



# Value Engineering

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## **Matheson Intersection Improvements - West Junction of Highway 11 / Highway 101 – Ministry of Transportation (Ontario)**

A 4-day VE Study was conducted for MTO Northeastern Region by iTRANS and MACTEC. The subject of the study was the west junction of Highway 101 / Highway 11, in the Township of Black River-Matheson, approximately 60 km east of Timmins and 70 km southeast of Cochrane. The base case for this study was existing conditions. The VE Study developed alternatives that would improve operational and safety concerns at this location.

The project team generated analysis tools for the project, such as a Roadway User Safety Review, Performance Measures and Criteria, Function Analysis System Technique diagramming, and a Capital Cost Model. During the brainstorming session of the VE Workshop, the VE Team generated 75 creative ideas to provide the necessary functions to resolve the current safety and operational concerns. After a 2-phase evaluation, 11 alternatives were determined to offer additional value to the location.

## **Highway 402 Approach to Blue Water Bridge – Ministry of Transportation (Ontario)**

iTRANS managed a 5-day VE Study for MTO Southwestern Region. The subject of the study was the Highway 402 Westbound approach to the International Crossing at the Blue Water Bridge. The base case for this study was the most recent Technically Preferred Alternative of the Highway 402 Planning and Preliminary Design Study. Highway 402 had been experiencing safety and operational concerns, due to significant queuing, as trucks waited to cross the Blue Water Bridge into the United States.

The Project Team generated analysis tools for the project, such as a Roadway User Safety Review, a Human Factors Review, Performance Measures and Criteria, Function Analysis System Technique diagramming, and a Capital Cost Model. During the brainstorming session of the VE Workshop, the VE Team generated 75 creative ideas to provide the necessary functions to resolve the current safety and operational concerns. The ideas provided additional value in the areas of traffic control, cross-section, transitions, interchanges and construction / phasing. After a 2-phase evaluation, 4 scenarios were determined to offer additional value to the project, with an estimated construction cost savings of 6-35%.

## **Highway 11 / Highway 562 Intersection – Ministry of Transportation (Ontario)**

iTRANS managed a 3-day VE Study for MTO Northwestern Region. The subject of the study was the 6-legged intersection at Highway 11 / Highway 562, in the Township Municipalities of Harley and Hilliard, approximately 19.3 km north of New Liskeard. The base case for this study was the detailed design completed in 1995, as part of the W.P. 281-92-00 Construction Contract package.

The Highway 11 / Highway 562 intersection had been experiencing operational, safety and maintenance issues; mainly due to the multiple Highway 11 access points converging at one location (6-legged intersection plus a gas station entrance).

The Project Team generated analysis tools for this project, such as a Roadway User Safety Review, Performance Measures and Criteria, Function Analysis System Technique diagramming, and a Capital Cost Model. During the brainstorming session of the VE Workshop, the VE Team generated 43 creative ideas to provide the necessary functions to resolve the current safety and operational concerns. After a 2-phase evaluation, 6 scenarios were determined to offer additional value to the project.



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## **Highway 401 VE Study – Ministry of Transportation (Ontario)**

The Ontario Ministry of Transportation commissioned iTRANS to establish traffic forecasts, provide traffic operations analyses, and assess safety alternatives for the expansion of Highway 401. iTRANS played a major role in the value engineering workshop related to the expansion. Specifically, staff completed a VE review of previously proposed improvements to Highway 410, from the Highway 401 / 403 / 410 westerly interchange to Trafalgar Road. Recommendations included the completion of the Highway 401 / 403 / 410 interchange, modifications to existing interchanges, and the expansion of Highway 401 to an 8-lane, 10-lane, or core-collector system. Staff also developed a multi-year construction staging program for the recommended improvements.

## **Highway 26 New – Ministry of Transportation (Ontario)**

iTRANS conducted a VE study to review safety concerns and identify / analyze improvement alternatives for the construction of Highway 26 New, in Collingwood. Responsibilities included client liaison, coordination, workshop participation, and preparation of the VE Workbook and Report.

The 5-day workshop involved a large Study Team, including several MTO staff and representation from local municipalities. The Workshop included a site visit, functional analysis, performance measures, and presentations to senior MTO staff.

## **New Liskeard – Ministry of Transportation (Ontario)**

The Ontario Ministry of Transportation conducted a VE Study to review safety concerns and identify / analyze improvement alternatives for intersection modifications at Highway 11 and Highway 562 (a 6-legged intersection).

Responsibilities included client liaison, coordination, workshop participation and final review of the VE Workbook and Report. The Workshop included a site visit, functional analysis, performance measures, and presentations to senior MTO staff.

## **Windsor-Detroit Tunnel Canadian Plaza – Ministry of Transportation (Ontario)**

In response to the federal government's Border Infrastructure Fund Program and Let's Get Windsor Essex Moving Strategy, iTRANS managed a 5-day Value Planning study for MTO Southwestern Region. The subject of this study was the Canadian Plaza of the International Border Crossing at the Windsor-Detroit Tunnel, which was in the early stages of a Master Plan EA study.

Since "9/11" increased security measures, including prohibition of vehicles queues in the tunnel, there have been significant US-bound queues occurring on city streets adjacent to the tunnel plaza. These queues create negative impacts on cross-border traffic, city traffic, area businesses, tourism, and emergency response services.

During the brainstorming session workshop, the Value Planning Team generated 78 creative ideas to provide the necessary functions to resolve the current operational concerns. After a 2-phase evaluation, 23 of the ideas were determined to offer additional value to the project in the areas of: (i) plaza improvements; (ii) on-street queue management – traffic engineering initiatives; (iii) off-street queue management – expanded plaza initiatives; (iv) Intelligent Transportation Systems; (v) policy and process; and (vi) NEXUS. A Risk Assessment was also completed concurrently, in order to identify a reasonable range of project timelines and costs.



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