

Origin & Destination (OD) Studies

There are two (2) primary types of OD reports:

1. **Demand Reports (Demand OD Matrix)**
2. **Trip Reports (Trip List)**

Note – each of the primary OD report types have sub-types, for a total of five (5) different report options. In your OD study, you can choose any combination of reports, from just one (1) to all five (5) of the available reports.

1. DEMAND REPORTS

A **Demand OD Matrix** report shows the matches between each pair of devices/zones in the form of a matrix. This report is used to determine the demand for travel between two locations. This report is useful for answering questions such as:

1. How many vehicles use a bypass road compared to the business road?
2. How much traffic is local traffic versus through traffic?
3. How far do vehicles travel along a stretch of freeway?
4. What are the most used exits for a freeway?
5. How has changes in the road affected the demand between locations?
6. What are the turning movements for an intersection?

In addition to the basic **Demand OD Matrix** report, there are also **Demand Travel Times (by Time of Day)** reports and **Demand Raw Data** reports under Demand Reports:

1a. Demand Travel Times

A **Demand Travel Times (Time of Day)** report shows travel time information about matches that meets the filter criteria. The report includes travel time for each combination of devices including average, median and various percentiles. This report is useful for answering questions as seen below:

1. How long does it take to travel between two devices?
2. What is the demand between each location for commuters?
3. How much variation is there in travel time during various periods of the day?

1b. Demand Raw Data

A **Demand Raw Data** report shows information about each match that meets the filter criteria. The report includes information about the start location, end location, the overall travel time and the date/time the vehicle was seen at each location. This report is useful for answering questions as seen below:

1. What is the distribution of travel times between each sensor?
2. What is the demand between each location for commuters?

2. TRIP REPORTS

A **Trip List** report shows the count of vehicles that took specific paths between devices/zones that meet the filter criteria. The report includes travel time information (Average, Median, 15th Percentile and 90th percentile) for each path. This report is useful for answering questions such as:

1. What are the different paths people take between two set locations?
2. What are the dominant or non-dominant paths between two locations?
3. What is the ratio of vehicles that take each path between two locations?

In addition to the basic **Trip List**, there is also a Trip Raw Data report:

2a. Trip Raw Data

A **Trip Raw Data** report shows information about each trip that meets the filter criteria. The report includes information about the path taken, the overall travel time and the date/time the vehicle was seen at each location. This report is useful for answering questions as seen below:

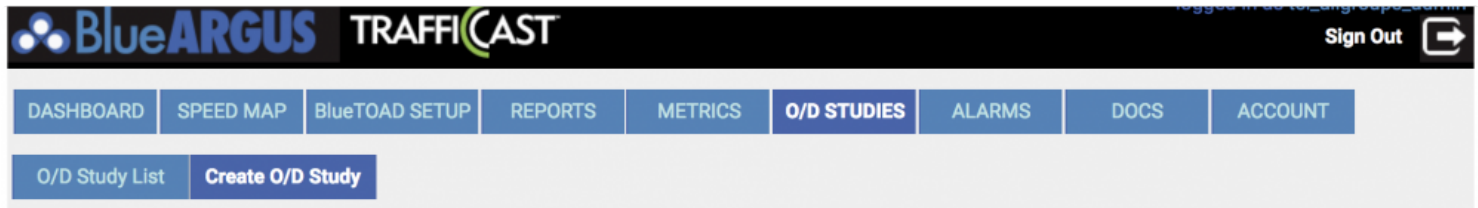
1. What path did a known probe taken through a network of devices?
2. How much time did a known probe spend between each of the devices it was detected at?
3. For a certain sequence of sensors, how much time was spent at each part in the sequence?
4. What sequence of sensors is used most by commuters?

[How to create a travel time reliability comparison report](#)

[How to create an OD study](#)

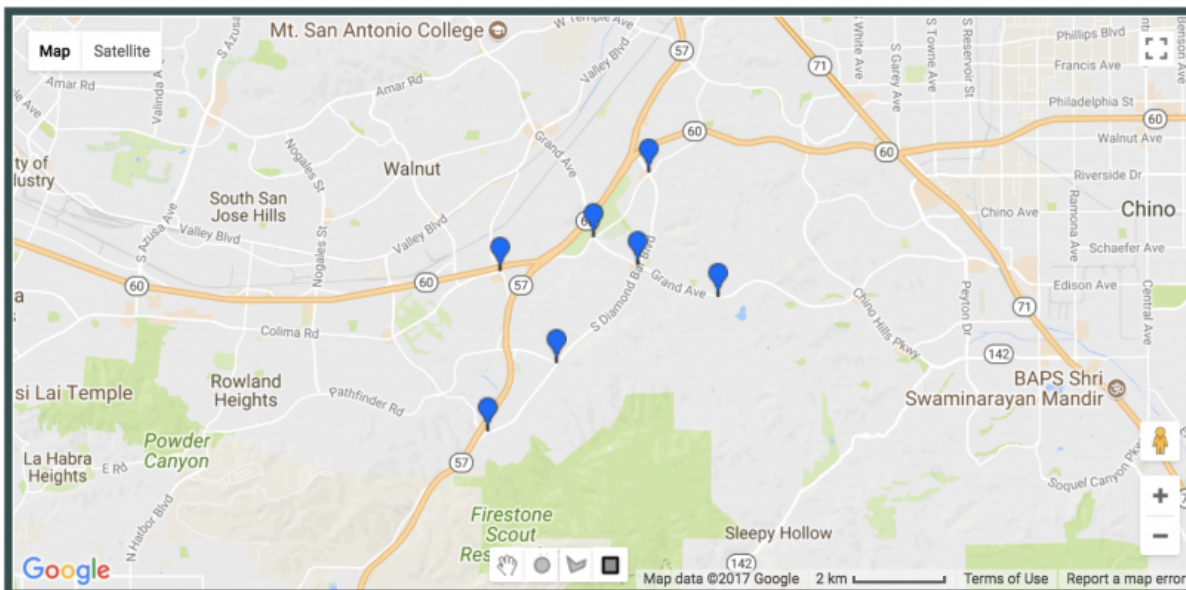
How to create an OD study

1. click on [O/D Studies](#) on the main tab at the top of BlueARGUS
2. click on [Create O/D Study](#) and it will bring up a map of your system showing all BlueTOAD devices as well as a list of all of the devices below the map



Devices - Diamond Bar ↓

Show Active Devices Show Inactive Devices




Zone ID	Device Name	City	State	XF
2032315	Golden Springs Dr @ Diamond Bar Blvd	Diamond Bar	CA	
2038147	Diamond Bar Blvd @ Brea Canyon Rd	Diamond Bar	CA	
2054600	Diamond Bar Blvd @ Grand Ave	Diamond Bar	CA	
2065665	Grand Ave @ Longview Dr	Diamond Bar	CA	
2068351	Golden Springs Dr @ Grand Ave	Diamond Bar	CA	
2136174	Diamond Bar Blvd @ Pathfinder Rd	Diamond Bar	CA	
2141337	Golden Springs Dr @ Brea Canyon Rd	Diamond Bar	CA	

3. you must now select the elements that you wish to incorporate into your OD Study – these can be individual devices, zones made up of one (1) or more devices, “must include” devices, and “must exclude” devices
 - a. **individual devices** – single devices added to the OD study that will be an origin and destination in the results
 - b. **zones** – a group of devices added to the OD study that will be bundled together, such as a zone made up of four (4) nearby devices that will be grouped together to represent a particular area or

corridor



- i. you can create a zone by either clicking on one (1) or more devices on the map and then selecting **Create Zone** to the right of the map, or by clicking on the shapes at the bottom of the map and drawing a shape around the devices of interest and then selecting **Create Zone** to the right of the map
 - ii. when you create a zone you can give it a name and/or a zone number (note: a zone can consist of just one device – this is helpful if you wish to give that device a new name for a particular OD study)
 - c. **must include devices** – this element allows you to select BlueTOAD device locations that vehicles **MUST** pass through in order to be included in the study – for example, if device location B is selected to be a must include device, then for a study looking at OD data between device location A and device location C, only trips that pass through location B on the way to or from A or C will be included in the results
 - d. **must exclude devices** – this element allows you to select BlueTOAD device locations where you do not want to include traffic from – for example, if device location B is selected to be a must exclude device, then for a study looking at OD data between device location A and device location C, any trips that pass through B on the way would not be included in the results
4. once you have selected your devices and/or zones of interest, click **Continue**
 5. name the report – we recommend being descriptive as this is how the OD study will be labelled
 6. (optional) provide a description of the study, such as the purpose or goal of the study – we recommend taking a few minutes to be very descriptive here as your colleagues (and possibly you down the road) may rely on this description in order to figure out the goal or purpose of the OD study
 7. select one or more OD report types – see the [Origin & Destination \(OD\) Studies](#) introduction for a description of these report types
 8. name your first time slice – example: “AM Peak”
 9. select the **start** and **end date**, **start** and **end time** and **days of the week** for this slice
 10. click **Add Time Slice**
 11. if you want to add additional time slices, repeat steps 6, 7, and 8 for your next time slice – example: “PM Peak”



Time Slices

Time Slice Name
Mid-Day Peak 

Start Date
11/01/2017
Format: 12/10/2017

End Date
11/30/2017
Format: 12/10/2017

Start Time
11  30 

End Time
13  30 

All Weekdays Sun Mon Tue Wed Thu Fri Sat

[Add Time Slice](#)

Name	Start Date	End Date	Start Time	End Time	Days of Week	Remove Time Slice
AM Peak	11/01/2017	11/30/2017	06:00	10:00	Weekdays	remove
PM Peak	11/01/2017	11/30/2017	16:00	18:00	Weekdays	remove

12. **Advanced Options** allow you to customize the **Max Travel Time**, **Detection Reference Point**, and **Trip/Match Reference Point**

- a. **Max Travel Time** allows you to set the upper limit of what is considered a single trip – this is the maximum allowed travel time for matches/trips. Increasing this value will allow for matches/trips between sensors that are further apart. Increasing the value of this setting will also increase the processing time. Uses:
 - i. (1) – If your study area is small, then the time can be reduced to improve the processing speed.
 - ii. (2) – If your study area is large, then the time can be increased to capture the trips/matches you are concerned with.
- b. **Detection Reference Point** lets you select when a bluetooth device is recognized (either by a singular device or a zone) and used for data development – either its first detection, its last detection, or the mid-point in-between
- c. **Trip/Match Reference Point** allows you to define the parameters of trips that are included within your time slice(s) – you can choose **Start of Trip/Match** to use those trips that started (but may not have finished) within your defined time slice or **End of Trip/Match** to select those that ended (but may not have begun) within your defined time slice

13. enable **Email Notifications** to receive an email notifying you that your new OD study has finished processing – you can send it to the account that is being used to create the OD study or a custom list if you want others to be made aware

14. click **Process Report**

- a. once you click **Process Report** you will be taken to the **OD Study List** page where your newly created OD study will initially be listed as “queued” and then “processing” as BlueARGUS filters the data and compiles it into an Excel report format – *note that this can take anywhere from 3-5 minutes to several hours depending on the timeframe and scope of data that you selected*
- b. once your report has been processed and is good to go, it will show up as “finished” in the **OD Study List** and you can click on the report name in the list to access the results of the OD study

How to access/view OD study results

1. click on [O/D Studies](#) on the main tab at the top of BlueARGUS
2. click on [OD Study List](#) and it will bring up a list of all OD studies that have been created in your system – this includes those that have finished processing and are ready to be viewed as well as those that are still processing

The screenshot shows the BlueARGUS TRAFFICCAST interface. The user is logged in as 'tcj_diamondbar_admin' and can sign out. The navigation menu includes DASHBOARD, SPEED MAP, BlueTOAD SETUP, REPORTS, METRICS, O/D STUDIES (selected), ALARMS, DOCS, and ACCOUNT. Below the menu, there are buttons for 'O/D Study List' and 'Create O/D Study'. The main content area displays a table of O/D studies.

ID ▲	Report Name	Status	Created	Finished
473	Weekday Commuter Options for the City of Diamond Bar	finished	12-06-2017 13:32	12-06-2017 13:36
250	Morning Peak - Oct 9-13 - 6-9am	finished	10-19-2017 15:39	10-19-2017 15:41
246	Diamond Bar to Grand - East West Flow	finished	10-17-2017 12:02	10-17-2017 12:28

3. click on the [Report Name](#) of the report of interest and you will see a summary of the study, including its [Description](#) (if a description was entered when the study was created), a list of the [Devices](#) that make up the study, and its [Advanced Options](#)
4. below this summary, there is a list of all of the reports associated with the study, organized by slice – you can [Download](#) each report file separately or select the [Download All Results for this Study](#) as a combined zip file

Slice	Report Type	Time Slice Name	Start Date	End Date	Start Time	End Time	Days of Week	Download
1	Trip List	AM_Peak	10/17/2017	10/27/2017	06:00	09:00	Weekdays	Download
1	Demand O/D Matrix	AM_Peak	10/17/2017	10/27/2017	06:00	09:00	Weekdays	Download
1	Demand Travel Times (Time of Day)	AM_Peak	10/17/2017	10/27/2017	06:00	09:00	Weekdays	Download
2	Trip List	PM_Peak	10/17/2017	10/27/2017	16:00	19:00	Weekdays	Download
2	Demand O/D Matrix	PM_Peak	10/17/2017	10/27/2017	16:00	19:00	Weekdays	Download
2	Demand Travel Times (Time of Day)	PM_Peak	10/17/2017	10/27/2017	16:00	19:00	Weekdays	Download

[Download All Results for this Study \(zipped\)](#)

5. once the file(s) have finished downloading to your computer and are unzipped, they are now ready to be opened in Excel

[How to create an OD study](#)

[Need More Help?](#)