

PRESENTATION DATE

Maintaining the London Trams Infrastructure

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Agenda

- Quick Introduction
- Overview of the network
- COVID-19 Challenges
- COVID-19 PPE
- Q&A



London Trams Network

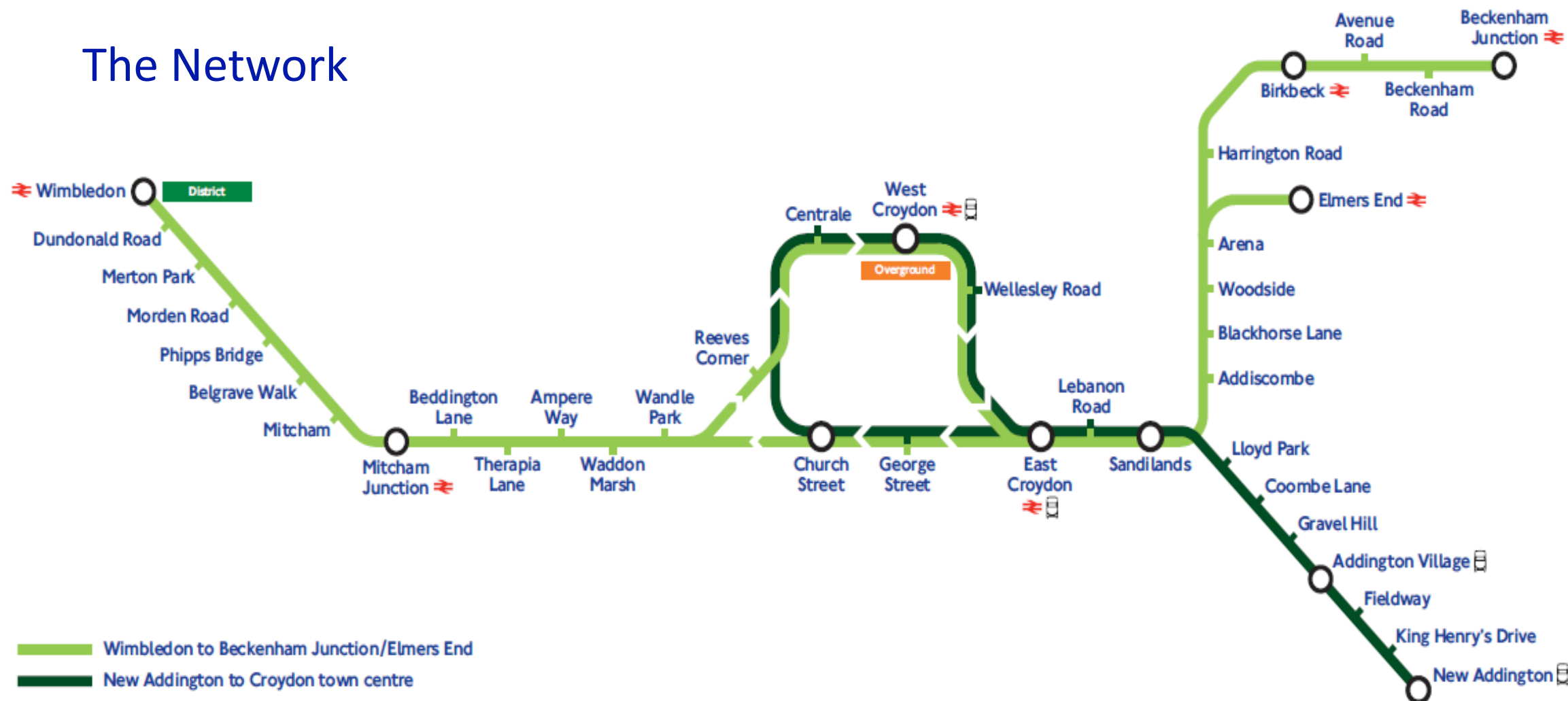
- Part of London Rail – TfL
- 28 km network
- 39 tram stops
- 35 low-floor trams -
 - 23 x Bombardier CR4000
 - 12 x Stadler Variobahn
- 31 million passengers per year



The Network



The Network



Permanent Way Maintenance Team

1 x Track Manager, 1 x Track Engineering Technician, 2 x Track Supervisors,
4 x Track Technicians, 1 x NPL Track Technician

Key issues

- Maintaining points reliability (bit unusual for P-way to maintain mechanisms)
- Managing defective rail in the town centre (embedded rail) – remove or monitor?
- Cost and complexity of renewing town centre track.
- Using ‘unusual’ components – e.g. 49E1 rail
- Lack of industry standards and processes for tram track – NR/LU standards are not always applicable and often too onerous.
- Operating with a small team
- Track asset getting to the age (~20 years) where failures start to increase.



COVID -19: Impact on London Trams

- Service reduced to a Sunday service (all week)
- All infrastructure projects stood down
- Around 25% staff furloughed, especially in the Projects and Admin departments



Challenges: COVID -19

- Small team.
- Self/family isolation affects ability to carry out maintenance and inspections.
- Down 2 staff at the start of the outbreak - 5 P-way maintenance staff total.



Maintenance Activities

- Programme of Planned Preventative scheduled activities
- Significant response activities
 - Points cleaning and oiling
 - Checking for track damage
 - Searching for obstructions

Asset	Task Description	Scheduled Frequency (days)
Depot Track	Depot Basic Visual Patrol (BVP)	28
Depot Track	Depot Supervisory Inspection Enhanced (SIE)	84
Track (Ballasted and Embedded)	Basic Visual Patrol (BVP)	14
Track (Ballasted and Embedded)	Supervisory Inspection Enhanced (SIE)	84
Running Rail	Rail Wear Survey	365
Track (Ballasted and Embedded)	Inspection From The Front of a Cab	91
Track (Ballasted and Embedded)	Geometry Inspection	365
Running Rail	Ultrasonic Rail Flaw Detection Assessment	168
Switches and Crossings	S&C Inspection (once a year S&C manufacturer VAE to undertake inspection)	168
Switches and Crossings	Depot S&C Inspection	28
Rail Fastenings Subsystem	Fishplate Maintenance	365
Switches and Crossings	S&C Maintenance	91
Switches and Crossings	Points Inspection - Weekly	7
Switches and Crossings	Embedded Points Cleaning - Weekly	7
Running Rail Lubricator	Lubricator Maintenance	28
Buffer Stop	Inspect Buffer Stops	365
Expansion Switch	Expansion Switch Maintenance	168
Hot Weather (as required)		7
Cold Weather (as required)		7



Managing during COVID-19

- No changes to maintenance schedule
- Weekly PPE orders and stock checks
- **No PPE, No Work**
- Staff to meet on site, no need to go to the depot prior to shift
- Emphasis on hand hygiene and distancing
- Only critical tasks which require <2m staff work carried out



PPE during COVID-19

Weekly order for 6 P-way
maintenance staff

COVID-19 PPE Request Sheet	
Team: P-Way	
Product	QTY
Small Sanitizer (50ML)	10 EA
Large Sanitizer (500ML)	
Hand Wipes	100 PCS
IIR Woven Masks	100 EA
FFP2 Mask Disposable	
FFP3 Mask Disposable	
Latex Gloves M	
Latex Gloves LRG	200 Pairs
Hyflex Work Gloves Size 8	
Hyflex Work Gloves Size 9	
Hyflex Work Gloves Size 10	7 Pairs
<u>Important:</u> PPE is in short supply please only order what is required for your team for one week. FFP2/FFP3 Mask are for task specific works only, to stop the spread of COVID-19 please use IIR Woven Masks.	



PPE during COVID-19

PPE usage since COVID-19 emergency

COVID-19 PPE Stock Levels		COVID-19 PPE Stock Usage/Availability			
Product	Stock Level	Product	Usage per Week	Overall Usage	Weeks Worth Stocked
Large Sanitizer (500ML)	238	Large Sanitizer (500ML)	7	23	
Small Sanitizer (50ML)		Small Sanitizer (50ML)	48	157	5.0
Hand Wipes (100PCS)		Hand Wipes (100PCS)	7	23	
Latex Gloves M (100PCS)	5	Latex Gloves M (100PCS)	4	12	1.4
Latex Gloves LRG (100PCS)	12	Latex Gloves LRG (100PCS)	11	37	1.1
IIR Woven Masks (50PCS)	58	IIR Woven Masks (50PCS)	12	38	5.0
Latex Gloves M (200PCS)	8	Latex Gloves M (200PCS)	2	6	
Latex Gloves LRG (200PCS)		Latex Gloves LRG (200PCS)	4	13	2.0
FFP3 Mask Disposable (1 EA)		FFP3 Mask Disposable (1 EA)	8	25	16.3
FFP2 Mask Disposable (1EA)	248	FFP2 Mask Disposable (1EA)	5	17	47.9
Hyflex Work Gloves Size 9 (PAIR)	99	Hyflex Work Gloves Size 9 (PAIR)	12	40	8.1
Hyflex Work Gloves Size 10 (PAIR)	81	Hyflex Work Gloves Size 10 (PAIR)	25	81	3.3
Hyflex Work Gloves Size 8 (PAIR)	28	Hyflex Work Gloves Size 8 (PAIR)	1	2	46.0
Hazardous Waste Bags (EA)	1500	Hazardous Waste Bags (EA)	152	500	9.9
Guardicide 500ml refill (EA)	50	Guardicide 500ml refill (EA)	6	20	8.2
WypAll Paper Towel (25 PK)	20	WypAll Paper Towel (25 PK)	3	10	6.6



Tasks Where Social Distancing is not Possible

Task	Area	Asset	Type	Staff	Frequenc	Shifts/Ye	Risk Category
Replace track components	Pway	Track	Reactive	4	Ad hoc	50	Requires staff <2m
Lubricator maintenance	Pway	Track	Planned	2	Periodic	26	Requires staff <2m
Reactive platform equipment faults	Systems	Systems	Reactive	2	Ad hoc	200	Requires staff <2m
Reactive trackside equipment faults	Systems	Systems	Reactive	2	Ad hoc	200	Requires staff <2m
Highway repairs	Works	Highways	Planned	3	Weekly	100	Requires staff <2m
Highway steelwork repairs	Works	Highways	Reactive	3	Ad hoc	40	Requires staff <2m
Fencing repairs	Works	Fencing	Reactive	3	Ad hoc	150	Requires staff <2m
Platform repairs	Works	Platform	Reactive	3	Ad hoc	150	Requires staff <2m
Sign installation	Works	Signage	Reactive	3	Ad hoc	20	Requires staff <2m
Concrete repairs	Works	Structure	Reactive	3	Ad hoc	35	Requires staff <2m
Shelter repairs	Works	Structure	Reactive	3	Ad hoc	52	Requires staff <2m
Rubbish bin repairs	Works	Platform	Reactive	2	Ad hoc	10	Requires staff <2m
OLE high level inspection	OLE	OHLE	Planned	2	Annual	250	Requires staff <2m
Balance weights maintenance	OLE	OHLE	Planned	2	Annual	52	Requires staff <2m
Section insulator maintenance	OLE	OHLE	Planned	2	Annual	26	Requires staff <2m
Replacment of OLE	OLE	OHLE	Reactive	3	Ad hoc	40	Requires staff <2m
Alteration/ adjustment of OLE	OLE	OHLE	Reactive	2	Ad hoc	15	Requires staff <2m



Derogations for overdue maintenance tasks

- Draft derogations in place for the situation where significant staff shortages prevent regular maintenance.
- Risk assessed so safety critical inspections can be focussed on.
- No currently utilised...



Q&A



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