Power BI Presentation

Bryce Bowles and Tony Clayton

I'd like you to start with the question that was posed to you:

The question we sought to answer arose from a legislative change on the horizon for the Agent Licensing section. Starting in 2021 we will be changing many of our processes, one of which is moving from requiring standard criminal history searches to requiring that resident candidates for license get fingerprinting done. The short and sweet version of why is that fingerprinting is a much more comprehensive search type than the basic search done by the State Police and the process will be much faster.

So as a part of this change, one of the potential options to help implement this change is to contract with a fingerprinting service. This particular analysis focused on FieldPrint. FieldPrint provides electronic fingerprinting and related services where a license candidate will be able to go in, get their fingerprints done, and then they will be matched against a national database and we will be able to access the results. So knowing that FieldPrint was a candidate for this contract we needed to determine what kind of coverage they had for Virginia residents and received the following question to answer:

"Determine within a 50-mile radius of exam candidates' homes whether there is a FieldPrint location. The attached pivot table includes among other data elements exam candidate counts by zip code. While only one candidate is needed, candidate volume is important when determine if a new FieldPrint location is needed; therefore, heat maps may be the best visual representation of the data. However, try other options to see what works best? Regardless, color code for the higher volume zip codes."

"…how you thought about what information would be necessary to answer the question…"

Since the process that this is directly affecting is insurance license candidates and we are primarily concerned with residents as non-residents have a simpler process based off reciprocity. We decided it would be best to get a sense of the number of insurance license candidates by location. However, we were unable to generate a report via Sircon that would have license applicant address information, specifically zip code, but we were able to get the address information of exam candidates from Pearson Vue.

One thing of note is that not all resident applicants will need to take an exam. For instance, Limited Lines Producer licenses do not have an exam requirement and thus would not be counted for purposes of the heat-map. However, out of almost 8,000 individual resident licenses issued last year, only 434 were Limited Lines licenses (or roughly 5% of all licenses issued), so we do not expect the numbers to be significantly skewed by the applicants that are not represented in the exam candidate data.

We settled on zip code as being broad enough that we were getting a useful sense of density without cluttering the visual while not being as broad as a map based on counties or

congressional districts where it may be unclear how spread out the candidates are within that location.

"…where you got your data, how you got the data…"

Richard obtained an excel file from Pearson Vue, who is contracted to handle the license exams, that had a large amount of information regarding all exam candidates from the past year, including their location data. This was the slice of information that we used, but there are potentially inquiries that we could make with this same data-set.

Once the data was loaded into Power BI, we did have to adjust some of our data in the "Edit Query" section before loading it in, but it was mostly minor adjustments to make sure all the data was represented correctly. In particular, we changed the Zip Codes columns from number columns, which would remove 0's at the start of zip codes, to text columns.

"…how did you ArcGIS it…."

Give a brief overview of how the two main maps were generated, and then how the dashboard was generated. Maybe show some of the other features that are somewhat related to this analysis such as infographics and reference layers.

"…what problems you ran into and how you solved them…"

We were initially unable to locate the "Drive Time" feature to do the radius' due to the "edit" feature of the map not being entirely prominent. Additionally, on the dashboard page sometimes adding other features to the map (such as infographics) will break the connections between the different visualizations. Usually you can reset it by just clicking off the map onto one of the other tables, but it can be finicky. Additionally, what it sometimes considers errors or what is causing them is unclear.

One of the largest issues was the limitations on only 10 Drive Time radius' and 10 map pins at a time. Additionally, adding these additional pieces seemed to cause issues with the underlying heat-map functions.

Additionally, because the data we were pulling from for the heat-map was simply doing a count of registrations by zip code as opposed to a count of unique exam takers by zip code, the number of exam registrations would not correlate 1:1 with people who would need to get fingerprinting done. In other words, we would expect there to be significantly more exam registrations than people who need fingerprinting done as some people will take multiple exams on different dates, or simply have to re-take exams after failing or not showing up to an appointment.

However, we generated the heat-map with the registration data because we strongly suspected that despite this issue, it would strongly correlate with a population density map of Virginia. This was in fact the case. However, if we were to pursue the question of "Does candidate volume in certain areas mean more FieldPrint locations will be needed" more deeply we would likely try to either obtain data regarding the number of unique Resident License applicants by location or the number of unique exam takers who passed an exam by location as that would likely generate

numbers closer to how many people will be served within the 50 mile radius of FieldPrint locations in a given year.

"...what the analysis train of thought was..."

After our initial discussion with Richard about how to get the data, we decided to first generate the heat map with the candidate registration data. As expected the resulting map was very similar to a Population Density map.
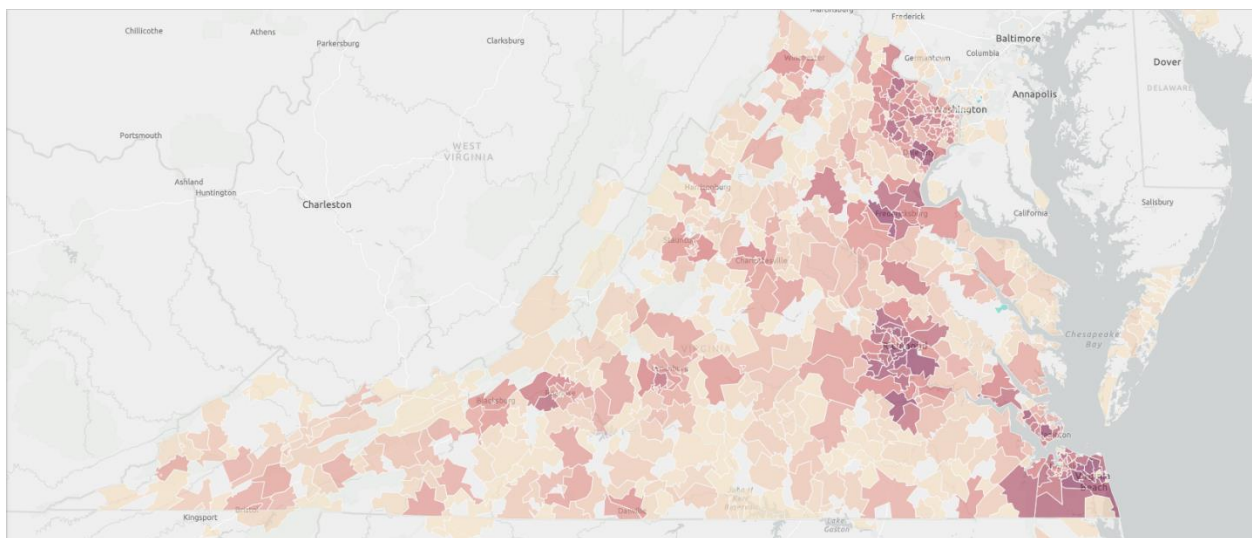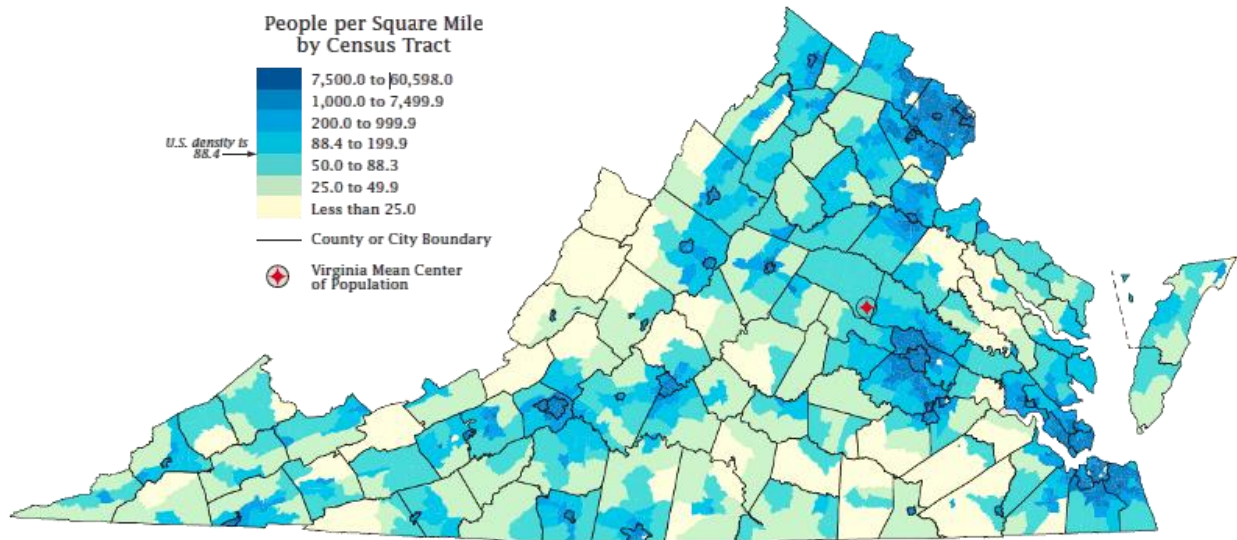
Next, we generated a map to answer the question that is fairly easy to answer with the ArcGIS map: Is there an existing FieldPrint location within 50 miles of all potential candidates.
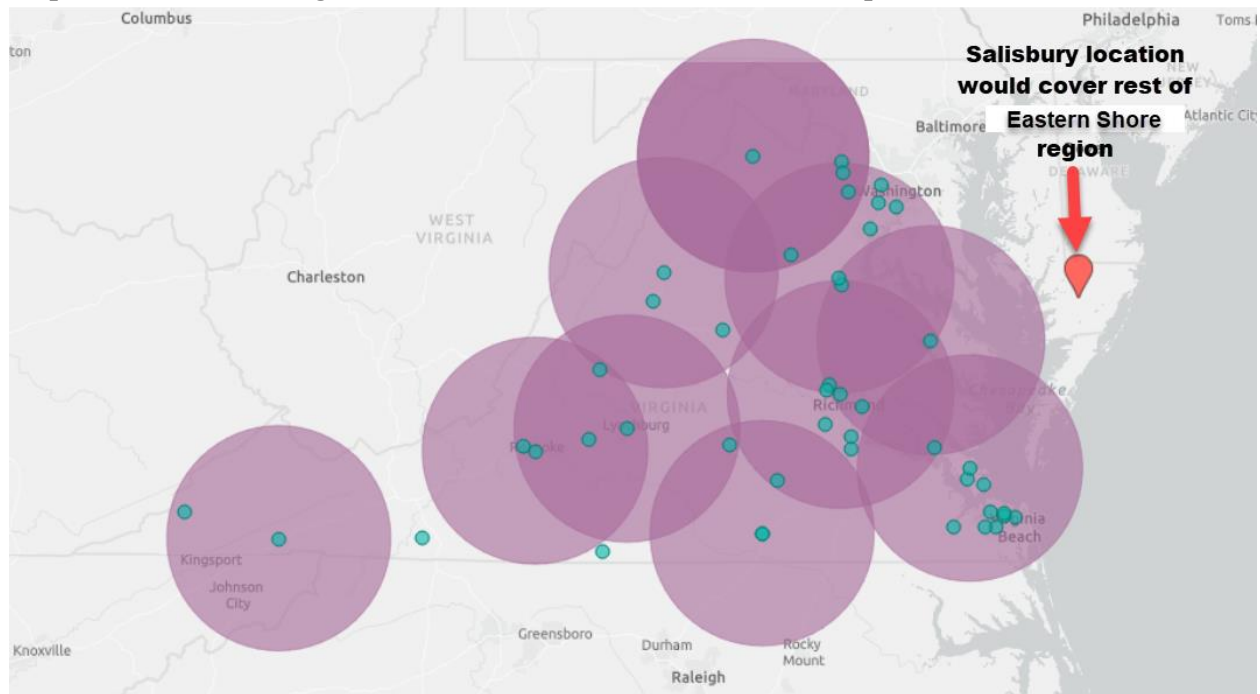

Despite the limitation of only 10 of the radius' at one time, it is clear that even just using the FieldPrint locations within Virginia, there is very nearly full coverage on the "50 mile radius" basis. One notable exception is the northern part of the Eastern Shore. If the FieldPrint locations in other states are able to be used by Virginia Resident License applicants, then there is a Salisbury Location in Maryland that would cover the majority of the gap in the Eastern Shore region, but the availability of FieldPrint locations for use by VA residents may be something we wish to inquire about with FieldPrint.

"…what the analysis concluded…"

Thus, we can comfortably say that there is a FieldPrint location within a 50 mile radius of Virginia residents with one possible exception in the Eastern Shore. That is one question answered.

The other part of the question, whether that coverage is adequate given the number of potential applicants served by the FieldPrint offices, is harder to answer and would likely require some information from FieldPrint and a standard for what we consider adequate. If someone can schedule an appointment to do fingerprints at a FieldPrint office within the next 2 of their request, would that be acceptable? What about within the next 5 days?
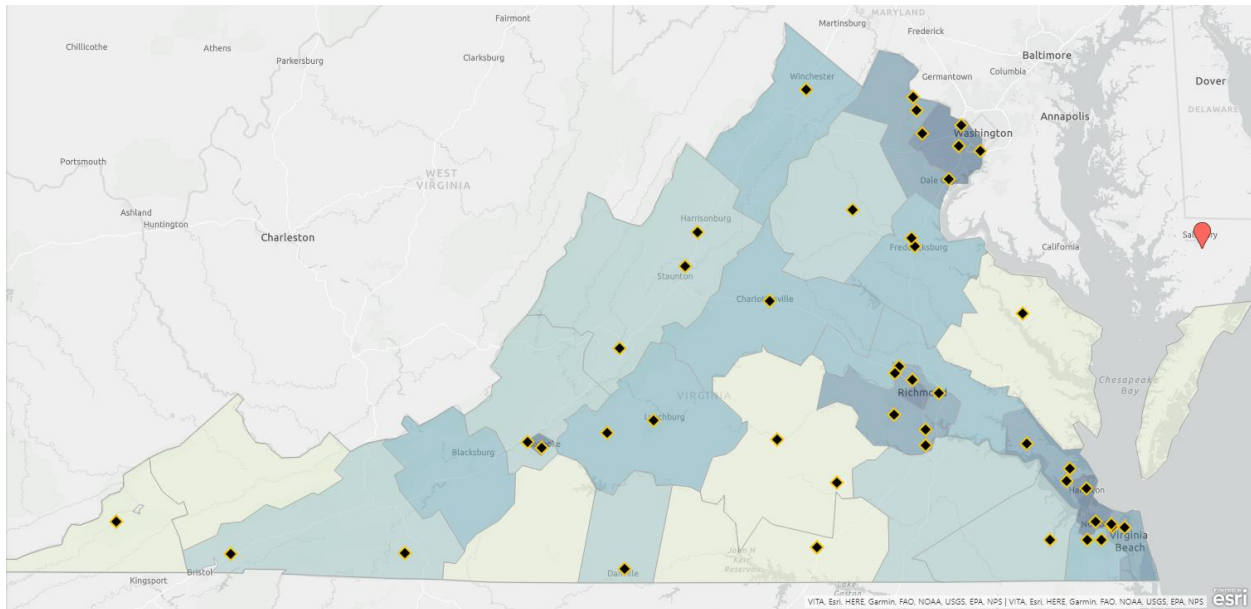
This secondary question would require more input and discussion to create a standard that we would use to answer this second question, but at the very least we have a starting point that as least shows that not only do they have adequate coverage on the 50-mile radius basis, but they also have high concentrations of offices around the main population centers of the state. This makes good business sense, but also would probably point to there not being any severe shortage of coverage in most areas.

For this secondary question, it is also worth trying to determine if the influx of insurance applicants would be large enough to require an expansion of either the number of offices or the availability of when appointments could be scheduled. Again, this would likely require some input from FieldPrint to get accurate answers.

"...what actions were done as a result."

As of right now, no direct actions have been taken from our analysis, rather this analysis was primarily aimed at starting to answer some of the fundamental questions that would be part of any contract negotiation with FieldPrint if we were to go that route. While the question regarding the 50-mile radius has been pretty firmly answered, the other question requires more information and standards to measure the level of coverage. Additionally, a similar review of the other potential candidates for any fingerprinting contracts could use some of the same structure that this initial analysis.