



# IDEAL LOCATION FOR AIRPORT IN NEW BRUNSWICK

GGE 3423 Project



01

# CRITERIA, DATA SOURCES & REFERENCES

# CRITERIA TO CONSIDER :

- **An approximate area of 3000acres**
- **A runway length of 3km (2 active Runways)**
- Population density: Around 65% of NB populated reside in NB 107 municipalities (Greater Fredericton, Moncton and Saint John.)
- Available utilities: Highway
- Utilities to avoid: Powerlines(Transport Canada standards).
- Restricted areas: Wildlife, watershed zones, Flood zones, Military bases
- Existing airports: Heliport, aerodromes
- Elevation/Terrain



# DATASETS:

- **Road Network:** [Data Catalogue – GeoNB](#)
- **Wildlife Refuge:** [Wildlife Refuge – ArcGis Hub](#)
- **Protected Natural Areas:** [Conservation of Biodiversity](#)
- **Flood Extent Polygons:** <http://www.snb.ca/geonb1/e/DC/PE.asp>
- **Power Lines:** [Appendix B: NB Transmission Map \(June 2015\) – Canada Energy Regulator System Map – NB Power](#)
- **Wetlands:** <http://www.snb.ca/geonb1/e/DC/RW.asp>
- **Topography:** [Home – OpenTopography](#)
- **Buildings:** <http://www.snb.ca/geonb1/e/DC/NBB.asp>
- **Railway Network:** <http://www.snb.ca/geonb1/e/DC/NBRN.asp>
- **Existing Airports:** [List of airports in New Brunswick – Wikipedia](#)

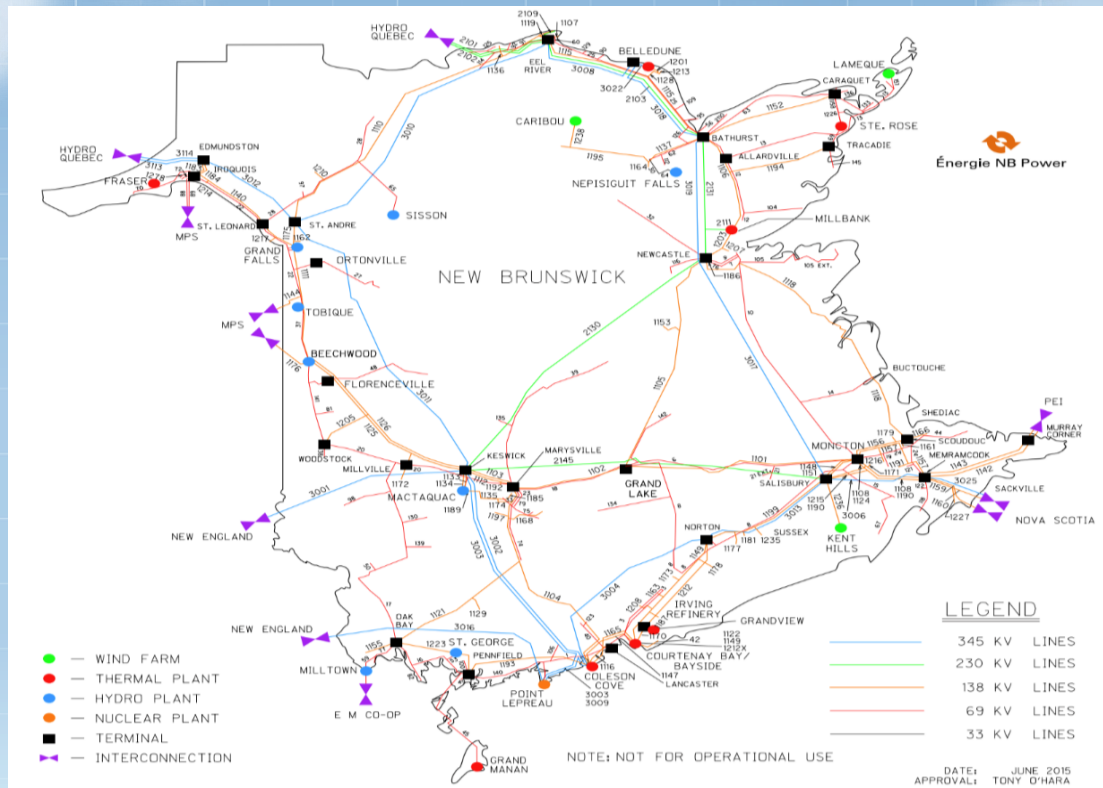




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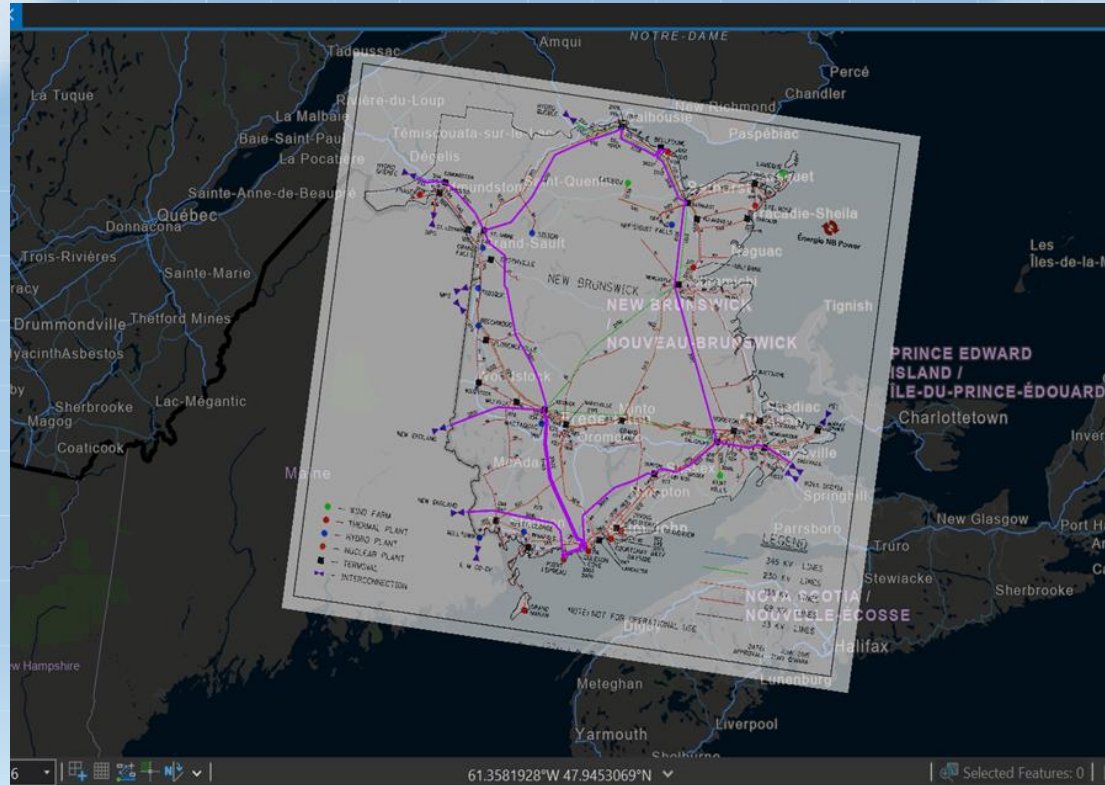
# GEOREFERENCING OF NB POWER LINES

# SOURCE IMAGE – NB POWER



A90677-3 Appendix B - NB Transmission Map June 2015 - A6C3F3.pdf (cer-rec.gc.ca)

# GEOREFERENCED IMAGE OF 345 KV

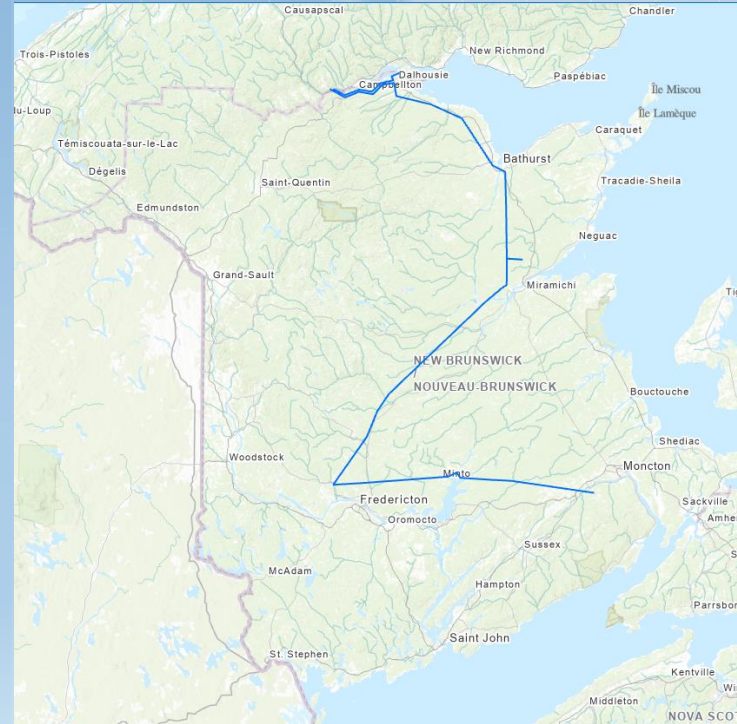




# POWER LINES



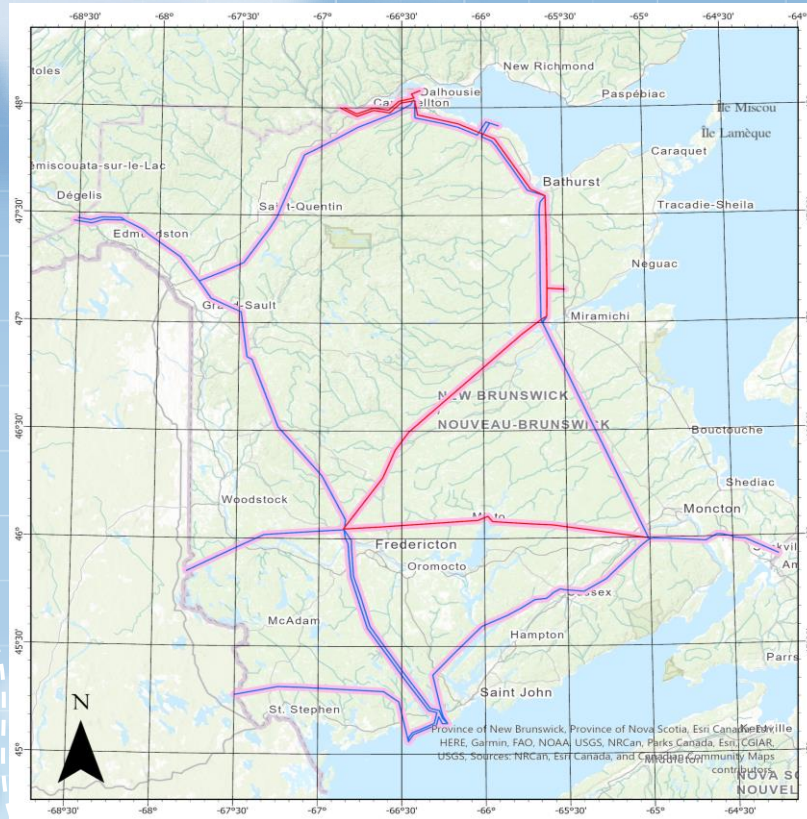
345 KV NB Power Transmission Line






230 KV NB Power Transmission Line

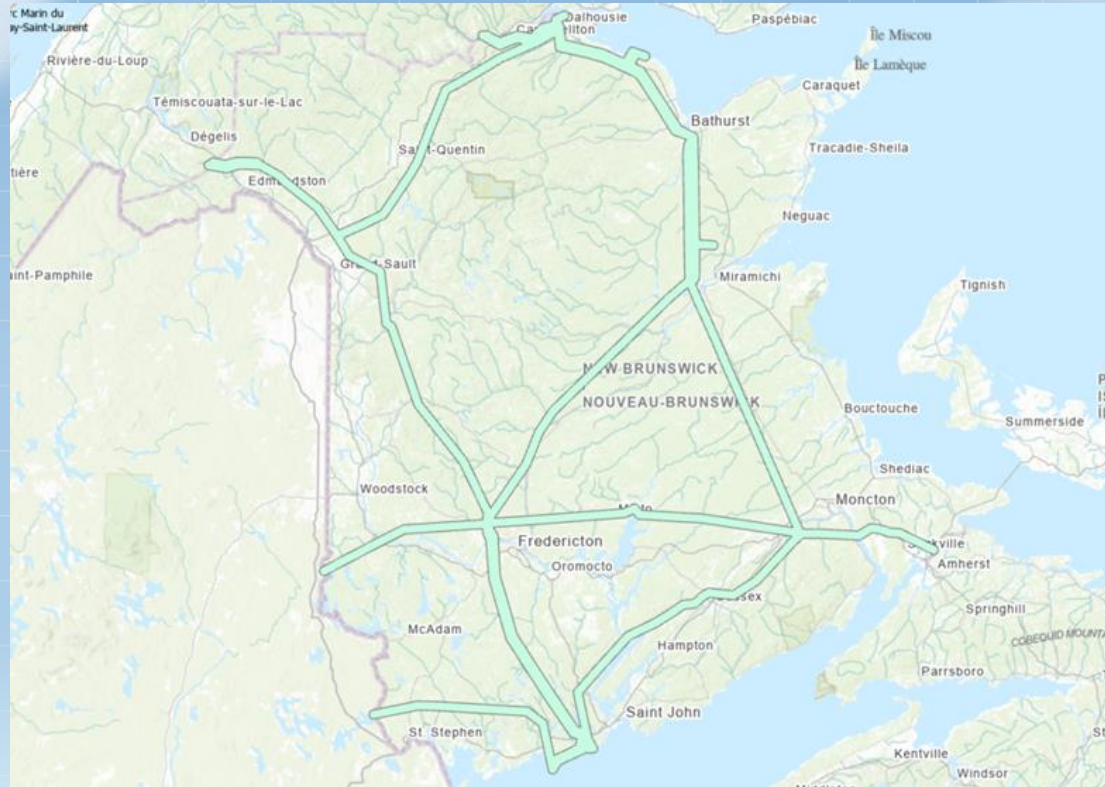


# POWER LINES WITH 1.8 KM BUFFER



-  Power Line 230 KV
-  Power Line 345 KV
-  Power Line Buffer

# ADDITION OF BUFFER ZONE AFTER UNION – 1.8KM



Aviation - Land Use in the Vicinity of Aerodromes - TP 1247 (canada.ca)

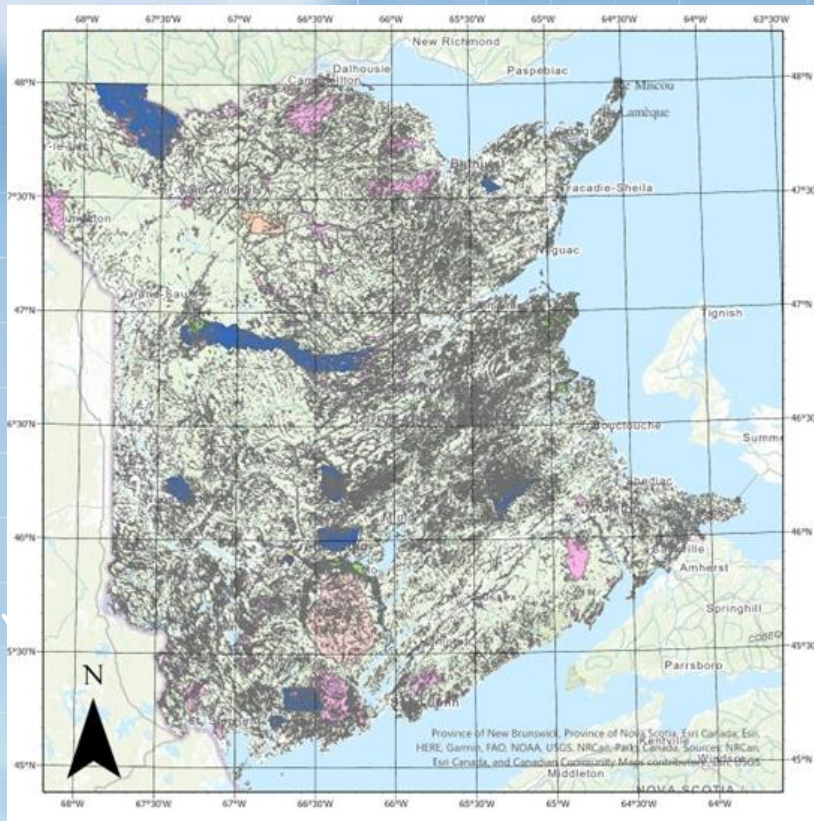


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# ANALYSIS OF SHAPEFILES

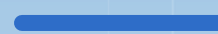
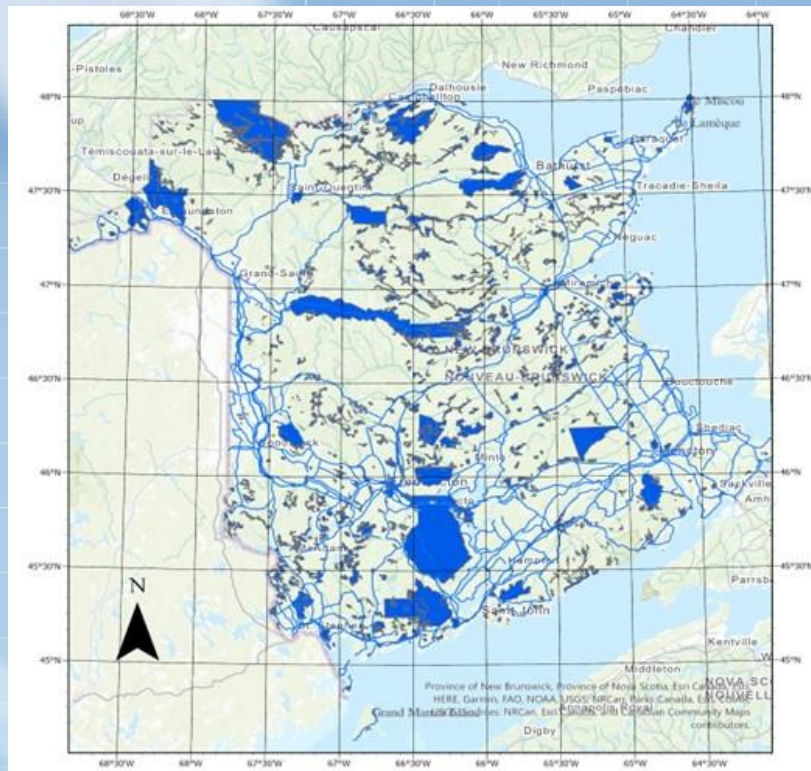


# SHAPEFILES OF ALL RESTRICTED AREAS

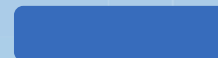


- Wetlands 2022
- Wellfield protected areas
- Military bases
- Watershed - Zone C
- Flood hazard areas
- Provincial parks
- Nature legacy protected
- Wildlife Refuge

# UNION OF RESTRICTED AREAS



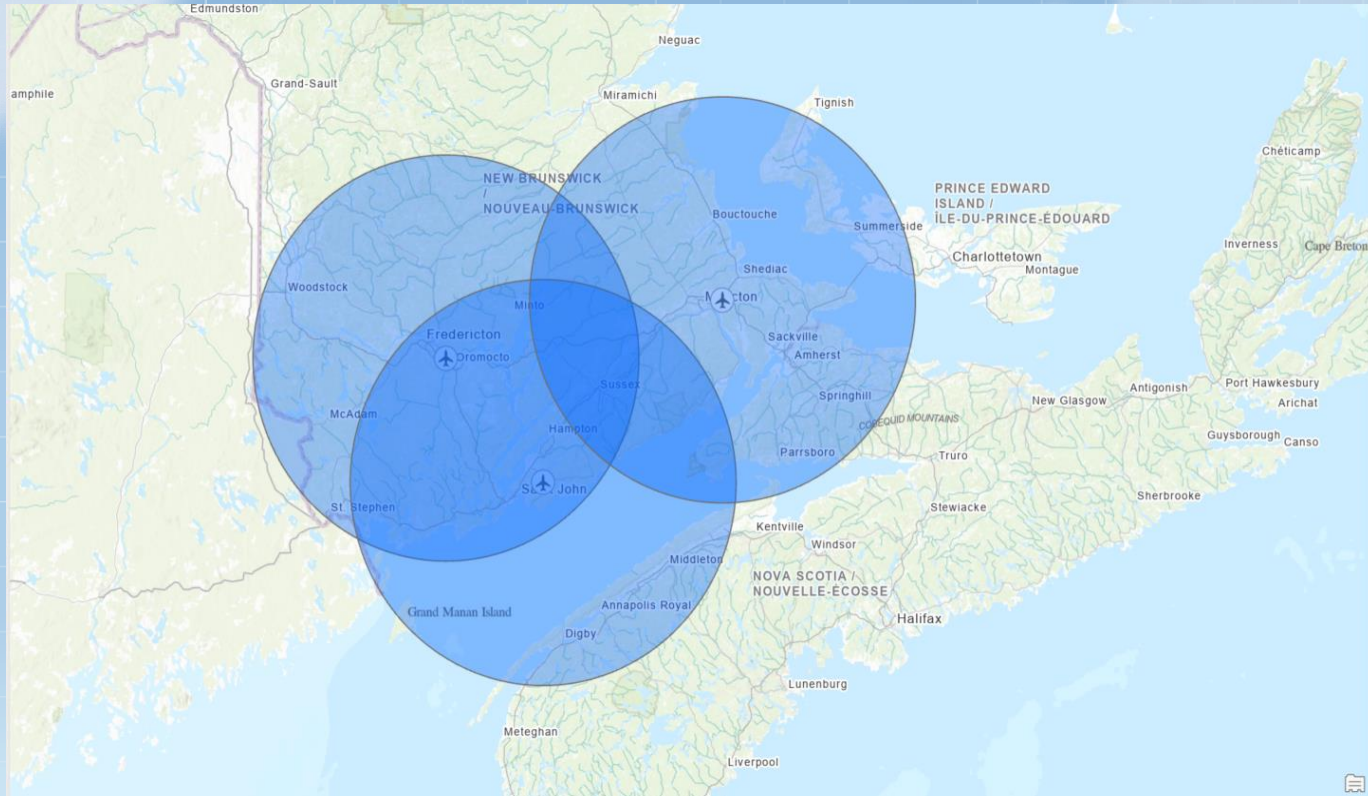
Highways



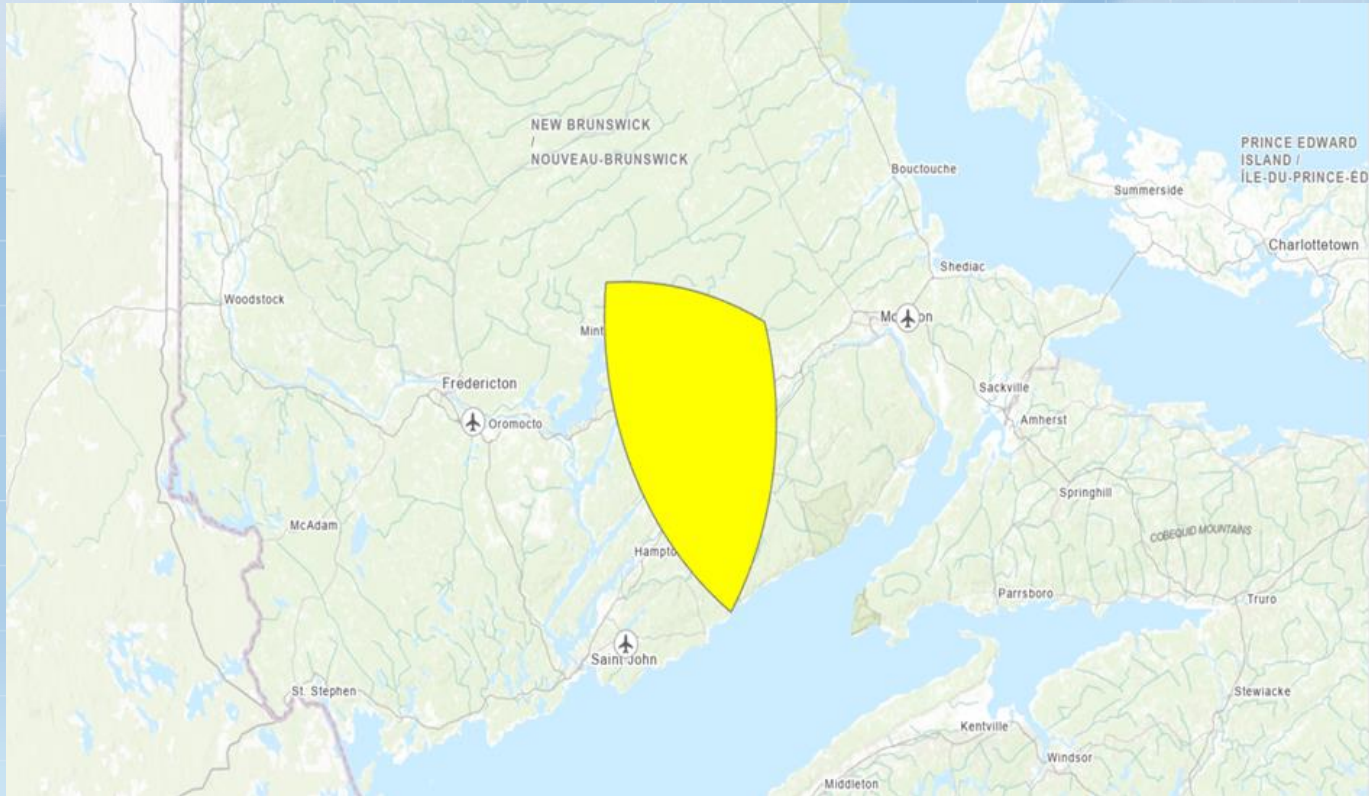
Restricted Union



# BUFFER AROUND CITIES

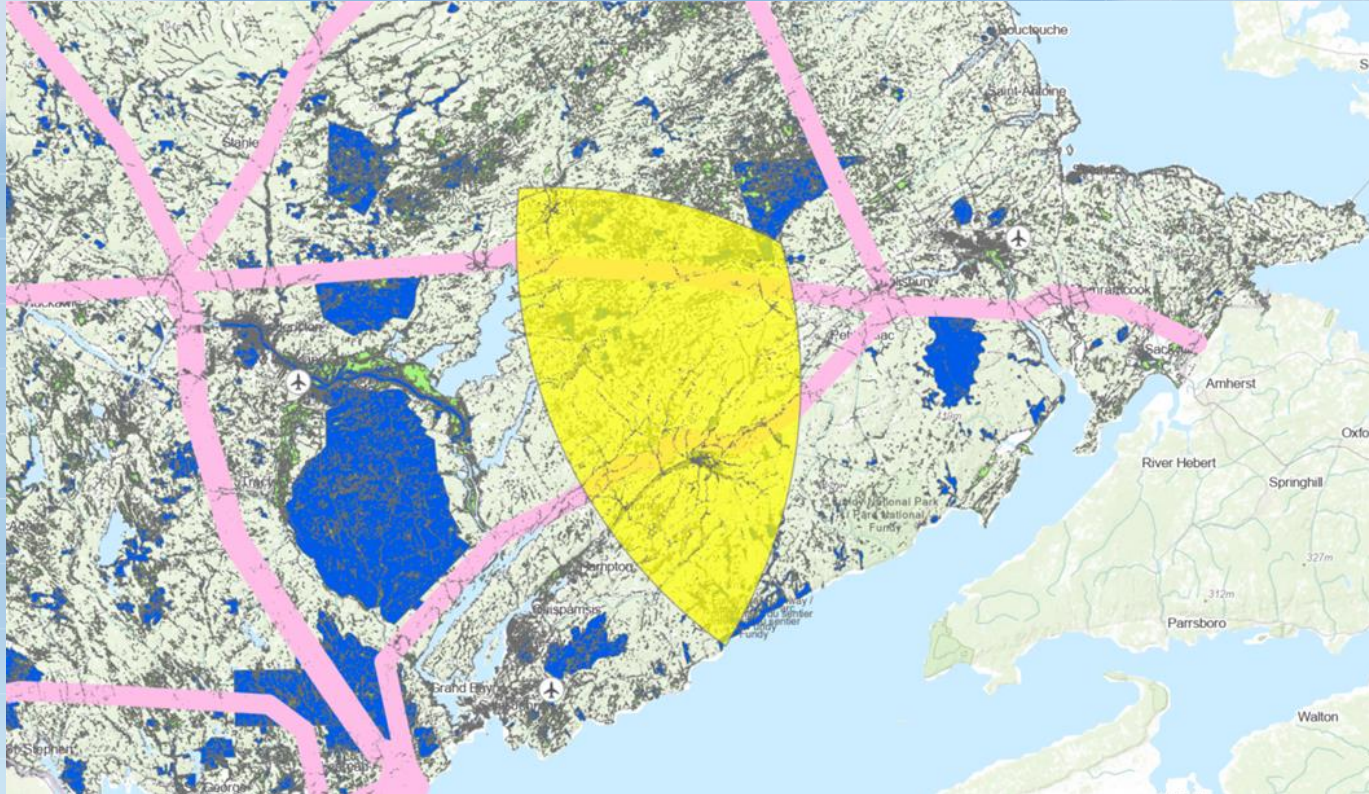


# INTERSECTION AFTER USING MODEL BUILDER



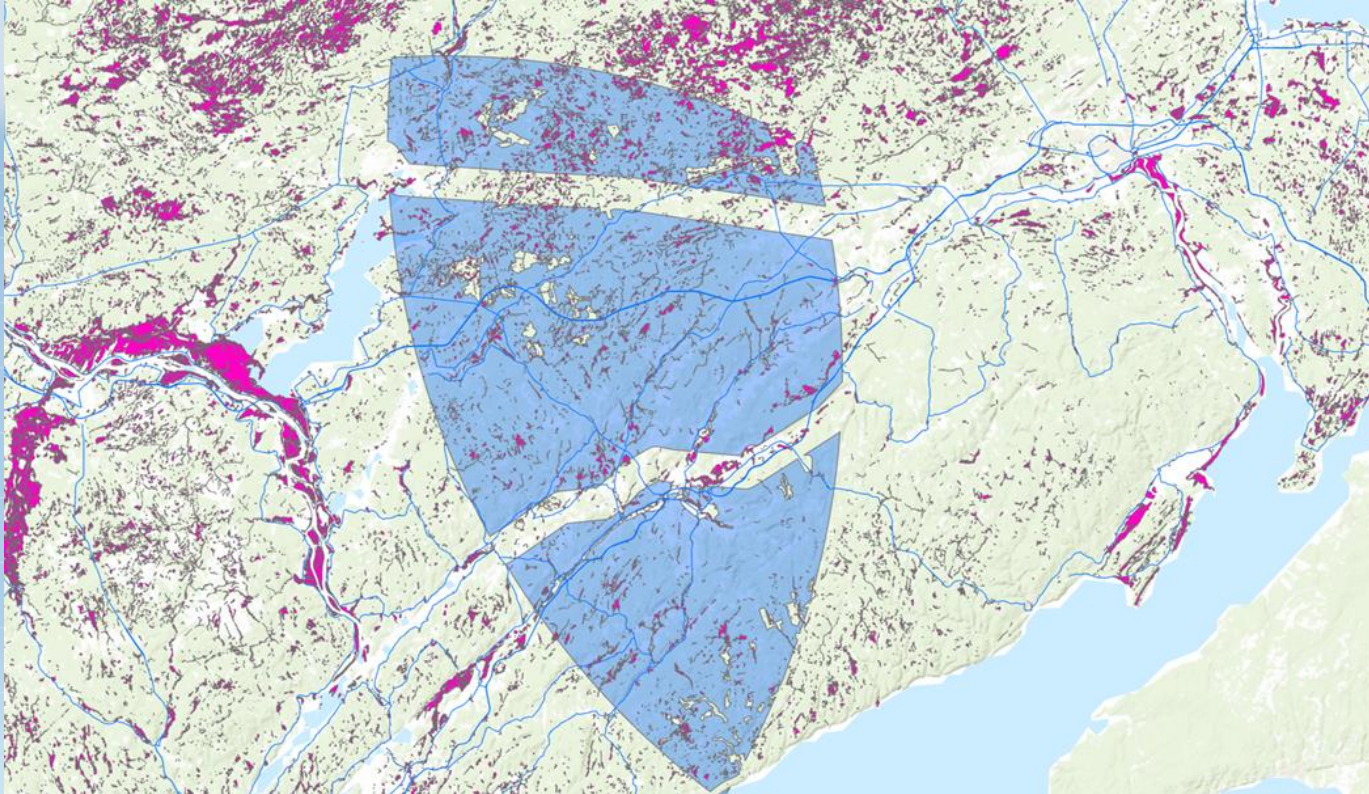


# INTERSECTION AND RESTRICTED AREAS

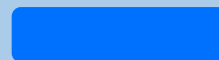
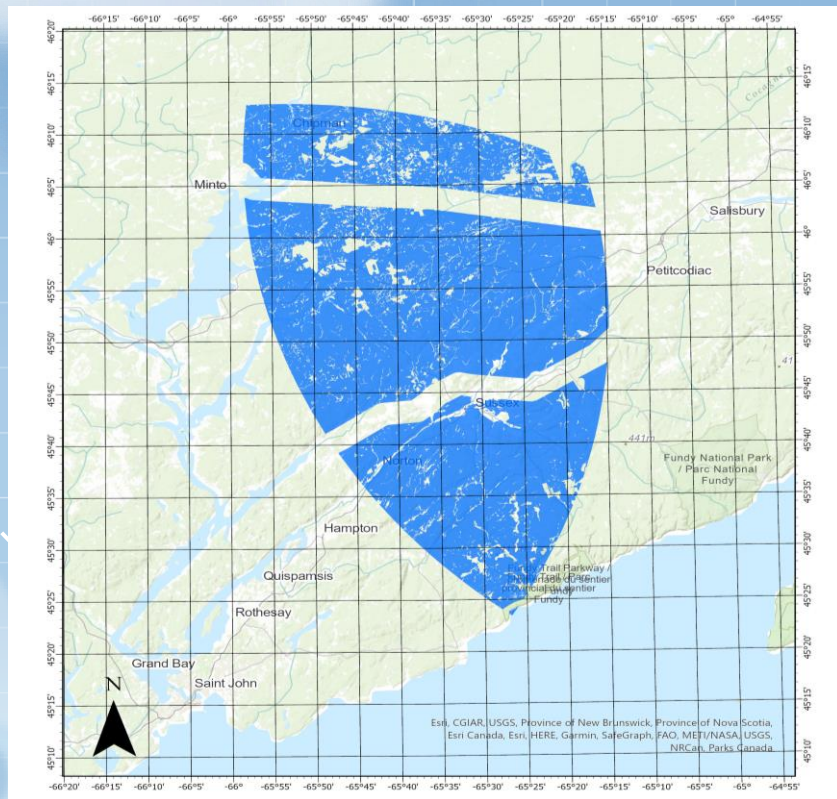




# ERASURE OF RESTRICTED AREAS – INTERMEDIATE STEP



# REGION OF INTEREST



Region of Interest for the airport





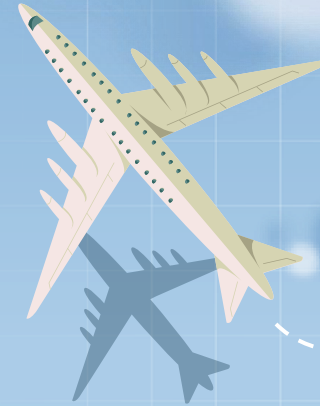
04

# MODEL BUILDER & SUITABILITY MAP

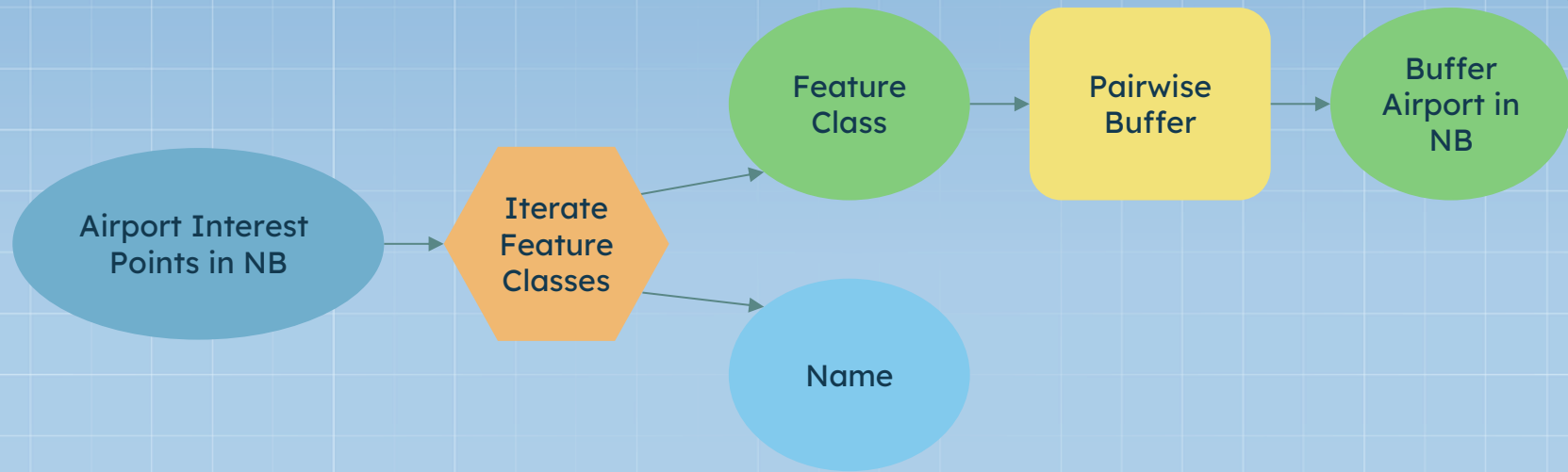
Raphael Lionel Ferreira

# MODEL BUILDERS

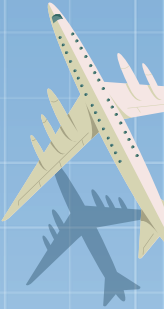
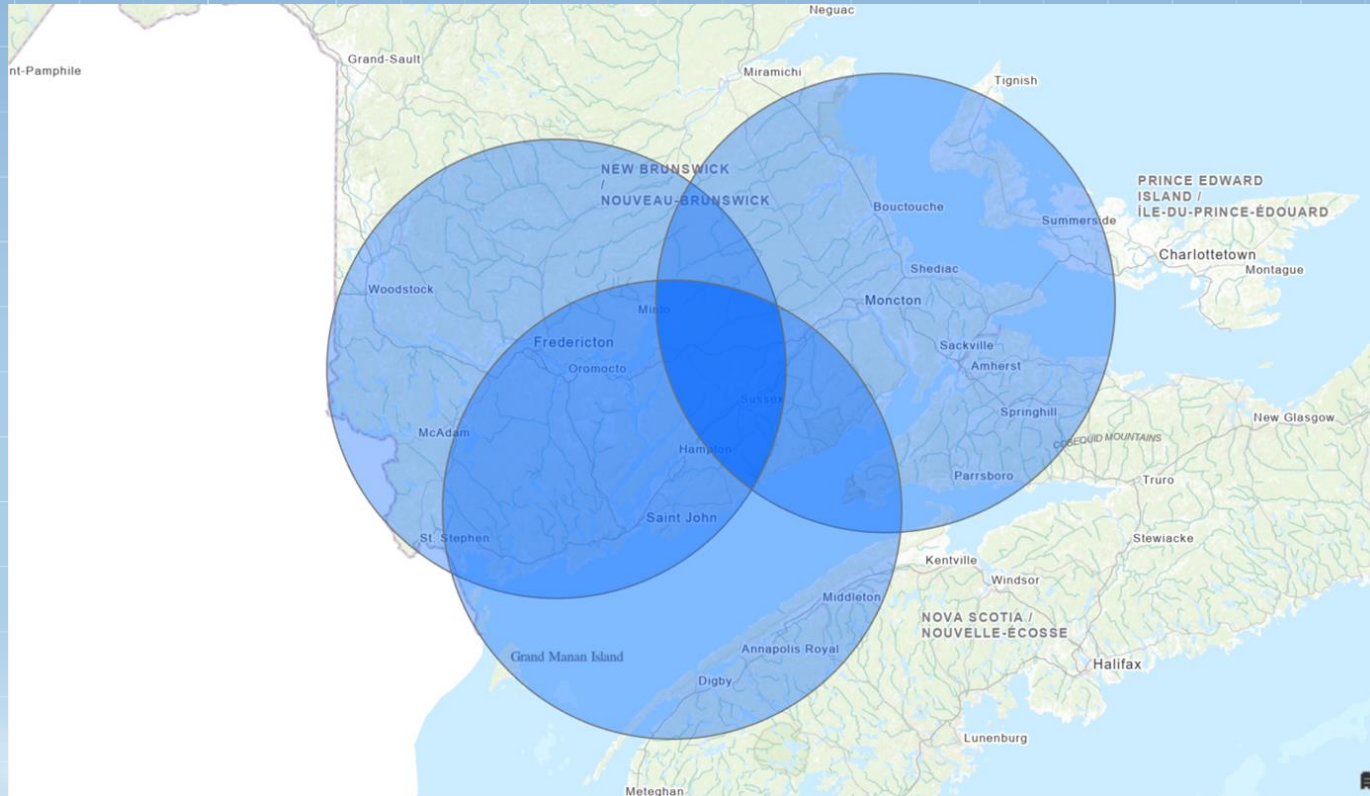
- 1) 100km Buffer Zones between Fredericton, Moncton, Saint John
- 2) Intersection of Buffer Zones
- 3) Suitability Map using Slope Values and Elevation



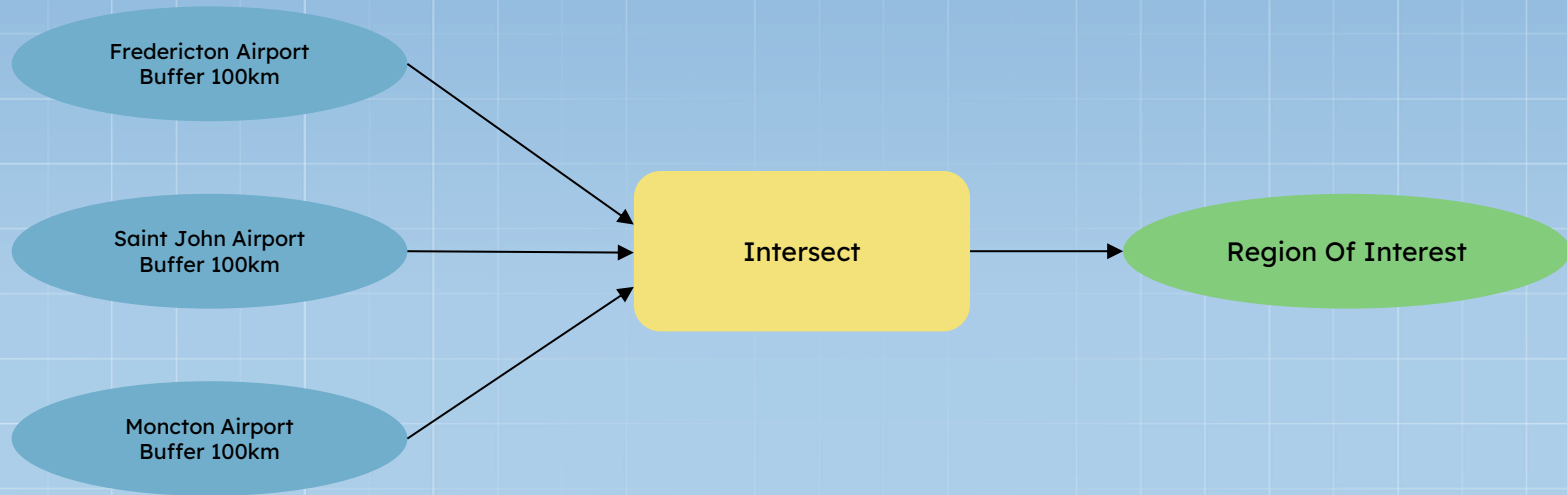
# 100 KM BUFFER ZONES



# RESULT



# INTERSECTION OF BUFFERS

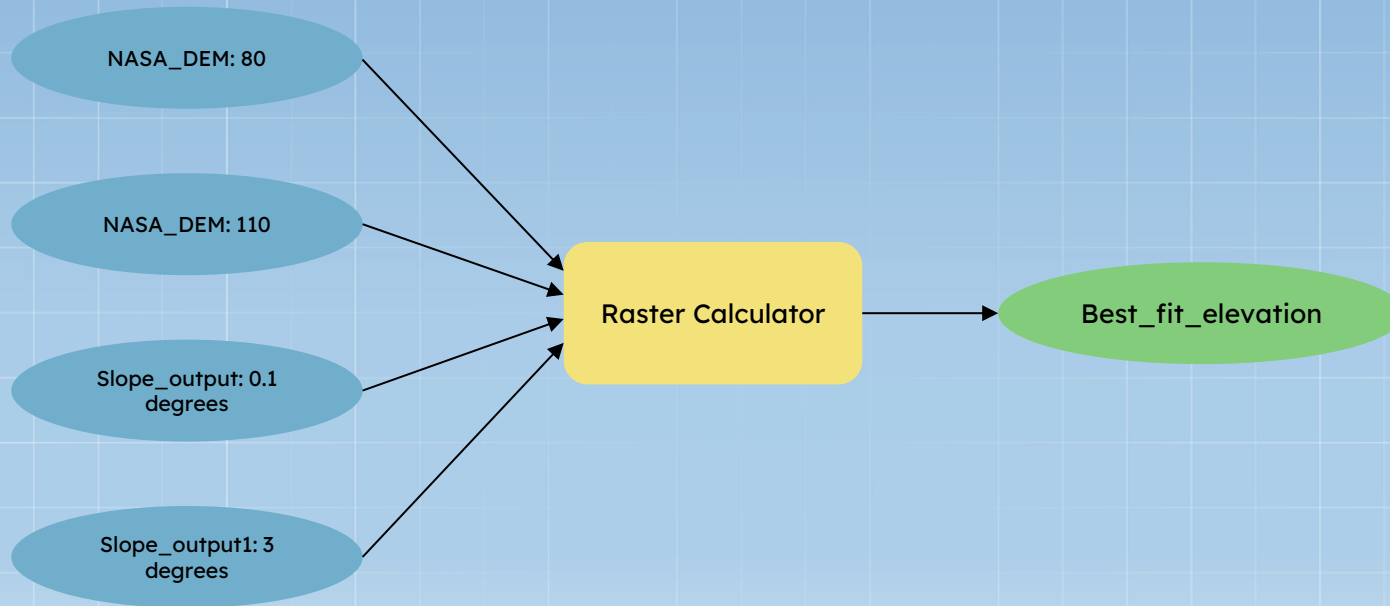




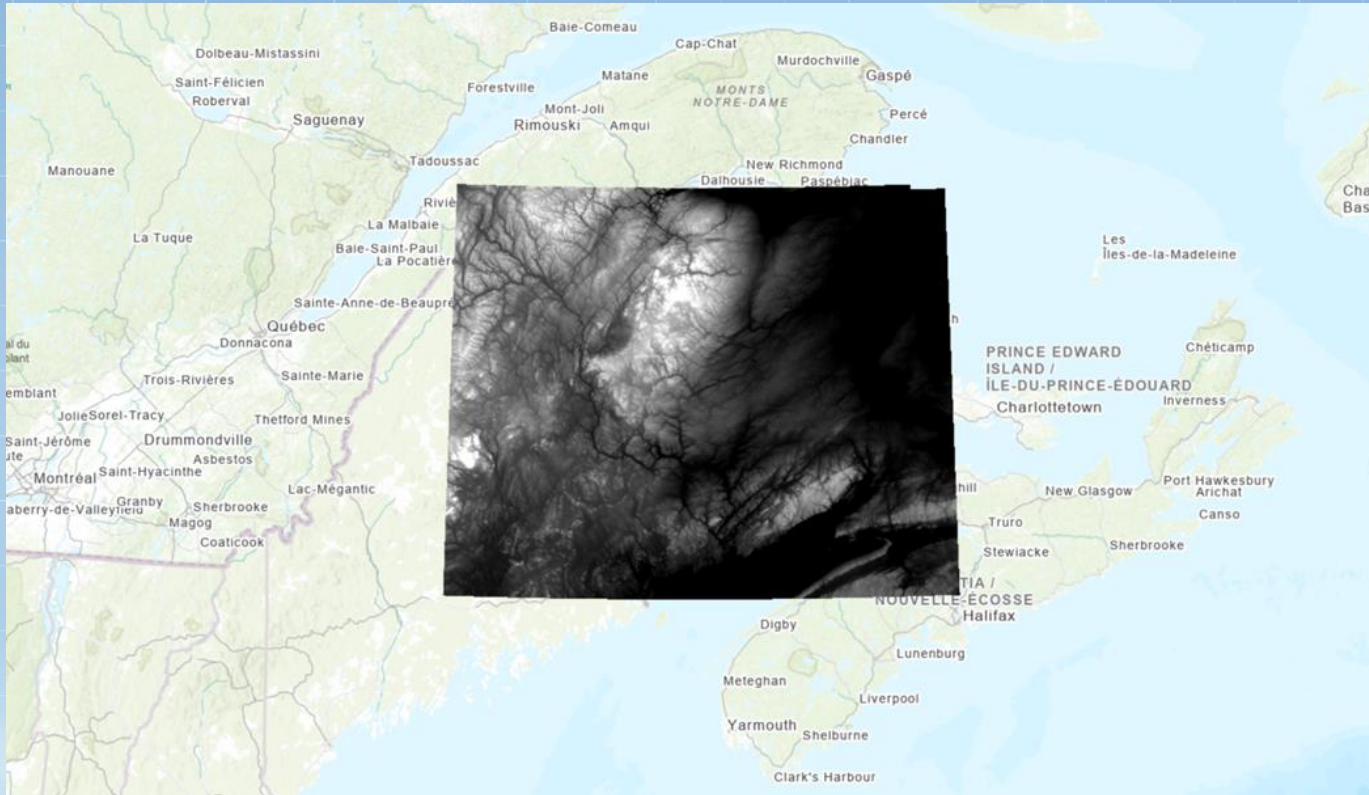
# RESULT



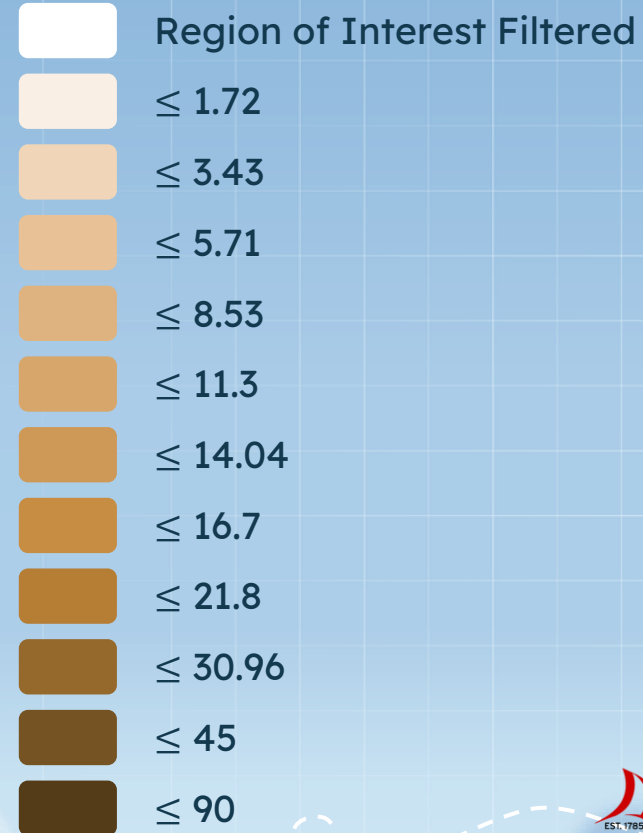
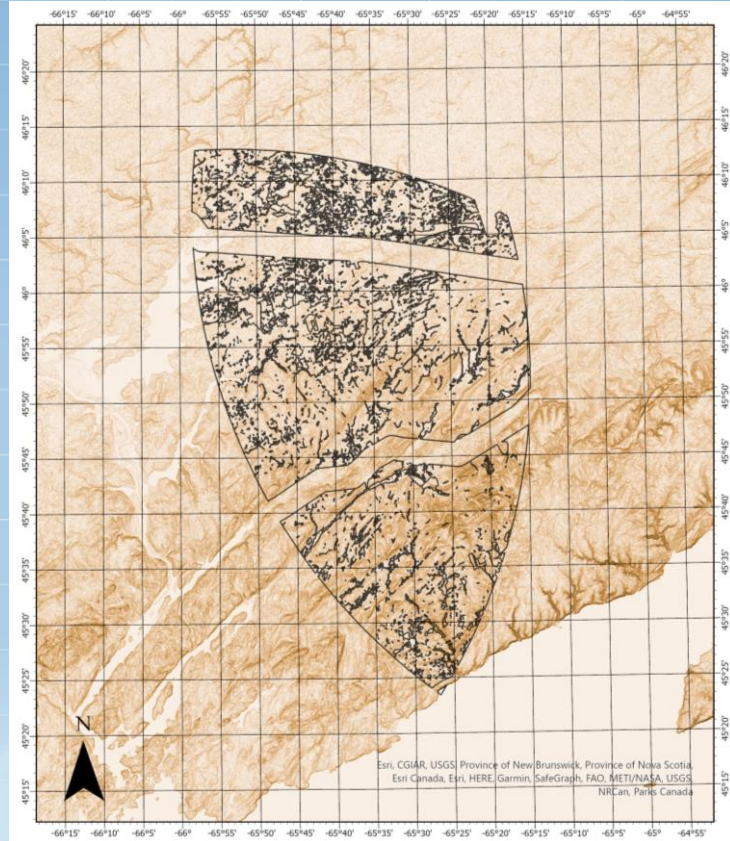
# SUITABILITY USING MODEL BUILDER



# DEM

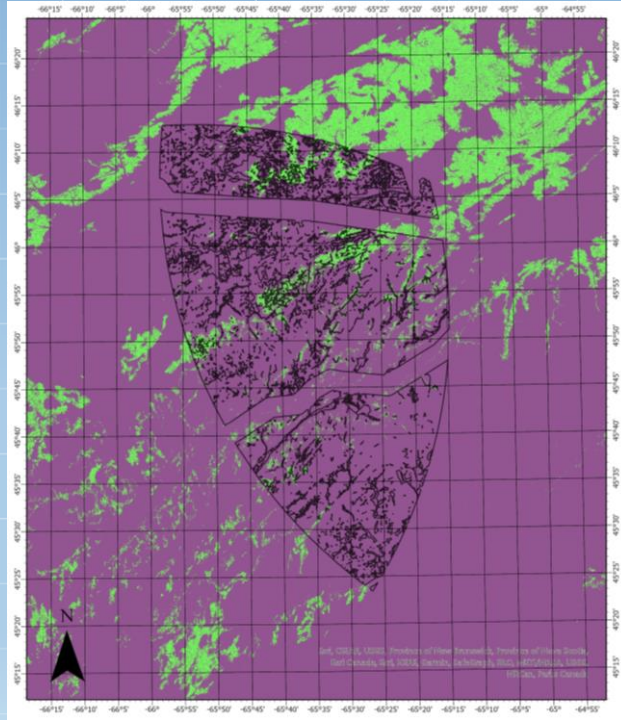


# SLOPE OF REGION



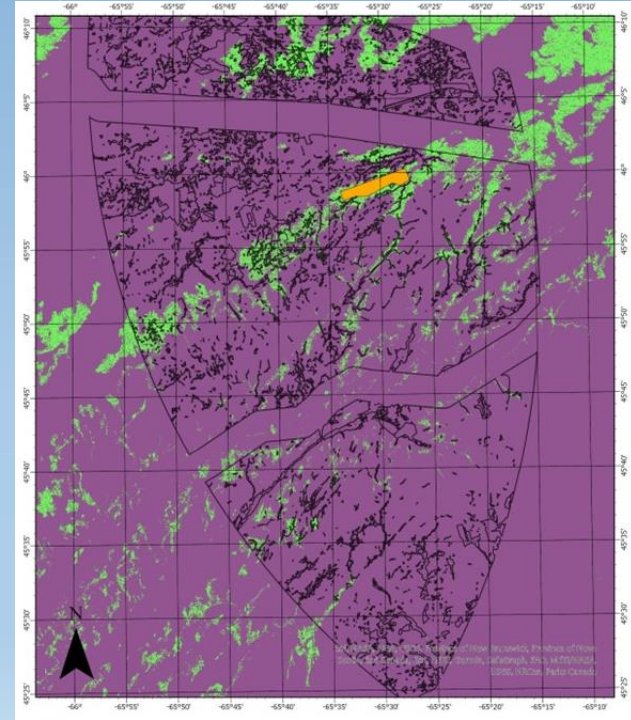


# SUITABILITY OF REGION OF INTEREST



Proposal airport

Region of interest filtered



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# CONCLUSION AND FUTURE WORK

- 1) Suitability Analysis with Drive Distance
- 2) Analysis with more cities involved

