

From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: RE: MSG: Station modelling
Date: 20 September 2019 12:43:51
Attachments: [image005.png](#)
[image006.png](#)

Hi [redacted]

Thanks for this – they have confirmed the meeting so it will start at 11am but I suggest if you come over between 10.30-10.45 to quickly run us through your work that would be good.

Kind regards

[redacted]
Planning Development Executive

Queen Elizabeth Olympic Park
London Legacy Development Corporation
Level 10
1 Stratford Place Montfichet Road
London
E20 1EJ

Direct Line 020 3288 [redacted]
Mobile [redacted]
Email [redacted]@londonlegacy.co.uk
Website www.queenelizabetholympicpark.co.uk



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From: [redacted] [mailto:[redacted]@networkrail.co.uk]
Sent: 18 September 2019 17:38
To: [redacted] [mailto:[redacted]@londonlegacy.co.uk]
Subject: RE: MSG: Station modelling

Hi [redacted]

I think we can probably present an update at the start of the meeting and then open the meeting up to any requests for info/data they have from us.

I think we can then hopefully try and co-ordinate how the separate work we are carrying out can be fed in to their assessment and vice versa

In terms of info from them they have been sent our feedback as part of the TfL report so I don't expect them to have much of an update as I understand that was passed on to them not too long ago.

Regards

[redacted]

[redacted]
Station Capacity Specialist
[redacted]
Analysis & Economics System Operator
Eversholt Street, London



From: [redacted] [mailto:[redacted]@londonlegacy.co.uk]
Sent: 18 September 2019 17:33
To: [redacted] [mailto:[redacted]@networkrail.co.uk]
Cc: [redacted] [mailto:[redacted]@networkrail.co.uk]; [redacted] [mailto:[redacted]@acobs.com]
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Sent: 18 September 2019 16:40
To: [redacted] <[redacted]@londonlegacy.co.uk>
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Good Afternoon [redacted]

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We have been working closely with our TfL modelling colleagues and have co-ordinated our response.

In terms of progress
We have run a series of models with the MSG demand included
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We have also run the models for a variety of future years – something which we recommended Momentum carry out and assess.

I do believe it will be useful to have a meeting with Momentum next week [redacted] and I am both able to attend on Friday 27th)

We have been conducting separate work regarding potential enhancements at Stratford Station and are keen to ensure Momentum are working in line with our proposals when we assess the impact of MSG.

The design work is currently underway (through Network Rail Design and Delivery) and we do not have any concrete design options at the moment but we are happy to update Momentum on our progress.

Kind Regards

[redacted]

[redacted]

Station Capacity Specialist

Analysis & Economics System Operator

Eversholt Street, London

 **System Operator** Planning a better network for you

From: [redacted] <[redacted]@londonlegacy.co.uk>
Sent: 17 September 2019 11:27
To: [redacted] <[redacted]@networkrail.co.uk>; [redacted] <[redacted]@networkrail.co.uk>; [redacted] <[redacted]@networkrail.co.uk>
Subject: RE: MSG - Station modelling

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[redacted] / [redacted] – Please can you update me with any further work that you have been doing since our last meeting around the station modelling (and potential re-design work)? You will have seen from recent emails that we have next Friday (AM) held in our diaries for this but I'm just wondering your progress to understand whether it should go ahead or not?

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To: [redacted] <[redacted]@londonlegacy.co.uk>
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Kind regards

[redacted]

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-----Original Appointment-----

From: [redacted] [mailto:[redacted]@networkrail.co.uk]
Sent: 10 September 2019 17:55
To: [redacted]
Subject: Declined MSG Station modelling
When: 27 September 2019 10:00-12:30 (UTC+00:00) Dublin Edinburgh Lisbon London.
Where: Room 5 LLDC Offices

[redacted]

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From: [REDACTED]
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: MSG: Station modelling
Date: 26 September 2019 16:04:04
Attachments: [image005.png](#)
[image004.png](#)
[N0mechmiUPDATE.pdf](#)

Good Afternoon All

Apologies for the slight delay.

Please find attached NR s brief presentation to prompt discussion with Momentum.

Regards

[REDACTED]

[REDACTED]
Station Capacity Specialist
[REDACTED]
Analysis & Economics System Operator
Eversholt Street, London

System Operator *Planning a better network for you*

From: [REDACTED] <[REDACTED]@tfl.gov.uk>
Sent: 26 September 2019 13:55
To: [REDACTED] <[REDACTED]@londonlegacy.co.uk>; [REDACTED] <[REDACTED]@networkrail.co.uk>
Cc: [REDACTED] <[REDACTED]@networkrail.co.uk>; [REDACTED] <[REDACTED]@networkrail.co.uk>; [REDACTED] <[REDACTED]@acobs.com>; [REDACTED] <[REDACTED]@tfl.gov.uk>; [REDACTED] <[REDACTED]@tfl.gov.uk>; [REDACTED] <[REDACTED]@tfl.gov.uk>
Subject: RE: MSG: Station modelling

Dear all

Please see the material I have generated for [REDACTED]

Regards

[REDACTED]

[REDACTED]
Planner | Transport Modelling
Public Transport Service Planning
10th floor Palestra (10Y7) 197 Blackfriars Road London SE1 8NU
020 [REDACTED] (internal) [REDACTED]
[REDACTED]@tfl.gov.uk

From: [REDACTED] [mailto:[REDACTED]@londonlegacy.co.uk]
Sent: 26 September 2019 11:55
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: MSG: Station modelling

Hi [REDACTED]

Thanks for confirming we'll get a slide pack this afternoon. Please can you share with everyone in the email chain.

[REDACTED] / [REDACTED] – if you could do the same with any material you're preparing that'd be great.

See you all [REDACTED] morning here at our offices for a 10.30am pre-meet.

[REDACTED]
Planning Development Executive

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To: [REDACTED] <[REDACTED]@londonlegacy.co.uk>
Cc: [REDACTED] <[REDACTED]@networkrail.co.uk>
Subject: RE: MSG: Station modelling

Hi [REDACTED]

[REDACTED] and I will send over a slide pack this afternoon – around 1500.

I know TfL will also provide a document – the TfL document incorporates both TfL and NR opinions on the modelling.

The following will be attending tomorrow:

[REDACTED]

Jacobs

TfL

Regards

Station Capacity Specialist
Analysis & Economics System Operator
Eversholt Street, London

System Operator *Planning a better network for you* 

From: [redacted] <[redacted]@londonlegacy.co.uk>
Sent: 26 September 2019 10:20
To: [redacted] <[redacted]@networkrail.co.uk>
Cc: [redacted] <[redacted]@acobs.com>; [redacted] <[redacted]@networkrail.co.uk>; [redacted] <[redacted]@networkrail.co.uk>; [redacted] <[redacted]@tfl.gov.uk>
Subject: RE: MSG Station modelling

Hi [redacted]

Are you able to share anything ahead of [redacted] morning's meeting so we can get up to speed on what you've been working on?

Could you also let me know who'll be attending so I can register with reception?

Thanks

[redacted]
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Sent: 10 September 2019 17:55
To: [REDACTED]
Subject: Declined MSG Station modelling
When: 27 September 2019 10:00-12:30 (UTC+00:00) Dublin Edinburgh Lisbon London.
Where: Room 5 LLDC Offices

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System Operator

Planning a better network for you



Stratford – Network Rail Updates



Station Capacity Team

27/09/2019

Stratford: Workstream

- Network Rail are currently undertaking a Strategic Outline Business Case relating to potential enhancements at Stratford station.
- The SOBC is a piece of work that evidences the current issues at the station, suggests and compares some high level mitigations before being used to support the joint decision between NR and the DfT to develop the potential schemes.

Ped Flow Problem Identification has been produced (**August 2019**). The SOBC details the current congestion and capacity issues at the station, highlights where the station currently operates in non-conformance with the NR SCPG and explores the potential mitigation options.

The draft SOBC has been passed on to Network Rail's Design and Delivery Team. Their task is to produce and finalise a series of mitigation design options – ranging from short to long term solutions. They will produce a set of designs for the end of **October 2019**.

A final SOBC will be produced for **January/February 2020**. Pedestrian modelling as well as a full economic appraisal will be carried out on the design options produced by NRDD.

Stratford: Short Term Quick Wins

The following proposals were identified as 'quick-win' short term options.

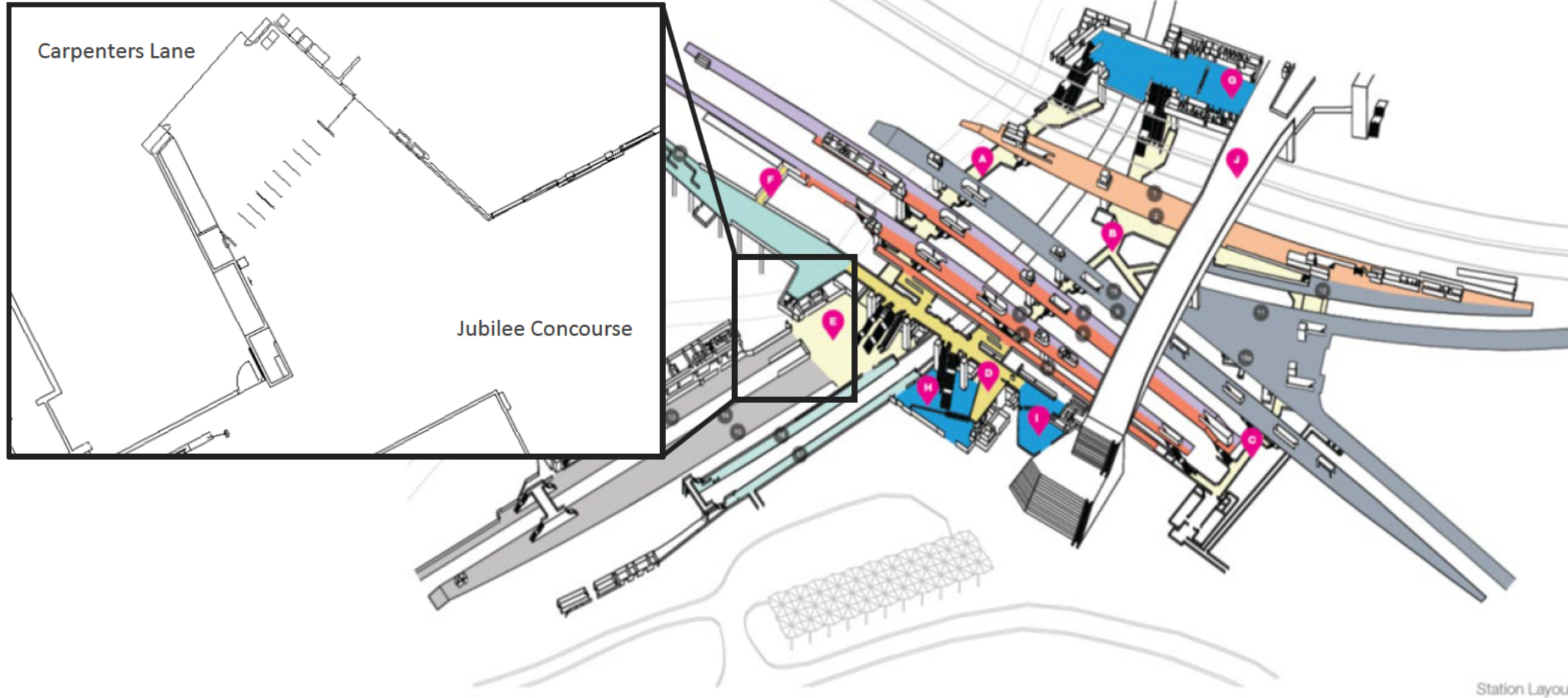
- **Relocation of the lift at the southern end of the Western Subway** – increases the usable capacity by 33% in a heavily used area; large interchange between Jubilee Line and Platforms 6 & 8.
- **Removal of the Control Room on Platform 6 & 8** – increases the run-off at the top of the stairs from the Central Subway to Platform 6 & 8. Increases the circulation zone on the platform, resulting in fewer boarder and alighter conflicts.
- **Decluttering of Platforms** – removal of ground-based CIS and way-finding platform furniture. Improving the canopy coverage so that existing CIS and way-finding can be hung. Utilising a cantilever approach so supporting columns can be removed from the platform.

Stratford: Medium/Long Term Enhancements

The following proposals were identified as medium to longer term enhancements.

- **South West Ticket Hall** – connecting the Jubilee Concourse to the Carpenters Lane estate.
- **South East Ticket Hall** – this involves renovating and repurposing the old station entrance on the Stratford Town centre side. The entrance would connect directly to the Eastern Subway.
- **Interchange Enhancement** – potential link bridge parallel to existing Town Centre Link Bridge. Running from Mezzanine Ticket Hall to North side of the station.
- **Canopy Coverage** – Creating cantilever canopies on all platforms. Encourage platform spreading for boarders and also serve as a mount from which to hang current platform furniture such as CIS and way-finding.

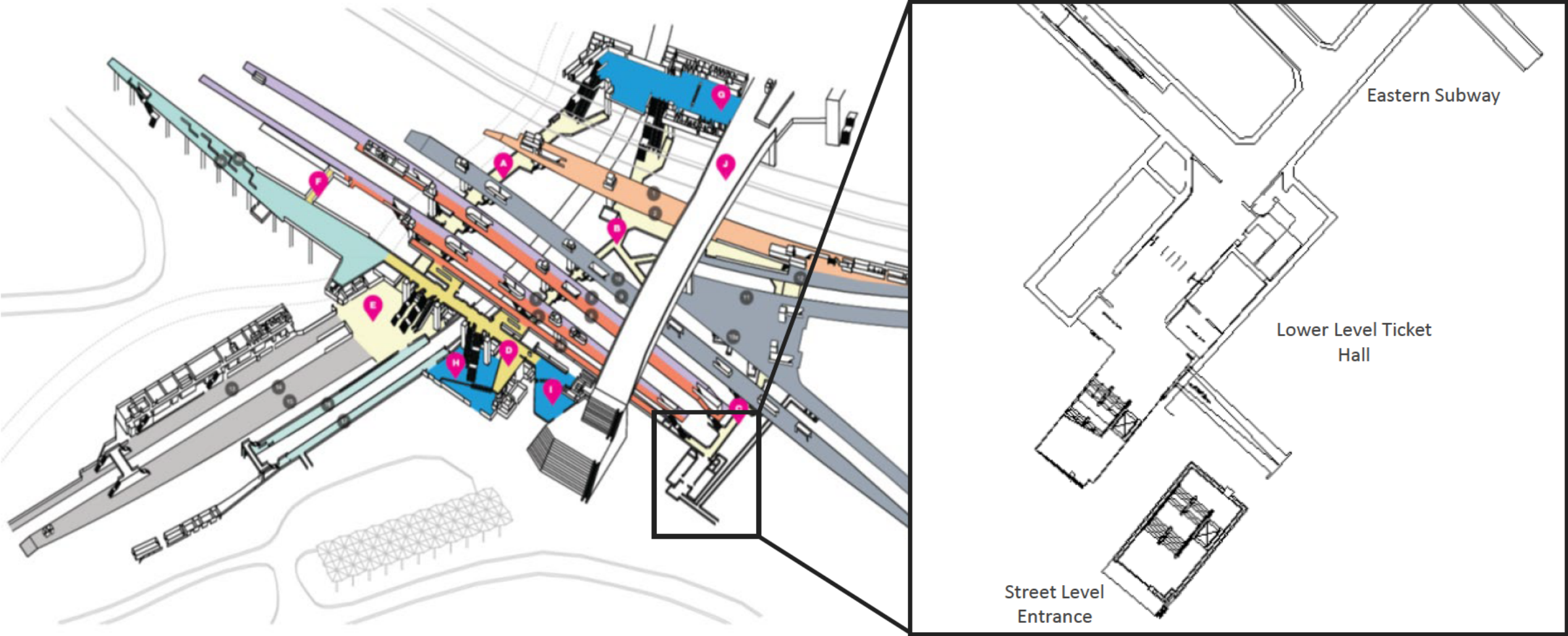
Stratford: South West Entrance



- Legend**
- A Western Subway
 - B Central Subway
 - C Eastern Subway
 - D Mezzanine Concourse
 - E Jubilee Line Concourse
 - F DLR Link
 - G North Ticket Hall
 - H South Ticket Hall
 - I Mezzanine Ticket Hall
 - J Town Centre Link Bridge
 - Ticket Hall
 - Circulation Route
 - DLR Platforms
 - Jubilee Line Platform
 - Central Line Platform
 - TLR Rail Platform
 - LO Platform
 - Elizabeth Line Platform

Station Layout

Stratford: South East Entrance



Information for Momentum

- **Localised CAGR**– localised Cumulative Annual Growth Rates, to be applied for alighting load forecasting as well as background station entry demand. To be used to model future scenarios at Stratford station.
- **CAD of Medium/Long Term Enhancement Options** – CAD can be provided for the enhancement options aforementioned.
- **Continuous Communication** – NR SCT are happy to liaise with Momentum to update them regarding the enhancement proposals as and when NRDD produce them.

Additional factors that should be addressed in any station modelling for a revised Transport Assessment

The following points have been highlighted in TfL response to the previous Transport Assessment and should be addressed in any future Transport Assessment on the impacts of the station.

1. The applicant's assessment assumes that the impacts of the development proposal on station congestion are treated as 'special events', thereby avoiding and reducing requirements and potential mitigations. The TfL Station Planning Standards Guidance sets out that *"If special events are a regular occurrence, such as football matches every other week, then station capacity and design shall reflect this situation"*. The 300 event days per year clearly must be considered to be a regular occurrence and should therefore be regarded as 'normal operation', with station capacity, design and management standards reflecting this situation.
2. The modelling assumes that some station gatelines are left open on events days. Having the gates open leads to higher flow rate (50 passengers per minute compared to 25) but will lead to revenue loss. This is not procedure for normal operation and the modelling should include gates operating in the normal way.
3. The modelling does not compare the proposed development flows with a comparable base. In creating their own model for the development scenario the applicant has made several Legion modelling adjustments to aid with the flow of passengers (such as use of drift zones and direction modifiers) and which were not retrospectively applied to the base modelling. If this was applied to the base it would improve the results for the base. This would lead to an increase in the change in crowding levels between the base and Momentum model. This can be addressed by running the revised model with the base demand to create a new base and compare results against this new base.
4. The reports on station congestion do not necessarily reflect the busiest time for the station. Maps used in the TA show densities experienced between 1730 and 1745. The maps for 1745-1800 should be provided; as this is when the modelled demand at the station is at its highest (we may also need other time periods subject to the refinement of the arrival profile).
5. The revised models assume the re-routing of passengers. This has an adverse impact on journey times for some background passengers which are not quantified in the TA. The applicant should therefore consider the effect on increased journey times from rerouting passengers and increased crowding.
6. It is unclear how event users have been assigned to the different train services serving Stratford station. This will need to be presented in more detail.
7. Further information is required as to how the ticket hall splits as shown in the model will be managed and mitigated. Without this, sensitivities on ticket hall proportions should be carried out.
8. While TfL's assessment shows that Stratford Station will need significant interventions by 2031, it is clear that the flows to and from the proposed development will materially shorten the period before further station control (including closure to entries) will need to be instigated. Therefore some level of future year assessment and interventions should be considered, and this will need to be agreed with Network Rail and rail operators. Network Rail to advise – we will coordinate a separate meeting with Momentum and ensure they are updated on our capacity enhancement proposals -> timeline, demand etc.

In addition to this the following should be generated

1. Any assessments should also be carried out considering different arrival profiles for MSG (including an arrival profile based upon O2 arrival profile- provided by TfL). This arrival profile should be used in all testing.
2. If the start time is adjusted then appropriate and justified adjusted arrival profile should be applied (i.e. moving event back by 30 minutes will not just mean people arrive 30 minutes later). Sensitivities, including 50%, should be carried out.
3. Analysis, such as crowding levels, should be provided for the key parts of the station. This should include all subways, all platforms and all the ticket halls.
4. It should be demonstrated that basic audit checks have been carried out on the model, to include a check of inputs against outputs (OD matrix export on running the model)
5. Consideration should be given to the variability of the train service during events such as cancellation/delays. Consider the impact of disruption has on train loading and station crowding levels.
6. The gatelines in the Northern TH are not shown as they are currently operated. This needs to be corrected in future models.
7. Ensure that they are using the correct Jubilee exit final destination splits in the OD matrix. Perturbation around these exit splits- for example changing what proportion of passengers from the Jubilee platform leave by the different ticket halls. Should state methodology will be used prior to modelling.
8. Should be testing with 2024/2025 background demand or whatever year the venue will be opening.
9. Should be testing with future years background demand to ensure the venue will work in future years. Network Rail will provide the appropriate data to enable this.