Modifying VA Tools to Meet Workshop Situations

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Scot McClintock, CVS-Life, FSAVE

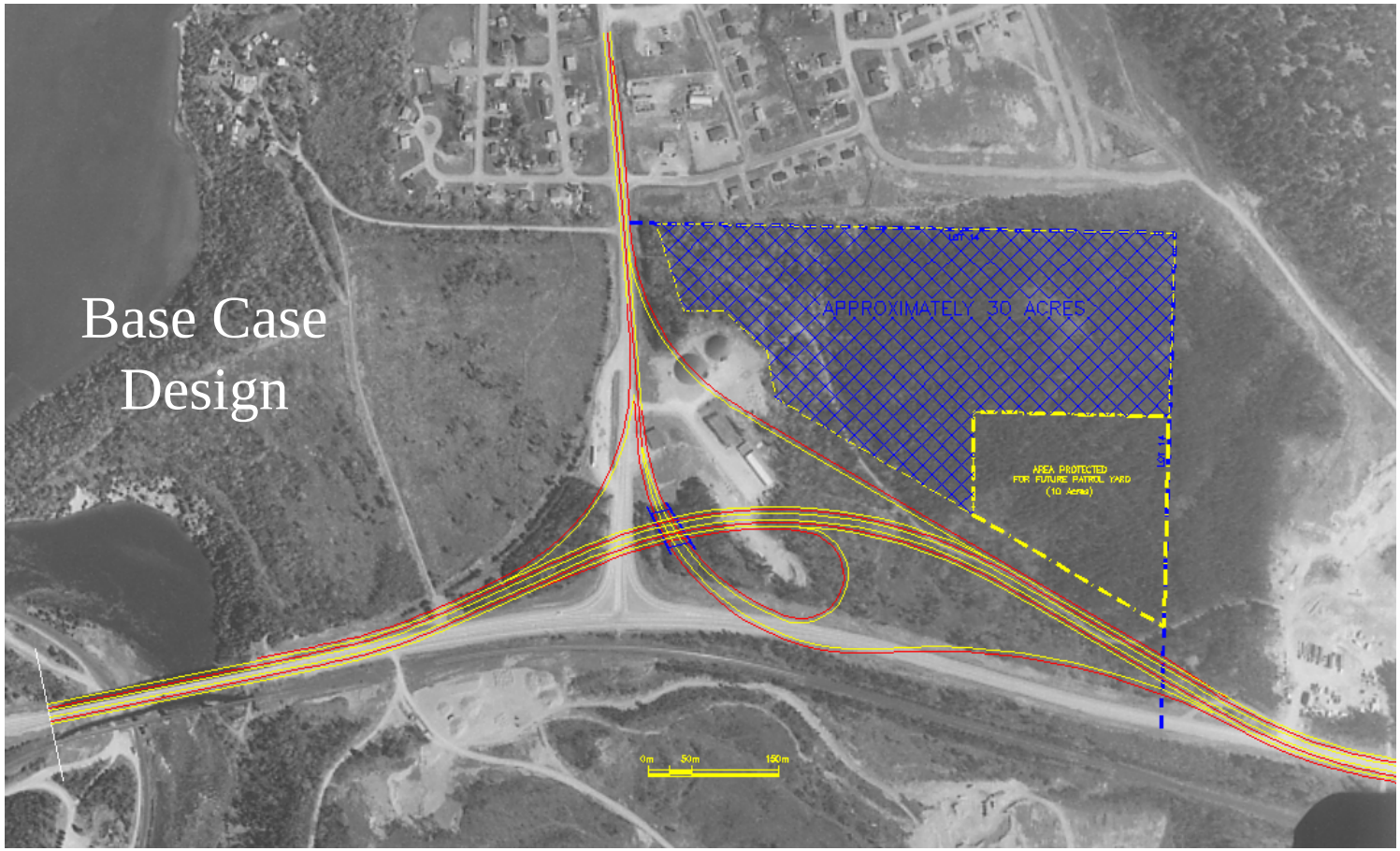
Topic Overview

- *All VA workshops are not the same so why not modify our VA tools for the specific situation?*
- *VA practitioners tend to apply favourite tools in the same ways no matter what the situation.*
- *You will learn through real examples how to modify your VA tools for workshop situations.*
- *Six examples are highlighted from Ontario VA.*
- *Apply these lessons to your VE workshops!*

Intersection Highway 11 and Highway 17 East of Nipigon

- VA study with full time participation of a First Nations Group to resolve complex issues between two stakeholders with significantly different objectives (first for MTO)
- Must balance Red Rock Indian Band need for land and economic opportunity with technical requirements for a safe, efficient freeway IC.
- MTO has had great success with Performance Criteria & Measures, scoring VA scenarios with technical calculations in an evaluation matrix.

Intersection Highway 11 and Highway 17 East of Nipigon



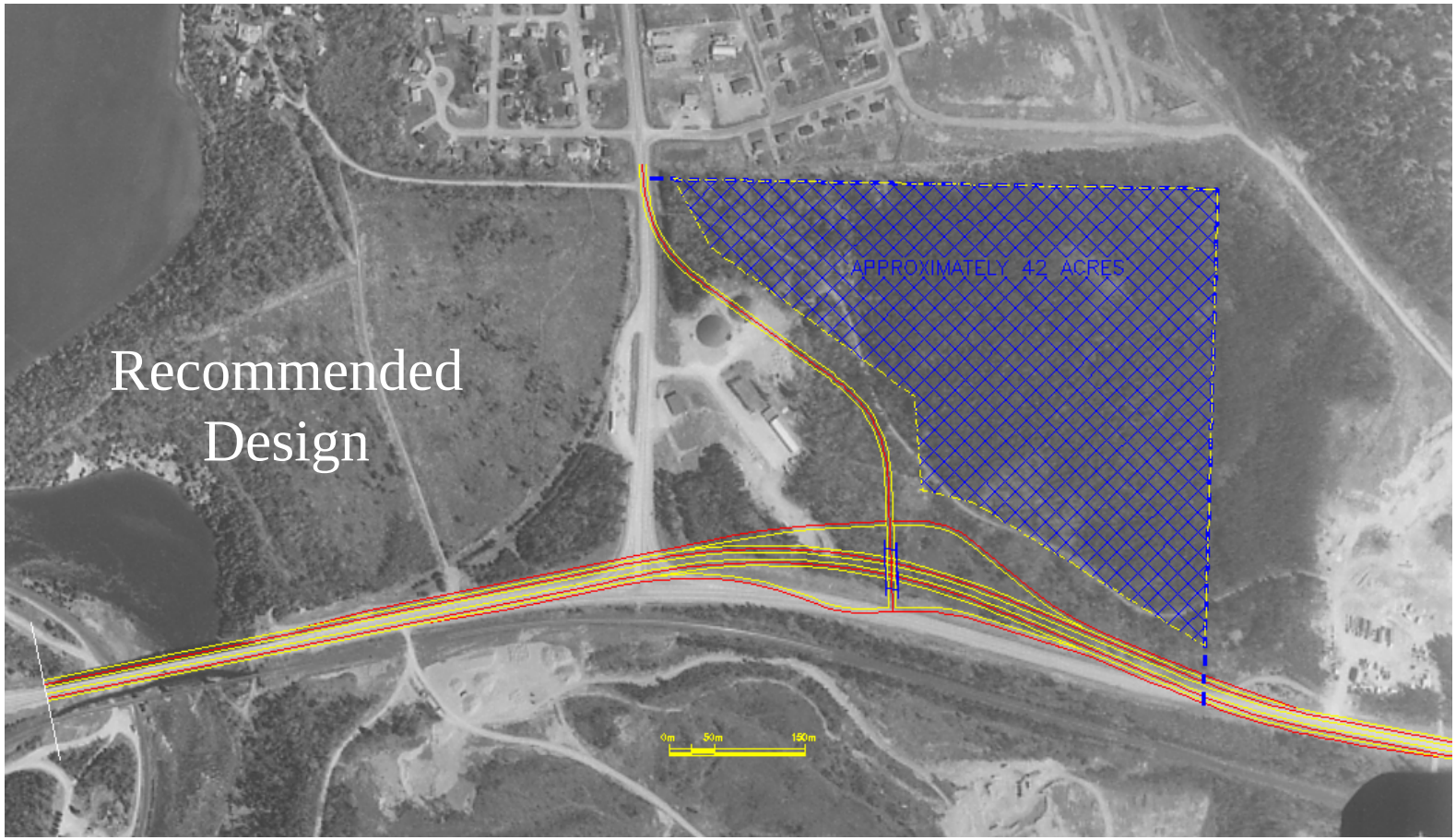
Intersection Highway 11 and Highway 17 East of Nipigon

- Here, scoring was subjective and consensus based as shown so RRIB participants with no VA or road planning/design could fully participate.

Excellent =5; Very Good = 4; Good = 3; Fair = 2; Poor =1

- VA study improved performance of project design by 224%, reduced capital cost by 33%, and increased land available for expansion of the RRIB reserve by 40%.
- Simple, successful, and award winning VA study built on “consensus, transparency and respect”!

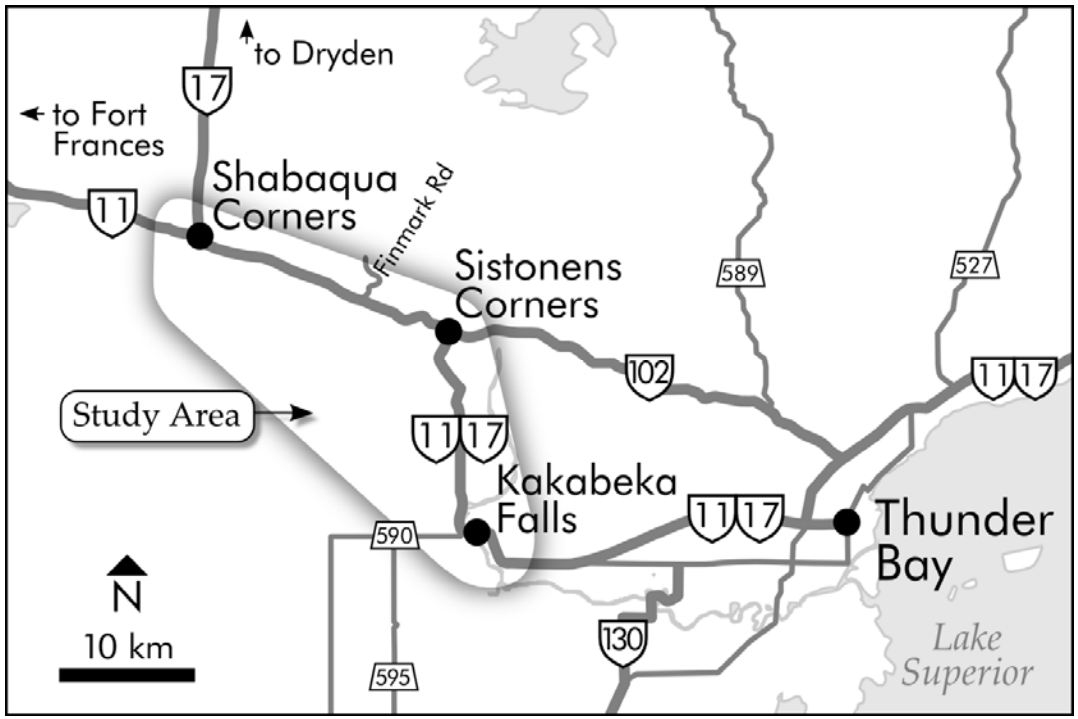
Intersection Highway 11 and Highway 17 East of Nipigon



Intersection Highway 11 and Highway 17 East of Nipigon

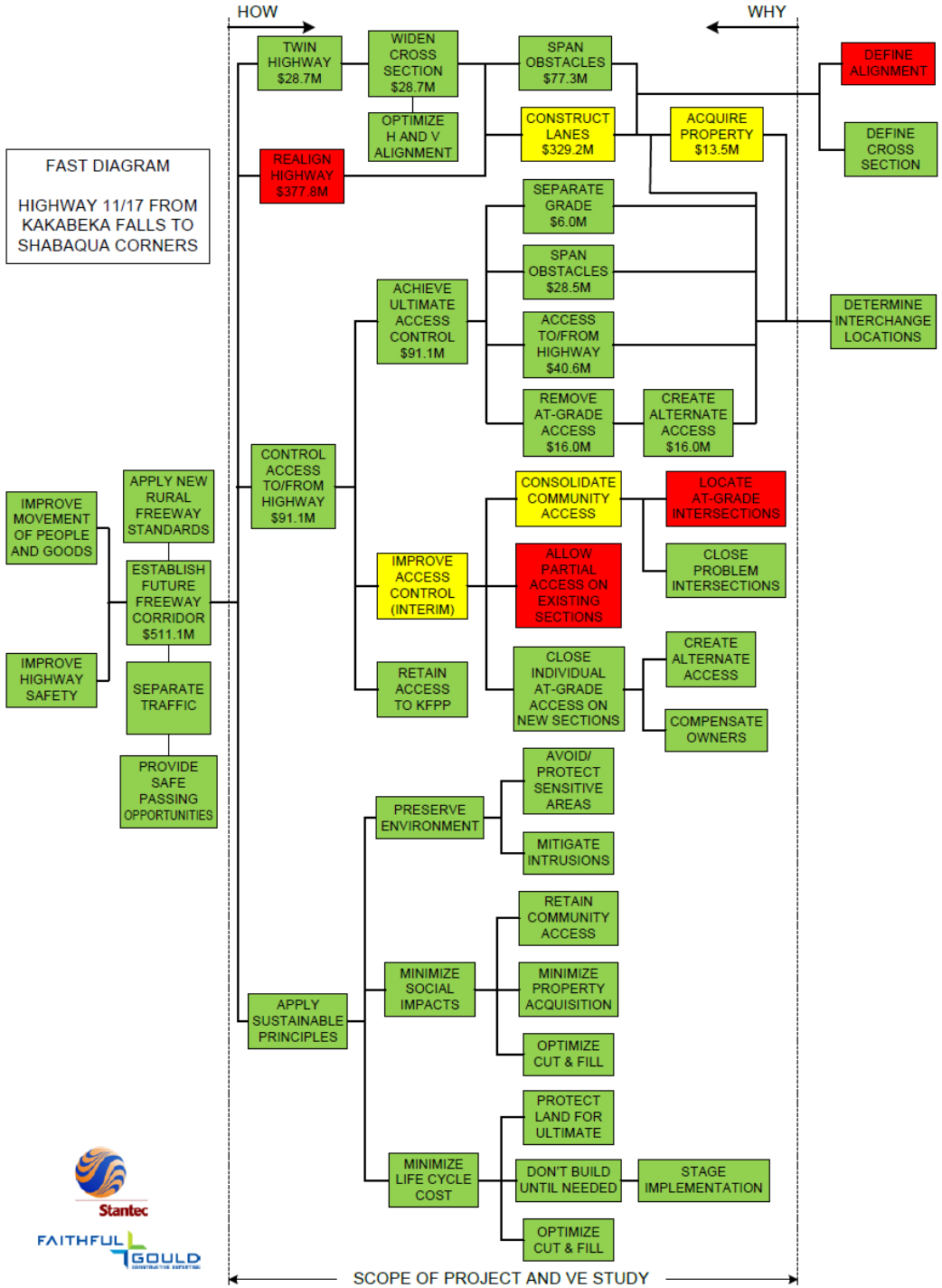
Highway 11/17 between Kakabeka Falls and Shabaqua Corners

- Route planning, preliminary design and environmental assessment for the future four-laning of Highway 11/17 for the above 40 km.



Highway 11/17 between Kakabeka Falls and Shabaqua Corners

- Project a source of great community angst due to the “bypassing” of Kakabeka Falls as shown by a public information consultation held by VA team members the week of the VA workshop.
- The FAST Diagram for the base case design was dimensioned with cumulative risk (and cost) to reflect this angst.
- As shown, the highest cost function of Realign Highway also represents the highest level of risk to the project.



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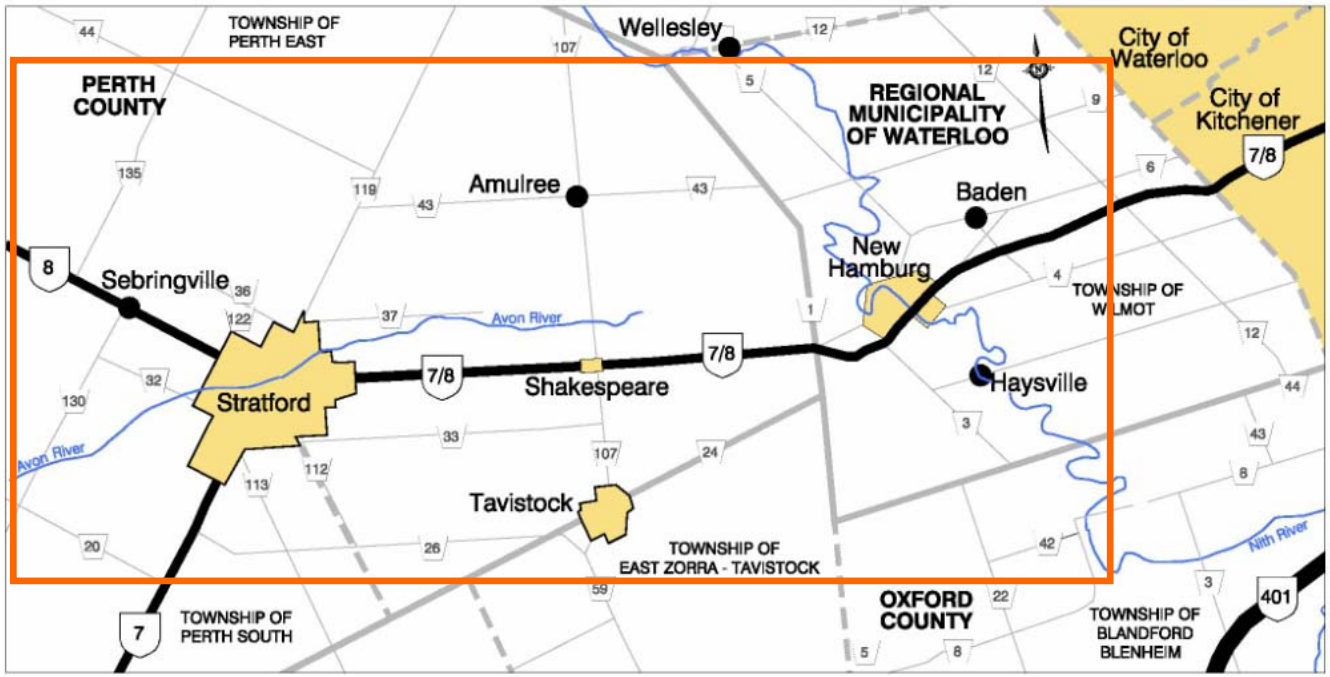
Highway 11/17 between Kakabeka Falls and Shabaqua Corners

- A risk register based on the FAST diagram had “Public opposition due to traffic redirecting” as a high risk due to the community angst.
- Due to the early planning stage of the project, the VA team used 13 well defined subjective performance criteria in lieu of objective criteria in the VA scenario evaluation matrix.
- VA resulted in clear best value scenarios for both an interim condition that could last 50 years and an eventual ultimate solution.

Highway 7/8 Stratford to New Hamburg

- VA Study to evaluate the base case road and community connections in the preferred route from the Highway 7/8 Transportation Corridor Planning and Environmental Assessment Study.



Highway 7/8 Stratford to New Hamburg

- VA Study not a route planning exercise since the Preferred Route will be selected through the EA process where concerns regarding that route will be addressed.
- VA team included community stakeholders from all three uniquely affected communities: Stratford, Shakespeare, and New Hamburg.
- A separate evaluation matrix was developed for each of 20 different intersections due to the unique conditions and alternatives at each one.

Highway 7/8 Stratford to New Hamburg

- With “no action” an option at each intersection, capital cost could not be the denominator for Value = Performance/Cost.
- As a result, Capital, Maintenance and User Cost Indices were developed for each intersection and normalized in a spreadsheet to create a fair denominator for the Value formula.
- From 232 ideas, the VA Team developed an excellent “bucket of alternatives” for the betterment of the Highway 7/8 corridor.

Highway 17 Rehab, Intersections at Hwy 94 & Centennial Crescent West

Highway 17 Rehab, Intersections at Hwy 94 & Centennial Crescent West

- VA study to make recommendations developed well enough to be implemented in the detailed design of the above project.
- Due to the relative simplicity of the project, a simpler risk register was used. The verbs Accept, Avoid, Mitigate, and/or Transfer were used to brainstorm risk mitigations.
- Due to the differences between intersections, separate evaluation matrices were developed for each intersection.

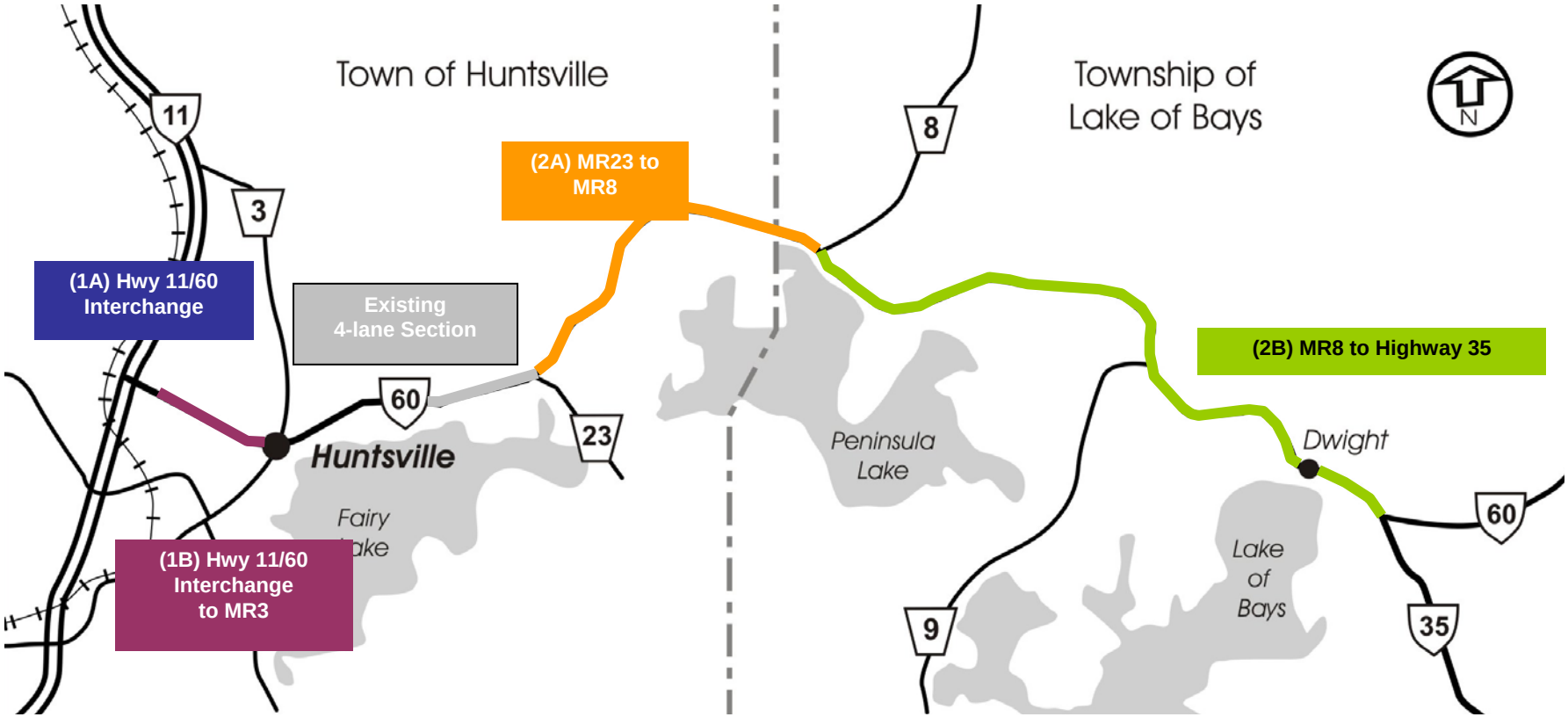
Highway 17 Rehab, Intersections at Hwy 94 & Centennial Crescent West

- For the Centennial Crescent West intersection, the base case cost was $0 although, since the range of cost for all five scenarios is only $25,000, the VA Team based recommendations on performance alone.
- For the Highway 94 intersection, an evaluation matrix based on capital costs produced a disparity between performance and value (P/C) making a recommendation very difficult.

Highway 17 Rehab, Intersections at Hwy 94 & Centennial Crescent West

- Due to that disparity, the VA Team prepared a second scenario evaluation matrix based on an estimated life cycle cost (LCC) from anticipated collision costs over 25 years.
- While certainly not exact, the LCC based on our safety risk analysis is a relative measure of cost implications of a “lower performing” intersection.
- As a result, both scenarios analyzed on LCC warranted further investigation as the project moves into detailed design.

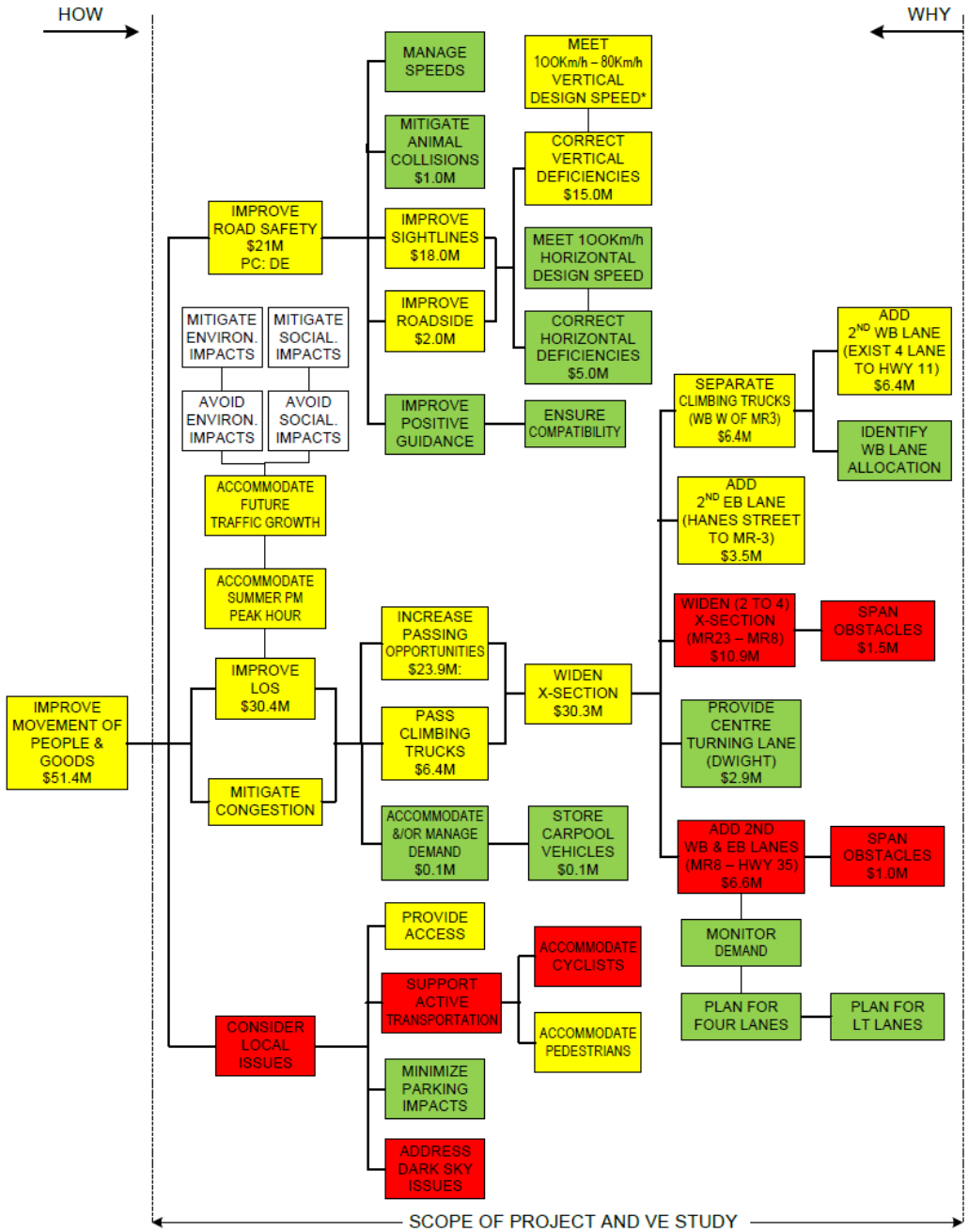
Highway 60 Preliminary Design, from Highway 11 to Highway 35



Highway 60 Preliminary Design, from Highway 11 to Highway 35

- VA study to improve preliminary designs to upgrade four segments of Highway 60 including Hwy11 interchange; Hwy 11 to Muskoka Road 3; Muskoka Road 23 to Muskoka Road 8; and Muskoka Road 8 to Highway 35.
- The FAST Diagram was dimensioned with the cumulative cost accumulating from right to left.
- The FAST Diagram was also dimensioned with the cumulative risk accruing from right to left as appropriate.

FAST DIAGRAM
HIGHWAY 60 PRELIMINARY DESIGN: HIGHWAY 11 TO HIGHWAY 35



Highway 60 Preliminary Design, from Highway 11 to Highway 35

- A simple risk register was used identifying both threats and opportunities. For threats, the verbs Accept, Avoid, Mitigate, and/or Transfer were used to brainstorm risk mitigations.
- For opportunities, the verbs were Enhance, Exploit, and/or Share, e.g. “enhance shoulder to provide safer cyclist /pedestrian opportunities”.
- Three VA Scenarios were developed and evaluated against the base case in an evaluation matrix during the workshop.

Highway 60 Preliminary Design, from Highway 11 to Highway 35

- During discussion of scenario evaluation matrix results, the VA Team decided three additional scenarios needed to be developed and compared to the others post workshop.
- While one scenario was recommended, the VA team suggested results be used as guidance for the project due to the preliminary stage.
- A Future Considerations workbook was also prepared to help MTO protect for future land use changes and traffic growth.

Conclusions

- Modifying your VA tools to best fit the specific VA workshop situation will help you achieve success in your VA studies.
- Contact:
  Scot McClintock, PE, CVS-Life, PVM, FSAVE
  Head of Value Management, Faithful+Gould
  scot.mcclintock@fgould.com , 315-885-3501