4.1) QUANTIFYING URBAN SPRAWL

Objective: This data gathering exercise provides a scoring system for you to estimate the sprawl level of a given neighborhood. These numbers are then used as a basis for discussing other neighborhood characteristics that are more difficult to quantify. **Video instructions**: https://vimeo.com/401331567

Introduction: The post-Word War II building spree resulted in construction of a sprawling network of car-dependent suburbs. The resulting traffic congestion and decline in civic engagement compelled some residents to seek zoning alternatives that provide more walkability and shorter commutes.

A common characteristic of urban sprawl is the separation of neighborhoods by income gradients. This is counterproductive when residents struggle to find people to provide services. In some high-end neighborhoods in Warren County Ohio shoppers often find themselves in long lines because the store can't hire enough cashiers. To help fill these low-paying positions a program called "JobBus" provides free transportation to Deerfield and Mason for blue-collar workers who live in downtown Cincinnati (*1*).

Literature Cited:

1. Mitchell, J.G. 2001. *Urban Sprawl.* National Geographic. July 2001. Retrieved on June 28, 2014
   http://ngm.nationalgeographic.com/ngm/data/2001/07/01/html/ft_20010701.3.html

Procedure: Map Preparation

1) Go to the internet and type the address using google or mapquest.

2) Locate the nearest public elementary school, restaurant, and grocery store and mark out their locations on your map. *Convenience stores qualify only if they sell perishable items such as milk and eggs.*

Fig. 1 This measurement is *correct* because it takes the barrier into account.

3) Note all major barriers to pedestrian traffic such as expressways, rivers, military bases or other large, fenced off properties. Narrow creeks can be ignored because they usually have numerous small bridges that are not on the map.

4) Use a ruler to measure the distance in mm between your residence and the nearest restaurant. If this lies on the other side of a barrier, measure the distance as the crow flies from your house to a place that bypasses the barrier (such as a bridge), then measure the distance from this barrier bypass to the restaurant (Fig. 1). Do not ignore major barriers (Fig. 2). Do not follow all the roads (Fig. 3).
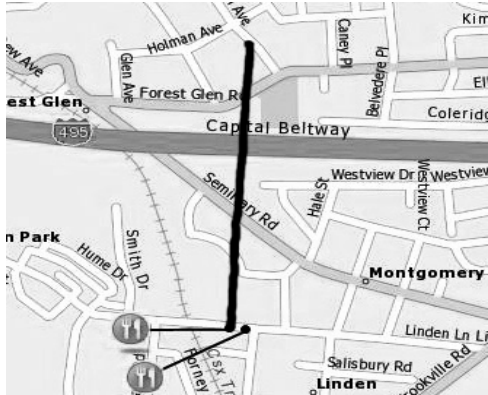
Fig. 2. This measurement is *incorrect* because it ignores the expressway barrier.

Fig. 3. This measurement is *incorrect* because it follows every single road on the map.

5) Measure the average mm distance for the nearest public elementary school, grocery store, and restaurant and convert this measurement to miles based on the length indicator on your map. Below is a sample calculation based on a sample map (Fig. 4):
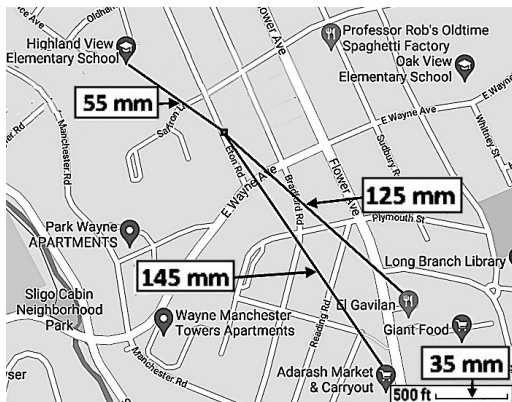
Fig. 4. Sample map with measurements.

Average mm based on map measurements:

$$(55 \text{ mm} + 125 \text{ mm} + 145 \text{ mm}) \div 3 = 112 \text{ mm}$$

Feet per mm based on map scaling:

$$500 \text{ ft} \div 35 \text{ mm} = 14.3 \text{ ft/mm}$$

Converting average mm to average feet:

$$(112 \text{ mm}) \times (14.3 \text{ ft/mm}) = 1600 \text{ ft}$$

Converting average feet to miles:

$$(1600 \text{ ft}) \div (5,290 \text{ ft/mi}) = 0.303 \text{ mile}$$

(This is the average walking distance)

6) Scan or take a screen shot of your map with the three lines indicating the distance to the nearest school, grocery, and restaurant (as in Fig 4), then answer the following questions:

Questions:

1. Calculate your average walking distance and show your work:

2. What is your walking score according to "Walkscore.com"?

3. How does this computer-generated score correlate to your average walking distance? Is it different from what you expect? *Note: A <u>high</u> computer-generated score indicates that your walking distances are <u>shorter</u>, and the degree of sprawl is <u>low</u>.*

4. Suppose you are employed at the restaurant closest to your house and you have a child in grade school. Estimate how long it takes for you to walk your child to school and then walk to your job.

5. Scope out the nearest grocery stores and restaurants in a low sprawl (high walk score) neighborhood and roughly estimate your average walking distance.

6. Scope out the nearest grocery stores and restaurants in a high sprawl (low walk score) neighborhood and roughly estimate your average walking distance.

7. List two advantages of living in the low-sprawl residence you chose on the map:

8. List two advantages of living in the high-sprawl residence you chose on the map:

9. List two features other than walking distance sets these two neighborhoods apart. Be specific!

Assignment Checklist:
1. Did you completely answer all the questions?
2. Did complete a map with three lines indicating distances from your starting point?
3. Did you post the following three items to your online discussion:
    a. A screenshot of your map, complete with lines indicating distances.
    b. A street view of the neighborhood.
    c. The walk score calculated by "Walkscore."
4. Did you respond to someone else's post?