

Urban-engine

How many jobs can public transport users reach within an hour? How does travel time by public transport compare to travel time by car? And how does a new timetable change the reachability of a region? Having answers to these questions is of great importance, especially during bid phases. It helps to convince PTA's that a high service level is provided in a certain area and shows the impact of timetable changes. With the Urban Engine, open data sources are combined with new timetables. This is done using extended data analysis resulting in interactive geographical visualisations.

By combining a multi modal trip planner with open data of the timetable, the streets and demographic statistics the Urban Engine facilitates the construction of interactive geographical visualisations. A tremendous amount of origin-destination pairs will be calculated which will serve as the data source for the visualisations. Based on these calculations multiple plots are made. These plots range from:

1

The reachable area for a certain location within a certain amount of time.

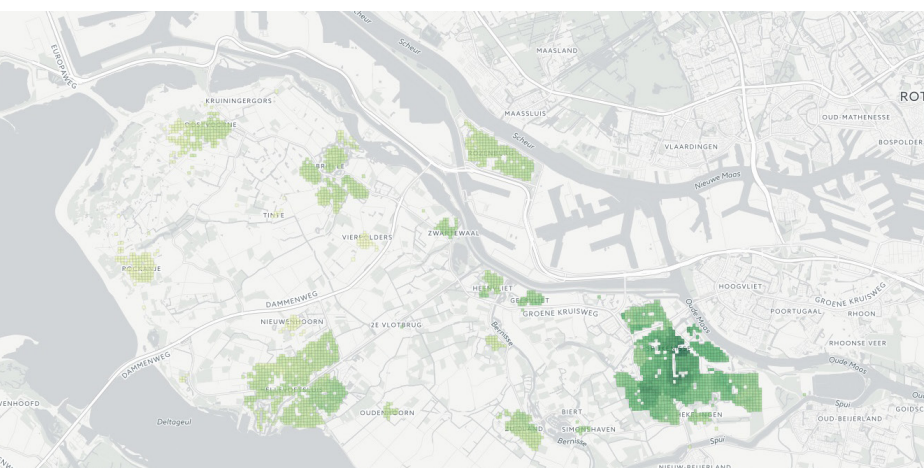
2

A custom reachability measure for multiple areas at once.

3

The difference in terms of reachability measure between multiple timetable changes.

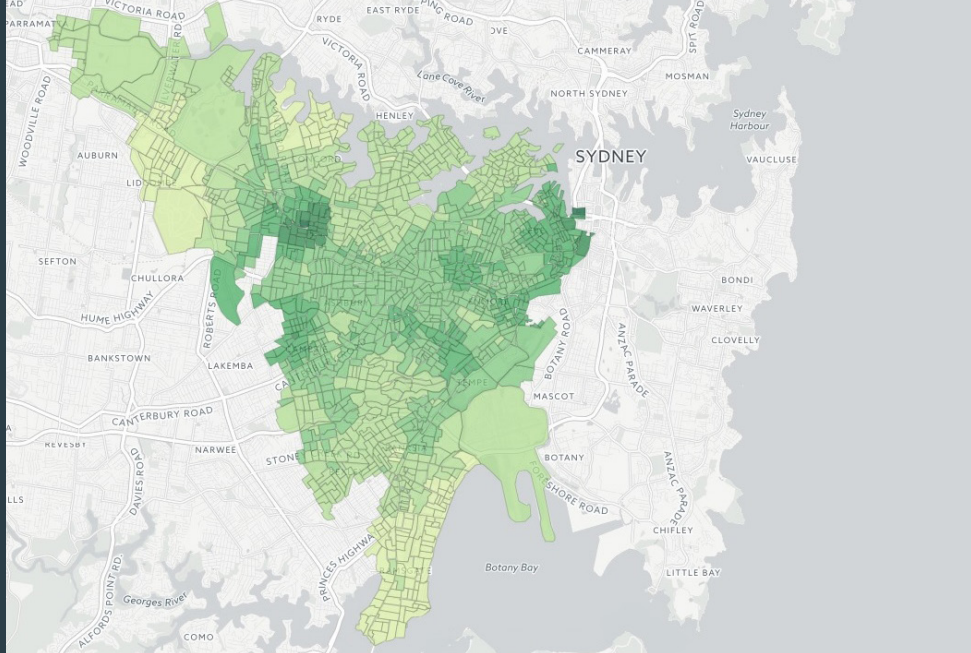
This enables a user to accurately show the current service level, and show the differences for travellers after a timetable change including which areas improve or decline.



A plot of the reachability for each 100m square, expressed in number of labour positions within 60 minutes

The custom reachability measure could for example be expressed in terms of reachable inhabitants within x minutes of time.

An example plot of Sydney, where the number of inhabitants reachable within 2 hours are visualised.



Approach

- 1 Input data consists of:
 - GTFS (open source timetable data)
 - Open Street Map (open source street data)
 - Google API service (travel time by car)
 - Demographic statistics (open source data from institutions like the central bureau of statistics)
 - GTFS data of new timetables
 - Shapes of certain areas (mostly open source data from institutions like the central bureau of statistics)
- 2 The Urban Engine calculates all travel times needed for the desired level of analysis and area of interest as basis for the geographical visualisations.
- 3 The input can be provided by the end user in a web environment where the user can select multiple parameters ranging from modality, time of travel, reachability measure, type of plot, level of analysis (100m square for example) and many more.

Case Tender Voorne-Putten Rozenburg

Current reachability/service level visualised for the complete area on a low (100m) level.

Reachability measure expressed in reachable labour positions.

Impact of the new timetable shown as difference with the current timetable.

Output data delivered as interactive visualisation.

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