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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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## 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

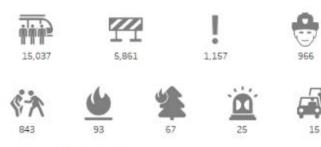
#### We'll Be Moving Momentarily

Exploring DC Metro Delay data from September 2012 through September 2016

#### Select your metro line to filter the data



Click or hover over the delay type to learn more.



24,064 16.15 Total Delays

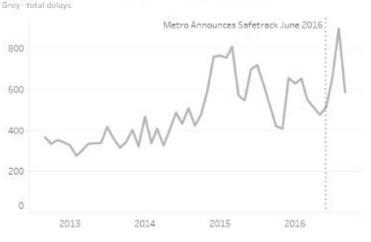
Avg. delays per day

Avg. delays per week

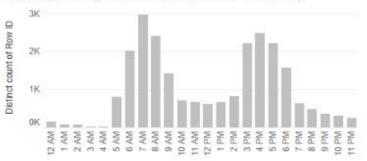
113.0

interworks

Delays have been increasing on average since 2015



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



Datasource: www.opendatadc.org

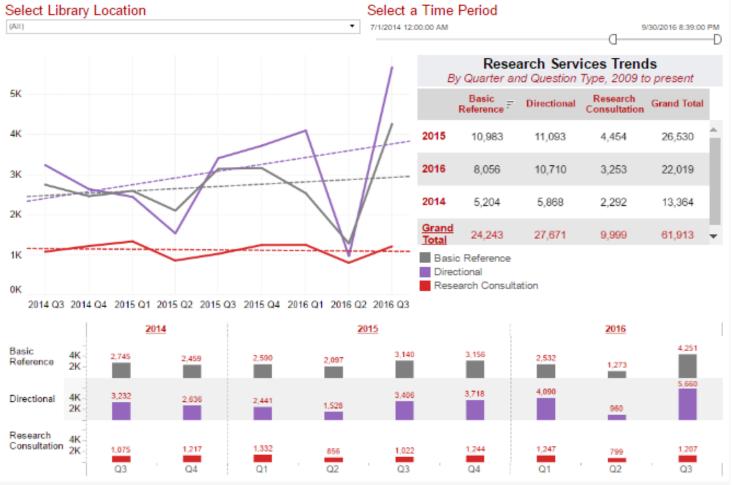
#### Interworks, Accessible: https://www.interworks.com/resources/viz-gallery/10432



ResearchServicesDashboard LibAnswersHeatMap LibAnswersTimeSpent

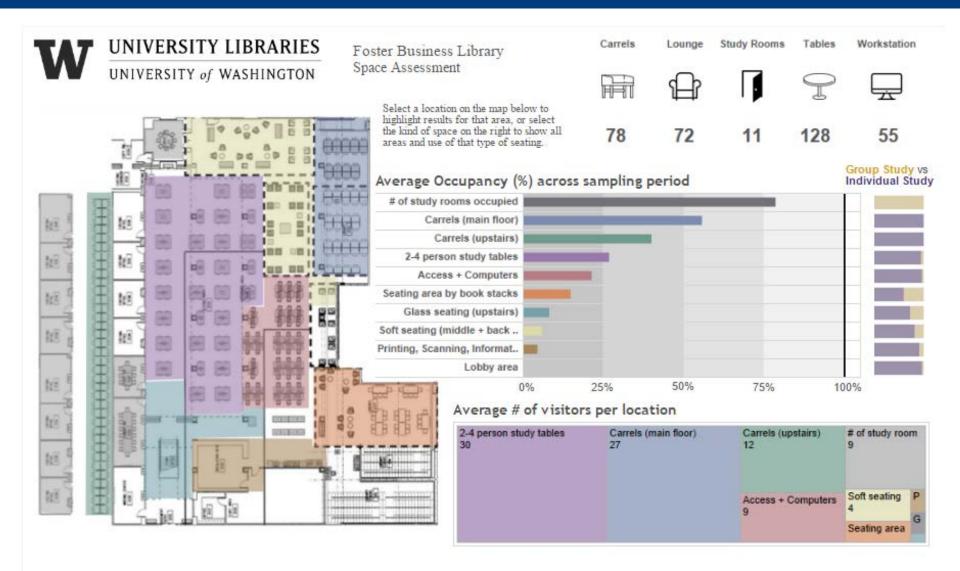
#### Research Services: LibAnswers 2014-

LibAnswers serves as University Libraries' official source for recording reference transactions for the annual ARL Statistics publication. This dashboard tracks the types of questions University Libraries' faculty and staff answer, information that helps to inform the development of future library services.



Ohio State University Libraries, Accessible: http://go.osu.edu/OSUL\_ResearchServicesDashboard

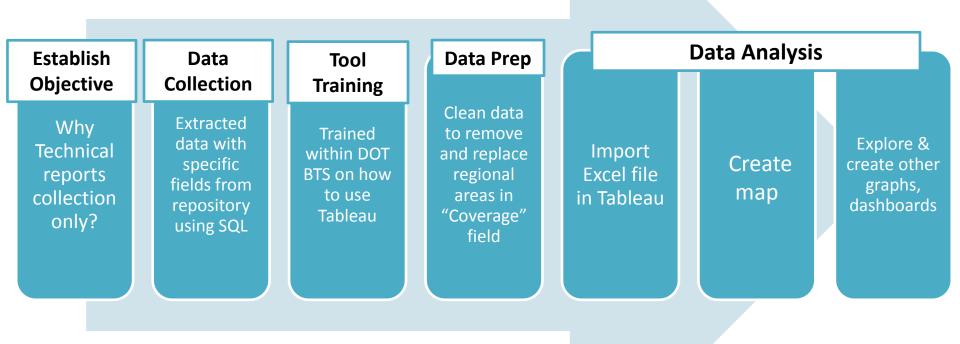
#### U.S. Department of Transportation Office of the Assistant Secretary for Research and Technology



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

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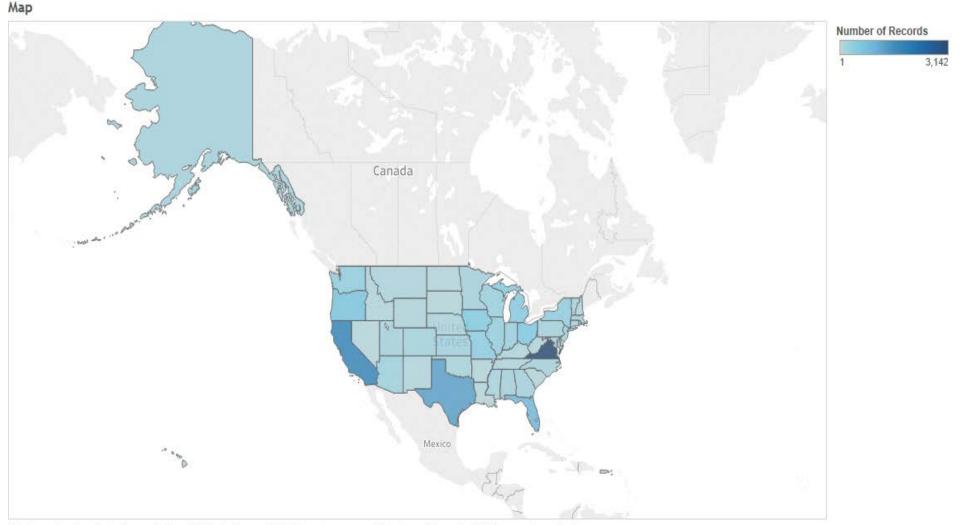


## Challenges - Unclean Data

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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 Techno	Tech Report				0	http://ntl.bts.gov/lib/000/500/593/7503.pdf
1975	United States. Congress. Office of Techno	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 Techno	Tech Report	1	United States	NAM	0	http://ntl.bts.gov/lib/000/600/638/8520.pdf
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1975	United States. Congress. Office of Techno	Tech Report	1	East North Central States	NAM	0	http://ntl.bts.gov/lib/000/600/642/7509.pdf
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## **Technical Reports by State**



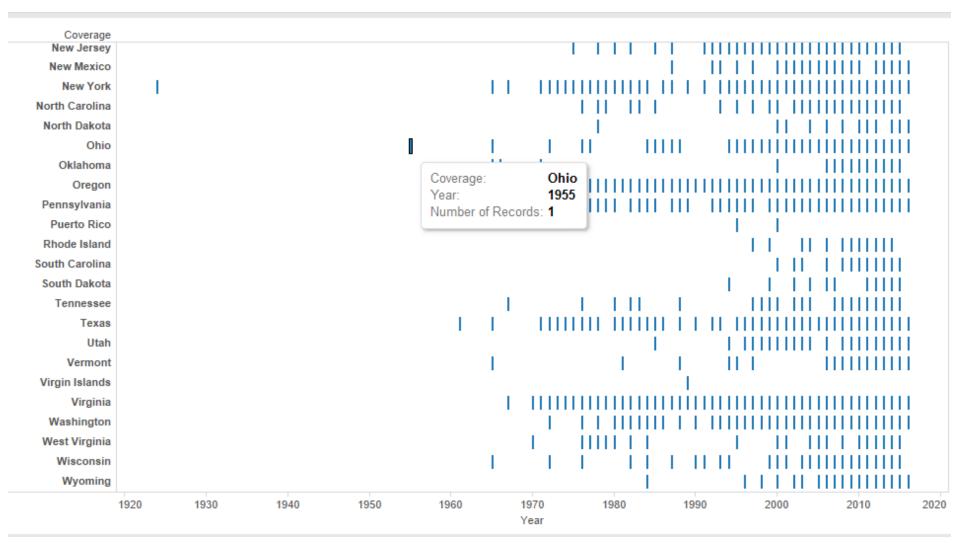
Map based on Longitude (generated) and Latitude (generated). Color shows sum of Number of Records. Details are shown for Coverage.

#### Technical Reports by State & Year

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Year for each Coverage. The view is filtered on Year, which ranges from 1900 to 2016.

## Technical Reports by State & Year



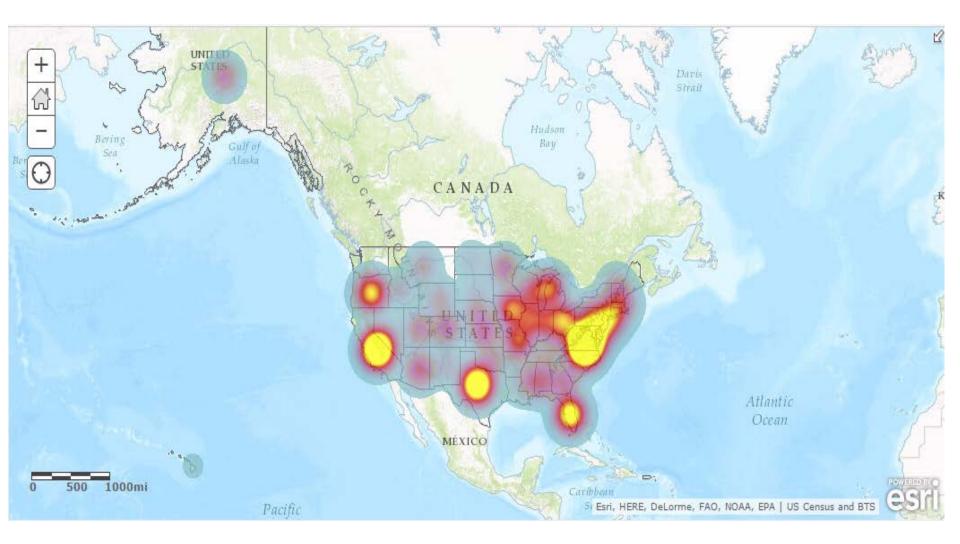


# Lessons Learned

- Need data consistency
- Training is necessary <u>http://www.tableau.com/learn/training</u>
- 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	<ul> <li>Unnecessary for our analysis</li> <li>Tableau automatically recognizes country names, state/province names, city names, and area codes for many countries world wide.</li> <li>However, if you have street addresses, those need to be geocoded</li> </ul>	<ul> <li>Had to batch geocode before importing excel file → Used Batch Geocoding online</li> <li>ArcGIS has World Geocoding Service but you must have a subscription</li> </ul>						
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



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### Thank You!

#### Questions?