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Visualizing Transportation Collections Using Tableau

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Visualizing Research Collections in the National Transportation Library's Digital Repository ROSA P

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Amanda J. Wilson, Director, National Transportation Library

Overview

- Assessment through Visualization
- Tableau as Assessment tool
- Examples of Tableau Usage
- Process
- Results
- Lessons Learned
- Future Application

Collection Assessment through Visualization

- Decision Making
- Used to identify coverage gaps including subjects, dates, geographic locations, and resource types
- Uncover trends & patterns
- Use of emerging technology: Tableau
- Used for information policy

Advantages of Tableau

- Interactive data visualizations
  - Filtering capabilities→ layers of data
- Quickly analyze data
- Data becomes less abstract
- Information discovery
- Enables creativity

We'll Be Moving Momentarily

Exploring DC Metro Delay data from September 2012 through September 2016

interworks

Select your metro line to filter the data

24,064	16.15	113.0
Total Delays	Avg. delays per day	Avg. delays per week

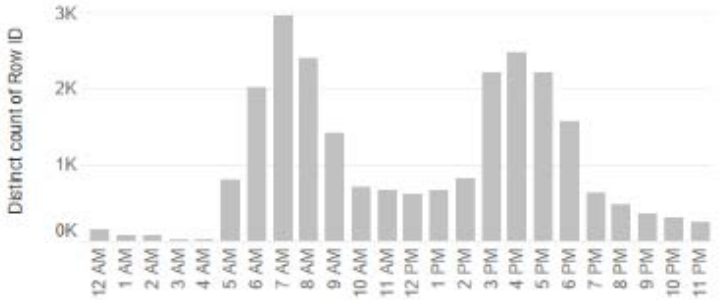
Delays have been increasing on average since 2015

Grey - total delays

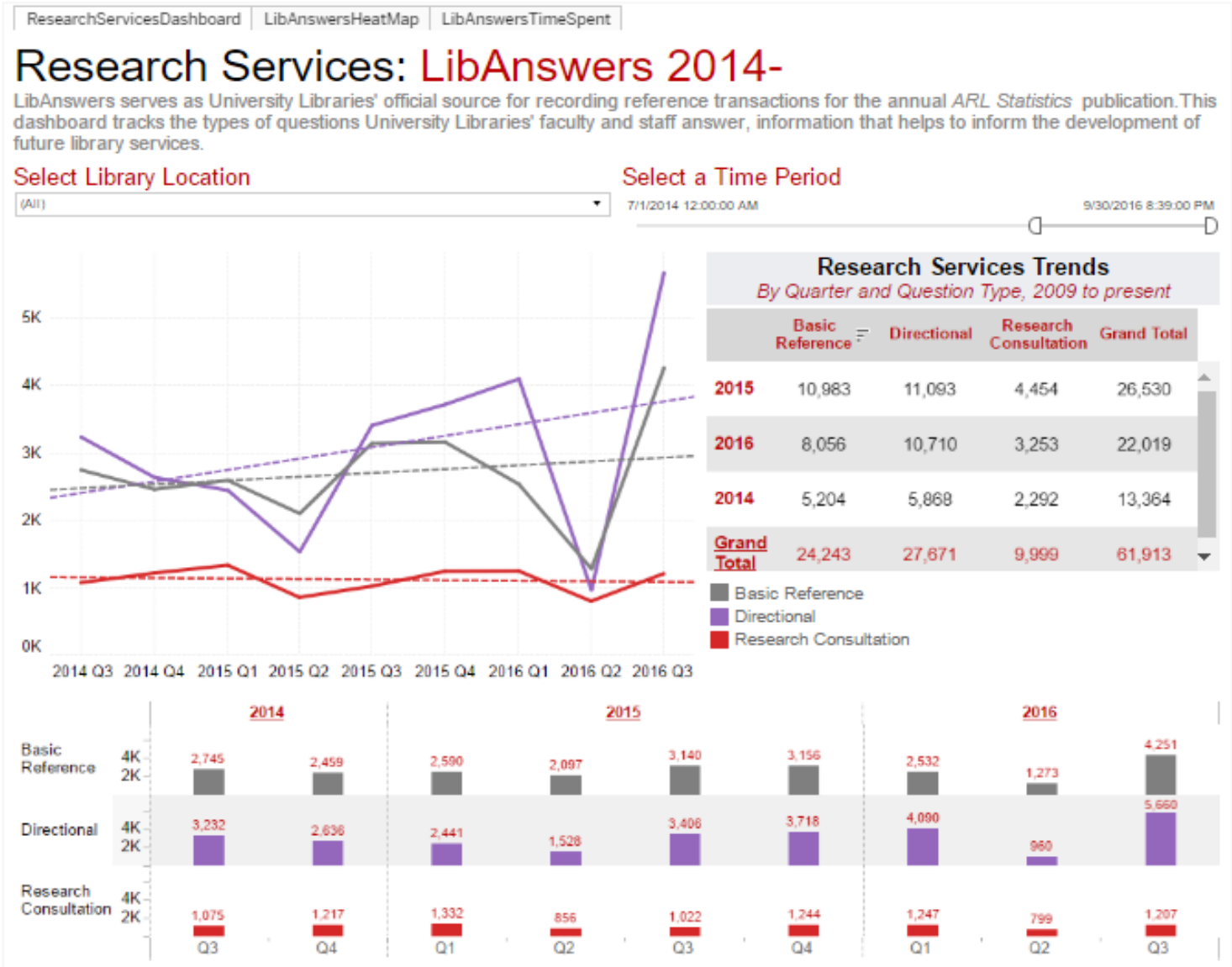
Click or hover over the delay type to learn more.

Datasource: www.opendatadc.org

Frequency of Delays for All on the All Line by Time of Day



Interworks, Accessible: https://www.interworks.com/resources/viz-gallery/10432



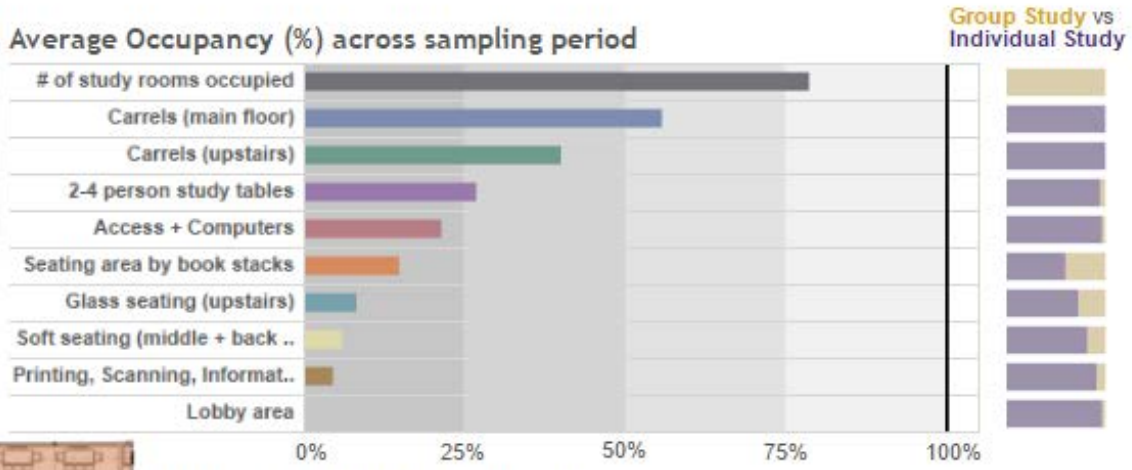
Ohio State University Libraries, Accessible: http://go.osu.edu/OSUL_ResearchServicesDashboard

UNIVERSITY LIBRARIES
UNIVERSITY of WASHINGTON

Foster Business Library
Space Assessment

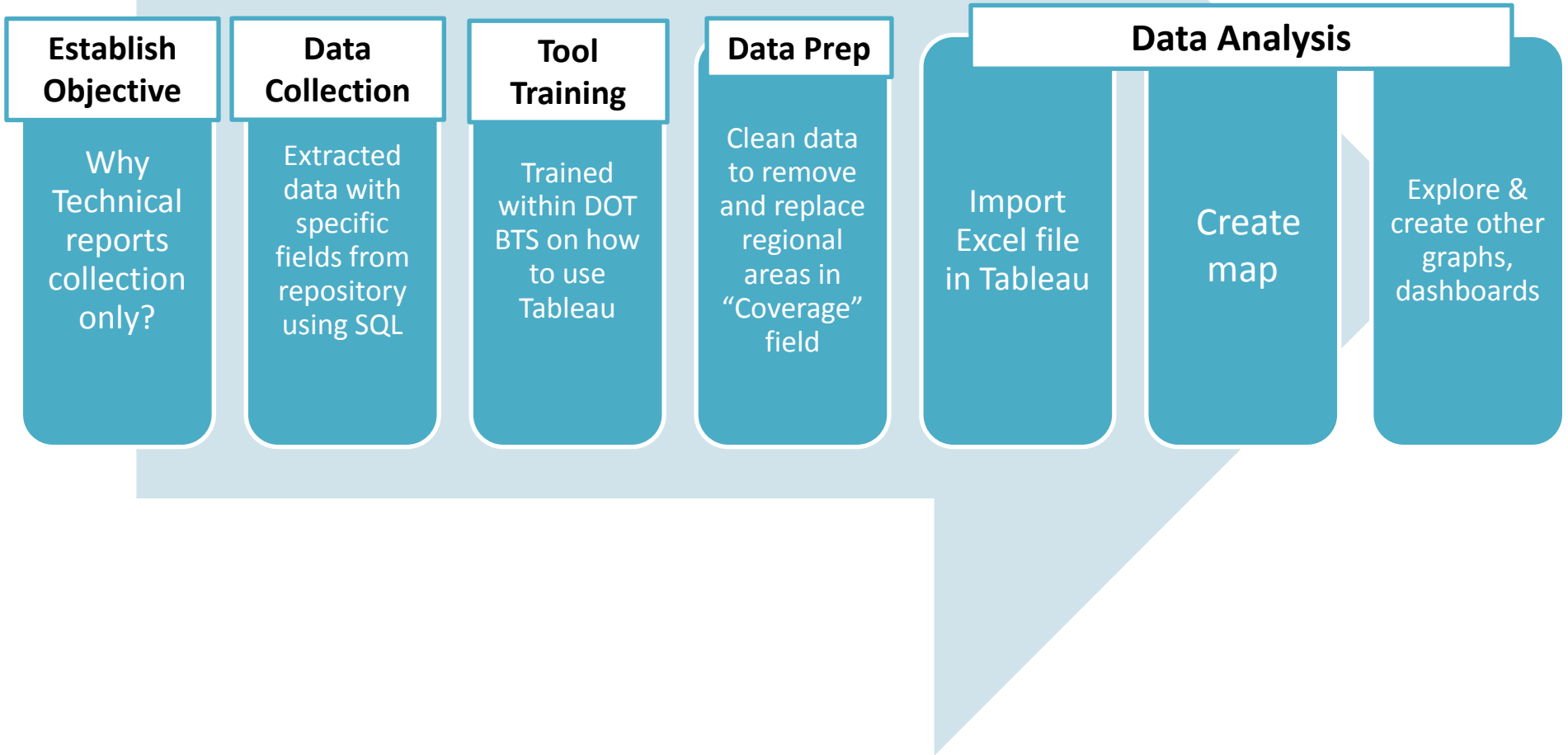
Select a location on the map below to highlight results for that area, or select the kind of space on the right to show all areas and use of that type of seating.

Carrels	Lounge	Study Rooms	Tables	Workstation
78	72	11	128	55



University of Washington Libraries, Accessible: http://tabsoft.co/2fB7OJ8

Process

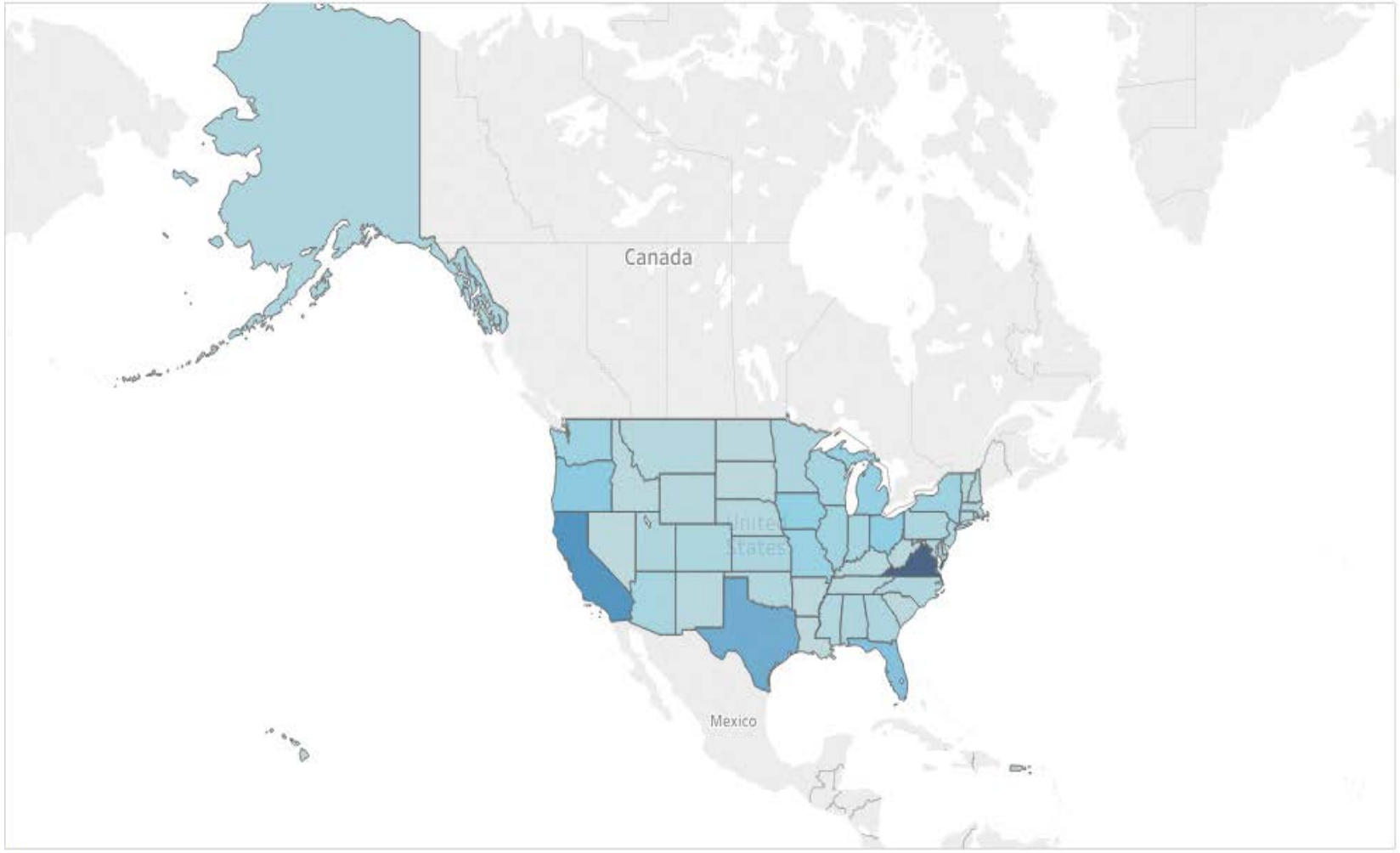

Establish Objective
Why Technical reports collection only?
Data Collection
Extracted data with specific fields from repository using SQL
Tool Training
Trained within DOT BTS on how to use Tableau
Data Prep
Clean data to remove and replace regional areas in "Coverage" field
Data Analysis
Import Excel file in Tableau
Create map
Explore & create other graphs, dashboards

Challenges - Unclean Data

YEA	PUBISHER	RESOURCE_TYPE	GEO_SEQ_N	COVERAGE	REGIC	URL_SQL_N	IDENTIFIER
1992		Tech Report	1	United States	NAM	1	http://ntl.bts.gov/lib/000/500/558/ntci1.pdf
1980		Tech Report				1	http://ntl.bts.gov/lib/000/500/572/8001.htm
1993		Tech Report				1	http://ntl.bts.gov/lib/000/500/577/9306.htm
1976		Tech Report	1	Seattle (Washington)	NAM	1	http://ntl.bts.gov/lib/000/500/591/7610.htm
1975	United States. Congress. Office of Technc	Tech Report				0	http://ntl.bts.gov/lib/000/500/593/7503.pdf
1975	United States. Congress. Office of Technc	Tech Report				1	http://ntl.bts.gov/lib/000/500/593/7503.htm
1975	United States. Government Printing Offic	Tech Report				1	http://ntl.bts.gov/lib/000/500/594/7504.htm
1991		Tech Report	1	United States	NAM	1	http://ntl.bts.gov/lib/000/500/595/9115.htm
1975		Tech Report	1	East North Central States	NAM	1	http://ntl.bts.gov/lib/000/500/599/7507.htm
1975		Tech Report	2	Eastern States	NAM	1	http://ntl.bts.gov/lib/000/500/599/7507.htm
1995		Tech Report	1	Cincinnati (Ohio)	NAM	1	http://ntl.bts.gov/lib/000/600/609/planp.pdf
1995		Tech Report	2	Indiana	NAM	1	http://ntl.bts.gov/lib/000/600/609/planp.pdf
1995		Tech Report	3	Kentucky	NAM	1	http://ntl.bts.gov/lib/000/600/609/planp.pdf
1995		Tech Report	4	Ohio	NAM	1	http://ntl.bts.gov/lib/000/600/609/planp.pdf
1996		Tech Report	1	Ohio	NAM	0	http://ntl.bts.gov/lib/000/600/612/861.pdf
1994		Tech Report	1	Washington	NAM	0	http://ntl.bts.gov/DOCS/05bellv.html
1980		Tech Report	1	United States	NAM	1	http://ntl.bts.gov/lib/000/600/637/8015.htm
1985	United States. Congress. Office of Technc	Tech Report	1	United States	NAM	0	http://ntl.bts.gov/lib/000/600/638/8520.pdf
1985	United States. Congress. Office of Technc	Tech Report	1	United States	NAM	1	http://ntl.bts.gov/lib/000/600/638/8520.htm
1990	United States. Congress. Office of Technc	Tech Report	1	United States	NAM	0	http://ntl.bts.gov/lib/000/600/640/9037.pdf
1990	United States. Congress. Office of Technc	Tech Report	1	United States	NAM	1	http://ntl.bts.gov/lib/000/600/640/9037.htm
1975	United States. Congress. Office of Technc	Tech Report	1	East North Central States	NAM	0	http://ntl.bts.gov/lib/000/600/642/7509.pdf
1975	United States. Congress. Office of Technc	Tech Report	1	East North Central States	NAM	1	http://ntl.bts.gov/lib/000/600/642/7509.htm

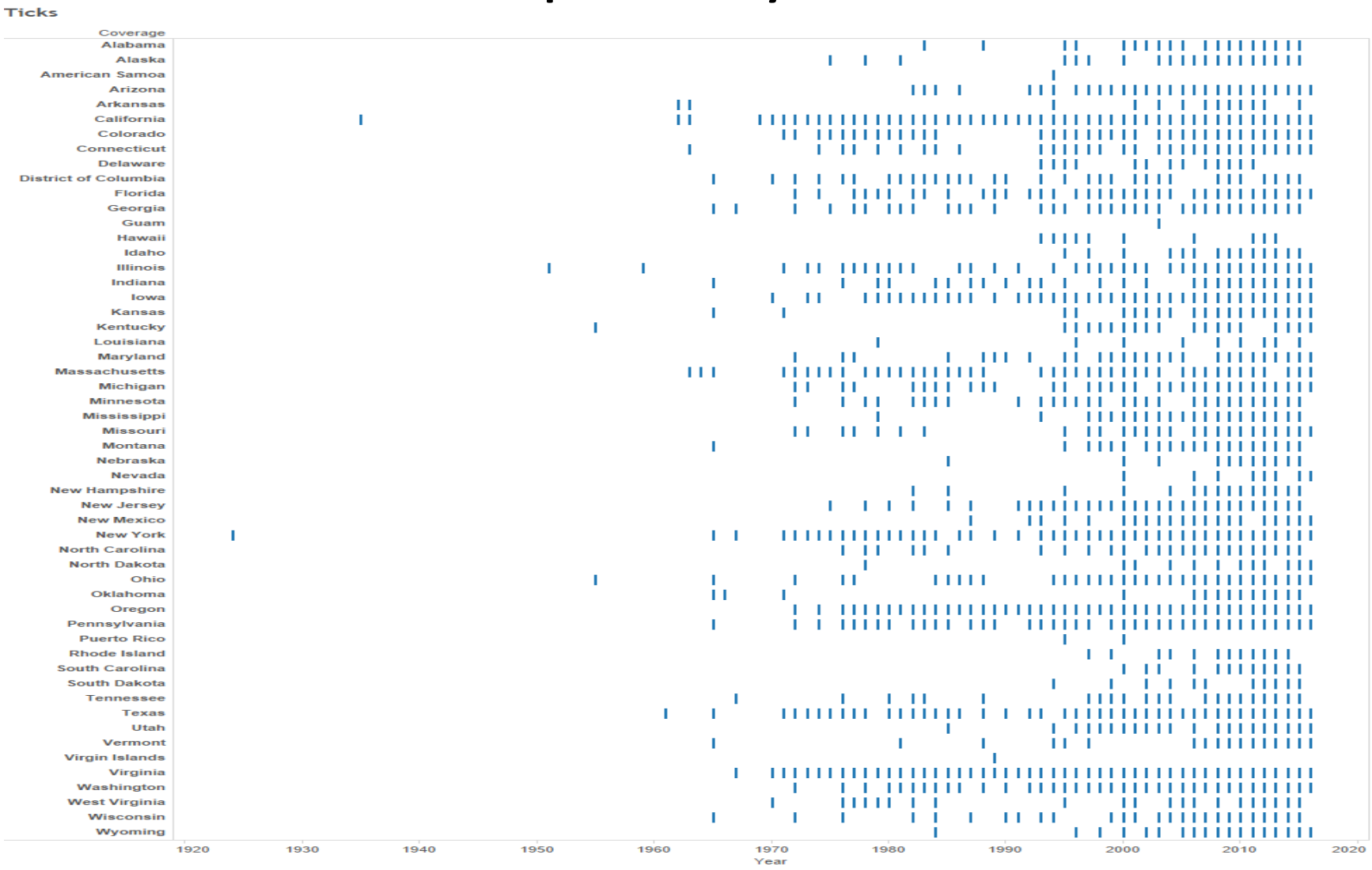
Technical Reports by State

Map

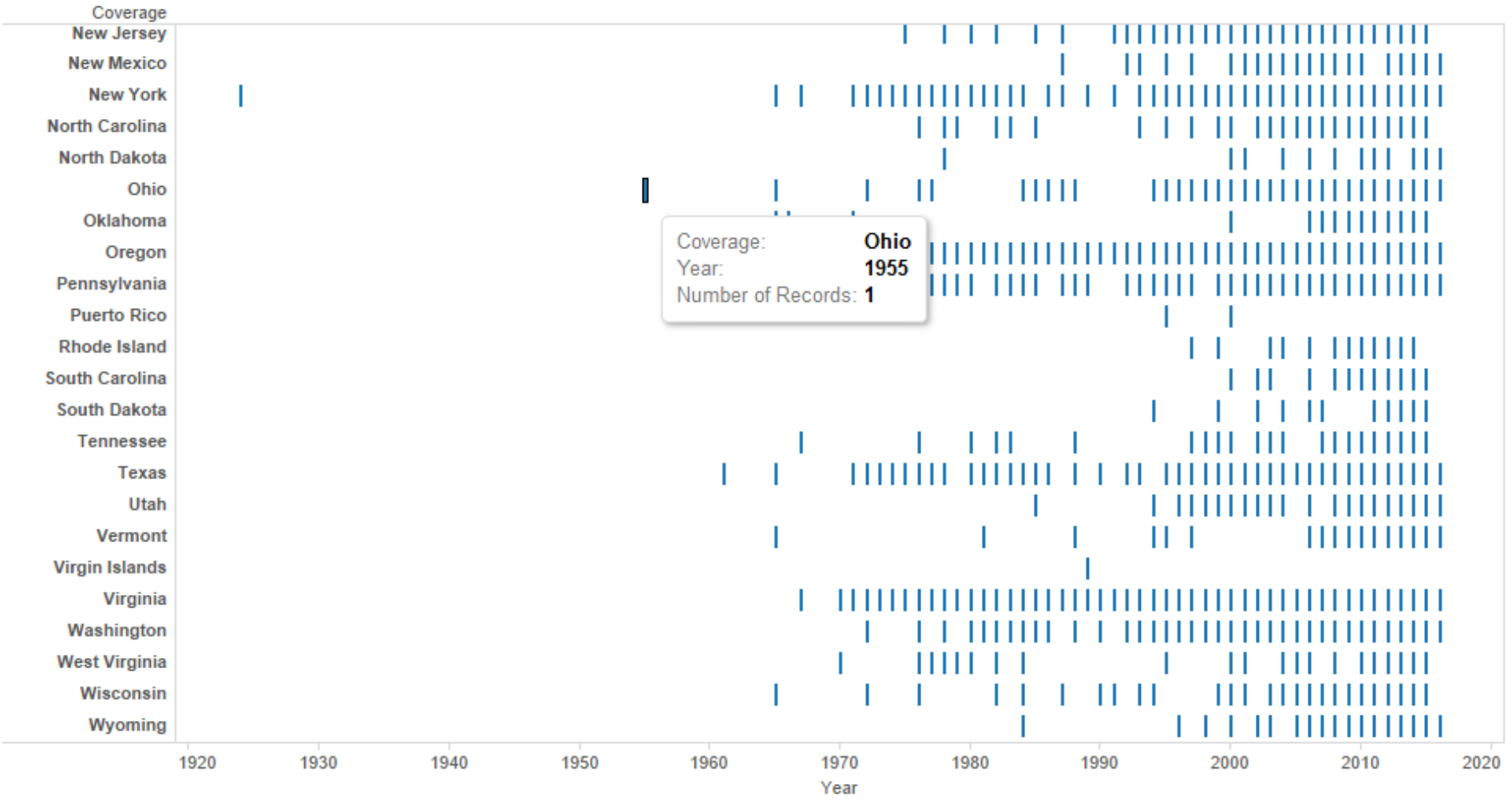


Map based on Longitude (generated) and Latitude (generated). Color shows sum of Number of Records. Details are shown for Coverage.

Technical Reports by State & Year



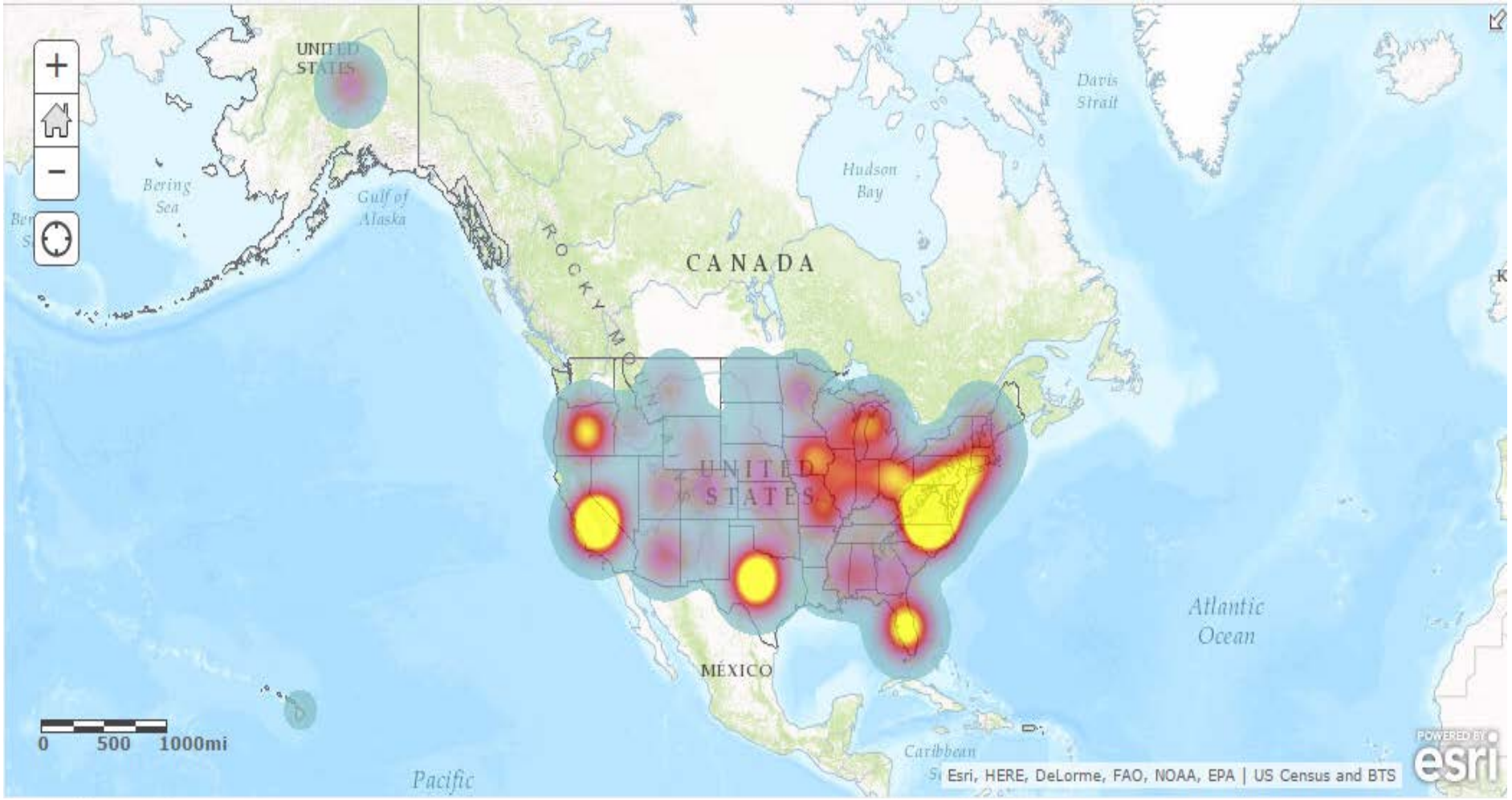
Technical Reports by State & Year



Lessons Learned

- Need data consistency
- Training is necessary
  http://www.tableau.com/learn/training
- Tableau vs ArcGIS Online

ArcGIS Online



Mapping Tools Comparison

	Tableau	ArcGIS Online
Ease of Use	Easy	Medium
Data	Clean data needed or it will not import at all	Clean data needed or it won't import properly
Geocoding	• Unnecessary for our analysis • Tableau automatically recognizes country names, state/province names, city names, and area codes for many countries world wide. • However, if you have street addresses, those need to be geocoded	• Had to batch geocode before importing excel file→ Used Batch Geocoding online • ArcGIS has World Geocoding Service but you must have a subscription
Analysis	Have ability to create various graphs AND maps	More for spatial analytics

Future ideas / uses

- Expand to all NTL collection
- Look at different ways to view the data / add dimensions; perhaps by transportation subjects
- NTL *ROSA P*/ TRB TRID overlap

Thank You!

Questions?