

Transport for London

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Transport for London

Review and approval of 2026, 2026+28% AM and PM Peak SDCC design Legion models and accompanying reports:

Design suitability from a passenger flow perspective

This note summarises the position with regards to the technical audits of the Rail for London - IM Crossrail station complex models and their associated modelling reports.

These Legion models have been audited by CRL/TfL joint Operations Team against the CRL Pedestrian Modelling Guidelines and the CRL Platform Standard (CR-STD-305). These Legion models are therefore fit for purpose and each has an agreed and consistent set of assumptions.

The summary sheets attached cover the review of the modelling reports and the few cases where and when the new infrastructure comes close to the required capacity under CPFR version 5. Mitigation measures in these circumstances that RfL have agreed are noted along with their effectiveness. Static assessments of lift capacities at each station are also included.

This assessment is based on the CRL Pedestrian Modelling Guidelines and the CRL Platform Standard (CR-STD-305). These documents reference LUL's Station Planning Standards and Guidelines (2005) and TfL's Legion Modelling Best Practice (2009).

Any future modelling workstream will be based on these final models. Any changes to these models will be agreed with RfL and follow a change control process.



Director Operations, Overground & Crossrail

07 January 2013

MAYOR OF LONDON

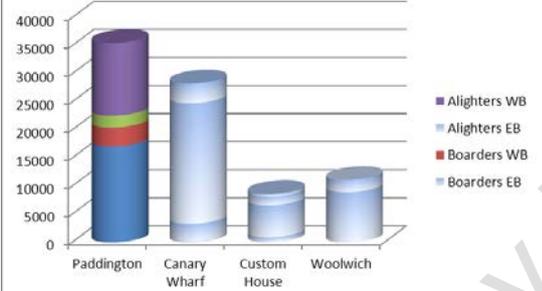
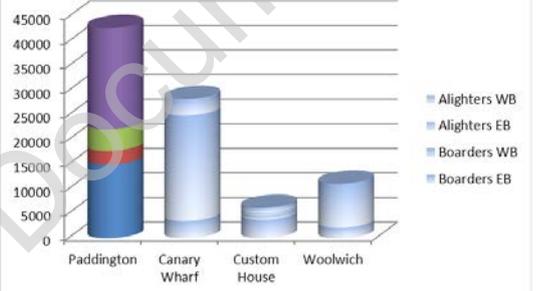
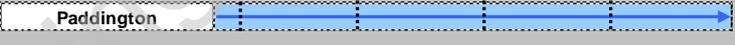
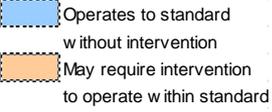
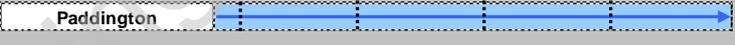
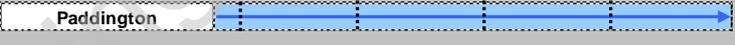
Transport for London



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PADDINGTON (Crossrail)																									
Consultant:																									
Report:	C130-SWN-T1-XMO-B071-50001 - (2026) C130-SWN-T1-XMO-B071-50002 – (2026 +28%) C130-SWN-Z-RGN-B071-50009 - (BLL)																								
Model Files:	2026 AM: Padd AM Combined Model_BLL_2026_v1.lgm 2026 PM: Padd PM Combined Model_BLL_2026_v1.lgm 2026 + 28% AM: Padd AM Combined Model_BLL_2026 +28_v1.lgm 2026 + 28% PM: Padd AM Combined Model_BLL_2026 +28_v3.lgm																								
ACS:	2026 AM: 2026 PM: 2026 + 28% AM: 2026 + 28% PM: C130-SWN-T1-XMO-B071-50004																								
Crossrail Boarders and Alighters	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>35,500 Passengers (0700-1000hrs)</p> </div> <div style="text-align: center;">  <p>42,750 Passengers (1600-1900hrs)</p> </div> </div>																								
Intervention point	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Area</th> <th>2026</th> <th>2026 7%</th> <th>2026 14%</th> <th>2026 21%</th> <th>2026 +28%</th> </tr> </thead> <tbody> <tr> <td>Platform Area</td> <td colspan="5" style="text-align: center;">  </td> </tr> <tr> <td>Vertical Circulation</td> <td colspan="5" style="text-align: center;">  </td> </tr> <tr> <td>Ticket Hall area</td> <td colspan="5" style="text-align: center;">  </td> </tr> </tbody> </table> <div style="margin-top: 10px;">  </div>	Area	2026	2026 7%	2026 14%	2026 21%	2026 +28%	Platform Area						Vertical Circulation						Ticket Hall area					
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Vertical Circulation																									
Ticket Hall area																									
Mitigations Identified?	Yes / None Required																								
Details:	<ul style="list-style-type: none"> ▪ <u>CRL platforms:</u> There are areas of LOS D at the Bakerloo line link escalator during the PM peak. ▪ <u>CRL Platform Mitigation:</u> The relief stair to the Bakerloo line link would be made available to passengers. This provides extra capacity and would remove the need to queue for the escalator. ▪ <u>CRL concourse level escalators:</u> These escalators have excess queuing at 2026+28% during the PM peak. ▪ <u>Mitigation:</u> There is passive provision for a third escalator in the eastern escalator bank. ▪ If more Crossrail services were to operate west of Maidenhead the need to interchange would be reduced which will relieve platform and escalator congestion. 																								

CANARY WHARF																																					
FDC:	Canary Wharf Group																																				
Report:	T142-XRL-T3-RGN-CRG02_Z-50001																																				
Model Files:	2026 AM: AM 2026_loD_Nov2001_v6 2026 PM: PM 2026_loD_Nov2001 2026 + 10% AM: AM 2026+10%_loD_Nov2001 2026 + 10% PM: PM 2026+10%_loD_Nov2001_v2																																				
ACS:	2026 AM: ACS 2026_AM_loD_v6 2026 PM: ACS 2026_PM_loD_v3 2026 + 10% AM: ACS 2026 + 10%_AM_loD 2026 + 10% PM: ACS 2026 + 10%_PM_loD																																				
Crossrail Boarders and Alighters:	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>28,300 Passengers (0700-1000hrs)</p> </div> <div style="text-align: center;"> <p>28,300 Passengers (1600-1900hrs)</p> </div> </div>																																				
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Mitigations Identified?	Yes / None Required																																				
Details:	<ul style="list-style-type: none"> ▪ No issues arising from this report ▪ No intervention /mitigation points identified. ▪ There will be queuing at the base of the platform escalators following train arrivals during the AM Peak. These queues will easily clear before the next train in that direction. Temporary barriers may be required to manage these escalator queues at platform level. ▪ The PM peak generally has less congestion although the westbound platform is crowded beside the escalators. 																																				

CUSTOM HOUSE																									
Consultant:	ARUP																								
Report:	C146-ATK-Z-XMO-CR145-00003 C520-XRL-T3-RST-CR145_Z-50001																								
Model Files:	2026 AM: CUH - 2026 Base DIA models.zip 2026 PM: CUH - 2016 event DIA model.zip 2026 + 28% AM: 10-10-12-2026 PM VE Station_Option 4.4 2026 + 28% PM: 10-10-12-2026 PM VE Station_Option 4.1																								
ACS:	2026 AM: C146-ATK-T3-LRC-CR146_Z-50001 2026 PM: 2026 + 28% AM: 2026 + 28% PM:																								
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Ticket Hall area																									
Mitigations Identified?	Yes / None Required																								
Details:	<ul style="list-style-type: none"> ▪ The station is oversized in order to accommodate Excel events ▪ <u>Major Events</u> will require station management: <ul style="list-style-type: none"> ▪ For major special events <u>start</u> - UTS gates need to be left open, the platform will clear before the next train and circulation routes remain at LOS C or below. ▪ For major special events <u>end</u> - station management is required to hold passengers at concourse level when platforms become over-crowded. ▪ <u>DLR interchange gateline</u> This gateline may become overloaded before 2026 +28%. This assumes the DLR extension to Dagenham Dock is in place. ▪ <u>Mitigation</u> – divert some DLR interchange passengers via the main gateline. 																								

WOOLWICH																									
Consultant:	Berkley Homes Ltd																								
Report:	TI44-XRL-T3-RGN-CRI47_Z-50001																								
Model Files:	2026 AM: Woolwich RIBA C 2026 AM v3 2026 PM: Woolwich RIBA C 2026 PM v6 2026 + 28% AM: M:\South East\Woolwich\ 2026 + 28% PM:																								
ACS:	2026 AM: ACS 2026 AM_Woolwich.xls 2026 PM: ACS 2026 PM_Woolwich.xls 2026 + 28% AM: ACS 2026 +28% AM_Woolwich.xls 2026 + 28% PM: ACS 2026 +28% PM_Woolwich.xls																								
Crossrail Boarders and Alighters:	<p style="text-align: center;">11,100 Passengers (0700-1000hrs) 11,100 Passengers (1600-1900hrs)</p>																								
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Mitigations Identified?	Yes / None Required																								
Details:	<ul style="list-style-type: none"> ▪ No issues arising from this report ▪ No intervention /mitigation points identified. ▪ There is queuing Level of Service D to board the up escalators during the PM peak following train arrivals. ▪ This will cause passenger delay of up to 60 seconds but the platform will easily clear before the next train. 																								

LIFT STATIC ASSESSMENT

Station	Lift	2026+28% demand		Static Assessment assuming capacity of lift =70% of plated capacity		
Paddington 		AM	PM	Static Assessment assuming capacity of lift =70% of plated capacity { % of PRM types A,B,D,E that can be accommodated } { % of PRM types C that can be accommodated }	AM	PM
	3	✓ ▪	✓ ▪		Up: {100%,100%}	Up: {100%,100%}
	4	✓ ▪	✓ ▪		Down: {100%,100%}	Down: {100%,100%}
	5	✓ ▪	✓ ▪		Up: {100%,100%}	Up: {100%,100%}
	6	✓ ▪	✓ ▪		Down: {100%,100%}	Down: {100%,100%}
Canary Wharf 		AM	PM	AM	PM	
	1	✓ ▪	✓ ▪	Down: {100%,100%}	Down: {100%,100%}	
	2	✓ ▪	✓ ▪	Up: {100%,100%}	Up: {100%,100%}	
Custom House 		AM	PM	AM	PM	
	1	✓ ▪	✓ ▪	Down: {100%,100%}	Down: {100%,100%}	
	3	✓ ▪	✓ ▪	Up: {100%,100%}	Up: {100%,100%}	
Woolwich 		AM	PM	AM	PM	
	1	✓ ▪	✓ ▪	Up: {100%,100%}	Up: {100%,100%}	

Meets PRM Types A,B,D and E static assessment

INNER SUBURB	AM peak		
	Entrance	Exit	Av (int)
% Passengers by PRM Category			
A - Wheelchair	0.00	0.00	0.00
B - Physical mobility Impairment	0.28	0.31	0.16
C - Medium encumbrance	1.65	2.02	1.94
D - Large encumbrance	0.62	0.77	0.73
E - Buggy	0.09	0.09	0.08
Total	2.64	3.19	2.91

PM peak		
Entrance	Exit	Av (int)
0	0	0
0.38	0.43	0.22
6.71	8.22	7.89
1.68	2.09	1.97
0.13	0.13	0.12
8.9	10.87	10.2