Estimating the Route Measured Capacity using the Four-Step Model of Travel Demand Analysis
USER'S MANUAL

A Thesis
Presented to

the Faculty of the College of Computer Studies
De La Salle University Manila

In Partial Fulfillment

of the Requirements for the Degree of
Bachelor of Science in Computer Science

by

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August 22, 2017

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1.0 Introduction

Having a good transportation planning system is important for economic growth and development. Not only will it enable the people to have better access to transport, it will also provide a better optimization of the community's infrastructure. In addition, transport planning is essential so that things are planned and developed properly to achieve the demand of the people.

Maxima is part of Plexus, a decision-support system that allows urban planners and government stakeholders assess the robustness and resiliency of the current public transportation network. Planners can perform a travel demand analysis based on existing amenities and land use in order to plan future developments on the network. It provides mechanisms to manage transportation and geospatial data like routes, amenities and traffic analysis zones.

Maxima is the ideal fleet generator tool of Plexus. Through Maxima, it can perform an estimate of the Route Measured Capacity (RMC) of the jeepney routes. This module also uses the travel demand analysis based on existing amenities and land use and derives with a RMC value for each jeepneys routes used in a given traffic analysis zone.

1.1 System Requirements

In order to run the Maxima tool, a user would need a device that has a web browser, python django and Internet connection available.

1.2 Installation

Python Django must be installed for the tool. Follow the necessary basic installment procedures to install python django into your system. It can run on any device that has python django installed, a web browser installed and internet connection available.

Instructions for installation:

- Install Python in your device
- Additional Requirements
    - Through Windows Powershell:
        1. type in "pip install django"
        2. pip install geojson
        3. pip install shapely==1.6b2
        4. pip install pygeoj

2.0 Getting Started

- Run the project
    1. go to project directory of the Plexus
    2. type chcp 65001 (to be able to read and edit special characters)

3. python manage.py runserver

In order to run and start the Maxima locally, the user must open either the command prompt or powershell. Then, the user must go to the project's folder and type in the following: *manage.py runserver* . Once the server has successfully started running, open your browser and go to either one of the following to run the tool:

[1] *http://127.0.0.1:8000/taz_manager/choose/*
[2] *http://127.0.0.1:8000/taz_manager/manage/* *<.geojson file>*
[3] *http://127.0.0.1:8000/taz_manager/analysis/routes_cleaned.geojson/*

3.0 File Manager Page

The File Manager acts like a library of geojson files that can be loaded in the project. External geojson data for the zoning (shape) data must be uploaded into the system before they can either be modified or be used in the travel demand analysis. Upon file upload, they will be cleaned so that they comply with the input format recognized by the travel demand model. Figure 3.1 shows the TAZ (Travel Analysis Zone) File manager [1]. On the upper right of the screen there are two green buttons: the "NEW" button allows the users to create a new geojson file, and the "UPLOAD" button allows the users to upload geojson file from the device. Once a user uploads new geojson file, it will be reflected to the list of files of Maxima and available for further editing. Upon choosing a geojson file on the list, the users will be directed to the taz manager and it visualize the zones on a map [2].

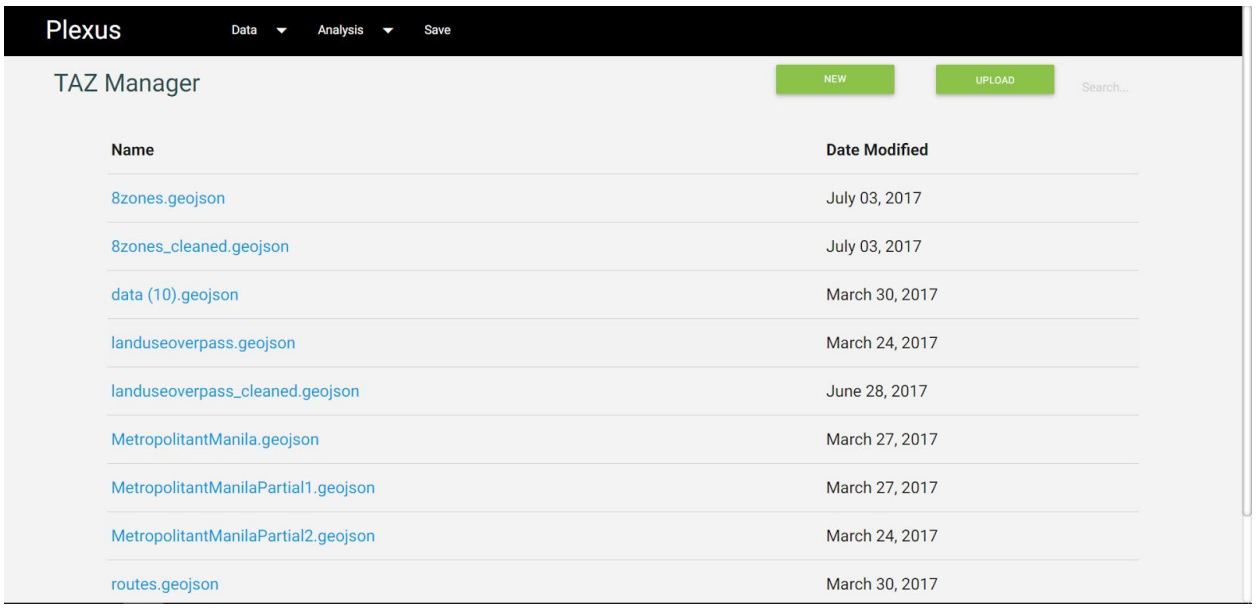

Figure 3.1: TAZ File Manager

4.0 TAZ Manager

TAZ manager is used for the zoning of Via and Maxima. After the user chooses a geojson to modify from the file manager, the data is loaded into a map shown by the system for visualization and verification purposes. The system then gives the users options for modifying the data in the files such as adding, deleting, editing the individual information of TAZs. Shown below is the screens for the TAZ Manager.

Shown in Figure 4.1 is the screen of the TAZ Manager Page. On the left sidebar is the summary of the total zones in the dataset.

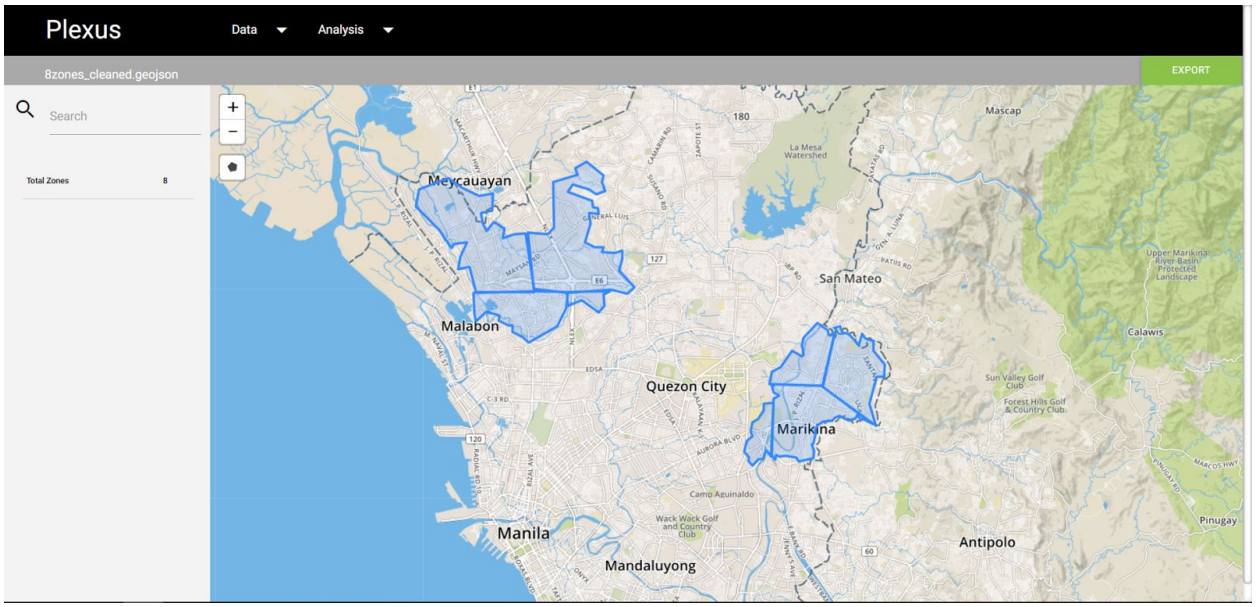

Figure 4.1: TAZ Manager

When a user clicks on a land use area, the left sidebar will show the details of that specific zone. This zone details can be changed, for instance, the name or description of the zone. The zone clicked can also be reshaped by dragging the handles surrounding the polygon and the corresponding coordinates will be updated accordingly. There is also an option to remove the land use area completely by clicking on the zone and clicking on the “REMOVE” button. Figure 4.2 shows the screen when an amenity is clicked.

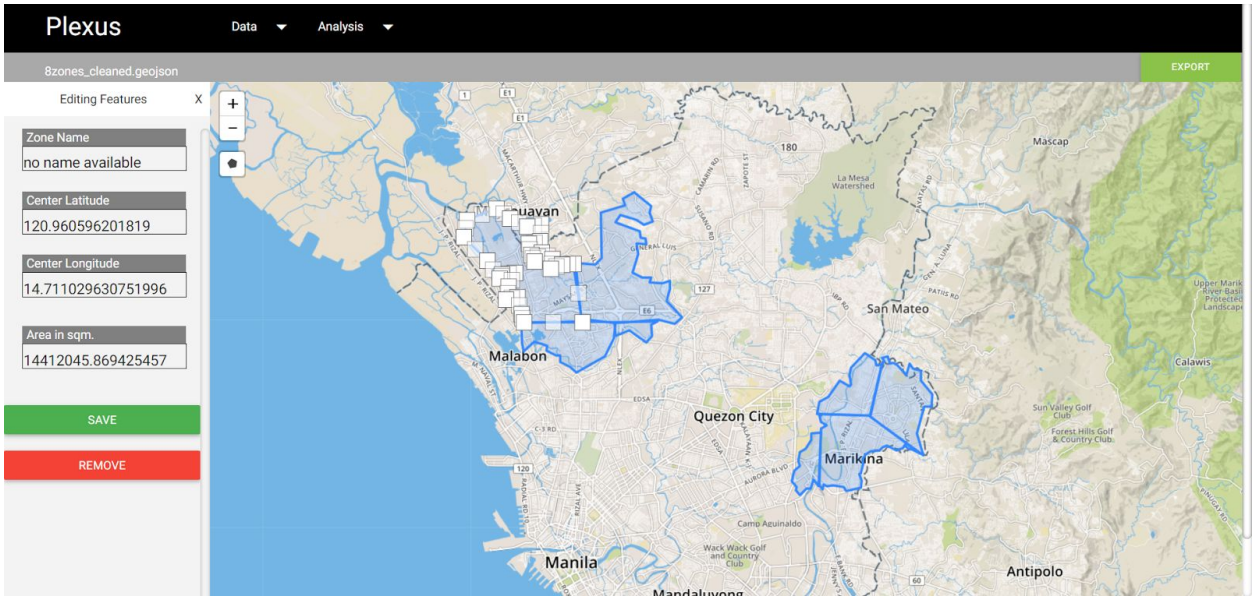

Figure 4.2: TAZ Manager: Editing Zone

4.1 Export Function

This function allows for the zones to be extracted into a file which could be used for other studies and tools. The export function is called by the “EXPORT” button at the upper right part of the tool.

5.0 Route Visualization [3]

This function allows for the visualization of the routes of GTFS data. Just like the other screens it displays the details of the selected route. When you click on a route in the jeepney network, it will display its route name, route length, number of jeepneys and the calculated Route Measured Capacity.

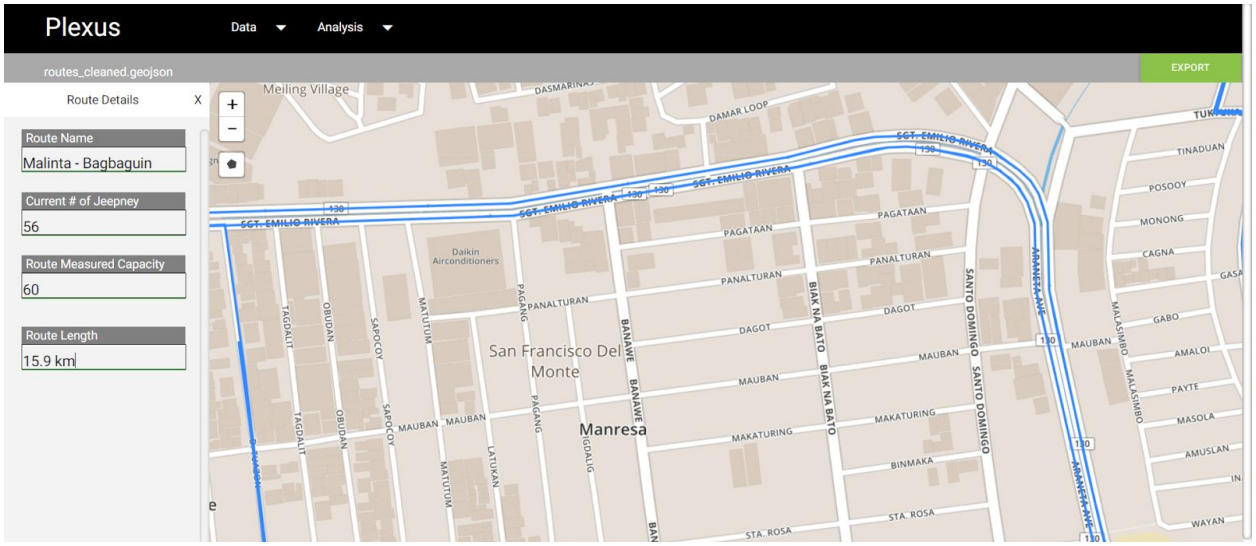

Figure 5.1: Route Visualization

6.0 OpenTripPlanner (OTP)
This API is used in the route filtering. Before running the program for route filtering, the server for OpenTripPlanner should first be run.

Startup OTP

1. Open cmd
2. Change directory to this folder [Enter file location]\OTP\OpenTripPlanner
3. java -Xmx1G -jar otp-1.1.0-shaded.jar --build [Enter file location]\OTP\OpenTripPlanner --inMemory
4. Wait for the GTFS data to load. It will say if OTP is already running.

*GTFS data can be modified by overwriting gtfs-sakay_jeep.zip file in the OpenTripPlanner folder with your GTFS data.