

Section Sciences et Ingénierie de l'environnement **Design Project 2011 (semestre de printemps)**

Proposition n° 12

Analysis and Evaluation of the Nice-Monaco Veolia bus system

Encadrant externe

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Descriptif du projet

This project concerns an analysis and evaluation of the bus service of the Nice-Monaco corridor, which is operated by Veolia Transport. Veolia transfers about 1.5M passengers per year in the Nice-Monaco line. The topology of the network consists of three road corridors with different characteristics and various levels of congestion:(i) an Autoroute with two Veolia lines running in this corridor and headways of 30min and 1hr (Northern), (ii) a suburban two-way road running by the Sea with high level of congestion and bus frequencies 6-7min (Southern) and a suburban road in between with low level of congestion and no public transit line available.

The majority of the demand is for the southern corridor. This demand consists of workers who live in Nice and work in Monaco, workers who live between Nice and Monaco and a large number of tourists. The tourists choose the Southern corridor because it provides many attractions during their trip. This line operates in a non-efficient way, as there is high level of congestion (a trip of 30min in the off-peak lasts for more than 60min in the peak) and high spatial heterogeneity in demand, which results in out-of-vehicle delays for passengers. The congestion spreads throughout the corridor and also at the entrance roads to Monaco and Nice. A short-term project will investigate this complex corridor, identify the causes of congestion and propose alternatives for more efficient transfer of passengers to their destinations.

Objectif

This design project between Veolia-Alpes Maritimes, LUTS-EPFL and two MSc students will investigate this complex corridor, identify the causes of congestion and propose alternatives for more efficient transfer of passengers to their destinations. The goal of the project is to develop the methodologies to analyze demand and traffic data provided by Veolia-Alpes Maritimes to succeed the goals of the project. It is expected that the project recommendations can be possibly implemented by Veolia-Alpes Maritimes and will improve the type of service, decrease operational costs, increase passenger satisfaction and possibly attract induced demand.

Descriptif tâches

The project tasks can be summarized as follows:

- survey the literature on techniques and algorithms for estimation of travel times with GPS data
- get familiar with the type of data provided by Veolia Transport
- develop methodologies to analyze the data and estimate performance measures
- implement a small-scale micro-simulation of the Nice-Monaco 3 corridors.
- propose possible solutions to improve level of service
- test the proposed solutions through simulation

Divers

Work breakdown: 25% theory, 40% data analysis, 35% simulation

Prerequisites: Knowledge of Matlab

Keywords: traffic congestion, public transit, networks, mobility

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