

Centre of Geographic Sciences
COGS | nscc

Base Map Data Source:
Province of Nova Scotia
Nova Scotia Topographic Database (NSTDB) [digital data].
Scale: 1:10,000
<https://nsgis.novascotia.ca/gdd/>
Retrieved November 2018.

Roads Network Data Source:
Province of Nova Scotia
Nova Scotia Civic Address File Addressed Roads [digital data].
<https://gis8.nsc.gov.ns.ca/NSCAFselfserve>
Retrieved November 2018.

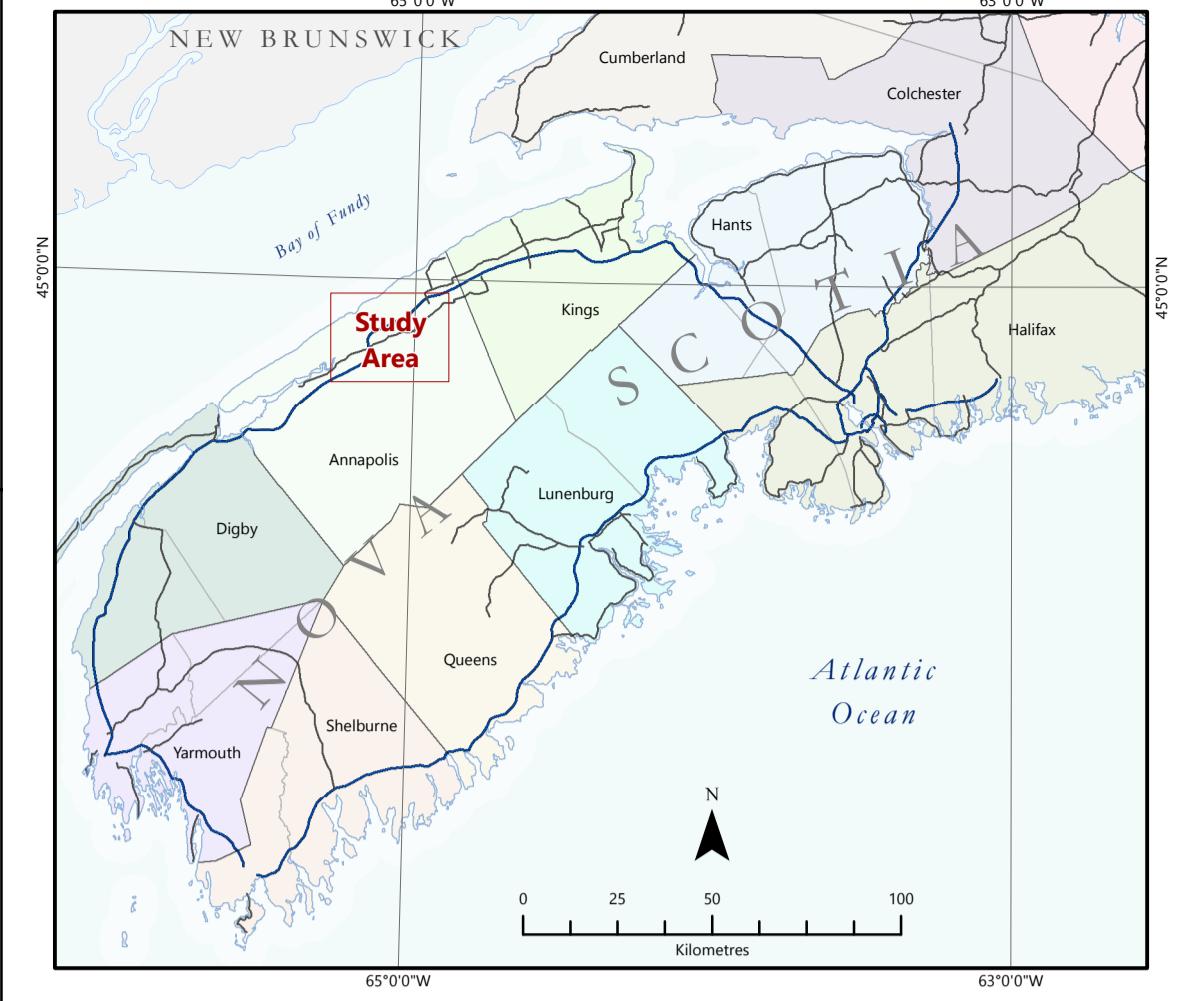
Key Map Data Source:
Nova Scotia Geomatics Centre (NSGC)
Service Nova Scotia and Municipal Relations
Nova Scotia Specialty Maps Custom Theme Layers. [digital data].
Scale: 1:500,000
160 Willow Street
Anherst, N.S.

Closest Facility Analysis

Bridgetown, Lawrencetown, Middleton
&
Surrounding Areas
Annapolis County
Nova Scotia

Scale: 1:50,000
0 0.5 1 2 3 4 Kilometres

Projection: Universal Transverse Mercator, Zone 20 North
Datum: North American Datum 1983 (NAD83)
Correction: Canadian Spatial Reference System 1998 (CSRS98)



This map demonstrates the use of ArcGIS for Desktop 10.6's Network Analyst tools for Closest Facility Analysis. This type of analysis uses network locations to determine the most efficient travel time between an incident and a facility, and can be helpful in emergency response scenarios. In this study, a network representing a portion of Annapolis County, Nova Scotia, was used to identify quickest routes from multiple incidents to multiple hospitals or doctors.

To perform the analysis, a new Closest Facility Area analysis layer was created within ArcGIS using the Network Analyst tools. Locations of incidents and facilities were interactively added to the map using a custom Address Locator created for the use with this network. Analysis parameters such as impedance, cutoff cost, and U-turn restrictions were specified as properties of this layer. Routes from incidents to facilities were then automatically generated by the software.

A cartographic layout was created in ArcGIS to display the results of analysis. This was accomplished using 1:10,000 vector layers obtained from the Nova Scotia Topographic Database (NSTDB). These layers were imported into the geodatabase, clipped to the study area, and merged, in batch operations automated by a custom ArcGIS Script Tool created with Python.

Text labels for relevant geographic features were derived from existing attribute data or the Nova Scotia GeoNames database. These were then converted to annotation feature classes to further refine label placement. A hierarchical approach consistent with cartographic standards was used for all text, producing a readable and intuitive design.

Using the modified road layer, a new Network Dataset was created with minutes and length specified as impedance values. From here, constraints were added to accurately model turns.

Point Features

- Arterial Highway (100 Series)
- Collector Highway (200-300 Series)
- Trunk Highway (1-99 Series)
- Local Road
- Local Unpaved
- Seasonal Dry Weather Road
- Swamp
- Tank
- Tower
- Windmill
- Abandoned Railroad

Area Features

- Commercial Area
- Building or Structure
- Campground
- Cemetery
- Cut or Fill
- Dump
- Recreation Area
- Hydrography
- Gravel Pit
- Power Transmission Line
- Sewage Treatment Plant
- Swamp
- Vegetation
- Cliff
- River, Stream, Coastline
- Contour
- Contour Approximate
- Tree Area, Line, Row or Orchard
- Depression Contour
- Index Contour
- Pipeline Underground
- River, Stream, Coastline

Magnetic North
November 2018
Calculated magnetic
declination: 17° 2' 19" W
Latitude: 44° 55' 13" N
Longitude: 65° 10' 07" W

This map is produced as a portion of the requirements of the
Geographic Sciences Program
at the Centre of Geographic Sciences, NSG, Lawrencetown, Nova Scotia.
The product is unedited, unverified and intended
for educational purposes only.
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