Metro Manila Transportation Network: Big Data Analytics and Applications (MMTN:BDAA)

A DOST-PCIEERD Funded Research Project

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DLSU-Manila

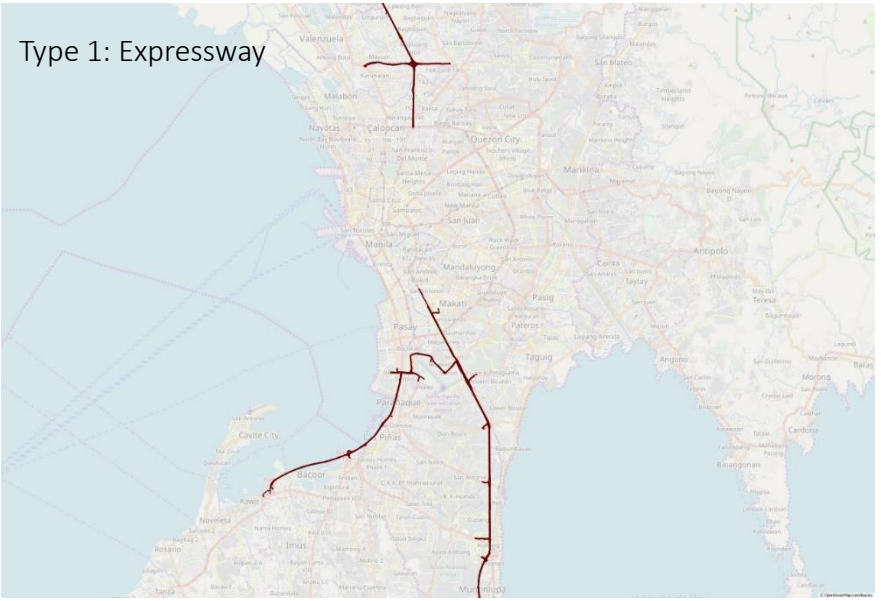
Primary Objective: To model and assess the existing transportation network and transport-related facilities of Metro Manila as well as planned transport infrastructure projects or combination thereof, at the local (city) and metro-wide levels (Metro Manila) with the end objective of developing a transport database system

EMME Network

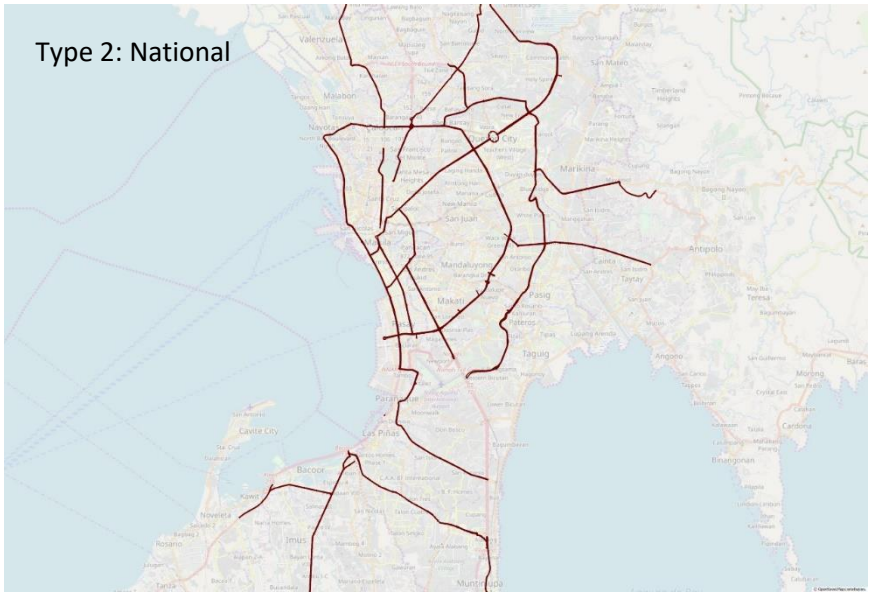
Centroids	453
Nodes	6946
Links	17216
Transit Lines	876

Road Tier Classification

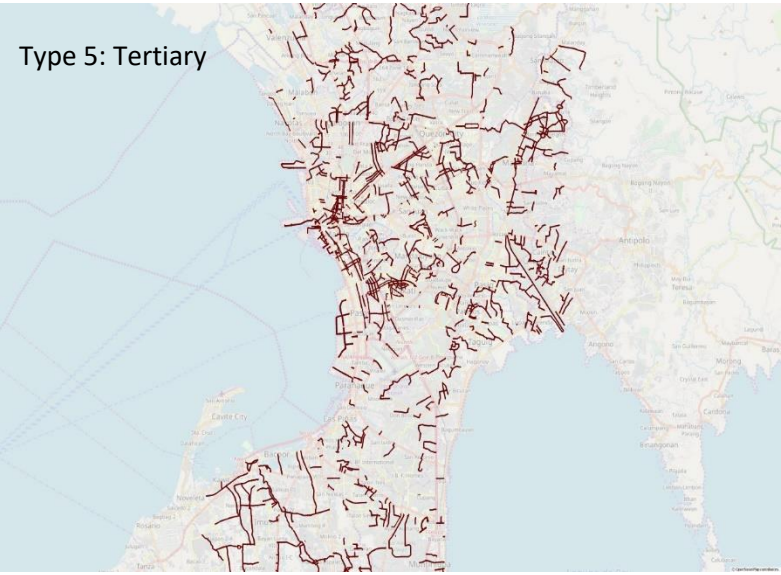
Type 1: Expressway



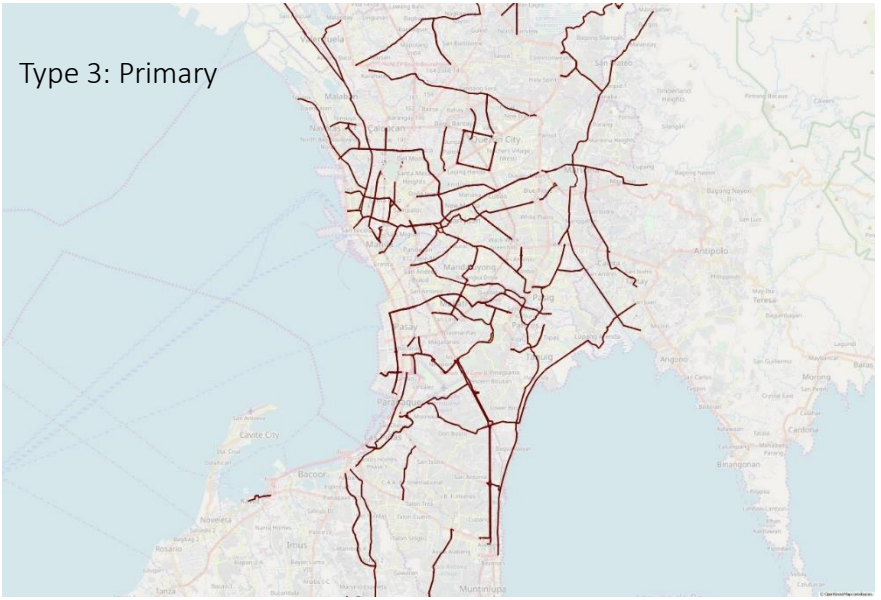
Type 2: National



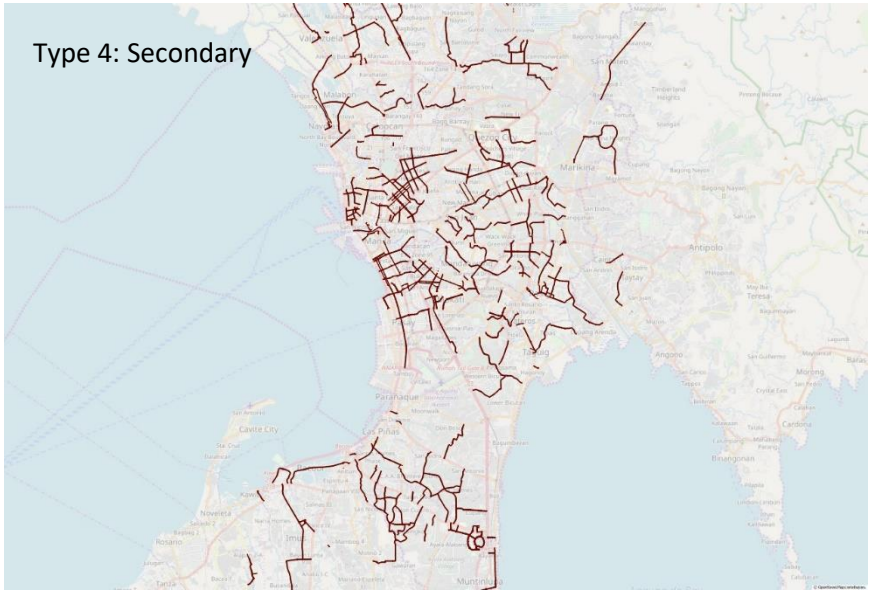
Type 5: Tertiary

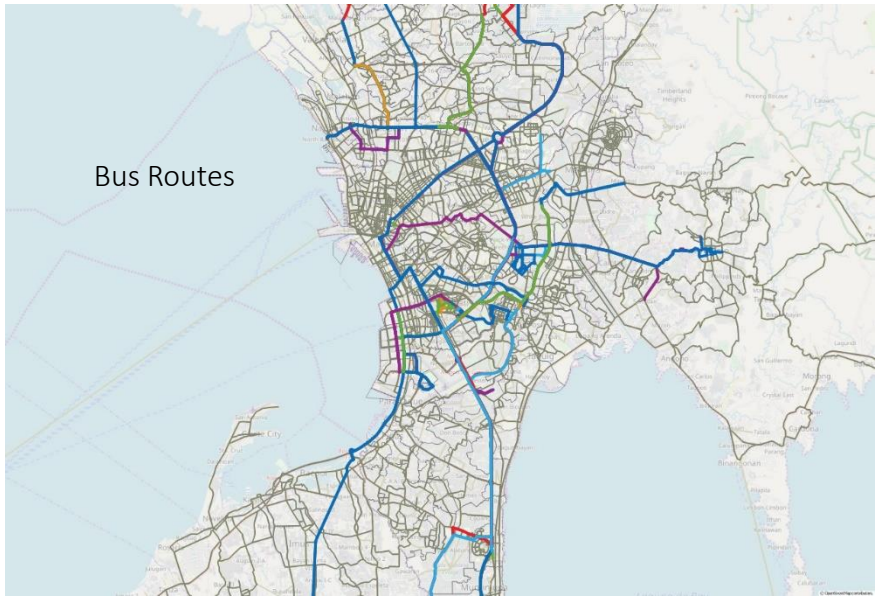


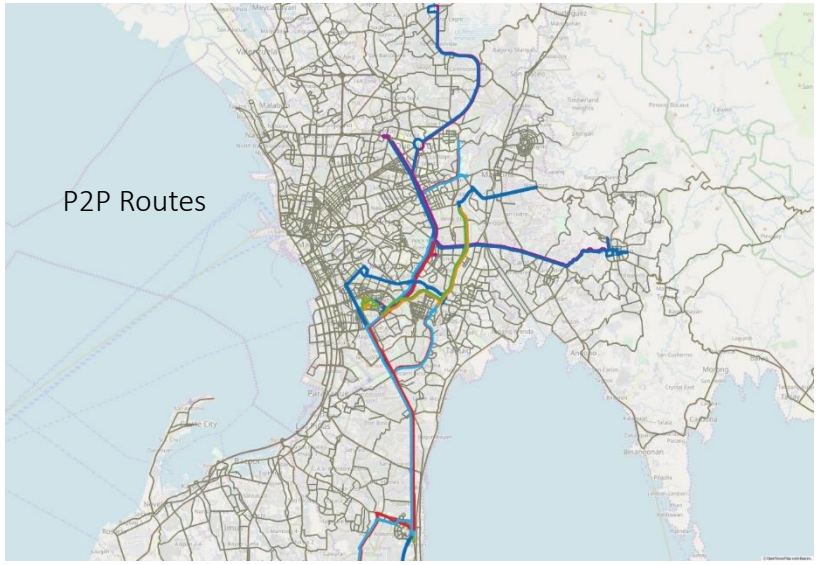
Type 3: Primary

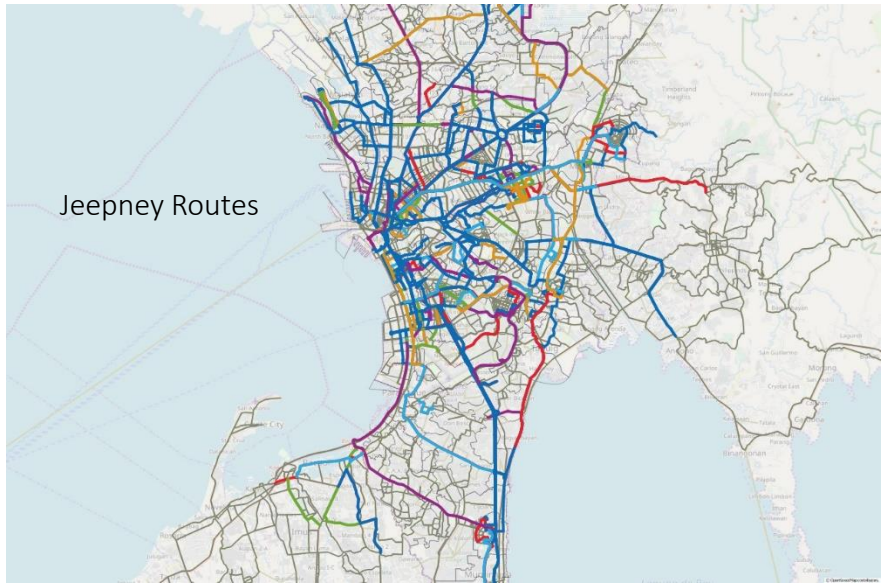


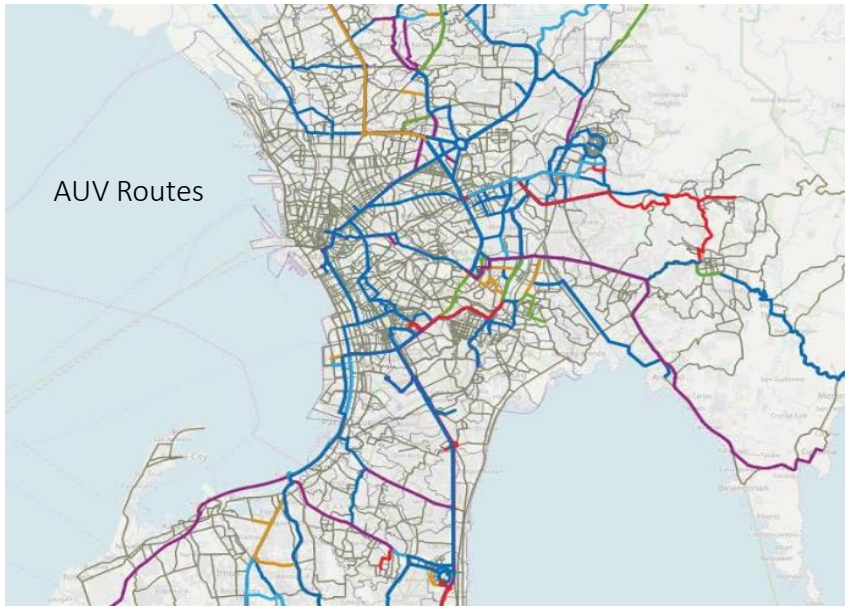
Type 4: Secondary









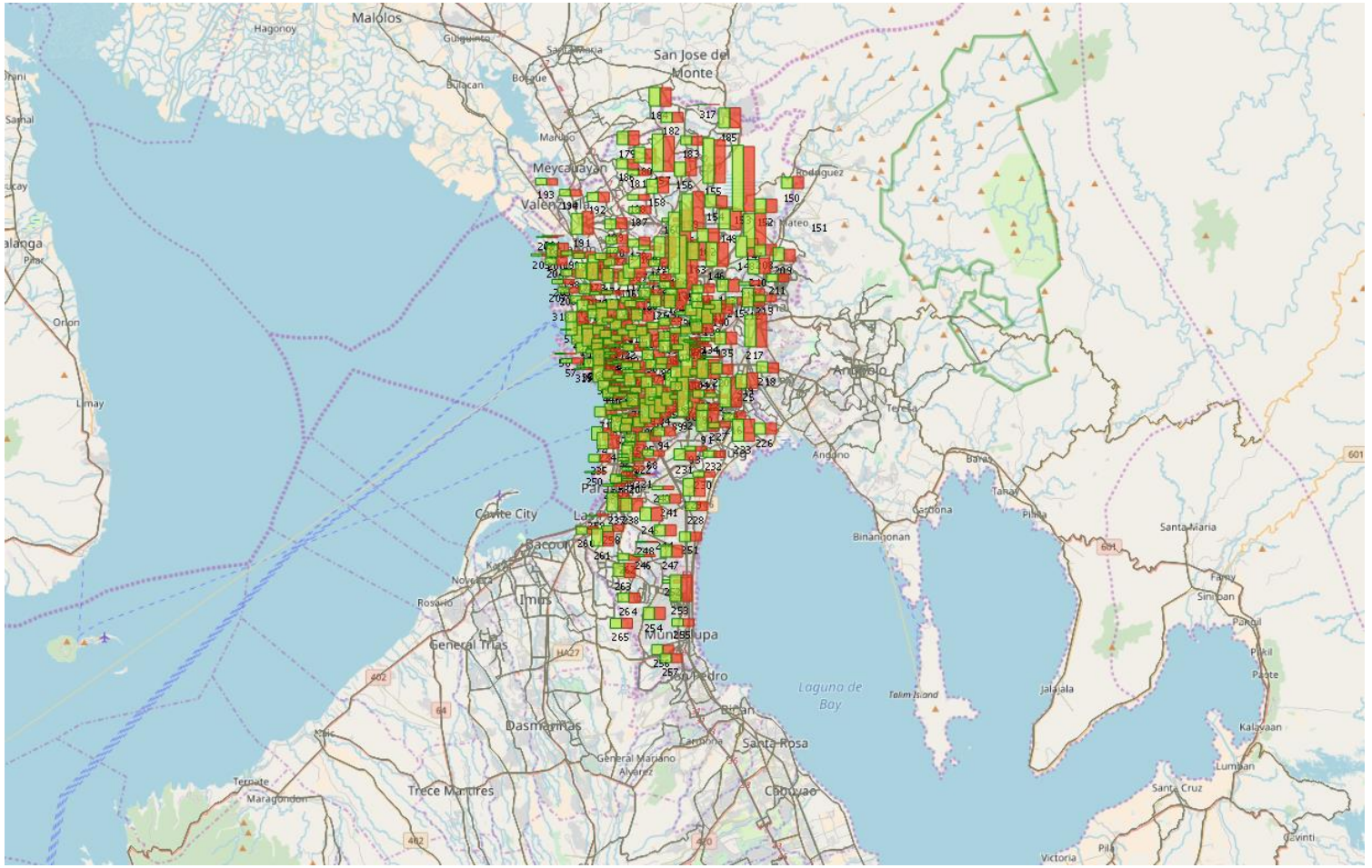


Around 876 transit lines

Public Transport Routes in Metro Manila

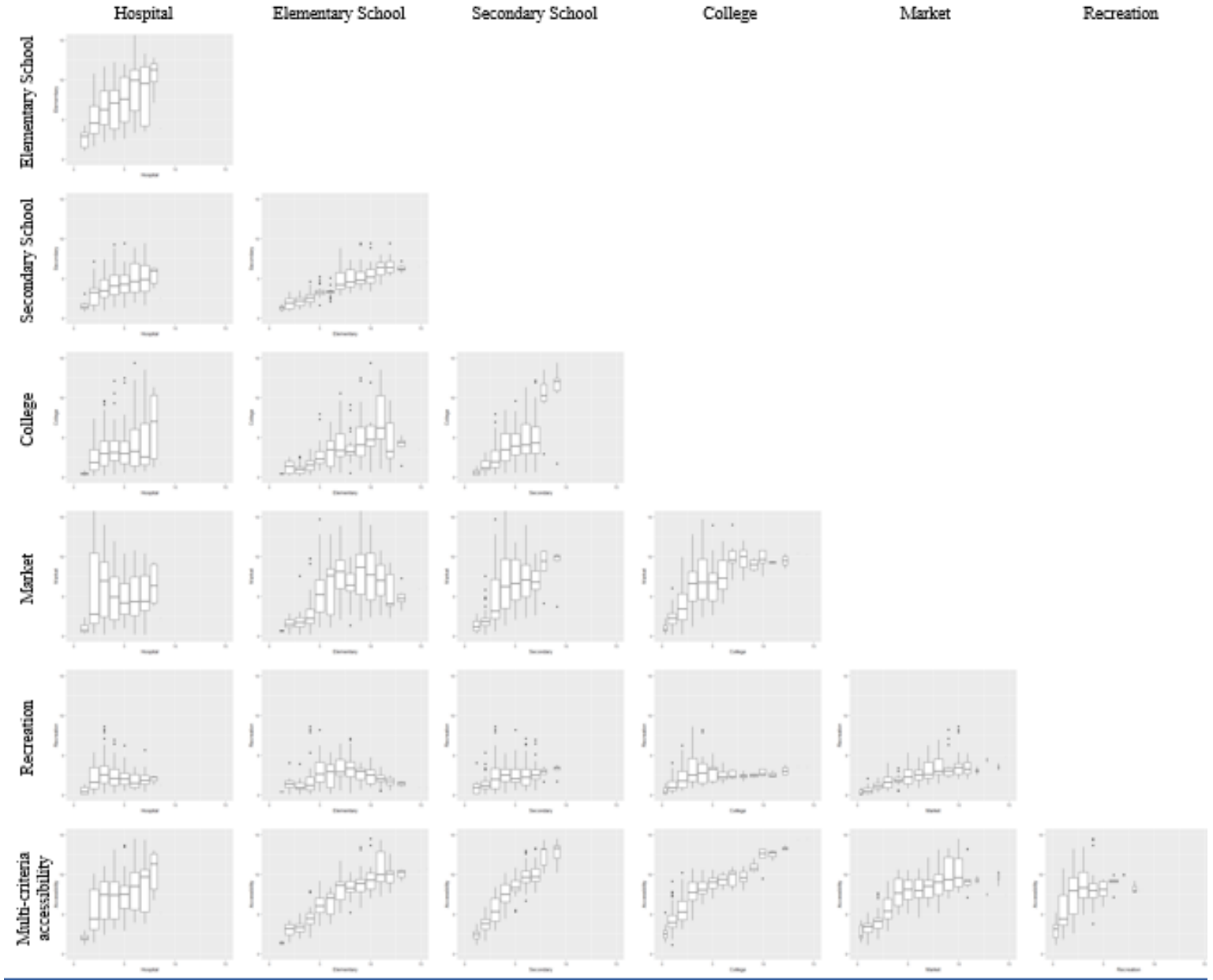
Metro Manila Zoning: 453 Zones

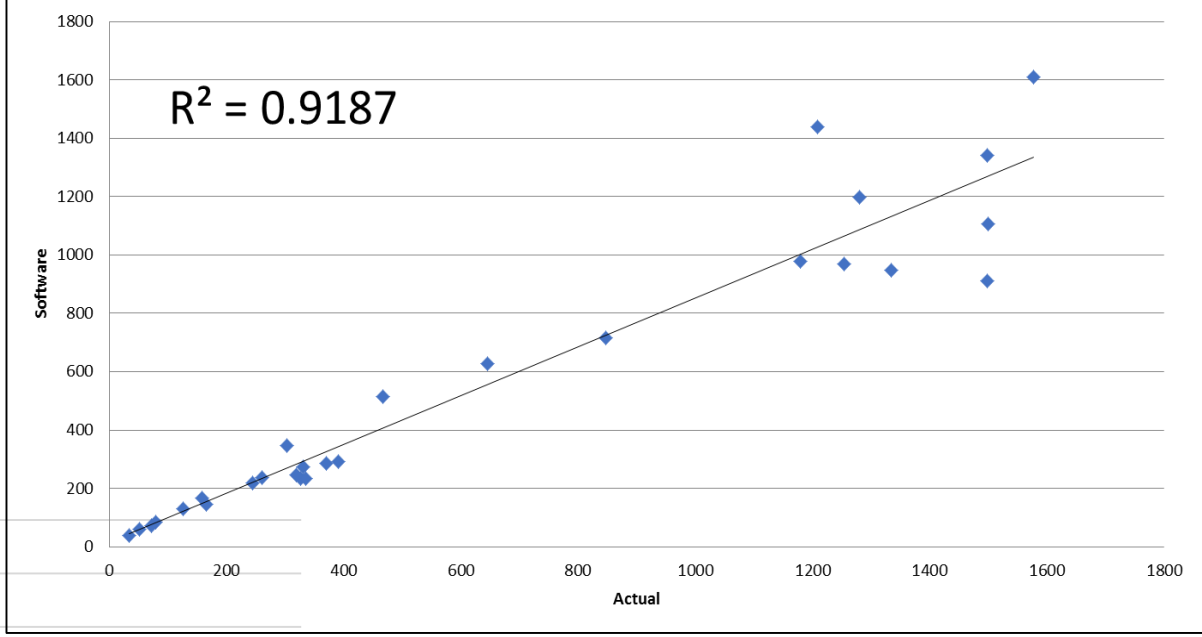
- A fast computer is needed to analyze the expanded network.



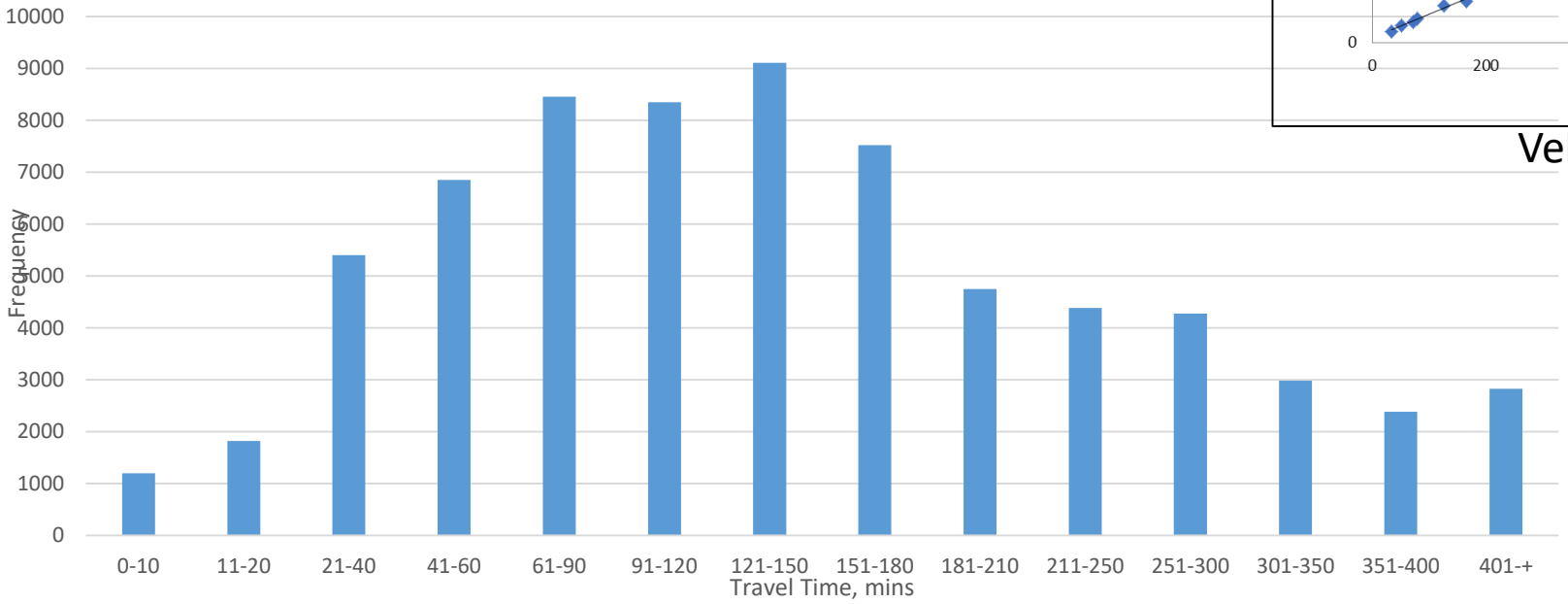
Adjusted MUCEP (2014) data (under calibration)

Big Data Application to Transport Accessibility

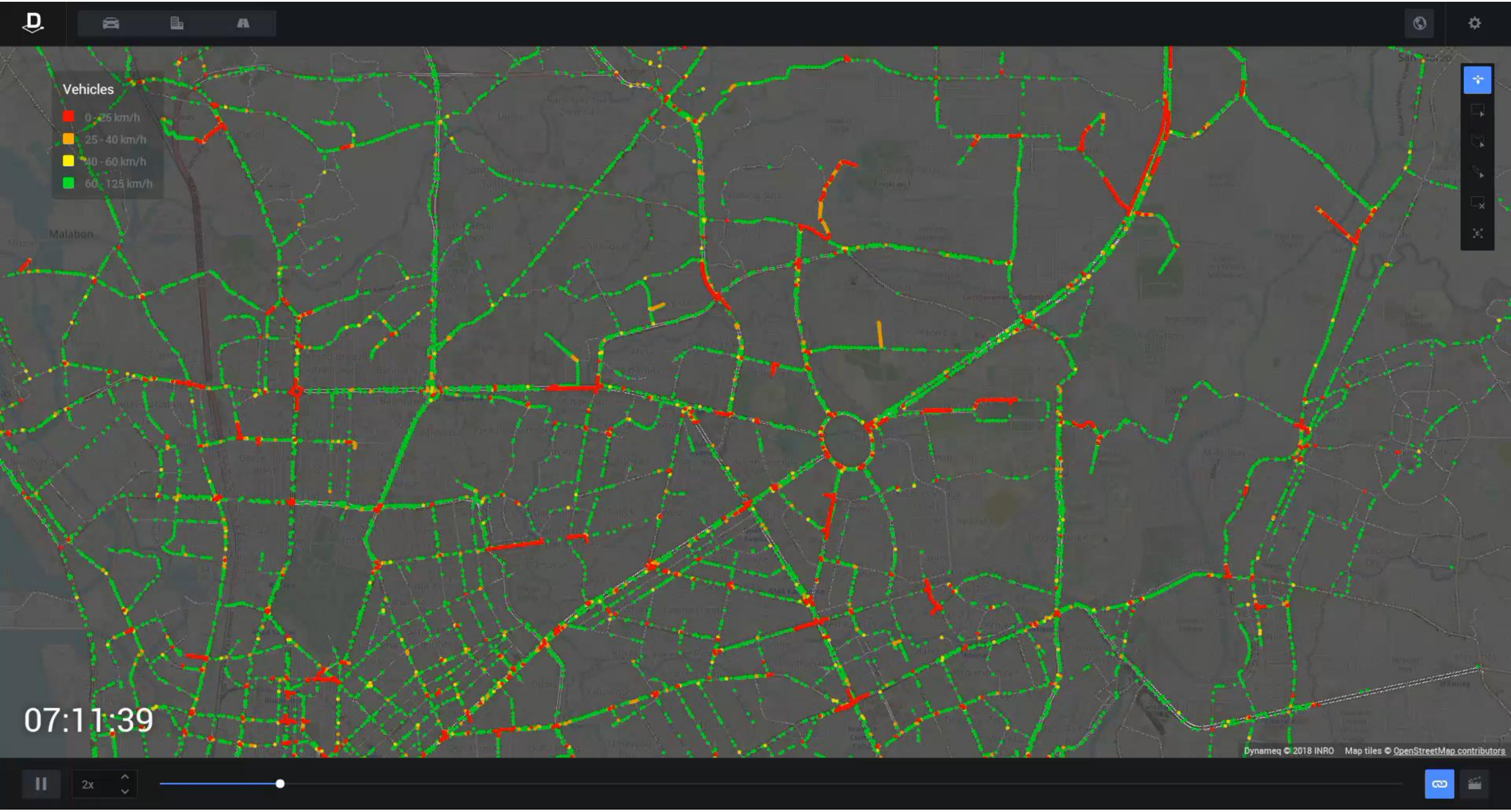




Vehicular volume along road segments (Actual vs. simulated)



Zone to Zone Calibration at Average Travel in Metro Manila: 1.7 hours (under calibration) for morning peak period


Vehicles
0 - 25 km/h
25 - 40 km/h
40 - 60 km/h
60 - 125 km/h
Malabon
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Dynameq © 2018 INRO
Map tiles © OpenStreetMap contributors
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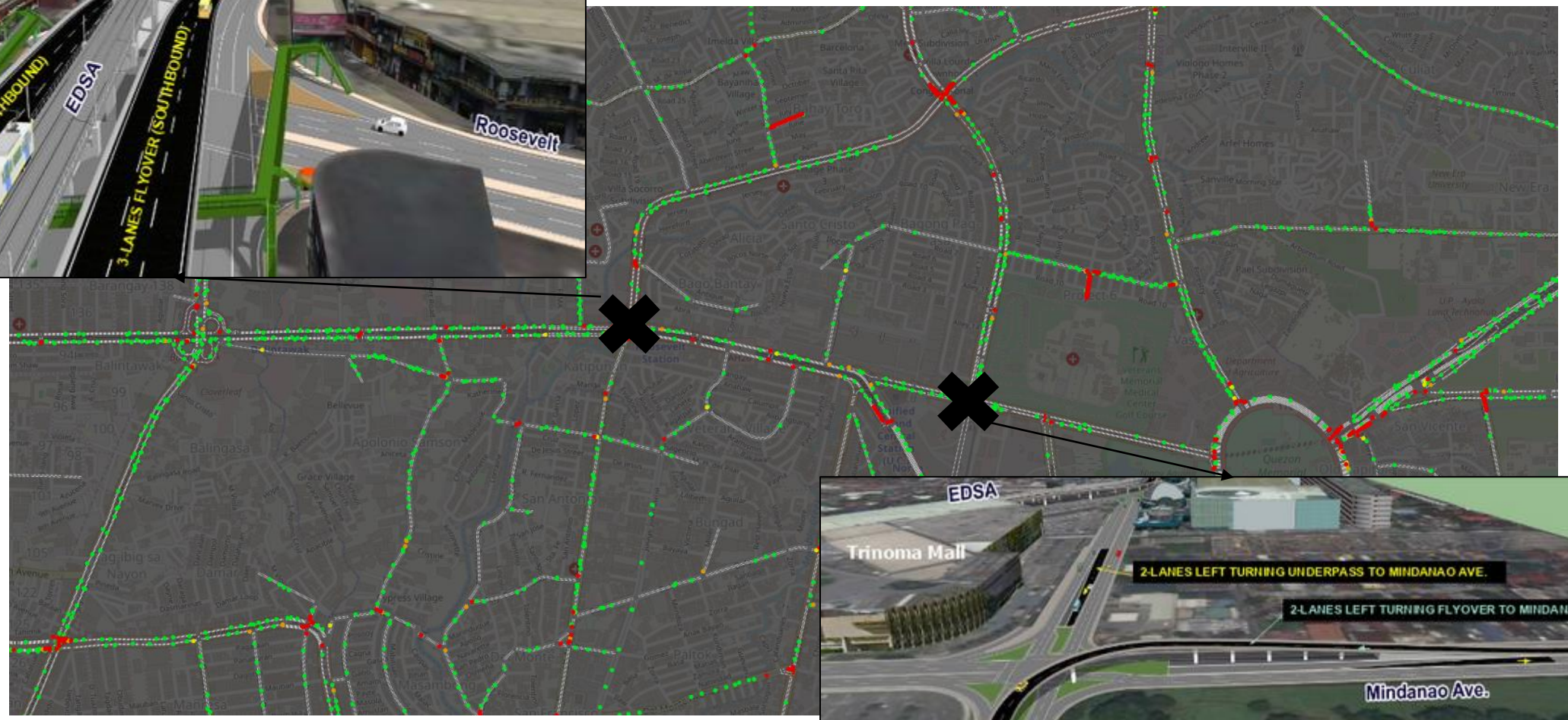
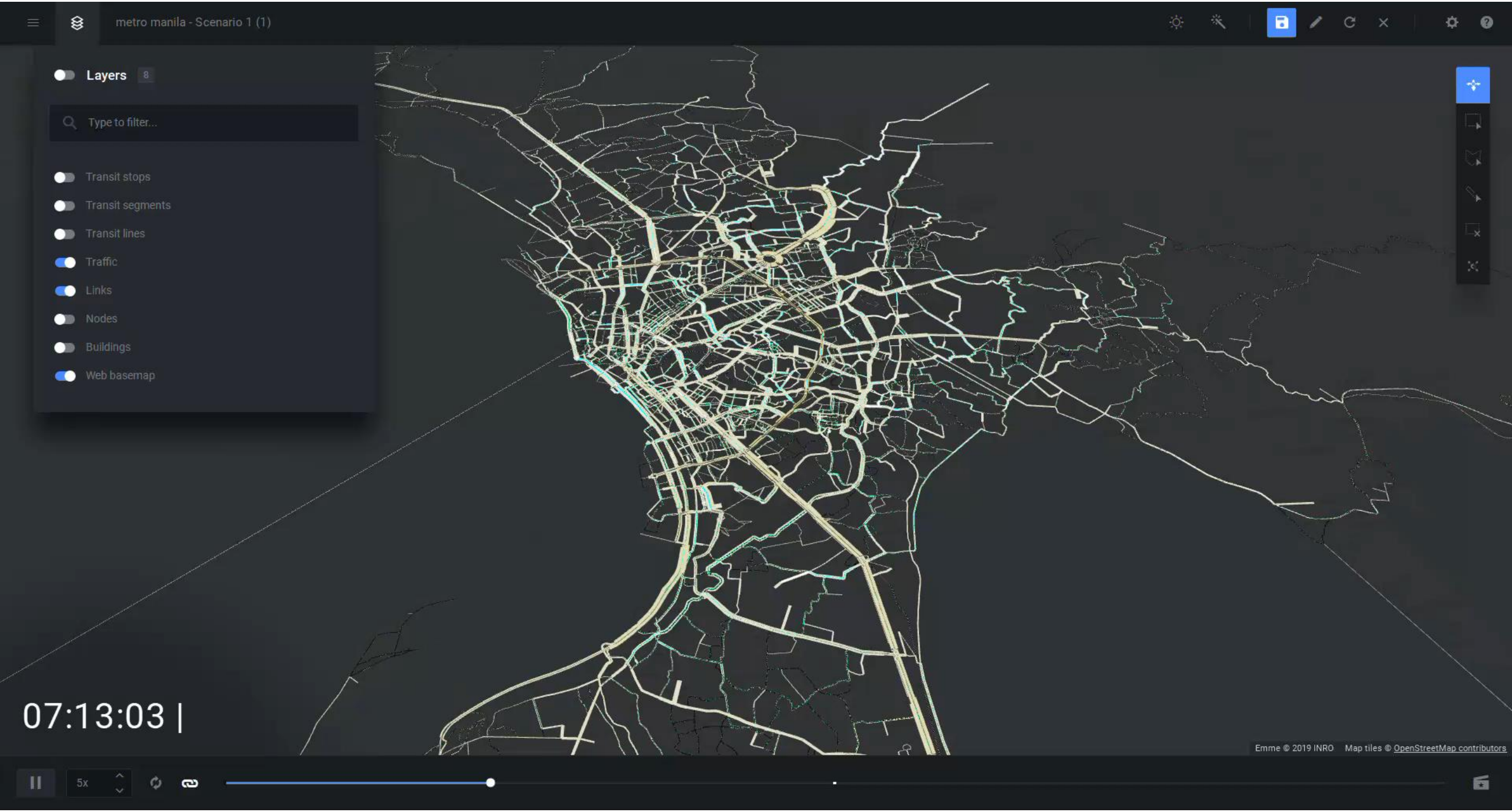


MOU with DPWH to use the developed transport network in assessing proposed road interchange projects in the NCR


metro manila - Scenario 1 (1)
Layers 8
Type to filter...
Transit stops
Transit segments
Transit lines
Traffic
Links
Nodes
Buildings
Web basemap
07:13:03 |
5x
Emme © 2019 INRO
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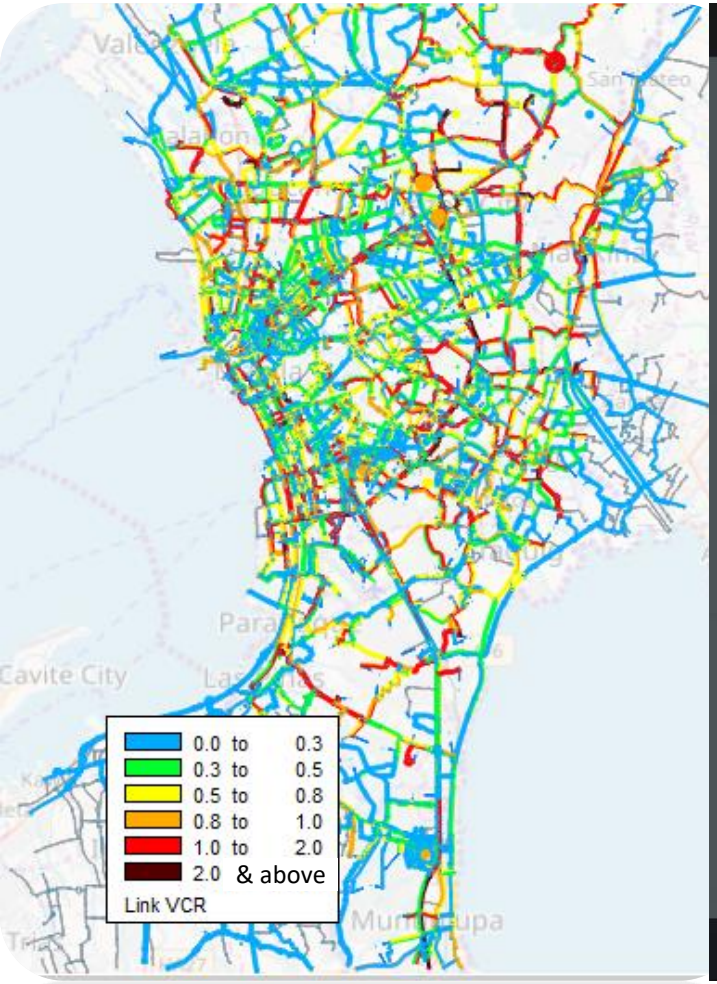
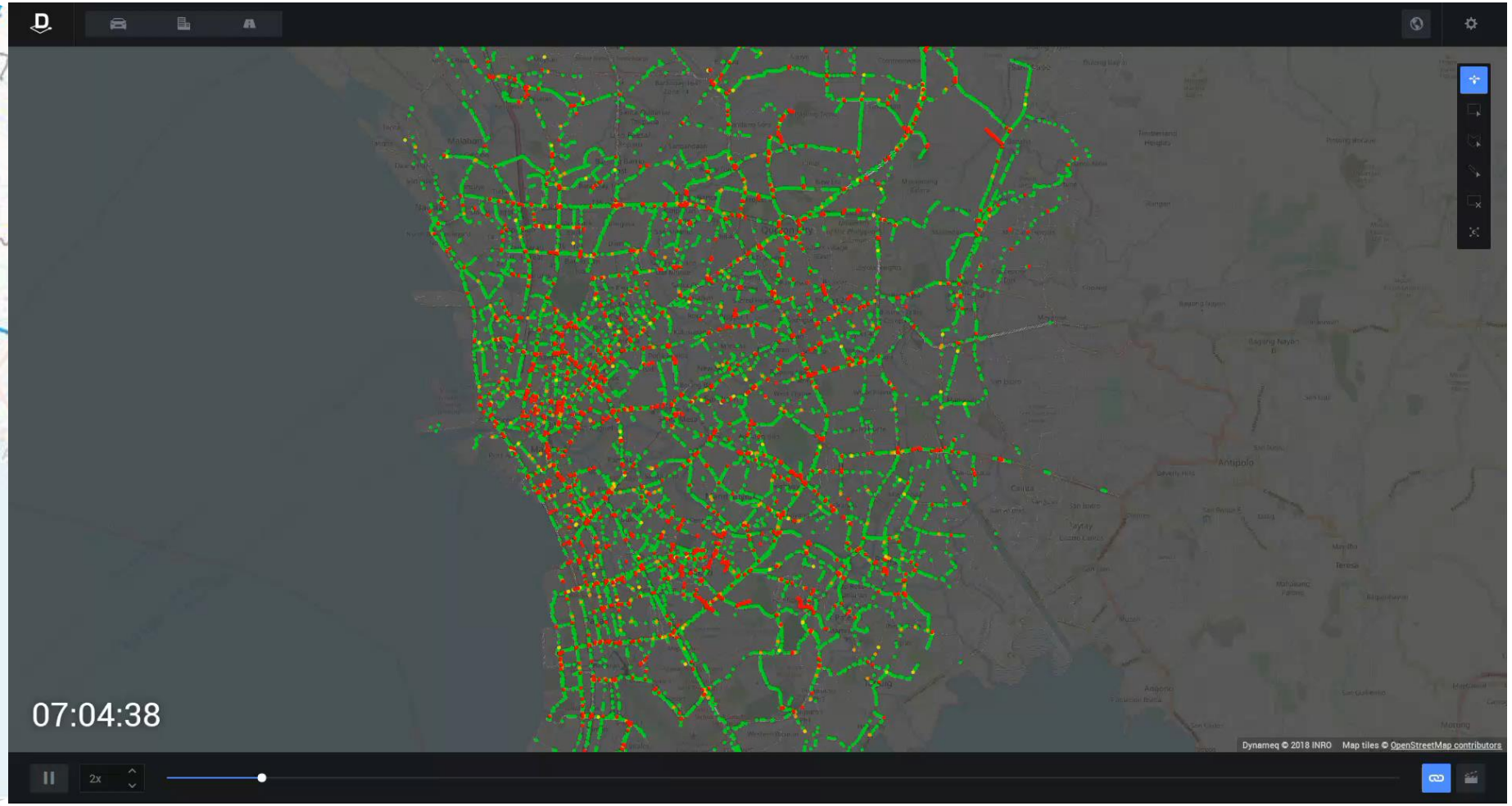
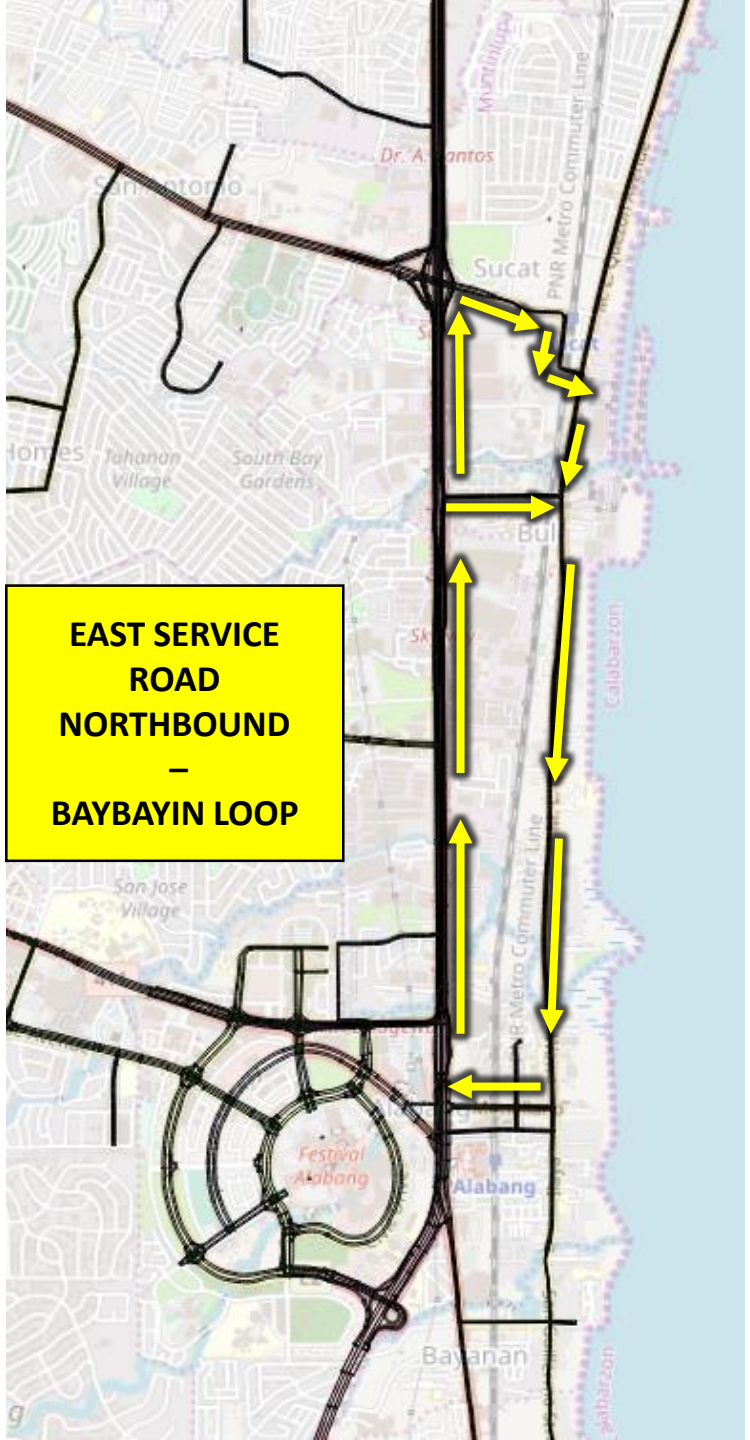
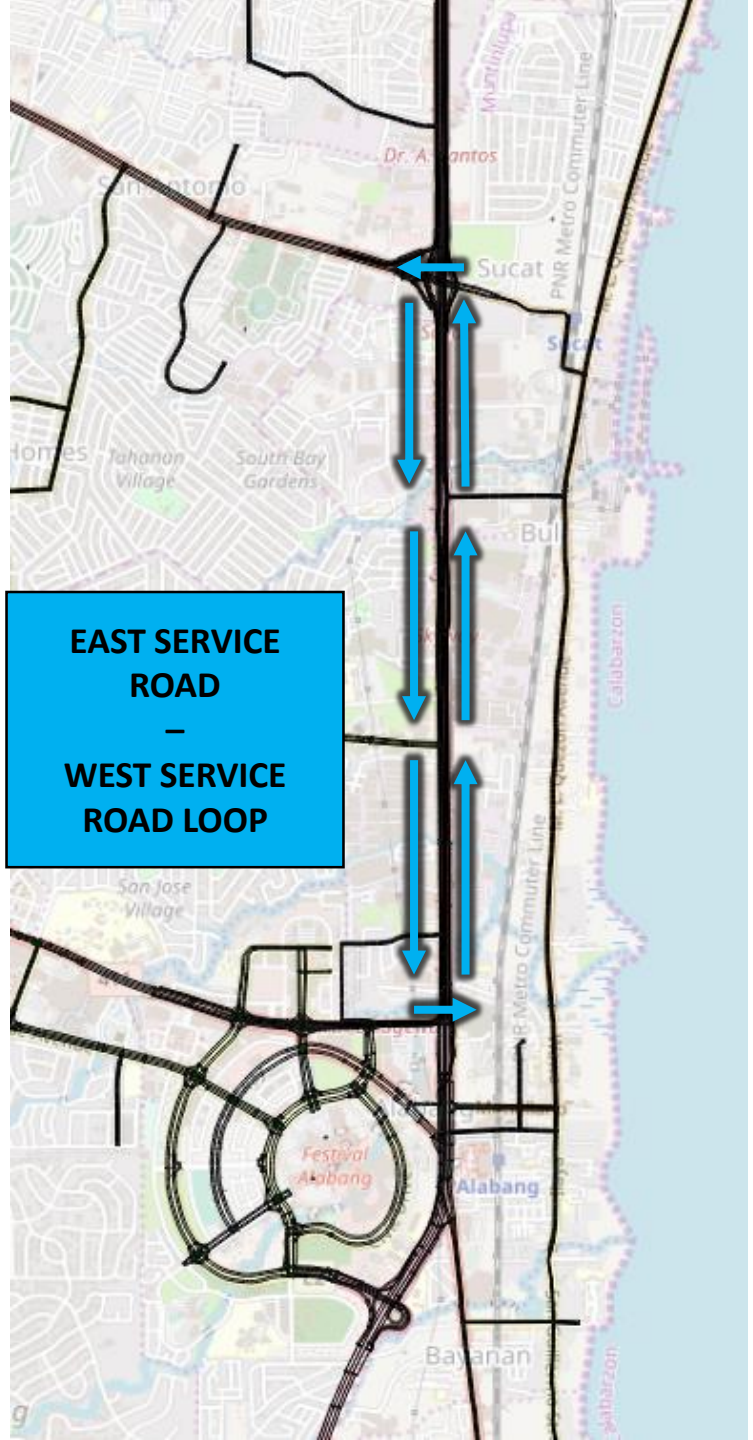
Do Nothing



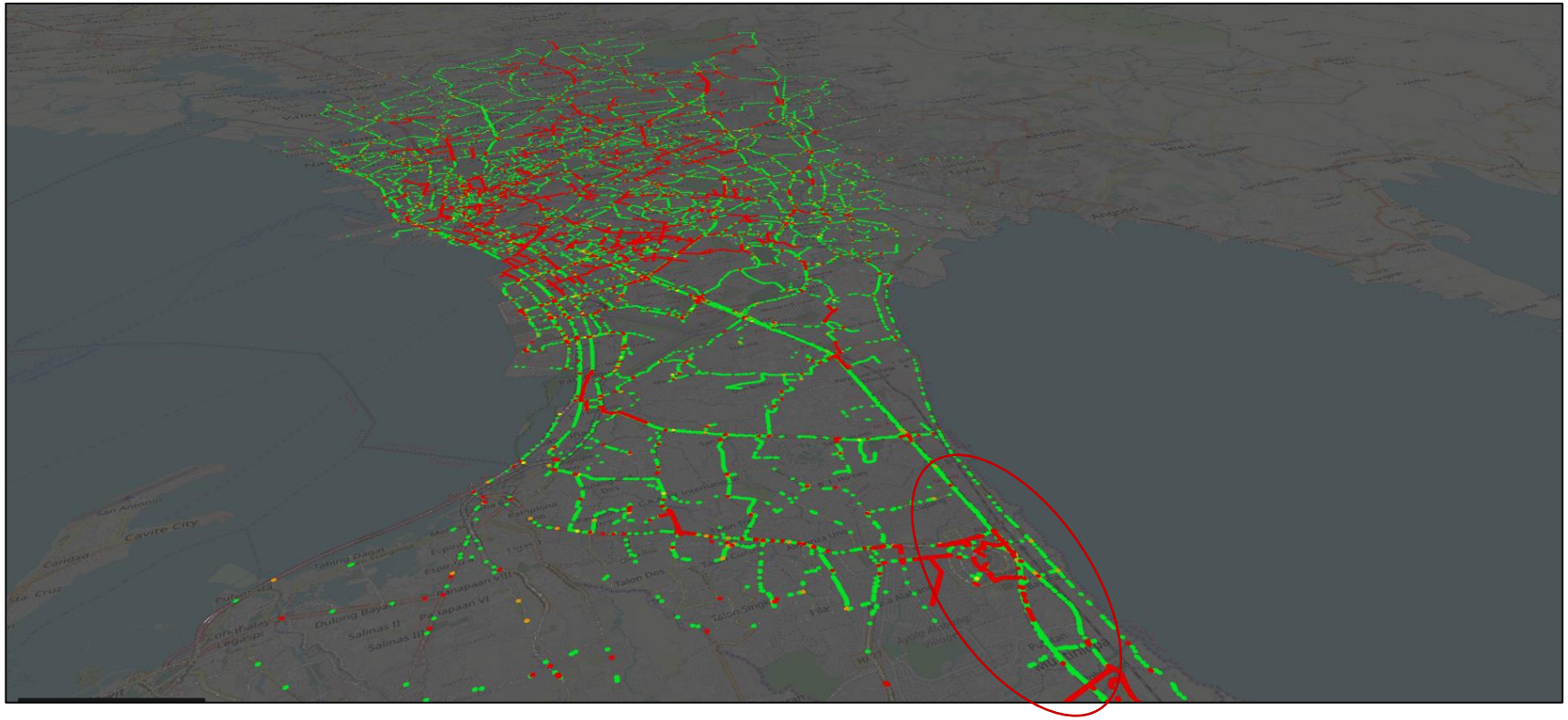


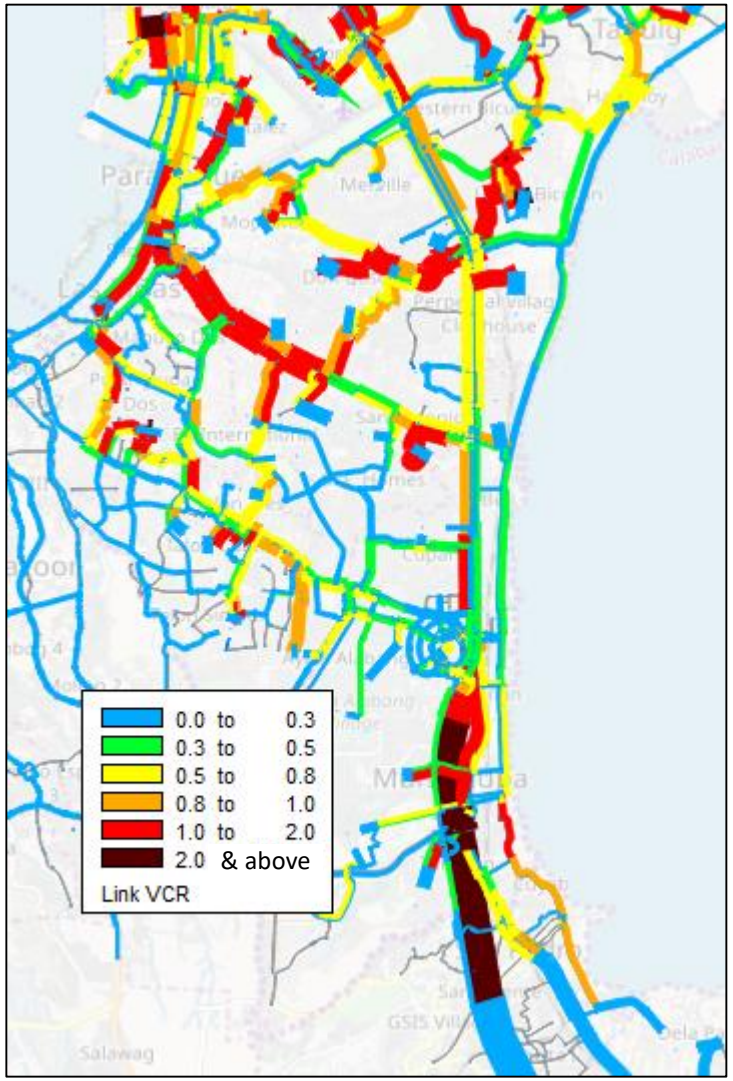
Demand	In Count	Out Count	Waiting	Travelling	Density	VHT	VHT-Total	VHT-Virtual	VHD	VHD-Total	VKT	Speed
296118	228227	111887	27122.7	74555.3	6.51734	60036.3	87159	27122.7	35419.3	62542	1.48E+06	24.6038


EAST SERVICE ROAD NORTHBOUND – BAYBAYIN LOOP


EAST SERVICE ROAD – WEST SERVICE ROAD LOOP

EAST SERVICE ROAD – SLEX LOOP



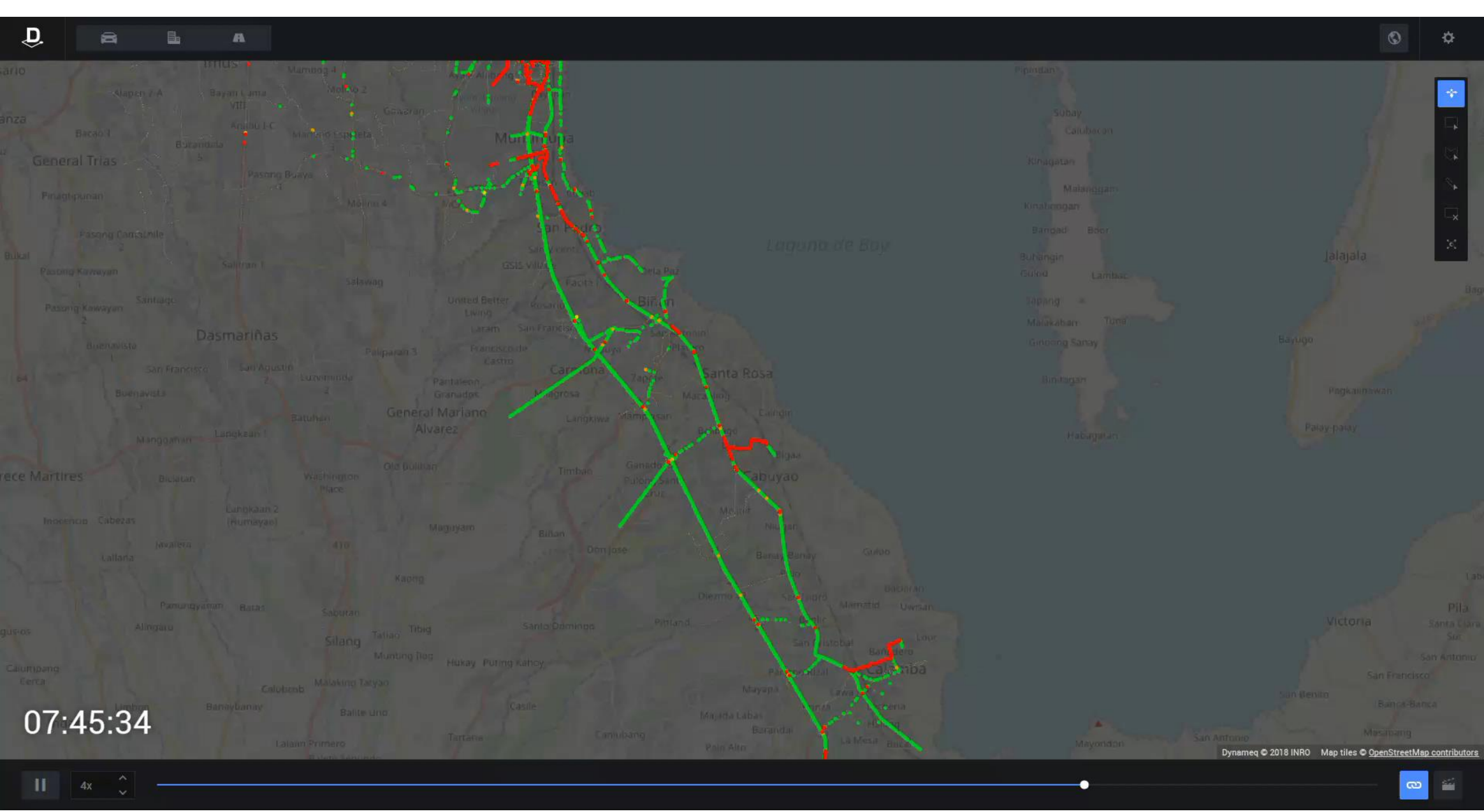


Demand	In Count	Out Count	Waiting	Travelling	Density	VHT	VHT-Total	VHT-Virtual	VHD	VHD-Total	VKT
296127	228352	112774	27038	74320.8	6.52521	60068.9	87106.9	27038	35611.9	62649.8	1.47E+06

EAST SERVICE ROAD NORTHBOUND – BAYBAYIN LOOP

EAST SERVICE ROAD – WEST SERVICE ROAD LOOP

EAST SERVICE ROAD – SLEX LOOP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Dynameq © 2018 INRO
Map tiles © OpenStreetMap contributo
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Summary:

- Dynamic traffic assignment modeling is a faster way of assessing proposed transport infrastructure projects and traffic management schemes (i.e. traffic signalization, directional flow improvements) through scenario modeling
- Once baseline condition is properly calibrated, it is easy to revisit, update, run the impact of propose transport projects through simulation.
- Trial-and-error approach in the field can be avoided
- Decision makers can easily appreciate the potential impact of proposed transport projects/traffic mgt. schemes through traffic simulation

ACKNOWLEDGEMENT

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END
Thank you for your kind attention!