

BACKGROUND

Existing literature on food planning policy proposes to reduce individuals' exposure to sources of non-nutritious foods (e.g., fast food outlets and convenience stores), for example, through zoning restrictions such as a buffer banning unhealthy food retailers from opening within walking distance (800m-1km) of schools. The first and most well-cited study to evaluate the impact of a zoning restriction on fast food outlets found no impact on population health outcomes (Sturm & Cohen, 2009), but this was likely due (at least in part) to the fact that the policy did not actually change population-level exposures to fast food outlets.

The purpose of this research is to estimate the population-level exposure of youth to fast-food outlets and convenience stores under various policy scenarios (800m ban, 1km ban, no policy) using the Region of Waterloo, Ontario, as a case study. Given the importance of equity in considering planning policy impacts, we also seek to explore how such a policy might differentially impact low- vs. high-income schools.

Research Questions

1. How would food environment exposures be projected to change if an 800m and 1km buffer fast food and convenience store ban was implemented surrounding schools at 1 year, 5 years, and 10 years post-implementation vs. no policy implementation?
2. How would these projected changes differ by the proportion of low-income children at secondary schools in the Region of Waterloo?

METHODS

Data Collection

- Region of Waterloo School Location Data – Region of Waterloo Opendata
- Food Retailer Data – Human Environments Analysis Laboratory
- School-Level Income Data – Association of Public Health of Epidemiologists of Ontario
- Region of Waterloo Road Network – Geospatial Centre, University of Waterloo
- Small Business Statistics; Service- Producing Sector - Government of Canada

Analysis

- ArcGIS – used to examine population-level exposure of fast-food retailer and convenience stores of different potential policy options controlling for buffer type (Euclidean Vs. Network) and distance (800m-1km)
- Microsoft Excel - create lifetime projections of number of retailers in each potential policy scenario
- 3/25 secondary schools were excluded due to lack of school-level income data
- Birth rate for projection represents the avg. annual birth rate of service-producing businesses over five years (2010-2015)
- Survival rates of service-producing businesses over the first 10 years were applied to retailers within the potential policy areas
- Assumption of a grandfather clause excluding existing businesses from these policies

GRAPHS

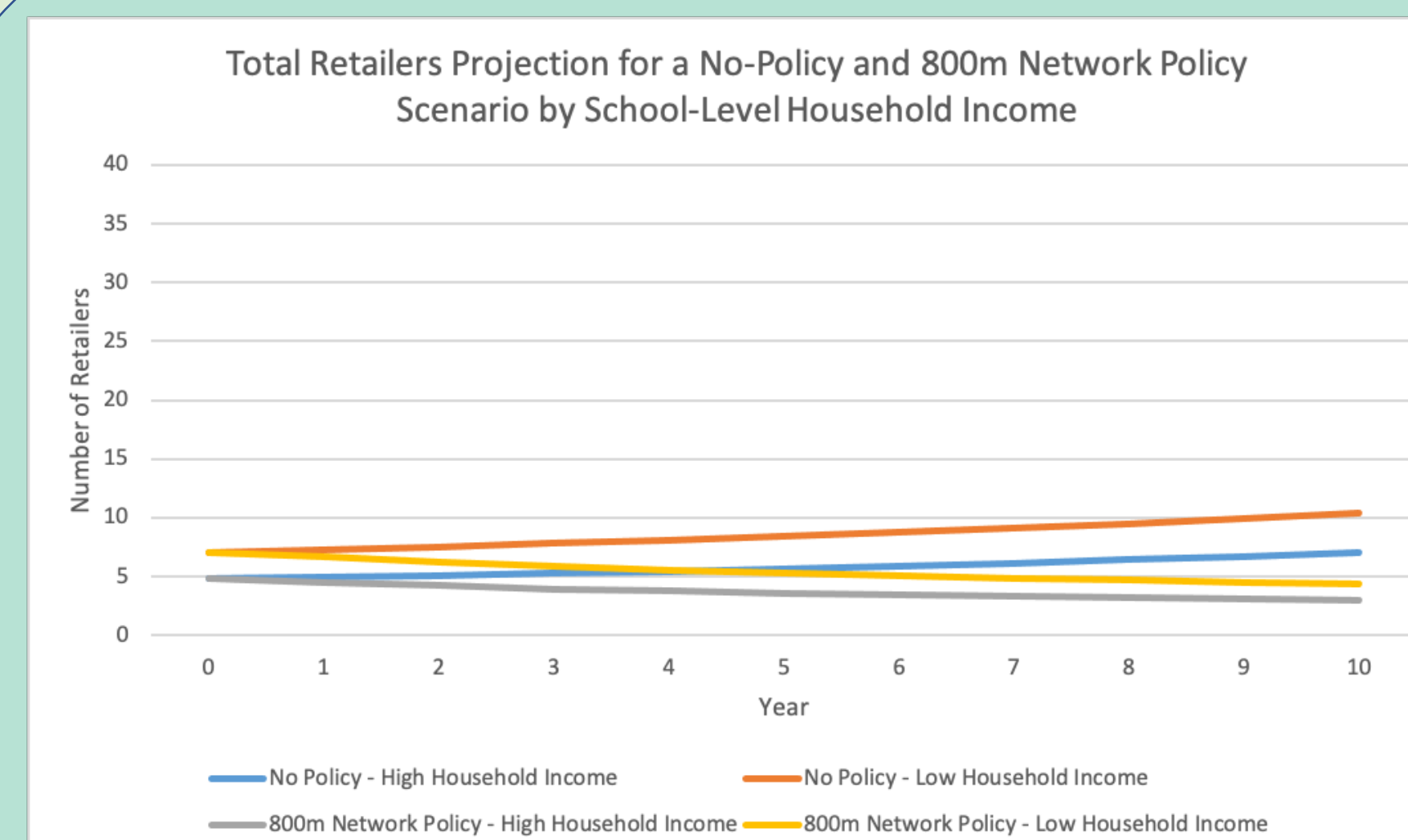


Figure 1 represents the average total number of fast food and convenience store retailers over a 10-year projection of a no-policy and an 800m Network scenario by the percentage of students living in low-income households.

Figure 2 represents the average total number of fast food and convenience store retailers over a 10-year projection of a no-policy and an 1000m Network scenario by the percentage of students living in low-income households.

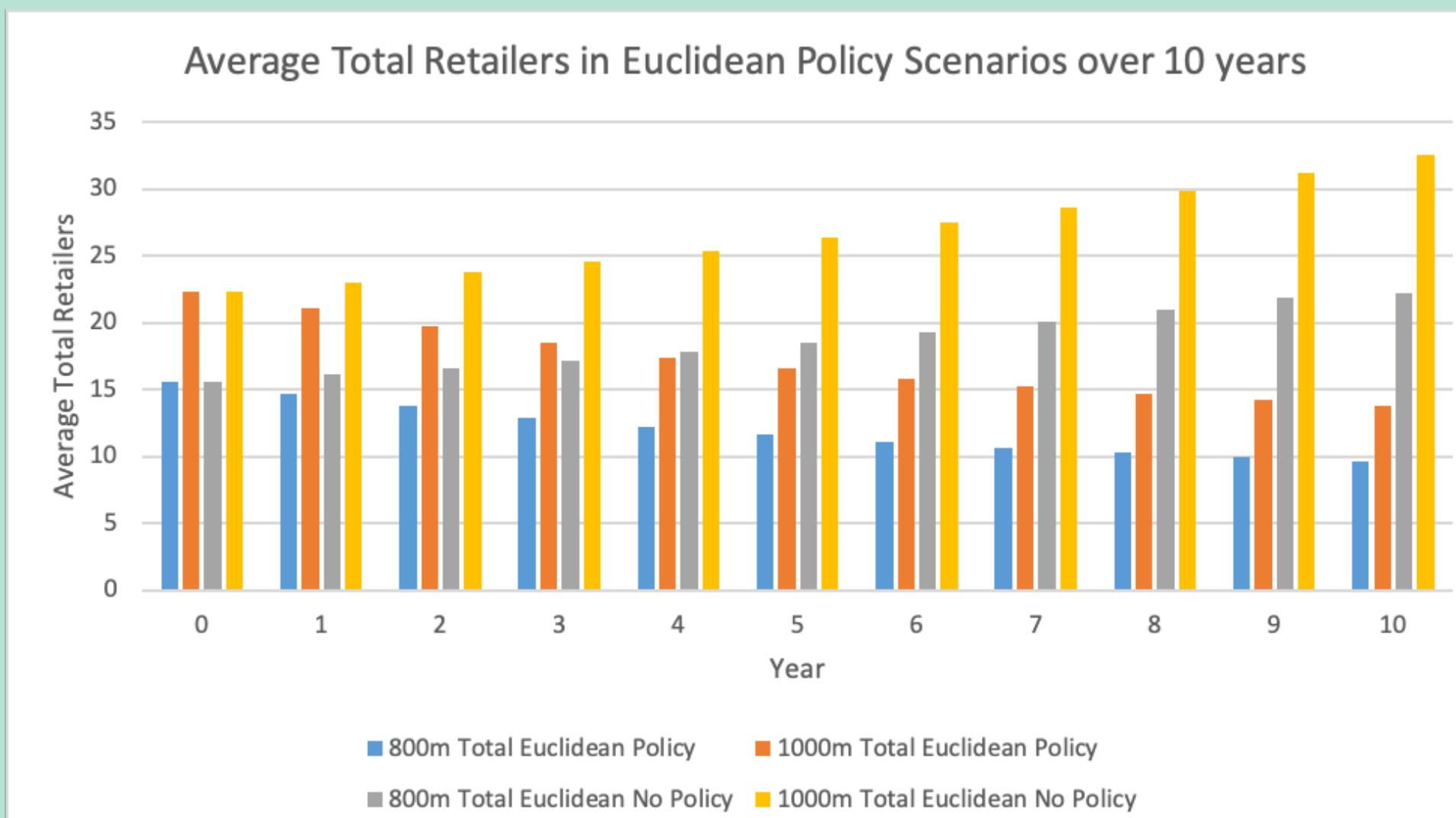
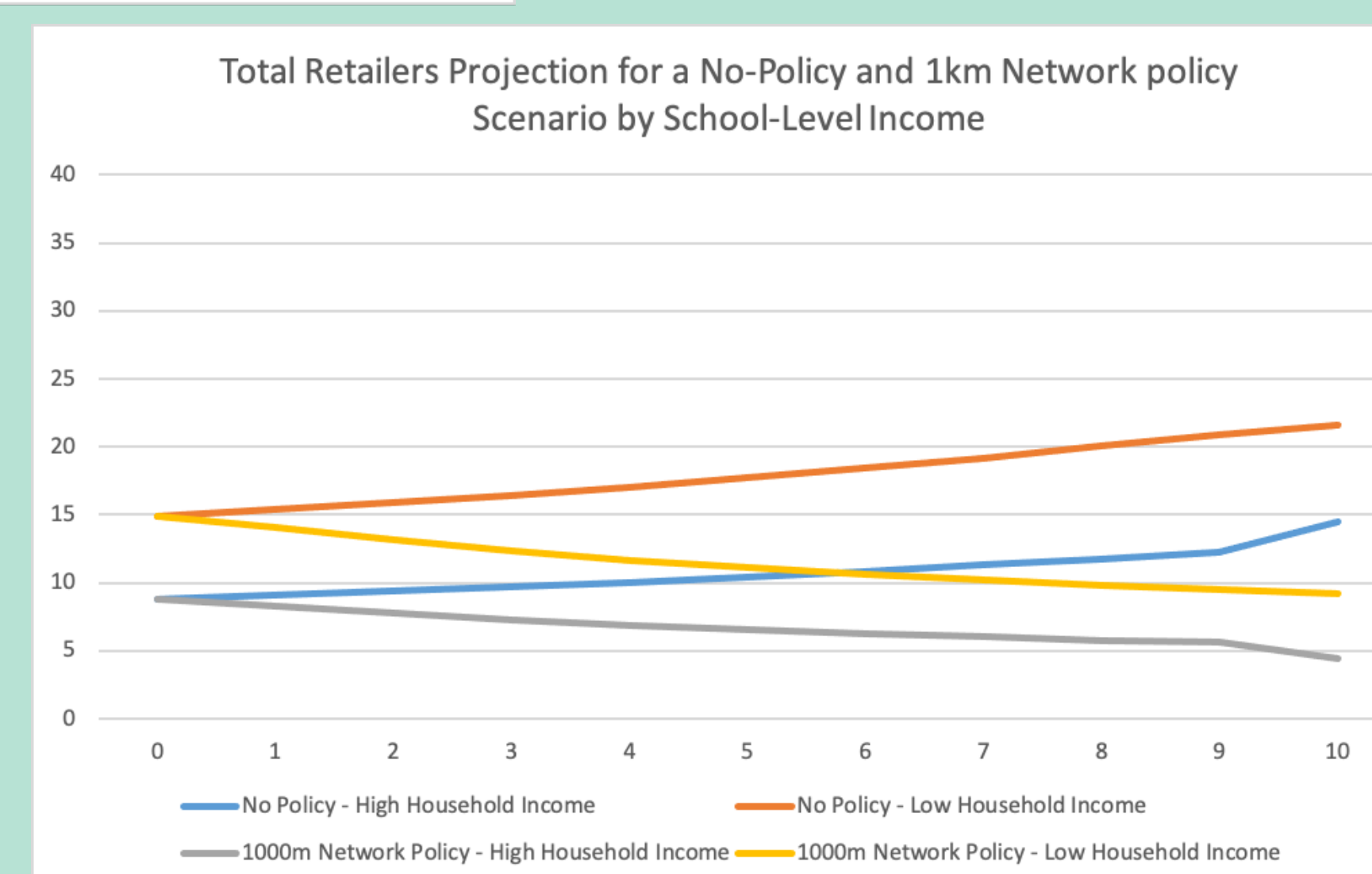
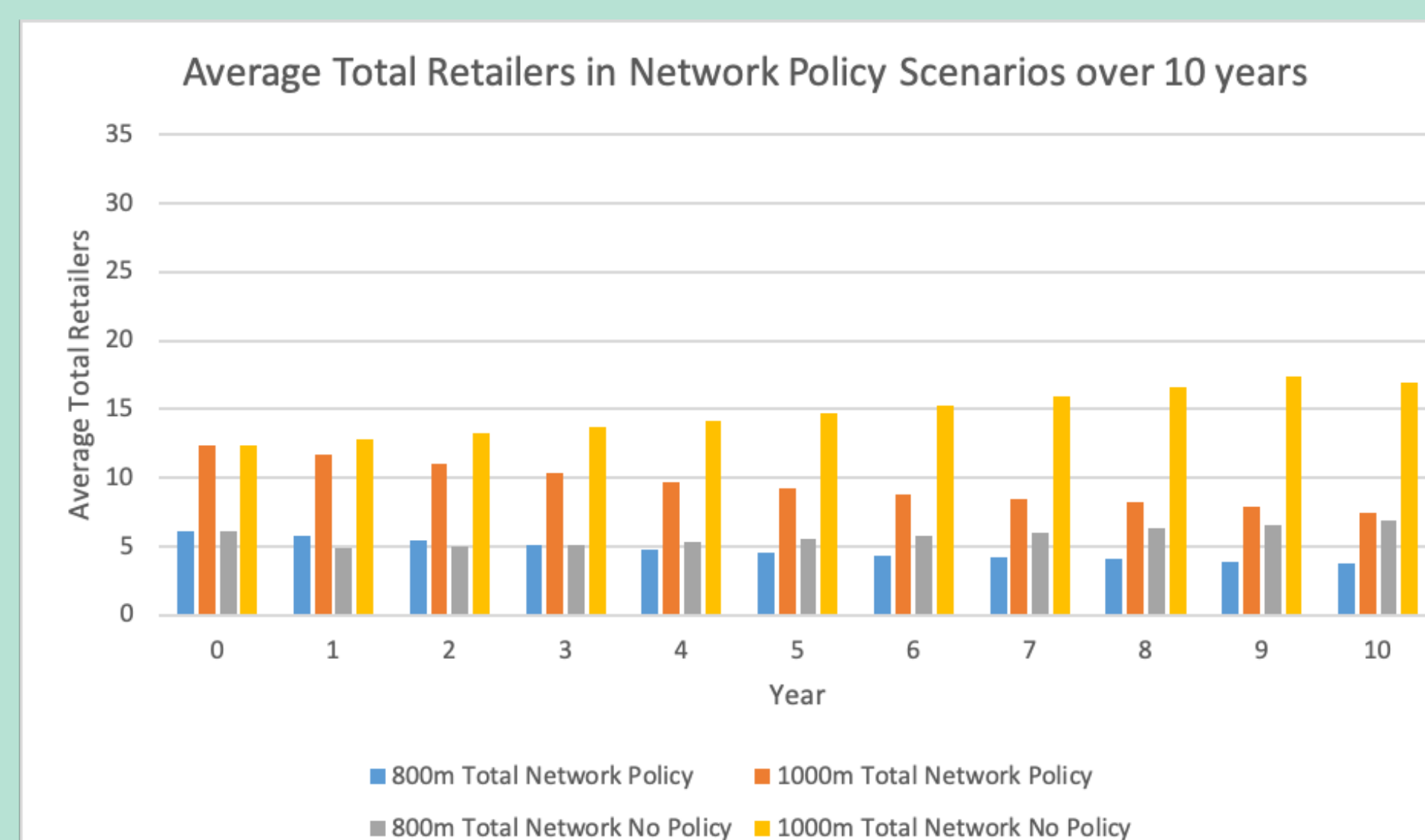


Figure 3 represents the average total number of fast food and convenience store retailers over a 10-year projection in 800m Euclidean Policy, 1000m Euclidean Policy and No-Policy scenario.

Figure 4 represents the average total number of fast food and convenience store retailers over a 10-year projection in 800m Network Policy, 1000m Network Policy and No-Policy scenario.



KEY FINDINGS

1. Across all scenarios but especially the no-policy scenario, schools with a higher percentage of low-income households have a higher average number of fast food retailers and convenience stores within the 800m and 1km Euclidean and network buffers. This demonstrates inequitable access to “unhealthy” food retailers for youth living in low-income households.
2. The type of buffer implemented within policy scenarios (Euclidean Vs. Network) impact significantly impacts the potential exposure to fast food and convenience stores resulting in a higher average number of retailers within Euclidean policies than Network policies (unpublished data)
3. The distance of an 800m or 1km buffer from the school significantly impacts the potential exposure to fast food and convenience stores with an average of five more retailers between 1km and 800m policy scenarios.
4. By 10 years out, there are still retailers within all policy scenarios with the grandfather clause.

RECOMMENDATIONS & NEXT STEPS

Planners and public health professionals should work together to:

- Investigate different policy options before providing recommendations to council; these recommendations may vary across communities based on their unique food environments surrounding secondary schools
- Understand how aspects of the policy (i.e. buffer distance and type) impact the population-level exposure to fast food and convenience store retailers
- Understand how the implementation of such a policy may impact the surrounding community - necessary for public health and planning professionals within Municipalities to make informed decisions.
- Additional research is necessary to determine the impact of increased exposure to fast food and convenience store retailers on population-level health outcomes for youth.

Next steps include completing policy scenario projections under the other age-compositions of retailers including the majority of businesses being over five years old and all businesses of the similar age.