Shopping for a change: Using GIS to Measure the Food Security Impact of a New Downtown Grocery Store

Adrian Werner
Research Associate, Institute of Urban Studies

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Goal

1. Demonstrate how to use GIS to study a complex question.

2. Is downtown Winnipeg a food desert? Does SkyCity’s proposed grocery store improve food access downtown?
Take home message

- Downtown has a mix of low and high income residents.

- Downtown residents are less likely to drive. This changes their shopping needs.

- For downtown to be a food oasis all areas need a combination of market based and community based solutions within walking distance.

- GIS is useful for answering this type of complex question.
1. Context

2. Data wants and needs

3. Data collection

4. Visualization

5. Analysis

6. Answer
1.0 What are Food Deserts?

Food deserts are:

- Low income areas.
- No large food retailers within walking distance.
- Poor access to affordable healthy food options.
1.1 Is Downtown a Food Desert?

“Access to healthy, affordable foods has plunged, forcing downtown residents to rely on stores with fewer healthy options, pay more for food, and travel long distances to access the food they need.”

(Food Matters Manitoba, 2013)
2 Data Wants and Needs

✓ Local context

2. Data wants and needs

3. Data collection

4. Visualization

5. Analysis

6. Answer
2.1 Data Wants and Needs

Need:

- Store Locations
  - Type of store
  - Open or Close Date

- Measures of poverty and income
  - Market basket measure

- Proximity to stores
  - Census geography
2.1 Data Wants and Needs

Wants:

- Method of commute
- Price of healthy food at each location
- Interviews about shopping habits
2.1 Data Wants and Needs

Wants:

• Method of commute

• Price of healthy food at each location

• Interviews about shopping habits
3.0 Data Collection

✔️ Local context

✔️ Data wants and needs

3. Data collection

4. Visualization

5. Analysis

6. Answer
3.1 Data Collection and Sources

- Store Locations: Google, local knowledge, phone confirmation
- Type of store: phone calls, local visits, previous research
3.1 Data Challenges

- Checking with Google can be outdated

Image source: http://westenddumplings.blogspot.ca/2012/01/last-chance-to-shop-riedigers.html
3.1 Data Collection and Sources

- **Measures of Poverty and Income:**
  - 2006 Canadian Census
  - 2011 National Household Survey

- **Proximity to Grocery Stores:**
  - 2011 Dissemination Blocks

- **Method of Commute:**
  - 2011 NHS
2011 DA General Non-response Rate
4.0 Visualization

✓ Local context

✓ Data wants and needs

✓ Data collection

4. Visualization

5. Analysis

6. Answer
4.1 Income
4.1 2006 Pre-Tax income
4.2 Method of Commute
4.2 2011 Commute Method
4.2 2011 Commute Method
4.2 2011 Commute Method
4.3 2011 Commute Method
5.0 Analysis

- Local context
- Data wants and needs
- Data collection
- Visualization

5. Analysis

6. Answer
5.1 Grocery Store Access
5.1 2011 Locations
5.1 2011 Locations

- January 2012: Riediger’s Supermarket
- November 2012: Extra Foods
- March 16 2013: Zellers
- March 19 2013: Neechi Commons
5.1 2014 Locations

- January 2012: Riediger’s Supermarket
- November 2012: Extra Foods
- March 16 2013: Zellers
- March 19 2013: Neechi Commons
5.1 Grocery Store Access

Findings (Kaufman 2013):

- Tax breaks, long-term lease needed for a conventional grocery store. Replacing Zellers could take years.

- More than one grocery store needed to serve all of downtown.
5.1 2014 Locations
5.1 2014 Locations
March 27 2015

No Frills
5.1 Sky City?

Proposed Sky City: 25,000 Ft²
5.1 Sky City?
5.1 Smaller Retailers?

- All year indoor Farmers’ market.
- Small specialty stores in the Exchange.
- Working with existing stores should be encouraged.
5.1 Other food in the city
5.2 Service Areas
Legend

**Grocery Service Level**
- Convenience Food Retailer
- Convenience Store
- Small Grocery Store
- Medium Grocery Store
- Large Grocery Store
- Supermarket

**Community Food Sources**
- Subsidized Farmers Market
- Food Bank
- Good Food Box
- Soup Kitchen
- Subsidized Grocery
- 2015- Farmers Markets

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2015- Farmers Markets
6.0 Answer

- Local context
- Data wants and needs
- Data collection
- Visualization
- Analysis

6. Answer
6.0 Conclusion

- Food store closures have impacted food access in downtown making parts of it a food desert.

- Price may still an issue.

- Community food services play a vital part in filling in the gaps, but they are often missing from analyses.
6.0 Conclusion

- Downtown has a mix of low and high income residents.

- Downtown residents are less likely to drive. This changes shopping needs.

- For downtown to be a food oasis all areas need a combination of market based and community based solutions within walking distance.

- GIS useful for answering this type of complex question.
6.2 Acknowledgements
Questions?
6.2 References


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