

# OPEN DATA INITIATIVES

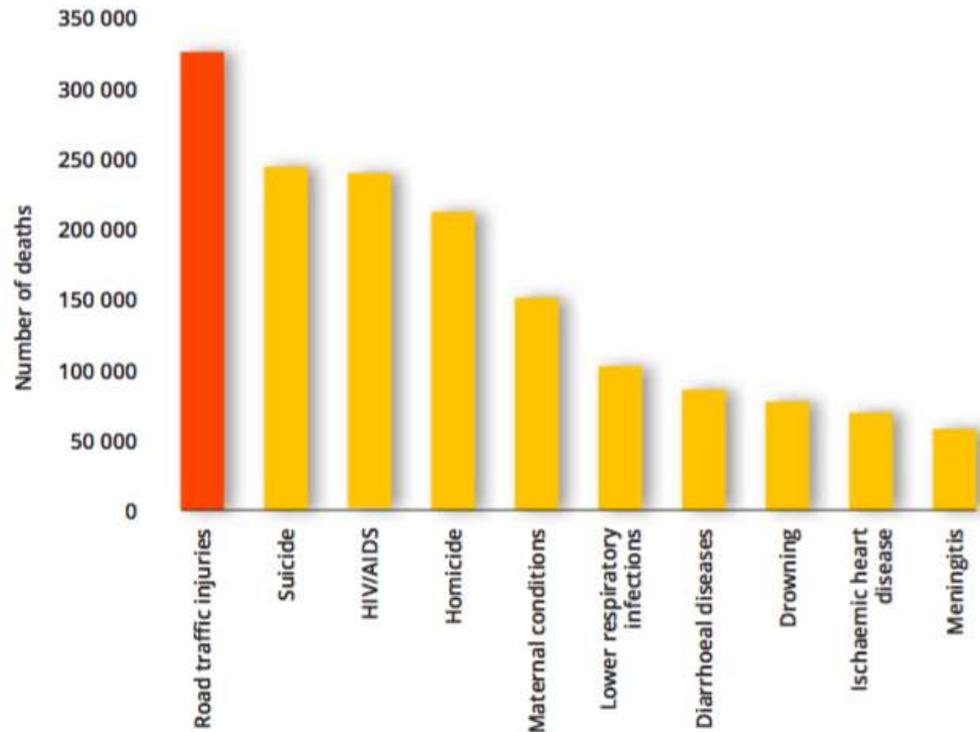
Data for Road Incident Visualization  
Evaluation and Reporting System (DRIVER)  
and Open Traffic

8 August 2016



# ROAD ACCIDENTS

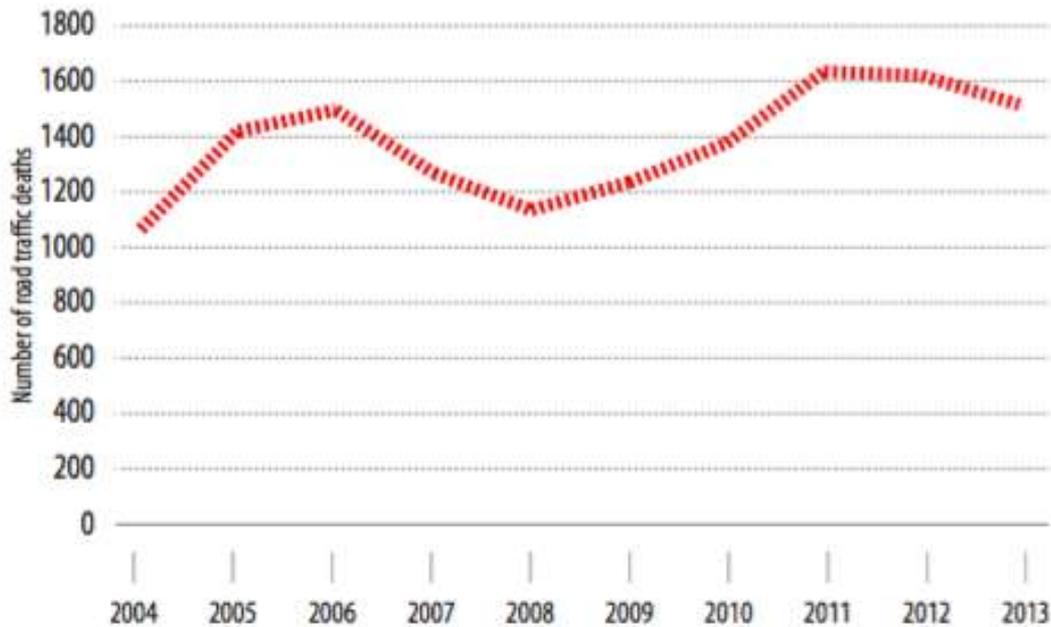
is the #1 cause of death among 15-29 year olds.



Source: Global Status Report on Road Safety, 2015, WHO

# As of 2013, ROAD ACCIDENTS amount to 2.6% lost GDP for the Philippines.

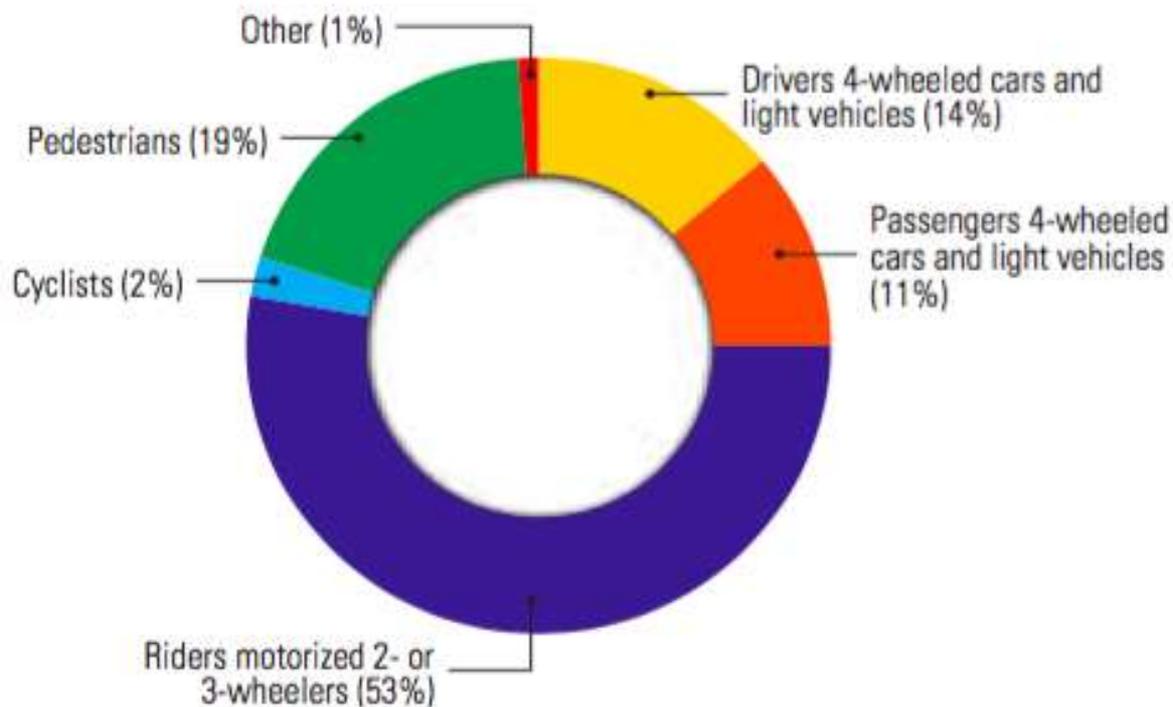
## TRENDS IN REPORTED ROAD TRAFFIC DEATHS



Source: DPWH-Traffic Accident Recording and Analysis System (TARAS).

# Vulnerable groups include pedestrians, cyclists, and motorcyclists.

## DEATHS BY ROAD USER CATEGORY



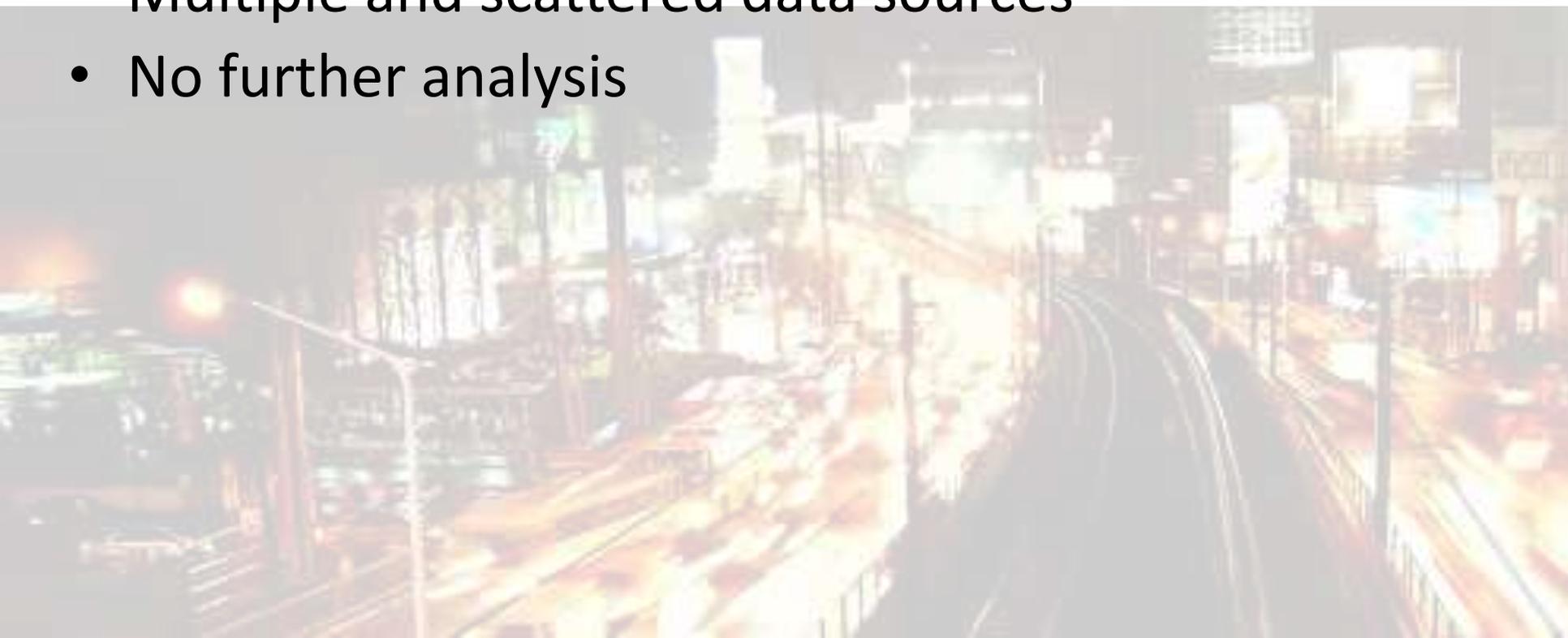
Source: 2013, DPWH Traffic Accident Recording and Analysis System (TARAS).



*Traffic congestion along EDSA (Epifanio De los Santos Avenue), Manila (2014) -- AFP*

# Challenges in Data Management

- Manual surveys and recording
- Costly and often involves government procurement
- Multiple and scattered data sources
- No further analysis



# Open Data Initiatives

- Open Traffic
- Data for Road Incident Visualization Evaluation and Reporting System

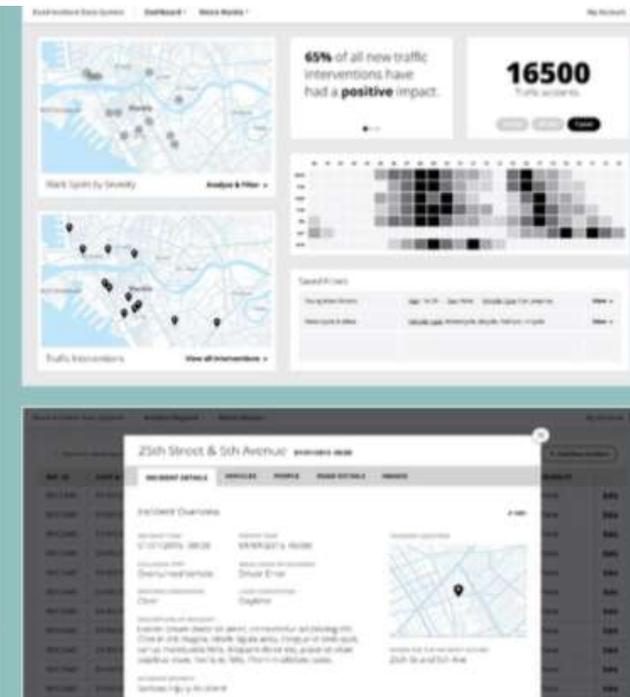


## ROAD INCIDENT DATA SYSTEM Incident Reporting

The Philippine Incident Reporting app allows for in-the-field data entry into the Road Incident Data System to capture reports.

[Sign-in to account](#)

[Contact DOST Support](#)



# OPEN TRAFFIC



[Routing](#) **Network**

Travel time: 35m 32s

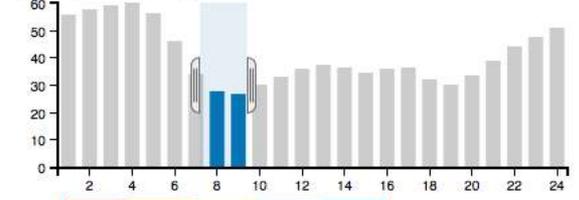
Average speed: 27.51 KPH ⓘ

All Weeks  Compare

Speed by day of week



Speed by hour of day



0KPH 70+ KPH

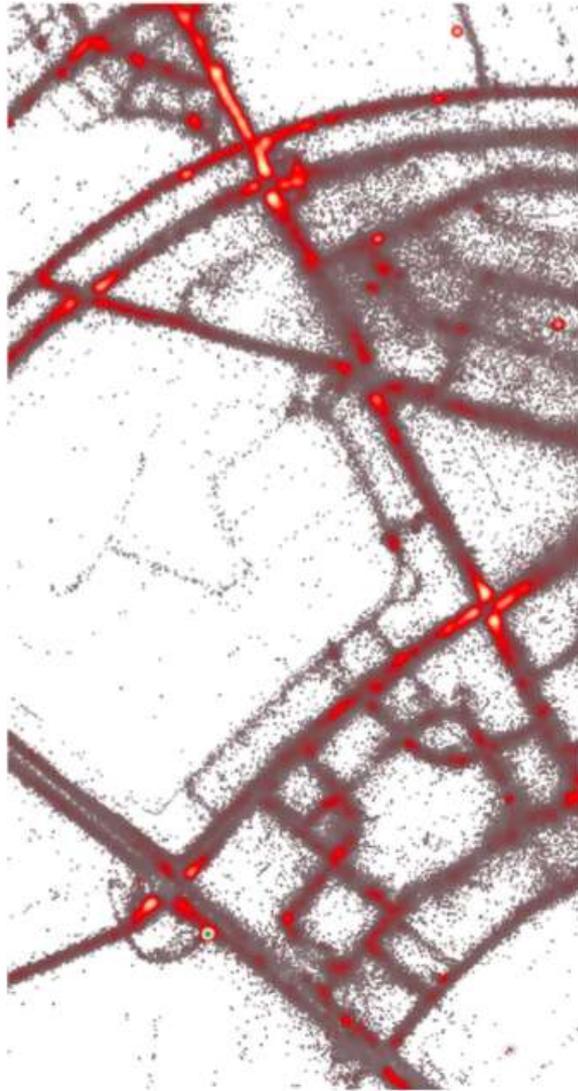
Show Fastest Route by Day and Hour

3 km  
2 mi





**Grab** GPS data for 24-hour period in Cebu City, February 21, 2016



**Grab** GPS data for 24-hour  
period in Manila,  
February 23, 2016



**Driver GPS Data**



**Anonymized Traffic Statistics (Speed, Flows, Delay)**



**ROAD SAFETY AND  
EMERGENCY RESPONSE**



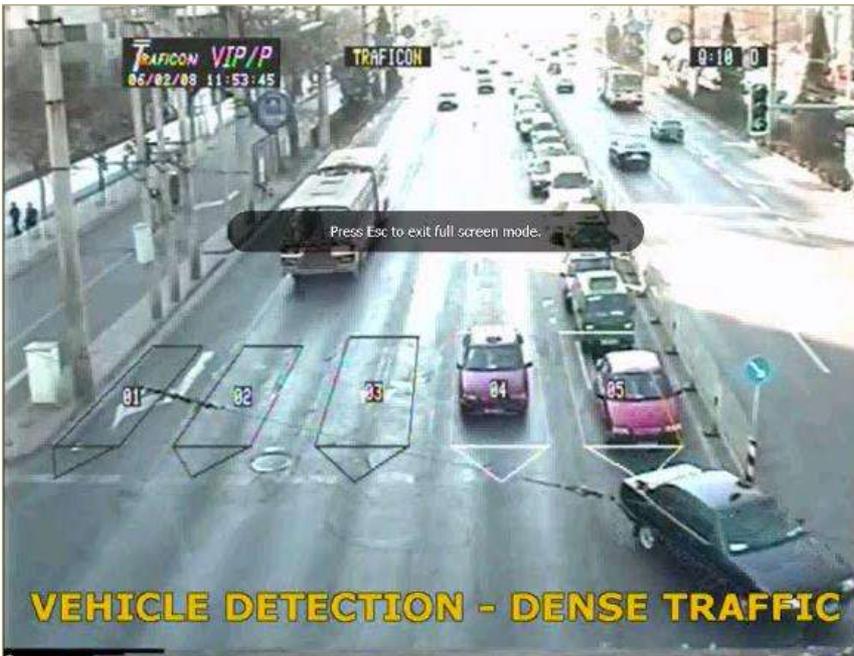
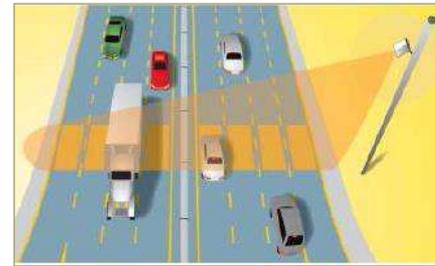
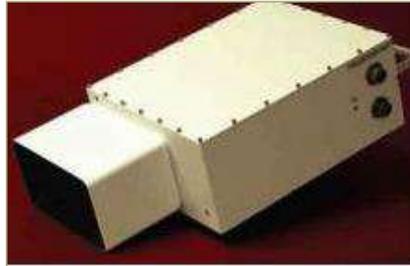
**CONGESTION ANALYSIS**



**TRAFFIC SIGNAL OPTIMIZATION**

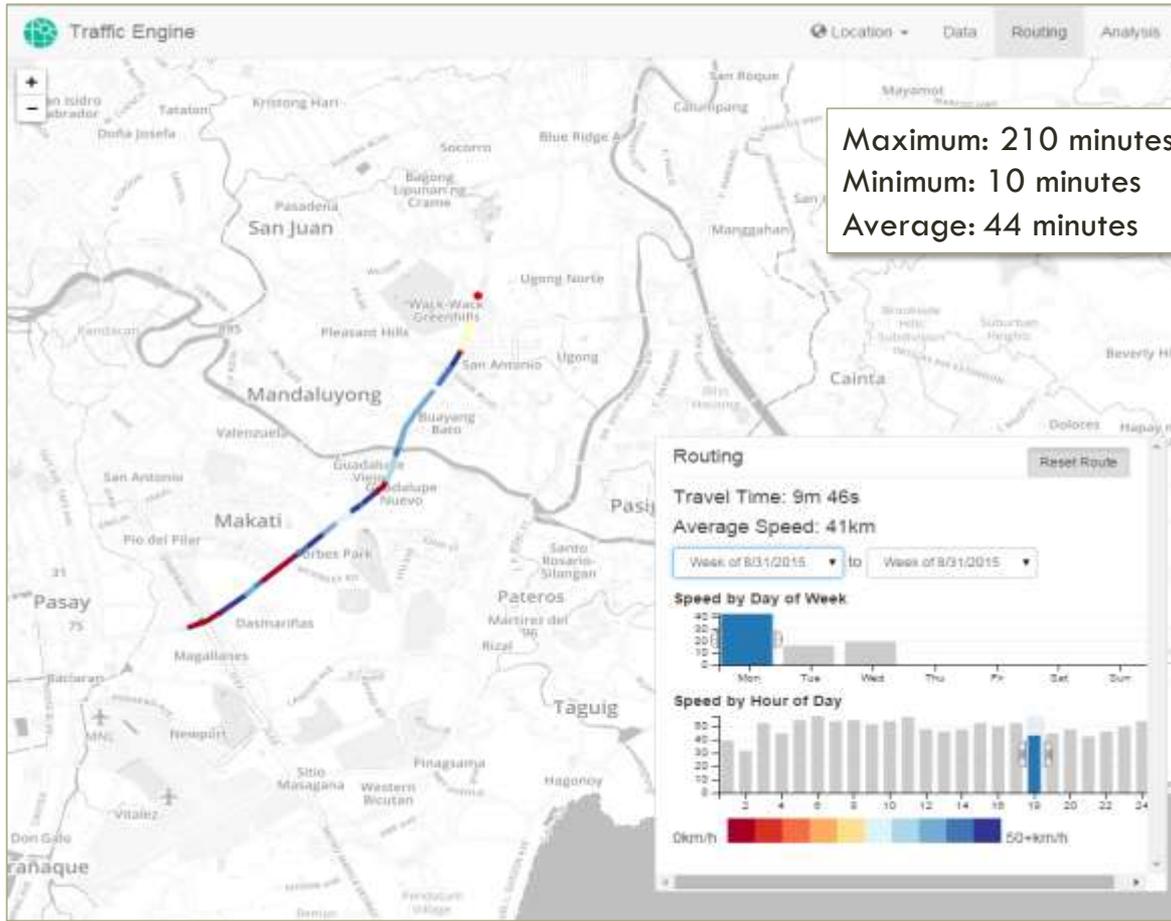


Source: Presentation on Open Traffic and DRIVER System Feb 2016



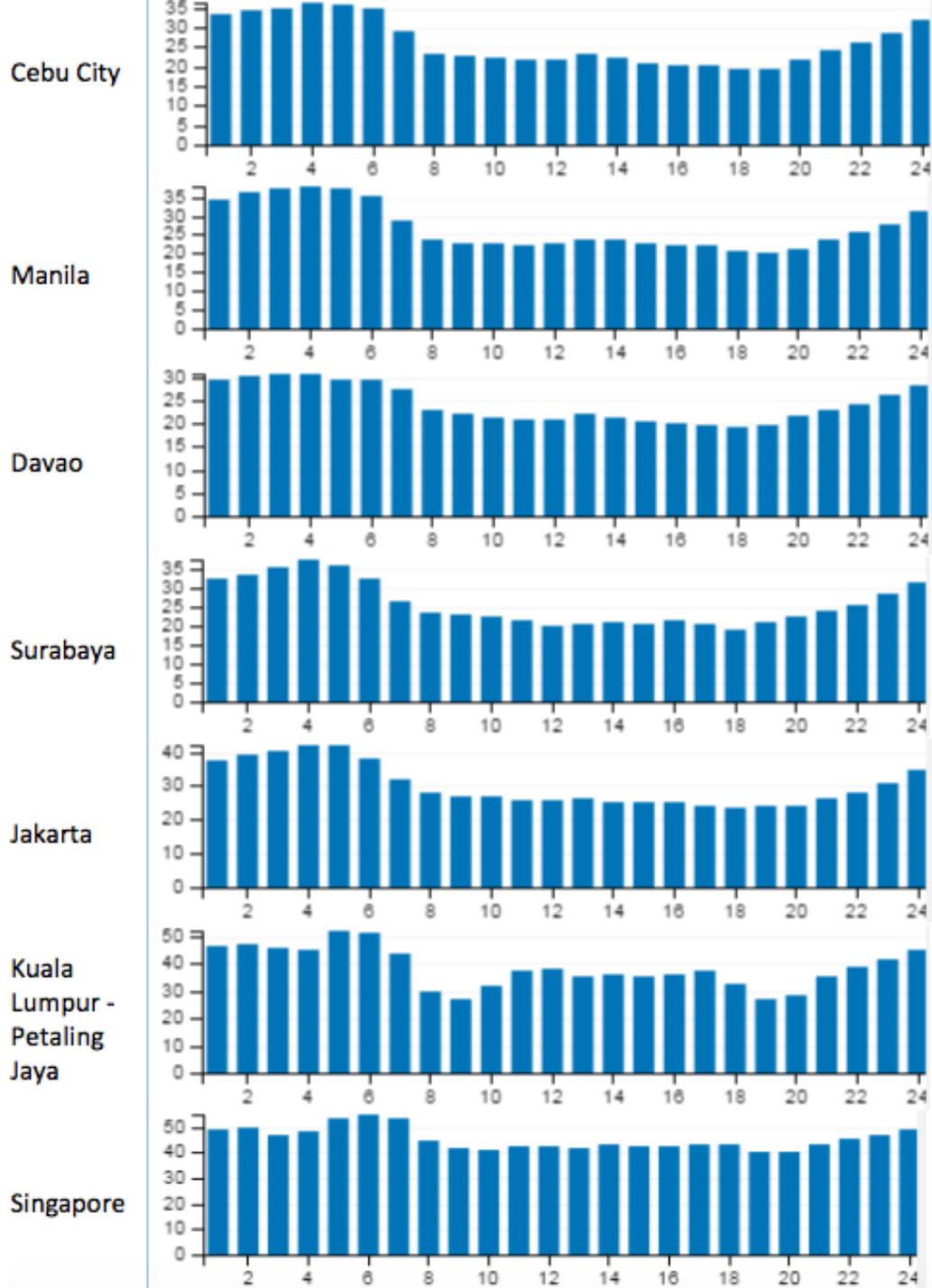
Source: Presentation on Open Traffic and DRIVER System Feb 2016

Source: Presentation on Open Traffic and DRIVER System Feb 2016



# Travel Time Reliability

Screenshot from First Iteration of Open Traffic Platform under the Big Data Challenge Project, with EDSA 7.4 km Stretch



Source: Presentation on Open Traffic and DRIVER System Feb 2016

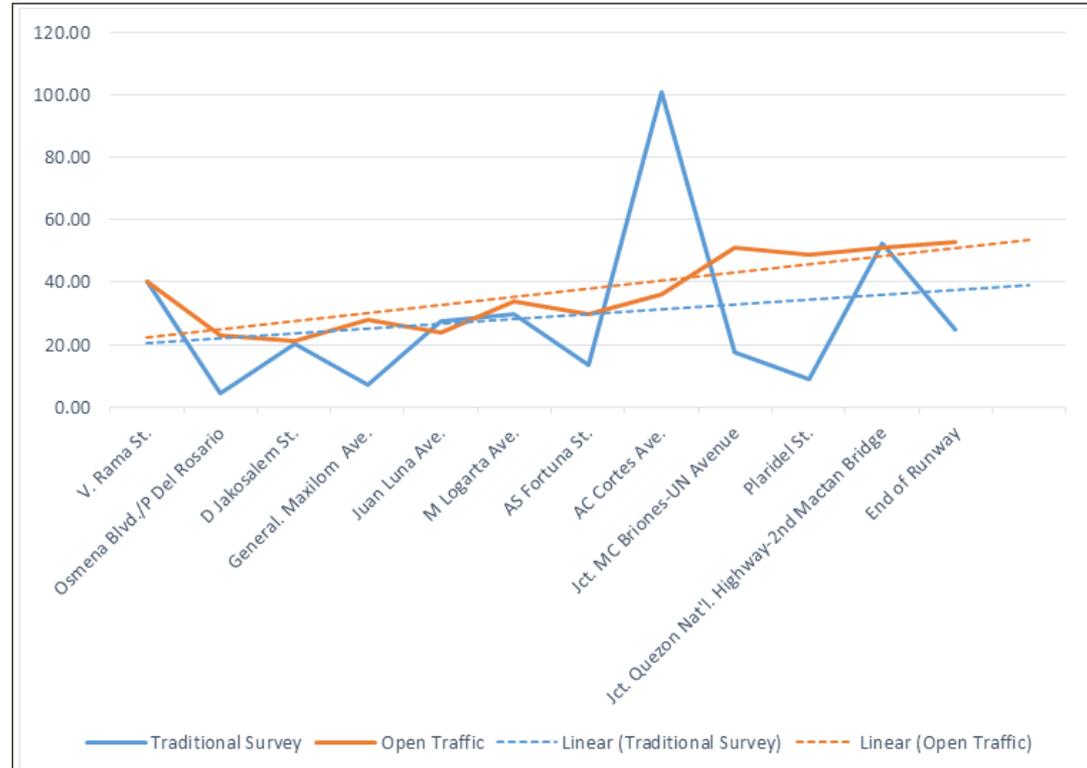


Northbound Trip – Average Travel Time and Speed for Friday, July 24, 2015



Southbound Trip – Average Travel Time and Speed on Friday, July 24, at 6:00 p.m.

# Vulnerability Analysis



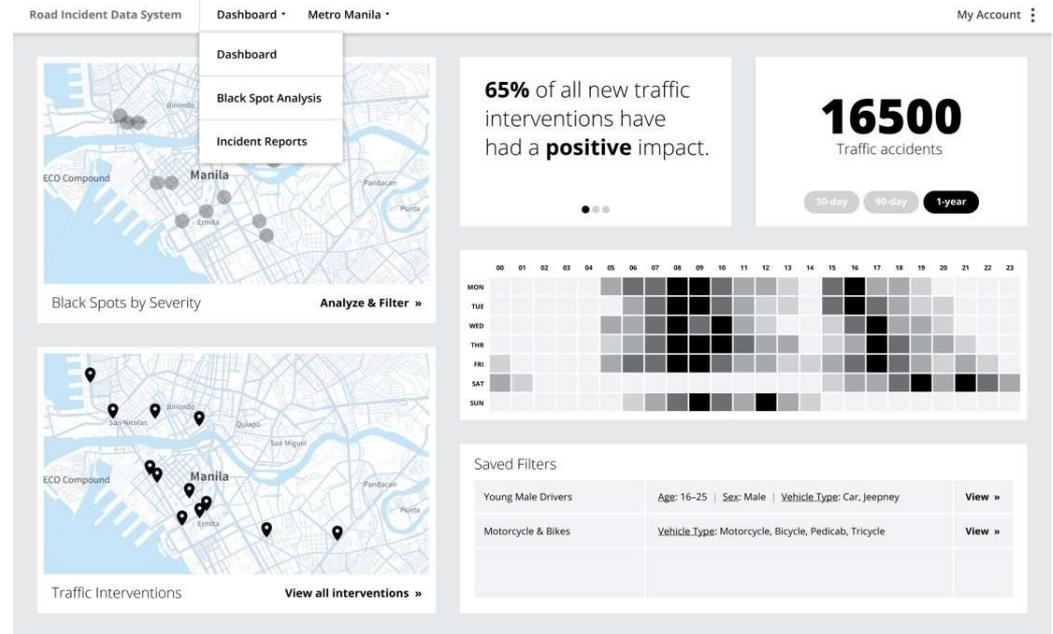
**Travel Time Survey Comparison for Cebu South Road to Mactan Airport: 2009 Traditional Travel Time Survey vs. Open Traffic Output (kph)**

# Travel Time Survey



# DRIVER SYSTEM - Overview

- **Open-source, web-based, centralized and nationwide** system for data collection, analysis and reporting of traffic incident data
- **Multi-sectoral** approach in reporting and analyzing data
- **Three components:** Data Management, Data Analysis, and Institutional Arrangement
- Use of historical data to inform traffic management, policy-drafting and investment decision-making



ROAD INCIDENT DATA SYSTEM  
Incident Reporting

The Philippine Incident Reporting app allows for in-the-field data entry into the Road Incident Data System to capture reports.

**Sign-in to account**

Contact DOST Support

My Incident Reports

No incidents reported, yet.  
(Press the + button to add an incident.)

Incident Details

WHEN DID THIS INCIDENT OCCUR?  
01/01/2015 00:00

INCIDENT TYPE  
Traffic Accident

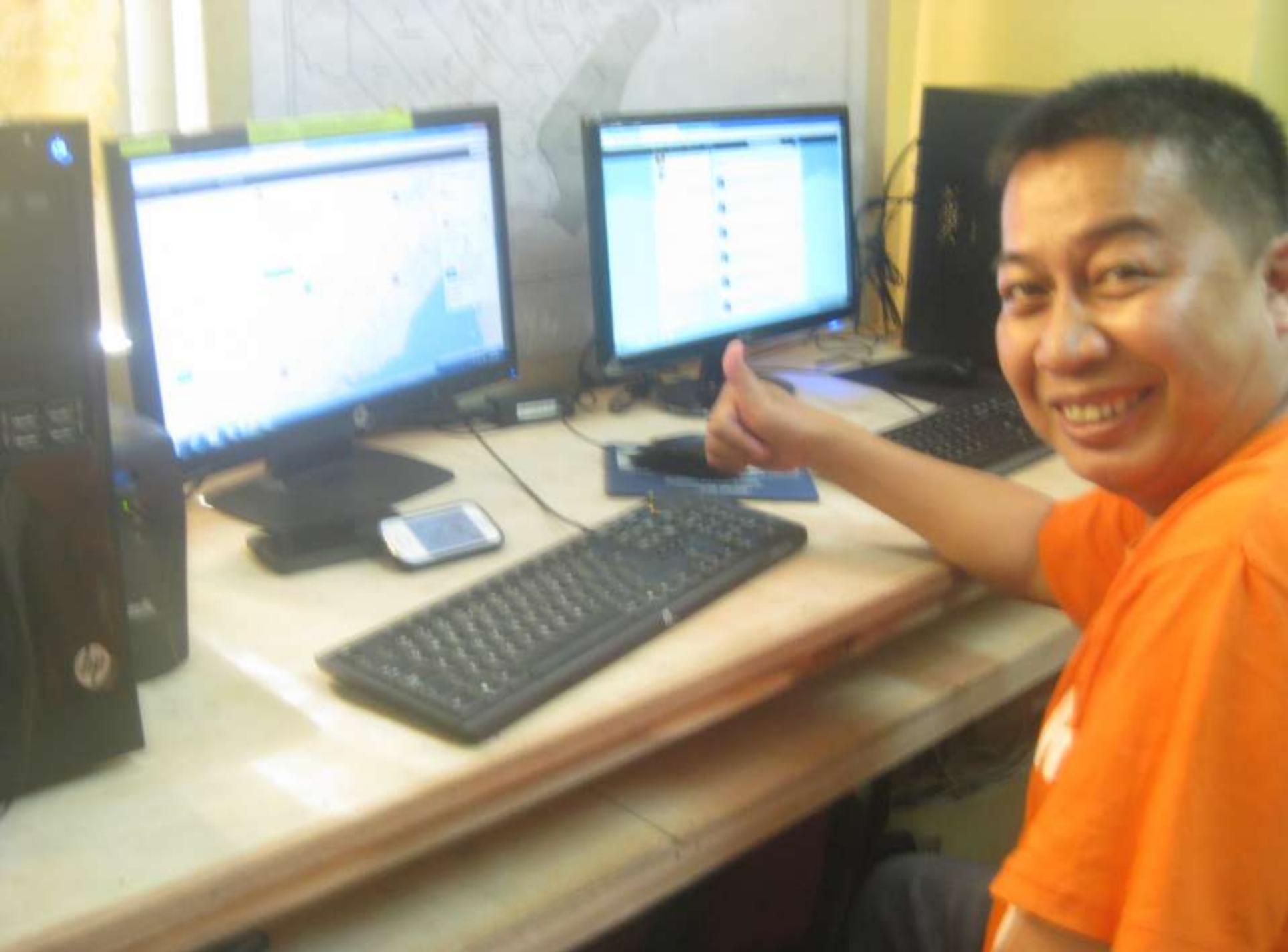
COLLISION TYPE  
Head On

MAIN CAUSE OF ACCIDENT  
Human Error

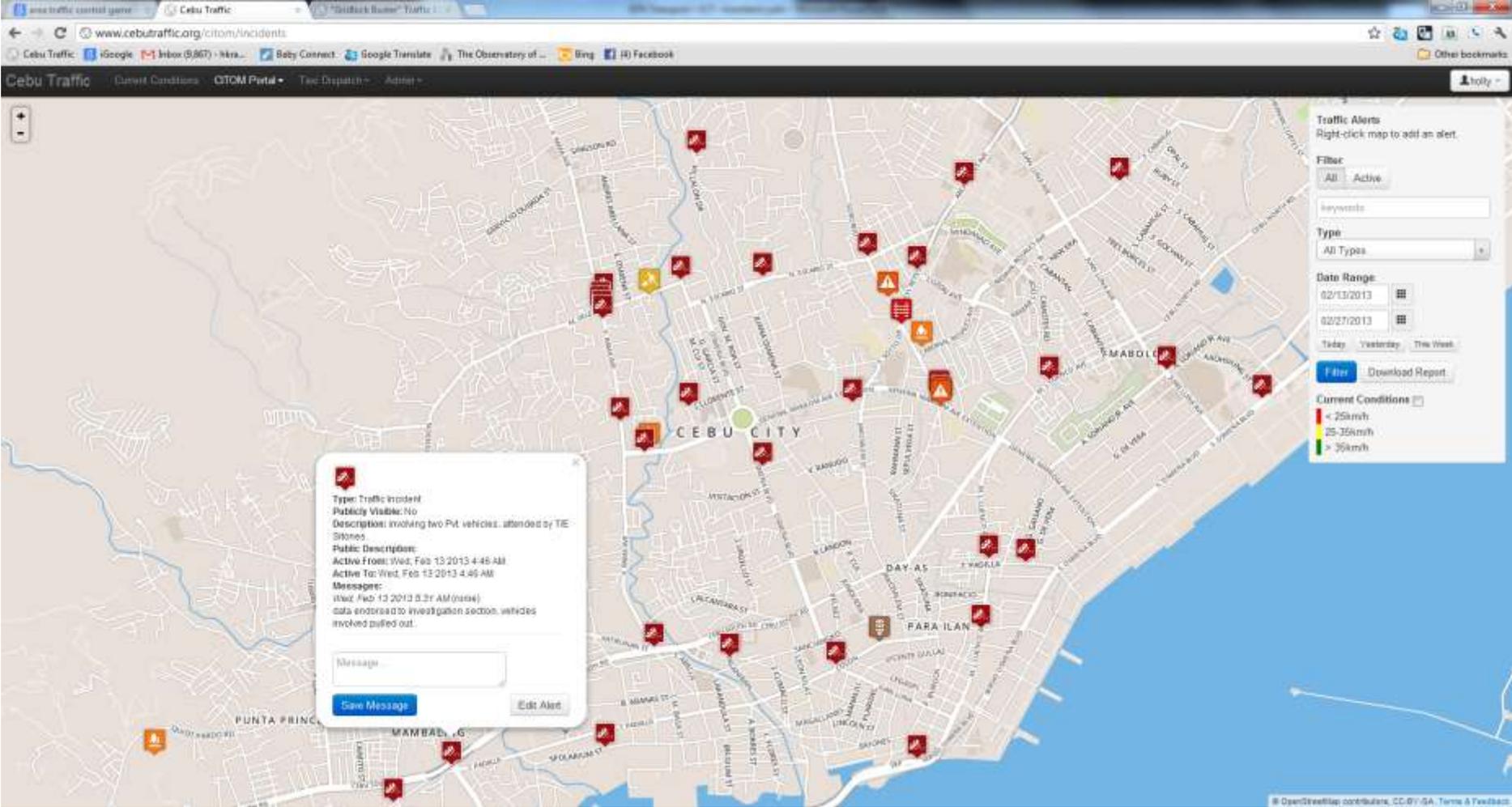
WHERE DID THE INCIDENT OCCUR?  
25th St and 5th Ave

WEATHER CONDITIONS LIGHT CONDITIONS  
Clear Daytime



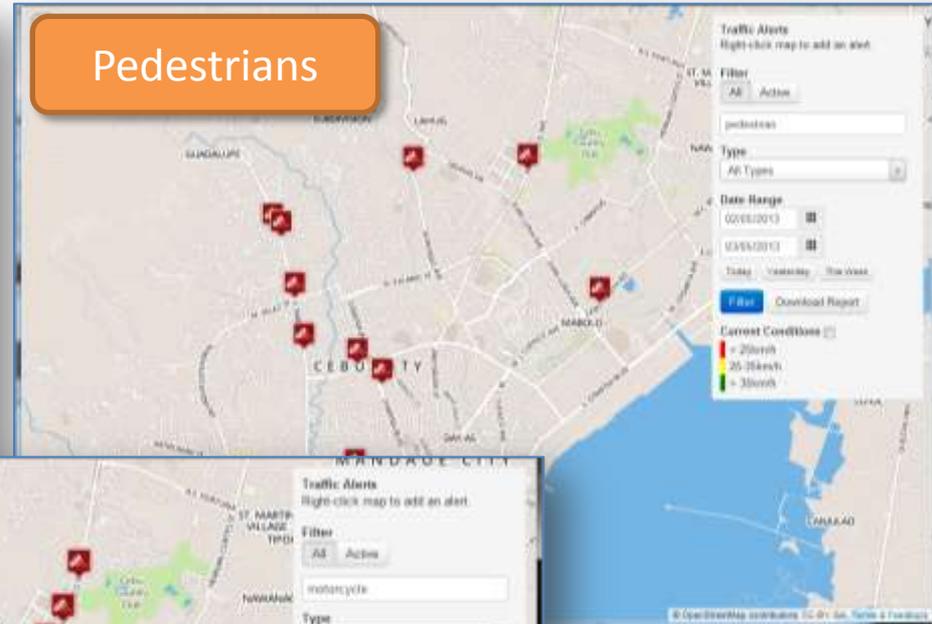
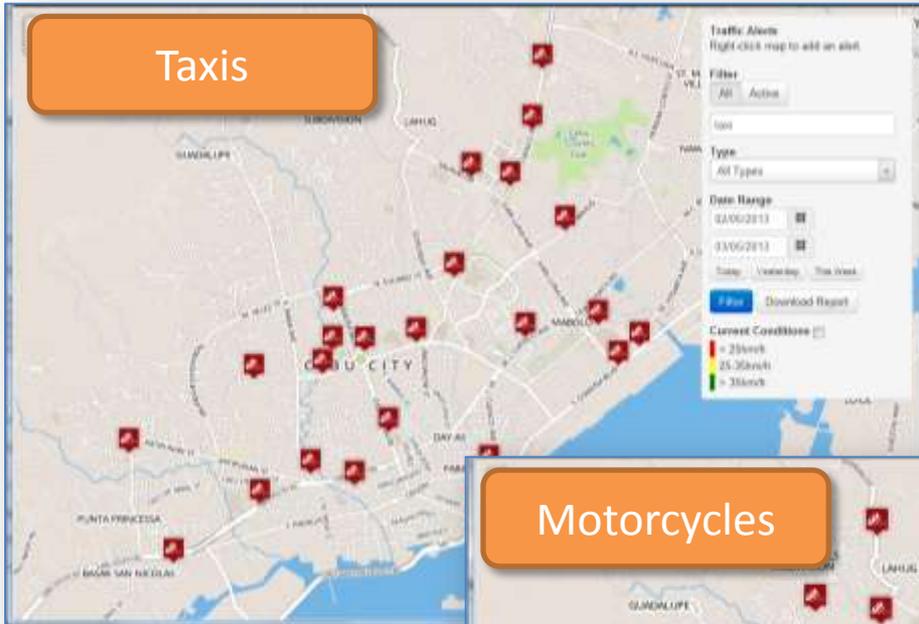


# CITOM Traffic Enforcer Report Logging: After



Map shows reports entered by CITOM from 2/13-2/27/13

# CITOM Traffic Enforcer Report Logging: After



VEHICLE TRACKING

MONITORING TEAM

LTD CONNECTIVITY



6/9/13 1st Shift

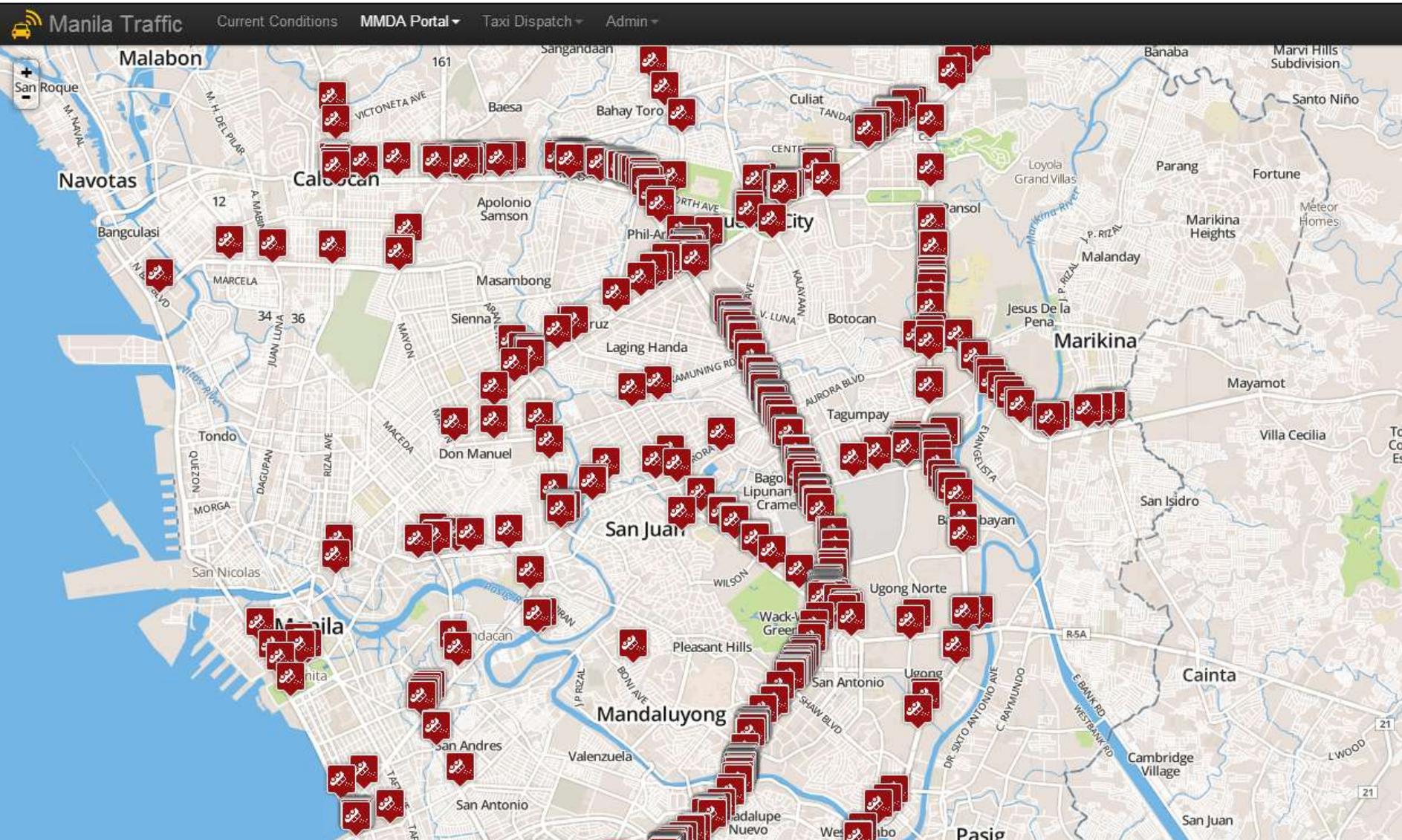
- 6245 10:49 ~~10-50~~ SB kati Nicde  
 foni TWT 709  
 D-truck TBA 886 AS 10:49
- 593 10:53 10-50 Q Ave Pantrano WB  
 P-up CAJ 159  
 EPJ Bus PWZ 846 ~~TB 11:05~~
- 626 10:57 CP Garcia SB M
- 219 11:01 10-50 Ont. CS TB BH mt  
 L300 XFH 313  
 Tanker NIF 132 ~~AS 11:07~~
- Pat 5 11:21 B-log SB faw. Market
- 624 11:22 Ateneo Gate 2 naminkat ng I-P.
- 543 11:27 @ nakalubad na talapi naka kutsara  
 EPB N. Domingo by hemangley  
 Calmore  
 near outlet
- 600 11:30 Sampson rd ang negosyon St. @  
 nagpapalit ng posite  
 1/2 lane coop
- 624 11:34 ~~10-65~~ Ateneo gate 1 nb  
 car - 2151 - 614  
 16 - overheat  
 Automatic ~~TC 11:42~~
- 600 11:37 ~~10-50~~ NB BMW ~~AS~~





# MMDA Reported Traffic Accidents

## July 2014



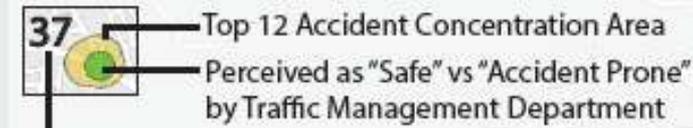
# MMDA Traffic Alert Platform

## Sample Reports for “Traffic Accidents”

Internal Description	Public Description
Reported by: Eagle 2 12 as of 4:36 Pm at EDSA Santolan Northbound. Involved Vehicles: 2 Buses (TWA 753) and (TYR 274). Cleared as of 5:54 Pm. Amicable Settlement.	at EDSA Santolan Northbound. Involved Vehicles: 2 Buses. Cleared as of 5:54 Pm.
Reported by: Eagle 4 10 as of 4:44 Pm at EDSA Buendia Northbound. Stalled Close Van (PHB 762). Cleared as of 4:50 pm.	at EDSA Buendia Northbound. Stalled Close Van . Cleared as of 4:50 pm.
Reported by 4:54 pm, at Osmeña San Andres Southbound, involving Starex Van [PPT-357] & Car [WNG-651], 1 lane occupied. Cleared as of 4:55 pm, involved parties proceeded to Traffic Bureau for further investigation.	at Osmeña San Andres Southbound, involving Van & Car, 1 lane occupied. Cleared as of 4:55 pm.
Reported by 500 Base as of 5:14 pm, at Quezon Ave. Delta Eastbound, involving Adventure [UVY-175] & PUJ [TVM-967], 1 lane occupied. Cleared as of 5:24 pm, involved parties proceeded to Traffic Bureau for further investigation.	at Quezon Ave. Delta Eastbound, involving SUV & PUJ, 1 lane occupied. Cleared as of 5:24 pm.
Reported by Eagle 24 as of 5:33 pm, at Edsa GMA Southbound, involving Adventure [XRF-166] & FX [TJB-993], 1 lane occupied. Cleared as of 5:43 pm, involved parties proceeded to Traffic Bureau for further investigation.	at Edsa GMA Southbound, involving 2 AUV's, 1 lane occupied. Cleared as of 5:43 pm.

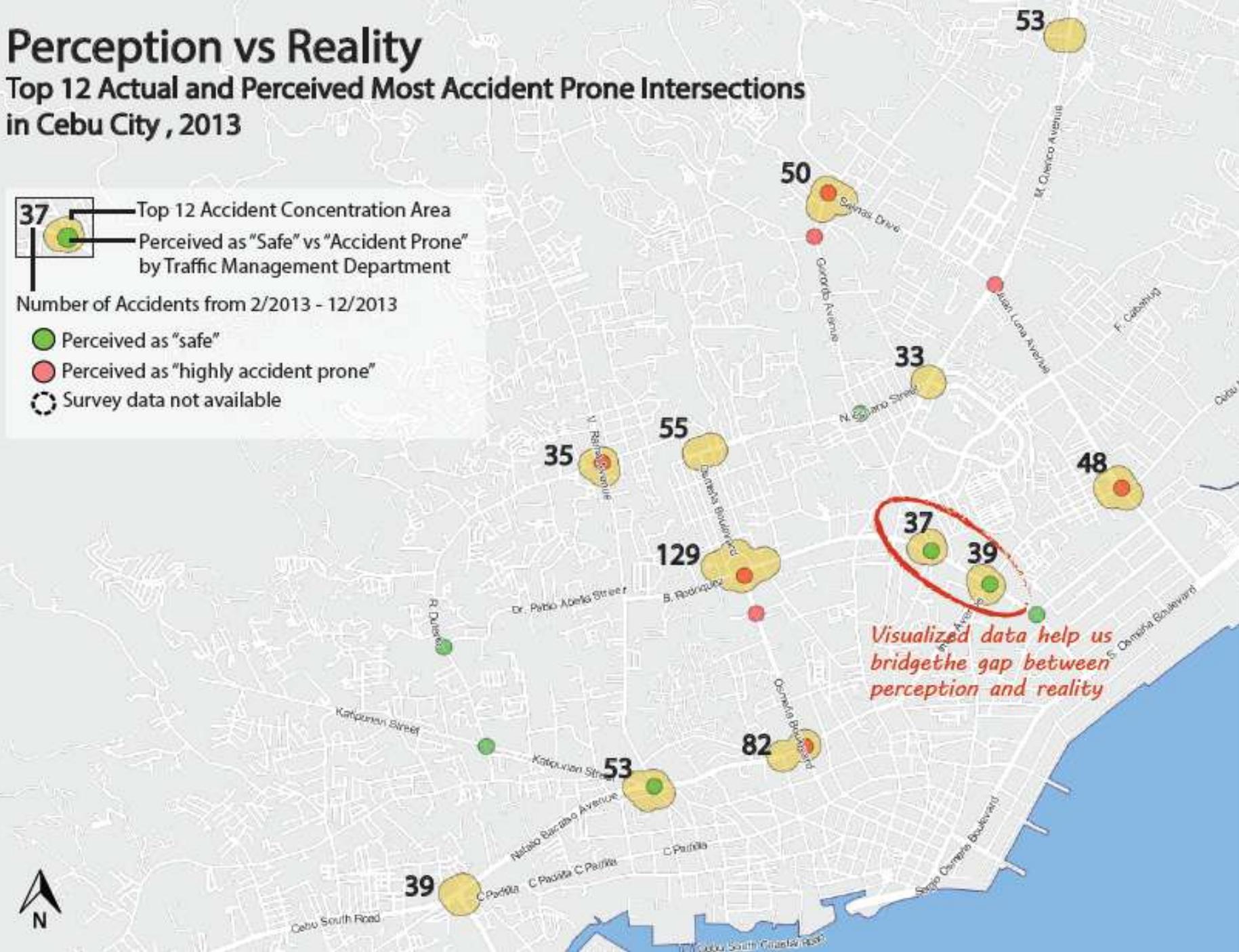
# Perception vs Reality

## Top 12 Actual and Perceived Most Accident Prone Intersections in Cebu City, 2013

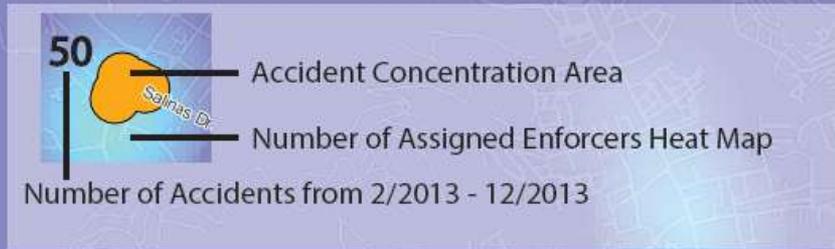


Number of Accidents from 2/2013 - 12/2013

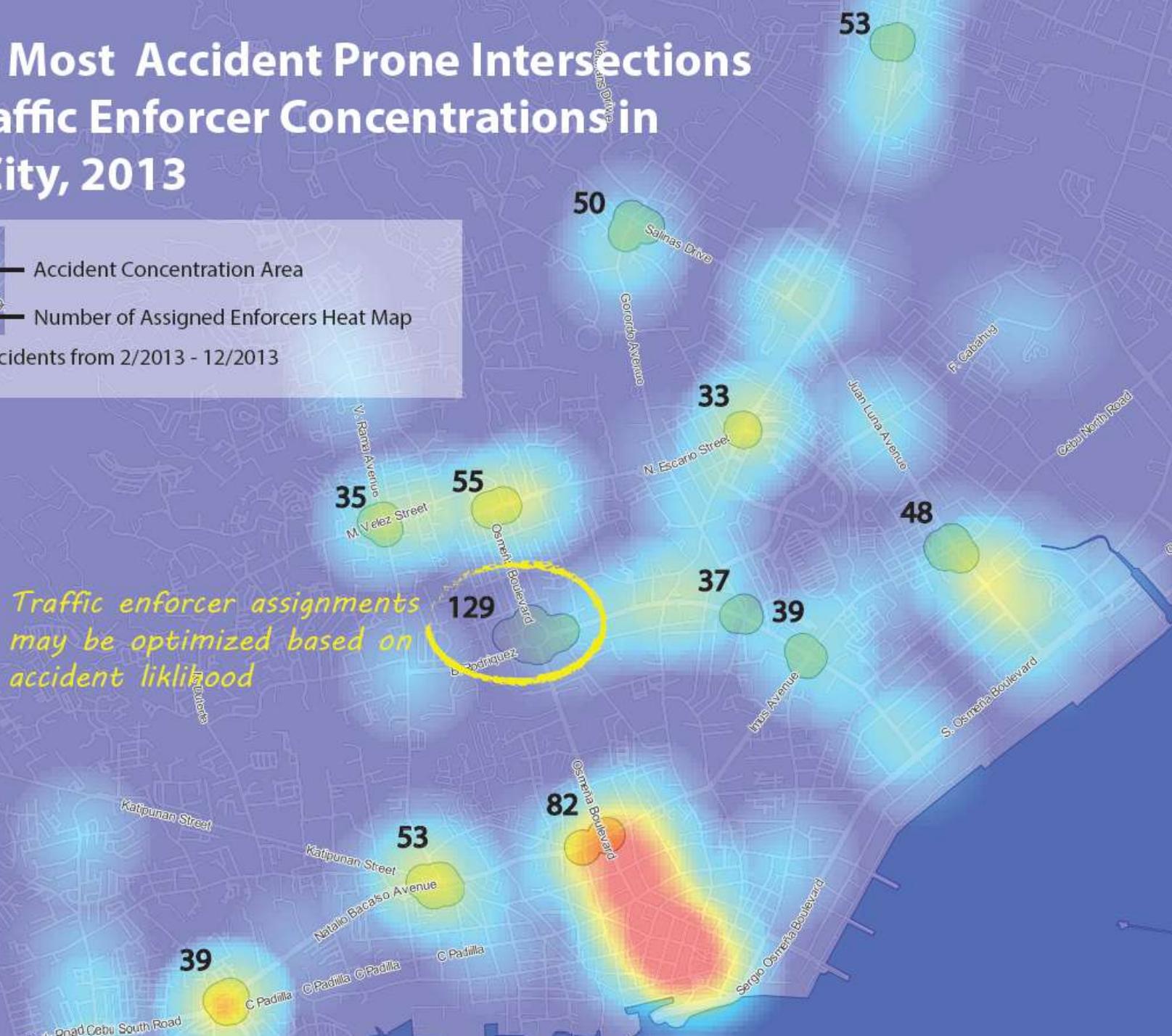
- Perceived as "safe"
- Perceived as "highly accident prone"
- Survey data not available



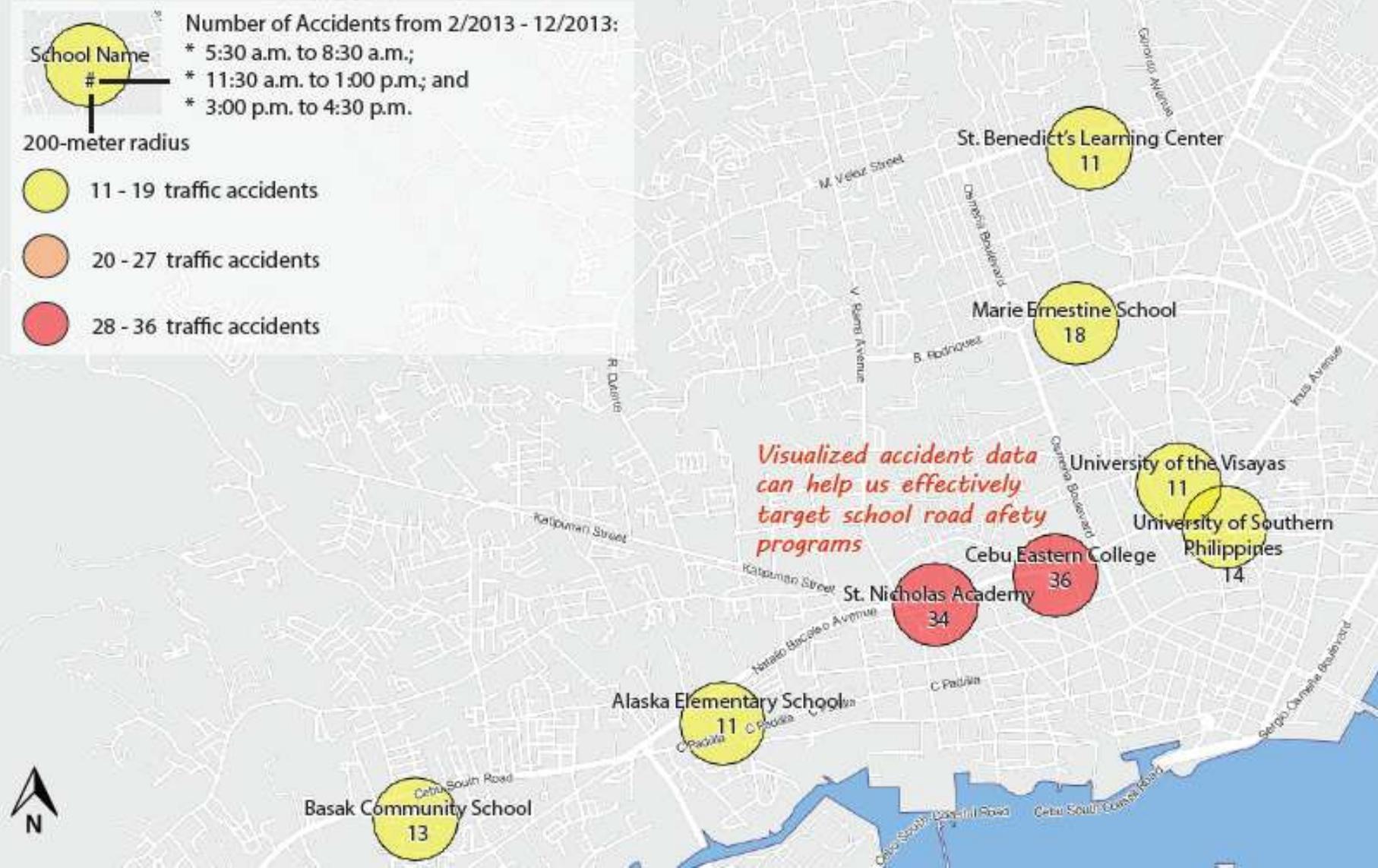
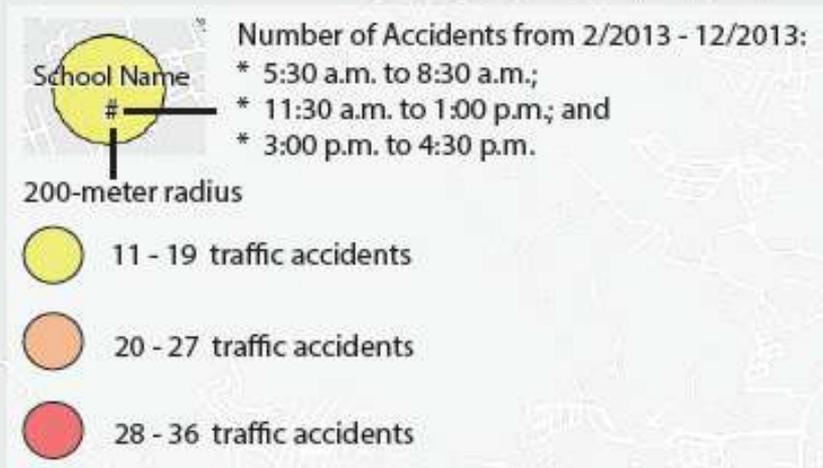
# Top 12 Most Accident Prone Intersections and Traffic Enforcer Concentrations in Cebu City, 2013



*Traffic enforcer assignments may be optimized based on accident likelihood*

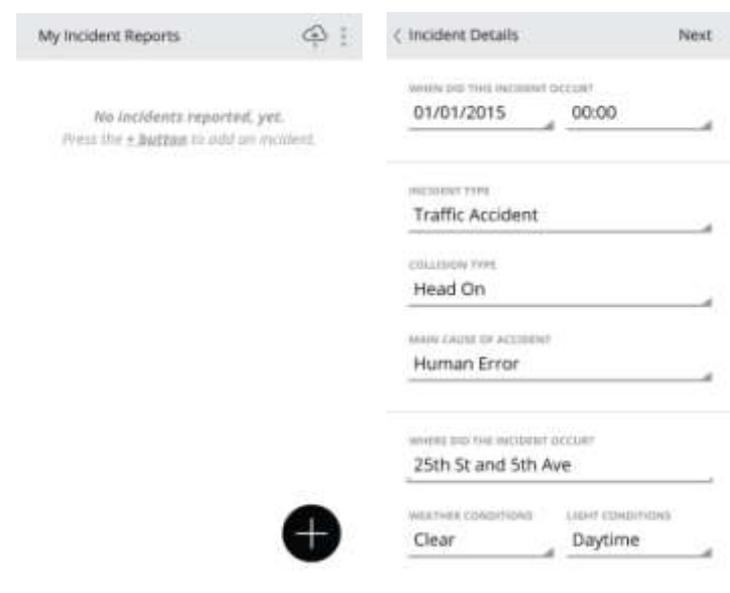
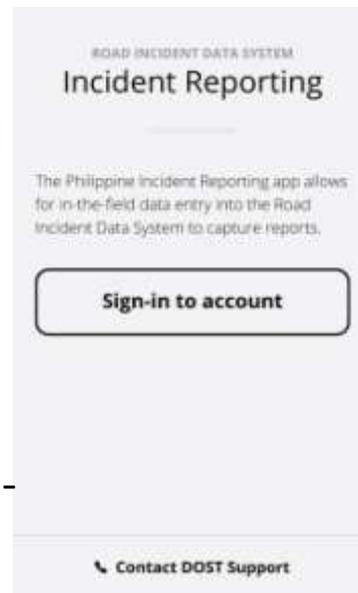
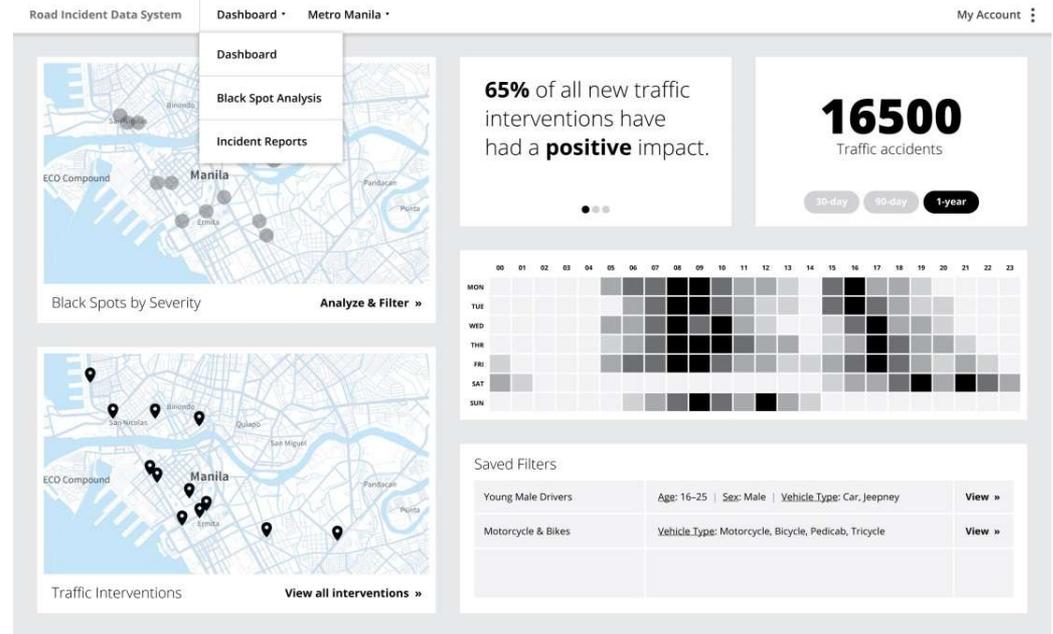


# Top 10 Traffic Accident Occurrences within 200 meters of Cebu City Elementary Schools during School Commuting Times, 2013



# DRIVER SYSTEM - Overview

- **Open-source, web-based, centralized and nationwide** system for data collection, analysis and reporting of traffic incident data
- **Multi-sectoral** approach in reporting and analyzing data
- **Three components:** Data Management, Data Analysis, and Institutional Arrangement
- Use of historical data to inform traffic management, policy-drafting and investment decision-making



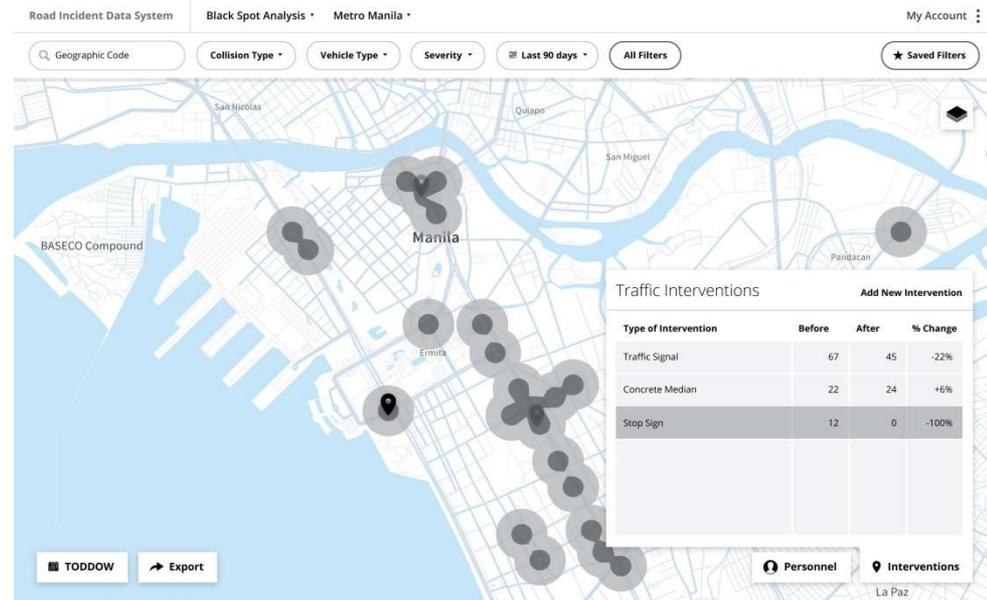
# Project Background - Specifications

- Identification of black spots with fixed and customized filters
- Cost of black spots/individual accidents to economy
- Visualization of accidents over imported shape files
- Optimization of emergency services and enforcer resources assignment
- Monitoring effect of interventions
- Dashboard feature
- Mobile application to support data entry

Road Incident Data System Incident Reports Metro Manila My Account

Search by name keyword Status All Records Last 30 days Add New Incident

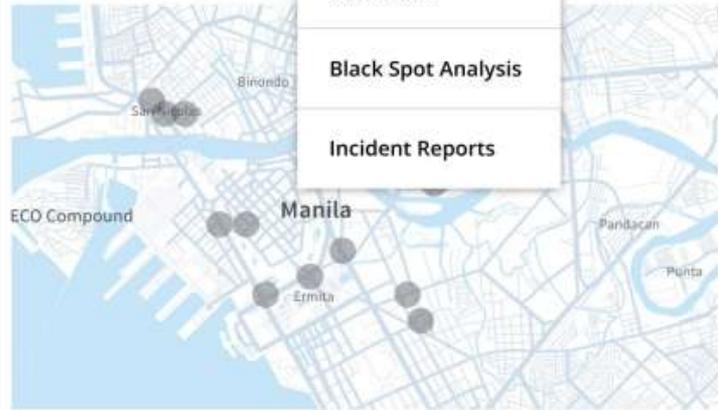
REF. ID	DATE & TIME	LOCATION	STATUS	SEVERITY	
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit
0012345	01/01/2015 00:00	25th Street and 5th Avenue, Global City, Taguig, Metro Manila	Added via app	Fatal	Edit



Dashboard

Black Spot Analysis

Incident Reports



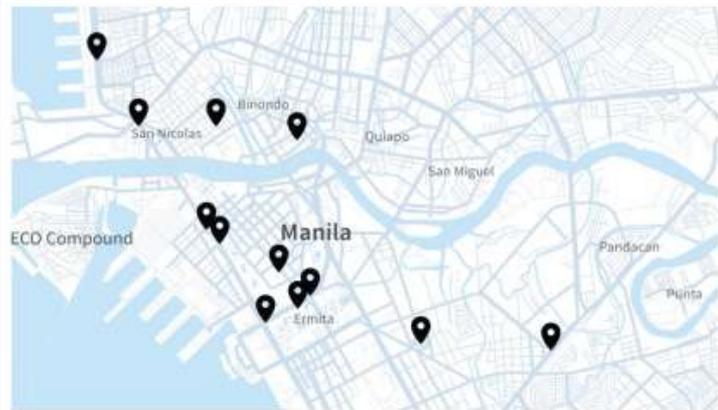
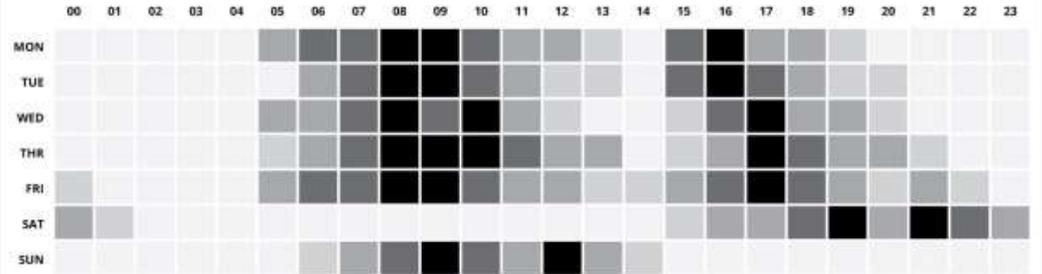
Black Spots by Severity

[Analyze & Filter »](#)

65% of all new traffic interventions have had a **positive** impact.

**16500**  
Traffic accidents

30-day 90-day **1-year**



Traffic Interventions

[View all interventions »](#)

### Saved Filters

Young Male Drivers

Age: 16-25 | Sex: Male | Vehicle Type: Car, Jeepney

[View »](#)

Motorcycle & Bikes

Vehicle Type: Motorcycle, Bicycle, Pedicab, Tricycle

[View »](#)



Geographic Code

Collision Type ▾

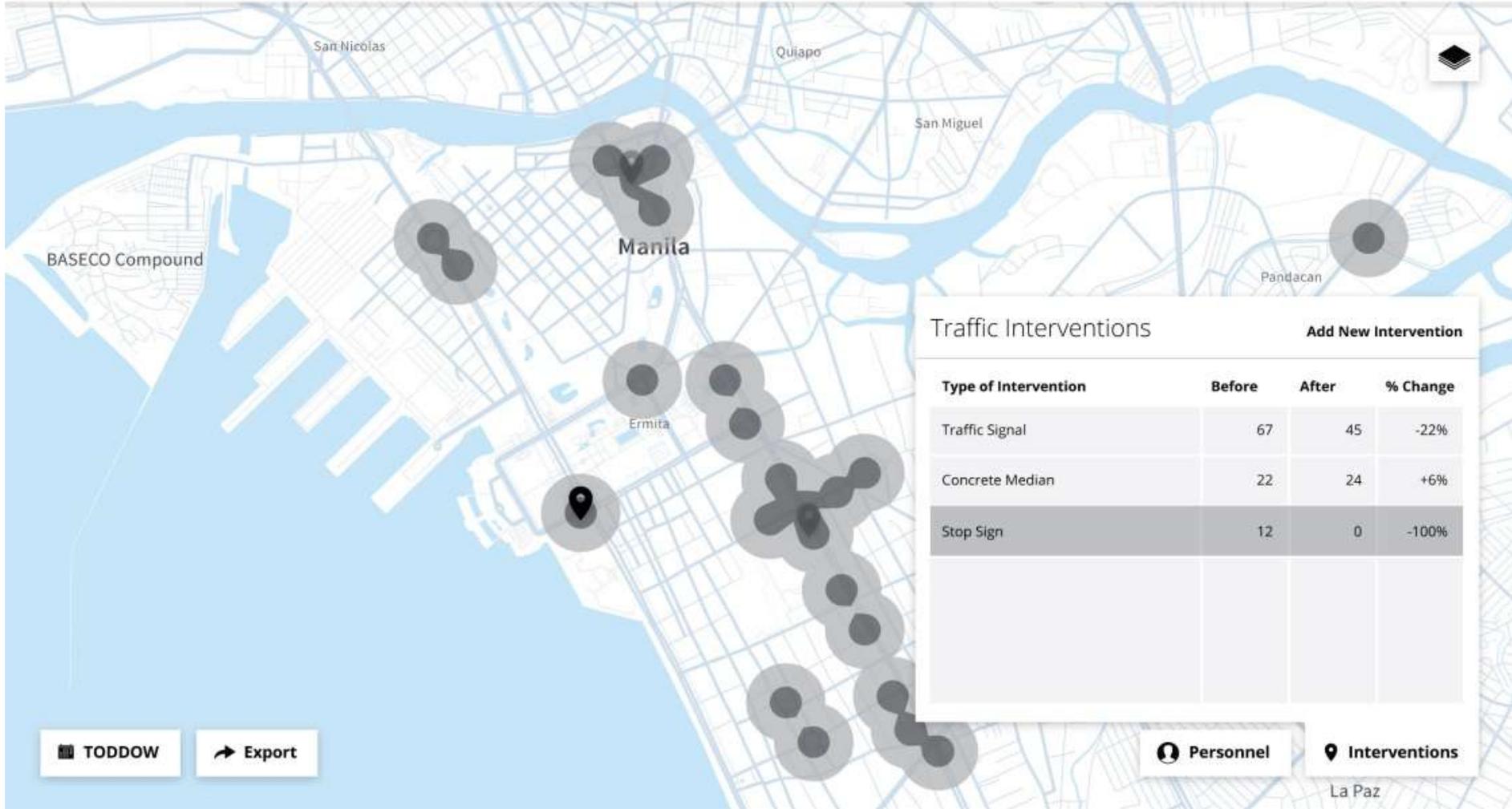
Vehicle Type ▾

Severity ▾

Last 90 days ▾

All Filters

★ Saved Filters



### Traffic Interventions

[Add New Intervention](#)

Type of Intervention	Before	After	% Change
Traffic Signal	67	45	-22%
Concrete Median	22	24	+6%
Stop Sign	12	0	-100%

TODDOW

Export

Personnel

Interventions

# Challenges

- Institutional Arrangement
  - Data reporting – Philippine National Police
  - Administration
  - Data quality management
  - Technical support
  - Funding
  - Training and scaling-up
- Capacity Building of Government
- Nationwide deployment

**THANK YOU**