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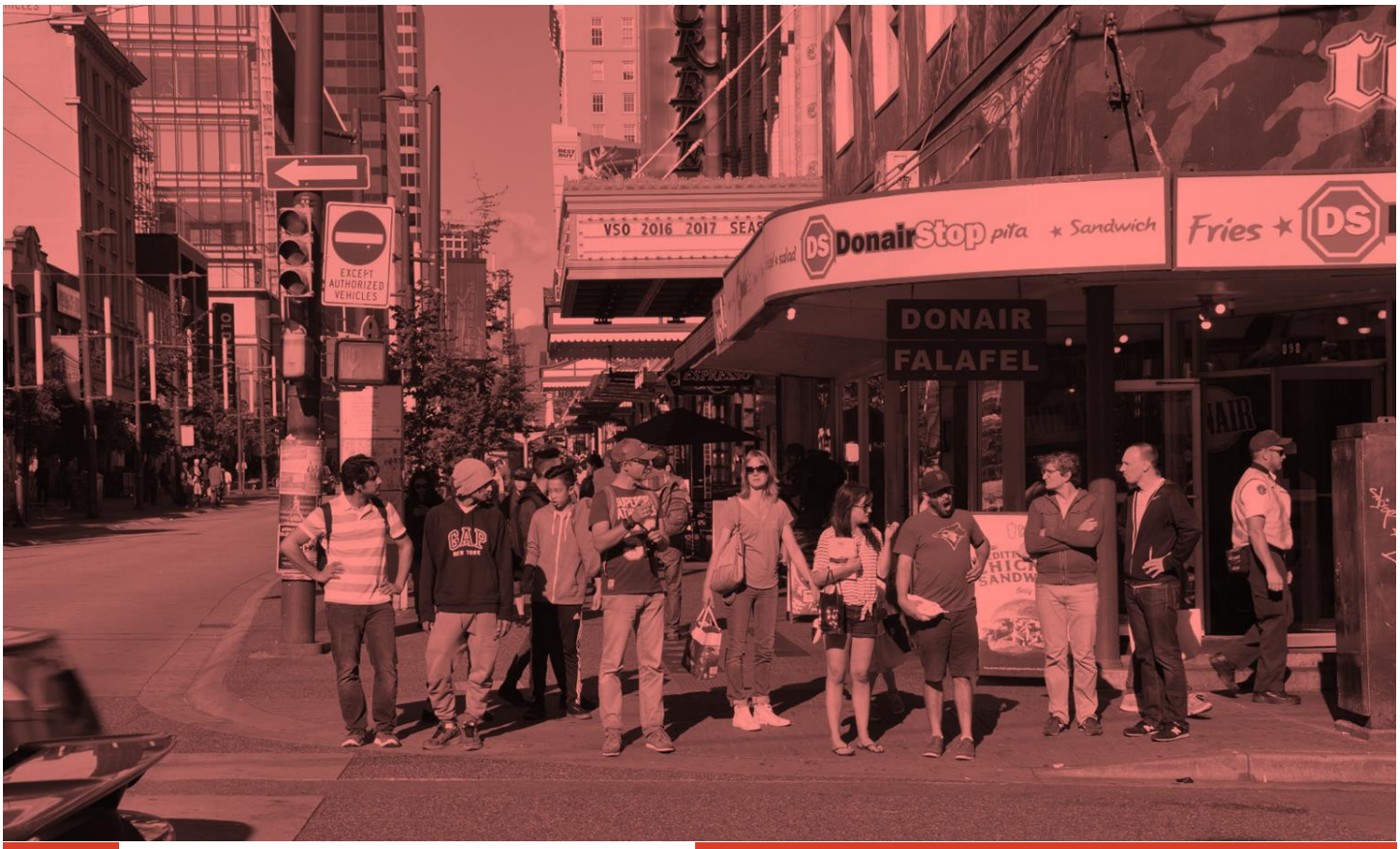
Keeping Utah Moving

Pedestrian Activity Data Visualization Dashboard User Guide

Singleton Transportation Lab, Utah State University



INTRODUCTION

This document serves as the User Guide for the Pedestrian Activity Data (PEDAT) Visualization Dashboard, an advanced analytical platform designed to present and interpret pedestrian traffic data within Utah. The guide aims to provide comprehensive insights into the dashboard's functionalities and applications, catering to the needs of researchers, urban planners, and traffic management professionals.

The dashboard, a collaborative effort between the Singleton Transportation Lab and the Utah Department of Transportation, focuses on delivering nuanced visualizations and data about pedestrian activity in various locations throughout the state. It primarily utilizes pedestrian push-button data, gathered from the high-resolution traffic signal controller log data of the Utah Department of Transportation's Automated Traffic Signal Performance Measures (ATSPM) system. In this context, "pedestrian activity" refers to the estimated number of pedestrian crossings at intersections, a metric estimated through the analysis of pedestrian push-button interactions. This methodology, validated by research from the Singleton Transportation Lab at Utah State University, ensures a reliable approximation of pedestrian volumes based on traffic signal data.

The ensuing sections of this guide elaborate on the operational aspects of the dashboard, offering detailed instructions and insights into effectively harnessing its capabilities for data-driven decision making in urban pedestrian traffic management.

DASHBOARD OVERVIEW

This section of the user guide provides a detailed overview of the main components of the Pedestrian Activity Data Visualization Dashboard. Understanding the structure and functionalities of these components is essential for effective navigation and utilization of the dashboard. The Figure 1 shows the overview of dashboard.

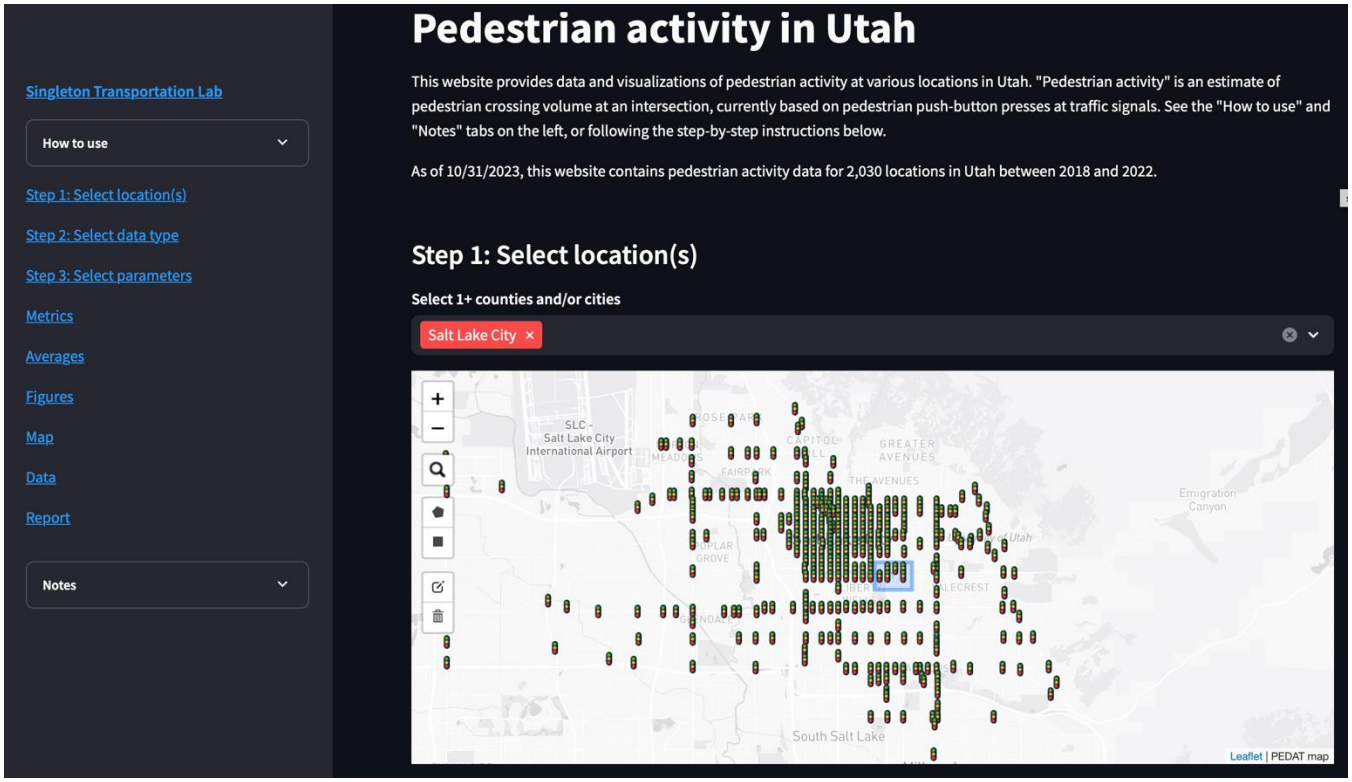


Figure 1: The overview of PEDAT dashboard

Sidebar

The sidebar of the dashboard is a key navigational tool that aids users in efficiently accessing various features and functionalities. It is divided into the following segments:

How to Use

This section offers a concise guide on the operational aspects of the dashboard, providing users with clear instructions on how to navigate and utilize the various features effectively.

Links to Dashboard Sections

Here, users can find direct links to different parts of the dashboard. This feature enables quick navigation, allowing users to easily switch between various data views and analysis tools.

Notes

The Notes section contains important information, observations, and disclaimers relevant to the data and functionalities of the dashboard. It serves as a crucial reference point to understand the context and limitations of the displayed data.

Main Page

The main page is where the core functionalities of the dashboard are displayed and interacted with. It consists of the following elements:

Map for Selecting Locations

The interactive map allows users to select specific locations for which they wish to view pedestrian activity data. This feature enables a focused analysis of pedestrian volumes at chosen intersections or areas.

Data Type Selection

Users can select the type of data they wish to view, such as recent data (last 1 year) or historical data (last 5 years). This customization enhances the relevance and specificity of the analysis.

Dashboard Parameters

This area allows users to adjust various parameters that influence the data display and analysis, such as time unit, location unit, and other filters.

Outputs

The output section presents the results of the data analysis. It displays visualizations such as graphs, charts, map, tables, and report, offering an intuitive understanding of the pedestrian activity data.

HOW TO USE THE DASHBOARD

This section of the user guide outlines the step-by-step process for effectively utilizing the Pedestrian Activity Data Visualization Dashboard. By following these instructions, users can navigate the dashboard's various features to analyze pedestrian activity data based on their specific requirements.

Step 1: Selecting Locations

Counties and Cities Selection

Users can select one or more counties and/or cities from a dropdown list.

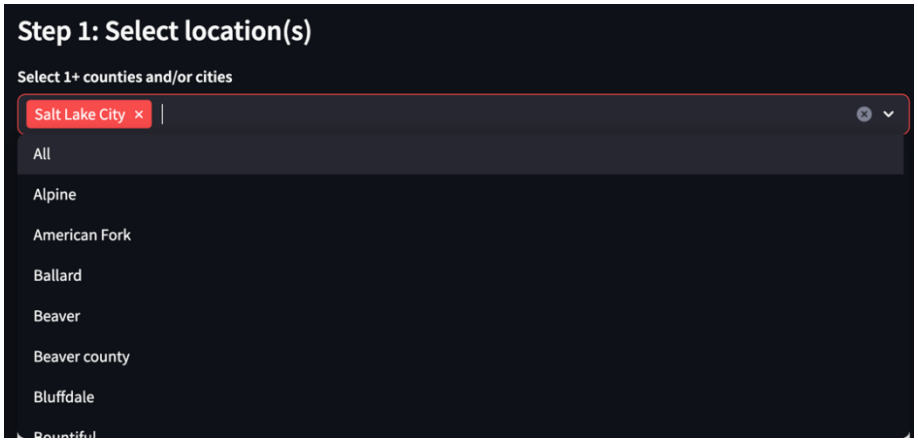


Figure 2: A view of selecting counties and cities section

Map-Based Selection

Alternatively, locations can be chosen directly on the map. This can be done using the draw tools available on the map or by searching for a specific address using the search icon.

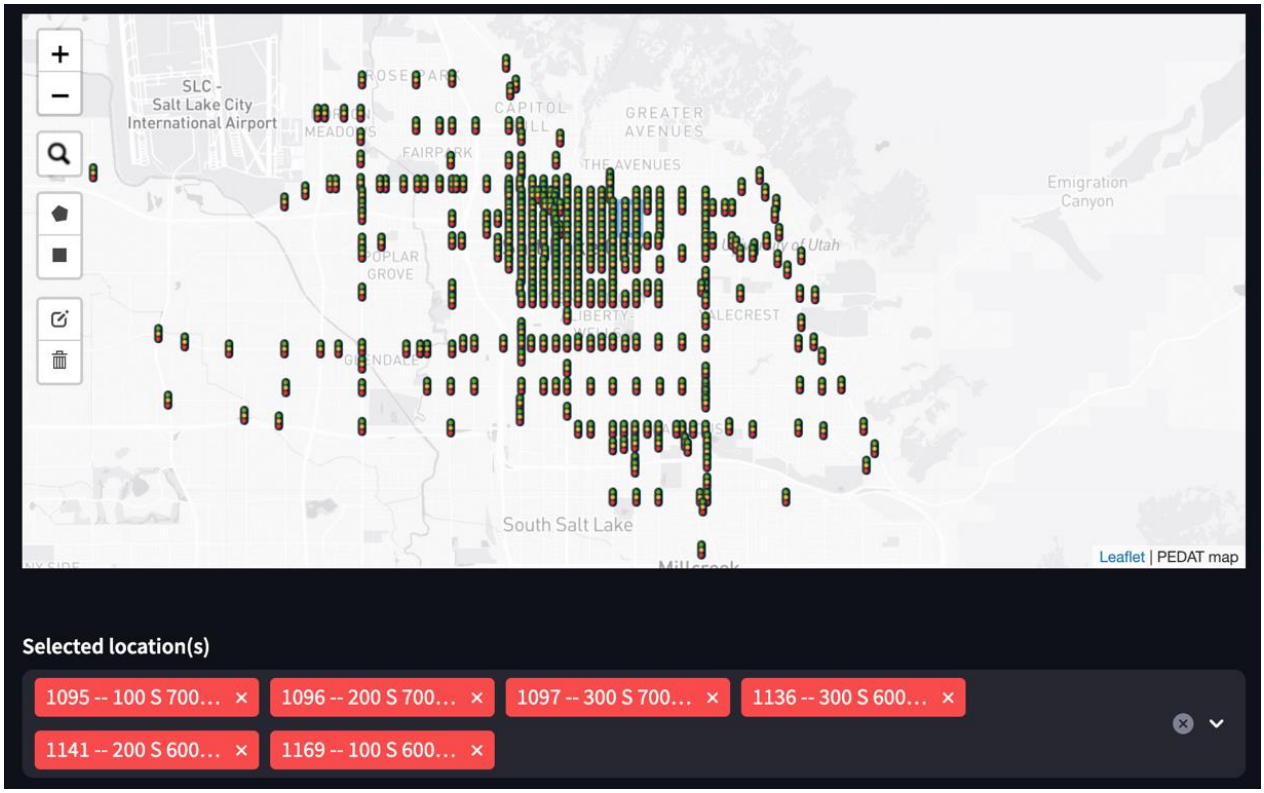


Figure 3: A view of selecting locations from map

Important note: We recommend selecting no more than 10 locations, for visualization and dashboard performance.

Step 2: Choosing Data Type

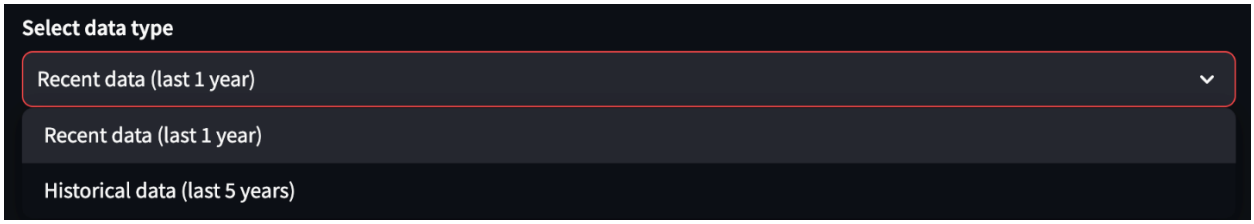


Figure 4: A view of selecting data type section

Recent Data
Users can opt for recent data, which includes hourly pedestrian activity data from the last year.

Historical Data
Alternatively, historical data spanning the last five years is available for a more extended analysis.

Step 3: Setting Parameters

Figure 5: A view of selecting parameters section

Time Range
Users can define a specific time range for the data analysis.

Location Unit Selection
This option allows the selection of different phases of an intersection. The default setting includes all location units.

Time Unit Selection
Users can choose the granularity of the data - hourly, daily, weekly, monthly, or yearly.

Submitting Parameters
It is crucial to press the "Submit" button to apply the selected parameters and view the changes in the dashboard.

Output Section

Figure 6: The overview of outputs section

Overall Metrics
Initially, users will see the overall metrics, including the total number of pedestrians, number of selected signals, and the chosen start and end dates.

Average Section
This section includes charts showing:

- Average daily pedestrian activity by location.
- Average hourly pedestrian activity by hour (for recent data).
- Average daily pedestrian activity by day-of-week and month-of-year.

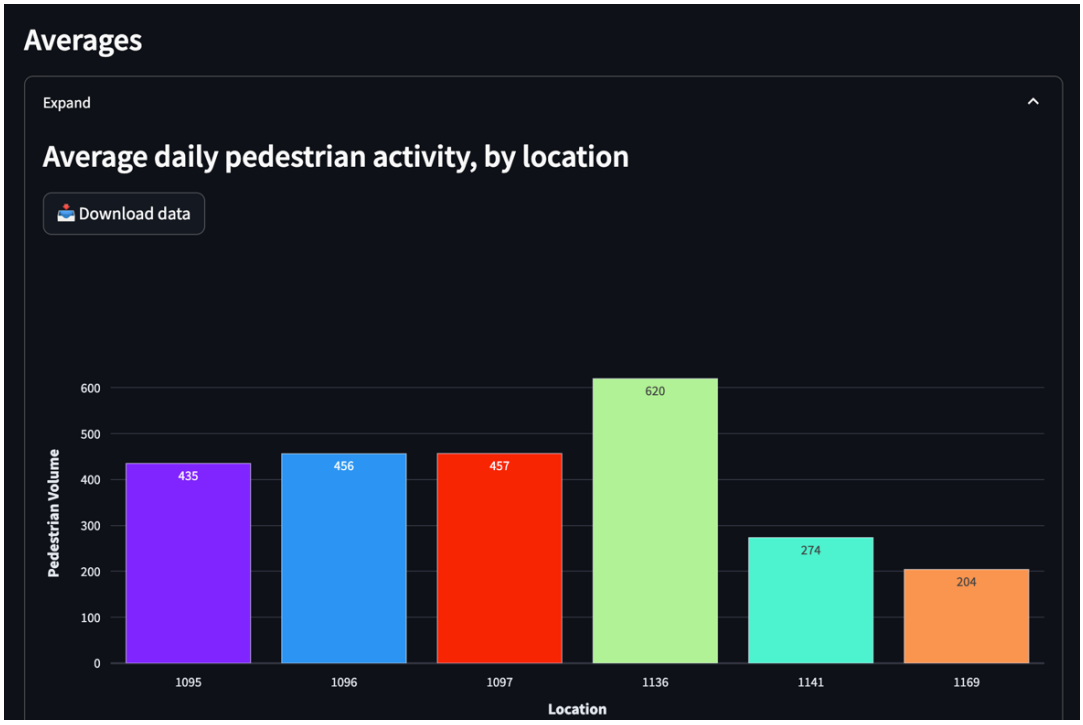


Figure 7: A sample output from the averages section

Figures Section
The figures section displays:

- Total pedestrian activity by location.
- Time series of pedestrian activity by selected time unit and location.
- Box plot of pedestrian activity by selected time unit and location.

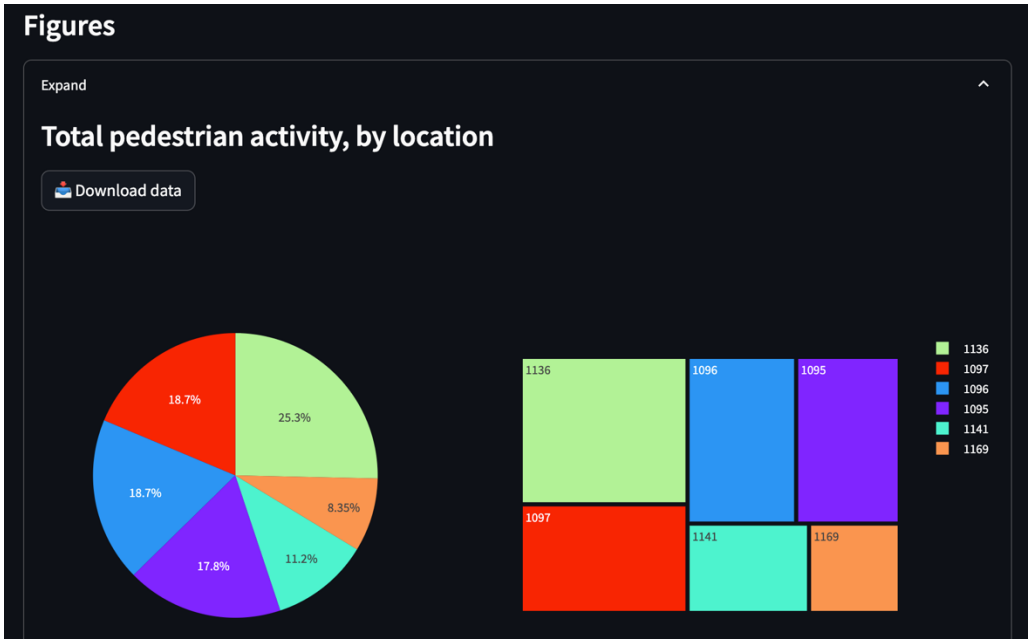


Figure 8: A sample output from the figures section

Map Section

Following the figures, the map section provides a visual representation of the data.

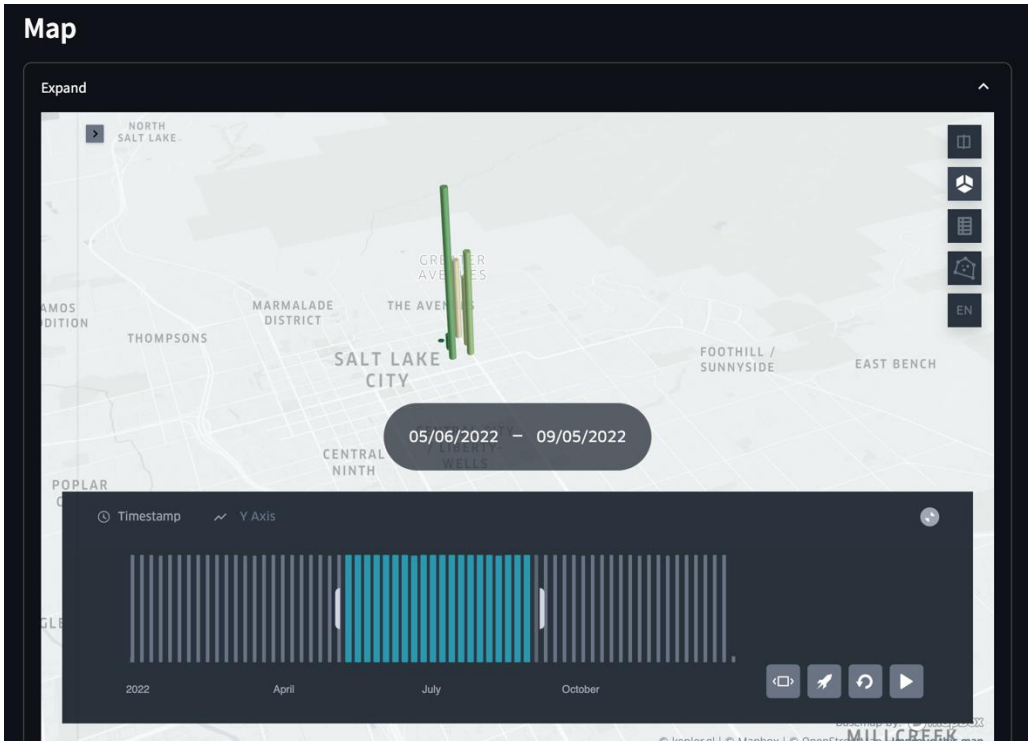
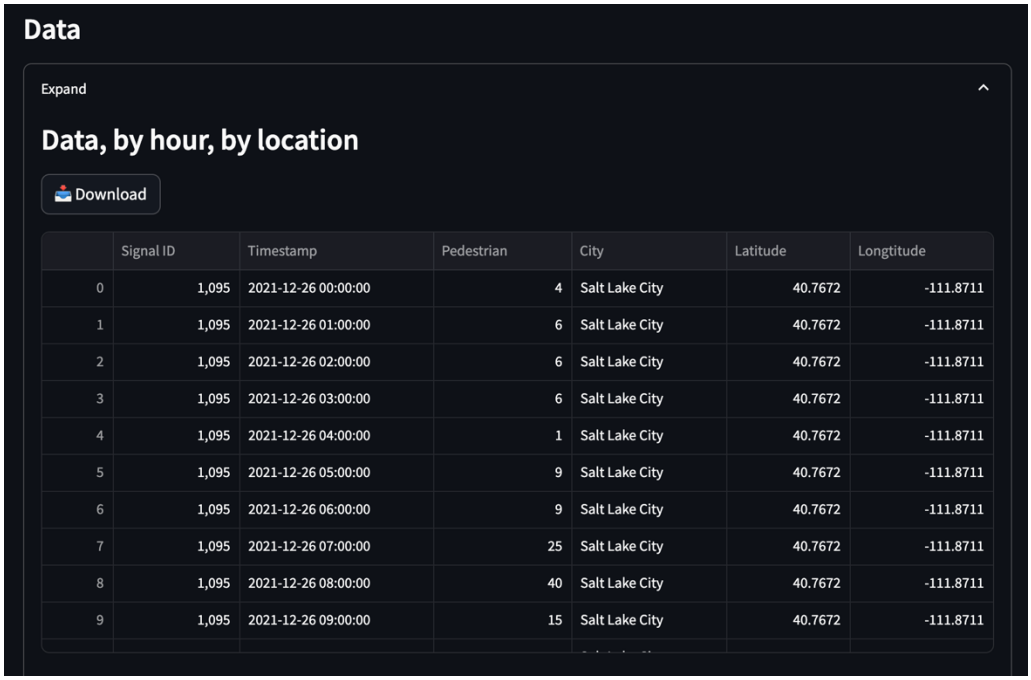


Figure 9: A sample output from the map section

Data Section

This section contains tables including:

- Data by selected time unit and location.
- Descriptive statistics by selected time unit and location.



	Signal ID	Timestamp	Pedestrian	City	Latitude	Longtitude
0	1,095	2021-12-26 00:00:00	4	Salt Lake City	40.7672	-111.8711
1	1,095	2021-12-26 01:00:00	6	Salt Lake City	40.7672	-111.8711
2	1,095	2021-12-26 02:00:00	6	Salt Lake City	40.7672	-111.8711
3	1,095	2021-12-26 03:00:00	6	Salt Lake City	40.7672	-111.8711
4	1,095	2021-12-26 04:00:00	1	Salt Lake City	40.7672	-111.8711
5	1,095	2021-12-26 05:00:00	9	Salt Lake City	40.7672	-111.8711
6	1,095	2021-12-26 06:00:00	9	Salt Lake City	40.7672	-111.8711
7	1,095	2021-12-26 07:00:00	25	Salt Lake City	40.7672	-111.8711
8	1,095	2021-12-26 08:00:00	40	Salt Lake City	40.7672	-111.8711
9	1,095	2021-12-26 09:00:00	15	Salt Lake City	40.7672	-111.8711

Figure 9: A sample output from the data section

Report Generation
Users can generate a PDF report based on the selected data and parameters.

Additional Notes
In each section, users have the option to download relevant data using the download button. Also, quick navigation to each section is facilitated through links in the sidebar.

ADDITIONAL SUPPORT:

Should you encounter any difficulties or have questions that are not addressed in this guide, please feel free to reach out to the support team Patrick Singleton (patrick.singleton@usu.edu) or Amir Rafe (amir.rafe@usu.edu). We are committed to ensuring that your experience with the Pedestrian Activity Data Visualization Dashboard is both productive and insightful.

FEEDBACK:

Your feedback is invaluable to us. We continually strive to improve the dashboard and this guide. Please share your suggestions or comments to Patrick Singleton (patrick.singleton@usu.edu) or Amir Rafe (amir.rafe@usu.edu).

Thank you for using the Pedestrian Activity Data Visualization Dashboard. We trust that this tool will be an essential component in your efforts to analyze and optimize pedestrian activity and safety in Utah.