Canadian GIS-T Survey 2017 Results

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Presentation Outline

- Background
- 2017 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](http://www.gis-t.org)

• Transportation Association of Canada (TAC) has recently (2016) 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. 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

- Undertaken annually by TAC GIS-T Subcommittee to assess current state of practice in Canada
- Target audience: federal / provincial / territorial / municipal transportation agencies
  - Notification of survey emailed to identified GIS-T contact within these agencies where possible
  - Otherwise sent to primary TAC contact
- 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
    - Revised wording for Canadian geospatial environment
    - Added Asset Management specific questions
- Conducted online using Survey Monkey
Comments on 2016 Survey

• Very poor response rate – only 19 of 240+ TAC agencies
  – Contributing factors: lack of awareness / lead time, surveys sent to wrong people
• Results presented at GIS-T 2017 in Phoenix
• Report compiled and distributed to TAC agencies, copy provided to AASHTO
2017 Survey

• Originally targeted for distribution in November 2017

• Decision taken to delay in an attempt to identify better contacts within municipal TAC member agencies

• Finally distributed on Feb. 7 2018, closed on March 1
2017 Survey: Highlights

• 50 total responses: 1 Federal, 10 Provincial/Territorial, 39 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
  – Asset lifecycle management
Current Projects and Priorities

• Current Projects:
  – Asset Management (13)
  – Sign inventory (6)

• Priorities:
  – Asset Management (17)
  – Asset Inventory / Mobile Data Collection (17)
GIS Organization

• Most agencies have a core group or specific individuals to provide GIS services
  – 18 Agencies (up from 3 in 2016) have implemented enterprise GIS databases and applications
  – Location of group: Spread evenly between Planning, Engineering, Information Services
  – Only 34% of agencies have recently made or are actively discussing organizational structure changes

• Staffing:
  – 1-2 FTEs (42%) and 6 –10 (20%) most common, only 4% have more than 16
  – Limited use of part-time employees and contractors

• Most Agencies (84%) have either consolidated or are in the process of consolidating GIS data and / or services across offices
GIS Technology

• RDBMS in use: SQL Server (68%), Oracle (26%)
• Spatial data management: ArcSDE (64%) most popular in use
• Source of digital road base map data: Agency Specific (complied by Agency) is most common
• Only 18% of Agencies have not used geospatial technologies on mobile devices in support of field data collection initiatives
GIS Data

• Road network datasets:
  – Majority of agencies (58%) manage less than 1,000 km
  – 20% manage over 10,000 km

• For signed routes, the majority of agencies (58%) utilize either National or Provincial shared datasets
  – 32% of databases are agency specific

• Half the Agencies (50%) have a minimum accuracy of 1 metre or better: others are 2.5 metres (26%) or 10 metres (18%)

• 42% of Agencies make data freely available to all via web services or a data clearinghouse
  – 32% distribute data free of charge to other government agencies
GIS-T Benefits and Costs

• Major benefits from projects supporting:
  – Asset Management (24)
  – Enterprise data integration (19)
  – Mobile Data Collection (19)

• Most costly and difficult projects were those associated with Asset Management and Enterprise data integration

• Most Agencies (84%) indicated that geo-spatial technology would add the most value in support of Asset Management
Support for Asset Management

• Survey included 2 questions focused on GIS-T support for Asset Management

• Top priorities:
  – Spatial management of asset inventories (87%)
  – Asset renewal and capital planning / programming (69%)
  – Asset lifecycle management (53%)

• Primary issues and challenges:
  – Integration with other corporate systems (61%)
  – Technology issues (software incompatibilities, ease of use, etc.) (44%)
  – Organizational change management (39%)
  – User Education (39%)
Emerging Trends

• Comparison of results against the 2016 survey indicates the following emerging trends:
  – Better participation (50 vs 19)
  – Increased consolidation of GIS data and / or services across Agency offices
  – Most Agencies using geospatial technologies on mobile devices
  – Creating / updating asset inventories is still a priority for many
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 20
• Continuing 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
Canadian GIS-T Survey: Summary

• In general, Canadian GIS-T trends, priorities and practices appear to be similar to those reported by the US states through the AASHTO survey
  – One significant difference: no major 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
  – As more municipalities become engaged both in the survey and in our Subcommittee activities, we need to give further thought as to how we best support them
  – Information exchange with other Canadian GIS-T groups (Federal / Provincial Task Force, Esri CTI)
• We hope to continue and strengthen our liaison with AASHTO through the TAC GIS-T Subcommittee
• It’s still very much a “work in progress”!
Questions?