

# Clustering

One of the questions posed at the beginning of this project, was what were some ways that congregations could be clustered in ways that highlight similarities in circumstances that might not be otherwise obvious by looking at the raw data or geographical proximity.

To that end, we have ran some clustering models to show some different ways that communities of faith can be grouped that may influence the way that clusters and networks develop throughout the region, as well as long-term planning to provide support to congregations from the region.

Data was collected about the ministries themselves (yearbook and ministry personnel data), as well as census data collected from a 1km or 2km around each congregation. A 1km radius was the norm, unless there were fewer than 1,000 people in the 1km, then a 2km radius was studied. This doesn't necessarily reflect the full extent of the reach of any individual community of faith, but it's a helpful starting point to understand the situation of a community of faith in the neighbourhood outside its doors.

Each model was programmed to create five clusters to try avoid too many similar clusters.

## MINISTERS

Using data representing the number of paid accountable ministry personnel, the length of time ministers have been in their congregations, and the total number of FTE positions [*figure 22*], the clusters became:

- BLUE: Average number of full time hours, average number of paid accountable ministry personnel, and slightly higher than normal tenure in their position
- RED: Average number of full time hours, average number of paid accountable ministry personnel, low tenure in their position
- GREEN: Average number of full time hours, more than one paid accountable ministry personnel, with a shorter length of time in their position
- YELLOW: Less than full-time hours, with an average number of paid accountable ministry personnel, who have been at the congregation for a longer than average period of time

- PURPLE: Average number of full time hours, one ministry paid accountable ministry personnel, and a slightly lower than average length of time in that position

## CONGREGATION AND POPULATION CHANGES

How congregations have changed compared to the changes in the population around them may help to group congregations that have adapted to the changes outside their doors, and those that may be struggling more with that.

This cluster looks at the changes in population from 2015 to 2020, predicted changes from 2015 to 2025, and predicted changes from 2020 to 2025, as well as the change in adult ministries, children's ministries, and Sunday attendance from 2010 to 2019 [figure 23].

- BLUE: The population has had slightly slower growth rates, but both adult and children's ministries, as well as Sunday attendance, have grown more than average

- RED: Average growth in the community, but average change in adult ministries, lower changes in children's ministries, and a significant drop in Sunday attendance

- GREEN: Lower than average growth in population, but while adult ministries have changed at the expected rate, children's ministries have shrunk, and the change to Sunday attendance has exceeded expectations

- YELLOW: Growth rates in the community are far beyond the norm - these communities are growing quickly but the next five years will not be as big a boom as the previous five, while adult ministries, children's ministries, and Sunday attendance have experienced greater than normal change

- PURPLE: Steady growth in the community over the previous five years and the next five. While adult ministries have grown less than average, children's ministries have remained constant, and Sunday attendance has grown slightly more than average

## ETHNIC CONGREGATIONS

Two ways of grouping congregations were used, the first looking at the designation of ethnic ministries, the non-official home language percentage, Sunday attendance, and the value of land as given in the yearbook [figure 24]. This resulted in the following clusters:

BLUE: lower percentage of non-official mother tongue, not an ethno-specific congregation, slightly above average value of land, higher than average Sunday attendance

RED: Slightly above average non-official mother tongue, is an ethno-specific congregation, average value of land, slightly higher Sunday attendance.

GREEN: Above average number of non-official mother tongue, not an ethno-specific congregation, slightly above average value of land, average Sunday attendance.

YELLOW: Average number of non-official mother tongue, not an ethno-specific congregation, extremely high value of land, much higher than average Sunday attendance.

PURPLE: Low numbers of non-official mother tongue, not an ethno-specific congregation, average value of land, average Sunday attendance

The other way of clustering ethnic ministries was to look at whether or not they are an ethno-specific congregation, how much money is raised by all sources, the value of land, and how much FTE ministry personnel they have [figure 25]. This resulted in the following clusters:

BLUE: Not an ethnic congregation, higher than average number of FTE hours, average market value of land, slightly above average amount raised from all sources.

RED: Is an ethnic congregation, has lower than average number of FTE hours, average market value of land, and an average amount raised from all sources.

GREEN: Is an ethnic congregation, higher than average number of FTE hours, higher market value of land, and above average amount raised from all sources.

YELLOW: Not an ethnic congregation, higher than average number of FTE hours, much higher market value of land, and above average amount raised from all sources.

PURPLE: Not an ethnic congregation, lower than average number of FTE hours, average market value of land, below average amount raised from all sources.

## **AFFIRMING**

The data used to group communities of faith around their affirming status also takes into account the number of female parent families and male parent families in the 1km or 2km radius around any given congregation [figure 26].

BLUE: Slightly higher than average number of female parent families, average number of male parent families, but is not an affirming congregation.

RED: Above average number of female parent families, above average number of male parent families, but is not an affirming congregation.

GREEN: Below average number of female parent families, above average number of male parent families, but is not an affirming congregation.

YELLOW: Average number of female parent families, average number of male parent families, and is an affirming congregation.

PURPLE: Below average number of female parent families, below average number of male parent families, and is not an affirming congregation.

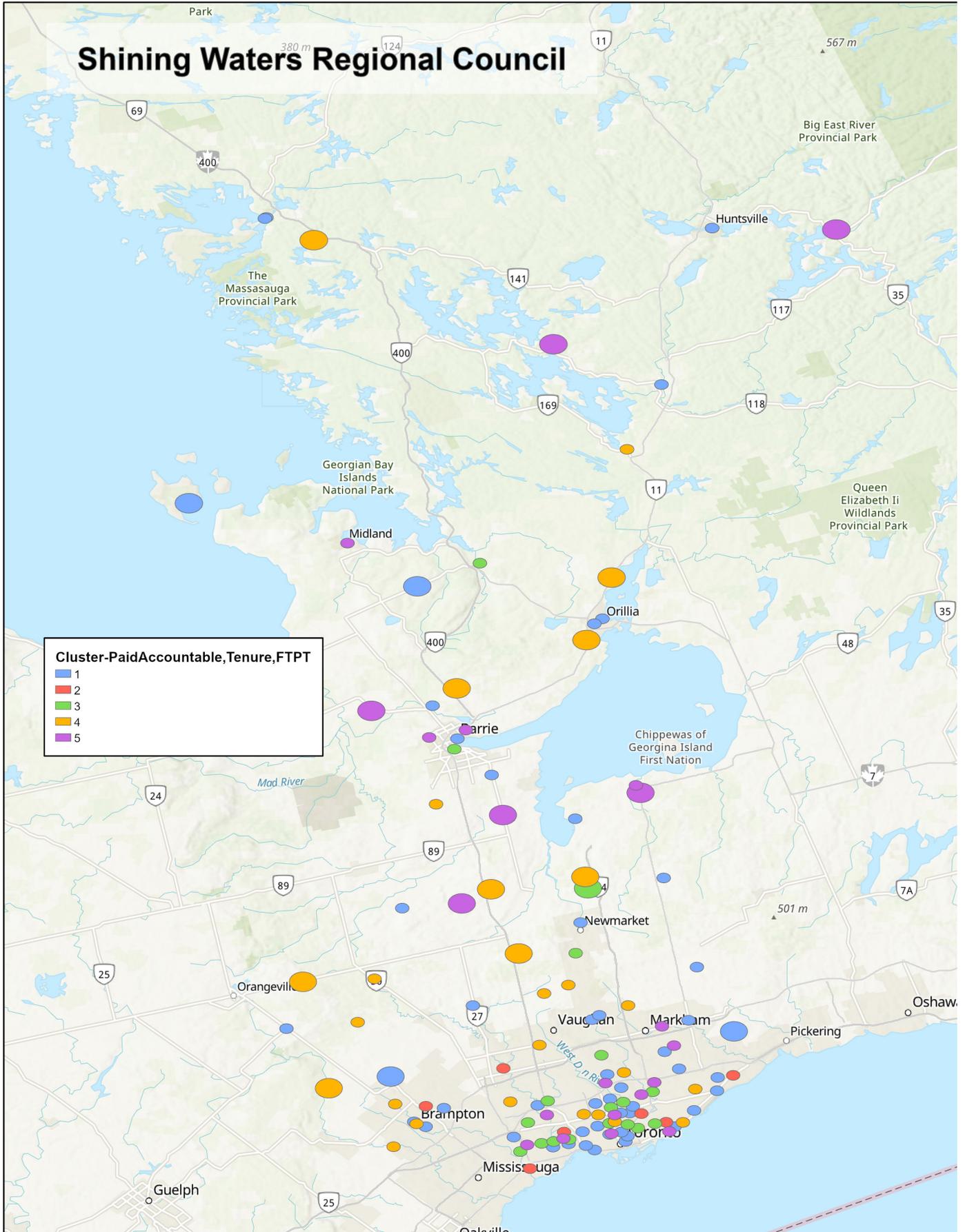


FIGURE 22: Ministers cluster

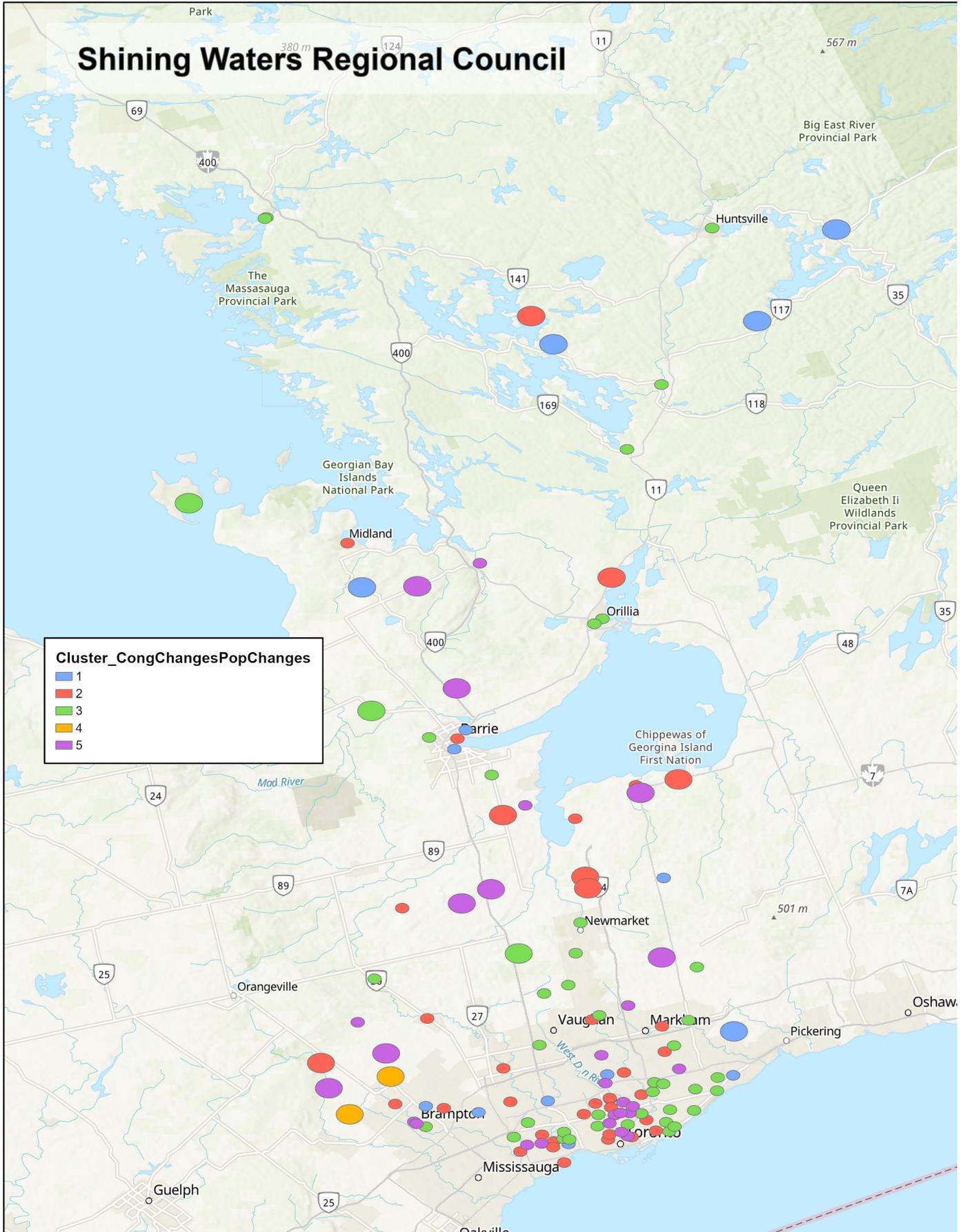


FIGURE 23: Population and congregation changes clusters

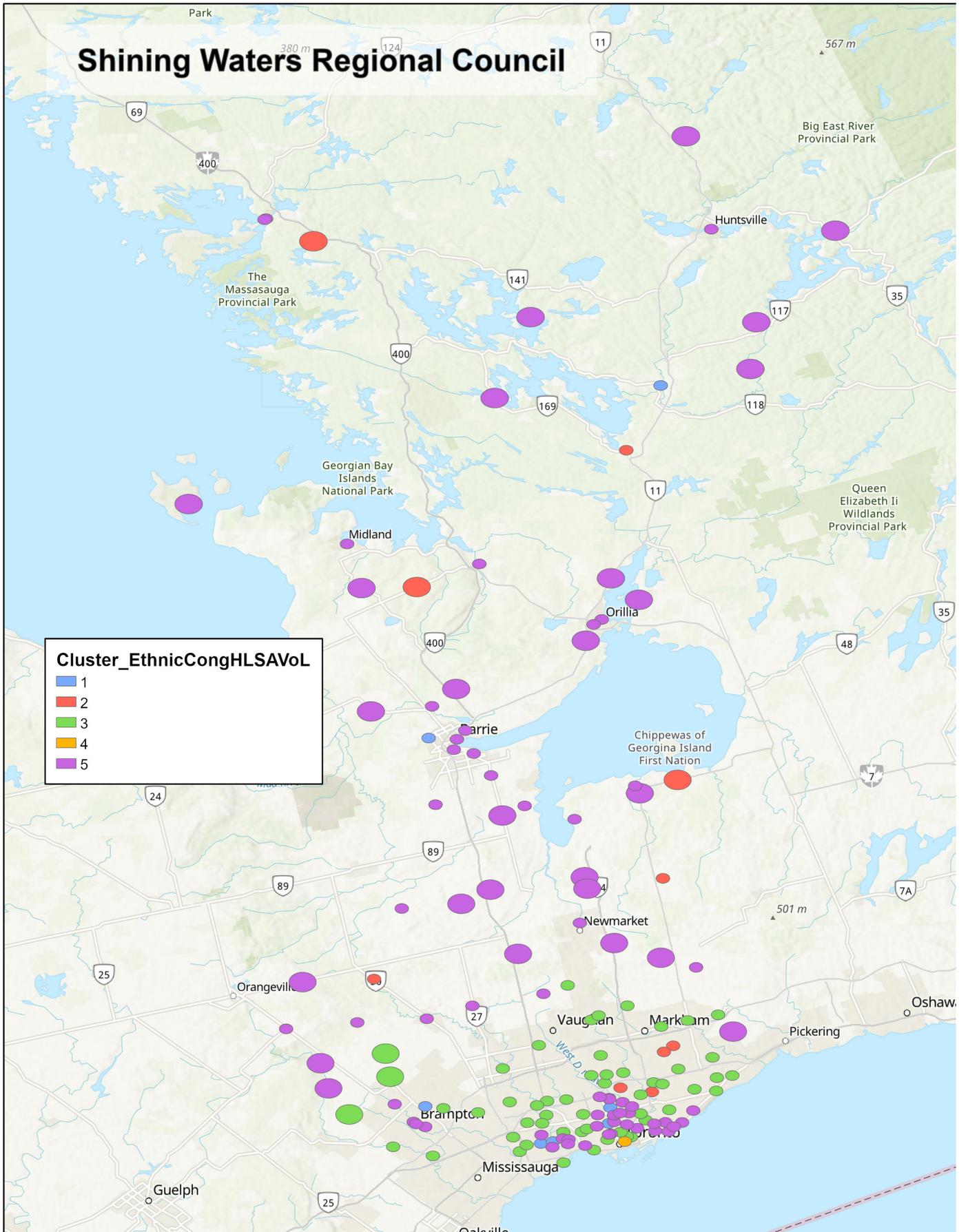


FIGURE 24: Ethno-cultural congregations cluster 1



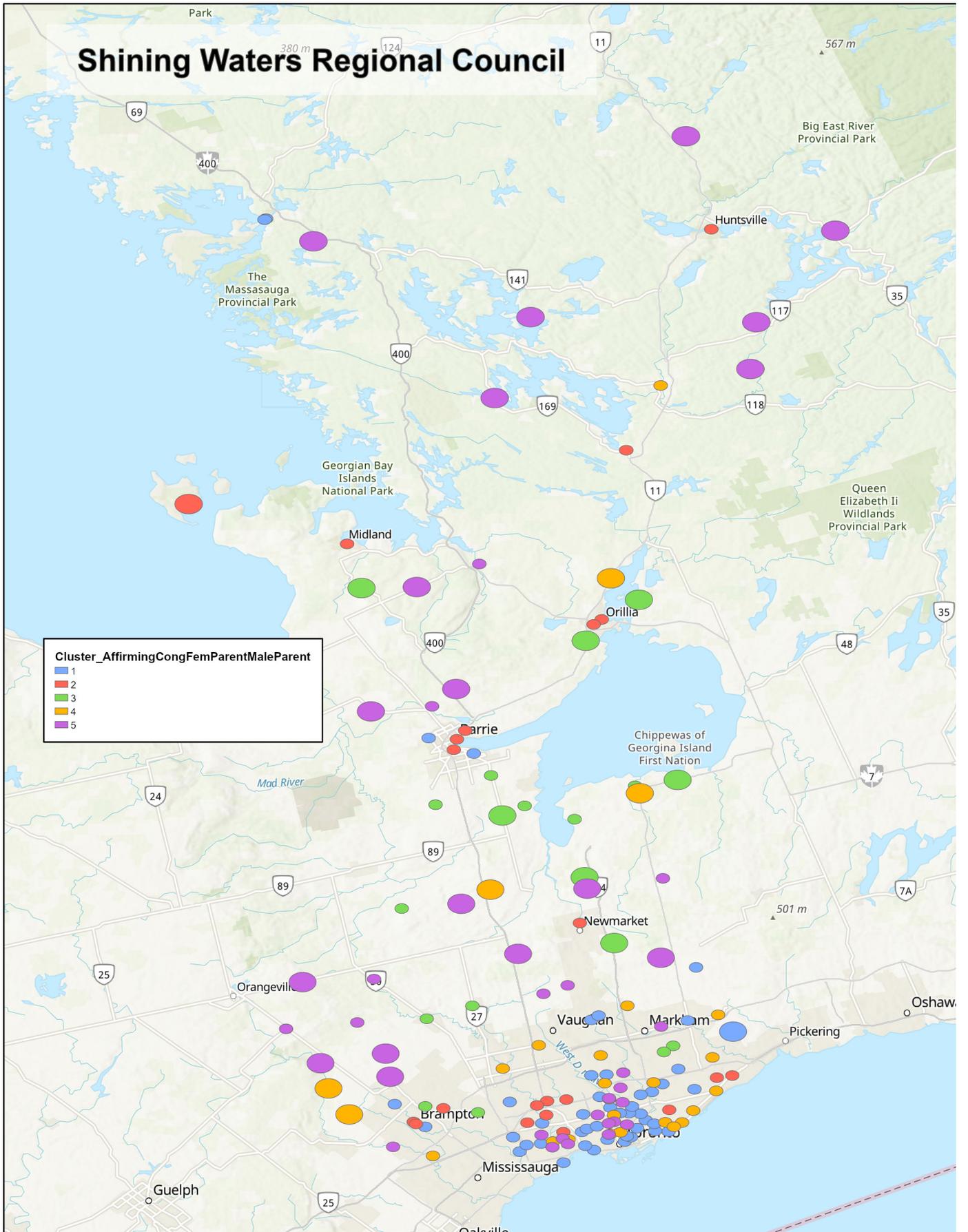


FIGURE 26: Affirming congregations clusters