

TECHNICAL ASSURANCE

Systemwide Design Gate Review Procedure

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Revision Changes:

Revision:	Status / Description of Changes	
4.0	Updated for Issue: Changes to purpose, design gate review plan and about Wrap Up.	
	Reference	Amendment
	1.2.5	Paragraph added regarding post Gate 3 design changes.
	3.3	Guidance included on the provision of Gate Risk Assessment.
	3.6.3	Added 'if the Gate is passed without conditions'.
	3.8/3.9	Detail on the procedure for completion of the CRL Systemwide Gates Declaration Certificate has been added.
	3.10	Information added on Gate Pass Certificate.
	3.12	This section has been added to explain the procedure for assuring design changes post IFC. Further information added on the procedure for issue of Gate Pass Certificate following Post 'Issued for Construction' Design Changes.
	Appendix A	Mini Gate/ (60/90%) Gate Risk Assessment Form Template added.
	1.1.4	Paragraph added about process for Wrap Up.
	3.2.1	Paragraph added about Design Gate Review Plan.
	3.4.5	Paragraph added on Wrap Up Presentation.
5.0	3.3.1	Added: A Mini Gate Submission form is available (see Reference G of Section 5) and a standard Gate Release Form (see Reference A of Section 5) for this purpose which will be signed off by the Project Manager when satisfied with a submission.
	3.6.3	Added: Evidence Coordinator to record conditions at gate and record to conditions tracker
	3.7.1	Added: The report shall be re-issued with the evidence recorded when the conditions are closed
	5.0	Added: Template G added for: Min-Gate Review Template System-wide
6.0	3.12.2	Changes to assign Safety/Operability signature and IM signature if required.

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1 Purpose and Scope

1.1 Purpose

The purpose of the Systemwide Design Gate Review procedure is:

- 1.1.1 To describe the process which will be used by the Systemwide Contractors to provide progressive assurance, as required by the Central Section *Technical Assurance Plan (Ref 1)* to the Project Manager and other Stakeholders during the design stage that the design packages will meet their requirements and will be fit for purpose. The design Gate Review process described within this Procedure is aligned with the requirements specified for the Systemwide contracts in the *Systemwide Works Information (WI) Volume 2B (Ref 2)*. This procedure should be read in conjunction with Part 29 of the WI Volume 2B entitled Contractor's Design, Assurance, Records and Certification (Systemwide).
- 1.1.2 To establish a regime where agreed products and deliverables are submitted, reviewed and accepted first time. In the event that submissions are rejected the Design Gates provide a control mechanism for re-submission.
- 1.1.3 Progress through the Gate Reviews is not dependent on achieving a Design Gate Release without conditions at each stage.
- 1.1.4 To describe the process for wrapping up Contractors assurance which has been fragmented through a series of Mini Gates to assist the construction programme. This will be achieved through a Wrap-Up presentation to the Gates panel, and a satisfactory outcome will be evidenced by the issue of the Certificate of Integration submitted by the Contractor and accepted by Crossrail.

1.2 Scope

- 1.2.1 This procedure applies to all Systemwide contracts within the Crossrail Central Section of the Crossrail Project. It does not cover those projects undertaken by other bodies (LU and NR) under their own project management systems as part of the Crossrail programme.
- 1.2.2 This procedure sets out the Design Gates for the design phase up to final detailed design for manufacture, installation, commissioning, systems integration and trial running.
- 1.2.3 Framework Design Consultant (FDC) Systemwide reference designs have been through Gate 1. Systemwide Gate 1, 2, and 3 Reviews will be carried out by Contractors in accordance with Part 29 of the *Systemwide Works Information (WI) Volume 2B (Ref 2)*.
- 1.2.4 For Civils design contracts (Gates 1, 2 and 3) and M&E systems design / Architectural contract Gate reviews during detailed design phase, the *Engineering Design Assurance Gates Procedure (Ref 3)* shall be used.
- 1.2.5 Post Gate 3/IFC reviews may be required when the Project Manager has identified significant design change post IFC that requires revalidation of the assured Gate 3 design. The Project Manager in conjunction with the Systemwide Contractor is responsible for evaluating the risks and impact of design changes against the Gates criteria specified for the Systemwide contracts in the *Systemwide Works Information (WI) Volume 2B (Ref 2)* and in accordance with the Post IFC (Issued for Construction) Changes Guidance Note (Ref 6), this is further explained in Section 3.10. The Gate Impact Report Template is included in Section 5.

2 Definitions and Abbreviations

Subject	Definition
CRL	Crossrail Limited
FDC	Framework Design Consultant
IFC	Issued for Construction
IM	Infrastructure Manager
LU	London Underground
M&E	Mechanical & Electrical
NR	Network Rail
PM	Project Manager
PMC	Project Manager's Communication
WI	Works Information

3 The Systemwide Design Gate Review Procedure

3.1 Design Gates

3.1.1 The Design Gates described within the Systemwide Works Information are:

3.1.2 **Gate 1:** Design at about 30% complete coinciding with issue of the Design Statement;

3.1.3 **Gate 2:** Design at around 60% completion stage coinciding with IFC drawings;

3.1.4 **Gate 3:** A final review when design is 90% complete.

3.1.5 Gates 1 to 3 are a control mechanism that provides progressive assurance, where evidence is reviewed at defined stages, to confirm that the design infrastructure and systems produced meet the project objectives, requirements, and obligations and that the risks associated with the engineering are identified, fully understood and managed throughout the project life cycle.

3.2 Design Gate Review Plan

3.2.1 A Design Gate Review Plan, prepared by the Contractor, is used to provide the Contractor and the Project Manager with a detailed description of how and when Design Gate Reviews are to be performed on design packages. Design Gate Review Plans shall be regularly updated to incorporate Mini Gates and the Wrap Up Presentation required to demonstrate coordination and integration of all Gate and Mini Gate packages in a particular Element.

3.2.2 There is one Design Gate Review Plan per Elementary System.

3.2.3 The Contractor shall prepare the Design Gate Review Plan within 8 weeks of the starting date.

3.2.4 The Plan shall cover:

- Description and limits of the elemental system;
- Design package breakdown;
- Design Gate Review Remit;
- The review assessment criteria and success criteria;
- Level of detail and evidence to be provided prior to the Review;
- Details of resources, attendees, timing and venue for the Gate Reviews.

3.2.5 A copy of the Design Gate Review Plan shall be provided to the CRL Gates Coordinator (via CRL_Gates&AssuranceTeamInbox) so gate dates can be included in the *Design Review and Gate Review Programme (Ref 4)*.

3.3 Multiple Gate Submissions

3.3.1 Should Systemwide Gates, where design is declared ready for IFC (60% or 90% Gates), be proposed to be split into multiple main or mini gates, and where additional risks in relation to interfaces and integration are thereby introduced, it will be necessary for the Contractor to demonstrate that suitable levels of risk mitigation have been achieved. A Mini Gate Submission form is available (see Reference G of Section 5) and a standard Gate Review Release Form (see Reference A of Section 5) for this purpose which will be signed off by the Project Manager when satisfied with a submission. A risk assessment format has been provided (see Appendix A). This will identify risks associated with the progression of the designs via multiple Gate reviews. It will be covered as part of the Gate Review process. Significant risks should be entered into the contractors Crossrail ARM risk Register.

3.3.2 The Gate Risk Assessment is to be provided in excel format so that all Risk Assessments for Gates and Mini Gates relating to an element are collated on different tabs within one excel file.

3.4 Design Gate Review

3.4.1 The Contractor shall carry out formal Design Gate Reviews during the development of the design.

3.4.2 If the evidence provided demonstrates that the design meets all the objectives and criteria, the design will pass the Gate and can proceed to the next stage.

3.4.3 The Contractor is fully responsible for the Design Gate Review, its content, organisation, documentation of the results of the process and close-out.

3.4.4 At least 2 weeks prior to the Design Gate Review the Contractor shall issue a report to the Project Manager confirming the date of the Design Gate Review and its content, as specified in the Design Gate Review Plan appropriate to the Gate.

3.4.5 The Design Gate Review will not be a check or detailed review of design deliverables, but will validate the evidence that adequate checks and reviews have been conducted. The Gate Review will record the evidence including any clarifications made during the Gate Review as part of the progressive assurance process.

3.4.6 The Contractor shall complete the Contractor Declaration section of the Systemwide Design Gates Declaration Certificate.

3.4.7 Wrap Up Presentation – where the design of an Element has been fragmented, after the final Gate has been completed the Contractor is required to support the DS3 for his contract works through a Wrap Up Presentation demonstrating how the coordination and integration of his Design has been achieved. Acceptance of the Certificate of Integration by CRL will require closure of all Gate

Conditions. Implementation of all PMI's up to an agreed point in time, agreed closure of all SSOT items, closure of all relevant TIEs and closure of all Concessions. The Presentation will also demonstrate that the mitigations proposed in all the preceding Gates and Mini Gate Risk assessments have been closed out.

3.5 Design Gate Review Presentation

3.5.1 The objective of the Design Gate Review Presentation is for the Contractor to present a convincing argument to the Project Manager that the design is at the specified maturity.

3.5.2 The presentation shall present evidence to demonstrate compliance with the key aspects of the design elements listed below.

- The design presented conforms to the specified performance criteria and requirements of the Works Information;
- To ensure that a consistent quality controlled approach is adopted;
- To demonstrate that the design is integrated with other parts of the contract and its interfaces and that they fit within the Employer's requirements;
- To confirm the current status of the design check process;
- To identify and obtain from the Contractor justification for specific deviations or departures from the Standards and design inputs;
- To ascertain the approval status of design changes;
- To confirm that the Contractor's proposed design provides an economic solution;
- To confirm whether any further independent reviews are required;
- To report on the status of document reviews by the Project Manager;
- To identify the status of applicable Consents and Acceptances/Approvals required from Others throughout the design and construction process and to confirm that the Consents have been obtained or have been applied for;
- To confirm compliance with Crossrail New Works Standards Baseline and any additional standards applicable at interfaces;
- To identify safety hazards, their control, and the degree of residual risk to be managed;
- To identify all tests or demonstrations that are required for validation of the works;
- Any other relevant information and data such as:
 - Progress on interface development and design
 - Drawing and document status
 - Areas of concern/difficulty (risk) to the design.

3.5.3 The Contractor shall ensure that all of the evidence presented at the Design Gate Reviews shall have been reviewed in accordance with the Document Management Procedure (Ref 5) by the Project Manager in accordance with timescales prescribed for each deliverable submission, and in advance of the Design Gate Review.

3.5.4 The Contractor shall ensure that the presentation is made available to the Project Manager at least 5 working days prior to the scheduled date for the review.

3.6 Acceptance of the Design Gate Review

- 3.6.1 The Project Manager supported by CRL specialists and the Gate Chair as required shall consider the evidence provided by the Contractor at the presentation and any responses made to that evidence.
- 3.6.2 On conclusion of the Contractor's presentation the Project Manager shall indicate whether the Gate has been passed or not together with any conditions imposed.
- 3.6.3 Evidence Co-ordinator to record conditions at gate and record to conditions tracker.
- 3.6.4 If the Gate is passed without conditions the Project Manager shall complete the Review and Acceptance section of the Systemwide Design Gates Declaration Certificate.

3.7 Design Gate Review Report

- 3.7.1 Following the Design Gate Review presentation the Contractor shall produce a Design Gate Review Report summarising the arguments / evidence which have been presented for each key aspect included in the presentation, together with any acceptance or rejection or any conditions and observations made by the Project Manager, any clarifications resulting from the conditions and observations and the proposed timescale for closure of the conditions. The report shall be re-issued with the evidence recorded when the conditions are closed out.
- 3.7.2 The Design Gate Review Report shall contain the following information in addition to the requirements of clause 3.6.1 above:
Report Title; Report Number; Gate Stage; Issue Date; Prepared, Checked, Approved by; Date, Time and Location of Review; Attendee List; Presenters; Scope of Presentation.
- 3.7.3 The Report shall be submitted by the Contractor to the Project Manager and the CRL Gates Coordinator not later than 5 working days following the Design Gate Review, for acceptance by the Project Manager in accordance with the *Document Management Procedure (Ref 5)*.

3.8 Design Gate Review Release

- 3.8.1 If the Gate Review is successful the Project Manager will sign a *Systemwide Design Gate Review Release* with or without conditions. This form is in Section 4.0 Standard Forms / Templates. A copy of the *Systemwide Design Gate Review Release* and the Design Gate Review Report will be issued to the Gates Coordinator for retention.
- 3.8.2 If the *Systemwide Design Gate Review Release* is issued with conditions the Contractor shall supply evidence to the Project Manager to demonstrate that the conditions have been closed out to the Project Manager's satisfaction. A copy of the evidence will be issued to the Gates Coordinator for retention.
- 3.8.3 When all conditions have been successfully closed out the Project Manager will confirm this to the Contractor by PMC, and copy to the Gates Coordinator.

3.9 CRL Systemwide Gates Declaration Certificate

For Systemwide Gates where design is declared ready for IFC (60% or 90% Gates):

- 3.9.1 The Contractor will sign the declaration in the Systemwide Design Gates Declaration Certificate Template, Section 4, Ref C (see 3.3.6) to support the evidence provided at the Design Gate Review.

- 3.9.2 Following the Design Gate Review, if a pass **without** conditions is achieved the Project Manager will complete the CRL Systemwide Review and Acceptance section of the Design Gates Declaration Certificate (see 3.5.3) and forward to the Gates Coordinator.
- 3.9.3 Following the Design Gate Review, if a pass **with** conditions is achieved, on confirmation that all conditions have been successfully closed out the Project Manager will complete the CRL Systemwide Review and Acceptance section of the Design Gates Declaration Certificate and forward to the Gates Coordinator.
- 3.9.4 When the Gates Coordinator receives the Systemwide Design Gates Declaration Certificate completed by the Contractor and the CRL Systemwide PM the Gates Chair shall complete the Review and Acceptance section of the Certificate. This declaration in conjunction with the signed Gate Pass Certificate (see 3.10) will close out the gate.

3.10 Gates Pass Certificate

For Systemwide 30%/60%/90% Gates:

- 3.10.1 On receipt of the confirmation that all conditions have been successfully closed out the Gates Coordinator will prepare the Gates Pass Certificate (see Section 4, Standard Forms & Templates). The CRL Gates Chair will sign off the certificate which will be issued to the Systemwide PM. This, in conjunction with the signed Systemwide Design Gates Declaration Certificate will close out the Gate.

3.11 Design Gate Review Rejection

- 3.11.1 If the Design Gate Review is rejected by the PM at the presentation a re-work programme shall be submitted by the Contractor to the PM for acceptance within 5 working days of the rejection being issued to the Contractor. The Systemwide Design Gate Review Rejection form is in Section 5.0 Standard Forms / Templates.

3.12 Post Issued For Construction (IFC) Design Changes

- 3.12.1 Where there is a change to the Gated design post IFC and the Project Manager determines that a Gate Impact Report is required, then this report will be produced by the Systemwide Contractor. This template is in Section 5 Standard Forms / Templates.
- 3.12.2 The report will be submitted to the Gates Coordinator (CRL_Gates&AssuranceTeamInbox) / Head of Technical Assurance who will request the relevant CRL Head of Discipline, CRL Head of System Safety & Interoperability (GIRs will be reviewed by the Interoperability Manager and should the change potentially impact existing compliance with TSI requirements then the CRL Interoperability Manager shall notify the NoBo of the change by letter/email) and, where affecting Assets Handed Over, the IM to review the impact of the design change against the currently assured design.
- 3.12.3 If the HoD finds the Report acceptable a *Systemwide Design Gate Review Release* will be issued by the Project Manager to cover the design change/s. The Head of Technical Assurance may request that a Gate review is carried out.
- 3.12.4 If the *Systemwide Design Gate Review Release* is issued with conditions the Contractor shall supply evidence to the Project Manager to demonstrate that the conditions have been closed out to the Project Manager's satisfaction. A copy of the evidence will be issued to the Gates Coordinator/(CRL_Gates&AssuranceTeamInbox) for retention.
- 3.12.5 When all conditions have been successfully closed out the Project Manager will confirm this to the Contractor by PMC, and copy to the Gates Coordinator (CRL_Gates&AssuranceTeamInbox), who will prepare the Gates Pass Certificate. The CRL Gates Chair will sign off the certificate which will be issued to the Systemwide PM to confirm the Gate has been closed.

- 3.12.6 The Gate Impact Report, together with the Gates Pass Certificate shall be sent to the IM for information and copied to the Project Manager.
- 3.12.7 A guidance note to Project Managers (PMs) for managing changes post IFC design has been produced: *Post IFC (Issued for Construction) Changes Guidance Note* (Ref 6).

4 Reference Documents

Ref:	Document Title	Document Number:
1.	Technical Assurance Plan (TAP)	CRL1-XRL-07-STP-CR001-50003
2.	Works Information Volume 2B (Systems)	CRL1-XRL-V3-XWI-CR001-50131
3.	Engineering Design Assurance Gates Procedure	CRL1-XRL-07-GPD-CR001-50015
4.	Crossrail: Design Review and Gate Review Programme	CRL1-XRL-O-TSC-CR001-50001
5.	Document Management Procedure	CRL1-XRL-Z3-GPD-CR001-50001
6.	Systemwide Post IFC (Issued for Construction) Changes Internal Crossrail Guidance Note	CRL1-XRL-07-GUI-CR001-50008

5 Standard Forms / Templates

Ref:	Document Title	Document Number:
A.	Systemwide Design Gate Review Release	CRL1-XRL-07-ZTM-CR001-50002
B.	Systemwide Design Gate Review Rejection	CRL1-XRL-07-ZTM-CR001-50003
C.	Systemwide Design Gates Declaration Certificate	CRL1-XRL-07-ZTM-CR001-50013
D.	Gate Impact Report Template- Systemwide	CRL1-XRL-07-ZTM-CR001-50017
E.	Gates Pass Certificate	CRL1-XRL-07-ZTM-CR001-50008
F.	Crossrail Certificate of Integration	CRL1-XRL-O-CER-CR001-50028
G.	Systemwide Mini Gate Submission Template	CRL1-XRL-07-ZTM-CR001-50022

Appendix A - Mini Gate / (60%/90%) Gate Risk Assessment Form

Gate Description:	What is the gate i.e. Location, discipline, system etc.					Date of Gate:
Mini Gate? Y / N	If Yes, why has this been detached from Main Gate? What is the justification for the Mini Gate?					
Scope of Gate	Please describe (or reference) what is included, and excluded, in the scope of this Gate?					
Parameters The following areas will need to be considered with regards to the risks associated with progression of this 60%/90% Gate design against the set parameters below.	Risk and Owner Highlight the risk and the exposure of this submission in relation to the other planned Gates and the final overall design	Pre Mitigation Risk Score & Severity (R/A/G)	Mitigation Detail: • How the risk will be mitigated now, and • The evidence to be provided at the final design submission / (60/90%) Gate in order to support the overall design acceptance	Post Mitigation Risk Score & Severity (R/A/G)	Actionee	Date for Closure
System Overlaps (Physical, Functional or Data Exchange) i.e. cable management, connections to BMS or SCADA. Identify risks associated with progressing this element of scope in relation to the overall design	<u>i.e. Escalator Mini Gate: As the balustrade (excluded from the scope of this mini gate) loading requirements have not been formally confirmed there is a risk that the balustrade design changes, such that it affects the truss design already approved for manufacture via this mini gate approval.</u> (Contractor)	160	Verbal confirmation has been received from the manufacturer and the risk that there is an increase to the current design loading of 50kg per metre is low. Formal confirmation will be obtained within a maximum of 4 weeks of the gate of this date.	40	A N Other	07/11/14
Safety i.e. what are the risks of progressing this element of scope in the context of the Safety Management for the overall design	(Contractor)					

Parameters The following areas will need to be considered with regards to the risks associated with progression of this 60%/90% Gate design against the set parameters below.	Risk and Owner Highlight the risk and the exposure of this submission in relation to the other planned Gates and the final overall design	Pre Mitigation Risk Score & Severity (R/A/G)	Mitigation Detail: • How the risk will be mitigated now, and • The evidence to be provided at the final design submission / (60/90%) Gate in order to support the overall design acceptance	Post Mitigation Risk Score & Severity (R/A/G)	Actionee	Date for Closure
Access and Maintenance Strategy i.e. what is the impact of progressing the scope of this Gate in relation to overall A&M Strategy and what risks does that raise	i.e. There are currently 30 outstanding comments/actions against the Access & Maintenance Strategy, of which 10 are relevant to the scope of this mini gate: 8 are minor requiring amendments to the document. 2 are more significant and require specific mitigations in order to reduce the risk to an acceptable level to progress the scope of work covered by this gate: 1. xxxxx 2. yyyyy (Contractor)		8 minor comments to be addressed through update to document and will be evidenced through approved (by IM) A&M Strategy at final Gate 3. Mitigation for 1. Xxx is... And will be evidenced by... Mitigation for 2. Yyyy is ... And will be evidenced by...		A N Other A N Other A N Other	7/11/14 7/11/14 7/11/14
RAMs Assessment i.e. as above in relation to the overall station RAM Assessment	(Contractor)					
SIRP Actions i.e. as above in relation to the overall station SIRP Assessment	(CRL)					
MIRP Actions i.e. as above in relation to the overall station MIRP Assessment	(CRL)					

Parameters The following areas will need to be considered with regards to the risks associated with progression of this 60%/90% Gate design against the set parameters below.	Risk and Owner Highlight the risk and the exposure of this submission in relation to the other planned Gates and the final overall design	Pre Mitigation Risk Score & Severity (R/A/G)	Mitigation Detail: • How the risk will be mitigated now, and • The evidence to be provided at the final design submission / (60/90%) Gate in order to support the overall design acceptance	Post Mitigation Risk Score & Severity (R/A/G)	Actionee	Date for Closure
Fire Strategy i.e. as above in relation to the relevant Fire Strategy	(<u>Contractor</u>)					
IM Comments i.e. as above in relation to the closure of any relevant IM Comments/Issues	(<u>Contractor</u>)					
Human Factors i.e. as above in relation to the overall Human Factors Assessment	(<u>CRL/Contractor</u>)					
Excluded Scope covered by Non-Included PMI's	(<u>Contractor</u>)					

These risks should be scored by the standard Crossrail ARM Risk Matrix (see overleaf). The risk scores shall be presented at the Gate Readiness Review.

CRL Risk Management Score table

PROJECT RISK ASSESSMENT CRITERIA

Impact

	1 Insignificant	3 Minor	20 Moderate	100 Major	1000 Severe
Health & Safety	No lost time event. Non-reportable accident or injury. Non-first aid accident.	Lost time event. Reportable minor injury. Multiple non-reportable minor injuries.	Major injury. Multiple reportable minor injuries.	Multiple major injuries.	One or more fatalities.
Supported and informed by Health & Safety Procedure Reference 206 "Health & Safety Risk Management"					
Environment	No measurable environmental impact or harm. No corrective action required.	Environmental impact confined to site. No significant harm but corrective action required.	3rd party impact. Short term environmental impact but no significant harm	Significant harm to environment that is repairable. Breach of legislation.	Significant harm to environment that is permanent or has long-term effects.
Capital Cost (Impact on Anticipated Final Cost)					
Project	<£100k	£100k - £1m	£1m - £5m	£5m - £10m	>£10m
Time (Critical Path Delay)					
Project	Less than 2 days	2 days to 2 weeks	2 - 4 weeks	1 - 2 months	> 2 months
Reputation	Isolated local media criticism. Individual comment or feedback.	Local negative community media reporting over a period. Localised public and/or stakeholder negative comment.	Significant local media criticism. London or national media interest. National stakeholder statements.	Extensive prolonged negative reaction from London or National media, public and/or key stakeholders.	Persistent criticism from London and National media. Public exchanges with key customers or stakeholders.
Quality	Non-compliance with standard or procedure that can be managed.	Developed component or system may not receive approval through assurance process.	Failure of manufacture or construction of approved component or system to meet design or specification.	Failure of a major component or system leading to rejection.	Catastrophic failure of a major component or system to function in either temporary or permanent condition.
Crossrail Railway Operations	Loss or disruption of service resulting in minor increase in journey times. <£5m impact on operating cost or revenue. Small impact to customers.	Loss or disruption of service resulting in change to service pattern. £5m - £20m impact on operating cost or revenues. Minor impact to customers.	Loss or disruption of service resulting in significant overcrowding. £20m - £50m impact on operating cost or revenues. Adverse impact to customers.	Loss or disruption of service resulting in a significant loss of train paths. £50m - £100m impact on operating cost or revenues. Significant impact to customers.	Loss or disruption of services resulting in suspension of services. >£100m impact on operating cost or revenues. Major impact to customers.
3rd party operations (Statutory undertakers, TfL, LAs, etc)	Insignificant impact on 3rd Party	Minor impact on 3rd Party	Significant impact on 3rd Party	Major impact on 3rd Party	Severe impact on 3rd Party

Probability

	2 Very Low	4 Low	8 Medium	12 High	16 Very High
Probability Range	<1%	1% - 10%	10% - 20%	20% - 50%	>50%

Severity = Impact x Probability

Severity Group	Severity Status
Greater than 1000	High
101 - 1000	Medium
Less than 101	Low

Threat		Impact				
		1 Insignificant	3 Minor	20 Moderate	100 Major	1000 Severe
Probability	16 Very High	16	48	320	1600	16000
	12 High	12	36	240	1200	12000
	8 Medium	8	24	160	800	8000
	4 Low	4	12	80	400	4000
	2 Very Low	2	6	40	200	2000