Overview

Last updated: July 13, 2020

This is a living document that catalogs design choices made in regard to the City of Austin homelessness Dashboard. User research done around homelessness and data can be found here. For a list of the current visualizations please reference this list, the wireframe for the dashboard can be found here, and the live version can be found here.

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Visualizations and Structure

Structure

The goal of this dashboard is to make the issue of homelessness accessible to residents. The dashboard is broken up into four sections:

- Header: which allows people to access other homelessness and data resources provided by the city and partners
- Metrics: data which in aggregate form, together these numbers provide an overall snapshot of homelessness in Austin. This data is in the form of an aggregated number and shows the trend from the previous year
- Data sections: these sections provide a deeper dive into the specific issues and use visualizations to unpack data and show trends.
- Footer: this section provides links to related sections and information related to data, methodology, resources, etc.

Narrative

The sections and metrics have been designed to show the flow of the system starting with the capacity that is available throughout the Continuum of Care, and then theoretically how people would move through the system from shelter to housing and/or return to homelessness, with a final view of funding and how it has changed over time.

The sections are structured to step from a 10,000 foot view to a 100 foot view of the issue. Each section begins by showing the 'total' number overal time, so that residents can get an overview view of the larger current trend and how it's changed over time. The following visualizations breakdown that 'total' in segments, and those segments are further broken down or explored in additional visualizations.

Sections also have the total yearly number, so that the user can reference the larger picture, even if they dive into much more granular data.

Charts Types

To make the dashboard more accessible, there was a decision to stick with basic charts with limited elements including:

- Area charts - show change for both the total and categories, with categorical change happening more in relation to the total
- Bar graphs - shows change with focus on the individual unit total
- Line charts - show categories change over time, with a focus on individual units such as years

Elements included in chart include:

- Section dividers - used to show multiple categories in the same visualization
- Filters - used to switch between a series of visualizations with the same format
- Legends - used to explain data, only use if there a multiple categories

The list may expand as additional visualizations are added in later releases.

A list of the visualizations currently being used is available here.

Chart Design

Axis

Below are a list of best practices used in the design of chart axes:

- The x and y axis both begin at zero
- Units of measurements along each axis must be consistent and occur without breaks
- The x-axis is used to display time or categories, while the y-axis shows amount. This changes, when x-axis labels are too long.
- Gridlines are only used for amount measurements instead of categories

Colors

A color palette for the issue of Homelessness has already been predefined by the Department of Communications & Public Information Office (CPIO). To keep branding consistent, we have incorporated these colors into the prototype and data visualizations. The color palette is similar to the one used for the data visualization "Born Equal. Treated Unequally" which was created by the Lifestyle Desk of the *Telegraph* for International

Women's Day in 2018. This color was used to break down traditional binaries and hierarchies inherent in the blue and pink purple dyad.

Colors:
Minsk: HEX 3D2F90, Oriental Pink: HEX 968BC2
Camelot: HEX 912F52, Oriental Pink: HEX C79CA3
Sea Green: HEX 2F906E, Summer Green: HEX A2C1B1

Secondary Color are:
Ship Grey: HEX 414042, Rolling Stone: HEX 808285, Black Haze: HEX F1F2F2
Cloud Burst: HEX 1A264F, Steel Blue: HEX 5398BE, Ziggurat: HEX B3D2E0
Black - HEX F1F2F2

Because purple colors register with greater contrast against white, than greens, Minsk, Oriental Pink, Camelot and Oriental Pink were used to highlight certain categories against others, when there were no predefined colors.

Colors in Charts:
Totals - or the first visualizations on the chart, which show change over time for a single data category are represented by darker colors. Exits and Returns are Minsk and Sea Green respectively to highlight the number of individuals who are ultimately housed. Individuals who are sheltered are additionally highlighted with Camelot, while the Housing and Beds category is Cloud Burst, and Funding is Ship Grey.
Comparisons - the comparison of totals occurs using the colors assigned to totals
Multiple values - In charts with multiple values, colors are assigned depending on which element is prioritized. If there are two values the Minsk and Sea Green are the default. If the goal is to show the growth in comparison to the total using visualizations like a bar graph or area chart then the prioritized category, i.e. the one colored Minsk, is located on the bottom. If there are multiple categories, darker colors are assigned to highlight categories.
Axis lines- are the solid, the smallest width setting, and are Black Haze.
Titles and labels - are black

Content

Fonts:
The pre-identified fonts Myriad Pro and Garamond were unavailable in Tableau, so CPIO recommended the use of any font in the sans-serif family. Based on font availability in Tableau, and an analysis of x-height, spacing and counter, Benton Sans was chosen.

Font size:
To ensure that there's uniformity and that proportionality the labels are space by increments of two. Below are examples of the different elements.

- Title - Bold, 12
- Subtitle - Regular, 10
- Pop-up - Regular, 10

- Legend and Axis - Regular, 8

Readability:
Labels and content have been checked for readability using the Hemingway Editor App, with the target of an 8th grade reading level or below when possible and in consideration of people first language and specialized terms. Additionally there has been a decision not to use acronyms in any of the visualizations.

Elements

Since the majority of charts are basic, there is a limited use of elements like legends, titles, axis titles, and pop up content.

Types:
Titles and subtitles - tell what is being measured, how to read the chart, and when possible why change happens. They are located above the visualization to introduce the visualization to the audience.
Filter - is an element that allows an individual to switch between different data - categories, time periods, etc. Because of formatting it is located in the upper left of the visualization.
Legends - space, generally a box, in which representations of data are displayed and labeled. Located at the bottom of the visualization.
Pages - a feature that allows the audience to see data point by point change over time. It is an animation feature that is located in the upper left corner, and if combined with a filter, is to be placed lower in the hierarchy because the filter shows the larger category, while pages looks at a micro view of the data.
Data Labels - is text used to highlight data, it can exist directly on the chart of in a pop-up. To ensure that charts remain clean, data labels will only be provided in pop-ups and not directly in charts.

Visualization Terminology

Below is a list of terms related to data visualizations with definitions attached.

- **Axis**: Reference for measurements on a plane. The x-axis is horizontal, while the y-axis is vertical.
- **Axis labels**: Labels that identify axis measurements
- **Axis titles**: Lines that show increment changes
- **Axis ticks**: They are ticks or markers that are spaced along the axis and denote units of measurements such as time, length, weight, etc. Best practice is to place them equal distance and in equal measurement from each other along the axis.
- **Categories**: Types into which data is sorted or assigned.
- **Chart**:
- **Data labels/pop-ups**: Text that provides information about the data point. Labels are static, more contextual, and generally in the visualization, while pop-ups are responsive and show data and column labels.

- **Legend**: Space, generally a box, in which representations of data are displayed and labeled
- **Title**: Text, generally in the heading, which gives an overview of the data.
- **Visualization**: A data visualization is a

References

Dashboard Types

- Dashboard Design: 8 Types of Online Dashboards
- 5 types of Dashboards
- Exploring the Different Types of Data Stories
- Storytelling in Dashboards

Ethics

- Data Feminism
- Situated Data
- A Reader on Data Visualizations
- Ethic Dimensions of Visualization Research

General

- Flowing Data
- Nightingale
- IBM
- European Environmental Agency
- Hubspot

Visualization Choice

- Choose the Right Chart Type for Your Data
- From Data to Viz
- List of Visualization Guides
- The Data Visualization Catalogue
- Chart Chooser
- Financial Times

Font

- Choosing Fonts for Your Data Visualization
- Fonts for Data Visualizations

Style Guides

- Urban Institute Design Guide
- Cato Institute
- Carbon Design System
- Material (Google)
- Policy Viz

- Sunlight Foundation Style Guide
- List Dashboard Style Guides from Policy Viz
- List for I can't remember where
- MySidewalk
- Tax Policy Center
- BBC (More infographic in nature)
- London City Intelligence
- US Web Design Service