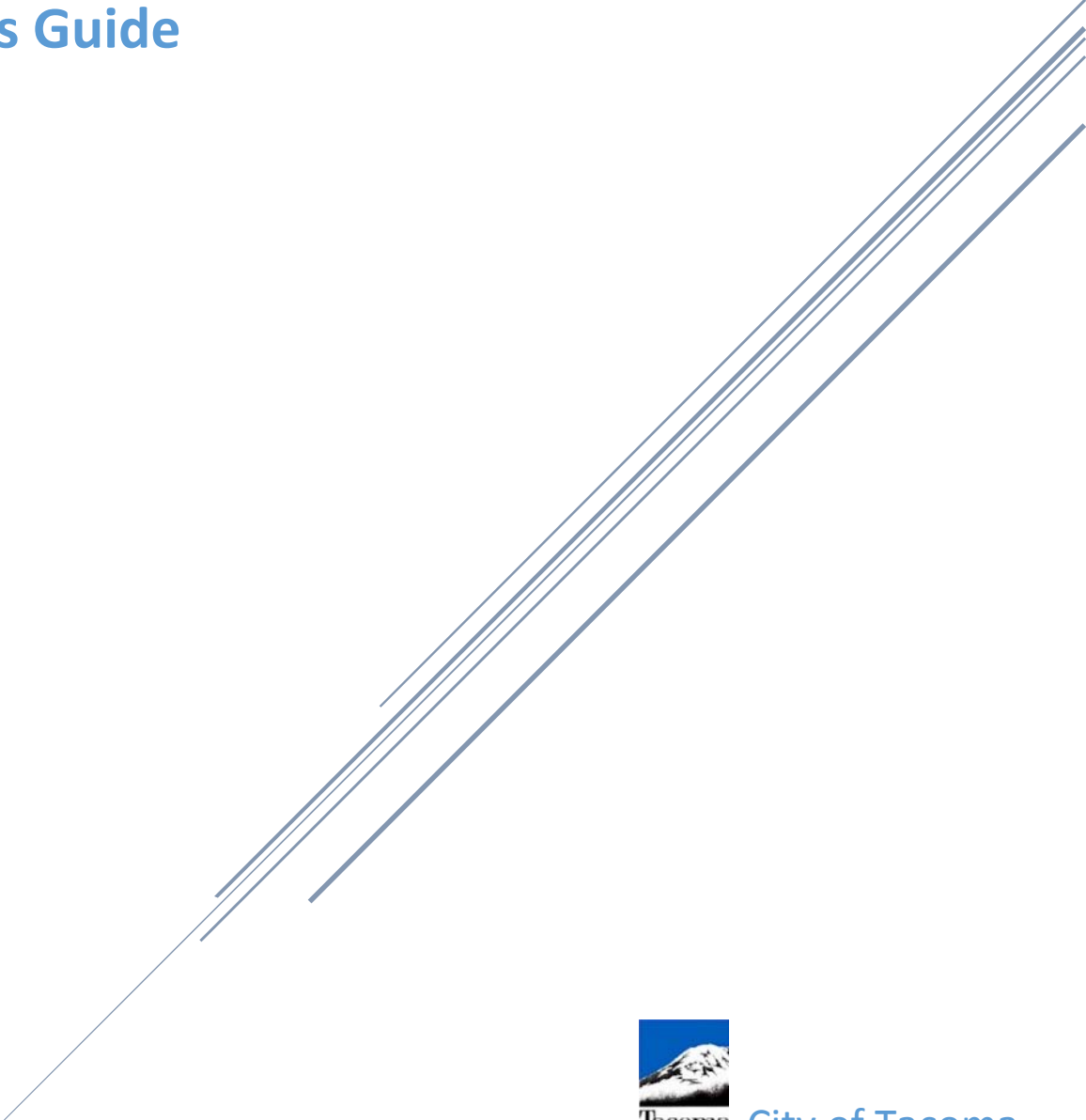


PEAK HOUR TRAFFIC ANALYTICS APPLICATION

User's Guide



City of Tacoma

Acronyms and Abbreviations

HV – Heavy Vehicle

PHF – Peak Hour Factor

MVT – Movement

EB – Eastbound

WB – Westbound

NB – Northbound

SB – Southbound

EL – East Leg

WL – West Leg

NL – North Leg

SL – South Leg

VPH – Vehicles per hour

#/hr – Counts per hour #phr or #ph

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1. INTRODUCTION

The City of Tacoma's *Peak Hour Traffic Analytics* website is an online traffic data portal which allows users to obtain or access traffic count analytics to support traffic operations and planning exercises. This website only contains the peak hour (*For 24-HR traffic counts, please visit 24-HR traffic counts link available on the City's website*) intersection traffic turning volume files. Several key measurements, such as Traffic Volumes, Heavy Vehicle Percentages, Pedestrians, Bicycle Volumes, and Peak Hour Factor are included in this website.

The following sections introduce the major functions and provide a step-by-step guide to access your cities traffic counts analytics.

2. GETTING TRAFFIC COUNT DATA FOR AN INTERSECTION

STEP 1: SEARCHING FOR A SPECIFIC LOCATION

Two (2) ways to search traffic counts for a specific intersection

OPTION 1: SEARCH BY INTERSECTION NAME

A drop-down menu and search engine that contains all the available traffic count locations is located at the top right of the online traffic data portal. It includes the count location ID and the locations/ intersection's name. To search for an intersection, select an intersection listed in the drop-down menu or type in the keywords, ex: Pacific Ave. Please see *Figure 1: Search for an Intersection* for details.

Zoning prefix or a suffix such as North/South/East/West is recommended to exclude from the keywords as the prefixes might be abbreviated as N/S/E/W. For example, to search "South Tacoma Way", the keyword "Tacoma Way" is highly recommended.

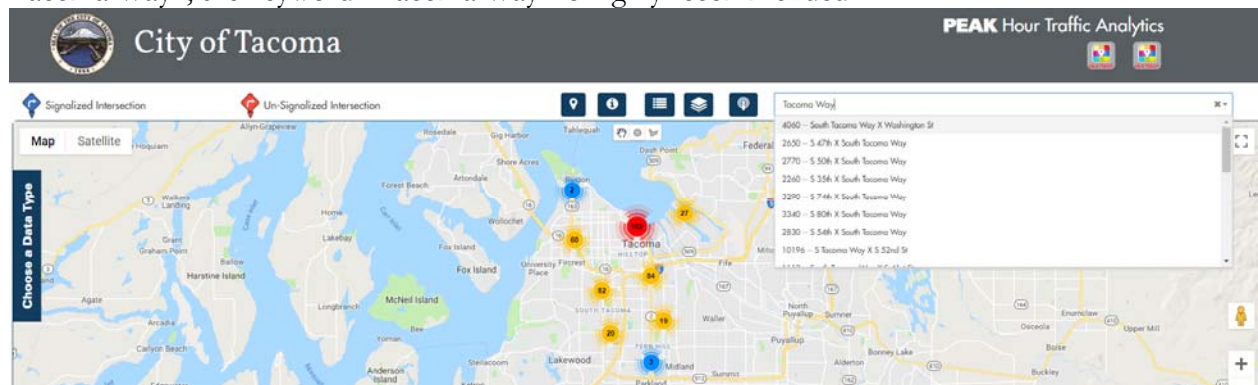


Figure 1: Search for an Intersection

OPTION 2: NAVIGATE ON THE MAP

An interactive map is available to navigate a desired location. Initially, multiple clusters are displayed on the map. The numerical value displayed on a cluster is the number of traffic count locations associated with this cluster. Please see *Figure 2: Navigate on the Map* for details.

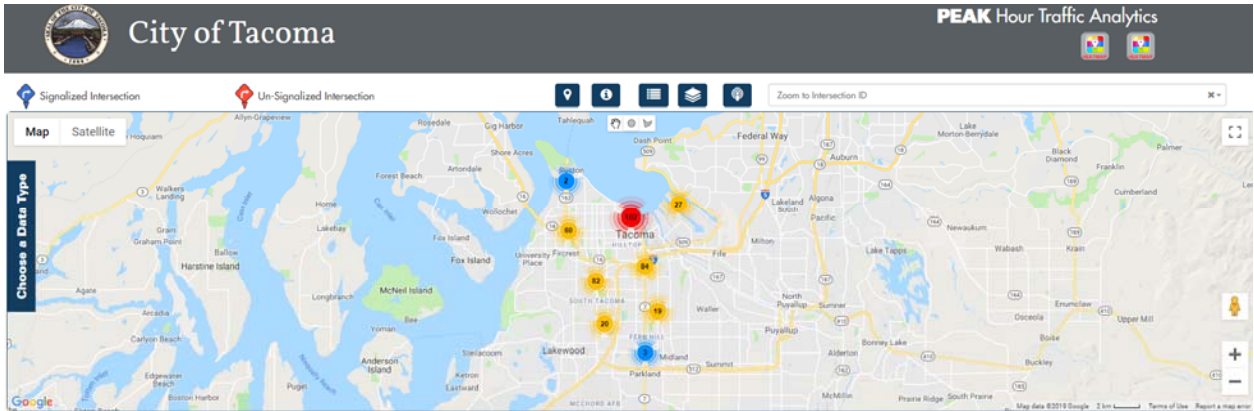


Figure 2: Navigate on the Map

After zooming in, the intersection location marker will appear. The blue marker represents signalized intersections while the red represents un-signalized intersections. Click a location marker, the traffic data intersection description will be displayed on a pop-up tab. Please see *Figure 3: Intersection Marker with Pop-up Window* for details.



Figure 3: Intersection Marker with Pop-up Window

STEP 2: CHOOSE A TIME PERIOD FOR A LOCATION

The information of the selected location/intersection is available below the Google Map. The traffic count data is shown at the bottom of the page. Please see the *Figure 4: Choosing a Time Period* for details.

The selected intersection information (i.e., intersection ID, type and street names) is available on the left and several other options (i.e., year, time of the day) are available on the right. Please see *Figure 4: Choosing a Time period*

<p>Intersection Information</p> <p>Intersection ID: 3890 Intersection Type: Signalized</p> <p>Major Street: Lincoln Minor Street: Thorne Rd</p>		<p>Choose a Year 2015 2013</p> <p>Choose Time of the Day AM MIDDAY PM</p> <p>Choose Data Display Option By Intersection By Approach</p>
<p>PM - Intersection Turning Movements at an Intersection</p> <p>Approach Traffic Volumes</p> <p>PM Peak Hour Turning Movements</p> <p>Lincoln / Thorne Rd</p> <p>Traffic Data Collection Date : 11/03/2015</p>		<p>PM - Total Traffic Volumes at Eastbound (EB)</p> <p>Choose a Direction EB WB NB SB</p> <p>Lincoln / Thorne Rd</p>

Figure 4: Choosing a Time Period

CHOOSE A YEAR

Traffic counts are available for the years listed on the right (See *Figure 4: Choosing a Time Period*) of the selected intersection. For example, 2015 and 2013 traffic counts are available for the Lincoln/Thorne Rd. intersection.

CHOOSE TIME OF THE DAY

Data from three (3) time periods are available:

- AM – AM Peak Period, normally between 6AM to 9AM
- MIDDAY – Middle of the day Period, normally between 11AM to 3PM
- PM – PM Peak Period, normally between 3PM to 7PM

CHOOSE DATA DISPLAY OPTION:

Two options are available to summarize and compare the traffic data:

- By Intersection: The comparison will be based on the total intersection traffic volumes.
- By Approach: The comparison will be based on the selected approach (i.e., **EB**- Eastbound, **WB**- Westbound, **NB** – Northbound, **SB**-Southbound). The approach selection option is available just above the bar chart.

The turning movement diagram (located on the lower left of the page) and the bar chart (located on the lower right of the page) will be updated based on the options that are selected by a user. The “Data is not available” message will be displayed if traffic data is not available for a selected time (i.e., a combination of year and time period). For example, please see the *Figure 5: Data is not available* below. Traffic counts are not available for AM peak hour in 2015 the Lincoln/Thorne Rd. intersection. In this situation please try a different time period and/or different year.

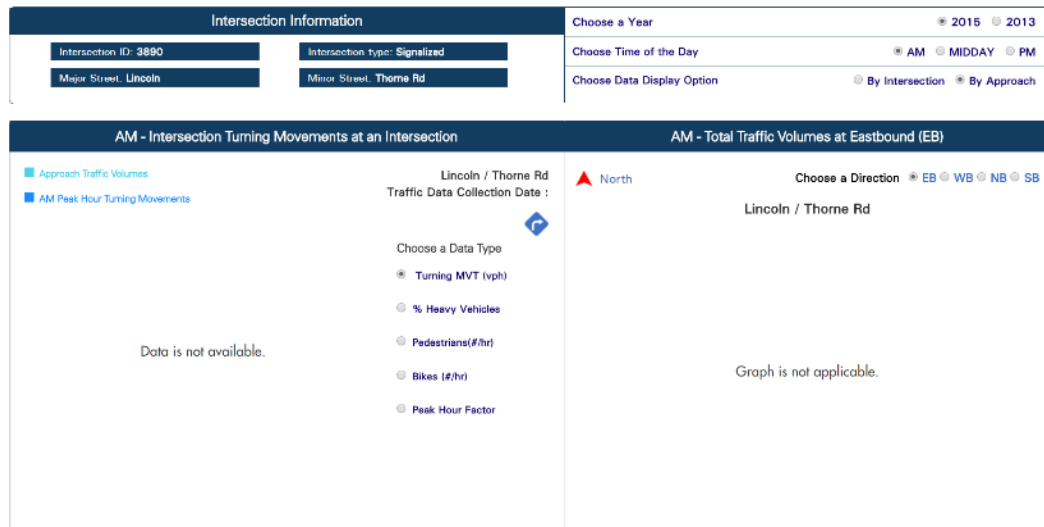


Figure 5: Data is not available

The total intersection traffic volumes are also available in the pop-up (i.e., pop-up is triggered by clicking the location/intersection markers available on the map). The numerical value Zero (0) in the pop-up represents data that is not available for a specific time period. Please see the *Figure 6: Pop-up window* below.

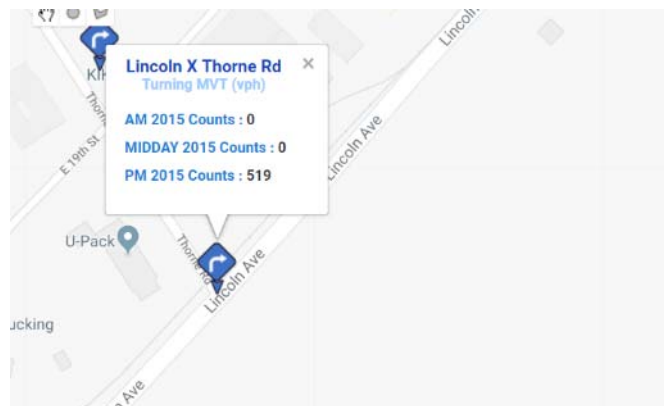


Figure 6: Pop-up window

3. CHOOSE THE DATA TYPE (AUTOMOBILE/PED/BIKE/PHF/HV%)

Five (5) different data types are available in the online traffic data portal.

1. Turning Movement (VPH): Turning movement represents the total number of traffic (cars, motorcycles and heavy vehicles) per hour at the selected intersection. The traffic volume for each movement is shown on the lower left side of the page. The traffic counts bar charts represent a comparison between years for a selected period (i.e., AM, PM or MIDDAY) at the lower right side of the page. Please see the *Figure 7: Turning Movement Counts* for details.

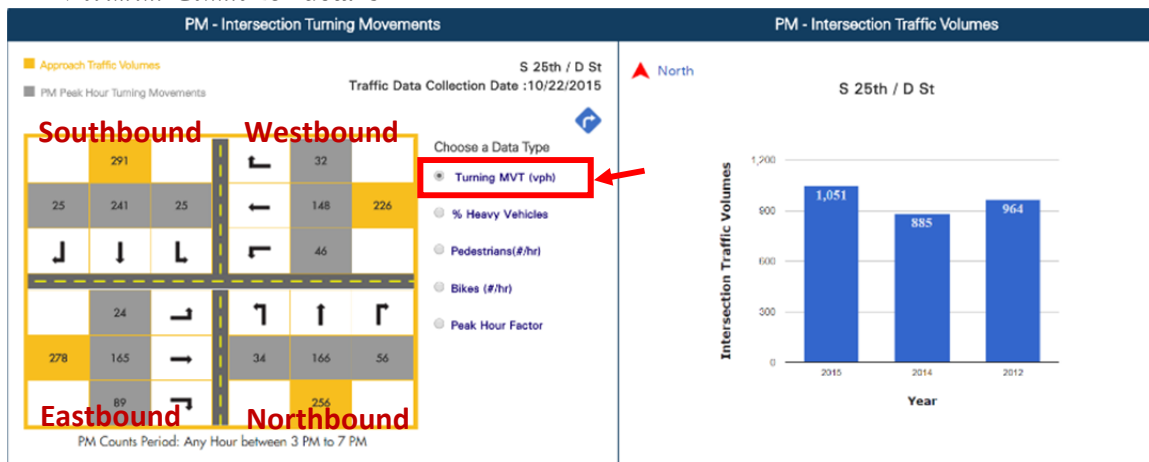


Figure 7: Turning Movement Counts

2. % Heavy Vehicles: Percentage of Heavy Vehicles represents the percentage of heavy vehicle for each movement. Please see the *Figure 8: % Heavy Vehicles* for details.

Heavy Vehicles are defined as the Class 4-13 in the FHWA Vehicle Classification (https://www.fhwa.dot.gov/policyinformation/tmguides/tmg_2013/vehicle-types.cfm).

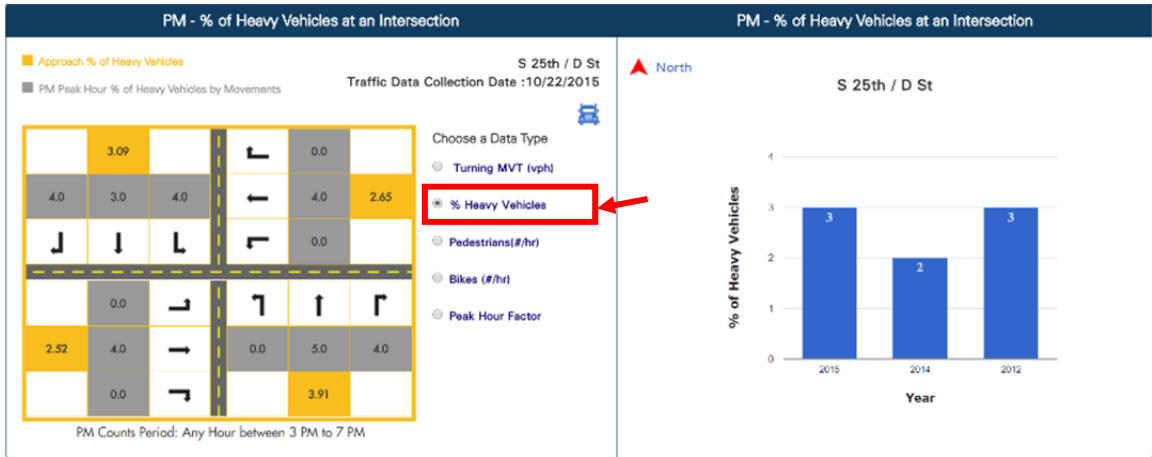


Figure 8: % Heavy Vehicles

3. Pedestrian ($\#ph$): Count of Pedestrians represent the pedestrian volume (number of pedestrians per hour) crossing on each leg of the intersection. Please see the *Figure 9: Pedestrian ($\#ph$)* for details.

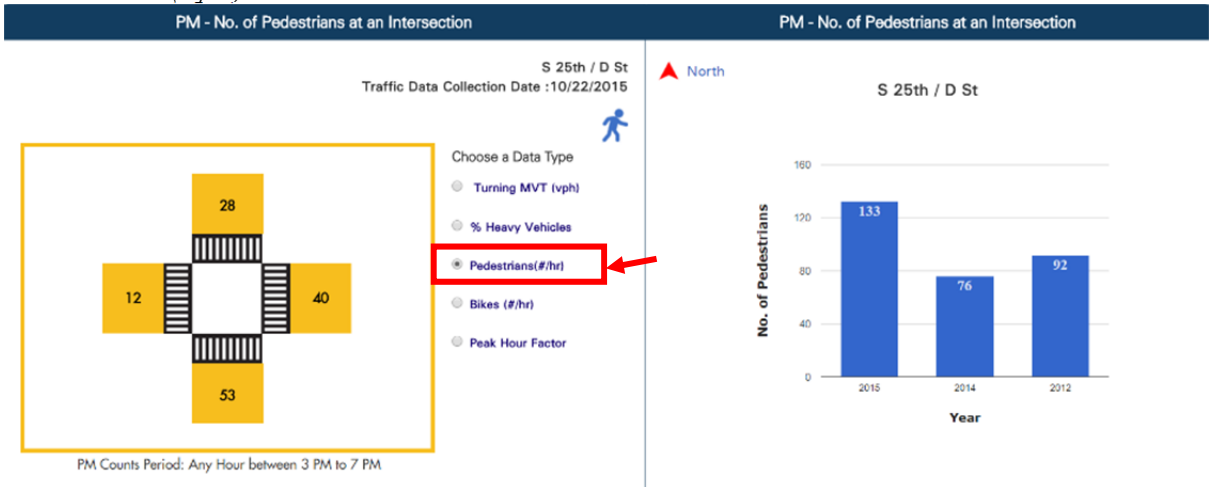


Figure 9: Pedestrian ($\#ph$)

4. Count of Bikes: Count of Bikes represent the bicycle volume (number of bikes per hour) for each approach of the intersection. Please see the *Figure 10: Bikes ($\#ph$)* for details.

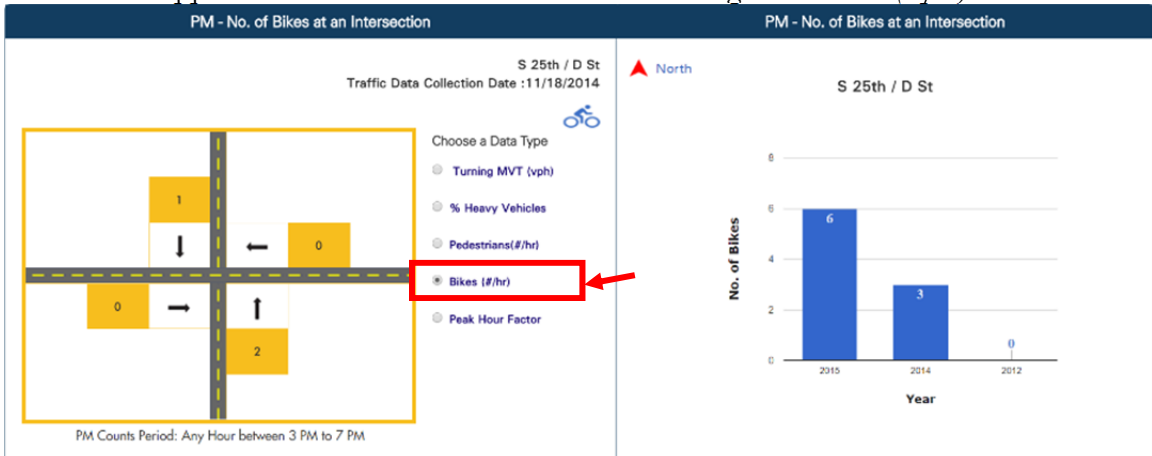


Figure 10: Bikes ($\#ph$)

- Peak Hour Factor: The peak hour factor (PHF) is a ratio of the total hourly traffic volume to the maximum 15-minute traffic volume within the hour. **PHF represents the flow variation within an hour.** The PHF comparison chart is not applicable. Please see the *Figure 11: Peak Hour Factor*

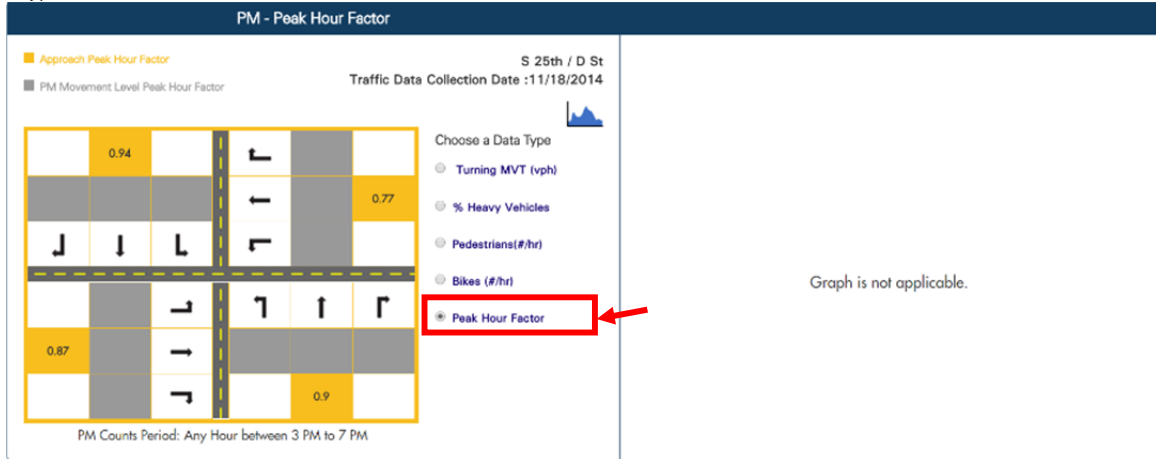


Figure 11: Peak Hour Factor

The Data type could also be changed in the map area. Click on the “Choose a Data Type” located on the left side of the map, then click on the corresponding symbol. Please see the *Figure 12: Choose a Data Type* for details.

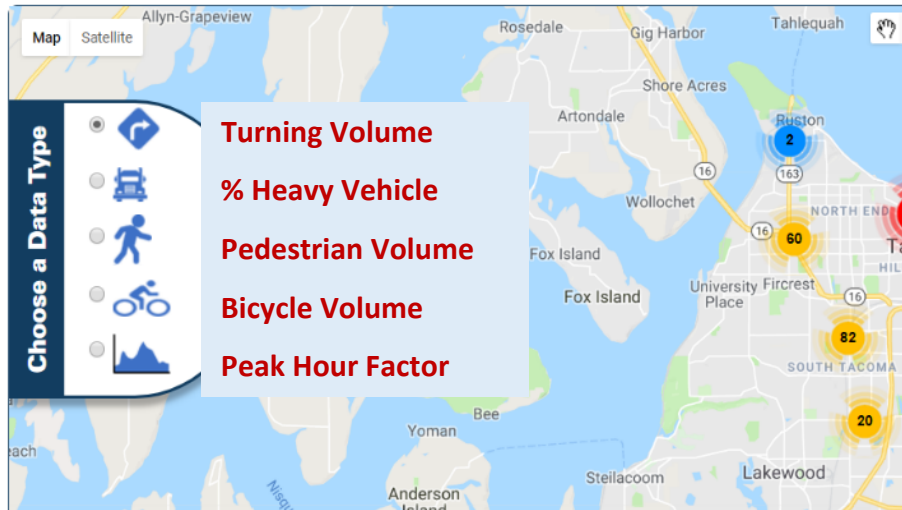


Figure 12: Choose a Data Type

4. DOWNLOAD TRAFFIC DATA & CHART

Prior to downloading the traffic count data, it is necessary to choose a count location and a data type (described in Section 2 and 3). After selecting the desired location, the download option will be found at the bottom right of the bar chart. The bar chart and turning movements diagram will be downloaded and saved in PDF/JPG/PNG format. Click the available options (i.e., PDF/JPG/PNG) and the bar chart and turning movements diagram will be downloaded in PDF/JPG/PNG format depending on the selected option. Please see the *Figure 13: Traffic Data and Chart* for details.

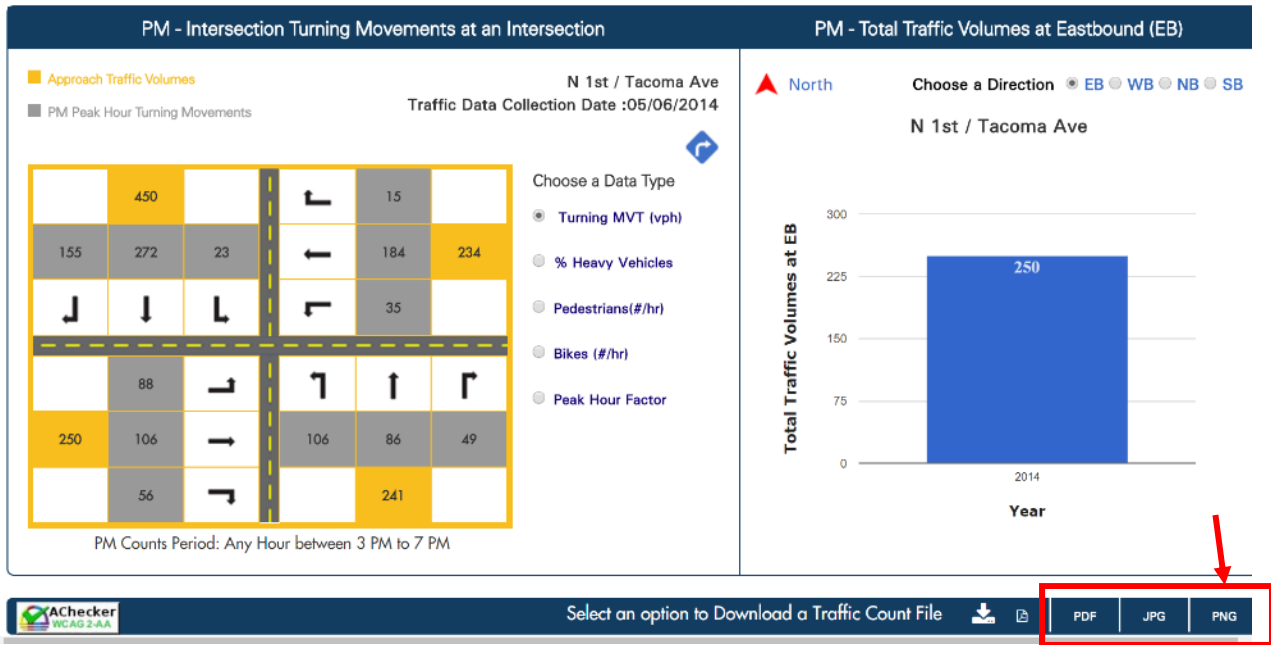


Figure 13: Traffic Data and Chart

5. DOWNLOAD ORIGINAL TRAFFIC COUNT FILE

DOWNLOAD TRAFFIC COUNT FILE FOR A LOCATION:

Prior to downloading an original traffic count file, it is necessary to choose a count location and data type (described in Section 2 and 3). After selecting the desired location, the download option will be found at the bottom right of the bar chart. The original traffic count files could be downloaded in PDF or MS Excel format.

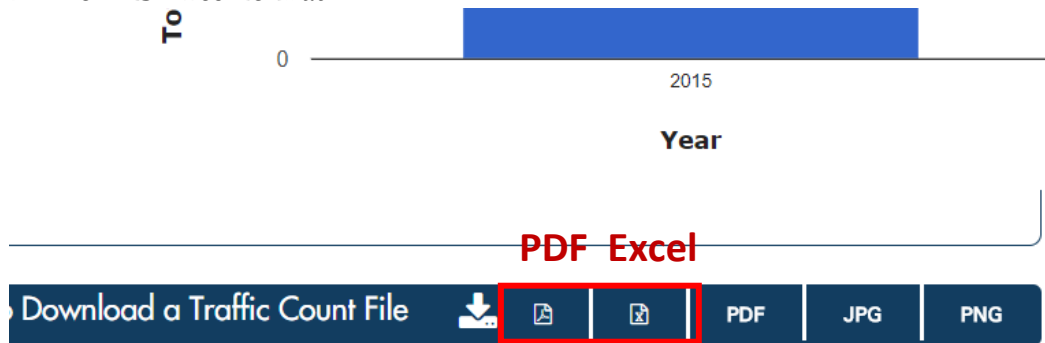


Figure 14: Traffic Count File

Each traffic count file is associated with a specific location, year, and period (i.e., AM, PM or MIDDAY). If no PDF or MS Excel file symbol are available for a selected location, it means no traffic counts files are available and/or no traffic counts are available for that selected intersection or a combination of the location, year and period. Please see the *Figure 14: Traffic Count File* for details.

DOWNLOAD TRAFFIC COUNT FILE FOR MULTIPLE LOCATIONS:

Please follow the step-by-step directions in section 6 (“Estimate and Average Traffic Volume”) to draw an area which will allow a user to select multiple locations. Click the “Files” TAB in the pop-up, and then click “Download All Files.” It will download the traffic count files for all the

locations/intersections encompassed by the area which was drawn in the earlier step. Please see the *Figure 15: Download Traffic Counts File* for details.

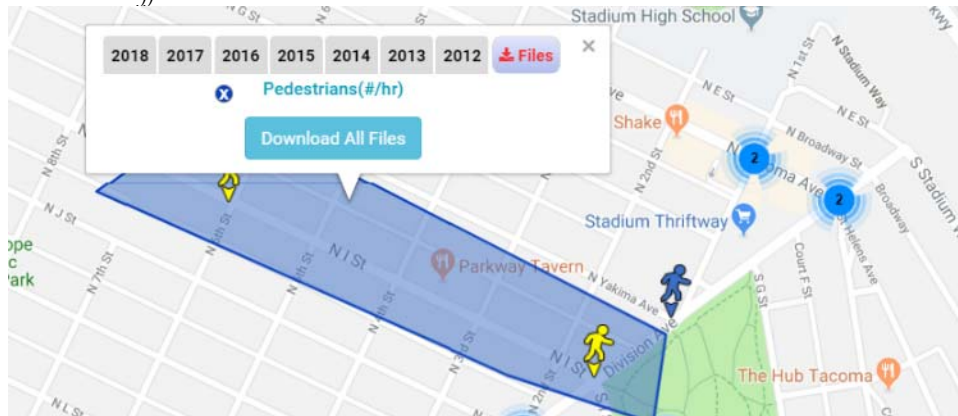


Figure 15: Download Traffic Counts File

6. ESTIMATE AN AVERAGE TRAFFIC VOLUME BY AREA

The *Peak Hour Traffic Analytics* application provides a function (*Figure 16: Tool to Calculate Average Traffic Volumes*) to calculate the average traffic volume.

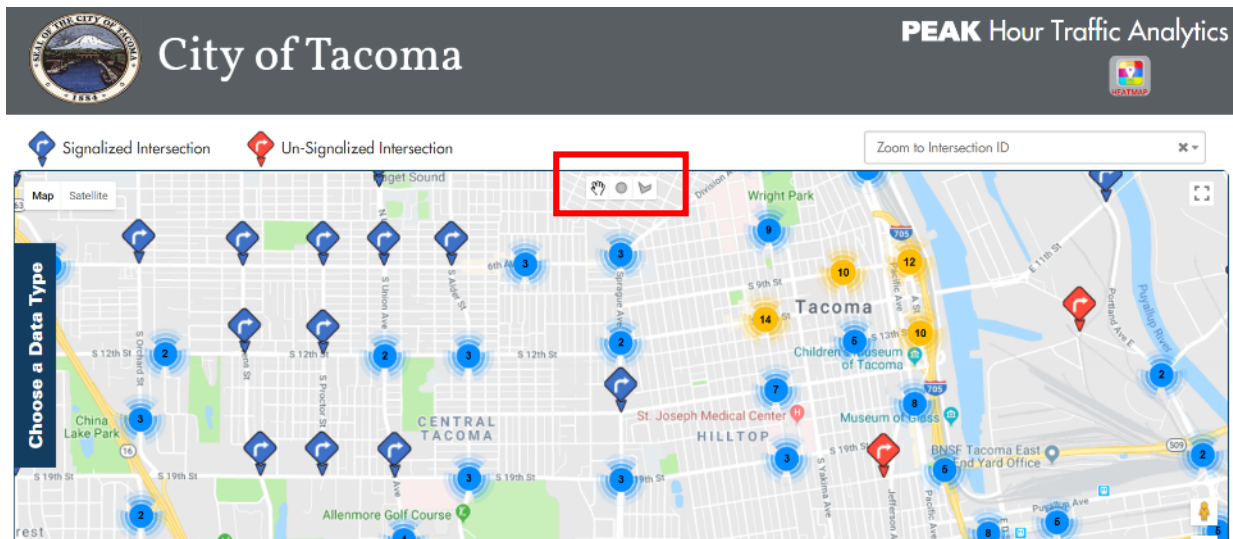


Figure 16: Tool to Calculate Average Traffic Volumes

There are 3 buttons on the top of the map: “Pan”, “Draw a Circle”, “Draw a Polygon”.

STEP 1: CHOOSE DATA TYPE

Click the “Choose a Data Type (*Figure 16: Tool to Calculate Average Traffic Volumes*)” function located on the left side of Google Maps. Additional directions are described in section 3 regarding “Choose a Data Type” function.

STEP 2: DRAW A SHAPE ON THE MAP

Click “Draw a Circle” or “Draw a Polygon” function to draw an area on the map that encompasses several intersections. The drawn area is represented by blue shade.

STEP 3: CLICK TO ENABLE THE POPUP

Click on the blue shade, a pop-up will display the average traffic volume of the selected intersections. Please see the *Figure 17: Estimated Average Traffic Counts* for details.

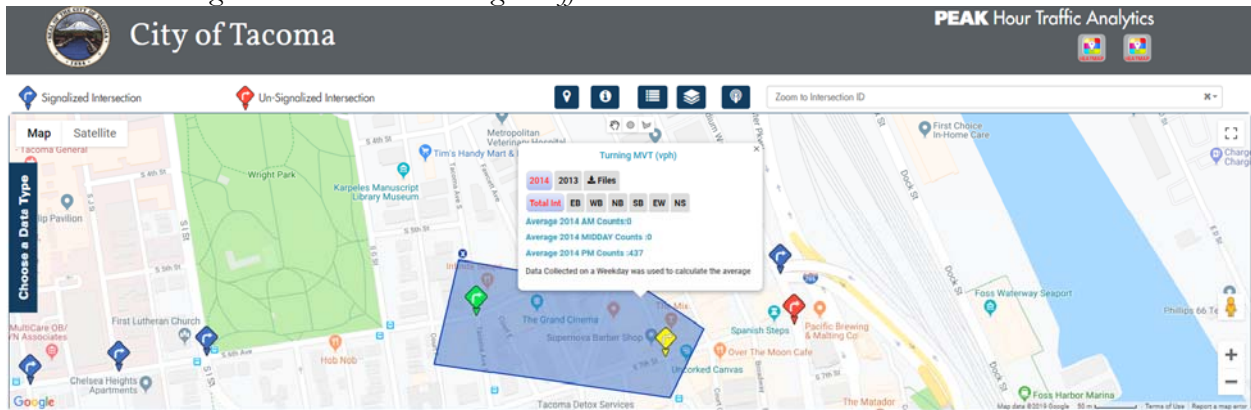


Figure 17: Estimated Average Traffic Counts

STEP 4: CHANGE THE YEAR OF THE POPUP

Choose a year on the pop-up. The color of the location marker changes based on the data availability. The green symbol means the intersections located within the blue shade have traffic counts for the selected year. The yellow symbol means traffic counts are not available for the selected year.

7. VIEW TRAFFIC HEAT MAP

STEP 1: CLICK ON THE HEAT MAP SYMBOL

Two different "HeatMap" functions are available. Click the "HeatMap" symbol located on the top right of the page. Please see the *Figure 18: HeatMap Function/Symbol* for details.

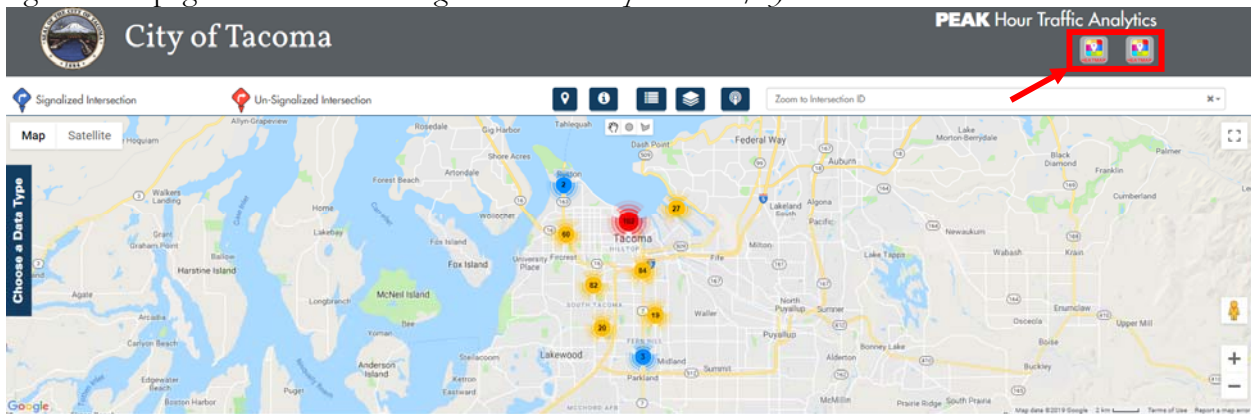
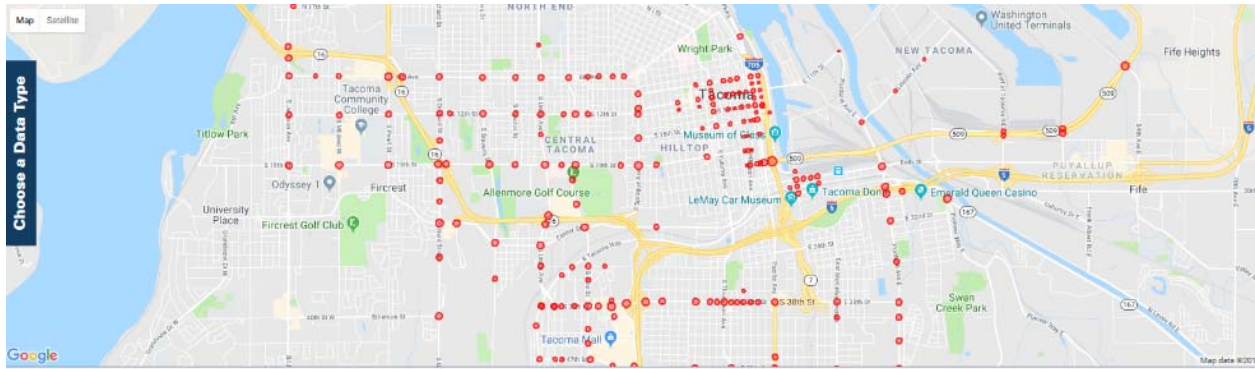


Figure 18: HeatMap Function/Symbol

The map will change to HeatMap mode based on the selected year. The size of the circle represents the volume of the traffic.



STEP 2: CHANGE DATA TYPE

Click the “Choose a Data Type” function located at the left side of the map. Next, choose a data type and the “HeatMap” will be updated based on your selected data type. Additional directions are described in section 3 regarding “Choose a Data Type” function. Please see the *Figure 19: Change Data Type* for details.

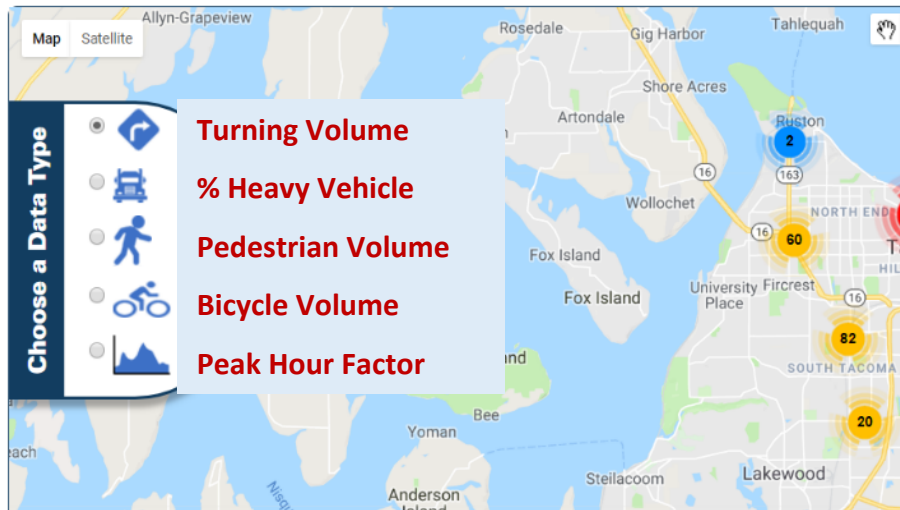


Figure 19: Change Data Type

STEP 3: GO BACK TO WEBSITES ORIGINAL STATE

Click the City of Tacoma Symbol or press F5 to refresh the page, the traffic count application will go back to it’s original state. To change the year and time period of the “HeatMap”, please go back to the websites original state first, and then repeat steps1-3.