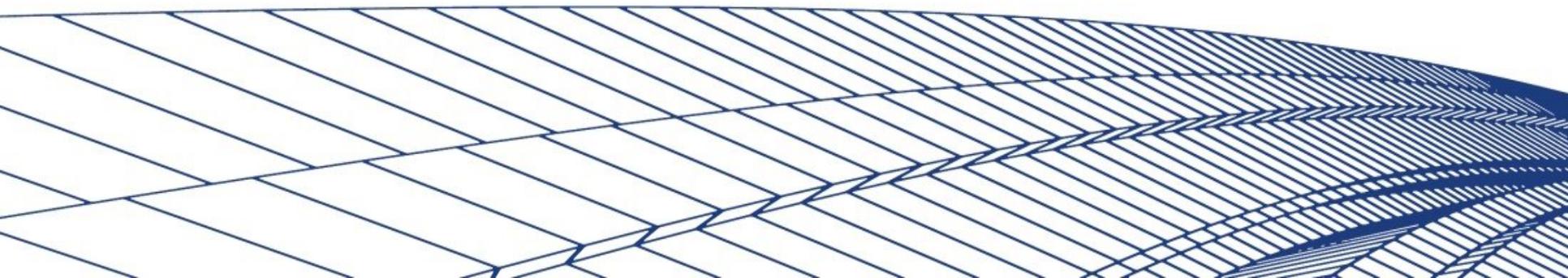




TRANSPORTATION ASSOCIATION OF CANADA (TAC)
ASSOCIATION DES TRANSPORTS DU CANADA (L'ATC)

Canadian GIS-T Survey 2016 Results

AASHTO GIS-T 2017 Symposium
Phoenix, AZ - April 10-13, 2017
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Presentation Outline

- Background
- 2016 Canadian GIS-T Survey results
- Follow-up Activities
- Summary

Background and Context

- AASHTO provides support for exchange of GIS-T best practice in the US:
 - GIS-T Task Force of the Subcommittee on Information Systems - sponsors the following initiatives:
 - Annual GIS-T survey of US states
 - Annual GIS-T Symposium: provides a forum to exchange ideas on current best practice
 - Proceedings are published on their website: www.gis-t.org
- Transportation Association of Canada (TAC) has recently created a GIS-T Subcommittee as a forum for exchange of GIS-T best practice in Canada
 - First meeting held in September, 2016
 - Liaison with the AASHTO GIS-T Task Force for information exchange

Subcommittee Roles and Objectives 1

1. To provide a **forum** for the mutual exchange and transfer of knowledge in the area of transportation GIS practices across Canada.
2. To **liaise with the AASHTO GIS-T Task Force** to encourage the mutual exchange and transfer of knowledge in the area of transportation GIS practices between Canada and the USA.
3. To **identify and promote research needs** in the areas of transportation GIS business practices, associated GIS and information technology (IT) science, software applications and tools, data collection and integration, and support for transportation infrastructure asset management.
4. To **stimulate research and encourage adoption of findings** from research of best practices in transportation GIS in the areas of implementation and execution.

Subcommittee Roles and Objectives 2

5. To **organize paper sessions and workshops** as required at TAC's annual conference.
6. To **facilitate the development of new manuals or guidelines** as required and review TAC's existing guides and manuals to identify needs to update.
7. To **initiate special projects and programs** dealing with asset management in transportation infrastructure.
8. To **cooperate and communicate** with other TAC standing committees, subcommittees and councils.

To assist in achieving the above objectives, the GIS-T Subcommittee will **organize and administer an annual GIS-T online survey.**

Canadian GIS-T Survey 2016

- Undertaken by TAC GIS-T Subcommittee to assess current state of practice in Canada
- Target audience: provincial / territorial / **municipal** transportation agencies
 - Notification of survey emailed to primary TAC contact within these agencies
- Based on AASHTO GIS-T survey questionnaire
 - Received approval to use their questions
 - Agreed to provide copy of summary report
 - Some modifications made:
 - Fewer questions (31 vs 45)
 - Revised wording for Canadian geospatial environment
 - Added Asset Management specific questions (4)
- Conducted online using Survey Monkey
 - Initiated in November 2016, deadline extended into 2017

Canadian GIS-T Survey: Highlights

- 19 responses: 1 Federal, 9 Provincial / Territorial, 9 Municipal
- Overall Trends:
 - Use of GIS to support Asset Management (AM)
 - Increased use of web applications / services
 - Increased emphasis on data integration projects
- Primary use of GIS-T to support AM applications:
 - Spatial management of asset inventories
 - Asset renewal and capital planning / programming
 - Highway maintenance management

Current Projects and Priorities

- Asset Inventory: (11 of 19 respondents)
- Asset Management: (10)
- Others:
 - Web mapping (8)
 - Software upgrades (8)
 - Data Integration / Maintenance (8)

GIS Organization

- Most agencies (14 of 17 responses) have a core group or specific individuals to provide GIS services
 - Only 3 have implemented enterprise GIS databases and applications
 - No consensus on location of group: Engineering most common
 - Approximately half of agencies (8 of 17) have recently made – or are actively discussing – organizational structure changes
- Staffing:
 - 1 - 5 FTEs (7) and 5 – 10 (5) most common, none have more than 20
 - Educational background: Geography / Cartography, Engineering / Surveying and IT
 - Limited use of part-time employees and contractors
- Many agencies (11 of 15 responses) have either consolidated or are in the process of consolidating GIS data and / or services across offices

GIS Technology

- ESRI most widely used, Hexagon (Intergraph) and AutoDesk by some
- RDMS: most using SQL Server (12), some Oracle (4) and Access (3)
- Spatial data management: Oracle Spatial (4), ArcSDE (4) being used at Provincial level
- Web services being used by many
 - Some movement toward cloud based geospatial services such as AGOL
- Many (10) either using or investigating the use of geospatial technologies on mobile devices in support of field data collection initiatives

GIS Data

- Road network datasets:
 - Most (12 of 15 responses) contain all public roads, the remainder only National and Provincial / Territorial highways routes
 - The majority (9) of databases are agency specific, the remainder utilize National (2), Provincial (2) or County (2) datasets
 - The majority (9) have a minimum accuracy of 1 metre or better: others are 2.5 metres (3) or 10 metres (3)
- Most agencies (11) distribute data free of charge to other government agencies
 - Many (8) make data freely available to all via web services or a data clearinghouse

GIS-T Benefits and Costs

- Major benefits from projects supporting:
 - Asset management (9)
 - Location based services (4)
 - GIS / CAD integration (4)
- Most costly and difficult projects were those associated with Enterprise data integration (6)
- **Most agencies (14 of 15 responses) indicated that geo-spatial technology would add the most value in support of asset management**

Support for Asset Management

- Survey included 4 questions focussed on GIS-T support for asset management
- Top priorities:
 - Spatial management of asset inventories (12)
 - Asset renewal and capital planning / programming (10)
 - Highway maintenance management (8)
- Primary issues and challenges:
 - Technology issues (software incompatibilities, ease of use, etc.) (6)
 - Integration with other corporate systems (6)
 - Organizational change management (5)
 - Field data capture (5)
- No clear consensus on major future opportunities, but general theme of *enterprise data integration / management* enabled through geospatial technologies

Emerging Trends

- Comparison of results against the 2015 survey indicates the following emerging trends:
 - Increasing appreciation of the importance of geospatial technologies to support agency asset management initiatives
 - Creating / updating asset inventories is a priority for many
 - Software upgrades a priority for many
 - LRS / Road Network Management Systems projects no longer a priority

Follow-up Activities

- Preparation of summary report documenting survey results
 - Will be sent directly to all respondents and the AASHTO GIS-T Task Force
 - Will be made available to Subcommittee members and others through the TAC Sharepoint site
- Presentation of results at the Subcommittee meeting in Ottawa on April 21
- Discussion with TAC Secretariat staff to improve survey distribution and analysis procedures
- Continuing liaison with AASHTO GIS-T Task Force to refine survey questions going forward

Summary

- In general, Canadian GIS-T trends, priorities and practices similar to those reported by the US states through the AASHTO survey
 - One major difference: no significant move toward R&H at this time
- We need to expand our outreach activities within Canada to promote GIS-T best practice and encourage information exchange
- We hope to continue and strengthen our liaison with AASHTO through the TAC GIS-T Subcommittee

Questions?

