



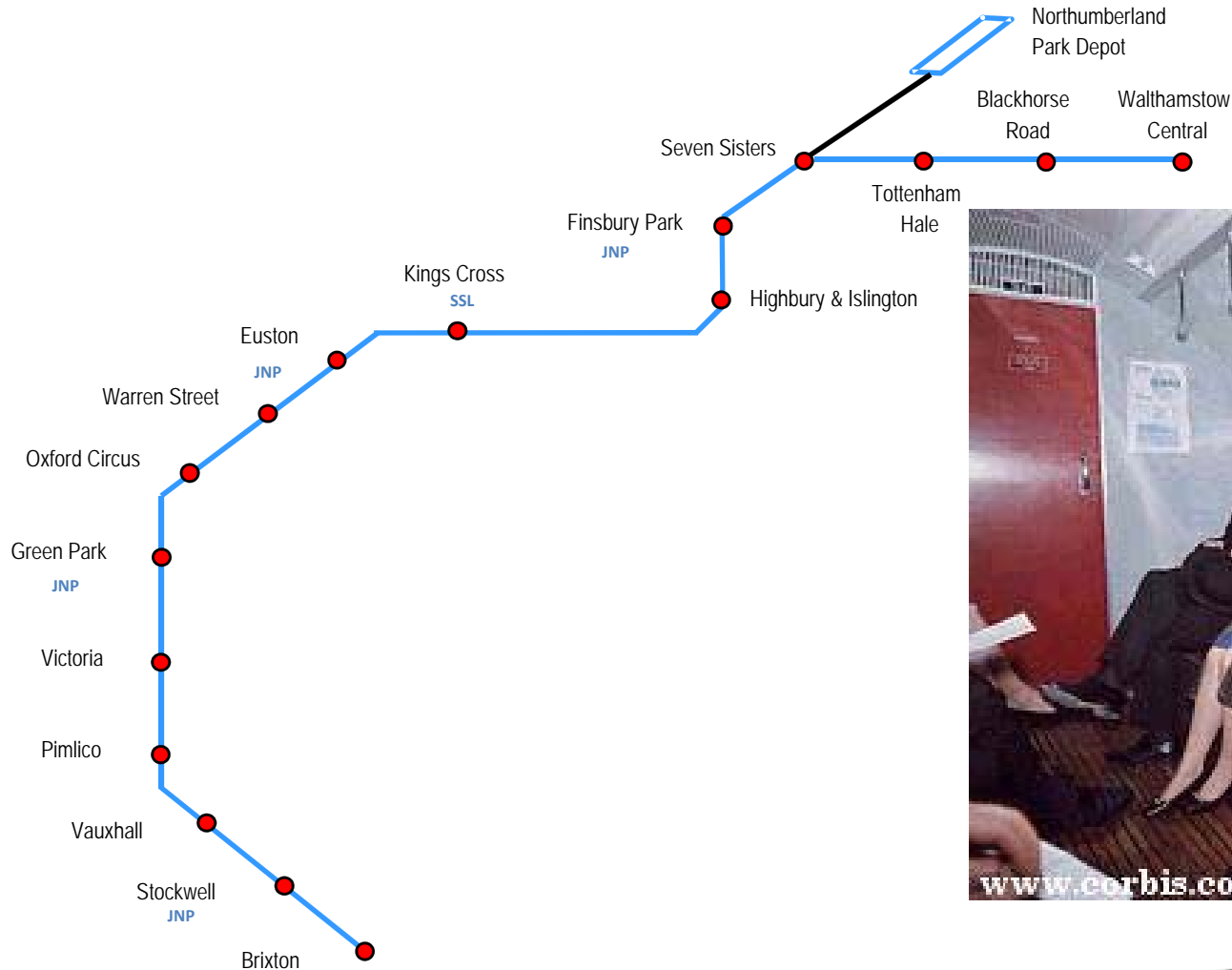
**London  
Underground**

**Victoria line  
presentation to  
London Travelwatch**

**5 October 2011**

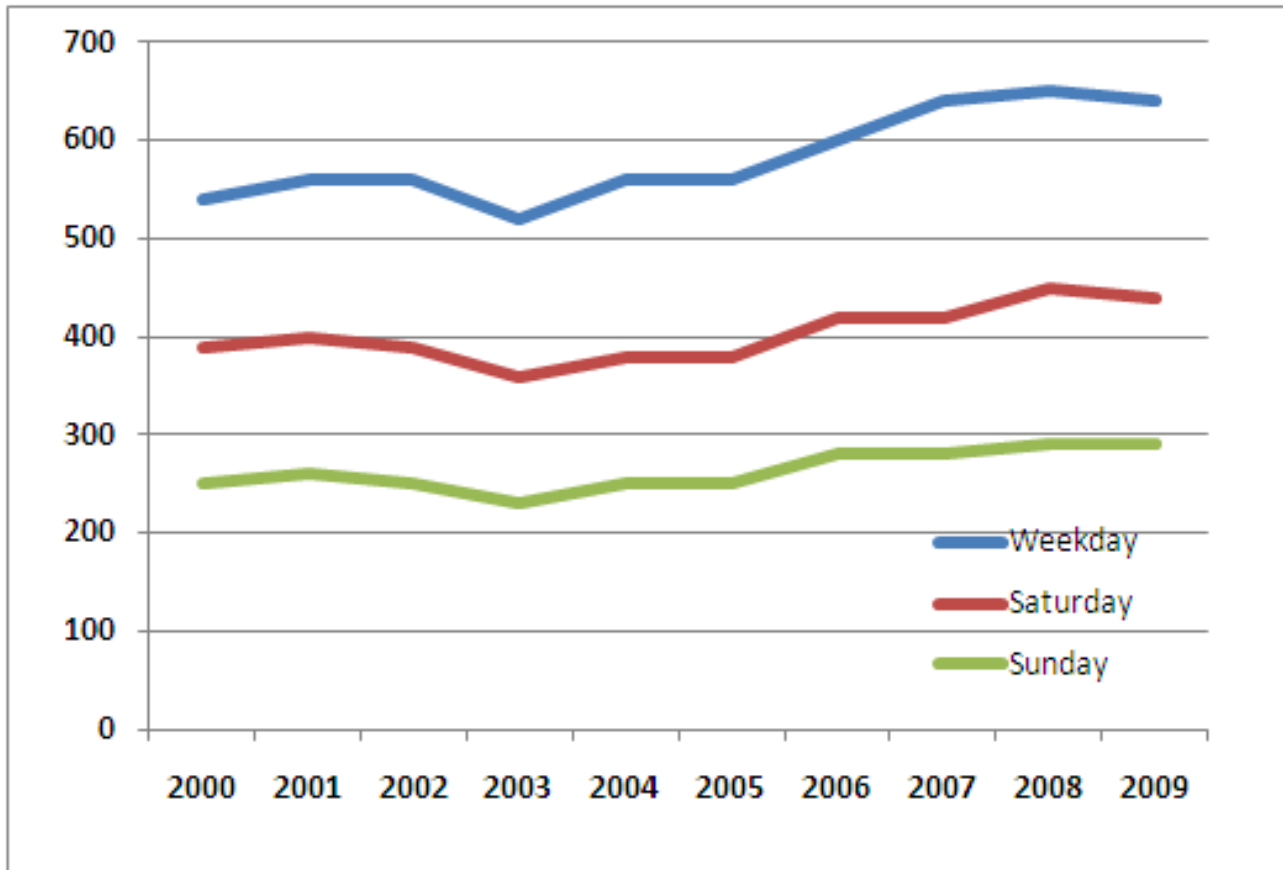


# The world's first automatic railway – officially opened by the Queen in 1969



# Growth in demand

## Victoria line usage trends, by day of the week



# Victoria line upgrade so far

- **Service now entirely comprises of new trains**
- **New control centre, track, and signalling also in place**
- **Regenerative braking system now in operation following removal of last old train from service**



# Victoria line upgrade: 2012

- Now removing old signalling (completion spring 2012)
- Overlaying new signalling over old meant able to reduce the number of closures
- Starting to exploit the capability offered by the new assets with faster trains and more capacity



# Matching service to demand

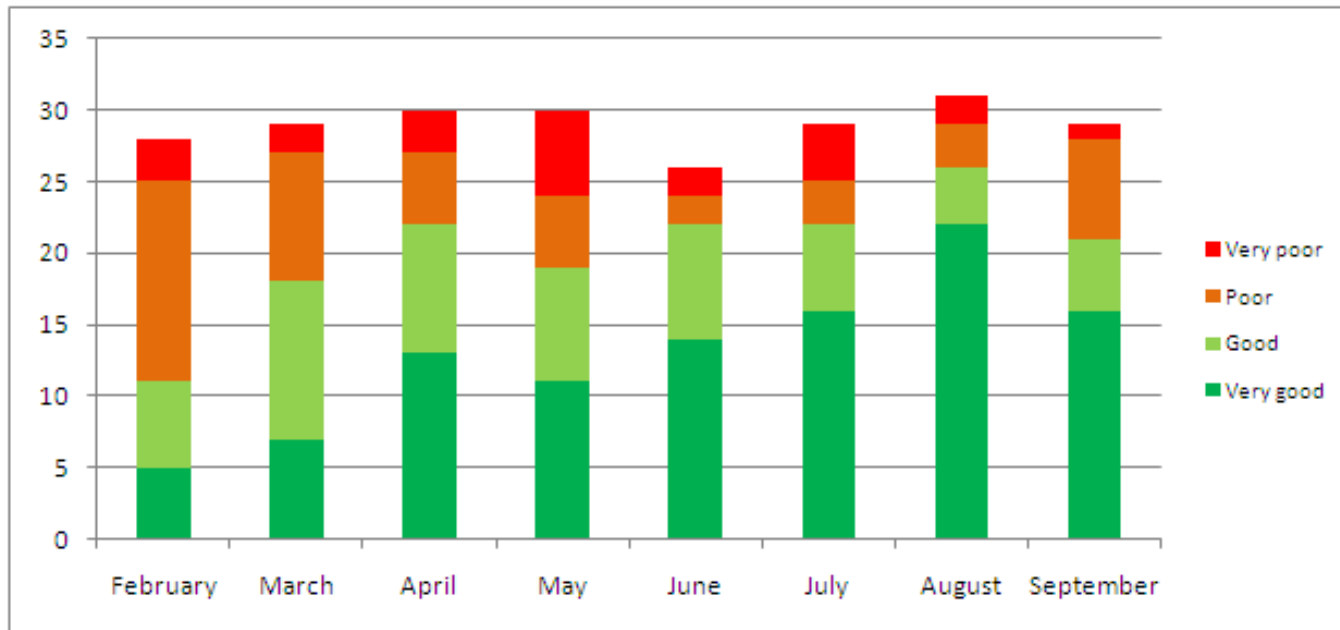
- **Timetable plan to exploit the capability of the new assets**

	Peak	Offpeak weekday	Offpeak weekend	
Pre Upgrade	28	21	21	
Sep 2011	28	23	21	Has been reliably introduced
Mar 2012	30	24	24	Speed increase
Jan 2013	33	24	24	



# Reliability – Excess Waiting Time

Quality of service is monitored daily, the number of days of good service operated has improved since last winter



**Very poor** defined as Excess Waiting >40 secs

**Poor** defined as between 20 and 40 seconds

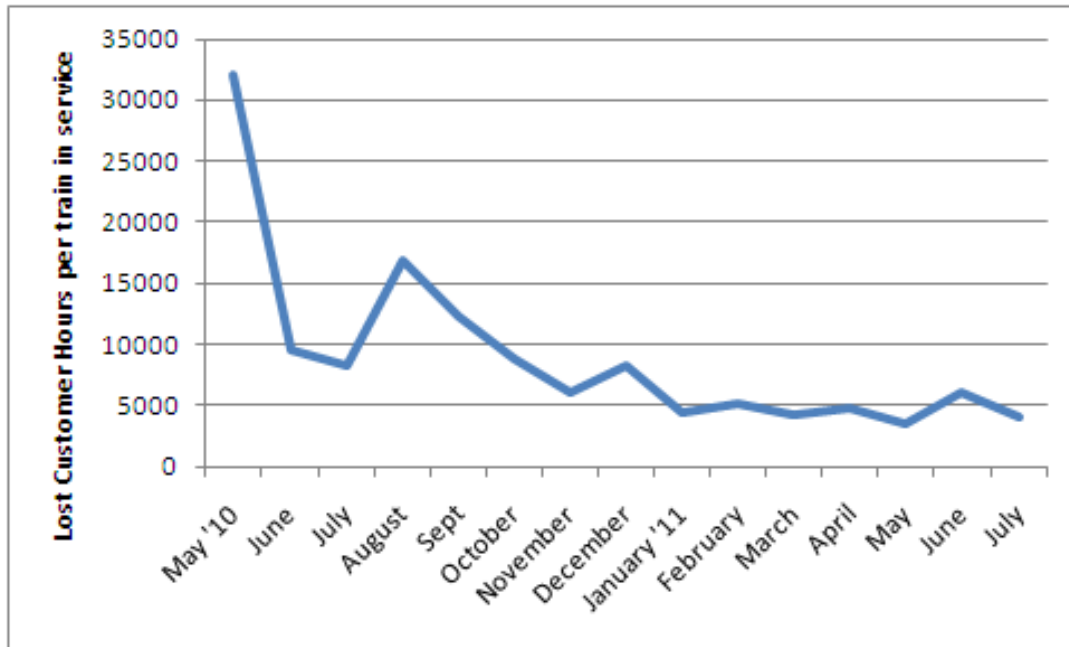
**Good** defined as between 10 and 20 seconds

**Very good** defined as better than 10 seconds



# Reliability growth

## Disruption per train in service (in Lost Customer Hours)



Before May 2010 only 3 new trains were running and very little peak running took place

Reliability has improved over the past 18 months, and various initiatives have reduced the number of delays – and duration and impact of those delays

However, still much more work to do to improve reliability

Over this year, the number of new trains running has substantially increased (this time last year new trains comprised only a third of the overall service)





# Reliability initiatives being addressed

## Door Sensitive Edges

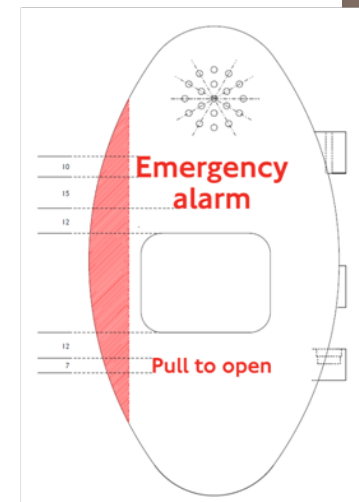
- The '09 stock trains have a Sensitive Edge which can detect if an object is being dragged along the platform once the train starts to move – which will trigger an immediate emergency brake application
- However, the current design is also spuriously triggering when objects inside the saloon become trapped
- Recognised this as a reliability issue, and have:
  - Made wiring modifications to the system to allow the driver to over-ride more effectively in the event that it is a spurious activation
  - Increased the awareness of customers to keep clear of the doors (door sticker and poster campaign)
  - Retrained drivers on minimising the impact of spurious activations
- Much more work still to be done, including:
  - Discriminating Sensitive Edge (which will never be triggered by objects inside the saloon get trapped)
  - A push back spring to allow customers to free objects themselves



# Reliability initiatives being addressed

## Passenger Emergency Alarms

- The '09 stock trains have more PEAs than the previous trains on the Victoria line. In addition, their design and location were encouraging a lot more inadvertent activations, which lead to delays to service, whilst drivers responded
- We recognised the issue and made some changes to the design of PEAs in the vestibules
- We are now planning to address the low-level PEAs in the wheelchair bays, and reduce the number of PEAs in the vestibules (where the new train had twice as many as the old)



# Reliability initiatives being addressed

## Technical improvements

- **Trackside signalling:** a new version of software for some of the trackside signalling equipment will improve reliability and resilience – and is planned to be rolled out through the Autumn
- **Correct Operation Protection (COP)** device, checks that the train is performing correctly, and shuts components down on the train which operate outside a threshold. We have been able to increase the threshold levels once the last old train was removed, and will increase it again next Spring once the last old signalling equipment is removed
- **Dust:** programme underway to deep clean vents and grilles (12 trains currently complete). Longer term solutions also being sought
- **Asset Replacement:** removal of old signalling equipment progresses down the line (Finsbury Park will take place during the closure in mid-Oct). Much more pre-testing taking place to ensure introduction into service is more reliable



**Comments and questions . . . .**

