



Bike Sharing in Oslo

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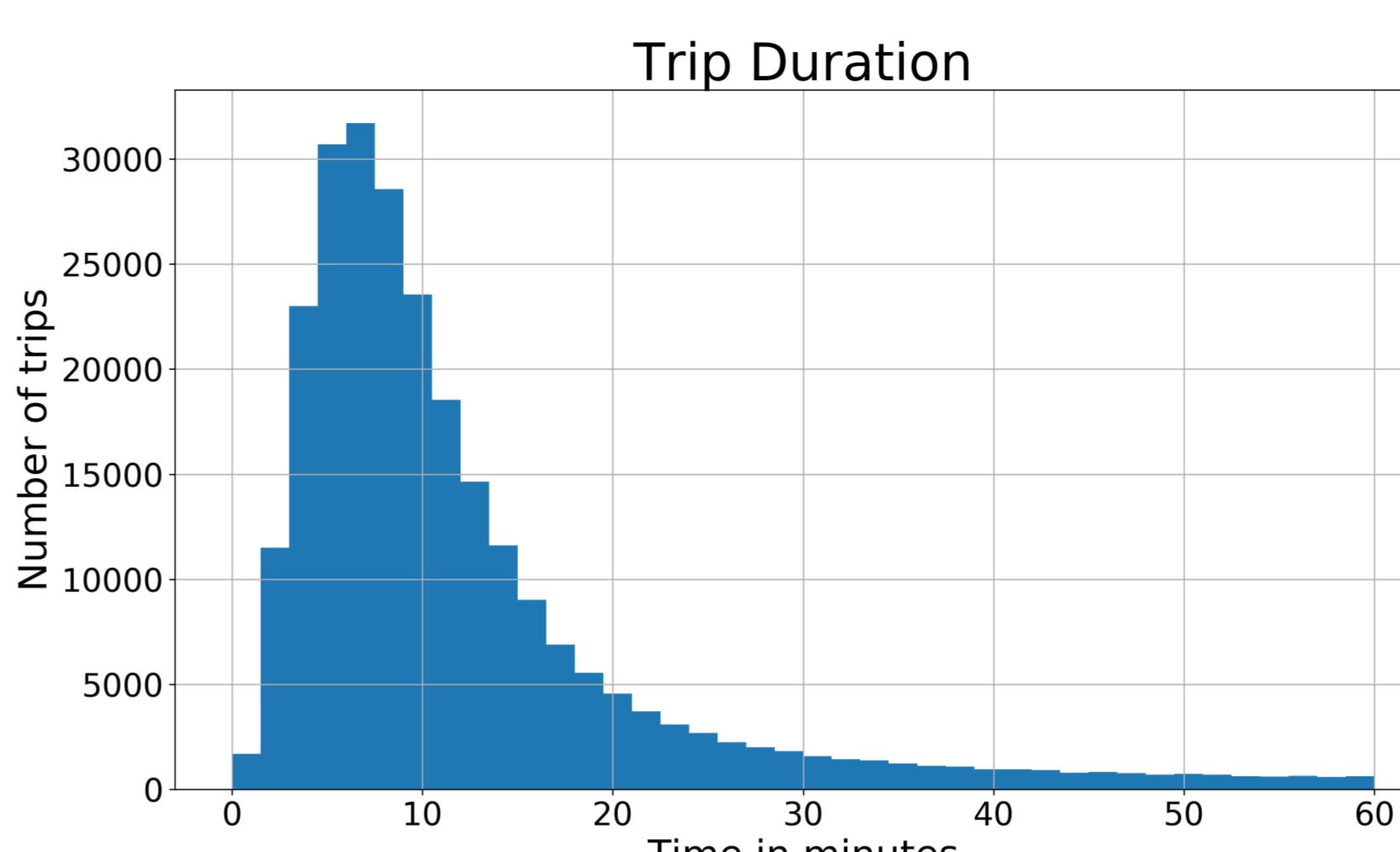
Overview

Data set from Oslo City Bike for June 2016 [1].

292.302 trips between 110 stations.

Bike Trip Data

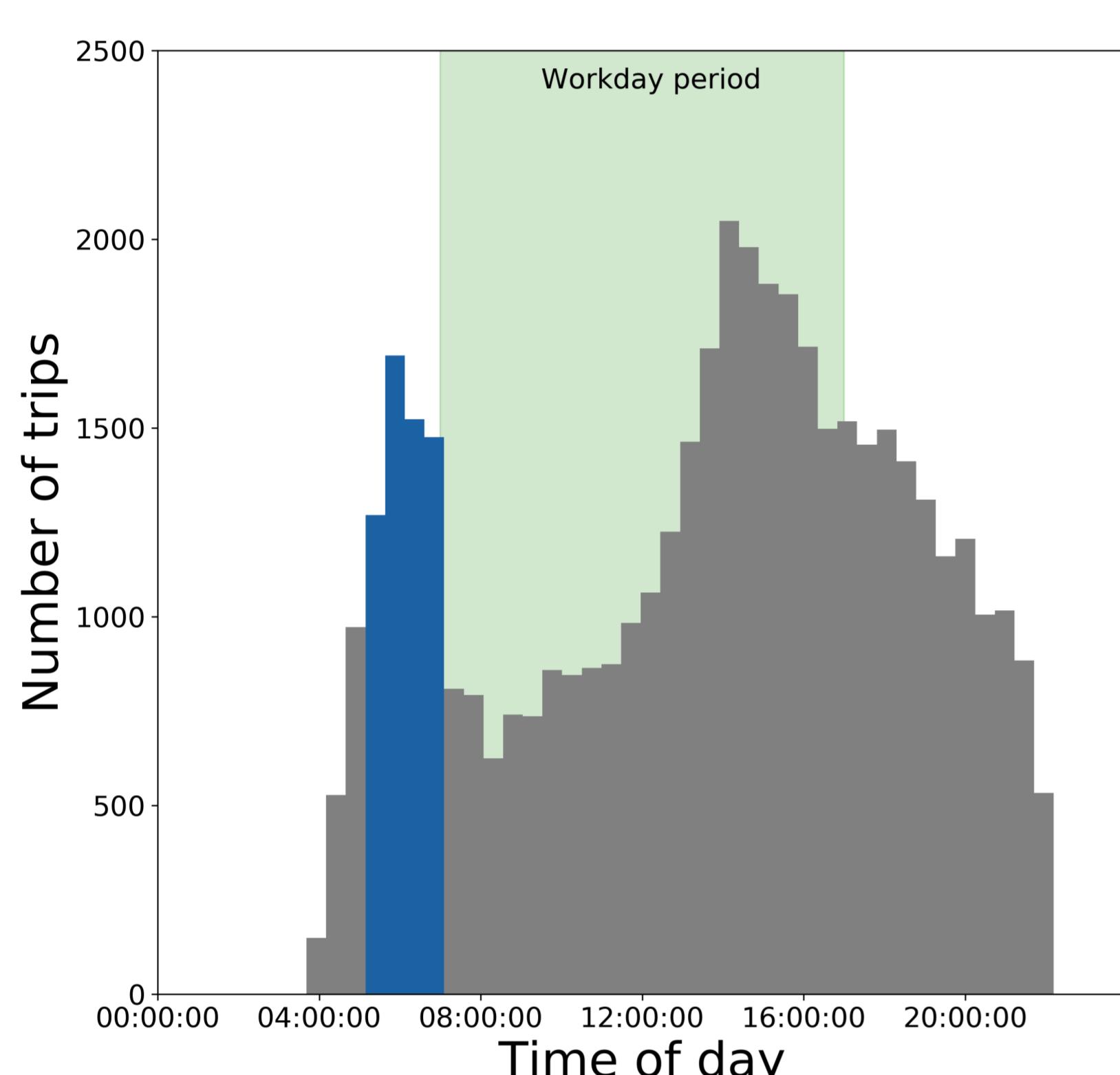
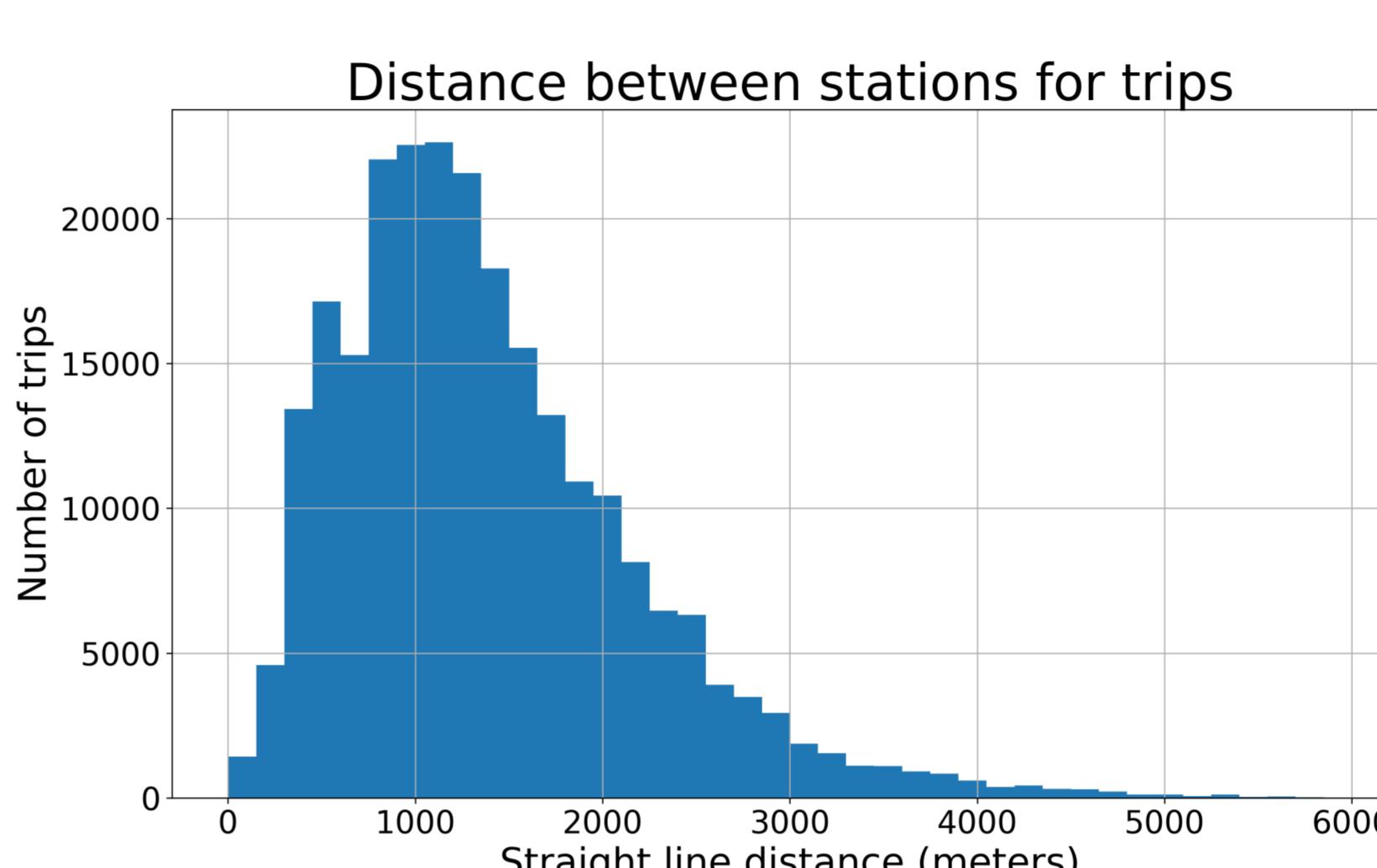
No	Start Station	Start Time	End Station	End Time
0	226	2016-06-01 03:59:59	243	2016-06-01 04:02:14
1	206	2016-06-01 04:00:02	212	2016-06-01 04:18:46
2	290	2016-06-01 04:00:06	261	2016-06-01 04:02:14



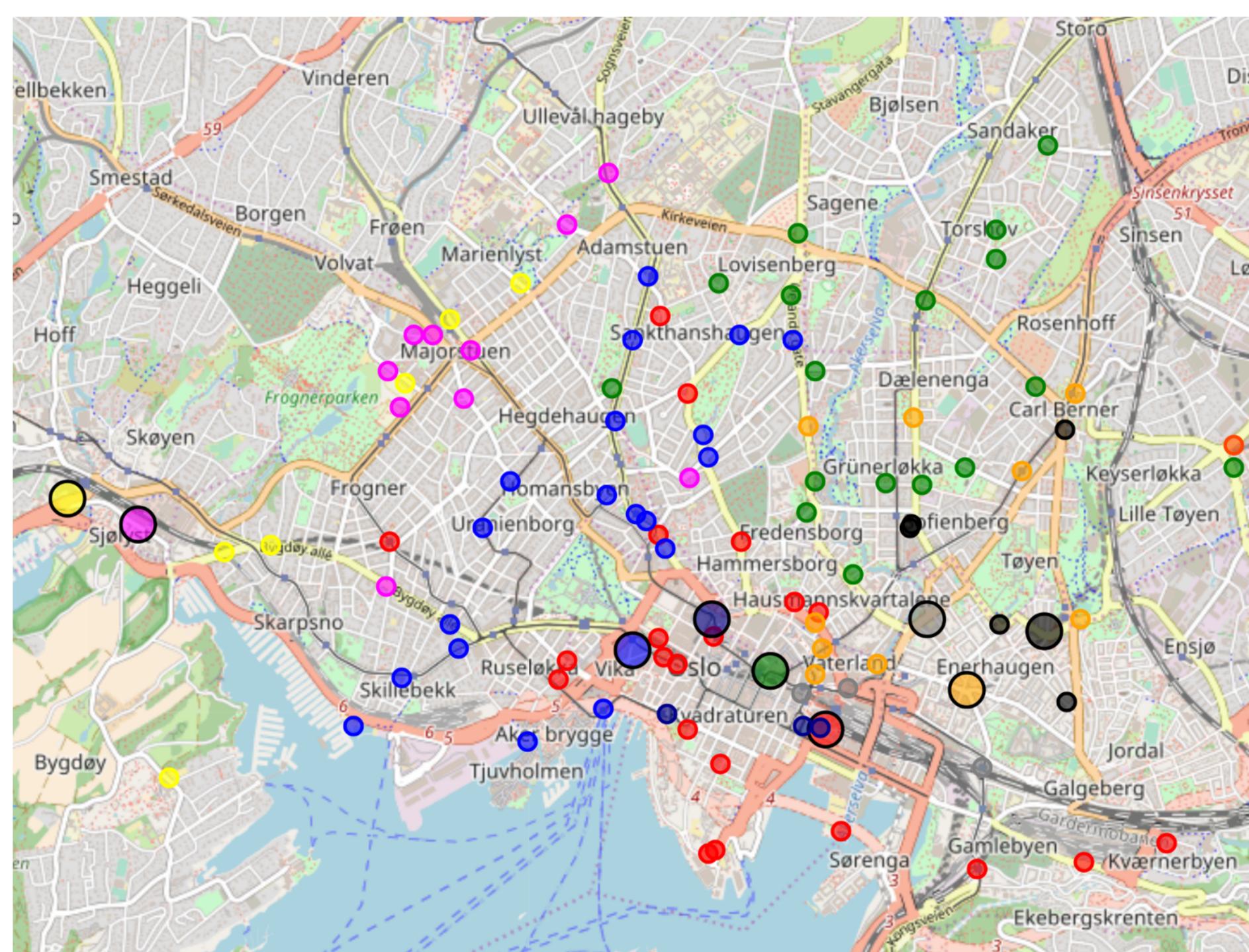
Bike Station Data

ID	Title	Latitude	Longitude	Number of Locks	In Service
157	Nylandsveien	59.91562	10.762248	30	True

Trips < 60 seconds with the same end station as start station were eliminated.
5 stations lacked geographical position and could not be plotted.



Trips to Work on Weekdays



We performed clustering based on number of trips between stations, using Affinity Propagation [2] from Scikit-learn [3]

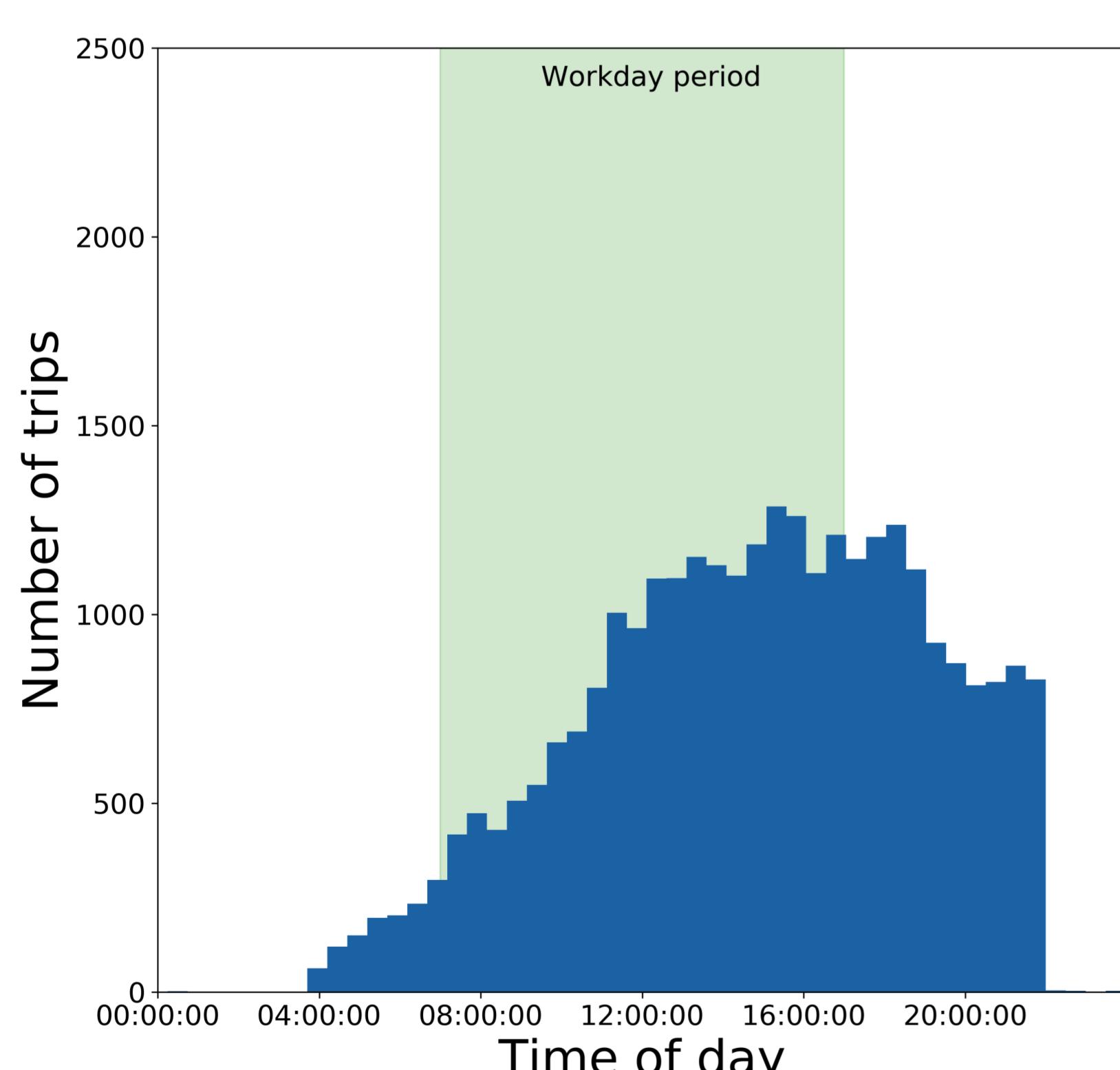
For 5:00 - 7:00 on weekdays, trips are centered on traffic hubs and office areas

Oslo S: Transport hub

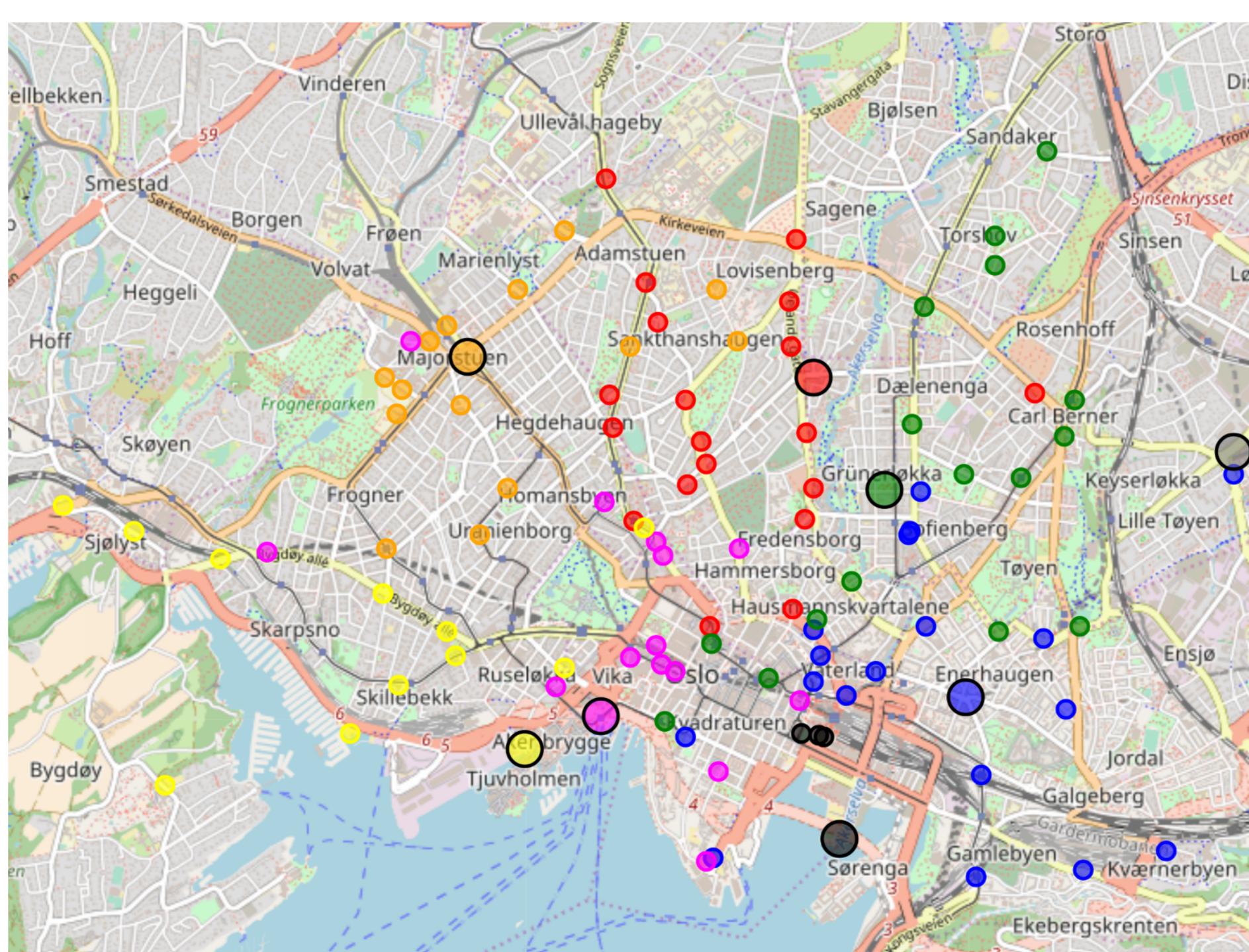
Nasjonalteateret: Offices, metro station

Skøyen: Offices

Tøyen: Metro station



Trips on Weekend



For weekends (all day), trips are centered on areas with social activities

Aker Brygge: Pubs and restaurants

Oslo Opera House: Popular tourist sight

Majorstuen: Cafes, shopping, Frognerparken

Grünerløkka: Cafes, shopping

References

1. <https://developer.oslobysykkel.no/data>, downloaded 22. August 2017

2. D. Dueck: Affinity Propagation: Clustering data by passing messages, PhD thesis, U. Toronto, 2009

3. Scikit-learn: Machine Learning in Python, Pedregosa et al., JMLR 12, pp. 2825-2830, 2011.

Project files

Jupyter Notebook used for data analysis is available at:

<https://github.com/jonnor/inf121-project>