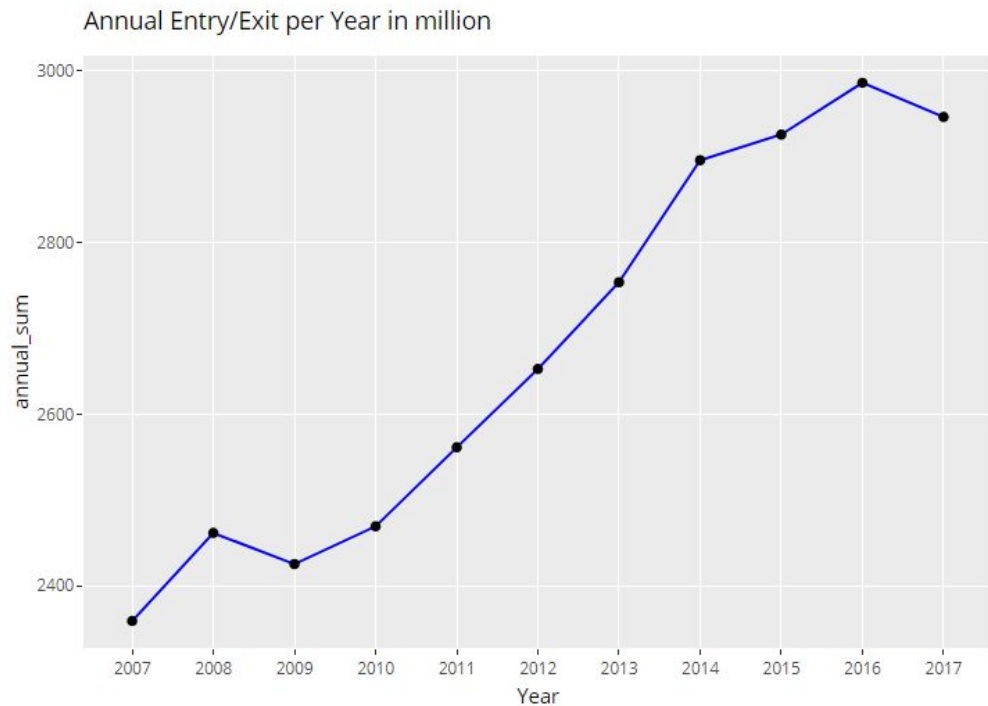




# **Optimizing London Station Investment based on passengers flows analysis from 2007 to 2017**

Steven Vincent - 13/01/2020

# Introduction



# Introduction

TfL fares have been frozen for a third year in a row, keeping travel affordable for all Londoners



**TRANSPORT  
FOR LONDON**  
EVERY JOURNEY MATTERS



**66%**  
reduction in  
net cost of  
operations  
since 2015/16

**£479m**  
better net  
cost of  
operations  
than budget



**13%**  
reduction in  
headcount  
since 2015/16



\* net cost of operations per internal reports to management is reconciled to the Group Comprehensive Income and Expenditure Statement in note 2 to the accounts.

\*\* A table showing the calculation for like-for-like operating costs is included on p128

# Introduction



**Reinhold, T. (2008). More Passengers and Reduced Costs—The Optimization of the Berlin Public Transport Network. Journal Of Public Transportation, 11(3), 57-76. doi: 10.5038/2375-0901.11.3.4**

## **Main findings:**

- improving frequency on the main lines could shorten travel times and attract many new customers to public transportation.
- Lines outside the core network could be reduced to achieve significant cost savings with only a slight decline in the number of passengers

# Research Question



*How to optimize investments and reduce costs of the London Underground Network?*

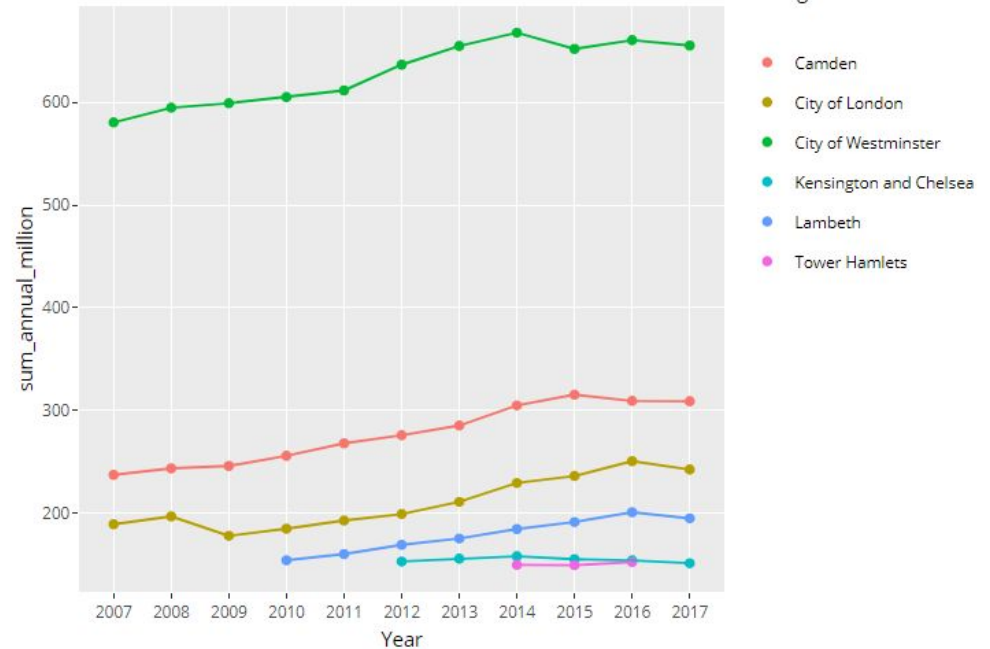
# Identifying London core network



Top 10 Stations in 2017 by Annual Entry/Exit in million

Station	Borough	Annual_Entry_Exit_million
King's Cross St. Pancras	Camden	97.91828
Waterloo	Lambeth	91.27064
Oxford Circus	City of Westminster	84.09059
Victoria	City of Westminster	79.35934
London Bridge	Southwark	69.05067
Liverpool Street	City of London	67.74019
Stratford	Newham	61.99042
Bank & Monument	City of London	61.79615
Canary Wharf	Tower Hamlets	50.91358
Paddington	City of Westminster	48.82251

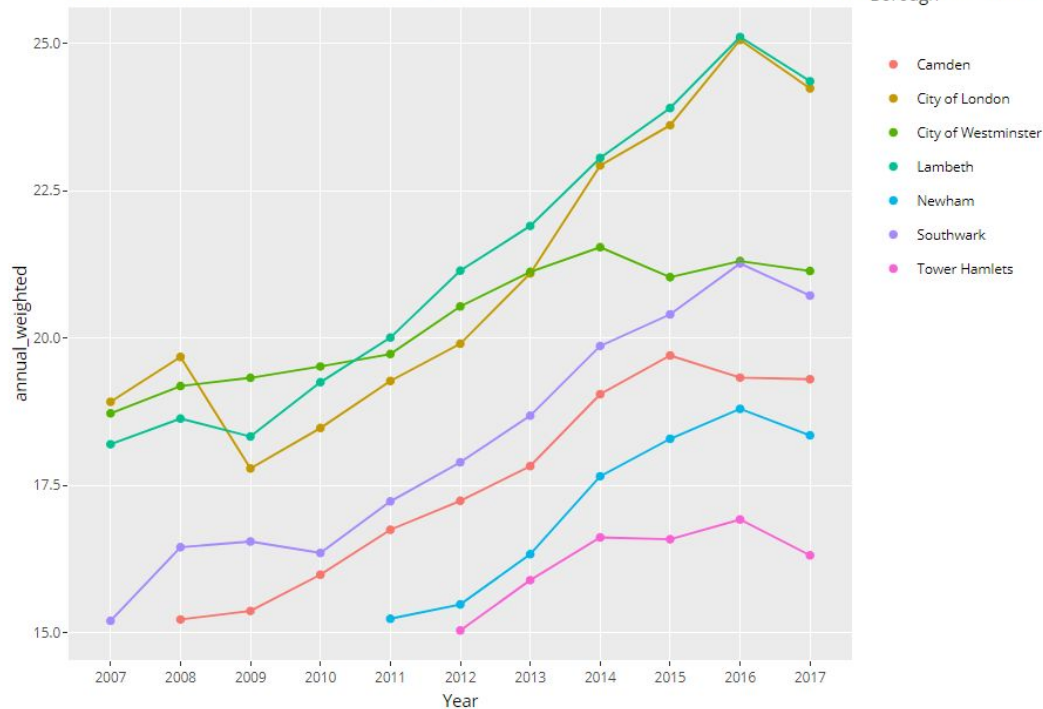
Highest Boroughs Annual Entry/Exit per Year in million



# Identifying London core network

Number of Station by Boroughs	
Borough	Number_of_Station
City of Westminster	31
Brent	21
Camden	16
Ealing	16
Hammersmith and Fulham	15
Hillingdon	15
Barnet	13
Kensington and Chelsea	12
Redbridge	11
City of London	10
Islington	10

Highest Borough by Station Annual Entry/Exit per Year in million (Borough with more than one Station)

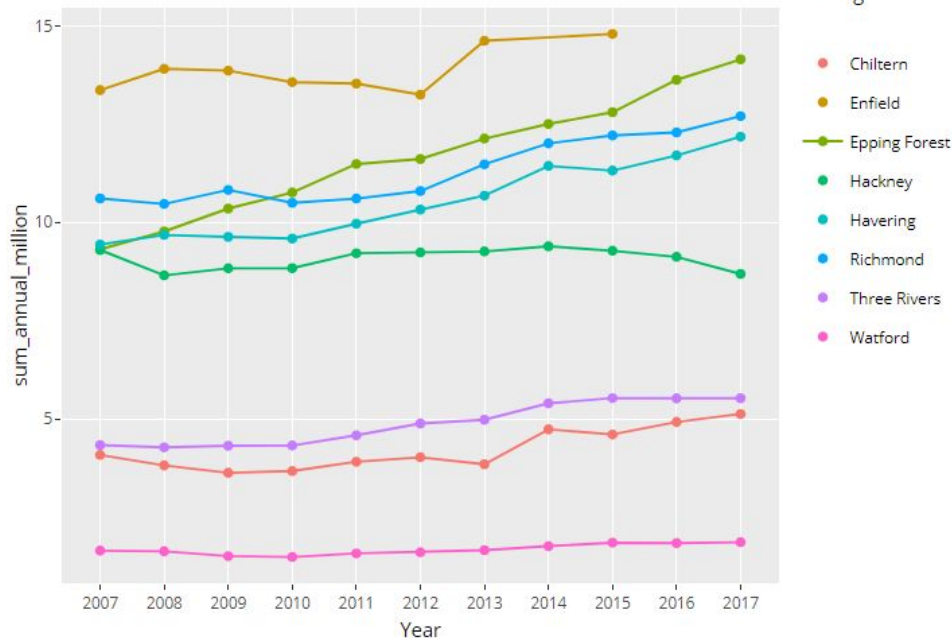


# Identifying Boroughs Outside the core network

Top 10 Stations in 2017 with lowest Annual Entry/Exit in million

Station	Borough	Annual_Entry_Exit_million
Roding Valley	Epping Forest	0.368413
Chigwell	Epping Forest	0.498916
Grange Hill	Redbridge	0.669495
Chorleywood	Three Rivers	0.750026
North Ealing	Ealing	0.827387
Moor Park	Three Rivers	0.937946
Theydon Bois	Epping Forest	0.953663
Croxley	Three Rivers	1.129125
Chesham	Chiltern	1.133596
Upminster Bridge	Havering	1.145380

Lowest Boroughs Annual Entry/Exit per Year in million

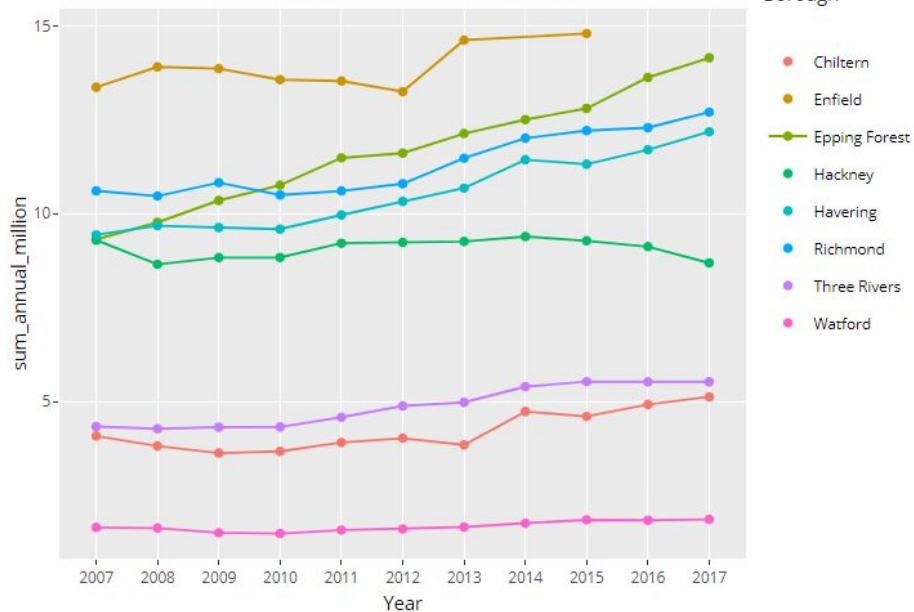




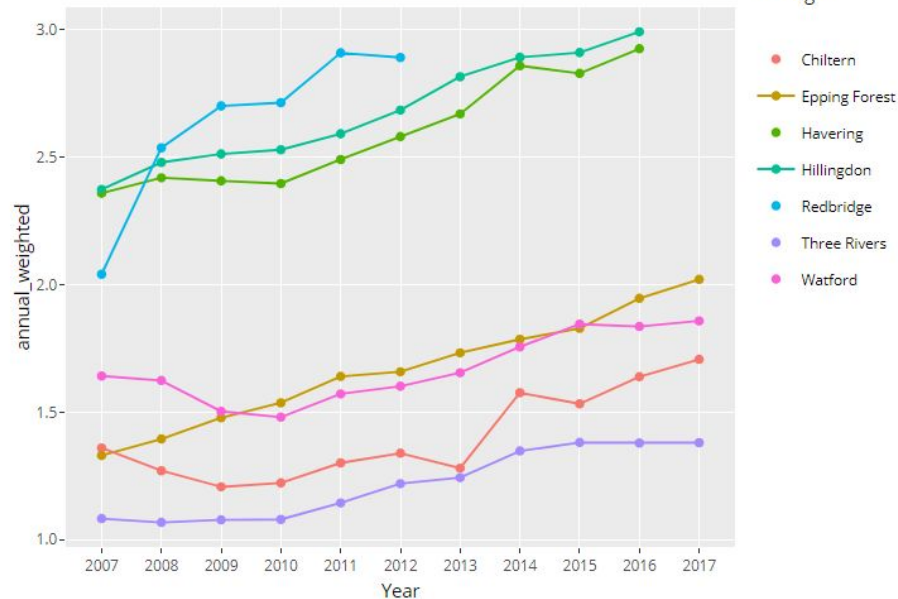
# Identifying Boroughs Outside the core network



Lowest Boroughs Annual Entry/Exit per Year in million



Lowest Borough by Station Annual Entry/Exit per Year in million



Identifying  
London  
core network  
and Boroughs  
outside the  
core network

