Assignment 6 – Basic Queries

In the spring of this year, (09’) I completed the course Green Urban Design. A requirement for the course was to redesign an area or building utilizing LEED ND standards. I was part of a group that worked on a design for the reuse of The Powder House School site. The Powder House School site is located at 1068 Broadway. The former Powder House School building is on the site. The school was closed in 2004 due to declining enrollment. The building now sits vacant and the City of Somerville is currently exploring the reuse of the building and site’s reuse.

Our group’s reuse plan was for a LEED ND certified condominium complex. Prior to deciding on this reuse plan, we conducted a basic marketing analysis of condominiums in Somerville. For our report it would have been helpful to have a map displaying where condominiums are located and additional data regarding median prices of condominiums in the area as well as price per square foot for these units.

For this assignment, “Basic Queries”, I am asking the question, “what is the median price of condominiums in the West Somerville neighborhood?” Although the Powder House School site is located in the Tufts neighborhood, we were focusing our report the West Somerville neighborhood.

The following steps describe the Geographical Information System (GIS) tools that were utilized in creating such a query as described above.

Select By Location

To make a query regarding the West Somerville neighborhood, the select by location tool was utilized first. The following are a description of the steps followed for this selection.

Select by location is create map of Somerville

1. Select the M drive
2. Select the “State” folder
3. Select the “MA” folder
4. Select “MassGIS” folder
5. Select the “Political_Boundaries” folder
6. Add TOWNS_POLY.shp
7. Use Zoom in tool and zoom in to find Somerville

8. Use Select icon tool and select Somerville

9. To create new layer for Somerville, go to select by location and select features from TOWNS_POLY that are within TOWNS_POLY and check the box for use selected features

10. Press OK

11. Go to TOWNS-POLY layer, go to selection, select “create separate layer from selected features

12. The City of Somerville is now selected as a layer by location

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Figure 1. Map of Somerville Massachusetts

Select by attribute for West Somerville neighborhood

1. Select the M drive

2. Select the “State” folder

3. Select the “Cities” folder
4. Select “Somerville” folder

5. Select the “MIS” folder

6. Add neighborhood layer

![Figure 2. Map of neighborhoods in Somerville Massachusetts](image)

7. Look through Attribute Table to review Neighborhood attributes. The West Somerville neighborhood has the designation #1

8. Go to Select by Attribute

9. Conduct select by attribute query by going to Select by Attribute and select from the neighborhood layer

10. As for the method, chose “create new selection”

11. The click on “HOOD_ID”, the equal sign and chose 1 for the unique value

12. Chose apply
Select by Attribute to obtain condominium information

Steps taken:

1. Select from the M drive “Cities” folder
2. Select the Somerville folder
3. Select the “Assessor” folder
4. Chose the Parcels_04_2008.shp file
5. Open and review Attribute Table for Parcels
6. Find attribute to query. I chose the USE_DES attribute. The USE_DES attribute contained all the various dwellings. Condominiums were included within this attribute column.
7. Select by attribute
8. Conduct select by attribute query by going to Select by Attribute and query using the USE_DES to select from and then applying the unique values for condominiums. The final equation was “USE_DES”='CONDO MDL 05’ OR “USE_DES”='CONDO MDL 05/OFF CONDO MDL-06’ OR “USE_DES”='CONDO MDL 05/RETAIL CND MDL 06’
MDL means multiple dwelling and includes any building or structure containing four or more contiguous living units and intended exclusively for residential use by single persons or families. OFF refers to office and CND refers to Commercial Zoning in a Neighborhood area.

9. Choose Apply

10. Go to PARCELS layer, go to selection, select “create separate layer from selected features-condominiums will show up on map

11. Result is map of condo units in West Somerville. See Figure 2

Figure 3. Map of condominiums in Somerville Massachusetts

To select for only those condominiums only in the West Somerville neighborhood, select by location the new parcel attribute (condominiums) from West Somerville neighborhood
Figure 4. Map of condominiums in the West Somerville neighborhood

Figure 5. Zoomed in map of condominiums in the West Somerville neighborhood
Statistics

To obtain the summary statistics, open the parcel attribute table and double click on the numerical price column, choose statistics and the following table appears.

<table>
<thead>
<tr>
<th>Field</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PRICE</td>
<td></td>
</tr>
</tbody>
</table>

Statistics:
- Count: 79
- Minimum: $1
- Maximum: $1860000
- Sum: $25643956
- Mean: $324682.967342
- Standard Deviation: 228329.84621

Table 1. Summary Statistics for price of condominiums in West Somerville

From the summary statistics, there are 79 condominiums in the West Somerville neighborhood and the median price was $324,683 dollars.

Due a number of missing values in the price column, the summary statistics data may be skewed.

Summary

To obtain a summary table, a summary of the USE-DES categorical attribute for residential units was applied. The steps that were utilized were to go to the attribute table and click on use designation (after selecting for only residential units) and choose summarize. To summarize, USE_ DES, only residential (R) units were chosen.

<table>
<thead>
<tr>
<th>OID</th>
<th>USE DES</th>
<th>Count USE DES</th>
<th>Minimum PRICE</th>
<th>Maximum PRICE</th>
<th>Average PRICE</th>
<th>Sum PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2 FAM MIX MCL-01</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>3 FAM MIX MCL-01</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
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<td>650000</td>
<td>128647.3846</td>
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<tr>
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<td>1</td>
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<td>1</td>
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<tr>
<td>4</td>
<td>APT OVER 8 MDL-94</td>
<td>5</td>
<td>0</td>
<td>250000</td>
<td>1285300</td>
<td>5426500</td>
</tr>
<tr>
<td>5</td>
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<td>76</td>
<td>1</td>
<td>185000</td>
<td>331044.1711</td>
<td>25159357</td>
</tr>
<tr>
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<td>50002.75</td>
<td>200011</td>
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<tr>
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</tbody>
</table>

Table 2. Summary of condominiums in West Somerville
The data from this table is a bit questionable. Within all the columns, there are zeros and $1 amounts.

**Field Calculation**

Another useful tool of analysis is the Field Calculator. For this query, the field calculator can be utilized to conduct the mathematical calculation of what is the area left over after you subtract the living area from the gross living area.

\[
\text{GROSS\_AREA} - \text{LIV\_AREA} = \text{REMAINING AREA}
\]

Although I was unable to produce a table, I do now understand the steps required.

**Steps for Field Calculation**

1. Select layer to do Field Calculation
2. Open Attribute Table
3. Go to Options at the bottom and click on Add Field
4. Add Field..in this case, I tried to add NEW\_AREA (it would not work)
5. Then click on new column (if it had worked..it worked before and then I had trouble) and select Field Calculator
6. In Field Calculator Dialog box , select expression, I would have put in GROSS\_AREA – LIV\_AREA
7. Then I would have pressed OK
   
   I imagine the remaining area would have not been that much.

*I think my problem had to do with my exporting procedure. I need to work on that.*