

Centre For Transportation Engineering & Planning

WELCOME

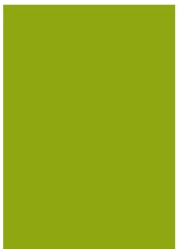
The Western Canada Pavement Workshop

2010 Edition

Edmonton, Alberta

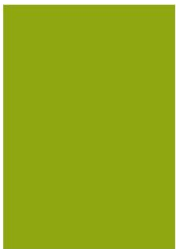
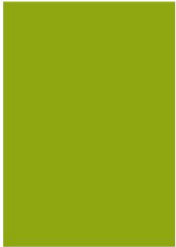
February 2 & 3, 2010

Kelly Yuzdepski, P.Eng., President



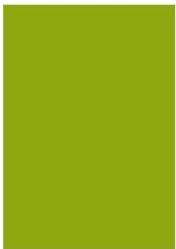
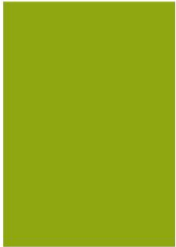
Presentation Outline

- C-TEP Mission Statement
- History
- Members
- Research Projects
- Professional Development Opportunities



C-TEP Mission Statement

- To be a leader in providing professional development and applied research in transportation engineering and planning, to continually improve road systems in Canada.
- To provide a forum for dialogue and collaboration among industry, post secondary institutions and governments, in transportation engineering and planning.
- To be a resource centre for the transportation engineering and planning community.



C-TEP History

1995 – 1997

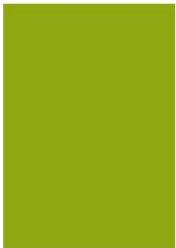
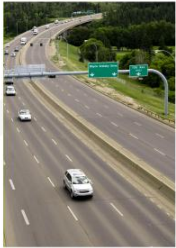
- Alberta Transportation's re-engineering and outsourcing causes a need to examine many of its roles as a long time leader in the areas of technology transfer and research and development (R&D).

1998

- Creation of ***Centre for Transportation Engineering and Planning (C-TEP)***
- First C-TEP course offered: "*Pavement Design*"
- First research grant of \$2,500 awarded: "*Reducing Wildlife Vehicle Collisions*"

1999

- C-TEP office established at the University of Calgary



C-TEP History Continued

2000

- Interim Board dissolved and first C-TEP Board elected March 1, 2000 at AGM

2001-2006

- Courses offered outside Alberta
- Membership grows outside Alberta

2006

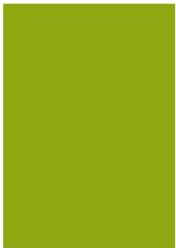
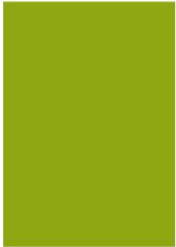
- Alberta Transportation increased its financial contributions to \$150,000 for the next 3 years

2007

- Hires full time Executive Director
- Growth in membership, R&D & course offerings

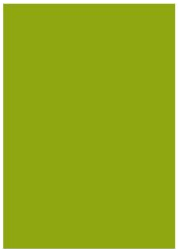
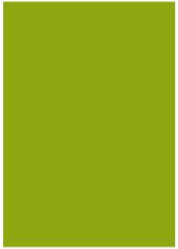
2008 – 2010

- Technical Innovation Committee formed
- Continued growth and expansion



Past Presidents and Executive Directors

Year	Executive Director (Appointed)	President (Elected)
1998	Dr. John Morrall	Harvey Olsen, Reid Crowther
1999	Dr. John Morrall	Harvey Olsen, Reid Crowther
2000	Dr. John Morrall	Harvey Olsen, Reid Crowther
2001	Dr. John Morrall	Dwight Carter, UMA Engineering
2002	Lane Kranenburg	Carl Clayton, Stantec
2003	Lane Kranenburg	Dave Palsat, EBA
2004	Lane Kranenburg	Dave Palsat, EBA
2005	Merv Clark	Alf Guebert, Earth Tech
2006	Hamid Soleymani	Dean Cooper, Stantec
2007	Neil Little	Chuan Kua, City of Edmonton
2008-09	Neil Little	Kelly Yuzdepski, AECOM



C-TEP Members

GOVERNMENT

- Provincial
- Municipal

CONSULTANTS

PARTNERS

- Alberta Motor Association

UNIVERSITIES

CONTRACTORS & SUPPLIERS

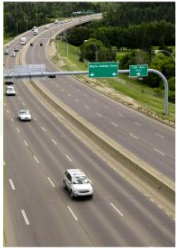
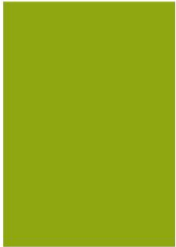
ENGINEERING ASSOCIATIONS (CEA, ITE)



Members

Consulting Firms

- ADI Ltd.
- AECOM
- Al-Terra Engineering Ltd.
- ARA Engineering Ltd.
- Associated Engineering Alberta Ltd.
- Bunt & Associates Engineering (Alberta) Ltd.
- Canadian Highways Institute Ltd.
- CIMA+
- Clifton Associates Ltd.
- D.A. Watt Consulting
- Delphi-MRC
- Eagle Engineering Corporation
- EBA Engineering Consultants Ltd.
- Genivar
- IBI Group



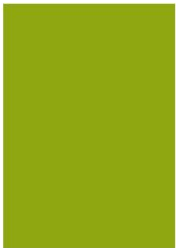
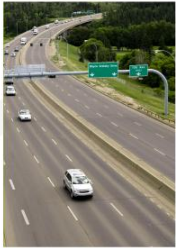
Members

Consulting Firms (cont'd)

- ISL Engineering and Land Services
- McElhanney Consulting Services Ltd.
- MMM Group
- Morrison Hershfield Ltd.
- Opus International Consultants
- Stantec Consulting
- Stewart Weir & Co. Ltd.
- Thurber Engineering Ltd.
- Urban Systems Ltd.
- Wardrop Engineering Inc.
- Yellowhead Engineering Services Inc.

Partner

- Alberta Motor Association



Members

Public Agencies/ Government

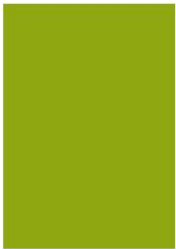
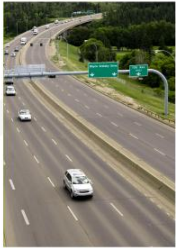
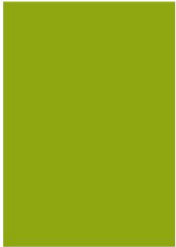
- Alberta Transportation
- Yukon Highways & Public Works
- City of Calgary
- City of Edmonton

Universities

- University of Alberta
- University of Calgary
- University of British Columbia
- University of Manitoba
- University of Saskatchewan

Contractors/Suppliers

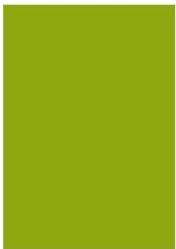
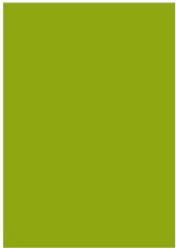
- Belfor Restoration Services
- GECAN
- LaFarge Canada Inc.
- O'Hanlon Paving Ltd.



Research Efforts

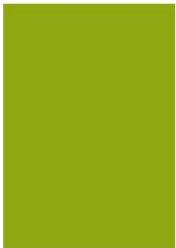
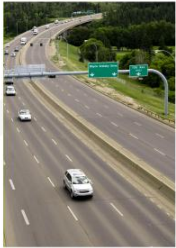
Since 1999, C-TEP has funded 36 research Projects. Our past projects:

- Develop an Alberta-Based Collision Prediction Model
- Safety Countermeasures Along Provincial Highways Thru Small Towns
- Development of a Guideline for the Prevention of Animal Collisions
- Enhancement of Stop Control at Rural Highway Intersections
- Traffic Accident Reconstruction Using GPS and Non-Metric Imagery
- The University of Calgary Driving Simulator (UCDS)
- Fibre Optic Monitoring of GFRP Grid in Centre Street Bridge, Calgary



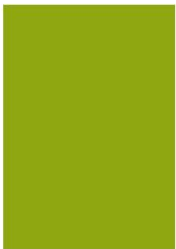
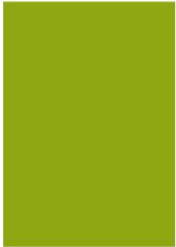
Past Research Efforts Cont'd

- *Collisions at Right Turning Roadways with Yield Signs*
- *Dynamic Stability Analysis of Logging Trucks Used on Alberta Highways*
- *Trucking Industry's Perspective on Highway and Street Improvement Needs*
- *Study on the Application and Effectiveness of Warm Asphalt*
- *Lane Distribution of Truck Traffic for Pavement Design*
- *Trip & Parking Generation Rates for Land Uses in Small Towns*



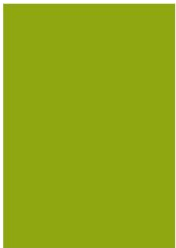
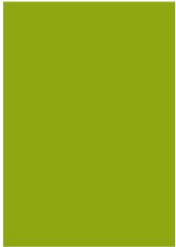
Recent Research Projects

- *Factors Contributing to the Severity of Intersection Crashes in Alberta*
- *Quantifying Human Factor Impacts on Intersection Safety*
- *Optimal Deployment Strategy for Intersection Safety Cameras*
- *Optimal Strategy for Dynamic Message Sign Utilization*
- *Second Coat of Asphalt Binder on New Seal Coats*



Recent Research Projects

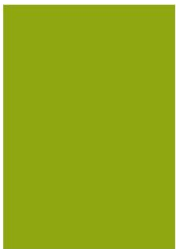
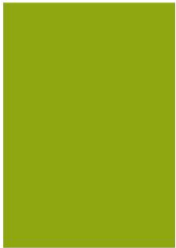
- *Relationship Between Speed & Speed Enforcement*
- *Transport Properties of Cement Based Composites Under Stress*
- *Travel Demand Management for New Communities in Calgary*
- *Performance Evaluation of Thin Asphalt Overlay in Alberta*
- *Evaluation of SAW (submerged arc welding) for Bridge Construction in Alberta*



Recent Professional Development Offerings

Over the past 3 years, more than 800 participants have attended 25 courses:

- *Alberta Roadside Design Guide*
- *Risk Analysis*
- *Functional Planning*
- *Highway Planning and Design*
- *Best Practices in Road Safety Engineering for the Aging Driver*
- *Vulnerable Road Users*
- *Traffic Accommodation*
- *Bridge Construction Inspection*
- *Project Management for Grading/Base/Paving*
- *Geometric Design*



Recent Professional Developments: Environmentally-Sensitive Streambank Stabilization

“Are there any habitat-enhancing alternatives to rip rap that the highway engineer can choose?”

- Pavement
- Bio-Engineering
- Weigh Scales
- Acoustics
- Air Quality
- Roundabouts
- BIM Inspection
- Pavement SuperPave

The above question was asked by highway engineers from various State DOTs across the nation. The Highway Engineer is finding it increasingly difficult to get their stream-corridor highway or bridge project permitted. Rip rap has been increasingly used for decades and as a California Department of Fish and Game permit requirement noted “the continuing use of rip rap and gabions are resulting in long-term, cumulative habitat problems”. Biotechnical Streambank Stabilization Research

The problem statement was posted by the Transportation Research Board and in 2002 funded for research by the National Cooperative Highway Research Project (NCHRP). Salix Applied Earthcare won the 3-year research project. John McCullah, CPESC/ Geomorphologist; Dr. Donald Gray, Geotechnical Engineering Professor Emeritus of University of Michigan; and Dr. E. Douglas Shields, Hydrologist at the USDA-ARS National Sedimentation Laboratory were the principle researchers. Published in 2005, NCHRP Report 544 Environmentally-Sensitive Channel and Bank Protection Measures (also referred to as Environmentally-Sensitive Streambank Stabilization (E-SenSS)), was developed to answer the need for specifications and guidance regarding environmentally-sensitive channel and bank protection measures. This CD manual includes typical design drawings, construction and installation specifications, and an extensive photo gallery of project examples, all based on extensive research and experience.

Alberta Infrastructure and Transportation (AIT) has been employing these habitat-enhancing stabilization techniques starting in 2005, which has resulted in very



Students install willow branches (left) and TRM & Scour Stop (right).



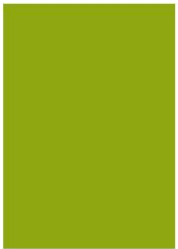
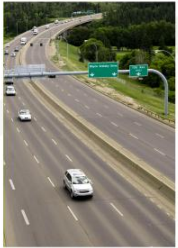
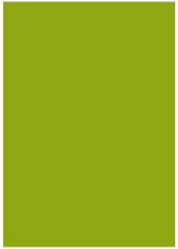
successful environmental compliance and therefore easier permitting and consents. The AIT has now sponsored 3 highway/streambank projects demonstrating the application of these techniques. The first two projects, referred to as Hinton I and II took place on the Pembina River in the Canadian Rockies. This article will highlight the third project, which took place at Willow Creek in the plains area of Southern Alberta. All of these projects have included 3-day hands-on training courses, intended for design engineers, agency regulators, and contractors. AIT, Salix, and Blink Works produced videos that show and describe the implementation processes - on the ground and during construction. With these Dirt

Time videos “you are really there, tasting the dust and smelling the diesel!”

Demonstration Project

The Willow Creek project was proposed by AIT to protect Highway 2, a major north to south highway running from Edmonton through Calgary and south to the US-Canadian border. The Willow Creek project site is about 1.5 hours south of Calgary near Fort MacLeod.

At this site, Willow Creek has historically been impinging on the highway corridor. While not directly eroding the highway, the stream has been undercutting the toe of a geotechnically unstable slope between the creek and highway. The constant



Benefits of Membership

- Reduced pricing for course fees
- Access to research
- Networking with transportation professionals in Western Canada

www.c-tep.com