

MOSQUITO CREEK FLOODPLAIN MAPPING UPDATE STUDY

Please review the storyboards and the draft floodplain maps.

We are happy to answer your questions.

Please fill in a Comment Sheet if you would like to provide comments in writing.

Thank you for your Participation.

PROJECT BACKGROUND & OBJECTIVES

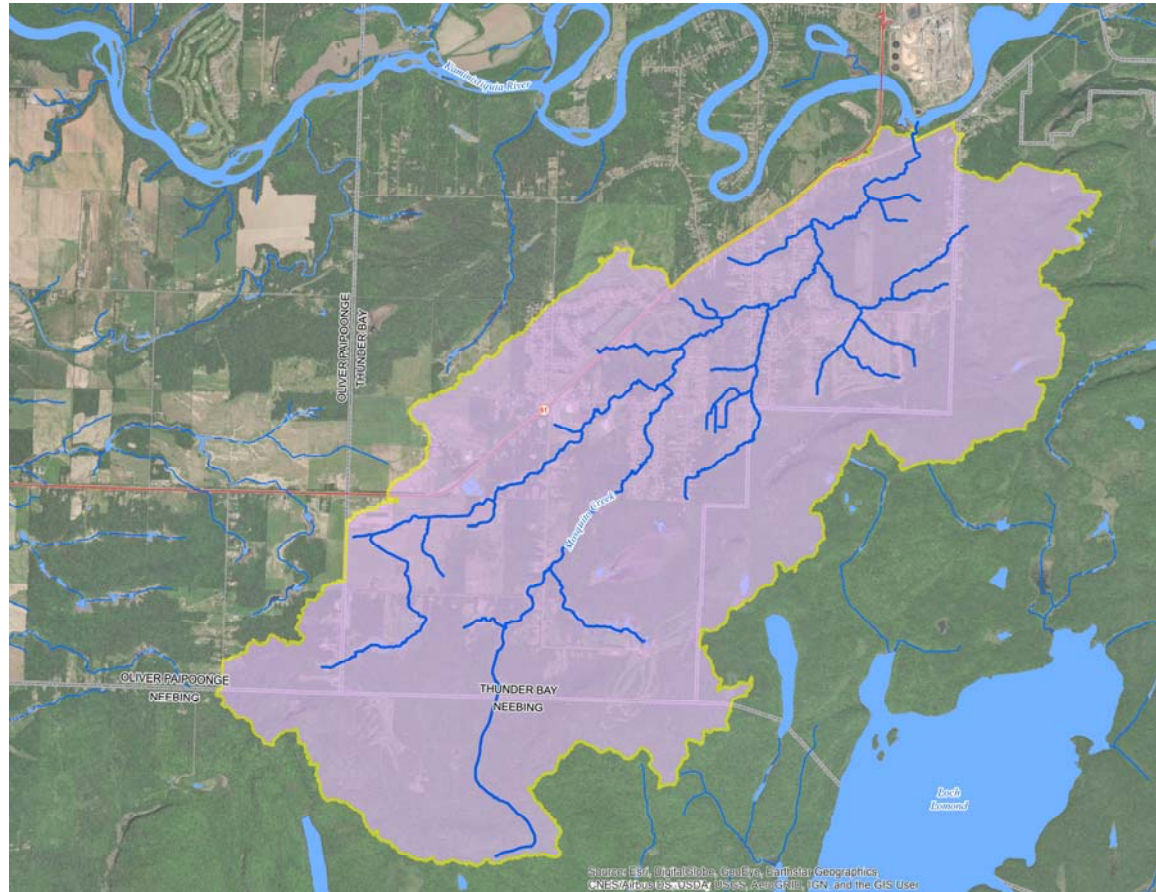
STUDY BACKGROUND

The LRCA is currently undergoing the process of updating its floodplain mapping inventory. The fifth watershed to be updated is the Mosquito Creek watershed, which was most previously mapped in 1984. These maps will assist the LRCA in identifying locations where the channel may overtop its banks as well as to identify flood vulnerable infrastructure.

STUDY OBJECTIVES

- Acquire detailed topography using LiDAR technology
- Acquire high resolution aerial imagery
- Hydrologic analysis & modeling to estimate flood events on Mosquito Creek System
- Hydraulic analysis & modeling to estimate water levels on Mosquito Creek System
- Prepare updated floodplain maps

PROJECT STUDY AREA



- Water flows north-east and into Kaministiquia River
- Drainage area includes the main branch of the Mosquito Creek and its tributaries

DATA COLLECTION

LiDAR & TOPOGRAPHIC INFORMATION

- ❑ LiDAR data and aerial imagery acquisition was completed in the spring of 2019
- ❑ Topographic and bathymetric data was collected in the summer of 2019 to supplement the LiDAR
 - River bed and floodway channel bottom
 - Crossing details
 - Road elevations

- ❑ A Digital Elevation Model (DEM) of the river and overbank was developed from the data collected

Structure ID: C-002-M_04

River: Mosquito Creek

Street: 15th Side Road

Station: N/A

Cross Type: Culvert

of Pipes: 1

Map Sheet No: 470

UTM Grid: CSRS Zone 16

Northing: 5365100

Easting: 327034

Upstream Channel Elevation: 200.190

Downstream Channel Elevation: 199.545

BRIDGE

Material: N/A

Deck Width: N/A

Total Span: N/A

Number of Spans: N/A

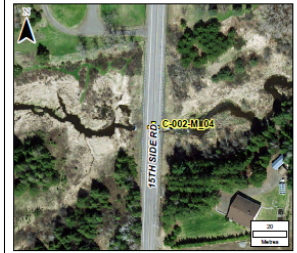
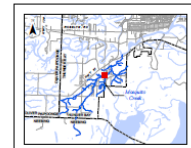
Top Deck Elevation: N/A

Bottom Deck Elevation: N/A

CULVERT

	US	PIPE 1	DS	US	PIPE 2	DS	US	PIPE 3	DS	US	PIPE 4	DS
Invert Elevations (m):	200.407		200.311									
Obvert Elevations (m):	203.876		203.842									
Pipe Dimensions (m):	V: 3.66	H: 3.66		V: H:	V: H:	V: H:						
Material:	Corrugated Steel Pipe											
Length (m):	20.1											
Gated/Trash Rack:	No No											
Total Cover (m):	2.27											
Top of Road Elevation (m):	206.110											

NOTES:
1. All data are metric and in metres unless otherwise specified. Transverse Mercator Projection, NAD 1983, CSRS Zone 16. Elevations are in metres above sea level (MSL). Canadian Geodetic Vertical Datum 1929 (CGVD29).

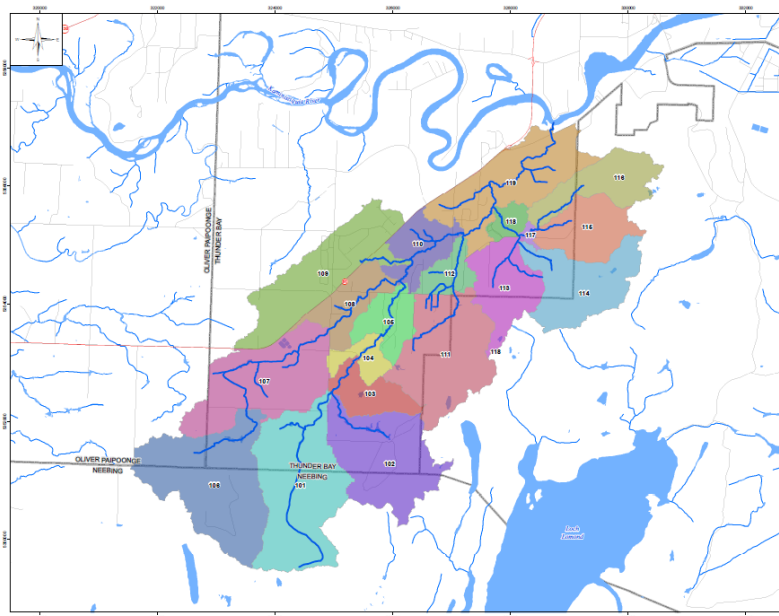



Additional Information: Bottom of the CSP on the DS section is rusted out.



HYDROLOGIC ANALYSES

Hydrologic analyses are used to estimate runoff into rivers and streams from rainfall and / or snowmelt.



Mosquito Creek Sub-Catchments

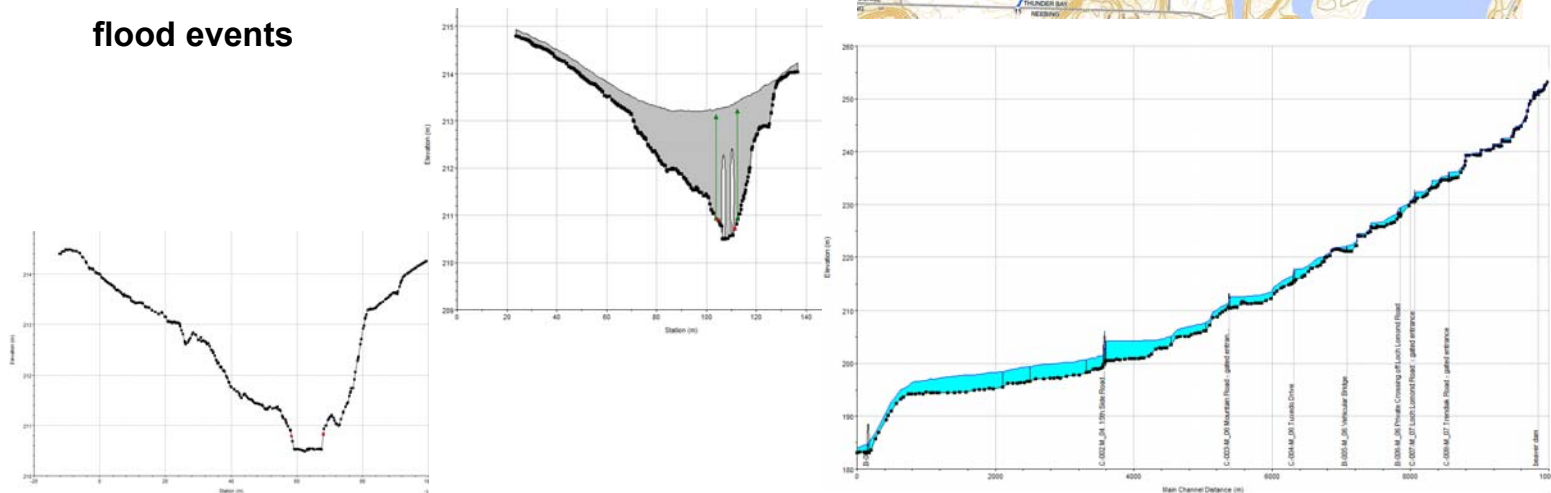
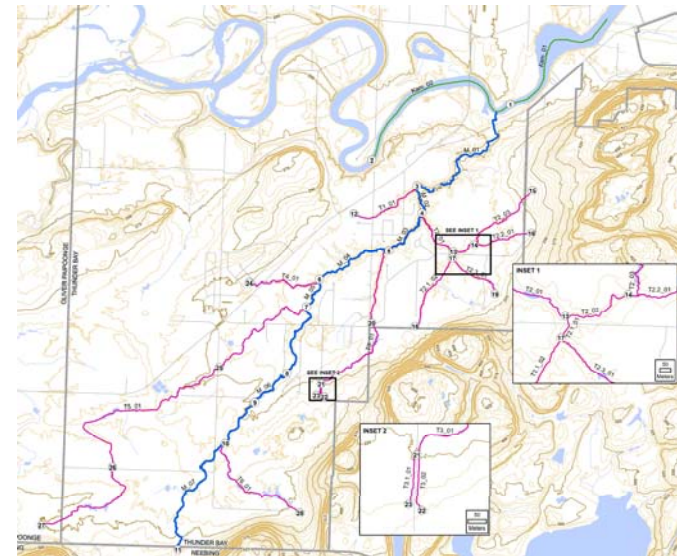
- ❑ A computer model (OTTHYMO) of the watershed was developed
- ❑ The model was used to estimate peak flows from the Regional Storm (i.e. Timmins Storm)
- ❑ Flood frequency analyses were completed to estimate peak flows for 1 in 2 year to 1 in 100 year flood events

Estimated Peak Flow (m ³ /s)						
2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	Regional Storm
5.4	9.5	12.5	16.4	19.7	23.2	46.3

HYDRAULIC ANALYSES

Hydraulic analyses are used to estimate water levels in rivers and streams based on inflows from rainfall.

- ❑ A computer model (HEC-RAS) of the river system was developed
- ❑ The model included the main branches of the Mosquito Creek and its significant tributaries
- ❑ The model was based on the DEM
- ❑ Water surface profiles were estimated for all flood events



FLOODPLAIN MAPPING

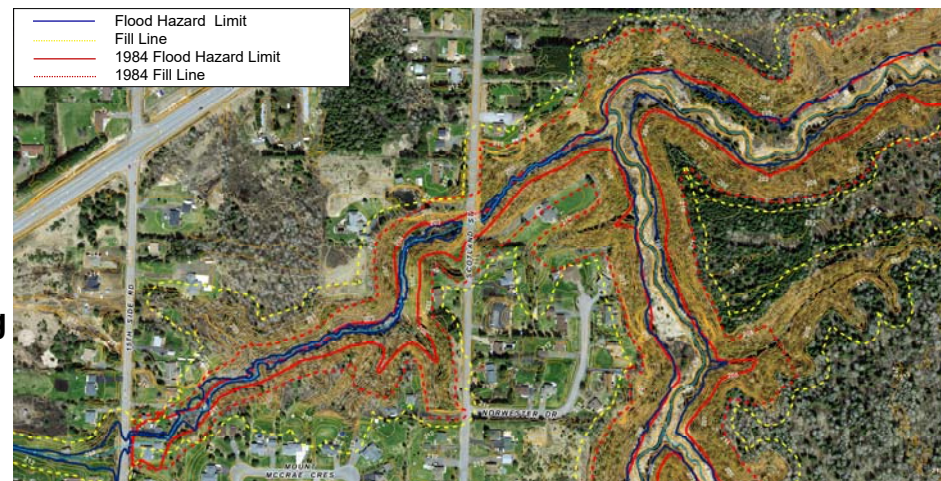
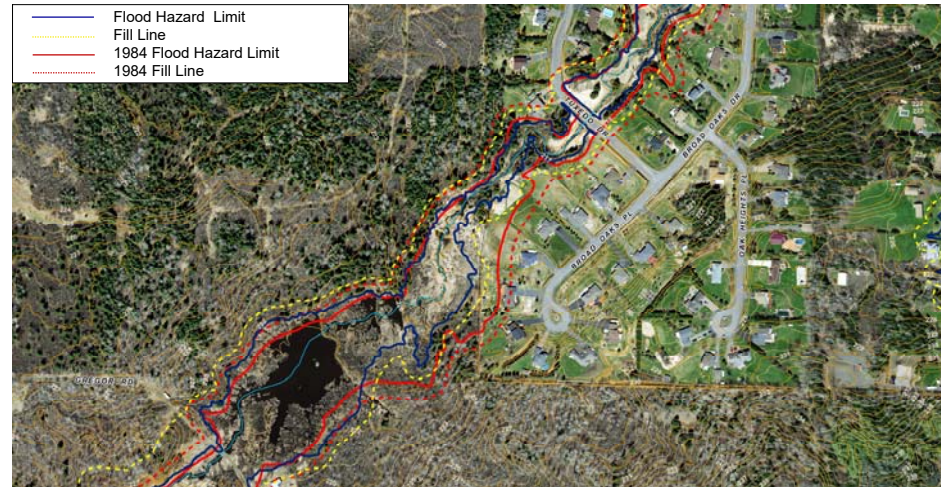
GENERATION OF FLOOD HAZARD AND FILL LINES

- ❑ Floodplain maps were produced for the entire watershed

- ❑ The flood hazard limit line represents the extents of flooding resulting from the Regional Storm

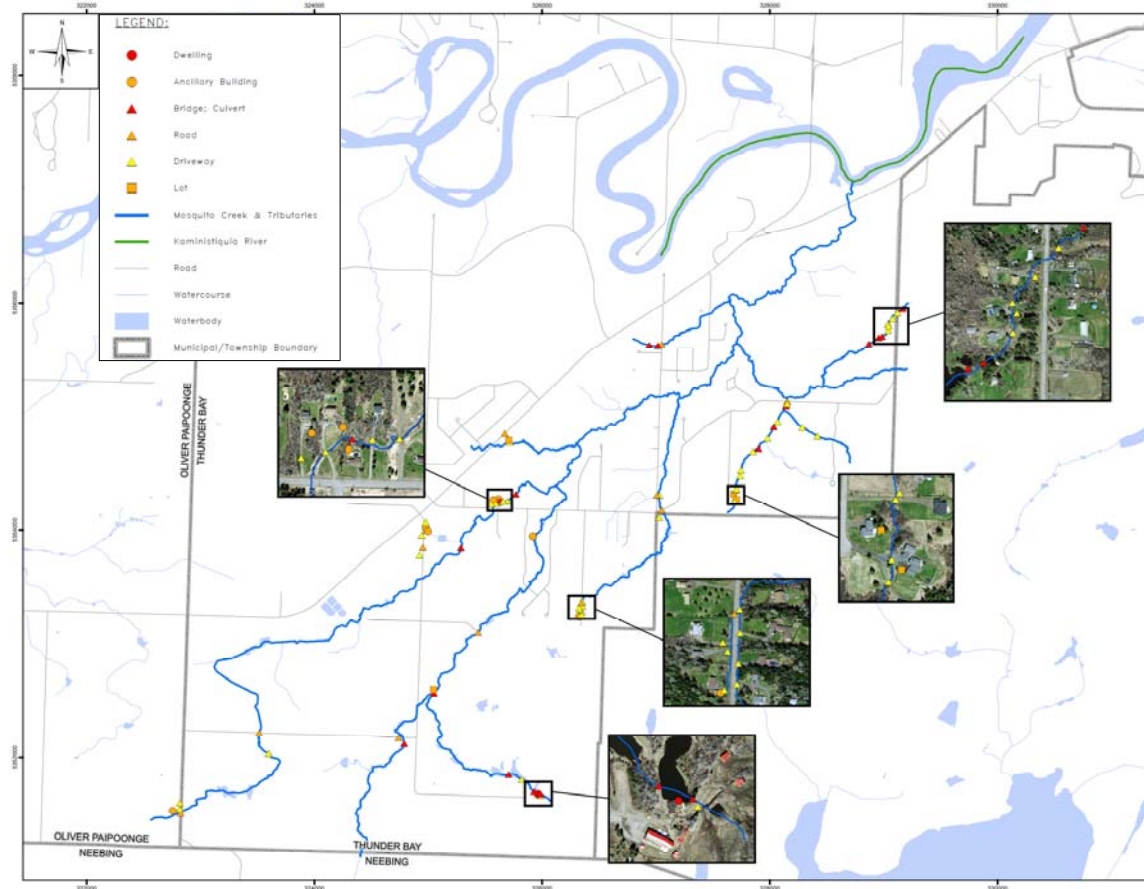
(i.e. Timmins Storm)

- ❑ The maps were used to identify locations of channel overtopping and flood affected infrastructure



FLOODPLAIN MAPPING

FLOOD AFFECTED INFRASTRUCTURE



		Flood Magnitude						
		2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	Regional Storm
Quantity of Affected Infrastructure	Dwelling	0	1	1	1	1	1	1
	Ancillary Building	1	2	2	2	2	2	7
	Bridge/Culvert	7	13	14	14	15	16	17
	Driveway	5	12	15	18	22	24	39
	Road	1	3	4	4	5	5	11
	Lot	1	2	2	2	4	4	6

THANK YOU

We sincerely appreciate your participation at this Open House.

Share your Comments:

**Please fill in a Comment Sheet and leave it with us today or deliver it to the
Lakehead Region Conservation Authority Office by **April 9th, 2020.****