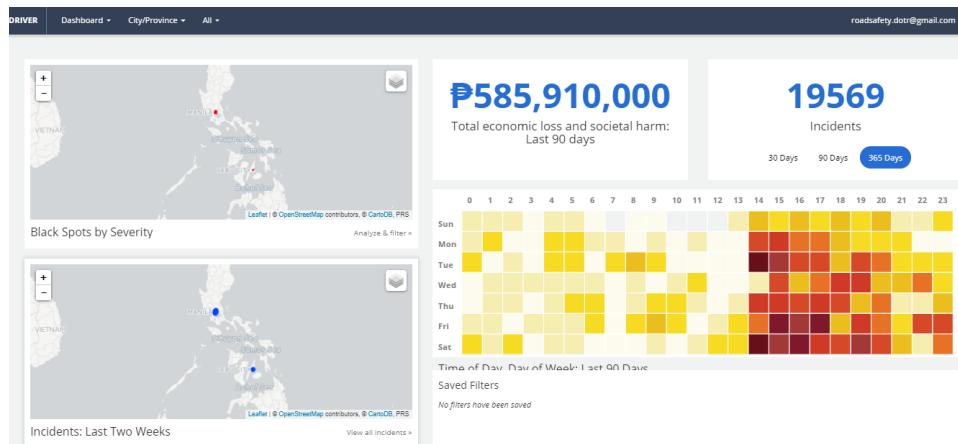




## USER MANUAL

# Data for Road Incident Visualization Evaluation and Reporting System (DRIVERS)





## ***Introduction***

This document provides usage instructions for the DRIVERS application. DRIVERS is designed to collect and analyze data about incidents that occur at a particular place, such as traffic accidents or road traffic related-crimes.

The application provides data entry tools, graph and map interfaces, custom report and filter tools, multiple concurrent user editing, and data exports. It also enables user to plot and monitor road safety interventions.

### **PARTS:**

- A. Registration
- B. Dashboard
- C. Map
- D. Data Entry
- E. Record List
- F. Saving and Clearing Filters
- G. Custom Reports
- H. Traffic Enforcer Assignments
- I. Interventions
- J. Economic Cost of Crashes



## A. Registration

1. Assign a road safety data officer/group to input and update DRIVERS.
2. Create a Gmail account for DRIVERS access. Kindly follow the format:

roadsafety.<your city/municipality/province>@gmail.com  
(Example: roadsafety.pasig@gmail.com)

3. Submit a letter of intent (See Annex A or <http://bit.ly/2u0QDDb>) in pdf format at roadsafety.dotr@gmail.com. This will prompt DOTr to give analyst access/privileges to the LGU's registered road safety Gmail account.
4. Wait for DOTr's email/text notification of analyst account activation.
5. Log-in to your road safety Gmail account then access roadsafety.gov.ph. Press "Log-in with google.com".

A screenshot of a web-based login interface. At the top, there is a dark header bar with the word "DRIVER" in white. Below this is a light gray content area containing a modal window. The modal has a title "Road Incident Data System" and "Log in to DRIVER". Inside the modal, there are two input fields labeled "USERNAME:" and "PASSWORD:", each with a corresponding text input box below it. To the right of the password field is a "Sign-in" button. At the bottom of the modal is a "Log in with google.com" button, which is highlighted with a blue oval. The background of the entire page is a very light gray.



There are three roles with differing permissions in DRIVER. Roles and permissions were defined in order to provide different levels of functionality to different types of users:

1. Admin

The Admin can modify the structure of the database, add new fields, make fields required, upload geographic boundaries, and manage users. DOTr has Admin access to the DRIVERS.

2. Analyst

The analyst role can view and edit all data in DRIVERS. Analysts may add, edit, and delete incidents and interventions, and have access to all event information, including details associated with an incident such as people and vehicle information. LGUs and other partner government agencies has Analyst access to the DRIVERS.

3. Public

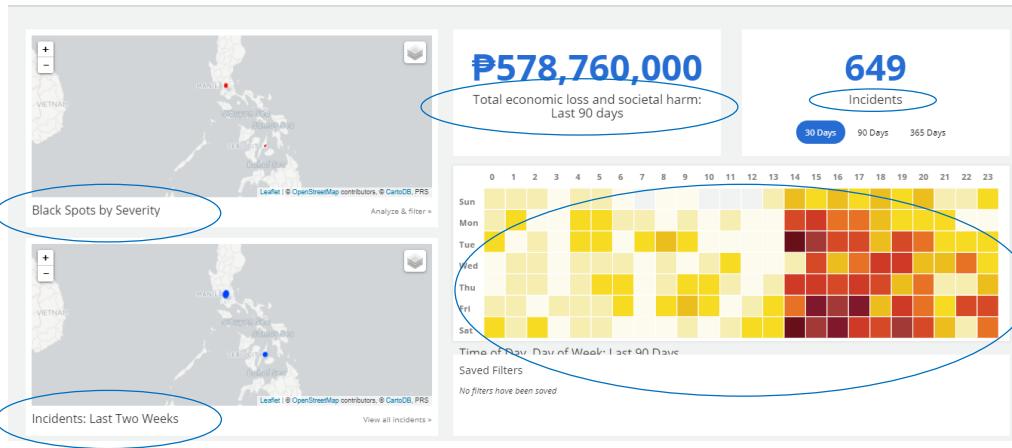
Public users may register to view basic incident data. They may not edit any data, and cannot view person or vehicle information. First time users only have Public access. Interested parties may be able to apply for Analyst Access from DOTr.



## B. Dashboard

The dashboard is the default view after logging in. This interface includes summary and overview information about the data in DRIVER specifically:

1. Time of Day, Day of Week (ToDDoW) chart (lower right) which shows the concentration of crashes over the last 90 days;
2. Map of crashes that occurred during the past two weeks (lower left);
3. Map of current black spots by severity (upper right);
4. Economic cost of crashes for the last 90 days (upper center); and
5. Absolute value of crashes over 30, 90, and 365 days (upper right).

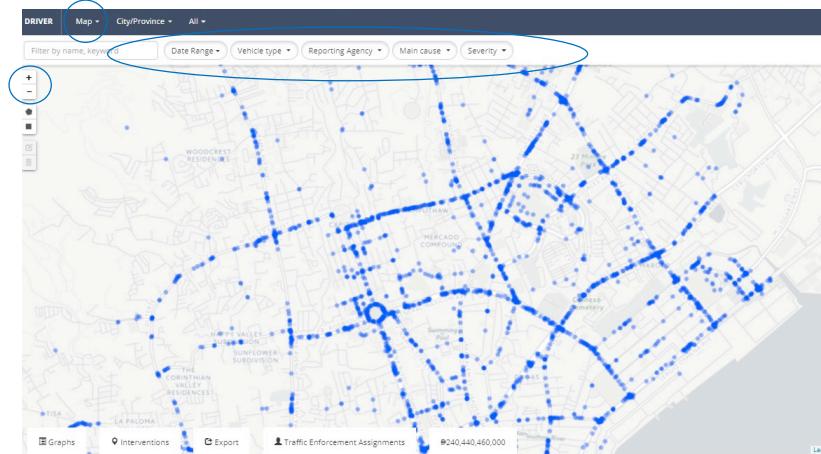


A user may set their region default in the header bar. This could be a region in the country, or any smaller subset according to geographic boundary data loaded into the application. The region chosen will filter the maps, ToDDoW chart, economic cost and absolute value of crashes to provide data for incidents that occurred only within that geographic boundary. This default setting is preserved between user sessions on the same computer.



## C. Map

To view the “Map” page, just press the arrow beside the “Dashboard” found in the header of the page and then press, “Map.” You will then be transferred to the page below:

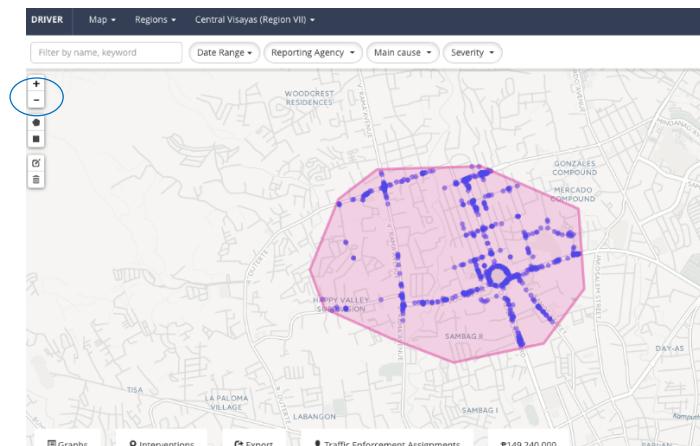


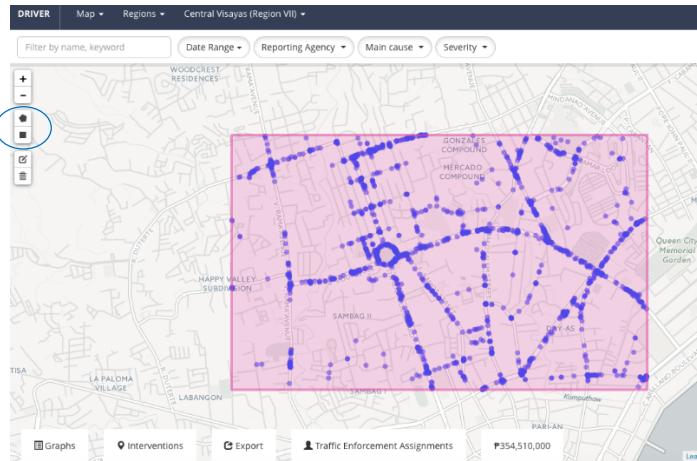
The map interface is one of the most data rich views in the application. It contains a variety of layers, a full set of available filter tools, and access to interventions, additional graphs, custom report builder tools, and data exports. One can filter the data shown on the map by (1) Date Range, (2) Vehicle Type, (3) Reporting Agency, (4) Main Cause, and (5) Severity. The map will then generate the data in accordance to the filters that has been set.

You can also filter the map by region or by city/province as shown below. Any filter that will be used will also filter the data in the “Dashboard” and in the “Record List.”:

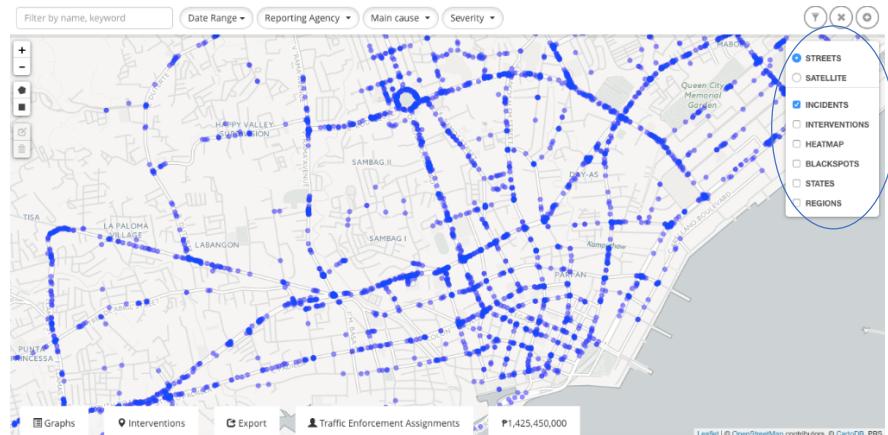
You can adjust the view of the map by zooming in or out using the plus and minus sign on the upper left side of the page (indicated above).

You can also use the polygonal or rectangular tool to filter the data into specific areas or zones in the map.

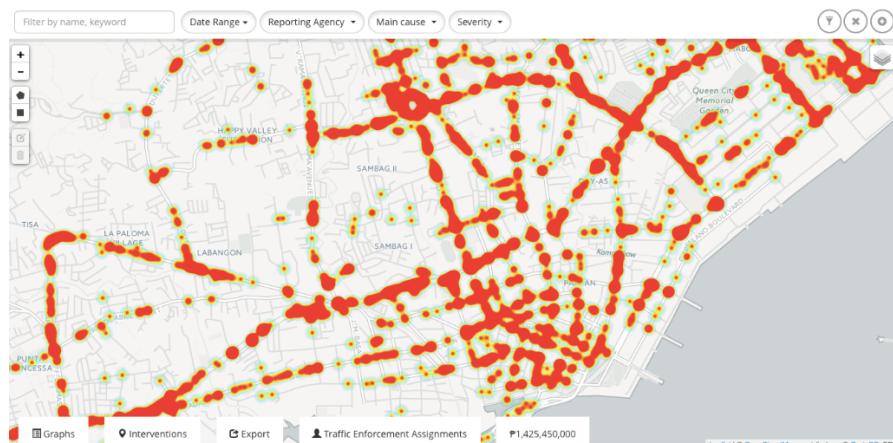




You can also change the rendering of the map using the tools on the upper right side of the page. You can choose from many options: (1) Satellite view of the map, (2) Plotting of individual incidents, (3) Plotting of Interventions (4) Heat map, (5) Blackspots, (6) By City/Province, or (7) By Region.

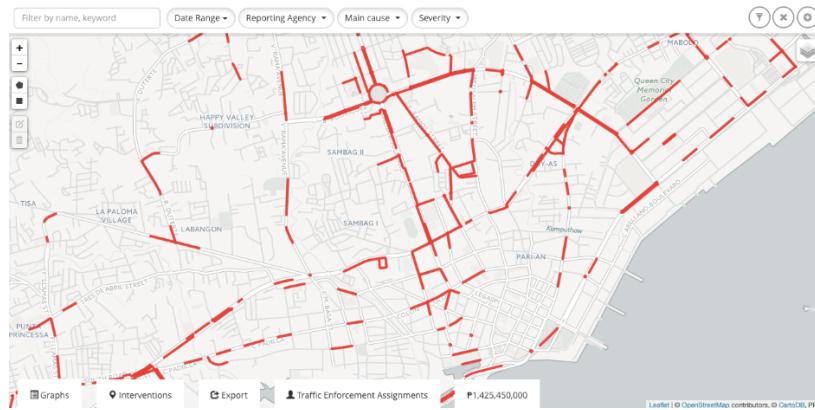


The Heat map shows the volume of crashes in a map:

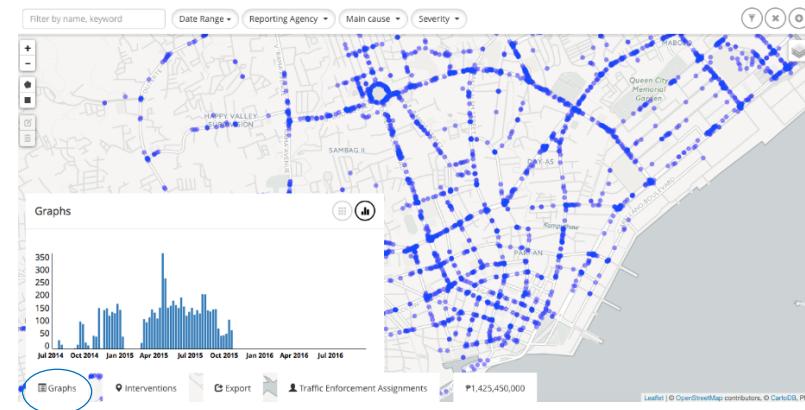




Black spots show not just the volume of crashes but the vulnerability of a certain type of road infrastructure to crashes:



At the bottom left corner of the page, there is a tab that expands to display graphs. There are two types of graphs. One is a ToDDoW graph similar to the one on the dashboard. The only difference is that the data is filtered according to what the user sets. The second graph is the total number of incidents over time, aggregated by week. Both graphs provide interactivity on mouse hover.





## D. Data Entry

To add or edit incident data, a user must have analyst or admin privileges. Begin by clicking the ‘Add New Record’ button or “+” on the right side of the filter bar. A save and cancel button are fixed on the right side as the user scrolls down to complete the form.

Incident List				
DATE & TIME	SEVERITY	MAIN CAUSE	COLLISION TYPE	DESCRIPTION
10/09/2015, 5:38:00	Property			Collision Between Mo ...
10/09/2015, 4:21:00	Property			Collision Between Va ...
10/09/2015, 3:18:00	Property			Collision Between Pi ...
10/09/2015, 3:13:00	Property			Collision Between Bo ...
10/09/2015, 2:38:00	Property			Collision Between Ta ...
10/09/2015, 2:23:00	Property			Collision Between Se ...
10/09/2015, 1:14:00	Property			Collision Between Ta ...
10/09/2015, 1:03:00	Property			Collision Between Mu ...
10/08/2015, 23:49:00	Injury			Collision Between Mo ...
10/08/2015, 23:07:00	Property			Collision Between Bo ...
10/08/2015, 22:20:00	Property			Collision Between Bi ...
10/08/2015, 5:52:00	Property			Collision Between Se ...
10/08/2015, 5:50:00	Property			Collision Between Bo ...
10/08/2015, 5:12:00	Property			Collision Between Ta ...

Incident Input Form

Incident Location & Time

LOCATION

Latitude \* Longitude \*

The Incident Input Form is divided into five parts: (1) Incident Location & Time, (2) Incident Details, (3) Vehicles, (4) People, and (5) Photos.

### (1) Incident Location & Time

- i. **Location** – This is simply where the road crash has happened. Similar to the process of plotting the Interventions, the location search at the top of the form autocompletes street addresses and place names from OpenStreetMap. You may also select a location by clicking on the map. One quick way to find the specific road, intersection, or corridor is to input key words of the location like the name of the barangay, name of road, or the nearest landmark. The field then generates suggested locations. You have to choose the nearest location from the suggested addresses generated by the field. Once you have chosen the address, drag the pin on the map to the exact location.



- ii. **Latitude and Longitude** – There is no need to input this once the pin on the map has been dragged to the exact location. This is automatically generated.
- iii. **Occurred** – Date and Time of Road Crash
- iv. **Weather** – This is automatically generated based on the location and date and time of road crash. Weather is linked to the international database on weather.
- v. **Light** – Similar to Weather, this is automatically generated by DRIVER.

Incident Input Form

Incident Location & Time

LOCATION

MABOLO  
HAPPY VALLEY SUBDIVISION  
SAMBAG II  
CENTRAL BULWAN  
DAYAS  
Kamputhaw  
PARI-AN  
LABANGON  
INTA ICESA  
SAK-SAK

LATITUDE \*

LONGITUDE \*

OCCURRED \*

10/06/2016

06 : 10

WEATHER

LIGHT

Save Incident

Cancel

This screenshot shows the 'Incident Input Form' interface. At the top, it says 'Incident Location & Time'. Below that is a map of a city area with several neighborhoods labeled: MABOLO, HAPPY VALLEY SUBDIVISION, SAMBAG II, CENTRAL BULWAN, DAYAS, Kamputhaw, PARI-AN, LABANGON, INTA ICESA, and SAK-SAK. There are zoom controls (+, -, x) and a search bar above the map. Below the map are two input fields: 'LATITUDE \*' and 'LONGITUDE \*'. Underneath these are date and time inputs: 'OCCURRED \*' (set to 10/06/2016) and a time picker (set to 06 : 10). Further down are dropdown menus for 'WEATHER' and 'LIGHT'. At the top right are 'Save Incident' and 'Cancel' buttons.

## (2) Incident Details

- i. **Severity** – Can be Fatal, Injury or Property Damage Only
- ii. **Main Cause** – Either Human Error, Vehicle Defect, or Road Defect
- iii. **Collision Type** – Drop-down list which provides all possible collision types
- iv. **Description** – This is a free-writing field meaning you can use this field to input details not covered by the form
- v. **Reporting Agency** – What entity or institution does the record belong to
- vi. **Location Approximate** – If in case there is difficulty in determining the exact location of the road crash, click this box to remind users that the location of the record is just approximated



**Incident Details**

**SEVERITY**

Fatal  
 Injury  
 Property

**MAIN CAUSE**

**COLLISION TYPE**

**DESCRIPTION**

**REPORTING AGENCY**

### (3) Vehicles

To add a Vehicle involved in a crash, just click the arrow beside “Vehicles” and click “+Vehicle”

**Vehicles**

Once you have pressed “+Vehicle,” you can now record the vehicle details of the first vehicle such as Classification, Vehicle Type, Make, Plate Number, Model, Manuever, Damage, or Defect. To add a second, third and more vehicles, click the “+Vehicle” at the end of the Vehicle Details section.



## Vehicles

Vehicle 1

▼ ✖ Vehicle

CLASSIFICATION

VEHICLE TYPE

MAKE

PLATE NUMBER

MODEL

MANEUVER

DAMAGE

DEFECT



## (4) People

To add a person involved in a crash, just click the arrow beside “People” and click “+Person” You can now input details regarding the person in question. To add a second, third and more people, click the “+Person” at the end of the People section.

People

Person 1 ▼ ✖ Person

**INVOLVEMENT**

**FIRST NAME**

**MIDDLE NAME**

**LAST NAME**

**ADDRESS**

**GENDER**

**LICENSE NUMBER**

**AGE**

**AGE**

**DRIVER ERROR**

**INJURY**

**ALCOHOL/DRUGS**

**SEAT BELT/HELMET**

**HOSPITAL**

**VEHICLE**

+ Person



## (5) Photos

To add a Photo of the crash, click the arrow beside “Photos” and upload the photo by clicking “Choose File.” You can include a description of the photo for easy reference.

Photos

Photo 1 ▼ X Photo

PICTURE \*

no file selected

DESCRIPTION

+ Photo



After completing the form, you can now click “Save Incident” and the record will now be stored in the “Record List” and will be included in the statistics in the “Dashboard” and in the “Map” page.

### Incident Input Form

Incident Location & Time

LOCATION

A map of a residential area in Cebu City, specifically the Mabolo district. The map shows various streets and subdivisions labeled: Happy Valley Subdivision, Sambag II, Sambag I, Day-as, Komputhaw, Parian, Jinta, Icessa, Isa, and Labangon. A zoom control (+/-) is in the top-left corner of the map area. A copyright notice at the bottom right of the map reads "Leaflet | © OpenStreetMap contributors, © CartoDB".

LATITUDE \*

LONGITUDE \*

OCCURRED \*

10/06/2016

06   10

WEATHER

LIGHT

Save Incident Cancel

**REMINDER:** You just have to provide the location and time & date of the crash to be able to save the record. We understand that each agency has different ways and capacities of recording road crash data and that not all agencies or entities can complete the form. The minimum requirement therefore to be able to save the data is just the location and time of the crash.



## E. Record List

To view the “Record List” page, just press the arrow beside the “Map” found in the header of the page and then press, “Record List.” You will then be transferred to the page below:

A screenshot of a web-based application titled "Record List". The top navigation bar includes "DRIVER" (highlighted with a blue oval), "Record List" (highlighted with a blue oval), "City/Province" (dropdown set to "All"), and an email address "roadsafety.dot@gmail.com". Below the navigation are several filter buttons: "Filter by name, keyword", "Date Range", "Vehicle type", "Reporting Agency", "Main cause", and "Severity". To the right are three icons: a magnifying glass, a delete, and a refresh. The main content is a table with columns: DATE & TIME, SEVERITY, MAIN CAUSE, COLLISION TYPE, and DESCRIPTION. The table lists ten entries from July 26, 2017, at various times, all categorized as "Property" severity and "Human error" main cause, with "Side swipe" collision type. Each row has two buttons on the right: "View" and "Edit", both enclosed in blue ovals.

DATE & TIME	SEVERITY	MAIN CAUSE	COLLISION TYPE	DESCRIPTION		
7/26/2017, 22:26:10	Property	Human error	Side swipe		View  Edit	View  Edit
7/26/2017, 21:58:19	Property	Human error	Side swipe		View  Edit	View  Edit
7/26/2017, 21:46:21	Property	Human error	Side swipe		View  Edit	View  Edit
7/26/2017, 20:48:28	Property	Human error	Side swipe		View  Edit	View  Edit
7/26/2017, 20:44:45	Property	Human error	Side swipe		View  Edit	View  Edit
7/26/2017, 20:29:30	Property	Human error	Hit pedestrian		View  Edit	View  Edit
7/26/2017, 20:20:23	Property	Human error	Side swipe		View  Edit	View  Edit
7/26/2017, 20:18:36	Property	Human error	Side swipe		View  Edit	View  Edit
7/26/2017, 20:07:48	Property	Human error	Side swipe		View  Edit	View  Edit
7/26/2017, 19:44:04	Property	Human error	Side swipe		View  Edit	View  Edit
7/26/2017, 19:42:08	Property	Human error	Side swipe		View  Edit	View  Edit

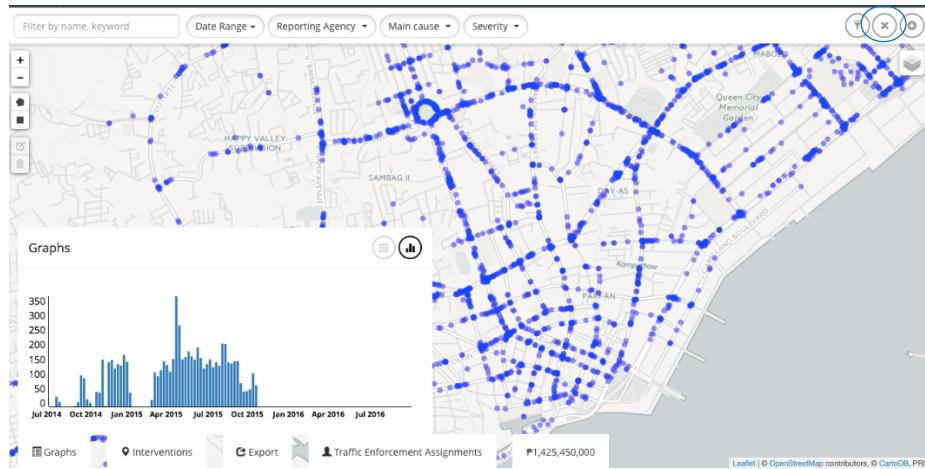
To view individual records, click “View.” And to edit existing records, click “Edit.”

Just like the Map page, you can also filter the record list by (1) Date, (2) Reporting Agency, (3) Vehicle Mode, (4) Main Cause, (5) Severity, (6) Region, and (7) City/Province.



## F. Saving and Clearing Filters

Any filter that will be used will also filter the data in the “Dashboard” and in the “Record List.” Applied filter sets can be saved for later use. The saved filters interface allows users to save and name the currently applied filters, and lists previously saved filters. This can be useful for defining a combination of filters used to create reports, exports, or other analysis tasks. Filters may be reset to default state by clicking the clear filter button or “x”.



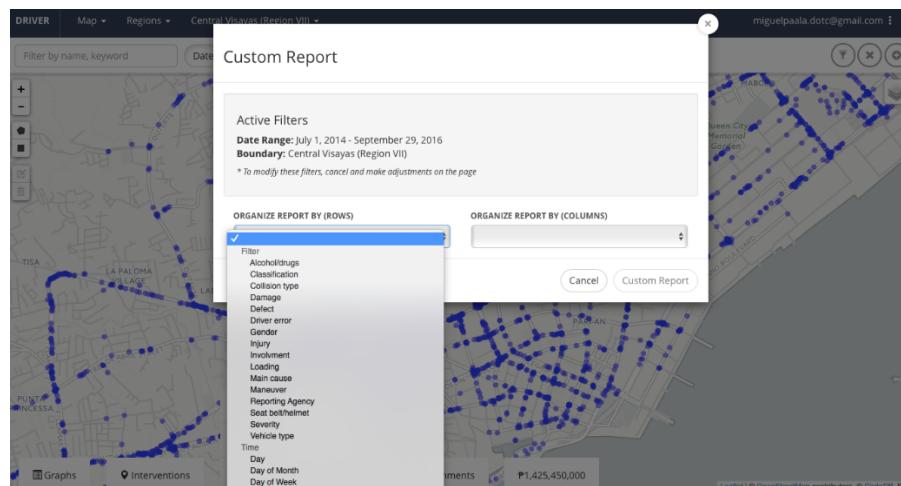
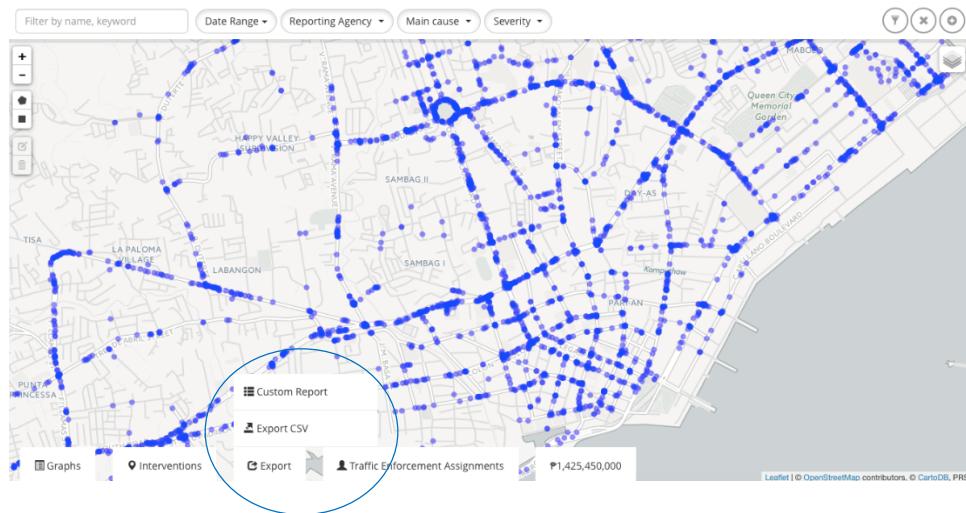


## G. Custom Reports

The DRIVER application includes functionality to generate custom reports from the database. These reports aggregate counts of incidents according to the rows and columns defined by users generating the reports. The reports also allow for geographic aggregation based on any uploaded boundary layers.

Reports are generated from the map page by clicking Export > Custom Report.

The user is presented with a pop-up window that provides the option to select rows and columns from the data fields in the record list. The user is also able to specify a geographic aggregation to break the counts of incidents out by the regions of a boundary layer. Note that any filters that are active for the application will apply to the results of the report.

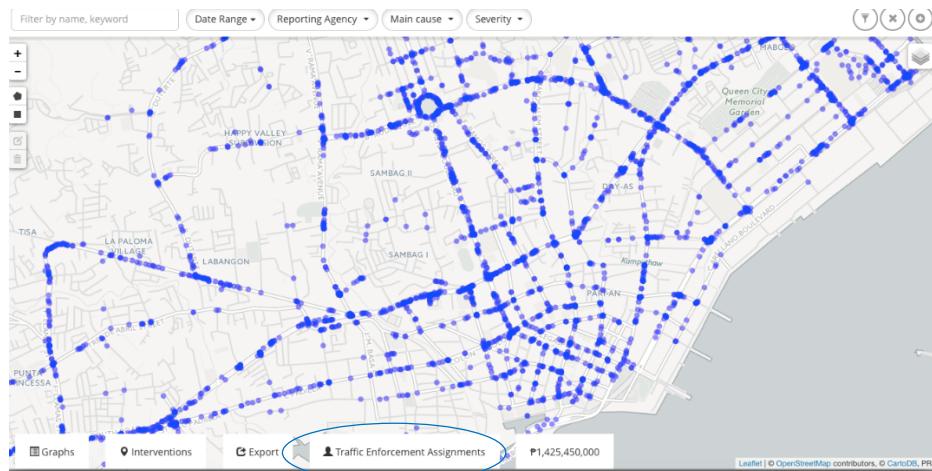


Upon clicking ‘Custom Report’ the report is generated in a separate window for the user to view.



## H. Traffic Enforcer Assignments

Aside from analytical tools, DRIVER also aids traffic management agencies in optimizing traffic enforcer assignments based on road crash data. Enforcer reports are designed for optimizing the deployment of traffic enforcers by focusing on the roads predicted to have the highest likelihood of traffic incidents. The reports take statistical predictions using location, time of day, day of week, and day of year, and then output a set number of locations. The reports are designed for printing and distribution at the beginning of a shift. An area for notes allows enforcer captains to include additional details for the shift and location.



### Traffic Enforcement Assignments

Print

October 6, 2016, 9:00–October 6, 2016, 18:00

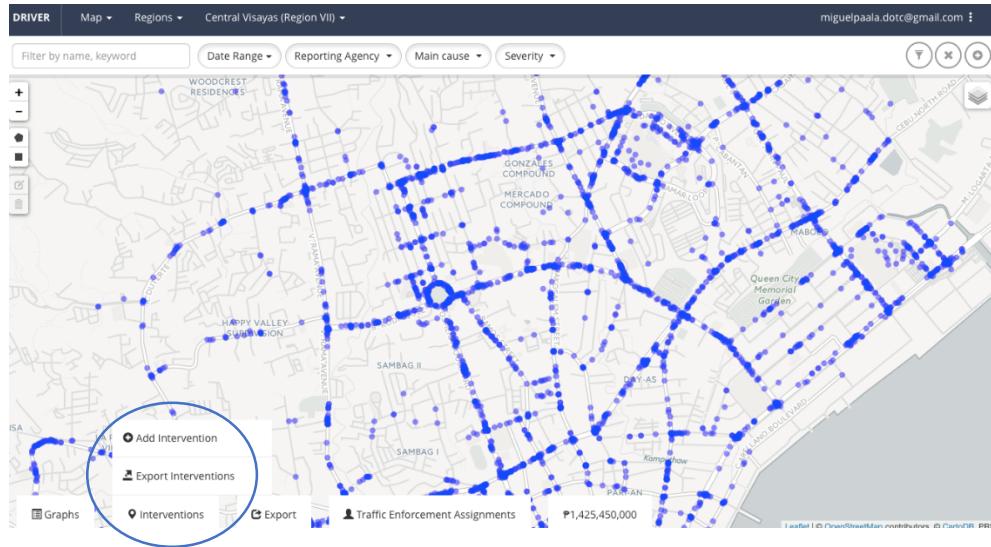
40 TRAFFIC ENFORCER ASSIGNMENTS FOR CENTRAL VISAYAS (REGION VII)

	Assignment: Location: Notes:	<b>Assignment 1</b> 10.302, 123.910
	Assignment: Location: Notes:	<b>Assignment 2</b> 10.318, 123.895



## I. Interventions

Aside from road crashes, DRIVER also has the capability to record and display interventions that have been implemented in reducing road crashes.



The map of interventions can be seen by clicking “Interventions” in the upper right hand corner of the screen. Instead of blue dots, interventions are represented by green dots.

To view a list of all the interventions that have been made in the displayed map, click “Interventions” in the lower left part of the screen then click “Export Interventions.”

To record interventions that have been implemented, click “Add Intervention.” After clicking, “Add Intervention,” the user will be directed to the Intervention Input Form.



## Intervention Input Form

Intervention Location & Time

LOCATION

LATITUDE \*      LONGITUDE \*

Save Intervention      Cancel

- 1) The first field that has to be filled is the “Location.” The location search at the top of the form autocompletes street addresses and place names from OpenStreetMap. Users may also select a location by clicking on the map. One quick way to find the specific road, intersection, or corridor is to input key words of the location like the name of the barangay, name of road, or the nearest landmark. The field then generates suggested locations. You have to choose the nearest location from the suggested addresses generated by the field. Once you have chosen the address, drag the pin on the map to the exact location.
- 2) There is no need to input anything in the Latitude and Longitude field. These will automatically be generated once the pin has been dragged into the exact location in the map.

OCCURRED FROM \*      OCCURRED TO

10/06/2016      10/06/2016

06 : 34      06 : 34 AM

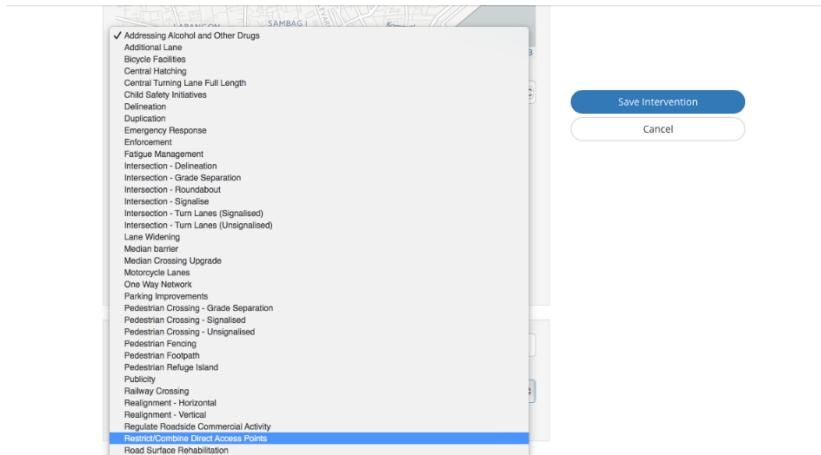
Cancel

Intervention Detail

TYPE \*

Addressing Alcohol and Other Drugs

- 3) Fill in the other details of the intervention such as when it has occurred and what type it is.



4) Click “Save Intervention.”



## J. Economic Cost of Crashes

Economic cost of crashes is also generated in the map view. The costs are dependent on the filters that have been set. Economic cost is divided into three categories: Fatal, Injury and Property Damage. Amounts to these are set by the Department of Transportation.

