

Traffic-condition Analysis using Publicly-Available Data Sets

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09.05.2013 - IT&T 2013 Athlone



- Congestion in 498 US urban areas cost:
 - 1982 - \$ 24 billion
 - 2000 - \$ 94 billion
 - 2011 - \$ 121 billion

Schrank, D., Eisele, B., & Lomax, T. (2012). TTI's 2012 URBAN MOBILITY REPORT.



- Dublin 11th most congested city (out of 59) in Europe
 - Before London, Munich & Berlin

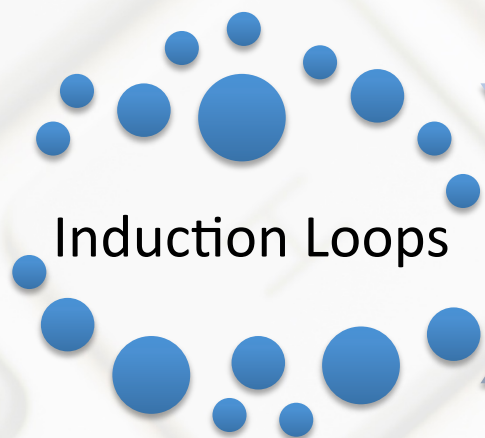
TomTom European Congestion Index Annual Report 2012

- Smart Data Management for a City
- Aggregate & process information
- Relate & correlate historic and real-time data

DATA SETS

Estimated Journey Times

Dubl:nked™



Central
Controller



SCATS

TRIPS



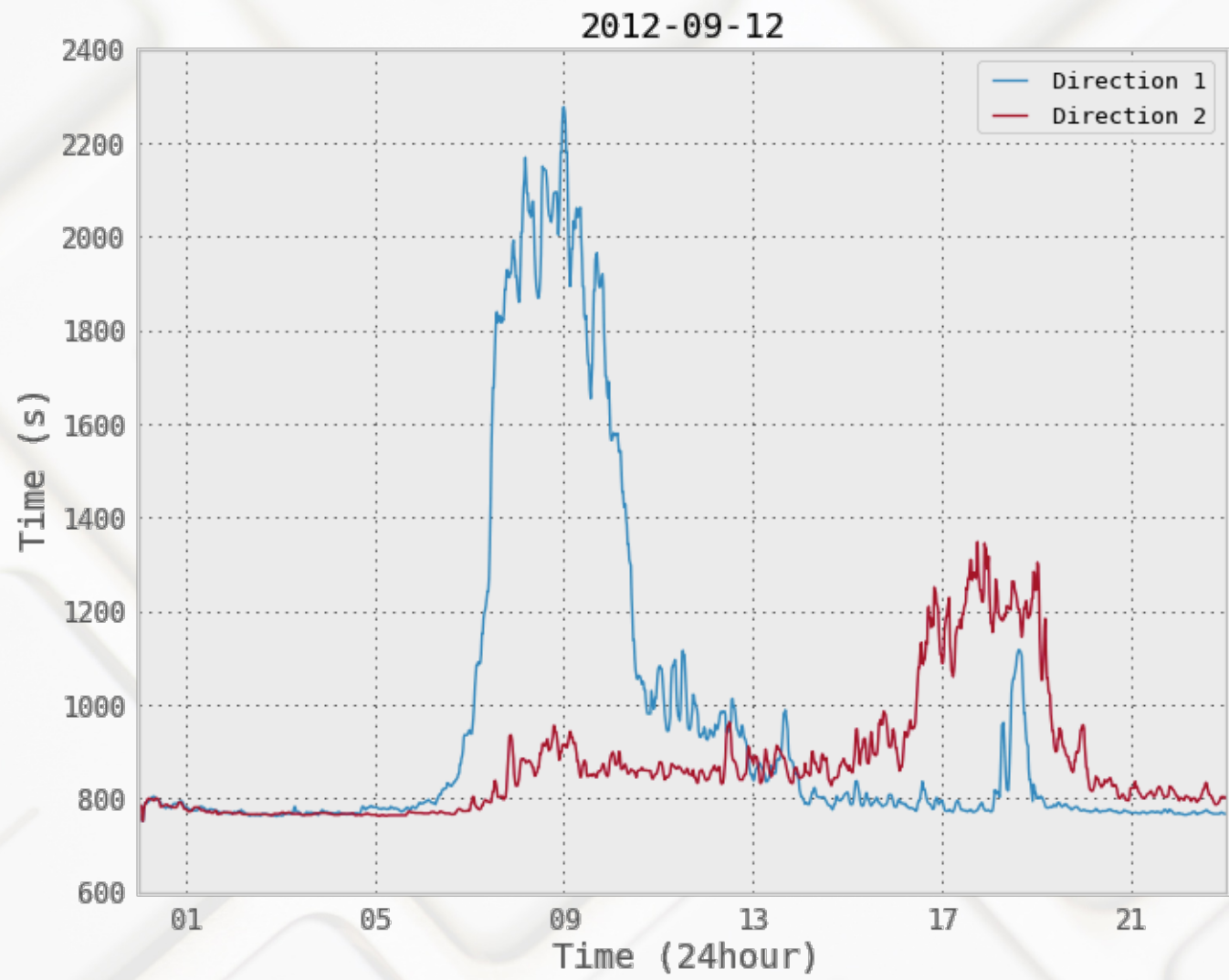




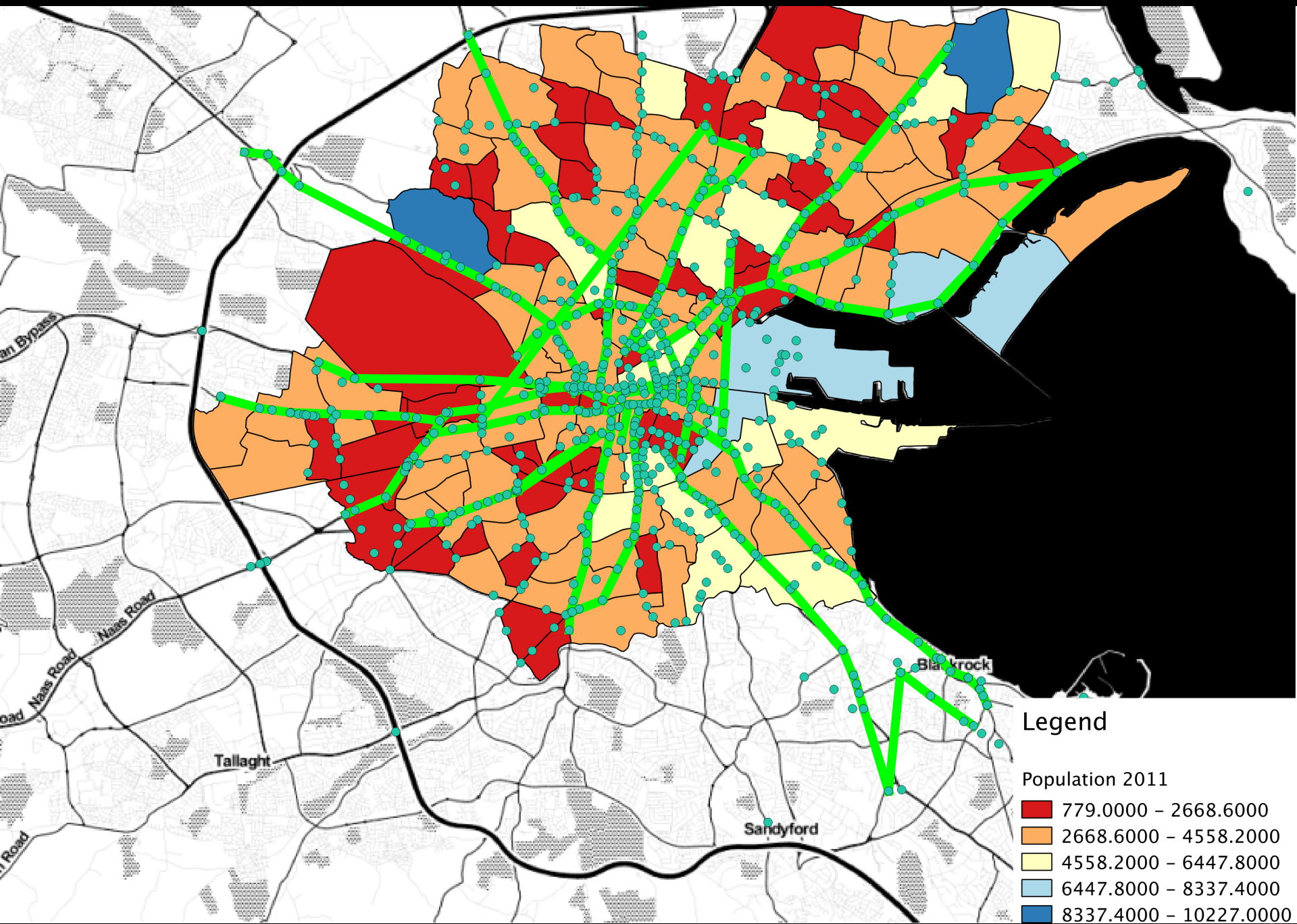








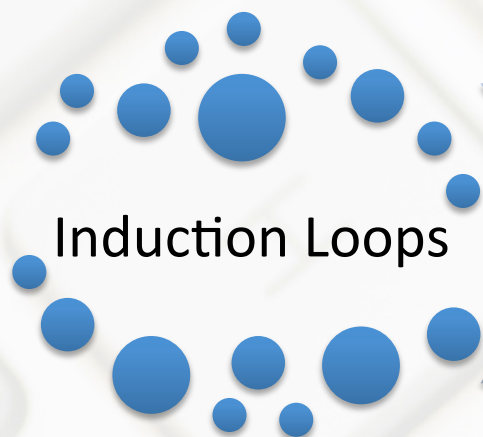




Legend

Population 2011

- 779.0000 - 2668.6000
- 2668.6000 - 4558.2000
- 4558.2000 - 6447.8000
- 6447.8000 - 8337.4000
- 8337.4000 - 10227.0000



Central
Controller



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Route	City Council	Provider A	Provider B
9	12 minutes	11 minutes	13 minutes
11	5 minutes	6 minutes	5 minutes
24	14 minutes	15 minutes	13 minutes
30	14 minutes	13 minutes	12 minutes

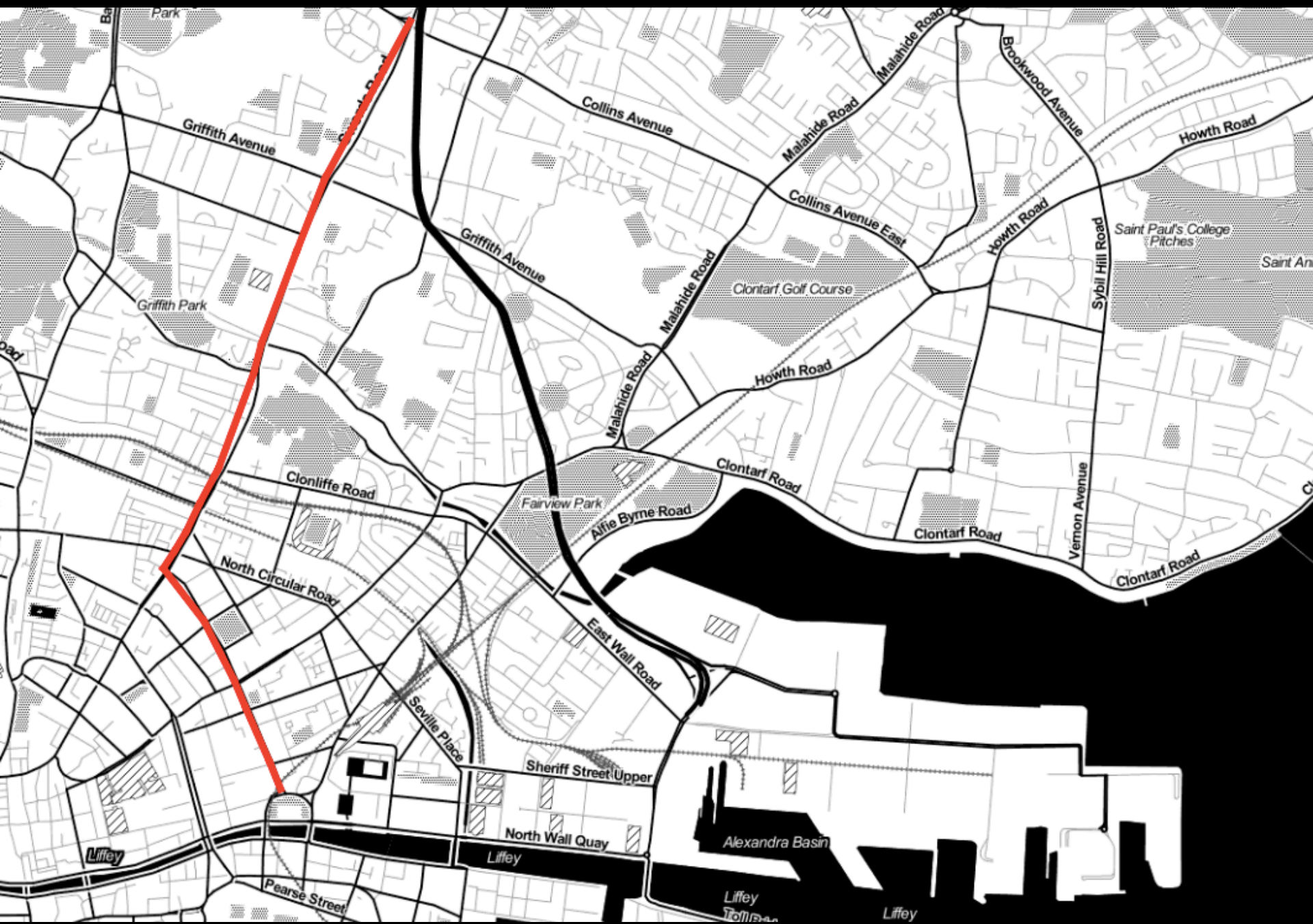
**± 10% accuracy according to
Dublin City Traffic Management**

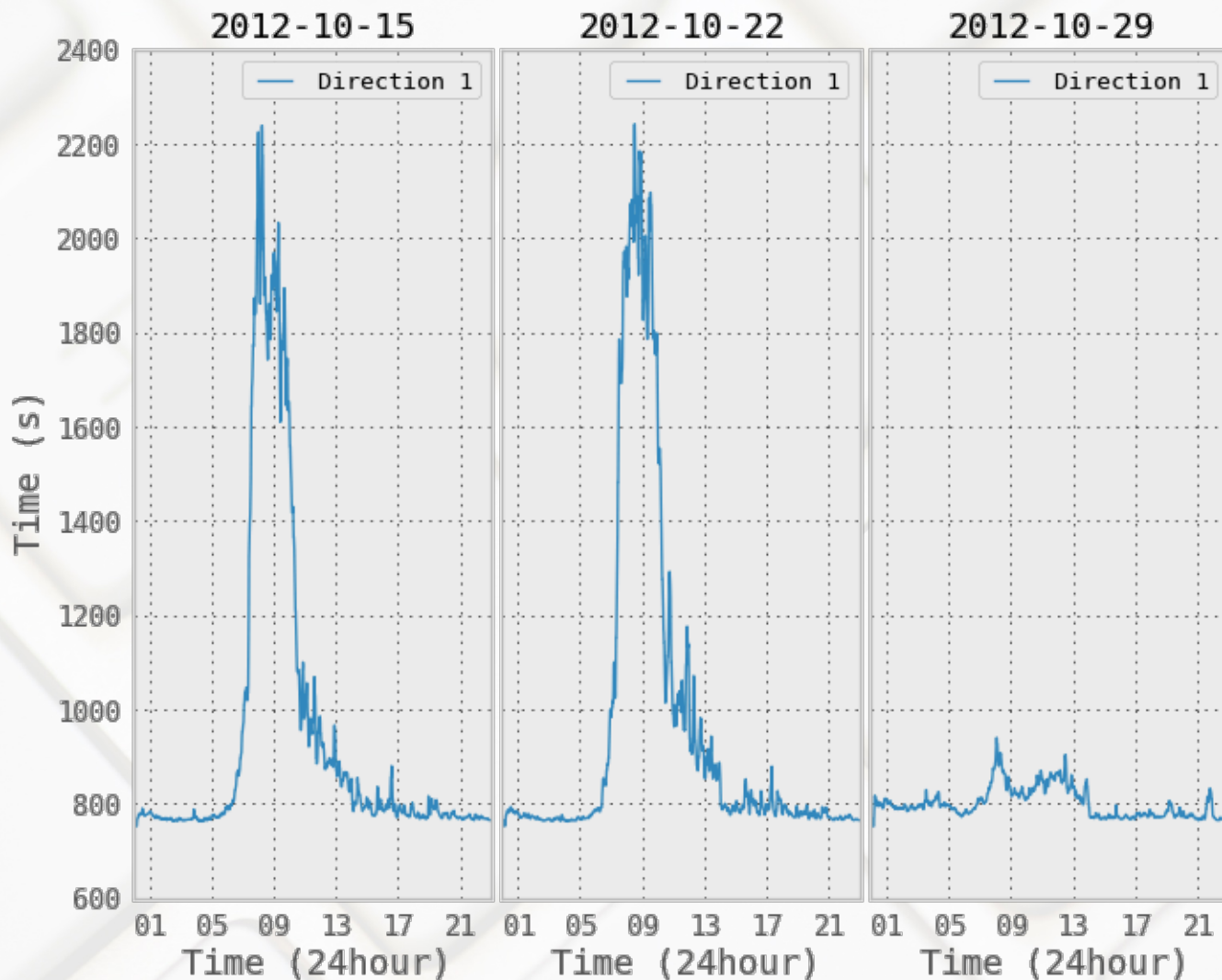
Weather Data METAR



Patterns

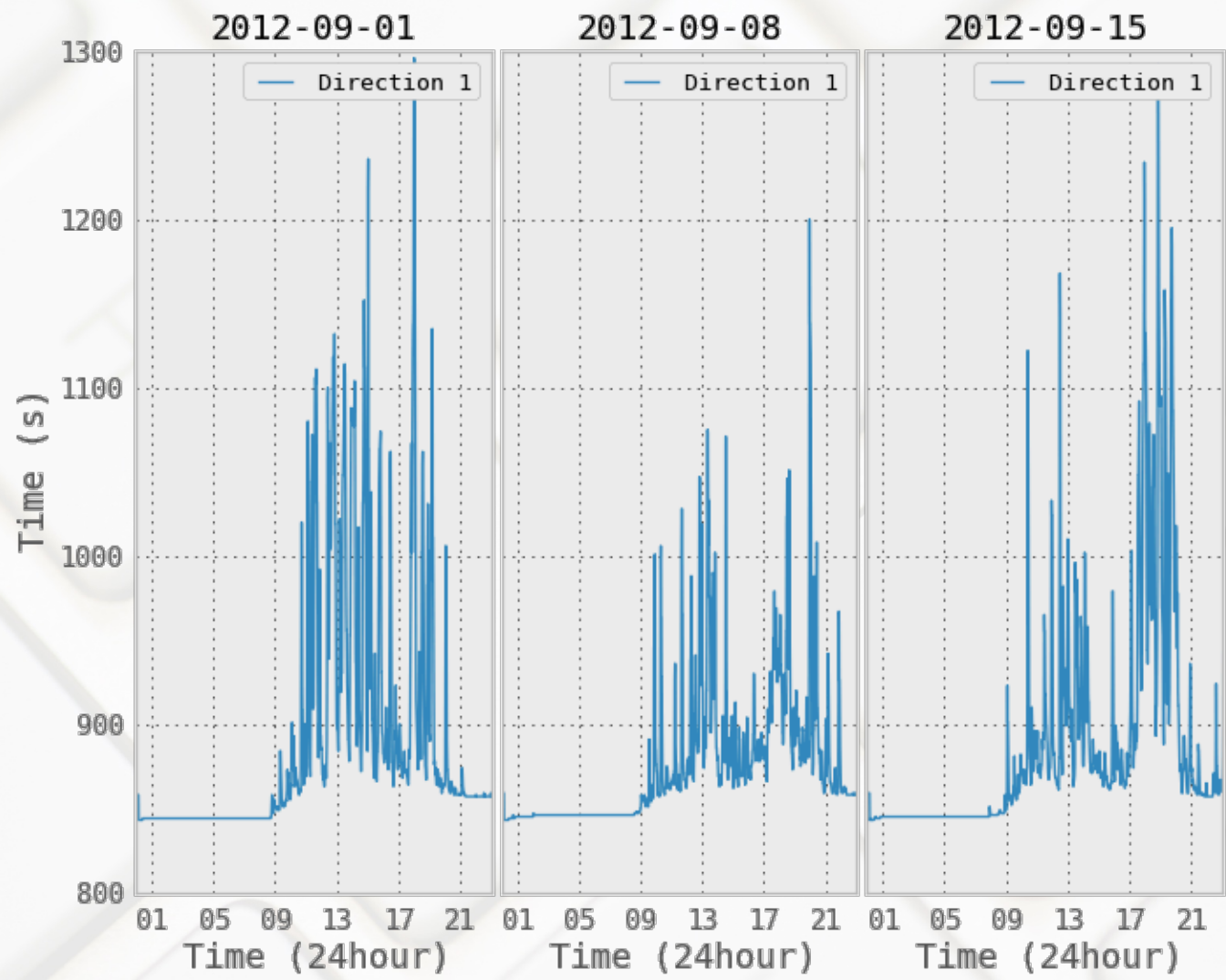
Public Holiday



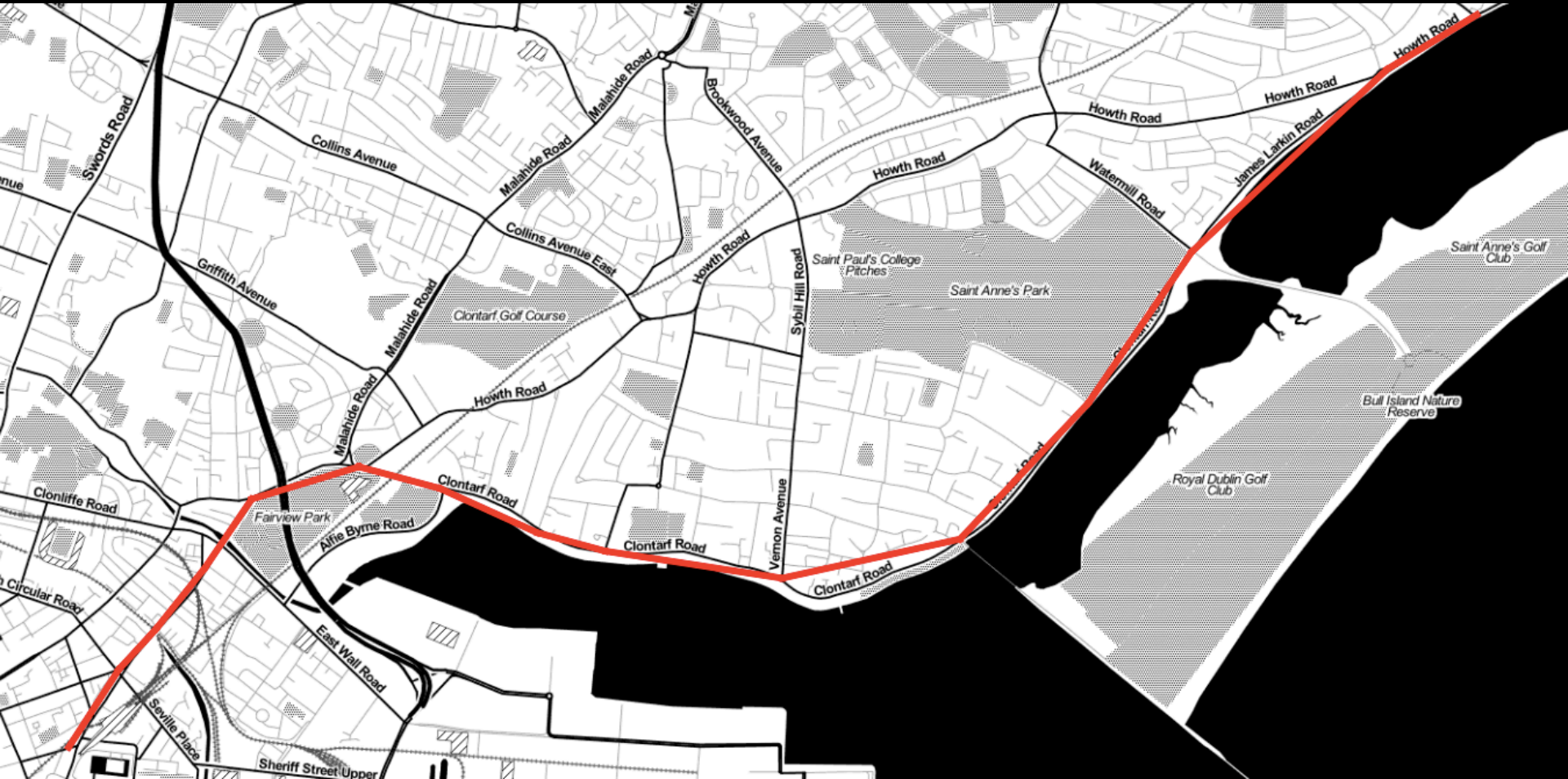


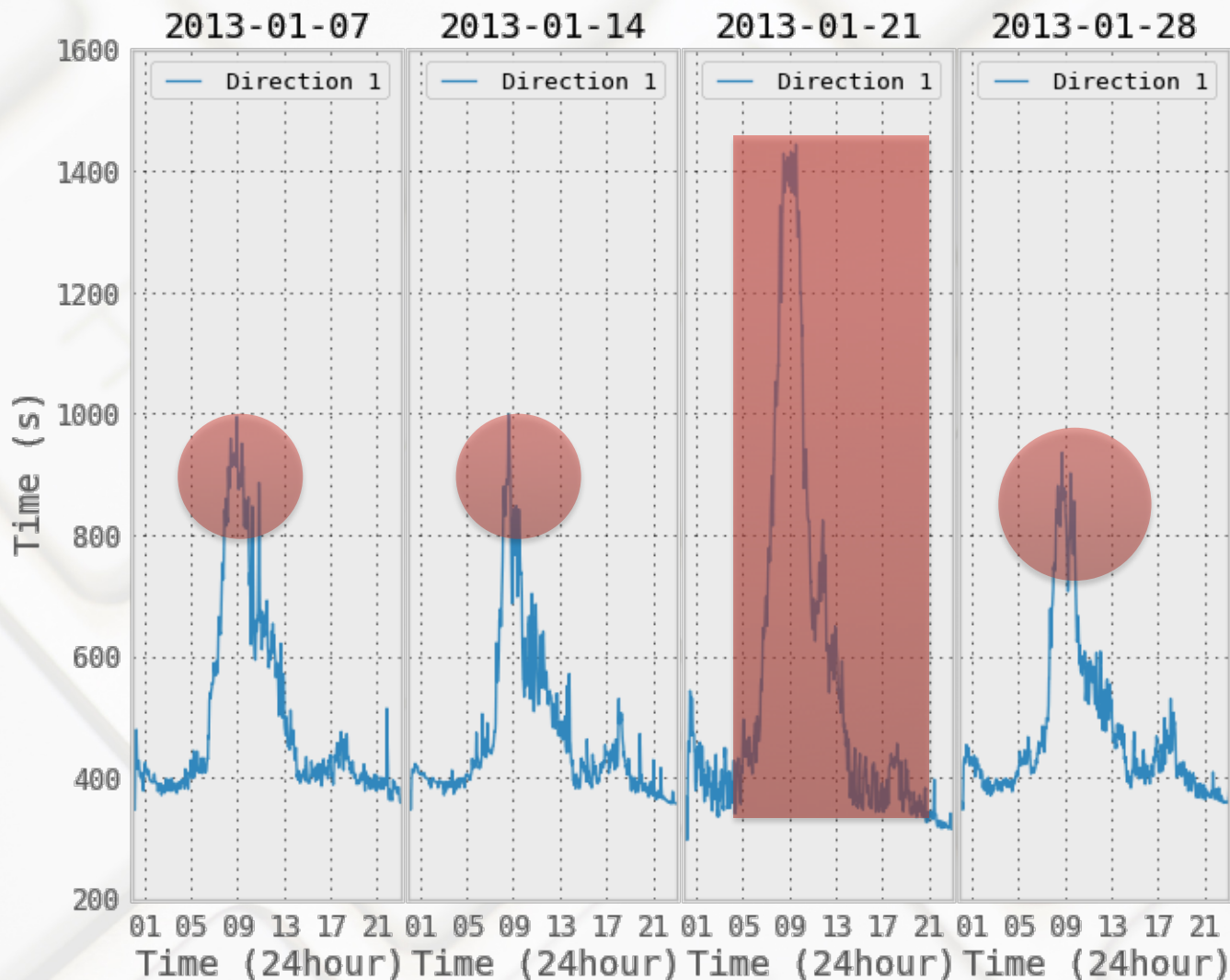
Public Event





Weather





- Possible to explain irregularities using publicly available data sets
- Highlighted three different behavior in real-world data
 - Level shift for public holidays
 - Public event influence on traffic
 - Lag and increased peak for extreme weather

- Identified & assessed public data sets
- Verified subsets of journey time estimates
- Identified & categorized patterns

- Automatically identify aberrant behavior
- Classify traffic patterns
- Combine approach with event correlation
- Apply approach for other distributed systems

Questions?



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Thanks

