Data Visualization in Transportation
NJDOT

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What is a visualization?
Visualizations make complicated things simple
Visualizations let people see how impressive your work really is.
Visualizations make comparisons easier

The Built-up Area of Atlanta and Barcelona Represented at the Same Scale

Atlanta:
2.5 million people (1990)
4,280 km² (built-up area)

Barcelona:
2.8 million people (1990)
162 km² (built-up area)

11/29/2018

We didn’t make this! Credit to: Alain Bertaud
What can visualization do for transportation?
It can give residents a view of the future.
It can let stakeholders see their concerns come to life.
It can actually show you the color of your money.
...and what that money buys
One picture may be all that people remember...

so make it count!
Data Visualization Methods
for Transportation Agencies

Welcome to Vizguide! This website is intended as a resource for transportation professionals who want to use illustrations and visualizations to communicate their ideas to an audience. You might associate visualization with complicated things like interactive animated websites and 3D models of major projects. But you don't have to know how to build those things. Visualizations also include simple line charts, maps, and even specially formatted text on a page. The goal is to use visualizations to communicate ideas effectively.

Examples
Need some inspiration? We've organized some high-quality and effective visualizations for some of your common tasks, with suggestions on how you can replicate them.

Process
When you're making visualizations, do you feel lost? Click on one of the steps below for tips. You can work through the process from beginning-to-end, or you can jump in wherever you are.

Style
Your style may be largely out of your control as you obey your agencies or clients. We've curated some tips that apply no matter what, including how to comply with Federal guidelines.

Tools
A great visualization shouldn't stay in your head. Here are some of the most common and well-liked visualization tools, including:

Resources
Still curious about how to proceed with visualizing your story? We've accumulated resources for you as you design, build, and implement your vision, in-print or online.

vizguide.camsys.com
Our Goals

To envision information … is to work at the intersection of image, word, number, art.

Edward Tufte

Evaluate data visualization methods

• …through the lens of transportation
• …to provide guidance to practitioners

Produce a guide in two forms

• A written report, and
• A website open to the public
The moment something just becomes fun to play with, almost like a video game, you hit some level of engagement and it becomes really interesting.

Martin Wattenberg
Our Audience

To me, the best reporting philosophy is to craft reporting that can be presented to, and understood by, all audiences simply and completely, with little effort on their part.

John Allen

Survey of Practitioners

- 30 respondents (12/2015 – 3/2016)
- Focused on 2 best-practice examples

Our typical respondent...

- Manager or specialist at a DOT, MPO
- Makes bar/column charts, maps, stacked-area, and pictograms for a lay audience
- Uses ArcGIS, MS Office, Adobe, Javascript
- Uses common public datasets
Our Report

Outline

• Visualization in transportation
• Audience for the guide
• How to illustrate data
• How to develop effective visuals
• Style guide
We experimented with creative collaboration.
Our Website

• Guidance for each step of the visualization process
• Even more examples from our survey and from the web
• Chart types, software tools, and recommendations for use
• Data and style resources