Twinning Hwy 11/17
Thunder Bay to Nipigon

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Outline

• History

• Decision to Four-laning Highway 11/17

• Present Day – Status and Highlights

• Challenges

• Benefits
History of Highway 11/17

- Highway 11/17 between Thunder Bay and Nipigon forms a strategic link in the Trans-Canada Highway System.

- Trans-continental, regional and local traffic rely heavily on this 100 km section of highway.

- There is no alternate route in the Province, connecting eastern Canada to western Canada.
History of Highway 11/17

- Road between Nipigon and Port Arthur/Fort William was completed in 1920.

- Nipigon River Bridge on Highway 17 was officially opened on Sept. 24, 1937.

- Highway 11 between Nipigon and Geraldton was officially opened on Sept. 7, 1940.

History of Highway 11/17

1948
Four-laning Highway 11/17

• Closure of the Trans-Canada system would have an immediate impact on the economy of the region as well as the trans-continental movement of goods and people in Canada.

• The potential risk of such a closure was first brought to light in the early 1970s when a load limit was placed on the original Nipigon River bridge.
Four-laning Highway 11/17

• Since then, MTO has identified the potential risk of closure at a number of bridge sites along this section of Highway 11/17.

• During the 1970s & 1980s, the public expressed the need to four-lane Highway 11/17 between Nipigon & Shabaqua, due to the absence of an alternate route when weather, collisions and construction caused closure of the route.
Four-laning Highway 11/17

• In late 1989, the government announced an accelerated program for highway improvements in northern Ontario. This included the four-laning of Highway 11/17 between Thunder Bay and Nipigon.

• With this announcement, commitments were made to identify a four-lane corridor and five separate studies were undertaken between:
  • Balsam Street and Highway 527
  • Highway 527 and Mackenzie Station Road
  • Mackenzie Station Road and Welch Creek
  • Welch Creek and the Township of Red Rock west boundary
  • The Township of Red Rock west boundary and the junction of Highways 11 and 17 (Nipigon)
Four-laning Highway 11/17

- These studies were carried out in accordance with the Provincial Highways Class Environmental Assessment.
  - Extensive public consultation was undertaken
  - As many as four Public Information Centres were held for each project

- In 1993 construction of four-lanes between Balsam St. and Hodder Ave. began.
Four-laning Highway 11/17

- In 1994, four-laning was deemed premature, following a reassessment of costs and priorities.

- In 1996 planning studies were completed to the point of being able to designate and protect the right-of-way for future four-laning. Designation occurred in 2003.

- Over the years the MTO continued to make improvements to the existing highway including adding turning lanes and building passing and truck climbing lanes.

- Interest in four-laning was renewed in early 2000’s, and in May 2009 the Ontario Government committed to the construction of two projects, commencing in 2010.
Typical Cross-Section
TIME PASSES...
TIME PASSES…

PRESENT DAY
What’s Finished?

- **Completed (30.2 km):**
  
  - Hodder Avenue easterly to Highway 527 (3.8 km), including a full interchange at Hodder and realignment to the Terry Fox Rest Area. This project was completed in fall 2012. [334-94-00]
  
  - Mackenzie Station Road to Birch Beach Road (13.4 km-new alignment), including new bridges over the Mackenzie River. This project opened to traffic in summer 2013. [6120-03-00]
  
  - Highway 527 to Mackenzie Station Road (13km). This project opened to traffic in the fall 2014. [623-89-00]
Mackenzie River Bridges

Mackenzie River Fall 2010
2013 Ontario Concrete Awards

- Two Awards for the Hodder Interchange:
  - Material Development & Innovation – Precast Concrete
  - Structural Design Innovation – Precast Concrete
What’s Under Construction?

• **Construction Underway (19.5 km):**

  • Nipigon River Bridge and approaches from First Street to Highway 11/Highway 17 intersection (2.8 km) (Construction started in summer 2013). [124-90-00]

  • Red Rock Road No. 9 to Stillwater Creek Bridge (10.1 km) (Utility Relocations started in 2013, construction started in 2015). [647-89-00]

  • Birch Beach Road to Highway 587 at Pass Lake (6.6 km) Design-Build (Construction started in 2015). [125-90-00]
Nipigon River Bridge
Nipigon Bridge – Failure Jan 10, 2016
Nipigon Bridge Failure

- Full information about the Nipigon River Bridge failure and the subsequent investigation reports can be found at:

  http://www.mto.gov.on.ca/english/highway-bridges/nipigon-bridge/
Nipigon Bridge – Original Design

- GIRDER
- BOLTS CONNECTING SHOE PLATE TO GIRDER
- SHOE PLATE
- BOLTS CONNECTING BEARING TO SHOE PLATE
- BEARING (UPPER PLATE)
- ANCHOR RODS CONNECTING BEARING TO BRIDGE FOUNDATION
- BEARING (LOWER PLATE)
Nipigon Bridge – Immediate Fix Jan 11, 2016
Nipigon Bridge – Temporary Repair Feb 19

Bridge Deck

Sidewalk

Foundation

Girder

Hold-down support system

North Girder - Temporary Support
Nipigon Bridge – Permanent Retrofit
Nipigon Bridge – Looking Downstream
Nipigon Bridge – Looking Eastwards
Nipigon Bridge – Drone’s Eye View
What’s in Design?

• **Design Underway (34.7 km):**

  • Highway 587 to Pearl Creek (14.6 km) (Construction expected to start in 2018*). [128-90-00]

  • Red Rock Road No. 9 westerly to Hwy 582 (11.5 km) including Black Sturgeon River and Valley Creek Bridges. (Construction expected to start in 2018*). [132-90-00]

  • CPR Overhead at Ouimet to Dorion East Loop (8.6 km), including new bridges for the CPR overhead on new alignment (Construction expected to start in 2018*). [135-90-00]

* The timing of projects in this list is subject to change based on funding, planning, design, environmental approval, property acquisition and construction requirements.
Ouimet CPR Overpass

Note – concept sketches are from Planning and Preliminary Design Study, and are subject to refinement during value engineering analysis and detailed design.
What’s Left?

• **Planning Study (22 km):**
  
  • Pearl to Ouimet (7.6 km)  
    (Construction expected to start in 2020*). [129-90-00]
  
  • Dorion to Hwy 582 (11 km)  
    (Construction expected to start in 2020*). [138-90-00]
  
  • Stillwater Creek Bridge to First Street Nipigon (3.4 km)  
    (Construction expected to start in 2020*). [127-90-00]

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Challenges

- Utilities
  - Major Hydro Transmission towers parallel the existing highway throughout
  - Many steel towers require relocation with significant costs

- Property
  - Property acquisition can take up to 18 months

- Fisheries
  - Sensitive fish habitat is present throughout
Challenges

• Foundations
  • Swamps
  • Long Preload Settlement Times
• Rock Cuts

Rock Blasting at Pearl Lake
Challenges

• Archaeology
  • Significant Paleo Indian site was discovered near the banks of the Mackenzie River.
  • This site is considered rare and complex.
Challenges

- Artifacts are estimated to be between 7000 and 9000 years old.

- Significant quantities of all tool types have been found.

- Salvage of archaeological artifacts is a requirement of the Ontario Heritage Act.
Benefits

• Four-laning continues to:
  • Improve driver comfort and safety
  • Eliminate head-on collisions
  • Provide a parallel road that will serve as an emergency alternate route in the event of a natural disaster or structural loss
  • Generate construction jobs
  • Support economic growth in Northern Ontario
Questions?