AREAS OF EXPERTISE

Shaflik International Inc has particular experience in the following technical areas:

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

Shaflik International has been an active member of ITS Canada for the past 15 years and keeps current with the latest in research and development of ITS. In particular Shaflik is active in ITS Canada's foreign development section and has participated in several ITS trade missions to the Peoples Republic of China including the Hong Kong SAR.

Shaflik International specializes in the research of ITS technologies and the design and supervision for the implementation and deployment of ITS systems. In particular Shaflik has been a major designer of the various Driver Information Display Systems throughout British Columbia, and a key team member, Engineer of Record, and Owner's Engineer for the Trans Canada Highway (Vancouver Section) Traffic Management System. Shaflik is also a key development member for the British Columbia ITS Strategic Plan specializing in Advanced Traveller Information Systems (ATIS) and Road Weather Information Systems (RWIS) and in the Shanghai ITS Strategic Plan specializing in field systems.

Shaflik has most recently worked as the Foreign Traffic / E&M Engineer for the ITS and other related Traffic Engineering Systems on several expressway projects in the PR China.

Shaflik specializes in the field integration of ITS user systems such as CCTV surveillance systems, automated incident detection systems, dynamic message sign systems, and vehicle-to-roadside communication systems; and ITS support systems including mounting structure design, power distribution systems, and communication systems.

Shaflik has produced a technical paper which analyses the problems of field integration of ITS and other related highway systems and provides recommendations on efficient planning and design. This technical paper is available on the Shaflik International website at **www.shaflik.com**.

ROADWAY SAFETY

Shaflik International has undertaken the design and construction supervision of freeway and expressway safety systems. These systems include the safety aspects of roadway and area lighting, safety aspects of tunnels, the proper placement of signing, traffic signals systems, guardrails and barriers, and anti-dazzling devices. Shaflik has produced a technical paper regarding the efficient placement of detectors at traffic signals and how they affect the roadway safety of the installation. This technical paper is available on the Shaflik International website at **www.shaflik.com**.

TRAFFIC SIGNAL SYSTEMS

Shaflik International has been designing traffic signals for the past 25 years and has experience ranging from old style fixed time electro-mechanical systems to state-of-the-art traffic responsive computerized systems. Shaflik has designed and construction managed over 500 traffic signal installations throughout BC and internationally.

Shaflik has researched, designed, and construction supervised several interconnected and coordinated traffic signal systems including closed-loop systems. Shaflik has also designed over 100 traffic signals with some form of emergency vehicle or railway preemption and is experienced with all the major suppliers and manufacturers in the field. Shaflik has undertaken signal preemption and detector technology studies for several clients.

Recently Shaflik International has undertaken theoretical research and

produced a technical paper regarding the proper location and placement of detector loops at intersections. This technical paper determines that the proper physical placement of vehicle detectors can significantly increase the throughput and capacity of signalized intersections. This technical paper is available on the Shaflik International website at **www.shaflik.com**.

ROADWAY, BRIDGE, AND TUNNEL LIGHTING SYSTEMS

Shaflik International has been designing roadway lighting for highways, freeways, bridges, tunnels, and municipal roads for over 30 years and has undertaken designs along major corridors such as the Trans Canada Highway, the Coquihalla Highway, and the Vancouver Island Highway. Shaflik is experienced in all forms of roadway lighting design, from major arterials and freeways to minor local and residential roads, including large interchanges and downtown urban centers. Shaflik has designed and construction managed over 3000 roadway lighting projects throughout British Columbia as well as out of province and internationally, and has specifically undertaken the lighting design on several major bridges and tunnels .

Carl Shaflik is an active sitting member of the Illuminating Engineering Society of North America Roadway Lighting Committee. This society is the main engineering standards body in North America for the research and development of lighting engineering standard practices. Carl Shaflik sits on the sub-committees for Tunnel Lighting, Environmental Affects (Light Pollution), and Toll Plaza Lighting.

Shaflik International has produced a technical paper which analyses the effects of light pollution as produced by roadway lighting systems and provides recommendations on efficient design and mitigation methods. This technical paper is available on the International Dark-Sky Association website at **www.darksky.org** or on the Shaflik International website at **www.shaflik.com**.

HIGHWAY SIGNING DESIGNS

Shaflik International has undertaken the planning, design, and construction supervision of highway guide signing systems and regulatory and warning signing systems for the past 20 years. Signing designs have covered all types of highway systems from major and minor urban centers to rural and urban freeways and expressways. Shaflik has undertaken the recent development of the British Columbia Ministry of Transportation and Highways signing materials and construction standards.

COMMUNICATIONS SYSTEMS

Shaflik International has had direct involvement with design and installation of communications systems for various projects and was part of the team designing the SONET (synchronous optical network) system for the Trans Canada Highway Traffic Management Program. Shaflik has also construction managed the field infrastructure of several fiber-optic communication systems for transportation projects, including 360networks and Worldwide Fiber installation across southern British Columbia and northwest Washington State and the recent Jingzhu, Hurong, Hangjinqu, and Taigan Expressway Projects in China. This infrastructure typically forms the backbone of freeway traffic management and tolling systems.

GENERAL ELECTRICAL SYSTEMS

Shaflik International has undertaken the planning, design, and construction supervision for all of the standards electrical systems that support transportation engineering projects for the past 25 years. These electrical designs include, but are not limited to, primary power distribution, secondary power distribution, and back-up UPS and stand-by power generation.