

Project Title: Using GIS to analyze the transit service in Fredericton

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Abstract – The public transport plays an important role in reducing congestion, improving economic productivity, and protecting our environment by providing an alternative means of travel to private vehicles. Fredericton Transit provides public transit services for people living in the urban and suburban areas of the City of Fredericton. However, a [recent survey](#)¹ shown that there are some issues needed to address to offer better services for the Fredericton's citizen.

Summary of key points and findings from this [recent survey](#):

- 2,312 completed surveys; approximately 50% non-riders
- 57% of users are satisfied or extremely satisfied with Fredericton Transit service quality
- 60% of users are in favor of Sunday service
- 76% of non-users are either likely or very likely to use transit services if there were more transit routes or greater bus frequency.

Therefore, the aim of this project is to use GIS to analyze the data and producing some insights for the purpose of improving the public transit services in Fredericton. During five weeks of this final project for GGE3423 (online) course, many ESRI technologies are used to analyze a vast amount of data collected from different sources. Some of the typical ESRI technologies are *ArcGIS Desktop, ArcGIS Online, ArcGIS Apps, Model Builder, Spatial Analyst Tool, Geostatistical Tool, Geoprocessing Tool, Conversion Tool, ArcGIS geodatabase*.

From the analysis results, some suggestions are proposed to the transit operators for providing better bus services in Fredericton City.

1. Improving facility at bus stations since only a few stations equipped by Shelter and Decorative while most of the bus stations are Standard on Wooden Pole and distributing in suburb areas.
2. Providing service to the remote area, since the analysis results show that the remote area in the north-west and south-west area of the Fredericton City is not covered by any transit service.
3. Bus services provided by Fredericton Transit only covered nearly a half of the population. Therefore, some necessary actions need to be taken to improve this ratio.
4. According to our analysis, the accessibility rate of the transit services is about 40%. Therefore, increasing the accessibility rate is needed.

¹ <http://www.fredericton.ca/en/news/city-hall/transit-strategic-plan-update-and-survey-results-released>

- To provide the safety for the Fredericton Transit service, drivers should be warned about the areas with high probability of accidents, especially Downtown area and Uptown along the Prospect St area.

The map below is the study area in this project.

The map of the study area in Fredericton

