



# Using Google Cloud to Store and Analyze Waze for Cities Data

<b><u>Get Started</u></b>	<b>2</b>
<a href="#">Why should I use Google Cloud to store and analyze Waze for Cities data?</a>	2
<a href="#">Is it complicated to set up and use?</a>	2
<a href="#">How do I access Google Cloud data?</a>	2
<b><u>Overview: Cloud Resources for Waze for Cities Partners</u></b>	<b>3</b>
<a href="#">Key Alerts Dashboard</a>	3
<a href="#">BigQuery</a>	3
<a href="#">Data Studio</a>	3
<a href="#">Platform Integration</a>	3
<b><u>Key Alerts Dashboard</u></b>	<b>4</b>
<a href="#">Traffic Alerts</a>	5
<a href="#">Traffic Accidents</a>	6
<a href="#">Traffic Irregularities</a>	7
<b><u>BigQuery</u></b>	<b>8</b>
<a href="#">More help</a>	8
<a href="#">Account set-up</a>	9
<a href="#">Information sharing</a>	10
<b><u>Data Studio</u></b>	<b>11</b>
<b><u>Platform Integration</u></b>	<b>12</b>
<a href="#">Data integration</a>	12
<a href="#">BI and data visualization</a>	12
<b><u>Additional Resources</u></b>	<b>12</b>

# Get Started

## Why should I use Google Cloud to store and analyze Waze for Cities data?

Google Cloud gives you the ability to explore and visualize Waze data without the hassle of building your own data intake and storage system from scratch. Using the Cloud, you can:

- Access over a year of free Waze traffic records for your region
- Make smarter traffic and infrastructure decisions with built-in analysis tools
- Integrate Waze-exclusive data into other popular data management platforms
- Share community improvement ideas internally and externally with visual templates



## Is it complicated to set up and use?

Long story short, no way! Google Cloud connects with your existing Waze for Cities account, so setting up the integration requires just a few simple steps. Preconfigured dashboards help you monitor the basics. From there, you have the option to customize and link other datasets depending on your needs.

## How do I access Google Cloud data?

**waze PARTNER PORTAL**

ModicumWFC | Waze for Cities | SDK

### Waze for Cities Data

Cities around the globe are using Waze to manage traffic for millions of drivers in real time, and make better informed infrastructure decisions. Cities can use this data to inform mobility projects and policies, as well as share their own information about street closures, construction and even crisis events directly with citizens.

Waze for Cities partners can now access Waze for Cities data via Google Cloud Platform – making it possible to store, query and visualize big data sets with tools like BigQuery and Data Studio. Access to the data and basic use of these tools will remain free. Low-cost options are available for users interested in querying 1TB+ of data or storing additional layers of data to complete the data provided by Waze. More information about pricing is available [here](#)

#### Data Studio

Data Studio is a Google Cloud product and data visualization tool that enables visual analysis of datasets. Waze for Cities Data partners can access a Data Studio dashboard for free by clicking the link below:

[Waze for Cities Data | Key Alerts Dashboard](#)

*Note: Please log into the dashboard above using the same account that you use for the Waze Partner Portal.*

#### BigQuery

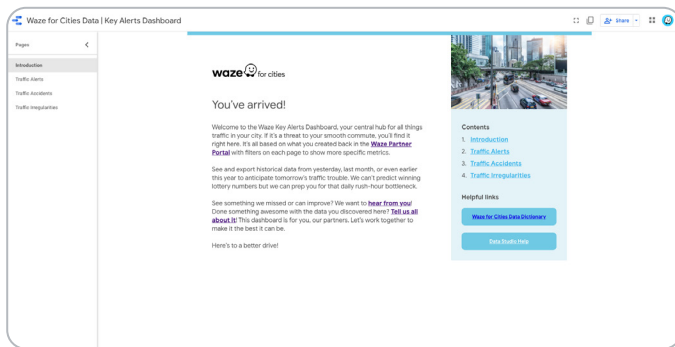
BigQuery is a Google Cloud Platform product that enables interactive analysis of large datasets working in conjunction with Google Cloud Platform Storage. Waze for Cities partners can use BigQuery to analyze up to 1TB of Waze data free of charge each month. Partners can choose to add a billing account to analyze even more data for a small cost.

**All individuals whose email addresses are listed in the “Basic Information” tab will have access to Google Cloud resources.** To connect to Google Cloud, click on the “Access Waze Data via Google Cloud” tab from the Partner Portal homepage. For partners who have joined Waze for Cities before August 15, 2019, you’ll need to sign a set of terms and conditions the first time you log into this resource. Once you

accept, you’ll see instructions for accessing the Key Alerts Dashboard and the BigQuery and Data Studio tools.

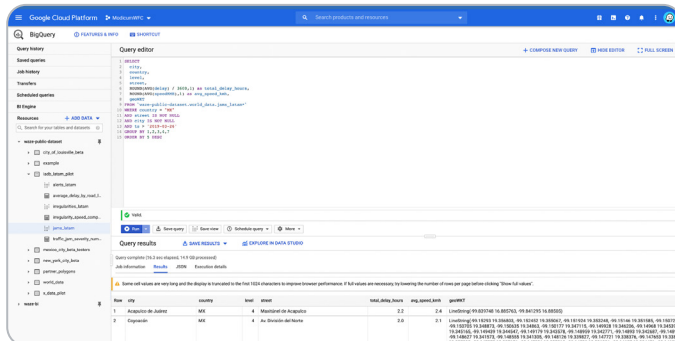
To grant access to an additional colleague, add their contact information into one of the subsections of the tab and allow three to four hours for permissions settings to take effect.

# Overview: Cloud Resources for Waze for Cities Partners



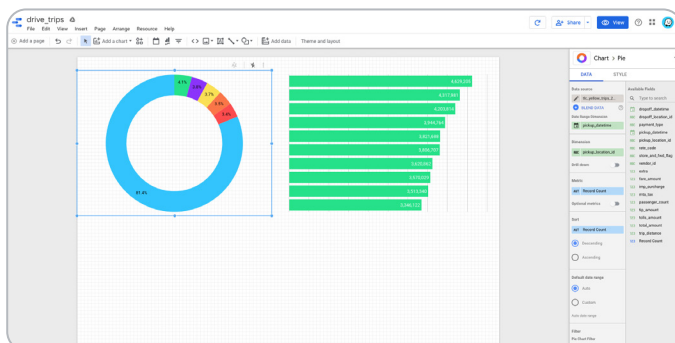
## Key Alerts Dashboard

Preconfigured overviews of local traffic activity, sourced from free Waze data and built with free Google Cloud tools



## BigQuery

A Google Cloud tool for interactive analysis of large datasets



## Data Studio

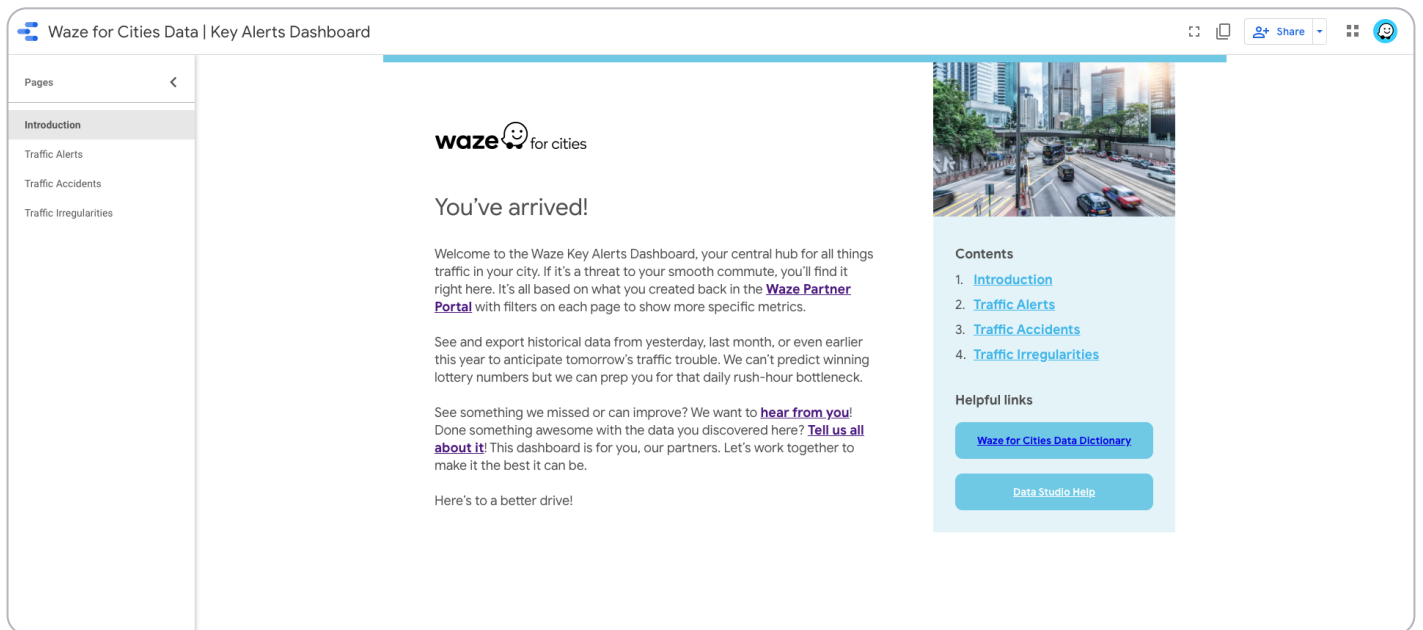
A Google Cloud tool for custom and templated visuals and reports



## Platform Integration

A handy list of external data platforms that can be used with Google Cloud tools

# Key Alerts Dashboard

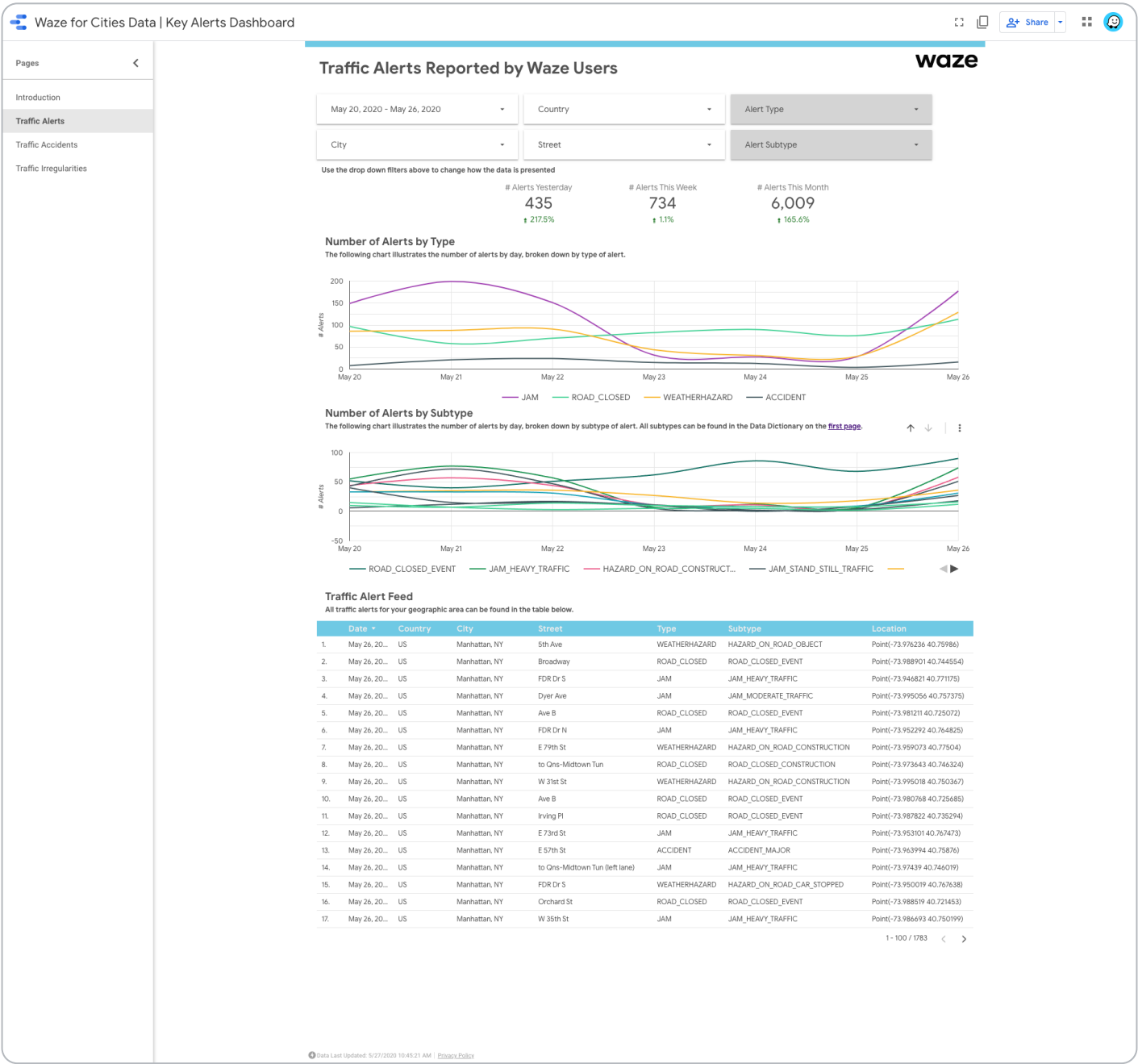


The Waze for Cities Google Cloud Integration gives you access to several datasets. The Key Alerts Dashboard is a free, easy way to put these datasets to use.

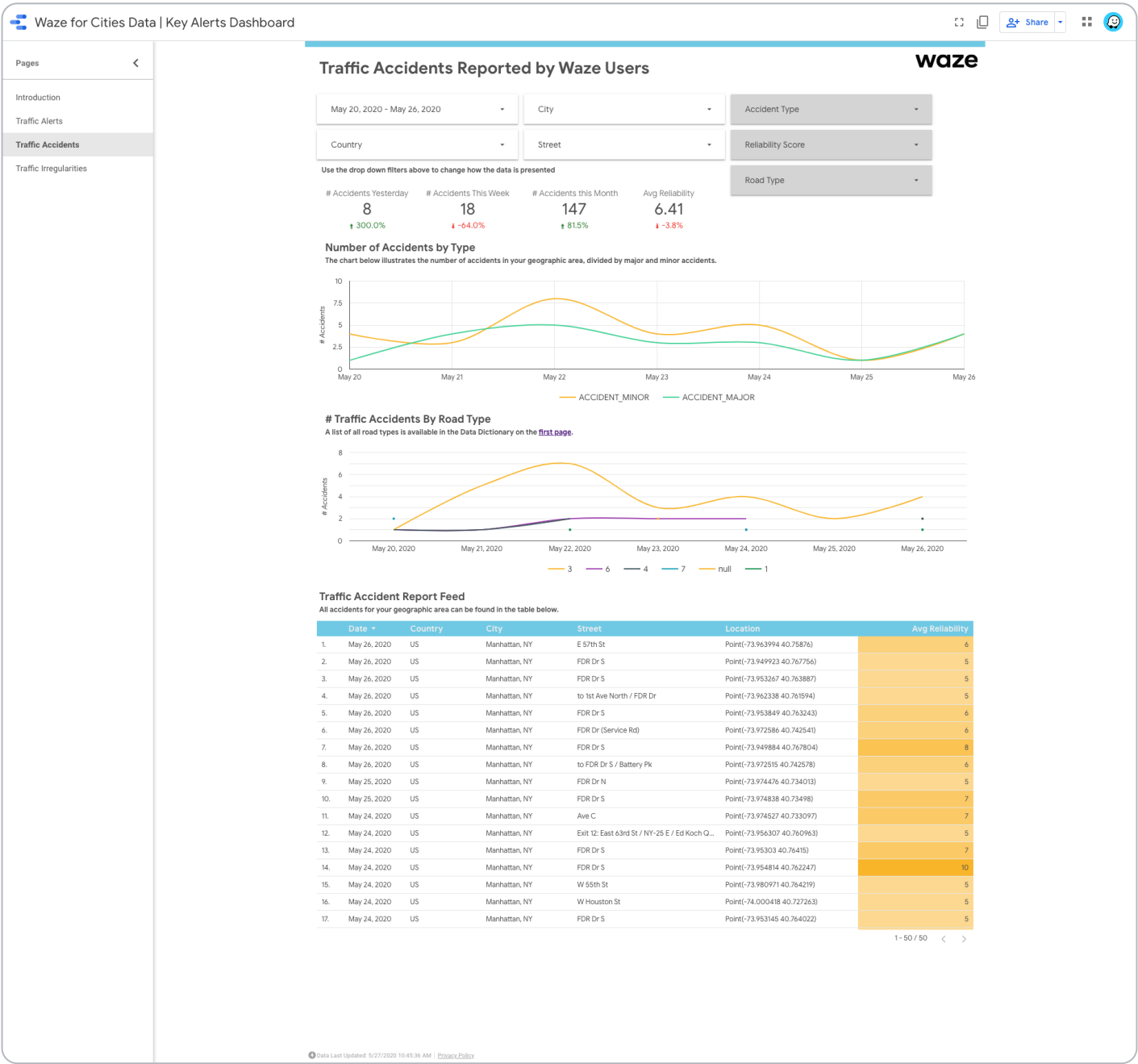
The dashboard gives you a snapshot of frequently used Waze for Cities data and insights for the polygon (region) you created in the Partner Portal. This includes Traffic Alerts, Accidents, and Irregularities. Overall, the dashboard helps you understand traffic and transportation trends in your polygon, and gives you a sense of what you can do with the Cloud tools.

To access the dashboards for the first time, you need to authorize the [Data Studio Community Connector](#), a free tool that enables Waze to verify which data should be provided to you.

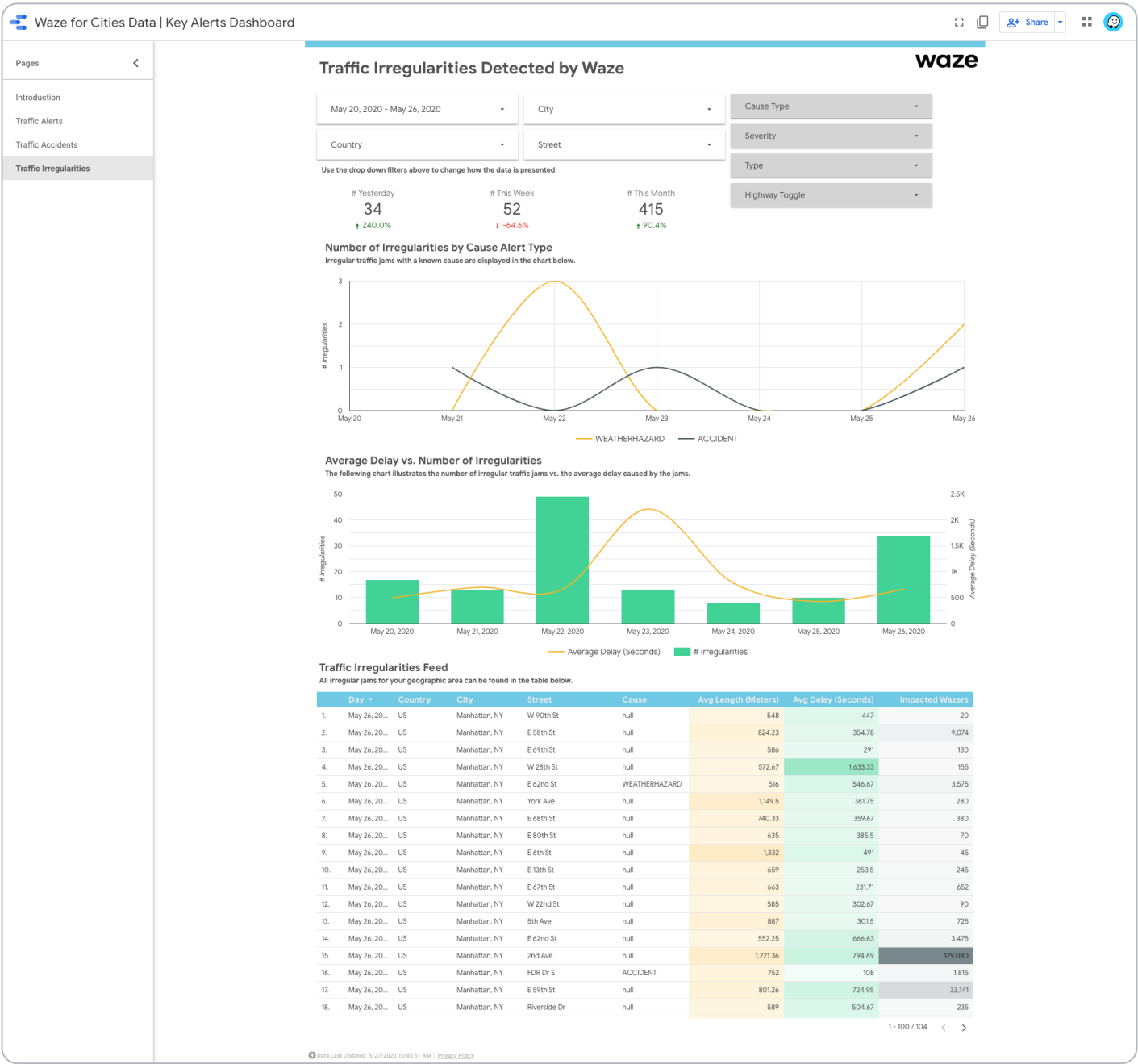
# Key Alerts Dashboard



# Key Alerts Dashboard



# Key Alerts Dashboard



# BigQuery

The screenshot shows the Waze Partner Portal dashboard. The left sidebar contains a navigation menu with items: Home, Basic Information, Share Data with Waze, Access Waze Data Feeds, Access Waze Data via Google Cloud (highlighted), Forum, Calendar, and Resources. The main content area is titled 'Waze for Cities' and 'SDK'. It features a note about logging into the dashboard, a 'BigQuery' section with an introductory paragraph, a link to 'BigQuery Onboarding Instructions', a 'Direct Link to BigQuery', and a recommendation to follow the onboarding instructions. Below this is a 'BigQuery GeoViz' section with an introductory paragraph, a link to 'BigQuery GeoViz', and a note about setting up a project in BigQuery prior to using GeoViz.

**waze PARTNER PORTAL**

ModicumWFC Waze for Cities SDK

Note: Please log into the dashboard above using the same account that you use for the Waze Partner Portal.

## BigQuery

BigQuery is a Google Cloud Platform product that enables interactive analysis of large datasets working in conjunction with Google Cloud Platform Storage. Waze for Cities partners can use BigQuery to analyze up to 1TB of Waze data free of charge each month. Partners can choose to add a billing account to analyze even more data for a small cost.

BigQuery enables our partners to dive deeper into the data by running custom SQL analyses. To get started with BigQuery and Waze Data, please reference the following documents:

[BigQuery Onboarding Instructions](#)

These onboarding instructions also contain sample queries and tips & tricks to help get you started.

[Direct Link to BigQuery](#)

Following the onboarding instructions above is highly recommended.

[Waze for Cities Data | Data Dictionary](#)

## BigQuery GeoViz

BigQuery GeoViz is a geographic visualization tool that leverages BigQuery data to plot data points on a map. To learn more about GeoViz, visit the [Google Cloud site](#).

[BigQuery GeoViz](#)

Note: You must set up a project in BigQuery prior to using GeoViz. Please reference the onboarding instructions above for more information.

BigQuery is a data tool that enables you to dive deeper with custom interactive analysis of large datasets with SQL and layering of Waze data with other datasets. Conduct up to 1 TB of queries and store up to 10 GB of your custom data & analyses for free, with the option to upgrade for a small fee. More on pricing [here](#).

To query your datasets, combine the dataset name with one of three Waze table names. For more detailed instructions, see the BigQuery Onboarding Guide linked below.

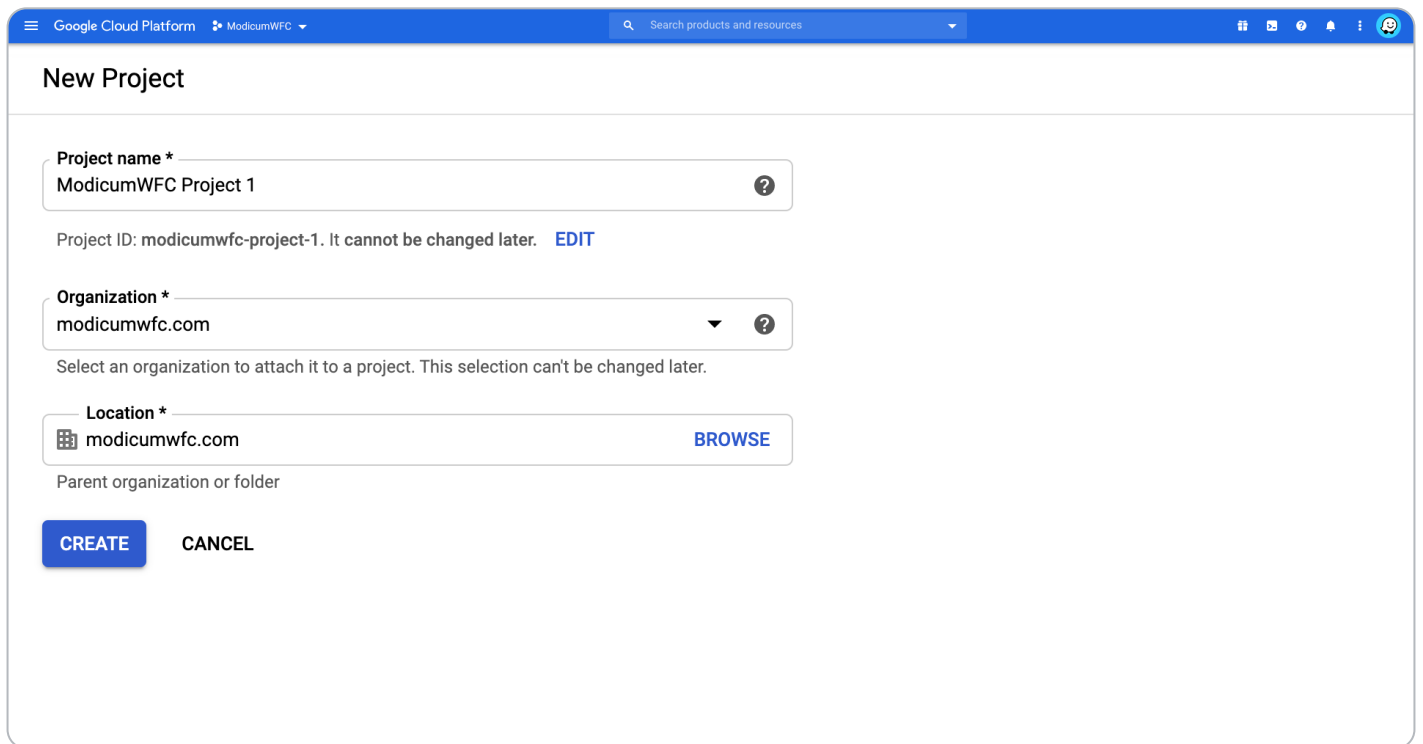
## More help

In the “Access Waze Data via Google Cloud” tab, you’ll find a number of BigQuery resources:

- A [BigQuery Onboarding Guide](#), including several sample queries to get you started
- A [Direct Link](#) to BigQuery, which you’ll click to log in
- A [Data Dictionary](#) for terms that may be unfamiliar to some users



# BigQuery



The screenshot shows the 'New Project' form in the Google Cloud Platform console. The form is titled 'New Project' and has a blue header bar with the Google Cloud Platform logo and a search bar. The form contains three main sections: 'Project name', 'Organization', and 'Location'. The 'Project name' section has a text input field with 'ModicumWFC Project 1' and a help icon. Below it, the 'Project ID' is shown as 'modicumwfc-project-1' with a note that it cannot be changed later and an 'EDIT' link. The 'Organization' section has a dropdown menu with 'modicumwfc.com' and a help icon. Below it, a note says 'Select an organization to attach it to a project. This selection can't be changed later.' The 'Location' section has a dropdown menu with 'modicumwfc.com' and a 'BROWSE' button. Below it, a note says 'Parent organization or folder'. At the bottom of the form are two buttons: 'CREATE' and 'CANCEL'.

Google Cloud Platform ModicumWFC

Search products and resources

## New Project

**Project name \***  
ModicumWFC Project 1 ?

Project ID: modicumwfc-project-1. It cannot be changed later. [EDIT](#)

**Organization \***  
modicumwfc.com ?

Select an organization to attach it to a project. This selection can't be changed later.

**Location \***  
modicumwfc.com [BROWSE](#)

Parent organization or folder

[CREATE](#) [CANCEL](#)

## Account set-up

To access BigQuery, click the link in the Cloud tab of the portal. Then, create and name your first project. If your organization is already a G Suite user, you may need to follow these instructions to make sure you have the right permissions:

1. Find your G Suite Admin: click [here](#) for help
2. Have your admin create a [GCP Project](#) and grant you “Project Editor” permissions

If you're prompted to enable the BigQuery API for your project, you can do so via the Google Cloud Console. Once your account is set up, check the BigQuery onboarding guide for a set of [sample queries](#) to help you get started.

# BigQuery

The screenshot displays the Google Cloud Platform BigQuery interface. On the left, the 'Query history' sidebar shows a list of saved queries, job history, transfers, and scheduled queries. The 'Resources' section on the left lists various datasets, including 'waze-public-dataset' and 'waze-bi'. The main 'Query editor' area contains a SQL query that filters data by country (MX), street (Maxitónel de Acapulco), and time (2019-03-26), calculating average delay and speed. Below the editor, the 'Query results' section shows a table with columns: Row, city, country, level, street, total\_delay\_hours, avg\_speed\_kmh, and geoWKT. The results are truncated for performance, with a warning message indicating that some cell values are very long.

```
1 SELECT
2   city,
3   country,
4   level,
5   street,
6   ROUND(AVG(delay) / 3600,1) as total_delay_hours,
7   ROUND(AVG(speedkmh),1) as avg_speed_kmh,
8   geoWKT
9 FROM `waze-public-dataset.world_data.jams_latam`
10 WHERE country = "MX"
11 AND street IS NOT NULL
12 AND city IS NOT NULL
13 AND ts > '2019-03-26'
14 GROUP BY 1,2,3,4,7
15 ORDER BY 5 DESC
```

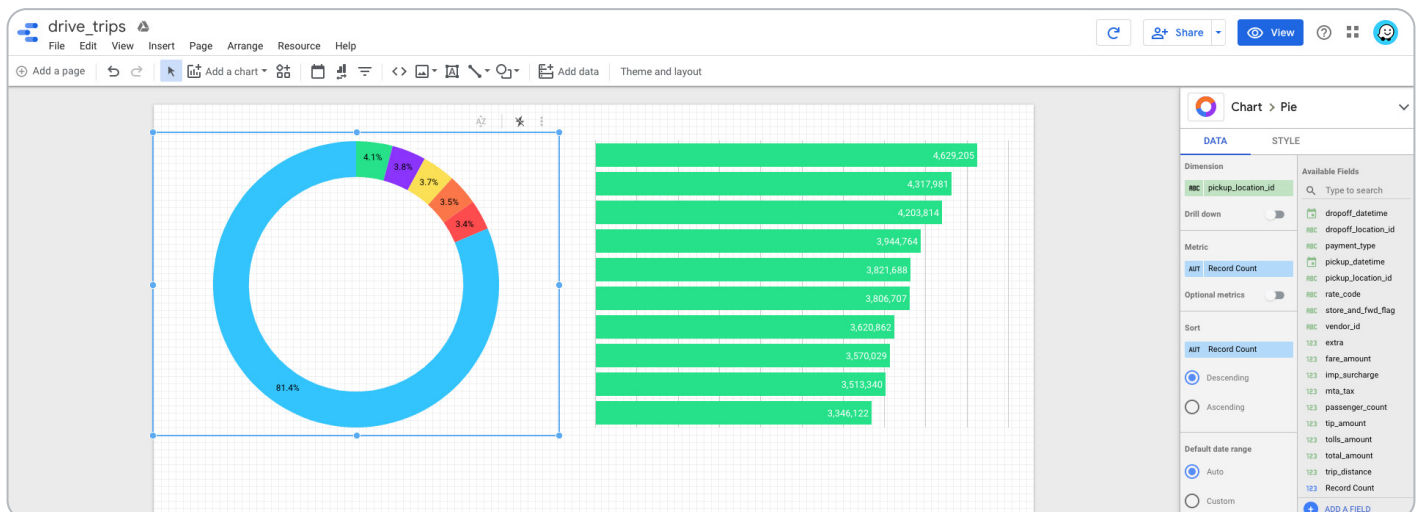
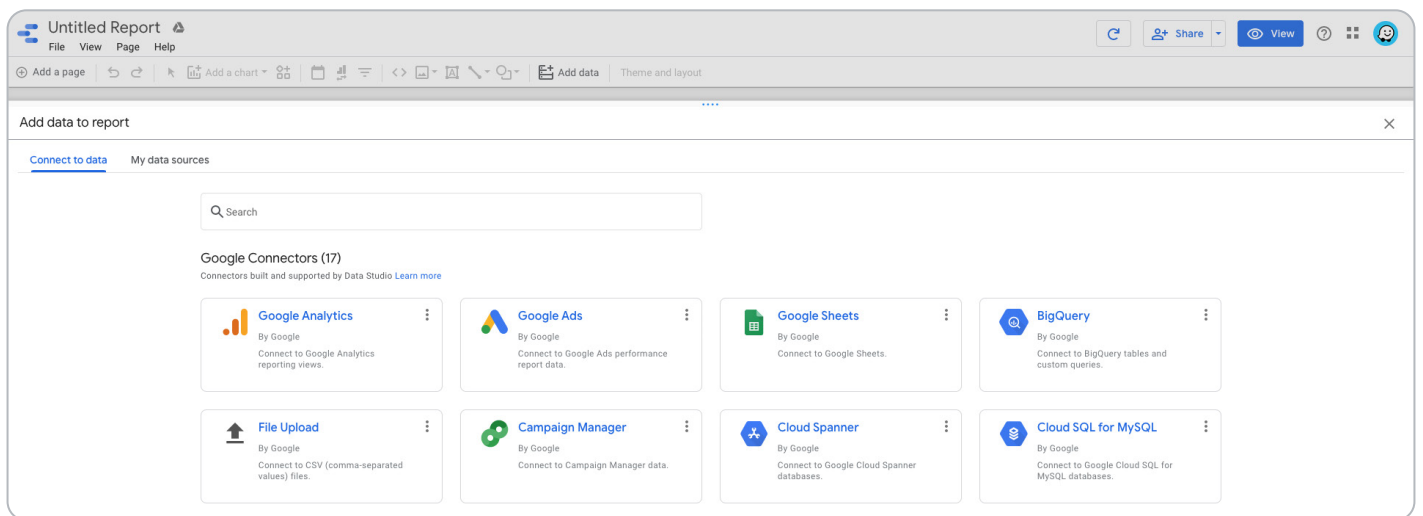
Row	city	country	level	street	total_delay_hours	avg_speed_kmh	geoWKT
1	Acapulco de Juárez	MX	4	Maxitónel de Acapulco	2.2	2.4	LineString(-99.839748 16.885763, -99.841295 16.88505)
2	Coyoacán	MX	4	Av. División del Norte	2.0	2.1	LineString(-99.15293 19.356803, -99.152452 19.355067, -99.151924 19.353248, -99.15146 19.351585, -99.150726 19.349868, -99.149928 19.346206, -99.14968 19.345394, -99.149439 19.344547, -99.149179 19.343578, -99.148959 19.342771, -99.14893 19.342687, -99.148905 19.342687, -99.148827 19.341573, -99.148555 19.341305, -99.148126 19.339827, -99.147721 19.338376, -99.147653 19.33809 19.337895, -99.147373 19.337176, -99.147326 19.337018, -99.14729 19.336896, -99.14657 19.334471, -99.146365 19.333411, -99.145745 19.332948, -99.14438 19.331176, -99.141457 19.32751, -99.14092 19.326837, -99.140047 19.325728, -99.139896 19.325481, -99.139755 19.325176, -99.13966 19.324722, -99.139554 19.324193, -99.139365 19.323396, -99.139045 19.321761, -99.138998 19.321544, -99.138659 19.319965)

## Information sharing

BigQuery makes it easier than ever for our partners to share queries, analyses, and interesting ideas for improving community roadways. Until now, partners used a wide range of tools that weren't compatible with each other. BigQuery works with a variety of geography SQL functions, and built-in APIs allow you to access BigQuery data from other applications like Tableau and Google Sheets.

The Waze team is exploring how to best share findings between partners, and we'd love any [feedback](#) you can share as you familiarize yourself with the tools.

# Data Studio



Google's Data Studio is a live analytics and dashboard tool used to create interactive analyses and performance insights. Data Studio helps you create visuals of your Waze for Cities data. You can use Waze report templates or build custom reports to share within your organization. Tools like this are ideal for showing trends to city leadership or getting a quick daily snapshot of traffic in your city.

You can also use Data Studio to integrate other data sources and show the relationships between Waze data and other data sets (e.g. air quality, weather events, crashes, etc.).

For more information on getting started with Data Studio, click [here](#).

# Platform Integration

If you're already using another platform for loading, transforming, and visualizing data, you may be able to integrate it with your Waze for Cities Google Cloud tools. Here is a small sampling of platforms that integrate with Google Cloud:

## Data integration



## BI and data visualization



# Additional Resources

Follow the links below for additional resources and support, or email us from your portal homepage.

- [BigQuery Onboarding Guide](#)
- [BigQuery Web UI Quickstart Guide](#)
- [Data Studio Help Center](#)
- [Waze for Cities Data Dictionary](#)
- [Waze for Cities Support Form](#)
- [Waze for Cities Community Forum](#)