Assignment

PAH (Planning and Games)

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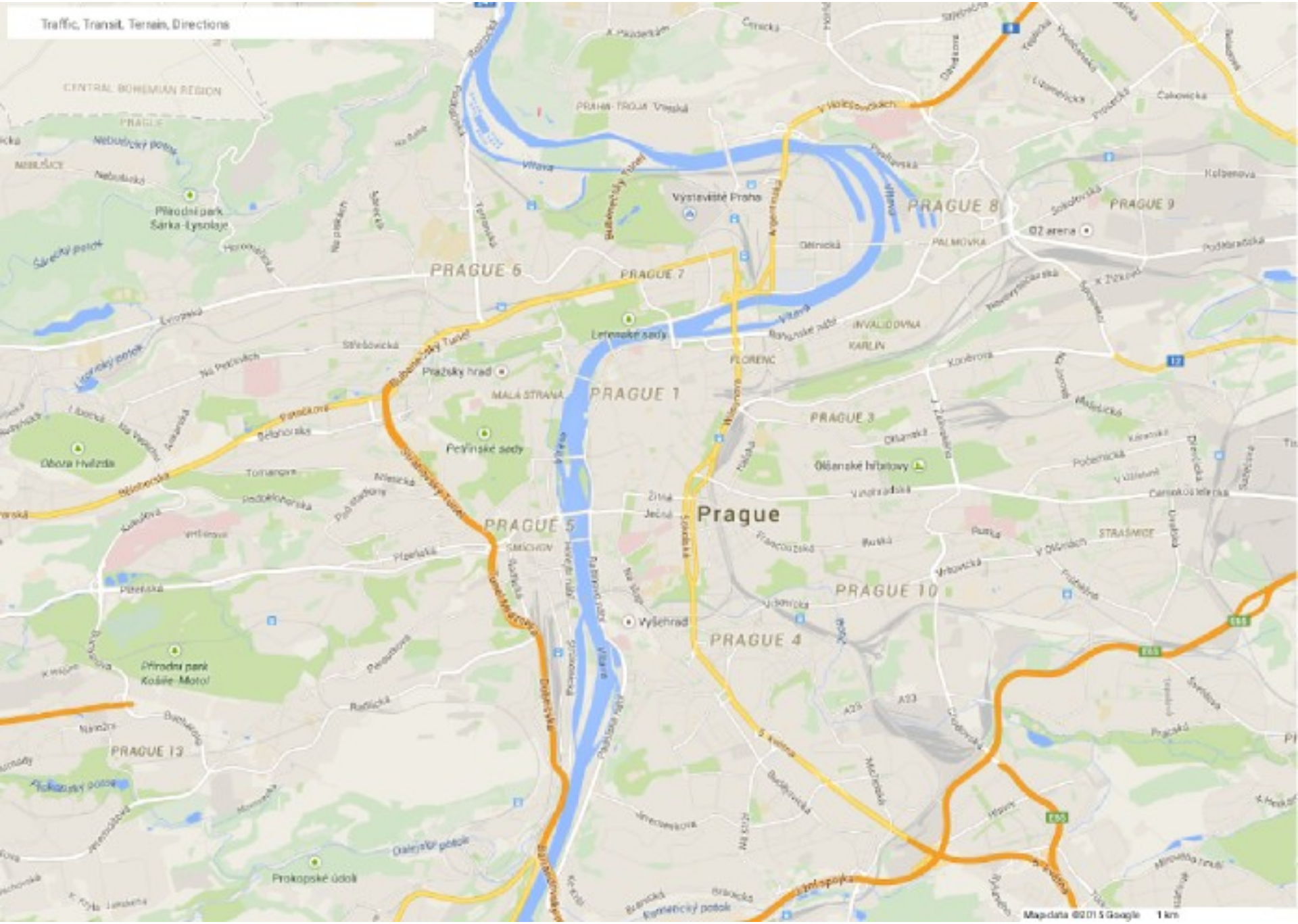
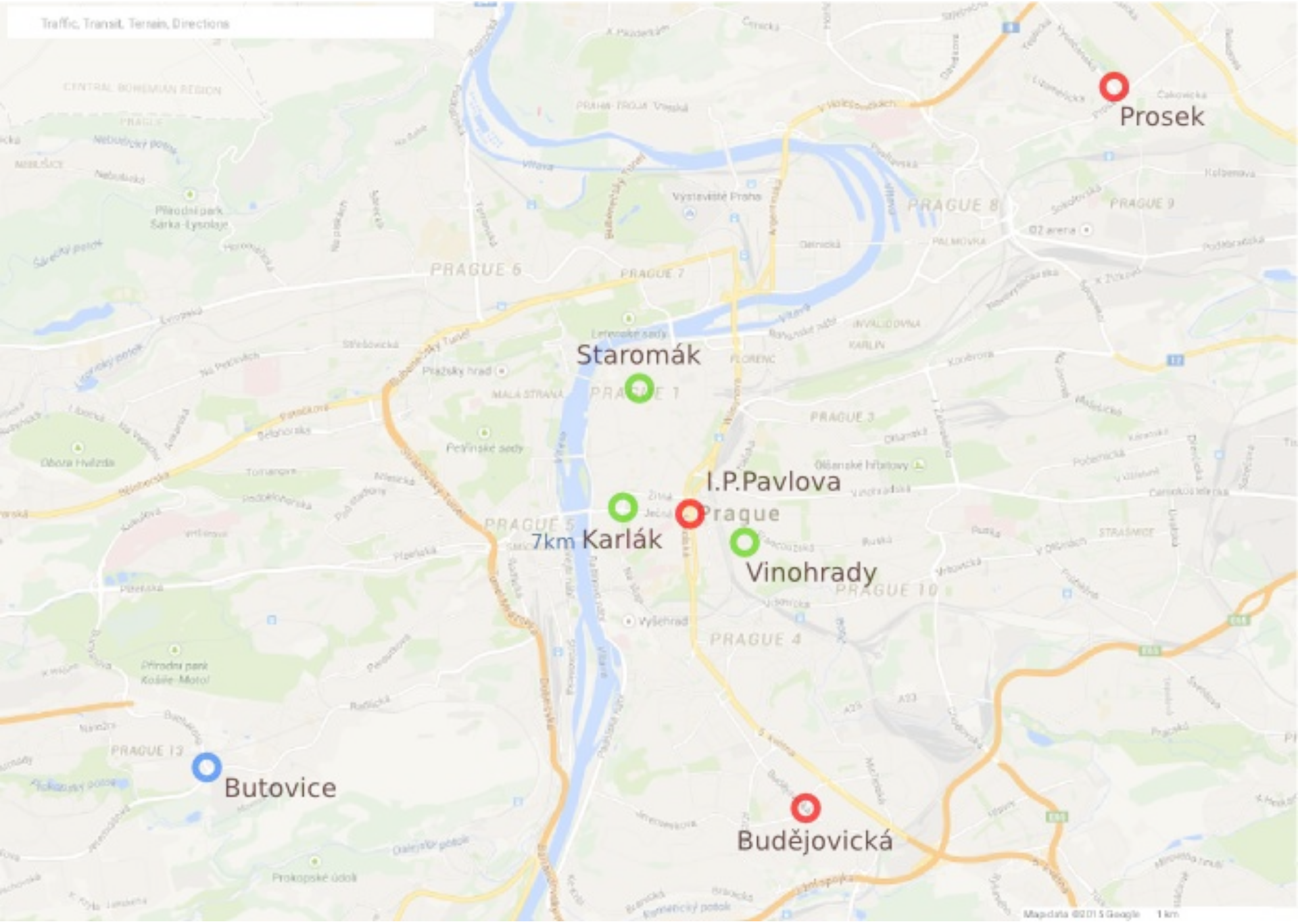
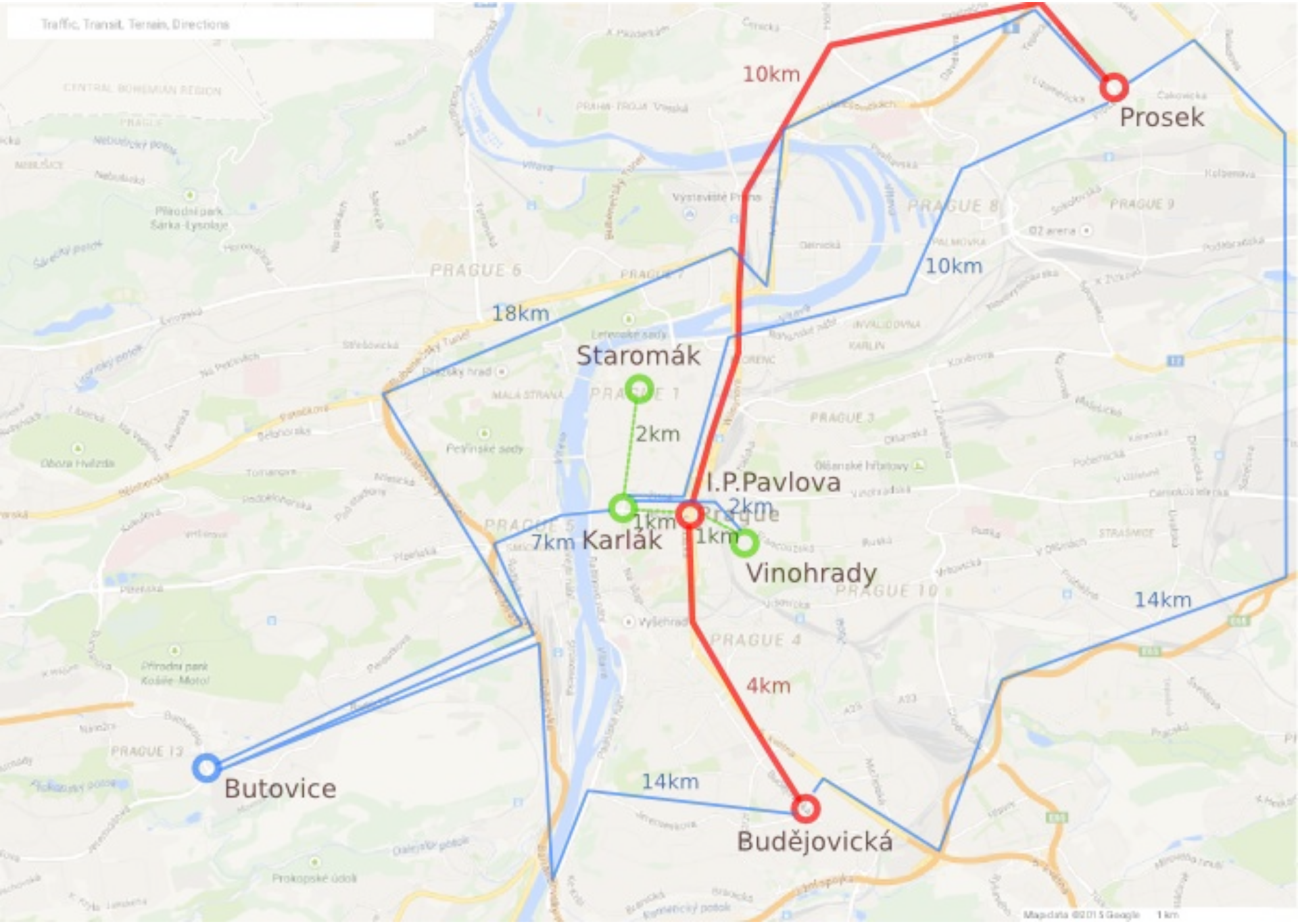
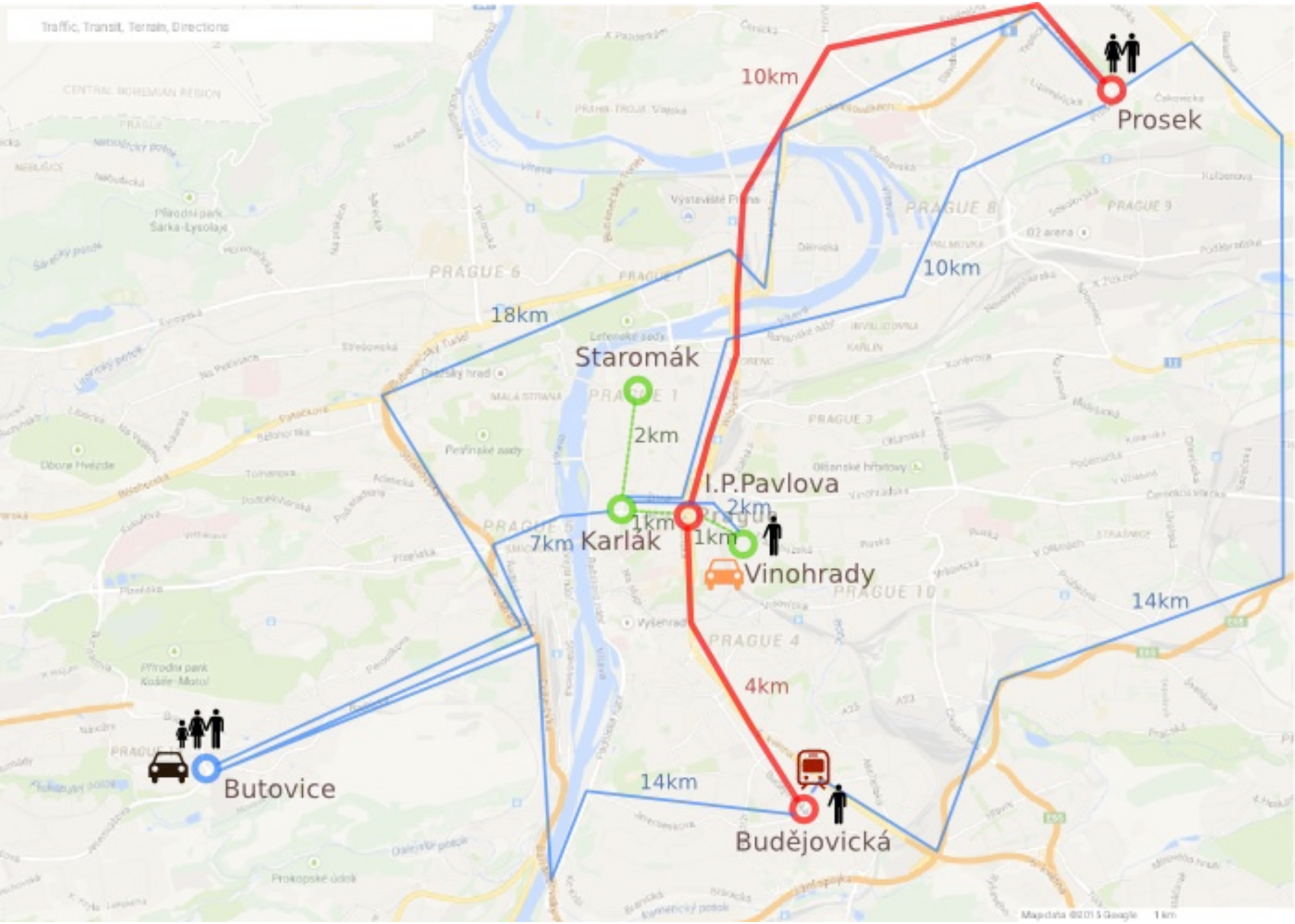

Traffic, Transit, Terrain, Directions
CENTRAL BOHEMIAN REGION
PRAGUE
Prague
PRAGUE 1
PRAGUE 3
PRAGUE 4
PRAGUE 5
PRAGUE 6
PRAGUE 7
PRAGUE 8
PRAGUE 9
PRAGUE 10
PRAGUE 13
Vltava
Pražský hrad
MALÁ STRANA
Petřínské sady
Letenské sady
Vyšehrad
Vystaviště Praha
O2 arena
Obora Hvězda
Přírodní park Šárka-Lysolaje
Přírodní park Košíře-Motol
Prokopské údolí
Mapdata ©2015 Google 1 km


Traffic, Transit, Terrain, Directions
Prosek
Staromák
I.P.Pavlova
Prague
7km Karlák
Vinohrady
Butovice
Budějovická
PRAGUE 1
PRAGUE 3
PRAGUE 4
PRAGUE 5
PRAGUE 6
PRAGUE 7
PRAGUE 8
PRAGUE 9
PRAGUE 10
PRAGUE 13
Mapdata ©2015 Google
1 km


Traffic, Transit, Terrain, Directions
10km
Prosek
10km
18km
Staromák
2km
I.P.Pavlova
2km
1km
1km
7km Karlák
Vinohrady
14km
4km
Butovice
14km
Budějovická
Map data ©2015 Google 1 km


Traffic, Transit, Terrain, Directions
10km
Prosek
10km
18km
Staromák
2km
I.P.Pavlova
2km
1km
1km
7km Karlák
Vinohrady
14km
4km
14km
Butovice
Budějovická

Assignment

- Formalize the 'simcity' problem
  - Find a 'day plan' for a set of people
  - Each person lives somewhere and works somewhere
  - Some people may be related (family)
  - The people travel on a multimodal transport graph using various vehicles
- http://cw.fel.cvut.cz/wiki/courses/a4m36pah/assignments/assignment1

Vehicles

- Each vehicle needs a driver to operate
- Not all people can board all vehicles (a family car)
- Driving a taxi or public transport counts as work

Simcity level: basic

- Basic problem description
- Some walk-only edges
- At least one car
- At least one taxi
- At least one public transport vehicle

Simcity level: costs

- Add costs
  - Based on 'real' distances
- A cost of boarding a vehicle, a cost of riding a vehicle
  - Not all vehicles have both
- Try two types of cost
  - Money, time, ...

Simcity level: complex

- Add some of the following:
- Capacity of vehicles (using only STRIPS)
  - (car have only 4 seats)
- Leave vs. Park
  - Difference between leavin a vehicle and parking it
- Fuel (using only STRIPS)
- Come-up with your own (non-trivial)

Your task

- Formalize problem 'simcity' in PDDL
- Use 3 selected planners to evaluate
- Create PDF report

Formalize problem 'simcity' in PDDL

- 3 domains, 2 problems for each
- Domains
  - 1x domain per level
  - 1x domain basic, 2x domain cost/complex (can be the same)
  - 3x domain basic
- Problems
  - Each problem different (even if the domain is the same)
  - Different sizes, metrics, etc.

Create PDF report

- (Ideally in LaTeX)
- Description of the location, transport graph, people, vehicles (brief)
- Specify which problem levels and features were fomalized
  - Specify your own enhancements in-detail
- Brief description of used predicates, actions and functions
- List of the selected planners, parameters of the tsting env.
- Execution time and solution quality graphs
- Conclusion

Use 3 selected planners to evaluate

- Select 3 of the provided planners
  - One should be optimal: fd-ms, fd-lmcut or symba
- Run all planners on all problems
- On each problem, at least one planner must find a solution
  - Can be different planner every time