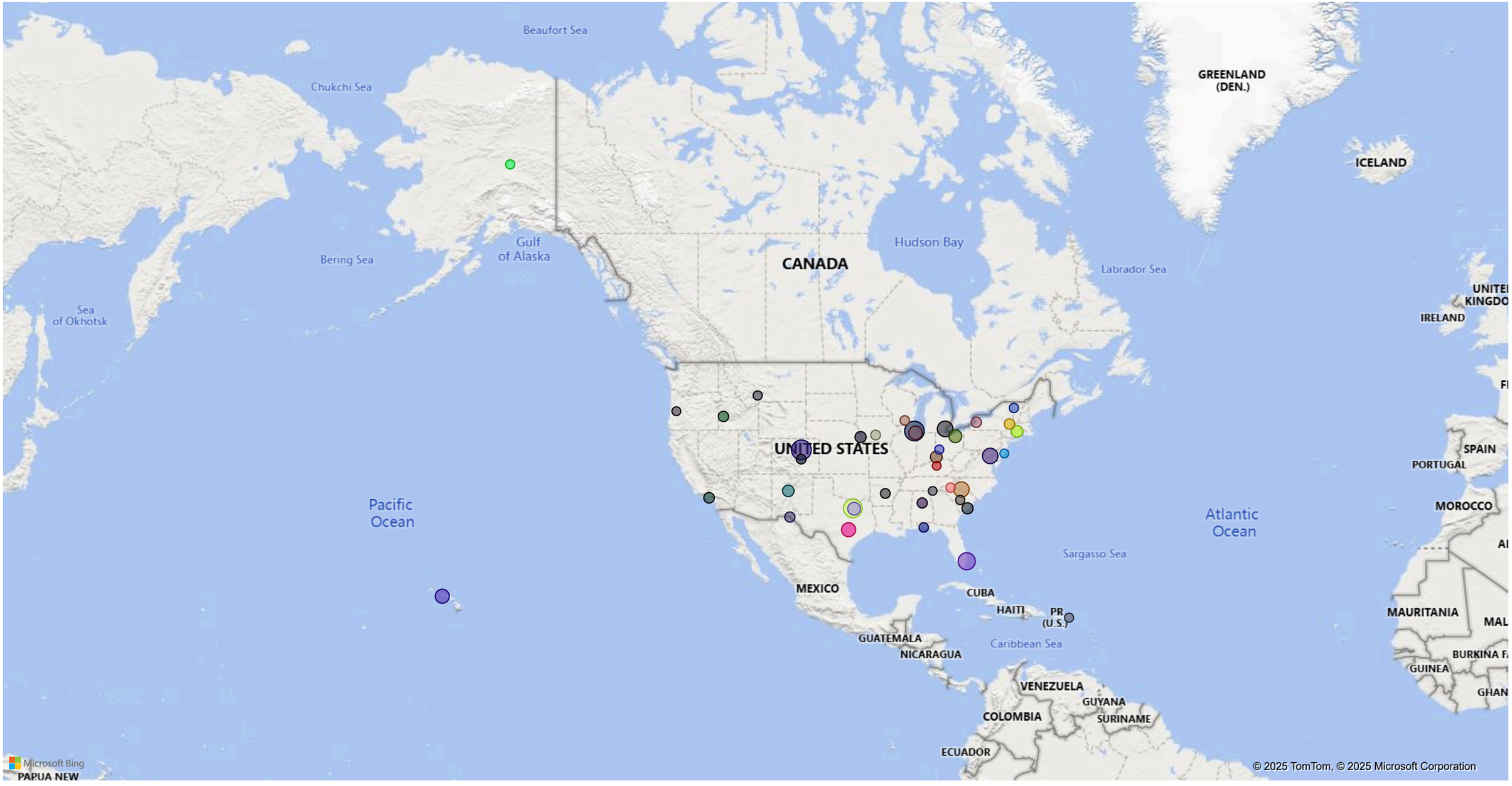
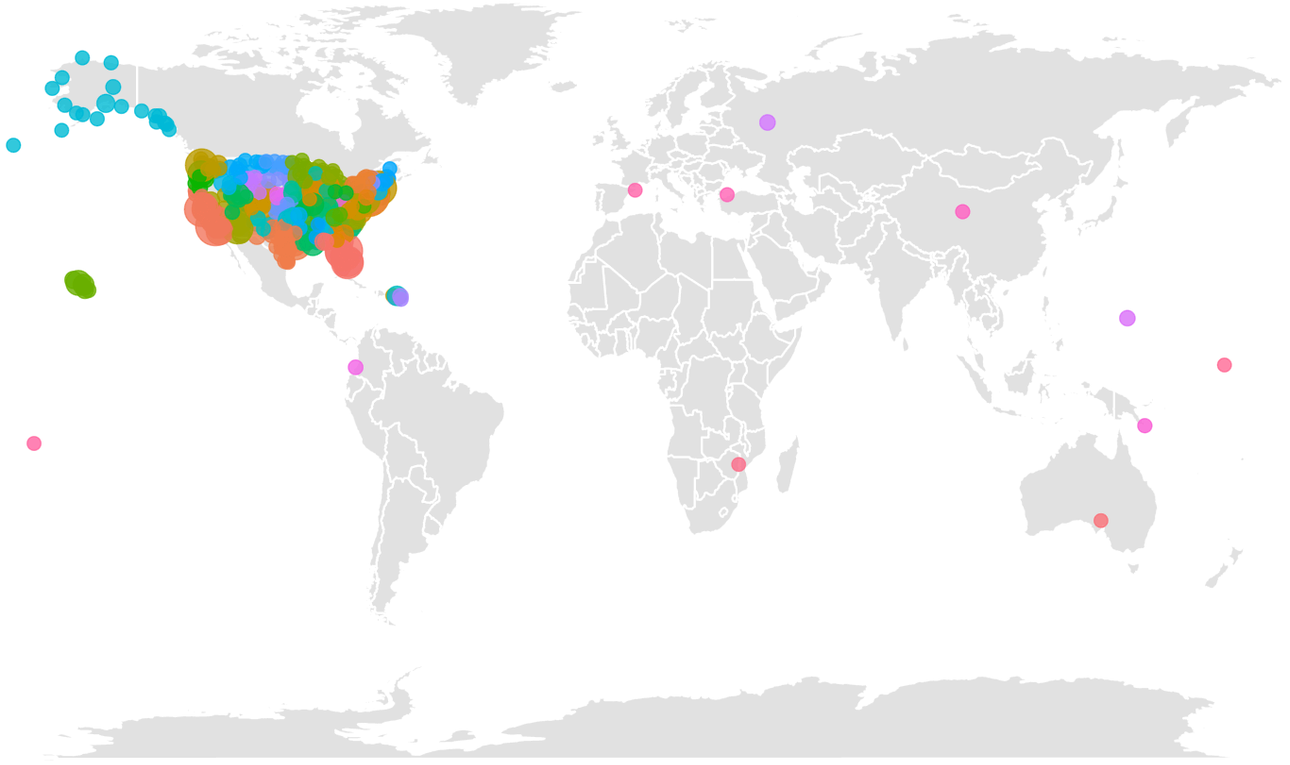
## Aggregate Complaint Map



Complaints by Airport (World Map)



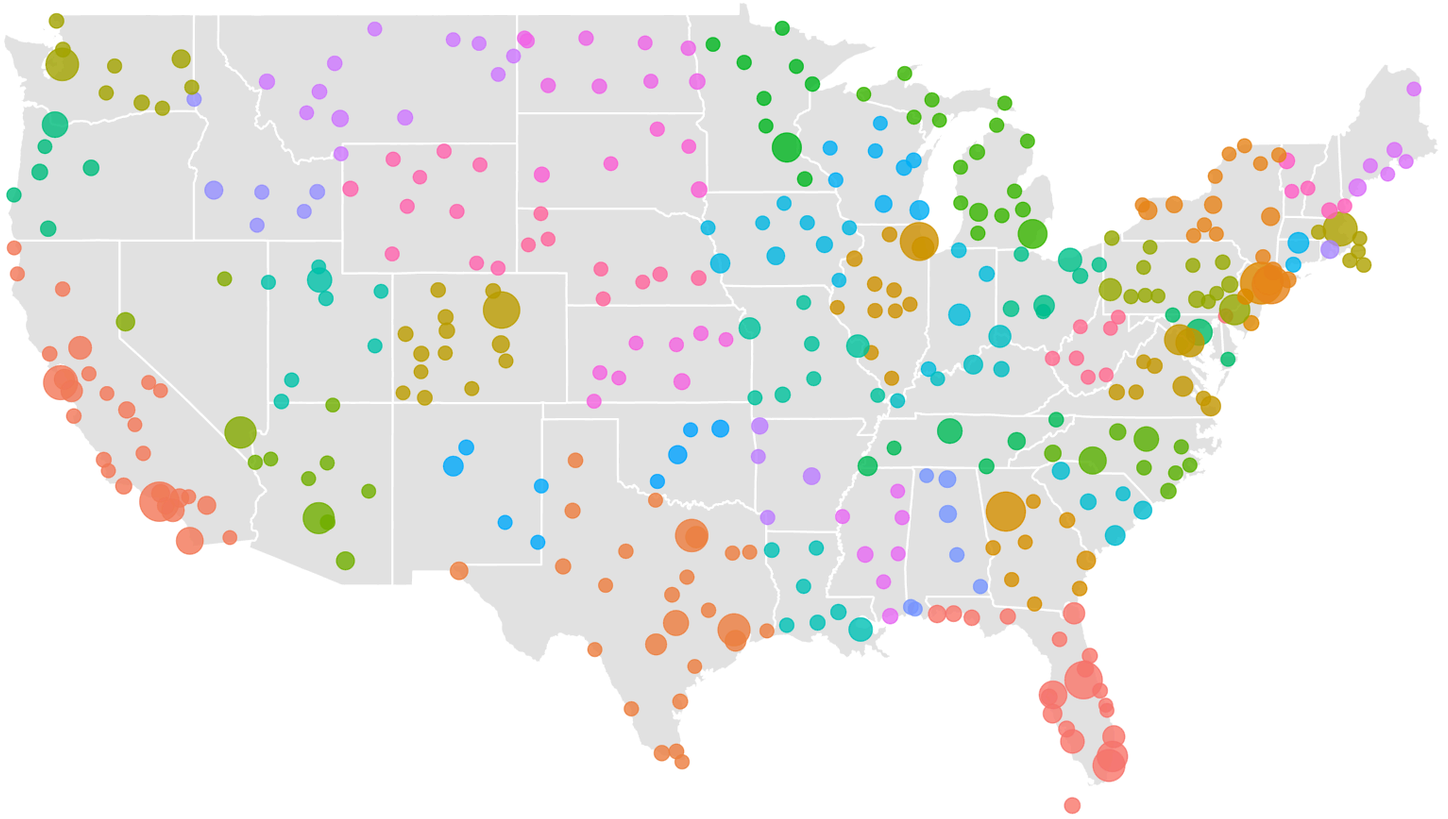
Region

- Florida
- California
- Texas
- New York
- New Jersey
- Georgia
- Illinois
- Virginia
- Colorado
- Massachusetts
- Washington
- Pennsylvania
- Nevada
- Arizona
- North Carolina
- Michigan
- Minnesota
- Hawaii
- Tennessee
- Maryland
- Oregon
- Ohio
- Missouri
- Utah
- Louisiana
- Kentucky
- South Carolina
- Indiana
- Iowa
- Connecticut
- Wisconsin
- New Mexico
- Carolina
- Oklahoma
- Alaska
- Alabama
- Idaho
- Rhode Island
- Arkansas
- Montana
- Maine
- Mississippi
- North Dakota
- Kansas
- South Dakota
- Vermont
- Virgin Islands, U.S.
- New Hampshire
- Wyoming
- Irkutskaya oblast'
- Barrigada
- Nebraska
- West Virginia
- Cauca
- Delaware
- National Capital District (Port Moresby)
- Ponce
- Qinghai
- Istanbul
- Catalunya
- Eastern District
- Gilbert Islands
- Manicaland
- South Australia

Complaints

- 0
- 2500
- 5000
- 7500
- 10000
- 12500

Complaints by Airport – United States Only



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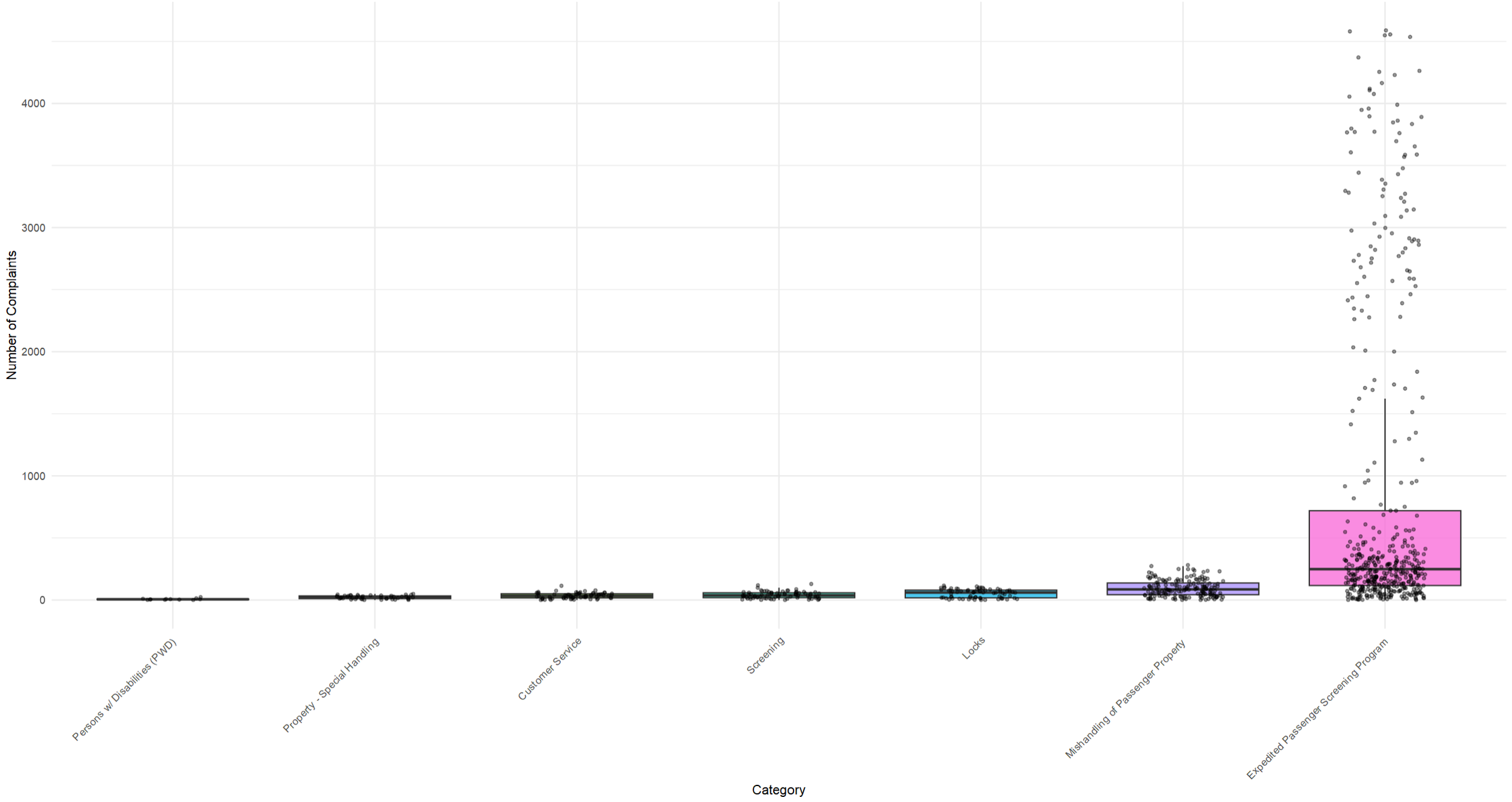
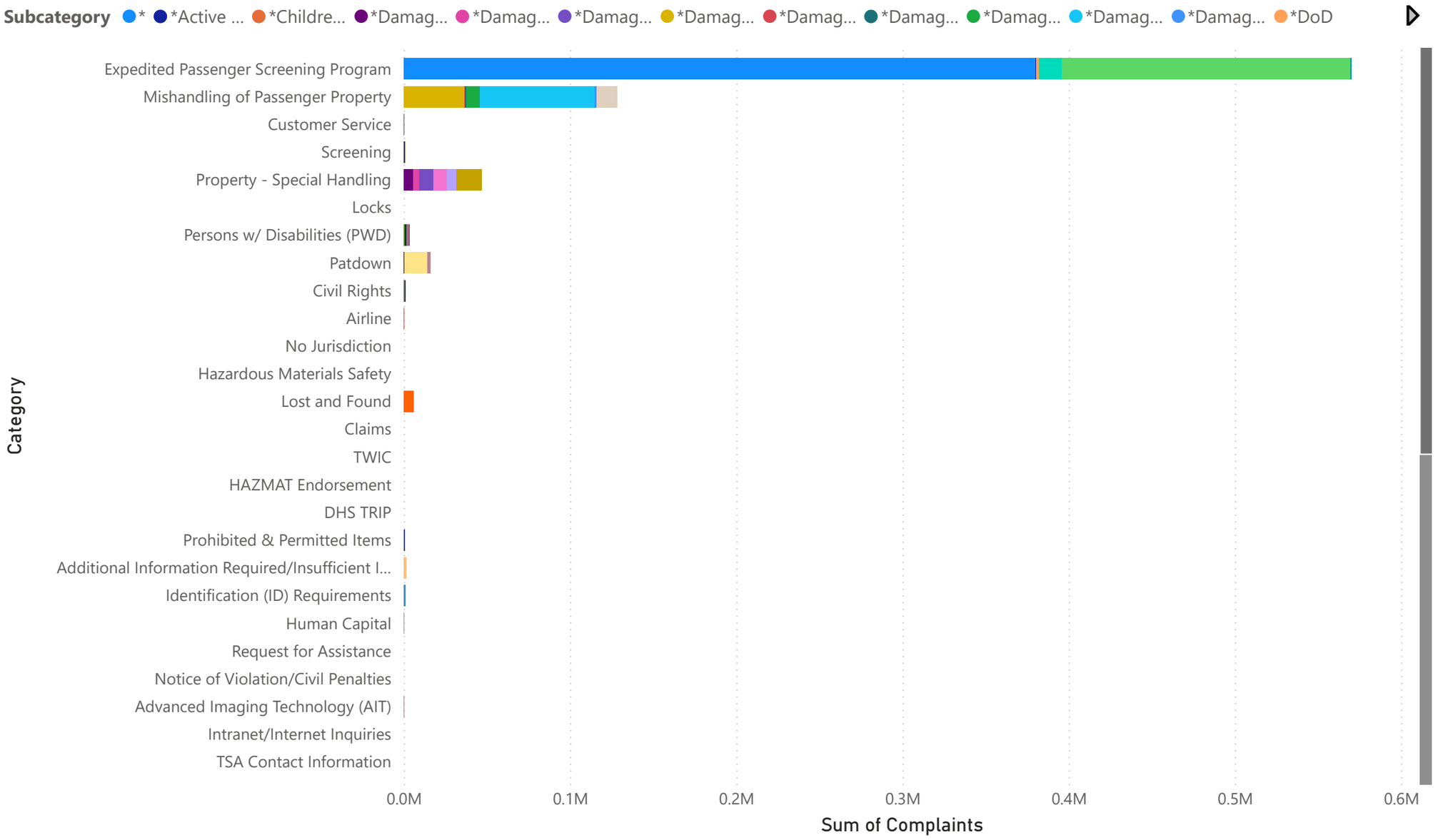
- Ohio
- Missouri
- Utah
- Louisiana
- Kentucky
- South Carolina
- Indiana
- Iowa
- Connecticut
- Wisconsin
- New Mexico
- Oklahoma
- Alaska
- Alabama
- Idaho
- Rhode Island
- Arkansas
- Montana
- Maine
- Mississippi
- North Dakota
- Kansas
- South Dakota
- Vermont
- New Hampshire
- Wyoming
- Nebraska
- West Virginia
- Delaware

## Top 7 Categories by Complaints

Distribution of Complaints by Category



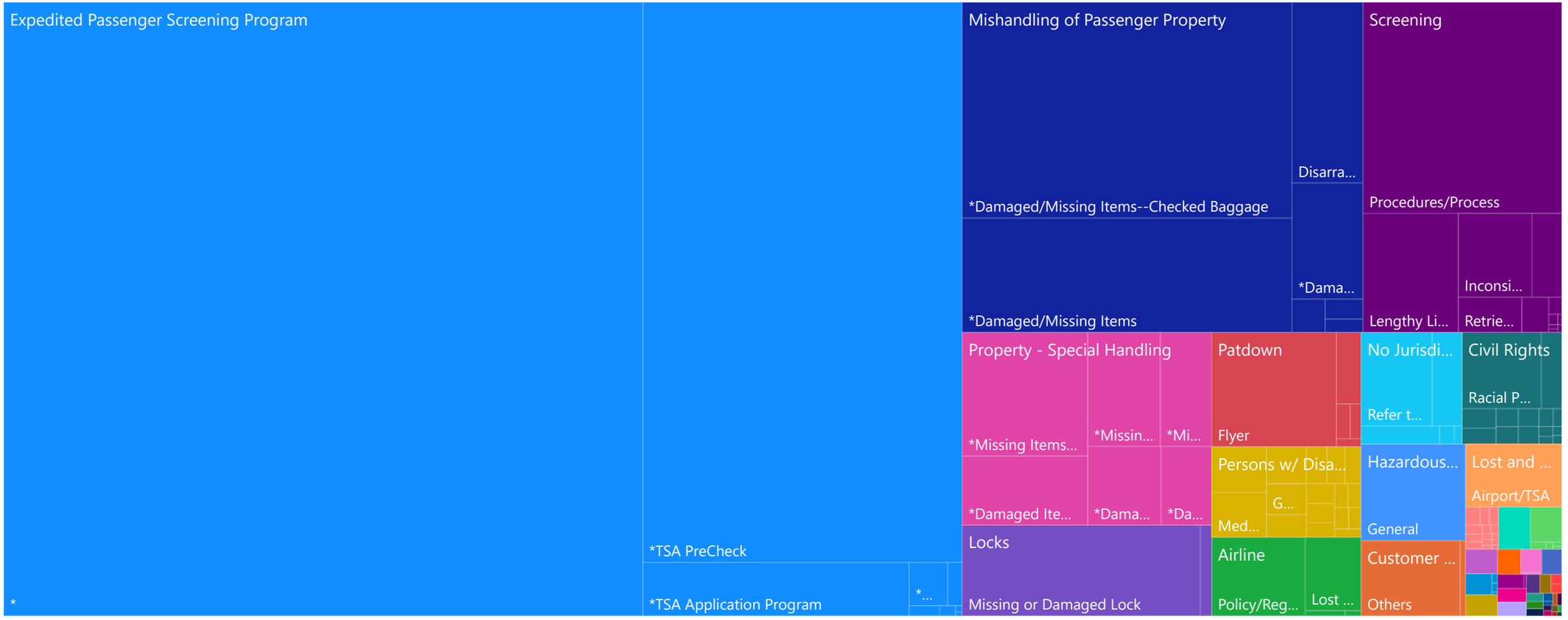
## Sum of Complaints by Category and Subcategory



Category

- [ ] Additional Information Required/Insufficient Information
- [ ] Advanced Imaging Technology (AIT)
- [ ] Airline
- [ ] Animals

## Sum of Complaints by Category and Subcategory



The TSA data analytics team was contacted by the continuous improvement (CI) team about the occurrence of complaints. The CI team has compiled data for complaints by category and region but are struggling to compile a data model that permits further analysis. The task is assigned to an analytics team member to:

1.
Create a normalized Power BI (PBI) data model for further analysis by the CI team

2.
Summarize complaints by region, both US & International using maps to present to CI leadership

3.
Analyze Category and Subcategory and provide initial direction to CI initiatives

The analyst verifies the quality of the data before consolidating the four datasets into “dim_airport” and “fact_complaint”, which detail airport geographic data & complaint category and occurrence, respectively. Utilizing a star schema greatly simplifies the analysis process, as measures and visualizations may include more data with less configuration. The PBI app permits relationship modeling, which further simplifies joins between tables, and lays the foundation for further enriched data surrounding location or complaint analysis.

The analyst then begins creating the map visuals, first using the native PBI map visual to aggregate complaints by airport. The PBI map visual is interactive and easily modular, so it’s a natural fit for the high-level introductory location analysis. The following map visuals utilize the custom visual R script embed to more accurately depict the volume of complaints by Airports within regions, both internationally and within the US. The visuals show the location of the airports and the size of the bubble shape indicates the volume of complaints received at that location. For both custom visuals, the regions in the legend are sorted in descending order of total complaints, indicating the most problematic regions for the TSA process.

The analyst completes the project by constructing a box plot to evaluate the variance of the top 7 complaint categories, a tree map to interactively evaluate category and subcategory complaint volume, and finally a stacked bar chart detailing the same volume of complaints and the proportional amount of complaints belonging to the subcategories.

The analyst reviews the data model again for accuracy (ethically significant); specifically, the regions are charted accurately and that the top seven categories are correctly filtered, so that the effort of the CI team isn’t wasted on high-performing regions or categories. A miscalculation here would betray the trust of the CI team and possibly jeopardize the resource allocation to improving the customer experience, which in this case degrades the experience of all traveling within the purview of the TSA. The conclusions from the model indicate the highest opportunities in the southwestern and southeastern coastal regions of the US, specifically within the Expedited Passenger Screening Program.