

## GIS Data available for Alberta Transportation Bridge Planning Projects

Many GIS data sets are available from Alberta Transportation (TRANS) and external providers for use on TRANS projects. This data is valuable during the initial stages of a project (such as using DEM and satellite layers to develop a preliminary highway alignment) but can also be useful during the later stages (such as using cadastral layers to determine right of way requirements).

A GIS platform is required to use these data sets. The Bridge Planning group of TRANS uses Global Mapper (purchase and demo version available from <https://www.bluemarblegeo.com/>). This document describes the data sets available, sources, and application in TRANS bridge planning projects.

GIS data sets available through TRANS may be managed by the Highway Geomatics group or the Bridge Planning group within the Technical and Program Services Branch. Some GIS data is available from the Bridge Planning group at <http://www.transportation.alberta.ca/PlanningTools/Data/GIS/>, accessible through the Guide to Bridge Planning Tools (<http://www.transportation.alberta.ca/4869.htm>). Some data is only available on request and on a site specific basis; these require a data sharing agreement to be signed.

Data requests contacts are:

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\*Note, when requesting data, please reference the TRANS project and include a figure and/or description of the coverage area required.

GIS data sets can be used for various applications, some of the uses in the bridge planning field include:

- drainage area delineation
- historical air photo review (lateral stream mobility, land use changes, geotechnical instabilities)
- channel parameter determination (bed width, top width, bank height, stream slope)
- land ownership, RoW requirements
- stream navigability
- interaction with software, such as TRANS in-house BPG.xls (roadway alignment and profile generation, bridge fill layout, design of river engineering works, 3D visualization)
- maps, sketches, and figures for reports

**GIS Data Sets available from TRANS**

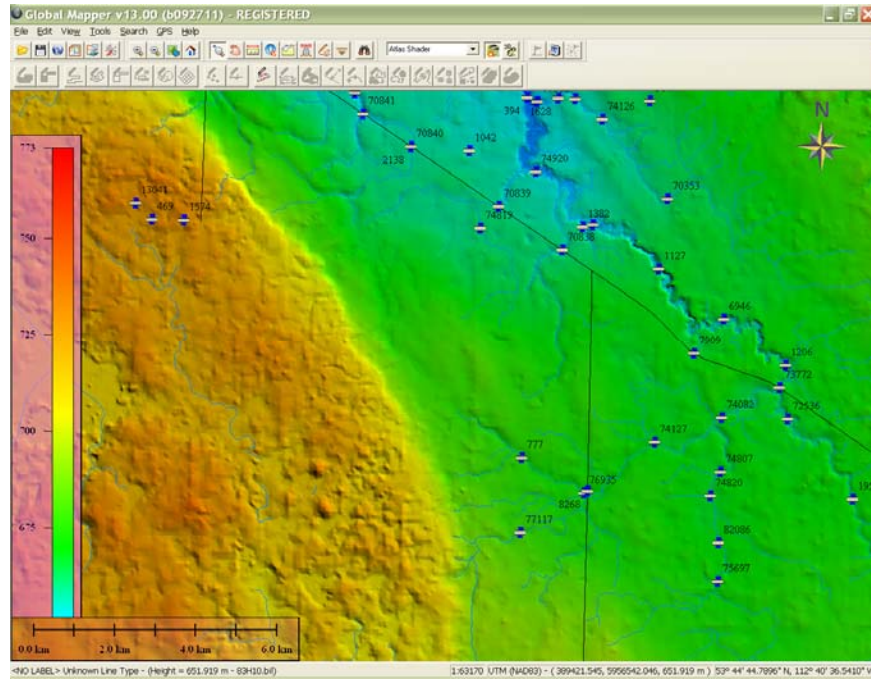
| Name                         | Source        | Availability    | Description  |
|------------------------------|---------------|-----------------|--|
| Alberta Boundary             | TRANS         | Bridge Planning | Alberta Provincial Boundary; useful for map making   |
| LiDAR Coverage Map           | AESRD         | Webpage         | Current AT LIDAR Coverage; to determine if your project site has AT owned LiDAR data   |
| Bridges                      | TIMS          | Webpage         | All AT bridge sites  |
| NTS Grids                    | TRANS         | Bridge Planning | All AB NTS map sheet areas (ex 83H04)  |
| Provincial Highways          | NRCAN         | Bridge Planning | All provincial highways  |
| Township Grids               | TRANS         | Bridge Planning | All AB Legal Land Location areas   |
| DEM (20m w/ breaklines)      | AESRD         | Geomatics       | 100m DTM + breaklines for 1:50,000 NTS map area (ex 83H04)   |
| Local Roads                  | NRCAN         | Geomatics       | All local roads in a 1:250,000 NTS map area (ex 83H)   |
| Streams                      | AESRD         | Geomatics       | Single line vectors for all streams in 1:250,000 map area (ex 83H)   |
| LiDAR                        | AESRD, Others | Geomatics       | 1m spacing Lidar DTM, 48 files per 50,000 map area (ex 83H04NE02)  |
| 1:20000 Maps                 | AESRD         | Geomatics       | Vector base map layers, 4 per 50,000 map area (open as Microstation DGN, 10TM, 500,000E, - 5,000,000N offsets)                       |
| 1:250000 Maps                | AESRD         | Geomatics       | Vector base map layers, 1 per 250,000 map area (less detail, 10TM projection, no offsets)  |
| Parcel Mapping               | AESRD         | Geomatics       | Base mapping vectors (includes r/w), Microstation DGN (10TM projection), (name = mrrttt.10t - m = meridian, r = range, t = township) |
| Satellite Photos (Spot_2012) | AESRD         | Geomatics       | 2.5m pixel georeferenced satellite photography (also 2006-11, year is year delivered)  |
| Navigability Map             | TRANS         | Webpage         | AT developed map showing navigable streams and lakes, developed around 2006.   |
| Air Photos                   | TRANS /AESRD  | TIMS Webmap     | Air photos of various scales from about 1997-present   |
| Projection Files             | TRANS         | Webpage         | Common projections used (10TM, 3TM Edmonton)   |

**External GIS Data Sets**

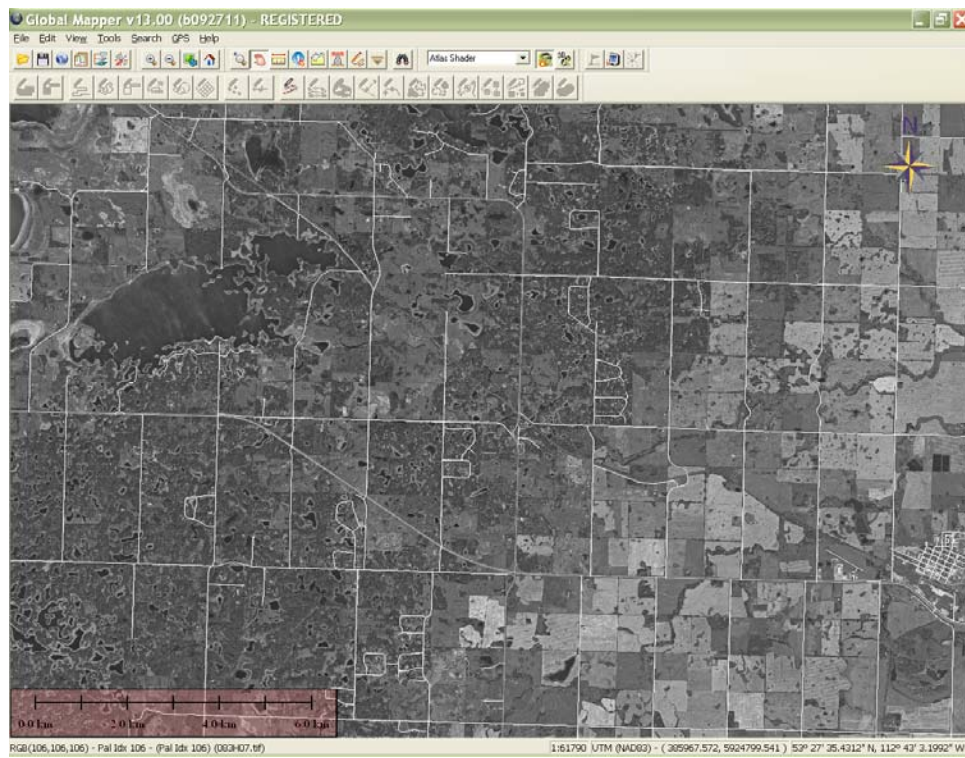
| Name                       | Source   | Description   |
|----------------------------|--|---|
| Air Photos                 | AESRD<br>( <a href="http://www.srd.alberta.ca/MapsPhotosPublications/AirPhotos/Default.aspx">http://www.srd.alberta.ca/MapsPhotosPublications/AirPhotos/Default.aspx</a> ) | Air photos of various scales, 1949 to present       |
| WSC Gauges                 | Water Survey of Canada<br>( <a href="http://www.wateroffice.ec.gc.ca/index_e.html">http://www.wateroffice.ec.gc.ca/index_e.html</a> )                                      | WSC Gauges  |
| Global Land Cover Facility | <a href="http://glcfapp.umiacs.umd.edu:8080/esdi/index.jsp">http://glcfapp.umiacs.umd.edu:8080/esdi/index.jsp</a>  | Global Imagery and DTM data                         |
| Geogratis                  | <a href="http://geogratis.cgdi.gc.ca/geogratis/en/index.html">http://geogratis.cgdi.gc.ca/geogratis/en/index.html</a>  | Various raster and vector data for Canada - Natural |

|                            |   |   |
|----------------------------|---|---|
|                            |   | Resources Canada  |
| Geobase                    | <a href="http://www.geobase.ca/geobase/en/index.html">http://www.geobase.ca/geobase/en/index.html</a>   | Various raster and vector data for Canada - cross government initiative |
| Agriculture Canada         | <a href="http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1227014964079&amp;lang=eng">http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1227014964079&amp;lang=eng</a> | Soil landscapes (ecodistricts), PFRA watershed boundaries               |
| Airborne Imaging           | <a href="http://www.airborneimaginginc.com/data_coverage.htm">http://www.airborneimaginginc.com/data_coverage.htm</a>   | Lidar Data coverage for Alberta from this company                       |
| Valtus                     | <a href="http://www.valtus.com/">http://www.valtus.com/</a>   | Lidar Data coverage for Alberta from several companies                  |
| Digital Globe              | <a href="http://www.digitalglobe.com/">http://www.digitalglobe.com/</a>   | High resolution satellite photos  |
| Alberta Geological Survey  | <a href="http://www.ags.gov.ab.ca/gis/index.html">http://www.ags.gov.ab.ca/gis/index.html</a>   | Geology, lake bathymetry  |
| AltaLIS                    | <a href="http://www.altalis.com/altalis.html">http://www.altalis.com/altalis.html</a>   | Gov't supplier of LiDAR data, titles, base maps, and others             |
| Global Land Cover Facility | <a href="http://glcfapp.umiacs.umd.edu:8080/esdi/index.jsp">http://glcfapp.umiacs.umd.edu:8080/esdi/index.jsp</a>   | Global Imagery and DTM data   |
| Geogratias                 | <a href="http://geogratias.cgdi.gc.ca/geogratias/en/index.html">http://geogratias.cgdi.gc.ca/geogratias/en/index.html</a>   | Various raster and vector data for Canada - Natural Resources Canada    |
| Geobase                    | <a href="http://www.geobase.ca/geobase/en/index.html">http://www.geobase.ca/geobase/en/index.html</a>   | Various raster and vector data for Canada - cross government initiative |

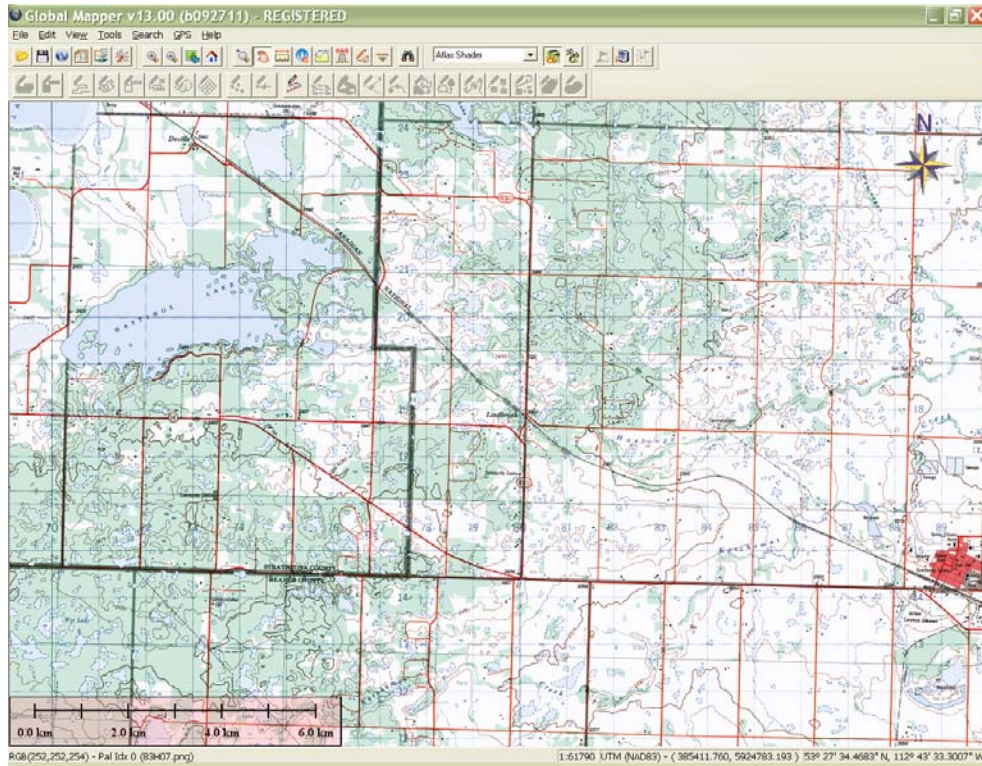
### Sample Screenshots of GIS Data Sets



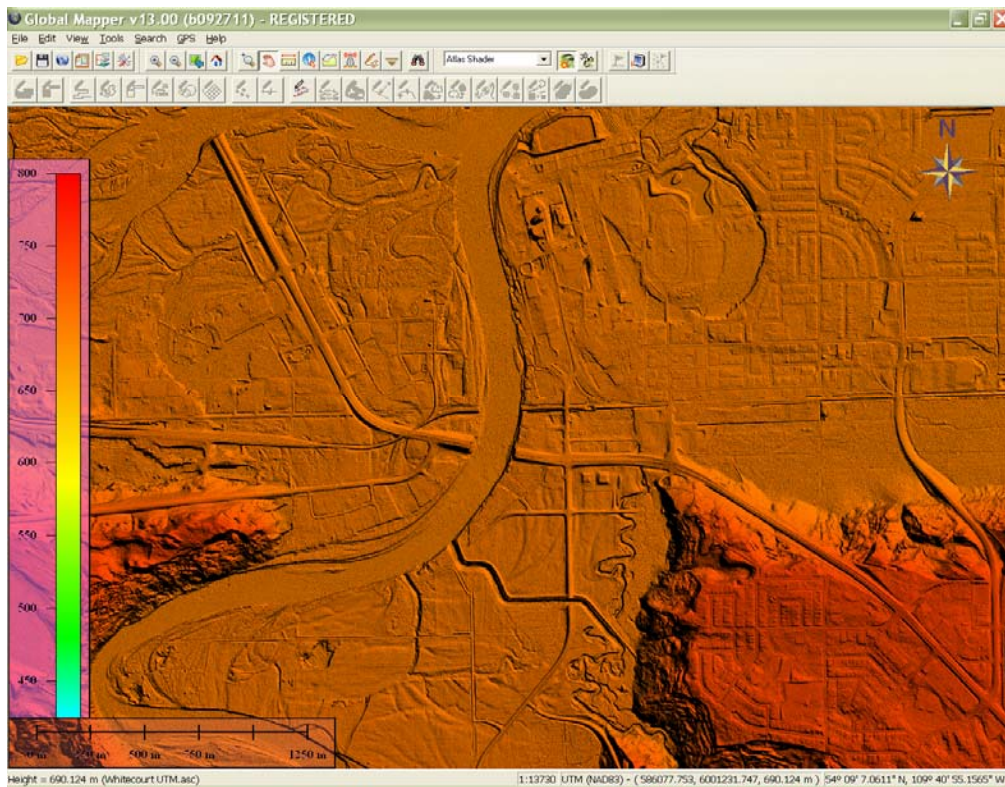
DEM (color shaded), Provincial Highways (black lines), Streams (blue lines), Bridge Files



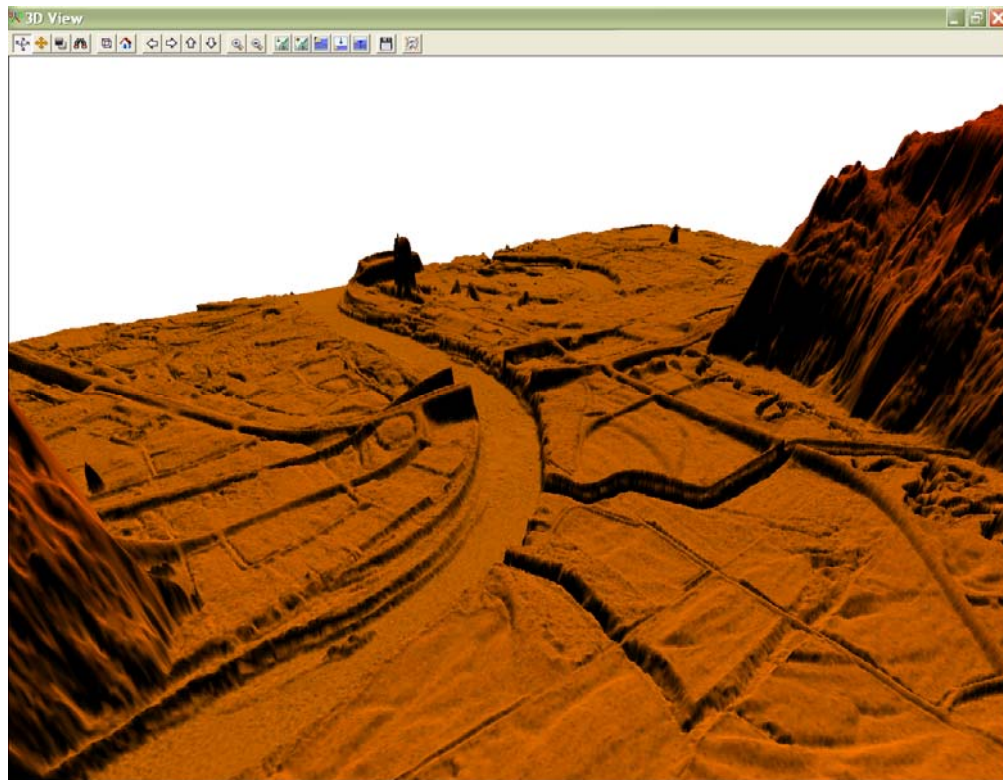
Satellite Photo, Local Roads (white)



1:20,000 Map Sheet



LiDAR



LiDAR – 3D View in Global Mapper

2011 LiDAR Coverage Map

