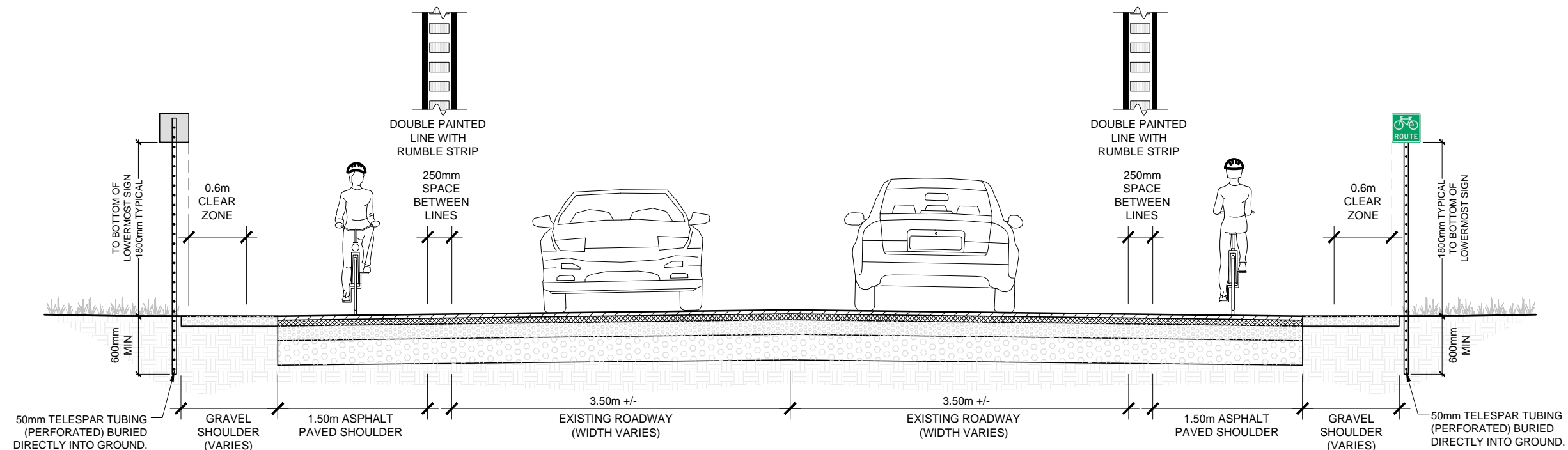


1

D-4

PAVED SHOULDER ROUTE WITH SINGLE PAINTED LINE

Scale: 1:50



2

D-4

PAVED SHOULDER ROUTE WITH DOUBLE PAINTED LINE AND RUMBLE STRIP

Scale: 1:50

NO.	DATE	DESCRIPTION	BY
1	07/31/2014	FINAL REPORT	

REVISIONS

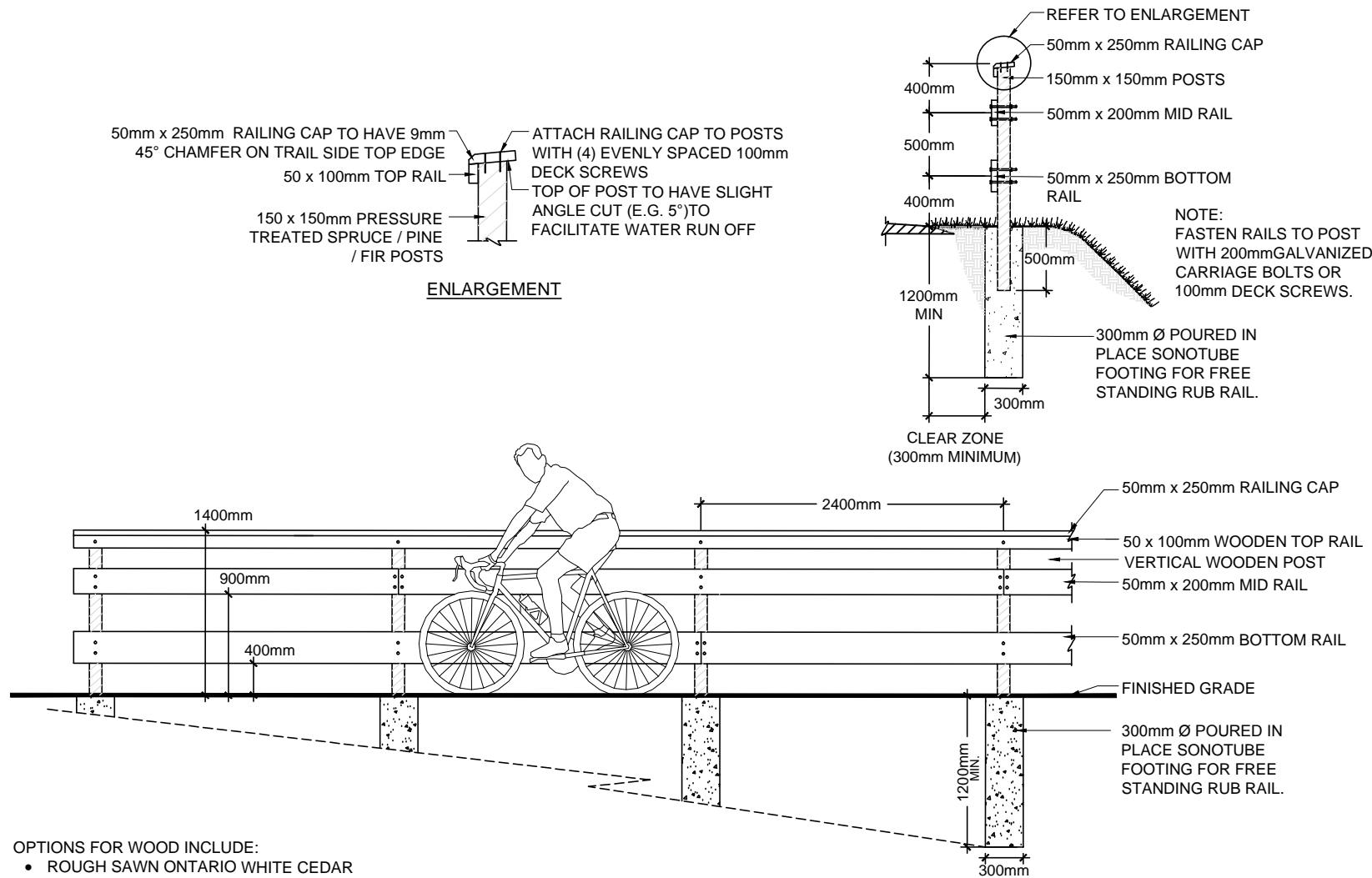
CLIENT:	CITY OF SAULT STE. MARIE
---------	--------------------------

LANDSCAPE ARCHITECTURE	582 Lancaster Street West
Kitchener, ON N2K 1M3	t. 519-743-6625
	f. 519-743-8778
	www.mmm.ca

PROJECT TITLE:	SAULT STE. MARIE CYCLING DESIGN STUDY
----------------	---------------------------------------

DRAWING TITLE:	DETAILS
----------------	---------

STAMP	DESIGNED PR	DRAWN PR	CHECKED JC
SCALE AS SHOWN	DATE AUGUST 2013	PROJECT NUMBER 14.13.058.001	DWG. NUMBER D-4



1
D-5

RUB RAIL DETAIL

Scale: 1:50

KEY MAP

1	07/31/2014	FINAL REPORT	
NO.	DATE	DESCRIPTION	BY

REVISIONS

CLIENT:

CITY OF
SAULT STE. MARIE

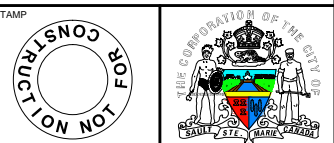


PROJECT TITLE:

SAULT STE. MARIE
CYCLING DESIGN STUDY

DRAWING TITLE:

DETAILS



DESIGNED	PR	DRAWN	PR	CHECKED	JC
SCALE	AS SHOWN	DATE	AUGUST 2013		
PROJECT NUMBER	14.13.058.001	DWG. NUMBER	D-5		

4.0 SUMMARY – OPINION OF PROBABLE COST

Table 4.1 is a summary of the probable cost to implement all 3 priority spokes.

Table 4.1 Summary - Opinion of Probable Cost (1)			
Item	Description	Total Length (km)	Cost
Base Program - City of Sault Ste. Marie			
1	West Route	15.11	\$1,346,955
2	North Route	10.85	\$1,127,900
3	East Route	5.08	\$583,400
4	Subtotal Base Program	31.04	\$3,058,255
5	25% Contingency ⁽²⁾		\$764,563
6	Total Base Program		\$3,822,818
Long Term Options - City of Sault Ste. Marie			
7	West Route	0.41	\$436,500
8	North Route	3.75	\$1,102,500
9	East Route	1.68 ⁽³⁾	\$316,800 ⁽⁴⁾
Prince Township			
10	West Route	8.20	\$451,000

Notes

1. Applicable taxes are not included.
2. A 25% contingency has been added to reflect potential costs for additional detail design in key locations, contract administration and unanticipated conditions encountered during future stages of the implementation.
3. Includes the 1.2km segment in the River's Edge development area east of Fournier Rd.
4. Includes \$300,000 allocated to the River's Edge development area east of Fournier Rd.