Assignment 6 – Basic Queries
Identifying Foreclosed Properties for Decondoization

Goals of the Analysis:

For Assignment 6, I will undertake a geographical analysis of foreclosed properties in the neighborhood of Dorchester. Specifically, I wish to identify condo units that have undergone foreclosure in order to recommend candidates for the City of Boston’s New Decondoization Campaign. Foreclosed properties in census blocks with low rental vacancy rates and proximity to MBTA stations will be given first priority.

Step-by-Step Process for Developing Queries:

After Geocoding a table of foreclosure deeds in Dorchester from 2005-2009 by Census 2000 TIGER street lines:

Select condo foreclosures in Dorchester:

1. In ArcMap, choose <Selection> → <Select By Attributes>
3. Select “UseCD” (Land use code) from list and double-click. Select <= > and then <Get Unique Values>, followed by ‘102’ (the use code for condominiums in Boston).
4. Press <OK>.
Select condo foreclosures within 1500 feet of MBTA Train Stops:

1. In ArcMap, choose <Selection> ➔ <Select By Location>
3. Adjust the second drop-down menu to “are within a distance of” and the third drop-down menu to search for condo foreclosures within a certain distance of <MBTA_NODE> layer.
4. Adjust the buffer to the features in <MBTA_NODE> to read “1500” and “Feet.”
5. Press <OK>.
Now, with the resulting selected condo foreclosures within 1500 of MBTA Train Station Nodes:

*Access Statistics for Mortgage (only field imported as numeric through address geocoding):*
1. With attribute table set to “Show: <Selected>,” right mouse click on <Mortgage> field heading and select <Statistics>.

Compute summary statistics of Year Built to assess how many condos are likely conversions versus new construction and Mortgage as a proxy for Total Assessed Value.

**Summarize Statistics on Year Built and access Statistics on Mortgage for selected features:**

1. With the proper features selected, right mouse click on the “Dorchester Foreclosures, 2005-2009” Layer and select <Open Attribute Table>.
2. Indicate that you only want to view the selected features by selecting the option to Show <Selected>, located near the bottom left of the attribute table.”
3. With only selected features showing up in the attribute table in a light blue color, right mouse click with the cursor over the field heading: <YearBuilt>. Scroll down and select: <Summarize . . . >. With the Summarize table open, specify its output table.
4. Press <OK>.
5. When the <Summarize Completed> dialog box prompts you to add the result table in the map, select <Yes>.
6. Right mouse click on “Sum_Output” and select <Open>.

These queries tell us that there are 100 condo foreclosures in Dorchester with mortgages totaling over $24.5 million dollars. Although 40% of these properties do not have a year built attached to them, the vast majority of the remaining 60% were built more than 40 years ago. Condos were not constituted in the United States until the 1960s, so we can assume that most of these condos are conversions rather than new construction. The City of Boston will need to further prioritize which condos it pursues for decondoization, but may be able to provide incentives to prospective home owners or non-speculative investors for the other properties.

Spatial Join 1:

Add <CEN2K_BG_HOUS_RES_CHAR> layer and <CENSUS2000BLOCKGROUPS_POLY> from MassGIS to the current data frame. Right mouse click on block group and select <Joins and Relates> → <Join . . .>.
Once completed, right mouse click on the block group data layer and select <Data> ⇒ <Export data . . .>. Export all features using “this layer’s source data.” Press <OK>.

**Spatial Join 2:**

Perform Spatial Join of `<HOUS_RES_CHAR_BG>` (the table just joined) with condo foreclosures within 1500 of MBTA Train Stations:

1. Right mouse click on `<HOUS_RES_CHAR_BG>` joined layer and repeat join process.
2. Be sure to “Join data from another layer based on spatial location.” Choose the “Dorchester Foreclosures, 2005-2009” and join with the selected features from layer.
3. Save the join output.

Right mouse click on <Join_Output_selection> and open attribute table. Add a field called <VAC_RATE> and use field calculator to calculate the vacancy rate by Census Block Group for Dorchester:

1. Using the Attribute Table for <CEN2K_BG_HOUS_RES_CHAR> as the “Export_Output” in “Dorchester Foreclosures, 2005-2009” Layer, select the <Options> tab at the bottom right of the table and select <Add Field>.
2. In the <Add Field> dialog box, type “VAC_RATE” for the Name field, and select <Short Integer> from the drop-down menu for Type. Press <OK>. 
3. Scroll to far right of attribute table and check to see that <VAC_RATE> field has been added.
4. Right mouse click on <VAC_RATE> field name and select: <Field Calculator>.
5. In the <Field Calculator> dialog box, construct an equation in the white space under “VAC_RATE =” that reads: ([VAC_HOUSE]/ [TOT_HOUSE])*100.
6. Press <OK>.

Create a new layer of Dorchester Foreclosures that are contained within the census block groups selected in the last “Join_Output.”

To do this, repeat Spatial Join 2 from above using the two above layers created via spatial join. This will be called: <Dorchester Foreclosures, 2005-2009, selection>.

1. Navigate to <Selection> → <Interactive Selection Method> → <Create New Selection>.
2. Select a census block group in which a condo foreclosure within 1500 feet of a MBTA train stop is found.
4. Select all remaining block groups with these condo foreclosure points.
5. Right mouse click in the resulting layer, “Join_Output_selection” layer and open the attribute table.
6. Select <Selected> to filter the table to only include those chosen with the <Interactive Selection Method>.
7. Right click <VAC_RATE> and <Sort Ascending>.

Results:

Those Census Block Groups highlighted in yellow (250250910002, 250250921005, 250251005001 and 250251008006) are those with high numbers of condo foreclosures and very
low vacancy rates. These condos would be prime candidates for acquisition and the condo buildings in which these condos are located (especially where multiple units have entered foreclosure) would be excellent candidates for decondoization.

Limitations/Possible Sources of Error:

There are a number of factors that might limit the utility of these results, or possibly lead to error. First, a small number of foreclosed properties were unable to be geocoded. Though it was less than 1%, this could impact the full range of condo foreclosures I was able to identify in this analysis. The <Mortgage> was the only measure of dollar value that I was able to import as a numeric value (we can chalk this up to not analyzing the data with sufficient scrutiny prior to geocoding). These values are a proxy for dollar value of property, but an admittedly very poor one.

As mentioned above, 38 of the 100 condo foreclosures identified in Dorchester did not have complete information. So, my conclusion that almost all condos were conversions rather than new construction, although probably correct, was reached with unreliable data. Finally, another source of error would be using census block groups to determine vacancy rates. Census blocks may have been a more effective geographic unit upon which to run this calculation. The block groups I identified with very small vacancy rates could have areas with much higher vacancy rates. If the particular foreclosed parcels identified earlier in the analysis are found in these
higher vacancy rate portions of these block groups, then my results will not match up with the reality on the ground.

And, of course, this analysis uses block group data from the 2000 Census. When examining areas with high concentrations of foreclosure, it may be the case that these areas have undergone significant population turnover. This makes the nine year old data all the more susceptible to inaccuracy.