

System for Evaluating Quality of Public Transport Networks Using GTFS Datasets



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Goals

- Analysis of public transport data using GTFS timetable datasets
- Visualisation of transit networks using interactive map views (Leaflet)
- Detection of underserved areas and service availability (incl. hourly, weekends)
- Gathering of network statistics (e.g. coverage, efficiency)
- Universal solution that can be applied to various public transport networks

Workflow

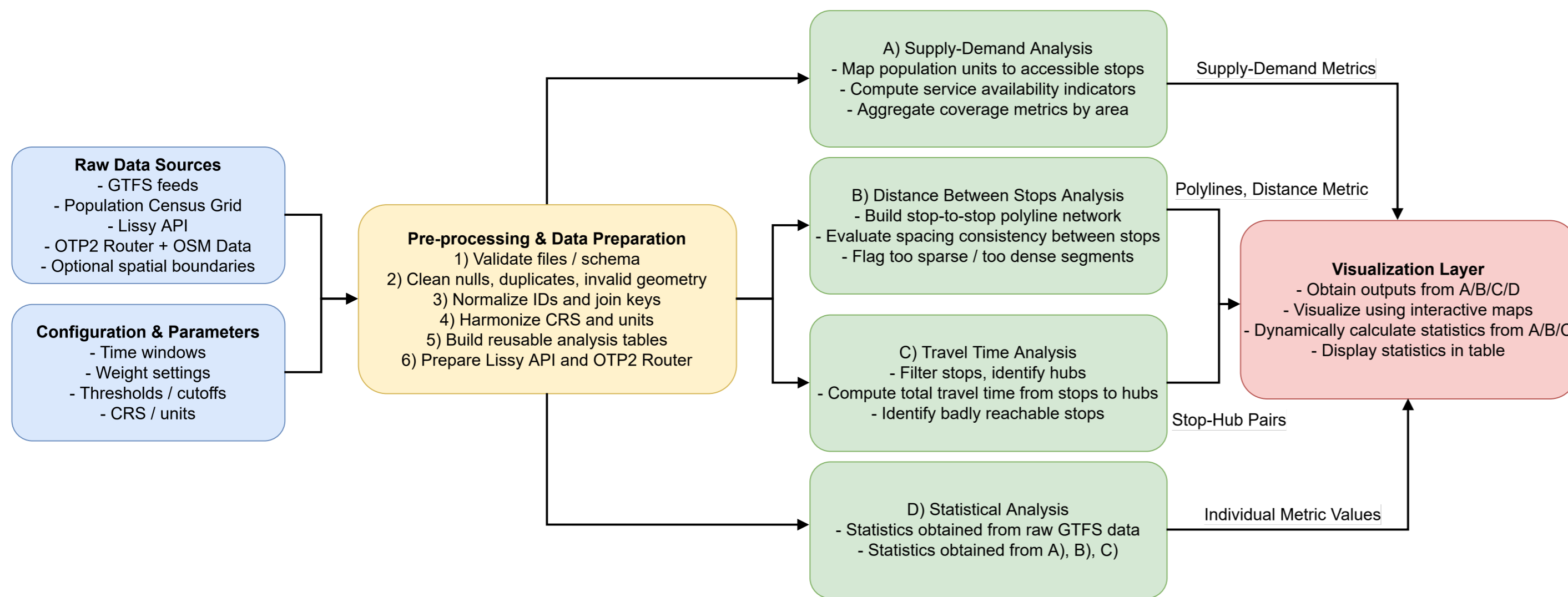


Figure 1: System Workflow Overview

Supply-Demand

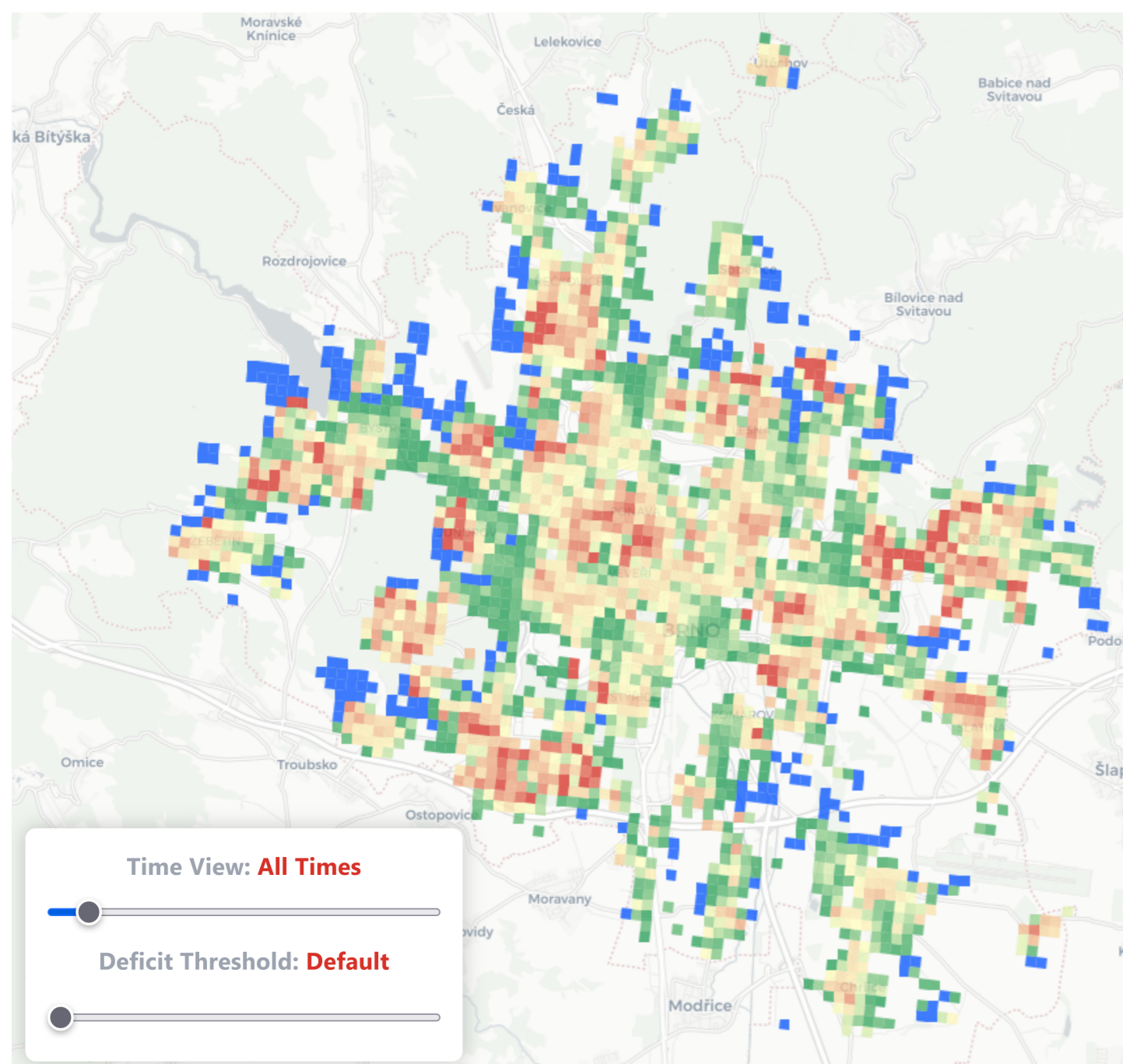


Figure 3: Visualisation of supply-demand. Brno, full workday, relative coloring.

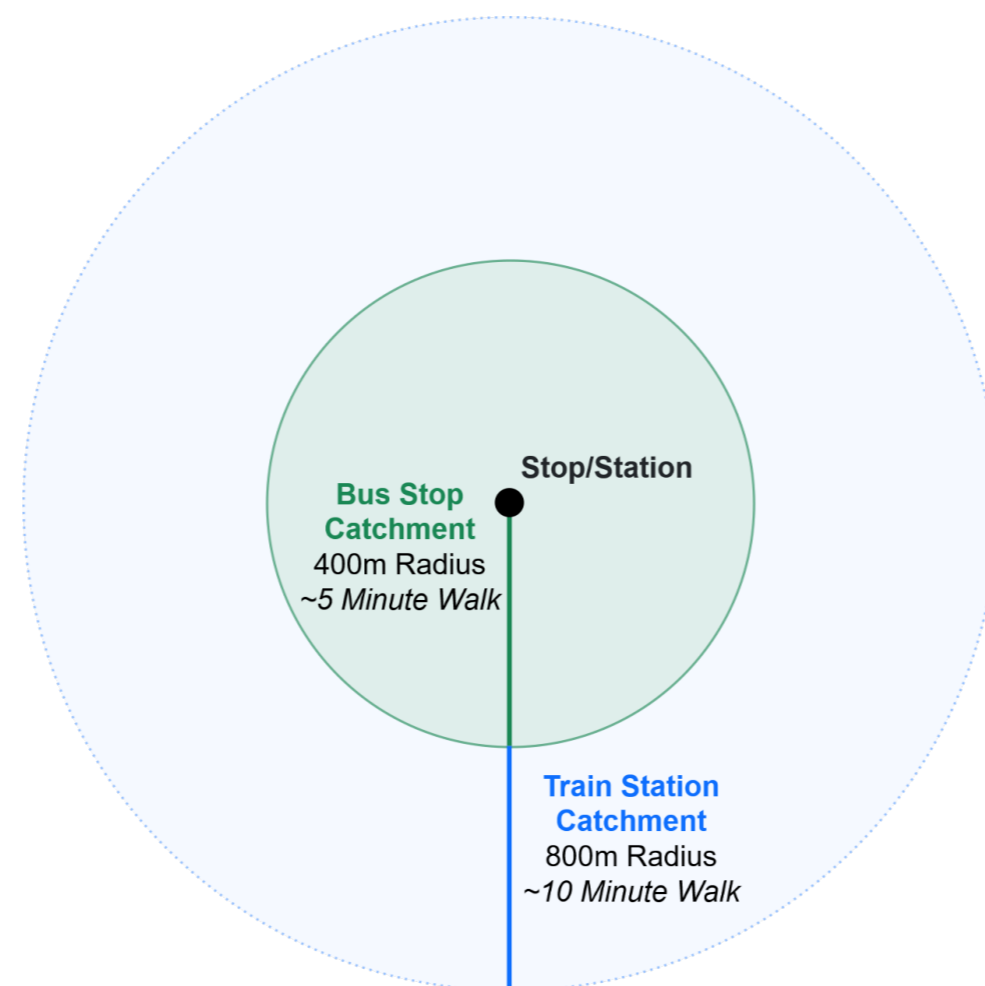


Figure 2: Cells are deemed to be reachable if their center is in the catchment area of a stop.

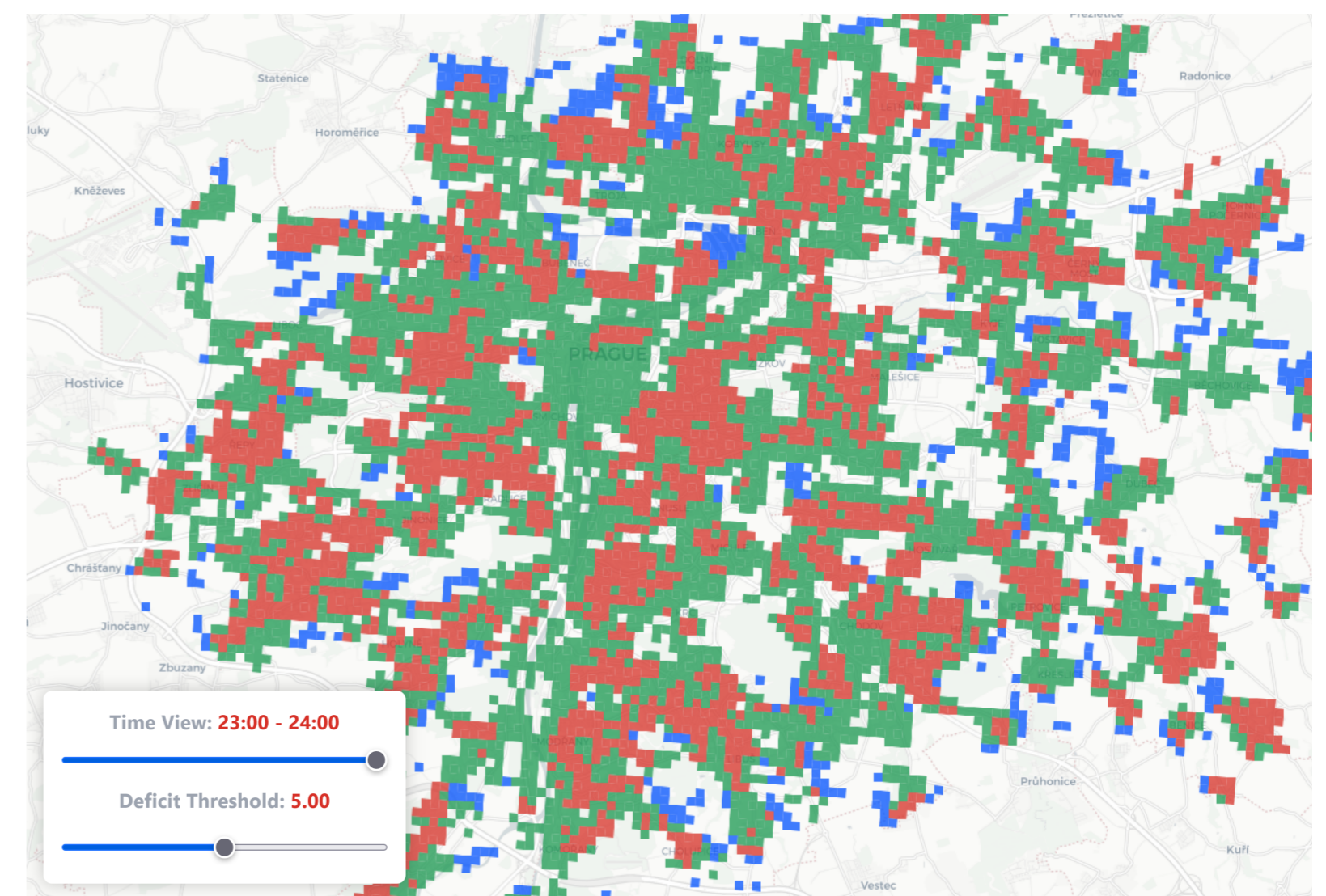


Figure 4: Visualisation of supply-demand. Prague, workday, 23:00-24:00, threshold defined.

Travel Time To Hub

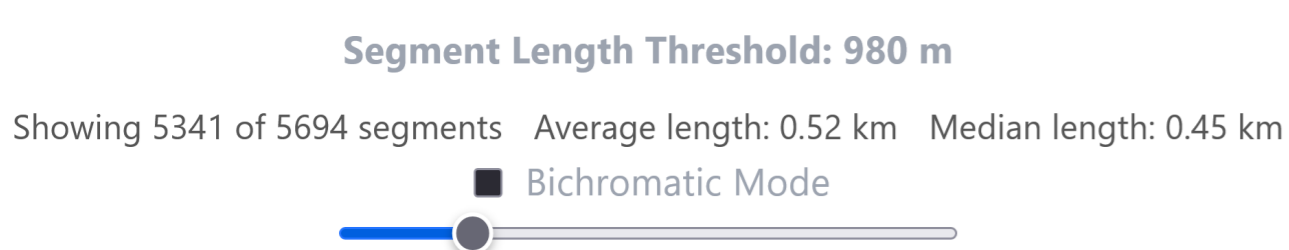


Figure 9: Controls for custom stop distance visualisation.

	Population	Population Without Service	Average Deficit	Average Inter-Stop Distance [m]	Average Travel Time to Hub [min]
Brno	396,770	1.78%	0.18	517	15
Praha	1,300,720	1.85%	0.17	670	17
IDS JMK	1,192,834	8.72%	0.38	1388	23
Praha + SČK	2,706,478	8.66%	0.31	1249	34

Table 1: Example statistics obtained from processed data.

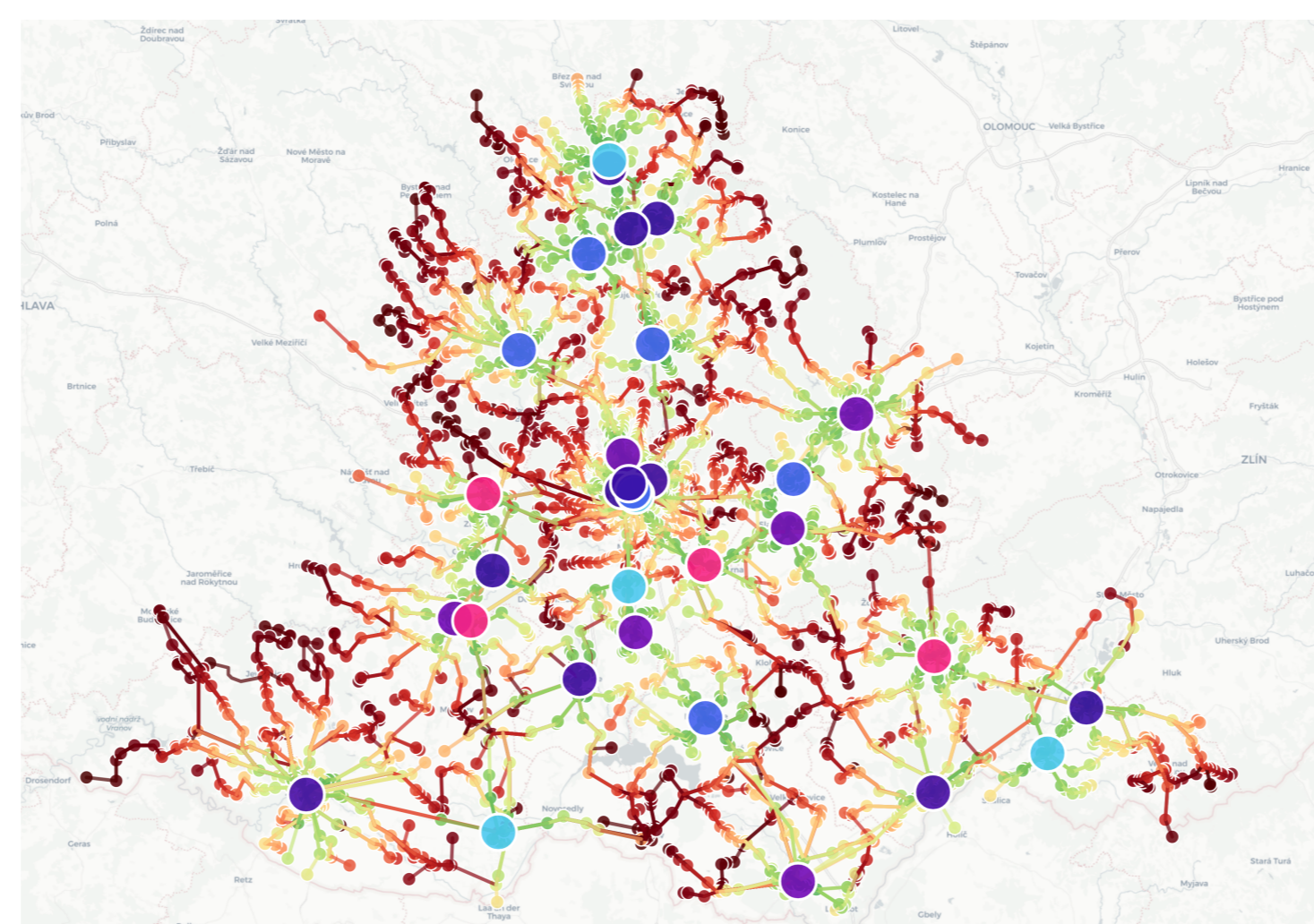


Figure 7: Travel time to major hubs in IDS JMK. Greener is shorter.

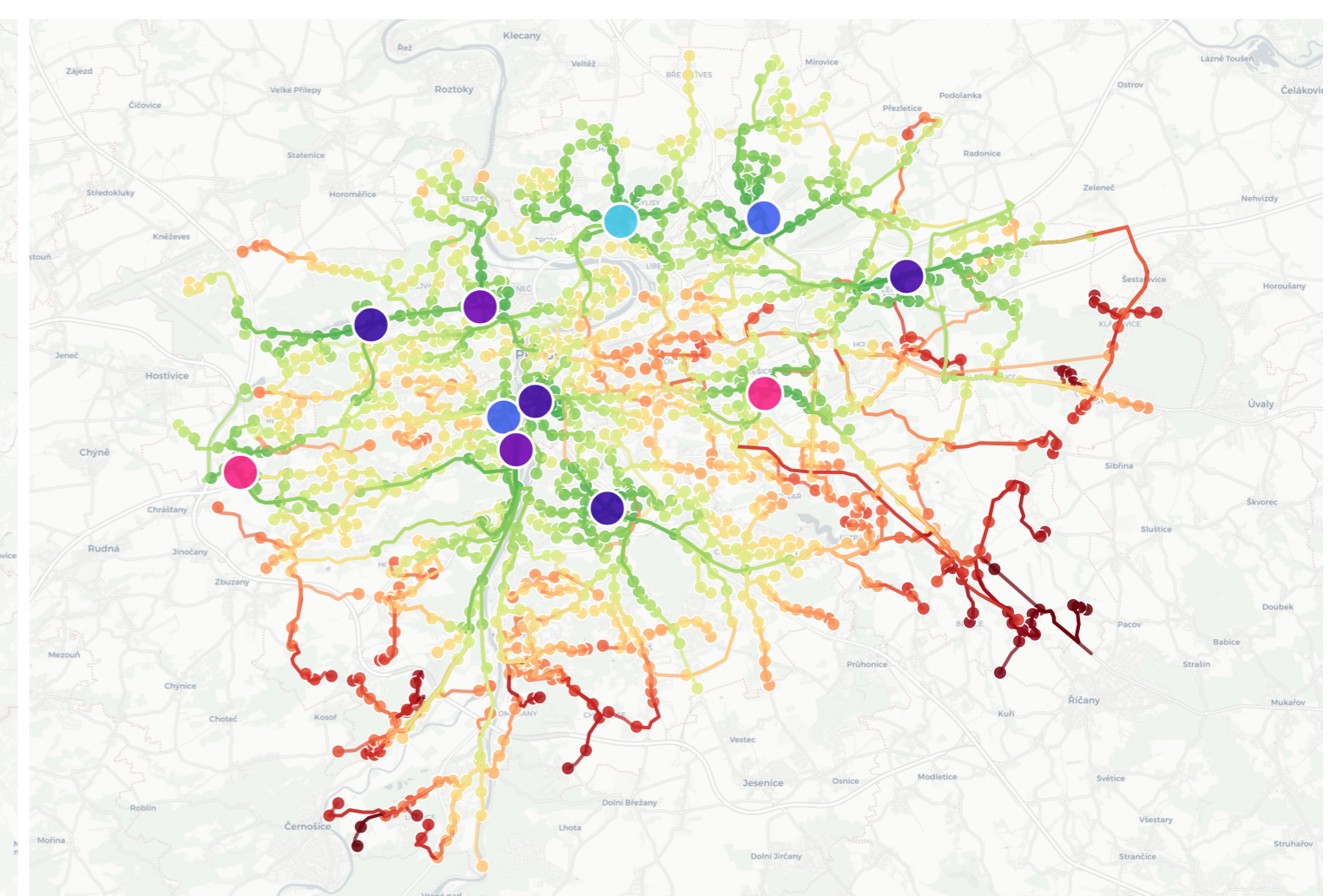


Figure 8: Travel time to major hubs in Prague. Greener is shorter.

Stop Distance

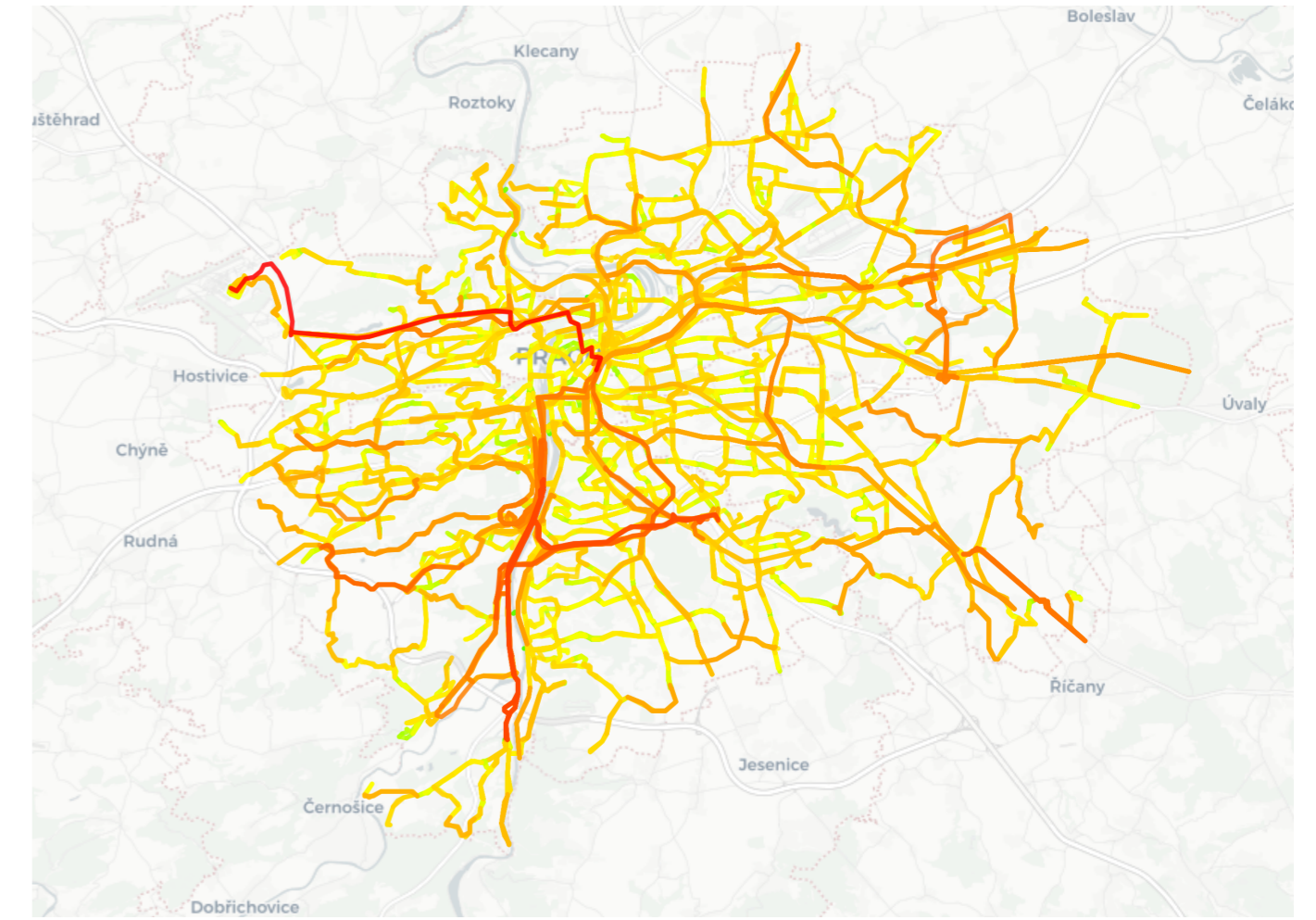


Figure 5: All inter-station polylines in Prague, color-coded by length. Green is shortest. Based on PID GTFS.

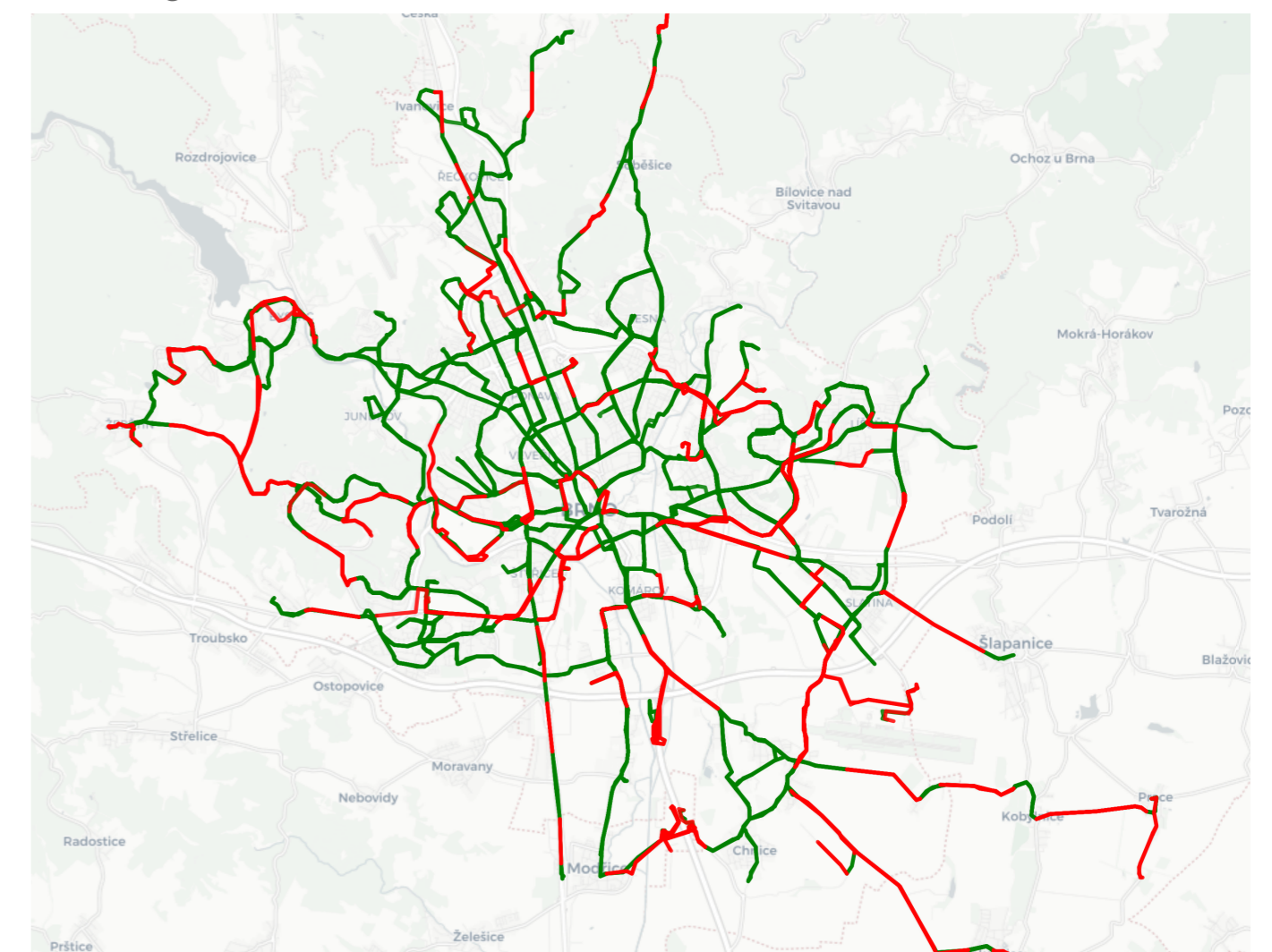


Figure 6: All inter-stop polylines in Brno. Green are shorter than 800m. Based on Lissy API.