



# Intelligent Transportation Systems Services

*Increasingly, Canadian agencies and organizations of all sizes have been embracing ITS technologies as part of their solution toolkit to address traffic operations and road maintenance issues.*

Implementation and long-term operation of these technologies requires different skills and approaches than those generally used for bricks-and-mortar infrastructure.



TSH services help road operators meet their safety and mobility objectives despite dynamic & adverse weather conditions.

A sound strategic plan, within the framework of the ITS systems architecture, will lead to more appropriate and effective technology deployments over time. Following such a plan, skilled project managers can ensure that the right solution is selected, implemented and operated to meet specific client performance objectives.

Experts at TSH specialize in the planning, development, deployment and monitoring of ITS solutions.

Road operator's objectives include:

- Maintain the desired level of service for the condition of the road
- Enhance safety
- Reduce adverse environmental impacts
- Reduce operating and maintenance costs
- Reduce delay and congestion

ITS experts at TSH:

- Decades of experience and proven track records
- Multidisciplinary skills under one roof
- Nationally recognized



- Our ITS solutions seek to maximize the safe utilization of the capacity of existing transportation infrastructure
- We recognize that information generated from ITS technologies and systems can be leveraged to greater value and benefit for operators and users
- Our approach adopts the use of innovative but proven and effective solutions

# Intelligent Transportation Systems Services

## OUR SERVICES ARE AVAILABLE FOR:

### Transportation Networks /Corridors

- Highways, Freeways & Toll-ways
- Municipal Roads & Streets
- Private Facilities
- Airport Facilities
- Rail Systems
- Transit Systems
- Public Sector Operators
- Private Sector Operators
- Fleet Operators
- Agencies
- Travellers



## OUR SERVICES INCLUDE:

### Policy

- Policy Development
- Infrastructure Investment, Financing And Economic Analysis
- Engineering Standards And Specifications Development
- P3 Partnerships

### Strategic Planning, ITS Planning

- Strategic Planning, Program And Priority Development
- Master Architecture Planning
- Network Planning & Area Studies
- Transit Systems & Service
- Needs Analysis
- Warrant Review
- Cost/Benefit Analyses
- In-Service Safety Audits
- Site Selection Studies
- Functional Planning
- Preliminary Designs
- Detailed Design

### Modelling

- Network Modelling
- Winter Maintenance Network Modelling
- Transportation Operations Modelling
- Transportation Systems Modelling
- Travel Demand Forecasting
- Toll Analysis & Revenue Forecasting
- Macro Site Suitability Modelling
- Geographic/ Cultural/Operational Modelling
- Network Risk Analysis
- Condition Forecasting

### Traveller Information

- SII
- World Wide Web
- Onboard
- Pre-trip
- Enroute

- HAR
- DMS/CMS/VMS
- Modal Planning
- Commercial

### Traffic Management

- FTMS
- Weigh In Motion
- Signalization
- Vehicle Probes
- Speed Detection
- Traffic Counters
- Traffic Detectors

### Maintenance Management

- Performance Evaluation
- Benchmarking
- Operations Planning
- Salt Management
- Route Planning
- Route Optimization
- Weather Forecasts
- Pavement Condition Forecasts
- MDSS
- AVL
- Automated Call-out

### RWIS/FAST

- Life Cycle Costing
- Site/Network
- Project Management
- Planning/Designing
- Implementation
- Operation
- Field Service
- System Administration
- Data Mining
- Training
- Maintenance Management
- Monitoring
- Performance Reporting
- Traffic Management Integration
- Traveller Information Integration

### Public Transport

- AVL
- Dynamic Route Scheduling

### Electronic Payment

- Tolls
- Smart Cards

### Commercial Vehicle Operations

- AVL

### Emergency Management

- Road Closure Plans
- Incident Management
- Incident Detection
- RESCU

### Vehicle Safety & Control Systems

- Road Condition Reporting

### Information Warehousing

- Road Conditions
- Weather Conditions
- Traffic Conditions
- Asset Management
- Archives
- Cross Application Integration

### Training

- Planning
- Delivery
- Presentations
- Resource Material
- Testing & Evaluation
- Graduated Level Training
  - User
  - Operator
  - Maintainer
  - Administrator
  - Technology Transfer



### Head Office

300 Water Street, Whitby, Ontario L1N 9J2  
Phone: 905 668-9363 • 1-800-668-1983  
Fax: 905 668-0221  
E-mail: tsh@tsh.ca • www.tsh.ca

Barrie • Bracebridge  
Calgary • Cobourg • Kingston  
Kitchener-Waterloo • Ottawa  
St. Catharines • Sault Ste. Marie  
Whitby

### TSH Services:

Building Design, Environmental  
Engineering, Transportation Planning,  
Transportation Design, Utility Engineering  
and Land Planning and Design