



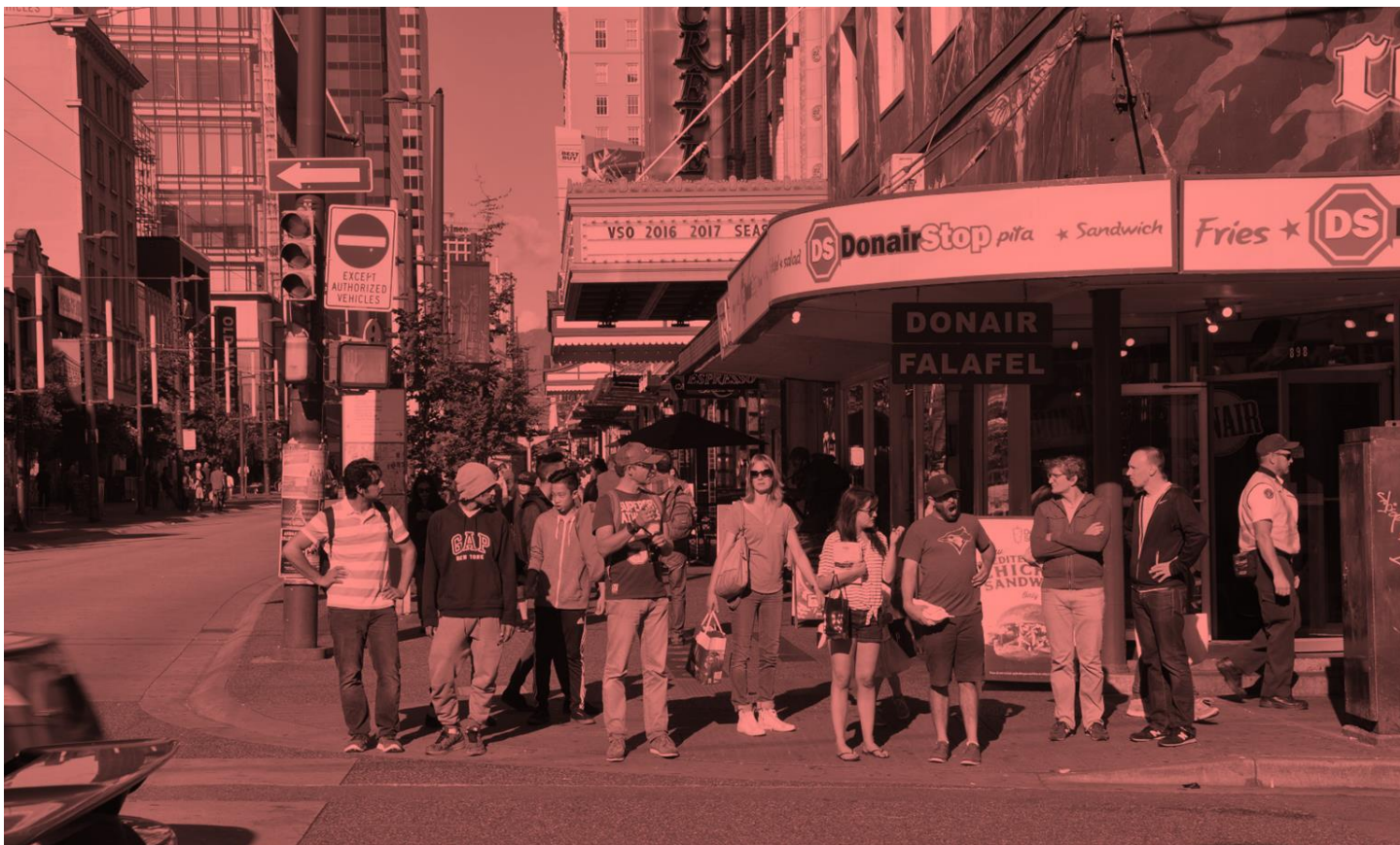
**UtahState**University



# 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. Figure 1 shows the overview of the dashboard.

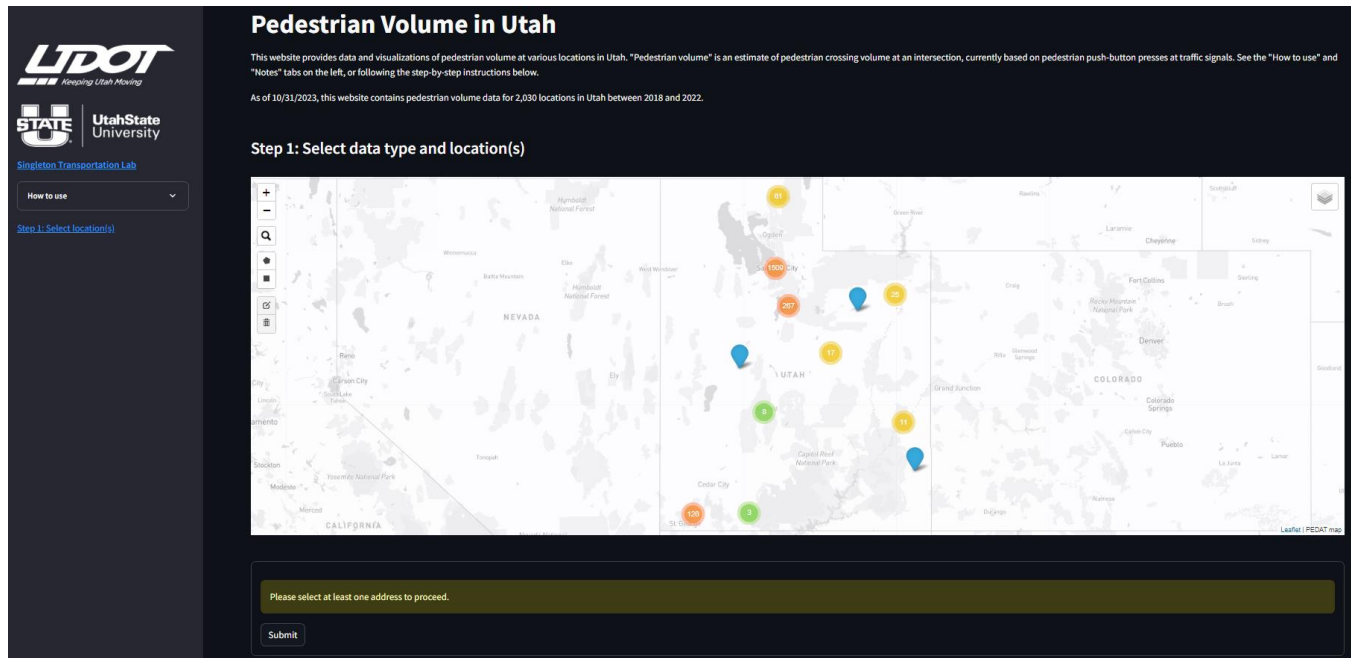


Figure 1: An overview of the PEDAT dashboard

## 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, maps, tables, and reports, 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

#### **Location(s) Selection from the Map**

Users can select one or more locations from the map. This can be done using the drawing tools available on the map or by searching for a specific address using the search icon. Figure 2 displays the process of selecting locations from the map.

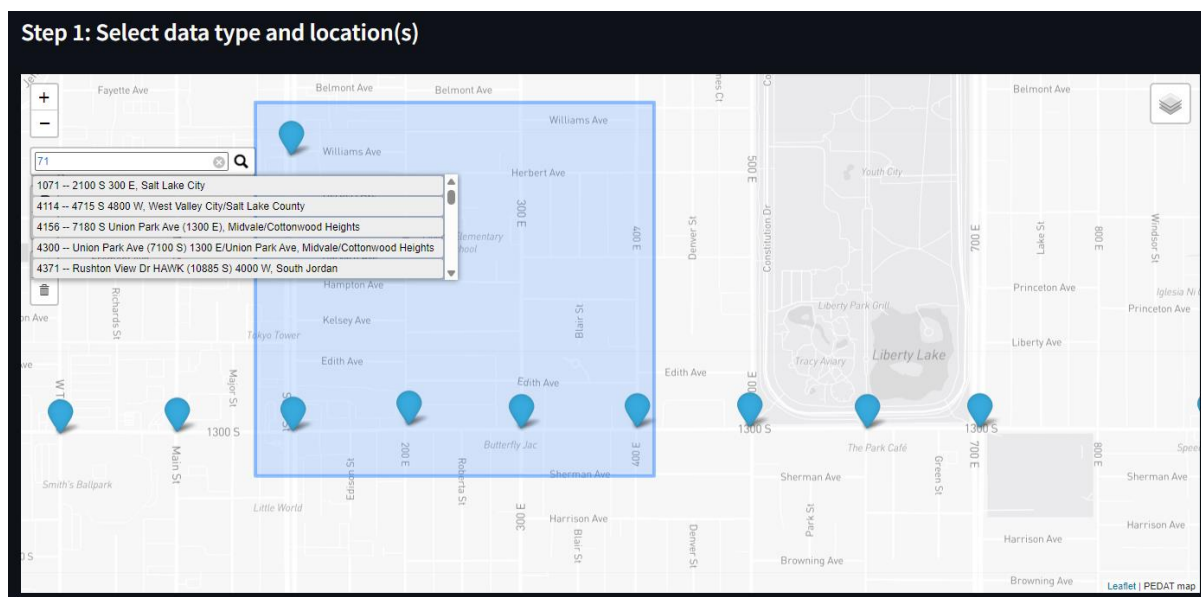
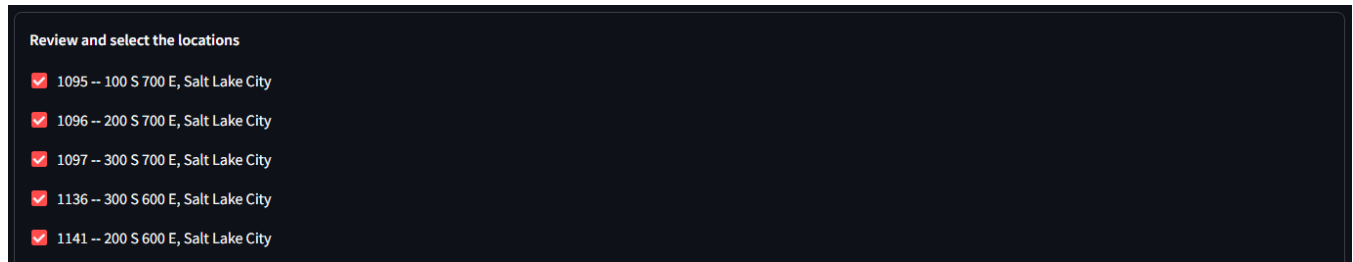


Figure 2: A view of selecting locations from the map

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

### ***Review and Select the Locations***

In this section, users can review the selected location, add more locations, or unselect some of them. Figure 3 depicts a view of the reviewed locations.



**Figure 3: A view of reviewing locations**

### ***Choosing Data Type***

#### ***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. Figure 4 shows the data type selection view.



**Figure 4: A view of selecting the data type section**

After reviewing the locations and making some possible changes, users can submit the form. The dashboard will then start creating elements such as plots, maps, tables, and reports.

## Step 2: Select Parameters

Users can set dashboard parameters and filter data. Figure 5 displays the dashboard parameters selection view.

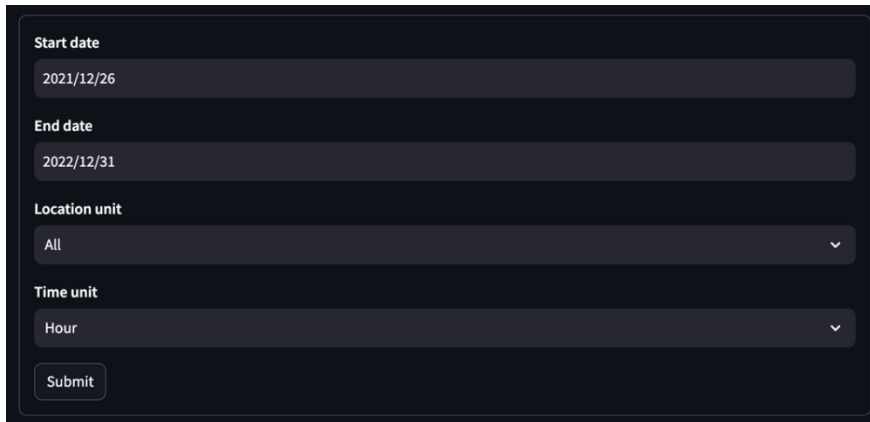
A screenshot of a dark-themed dashboard parameters selection form. The form contains four input fields: 'Start date' with the value '2021/12/26', 'End date' with the value '2022/12/31', 'Location unit' with a dropdown menu showing 'All', and 'Time unit' with a dropdown menu showing 'Hour'. A 'Submit' button is located at the bottom left of the form.

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 separate 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 provides an overview of the outputs section.

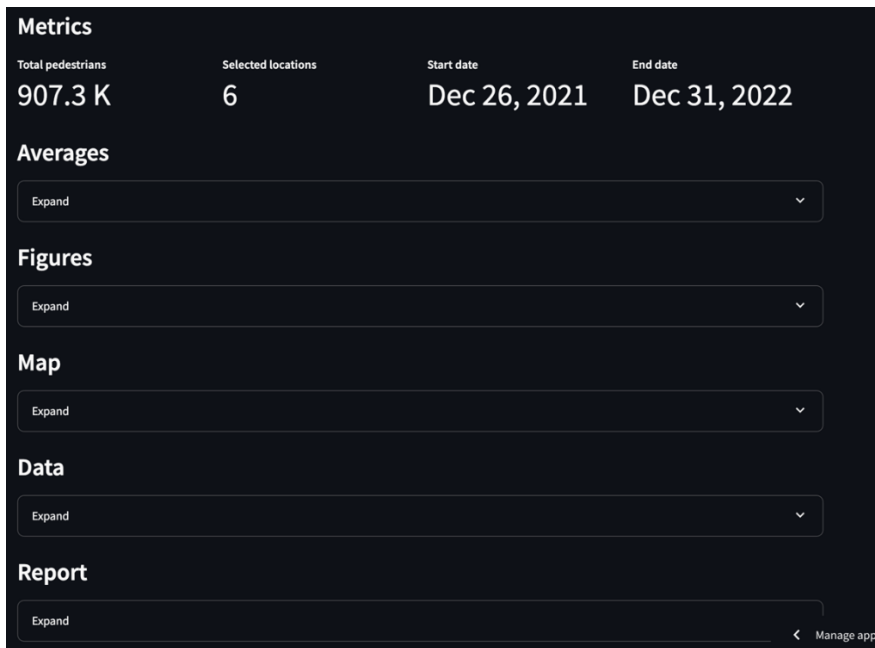


Figure 6: An overview of the outputs section

### Overall Metrics

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

### Averages 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 displays a sample output from the averages section.

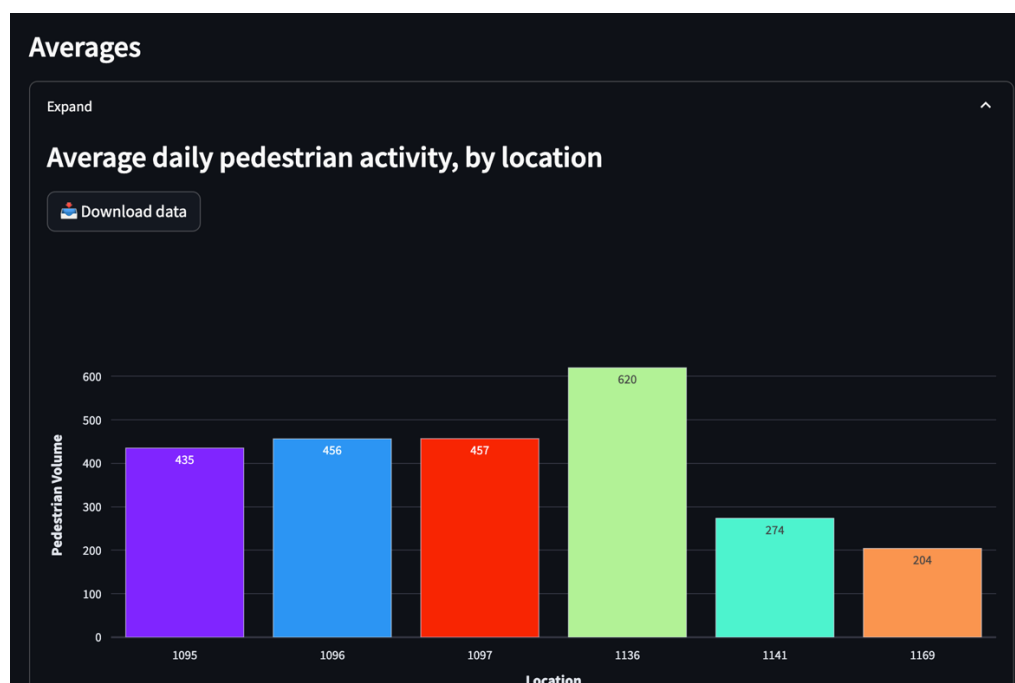


Figure 7: A sample output from the averages section



### 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 displays a sample output from the figures section.

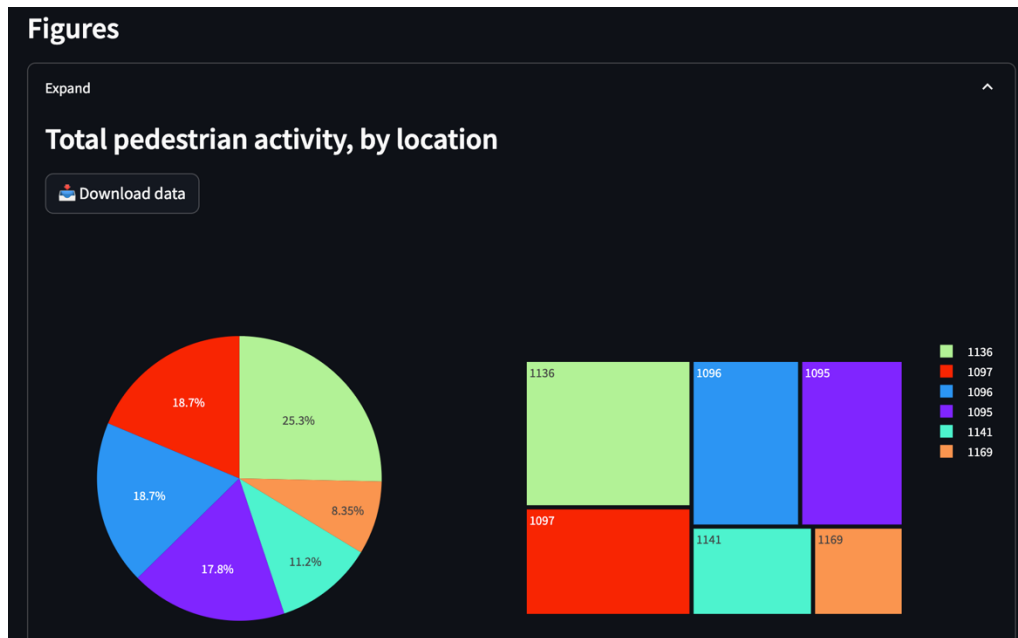
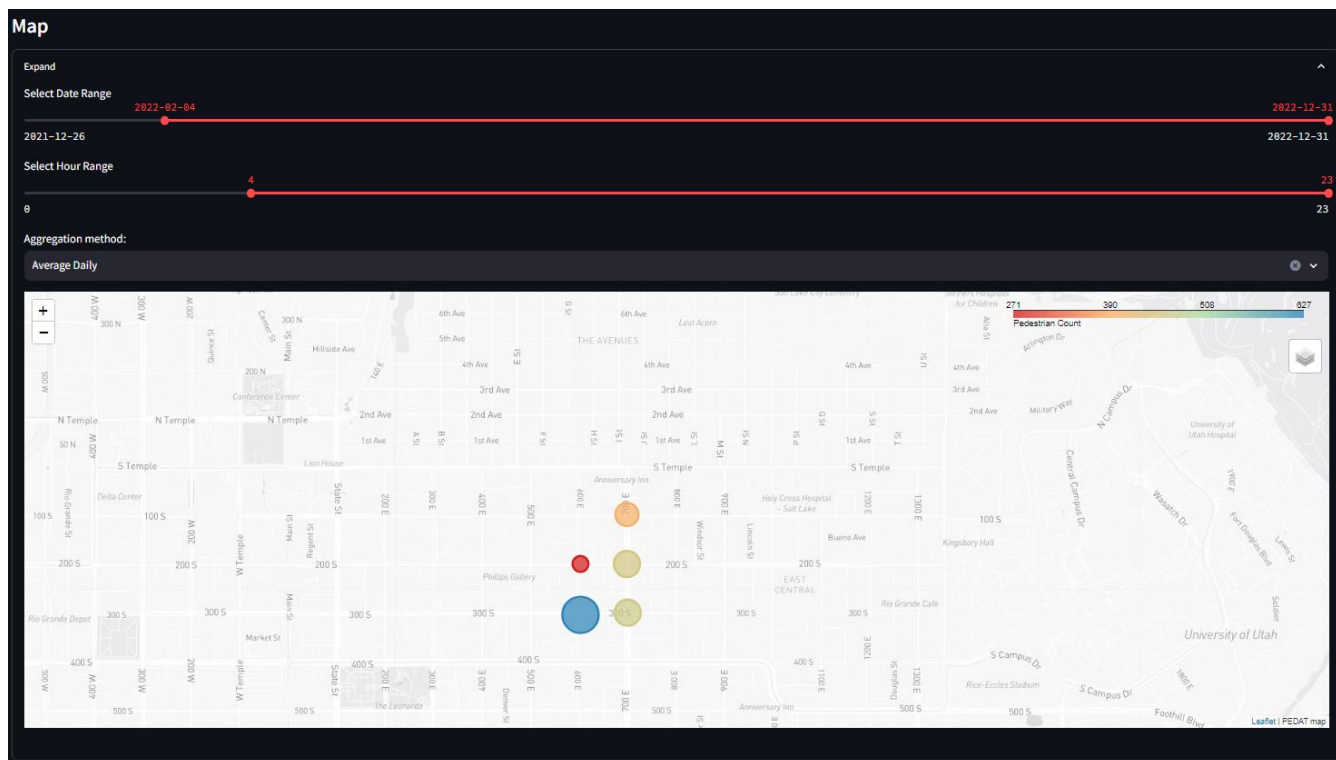


Figure 8: A sample output from the figures section

### Map Section

Following the figures, the map section provides a visual representation of the data. In this section, the user can select aggregation methods or choose the desired date and time. Figure 9 shows a sample output from the map section.



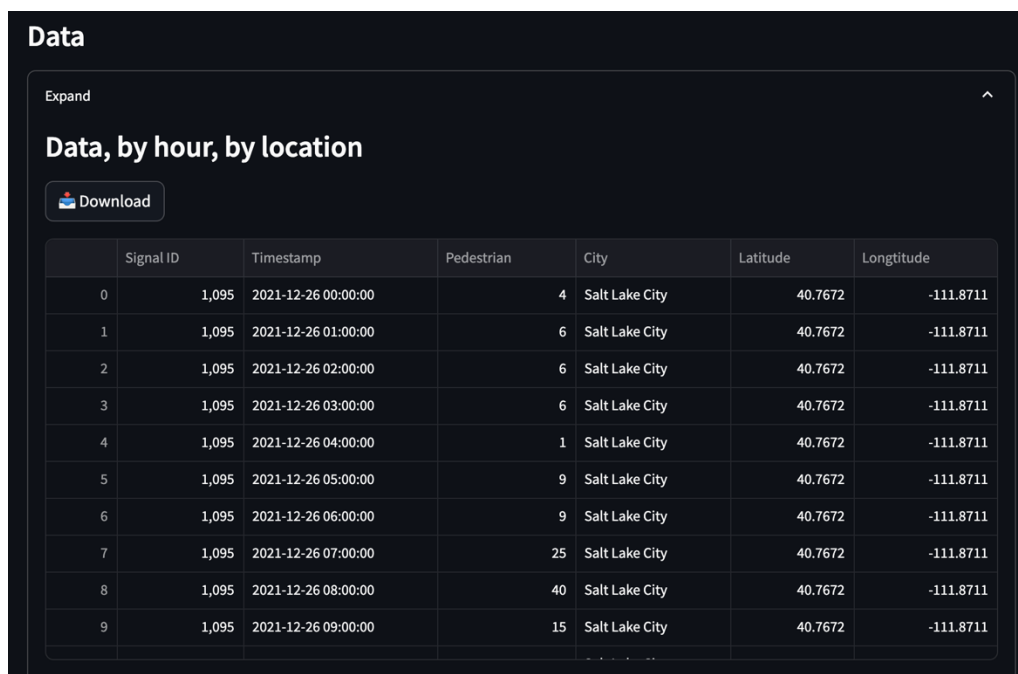


## Data Section

This section contains tables including:

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

Figure 10 displays a sample output from the data section.



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### ***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](mailto:patrick.singleton@usu.edu)) or Amir Rafe ([amir.rafe@usu.edu](mailto: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](mailto:patrick.singleton@usu.edu)) or Amir Rafe ([amir.rafe@usu.edu](mailto: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.