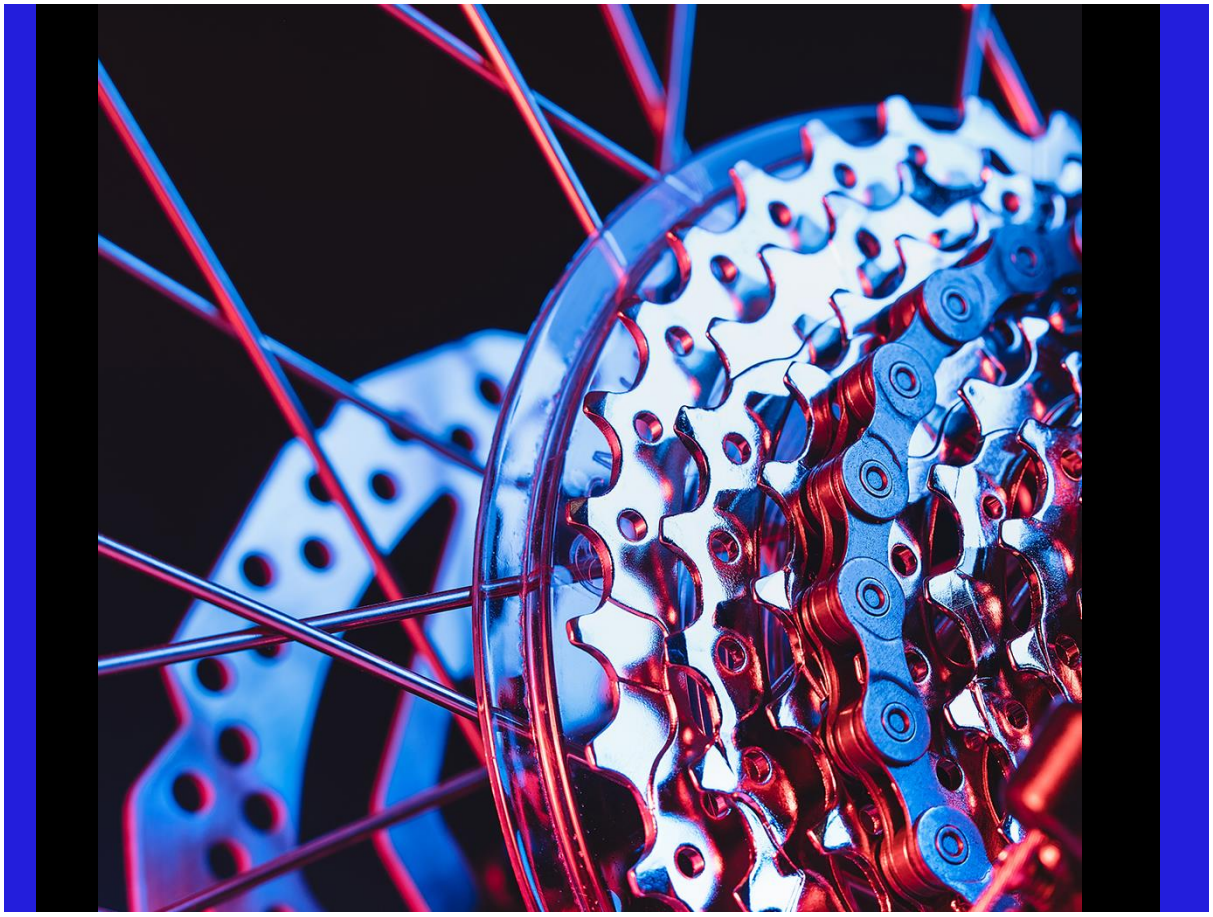
Programme Delivery Plan

Document no: 06
Revision no: -

Aberdeen City Council

Aberdeen Cross City Transport Connections
4 April 2022



Programme Delivery Plan

Client name:	Aberdeen City Council		
Project name:	Aberdeen Cross City Transport Connections		
Client reference:	N/A	**Project no:**	B2340233
Document no:	06	**Project manager:**	Colm CS Smyth
Revision no:	-	**Prepared by:**	Alan AK Kerr
Date:	4 April 2022	**File name:**	ABERDEEN CROSS CITY CONNECTIONS - PROGRAMME DELIVERY PLAN - MARCH 2022

Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved
-	04/04/22	Draft for comment	AK	CS	CW	CS

Distribution of copies

Revision	Issue approved	Date issued	Issued to	Comments
-	CS	05/04/22	KN / JW / JB	

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1. Introduction

1.1 Context

Aberdeen City Council (ACC) published the Aberdeen City Strategic Infrastructure Plan (SIP) in 2013, which focusses on the delivery of the Strategic and Local Development Plans and identifies five key infrastructure goals around housing supply, digital connectivity, skills and labour, transport and providing a better image for Aberdeen.

Regarding transport, the SIP identifies a new project – Cross City Transport Connections. This project seeks to develop transport connections between the significant new housing and business park developments identified in the current Local Development Plan, emulating cities of Aberdeen's size around the world and Europe that are developing similar transport systems. These solutions are being established to tackle issues of congestion, pollution, and good connectivity.

With the aim of providing viable, attractive, and direct active travel linkages as an alternative to the private car, the purpose of the scheme development study that this PDP relates to is to:

1. Undertake a review of the active travel routes identified in the STAG Part 2 appraisal.
2. Develop concept designs for each of the selected options.
3. Develop a scheme prioritisation framework.
4. Produce a network development plan for the proposed 'orbital' and 'radial' routes.
5. Prepare an implementation programme for the delivery of the active travel route options, incorporating estimates of individual scheme investment costs and exploring potential funding options.
6. Produce outline business cases for schemes identified for progression to subsequent design stages.

1.2 Approach

The design work to realise the ambition of providing viable, attractive, and direct active travel linkages between the significant new housing and business park developments is ongoing, and this Programme Delivery Plan (PDP) has been prepared to guide the future design, operation, and management of the Project. This PDP is a 'live' document that will provide a strategic framework and a consistent methodology around programme delivery.

The approach set out in this PDP outlines the foundation of leadership, governance, mobilisation and set up activities that will ultimately drive the successful delivery of the Project, whilst also outlining key activities which have already commenced, such as development of design options, cost estimate and Risk Register.

The PDP also provides the project management framework to deliver completion of the Project and includes gateway reviews to ensure alignment of the Project with the aims of the Cross City Transport Connections project.

2. Programme

2.1 Key milestones

It is anticipated that the proposed active travel schemes could be delivered over an approximate 3-year delivery period, commencing August 2022 through to august 2025. The key activities are summarised in Table 1.

Table 1. Programme key activities

Ref.	Activities	Start date	End date
1	**Detailed design**	**01/08/22**	**27/03/23**
1.1	Update Programme Delivery Plan	01/08/22	12/08/22
1.2	Detailed design procurement	15/08/22	09/09/22
1.3	Stakeholder consultation (1)	19/09/22	28/10/22
1.4	Utility diversions – preliminary enquiries and draft scheme / budget estimates	19/09/22	23/12/22
1.5	Other surveys and data gathering	19/09/22	28/10/22
1.6	Detailed design development	01/11/22	01/02/23
1.7	Mitigation design development	01/02/23	01/03/23
1.8	Utility diversions – detailed estimates	02/02/23	13/03/23
1.9	Update Programme Delivery Plan	13/03/23	27/03/23
2	**Full business case**	**01/02/23**	**01/8/23**
2.1	Update Outline Business Case with more detailed information	01/02/23	01/8/23
2.2	Finalise strategic, economic, commercial, financial and management cases	01/02/23	01/8/23
2.3	Use FBC to obtain funding	01/02/23	01/8/23
3	**Statutory approvals**	**01/02/23**	**01/12/23**
3.1	Planning approval	01/03/23	01/12/23
3.2	Traffic regulations / redetermination orders	01/03/23	01/12/23
4	**Contractor**	**01/10/23**	**30/04/24**
4.1	Contract preparation and tender	01/10/23	29/02/24
4.2	Contractor procurement	01/03/24	30/04/24
5	**Construction**	**01/05/24**	**31/08/25**
5.1	Utility diversions – notification of scheme commencement and issue of main orders	01/05/24	30/09/24
5.2	Mobilisation / enabling works	01/08/24	31/01/25
5.3	Construct and publicise	01/02/25	31/08/25
6	**Post construction**	**01/09/25**	**30/09/25**
6.1	Monitor and evaluate	01/09/25	30/09/25
6.2	Maintain and upgrade	-	-

2.2 Constraints and dependencies

No programme-level physical or environmental constraints have been identified at this time. Notwithstanding this, there are likely to be project-specific constraints that would need to be recorded and managed as the programme progresses.

2.3 Stakeholders and third parties

Stakeholder groups will have to be identified, including Government and Local Authorities, funders, regulatory bodies, subject matter expert groups (environmental, business, technical and utilities) and impacted residents. Details regarding key stakeholders and how engagement will be managed can be found in Chapter 8.

2.4 Project phasing

While this PDP sets out the strategy for delivering the Project, this needs to be viewed in the context of changing requirements and the realignment of Council objectives as the Programme progresses. It is important to note that changes will need to be tracked and subject to a formal change management process which are approved by the Programme Director.

2.4.1 Interface with other projects

Several other projects and activities could be initiated near to the proposed routes and these activities should be monitored during the Project set up to ensure effective coordination and phasing adjustment so opportunities for coordinated works are maximised and disruption reduced.

It is important to note that phasing and the overall Programme will be subject to periodic reviews and amendments, to ensure that any deviations and / or additional requirements to the original schedule are captured.

2.4.2 Approach to project phasing

One of the key principles is to integrate project delivery to create a consistent and coordinated approach throughout the city centre, from planning and management to delivery.

As the Project progresses, it is likely that phasing and prioritisation will need to be discussed which could include an approach to prioritisation that may incorporate:

- Maximising opportunities for cross-project measures.
- Identifying temporary measures which, at a relatively low cost, could provide maximum benefits, thus achieving best value for money.
- Minimising disruption by coordinating road closures and traffic diversions across multiple projects.
- Consideration of affordability to ensure that the Programme can be delivered.

2.5 Statutory planning

2.5.1 Roads

All road works will be governed by the Traffic Regulation Order (TRO) and the Redetermination Order (RSO) processes to minimise disruption to road users, pedestrians, and the public.

2.5.2 Consents

The requirements for consents will be determined as the programme progresses. These may include:

- Local Authority Permission (Planning and Transport)
- Historic Environment Scotland for Scheduled Monuments

Other forms of approval may still be necessary for the proposed works and requirements for these will be determined during future phases

3. Programme governance and organisation

3.1 Governance overview

A governance structure will ensure that it contains the following key principles:

- Strong leadership from the top of the client body, key stakeholders and the contractor(s) selected to carry out the works.
- Strong political support and regular reporting on risks, issues, and costs.
- Clearly defined roles and responsibilities within the client organisation with clear reporting lines.
- Compatible with the Council's grades and team structures.
- Provides a strong sense of project ownership by individuals.
- Clear management information used to report at all project levels.
- Professional programme and project management support within the client organisation.

3.2 Project management office

The establishment of a Programme Management Office (PMO) provides a resilient structure to provide continuity on the programme delivery. The role of the PMO Lead is pivotal to guarantee the efficient management of the programme's budget and resources.

The PMO may undertake services such as: defining processes and methodologies, undertaking analysis, operating aspects of governance, consulting and undertaking delegated responsibilities, and administrative functions.

3.3 Project delivery team structure

The resource requirements for the delivery of the project are to be developed. It is expected that the project will require a Programme Director, supplemented by project management staff, commercial oversight, stakeholder engagement and project support staff. Team competencies will require to reflect the complexity of the Project and to continue the collaborative and innovative approach taken toward the Concept Design's development. On an interim basis, project support will be provided by on-going consultancy support and Council officers.

The overall responsibility for the Programme resides with the Programme Director supported by the PMO Lead. The day-to-day responsibility resides with the Programme Delivery Manager.

The various parties to the Programme are described in Table 2.

Table 2. Roles and responsibilities

Role	Name
Programme Director	TBC
Programme Delivery Manager	TBC
Commercial Manager	TBC
Project Manager	TBC
Assistant Project Manager	TBC

All parties should ensure that continuity of personnel (where possible) is maintained and that a robust succession plan is in place. Every external organisation appointed by the Council to participate on the Programme shall designate a specific senior contact, who shall take responsibility for the discharge of their own organisation's services.

3.4 Delegated authority

To ensure suitable flexibility within agreed governance arrangements the following provisions are in place:

- The Programme Director has the authority to manage the Programme budgets.

- The PMO Lead and the Programme Delivery Manager will seek approval from the Programme Director for all strategic decision-making regarding contract award, expenditure and change management including any variation to external consultancy contracts.

Expenditure will be reported to the Project Director monthly and any risk of overspend will be highlighted as soon as reasonably practicable.

4. Procurement management

4.1 Introduction

Commissioning activities will require to fully comply with the Aberdeen City Council, Aberdeenshire Council and The Highland Council Joint Procurement Strategy.

Interpretation of the procurement regulations shall be undertaken by the Commercial and Procurement Shared Services (C&PSS) team, supported as necessary by in-house and external legal advice. Where any person involved in any aspect of the procurement process is unclear about the Council's procurement obligations, they shall seek clarification from C&PSS.

Agreed approaches will be informed through Best Practice and Lessons Learned from previous projects of comparable complexity by implementing a collaborative approach and facilitating cross-project knowledge sharing.

It is anticipated that a dedicated resource may be required to manage and support the various procurement streams. This will be considered and developed as part of the activities during Programme set up.

4.2 Procurement roles and responsibilities

The roles and responsibilities in relation to procurement are set out in Table 3.

Table 3. Procurement responsibilities

Role	Name
Programme Director	▪ Approval of procurement strategy and any amendments to the strategy.
Programme Delivery Manager	▪ Delivery of the complete Works Information. ▪ Oversight of the technical evaluation of prequalification and tender submissions.
Commercial Manager	▪ Ensure compliance with Joint Procurement Strategy and all applicable legislation. ▪ Leading / Governance over all Procurements undertaken to support the Project. ▪ Drafting and publication of OJEU (Official Journal of the European Union) notices, Procurement Information Documents/ESPDs and Invitation to Tender (ITT) documents (as applicable). ▪ Support in the evaluation of pre-qualification submissions and notification of unsuccessful applicants. ▪ Overall responsibility for evaluation of tender submissions and notification of unsuccessful bidders; conclusion of contracts and drafting and publication of award notices.
Project Manager	▪ Lead the technical evaluation of pre-qualification and tender submissions.

5. Budget and cost management

5.1 Outline costs

The outline costs summarised in Table 4 are based on the construction costs of previous active travel schemes Jacobs have implemented and information available from SPONS, and includes an optimism bias of 15% (based on STAG recommended level of optimism bias for an Outline Business Case of a project involving roads and bicycle facilities). The outline cost estimates include for such items as:

- General Items (mobilisation, site clearance, fencing)
- Civil Engineering
  - Cycle / walking route
  - Bridges
  - Crossings
  - Road markings
  - Relocating bus stops
- Preliminaries
- Site Supervision
- Traffic Management

However, the estimated costs do not include for large-scale utility diversions, bridge works, or drainage works, nor does it include for contingencies relating to materials supply, unforeseen groundworks, or challenges with sub structures etc.

Table 4. Summary of outline costs

Route	Low cost range (millions)	High cost range (millions)
7	1.6	1.8
8	0.3	0.5
9	0.3	0.5
11	0.8	1.0
20	0.3	0.5

Further detail on costs can be found in the supporting Outline Business Case document.

5.2 Funding

To be confirmed by ACC.

5.3 Cost management and control

Financial reviews at key decision points will be carried out to ensure the Programme can be delivered within the agreed baseline budget and funds are available for the planned expenditure.

Costs will be recorded on the Council's financial system and monitored by the Commercial Manager. Costs will be reported back to the Programme Director monthly. All the expenditure will be closely monitored including the internal costs to ensure they are in line with the Programme baseline budget.

5.4 Programme cashflow

A cashflow will be produced taking account of all the expected funding from all parties. This will be monitored monthly and will be used to understand and manage the financial aspects of the Programme. Any changes to the cashflow will be agreed by the Programme Director prior to implementation and a record made of the changes and reason as to their implementation.

5.5 Budget update procedure

A detailed budget will be produced to inform the cashflow. It will be monitored monthly in coordination with the cashflow. Any changes to the budget will be agreed by the Programme Director and a record made of the changes and reason as to their implementation.

5.6 Budget and cost reporting

Cost reporting will be performed as noted in Table 5.

Table 5. Budget and cost reporting responsibilities

Report	Frequency	Circulation	Owner
Cost report	Monthly	Included in monthly report	Commercial Manager

6. Risk management

6.1 Risk management overview

Risk is considered in terms of both threat and opportunity. The risk management process has been developed in a manner that will facilitate the ongoing management of risk throughout the life of the project and will not solely focus on the current stage.

This is supplemented by the ongoing monitoring, review, management, reporting and improvement of the risk process and its deliverables against the project requirements throughout the life of the project.

6.2 Risk register

A risk register has been prepared and is provided in Appendix B. This identifies potential programme, approval, deliverability, and cost risks. It is also intended that this will be carried forward to subsequent detailed design and costing stages. Appropriate mitigation measures for each risk are also included in the risk register.

The Project Manager has the responsibility to monitor the risk register and update risks and mitigation measures as changes occur in the project.

7. Change management

7.1 Roles and responsibilities

Table 6 outlines the key roles and responsibilities of change management across the Programme.

Table 6. Change management roles and responsibilities

Role	Name	Responsibilities
Programme Director	TBC	▪ Approval of changes.
PMO Lead	TBC	▪ Establish and agree what works are a change. ▪ Clearly identify what the change is. ▪ State the reasons for the change. ▪ Identify Change Originator and Change Owner. ▪ Monitor and identify changes / potential changes.
Programme Delivery Manager	TBC	▪ Establish validity of proposed changes against objectives and outcomes sought.
Commercial Manager	TBC	▪ Prepare costing for changes. ▪ Review and verify costs once submitted by the relevant party. ▪ Confirm funding source and availability of funding. ▪ Update the change control register. ▪ Control and report status of changes. ▪ Monitor and identify changes / potential changes. ▪ Compile supporting documentation.
Project Manager and Assistant Project Manager	TBC	▪ Monitor and identify changes / potential changes.

The Programme Director is ultimately responsible for managing change. As the primary contact, the Programme Director can prepare our client for team-initiated or externally initiated change, eliminating the surprise that often accompanies change.

The Programme Delivery Manager is responsible for understanding the potential for change in a task, reviewing and discussing potential and real changes with the Programme Director as they are identified, and reaching agreement on a desirable course of action and endorsing that action.

7.2 Change management procedure

Change control relies upon accurate identification and assessment of the proposed changes at the earliest possible stage. The implications of changes must be considered relative to the Programme.

There is delegated authority in place for approval of changes in line with the process outlined in Section 3.4. A Change Register will be maintained and used for Programme Director approval in advance of committed expenditures.

7.3 Types of change

7.3.1 Project delivery team change

Changes arising from the project delivery team may include:

- Scope creep.
- Increased level of effort, i.e., unintended additions to the amount of work in the execution of a task.
- Quality creep, i.e., a subtle change when individuals deviate from the quality standards.
- Personnel changes, i.e., project team members may have to leave the team for a variety of reasons.
- Schedule improvements, i.e., changes proposed to remove a threat to, or to improve the chance of, achieving milestones on time.

- Staff succession.

7.3.2 External change

Changes originating from external sources (which may be manifested through either client- or team-initiated actions) may include:

- Mandated changes, i.e., linked to third-party regulatory requirements, and unforeseen conditions.
- Availability changes, i.e., in availability of materials, labour, and other resources.

8. Stakeholder management

A Stakeholder Management and Communications Plan will be developed using the Scottish Government's 'National Standards for Community Engagement'. This is a set of good-practice principles which are designed to support and inform the process of community and wider stakeholder engagement and improve what happens as a result.

Stakeholder management is a critical part of managing a project as stakeholders have influence over both the criteria by which the success of the project can be judged and the relative values within the project. Two leading causes of project failure are insufficient involvement of stakeholders and infrequent communication with sponsors and other key stakeholders.

8.1 Objectives

The objectives of the stakeholder communication strategy are proposed as follows:

- Ensure stakeholders are provided with timely, up-to-date information about the projects affecting them.
- Ensure stakeholders are given appropriate opportunities to provide comment into the timing, phasing and scope of the Project, construction interface phasing requirements with other projects.
- Highlight the investment the Council is putting into each specific area.
- Ensure the consultation activities for inputting into project design development is clear, open, accessible, and transparent. A consultation delivery plan will be prepared.
- To ensure that all information which is relevant to stakeholders is provided as soon as possible.
- Ensure, where possible, any conflict is avoided through open and transparent communication.

9. Benefits realisation and close out

9.1 Overview

The purpose of this stage is to ensure that the required outcomes have been successfully achieved and to gather information about lessons learned and corrective actions or interventions implemented during project delivery.

9.2 Benefits and impact assessment

As highlighted in the Options Report, a series of primary and secondary design principles have been developed. These principles have been used as the key design criteria to appraise the design options. It will be prudent to consider these principles when developing a monitoring and evaluation process, to be undertaken post-construction, that will identify quantifiable and qualitative benefits.

9.3 Close out activities and responsibilities

The following activities will be carried out as part of the close out of the project:

- Testing
- Commissioning
- Snagging
- Handover
- Transition into operations (to ensure that the Project can be safely commissioned without adversely impacting other infrastructure in the city)

In addition to the above, the actions in Table 7 will be undertaken to ensure formal project close out.

Table 7. Close out responsibilities

Activity	Description	Owner
As-built Design Drawings	Gather and store the as-built design information.	Project Manager and Assistant Project Manager
Asset Management	Update Asset Management systems.	TBC
Lessons Learned Sessions	Prepare a report based on a series of lessons learned sessions with the different working groups on project completion.	PMO Lead
Sponsor Close Out / Benefits Realisation	Lessons Learned Sessions report sign off formally closing the hand back phase of project delivery.	Senior Responsible Officer
Monitoring, Marketing and Promotion	Activities aimed to assess the benefits of completed projects, as well as inform the public and promote these benefits.	TBC

10. Next steps

Subject to approval of the Programme, the following steps will be undertaken to deliver the Programme:

1. Mobilisation and Resourcing

This will take place between in June / July 2022, in which Mobilisation and Resourcing Plans will be prepared and developed.

2. Programme Governance

PMO and Programme Delivery Team will be established in June / July 2022.

3. Refine Key Deliverables

This will take place August 2022. In this period, the following will be reviewed and updated:

- Delivery Plan
- CCT Programme Master Schedule
- Updated Cost Estimate
- Funding Strategy
- Updated Risk Register

4. Regular Programme Updates

Key deliverables such as cost, programme and risk will be reviewed periodically throughout the duration of the Programme.

5. Stakeholder Communications and Engagement

Throughout the duration of the Programme, the Project Team will ensure that the stakeholders are engaged and provided with timely, up-to-date information about the Project. Key stakeholders will be given appropriate opportunities to provide comment on the timing, phasing, and scope of the Project.

Appendix A. Risk register

HAZARD ELIMINATION & RISK REDUCTION REGISTER

Document Number: Design Hazard Elimination and Risk Reductior

Project Title: Aberdeen Cross City Connections

Project Number: B2340234

Client: Aberdeen City Council

Project Manager: Colm Smyth

Lead Designer Colin Wyllie

HSE CDM Advisor Gavin Lemon

Revision	Issue Date	Revision Description	Prepared By	Checked By	Approved By
1	05-Apr-22	Risk Register	SK	CW	CS

IB-HS-WI-0112-GB-F-01 Design Hazard Elimination and Risk Reduction Register
Rev 0
Effective Date: 01-April-2022

Introduction

This covers the requirments of BS EN 12100 Machinery Safety (Risk Assessments), EU Directives and CDM. This provides a means of recording mitigation and risk reductions actions taken.

All foreseeable Hazards for each discipline will be entered into the Hazard Elimination & Risk Reduction Register (HERR) by the Engineers and Designers.

The MOE shall appoint a single point of contact who will be responsible for managing and coordinating the Hazard / Risk Register to ensure completeness and consistency across the disciplines for the relevant project.

The discipline Lead Engineer(s) will be responsible for ensuring completeness and consistency for their discipline across each of the project.

The full completed risk register shall form part of the Technical File. CDM Designers residual risks shall be transmitted as per IB-HS-WI-0112-GB and to the HSE representative for wider communication.

Drawings and documents which contain significant risks shall reference this document in the drawings or document notes.

Hazard / Risk Register completion		
Column 1	Risk ID	Enter the Hazard/Risk number, this should be sequential.
Column 2	Formal Review Description	Identify what format REVIEW the Hazard was identied at (from pull down menu): • Interactive Design Safety Session • Hazop Meeting • Hazid Meeting • Routine Design Team Meeting • Design Stage Meeting • Pre-Tender Design Review Meeting • Construction Phase Design Revision • CDM Stage gateway review
Column 3	Phase	Identify what phase of the project the Hazard applies to (from pull down menu): • C - Construction • M - Maintain/Clean • U - Use as a workplace • D - Demolish
Column 4	Activity	Describe the Activity to be undertaken where a Hazard may be present
Column 5	Potential Hazard	Describe the Hazard associated with the described activity
Column 6	Who is at Risk	Identify who is at risk against each associated activity (from pull down menu): • Construction • Commissioning • Operations • Maintenance • Demolition • Public • Students/Pupils • Staff
Column 7	Probability	Determine the Probability of the **unmitigated** Hazard (from pull down menu). • 1 - Highly Unlikely • 2 - Unlikely • 3 - Possible • 4 - Likely • 5 - Highly Likely
Column 8	Worst Potential Severity (WPS)	Determine the Worst Potential Severity (WPS) of the **unmitigated** Hazard (from pull down menu). • 1 - Nil or slight injury / illness, property damage or environmental issue. • 2 - Minor injury / illness, property damage or environmental issue • 3 - Moderate injury or illness, property damage or environmental issue • 4 -Major injury or illness, property damage or environmental issue. • 5 - Fatal or long term disabling injury or illness. Significant property damage or environmental issue. • 10 - Multiple fatalities and catastrophic event
Column 9 Severity	Initial Risk Rating	Calculates the Initial Risk Rating of the **unmitigated** hazard (Probability x WPS) Automatic RAG for status 1 - 5 - Green 6 - 10 - Amber ≤10 - Red
Column 10 Risk	Discipline	Select the discipline raising the hazard (from pull down menu) • Architect • Mechanical • Electrical • Civil/Structural • Control / Instrumentation • Piping • HVAC • Commissioning • Non Jacobs Designer • Client
Column 11	Design Measures To Eliminate Hazard	Describe the Design Measures to be implemented to Eliminate the Hazard as a FIRST CHOICE
Column 12	Design Measures To Reduce Risk	Describe the Design Measures to be implemented to Reduce the Risk associated with the Hazard SECOND CHOICE
Column 13	Residual Probability	Determine the Probability of the **residual risk** from the hazard (from pull down menu). Selection per column 7
Column 14	Residual WPS	Determine the Severity of the **residual risk** from the Hazard (from pull down menu). Selection per column 8
Column 15	Residual Risk Rating	Calculates the Residual Risk Rating from the hazard (Probability x WPS) Automatic RAG for status
Column 16	Residual Risk Description	Describe clearly the Residual Risk associated with the Hazard to be managed by those using the Design
Column 17	Included in Drawing No(s)	List the documents where the Residual Risk has been communicated to those using the Design
Column 18	Action By	State who the action is to be taken/completed (Name or Role)
Column 19	Target Date	Insert the initial target completion date here. This date should not be revised
Column 20	Revised Target Date	Insert the latest revised target completion date here.
Column 21	Date Action Complete	Insert the date the Action was completed - or was transferred to a subsequent action
Column 22	Tracker Status	Automatic RAG rating for status. GREEN indicates that the action is ongoing with time in hand. AMBER is imminently due and RED indicates due or overdue
Column 23	Comments	Insert comments here relating to current status, whether the action is fully closed out, or is subsumed into another action etc
Column 24	Primary Legistlation	Identify the primary legistlation the Hazard relates to (from pull down menu) default to CDM unless hazard is specifically related to ATEX, Machinery, PED, LVD, or EMC

The Multi Discipline Desisgn Review shall confirm that the Hazard Elimination and Risk Reduction process has been completed and that the Residual Risks are acceptable to the Project.

CRITICAL RISK SUMMARY REPORT

Jacobs

Project Number: B2340234 **Title** **Aberdeen Cross City Connections**

Project Manager: Colm Smyth

Lead Designer: Colin Wyllie

Date of Issue: 05/04/22

OVERVIEW OF CRITICAL RISKS ASSOCIATED WITH THE PROJECT. This identifies the top 20 hazards/risks associated with design, construction, operation, maintenance and demolition of the project

Comments

. Number of completed Mitigation Actions over latest reporting period

. Number of revised Mitigation Actions over latest reporting period

. Number of new risks over latest reporting period

. Number of closed risks over latest reporting period

. Number of risks with modified scores over latest reporting period

Residual Risk Summary

Number of 'High' risks

Number of 'Medium' risks

Number of 'Low' risks

Suggested areas / topics for comment:

. *Involvement and competency of project team members with risk management*
. *Tabling and review of risk register at monthly Design Team Meeting*
. *Quality and quantity of Mitigation Actions in place*

Risk ID.	Activity	Potential Hazard	Design Measures to Reduce Risk	Residual Risk Description	Action By (Name or Role)	Tracker Status	Comments
HS_01	Working close to buried services	Impact during construction	C2 information requested and where received details included within RIBA Stage 3 design drawings to raise awarness of presence	Utilities are present	Engineer	Open	Route 8 - Risk ID 9 Route 9 - Risk ID 17 Route 11 - Risk ID 15 Route 20 - Risk ID 9
HS_02	Potential for Coal Tar in the existing pavement	Risk to environment and human health during construction	Inform Contractor of potential for Coal Tar in existing carriageway construction. Follow national guidelines for assessment and safe removal prior to and during construction	Assumed present	Engineer	Open	Route 8 - Risk ID 10 Route 9 - Risk ID 18 Route 11 - Risk ID 16 Route 20 - Risk ID 10
HS_03	Building a bridge	Working in and over water. Fall into water. Fall from working at height	Appropriate barrier, harnesses would mitigate but part of contractors methodology not design. Design of prefab bridge would reduce working from height instances. A competent Contractor should have appropriate systems in place but Engineer should review in advance of construction to ensure protocols are in place	Working at height still required	Engineer	Open	Route 7 - Risk ID 5 Route 9 - Risk ID 13
HS_04	Maintenance cleaning of cycleways may have limited space	Unable to provide service creating risk to users	Minimum 2.5m applied to cycle track design, this is sufficent space for a sweeper	Regular cleaning required to keep clear	Engineer	Open	Route 7 - Risk ID 7 Route 8 - Risk ID 11 Route 9 - Risk ID 18 Route 11 - Risk ID 10 Route 20 - Risk ID 11
HS_05	Topographic survey not available within programme	Design based on OS mapping not to the required level of detail for "developed design, impacting hazard identification	Topo to be undertaken at the detailed design stage	Potential hazards identified and mitigated/reduced	Engineer	Open	Route 7 - Risk ID 1 Route 8 - Risk ID 12 Route 9 - Risk ID 19 Route 11 - Risk ID 13 Route 20 - Risk ID 13
HS_06	Construction near childrens play areas	Conflict between playpark area and construction of the route	Play areas to be closed during the construction	Reduce risk of accidents	Engineer	Open	Route 9 - Risk ID 10 Route 11 - Risk ID 5
HS_07	Construction near utility covers	Utility covers may be present in the footways at the crossing location which may create difficulties in applying appropriate paving types with risk of poor construction and associated trips / falls for users	Diversion of utilities not expected to be possible due to congested network. Appropriate materials and checking will need to be undertaken during construction to ensure footways are appropriate for intended usage	Reduce risk of accidents	Engineer	Open	Route 8 - Risk ID 8 Route 9 - Risk ID 15 Route 11 - Risk ID 14 Route 20 - Risk ID 8

Project Name:	Aberdeen Cross City Connections
Project Number:	B2340234
Client:	Aberdeen City Council

HAZARD ELIMINATION & RISK REDUCTION
REGISTER OF FORMAL DESIGN REVIEWS

DESIGN REVIEW DESCRIPTION	DATE HELD	MINUTES REFERENCE
Interactive Design Safety Session	31 March 2022	N/A - captured in this register

Jacobs

DESIGN HAZARD ELIMINATION AND RISK REDUCTION REGISTER: Route 7

Latest Meeting Date	31/03/2022

Phase	
C	Construction
M	Maintain / Clean
U	Use as Workplace
D	Demolish

Project Name:	Aberdeen Cross City Connections
Project Number:	B2340234
Client:	Aberdeen City Council

Update Critical Risk Table

Probability	Worst Potential Severity (WPS) of Impact	Risk Rating
1: Highly Unlikely 2: Unlikely 3: Possible 4: Likely 5: Highly Likely	1: Nil or slight injury / illness, property damage or environmental issue. 2: Minor injury / illness, property damage or environmental issue. 3: Moderate injury or illness, property damage or environmental issue. 4: Major injury or illness, property damage or environmental issue. 5: Fatal or long term disabling injury or illness. Significant property damage or environmental issue. 10. Multiple fatalities and catastrophic event	NOTE: The purpose of Risk Rating is to determine which risks are significant. It is a subjective assessment and not an absolute or precise determination

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Risk ID.	Formal Review Description	Phase	Activity	Potential Hazard	Person(s) Most at Risk	Prob	WPS	Initial Risk Rating	Discipline	Design Measures to Eliminate Hazards	Design Measures to Reduce Risk	Residual Prob	Residual WPS	Residual Risk Rating	Residual Risk Description	Included on Drawing No(s) or other doc. (give ref.)	Action By (Name or Role)	Target Date	Revised Target Date	Date Action Complete	Tracker Status	Comments	Primary Legislation
1	1: Interactive Design Safety Session	C	Topographic survey not available within programme	Design based on OS mapping not to the required level of detail for developed design, impacting hazard identification, Gradient Identification, Utilities	Construction	2	2	4	Control & Instrumentation	Topo to be undertaken at the detailed design stage	N/A	1	1	1	N/A		Design Team						
3	1: Interactive Design Safety Session	C	Building a bridge	Geotech in the enbankments will need to be known	Construction	4	5	20	Civil / Structural	No Consideration has been given to this at this stage.	Further consideration needs to be given at a detailed design stage	4	5	20			Engineer						
4	1: Interactive Design Safety Session	C	Building a bridge	Probability of the river flooding,	Construction	4	5	20	Civil / Structural	No Consideration has been given to this at this stage.	Further consideration needs to be given at a detailed design stage	4	5	20									
5	1: Interactive Design Safety Session	C	Building a bridge	Working in and over water. Fall into water. Fall from working at height	Construction	4	5	20	Civil / Structural	Appropriate barrier, harnesses would mitigate but part of contractors methodology not design. Design of prefab bridge would reduce working from height instances.	A competent Contractor should have appropriate systems in place but Engineer should review in advance of construction to ensure protocols are in	3	5	15	Working at height still required		Engineer						
6	1: Interactive Design Safety Session	C	Extending connection to Granithill Terrace	Level differences on Granithill terrace side (i.e. connection to the bridge) - Slip or trip hazard for wheelchair users and	Construction	3	2	6	Civil / Structural	No Consideration has been given to this at this stage. Further consideration needs to be given at a detailed design stage	Reduce gradient or level differences at a detailed design stage	2	1	2			Design Team						
7	1: Interactive Design Safety Session	M	Maintenance cleaning of cycleways may have limited space	Unable to provide service creating risk to users	Public	3	3	9	Control & Instrumentation	Minimum 2.5m applied to cycle track design, this is sufficent space for a sweeper	N/A	1	3	3	Regular cleaning required to keep clear		Design Team						

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DESIGN HAZARD ELIMINATION AND RISK REDUCTION REGISTER: Route 8

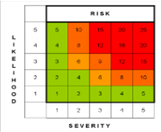
Latest Meeting Date	31/03/2022

Phase	
C	Construction
M	Maintain / Clean
U	Use as Workplace
D	Demolish

Project Name:	Aberdeen Cross City Connections
Project Number:	B2340234
Client:	Aberdeen City Council

Update Critical Risk Table

Probability	Worst Potential Severity (WPS) of Impact	Risk Rating
1: Highly Unlikely 2: Unlikely 3: Possible 4: Likely 5: Highly Likely	1: Nil or slight injury / illness, property damage or environmental issue. 2: Minor injury / illness, property damage or environmental issue. 3: Moderate injury or illness, property damage or environmental issue. 4: Major injury or illness, property damage or environmental issue. 5: Fatal or long term disabling injury or illness. Significant property damage or environmental issue. 10. Multiple fatalities and catastrophic event	NOTE: The purpose of Risk Rating is to determine which risks are significant. It is a subjective assessment and not an absolute or precise determination



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Risk ID.	Formal Review Description	Phase	Activity	Potential Hazard	Person(s) Most at Risk	Prob	WPS	Initial Risk Rating	Discipline	Design Measures to Eliminate Hazards	Design Measures to Reduce Risk	Residual Prob	Residual WPS	Residual Risk Rating	Residual Risk Description	Included on Drawing No(s) or other doc. (give ref.)	Action By (Name or Role)	Target Date	Revised Target Date	Date Action Complete	Tracker Status	Comments	Primary Legislation
1	1: Interactive Design Safety Session	U	Crossing the road	Cyclist has to cross N Deeside Rd - user confusion leading to conflicts	Public	2	4	8	Control & Instrumentation	On-carriageway layout is as per standard Toucan form removing confusion risk with motorists	Toucan crossing with tactile paving and markings/signage applied as necessary to warn users upon entry to shared space. A level of segregation has been provided on footway approaches to Toucan	1	4	4			Design Team						
2	1: Interactive Design Safety Session	U	Proposals include for shared space which can be a problem for vulnerable users	Conflicts between pedestrians and cyclists	Public	3	3	9	Control & Instrumentation		Tactile paving and markings/signage applied as necessary to warn users upon entry to shared space. A level of segregation has been provided on footway approaches to Toucan crossing	2	4	8	Pedestrians and cyclists still expected to share space		Design Team						
3	1: Interactive Design Safety Session	U	Proposal includes mixed traffic street on Market Street and Stoneywood Terrace	Conflicts between vehicles and cyclists	Public	4	4	16	Control & Instrumentation	conflict cannot be removed due to a lack of road space	Signs and road marking have been provided due to a lack of road space available for segregated or shared use	2	3	6	Conflict remains		Design Team						
4	1: Interactive Design Safety Session	U	Mixed traffic street	Risk of collision between vehicles and cylists at junctions	Public	2	4	8	Control & Instrumentation	Segregated lane cannot be achieved due to land constriants	Advanced stop lanes (Early start for cyclists to reduce risk of collision	1	4	4	Conflict remains		Design Team						
5	1: Interactive Design Safety Session	U	Gate maintained on Market Street	If the gate is removed the conditions of the route design change which will lead to more through traffic hence it will increase probability of injury due to collisions	Public	2	3	6	Control & Instrumentation	Maintain gate	Maintain gate	1	1	1			Design Team						
6	1: Interactive Design Safety Session	U	Separate phase for cylists on stoneywood terrace	Confusion for road users and cyclists	Public	2	1	2	Control & Instrumentation	To be discussed with Aberdeen City Council signals team	To be discussed with Aberdeen City Council signals team but it could have Advance signage on approach	1	1	1			Design Team						
7	1: Interactive Design Safety Session	U	Missing link to Stoneywood Road/Stoneywood Terrace junction from East side of the road.	Missing link section is a construction or even feasibility risk since land may be needed and trees may be removed as well as lighting coloumns and services	Public	3	2	6	Control & Instrumentation	Further consideration to be given at a detailed design stage	Negotiate with ACC and landowner early to determine if proposed route feasible	2	2	4			Design Team						
8	1: Interactive Design Safety Session	U	Utility covers may be present in the footways at the crossing location	May create difficulties in applying appropriate paving types with risk of poor construction and associated trips/ falls for users	Public	3	2	6	Control & Instrumentation	Diversion of utilities not expected to be possible due to congested network	Appropriate materials and checking will need to be undertaken during construction to ensure footways are appropriate for intended usage	2	2	4			Engineer						
9	1: Interactive Design Safety Session	C	Buried services	Impact during construction	Construction	3	5	15	Civil / Structural	Utilities are present so cannot be eliminated	To be considered further at a detailed design stage	3	5	15	Utilities are present		Engineer						
10	1: Interactive Design Safety Session	C	Coal tar in pavement	Risk to environment and human health during construction	Construction	3	4	12	Civil / Structural	Assume present in existing carriageway so can only be confirmed by testing	Inform Contractor of potential for Coal Tar in existing carriageway construction. Follow national guidelines for assessment and safe removal prior to and during construction	2	2	4	Assumed present		Engineer						
11	1: Interactive Design Safety Session	M	Maintenance cleaning of cycleways may have limited space	Unable to provide service creating risk to users	Public	3	3	9	Control & Instrumentation	Minimum 2.5m applied to cycle track design, this is sufficent space for a sweeper	N/A	1	3	3	Regular cleaning required to keep clear		Design Team						
12	1: Interactive Design Safety Session	C	Topographic survey not available within programme	Design based on OS mapping not to the required level of detail for developed design, impacting hazard identification	Construction	2	2	4	Control & Instrumentation	Topo to be undertaken at the detailed design stage	N/A	1	1	1	N/A		Design Team						

Risk ID.	Formal Review Description	Phase	Activity	Potential Hazard	Person(s) Most at Risk	Prob	WPS	Initial Risk Rating	Discipline	Design Measures to Eliminate Hazards	Design Measures to Reduce Risk	Residual Prob	Residual WPS	Residual Risk Rating	Residual Risk Description	Included on Drawing No(s) or other doc. (give ref.)	Action By (Name or Role)	Target Date	Revised Target Date	Date Action Complete	Tracker Status	Comments	Primary Legislation
13	1: Interactive Design Safety Session	U	May have utility covers in the footways or at crossing locations	May create difficulties in applying appropriate paving types with risk of poor construction and associated trips/ falls for users	Public	3	2	6	Control & Instrumentation	Diversion of utilities not expected to be possible due to congested network	Appropriate materials and checking will need to be undertaken during construction to ensure footways are appropriate for intended usage	2	2	4			**Engineer**						
14	1: Interactive Design Safety Session	U	Raised table provision	Risk of confusion for right of way leading to pedestrian/motorist conflict	Public	2	4	8	Control & Instrumentation	Potential to amend to continuous footway to enhance pedestrian right of way, TBC further at technical design	Tactile paving applied to warn pedestrians of road crossing. Tight corner radii and appropriate ramps applied to reduce vehicle speeds	1	4	4	Conflict between users remains		**Design Team**						
15	1: Interactive Design Safety Session	U	Road layout has changed through the narrowing of carriageways, application of traffic signals or addition of build outs/ raised table crossings	Confusion, particularly for local residents, leading to potential vehicle collisions	Public	2	3	6	Control & Instrumentation	Hazard could only be eliminated by removal of scheme	Amend and possibly improve permanent signage to advise of changes to road layout/ access requirements. Provide temporary signage to warn/ advise of changes post	1	3	3	Motorists lack of attention due to familiarity		**Design Team**						
16	1: Interactive Design Safety Session	M	Maintenance of new Toucan Crossings, Location of the controller cabinets for the new Toucan crossings,	Risk is the engineer being able to safely access and open the controller door without impacting on other road users	Maintenance	3	3	9	Control & Instrumentation	Offset control cabinets from the footway/cycleway so that opened doors don't obstruct or the engineer isn't working within the footway/cycleway which could results in risk to him/her and users of the route.	Ordinarily a parking place wouldn't be provided just for a Toucan but if feasible, grasscrete or similar can be provided in the verge. The maintenance vehicles may park at the access to the airport on Wellshead Drive or park up in front of the gates. To be further considered at the detailed design stage	1	1	1									

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DESIGN HAZARD ELIMINATION AND RISK REDUCTION REGISTER: Route 9

Latest Meeting Date	31/03/2022

Update Critical Risk Table

Phase	
C	Construction
M	Maintain / Clean
U	Use as Workplace
D	Demolish

Project Name:	Aberdeen Cross City Connections
Project Number:	B2340234
Client:	Aberdeen City Council

Probability	Worst Potential Severity (WPS) of Impact	Risk Rating
1: Highly Unlikely 2: Unlikely 3: Possible 4: Likely 5: Highly Likely	1: Nil or slight injury / illness, property damage or environmental issue. 2: Minor injury / illness, property damage or environmental issue. 3: Moderate injury or illness, property damage or environmental issue. 4: Major injury or illness, property damage or environmental issue. 5: Fatal or long term disabling injury or illness. Significant property damage or environmental issue. 10. Multiple fatalities and catastrophic event	NOTE: The purpose of Risk Rating is to determine which risks are significant. It is a subjective assessment and not an absolute or precise determination

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Risk ID.	Formal Review Description	Phase	Activity	Potential Hazard	Person(s) Most at Risk	Prob	WPS	Initial Risk Rating	Discipline	Design Measures to Eliminate Hazards	Design Measures to Reduce Risk	Residual Prob	Residual WPS	Residual Risk Rating	Residual Risk Description	Included on Drawing No(s) or other doc. (give ref.)	Action By (Name or Role)	Target Date	Revised Target Date	Date Action Complete	Tracker Status	Comments	Primary Legislation
1	1: Interactive Design Safety Session	U	Proposal includes mixed traffic street on Waterton Road	Conflicts between vehicles and cyclists	Public	4	4	16	Control & Instrumentation	conflict cannot be removed due to a lack of road space	Signs and road marking have been provided due to a lack of road space available for segregated or shared use	2	3	6	Conflict remains		Design Team						
2	1: Interactive Design Safety Session	U	Mixed traffic street	Risk of collision between vehicles and cylists at junctions	Public	2	4	8	Control & Instrumentation	Segregated lane cannot be achieved due to land constriants	Advanced stop lanes (Early start for cyclists to reduce risk of collision	1	4	4	Conflict remains		Design Team						
3	1: Interactive Design Safety Session	U	Crossing the road	Cyclist has to cross N Deeside Rd - user confusion leading to conflicts	Public	2	4	8	Control & Instrumentation	On-carriageway layout is as per standard Toucan form removing confusion risk with motorists	Toucan crossing with tactile paving and markings/signage applied as necessary to warn users upon entry to shared space. A level of segregation has been provided on footway approaches to Toucan	1	4	4			Design Team						
4	1: Interactive Design Safety Session	C	Bridge Crossing	Existing bridge is narrow for shared use path	Public	5	5	25	Control & Instrumentation	By replacing the bridge	Wider bridge crossing will create a safe pedestrian and cyclist crossing	1	1	1			Design Team						
5	1: Interactive Design Safety Session	U	Swept paths of larger vehicles need to encroach on opposing lanes to make corners	Coaches using Waterton road may conflict with opposing motorists or cyclists on road on a mixed traffic street	Public	2	3	6	Control & Instrumentation	Hazard could only be eliminated by widening carriageway which is not possible due to lack of road space available	To be further considered at a detailed design stage, reduced speed and traffic calming methods can be applied	1	3	3	Vehicles may still misjudge manoeuvres		Design Team						
6	1: Interactive Design Safety Session	U	Trees removal on the path heading towards the bridge	Environmental	Construction	3	1	1	Control & Instrumentation	Trees to be surveyed and design reconsidered if necessary	Trees to be surveyed and design reconsidered if necessary	2	1	1			Design Team						
7	1: Interactive Design Safety Session	U	Allotment Access point	Conflict between access to the allotment and shared use path	Public	3	4	12	Control & Instrumentation	Conflict to be removed	Moved access to the car park further east	1	1	1			Design Team						
8	1: Interactive Design Safety Session	U	Allotment Access point	New vehicle access to the allotment is next to the Toucan Crossing (Aberdeen City Council signals team will need to review)	Public	3	3	9	Control & Instrumentation	To be considered further	To be considered further	3	3	9			Design Team						
9	1: Interactive Design Safety Session	U	Shared use path through the park	Existing path through the park is narrow for shared use and may cause conflicts between pedestrians and cyclists	Public	3	3	9	Control & Instrumentation	Shared use path widened to 4 metres	Reduced the chances of conflicts	2	1	2			Design Team						
10	1: Interactive Design Safety Session	U	Construction	Conflict between playpark area and construction of the shared use path	Construction	4	4	16	Control & Instrumentation	Park to be closed during the construction	Reduce risk of accidents	1	3	3			Design Team						
11	1: Interactive Design Safety Session	C	Building a bridge	Geotech in the enbankments will need to be known	Construction	4	5	20	Civil / Structural	No Consideration has been given to this at this stage.	Further consideration needs to be given at a detailed design stage	4	5	20			Engineer						
12	1: Interactive Design Safety Session	C	Building a bridge	Probability of the river flooding,	Construction	4	5	20	Civil / Structural	No Consideration has been given to this at this stage.	Further consideration needs to be given at a detailed design stage	4	5	20									
13	1: Interactive Design Safety Session	C	Building a bridge	Working in and over water. Fall into water. Fall from working at height	Construction	4	5	20	Civil / Structural	Appropriate barrier, harnesses would mitigate but part of contractors methodology not design. Design of prefab bridge would reduce working from height instances.	A competent Contractor should have appropriate systems in place but Engineer should review in advance of construction to ensure protocols are in	3	5	15	Working at height still required		Engineer						
14	1: Interactive Design Safety Session	U	Proposals include for shared space which can be a problem for vulnerable users	Conflicts between pedestrians and cyclists	Public	3	4	12	Control & Instrumentation		Tactile paving and markings/signage applied as necessary to warn users upon entry to shared space. A level of segregation has been provided on footway approaches to Toucan crossing	2	4	8	Pedestrians and cyclists still expected to share space		Design Team						
15	1: Interactive Design Safety Session	U	Utility covers may be present in the footways at the crossing location	May create difficulties in applying appropriate paving types with risk of poor construction and associated trips/ falls for users	Public	3	2	6	Control & Instrumentation	Diversion of utilities not expected to be possible due to congested network	Appropriate materials and checking will need to be undertaken during construction to ensure footways are appropriate for intended usage	2	2	4			Engineer						

Risk ID.	Formal Review Description	Phase	Activity	Potential Hazard	Person(s) Most at Risk	Prob	WPS	Initial Risk Rating	Discipline	Design Measures to Eliminate Hazards	Design Measures to Reduce Risk	Residual Prob	Residual WPS	Residual Risk Rating	Residual Risk Description	Included on Drawing No(s) or other doc. (give ref.)	Action By (Name or Role)	Target Date	Revised Target Date	Date Action Complete	Tracker Status	Comments	Primary Legislation
16	1: Interactive Design Safety Session	C	Buried services	Impact during construction	Construction	3	5	15	Civil / Structural	Utilities are present so cannot be eliminated	To be considered further at a detailed design stage	3	5	15	Utilities are present		**Engineer**						
17	1: Interactive Design Safety Session	C	Coal tar in pavement	Risk to environment and human health during construction	Construction	3	4	12	Civil / Structural	Assume present in existing carriageway so can only be confirmed by testing	Inform Contractor of potential for Coal Tar in existing carriageway construction. Follow national guidelines for assessment and safe removal prior to and during construction	2	2	4	Assumed present		**Engineer**						
18	1: Interactive Design Safety Session	M	Maintenance cleaning of cycleways may have limited space	Unable to provide service creating risk to users	Public	3	3	9	Control & Instrumentation	Minimum 2.5m applied to cycle track design, this is sufficent space for a sweeper	N/A	1	3	3	Regular cleaning required to keep clear		**Design Team**						
19	1: Interactive Design Safety Session	C	Topographic survey not available within programme	Design based on OS mapping not to the required level of detail for "developed design, impacting hazard identification	Construction	2	2	4	Control & Instrumentation	Topo to be undertaken at the detailed design stage	N/A	1	1	1	N/A		**Design Team**						
20	1: Interactive Design Safety Session	U	Road layout has changed through the narrowing of carriageways, application of traffic signals and addition of build outs/ raised table crossings	Confusion, particularly for local residents, leading to potential vehicle collisions	Public	2	3	6	Control & Instrumentation	Hazard could only be eliminated by removal of scheme	Amend and possibly improve permanent signage to advise of changes to road layout/ access requirements. Provide temporary signage to warn/ advise of changes post	1	3	3	Motorists lack of attention due to familiarity		**Design Team**						
21	1: Interactive Design Safety Session	U	Raised table provision	Risk of confusion for right of way leading to pedestrian/motorist conflict	Public	2	4	8	Control & Instrumentation	Potential to amend to continuous footway to enhance pedestrian right of way, TBC further at technical design	Tactile paving applied to warn pedestrians of road crossing. Tight corner radii and appropriate ramps applied to reduce vehicle speeds	1	4	4	Conflict between users remains		**Design Team**						
22	1: Interactive Design Safety Session	M	Maintenance of new Toucan Crossings, Location of the controller cabinets for the new Toucan crossings,	Risk is the engineer being able to safely access and open the controller door without impacting on other road users	Maintenance	3	3	9	Control & Instrumentation	Offset control cabinets from the footway/cycleway so that opened doors don't obstruct or the engineer isn't working within the footway/cycleway which could results in risk to him/her and users of the route.	Ordinarily a parking place wouldn't be provided just for a Toucan but if feasible, grasscrete or similar can be provided in the verge. The maintenance vehicles may use the footway area at SE corner of junction or park in the allotment . To be further considered at the detailed design stage	1	1	1			**Engineer**						

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DESIGN HAZARD ELIMINATION AND RISK REDUCTION REGISTER: Route 11

Latest Meeting Date	31/03/2022

Update Critical Risk Table

Phase	
C	Construction
M	Maintain / Clean
U	Use as Workplace
D	Demolish

Project Name:	Aberdeen Cross City Connections
Project Number:	B2340234
Client:	Aberdeen City Council

Probability	Worst Potential Severity (WPS) of Impact	Risk Rating
1: Highly Unlikely 2: Unlikely 3: Possible 4: Likely 5: Highly Likely	1: Nil or slight injury / illness, property damage or environmental issue. 2: Minor injury / illness, property damage or environmental issue. 3: Moderate injury or illness, property damage or environmental issue. 4: Major injury or illness, property damage or environmental issue. 5: Fatal or long term disabling injury or illness. Significant property damage or environmental issue. 10. Multiple fatalities and catastrophic event	NOTE: The purpose of Risk Rating is to determine which risks are significant. It is a subjective assessment and not an absolute or precise determination

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Risk ID.	Formal Review Description	Phase	Activity	Potential Hazard	Person(s) Most at Risk	Prob	WPS	Initial Risk Rating	Discipline	Design Measures to Eliminate Hazards	Design Measures to Reduce Risk	Residual Prob	Residual WPS	Residual Risk Rating	Residual Risk Description	Included on Drawing No(s) or other doc. (give ref.)	Action By (Name or Role)	Target Date	Revised Target Date	Date Action Complete	Tracker Status	Comments	Primary Legislation
1	1: Interactive Design Safety Session	U	Crossing the road	Cyclist has to cross N Deeside Rd - user confusion leading to conflicts	Public	2	4	8	Control & Instrumentation	On-carriageway layout is as per standard Toucan form removing confusion risk with motorists	Toucan crossing with tactile paving and markings/signage applied as necessary to warn users upon entry to shared space. A level of segregation has been provided on footway approaches to Toucan	1	4	4			Design Team						
2	1: Interactive Design Safety Session	U	Existing shared use path not suitable	Existing path on Kingswood Drive is narrow for shared use and may cause conflicts between pedestrians and cyclits	Public	3	3	9	Control & Instrumentation	Shared use path widened to 4 metres	Reduced the chances of conflicts	2	1	2			Design Team						
3	1: Interactive Design Safety Session	U	Lighting	Lighting up the internal path	Public	2	2	4	Control & Instrumentation	To be considered at the detailed design stage	To be considered at the detailed design stage	2	2	4			Design Team						
4	1: Interactive Design Safety Session	U	Visibility between cyclists and pedestrians due to the location of the bus stop. Vehicles potentially overtaking waiting buses and not seeing pedestrians/cyclists on the	Collision between cyclists, pedestrians and vehicles	Public	3	3	9	Control & Instrumentation	Conflict Removed - Relocation of the Bus Stop		1	2	2									
5	1: Interactive Design Safety Session	U	Construction	Conflict between playpark area and construction of the route	Construction	4	4	16	Control & Instrumentation	Play areas to be closed during the construction	Reduce risk of accidents	1	1	1			Design Team						
6	1: Interactive Design Safety Session	U	Trees may need to be removed within the internal path near the school (Kingswells Avenue)	Environmental	Construction	4	3	1	Control & Instrumentation	Trees to be surveyed and design reconsidered if necessary	Trees to be surveyed and design reconsidered if necessary (i.e. widen the existing footway instead)	4	3	1	Potential for trees still to be removed		Design Team						
7	1: Interactive Design Safety Session	C	Visibility between cyclists and pedestrians due to the location of the bus stop. Vehicles potentially overtaking waiting buses and not seeing pedestrians/cyclists on the crossing	Bus stop to be moved on Kingswell Crescent (needs consideration at detailed design stage)	Construction	3	3	9	Control & Instrumentation	needs consideration at detailed design stage	needs consideration at detailed design stage	3	3	9			Design Team						
8	1: Interactive Design Safety Session	U	Proposals include for shared space which can be a problem for vulnerable users	Conflicts between pedestrians and cyclists	Public	3	4	12	Control & Instrumentation		Tactile paving and markings/signage applied as necessary to warn users upon entry to shared space. A level of segregation has been provided on footway approaches to Toucan crossing	2	4	8	Pedestrians and cyclists still expected to share space		Design Team						
9	1: Interactive Design Safety Session	M	Maintenance cleaning of cycleways may have limited space	Unable to provide service creating risk to users	Public	3	3	9	Control & Instrumentation	Minimum 2.5m applied to cycle track design, this is sufficent space for a sweeper	N/A	1	3	3	Regular cleaning required to keep clear		Design Team						
10	1: Interactive Design Safety Session	U	Zebra crossing arrangement over cycle way may not have a legal standing for cyclists to give way to pedestrians	Cyclists not giving way to pedestrians leading to collisions	Public	2	4	8	Control & Instrumentation	Hazard could only be eliminated by removal of cycle lane	Blister tactile paving has been applied at the crossing point to advise vulnerable pedestrians they are approaching a crossing point. Give way markings applied to cycle track.	1	4	4	Cyclist behaviour		Design Team						
11	1: Interactive Design Safety Session	U	Swept paths of larger vehicles need to encroach on opposing lanes to make corners	Conflict with opposing motorists or overshooting carriageway and encroaching on footway to conflict with NMUs	Public	2	3	6	Control & Instrumentation	Hazard could only be eliminated by widening carriageway which exposes NMUs to greater risk	Carriageway widths designed to ensure vehicle swept paths can be accommodated within the carriageway	1	3	3	Vehicles may still misjudge manoeuvres		Design Team						
12	1: Interactive Design Safety Session	C	Topographic survey not available within programme	Design based on OS mapping not to the required level of detail for "developed design, impacting hazard identification	Construction	2	2	4	Control & Instrumentation	Topo to be undertaken at the detailed design stage	N/A	1	1	1	N/A		Design Team						

Risk ID.	Formal Review Description	Phase	Activity	Potential Hazard	Person(s) Most at Risk	Prob	WPS	Initial Risk Rating	Discipline	Design Measures to Eliminate Hazards	Design Measures to Reduce Risk	Residual Prob	Residual WPS	Residual Risk Rating	Residual Risk Description	Included on Drawing No(s) or other doc. (give ref.)	Action By (Name or Role)	Target Date	Revised Target Date	Date Action Complete	Tracker Status	Comments	Primary Legislation
13	1: Interactive Design Safety Session	U	Utility covers may be present in the footways at the crossing location	May create difficulties in applying appropriate paving types with risk of poor construction and associated trips/ falls for users	Public	3	2	6	Control & Instrumentation	Diversion of utilities not expected to be possible due to congested network	Appropriate materials and checking will need to be undertaken during construction to ensure footways are appropriate for intended usage	2	2	4			**Engineer**						
14	1: Interactive Design Safety Session	C	Buried services	Impact during construction	Construction	3	5	15	Civil / Structural	Utilities are present so cannot be eliminated	C2 information requested and where received details included within RIBA Stage 3 design drawings to raise awarness of presence	3	5	15	Utilities are present		**Engineer**	Construction	Construction				
15	1: Interactive Design Safety Session	C	Coal tar in pavement	Risk to environment and human health during construction	Construction	3	4	12	Civil / Structural	Assume present in existing carriageway so can only be confirmed by testing	Inform Contractor of potential for Coal Tar in existing carriageway construction. Follow national guidelines for assessment and safe removal prior to and	3	4	12	Assumed present		**Engineer**	Construction	Construction				
16	1: Interactive Design Safety Session	U	Road layout has changed through the narrowing of carriageways, application of traffic signals or addition of build outs/ raised table crossings	Confusion, particularly for local residents, leading to potential vehicle collisions	Public	2	3	6	Control & Instrumentation	Hazard could only be eliminated by removal of scheme	Amend and possibly improve permanent signage to advise of changes to road layout/ access requirements. Provide temporary signage to warn/ advise of changes post	1	3	3	Motorists lack of attention due to familiarity		**Design Team**						
17	1: Interactive Design Safety Session	U	Raised table provision	Risk of confusion for right of way leading to pedestrian/motorist conflict	Public	2	4	8	Control & Instrumentation	Potential to amend to continuous footway to enhance pedestrian right of way, to be further considered at detailed design stage	Tactile paving applied to warn pedestrians of road crossing. Tight corner radii and appropriate ramps applied to reduce vehicle speeds	1	4	4	Conflict between users remains		**Design Team**						
18	1: Interactive Design Safety Session	M	Maintenance of new Toucan Crossings, Location of the controller cabinets for the new Toucan crossings,	Risk is the engineer being able to safely access and open the controller door without impacting on other road users	Maintenance	3	3	9	Control & Instrumentation	Offset control cabinets from the footway/cycleway so that opened doors don't obstruct or the engineer isn't working within the footway/cycleway which could results in risk to him/her and users of the route.	Ordinarily a parking place wouldn't be provided just for a Toucan but if feasible, grasscrete or similar can be provided in the verge. Grasscrete layby can be provided using the verge on northside of Kingswood Drive for maintenance vehicles To be further considered at the detailed design stage	1	1	1									

Jacobs

DESIGN HAZARD ELIMINATION AND RISK REDUCTION REGISTER: Route 20

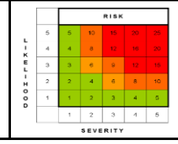
Latest Meeting Date	31/03/2022

Update Critical Risk Table

Phase	
C	Construction
M	Maintain / Clean
U	Use as Workplace
D	Demolish

Project Name:	Aberdeen Cross City Connections
Project Number:	B2340234
Client:	Aberdeen City Council

Probability	Worst Potential Severity (WPS) of Impact	Risk Rating
1: Highly Unlikely 2: Unlikely 3: Possible 4: Likely 5: Highly Likely	1: Nil or slight injury / illness, property damage or environmental issue. 2: Minor injury / illness, property damage or environmental issue. 3: Moderate injury or illness, property damage or environmental issue. 4: Major injury or illness, property damage or environmental issue. 5: Fatal or long term disabling injury or illness. Significant property damage or environmental issue. 10. Multiple fatalities and catastrophic event	NOTE: The purpose of Risk Rating is to determine which risks are significant. It is a subjective assessment and not an absolute or precise determination



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Risk ID.	Formal Review Description	Phase	Activity	Potential Hazard	Person(s) Most at Risk	Prob	WPS	Initial Risk Rating	Discipline	Design Measures to Eliminate Hazards	Design Measures to Reduce Risk	Residual Prob	Residual WPS	Residual Risk Rating	Residual Risk Description	Included on Drawing No(s) or other doc. (give ref.)	Action By (Name or Role)	Target Date	Revised Target Date	Date Action Complete	Tracker Status	Comments	Primary Legislation
1	1: Interactive Design Safety Session	U	Mixed traffic street on St Devenicks Place & Kirk Brae	Conflicts between vehicles and cyclists	Public	4	4	16	Control & Instrumentation	conflict cannot be removed due to a lack of road space	Signs and road marking have been provided due to a lack of road space available for segregated or shared use	2	3	6	Conflict remains		Design Team						
2	1: Interactive Design Safety Session	U	Crossing the road	Cyclist has to cross N Deeside Rd - user confusion leading to conflicts	Public	2	4	8	Control & Instrumentation	On-carriageway layout is as per standard Toucan form removing confusion risk with motorists	Toucan crossing with tactile paving and markings/signage applied as necessary to warn users upon entry to shared space. A level of segregation has been provided on footway approaches to Toucan	1	4	4			Design Team						
3	1: Interactive Design Safety Session	U	Mixed traffic street	Risk of collision between vehicles and cylists at junctions	Public	2	4	8	Control & Instrumentation	Segregated lane cannot be achieved due to land constriants	Advanced stop lanes (Early start for cyclists to reduce risk of collision)	1	4	4	Conflict remains		Design Team						
4	1: Interactive Design Safety Session	U	Advisory Cycle lane on uphill section for most of Kirk Brae	Cyclists put in compromised situation, risk of collision	Public	2	4	8	Control & Instrumentation	Not possible within land constraints	Carriageway cross section amended to reduce traffic speeds and raise awareness of cyclists going northbound and uphill. Cycle symbols added, advisory cycle lane and red chip surfacing extended into traffic lane to raise	1	4	4	Conflict remains		Design Team						
5	1: Interactive Design Safety Session	U	Parking on Kirk Brae near the shops	Advisory lane on Kirk brae and two way traffic may lead to and vehicles making evasive manoeuvres	Public	4	2	8	Control & Instrumentation	Hazard could only be eliminated by reducing the width of road which is not possible due to land constraints and exposes NMUs to greater risk	On-street parking reduction may lead to illegal parking or blocking from short stop deliveries	4	2	8	Vehicles may still park illegally		Design Team						
6	1: Interactive Design Safety Session	U	Widening of shared use path on Friarsfield Rd	land use constraints, services, gradient etc	Public	2	4	8	Control & Instrumentation	To be considered further at detailed design stage	potentially reduce proposed width from 4, to 3m	1	4	4	Conflict remains		Design Team						
7	1: Interactive Design Safety Session	U	Proposals include for shared space which can be a problem for vulnerable users	Conflicts between pedestrians and cyclists	Public	3	4	12	Control & Instrumentation	Shared space limited to Toucan crossing facility only	Tactile paving and markings/signage applied as necessary to warn users upon entry to shared space. A level of segregation has been provided on footway approaches to Toucan crossing	2	2	4	Pedestrians and cyclists still expected to share space		Design Team						
8	1: Interactive Design Safety Session	U	Utility covers may be present in the footways at the crossing location	May create difficulties in applying appropriate paving types with risk of poor construction and associated trips/ falls for users	Public	3	2	6	Control & Instrumentation	Diversion of utilities not expected to be possible due to congested network	Appropriate materials and checking will need to be undertaken during construction to ensure footways are appropriate for intended usage	2	2	4			Engineer						
9	1: Interactive Design Safety Session	C	Buried services	Impact during construction	Construction	3	5	15	Civil / Structural	Utilities are present so cannot be eliminated	C2 information requested and where received details included within RIBA Stage 3 design drawings to raise awarness of presence	3	5	15	Utilities are present		Engineer						
10	1: Interactive Design Safety Session	C	Coal tar in pavement	Risk to environment and human health during construction	Construction	3	4	12	Civil / Structural	Assume present in existing carriageway so can only be confirmed by testing	Inform Contractor of potential for Coal Tar in existing carriageway construction. Follow national guidelines for assessment and safe removal prior to and during construction	3	4	12	Assumed present		Engineer						
11	1: Interactive Design Safety Session	M	Maintenance cleaning of cycleways may have limited space	Unable to provide service creating risk to users	Public	3	3	9	Control & Instrumentation	Minimum 2.5m applied to cycle track design, this is sufficent space for a sweeper	N/A	1	3	3	Regular cleaning required to keep clear		Design Team						
12	1: Interactive Design Safety Session	U	Swept paths of larger vehicles need to encroach on opposing lanes to make corners	Conflict with opposing motorists or overshooting carriageway and encroaching on footway to conflict with NMUs	Public	2	3	6	Control & Instrumentation	Hazard could only be eliminated by widening carriageway which exposes NMUs to greater risk	Carriageway widths designed to ensure vehicle swept paths can be accommodated within the carriageway	1	3	3	Vehicles may still misjudge manoeuvres		Design Team						

Risk ID.	Formal Review Description	Phase	Activity	Potential Hazard	Person(s) Most at Risk	Prob	WPS	Initial Risk Rating	Discipline	Design Measures to Eliminate Hazards	Design Measures to Reduce Risk	Residual Prob	Residual WPS	Residual Risk Rating	Residual Risk Description	Included on Drawing No(s) or other doc. (give ref.)	Action By (Name or Role)	Target Date	Revised Target Date	Date Action Complete	Tracker Status	Comments	Primary Legislation
13	1: Interactive Design Safety Session	C	Topographic survey not available within programme	Design based on OS mapping not to the required level of detail for "developed design, impacting hazard identification	Construction	2	2	4	Control & Instrumentation	Topo to be undertaken at the detailed design stage	N/A	1	1	1	N/A		**Design Team**						
14	1: Interactive Design Safety Session	U	Road layout has changed through the narrowing of carriageways, application of traffic signals and addition of build outs/ raised table crossings	Confusion, particularly for local residents, leading to potential vehicle collisions	Public	2	3	6	Control & Instrumentation	Hazard could only be eliminated by removal of scheme	Amend and possibly improve permanent signage to advise of changes to road layout/ access requirements. Provide temporary signage to warn/ advise of changes post	1	3	3	Motorists lack of attention due to familiarity		**Design Team**						
15	1: Interactive Design Safety Session	U	Raised table provision	Risk of confusion for right of way leading to pedestrian/motorist conflict	Public	2	4	8	Control & Instrumentation	Potential to amend to continuous footway to enhance pedestrian right of way, TBC further at technical design	Tactile paving applied to warn pedestrians of road crossing. Tight corner radii and appropriate ramps applied to reduce vehicle speeds	1	4	4	Conflict between users remains		**Design Team**						
16	1: Interactive Design Safety Session	M	Maintenance of new Toucan Crossings, Location of the controller cabinets for the new Toucan crossings,	Risk is the engineer being able to safely access and open the controller door without impacting on other road users	Maintenance	3	3	9	Control & Instrumentation	Offset control cabinets from the footway/cycleway so that opened doors don't obstruct or the engineer isn't working within the footway/cycleway which could results in risk to him/her and users of the route.	Ordinarily a parking place wouldn't be provided just for a Toucan but if feasible, grasscrete or similar can be provided in the verge. To be further considered at the detailed design stage	1	1	1									