Advanced GIS Applications in Urban Planning (URBP 608)
Fall 2011
Assignment 2: GPS Data Manipulations

STM has noticed some delays along route 67 and provided you with data obtained from their buses running this bus route to analyze and identify the issues and problems related to this route. STM does not know if the problem is in one direction or both. The data provided is from January 2007.

Download the file named R46_GPS_Data.xlsx

This is a cleaned GPS file. The original file telegrams 22244 du 11 janv 2007.csv is also included so you can notice the difference between raw and processed data.

The goal of this Display these GPS points on a map and show the speeds of the bus and understand the reasons for the variation in this speed.

a- Start by displaying the GPS data points on a map.
b- How many trips are made by this bus during that day?
c- Calculate the speed between two consecutive data points.
d- Select 4 to 6 consecutive trips to do your exercise with. Please make sure that half of your selection will be going Northbound and the second is in the southbound direction.
e- In the analysis you will need to delete several observations, make sure to document this process for future reference.
f- You need to write a brief memo 1 page of text and a map to deliver to STM. Answering the following questions will help you in drafting your maps and your brief memo. Please do not limit yourself to these questions.

1- Why did you select this time period in particular to analyze? State the starting time of the first trip and the ending time in each direction.
2- Generate 2 compositions of 4 to 6 maps representing the speed of the bus during six consecutive trips in the northbound and the southbound that you have selected?
3- What is the average travel time for the bus between the beginning of the route till its end?

4- Do you notice any differences in total travel time between North bound and Southbound? State the reason for the presence or absence of a difference. Highlight your answer using maps.
5- Can you identify a bottleneck that is slowing traffic in either direction? If yes where and why is it present?
6- Did you use all the pints given or you redefined the route for your particular study.

This exercise will require working in GIS and excel in parallel.

Hints to help you: 1- Use GCS_WGS_1984
2- Remove data near first and last stops to avoid layover time