



LESSONS LEARNED COORDINATING VE AND RISK STUDY for a MEGA TRANSPORTATION PROJECT

Rakesh Shreewastav, P.Eng., AVS
Senior Project Engineer /VEC

MTO Windsor Border Infrastructure Implementation Group (BIIG)

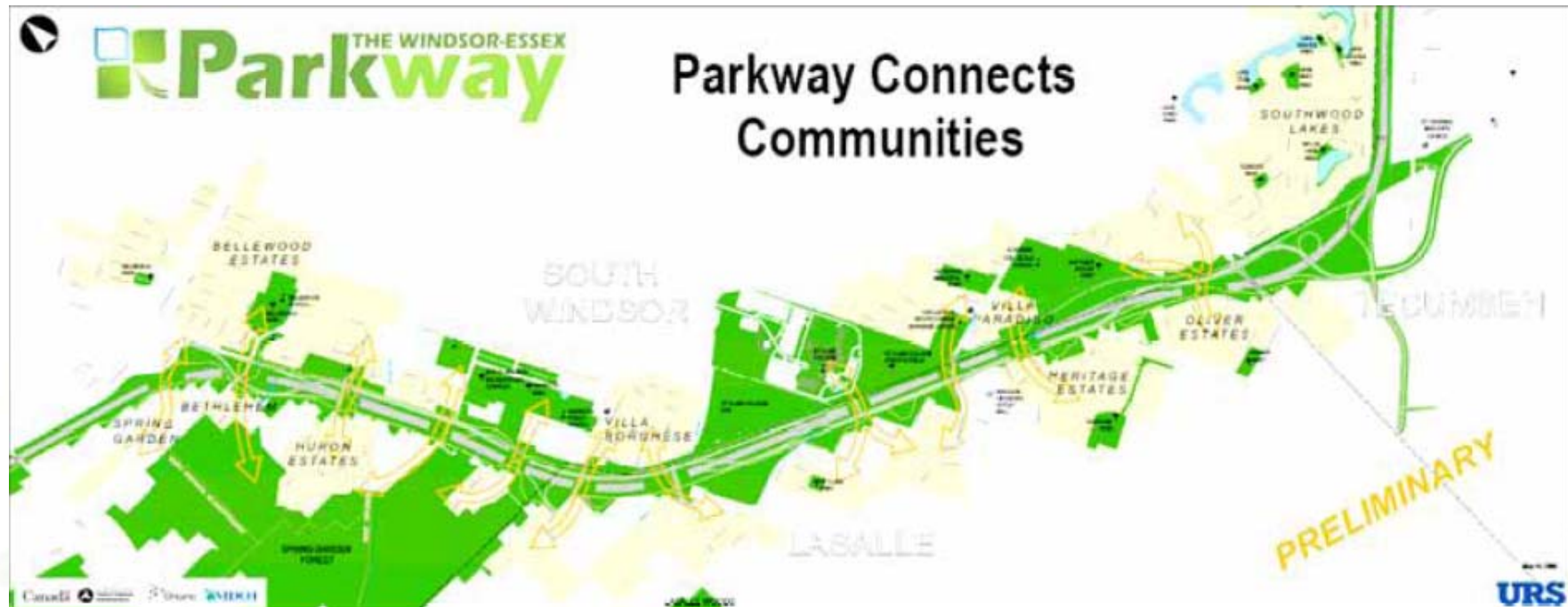
Joseph Arcaro, P.Eng., AVS
Vice President HDR|iTRANS (retained by MTO)
and Consultant Project Manager





Windsor Essex Parkway

Value Engineering and Risk Based Cost and Schedule Estimating Study (Fall 2008)





Summary of Presentation

- Base Case Project Description
- VE/Risk Study Scope/Schedule/Team Make-up
- Pre-workshop Challenges
- Workshop Dynamics
- Post-Workshop Events
- Success Factors





Our Roles

- Rakesh Shreewastav, P.Eng., AVS
 - Senior Project Engineer and VE Coordinator
 - MTO Windsor Border Infrastructure Implementation Group (BIIG)

- Joseph Arcaro, P.Eng., AVS
 - Vice President HDR|iTRANS (retained by MTO) and Consultant Project Manager





The Windsor-Essex Parkway

- Base Case Project Description
 - End-to-end solution connecting existing terminus of Highway 401 to Border Plaza for New Crossing over Detroit River to Interstate I-75 in Michigan
 - Below-grade 6-lane freeway – approximately 9 km
 - 11 short tunnels providing 1.8 km of coverage over the road
 - Local service roads alongside Parkway
 - 240 acres of parkland
 - More than 20 km of recreational trails
 - Removes trucks from local streets
 - Mega Project (largest in Ontario history)





The Windsor-Essex Parkway

- Project Status at Time of VE/Risk Study
 - Individual Environmental Assessment (IEA) and early Preliminary Design (PD)
 - Project “Untouchables” - Significant Environmental Constraints and Commitments
 - IEA to be filed with the Ministry of Environment Dec/08
 - Preliminary Design to be completed Jun/09
 - MTO preference to start construction by Dec/09
 - Project completion date established
 - No commitment on method of Project Delivery



Scope / Deliverables of the VE Study

- Cost Model
- Traffic Model
- Safety/Operations Review
- Human Factors Review
- FAST Diagram
- Workshop Workbook
- Site Visit
- Performance Criteria Measures
- VE Alternatives/Scenario Workbooks
- VE Recommendations Presentation
- Draft/Final VE Report
- Implementation Meeting and Recommendation Summary





Scope/Deliverables of the Risk Study

- Develop schedule and cost estimate for Base Case
- Identify and rank risks of the project
- Establish a risk based estimate of cost and schedule
- Develop risk mitigation strategies, including alternative procurement and financing alternatives
- Develop cost/schedule risk profiles for various scenarios
- Risk Study Recommendations Presentation
- Draft/Final Risk Study Report





Schedule for the VE and Risk Workshops

Workshop No.	Dates	Team
1	Sept. 8 to 12, 2008	VE and Risk
2	Sept. 30 to Oct. 2, 2008	Risk
3	Oct. 14 to 17, 2008	VE





VE/Risk Workshops

- Workshop 1 – VE/Risk (5 days)
 - Site Visit
 - Information and Creative Phase
 - Develop Risk Register



VE/Risk Workshops

- Workshop 2 - Risk (3 days)
 - Develop Unmitigated Probabilistic Cost/Schedule
 - Identify Top Risks
 - Identify Potential Mitigation Measures





VE/Risk Workshops

- Workshop 3 - VE (4 Days)
 - Information Update – Presentation of Risk Results
 - Revisit Creative Phase – Risk Mitigation Ideas
 - Balance of VE Job Plan
(Idea Development, Evaluation, Presentation)
 - Develop Mitigated Probabilistic Cost/Schedule





VE/Risk Team Participation

- Two Certified Value Specialists to facilitate VE Study
- Two Risk Leaders to facilitate Risk Study
- 41 participants in Workshop 1 (VE/Risk)
- 27 participants in Workshop 2 (Risk)
- 31 participants in Workshop 3 (VE)
- 14 Consulting Firms participating
- Various Government Agencies participation (MTO, MTO BIIG, IO, TC, MDOT)





VE/Risk Team Participation

VE and Risk Consultant Team – Team Leaders:

Study Leader	iTRANS Consulting
Assistant PM	iTRANS Consulting
Risk Leader	Davis Langdon
Risk Assistant	Davis Langdon
VE Leader	Faithful & Gould
Co-VE Lead	Fletcher Group

Representatives from Windsor BIIG - MTO

Representatives from URS (IEA/PD Consultant)





VE and Risk Consultant Team

Subject Matter Experts:

Safety	iTRANS
Traffic	iTRANS
Highway Design	iTRANS/MACTEC
Peds/Cycling	iTRANS
Environmental	SNC-Lavalin
Structural	CTS Group
Construction	Womack Consulting
Quantity Surveyor	Pelican Woodcliff
Drainage	Giffels/IBI
Foundations	Thurber Engineering
Economics	HDR
Human Factors	Human Factors North

Supplementary MTO Team

Subject Matter Experts:

- Construction
- Policy
- Foundations
- Traffic
- Structural
- MTO/Windsor BIIG
- Internal Audit





Pre-Workshop Challenges

- VE/Risk Study Schedule
 - Start up, Submission dates, Workshops, Target areas
- Human Resources (Subject Matter Experts)
 - Coordination, COI, NA Talents, Talent -schedule balance
- Workshop Logistics
 - Venue coordination, Task delegation, SME coordination





Pre-Workshop Challenges (Cont)

- Workbook Preparation
 - Mega task, Volume of Reports, Efficient Screening, FTP Site, Budget time
- Project Schedule for Risk Study
 - Risk Format Schedule, Coordination with IEA PD Consultant, Assumptions
- Project Cost Estimate
 - Risk Format Cost Estimate, Parametric Cost Estimate, Base Case Validation





Workshop Dynamics / Study Constraints

- EA/PD Consultant Participation
 - Full time attendance, Time Savings, clarified “Untouchables”
 - Explain / provide data; ongoing IEA/PD dialogue
- Active MTO EA/PD Project Manger Participation
 - Set the focus, Quick Decisions, Validate Assumptions, Decision maker needs
- Subject Matter Experts
 - High Engagement, Result oriented, Sub- groups, Int & Ext Agencies





Workshop Dynamics / Study Constraints (Cont)

- Workshop Communications
 - Clear confusion, Address Roadblocks, Motivate, Policing
- VE Momentum
 - Focus on Schedule, Milestone meetings, Monitor workshop progress, Tech Support/ PM Assistant
- VE/Risk Recommendations Presentation
 - Large Group, Last day of Workshop, Combined VE and Risk, Scenarios, SME Representation, Continued Momentum





Post Workshop Events

- Report Preparation/Submission
 - Dedicated Staff, VE and Risk Report Consistency,
 - Committed Schedule
- Implementation Meeting
 - Done with EA/PD team and Senior Management,
 - Challenges due to committed IEA schedule
 - Accepted Ideas considered for IEA, PDR and future phases





Measurements of Success

- No Impact to IEA Submission date
- PDR Completed (Incorporated VE Ideas) – Summer 2009
- AFP delivery method was adopted
- Advanced Structure Contract
- Risk Mitigation Strategies





Summary – Keys to Success

- Overall MTO support/champion for VE/Risk Methodology
- Effective interaction with the IEA/PD Consultant (Base Case consultant)
- VE/Risk Team make-up / efficient use of resources
- On-going communications
 - within VE / Risk Team
 - Between VE / Risk Team, MTO Project Team & IEA-PD Consultant
- Commitment to Schedule and Milestone Deliverables
 - Maintains VE Study Momentum



Thank You

Questions and Comments

