

# MAJOR TOPOGRAPHIC PROJECT - SUMMARY -

## CHILLIWACK, BRITISH COLUMBIA

The Chilliwack Topographic Major project began in the first week of January 2010 and arrived at completion mid April.

The project overall was a valuable lesson in data manipulation, symbology design and project management. The primary aim was to create a product that employed a design that would better meet the needs of a common user – these measures were primarily implemented through colour scheme, logical symbology, text placement and page size.

The following details reflect different aspects of the project comparatively:

DATA - The CanVec data used proved to be lacking in a variety of fields and as a result these shortcomings had to be supplemented with files from elsewhere.

- ⚓ The Canvec toponyms were very sparse not providing many hydrographic feature labels.
  - ✓ The 1:50 000 NTDB toponyms proved to be a much more comprehensive and were thus substituted.
- ⚓ There were a substantial number of Native Reserves in the map extent but no such boundaries were available in the Canvec files.
  - ✓ GeoBC's website was able to supply a shape file specifically detailing Native reserve polygons.
- ⚓ Contour conflicts were present. 3 out of the four map sheets comprising the map extent were compatible with one another. The fourth, however, collected in a different year was more detailed and did not match.
  - ✓ The contours from each were merged, clipped and given a projection. The tool 'Feature Vertices to Point' was run to normalize. 'Topo to Raster' was then employed using PointElevation to create a DEM. From the DEM a new set of contours was generated at 100 metres.
- ⚓ The Canvec Vegetation layer was misaligned and thus threw off the registration of coastlines and waterbodies. This made it impossible to create a realistic looking hillshade.
  - ✓ LandSat band 2 imagery was downloaded corresponding to the mapsheets used. It was orthorectified so no georeferencing was needed. Extracted plausible

vegetation layer and overlayed the resulting grid onto hillshade. This also had the added benefit of giving the agricultural land cover that was not present in the Canvec layer.

## PROJECT ACCOMPLISHMENTS –

For the most part, the project parameters set out in the proposal were successful.

- ✓ The colour scheme and hillshade are perhaps the two things that best fulfilled their respective aims. The hillshade was run in ArcMap as well as the grid function required to extract the vegetation layer from the LandSat. After these two things were accomplished, however, they were exported with tiff tags and further manipulated in CorelPhotoPaint. The LandSat layer was overlayed with a 60% transparency allowing the hillshade texture to come through. Snow caps were also fashioned from the highest elevations to give the realistic effect of permanent snow and ice. The greens of the resulting hillshade are balanced yet contrasting with the hue of the waterbodies and residential polygons.

## ASPECTS THAT COULD BE RETHOUGHT –

- ⚡ The layout of the map did not ultimately achieve what was desired. Though it maximized the map extent, the rest of the surround material was very hard to arrange in a balanced manner. A keymap was something that made sense, but its shape was hard to accommodate with the other elements.
- ⚡ Area generalization resulted in a lot of point features. This made aspects of symbolization easier, but in the end, there were many points that had to be shifted to prevent overlapping and crowding.

## TIME AND COSTS –

Uniformly, there were savings in practically every section. There were 3 areas in which the allotted hours and time were exceeded: Point generalization, Symbology design and Sheet surround. Research was also exceeded, but for the purposes of exactness, this would not enter into the outcome should this project be done again – the extra hours are attributed to the creation of Gantt Charts and Flow Charts. With familiarity now of the programs used, the next project will take less time in this section.

Point generalization was a much larger undertaking than previously thought. The sheer number of buildings present in this map extent were over 53 000.

Symbology design was only over by one hour – it was close.

Sheet surround took more time than projected due to the shortcomings of the sheet layout. If this had been better thought through initially, the time would not have been so excessive. The arrangement of elements accounts for the extra time.

TASK	HOURS	COST @ 40\$/HR
Research	8	\$320
Data Gathering	8	\$320
Data Import	10	\$400
Data Clipping/Layout	8	\$320
DEM Creation	5	\$200
Hillshade	15	\$600
Line Generalization	15	\$600
Point Generalization	8	\$320
Area Generalization	8	\$320
Text Generalization	10	\$400
Symbology Design	25	\$1000
Text Design	15	\$600
Sheet Surround	15	\$600
Quality Control	15	\$600
<i>Total Hours</i>	<b>170</b>	
8 drafts + 3 plots		\$136.50
<i>Total Cost</i>		<b>6,936.50</b>
Estimated Hours		Estimated Cost
TASK	HOURS	COST @ 40\$/HR
Research	13.5	\$540
Data Gathering	5.8	\$232
Data Import	4.5	\$180
Data Clipping/Layout	4.5	\$180
DEM Creation	3	\$120
Hillshade	15.75	\$630
Line Generalization	4.5	\$180
Point Generalization	19	\$760
Area Generalization	7	\$280
Text Generalization	7.5	\$300
Symbology Design	26	\$1040
Text Design	5	\$200
Sheet Surround	23	\$920
Quality Control	15	\$600
<i>Total Hours</i>	<b>159.05</b>	
8 drafts + 3 plots		\$136.50
<i>Total Cost</i>		<b>\$6298.50</b>
<b>Actual Hours</b>		<b>Actual Cost</b>

TASK	HOURS	COST @ 40\$/HR
Research	6	\$240
Data Gathering	3	\$120
Data Import	3	\$120
Data Clipping/Layout	4.5	\$180
DEM Creation	2	\$80
Hillshade	15	\$600
Line Generalization	4.5	\$180
Point Generalization	20	\$800
Area Generalization	7	\$280
Text Generalization	8	\$320
Symbology Design	3	\$120
Text Design	0	\$0
Sheet Surround	15	\$600
Quality Control	15	\$600
<i>Total Hours</i>	<b>106.00</b>	
8 drafts + 3 plots		\$136.50
<i>Total Cost</i>		<b>\$4376.50</b>
<b>New Estimate</b>		<b>New Cost</b>

The new estimates and costs above are derived from having experienced a project of this nature from beginning to end. Because of this, many areas reflect a cost savings. If another such map were to be created to further the series, the style sheet from this project would be applied to subsequent maps – this alone saves over 20 hours and \$800 dollars.

The project as a whole was an important exercise. Learning the aspects of project management, symbology design and production gave insight into the processes that would be undertaken in a contract environment. It also allowed for the creation of a product that reflected creative style.