



## VI. New Business

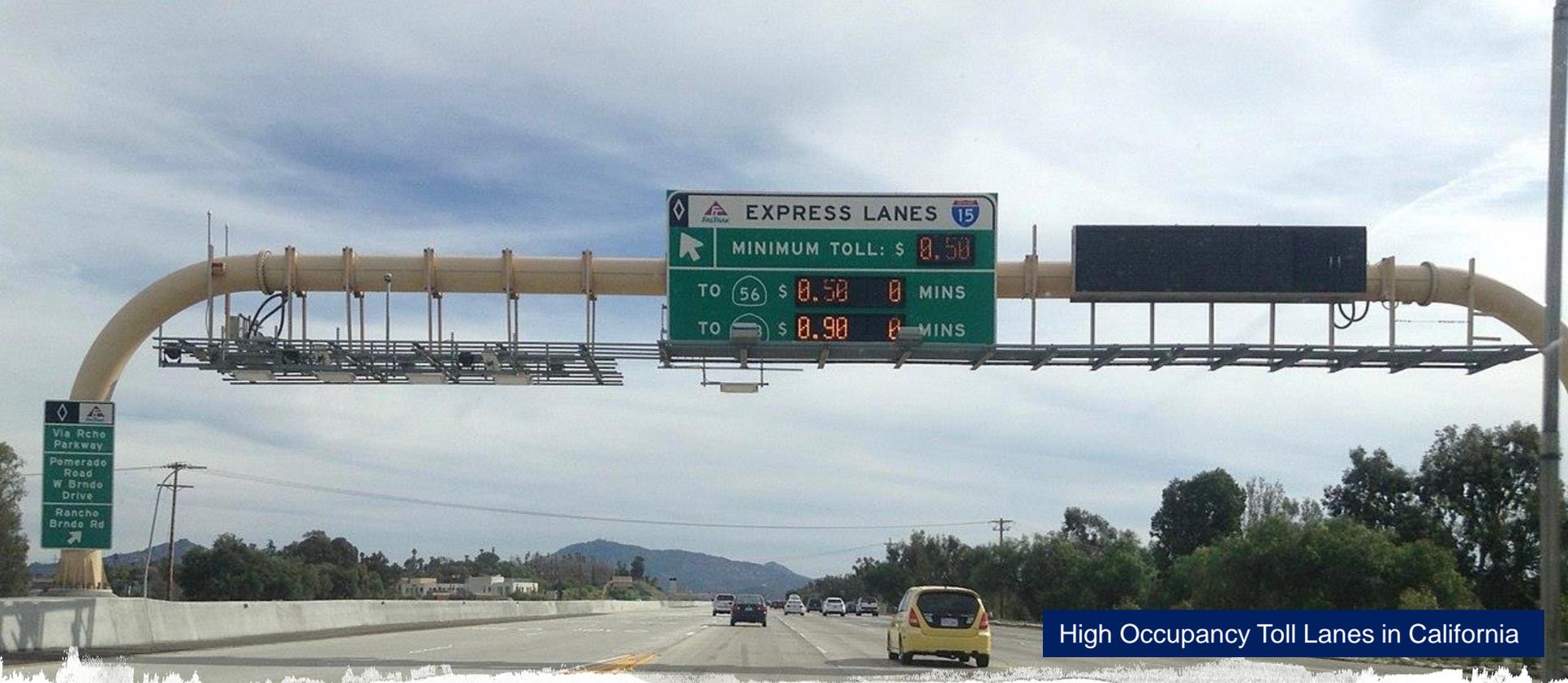
### A. Pricing Solutions – A Case Study About London's Congestion Charging Scheme

# What is a Pricing Solution?

- The goal of pricing solutions is to incentive people to travel by other modes, at other times of days, or on other (less-congested) routes.
- Pricing solutions recognize that transportation facilities (roadways, vehicles, and parking spaces) do not have infinite capacity.
- Recognizes that by externalizing the implicit costs of transportation, travel demand can be influenced.
- Can provide a source of revenue for solutions that can provide roadway travelers with another option
  - Ex. Roadway tolls could be used to subsidize frequent, high-quality transit services in the peak commute hours.



Electronic Road Pricing gantry in Singapore



High Occupancy Toll Lanes in California

# Types of Pricing Solutions

- Cordon pricing around the urban core
- High-occupancy toll lanes on the interstates
- Parking cost at destination sites



# Challenges of Implementation

- Feasibility of implementation
- Concerns over equity and whether low-income travelers will be penalized for traveling when they need to
- Concerns over political feasibility





# Cordon Pricing Around London's Urban Core

London's Congestion Charge Scheme

# Problem

- Suffers from what is considered the worst traffic congestion in Europe
- Due to the high cost of housing, many people commute from outside of London to the city for work





Oahu MPO

# What is congestion pricing?

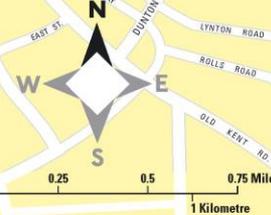
- Main objectives: Reduce congestion, radically improve bus services, make journey times more consistent for drivers, and make increase efficiency for those distributing goods and services throughout the city.
- Fee charged on most vehicles operating within the Congestion Charge Zone
- London: £11.50 (~\$15) daily charge for driving a vehicle within the charging zone **between 07:00 and 18:00, Monday to Friday**



# Congestion Charging zone



- Central London Congestion Charging zone – residents' 90% discount applies
- Additional residents' 90% discount area
- Congestion Charging zone boundary
- Main roads within charging zone
- Uncharged roads





# Paying the Congestion Charge



Users can register their car for a £1 (\$1.30) discount (£10 (\$10.30)/vehicle to register)



Can be paid in advance or the day after (increases to £14, \$18.14)



Use of Congestion Auto Pay or Fleet Auto Pay, and a camera system



Penalty of £130 (\$168.46); reduced to £65 (\$84.23) if paid in 2 weeks



# Benefits – Congestion Reduction



The average number of cars and delivery vehicles entering the central zone is consistently about 27% lower than pre-charging conditions (~80,000 cars/day)



After the first year of operation, traffic circulating within the charging zone was reduced by 15%, and congestion reduced by 30% during charging hours



Traffic delays were cut by 25%



Travel speeds increased by 30% in the zone



Journey times decreased by 14%

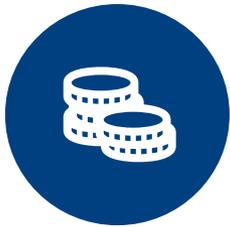


## Mode Shift and Shifting Demand

- Transfers to public transport, 20–30% to journeys avoiding the zone
- 15-25% switching to car share
- The remainder to reduced number of journeys, more traveling outside the hours of operation, and increased use of motorbikes and bicycles.



# Other Benefits



RAISES ABOUT \$300 MILLION/YEAR, WITH 1/3 OF THE REVENUE USED TO RUN THE SCHEME, AND THE OTHER 2/3 FUNDING TRANSIT PROJECTS



IMPROVED AIR QUALITY

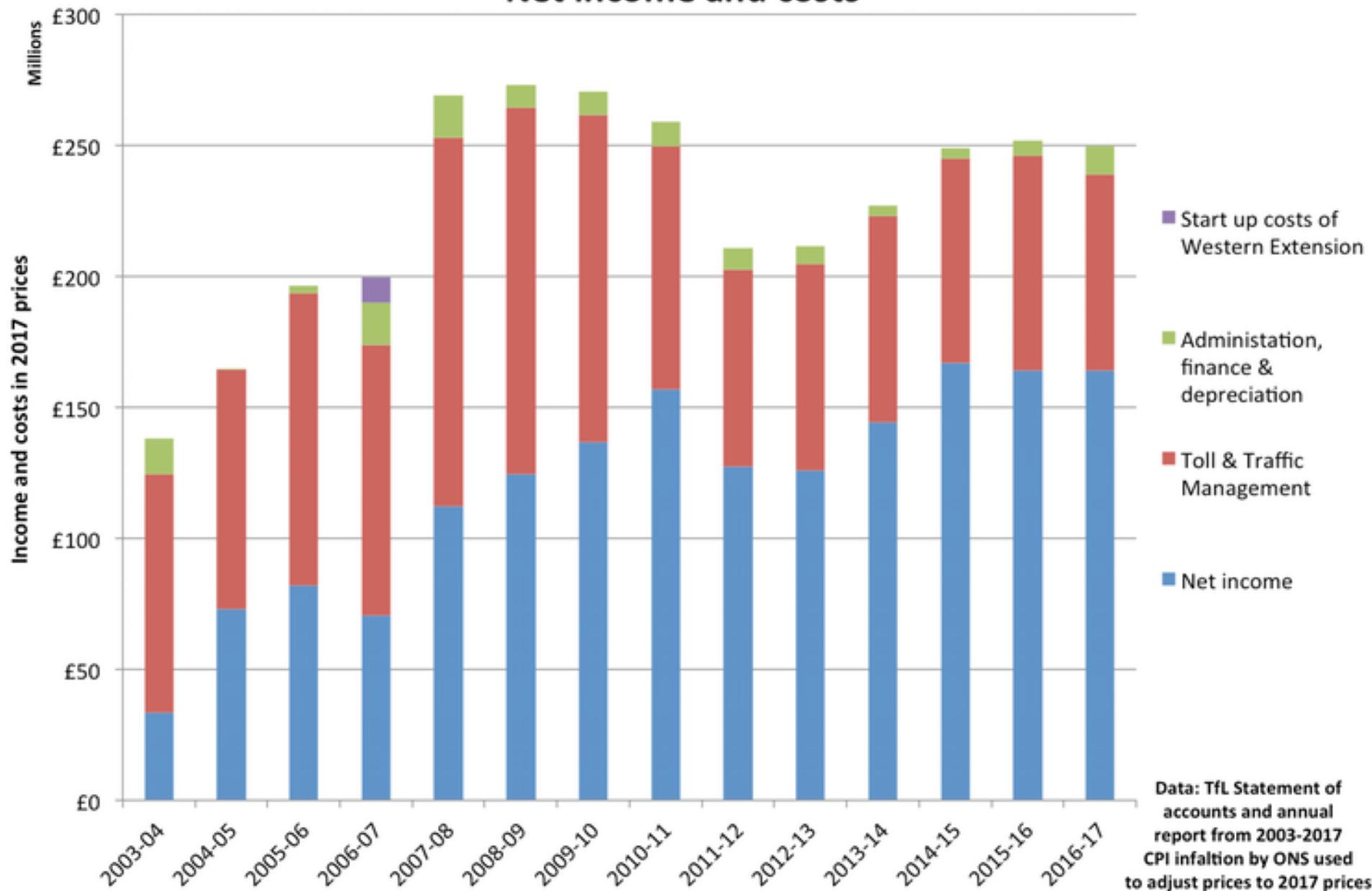


40% DECREASE IN TRAFFIC COLLISIONS FROM 2000-2010



GREATER USE OF PUBLIC TRANSPORTATION AND BICYCLES

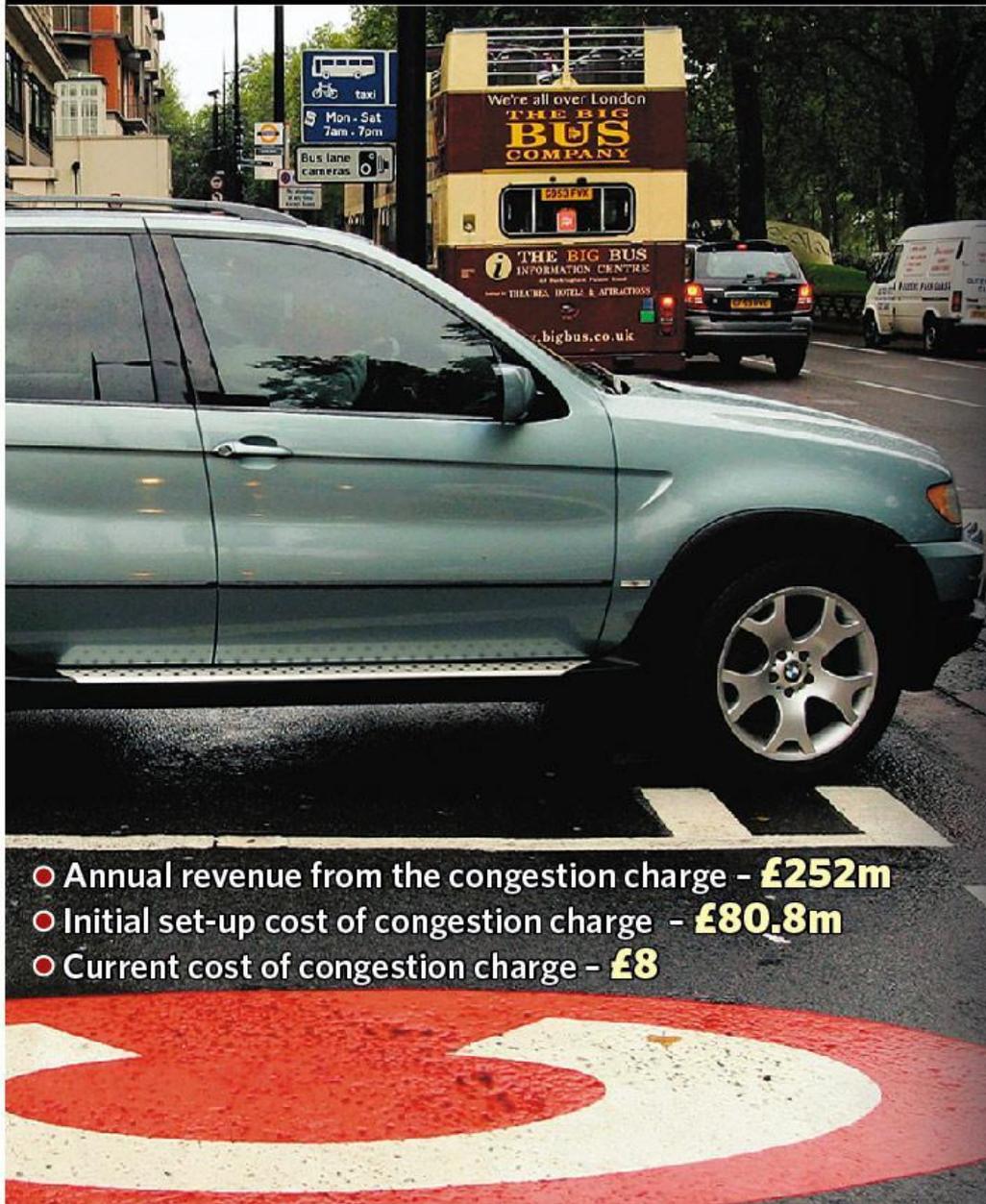
# Revenue break down of congestion charge in London: Net income and costs



Data: TfL Statement of accounts and annual report from 2003-2017  
CPI inflation by ONS used to adjust prices to 2017 prices

# In the zone

The effect of congestion charging on London traffic

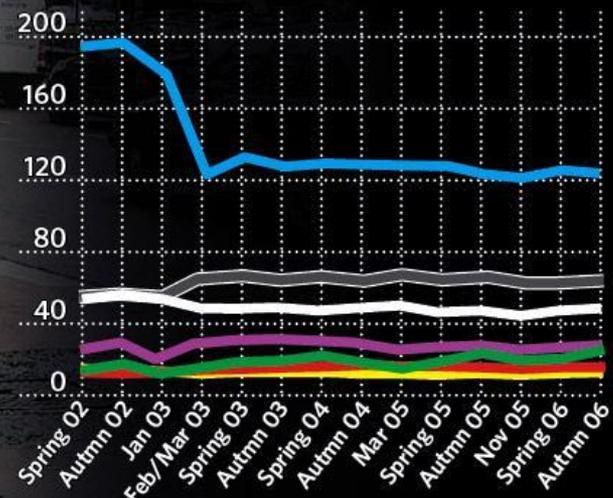


- Annual revenue from the congestion charge - **£252m**
- Initial set-up cost of congestion charge - **£80.8m**
- Current cost of congestion charge - **£8**

## TRAFFIC ENTERING CHARGING ZONE DURING CHARGING HOURS (07.00 - 18.00)

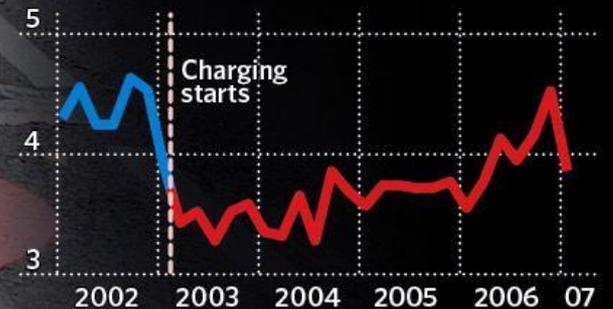
THOUSANDS, TOTAL FLOW

- Cars and minicabs
- Vans
- Lorries
- Taxis
- Buses and coaches
- Motorbikes and scooters
- Bicycles

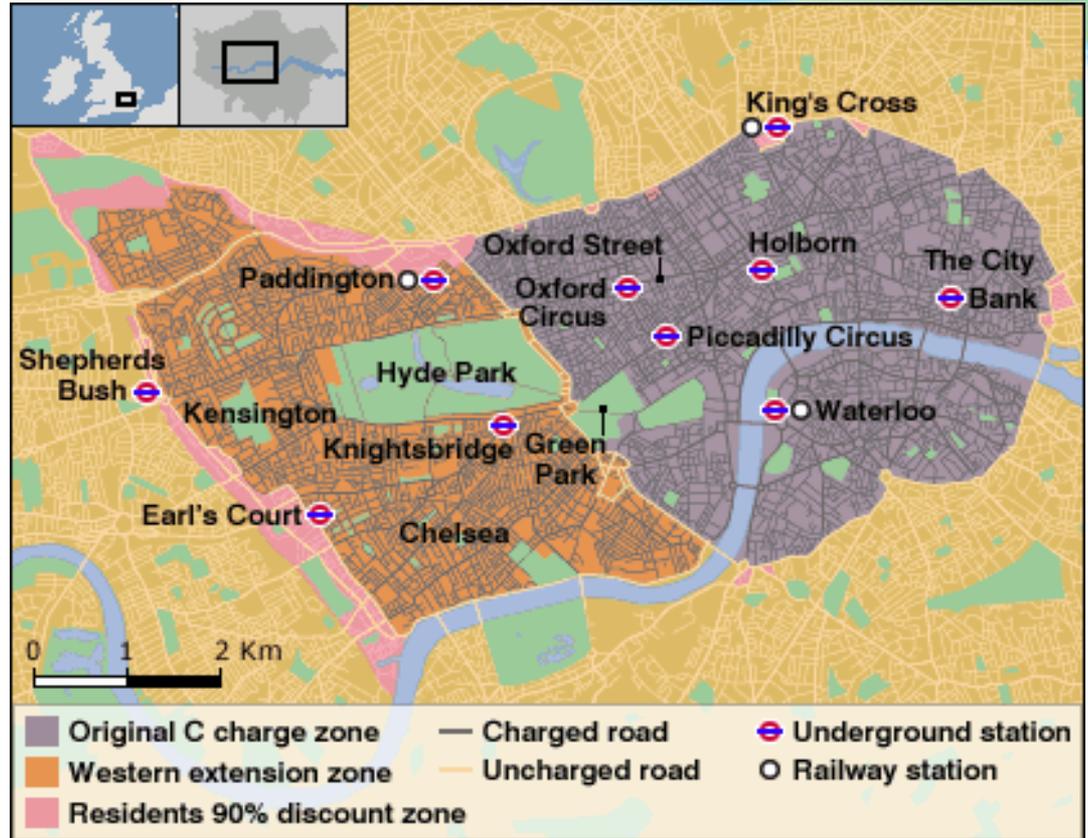


## CONGESTION IN CHARGING ZONE DURING CHARGING HOURS

TRAVEL RATE, MINUTES PER KILOMETRE



# Critiques – Diversionary Route and the Cancelled Western Extension



# Critiques



Disproportionately impacts low-income residents



Bad for businesses



Parking challenges for outer London commuters



Increased number of bicycling accidents



Does not address private hire vehicles (Taxis, Uber, Lyft, etc.)



# The cost of driving is high!

- T-charge (£10/day)
  - Ultra Low Emission Zone (£12.50/day)
- Parking is expensive and limited
- Gas is heavily taxed



# References

- <https://www.wired.com/2015/03/londons-congestion-pricing-plan-saving-lives/>
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- <http://content.tfl.gov.uk/congestion-charge-factsheet.pdf>
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- <http://www.independent.co.uk/news/uk/home-news/the-big-question-has-the-congestion-charge-been-effective-in-reducing-londons-traffic-781505.html>
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