Bond Data City Analysis Template

Rachel Bash

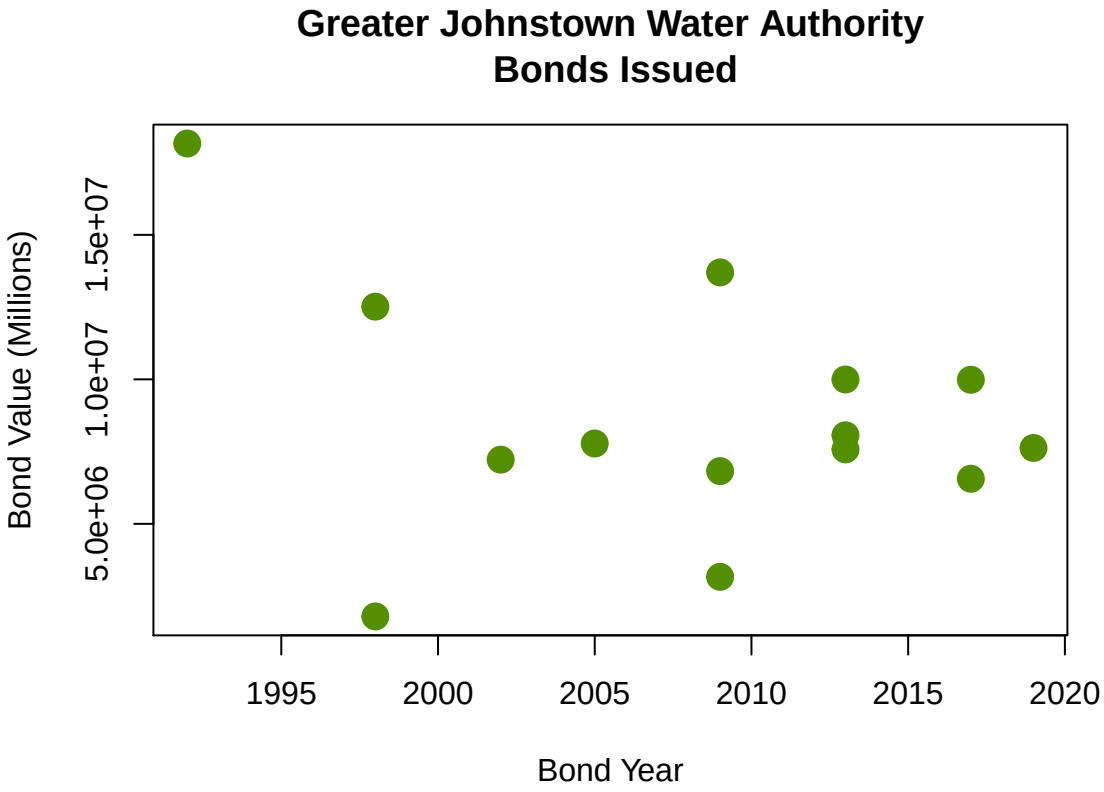

Figure 1: Points show how many total bonds were issued and when over the given time range

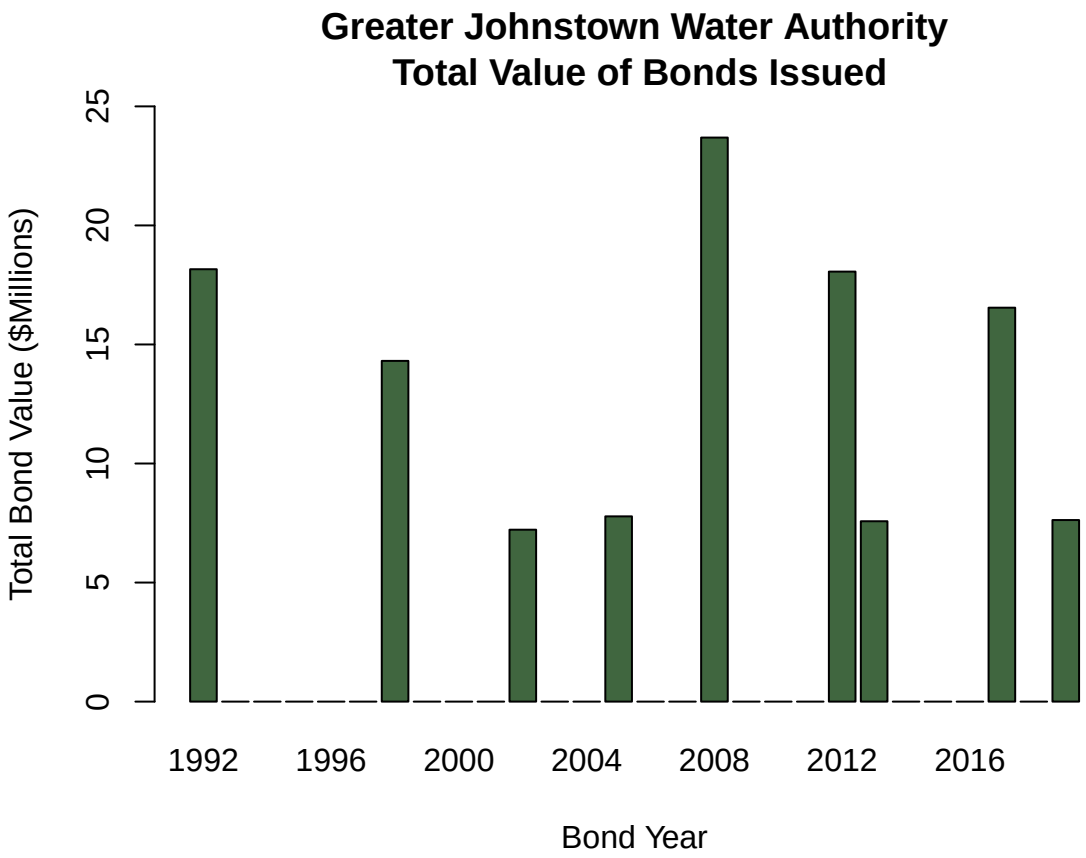

Figure 2: Bars show the total amount of money issued in bonds for each year

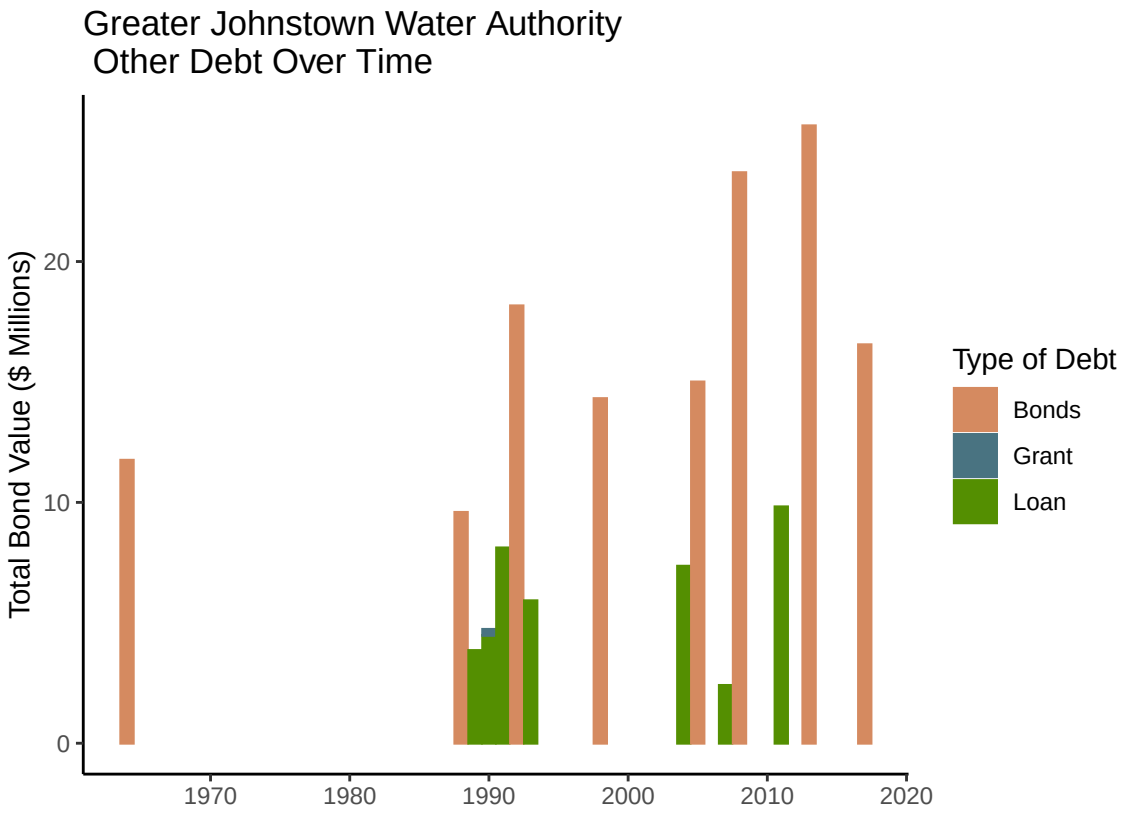

Figure 3: Type of bond and its total amount are plotted over time

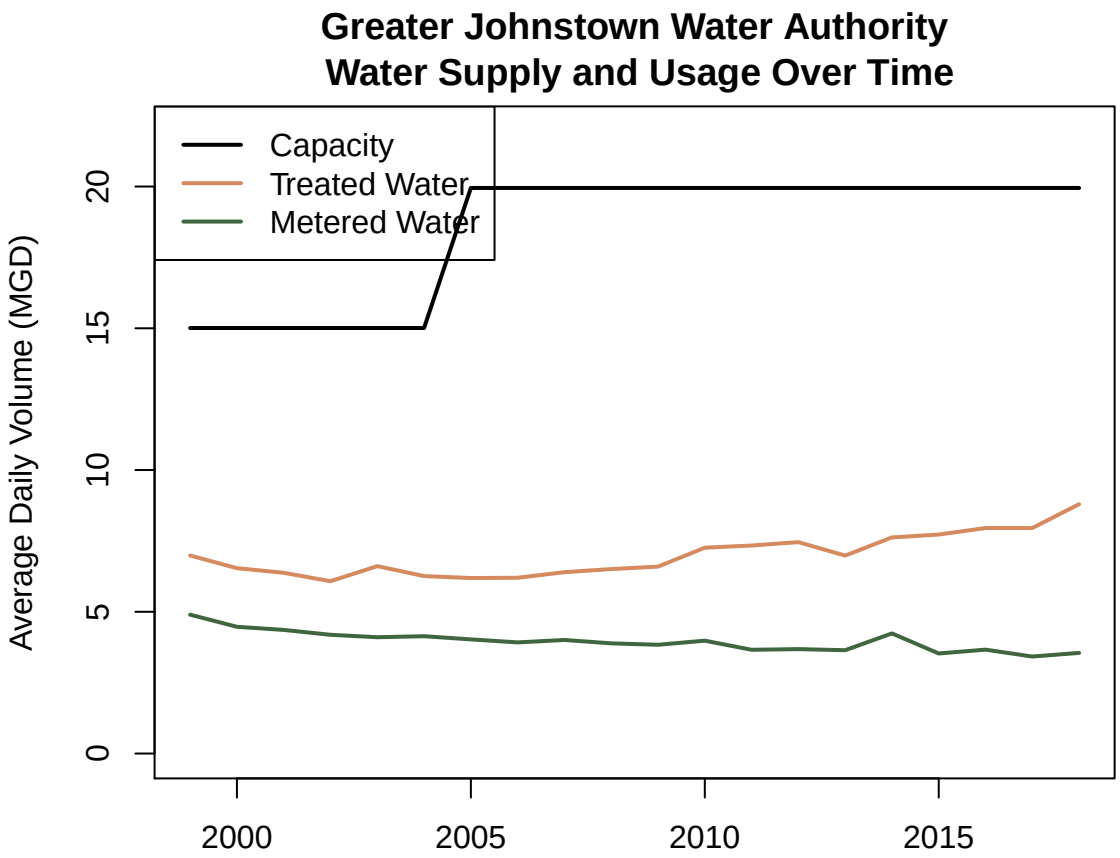

Figure 4: The change in capacity, treated water, and metered water over time as the average daily volume.

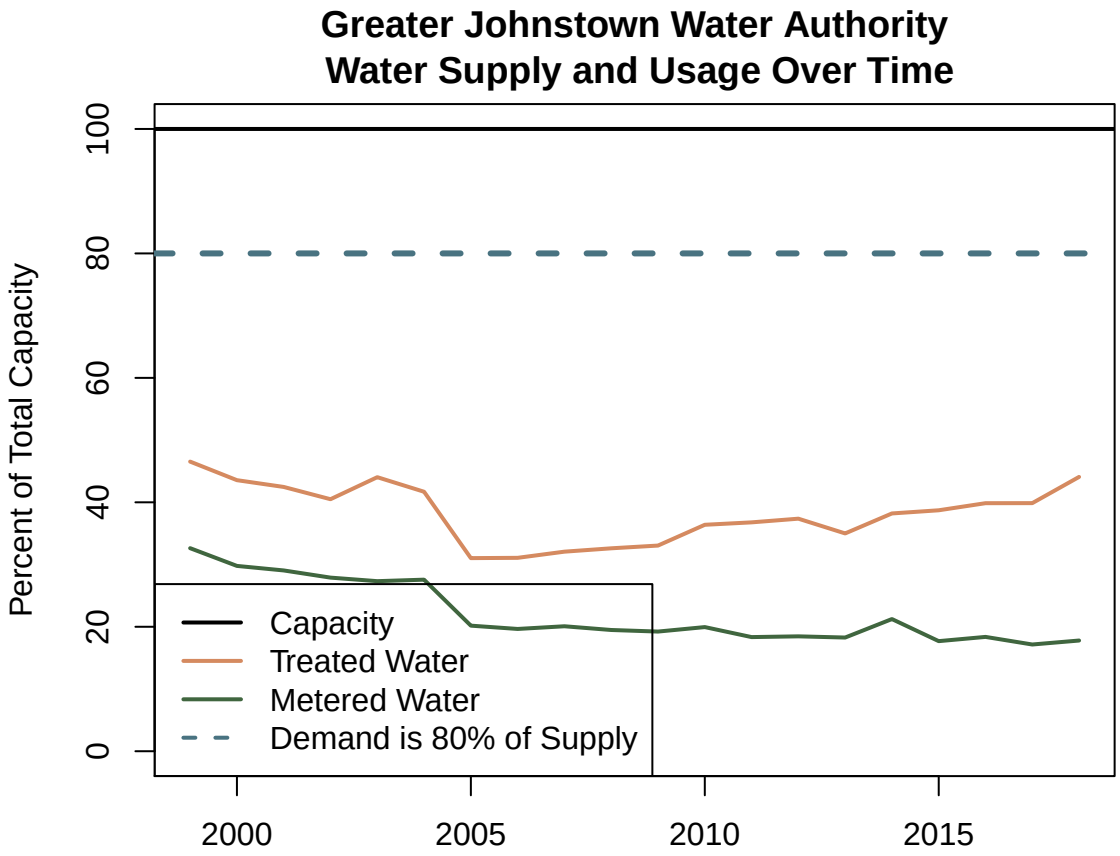

Figure 5: The capacity value is treated as the total and the treated and metered water as % of total capacity, with an indication of the 80% of demand mark. This graph and the one above are just two ways to show the same data.

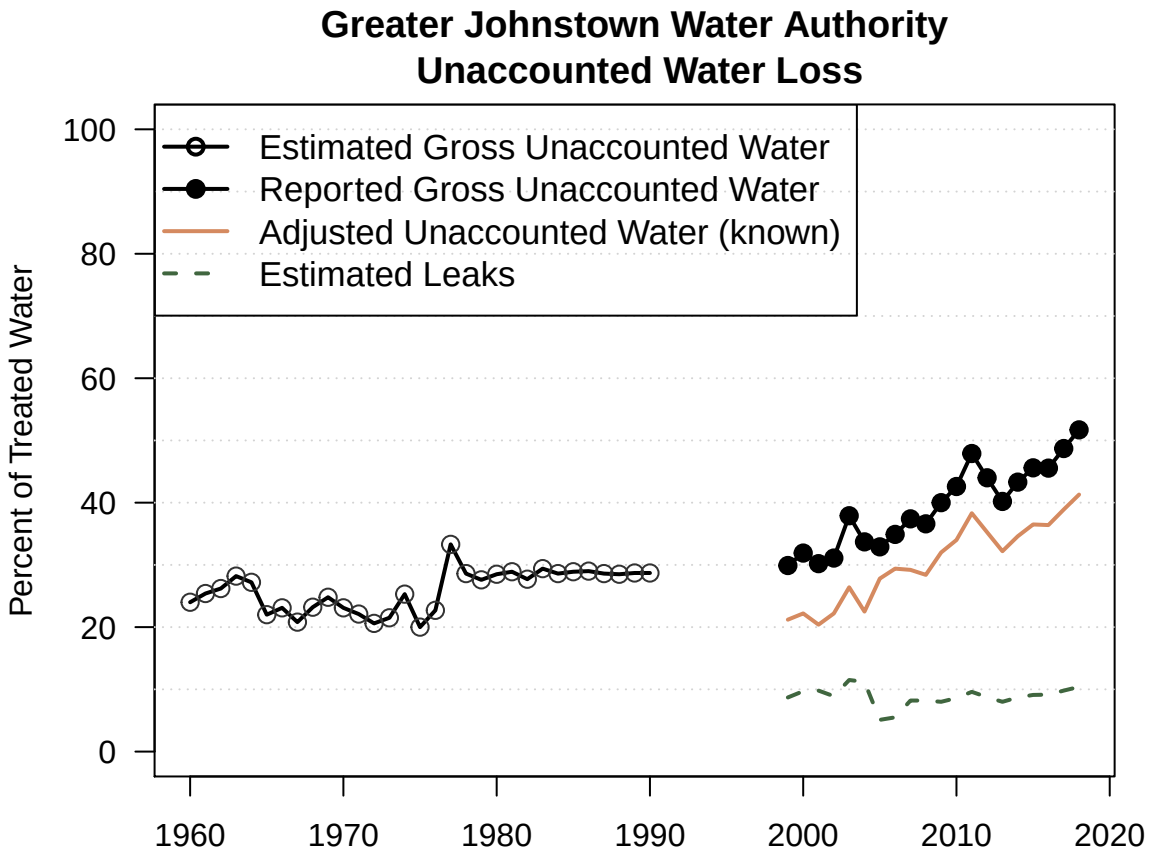

Figure 6: The total unaccounted for water compared to the known accounted for water over time. Estimated leaks are calculated by subtracting the adjusted number from the gross total.

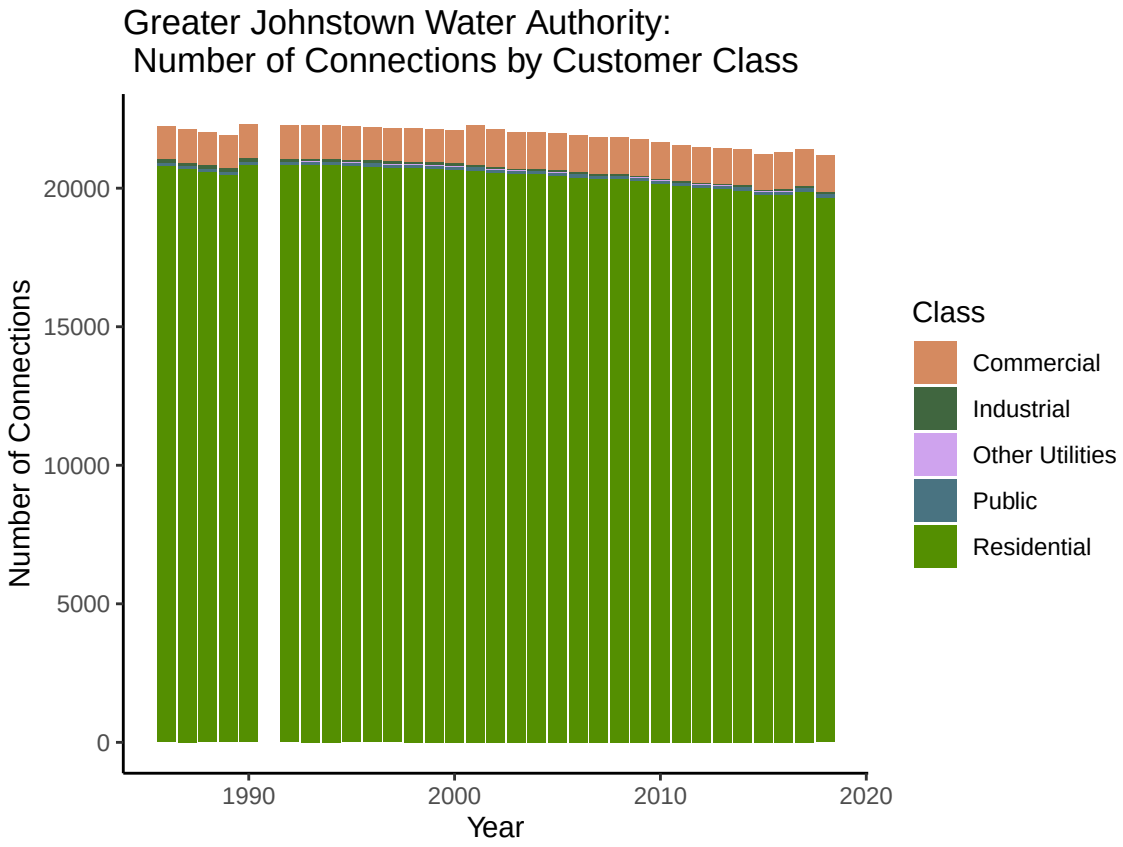

Figure 7: Number of connections by customer class and customer class changes over time. The majority of connections are to residential customers. Should brainstorm how to make this plot better looking, since it is over overpowered by residential.

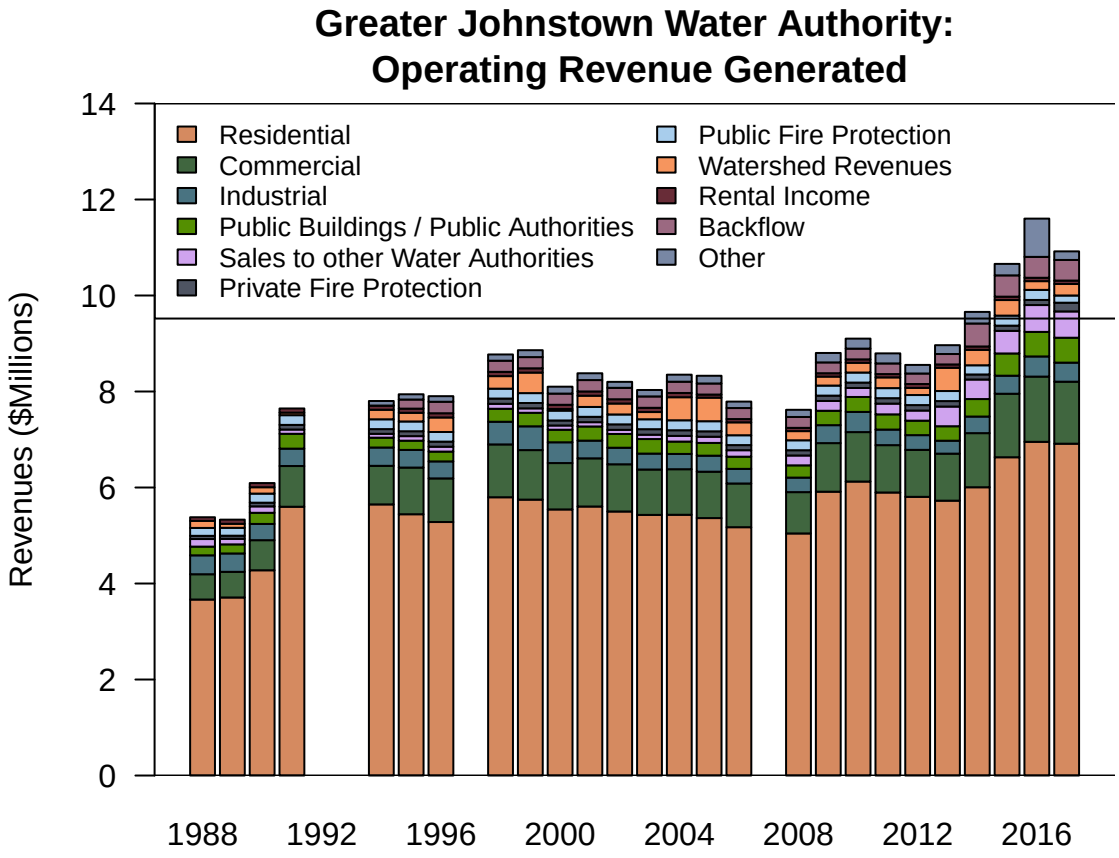

Figure 8: For every year where revenue is known, the breakdown of revenue by how it was generated is shown. Themajority of the revenue will come from residential water bills. For visualization sake, we should consider consolidating some of the less important categories to make them into a miscellaneous category.

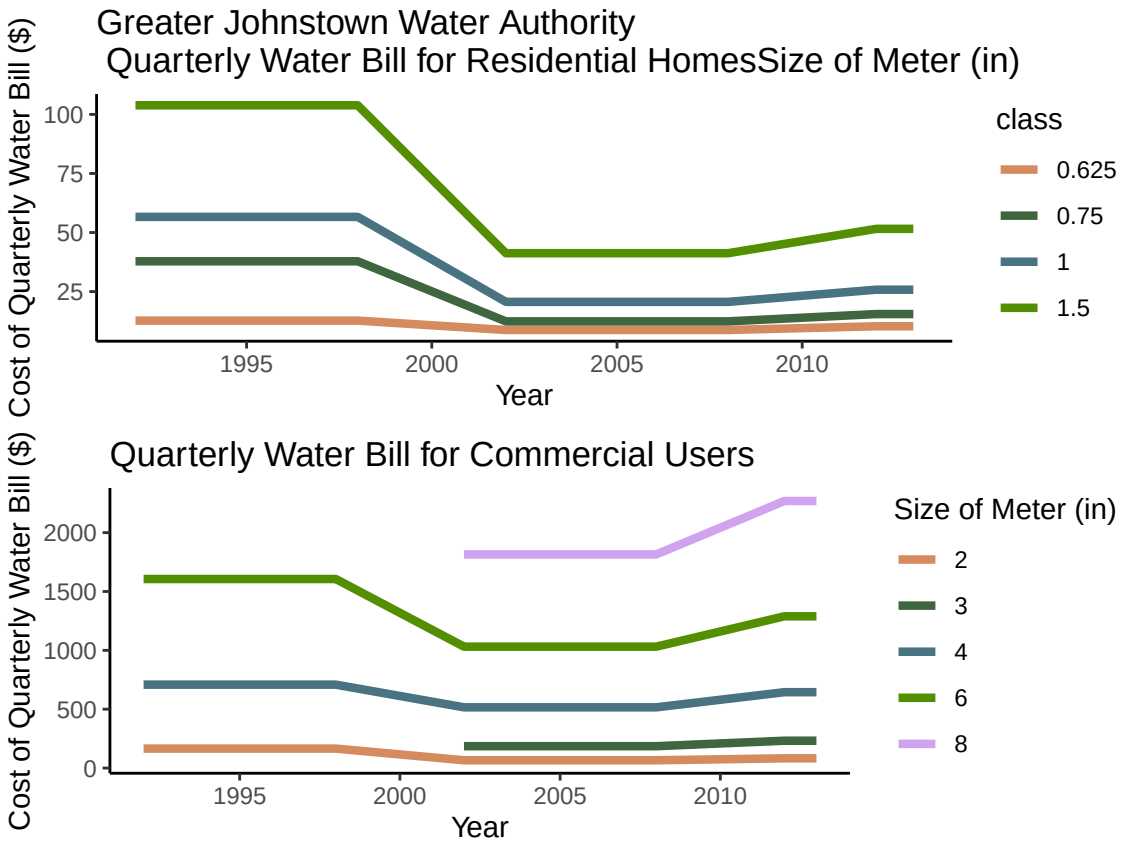

Figure 9: Graphs display the cost of quarterly water bills over time, based on the size of the meter. The sizes of meters were arbitrarily separated into two groups, Residential size and Commercial/Industrial size so that values can be better displayed.

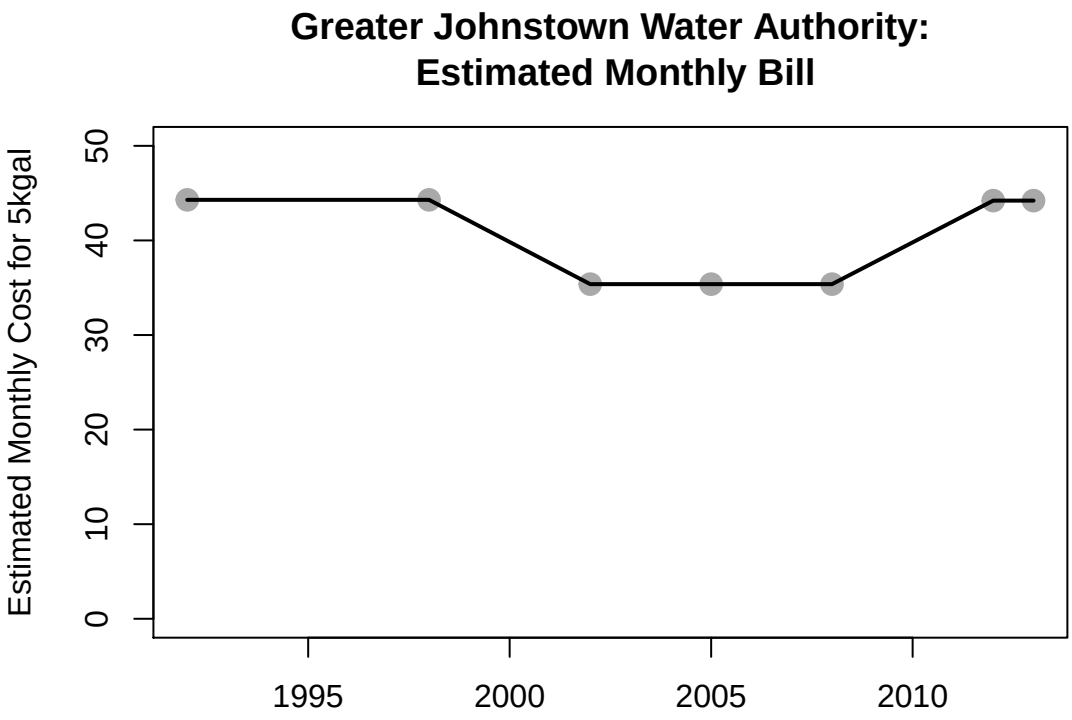

Figure 10: The estimated monthly cost for 5,000 gallons of water changed over the time period. Need explanation/clarification from Lauren for this part

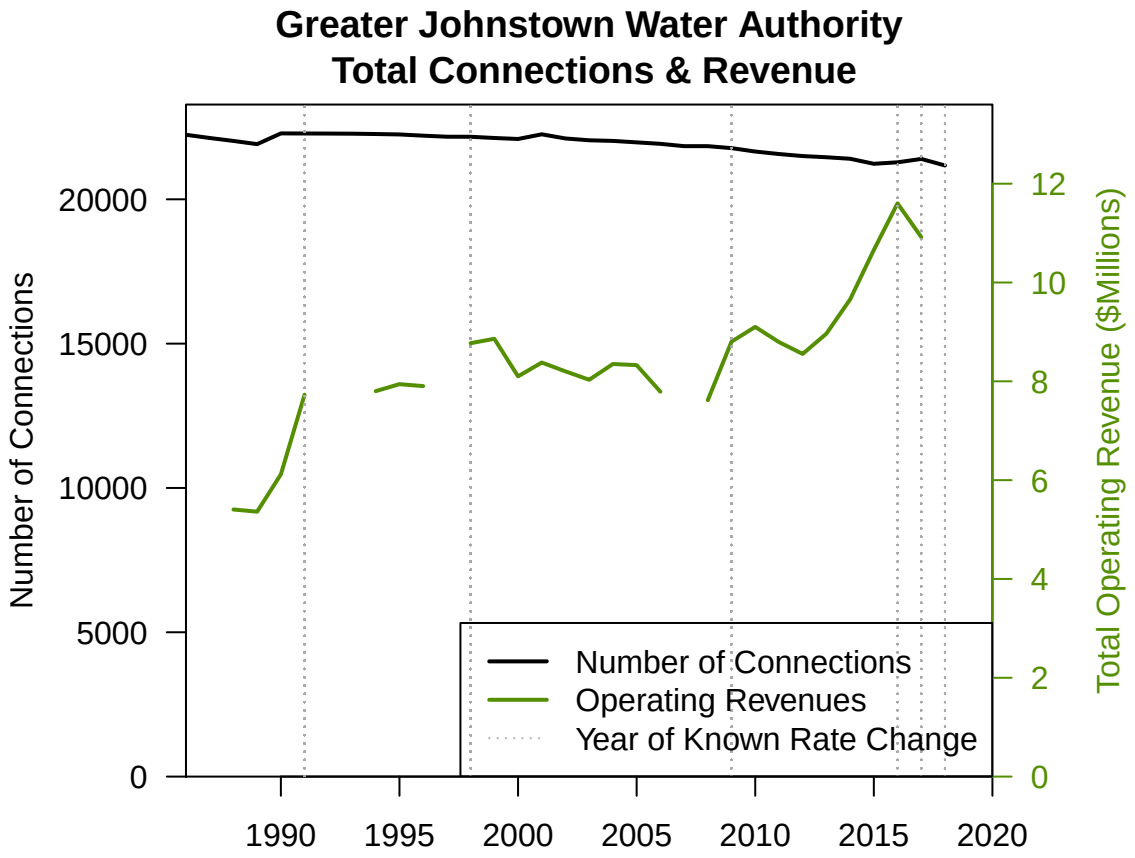

Figure 11: Graph shows the number of total connections over the time period (1988-2018) in black, operating revenue over the time period in orange, and the years of known rate changes shown by vertical dashed lines. The graph shows that increases in revenue often line up with rate changes, yet the total number of connections over nearly 30 year time period has slowly declined or remained relatively stagnant.

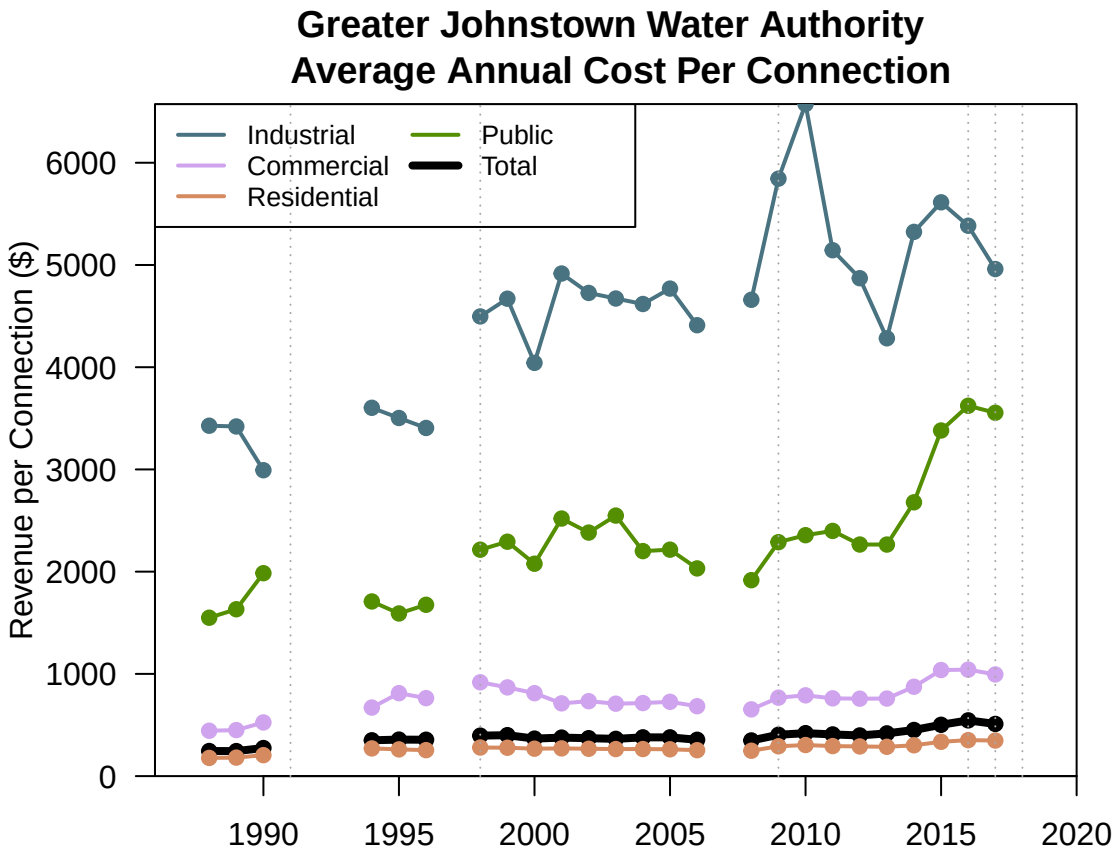

Figure 12: Average annual amount of revenue earned per connection by customer class. While residential customers bring in the most revenue, the revenue earned per connection is the lowest, which brings down the total.

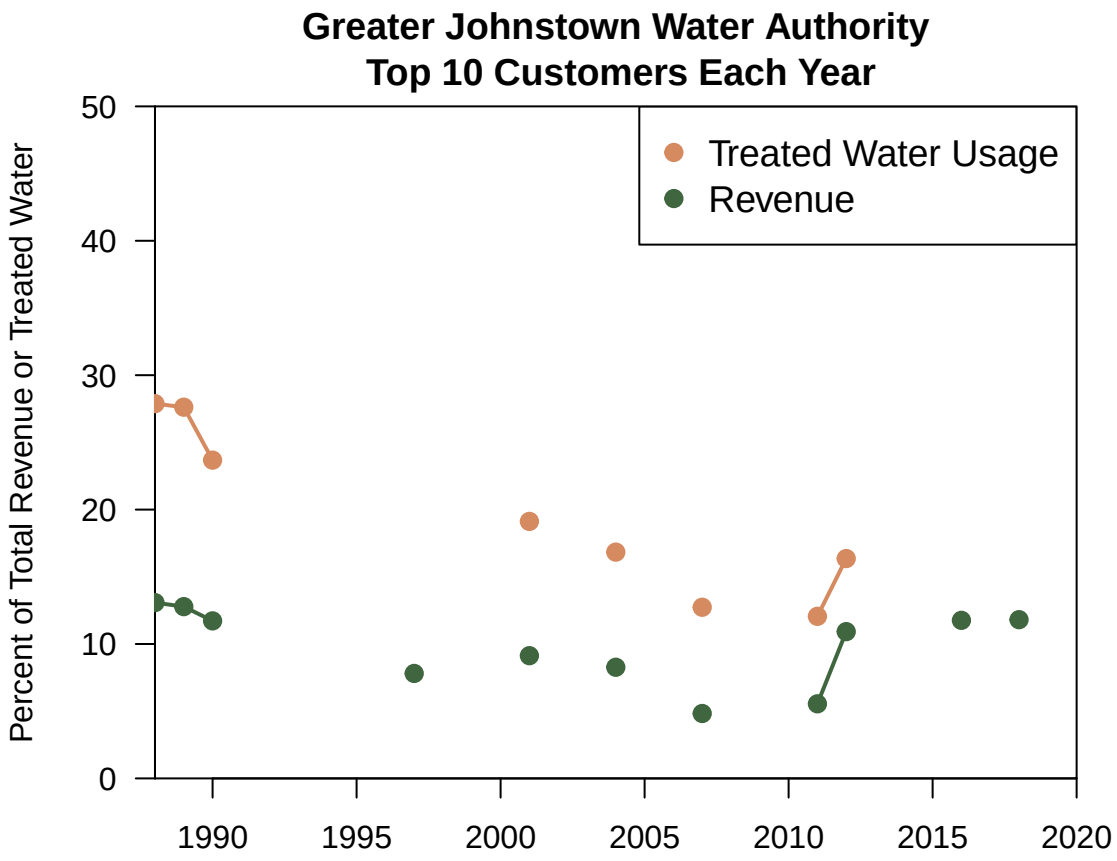

Figure 13: Top 10 customers make up a large percentage of the total revenue and total treated water usage.

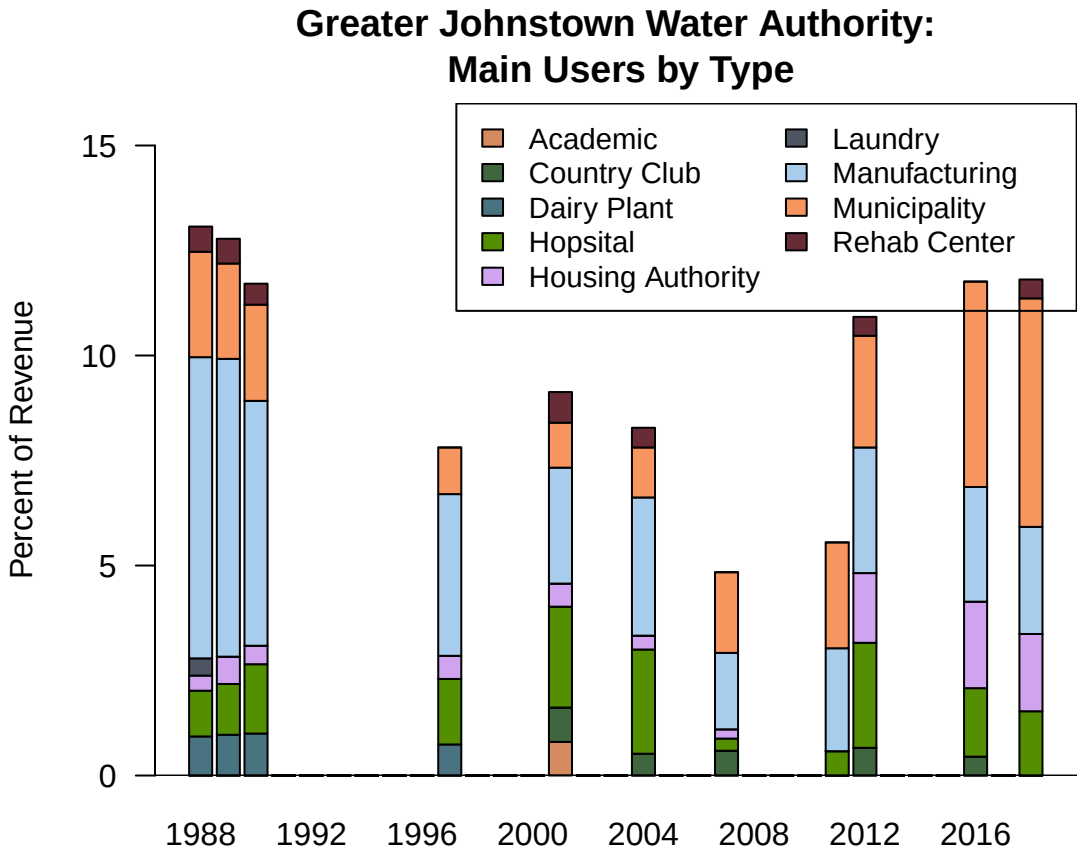

Figure 14: Divides the top 10 customers by type of customer and shows the percent of revenue earned from each customer type in each year of known revenue. From the graph, you can see that manufacturing as a top customer decreases over time, while municipalities as a source of revenue increases.

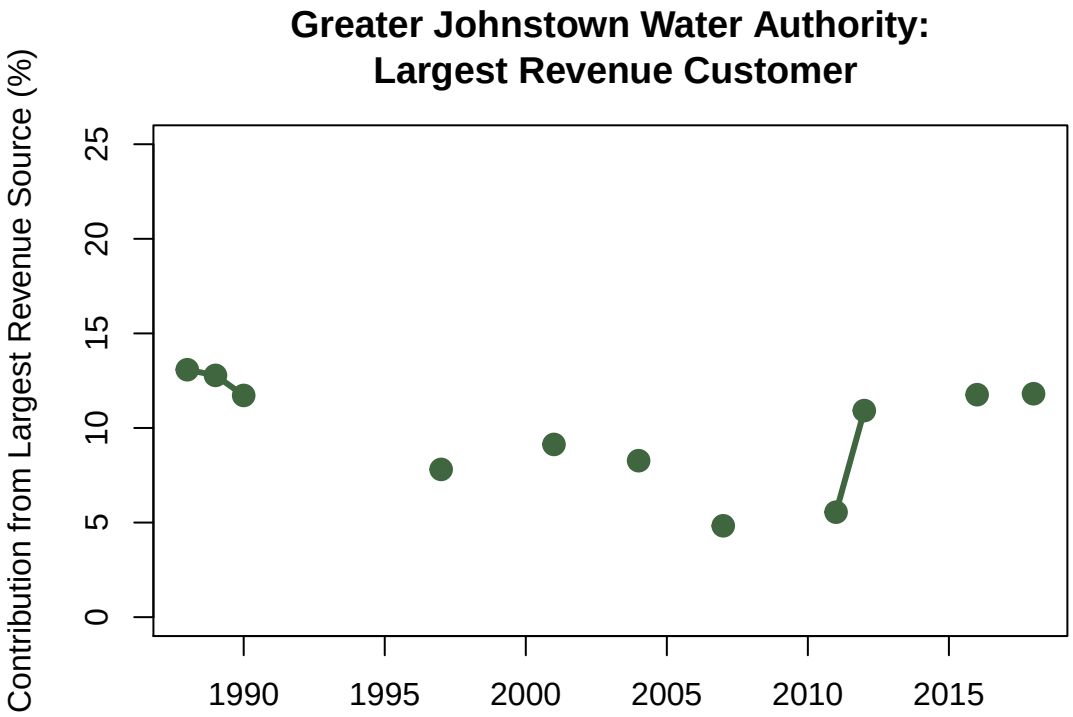

Figure 15: The top ranked customer (providing the largest revenue source) from each year. In Johnstown's case, the top 10 customers were totaled, so this shows the total contribution from the top 10 customers over time.

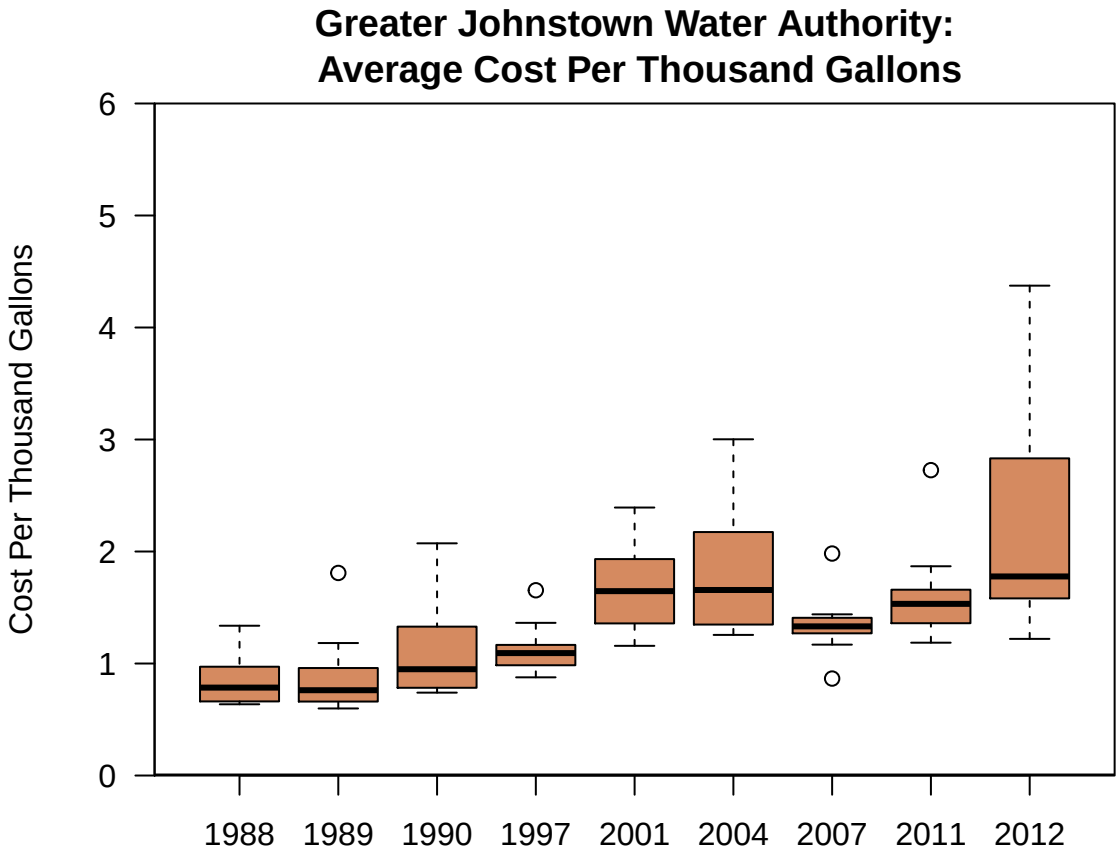

Figure 16: Revenue earned from each of the top 10 customers was divided by the total number of thousand gallons used to produce $/gal value. The values ranged depending on the type of customer, so the range of values was plotted for each year of revenue reported.

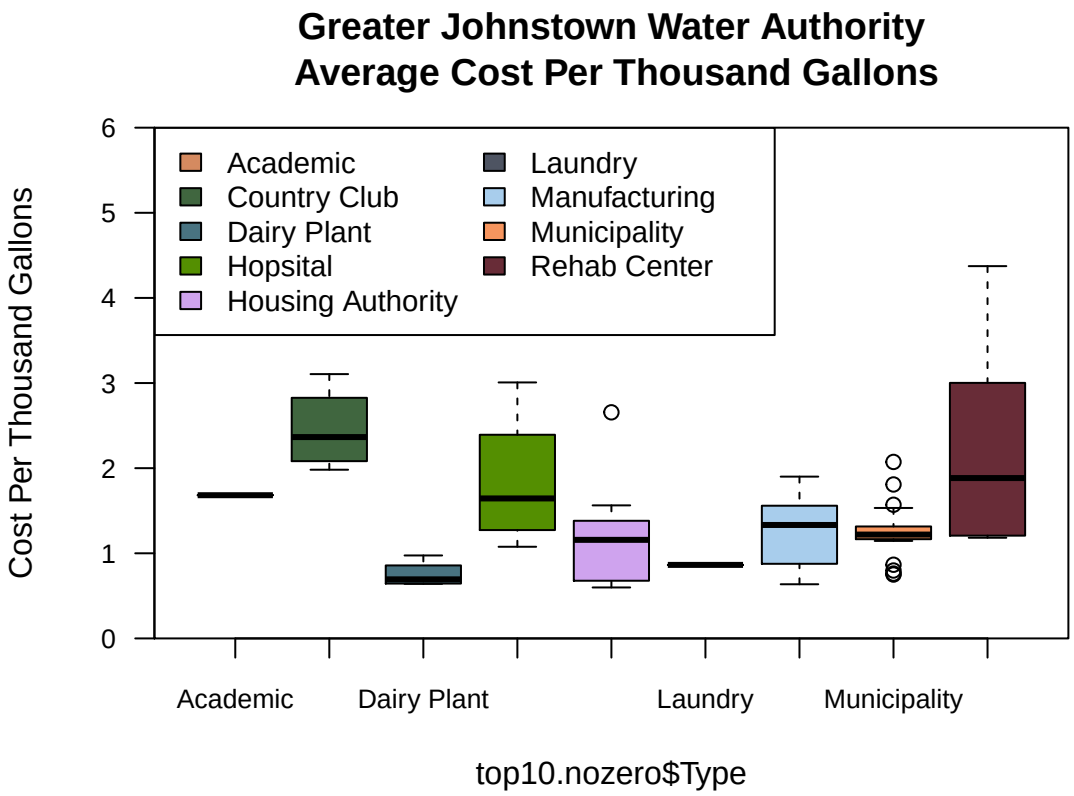

Figure 17: Plot shows range of cost per thousand gallons that each type of customer has paid over the bonds when revenue was reported.

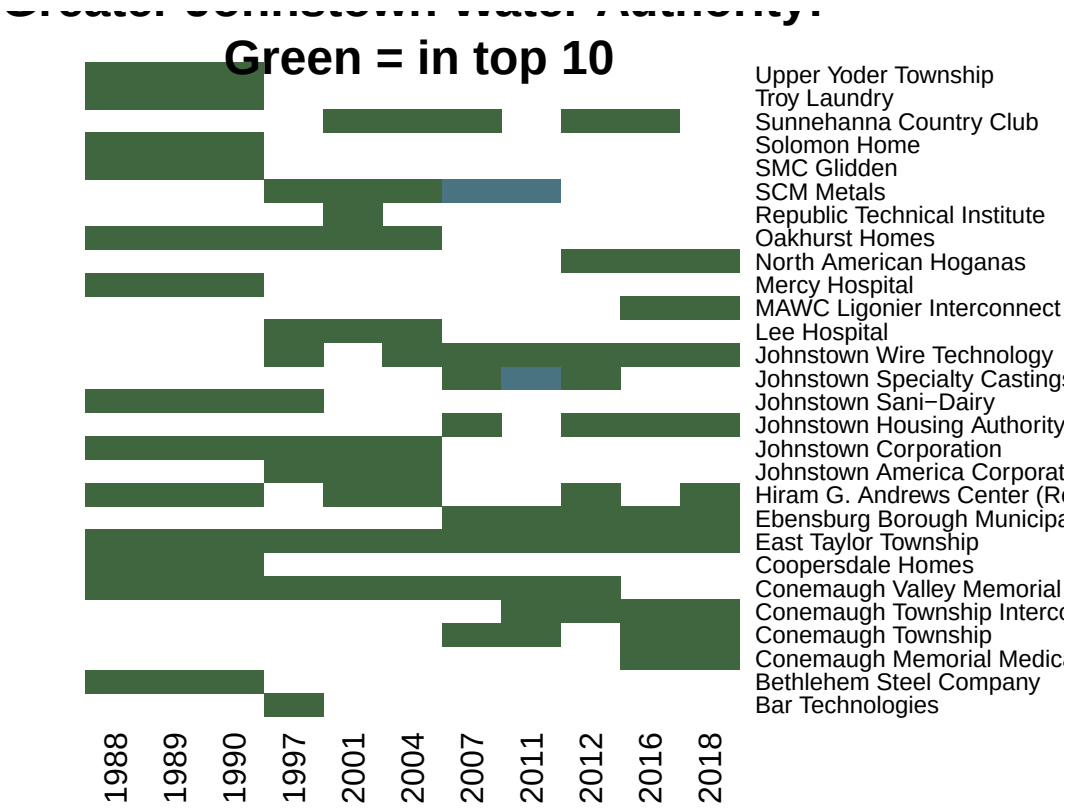

Figure 18: Heat map showing when customers were in the top 10 revenue producing customers for each year. You can see that while some customers were in the top 10 in the 90's others have taken their place in the 2000s.