

# **Appendix L: Satellite venue summary information**

## 1. SATELLITE VENUES

The Satellite venue projects assessment has considered the developments at Barry Buddon, Strathclyde Country Park and the Royal Commonwealth Pool in Edinburgh. A broad range of potential environmental effects have been identified, primarily in relation to population and human health, biodiversity, air, water and historic environment/ cultural heritage related issues. Both positive and negative potential environmental effects have been identified, the majority of which are considered to be minor in terms of the significance criteria set out in the table below.

## 2. BARRY BUDDON SHOOTING CENTRE

### 2.1 Introduction

Barry Buddon near Carnoustie in Angus on the East Coast of Scotland will host all the Games' shooting events. Owned by the Ministry of Defence, Barry Buddon has a well-established full bore firing range that was used in the Edinburgh 1986 Commonwealth Games. The site has a number of firing ranges for small arms training, and areas used for dry training (non-live firing). A vast array of wildlife can be seen on Barry Buddon. Most of the training area is a Site of Special Scientific Interest (SSSI) and an EU Special Area of Conservation (SAC), as well as a Special Protection Area (SPA) for its bird populations. The area provides a haven for wintering waders such as bar-tailed godwit, sanderling and eider duck whilst the plentiful sea buckthorn berries provide food for fieldfares and redwings. In summer months, abundant skylarks, meadow pipits, linnets and stonechats use the dunes as shelter or nest sites.

### 2.2 Venue development

At the time of writing, the shooting venues at Barry Buddon will be the location for the full competition programme for shooting at the 2014 Glasgow Commonwealth Games. This will allow support areas to be shared between the ranges.

Five ranges will be provided; and the facilities will be capable of meeting all the requirements of the Organising Committee, the Commonwealth Games Federation and the International Federation. The venue will comprise the following facilities:

- **10m Range:** competition arena for air pistol and air rifle events
- **25m Range:** competition arena for 25m pistol events
- **50m Range:** competition arena for 50m pistol and small bore rifle events
- **Clay Target Range:** competition arena for the Trap and Skeet events
- **Full Bore Range:** competition arena for full bore rifle events from 300m to 1000m
- **Front of House Facilities:** provided for spectators. These include transport zones, entries, seating and support areas. These are required for all ranges but may be combined and centralised where this provides a more efficient and economic solution.
- **Back of House Facilities:** provided for accredited personnel. These include transport zones, entries, seating and support areas. This area should be separate from spectator areas to assist the management of security and accreditation access.

Prior to the commencement of the Commonwealth Games, the venue may be used for a Test Event and training/familiarisation by athletes in preparation for the competition.

## 2.3 Summary of baseline data

Issue		Baseline Condition	Additional information
<b>Biodiversity, flora and fauna</b>	Statutory and non-statutory conservation designations	Barry Links SSSI and SAC covers 80% of the venue site and both of the firing ranges proposed for the Games included in the designated sites. The site is important for its sand dune habitats and associated species including a number of nationally rare vascular plants and bryophytes, invertebrates and wintering bird species.  Around 60% of the site, including both firing ranges lies within protected open space, as designated in the Angus Local Plan.	N/A
	Key Species and Habitats	Numerous LBAP habitats and species in the vicinity, many located in Holyrood park. These include rock faces, wetlands, semi-natural grassland, and woodland, and rock whitebeam, maiden pink and sticky catchfly. There are water vole on Duddingston Loch and the Braid Burn.  Duddingston Loch is a Scottish Wildlife Trust Reserve.	Temporary disturbance of wildlife (possibly including breeding birds, which are protected, depending on timing of preparation/games) due to increased traffic, personnel and associated noise, lighting etc.
<b>Air</b>	Noise	The venue is located in a rural area close to the coast. The local area is typically quiet, although noise is generated during existing operations at the venue.  The closest receptors are situated at some distance from the venue location. The proposed venue will generate noise during the Games. Noise sources will include: <ul style="list-style-type: none"> <li>- public address system;</li> <li>- crowd noise; and</li> <li>- gunfire noise generated by the competition.</li> </ul> Noise from the venue will be temporary for the duration of the Games.	N/A
<b>Population and human health</b>	Demographics	The area local to the centre has a high level of employment being mainly comprised of residents who commute to Dundee. Closer to Arbroath, the unemployment rate is	N/A

Issue		Baseline Condition	Additional information
		higher	
	Access	There are many walking routes along the seafront and on the beach between Broughty Ferry and Carnoustie. There are two golf courses on the northern edge of the site. To the north, there are walking routes within Monikie Country Park	N/A

## 2.4 Potential environmental effects of venue construction and operation

Given the fact that the Barry Buddon venue is located in a particularly environmentally sensitive area, as evidenced by the SSSI and SAC designated areas around it, an Appropriate Assessment will need to be undertaken prior to permissions being granted for development. This assessment will identify potential impacts and make recommendations for the mitigation of potential negative effects. The Appropriate Assessment will be prepared in full consultation with SNH and Angus Council.

The results of the Appropriate Assessment will be published in due course, and the following is an initial outline assessment of the potential environmental effects that might be experienced at the venue.

### ***Biodiversity, flora and fauna***

There may be temporary disturbance of wildlife (possibly including breeding birds, which are protected) due to increased traffic, personnel and associated noise, lighting etc.

### ***Air***

The venue will generate noise during the Games, sources of which include: public address systems; crowd noise; gunfire noise. Noise from the venue will be temporary for the duration of the Games.

The venue itself will not generate significant atmospheric emissions. Emissions generated by road traffic from spectators accessing the venue will be controlled by the Games traffic management and transport plans. Any adverse effects on air quality will be temporary for the duration of the Games.

The venue will indirectly generate additional carbon emissions as a result of increased power use for the duration of the event. Furthermore additional carbon emissions will be generated by spectators attending the Games in increased road/ rail use. The increase in emissions will be reduced by the Games' Transport Plan.

### **3. STRATHCLYDE COUNTRY PARK**

#### **3.1 Introduction**

Strathclyde Country Park, on the south-eastern edge of Glasgow, will host the Triathlon competition. Close to the industrial centres of Scotland, the park lies in 400 hectares of countryside in the valley of the River Clyde, between Junctions five and six of the M74 Motorway. Mature woodlands, rough wetlands, wildlife refuges and neat open parkland all surround Strathclyde Loch, the focal point for many of the park activities. Strathclyde Country Park is firmly established as one of Scotland's leading centres for outdoor recreation. Thousands of visitors every year come to enjoy the huge range of activities available from sailing to sunbathing, bird watching to bicycling, water ski-ing to watching the world go by. Ideally situated, with excellent road and public transport links, the park plays host to a series of major events throughout the year, all with their own special excitement and attractions to offer the visitor.

#### **3.2 Venue development**

The loch will be used for swimming and the surrounding network of roads and paths for the cycling and running legs. The course will be upgraded for the Games and become a legacy for future events.

Existing infrastructure within the Park will be upgraded to provide facilities for the staging of triathlon to full international standards. This will increase the width of the existing 3m wide "Crest Road" along the embankment of the loch to a 6m wide carriageway for the cycling course.

### 3.3 Summary of Baseline Data

Issue	Baseline Condition	
<b>Population and Public Health</b>	Demographics	<p>The area surrounding Strathclyde Park comprises Ladywell, North Motherwell and Orbiston wards. In Ladywell, the percentage of people unemployed in 2001 was 3.2%, whereas in North Motherwell the figure was 12.2%. In Orbiston, the figure was 9.2%. In Ladywell, a high proportion of workers worked in professional or managerial occupations, whereas in North Motherwell a greater proportion worked in skilled trades. In Orbiston, the proportion was more evenly spread.</p>
	Health and the Environmental Determinants of Health	No information available at present.
	Access	<p>Strathclyde Country Park is one of Scotland's leading centres for outdoor recreation. The park surrounds Strathclyde Loch, where there is a watersports centre. There is also a camping and caravan site nearby, and a theme park within the Park. The Park hosts various major events throughout the year, such as cycling and cross-country races, rowing, canoeing and sailing regattas, exhibitions and country fairs.</p> <p>Strathclyde Park itself has many recreational opportunities and provides open space. Approx. 1km west of Strathclyde Park, there is a race course.</p>
<b>Biodiversity, flora and fauna</b>	Statutory and Non-statutory Conservation Designations	<p>The edge of the venue overlaps with an AWI site (semi-natural ancient woodland), which runs along the River Clyde.</p> <p>The venue is adjacent to Hamilton Low Parks SSSI, which lies along the west/south boundary between the venue and the M74. The SSSI is an area of wet grassland and open pools in close association with deciduous woodland.</p>
	Key Species and Habitats	<p>Adjacent to the venue the SSSI includes a stretch of the River Clyde. There is a diverse breeding bird community in both the woodland and open water/grassland habitats, including such species as water rail, great crested grebe, teal, sedge warbler, reed bunting and green woodpecker. The woodland is also the site of one of the largest heronries in Scotland.</p>
	Green Network	No information available at present.
<b>Water</b>	Local Plans, Policies and Strategies	No information available at present.
	Water Quality	The overall water quality of the River Clyde at Strathclyde Park Footbridge is Class A2 – Good.
	Water Pollution	No information available at present.

Issue		Baseline Condition
	Flood Risk	No information available at present.
	Hydromorphology	The biological water quality of the River Clyde at Strathclyde Park Footbridge is Class A2 – Good.
<b>Air</b>	Air Quality	The closest AQMA to the proposed venue is in Motherwell, approximately 2.5km north-east of the proposed venue. North Lanarkshire Council is currently developing and implementing measures to improve air quality in this area.
	Air Pollution	North Lanarkshire Council, in accordance with its statutory requirements, undertakes monitoring of air quality levels in North Lanarkshire and assesses air quality levels on an annual basis.
<b>Soil</b>		The area of Strathclyde Park on which the Games Venue will be located was formerly parkland. When Strathclyde Park was created the area of parkland was flooded and the River Clyde was diverted. The area of land on which the Games venue is located is likely to consist of infill relocated for elsewhere in the park or off-site. The location from which the material was sourced or it's potential for contamination is unknown.
<b>Climatic Factors</b>	Flood Risk Provisions	No information available at present.
	Green Spaces	Other than the Country Park itself, there are no green spaces in the local area.
<b>Townscape, landscape and the historic environment</b>	Local Plans, Policies and Strategies	The remains of Bothwell Roman Fort and a Roman bath house are situated in the park, where the South Calder Water flows into the loch. There is also an arched Roman bridge across the South Calder Water.

### 3.4 Potential environmental effects of venue construction and operation

Despite the Country Park being an important open space and part of the wider habitat network, the temporary nature of the developments here, and the low-impact nature of the triathlon event itself, there are unlikely to be any negative effects on the environment.

#### ***Biodiversity, flora and fauna***

There may be a temporary disturbance related to wildlife due to increased visitors and noise; although no direct effects on habitat are anticipated.

#### ***Air***

The venue itself will not generate significant atmospheric emissions. Emissions generated by road traffic from spectators accessing the venues will be controlled by the Games traffic management and travel plans.

## **4. ROYAL COMMONWEALTH POOL, EDINBURGH**

### **4.1 Introduction**

The Royal Commonwealth Pool in Edinburgh will host the Diving competitions. Owned by the City of Edinburgh Council, the venue is being upgraded to meet international standards for diving competitions. The original Royal Commonwealth Pool was designed by Robert Matthew Johnson Marshall (RMJM) Architects, built for the Edinburgh 1970 Commonwealth Games and was used again in the Edinburgh 1986 Commonwealth Games.

### **4.2 Venue development**

The pool refurbishment will involve replacing the three existing tanks with state-of-the-art pools, meeting the standards for national swimming, water polo and synchronised swimming competitions, and international diving ones.

Of specific relevance to the 2014 Games, the existing diving pool will be replaced by a pool 25m wide, 16.25m long and with a variable depth of between one and five metres, so it can be used for diving, swimming and synchronised swimming. The diving platforms will be placed at 3m, 5m, 7.5m and 10m heights, with two springboards, of 1m and 3m respectively.

As well as the improvements to the diving pool, the existing 50m pool will be replaced with a level-deck pool, 51.5m long by 21m wide, which will have a traversable boom and moving floor. This will allow the pool to be divided into two according to need, to create the space for short and long course competition, warm-up and training. It will be eight lanes wide, which meets national competition standards. The teaching pool will be replaced with a 25m pool with a moving floor for variable depth, providing flexible training facilities.

Up to 900 spectator seats will be placed on a newly constructed terrace, giving good sight lines across all three pools. There will also be a health suite, gym, studios, crèche, café and children's facilities on the site too.

An 800m<sup>2</sup> solar roof will be installed and it is anticipated that this should generate 458,000kWh prevent around 70 tonnes of CO<sub>2</sub> from entering the atmosphere on an annual basis. Additionally a 237kW(e) combined heating and power system will provide 225kW of heating, with a likely combined saving approximately 400 tonnes of CO<sub>2</sub> per year.

Other sustainable design measures incorporated into the refurbishment works include water conservation measures through the use of water-saving appliances, and waste shower water will be recycled and used for toilet flushing.



### 4.3 Summary of Baseline Data

Issue		Baseline Condition
Population and Human Health	Access	<p>The CW Pool is situated approx 200m from Queen's Park, which contains Arthur's Seat, and is a very significant location for outdoor recreation and tourism, and a national landmark.</p> <p>The Meadows Park, an area of open greenspace, is approx 600m from the Commonwealth Pool.</p>
Water	Water Quality	Holyrood Park has three lochs – Duddingston Loch lies approximately 1km to the east, Queen Margaret's pond 1.5km to the north and Dunsapie Loch 1.5km to the northeast. The closest watercourse is Braid Burn, which lies approximately 1.5km to the south east
	Water Pollution	No information available at present.
	Flood Risk	None
Climatic Factors	Flood Risk Provisions	No information available at present.
Townscape, landscape and the historic environment	Local Plans, Policies and Strategies	<p>The CW Pool is a Category A Listed Building.</p> <p>The CW Pool is approx 1km from the boundary of Edinburgh World Heritage Site and within 50m of the edge of a designated Conservation Area, which covers Edinburgh town centre.</p>
Air	Noise	Edinburgh Commonwealth Pool is located close to Edinburgh city centre. The surrounding area contains both residential and institutional buildings. The noise environment is typical of busy urban areas.
	Air Quality	The closest AQMA to the proposed venue is in Edinburgh City Centre, approximately 500m north of the proposed venue. Edinburgh City Council is currently developing and implementing measures to improve air quality in this area.
	Air Pollution	Edinburgh City Council, in accordance with its statutory requirements, undertakes monitoring of air quality levels in Edinburgh and assesses air quality levels on an annual basis. The last assessments were undertaken in 2005 and 2006, with both assessments confirming that air quality levels immediately surrounding the Commonwealth Pool comply with NAQS objectives.

### 4.4 Potential environmental effects of venue construction and operation

The assessment of the complete refurbishment of the Royal Commonwealth Pool has not identified any significant negative environmental effects, given that all work will be within the existing pool complex. There could be effects on air quality and noise levels on a temporary basis; and on human health and cultural heritage/ historic environment. These are outlined below.

**Air**

The venue itself will not generate significant atmospheric emissions. Emissions generated by road traffic from spectators accessing the venue will be controlled by the Games traffic management and travel plans. Any adverse impact to air quality levels will be temporary for the duration of the Games.

The proposed venue will generate noise during the Games. Noise sources will include: public address; system; crowd noise; and music and other noise from the competition. Noise from the venue will be temporary for the duration of the Games. The majority of noise will be generated indoors and is unlikely therefore to be significant.

**Human Health**

Positive effects have been identified; these comprise the potential benefits on human health due to the continued presence of the swimming pool and its associated facilities within the City. Similarly, the refurbishments will secure the continued use and survival of an important element of Edinburgh's later 20<sup>th</sup> century architectural heritage.

**Townscape/ Landscape and the historic environment**

The only potential negative effects that were considered possible were related to the building's Category A listed status. However given that all plans and designs have been developed in close consultation with Historic Scotland the City of Edinburgh Council any potential negative effects have been dealt with at an early stage.

**Appendix M:  
Compatibility analysis of CG  
Strategic Framework objectives  
with SEA objectives**



# **Appendix N: Pre-games development projects – summary scope of works**

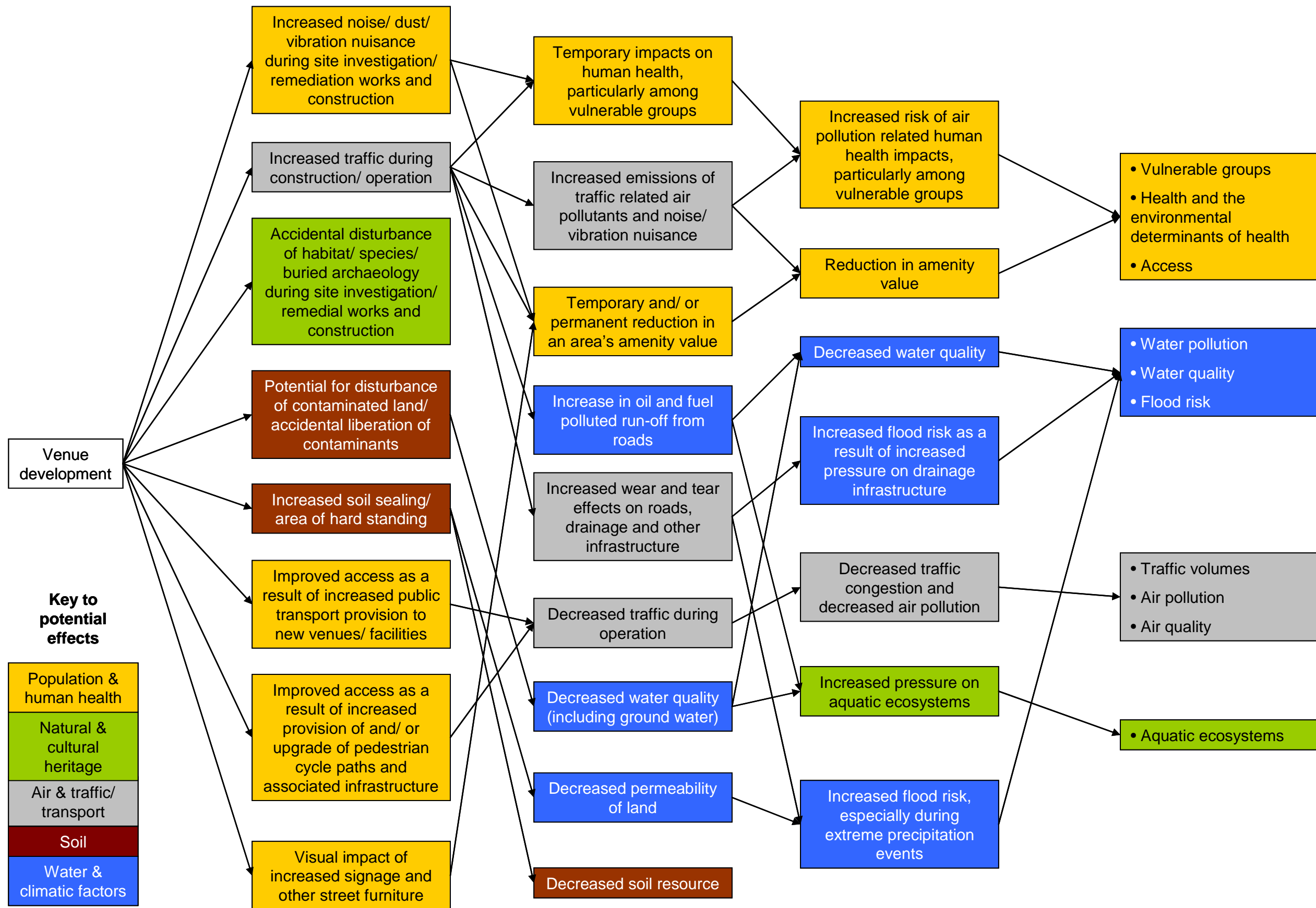
**Note:** scope of works examples highlighted in **ORANGE** are generic to all types of project

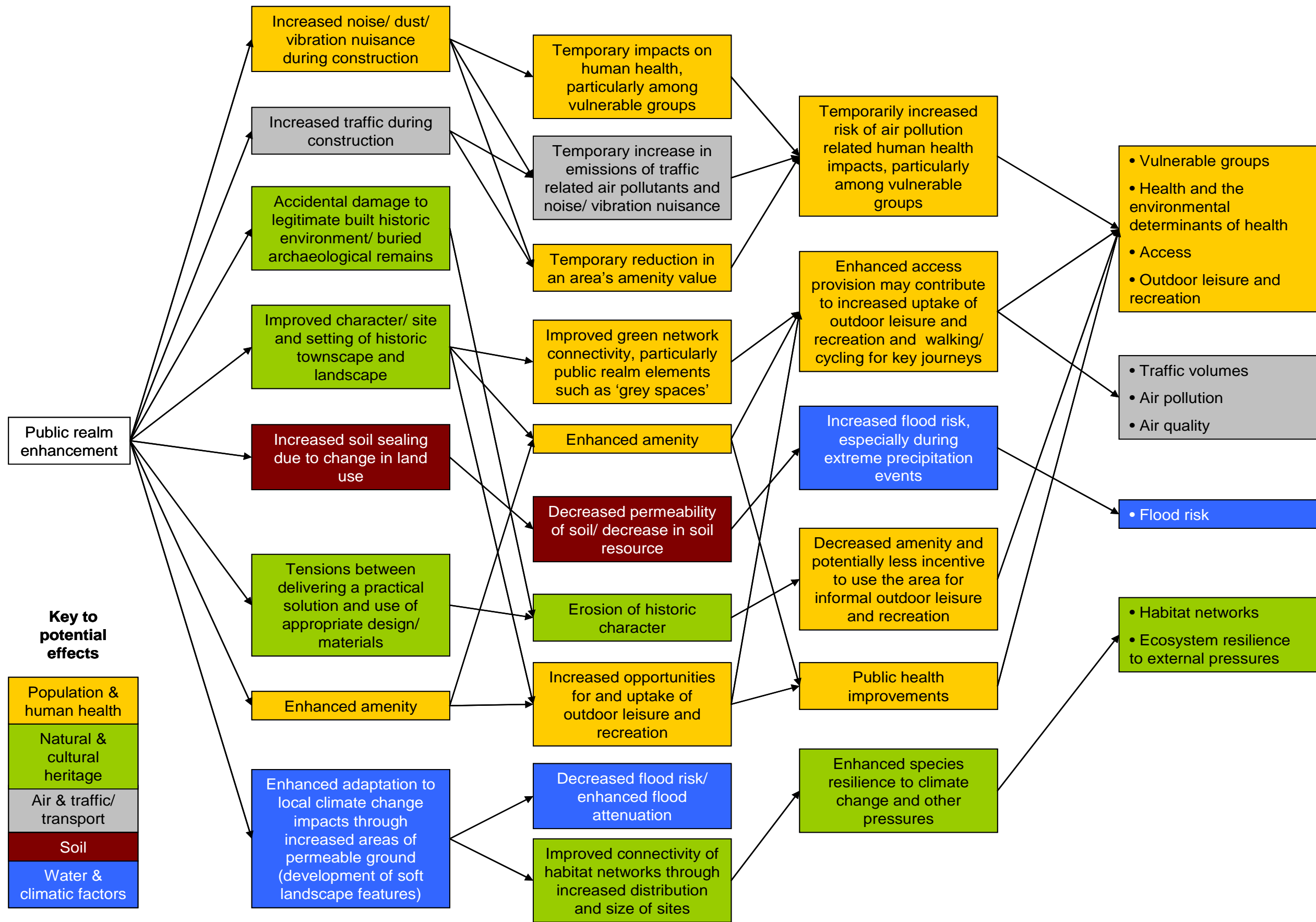
Generic categories of pre-games development project	Generic examples of key project actions and physical development scope of works	Additional details
<b>Competition and non-competition venue development</b>	<ul style="list-style-type: none"> <li>• Site preparation including contaminated land remediation (where necessary) and provision of works access etc</li> <li>• Establishment of temporary traffic management measures where necessary</li> <li>• Physical development of major structures (e.g. pavilions, sports halls)</li> <li>• Physical development of related drainage infrastructure including SuDS</li> <li>• Site based/ local environmental and/ or landscape enhancements</li> <li>• Physical development of car parking facility and related infrastructure (e.g. SuDS, landscaping etc)</li> <li>• Physical development of sports pitches</li> <li>• Physical development and/ or upgrade of existing pedestrian/ cycle paths and associated infrastructure (e.g. bike racks)</li> </ul>	<ul style="list-style-type: none"> <li>• Physical development of slip roads/ other access routes to wider infrastructure e.g. local and/ or strategic roads network</li> <li>• Physical development of new public transport infrastructure to meet transport demands raised by the new venue/ facility</li> <li>• Signage</li> <li>• Foundations work including piling and digging of trenches to connect venue/ facility to wider infrastructure e.g. electricity, mains water, drainage, gas etc</li> <li>• Demolition</li> </ul>
<b>Public realm enhancement</b>	<ul style="list-style-type: none"> <li>• Site preparation (e.g. provision of works access)</li> <li>• Establishment of temporary traffic management measures where necessary</li> <li>• Clearance of dilapidated features (e.g. paving, landscaping etc) and replacement with low maintenance design features (e.g. trees, grass, sealed paths and 'off the shelf' lighting &amp; street furniture)</li> <li>• Repainting of structures (e.g. bridges)</li> <li>• Removal of outdated signage</li> <li>• Small scale soft landscaping works</li> <li>• Provision of access improvements where necessary</li> </ul>	<p>Delivering a 'change of use in an area' e.g. the necessary works make an area somewhere to stop in and enjoy as opposed to somewhere just to travel through (i.e. increasing an area's amenity value and interest)</p>
<b>Transport infrastructure enhancement</b>	<ul style="list-style-type: none"> <li>• Site preparation (e.g. provision of works access)</li> <li>• Establishment of temporary traffic management measures where necessary</li> <li>• Physical development required to deliver major refurbishment of key roads, bridges and junctions on the GRN and/ or along the various VARs</li> <li>• Physical development required to deliver major refurbishment of short</li> </ul>	

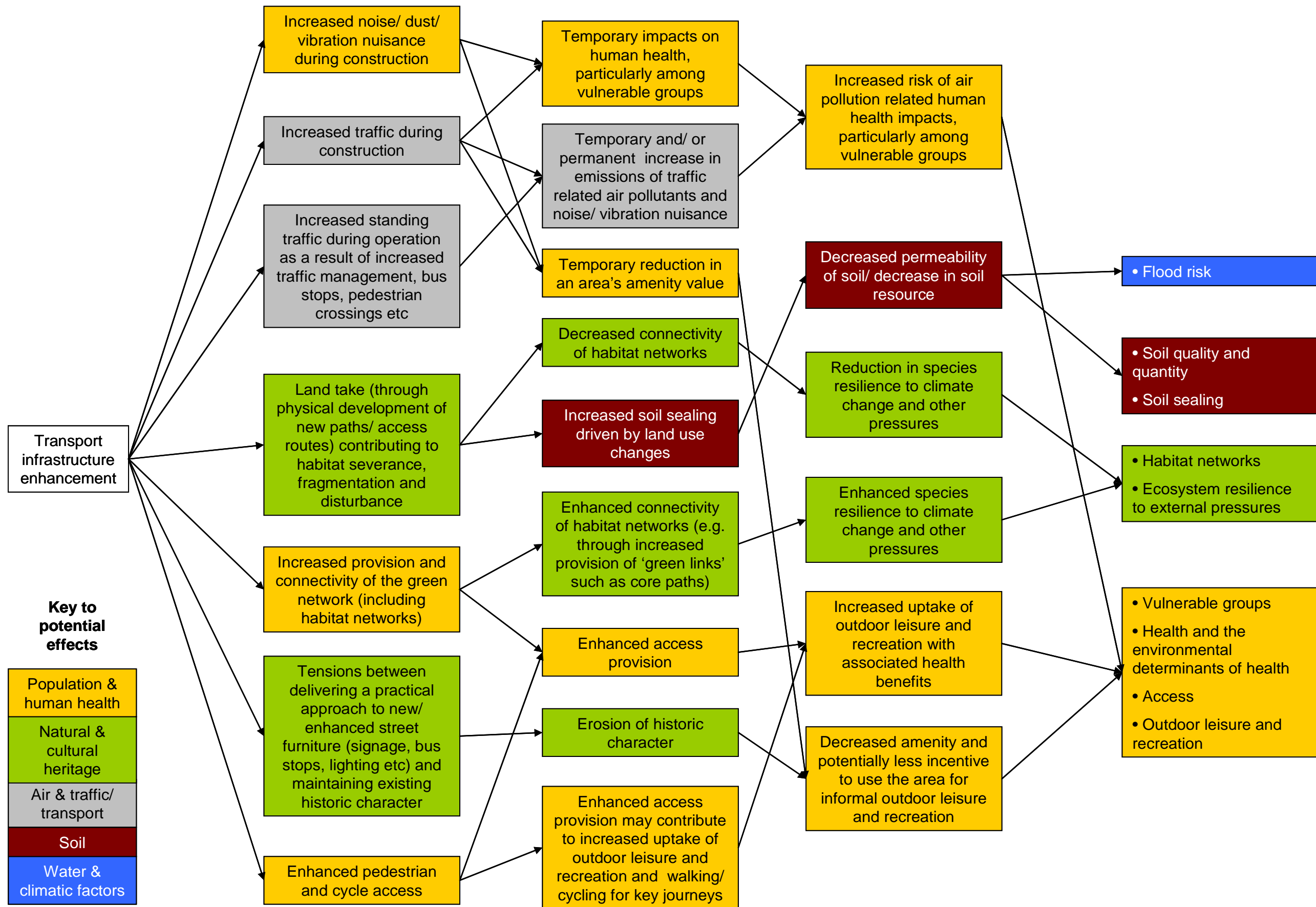
Generic categories of pre-games development project	Generic examples of key project actions and physical development scope of works	Additional details
	<p>sections of roads, footpaths and cyclepaths (e.g. change running surface, improve alignment)</p> <ul style="list-style-type: none"> <li>• Physical development required to deliver new paths and/ or venue access routes</li> <li>• Small scale soft landscaping enhancements</li> <li>• Repainting of structures (e.g. bridges)</li> <li>• Implementation of measures that will enhance access provision where necessary (e.g. improved lighting, access ramps for bikes and wheel chairs, improved signage etc)</li> <li>• Provision of new and/ or enhanced bus stops (including physical development works where necessary)</li> <li>• Provision of new traffic management measures including physical development where necessary (e.g. traffic signals, cycle lanes etc)</li> <li>• Provision of new pedestrian crossings including physical development where necessary</li> </ul>	
<b>Environmental enhancement</b>	<ul style="list-style-type: none"> <li>• Site preparation including remedial works where necessary (e.g. provision of works access)</li> <li>• Establishment of temporary traffic management measures where necessary</li> <li>• Development of comprehensive plans/ actions to deliver the improved management of key environmental and green network resources (e.g. community woodland, Clyde corridor etc)</li> <li>• Sensitive management of existing habitat and species whilst delivering project objectives (e.g. showcasing trees from around the Commonwealth)</li> <li>• Physical development of relevant access provisions (e.g. footpaths, car parking facilities and other infrastructure)</li> <li>• Physical works required to deliver habitat creation and/ or enhancement</li> <li>• Development of community engagement programme to support delivery of educational and outdoor recreation objectives</li> <li>• Recruitment of volunteers to support the ongoing maintenance of environmental enhancement projects</li> </ul>	

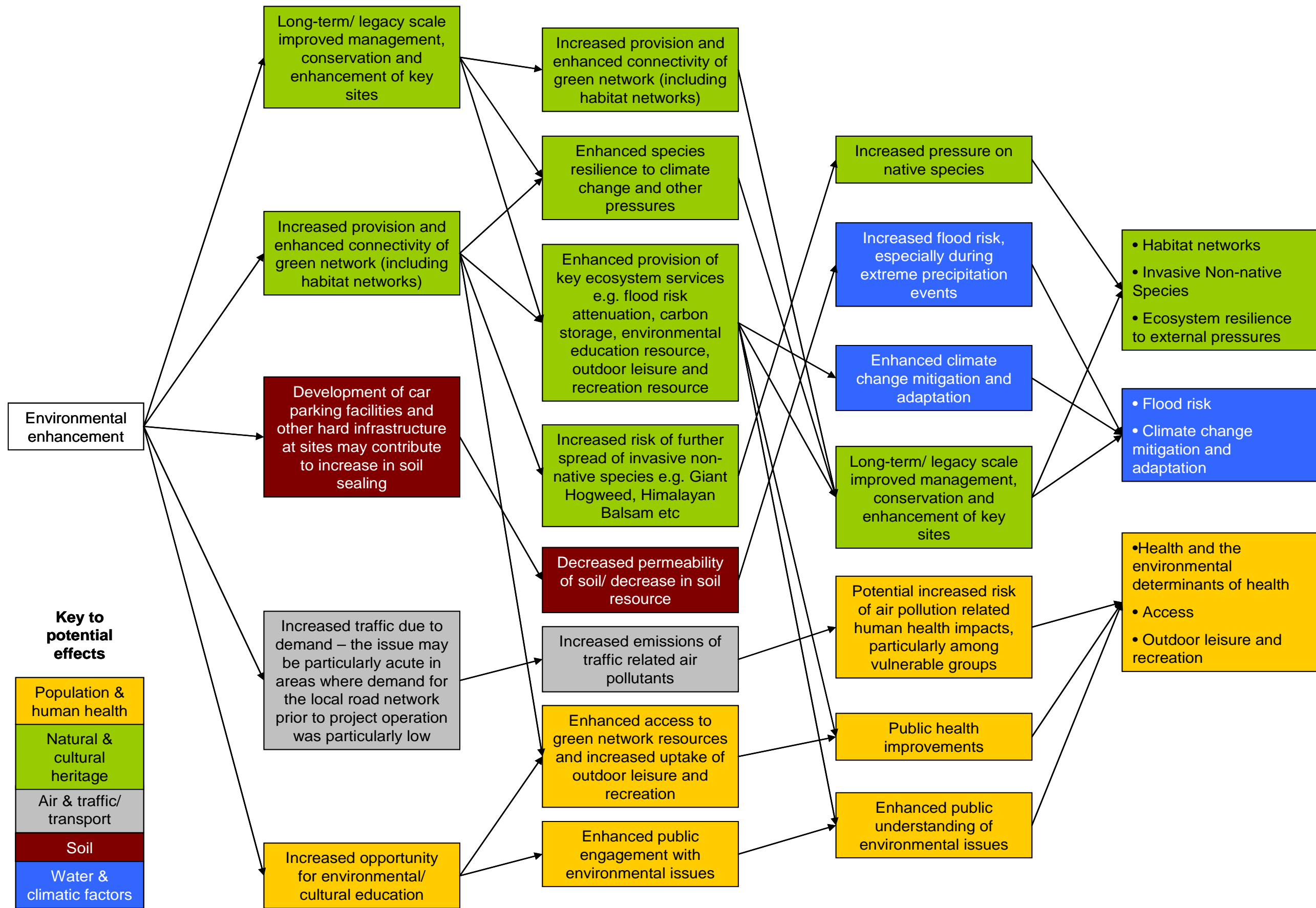
# **Appendix O: Pre-games project CCA outputs**











# **Appendix P: Pre-games project CCA output summary**

**Note:** please refer to the CCA summary diagrams for information on all potential primary, secondary and resultant/ cumulative effects and key receptors affected. Potential secondary and resultant/ cumulative effects outlined in the summary table below have been prioritised where there are two or more 'causal links' between source and effect. This approach aims to restrict the subsequent spatial analysis part of the assessment to consideration of effects where there is a particularly strong relationship and therefore potential for a more significant effect. All potential primary effects have been included in the analysis.

Generic category of pre-games development activity	Potential primary and secondary environmental effects	Potential resultant/ cumulative environmental effects	Key receptors affected
<b>Venue development</b>	<p><b>Potential primary effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>• Increased noise, dust and vibration nuisance during site investigation, land remediation and construction works</li> <li>• Visual impact of increased signage and other street furniture</li> <li>• Improved access as a result of increased public transport provision to meet demand at new venues/ facilities</li> <li>• Improved access as a result of increased provision of and/ or upgrade of existing pedestrian and cycle paths</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>• Accidental disturbance of habitat, species and buried archaeology during site investigation, land remediation and construction works</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>• Increased local traffic and traffic congestion during construction and operation</li> </ul> <p><i>Soil related effects:</i></p> <ul style="list-style-type: none"> <li>• Disturbance of contaminated land and accidental liberation of contaminants</li> <li>• Increased soil sealing/ area of hard standing</li> </ul> <p><b>Potential secondary effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>• Temporary impacts on human health, particularly among vulnerable groups (e.g. people with respiratory conditions, older people etc)</li> <li>• Temporary and/ or permanent reduction in an area's amenity value</li> <li>• Increased uptake of outdoor leisure and recreation</li> </ul>	<p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>• Increased risk of air pollution related human health impacts, particularly among vulnerable groups</li> <li>• Temporary reduction in amenity value during construction phase</li> </ul> <p><i>Water related effects:</i></p> <ul style="list-style-type: none"> <li>• Decreased water quality, particularly during construction phase but may also be an issue during operation</li> <li>• Increased flood risk, especially during extreme weather precipitation events</li> </ul> <p><i>Biodiversity related effects:</i></p> <ul style="list-style-type: none"> <li>• Increased pressure on aquatic ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>• Health (as influenced by key environmental determinants)</li> <li>• Health vulnerable groups</li> <li>• Water quality</li> <li>• Flood risk</li> <li>• Aquatic ecosystems</li> </ul>

Generic category of pre-games development activity	Potential primary and secondary environmental effects	Potential resultant/ cumulative environmental effects	Key receptors affected
	<p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Decreased traffic during operation</li> </ul>		
<p><b>Public realm enhancement</b></p>	<p><b>Potential primary effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Improved access as a result of increased public transport provision to meet demand at new venues/ facilities</li> <li>Enhanced amenity</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Accidental damage to legitimate built historic environment/ buried archaeological remains</li> <li>Improved character/ site and setting of historic townscape and landscape</li> <li>Tensions between delivering a practical/ financially feasible solution and use of appropriate design and materials</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Increased local traffic and traffic congestion during construction</li> </ul> <p><i>Soil related effects:</i></p> <ul style="list-style-type: none"> <li>Increased soil sealing due to change in land use</li> </ul> <p><i>Water/ climatic factors related effects:</i></p> <ul style="list-style-type: none"> <li>Enhanced adaptation to local climate change impacts through increased distribution of permeable ground (through the development of soft landscape features)</li> </ul> <p><b>Potential secondary effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary reduction in an area's amenity value</li> <li>Enhanced amenity</li> <li>Increased opportunities for and uptake of outdoor leisure and recreation</li> </ul> <p><i>Natural and cultural heritage related effects</i></p>	<p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporarily increased risk of air pollution related human health impacts, particularly among vulnerable groups</li> <li>Enhanced access provision may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</li> <li>Public health improvements</li> </ul>	<ul style="list-style-type: none"> <li>Health (as influenced by key environmental determinants)</li> <li>Health vulnerable groups</li> <li>Access</li> <li>Outdoor leisure and recreation</li> <li>Traffic volumes</li> <li>Air quality</li> </ul>

Generic category of pre-games development activity	Potential primary and secondary environmental effects	Potential resultant/ cumulative environmental effects	Key receptors affected
	<ul style="list-style-type: none"> <li>Erosion of historic character</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary increase in emissions of traffic related air pollutants and noise/ vibration nuisance during construction</li> </ul>		
<b>Transport infrastructure enhancement</b>	<p><b>Potential primary effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Increased provision and connectivity of the green network (including habitat networks)</li> <li>Enhanced pedestrian and cycle access</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Land take (through physical development of new paths and access routes) contributing to habitat severance, fragmentation and disturbance</li> <li>Tensions between delivering a practical and financially feasible approach to new and/ or enhanced street furniture (signage, bus stops, lighting etc) and maintaining existing historic character</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Increased local traffic and traffic congestion during construction</li> <li>Increased standing traffic during operation as a result of increased traffic management, bus stops, pedestrian crossings etc</li> </ul> <p><b>Potential secondary effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary impacts on human health, particularly among vulnerable groups</li> <li>Temporary reduction in an area's amenity value during construction</li> <li>Enhanced access provision</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary and/ or permanent increase in emissions of traffic related air pollutants and noise/ vibration nuisance</li> </ul>	<p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Increased risk of air pollution related human health impacts, particularly among vulnerable groups</li> <li>Enhanced access provision may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</li> <li>Public health improvements</li> <li>Temporary reductions in amenity and potentially less incentive to use the area for outdoor leisure and recreation</li> </ul>	<ul style="list-style-type: none"> <li>Health (as influenced by key environmental determinants)</li> <li>Health vulnerable groups</li> <li>Access</li> <li>Outdoor leisure and recreation</li> </ul>



Generic category of pre-games development activity	Potential primary and secondary environmental effects	Potential resultant/ cumulative environmental effects	Key receptors affected
<b>Environmental enhancement</b>	<p><b>Potential primary effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>• Increased opportunity for environmental/ cultural education</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>• Long-term/ legacy scale improvements to management, conservation and enhancement of key sites</li> <li>• Increased provision and enhanced connectivity of green network (including habitat networks)</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>• Increased traffic due to additional demand – this issue may be particularly acute in areas where demand for the local road network prior to project operation is low</li> </ul> <p><i>Soil related effects:</i></p> <ul style="list-style-type: none"> <li>• Development of car parking facilities and other hard infrastructure at sites may contribute to an increase in soil sealing</li> </ul> <p><b>Potential secondary effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>• Enhanced access to green network resources and increased uptake of outdoor leisure and recreation</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>• Enhanced species resilience to climate change and other pressures</li> <li>• Enhanced provision of key ecosystem services including flood risk attenuation, environmental education resources, outdoor leisure and recreation resources etc</li> </ul>	<p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>• Public health improvements</li> <li>• Enhanced public understanding of environmental issues and potential increased willingness to take action locally/ within communities</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>• Long-term/ legacy scale improvements to management, conservation and enhancement of key sites</li> </ul>	<ul style="list-style-type: none"> <li>• Health (as influenced by key environmental determinants)</li> <li>• Access</li> <li>• Outdoor leisure and recreation</li> <li>• Habitat networks</li> <li>• Ecosystem resilience (i.e. to external pressures)</li> </ul>

# **Appendix Q: Pre-games spatial analysis – effects distance significance criteria**

## Venue development projects

Effect	Potential receptors affected	Potential distance at which receptors may be affected
<b>Population and human health related effects</b>		
<i>Venue development</i>		
Increased noise, dust and vibration nuisance during site investigation, land remediation and construction works	People Vulnerable groups Population centres Key pedestrian and cycle routes Retail centres	300m
Visual impact of increased signage and other street furniture	Residents Population centres	150m
Improved access as a result of increased public transport provision to meet demand at new venues/ facilities	Access provision (public transport) Residents Population centres	Non-spatial
Improved access as a result of increased provision of and/ or upgrade of existing pedestrian and cycle paths	Access provision (green network related i.e. core paths, cycle paths etc) Residents Population centres	Non-spatial
Increased risk of air pollution related human health impacts, particularly among vulnerable groups	People Vulnerable groups Population centres Key pedestrian and cycle routes Retail centres	300m
Temporary and/ or permanent reduction in amenity value during construction phase	Residents Population centres	100m
Temporary impacts on human health, particularly among vulnerable groups (e.g. people with respiratory conditions, older people etc)	People Vulnerable groups Population centres Key pedestrian and cycle routes Retail centres	300m
Increased uptake of outdoor leisure and recreation	People Public health Access provision (green network related i.e. core paths, cycle routes etc)	Non-spatial
<b>Natural and cultural heritage related effects</b>		
Accidental disturbance of habitat, species and buried archaeology during site investigation, land remediation and construction works	LBAP Habitats and Species Locally designated sites (SINCs) Green network sites WoSAS??	50m
Increased pressure on aquatic ecosystems	Aquatic LBAP Habitats and Species Aquatic locally designated sites (SINCs) Aquatic green network sites (water bodies) Riparian habitat	250m
<b>Air and traffic/ transport related effects</b>		
Increased local traffic and traffic congestion during construction and operation	Local roads network Strategic roads network (where relevant) Air pollution vulnerable areas AQMAs People Population centres Vulnerable groups	Non-spatial
Decreased traffic during operation	As above	Non-spatial
<b>Soil related effects</b>		
Disturbance of contaminated land and accidental liberation of contaminants	Potential contaminated sites identified under Part II a (we have this data??) Water bodies Population centres	50m Other implications (e.g. potential effect of liberated contaminants on water bodies/ human health etc) to be addressed in detailed assessment
Increased soil sealing/ area of hard standing	Unsealed soil resource (particularly sites that have no other designation e.g. LBAP Habitat/ Species, green network etc. Key example may be vacant and derelict land sites)	50m Other implications (e.g. potential effect of soil sealing on localised flood risk/ soil resource etc) to be addressed in detailed assessment
<b>Water related effects</b>		
Decreased water quality, particularly during construction phase but may also be an issue during operation	Water bodies including ground water	250m
Increased flood risk, especially during extreme weather precipitation events	SEPA flood risk areas Flood risk vulnerable areas	300m

## Public realm enhancement projects

Effect	Potential receptors affected	Potential distance at which receptors may be affected
<b>Population and human health related effects</b>		
<i>Public realm enhancement</i>		
Increased noise, dust and vibration nuisance during construction works	People Vulnerable groups Population centres Key pedestrian and cycle routes Retail centres	300m
Improved access as a result of increased public transport provision to meet demand at new venues/ facilities	Improved access as a result of increased public transport provision to meet demand at new venues/ facilities	Non-spatial
Enhanced amenity	Residents Population centres Key pedestrian and cycle routes	100m
Temporary reduction in an area's amenity value	Residents Population centres Key pedestrian and cycle routes	100m
Increased opportunities for and uptake of outdoor leisure and recreation	People Public health Access provision (green network related i.e. core paths, cycle routes etc)	Non-spatial
Temporarily increased risk of air pollution related human health impacts, particularly among vulnerable groups	People Vulnerable groups Population centres Key pedestrian and cycle routes Retail centres	300m
Enhanced access provision may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys	People Public health Access provision (green network related i.e. core paths, cycle routes etc)	Non-spatial
Public health improvements	People Public health Access provision (green network related i.e. core paths, cycle routes etc)	Non-spatial
<b>Natural and cultural heritage related effects</b>		
Accidental damage to legitimate built historic environment/ buried archaeological remains	Historic assets (Conservation Areas, Listed Buildings, Scheduled Monuments, Gardens and Designed Landscapes, locally significant historic built and buried remains)	50m
Improved character/ site and setting of historic townscape and landscape	Historic assets (Conservation Areas, Listed Buildings, Scheduled Monuments, Gardens and Designed Landscapes, locally significant historic built and buried remains) People Population centres Access provision	100m
Tensions between delivering a practical/ financially feasible solution and use of appropriate design and materials	Historic assets (Conservation Areas, Listed Buildings, Scheduled Monuments, Gardens and Designed Landscapes, locally significant historic built and buried remains) People Population centres Access provision	Non-spatial
Erosion of historic character	Historic assets (Conservation Areas, Listed Buildings, Scheduled Monuments, Gardens and Designed Landscapes, locally significant historic built and buried remains) People Population centres Access provision	50m
<b>Air and traffic/ transport related effects</b>		
Increased local traffic and traffic congestion during construction	Local roads network Strategic roads network (where relevant)	300m
Temporary increase in emissions of traffic related air pollutants and noise/ vibration nuisance during construction	People Vulnerable groups Population centres Key pedestrian and cycle routes Retail centres Air pollution vulnerable areas AQMAS	300m
<b>Soil related effects</b>		
Increased soil sealing due to change in land use	Unsealed soil resource (particularly sites that have no other designation e.g. LBAP Habitat/ Species, green network etc. Key example may be vacant and derelict land sites)	50m
<b>Water/ climatic factors related effects</b>		
Enhanced adaptation to local climate change impacts through increased distribution of permeable ground (through the development of soft landscape features)	SEPA flood risk areas Flood risk vulnerable areas	50m

## Transport infrastructure enhancement projects

Effect	Potential receptors affected	Potential distance at which receptors may be affected
<b>Population and human health related effects</b>		
<i>Transport infrastructure enhancement</i>		
Increased noise, dust and vibration nuisance during construction works	People Vulnerable groups Population centres Key pedestrian and cycle routes Retail centres	300m
Increased provision and connectivity of the green network (including habitat networks)	People Public health Access LBAP Habitats and Species	100m (increased provision) Increased connectivity to be addressed in detailed assessment
Enhanced pedestrian and cycle access	People Public health Access provision (green network related i.e. core paths etc)	Non-spatial
Temporary impacts on human health, particularly among vulnerable groups	People Vulnerable groups Population centres Key pedestrian and cycle routes Retail centres	300m
Temporary reduction in an area's amenity value during construction	Residents Population centres Key pedestrian and cycle routes	100m
Enhanced access provision	People Public health Improved access as a result of increased public transport provision to meet demand at new venues/ facilities	Non-spatial
Increased risk of air pollution related human health impacts, particularly among vulnerable groups	People Vulnerable groups Population centres Key pedestrian and cycle routes Retail centres	300m
Enhanced access provision may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys	People Public health Access provision (green network related i.e. core paths etc)	Non-spatial
Public health improvements	People Public health Access provision (green network related i.e. core paths, cycle routes etc)	Non-spatial
Temporary reductions in amenity and potentially less incentive to use the area for outdoor leisure and recreation	Residents Population centres Key pedestrian and cycle routes	100m (temporary reductions in amenity) Non-spatial (less incentive to use the area for outdoor leisure and recreation)
<b>Natural and cultural heritage related effects</b>		
Land take (through physical development of new paths and access routes) contributing to habitat severance, fragmentation and disturbance	LBAP Habitats and Species Locally designated sites (SINCs) Green network sites	100m (decreased provision) Potential for decreased connectivity to be addressed in detailed assessment
Tensions between delivering a practical and financially feasible approach to new and/ or enhanced street furniture (signage, bus stops, lighting etc) and maintaining existing historic character		Non-spatial
<b>Air and traffic/ transport related effects</b>		
Increased local traffic and traffic congestion during construction	Local roads network Strategic roads network (where relevant)	300m
Increased standing traffic during operation as a result of increased traffic management, bus stops, pedestrian crossings etc	Local roads network Strategic roads network (where relevant) Air pollution vulnerable areas AQMAS Population centres Vulnerable groups	50m Programme wide implications to be considered in the detailed assessment and CEA
Temporary and/ or permanent increase in emissions of traffic related air pollutants and noise/ vibration nuisance	Air pollution vulnerable areas AQMAS Population centres Vulnerable groups Key pedestrian and cycle routes Retail centres	300m

## Environmental enhancement projects

Effect	Potential receptors affected	Potential distance at which receptors may be affected
<b>Population and human health related effects</b>		
<i>Environmental enhancement</i>		
Increased opportunity for environmental/ cultural education	People Community groups Schools Local residents	Non-spatial
Enhanced access to green network resources and increased uptake of outdoor leisure and recreation	People Community groups Schools Local residents Access provision (green network related i.e. core paths etc)	Non-spatial
Public health improvements	People Public health Access provision (green network related i.e. core paths, cycle routes etc)	Non-spatial
Enhanced public understanding of environmental issues and potential increased willingness to take action locally/ within communities	People Community groups Schools Local residents 'Environmental benefit'	Non-spatial
<b>Natural and cultural heritage related effects</b>		
Long-term/ legacy scale improvements to management, conservation and enhancement of key sites	LBAP Habitats and Species Locally designated sites (SINC)s Green network sites	Non-spatial
Increased provision and enhanced connectivity of green network (including habitat networks)	People Public health Access LBAP Habitats and Species	100m (increased provision) Increased connectivity to be addressed in detailed assessment
Enhanced species resilience to climate change and other pressures	Protected and non-protected species LBAP Species Locally designated sites (SINC)s Green network sites	100m (local species) Ecosystem scale resilience enhancements to be addressed in detailed assessment
Enhanced provision of key ecosystem services including flood risk attenuation, environmental education resources, outdoor leisure and recreation resources etc	Various To be addressed in detailed assessment	Various To be addressed in detailed assessment
<b>Air and traffic/ transport related effects</b>		
Increased traffic due to additional demand – this issue may be particularly acute in areas where demand for the local road network prior to project operation is low	Local roads network Strategic roads network (where relevant) Air pollution vulnerable areas AQMAS Population centres Vulnerable groups	300m Programme wide implications to be considered in the detailed assessment and CEA
<b>Soil related effects</b>		
Development of car parking facilities and other hard infrastructure at sites may contribute to an increase in soil sealing	Unsealed soil resource (particularly sites that have no other designation e.g. LBAP Habitat/ Species, green network etc. Key example may be vacant and derelict land sites)	50m

# **Appendix R: Pre-games project spatial analysis output summary**

**Notes:**

- Please refer to Part A of the Environmental Report and Appendix A for further information on the proposed pre-games development projects and maps of their proposed locations
- Potential cumulative effects at the programmatic level (i.e. similar effects occurring repeatedly as a result of several individual projects) and key environmental receptors that may be affected repeatedly are listed in tables B, D and F below. Potential cumulative effects issues have been further categorised on the basis of whether they are of major significance (effects that have potential to occur **very frequently**) or minor significance (effects that have potential to occur **frequently**)
- Key receptors that have potential to be affected repeatedly are divided into two categories: 1) specific/ named spatial receptors that may be affected by two or more projects e.g. Parkhead Cross Air Quality Management Area (AQMA), Cathkin Braes Country Park Site of Special Landscape Importance (SSLI) etc; and 2) 'generic' receptors where the related environmental effects are broadly non-spatial e.g. improved access, increased uptake of outdoor leisure and recreation, improved health etc. Examples of such generic receptors include 'the public', population centres, cycle/ pedestrian routes
- In addition, individual projects may cause potential cumulative effects in their own right i.e. they may have potential to cause the same or similar effects repeatedly. Where this is the case, relevant effects are highlighted in **bold orange**

Table A. West Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
<b>Venue development projects</b>		
<b>Scotstoun Squash Centre</b>	<p><b>Potential short term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>• Temporary and/ or permanent reduction in an area's amenity value during construction phase</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>• Increased noise, dust and vibration nuisance during construction works</li> <li>• <b>Increased risk of air pollution related human health impacts, particularly among vulnerable groups</b></li> <li>• Increased local traffic and traffic congestion during construction</li> </ul>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>• Access</li> <li>• Health and its environmental determinants</li> </ul> <p><i>Air</i></p> <ul style="list-style-type: none"> <li>• Air pollution/ quality</li> <li>• Noise</li> </ul> <p><i>Soil</i></p> <ul style="list-style-type: none"> <li>• Soil contamination</li> </ul> <p><i>Townscape, landscape and the historic environment</i></p> <ul style="list-style-type: none"> <li>• Buried archaeology</li> <li>• Townscape/ landscape</li> <li>• Site and setting of historic environment features</li> </ul> <p><i>Material assets</i></p> <ul style="list-style-type: none"> <li>• Transport infrastructure</li> <li>• Traffic levels/ congestion</li> </ul>
	<p><b>Potential medium/ long term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>• Enhanced access provision may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>• Increased local traffic and traffic congestion during operation</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>• Visual impact of increased signage and other street furniture</li> </ul>	



Table A. West Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
	<ul style="list-style-type: none"> <li>Accidental damage to legitimate built historic environment/ buried archaeological remains</li> </ul> <p><i>Soil related effects:</i></p> <ul style="list-style-type: none"> <li>Disturbance of contaminated land and accidental liberation of contaminants</li> </ul>	
<b>Kelvingrove Bowling Greens replacement</b>	<p><b>Potential short term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary and/ or permanent reduction in an area's amenity value during construction phase</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li><b>Increased risk of air pollution related human health impacts, particularly among vulnerable groups</b></li> <li>Increased local traffic and traffic congestion during construction</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li><b>Accidental disturbance of habitat, species and buried archaeology during site investigation, land remediation and construction activities and/ or increased pressure on aquatic ecosystems</b></li> </ul> <p><i>Water/ climatic factors related effects:</i></p> <ul style="list-style-type: none"> <li>Decreased water quality, particularly during construction but may also be an issue during operation</li> </ul>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>Health and its environmental determinants</li> </ul> <p><i>Air</i></p> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <p><i>Soil</i></p> <ul style="list-style-type: none"> <li>Soil sealing</li> </ul> <p><i>Townscape, landscape and the historic environment</i></p> <ul style="list-style-type: none"> <li>Buried archaeology</li> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <p><i>Material assets</i></p> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul>
	<p><b>Potential medium/ long term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Enhanced access provisions may contribute to increased opportunities for and uptake of outdoor leisure and recreation and walking/ cycling for some journeys</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li><b>Increased risk of air pollution related human health impacts, particularly among vulnerable groups</b></li> <li>Increased and/ or decreased local traffic and traffic congestion during operation</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Increased pressure on aquatic ecosystems</li> </ul>	

Table A. West Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
	<ul style="list-style-type: none"> <li>Visual impact of increased signage and other street furniture</li> </ul> <i>Soil related effects:</i> <ul style="list-style-type: none"> <li>Increased soil sealing/ areas of hard standing</li> </ul>	
Kelvinhall redevelopment	<b>Potential short term effects</b> As per Kelvingrove Bowling Greens replacement project	As per Kelvingrove Bowling Greens replacement project
	<b>Potential medium/ long term effects</b> As per Kelvingrove Bowling Greens replacement project	
<b>Public realm enhancement projects</b>		
<b>MP1</b> <b>Project Name:</b> Lancefield/Anderston Quay Walls	<b>Potential short term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>Temporary reduction in an area's amenity value</li> </ul> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li><b>Increased local traffic and traffic congestion during construction and temporary increases in emissions of traffic related air pollutants</b></li> </ul> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>Accidental damage to legitimate built historic environment/ buried archaeological remains</li> </ul>	<i>Population and human health</i> <ul style="list-style-type: none"> <li>Access/ outdoor leisure and recreation</li> <li>Health and its environmental determinants</li> </ul> <i>Air</i> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <i>Townscape, landscape and the historic environment</i> <ul style="list-style-type: none"> <li>Buried archaeology</li> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <i>Material assets</i> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul> <i>Climatic factors</i> <ul style="list-style-type: none"> <li>Climate change adaptation and flood risk alleviation</li> </ul>
	<b>Potential medium/ long term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li><b>Improved access as a result of increased public transport provision to meet demand at new venues/ facilities</b></li> <li>Increased opportunities for and uptake of outdoor leisure and recreation</li> <li><b>Enhanced access provision may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</b></li> </ul> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li><b>Erosion of historic character and tensions between delivering a practical/ financially feasible solution and use of appropriate design and materials</b></li> <li>Improved character/ site and setting of historic townscape and landscape</li> </ul> <i>Water and climatic factors related effects:</i> <ul style="list-style-type: none"> <li>Enhanced adaptation to local climate change impacts through increased</li> </ul>	

Table A. West Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
	distribution of permeable ground (through the development of soft landscape features)	
<b>MP2</b> <b>Project Name:</b> Exhibition Centre Station Walkway refurbishment	<b>Potential short term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>• Temporary reduction in areas amenity value</li> </ul> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>• Increased noise, dust and vibration nuisance during construction works</li> <li>• Increased local traffic and traffic congestion during construction</li> <li>• Temporary increase in emissions of traffic related air pollutants</li> </ul>	<i>Population and human health</i> <ul style="list-style-type: none"> <li>• Access/ outdoor leisure and recreation</li> <li>• Health and its environmental determinants</li> </ul> <i>Air</i> <ul style="list-style-type: none"> <li>• Air pollution/ quality</li> <li>• Noise</li> </ul> <i>Townscape, landscape and the historic environment</i> <ul style="list-style-type: none"> <li>• Townscape/ landscape</li> <li>• Site and setting of historic environment features</li> </ul> <i>Material assets</i> <ul style="list-style-type: none"> <li>• Transport infrastructure</li> <li>• Traffic levels/ congestion</li> </ul>
	<b>Potential medium/ long term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>• <b>Improved access as a result of increased public transport provision to meet demand at new venues/ facilities combined with enhanced amenity</b></li> <li>• <b>Enhanced access provision may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys with associated potential for improved public health</b></li> </ul> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>• Improved character/ site and setting of historic townscape and landscape</li> </ul>	
<b>MP3</b> <b>Project Name: Bells Bridge Refurbishment</b>	<b>Potential short term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>• Temporary reduction in an area's amenity value</li> </ul> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>• Increased noise, dust and vibration nuisance during construction works</li> <li>• Increased local traffic and traffic congestion during construction</li> </ul>	<i>Population and human health</i> <ul style="list-style-type: none"> <li>• Access/ outdoor leisure and recreation</li> <li>• Health and its environmental determinants</li> </ul> <i>Air</i> <ul style="list-style-type: none"> <li>• Air pollution/ quality</li> <li>• Noise</li> </ul> <i>Townscape, landscape and the historic environment</i> <ul style="list-style-type: none"> <li>• Buried archaeology</li> <li>• Townscape/ landscape</li> <li>• Site and setting of historic environment features</li> </ul> <i>Material assets</i>
	<b>Potential medium/ long term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>• <b>Improved access as a result of increased public transport provision to meet demand at new venues/ facilities combined with enhanced amenity</b></li> <li>• <b>Enhanced access provision may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</b></li> </ul>	

Table A. West Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
	<p><b>with associated potential for improved public health</b></p> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Accidental damage to legitimate built historic environment/ buried archaeological remains</li> </ul> <p><i>Water and climatic factors related effects:</i></p> <ul style="list-style-type: none"> <li>Enhanced adaptation to local climate change impacts through increased distribution of permeable ground (through the development of soft landscape features)</li> </ul>	<ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul> <p><i>Climatic factors</i></p> <ul style="list-style-type: none"> <li>Climate change adaptation and flood risk alleviation</li> </ul>
<p><b>MP5</b>  <b>Project Name:</b> Crow Road Railway Bridge refurbishment works  <b>and</b>  <b>MP6</b>  <b>Project Name:</b> Sandyford Street Footbridge Ramp replacement</p>	<p><b>Potential short term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary reduction in areas amenity value</li> <li>Temporarily increased risk of air pollution related human health impacts, particularly among vulnerable groups</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Increased local traffic and traffic congestion during construction</li> <li>Temporary increase in emissions of traffic related air pollutants during construction</li> </ul>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>Health and its environmental determinants</li> </ul> <p><i>Air</i></p> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <p><i>Townscape, landscape and the historic environment</i></p> <ul style="list-style-type: none"> <li>Buried archaeology</li> <li>Site and setting of historic environment features</li> </ul> <p><i>Material assets</i></p> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul>
	<p><b>Potential medium/ long term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Enhanced Amenity</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Accidental damage to legitimate built historic environment/ buried archaeological remains</li> </ul>	
<b>Transport infrastructure enhancement projects</b>		
<p><b>MP4</b>  <b>Project Name:</b> Kelvin Walkway/ Cycleway enhancement at Eldon Street</p>	<p><b>Potential short term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary and/ or permanent reduction in amenity value during construction phase</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li><b>Accidental disturbance of habitat, species and buried archaeology during site investigation, land remediation and construction works</b></li> </ul>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>Access</li> <li>Health and its environmental determinants</li> </ul> <p><i>Biodiversity</i></p> <ul style="list-style-type: none"> <li>Aquatic ecosystems</li> <li>LBAP Habitats and Species</li> </ul> <p><i>Townscape, landscape and the historic</i></p>

Table A. West Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
	<p><i>Water and climatic factors related effects:</i></p> <ul style="list-style-type: none"> <li>Decreased water quality, particularly during construction phase but may also be an issue during operation</li> </ul> <p><b>Potential medium/ long term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li><b>Enhanced access provision may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</b></li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li><b>Increased pressure on aquatic ecosystems</b></li> </ul>	<p><i>environment</i></p> <ul style="list-style-type: none"> <li>Buried archaeology</li> </ul> <p><i>Water</i></p> <ul style="list-style-type: none"> <li>Water pollution/ quality</li> </ul>
<p><b>MP7</b></p> <p><b>Project Name:</b> Refurbishment/ reconstruction Works on Shiedhall Viaduct Clyde Tunnel Expressway</p>	<p><b>Potential short term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Increased risk of air pollution related human health impacts, particularly among vulnerable groups</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Increased local traffic and traffic congestion during construction</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Accidental disturbance of habitat, species and buried archaeology during site investigation, land remediation and construction works</li> </ul> <p><i>Soil related effects:</i></p> <ul style="list-style-type: none"> <li>Disturbance of contaminated land and accidental liberation of contaminants</li> </ul> <p><b>Potential medium/ long term effects</b></p> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Accidental disturbance of habitat, species and buried archaeology during site investigation, land remediation and construction works</li> </ul> <p><i>Soil related effects:</i></p> <ul style="list-style-type: none"> <li>Disturbance of contaminated land and accidental liberation of contaminants</li> </ul>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>Health and its environmental determinants</li> </ul> <p><i>Biodiversity</i></p> <ul style="list-style-type: none"> <li>Statutory and non-statutory designated sites</li> <li>LBAP Habitats and Species</li> <li>Green network connectivity and resilience</li> </ul> <p><i>Air</i></p> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <p><i>Soil</i></p> <ul style="list-style-type: none"> <li>Soil contamination</li> </ul> <p><i>Townscape, landscape and the historic environment</i></p> <ul style="list-style-type: none"> <li>Buried archaeology</li> </ul> <p><i>Material assets</i></p> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul>
<p><b>MP8</b></p> <p><b>Project Name:</b> Refurbishment/ reconstruction on the Clyde Tunnel</p>	<p><b>Potential short term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Increased risk of air pollution related human health impacts, particularly among vulnerable groups</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>Health and its environmental determinants</li> </ul> <p><i>Biodiversity</i></p> <ul style="list-style-type: none"> <li>Statutory and non-statutory designated sites</li> <li>LBAP Habitats and Species</li> </ul>

Table A. West Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
Approaches	<ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Increased local traffic and traffic congestion during construction</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Accidental disturbance of habitat, species and buried archaeology during site investigation, land remediation and construction works</li> </ul> <p><i>Soil related effects:</i></p> <ul style="list-style-type: none"> <li>Disturbance of contaminated land and accidental liberation of contaminants</li> </ul> <p><b>Potential medium/ long term effects</b></p> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Accidental disturbance of habitat, species and buried archaeology during site investigation, land remediation and construction works</li> </ul> <p><i>Soil related effects:</i></p> <ul style="list-style-type: none"> <li>Disturbance of contaminated land and accidental liberation of contaminants</li> </ul>	<ul style="list-style-type: none"> <li>Green network connectivity and resilience</li> </ul> <p><i>Air</i></p> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <p><i>Soil</i></p> <ul style="list-style-type: none"> <li>Soil contamination</li> </ul> <p><i>Townscape, landscape and the historic environment</i></p> <ul style="list-style-type: none"> <li>Buried archaeology</li> </ul> <p><i>Material assets</i></p> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul>
<b>VAR1</b> <b>Project Name:</b> Scotstoun Leisure Centre Access Route enhancements	<p><b>Potential short term effects</b></p> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Increased local traffic and traffic congestion during construction</li> </ul> <p><b>Potential medium/ long term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Enhanced access provision may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Visual impact of increased signage and other street furniture</li> </ul>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>Access/ outdoor leisure and recreation</li> <li>Health and its environmental determinants</li> </ul> <p><i>Townscape, landscape and the historic environment</i></p> <ul style="list-style-type: none"> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <p><i>Material assets</i></p> <ul style="list-style-type: none"> <li>Traffic levels/ congestion</li> </ul>
<b>VAR2</b> <b>Project Name:</b> Kelvingrove Complex Access Route enhancements	<p><b>Potential short term effects</b></p> <p>As per VAR1</p> <p><b>Potential medium/ long term effects</b></p> <p>As per VAR1</p>	As per VAR1
<b>VAR3</b> <b>Project Name:</b> SECC Complex	<p><b>Potential short term effects</b></p> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Increased local traffic and traffic congestion during construction</li> </ul>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>Access/ outdoor leisure and recreation</li> <li>Health and its environmental determinants</li> </ul>

Table A. West Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
Access Route enhancements	<i>Water/ climatic factors related effects:</i> <ul style="list-style-type: none"> <li>Decreased water quality, particularly during construction phase but may also be an issue during operation</li> </ul>	<i>Water</i> <ul style="list-style-type: none"> <li>Water pollution/ quality</li> </ul> <i>Townscape, landscape and the historic environment</i> <ul style="list-style-type: none"> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <i>Material assets</i> <ul style="list-style-type: none"> <li>Traffic levels/ congestion</li> </ul>
	<b>Potential medium/ long term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>Enhanced access provision may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</li> </ul> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>Visual impact of increased signage and other street furniture</li> </ul>	

Table B West cluster potential cumulative effects issues and key receptors			
Potential cumulative effects issues that are of major significance	Potential cumulative effects issues that are of minor importance	Specific spatial receptors that have potential to be repeatedly affected	Generic receptors that have potential to be repeatedly affected
<i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>Temporary and/ or permanent reduction in an area's amenity value during construction phase</li> <li>Increased risk of air pollution related human health impacts, particularly among vulnerable groups</li> <li>Enhanced access provision may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</li> </ul> <i>Air and transport/ traffic related effects:</i> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Increased risk of air pollution related human health impacts, particularly among vulnerable</li> </ul>	<i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>Improved access as a result of increased public transport provision to meet demand at new venues/ facilities</li> </ul> <i>Soil related effects:</i> <ul style="list-style-type: none"> <li>Disturbance of contaminated land and accidental liberation of contaminants</li> <li>Increased soil sealing/ areas of hard standing</li> </ul> <i>Water and climatic factors related effects:</i> <ul style="list-style-type: none"> <li>Decreased water quality, particularly during construction phase but may also be an issue during operation</li> <li>Enhanced adaptation to local climate change impacts through increased distribution of permeable ground (through</li> </ul>	<ul style="list-style-type: none"> <li>Corridor of Wildlife Importance (CWLI) 004, Green Corridor</li> <li>CWLI 010, Green Corridor (River Kelvin)</li> <li>CWLI 012, Green Corridor (Victoria Park Walkway)</li> <li>River Clyde Site of Importance for Nature Conservation (SINC)</li> <li>River Kelvin SINC</li> <li>Kelvingrove Park Site of Special</li> </ul>	<ul style="list-style-type: none"> <li>Health vulnerable groups</li> <li>Retail Centres</li> <li>Residents</li> <li>People</li> <li>Public Health</li> <li>Access provision</li> <li>Community groups and schools</li> <li>Population centres</li> <li>Key pedestrian and cycle routes</li> </ul>

Table B West cluster potential cumulative effects issues and key receptors			
Potential cumulative effects issues that are of major significance	Potential cumulative effects issues that are of minor importance	Specific spatial receptors that have potential to be repeatedly affected	Generic receptors that have potential to be repeatedly affected
<p>groups</p> <ul style="list-style-type: none"> <li>Increased local traffic and traffic congestion during construction</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Visual impact of increased signage and other street furniture.</li> <li>Accidental damage to legitimate built historic environment/ buried archaeological remains</li> </ul>	<p>the development of soft landscape features)</p> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Improved character/ site and setting of historic townscape and landscape</li> <li>Accidental disturbance of habitat, species and buried archaeology during site investigation, land remediation and construction works</li> </ul>	<p>Landscape Importance (SSLI)</p> <ul style="list-style-type: none"> <li>St Vincent Crescent Conservation Area</li> <li>Park Conservation Area</li> </ul>	



Table C. South Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
<b>Venue development projects</b>		
<b>Cathkin Braes Glasgow 2014 Mountain Bike Course</b>	<b>Potential short term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>• <b>Temporary reduction in an area's amenity value during construction and/ or temporary reductions in amenity and potentially less incentive to use the area for outdoor leisure and recreation</b></li> </ul> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>• Increased noise, dust and vibration nuisance during site investigation, land remediation and construction works</li> </ul>	<i>Population and human health</i> <ul style="list-style-type: none"> <li>• Access/ outdoor leisure and recreation</li> <li>• Health and its environmental determinants</li> </ul> <i>Biodiversity</i> <ul style="list-style-type: none"> <li>• Statutory and non-statutory designated sites</li> <li>• LBAP Habitats and Species</li> <li>• Green network connectivity and resilience</li> </ul> <i>Air</i> <ul style="list-style-type: none"> <li>• Noise</li> </ul>
	<b>Potential medium/ long term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>• <b>Enhanced pedestrian and cycle access and/ or enhanced access provision, leading to potential increase in uptake of outdoor leisure and recreation</b></li> </ul> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>• Increased provision and enhanced connectivity of green network (including habitat networks)</li> <li>• Land take (through physical development of new paths and access routes) contributing to habitat severance, fragmentation and disturbance</li> </ul>	
<b>Public realm enhancement projects</b>		
<b>MP9 Project Name: Hampden East public realm enhancements</b>	<b>Potential short term effects</b> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>• Temporary reduction in an area's amenity value during construction</li> </ul> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>• Increased noise, dust and vibration nuisance during construction works</li> </ul>	<i>Population and human health</i> <ul style="list-style-type: none"> <li>• Access/ outdoor leisure and recreation</li> <li>• Health and its environmental determinants</li> </ul> <i>Air</i> <ul style="list-style-type: none"> <li>• Noise</li> </ul> <i>Townscape, landscape and the historic environment</i> <ul style="list-style-type: none"> <li>• Townscape/ landscape</li> <li>• Site and setting of historic environment features</li> </ul>
	<b>Potential medium/ long term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>• <b>Improved access as a result of increased public transport provision to meet demand at new venues/ facilities combined with enhanced amenity may lead to potential increased opportunities for uptake of outdoor leisure and recreation</b></li> </ul>	

Table C. South Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
	<i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>Improved character/ site and setting of historic townscape and landscape</li> </ul>	
<b>Transport infrastructure enhancement projects</b>		
<b>MP10</b> <b>Project Name:</b> Prospecthill Railway Bridge	<b>Potential short term effects</b> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Increased local traffic and traffic congestion during construction</li> <li>Temporary and/ or permanent increase in emissions of traffic related air pollutants and noise/ vibration nuisance</li> </ul>	<i>Population and human health</i> <ul style="list-style-type: none"> <li>Health and its environmental determinants</li> </ul> <i>Air</i> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <i>Material assets</i> <ul style="list-style-type: none"> <li>Traffic levels/ congestion</li> </ul>
	<b>Potential medium/ long term effects</b> <i>Air and traffic/ transport related effects</i> <ul style="list-style-type: none"> <li>Temporary and/ or permanent increase in emissions of traffic related air pollutants and noise/ vibration nuisance</li> </ul>	
<b>VAR4</b> <b>Project Name:</b> Hampden Park access route enhancements	<b>Potential short term effects</b> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Increased local traffic and traffic congestion during construction</li> </ul>	<i>Population and human health</i> <ul style="list-style-type: none"> <li>Access/ outdoor leisure and recreation</li> <li>Health and its environmental determinants</li> </ul> <i>Air</i> <ul style="list-style-type: none"> <li>Noise</li> </ul> <i>Townscape, landscape and the historic environment</i> <ul style="list-style-type: none"> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <i>Material assets</i> <ul style="list-style-type: none"> <li>Traffic levels/ congestion</li> <li>Transport infrastructure</li> </ul>
	<b>Potential medium/ long term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li><b>Improved access as a result of increased public transport provision to meet demand at new venues/ facilities combined with enhanced pedestrian and cycle access may contribute to enhanced amenity/ increased opportunities for uptake of outdoor leisure and recreation</b></li> </ul> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>Tensions between delivering a practical and financially feasible approach to new and/ or enhanced street furniture (signage, bus stops, lighting etc) and maintaining existing historic character</li> </ul>	
<b>VAR5</b> <b>Project Name:</b> Ibrox Stadium Access Route	<b>Potential short term effects</b> As per VAR4	As per VAR4
	<b>Potential medium/ long term effects</b> As per VAR4	

Table C. South Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
Enhancements		
<b>Environmental enhancement projects</b>		
<b>ENV1</b> <b>Project Name:</b> Cathkin Braes and Castlemilk Commonwealth Forests Project	<b>Potential medium/ long term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>Increased opportunity for environmental/ cultural education</li> <li>Enhanced access to green network resources and increased uptake of outdoor leisure and recreation</li> <li>Public health improvements</li> <li>Enhanced public understanding of environmental issues and potential increased willingness to take action locally/ within communities</li> </ul> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>Long-term/ legacy scale improvements to management, conservation and enhancement of key sites</li> <li>Increased provision and enhanced connectivity of green network (including habitat networks)</li> <li>Enhanced provision of key ecosystem services including flood risk attenuation, environmental education resources, outdoor leisure and recreation resources etc</li> </ul>	<i>Population and human health</i> <ul style="list-style-type: none"> <li>Access/ outdoor leisure and recreation</li> <li>Health and its environmental determinants</li> </ul> <i>Biodiversity, flora and fauna</i> <ul style="list-style-type: none"> <li>Statutory and non-statutory designated sites</li> <li>LBAP Habitats and Species</li> <li>Green network connectivity and functionality</li> <li>Ecosystem services</li> </ul>

Table D South cluster potential cumulative effects issues and key receptors			
Potential cumulative effects issues that are of major significance	Potential cumulative effects issues that are of minor importance	Specific spatial receptors that have potential to be repeatedly affected	Generic receptors that have potential to be repeatedly affected
<i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>Improved access as a result of increased public transport provision to meet demand at new venues/ facilities</li> </ul> <i>Air and traffic/ transport related effects:</i>	<i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>Temporary reduction in an area's amenity value during construction/ less incentive to use the area for outdoor leisure and recreation</li> </ul>	<ul style="list-style-type: none"> <li>Conservation Area: Carmunnock</li> <li>Big Wood and Cathkin Braes cSINC</li> </ul>	<ul style="list-style-type: none"> <li>People</li> <li>Health vulnerable groups</li> <li>Population centres</li> <li>Key pedestrian and</li> </ul>

<b>Table D South cluster potential cumulative effects issues and key receptors</b>			
<b>Potential cumulative effects issues that are of major significance</b>	<b>Potential cumulative effects issues that are of minor importance</b>	<b>Specific spatial receptors that have potential to be repeatedly affected</b>	<b>Generic receptors that have potential to be repeatedly affected</b>
<ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during site investigation, land remediation and construction works</li> <li>Increased local traffic and traffic congestion during construction</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Increased provision and enhanced connectivity of green network (including habitat networks)</li> </ul>	<p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary and/ or permanent increase in emissions of traffic related air pollutants and noise/ vibration nuisance</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Tensions between delivering a practical and financially feasible approach to new and/ or enhanced street furniture (signage, bus stops, lighting etc) and maintaining existing historic character</li> </ul>	<ul style="list-style-type: none"> <li>Cathkin Braes</li> <li>Country Park SSLI</li> <li>Big Wood Long</li> <li>Established Woodland</li> </ul>	<ul style="list-style-type: none"> <li>cycle routes</li> <li>Retail centres</li> <li>Public health</li> <li>Access provision (Public Transport)</li> <li>Residents</li> </ul>

Table E East Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
<b>Venue development projects</b>		
<b>Glasgow Green Hockey Centre</b>	<p><b>Potential short term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>• Temporary and/ or permanent reduction in amenity value during construction phase</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>• Accidental disturbance of habitat, species and buried archaeology during site investigation, land remediation and construction works</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>• Increased noise, dust and vibration nuisance during site investigation, land remediation and construction works</li> </ul> <p><i>Soil related effects:</i></p> <ul style="list-style-type: none"> <li>• Disturbance of contaminated land and accidental liberation of contaminants</li> </ul> <p><i>Water/ climatic factors related effects:</i></p> <ul style="list-style-type: none"> <li>• Decreased water quality, particularly during construction phase but may also be an issue during operation</li> </ul>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>• Demographics</li> <li>• Health and its environmental determinants</li> </ul> <p><i>Biodiversity, flora and fauna</i></p> <ul style="list-style-type: none"> <li>• Statutory and non-statutory designated sites</li> <li>• LBAP Habitats and Species</li> <li>• Green network connectivity and functionality</li> </ul> <p><i>Air</i></p> <ul style="list-style-type: none"> <li>• Air pollution/ quality</li> <li>• Noise</li> </ul> <p><i>Soil</i></p> <ul style="list-style-type: none"> <li>• Soil contamination</li> <li>• Soil sealing</li> </ul> <p><i>Water</i></p> <ul style="list-style-type: none"> <li>• Water pollution/ quality</li> </ul> <p><i>Townscape, landscape and the historic environment</i></p> <ul style="list-style-type: none"> <li>• Buried archaeology</li> <li>• Townscape/ landscape</li> <li>• Site and setting of historic environment features</li> </ul> <p><i>Material assets</i></p> <ul style="list-style-type: none"> <li>• Transport infrastructure</li> <li>• Traffic levels/ congestion</li> </ul>
	<p><b>Potential medium/ long term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>• <b>Improved access as a result of increased public transport provision to meet demand at new venues/ facilities and improved access as a result of increased provision of and/ or upgrade of existing pedestrian and cycle paths</b></li> <li>• Increased uptake of outdoor leisure and recreation</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>• Visual impact of increased signage and other street furniture</li> <li>• Increased pressure on aquatic ecosystems</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>• Increased local traffic and traffic congestion during construction and operation</li> </ul> <p><i>Soil related effects:</i></p> <ul style="list-style-type: none"> <li>• Disturbance of contaminated land and accidental liberation of contaminants</li> <li>• Increased soil sealing/ area of hard standing</li> </ul>	

Table E East Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
	<i>Water/ climatic factors related effects:</i> <ul style="list-style-type: none"> <li>Increased flood risk, especially during extreme weather precipitation events</li> </ul>	
<b>Public realm enhancement projects</b>		
<b>MP11</b> <b>Project name:</b> Albert Bridge refurbishment works	<b>Potential short term effects</b> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Increased local traffic and traffic congestion during construction</li> </ul> <i>Natural and cultural heritage related effects</i> <ul style="list-style-type: none"> <li>Accidental damage to legitimate built historic environment/ buried archaeological remains</li> </ul>	<i>Air</i> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <i>Townscape, landscape and the historic environment</i> <ul style="list-style-type: none"> <li>Buried archaeology</li> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <i>Material assets</i> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul>
	<b>Potential medium/ long term effects</b> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>Improved character/ site and setting of historic townscape and landscape</li> <li><b>Tensions between delivering a practical/ financially feasible solution and use of appropriate design and materials; and potential erosion of historic character</b></li> </ul>	
<b>MP13</b> <b>Project name:</b> Gallowgate, London Road and Saltmarket Railway Bridges refurbishment	<b>Potential short term effects</b> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works.</li> <li>Increased local traffic and traffic congestion during construction</li> </ul> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>Accidental damage to legitimate built historic environment/ buried archaeological remains</li> </ul>	<i>Air</i> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <i>Townscape, landscape and the historic environment</i> <ul style="list-style-type: none"> <li>Buried archaeology</li> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <i>Material assets</i> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul>
	<b>Potential medium/ long term effects</b> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>Improved character/ site and setting of historic townscape and landscape</li> <li><b>Tensions between delivering a practical/ financially feasible solution and use of appropriate design and materials; and potential erosion of historic character</b></li> </ul>	
<b>MP14</b> <b>Project name:</b> Saltmarket	<b>Potential short term effects</b> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> </ul>	<i>Population and human health</i> <ul style="list-style-type: none"> <li>Access</li> <li>Health and its environmental determinants</li> </ul>

Table E East Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
public realm project	<ul style="list-style-type: none"> <li>Increased local traffic and traffic congestion during construction</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Accidental damage to legitimate built historic environment/ buried archaeological remains</li> </ul> <p><b>Potential medium/ long term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li><b>Enhanced amenity and/ or a risk of temporary reduction in an area's amenity value during construction</b></li> </ul> <ul style="list-style-type: none"> <li>Increased opportunities for and uptake of outdoor leisure and recreation</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Improved character/ site and setting of historic townscape and landscape</li> <li><b>Tensions between delivering a practical/ financially feasible solution and use of appropriate design and materials; and potential erosion of historic character</b></li> </ul>	<p><i>Air</i></p> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <p><i>Townscape, landscape and the historic environment</i></p> <ul style="list-style-type: none"> <li>Buried archaeology</li> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <p><i>Material assets</i></p> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul>
<b>Transport infrastructure enhancement projects</b>		
<p><b>MP12</b></p> <p><b>Project name:</b> National Cycle Network (NCN) Route 75 enhancement works on Clyde Walkway</p>	<p><b>Potential short term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li><b>Temporary reduction in an area's amenity value during construction and/ or temporarily less incentive to use the area for outdoor leisure and recreation</b></li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Increased local traffic and traffic congestion during construction</li> </ul> <p><b>Potential medium/ long term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li><b>Enhanced pedestrian and cycle access and/ or enhanced access provision potentially contributing to an increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</b></li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Increased provision and connectivity of the green network (including habitat networks)</li> <li>Land take (through physical development of new paths and access routes)</li> </ul>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>Access</li> <li>Health and its environmental determinants</li> </ul> <p><i>Biodiversity, flora and fauna</i></p> <ul style="list-style-type: none"> <li>Statutory and non-statutory designated sites</li> <li>LBAP Habitats and Species</li> <li>Green network connectivity and functionality</li> </ul> <p><i>Air</i></p> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <p><i>Townscape, landscape and the historic environment</i></p> <ul style="list-style-type: none"> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <p><i>Material assets</i></p> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul>

Table E East Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
	<p>contributing to habitat severance, fragmentation and disturbance</p> <ul style="list-style-type: none"> <li>Tensions between delivering a practical/ financially feasible solution and use of appropriate design and materials; and potential erosion of historic character</li> </ul>	
<b>MP15</b> <b>Project name:</b> London Road tunnel/ Bridgeton station strengthening	<b>Potential short term effects</b> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Increased local traffic and traffic congestion during construction</li> </ul>	<i>Air</i> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <i>Townscape, landscape and the historic environment</i> <ul style="list-style-type: none"> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <i>Material assets</i> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul>
	<b>Potential medium/ long term effects</b> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>Tensions between delivering a practical/ financially feasible solution and use of appropriate design and materials; and potential erosion</li> </ul>	
<b>VAR6</b> <b>Project name:</b> NISA/ Velodrome/ Games Village access route enhancements	<b>Potential short term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li>Temporary impacts on human health, particularly among vulnerable groups</li> <li>Temporary reduction in an area's amenity value during construction</li> </ul> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> </ul>	<i>Population and human health</i> <ul style="list-style-type: none"> <li>Access</li> <li>Health and its environmental determinants</li> </ul> <i>Biodiversity, flora and fauna</i> <ul style="list-style-type: none"> <li>Green network connectivity and functionality</li> </ul> <i>Air</i> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul>
	<b>Potential medium/ long term effects</b> <i>Population and human health related effects:</i> <ul style="list-style-type: none"> <li><b>Enhanced pedestrian and cycle access/ enhanced access provision that may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</b></li> </ul> <i>Natural and cultural heritage related effects:</i> <ul style="list-style-type: none"> <li>Increased provision and connectivity of the green network (including habitat networks)</li> </ul>	
<b>VAR7</b> <b>Project name:</b> Celtic Park access route enhancements	<b>Potential short term effects</b> <i>Air and traffic/ transport related effects:</i> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Increased local traffic and traffic congestion during construction</li> </ul>	<i>Population and human health</i> <ul style="list-style-type: none"> <li>Access</li> <li>Health and its environmental determinants</li> </ul> <i>Air</i>



Table E East Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
	<ul style="list-style-type: none"> <li>Temporary and/ or permanent increase in emissions of traffic related air pollutants and noise/ vibration nuisance</li> </ul> <p><b>Potential medium/ long term effects</b>  <i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li><b>Enhanced pedestrian and cycle access/ enhanced access provision that may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</b></li> <li>Public health improvements</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Tensions between delivering a practical/ financially feasible solution and use of appropriate design and materials; and potential erosion</li> </ul>	<ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <p><i>Townscape, landscape and the historic environment</i></p> <ul style="list-style-type: none"> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <p><i>Material assets</i></p> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul>
<p><b>VAR8</b>  <b>Project name:</b>  Glasgow Green access route enhancements</p>	<p><b>Potential short term effects</b>  <i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary reduction in the areas amenity value during construction</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> <li>Increased local traffic and traffic congestion during construction</li> </ul> <p><b>Potential medium/ long term effects</b>  <i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li><b>Enhanced pedestrian and cycle access/ enhanced access provision that may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</b></li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Increased provision and connectivity of the green network (including habitat networks)</li> <li>Tensions between delivering a practical/ financially feasible solution and use of appropriate design and materials and maintaining existing historic character</li> </ul>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>Access</li> <li>Health and its environmental determinants</li> </ul> <p><i>Biodiversity, flora and fauna</i></p> <ul style="list-style-type: none"> <li>Green network connectivity and functionality</li> </ul> <p><i>Air</i></p> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <p><i>Townscape, landscape and the historic environment</i></p> <ul style="list-style-type: none"> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <p><i>Material assets</i></p> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul>
<p><b>VAR9</b>  <b>Project name:</b>  Tollcross Leisure Centre access</p>	<p><b>Potential short term effects</b>  <i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary reduction in the areas amenity value during construction</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>Access</li> <li>Health and its environmental determinants</li> </ul> <p><i>Biodiversity, flora and fauna</i></p>

Table E East Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
route enhancements	<ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during construction works</li> </ul> <p><b>Potential medium/ long term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li><b>Enhanced pedestrian and cycle access/ enhanced access provision that may contribute to increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</b></li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Increased provision and connectivity of the green network (including habitat networks)</li> <li>Tensions between delivering a practical/ financially feasible solution and use of appropriate design and materials; and potential erosion</li> <li>Land take (through physical development of new paths and access routes) contributing to habitat severance, fragmentation and disturbance</li> </ul>	<ul style="list-style-type: none"> <li>Statutory and non-statutory designated sites</li> <li>LBAP Habitats and Species</li> <li>Green network connectivity and functionality</li> </ul> <p><i>Air</i></p> <ul style="list-style-type: none"> <li>Air pollution/ quality</li> <li>Noise</li> </ul> <p><i>Townscape, landscape and the historic environment</i></p> <ul style="list-style-type: none"> <li>Townscape/ landscape</li> <li>Site and setting of historic environment features</li> </ul> <p><i>Material assets</i></p> <ul style="list-style-type: none"> <li>Transport infrastructure</li> <li>Traffic levels/ congestion</li> </ul>
<b>Environmental enhancement projects</b>		
ENV2 Project name: 2014 CWPP	<p><b>Potential medium/ long term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Increased opportunity for environmental/ cultural education</li> <li><b>Enhanced access to green network resources and increased uptake of outdoor leisure and recreation; leading to potential public health improvements</b></li> <li>Enhanced public understanding of environmental issues and potential increased willingness to take action locally/ within communities</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li><b>Long-term/ legacy scale improvements to management, conservation and enhancement of key sites, resulting in increased provision and enhanced connectivity of green network (including habitat networks)</b></li> <li>Enhanced provision of key ecosystem services including flood risk attenuation, environmental education resources, outdoor leisure and recreation resources etc</li> </ul>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>Access/ outdoor leisure and recreation</li> <li>Health and its environmental determinants</li> </ul> <p><i>Biodiversity, flora and fauna</i></p> <ul style="list-style-type: none"> <li>Statutory and non-statutory designated sites</li> <li>LBAP Habitats and Species</li> <li>Green network connectivity and functionality</li> <li>Ecosystem services</li> </ul>
ENV3 Project name: Commonwealth	<p><b>Potential medium/ long term effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Increased opportunity for environmental/ cultural education</li> </ul>	<p><i>Population and human health</i></p> <ul style="list-style-type: none"> <li>Access/ outdoor leisure and recreation</li> <li>Health and its environmental determinants</li> </ul>

Table E East Cluster projects and potential environmental effects		
Project	Potential environmental effects	Key environmental issues to consider
Games Arboretum	<ul style="list-style-type: none"> <li>Enhanced access to green network resources and increased uptake of outdoor leisure and recreation; leading to potential public health improvements</li> <li>Enhanced public understanding of environmental issues and potential increased willingness to take action locally/ within communities</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li><b>Long-term/ legacy scale improvements to management, conservation and enhancement of key sites, resulting in increased provision and enhanced connectivity of green network (including habitat networks)</b></li> <li>Enhanced provision of key ecosystem services including flood risk attenuation, environmental education resources, outdoor leisure and recreation resources etc</li> <li>Enhanced species resilience to climate change and other pressures</li> </ul> <p><i>Soil related effects:</i></p> <ul style="list-style-type: none"> <li>Development of car parking facilities and other hard infrastructure at sites may contribute to an increase in soil sealing</li> </ul>	<p><i>Biodiversity, flora and fauna</i></p> <ul style="list-style-type: none"> <li>Statutory and non-statutory designated sites</li> <li>LBAP Habitats and Species</li> <li>Green network connectivity and functionality</li> <li>Ecosystem services</li> </ul> <p><i>Soil</i></p> <ul style="list-style-type: none"> <li>Soil sealing</li> </ul>

Table F East cluster potential cumulative effects issues and key receptors			
Potential cumulative effects issues that are of major significance	Potential cumulative effects issues that are of minor importance	Specific spatial receptors that have potential to be repeatedly affected	Generic receptors that have potential to be repeatedly affected
<p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary and/ or permanent reduction in amenity value during construction phase</li> <li>Enhanced pedestrian and cycle access/ enhanced access provision potentially contributing to an increased uptake of outdoor leisure and recreation and walking/ cycling for some journeys</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p>	<p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Increased opportunity for environmental/ cultural education</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Accidental damage to legitimate built historic environment/ buried archaeological remains</li> <li>Improved character/ site and setting of historic townscape and landscape</li> </ul>	<ul style="list-style-type: none"> <li>River Clyde Corridor of Landscape and Wildlife Importance (CLWI)</li> <li>Glasgow Green Site of Special Landscape Importance (SSLI)</li> <li><b>Conservation Area:</b></li> </ul>	<ul style="list-style-type: none"> <li>Residents</li> <li>Population centres</li> <li>People</li> <li>Public health</li> <li>Access provision</li> <li>Community groups and schools</li> <li>Health vulnerable groups</li> </ul>

<b>Table F East cluster potential cumulative effects issues and key receptors</b>			
<b>Potential cumulative effects issues that are of major significance</b>	<b>Potential cumulative effects issues that are of minor importance</b>	<b>Specific spatial receptors that have potential to be repeatedly affected</b>	<b>Generic receptors that have potential to be repeatedly affected</b>
<ul style="list-style-type: none"> <li>Increased noise, dust and vibration nuisance during site investigation, land remediation and construction works</li> <li>Increased local traffic and traffic congestion during construction and operation</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Tensions between delivering a practical/ financially feasible solution and use of appropriate design and materials; and potential erosion of historic character</li> <li>Increased provision and connectivity of the green network (including habitat networks)</li> </ul>	<ul style="list-style-type: none"> <li>Land take (through physical development of new paths and access routes) contributing to habitat severance, fragmentation and disturbance</li> <li>Long-term/ legacy scale improvements to management, conservation and enhancement of key sites, resulting in increased provision and enhanced connectivity of green network (including habitat networks)</li> <li>Enhanced provision of key ecosystem services including flood risk attenuation, environmental education resources, outdoor leisure and recreation resources etc</li> </ul>	<p><b>Central</b></p> <ul style="list-style-type: none"> <li>Railway line CLWI</li> <li>Tollcross Park SSLI</li> </ul>	<ul style="list-style-type: none"> <li>Retail centres</li> <li>Key pedestrian and cycle routes</li> </ul>

# **Appendix S: West cluster individual project assessment summary**

<b>Kelvingrove Bowling Greens replacement</b>		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
<b>SEA Objective: to improve the health and well being of the population</b>		
<p><b>+/-</b> <b>S-M-L</b></p>	<p><b>Potential positive effects:</b> venue development projects have substantial potential to improve access provision by promoting public transport enhancements (e.g. additional bus stops in the vicinity to promote public transport use during games and in legacy mode) and increased provision and/ or upgrade of pedestrian and cycle paths and associated infrastructure (e.g. bike racks). Path upgrades have been proposed as part of this project which should improve access to the facilities themselves and potentially to the rest of the Park from the adjacent streets. All in all, this project has potential to support medium scale health objective improvements in the medium/ long term by helping to promote healthy living and lifestyles.</p> <p><b>Potential negative effects:</b> given the proximity of population centres, the large public amenity resource of Kelvingrove Park and the major pedestrian and cycle access routes nearby (e.g. the Kelvin walkway) there is a risk that any temporary and/ or permanent air quality and noise/ dust nuisance issues may affect public health including health vulnerable groups (see air assessment below for further information). Taken in the round, the issues described above have substantial potential to contribute to a significant albeit temporary reduction in amenity value for residents and recreational users in the project's vicinity. Any potential negative effects are more likely to be of minor significance due to their (mostly) temporary nature.</p>	<p><b>Enhancement:</b></p> <ul style="list-style-type: none"> <li>• Consider how the bowling green project could be used as a key opportunity to promote 'low-level' outdoor leisure and recreation activity, particularly amongst target neighbourhoods in the west cluster area i.e. those where health issues such as coronary heart disease are more pronounced</li> <li>• Ensure that the upgraded facility has adequate provision for securing bikes to promote the use of active travel</li> <li>• Advertise sustainable modes and routes (including active travel modes) that can be used to access the facility. This should be done on the relevant Glasgow City Council pages and also at the facility itself e.g. notice boards etc</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• See recommendations for sustainable transport above</li> <li>• Ensure that contractors comply with relevant legislation and guidelines to minimise noise, dust and vibration nuisance e.g. conducting noisy operations at appropriate times of the day</li> <li>• Ensure that temporary traffic management measures are designed to minimise traffic congestion e.g. use side streets for site access. Where possible, deploy any temporary traffic management measures during non-peak times</li> </ul>
<b>SEA Objective: to protect and enhance biodiversity, flora and fauna</b>		

Kelvingrove Bowling Greens replacement		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
- <b>S-M-L</b>	<p><b>Potential negative effects:</b> the bowling greens project raises two key issues for biodiversity protection and enhancement, both of which are related primarily to a potential for increased pressure on the aquatic ecology of the River Kelvin. The Kelvin, which is immediately adjacent of the site to the north, is a SINC of City-wide importance and a key component of Glasgow's green network. Firstly, both construction and operational activities have potential to affect aquatic ecology by contributing to increased contaminated run-off. Construction related issues may arise as a result of accidental liberation of contaminants during site investigation, remediation and other works. Also, increased heavy plant and other traffic in the area during construction may contribute to an increase in hydrocarbon contaminated run-off. Secondly, any changes to bowling green management during the project's operational phase (e.g. changes to chemical treatments including fertiliser and pesticide applications) should be carefully considered given their potential to contribute to an increase in contaminated run-off entering the Kelvin (with the associated risks to aquatic ecology e.g. nutrient loading/ algal blooms etc).</p>	<p><b>Mitigation of potential construction related effects:</b></p> <ul style="list-style-type: none"> <li>• Ensure that contractors comply with relevant legislation and guidelines to minimise potential issues associated with hydrocarbon contaminated run-off e.g. ensuring that any vehicles and machinery used on-site are fit for purpose and well maintained</li> <li>• Where significant risks are identified, consider the use of bunds and/ or other physical interventions to reduce the likelihood of contaminated run-off entering the Kelvin</li> <li>• Ensure that a site investigation is undertaken and a risk assessment is in place</li> </ul> <p><b>Mitigation of potential operational effects:</b></p> <ul style="list-style-type: none"> <li>• Consider alternative approaches to bowling green management that don't rely on the use of chemical treatments</li> <li>• Ensure that adequate drainage infrastructure and, where appropriate, on-site treatment facilities are installed to minimise the risk of untreated pesticide/ fertiliser contaminated run-off entering the Kelvin</li> </ul>
<b>SEA Objective: to improve air quality; to reduce levels of air pollution; and to reduce noise levels from all sources</b>		
- <b>S-M-L</b>	<p><b>Potential negative effects:</b> given this project's scale (including the required soil remediation works), there is significant potential for increased noise, dust and vibration nuisance during the project's construction phase. In addition, any temporary construction phase traffic management measures on adjacent streets may contribute to an increase in traffic with the associated risk of local, albeit temporary, air quality issues arising. However, increased traffic may also be an issue during operation given that new facilities can increase the need to travel to an area i.e. an</p>	<p><b>Mitigation:</b> see recommendations for sustainable transport under the population and human health assessment.</p>

<b>Kelvingrove Bowling Greens replacement</b>		
<b>Potential environmental effects summary score</b>	<b>Commentary on potential environmental effects</b>	<b>Mitigation and enhancement recommendations</b>
	induced travel effect. This in turn may contribute to local air quality issues during the medium and long term (i.e. during venue operation). Whilst there are no current air quality management issues in the project's immediate vicinity, there are several categories of population orientated receptor that may be vulnerable to the effects of decreased air quality (see population and human health assessment above).	
<b>SEA Objective: to improve water quality; and to reduce levels of water pollution</b>		
<b>- S-M-L</b>	<b>Potential negative effects:</b> given the Kelvin's current water quality status (overall ecological status – poor and overall chemical status – fail), any additional pressure on the river has significant potential to increase levels of water pollution and negatively affect water quality. Although the Kelvin is described as being in 'fair' condition at Kelvingrove, any additional pressure on the aquatic environment should be avoided to support the Kelvin's ongoing improvement in line with SEPA's objectives under the Water Framework Directive. Although there is potential for both construction and operational effects on water pollution and quality, any potential construction effects are likely to be short lived and the magnitude of any operational effects relatively small. Given this, potential negative effects are likely to be of minor significance only. See biodiversity assessment above for further information.	<b>Mitigation:</b> see recommendations under the biodiversity assessment.
<b>SEA Objective: to conserve and where appropriate enhance the historic environment and cultural heritage</b>		
<b>+/- M-L</b>	<b>Potential positive effects:</b> a key part of the bowling greens project is the replacement of an existing pavilion. The current structure is suffering from significant dilapidation and arguably detracts from Kelvingrove Park's statutory status as a Conservation Area and Garden and Designed Landscape. As such, development of a sensitively designed replacement pavilion has potential to work towards the protection and enhancement of	<b>Enhancement:</b> <ul style="list-style-type: none"> <li>• Ensure that development of any new structures incorporates appropriate design and use materials to complement and enhance the area's historic environment features</li> <li>• Consider opportunities for environmental and/ or heritage based education e.g. provision of information highlighting</li> </ul>



Kelvingrove Bowling Greens replacement		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
	<p>historic townscape and landscape in the Kelvingrove area. Equally, renovation of the site in line with its historic usage will help to ensure that future generations of Glaswegians can enjoy playing bowls in Kelvingrove Park, supporting the Park's continued lineage as a venue for outdoor leisure and recreation. Potential positive effects are likely to be of minor significance given that the pavilion constitutes a relatively minor component of the wider Conservation Area/ Garden and Designed Landscape.</p> <p><b>Potential negative effects:</b> development of new and/ or enhancement of existing recreational facilities may necessitate increased use of signage and other street furniture (e.g. signs indicating access/ parking for the new facility, additional bus stops and bike racks etc). Any such development at the site of the bowling greens project has significant potential to adversely affect the site and setting of key statutory/ non-statutory historic environment features in the area. This is particularly key given the prevalence of statutory sites including the Park and St Vincent's Crescent Conservation Areas and numerous Grade A and B listed buildings.</p>	<p>Kelvingrove Park's historic outdoor leisure and recreational usage e.g. bowls</p> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Minimise any additional signage and street furniture</li> <li>• Where additional street furniture is essential, consider the use of appropriate design and materials that complements the area's historic environment</li> <li>• Where additional signage is essential, consider opportunities for rationalising new and existing signage e.g. can two or more signs be integrated to minimise the need for additional signage?</li> </ul>

MP1 Lancefield/ Anderston Quay wall reconstruction and public realm works		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
<b>SEA Objective:</b> to improve the health and well being of the population		
<b>++/-</b> <b>S-M-L</b>	<p><b>Potential positive effects:</b> MP1 has significant potential to improve Clyde corridor access at Lancefield/ Anderston Quays. A key barrier to Clyde corridor access in the West cluster area is the current lack of significant public or semi-public greenspace adjacent to the Clyde with the overall effect being one of poor integration between west cluster communities and the Clyde itself. This issue has been cited as a key deterrent to Clyde Walkway use as an outdoor leisure and recreational resource and/ or as a key route for active travel between the City centre and the west of the City. Given this, the proposed public realm enhancements (e.g. clearance of dilapidated features and replacement with trees, grass, sealed paths, enhanced lighting and other street furniture) should go some way to increasing the attractiveness of the Clyde Walkway for these types of use. This in turn has potential to support health enhancements in the area through increased uptake of outdoor exercise. There are also clear synergies between this project and the recently completed public realm enhancement works at the Broomielaw/ Tradeston Quay area to the east. Given the scope and long-term nature of potential access provision benefits (including the number of people potentially affected i.e. the west cluster area is the most densely populated of all three clusters), potential positive effects are likely to be of major significance. This is compounded by the potential synergies with related access projects (e.g. Broomielaw etc)</p> <p><b>Potential negative effects:</b> given the immediate proximity of residential properties and the major pedestrian and cycle access route (the Clyde Walkway) there is a risk that any temporary air quality and noise/ dust nuisance issues may affect public health</p>	<p><b>Enhancement:</b></p> <ul style="list-style-type: none"> <li>• Consider how careful use of additional signage and/ or other awareness raising activities may encourage increased use of the Clyde Walkway as a key active travel route and as an outdoor leisure and recreational resource in its own right (this should include updates to GCC web pages where appropriate)</li> <li>• Consider how newly enhanced sections of the Clyde Walkway can be incorporated with existing and/ or new 'health walk' routes e.g. integration with Kelvingrove Park routes</li> <li>• Other awareness raising activities may include information/ interpretation boards along the route outlining key information about the relationship between health and related issues including outdoor leisure and recreation, active travel etc</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Ensure that contractors comply with relevant legislation and guidelines to minimise noise, dust and vibration nuisance e.g. conducting noisy operations at appropriate times of the day</li> <li>• Ensure that temporary traffic management measures are designed to minimise traffic congestion e.g. use side streets for site access</li> <li>• Where possible, deploy any temporary traffic management measures during non-peak times</li> </ul>

<b>MP1 Lancefield/ Anderston Quay wall reconstruction and public realm works</b>		
<b>Potential environmental effects summary score</b>	<b>Commentary on potential environmental effects</b>	<b>Mitigation and enhancement recommendations</b>
	including health vulnerable groups (see air assessment below for further information). As a result, there is substantial potential for a significant albeit temporary reduction in amenity value for residents and Clyde Walkway recreational/ active travel users in the project's vicinity. Any potential negative effects are likely to be of minor significance due to their temporary nature.	
<b>SEA Objective: to protect and enhance biodiversity, flora and fauna</b>		
<b>? M-L</b>	<b>Potential positive effects:</b> MP1 has significant potential to improve green network connectivity though this is primarily in relation to enhanced access and public realm/ 'grey space' provision (see population and human health assessment above for further information). MP1 does however include some limited provision for the 'greening' of Lancefield/ Anderston Quay. Despite this, any landscaping activity is likely to be low maintenance (e.g. laying down grass and planting trees) and of aesthetic as opposed to biodiversity value.	<b>Enhancement:</b> <ul style="list-style-type: none"> <li>• Liaise with the GCV Green Network partnership, SNH and other key stakeholders as appropriate to ascertain the biodiversity/ green network value of the site's existing habitat (e.g. consider the value of protecting and/ or enhancing habitat in line with outputs from the GCV Green Network's Integrated Habitat Network model – this should include consideration of synergies with other current and reasonably foreseeable future green network enhancement projects in the vicinity)</li> <li>• Consider opportunities and/ or the potential value of incorporating the site's existing habitat with project design</li> </ul>
<b>SEA Objective: to improve air quality; to reduce levels of air pollution; and to reduce noise levels from all sources</b>		
<b>+/- S-M-L</b>	<b>Potential positive effects:</b> enhanced Clyde corridor access provision at Lancefield/ Anderston Quay, as outlined under the population and human health assessment above, has potential to increase the attractiveness of active travel (walking and cycling) for key journeys between the City centre and the west of the City. The impact of any such modal shift on traffic congestion and air quality issues at the MP1 site in particular will clearly depend on the point of origin for existing car journeys that use this route (i.e. the relevance of Clyde corridor access enhancements to specific journeys – e.g. access improvements on the north bank of the	<b>Mitigation/ enhancement:</b> see recommendations under the population and human health assessment.  <b>Additional enhancement:</b> <ul style="list-style-type: none"> <li>• Consider the network wide implications of Clyde corridor access enhancements</li> <li>• Identify opportunities for joining-up gaps in walking and cycling route provision between key community/ population centres and the Clyde Walkway (i.e. the baseline highlights how core path provision in the West</li> </ul>

MP1 Lancefield/ Anderston Quay wall reconstruction and public realm works		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
	<p>Clyde will be of limited benefit to journeys originating in the south west of the City). Despite this, access enhancements delivered through MP1 (in synergy with those delivered elsewhere along the Clyde corridor e.g. Broomielaw) should, in general, encourage more walking and cycling which in turn should reduce traffic congestion and linear source emissions of air pollutants in the medium to long term.</p> <p><b>Potential negative effects:</b> there is significant potential for increased noise, dust and vibration nuisance during the project's construction phase. In addition, any temporary construction phase traffic management measures may contribute to an increase in traffic with the associated risk of local, albeit temporary, air quality issues arising. Whilst there are currently no statutory air quality management issues in the project's immediate vicinity, there are several categories of population orientated receptor that may be vulnerable to the effects of decreased air quality (see population and human health assessment above) and an air quality vulnerable location. Air quality monitoring data for NO<sub>2</sub> at Finnieston Street (immediately adjacent to Lancefield Quay to the north) indicates a steady decrease in air quality in recent years. The scale of MP1's potential air quality and nuisance issues (MP1's anticipated construction phase is two years) combined with the proximity of the NO<sub>2</sub> vulnerable location and key population orientated receptors means that any negative effects, whilst distinctly temporary, are likely to be of major significance.</p>	<p>cluster area, whilst providing good access along key linear features such as the Clyde and Kelvin Rivers, provides limited access between community/ population centres and the area's key linear routes. This may be a key barrier to the use of active travel modes for key journeys to and from the City centre for example)</p>
<b>SEA Objective: to reduce the risk of flooding</b>		
+	<p><b>Potential positive effects:</b> MP1 includes provision for enhanced flood defences between the Kingston Bridge and the Clyde Arc bridge. This will contribute to substantially improved resilience to fluvial flooding in the area, complementing other recent flood</p>	<p><b>Enhancement:</b></p> <ul style="list-style-type: none"> <li>Consider opportunities for integrating the site's existing habitat with any additional soft landscaping measures</li> </ul>

<b>MP1 Lancefield/ Anderston Quay wall reconstruction and public realm works</b>		
<b>Potential environmental effects summary score</b>	<b>Commentary on potential environmental effects</b>	<b>Mitigation and enhancement recommendations</b>
<b>M-L</b>	defence enhancements at the Broomielaw and Tradeston Quay for example. In addition, soft landscaping works delivered as part of MP1's public realm enhancement strategy may contribute to an overall increase in permeable ground cover in the area. This in turn may contribute to enhanced resilience to pluvial flooding issues in the area.	<ul style="list-style-type: none"> <li>Aim for development that contributes to a net increase in permeable ground cover – where this is not possible, ensure that project design incorporates suitable drainage provision to compensate for any net increase in impermeable ground cover and the associated potential for increased flood risk</li> </ul>

# **Appendix T: South cluster individual project assessment summary**

Cathkin Braes Glasgow 2014 Mountain Bike Course		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
<b>SEA Objective:</b> to improve the health and well being of the population		
<b>++</b> <b>S-M-L</b>	<p><b>Potential positive effects:</b> the development of a world class mountain biking facility at Cathkin Braes Country Park (CBCP) and associated infrastructure (e.g. additional paths, public transport enhancements, sustainable transport infrastructure such as bike racks etc) will undoubtedly increase access provision in the area and contribute to increased opportunities for outdoor leisure and recreation. Given the scale of the health issues faced by South cluster residents and the potential relationship between such issues and key environmental health determinants including access to amenity greenspace and outdoor leisure and recreation opportunities, this project has potential to significantly affect the overall health and well-being of key South cluster population centres. Potential effects are likely to be most pronounced in areas where health issues are most acute and/ or those centres that are in close proximity to CBCP i.e. where facilities can be accessed using active travel modes (e.g. Castlemilk and Carmunnock). Given the potential scale of these benefits, their long term nature and their importance to people most likely to be affected, any positive effects are likely to be of major significance.</p>	<p><b>Enhancement:</b></p> <ul style="list-style-type: none"> <li>• Ensure that local communities are aware of changes at CBCP and the opportunities these will raise for enhanced access to outdoor leisure and recreational activities</li> <li>• Consider the potential benefits of running an awareness-raising campaign in tandem with project development and construction to bring attention to the potential health benefits of regular outdoor leisure/ recreation</li> <li>• Consider how the project can be used as a lever for raising additional funds to develop an enhanced core path providing improved pedestrian and cycle access between CBCP and Castlemilk</li> <li>• Advertise sustainable modes and routes (including active travel modes) that can be used to access the facility</li> <li>• Consider how the Cathkin Braes project can be used as a lever to prevent anti social behaviour e.g. quad/ motor bike riding</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Minimise any temporary reduction in amenity by ensuring that contractors engage in careful site management and sensitive construction practices</li> <li>• Consider opportunities for temporary designation of alternative walking and cycling routes to minimise any short lived reductions in amenity</li> </ul>

Cathkin Braes Glasgow 2014 Mountain Bike Course		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
<b>SEA Objective: to protect and enhance biodiversity, flora and fauna</b>		
<b>++/-</b> <b>S-M-L</b>	<p><b>Introduction:</b> the South cluster area is home to a substantial portion of Glasgow's natural heritage resource. In particular, the Cathkin Braes site has multiple local level natural heritage designations including recognition of its City-wide importance to nature conservation (cSINC) and as a site of special landscape importance (SSLI). It is also a proposed Local Nature Reserve and a substantial portion of its area is designated as ancient, long-established or semi-natural woodland (the 'Big Wood'). It is also home to several Glasgow LBAP habitats and species. As such, development at this site is something of a double edged sword with project design and management needing careful consideration to ensure that opportunities are realised and potential adverse effects avoided.</p> <p><b>Potential positive effects:</b> the mountain bike course project has three key potential positive effects. Firstly, sensitive delivery of the proposed habitat creation project (wild flower meadow) should enhance the overall connectivity and functionality of habitat networks in the area (and ultimately the wider Glasgow and Clyde Valley area). This in turn should support a more diverse range of species and enhance ecosystem health. Secondly, any additional site maintenance delivered in tandem with the project may contribute to improved management (and therefore also health and integrity) of key habitats on site (poor management and the threat of invasive non-native species are cited as key pressures to the long term sustainability of key LBAP habitats found on site e.g. broadleaved and mixed woodland, acid grassland etc). Finally, increased visitor numbers to the site should be treated as a key opportunity for environmental education e.g. to raise awareness about the importance of natural heritage (including its protection and enhancement) in the wider context of sustainable development. Given the multi-faceted nature of potential environmental benefits and the likelihood that they would</p>	<p><b>Enhancement:</b></p> <ul style="list-style-type: none"> <li>• Liaise with relevant stakeholders (e.g. SNH, GCV Green Network partnership etc) and/ or employ suitably qualified consultants to gather good-practice advice when planning and designing any habitat creation activity</li> <li>• Ensure that any habitat creation projects are aligned to the GCV Green Network's Integrated Habitat Network (IHN) model i.e. in relation to location, size and composition of any newly created habitat</li> <li>• Consider the need to undertake fresh survey work on site to support the identification of an optimal habitat creation strategy</li> <li>• Focus additional habitat management measures on the needs and priorities of key habitats that are currently found on site</li> <li>• Review current public engagement provision on site and identify scope for improvements based on the potential environmental education benefits of the project</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Consider the need to undertake fresh survey work on site to support a better understanding of ecosystem functioning and help ensure that development of the mountain bike course is not to its detriment</li> <li>• Ensure that contractors are aware of the constraints and key sensitivities on site and that the proposed</li> </ul>



Cathkin Braes Glasgow 2014 Mountain Bike Course		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
	<p>continue to be realised over the long term, any potential positive effects are likely to be of major significance.</p> <p><b>Potential negative effects:</b> potential negative effects can be categorised on the basis of whether they are construction or operation phase related. Inappropriate physical development of the mountain bike course and related infrastructure (e.g. new paths and access routes, temporary structures etc), has potential to cause habitat severance and fragmentation and/ or disturbance of species on site (noting that the site is home to a several LBAP habitats and species). During operation, the anticipated increase in visitor numbers to the site, if managed poorly, has potential to exert increased pressure on sensitive habitat and species (e.g. 'people pressure' is cited as a key factor influencing the loss and decline of broadleaved and mixed woodland in Glasgow).</p>	<p>works are delivered with minimal disturbance of habitats and species</p> <ul style="list-style-type: none"> <li>• Liaise with key stakeholders (e.g. SNH) to identify key good-practice considerations that contractors should adhere to</li> <li>• Develop a communications strategy that raises awareness about natural heritage issues and helps to ensure that additional outdoor leisure and recreational use is responsible and does not lead to undue 'wear and tear' and/ or over use issues on site</li> </ul>

# **Appendix U: East cluster individual project assessment summary**

Glasgow Green Hockey Centre		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
<b>SEA Objective: to improve the health and well being of the population</b>		
- S	<p><b>Potential positive effects:</b> venue development projects have substantial potential to improve access provision, primarily through the promotion of public transport enhancements e.g. additional bus stops in the vicinity to promote public transport use and/ or accommodate additional demand during games-time and in legacy mode. Whilst the new Hockey Centre will indeed promote healthy living and lifestyles, its benefit in this context is likely to be quite narrow due to hockey’s arguably specialist nature as a sporting activity. This is in contrast to other venues where the activity supported is of more widespread interest (e.g. the Kelvingrove Bowling Greens) and/ or the venue is truly multi-purpose supporting a range of health objectives over and above the promotion of healthy living and lifestyles e.g. promotion of environmental conditions which support improved health, encouraging outdoor recreation and access etc. An example of such a venue project is the Cathkin Braes Glasgow 2014 Mountain Bike course. Given this, any potential effects are likely to be insignificant (or at least not constitute any worsening of the existing situation) in the context of the baseline, key environmental issues and the wider SEA Framework (i.e. the assessment criteria). There is substantial potential however to enhance these broadly neutral effects as outlined to the right.</p> <p><b>Potential negative effects:</b> given the proximity of population centres, the large public amenity resource of Glasgow Green on which the Hockey Centre is sited and the major pedestrian and cycle access routes nearby (e.g. the Clyde walkway), there is a risk that any temporary and/ or permanent air quality and noise/ dust nuisance issues may affect public health including health</p>	<p><b>Enhancement:</b> <i>Introduction:</i> health issues (including those linked to key environmental determinants of health e.g. the relationship between coronary heart disease and opportunities for ‘low level’ outdoor leisure and recreation) are particularly severe in the east cluster area, especially in the Calton/ Bridgeton neighbourhood area which is immediately adjacent to Glasgow Green. In isolation, the Hockey Centre project is unlikely to contribute to any significant public health improvements in the east cluster area. Wide ranging health benefits are more likely to be realised by enhancing services that are used by all e.g. key walking/ cycling routes. Within the East cluster area, the Clyde Walkway is currently an underused resource for active travel/ as a recreational resource in its own right. This is caused by a range of issues including vandalism and inadequate signage/ lighting.</p> <ul style="list-style-type: none"> <li>• Consider the scope for broadening out the Hockey Centre’s access provision enhancements to incorporate a stretch of the Clyde walkway. This could be delivered by improving signage and lighting provision for example. This type of action would help to encourage outdoor recreation, promote walking and cycling and would be more likely to support significant public health improvements than the Hockey Centre in its own right</li> <li>• In a wider context, this type of enhancement would improve access along the length of the Clyde corridor by capitalising on synergies with other enhancement projects (e.g. the Lancefield/ Anderston Quay public realm enhancement in the West cluster – MP1 and the CWPP in</li> </ul>

<b>Glasgow Green Hockey Centre</b>		
<b>Potential environmental effects summary score</b>	<b>Commentary on potential environmental effects</b>	<b>Mitigation and enhancement recommendations</b>
	<p>vulnerable groups (see air assessment below for further information). Taken in the round, the issues described above have substantial potential to contribute to a significant albeit temporary reduction in amenity value for residents and recreational users in the project's vicinity. Any potential negative effects are more likely to be of minor significance due to their (mostly) temporary nature.</p>	<p>the East cluster – ENV1)</p> <ul style="list-style-type: none"> <li>• Other access orientated enhancement opportunities to consider are raised in the East End Local Development Strategy's (EELDS) potential green network. This outlines the potential for a range of key green links in the east cluster area that could be developed to enhance access provision as well as biodiversity and SuDS provision e.g. between Bridgeton centre and Glasgow Green</li> <li>• Any additional green network enhancements would support compliance with local planning policy which requires development in or adjacent to a green network site (i.e. Glasgow Green and the River Clyde) to demonstrate how it has accounted for the need to maintain and enhance the City's green network resource</li> </ul> <p><b>Mitigation:</b> see recommendations under the air assessment.</p>
<b>SEA Objective: to protect and enhance biodiversity, flora and fauna</b>		
<p>- <b>S-M-L</b></p>	<p><b>Potential negative effects:</b> the Hockey Centre project has potential to cause two key negative effects in relation to biodiversity protection and enhancement objectives. Issues may arise during both construction and operation. Both of the potential negative effects are related to increased pressure on the aquatic ecology of the Clyde which is adjacent to the Hockey Centre site to its west. Firstly, during site investigation, land remediation and construction works, there is a potential albeit minimal risk that contaminants may be liberated. Given that there may be plausible pathways between the site and the river,</p>	<p><b>Mitigation of potential construction related effects:</b></p> <ul style="list-style-type: none"> <li>• Ensure that contractors comply with relevant legislation and guidelines to minimise potential issues associated with hydrocarbon contaminated run-off e.g. ensuring that any vehicles and machinery used on-site are fit for purpose and well maintained</li> <li>• Where significant risks are identified, consider the use of bunds and/ or other physical interventions to reduce the likelihood of contaminated run-off entering the Clyde at this point</li> </ul>

<b>Glasgow Green Hockey Centre</b>		
<b>Potential environmental effects summary score</b>	<b>Commentary on potential environmental effects</b>	<b>Mitigation and enhancement recommendations</b>
	<p>there is a risk that these contaminants may enter the river with associated negative effects on aquatic ecology. Secondly, during construction, any increase in heavy plant and other traffic in the area may contribute to an increase in hydrocarbon contaminated run-off. This may also enter the river with the associated potential for negative effects on aquatic ecology. During operation, there is potential for a similar hydrocarbon contaminated run-off effect to arise as a result of car park operation i.e. an increased number of private cars in close proximity to the river. The scale of this potential effect is likely to depend on site configuration (e.g. the location of car parking facilities relative to the river) and drainage infrastructure on site. Pollution from diffuse sources such as areas of hard standing is recognised as a key pressure in Glasgow LBAP's rivers and streams Habitat Action Plan.</p>	<ul style="list-style-type: none"> <li>• Ensure that contractors develop and utilise an appropriate remediation strategy that accounts for risks to ecological receptors during remediation works. Liaise with the appropriate authorities (e.g. SEPA) to identify good-practice considerations that contractors should take on board in the development of remediation strategy</li> </ul> <p><b>Mitigation of potential operational effects:</b></p> <ul style="list-style-type: none"> <li>• Ensure that adequate drainage infrastructure and, where appropriate, on-site treatment facilities are installed to minimise the risk of operation related hydrocarbon contaminated run-off entering the Clyde</li> <li>• Consider approaches to site configuration (e.g. with respect to car park size and location) that minimise risks of diffuse source water pollution from areas of hard standing</li> <li>• See mitigation recommendations under air and water assessments also</li> </ul>
<b>SEA Objective: to improve air quality; and to reduce levels of air pollution</b>		
<p>- <b>S-M-L</b></p>	<p><b>Potential negative effects:</b> given this project's scale (including the potential requirement for soil remediation works), there is significant potential for increased noise, dust and vibration nuisance during the project's construction phase. In addition, any temporary construction phase traffic management measures on adjacent streets, whilst unlikely given the size of the site and the ready access afforded to it, may contribute to an increase in traffic with the associated risk of local albeit temporary air quality issues arising. Potential increases in traffic, traffic congestion and linear source air pollution are more likely to be a significant</p>	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Ensure that the Hockey Centre facility has adequate provision for securing bikes to promote the use of active travel</li> <li>• Advertise sustainable modes and routes (including active travel modes) that can be used to access the facility. This should be done on the relevant Glasgow City Council pages and also at the facility itself e.g. on relevant notice boards etc</li> <li>• Highlight the Clyde Walkway as a key active travel route</li> </ul>

<b>Glasgow Green Hockey Centre</b>		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
	<p>issue during operation given that new facilities can increase the need to travel to an area i.e. an induced travel effect. Also, parts of the Calton/ Bridgeton neighbourhood area (which is immediately adjacent to Glasgow Green) fall within the central part of the City recognised in GCPH's Community Health and Wellbeing Profiles as being particularly vulnerable to NO<sub>2</sub> related air quality issues. In addition, City Plan 2 and the EELDS' growth strategies (e.g. jobs, population, housing etc) for the east end of the City are likely to increase transport demand creating tensions with air quality objectives and raising additional air quality issues. The issues described above are particularly important given that there are several categories of population orientated receptor that may be vulnerable to the effects of decreased air quality (see population and human health assessment above). Given the potential for medium scale short – long term air quality issues, potential negative effects are likely to be of minor significance.</p>	<p>for journeys to and from the Hockey Centre (e.g. from the City centre and the east). Consider synergise and overlaps with the 2014 Clyde Walkway Pilot Project – the CWPP (see CWPP assessment below)</p> <ul style="list-style-type: none"> <li>• Ensure that contractors comply with relevant legislation and guidelines to minimise noise, dust and vibration nuisance e.g. conducting noisy operations at appropriate times of the day</li> <li>• Ensure that temporary traffic management measures are designed to minimise traffic congestion e.g. use side streets for site access</li> <li>• Where possible, deploy any temporary traffic management measures during non-peak times</li> <li>• Recommend that other initiatives within the East cluster area (as delivered through related frameworks e.g. City Plan 2, the EELDS, Clyde Gateway URC Business Plan etc) promote the use of active and/ or sustainable travel modes</li> <li>• Consider options for integrating any Hockey Centre travel planning activities with those for related initiatives/ facilities in the East cluster area to maximise synergies</li> </ul>
<b>SEA Objective: to improve water quality; and to reduce levels of water pollution</b>		
<p>- <b>S-M-L</b></p>	<p><b>Potential negative effects:</b> see biodiversity assessment above. Also, given the Clyde's current water quality status (overall ecological status – poor and overall chemical status – fail), any additional pressure on the river has significant potential to increase levels of water pollution and negatively affect water quality. Any additional pressure on the aquatic environment should be avoided to support the Clyde's ongoing improvement in line with SEPA's objectives under the Water Framework</p>	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• See recommendations under the biodiversity assessment</li> <li>• ER Part B Table 5.9 highlights a range of green network opportunities in the east cluster area. In particular and as highlighted in City Plan 2, the EELDS and the Clyde Gateway Green Network Strategy, the development of regional level SuDS schemes is regarded as a highly sustainable approach to drainage provision – both in</li> </ul>

Glasgow Green Hockey Centre		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
	<p>Directive. Although there is potential for both construction and operational effects on water pollution and quality, any potential construction effects are likely to be short lived and the magnitude of any operational effects relatively small. Given this, potential negative effects are likely to be of minor significance only.</p>	<p>terms of flood risk alleviation and diffuse source water pollution management. Consider opportunities/ technical design feasibility of a regional approach to Hockey Centre related SuDS infrastructure. This approach would be able to support (as a minimum) water quality, flooding and biodiversity objectives</p> <ul style="list-style-type: none"> <li>• Consider opportunities (including joint funding streams for example) for integration of such a scheme with related projects and initiatives – from the CG Strategy and Framework but also from related plans and programmes e.g. the EELDS, South Dalmarnock Masterplan etc</li> </ul>
SEA Objective: to reduce soil sealing and soil loss		
<p><b>+/-</b> <b>M-L</b></p>	<p><b>Potential positive effects:</b> the proposed Hockey Centre is sited on brownfield land with potential soil contamination issues. Development of the site, whilst contributing to an increase in soil sealing, is likely to improve soil quality and condition through the suitable remediation of contaminated soils.</p> <p><b>Potential negative effects:</b> although by definition the brownfield land on which the proposed Hockey Centre is to be sited contains poor quality soil, venue development will increase levels of soil sealing. Given the Hockey Centre's location within Glasgow Green (i.e. one of the City's oldest and largest greenspace resources) and also the soil quality issues described above, the loss/ sealing of soil at the site is unlikely to be a significant issue in its own right. However, soil sealing is a highly interrelated issue and of particular significance in cities where unsealed soils/ permeable ground is a scarce resource. The Hockey Centre project will decrease the area of permeable ground which in turn may increase pluvial flood risk in the area.</p>	<p><b>Enhancement:</b> see recommendations under the soil contamination assessment.</p> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• See recommendations under the water and biodiversity assessments also</li> <li>• Consider how the careful design and use of soft landscaping features (potentially as part of an integrated approach to regional SuDS schemes) can mitigate any potential increases in flood risk caused by increased areas of hard standing/ decreased areas of permeable ground</li> </ul>

<b>Glasgow Green Hockey Centre</b>		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
<b>SEA Objective: to reduce levels of soil contamination</b>		
<b>+ M-L</b>	<b>Potential positive effects:</b> the proposed Hockey Centre is sited on brownfield land with potential soil contamination issues. Site preparation activities (in line with likely planning conditions relating to contaminated land issues) will lead to the effective remediation of any contaminated soils on site.	<b>Enhancement:</b> <ul style="list-style-type: none"> <li>• Ensure that the remediation strategy adopted is the most sustainable option given constraints (e.g. cost)</li> <li>• Where possible, use onsite remediation techniques to minimise waste and/ or carbon impact associated with soil excavation, transportation and disposal</li> </ul>
<b>SEA Objective: to conserve and where appropriate enhance the historic environment and cultural heritage</b>		
<b>- M-L</b>	<b>Potential negative effects:</b> development of new recreational facilities may necessitate increased signage and other street furniture (e.g. signs indicating access/ parking for the new facility, additional bus stops etc). Any such development at the site of the Hockey Centre has significant potential to adversely affect the site and setting of key statutory/ non-statutory historic environment features in the area. Whilst the majority of statutory historic environment features located either in or near Glasgow Green are towards the City centre side (north side) and away from the proposed Hockey Centre site, it is important to consider the Green as a single historic open space. In addition, streets in close proximity to the Hockey Centre site (e.g. Greenhead Street) contain several category B and C(S) Listed Buildings.	<b>Mitigation:</b> <ul style="list-style-type: none"> <li>• Minimise any additional signage and street furniture</li> <li>• Where additional street furniture is essential, consider the use of appropriate design and materials that complements the area's historic environment</li> <li>• Where additional signage is essential, consider opportunities for rationalising new and existing signage e.g. can two or more signs be integrated to minimise the need for additional signage?</li> </ul>
<b>MP14 Saltmarket public realm enhancement project</b>		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
<b>SEA Objective: to improve the health and well being of the population</b>		



MP14 Saltmarket public realm enhancement project		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
<b>++/-</b> <b>S-M-L</b>	<p><b>Potential positive effects:</b> improving the public realm in Saltmarket has substantial potential to promote environmental conditions which support improved health. In particular, public realm projects such as these may contribute to improved green network connectivity by enhancing the 'greyspace' component therein i.e. improving the attractiveness and functionality of public places may encourage more people to walk/ cycle for key journeys utilising networks of linked, attractive places (this recognises the importance of active/ sustainable travel as a key component of green network provision promoting outdoor leisure, recreation and access). This is particularly key in Calton (the part of the East cluster area that broadly encompasses Saltmarket) given the prevalence of health issues that can be linked to key environmental determinants such as the opportunity for and uptake of outdoor leisure and recreation. In addition to the above, Calton/ Bridgeton residents have raised issue with the satisfactory provision of 'attractive buildings' and an 'attractive environment' in their neighbourhood area. The Saltmarket project may well go some way to addressing these issues. Given the scale and long term/ multifaceted nature of the potential benefits and also the importance of any such benefits in the context of the baseline and current issues, any positive effects are likely to be of major significance.</p> <p><b>Potential negative effects:</b> given the proximity of population centres, the large public amenity resource of Glasgow Green and the major pedestrian and cycle access routes nearby (e.g. the Clyde walkway), there is a risk that any temporary and/ or permanent air quality and noise/ dust nuisance issues may affect public health including health vulnerable groups (see air assessment below for further information). Taken in the round,</p>	<p><b>Enhancement:</b>  <i>Introduction:</i> health is a particularly important issue in Calton and the East cluster area in general. A potential barrier to the uptake of health promoting outdoor leisure and recreation activities in the Calton/ Bridgeton neighbourhood area may be a lack of awareness of the opportunities nearby e.g. Glasgow Green, Clyde walkway etc</p> <ul style="list-style-type: none"> <li>• In conjunction with the Saltmarket public realm project, consider opportunities for increasing awareness about the range of outdoor leisure and recreation opportunities in the vicinity and also the relationship between health and the uptake of appropriate leisure and recreation activities including outdoors</li> <li>• One approach may be to integrate a way-marked Saltmarket 'heritage route' with a way-marked 'health/ heritage route' in Glasgow Green</li> <li>• Ensure that any awareness raising activities are delivered to maximum effect e.g. publication on GCC web pages, local information boards etc</li> </ul> <p><b>Mitigation:</b> see recommendations under the air assessment.</p>

<b>MP14 Saltmarket public realm enhancement project</b>		
<b>Potential environmental effects summary score</b>	<b>Commentary on potential environmental effects</b>	<b>Mitigation and enhancement recommendations</b>
	the issues described above have substantial potential to contribute to a significant albeit temporary reduction in amenity value for residents and recreational users in the project's vicinity. Any potential negative effects are more likely to be of minor significance due to their temporary nature.	
<b>SEA Objective: to improve air quality; and to reduce levels of air pollution</b>		
<b>- S</b>	<p><b>Potential negative effects:</b> given this project's scale, there is significant potential for increased noise, dust and vibration nuisance during the project's construction phase. In addition, any temporary construction phase traffic management measures on Saltmarket and/ or adjacent streets may contribute to an increase in traffic with the associated risk of local albeit temporary air quality issues arising. Given the current traffic congestion issues in proximity to Saltmarket (e.g. Glasgow Cross and Bridgewater/ Saltmarket) and also current air quality issues (i.e. Saltmarket is on the border of the City Centre AQMA and Calton lies within the central part of the City recognised as being particularly vulnerable to NO<sub>2</sub> related air quality issues), any pressure from additional linear or area source air pollution is likely to be of major significance. Depending on timescales for project construction, this issue may be further compounded by City Plan 2 and the EELDS' growth strategies and also other pre-games development projects within the East cluster area (e.g. Gallowgate, London Road and Saltmarket railway bridges refurbishment). Both of these related pressures have potential to further increase traffic and traffic congestion with the associated risk of increased linear source air pollution. The issues described above are particularly important given that there are several categories of population orientated receptor that may be vulnerable to the effects of decreased air quality (see population and human health assessment above).</p>	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Ensure that contractors comply with relevant legislation and guidelines to minimise noise, dust and vibration nuisance e.g. conducting noisy operations at appropriate times of the day</li> <li>• Ensure that temporary traffic management measures are designed to minimise traffic congestion e.g. use side streets for materials/ vehicle storage, installation of temporary structures etc</li> <li>• Where possible, deploy any temporary traffic management measures during non-peak times across various timescales e.g. morning and evening rush hours within a 24 hour timeframe, summer break during a one year timeframe etc</li> </ul>

MP14 Saltmarket public realm enhancement project		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
<b>SEA Objective: to conserve and where appropriate enhance the historic environment and cultural heritage</b>		
<p><b>++/-</b> <b>M-L</b></p>	<p><b>Potential positive effects:</b> sensitive enhancement of public realm that takes a considered approach to design and use of materials has substantial potential to improve the site and setting of the various statutory and non-statutory historic environment features in and around Saltmarket. This in turn should support the overall protection and enhancement of the area's historic townscape. In addition, significant parts of the East cluster area have suffered loss of historic character through demolition and piecemeal development. Whilst not of direct relevance to Saltmarket itself, this is a key issue for peripheral streets such as London Road, Gallowgate and Moir Street. Synergies between proposed public realm enhancements in the Saltmarket area and recent enhancement projects elsewhere in the Merchant City (e.g. Ingram Street, City Halls etc), whilst constituting a substantial cumulative historic environment and townscape benefit in their own right, have substantial potential to raise the profile of the area, particularly to the east. This in turn may contribute to induced investment type effects with the associated potential for further enhancements to the public realm, historic environment and townscape (e.g. towards the eastern edge of the Merchant City at key locations such as those highlighted above). Given this potential for substantial medium-large scale cumulative and indirect benefit over the long term, any positive effects are likely to be of major significance.</p> <p><b>Potential negative effects:</b> the opposite side of the coin is that inappropriate use of design and/ or materials, for whatever reason (e.g. budgetary constraints), may contribute to the erosion/ worsening of the area's historic character. There are inherent tensions between delivering a solution that is both</p>	<p><b>Enhancement/ mitigation:</b></p> <ul style="list-style-type: none"> <li>• Liaise with relevant stakeholders (e.g. Historic Scotland, GCC DRS, relevant local interest groups etc) to identify key aspects of design and/ or materials considerations that should be incorporated with any public realm works at Saltmarket</li> <li>• Consider whether support from suitably qualified external professionals (e.g. heritage consultants, architects, design consultants etc) could be useful in the design and planning stage of public realm enhancements</li> <li>• Explore synergies with related past and reasonably foreseeable future public realm/ historic environment enhancement projects and initiatives (e.g. Ingram Street public realm enhancements, Merchant City Townscape Heritage Initiative, Gallowgate, London Road and Saltmarket railway bridges refurbishment etc) to ensure that the Saltmarket project design is complementary. This approach should be aimed at supporting cumulative and synergistic benefits that are realised outwith Saltmarket and its immediate vicinity e.g. the whole of the Merchant City area</li> <li>• Consider how potential synergies between public realm enhancement projects and Games related educational/ promotional initiatives can be used to raise awareness about the importance of Glasgow's historic environment (e.g. to the City's tourism offer) and therefore the importance of its protection also</li> </ul>

<b>MP14 Saltmarket public realm enhancement project</b>		
<b>Potential environmental effects summary score</b>	<b>Commentary on potential environmental effects</b>	<b>Mitigation and enhancement recommendations</b>
	practical and financially feasible and a design that uses appropriate materials and is keeping with the area's historic character.	

ENV2 Glasgow 2014 Clyde Walkway Pilot Project		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
<b>SEA Objective: to improve the health and well being of the population</b>		
<b>++</b> <b>M-L</b>	<p><b>Potential positive effects:</b> the CWPP represents a key opportunity to deliver a step change in approach to Clyde Walkway management in the East cluster area. In particular, there is substantial potential to improve access provision through: a) the rationalisation of management roles and responsibilities (which may in turn identify overlaps/ synergies and potential time and cost savings); and b) addressing key barriers to use (e.g. damaged running surfaces, poor signage, vandalism etc). This should help to increase the attractiveness of the walkway as a key active travel route and outdoor leisure and recreational resource in its own right. This in turn has significant potential to promote healthy living and lifestyles and improved public health (i.e. through increased uptake of appropriate levels of exercise). Potential positive effects are considered to be of major significance due to the breadth of issues addressed (i.e. the baseline) and also the multifaceted nature of the effects:</p> <ul style="list-style-type: none"> <li>• Firstly, the combined impact of non-Games related East cluster growth strategies (e.g. City Plan 2, EELDS etc) is likely to be a significant increase in housing and local population over the next decade. This may contribute to increased demand on existing outdoor leisure and recreational resources and increased need to travel to and from the area (with the associated risk of increased traffic/ congestion and air quality issues). A key example of this growth strategy in action is the New Neighbourhood Area at Oatlands which has capacity for 1,300 homes. Enhancing Clyde Walkway access in this context may encourage new residents to use active travel modes for key journeys (e.g. City centre commutes) thus promoting walking and cycling</li> <li>• Secondly, the Clyde Walkway is adjacent to two of Glasgow's most health deprived communities – Bridgeton and Dalmarnock. Given the scale of the health issues faced, any enhancements that can encourage Bridgeton/ Dalmarnock residents to take more health</li> </ul>	<p><b>Enhancement:</b></p> <ul style="list-style-type: none"> <li>• Ensure that any management synergies and/ or cost savings identified through the CWPP are channelled back into East cluster health improvement projects e.g. addressing key barriers to use along the Clyde Walkway in the East cluster area, on the ground delivery of green network enhancement projects identified through this SEA and/ or in related documents (e.g. the Clyde Gateway Green Network Strategy, EELDS) etc</li> <li>• Ensure that key developments coming forward under the various East cluster growth strategies (e.g. the housing development at Oatlands) recognise any Clyde Walkway access enhancements and the potential opportunities these may raise for active travel, outdoor leisure and recreation etc</li> <li>• Identify opportunities for 'joining-up gaps' in walking and cycling route provision between existing and planned East cluster community/ population centres and the Clyde Walkway</li> <li>• Consider the potential benefits of running an awareness-raising campaign in key target communities (e.g. Bridgeton and Dalmarnock), in tandem with the CWPP. This should outline the healthy living opportunities raised by appropriate levels of exercise including outdoor</li> </ul>

ENV2 Glasgow 2014 Clyde Walkway Pilot Project		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
	<p>improving exercise (e.g. outdoor leisure and recreation) may contribute to substantial benefits in terms of key health indicators (e.g. life expectancy, coronary heart and cerebrovascular deaths in under 75's etc)</p> <ul style="list-style-type: none"> <li>Finally, a key barrier to outdoor leisure and recreation amongst Dalmarnock residents is the relative shortage of parks and gardens (i.e. amenity greenspace) within the area. Clyde Walkway improvements should help to improve access between Dalmarnock and Glasgow Green in Bridgeton. This improved access may contribute to the increased use of Glasgow Green as a key outdoor leisure and recreational resource and/ or increased use of the Clyde Walkway as a key resource in its own right</li> </ul>	<p>leisure and recreation activities</p> <ul style="list-style-type: none"> <li>Consider opportunities for broadening the scope of the health walks initiative to integrate way-marked trails in Glasgow Green with new way-marked trails in and around key target communities. Consider potential links with the Saltmarket 'heritage/ health' trail proposed above</li> <li>Ensure that any additional signage in and around Dalmarnock highlights access, distance and journey times between Dalmarnock and Glasgow Green, City centre etc</li> </ul>
SEA Objective: to protect and enhance biodiversity, flora and fauna		
<p><b>++</b> <b>M-L</b></p>	<p><b>Potential positive effects:</b> as per the conclusions drawn under the health assessment above, the CWPP represents a key opportunity to deliver a step change in approach to Clyde Walkway management in the East cluster area. It should be noted however that the emphasis here is on improving management approach through a rationalisation and prioritisation of existing management regimes. The potential environmental benefits of these improvements 'on the ground' are likely to be dependent on the implementation of new/ prioritised management actions and the securing of funding to deliver any proposed enhancement projects etc. Despite this, potential positive effects are considered to be of major significance due to the breadth of issues addressed and the truly multifaceted nature of the effects:</p> <ul style="list-style-type: none"> <li>The CWPP may contribute to improved management and rehabilitation of River Clyde riparian habitat (e.g. improved control of invasive non-native species). This in turn may help to restore and enhance this key component of East cluster green network contributing to improved habitat network functionality and resilience to</li> </ul>	<p><b>Enhancement:</b></p> <ul style="list-style-type: none"> <li>Ensure that the CWPP considers green network enhancement that looks beyond the area immediately adjacent to the Clyde Walkway</li> <li>Where relevant, identify potential green link enhancements that would help to integrate the River Clyde green network resource with the wider East cluster and, ultimately, the GCV wide green network. Potential green links identified in the EELDS may be a useful starting point and would help to ensure that any such enhancements recommended or delivered through the CWPP would work towards a range of objectives over and above biodiversity protection and enhancement e.g. access, outdoor leisure and recreation, SuDS provision etc</li> </ul>

ENV2 Glasgow 2014 Clyde Walkway Pilot Project		
Potential environmental effects summary score	Commentary on potential environmental effects	Mitigation and enhancement recommendations
	<p>external pressures. In addition, prioritised management actions combined with appropriate funding streams may create opportunities for habitat creation along/ adjacent to the Clyde Walkway. This is particularly important given the current baseline context i.e. whilst the prevalence of vacant and derelict sites adjacent to the Clyde in the East cluster area present a key opportunity for green network enhancements, they are also a key barrier to functionality of the current green network resource (this includes habitat network functionality e.g. vacant and derelict sites can contribute to increased habitat fragmentation and severance issues)</p> <ul style="list-style-type: none"> <li>• Invasive non-native plant species (e.g. Giant Hogweed and Japanese Knotweed) are a key issue along the banks of the Clyde in the East cluster area and are recognised as a key threat to river and stream habitats in Glasgow's LBAP. Management regime improvements delivered as a result of the CWPP have substantial potential to improve the current situation by supporting relevant actions from the Rivers and Streams HAP e.g. developing a cohesive strategy for the management of riverbank vegetation to enhance biodiversity and promote indigenous habitats and species</li> <li>• In conjunction with the potential beneficial effects identified under the health assessment outlined above, the CWPP has substantial potential to support increased public understanding of ecosystem services and their role in our every day lives. In particular, appropriate use of awareness raising activities (see above) may contribute to increased use of the Clyde Walkway for outdoor leisure and recreation and key active travel journeys</li> </ul>	<ul style="list-style-type: none"> <li>• Consider the potential role of community allotment projects in enhancing green links between the Clyde Walkway and adjacent areas/ nearby communities. Consider opportunities raised by sites which are currently vacant e.g. using the SAGE model</li> <li>• Consider opportunities for rolling out relevant CWPP biodiversity and green network management recommendations throughout the East cluster. This may support a more integrated/ strategic approach to east cluster green network enhancements as delivered through pre-games development activity and relevant legacy actions</li> <li>• Ensure that any habitat creation projects are aligned to the GCV Green Network's Integrated Habitat Network (IHN) model i.e. in relation to location, size and composition of any newly created habitat. Habitat creation projects would support actions from the Rivers/ Streams HAP</li> <li>• Liaise with GCC LES and DRS, SNH, GCV Green Network Partnership and other relevant stakeholders to identify best-practice in riparian habitat and invasive non-native species management</li> <li>• Consider synergies between biodiversity orientated CWPP enhancements and those related to population and human health as per the above e.g. identify opportunities for community and/ or school involvement in habitat management activities</li> </ul>





**Appendix V:  
West cluster pre-games  
development programme detailed  
assessment summary**

++	Major positive
+	Minor positive
0	Neutral
-	Minor negative
--	Major negative
+/-, +/- etc.	Mixed
?	Uncertain
S	Short term effects
M	Medium term effects
L	Long term effects

SEA Objectives	West Cluster pre-games development programme	Commentary and summary of potential environmental effects (including potential cumulative, secondary, synergistic, temporal, permanent or temporary, reversible or irreversible effects)	Notes on potential mitigation and enhancement
To improve the health and well being of the population	++/- S-M-L	<b>Potential positive effects:</b> substantial potential to support improved access (walking/ cycling and public transport) with associated benefits for healthy living. Many west cluster projects will support enhancement of existing walking/ cycling routes, particularly the Clyde and Kelvin walkways. This may have two key benefits: 1) improved function of the network (i.e. better running surfaces/ connectivity (e.g. MP1 and MP4); and 2) enhanced attractiveness of the network may incentivise its use for journeys (e.g. commutes) and as a leisure/ recreation resource in its own right (e.g. MP1 and MP2). Projects may also contribute to cumulative Clyde corridor access improvements in conjunction with related projects e.g. Broomielaw public realm works. <b>Potential negative effects:</b> there is a risk of significant, albeit temporary, air quality and noise issues arising during construction. This may affect public health and reduce amenity. May be particularly acute in areas with existing air quality/ traffic congestion issues e.g. MP1 at Finnieston Street. Minor issues may arise during operation i.e. caused by an increased need to travel.	<b>Enhancement:</b> consider the network wide implications of west cluster access improvements ensuring that improvements contribute to better access between different parts of the City. Identify key opportunities for 'joining up' gaps in west cluster active travel route provision, particularly between population centres and key linear routes such as the Clyde and Kelvin Walkways. Consider how west cluster projects may be used to increase the attractiveness of the Clyde walkway as an outdoor leisure and recreation resource in its own right. One approach may be to improve integration between the walkway and adjacent communities e.g. better signage, increased provision of public spaces. <b>Mitigation:</b> Ensure that contractors comply with relevant legislation and guidelines to minimise noise, dust and vibration nuisance. Ensure that temporary traffic management measures are designed to minimise traffic congestion. Where possible, deploy temporary traffic management measures during non-peak times. Ensure that the upgraded facilities have adequate provision for securing bikes to promote active travel.
To protect and enhance biodiversity, flora and fauna	?/- S-M-L	<b>Potential positive effects:</b> potential green network enhancements may also support habitat network enhancements. Development of new paths and soft landscaping features as part of transport infrastructure projects (e.g. VAR 1, 2 and 3 and MP8) may improve green network. Also, planning or adjacent City Plan 2 green network sites will trigger consideration of green network integrity through requirements. Present however, potential biodiversity benefits of West cluster green network enhancements are uncertain. <b>Potential negative effects:</b> potential for habitat severance as a result of increased pressure on aquatic ecosystems. Venue development in the Kelvingrove Park area may contribute to increased diffuse source water pollution during construction/ operation (see West cluster projects assessment for more detail). Transport infrastructure projects may require land take for the development of new walking/ cycling paths. There is a risk that this may contribute to habitat severance/ fragmentation issues given the proposed locations of adjacent to green network sites (e.g. VAR1, 2 and 3 and MP8).	<b>Enhancement:</b> identify opportunities whereby West cluster green network enhancements can contribute to habitat network enhancements (e.g. ensure that development of new walking/ cycling routes consider biodiversity as well as access). In line with planning policy, consider opportunities for enhancing the biodiversity interest of the green network site immediately east of Scotstoun Leisure Centre (disused railway line of relevance to VAR1 and the Scotstoun Squash Centre project). Where West cluster projects are on/ adjacent to existing green network sites, consider how project SuDS design may support the enhancement of the biodiversity interest. <b>Mitigation:</b> see recommendations under the West cluster projects assessment. Where habitat severance issues are likely, ensure that project design incorporates appropriate mitigation measures e.g. access tunnels for affected species. Where severance issues are such that habitat connectivity cannot be maintained, consider the use of appropriate habitat compensation as guided by the IFR model and advice from key stakeholders.
To improve water quality	- S-M-L	<b>Potential negative effects:</b> substantial potential for decreased water quality during both construction and operation of key west cluster projects. Increased water pollution (see water pollution assessment below) negatively affect the River Kelvin's water quality status in particular. This is key given that the main pressures facing the Kelvin are sewerage and pollution from diffuse sources such as hard standings and roads. Key projects include venue developments in the Kelvingrove Park area, MP1, MP4 and VAR2. Any operational effects are more likely to arise as a result of increased pressure on aquatic ecosystems. Venue management, delivered as part of the Kelvingrove Bowling Greens replacement project, may affect the Kelvin's ecological status (e.g. as a result of changes to chemical treatments including fertilisers).	<b>Mitigation:</b> see recommendations under the water pollution and flood risk assessments below and also the west cluster individual projects assessment.
To reduce levels of water pollution	- S-M-L	<b>Potential negative effects:</b> substantial potential for increased water pollution during both construction and operation of key west cluster projects. In particular, venue developments in the Kelvingrove Park area may contribute to increased diffuse source water pollution during both construction (e.g. accidental liberation of contaminants during SI and remediation works and/ or hydrocarbon contaminated run-off from heavy plant and operation (e.g. as a result of changes to chemical treatments). There is a concern that other West cluster projects may also increase water pollution through this risk likely to be limited to the construction phase (i.e. increased hydrocarbon contaminated run-off from heavy plant and operation (e.g. as a result of changes to chemical treatments). Key projects in this regard are MP1 (posing a potential threat to the Clyde) and MP4 and VAR2 (posing potential threats to the Kelvin).	<b>Mitigation:</b> see recommendations under the flood risk assessment and west cluster individual projects assessment. Consider how incorporation of SuDS schemes with design of key projects can help to reduce the impact of diffuse source water pollution by dealing with potentially contaminated run-off close to source. Consider how delivery of any SuDS schemes can benefit biodiversity and/ or how existing habitat and landscape features may be integrated with SuDS design (noting that MP4 and VAR2 may raise key opportunities for SuDS provision given their proximity to green network sites and the River Kelvin).
To reduce the risk of flooding	+/? M-L	<b>Potential positive effects:</b> substantial potential to reduce flood risk, primarily from fluvial sources and mainly as a result of the proposed MP1 flood defence works. This is particularly important given that fluvial flood risk issues in the West cluster area are focused predominantly on the Clyde. Further information on approach to other West cluster projects may highlight additional benefits in terms of reduced pluvial and drainage flood risk e.g. through drainage enhancements on site. VAR2 includes scope for the reconstruction of drainage ditches in Kelvingrove Park. <b>Potential negative effects:</b> there is a concern that some West cluster projects may increase impermeable ground cover. This in turn may contribute to increased pluvial flood risk. Effects are currently uncertain and further information on the scope and design of key projects may help to identify whether or not the issue is significant. This type of effect is more likely to arise where substantial areas of additional hard standing are created (e.g. for new car parking provision). See soil sealing assessment for further information.	<b>Mitigation and enhancement:</b> see recommendations under the West cluster individual projects assessment. Consider opportunities for integrating West cluster project SuDS scheme development with green network sites. Given the proximity of existing green network sites, key projects where this may be an option include the Kelvingrove Bowling Greens replacement, VAR1, 2 and 3 and MP4. Ensure that SuDS scheme development supports multiple objectives where relevant including biodiversity and access/ leisure and recreation. Consider opportunities for rolling out a programme of well planned soft landscaping enhancements of significant scale as part of all West cluster projects. This type of approach may help balance out any increase in impermeable ground cover (and associated flood risks). These should be developed in line with good practice, be fully integrated with local/ regional SuDS schemes, use appropriate plant species and habitat types to contribute towards biodiversity objectives and be integrated with existing habitats on site.
To improve air quality	?/- S-M-L	<b>Potential positive effects:</b> during operation, increased access facilitated by several key West cluster projects may help to improve air quality by reducing reliance on private car use (and therefore emissions of key air pollutants). Effects are broadly uncertain given that any air quality improvements would require a substantial reduction in private car journeys. Also, significance of effects is likely to be influenced by issues at the wider roads network level (i.e. the modal shift will depend on the point of origin for existing car journeys that use key West cluster routes (e.g. West cluster access enhancements may be of limited benefit to a journey originating in south west Glasgow that passes through Finnieston). <b>Potential negative effects:</b> substantial potential for short term reductions in air quality at key locations. Potential construction phase traffic management measures for several key West cluster projects may contribute to increased traffic congestion and decreased air quality in the short term. Issues likely to be particularly acute in areas with existing/ emerging air quality problems e.g. MP1.	<b>Enhancement:</b> ensure that, where possible, walking/ cycling route access enhancements avoid areas of existing poor air quality (to avoid unnecessary human exposure to key air pollutants). Consider West cluster access improvements to the context of the wider roads and walking/ cycling route networks. Ensure that improvements contribute to better access between different parts of the City as well as within the West cluster area. Raise awareness of access enhancements and other measures in the West cluster area and consider how complementary measures may further promote modal shift and air quality benefits (e.g. development of strategically located park and ride/ walk/ cycle facilities). <b>Mitigation:</b> see recommendations under the population and human health assessment.
To reduce levels of air pollution	+/- S-M-L	<b>Potential positive effects:</b> substantial potential for decreased linear source air pollution during operation. Increased access facilitated by several key West cluster projects (MP1, 2, 3, 4 and 6 in particular) has significant potential to promote more sustainable modes such as walking and cycling for certain journeys. This is particularly true for journeys between the West cluster and the City centre along the Clyde Walkway. <b>Potential negative effects:</b> there are two potentially negative air pollution issues associated with West cluster activity. Firstly, the development of additional facilities is likely to increase the need to travel to the West cluster area. Depending on the mode used, this may contribute to an increase in linear source air pollution and/ or traffic congestion in key areas. Secondly, transport infrastructure and other access enhancements such as additional bus stops, pedestrian crossings etc may contribute to an increased standing traffic at key locations and/ or at certain times of the day.	<b>Enhancement:</b> consider targeted awareness raising activity amongst key West cluster communities to promote the use of Games related walking/ cycling route enhancements. Efforts may be focused on communities in proximity to areas that currently experience linear source air pollution problems (e.g. Hibernia/ Woodlands and Hyndland/ Dowan/ Partick East which are in proximity to the Byers Road and Dumbarton Road AQMA). <b>Mitigation:</b> see recommendations under the West cluster individual projects assessment.
To reduce noise levels from all sources	- S	<b>Potential negative effects:</b> key West cluster development activity has substantial potential to cause significant, albeit temporary, noise nuisance effects during construction. MP5 (Crow Road railway bridge refurbishment) and MP8 (Clyde Tunnel approaches refurbishment) are both sited in close proximity to Candidate Noise Management Areas (CNMA) designated for road traffic related noise (Crow Road/ Southside Drive and Dumbarton Crescent). The cumulative effect of any construction projects and noise in combination with background traffic noise problems may create a substantial worsening of the existing situation during construction.	<b>Mitigation:</b> ensure that contractors comply with relevant legislation and guidelines to minimise noise, dust and vibration nuisance e.g. conducting noisy operations at appropriate times of the day and using best practicable means for reducing emissions. During project design and construction strategy development, ensure that relevant stakeholders (GCC Public Health Unit) are engaged to advise on best practicable approach to noise mitigation strategy. This is particularly important with regard to addressing 'highly sensitive' construction related cumulative effects issues that may arise due to the combined impact of several projects.
To reduce levels of soil contamination	?	<b>Potential positive effects:</b> the West cluster area contains several potentially contaminated sites. This is a particular concern at the SECC and Scotstoun Leisure Centre complexes. At Scotstoun, there is an area of potentially contaminated land towards the east of the site associated with the former military firing range. This may be a key issue given the proposed development (Scotstoun Square Centre and VAR1) and potential SuDS opportunity raised by the green network site adjacent to Scotstoun to the east (see biodiversity and flood risk assessments for further information). Whilst there is significant potential for positive effects (given that planning conditions may require several West cluster projects to remediate contaminated soils), effects are currently uncertain. Further details re the scope and design of projects and also information on actual contamination issues following site investigations may help to identify positive effects in the context of the significance criteria used.	<b>Enhancement:</b> where significant land contamination issues are identified through site investigation works, ensure that the remediation strategy developed and adopted is the most sustainable option given constraints (e.g. cost). Where possible, use on-site remediation techniques to minimise waste and/ or carbon impact associated with soil excavation, transportation and disposal.
To reduce soil sealing and soil loss	0	<b>Broadly neutral effects:</b> although there is some scope for potential negative (e.g. minor increases in soil sealing as a result of walking/ cycling routes) and positive (e.g. improved drainage capacity and reduced rain water driven soil erosion at some sites) effects, given the scale of West cluster pre-games development activity, any effects are likely to be insignificant in the context of the significance criteria used. Despite this, enhancement recommendations have been suggested with a view to maximising any positive effects.	<b>Enhancement:</b> consider the appropriate and well designed use (i.e. that accounts for site topography and hydrology) soft landscaping and/ or habitat creation on key sites to minimise overland flow of water and help protect against soil erosion issues. This type of action would also help to reduce pluvial flood risk, reduce diffuse source water pollution by filtering particulate matter and enhance habitat networks supporting biodiversity objectives.
To reduce greenhouse gas emissions	+/- S-M-L	<b>Potential positive effects:</b> west cluster access improvements may help to reduce transport related GHG emissions by facilitating a modal shift from private car use to sustainable modes for key journeys (e.g. commutes). This is crucial as the West cluster area produces a substantial % of Glasgow's cumulative GHG emissions. In addition, any soft landscaping/ habitat creation delivered through West cluster projects has some limited GHG mitigation potential through the provision of additional carbon sinks. However, given the likely scope of this type of enhancement, GHG mitigation effects are likely to be insignificant in the context of the significance criteria used. <b>Potential negative effects:</b> given its scale, West cluster construction activity has substantial potential to contribute to a significant, albeit 'one-off' increase in GHG emissions. Whilst the project impacts are likely to result in some transport related effects (e.g. through delivery journeys etc), aggregate intensive transport infrastructure projects such as MP7 and MP8 are likely to have the largest effect given the potential volume of aggregate involved in construction.	<b>Enhancement:</b> see recommendations under the health, air pollution and air quality assessments. Consider how the West cluster's potential negative effects on climate change mitigation can be used as a lever to promote more sustainable Games related green network development including woodland and other habitat creation projects where appropriate. <b>Mitigation:</b> consider use of a project-wide aggregate contract for the West cluster area. This may facilitate a strategic approach to delivery journeys ensuring that related emissions are minimised. Consider phasing of West cluster project to ensure that synergies and efficiency gains in delivery journeys etc can be maximised. Where possible, ensure that recycled and secondary aggregates (RSA) are used in construction projects. Use Aggregat's CO2 emissions estimator tool to approximate emissions savings in different construction techniques and/ or supply chain alternatives including the use of primary aggregates vs. RSA. Consider setting an appropriate benchmark to establish an ambitious minimum standard for RSA use in construction projects. Roll this benchmark out across all Games related construction projects.
To reduce vulnerability to the effects of climate change	+ M-L	<b>Potential positive effects:</b> substantial potential to reduce vulnerability to local climate change impacts in the West cluster area by contributing to a reduction in flood risk. This is mainly in relation to fluvial source flooding and mainly as a result of the proposed flood defence scheme as part of MP1. There are a broad range of additional climate change adaptation opportunities that West cluster pre-games development activity should aim to capitalise on. These are primarily related to pluvial source flood risk adaptation and green network development. See biodiversity, water quality, flood risk and soil sealing/ loss assessments for further information.	<b>Enhancement:</b> see recommendations under the biodiversity, water quality, flood risk and soil sealing/ loss assessments.
To conserve and, where appropriate, enhance the historic environment and cultural heritage	+/- M-L	<b>Potential positive effects:</b> given the scale of public realm/ transport enhancements (e.g. MP1, 4 and 5 and VAR1, 2 and 3), there is substantial potential for West cluster activity to protect and enhance the site and setting of key historic environment features. However, inherent tensions exist between delivery of practical solutions and historic environment protection. Positive effects may be particularly significant in areas where the historic environment is currently quite fragmented (e.g. SECC complex). Also, further information on project design may identify stronger effects e.g. where design takes an appropriate approach to consideration of local historic environment features. <b>Potential negative effects:</b> new signage and street furniture (e.g. bus stops) and/ or the use of inappropriate design poses a significant threat to the West cluster's historic environment. In particular, the small/ localised effect of additional signage etc may be insignificant in isolation but pose a real threat in cumulative terms. This may be particularly key in areas of high historic environment value such as Kelvingrove.	<b>Enhancement:</b> see recommendations under the West cluster individual projects assessment. Consider how an area's key statutory and non-statutory historic environment features can inform and improve project design. This may be of particular relevance to public realm and transport infrastructure enhancements in the Scotstoun and Kelvingrove areas. Consider how public realm works in the SECC complex area (e.g. MP1 and VAR3) can help to 'join-up' fragmented historic environment features. This may include additional interpretational material which in turn could be linked to access improvements (e.g. integrate way-marked 'health walks' with way-marked 'heritage walks'). <b>Mitigation:</b> see recommendations under the West cluster individual projects assessment. Undertake additional assessment of signage/ street furniture development in key areas of historic interest e.g. Kelvingrove and Scotstoun. Assess potential impacts against Conservation Area objectives and ensure that cumulative effects are adequately considered.
To maintain and enhance the quality of landscapes and townscapes	+/- M-L	<b>Potential positive effects:</b> substantial potential to improve landscape and townscape character (particularly along the Clyde corridor). In particular, SECC related public realm works (MP1, MP3 and VAR3) may help to improve Clyde corridor landscape character by helping to 'join-up' fragmented features of the area's historic environment whilst reflecting the area's overall context of modernity. Further information on project approach and design may identify stronger effects, particularly with respect to the potential cumulative benefit of several projects working together. <b>Potential negative effects:</b> similarly to the historic environment and cultural heritage assessment above, additional signage and street furniture deployed as part of West cluster venue, public realm and transport infrastructure enhancements has substantial potential to erode the character of local townscapes and landscapes. This may be a particular issue in the context of landscape and townscape given the importance of conserving local distinctiveness and sense of place which may be eroded through the use of generic sign and street furniture.	<b>Enhancement/ mitigation:</b> see recommendations under the West cluster individual projects and historic environment and cultural heritage assessment. Consider how appropriate community consultation and engagement activity may be used to help build in local distinctiveness and 'sense of place' to project design; 1) venue projects - this approach may tangibly inform project design; and 2) smaller scale/ 'lower impact' projects (e.g. public realm) - this approach may help inform the development of generic design guidelines that could be rolled out across all projects (and deliver a strong cumulative benefit). Ensure that project delivery and design within each of the West cluster's 'complex' areas (e.g. SECC) take a strategic/ masterplanned approach, ensuring that synergies are developed to help realise the strongest cumulative benefit possible. Where relevant, consideration should be given to additional 'sub-projects' that may help to further enhance/ 'join-up' distinct features of landscape character (e.g. appropriate use of additional soft landscaping, complex-wide refurbishment of railings/ street furniture etc). This may be particularly key along the Clyde corridor.
Summary		Overall, West cluster development activity is likely to cause a mixed effect on the environment with potential for a range of both positive and negative effects. The scale of proposed enhancements to the area's cycling and walking network, in conjunction with related projects such as the recently completed Broomielaw Public Realm works, are likely to contribute to substantial walking and cycling access improvements. This should increase the attractiveness of active and sustainable travel contributing to a range of benefits including health improvements and reductions in traffic related air pollution and GHG emissions. Continued investment in access improvements will also contribute to a significant 'one off' increase in GHG emissions associated with construction (e.g. aggregates, delivery miles etc).	<b>Summary enhancement measures:</b> identify opportunities for joining up gaps in West cluster active travel provision, particularly those between population and community centres and key linear routes such as the Clyde and Kelvin walkways. Consider opportunities for increasing the attractiveness of the Clyde Walkway as a leisure and recreational resource in its own right. Where possible, ensure that walking/ cycling route access enhancements avoid areas of existing poor air quality.
Summary of potential positive environmental effects and enhancement recommendations		<b>Health:</b> West cluster development will contribute to the enhancement of walking and cycling routes in the area, particularly the Clyde and Kelvin Walkways. These type of access improvements may help incentivise the use of active travel and increase the uptake of outdoor leisure and recreation contributing to health benefits. <b>Flood risk:</b> proposed MP1 flood defence works will help to reduce Clyde related fluvial source flood risk in the West cluster area. The detailed assessment summary outlines the scope for additional benefits in terms of pluvial source flood risk mitigation. <b>Air pollution and climate change mitigation:</b> West cluster access improvements (see health assessment) may contribute to a reduction in linear source air pollution and transport related GHG emissions by incentivising a modal shift from private car use to more sustainable modes for certain journeys (e.g. West cluster to City centre commutes). <b>Climate change adaptation:</b> proposed flood defence works will help to reduce West cluster area vulnerability to local climate change impacts. Historic environment and cultural heritage: sensitive public realm enhancements have substantial potential to enhance the site and setting of many of the West cluster's historic environment features. Benefits may be particularly noticeable in areas where the historic environment is fragmented such as the SECC complex. Landscape and townscape: West cluster development has substantial potential to improve the area's landscape and townscape, particularly along the Clyde corridor. In particular, proposed public realm works in the SECC complex area may help to improve landscape character at this iconic section of the Clyde corridor by helping to 'join-up' the area's fragmented historic environment features within an overall context of modernity.	<b>Summary mitigation measures:</b> Ensure that contractors comply with relevant legislation/ guidelines to minimise noise, dust and vibration nuisance. Ensure that temporary traffic management measures are designed to minimise traffic congestion. Ensure that the upgraded facilities have adequate provision for securing bikes to promote active travel. Where habitat connectivity cannot be maintained, consider the use of appropriate habitat compensation. Reduce the impact of diffuse source water pollution by dealing with potentially contaminated run-off close to source using appropriately designed regional and local level SuDS schemes. <b>Enhancement:</b> Where relevant, integrate biodiversity interests and existing habitat and landscape features with SuDS design. Consider the appropriate phasing of West cluster projects to ensure that synergies and efficiency gains in delivery journeys etc can be maximised. Where possible, ensure that recycled and secondary aggregates (RSA) are used in construction projects. Use Aggregat's CO2 emissions estimator tool to approximate emissions savings in different construction techniques and/ or supply chain alternatives. Consider the need to undertake additional assessments of signage/ street furniture development in key areas of historic interest such as Scotstoun and Kelvingrove.
Summary of potential negative environmental effects and mitigation recommendations		<b>Health:</b> construction activities may contribute to significant albeit temporary air pollution and noise issues, affecting public health and amenity. May be particularly acute at locations with existing traffic congestion and air quality issues e.g. MP1 related development at Finnieston Street. <b>Biodiversity:</b> venue developments in the Kelvingrove Park area may contribute to increased diffuse source water pollution, increasing pressure on aquatic ecosystems. Development of new walking/ cycling paths may contribute to habitat fragmentation and severance. <b>Water quality and pollution:</b> potential increases in diffuse source water pollution, particularly in the Kelvingrove Park area, may adversely affect the River Kelvin's water quality status. Water pollution effects may arise during construction (e.g. hydrocarbon contaminated run-off from heavy plant operation) and operation (e.g. changes to chemical treatments at the bowls site). <b>Air quality and pollution:</b> short term reductions in air quality may arise during the construction phase due to deployment of traffic management measures/ increased risk of traffic congestion. During operation, linear source air pollution may increase as new facilities increase the need to travel additional transport access infrastructure measures (e.g. pedestrian crossings) can contribute to increased standing traffic. <b>Climate change mitigation:</b> West cluster development activity will contribute to a significant albeit mostly temporary increase in GHG emissions. <b>Historic environment and cultural heritage:</b> new signage and other street furniture combined with potentially inappropriate design can pose a significant threat to West cluster historic environment, particularly around Kelvingrove Park and Scotstoun. This is an important issue as the individual impact of new signs, benches, pedestrian crossings etc may be insignificant yet highly significant when considered cumulatively.	<b>Summary mitigation measures:</b> Ensure that contractors comply with relevant legislation/ guidelines to minimise noise, dust and vibration nuisance. Ensure that temporary traffic management measures are designed to minimise traffic congestion. Ensure that the upgraded facilities have adequate provision for securing bikes to promote active travel. Where habitat connectivity cannot be maintained, consider the use of appropriate habitat compensation. <b>Enhancement:</b> Where relevant, integrate biodiversity interests and existing habitat and landscape features with SuDS design. Consider the appropriate phasing of West cluster projects to ensure that synergies and efficiency gains in delivery journeys etc can be maximised. Where possible, ensure that recycled and secondary aggregates (RSA) are used in construction projects. Use Aggregat's CO2 emissions estimator tool to approximate emissions savings in different construction techniques and/ or supply chain alternatives. Consider the need to undertake additional assessments of signage/ street furniture development in key areas of historic interest such as Scotstoun and Kelvingrove.

**Appendix W:  
South cluster pre-games  
development programme detailed  
assessment summary**

Key to scoring	Major positive Minor positive Neutral Major negative Minor negative Mixed Uncertain Short term effects Medium term effects Long term effects	South Cluster pre-games development programme	Commentary and summary of potential environmental effects (including potential cumulative, secondary, synergistic, temporal, permanent or temporary, reversible or irreversible effects)	Notes on potential mitigation and enhancement
<b>SEA Objectives</b>				
To improve the health and well being of the population				
		+ M-L	<b>Potential positive effects:</b> see South cluster individual projects assessment for more detailed information. Substantial potential to support improved access (walking/cycling) and uptake of outdoor leisure and recreation with associated benefits for healthy living. However, improvements in the regard are focused on the Cathkin Braes site to the south of the cluster area. Potential benefits to residents of local neighbourhoods (Castlemilk in particular) are likely to be majority significant though potential benefits to other South cluster communities are likely to be less so given the distance involved and lack of easy access to walking and cycling. <b>Potential negative effects:</b> there is a minor risk of construction related air quality and noise issues as outlined below. However, any effects are likely to be insignificant in a human health context given the likely short duration of effects and the significance criteria framework used.	<b>Enhancement:</b> see South cluster individual projects assessment. Consider opportunities for enhancing access provision outwith the Cathkin Braes project area. In particular, consider how proposed core paths between Mount Florida, King's Park, Croftfoot and Castlemilk (e.g. proposed core paths C11A, C11B, C11C, C11D, C11E, C11F and C12) can be developed to enhance access to key greenspace resources including King's Park and Cathkin Braes. Development may range from additional signage and better lighting/ surfaces etc to simple awareness-raising activities promoting the health benefits of outdoor leisure and recreation and the facilities available locally. <b>Mitigation:</b> ensure that contractors comply with relevant legislation and guidelines to minimise noise, dust and vibration nuisance. Ensure that temporary traffic management measures are designed to minimise traffic congestion. Where possible, deploy temporary traffic management measures during non-peak times. Ensure that the upgraded facilities have adequate provision for securing bikes to promote active travel.
To protect and enhance biodiversity, flora and fauna				
		+/- S-M-L	<b>Potential positive effects:</b> substantial potential for green network enhancements and long term habitat conservation and restoration. Potential effects of the Cathkin Braes project may be particularly significant given proposals for habitat creation, supporting enhancements to overall connectivity of habitat networks in the area. Also, improvements to site management regime may help to conserve and enhance key habitats which is crucial given that poor management is cited as a key threat to several LBPAP habitats. Whilst ENVI focuses on the health/ access side of green network enhancement, greater community ownership of Cathkin Braes/ Castlemilk woods may lead to volunteer woodland management programmes further down the line, supporting biodiversity objectives. Depending on approach, ENVI's proposed soft landscaping works may support enhanced habitat network connectivity. <b>Potential negative effects:</b> the mountain bike project and ENVI are likely to improve access to increase interest in Cathkin Braes. There are inherent tensions with biodiversity objectives given the potential for increased 'people pressure'.	<b>Enhancement and mitigation:</b> see South cluster individual projects assessment. Ensure that community programmes delivered through ENVI incorporate consideration of habitat network related green network issues to promote greater understanding of nature conservation and enhancement objectives. Consider opportunities for broadening the scope of ENVI activities to include volunteer habitat management programmes in addition to the more socially orientated programmes. Consider how this type of approach could improve the management of other key habitats (i.e. over and above woodland) found at the Cathkin Braes site such as neutral/ acid grassland. Consider synergies between this type of approach and the 'Forest schools' and 'Woodland work-out' elements of ENVI. Identify opportunities whereby South cluster green network enhancements (e.g. ENVI's proposed soft landscaping works) can contribute to habitat network enhancements (e.g. ensure that access/ recreation focused landscape enhancements consider biodiversity issues also).
To improve water quality				
		0	<b>Broadly neutral effects:</b> whilst key South cluster projects do have potential to contribute to an increase in diffuse source water pollution during both construction and operation (e.g. hydrocarbon contamination from heavy plant operation and similar issues as a result of proposed MP9 Hangingshaw Place transport hub operation), there do not appear to be any significant pathways between pollution source and waterbody receptors. Current drainage improvements in the area combined with improvements as part of the Metropolitan Glasgow Strategic Drainage Plan and enhanced drainage provision delivered as part of the projects themselves should ensure that any South cluster pre-games development programme water quality risks are minimal. As such, potential water quality pollution effects are considered to be broadly neutral in the context of the significance criteria used.	<b>Enhancement and mitigation:</b> ensure that contractors comply with relevant legislation and guidelines to minimise any water pollution risks. Examples of good-practice include restricting storage of oils and fuels on site to the minimum quantity required and one location and compliance with appropriate licence and maintenance programme for vehicles and machinery to minimise leaks and spills of oil/ fuel. Consider how incorporation of SuDS schemes with design of key projects can help to reduce diffuse source water pollution risks by dealing with increases in pluvial source flood risk. At the Cathkin Braes site, use appropriate design (including approach to biodiversity and/ or how existing habitat and landscape features may be integrated with SuDS design). This may be particularly key at the Cathkin Braes mountain bike course site given the potential drainage requirements of any new paths, access tracks and other areas of hard standing.
To reduce levels of water pollution				
		0	See water quality assessment.	<b>Enhancement and mitigation:</b> see recommendations under water quality assessment.
To reduce the risk of flooding				
		0	<b>Broadly neutral effects:</b> all South cluster development activity lies outwith the 1 in 200 year flood extent of the White Cart and has limited potential to contribute to any improvement or worsening of flood risk in this regard (fluvial source). Despite this, South cluster development activity has some potential to contribute to either an increase in hard standing (e.g. proposed MP9 transport hub at Hangingshaw Place and any additional paths, tracks and car parking facility required at the Cathkin Braes mountain bike course) or habitat creation/ increased areas of soft landscaping/ vegetation that can help slow and disperse overland flow of water (e.g. ENVI's proposed soft landscaping works). However, given the small scale nature of proposals for this type of activity and the limited flood risk in the South cluster area, effects are considered to be broadly neutral in the context of the significance criteria used.	<b>Enhancement and mitigation:</b> see recommendations under water quality assessment. Where significant areas of new hard standing are proposed, consider how the well designed (i.e. that takes account of site topography and hydrology) use of soft landscaping and/ or small scale habitat creation projects can be used to mitigate any increases in pluvial source flood risk. At the Cathkin Braes site, use appropriate design (including approach to drainage issues) and materials (e.g. porous surface and substrate material) in the development of any additional paths and tracks that may be required.
To improve air quality				
		0	<b>Broadly neutral effects:</b> unlike the other cluster areas considered in the pre-games assessment, the South cluster does not contain a designated AQMA. However, the South cluster does contain a potential air quality vulnerable location at Paisley Road West where monitoring data has reported a steady increase in NO2 levels in recent years. There is a small risk that any temporary traffic management measures deployed during proposed VARS streetscape works at this location may contribute to a temporary increase in emissions/ worsening of air quality. Once the streetscape enhancements are completed, there is a risk that any increased walking/ cycling use of the area may increase exposure to poor air quality (bearing in mind that the site does not currently breach air quality objectives). However, given that potential risks are minimal and largely restricted to a single site, effects are considered to be broadly neutral in the context of the significance criteria used.	<b>Mitigation:</b> liaise with GCC Public Health Group to monitor air quality issues at the Paisley Road West site. Identify remedial actions should air quality at the site breach air quality objectives.
To reduce levels of air pollution				
		- S	<b>Potential negative effects:</b> substantial potential for increased traffic congestion and associated linear source air pollution. Effects may arise given the likely need to deploy temporary traffic management measures at the sites of key projects (MP10, VAR4 and VARS). Issues are important given the busy nature of the roads affected. Despite these potential effects, the absence of quality problems in the South cluster area means that the air quality effects of increased air pollution are likely to be broadly neutral (see above). Potential issues are likely to be focused around the Hampden (e.g. MP9's proposed loopback widening) and Brox (e.g. VARS's carriageway resurfacing proposals at Paisley Road West/ Edmonstone Drive) areas. Although short term, effects may be particularly significant given their potential cumulative nature (i.e. deployment of temporary traffic management measures for several projects within a relatively small geographic area). The significance of any cumulative effects issues is likely to depend on the phasing of project construction.	<b>Mitigation:</b> a key approach to mitigating linear source air pollution effects is to encourage sustainable transport choices and/ or modal shift - see health assessment recommendations in this regard. Ensure that contractors comply with relevant legislation and guidelines to minimise noise, dust and vibration nuisance e.g. conducting noisy operations at appropriate times of the day. Ensure that temporary traffic management measures are designed to minimise traffic congestion e.g. use side streets for site access. Where possible, deploy any temporary traffic management measures during non-peak times. Consider how construction of projects within the same locality can be phased to avoid significant cumulative effects issues. During project design and construction strategy development, ensure that relevant stakeholders (GCC Public Health Group) are engaged to advise on best practicable approach to air pollution mitigation strategy. Ensure that tensions between air and noise pollution mitigation are addressed with 'win-win' outcomes in mind (see noise assessment).
To reduce noise levels from all sources				
		- S	<b>Potential negative effects:</b> South cluster construction activity has substantial potential to cause acute noise effects in several locations. Issues may arise in areas zoned as candidate Noise Management Areas (NMA) given that any additional noise, whilst not necessarily worsening the existing situation, does not support the objective of 'reducing noise levels in the candidate NMA'. VARS's proposed Paisley Road West streetscape enhancements may contribute to noise issues in proximity to NMA related NMA's in the Croftfoot and Kilmow St areas. Acute noise effects may be particularly key in sensitive locations that do not currently experience significant noise problems e.g. residential areas. MP10 raises noise issues given its location in proximity to residential areas and the potential need to undertake works on the railway bridge at night for health and safety reasons. MP9 and VAR4 raise particularly significant issues given the current lack of noise problems in the area, the potential cumulative nature of noise effects and the proximity of residential properties nearby.	<b>Mitigation:</b> ensure that contractors comply with relevant legislation and guidelines to minimise noise, dust and vibration nuisance e.g. conducting noisy operations at appropriate times of the day and using best practicable means for reducing emissions. During project design and construction strategy development, ensure that relevant stakeholders (GCC Public Health Group) are engaged to advise on best practicable approach to noise mitigation strategy. This is particularly important with regard to addressing traffic management/ construction related strategy development, ensure that relevant stakeholders (GCC Public Health Group) are engaged to advise on best practicable approach to noise mitigation strategy. Ensure that tensions between air and noise pollution mitigation are addressed with 'win-win' outcomes in mind (see noise assessment).
To reduce levels of soil contamination				
		?	<b>Potential positive effects:</b> the South cluster area contains several potentially contaminated sites. This is a particular concern in the Ibrox, Hampden and Torgyen areas where potential contamination issues relate to previous industrial activities such as foundry works, engineering works, factories, textile works and fuel stores. Potential soil contamination issues should be considered during the design, development and SI works for MP9, VAR4 and VARS. Whilst there is significant potential for positive effects (given that planning conditions may require several South cluster projects to remediate contaminated soils), effects are currently uncertain. Further details re the scope and design of projects and also information on actual contamination issues following site investigations may help to identify positive effects in the context of the significance criteria used.	<b>Enhancement:</b> where significant land contamination issues are identified through site investigation works, ensure that the remediation strategy developed and adopted is the most sustainable option given constraints (e.g. cost). Where possible, use onsite remediation techniques to minimise waste and/ or carbon impact associated with soil excavation, transportation and disposal.
To reduce soil sealing and soil loss				
		- M-L	<b>Potential positive effects:</b> MP9 includes proposals to develop a significant Hampden brownfield site as a transport hub. Given potential soil contamination issues in the Torgyen area, development of the site is likely to improve soil quality and condition through the suitable remediation of contaminated soils. Due to their limited scope, beneficial effects in this regard are considered to be broadly neutral in the context of the significance criteria used. <b>Potential negative effects:</b> South cluster activity raises two key concerns in relation to soil sealing and loss type effects. Firstly, soils at the Cathkin Braes site can be described as 'good quality and versatile' - especially given the range of habitats they support. Mountain bike course development may contribute to soil sealing, loss or erosion type effects through the development of new paths, access tracks etc. Secondly, various South cluster projects may contribute to increased soil sealing. Dependent on site topography/ drainage, increased potential for overland flow during rain storms may cause soil erosion issues in adjacent greenspace sites.	<b>Enhancement:</b> see recommendations under the soil contamination assessment. <b>Mitigation:</b> minimise soil sealing/ increased areas of hard standing at the Cathkin Braes site. Consider the appropriateness of developing a strategy to minimise walking/ cycling related soil erosion impacts at the Cathkin Braes site. Consider the appropriate and well designed use (i.e. that accounts for site topography and hydrology) of soft landscaping and/ or habitat creation at key sites to minimise overland flow of water and help protect against soil erosion issues. This type of action would also help to reduce pluvial flood risk, reduce diffuse source water pollution by filtering particulate matter and enhance habitat networks supporting biodiversity objectives.
To reduce greenhouse gas emissions				
		?/ S-M-L	<b>Potential positive effects:</b> any soft landscaping/ habitat creation delivered through South cluster projects has some limited GHG mitigation potential through the provision of additional carbon sinks. At present however, effects are limited to the scope and scale of the design of key projects, especially in relation to any major habitat creation activity as a result of the Cathkin Braes mountain bike course and ENVI, may help to identify significant positive effects in the context of the significance criteria used. <b>Potential negative effects:</b> given its scale, South cluster construction activity has substantial potential to contribute to a significant, albeit 'one-off', increase in GHG emissions. Whilst all projects are likely to result in some transport related effects (e.g. through delivery journey/ aggregate intensive transport infrastructure projects such as proposed carriageway/ resurfacing projects incorporated with VAR4 and VARS are likely to have the largest effect given the potential volumes of aggregate involved in construction).	<b>Enhancement:</b> as per air pollution, a key approach to mitigating GHG emissions is to encourage sustainable transport choices and/ or modal shift - see health assessment recommendations in this regard. Also, consider how the South cluster's potential positive effects on GHG mitigation objectives can be used as a lever to promote more substantial Games related green network development including woodland and other habitat creation projects where appropriate. This type of opportunity may be particularly relevant through ENVI and the Cathkin Braes mountain bike course projects given their objectives and scope and also the opportunities raised by existing green infrastructure in the area e.g. from the high quality ancient/ long-established woodland at Cathkin Braes Country Park to the substantial natural/ semi-natural greenspace resource in the eastern side of Castlemilk. <b>Mitigation:</b> see recommendations under the West cluster climate change mitigation assessment.
To reduce vulnerability to the effects of climate change				
		+ M-L	<b>Potential positive effects:</b> several South cluster projects have substantial potential to support enhanced resilience to local climate change impacts though this is primarily in relation to the development of ecologically resilient and varied landscapes. In particular, habitat creation projects at the Cathkin Braes mountain bike course site, if delivered sensitively and in line with conservation priorities on site, have substantial potential to contribute to enhanced habitat networks in the area. This is key given the diversity of habitats and species that the site supports and also the presence of other key projects in this regard including MP9 - proposed soft landscaping works, if designed appropriately incorporating biodiversity objectives, have substantial potential to enhance habitat networks in this part of the City.	<b>Enhancement:</b> see recommendations under South cluster individual projects assessment and the biodiversity, water quality, flood risk, soil sealing and climate change mitigation assessments. Consider how the appropriate design of MP9's soft landscaping works can be delivered to maximise biodiversity and habitat connectivity benefits. Consider how the appropriate design of soft landscaping works in South cluster projects can be delivered to maximise biodiversity and habitat connectivity benefits, contributing to improved ecosystem resilience.
To conserve and, where appropriate, enhance the historic environment and cultural heritage				
		0	<b>Broadly neutral effects:</b> pre-games development in the South cluster area is relatively dispersed with projects sited in isolation and spread across a large area. This is in contrast to the West cluster area where development focusses on distinct sub-areas such as the Kelvingrove complex. In addition, most South cluster development activity is sited outwith areas of historic value although there are exceptions to the rule. VARS includes proposals for visual enhancements to Cessnock Subway Station which is immediately adjacent to Walmer Crescent Conservation Area. There are inherent tensions between delivering a practicable solution and the use of appropriate design and materials. Inappropriate design may contribute to an erosion of historic character. The woodland at Cathkin Braes constitute an important part of Glasgow's historic landscape occupying the horizon to the South of the City. Again, inappropriate design of the mountain bike course may contribute to an erosion of historic character. However, given that potential risks are minimal, effects are considered to be broadly neutral in the context of the significance criteria used.	<b>Mitigation:</b> liaise with key stakeholders (Historic Scotland, Glasgow City Council DRS, local heritage and building preservation groups etc) at project design stage to ensure that key threats to the integrity of local historic environment features are addressed early on.
To maintain and enhance the quality of landscapes and townscapes				
		0	<b>Broadly neutral effects:</b> similar issues to the historic environment and cultural heritage assessment above. The key concern is in relation to the Cathkin Braes site given that inappropriate development of the mountain bike course may pose a threat to this important part of the City's landscape. Equally, inappropriate project design has some potential to contribute to visual intrusions/ loss of views from the site itself looking out across Glasgow and the wider Clyde valley and estuary. However, given their isolated nature and the relative ease with which issues can be mitigated through appropriate project design, effects are considered to be broadly neutral in the context of the wider South cluster area and the significance criteria used.	<b>Mitigation:</b> liaise with key stakeholders (Historic Scotland, Glasgow City Council DRS, local heritage and building preservation groups etc) at project design stage to ensure that threats to the integrity of key landscape features are addressed early on. Avoid development of structures at the Cathkin Braes site that contribute to visual intrusion and/ or loss of view points. Consider the visual impact of temporary structures, signs etc that may be erected during Games-time.
<b>Summary</b>				
South cluster activity is likely to cause a mixed effect on the environment though unlike the West and East clusters, effects across many heritage topics). Although effects are considered neutral in the context of the environmental baseline and the significance criteria used, 'insignificant' positive and negative effects may still arise. SEA recommendations have been developed specifically to account for these effects, ensuring that environmental benefits and cumulative environmental threats are suitably mitigated.				
<b>Summary of potential positive environmental effects and enhancement recommendations</b>				
<b>Health:</b> South cluster development will contribute to walking/ cycling route and sustainable transport enhancements though benefits are likely to be focused on the Cathkin Braes site. Improved access may increase the site's attractiveness as a leisure and recreational resource, particularly amongst residents of nearby Castlemilk where certain health issues are prevalent. <b>Biodiversity:</b> substantial potential for green network enhancement including habitat management and restoration. Benefits are likely to focus on the Cathkin Braes site given the proposals for habitat creation and woodland projects in and around Castlemilk. The detailed assessment outlines the scope for some additional benefits elsewhere in the South cluster area. <b>Climate change adaptation:</b> several South cluster projects have potential to contribute, cumulatively, to improved climate change resilience, primarily in relation to the development and enhancement of ecologically resilient and varied landscapes. Habitat creation and management projects at the Cathkin Braes site may be particularly significant due to the range of habitats and species currently supported through actions elsewhere in the region.				
<b>Summary of potential negative environmental effects and mitigation recommendations</b>				
<b>Biodiversity:</b> improved access to the Cathkin Braes site as a result of the mountain bike project and ENVI may lead to increased 'people pressure' to the detriment of the site's more vulnerable habitats and species. <b>Air pollution:</b> traffic management measures deployed during project construction phase may contribute to temporary increases in traffic congestion and air pollution. Effects are likely to be most pronounced on already busy roads in Hampden and Ibrox. <b>Noise:</b> South cluster development activity may contribute to acute noise issues at several zones as candidate Noise Management Areas (NMAs). Although noisy activity may take place in or near NMAs, acute noise impacts may be more of a problem in areas that do not currently experience noise issues e.g. residential areas. This problem may be even more pronounced when noisy activities have to take place at night for health and safety reasons. <b>Soil sealing:</b> several South cluster projects have potential to contribute to substantial levels of soil sealing. New access tracks and paths at Cathkin Braes may be a particular issue due to the versatile nature of soils. Also, increased potential for overland flow during rain storms (across new areas of hard standing/ soil) may contribute to soil erosion at adjacent greenspace sites. <b>Climate change mitigation:</b> South cluster development activity will contribute to a significant albeit mostly temporary increase in GHG emissions.				

**Appendix X:  
East cluster pre-games  
development programme detailed  
assessment summary**



# **Appendix Y:**

## **West cluster SEA Design Guide**

**GLASGOW 2014 LTD. WEST CLUSTER PRE-GAMES DEVELOPMENT PROGRAMME SEA DESIGN GUIDE**

**West Cluster projects**

Venues	Scotstoun Squash Centre Kelvingrove Bowling Greens Replacement Kelvin Hall Redevelopment
Public realm enhancement	MP1 Lancefield/ Anderston Quay Refurbishment MP2 Exhibition Centre Walkway Refurbishment MP3 Bells Bridge Refurbishment MP5 Crow Road Railway Bridge Refurbishment MP6 Sandyford Street Footbridge Ramp Replacement
Transport infrastructure enhancement	MP4 Kelvin Walkway Enhancement MP7 Shieldhall Viaduct/ Clyde Tunnel Refurbishment MP8 Clyde Tunnel Approaches Refurbishment VAR1 Scotstoun Leisure Centre Access Route Enhancements VAR2 Kelvingrove Complex Access Route Enhancements VAR3 SECC Complex Access Route Enhancements
Environmental enhancement	N/A

Potential environmental effects	SEA recommendations of programme-wide relevance	Supporting technical information and notes on approach	Proposed responsibility for action	Relevant projects	Relevant SEA recommendations from the individual projects assessment	Supported themes from the Glasgow 2014 Legacy Framework
<b>Potential positive environmental effects</b>						
<b>People, health &amp; access</b>						
West cluster development will contribute to the enhancement of walking and cycling routes in the area, particularly the Clyde and Kelvin Walkways. These type of access improvements may help incentivise the use of active travel and increase the uptake of outdoor leisure and recreation, contributing to health benefits	ENHANCE1.1 Where relevant, consider the network wide implications of West cluster access improvements ensuring that improvements facilitate ease of travel by sustainable and active modes at a City-wide level	N/A	GCC LES GCC DRS GCV Green Network	MP1 MP2 MP3 MP4 MP6 VAR1, 2 and 3	<i>Recommendations from the bowls project assessment:</i> 1.Consider how the bowling green project could be used as a key opportunity to promote 'low-level' outdoor leisure and recreation activity, particularly amongst target neighbourhoods in the west cluster area i.e. those where health issues such as coronary heart disease are more pronounced 2.Ensure that the upgraded facility has adequate provision for securing bikes to promote the use of active travel 3.Advertise sustainable modes and routes (including active travel modes) that can be used to access the facility. This should be done on the relevant Glasgow City Council pages and also at the facility itself e.g. notice boards etc  <i>Recommendations from the MP1 assessment:</i> 4.Consider how careful use of additional signage and/ or other awareness raising activities may encourage increased use of the Clyde Walkway as a key active travel route and as an outdoor leisure and recreational resource in its own right (this should include updates to GCC web pages where appropriate) 5.Consider how newly enhanced sections of the Clyde Walkway can be incorporated with existing and/ or new 'health walk' routes e.g. integration with Kelvingrove Park routes 6.Other awareness raising activities may include information/ interpretation boards along the route outlining key information about the relationship between health and related issues including outdoor leisure and recreation, active travel etc	Theme A 'Prosperous Glasgow' Theme B 'Active Glasgow' Theme D 'Greener Glasgow' Theme E 'Accessible Glasgow'
	ENHANCE1.2 Where possible, identify opportunities for joining up gaps in West cluster active travel provision, particularly those between population and community centres and key linear routes such as the Clyde and Kelvin walkways	N/A	GCC LES GCC DRS GCV Green Network	MP1 MP2 MP3 MP4 MP6 VAR1, 2 and 3		
	ENHANCE1.3 Consider opportunities for increasing the attractiveness of the Clyde Walkway as a leisure and recreational resource in its own right	One approach may be to improve integration between the Clyde Walkway and its adjacent communities in the West cluster area. Example strategies may include better signage and better provision of public spaces (both 'grey' and 'green' immediately adjacent to the river	GCC LES GCC DRS GCV Green Network Community Groups	MP1 MP2 MP3 MP6 VAR3		
<b>Water bodies &amp; flooding</b>						
Proposed MP1 flood defence works will help to reduce Clyde related fluvial source flood risk in the West cluster area. The detailed assessment summary outlines the scope for additional benefits in terms of pluvial source flood risk mitigation	ENHANCE1.4 Where relevant, integrate biodiversity interests and existing habitat and landscape features with project SuDS design	Given the proximity of green network sites, example projects where this type of more biodiversity orientated approach to SuDS may be possible include the Kelvingrove Bowling Greens Replacement, VAR1, 2 and 3 and MP4	GCC LES GCC DRS GCV Green Network SNH SEPA Private sector/ developers	Kelvingrove Bowling Greens Replacement MP4 VAR1 VAR2 VAR3	<i>Recommendations from the MP1 assessment:</i> 7.Consider opportunities for integrating the site's existing habitat with any additional soft landscaping measures 8.Aim for development that contributes to a net increase in permeable ground cover – where this is not possible, ensure that project design incorporates suitable drainage provision to compensate for any net increase in impermeable ground cover and the associated potential for increased flood risk	Theme A 'Prosperous Glasgow' Theme D 'Greener Glasgow'
	ENHANCE1.5 Consider opportunities for integrating West cluster project SuDS scheme development with green network sites	Given the proximity of green network sites, example projects may include the Kelvingrove Bowling Greens Replacement, VAR1, 2 and 3 and MP4	GCC LES GCC DRS GCV Green Network SNH SEPA Private sector/ developers	Kelvingrove Bowling Greens Replacement MP4 VAR1 VAR2 VAR3		
	ENHANCE1.6 Consider opportunities for rolling out a programme of well planned soft landscaping enhancements of a significant scale across all West cluster projects. This may help balance out any increases in impermeable ground cover, contributing to mitigation of increased pluvial source flood risk	This type of approach may help balance out any increase in impermeable ground cover (and associated pluvial source flood risks). Where relevant, these should be developed in line with good-practice, be fully integrated with local/ regional SuDS schemes, use appropriate plant species and habitat types to contribute towards biodiversity objectives and be integrated with existing habitats on site	GCC LES GCC DRS GCV Green Network SNH SEPA Conservation NGOs Private sector/ developers	All West cluster projects		
<b>Air quality, noise &amp; dust and climate change issues (mitigation)</b>						
West cluster access improvements (see the potential people, health & access effects above) may contribute to a reduction in linear source air pollution and transport related GHG emissions by incentivising a modal shift from private car use to more sustainable modes for certain journeys (e.g. West cluster to City centre commutes)	ENHANCE1.7 Where possible, ensure that walking/ cycling route access enhancements avoid areas of existing poor air quality	The key aim of this recommendation is to avoid unnecessary human exposure to poor air quality. <b>Note:</b> see people, health & access recommendations also	GCC LES GCC DRS	MP1 MP2 MP3 MP4 MP6 VAR1, 2 and 3	<i>Recommendations from the MP1 assessment:</i> 9.Consider the network wide implications of Clyde corridor access enhancements 10.Identify opportunities for joining-up gaps in walking and cycling route provision between key community/ population centres and the Clyde Walkway (i.e. the baseline highlights how core path provision in the West cluster area, whilst providing good access along key linear features such as the Clyde and Kelvin Rivers, provides limited access between community/ population centres and the area's key linear routes. This may be a key barrier to the use of active travel modes for key journeys to and from the City centre for example)	Theme A 'Prosperous Glasgow' Theme B 'Active Glasgow' Theme D 'Greener Glasgow' Theme E 'Accessible Glasgow' Theme F 'Inclusive Glasgow'
	ENHANCE1.8 Raise awareness of West cluster access enhancements amongst communities' outwith the immediate area and consider how the development of complementary measures may further promote modal shift and air quality GHG mitigation benefits	Example complementary measures may include the development of strategically located park and walk/ ride/ cycle facilities. <b>Note:</b> see people, health & access recommendations also	GCC LES GCC DRS Community Planning Partnerships Community Councils	MP1 MP2 MP3 MP4 MP6 VAR1, 2 and 3		
	ENHANCE1.9 Consider the use of targeted awareness raising activity within key West cluster communities to promote the use of Games related walking and cycling access enhancements	Efforts may be focused on communities in proximity to areas that currently experience linear source air pollution problems (e.g. Hillhead/ Woodlands and Hyndland/ Dowanhill/ Partick East which are in proximity to the Byers Road and Dumbarton Road AQMA). <b>Note:</b> see people, health & access recommendations also	GCC LES GCC DRS Community Planning Partnerships Community Councils	MP1 MP2 MP3 MP4 MP6 VAR1, 2 and 3		
<b>Climate change issues (adaptation)</b>						
Proposed flood defence works will help to reduce West cluster area vulnerability to local climate change impacts	See enhancement measures ENHANCE1.4, 1.5 and 1.6	See enhancement measures ENHANCE1.4, 1.5 and 1.6	See enhancement measures ENHANCE1.4, 1.5 and 1.6	See enhancement measures ENHANCE1.4, 1.5 and 1.6	See project level enhancement recommendations under water bodies & flooding	See enhancement measures ENHANCE1.4, 1.5 and 1.6



Landscape & the historic environment						
Sensitive public realm enhancements have substantial potential to enhance the site and setting of many of the West cluster's historic environment features. Benefits may be particularly noticeable in areas where the historic environment is fragmented such as the SECC complex	ENHANCE1.10 Consider how an area's historic environment features can inform, guide and improve project design	Recommendation is of relevance to both statutory and non-statutory historic environment features. This recommendation may be of particular relevance to development in the Scotstoun and Kelvingrove Park areas	GCC DRS Historic Scotland Heritage NGOs Private sector/ developers	All West cluster projects	<i>Recommendations from the bowls project assessment:</i> 11.Ensure that development of any new structures incorporates appropriate design and use materials to complement and enhance the area's historic environment features 12.Consider opportunities for environmental and/ or heritage based education e.g. provision of information highlighting Kelvingrove Park's historic outdoor leisure and recreational usage e.g. bowls	Theme A 'Prosperous Glasgow' Theme B 'Active Glasgow' Theme C 'International Glasgow' Theme E 'Accessible Glasgow' Theme F 'Inclusive Glasgow'
	ENHANCE1.11 Consider how public realm projects in the SECC complex area can help to 'join-up' the area's fragmented historic environment features	One example of a possible simple/ low budget approach may be the use of additional interpretational material along the Clyde Walkway in this area. Such an approach could be linked with access related signage improvements elsewhere in the West cluster area e.g. joining health walks in the Kelvingrove Park area with heritage walks at the Clyde	GCC DRS Historic Scotland Heritage NGOs Private sector/ developers (SECC)	MP1 MP2 MP3 MP6 VAR3		
	ENHANCE1.12 Consider how appropriate use of community engagement can be used to help build in local distinctiveness and 'sense of place' in project design	N/A	GCC DRS Heritage NGOs Community Groups	All West cluster projects		
	ENHANCE1.13 Ensure that project design and delivery within each of the West cluster Games 'complex' areas take a strategic and/ or masterplanned approach to ensure that synergies are developed and the strongest cumulative townscape and landscape benefit realised	N/A	GCC DRS Historic Scotland Heritage NGOs Private sector/ developers (SECC)	All West cluster projects		
West cluster development has substantial potential to improve the area's landscape and townscape, particularly along the Clyde corridor. In particular, proposed public realm works in the SECC complex area may help to improve landscape character at this iconic section of the Clyde corridor by helping to 'join-up' the area's fragmented historic environment features within an overall context of modernity	ENHANCE1.14 Where relevant, consider the use of additional sub-projects that may help to further enhance and 'join-up' distinct pockets of landscape character	Examples approaches may include appropriate use of additional soft landscaping and the 'complex-wide' refurbishment of railings/ street furniture where required. This may be particularly key along the Clyde corridor where landscape character is of particular importance	GCC DRS Historic Scotland Heritage NGOs Private sector/ developers (SECC in particular)	All West cluster projects		
Potential negative environmental effects						
People, health & access						
Construction activities may contribute to significant albeit temporary air pollution and noise issues, affecting public health and amenity. May be particularly acute at locations with existing traffic congestion and air quality issues e.g. MP1 related development at Finnieston Street	Please see generic air pollution and noise nuisance mitigation recommendations of relevance to all pre-games activity in Environmental Report Part C section 3.6	N/A	GCC LES (Public Health Group)	All West cluster projects	N/A	N/A
Wildlife conservation & ecosystem services						
Venue development in the Kelvingrove Park area may contribute to increased diffuse source water pollution, increasing pressure on aquatic ecosystems	See mitigation measures MITIGATE1.3 and 1.4	N/A			See project level mitigation recommendations under water bodies & flooding	
Development of new walking/ cycling paths may contribute to habitat fragmentation and severance	MITIGATE1.1 Where habitat severance issues are likely, ensure that project design incorporates appropriate mitigation measures e.g. access tunnels for affected species	N/A	GCC DRS GCC LES SNH GCV Green Network Conservation NGOs	Scotstoun Squash Centre Kelvingrove Bowling Greens Replacement MP1 and 4 VAR1 and 2	N/A	N/A
	MITIGATE1.2 Where habitat connectivity cannot be maintained, consider the use of appropriate habitat compensation as guided by the GCV Green Network Partnership's Integrated Habitat Network (IHN) model and advice from key stakeholders	N/A	GCC DRS GCC LES SNH GCV Green Network Conservation NGOs	Scotstoun Squash Centre Kelvingrove Bowling Greens Replacement MP1 and 4 VAR1 and 2	N/A	
Water bodies & flooding						
Potential increases in diffuse source water pollution, particularly in the Kelvingrove Park area, may adversely affect the River Kelvin's water quality status. Water pollution effects may arise during construction (e.g. hydrocarbon contaminated run-off from heavy plant operation) and operation (e.g. changes to chemical treatments at the bowls site)	MITIGATE1.3 Reduce the impact of diffuse source water pollution by dealing with potentially contaminated run-off close to source using appropriately designed regional and local level SuDS schemes	N/A	GCC DRS GCC LES Scottish Water SNH GCV Green Network Conservation NGOs Private sector/ developers	All West cluster projects	<i>Recommendations from the bowls project assessment:</i> 13.Ensure that contractors comply with relevant legislation and guidelines to minimise potential issues associated with hydrocarbon contaminated run-off e.g. ensuring that any vehicles and machinery used on-site are fit for purpose and well maintained 14.Where significant risks are identified, consider the use of bunds and/ or other physical interventions to reduce the likelihood of contaminated run-off entering the Kelvin 15.Ensure that a site investigation is undertaken and a risk assessment is in place Mitigation of potential operational effects: 16.Consider alternative approaches to bowling green management that don't rely on the use of chemical treatments 17.Ensure that adequate drainage infrastructure and, where appropriate, on-site treatment facilities are installed to minimise the risk of untreated pesticide/ fertiliser contaminated run-off entering the Kelvin	Theme A 'Prosperous Glasgow' Theme D 'Greener Glasgow'
	MITIGATE1.4 Where relevant, integrate biodiversity interests and existing habitat and landscape features With project SuDS design	MP4 and VAR2 may raise particular opportunities in this regard given their proximity to green network sites and the River Kelvin	GCC DRS GCC LES Scottish Water SNH GCV Green Network Conservation NGOs Private sector/ developers	All West cluster projects (MP4 and VAR2 in particular)		
Air quality, noise & dust						
Short term reductions in air quality may arise during the construction phase due to deployment of traffic management measures/ increased risk of traffic congestion	See enhancement measures ENHANCE1.1, 1.2, 1.3, 1.7, 1.8 and 1.9  Please see generic air pollution and noise nuisance mitigation recommendations of relevance to all pre-games activity in Environmental Report Part C section 3.6	See enhancement measures ENHANCE1.1, 1.2, 1.3, 1.7, 1.8 and 1.9	See enhancement measures ENHANCE1.1, 1.2, 1.3, 1.7, 1.8 and 1.9	See enhancement measures ENHANCE1.1, 1.2, 1.3, 1.7, 1.8 and 1.9	See project level enhancement recommendations under 1) people, health & access; 2) air quality, noise & dust and 3) climate change issues	See enhancement measures ENHANCE1.1, 1.2, 1.3, 1.7, 1.8 and 1.9
During operation, linear source air pollution may increase as new facilities increase the need to travel and additional transport/ access infrastructure measures (e.g. pedestrian crossings) can contribute to increased standing traffic						
Climate change issues						
West cluster development activity will contribute to a significant albeit mostly temporary increase in GHG emissions	Note: see generic GHG mitigation recommendations of relevance to all pre-games activity in Environmental Report Part C section 3.6	N/A	GCC DRS GCC Chief Executive's Department GCC Procurement	All West cluster projects (MP1, MP4, MP7 and MP8 in particular)	N/A	N/A
Landscape & the historic environment						
New signage and other street furniture combined with potential inappropriate design can pose a significant threat to West cluster historic environment, particularly around Kelvingrove Park and Scotstoun. This is an important issue as the individual impact of new signs, benches, pedestrian crossings etc may be insignificant yet highly significant when considered cumulatively	MITIGATE1.5 Consider the need to undertake additional assessments of signage/ street furniture development in key areas of historic interest such as Scotstoun and Kelvingrove  Please see generic landscape & historic environment mitigation recommendations of relevance to all pre-games activity in Environmental Report C section 3.6	Assess impacts against relevant Conservation Area objectives and criteria and ensure that cumulative effects issues are adequately considered	GCC DRS Historic Scotland Heritage NGOs Private Sector/ developers	Scotstoun Squash Centre Kelvingrove Bowling Greens Replacement MP4 VAR1 VAR2	Please see generic landscape & historic environment mitigation recommendations of relevance to all pre-games activity in Environmental Report C section 3.6	Theme A 'Prosperous Glasgow' Theme C 'International Glasgow'

# **Appendix Z:**

## **South cluster SEA Design Guide**

## GLASGOW 2014 LTD. SOUTH CLUSTER PRE-GAMES DEVELOPMENT PROGRAMME SEA DESIGN GUIDE

### South Cluster projects

Venues	Cathkin Braes Glasgow 2014 Mountain Bike Course
Public realm enhancement	MP9 Hampden East Public Realm Enhancements
Transport infrastructure enhancement	MP10 Prospecthill Road Railway Bridge Enhancements VAR4 Hampden Park Access Route Enhancements VAR5 Ibrox Stadium Access Route Enhancements
Environmental enhancement	ENV1 Castlemilk and Cathkin Braes Commonwealth Community Forests Project

Potential environmental effects	SEA recommendations of programme-wide relevance	Supporting technical information and notes on approach	Proposed responsibility for action	Relevant projects	Relevant SEA recommendations from the individual projects assessment (Note: all recommendations taken from the Cathkin Braes Mountain Bike project assessment)	Supported themes from the Glasgow 2014 Legacy Framework
<b>Potential positive environmental effects</b>						
<b>People, health &amp; access</b>						
South cluster development will contribute to walking/ cycling route and sustainable transport enhancements though benefits are likely to be focused on the Cathkin Braes site	ENHANCE2.1 Consider opportunities for improving South cluster access provision outwith the Cathkin Braes site	N/A	GCC LES GCC DRS GCV Green Network FCS	MP9 MP10 VAR4 VAR5 ENV1	1.Ensure that local communities are aware of changes at Cathkin Braes Country Park (CBCP) and the opportunities these will raise for enhanced access to outdoor leisure and recreational activities 2.Consider the potential benefits of running an awareness-raising campaign in tandem with project development and construction to bring attention to the potential health benefits of regular outdoor leisure/ recreation 3.Consider how the project can be used as a lever for raising additional funds to develop an enhanced core path providing improved pedestrian and cycle access between CBCP and Castlemilk 4.Advertise sustainable modes and routes (including active travel modes) that can be used to access the facility 5.Consider how the Cathkin Braes project can be used as a lever to prevent anti-social and inappropriate behaviour e.g. quad/ motor bike riding	Theme A 'Prosperous Glasgow' Theme B 'Active Glasgow' Theme D 'Greener Glasgow' Theme E 'Accessible Glasgow'
Improved access at Cathkin Braes may increase the site's attractiveness as a leisure and recreational resource. Potential benefits to residents of local communities (e.g. Castlemilk) are likely to be majorly significant (given the prevalence of certain health issues) though potential benefits to other South cluster communities are likely to be less so given the distance involved and lack of easy access by cycling and walking	ENHANCE2.2 Consider how proposed core paths between Mount Florida, King's Park, Croftfoot and Castlemilk can be developed to improve access to key South cluster greenspace resources such as King's Park and Cathkin Braes Country Park	Consider development opportunities associated with the following proposed core paths from GCC's Core Paths Plan: C118, C119, C119A, C119B, C120, C126 and C130	GCC DRS GCV Green Network FCS	MP9 VAR4 ENV1		
	ENHANCE2.3 Consider a number of options for core paths development and improvement ranging from improved signage and lighting and raising awareness of the benefits of using local recreation facilities	N/A	GCC DRS GCV Green Network FCS	MP9 MP10 VAR4 VAR5 ENV1		
<b>Wildlife conservation &amp; ecosystem services</b>						
Substantial potential for green network enhancement including habitat management and restoration. Benefits are likely to focus on the Cathkin Braes site given the proposals for habitat creation and community woodland projects in and around Castlemilk	ENHANCE2.4 Ensure that community programmes (such as those delivered under ENV1) incorporate consideration of wildlife conservation and ecosystem service issues as well as those relating to access and environmental education	N/A	GCC LES GCV Green Network FCS SNH Conservation NGOs Community Groups GCCSS	Cathkin Braes Mountain Bike Project ENV1	6.Liaise with relevant stakeholders (e.g. SNH, GCV Green Network partnership etc) and/ or employ suitably qualified consultants to gather good-practice advice when planning and designing habitat creation 7.Ensure that any habitat creation projects are aligned to the GCV Green Network's Integrated Habitat Network (IHN) model 8.Consider the need to undertake fresh survey work on site to support the identification of an optimal habitat creation strategy 9.Focus additional habitat management measures on the needs and priorities of key habitats that are currently found on site 10.Review current public engagement provision on site and identify scope for improvements based on potential environmental education benefits	Theme B 'Active Glasgow' Theme D 'Greener Glasgow' Theme F 'Inclusive Glasgow'
	ENHANCE2.5 Consider opportunities for broadening the scope of ENV1 to include volunteer habitat management programmes. Ideally, this type of approach could be rolled out to other Cathkin Braes habitats as well as other sites such as the plethora of more informal natural/ semi-natural greenspace sites found in Castlemilk itself	N/A	GCC LES GCV Green Network FCS SNH Conservation NGOs Community Groups GCCSS	Cathkin Braes Mountain Bike Project ENV1		
	ENHANCE2.6 Identify and capitalise on synergies between any volunteer habitat management programme pursued and ENV1's 'forest schools' and 'woodland workout' programmes	N/A	GCC LES GCC Education Services GCV Green Network FCS SNH Conservation NGOs Community Groups GCCSS	Cathkin Braes Mountain Bike Project ENV1		
Depending on approach, MP9's proposed soft landscaping works may support enhanced habitat network connectivity	ENHANCE2.7 Identify tangible opportunities whereby South cluster green network enhancements can also contribute to habitat network enhancements	Examples of South cluster green network enhancements include MP9's proposed soft landscaping works. Habitat network enhancements may include ensuring that access/ recreation/ aesthetic focused landscaping strategies consider biodiversity issues also	GCC DRS GCC LES GCV Green Network FCS Private sector/ developers	Cathkin Braes Mountain Bike Project ENV1 MP9 VAR4		
<b>Climate change issues</b>						
Several South cluster projects have potential to contribute, cumulatively, to improved climate change resilience, primarily in relation to the development and enhancement of ecologically resilient and varied landscapes. Habitat creation and management projects at the Cathkin Braes site may be particularly significant due to the range of habitats and species currently supported though actions elsewhere may also be beneficial in this regard e.g. MP9's proposals for soft landscaping works at Hampden	ENHANCE2.8 Consider how the appropriate design of soft landscaping works in South cluster projects can be delivered to maximise biodiversity and habitat connectivity benefit, contributing to improved ecosystem resilience	This recommendation should be applied to MP9 in particular. One approach may be to ensure that habitat creation/ enhancement design improves connectivity between the MP9 site and SSLI/ City Plan 2 designated green network site to the north east at Toryglen Park  <b>Note:</b> see also recommendations under wildlife & ecosystem services, soils & soil quality and climate change mitigation. <b>Please refer to recommendations in the South cluster detailed assessment summary (Appendix XXXX) proposed under neutral assessments for water bodies and flooding related topics</b>	GCC DRS GCC LES GCV Green Network SNH Private sector/ developers	MP9 VAR4	N/A	Theme A 'Prosperous Glasgow' Theme D 'Greener Glasgow'
<b>Potential negative environmental effects</b>						
<b>Wildlife conservation &amp; ecosystem services</b>						
Improved access to the Cathkin Braes site as a result of the mountain bike project and ENV1 may lead to increased 'people pressure' to the detriment of the site's more vulnerable habitats and species	See enhancement measures ENHANCE2.4 and 2.5	N/A	GCC LES GCV Green Network FCS SNH Conservation NGOs Community Groups GCCSS	Cathkin Braes Mountain Bike Project ENV1	11.Consider the need to undertake fresh survey work on site to support a better understanding of ecosystem functioning and help ensure that development of the mountain bike course is not to its detriment 12.Ensure that contractors are aware of ecological constraints/ sensitivities on site and that the proposed works are delivered with minimal disturbance 13.Liaise with key stakeholders (e.g. SNH) to identify key good-practice considerations that contractors should adhere to 14.Develop a communications strategy that raises awareness about natural heritage issues and helps to ensure that additional outdoor leisure and recreational use is responsible	Theme A 'Prosperous Glasgow' Theme B 'Active Glasgow' Theme D 'Greener Glasgow' Theme E 'Accessible Glasgow'
<b>Air quality, noise &amp; dust</b>						
Traffic management measures deployed during project construction phase may contribute to temporary increases in traffic congestion and air pollution. Effects are likely to be most pronounced on already busy roads in Hampden and Ibrox	MITIGATE2.1 Depending on the scope of pre-games works and construction related traffic management measures at VAR5's Paisley Road West site, consider the need for additional air quality monitoring	<b>Note:</b> see generic air pollution mitigation recommendations of relevance to all pre-games activity in Environmental Report Part C section XXXX	GCC LES (Public Health Group)	VAR5	N/A	N/A
	MITIGATE2.2 Liaise with GCC Public Health Group to monitor air quality issues at the Paisley Road West site. Identify remedial actions should pollution levels breach relevant hourly/ daily mean air quality objectives		GCC LES (Public Health Group)	VAR5	N/A	N/A
	MITIGATE2.3 In conjunction with related South cluster access improvements and health assessment recommendations above, promote the use of sustainable transport as a means of mitigating transport related linear source air pollution		GCC LES GCC Education Services Community Groups Public transport providers	Cathkin Braes Mountain Bike Project MP9 MP10 VAR4 VAR5	N/A	Theme D 'Greener Glasgow'
	MITIGATE2.4 Consider how construction of projects within the same area can be phased to avoid significant cumulative air pollution issues		GCC LES GCC DRS	MP9 MP10 VAR4 VAR5	N/A	N/A
South cluster development activity may contribute to acute noise issues at several locations including areas zoned as candidate Noise Management Areas (NMAs). Although noisy activity may take place in or near NMAs, acute noise impacts may be more of a problem in areas that do not currently experience noise issues e.g. residential areas. This problem may be even more pronounced when noisy activities have to take place at night for health and safety reasons	MITIGATE2.5 Where noisy operations have to be undertaken at night time, ensure that works are carried out as early as possible	<b>Note:</b> see generic noise nuisance mitigation recommendations of relevance to all pre-games activity in Environmental Report Part C section XXXX	GCC LES (Public Health Group)	MP9 MP10 VAR4 VAR5	N/A	N/A
<b>Soils &amp; soil sealing</b>						
Several South cluster projects have potential to contribute to substantial levels of soil sealing. In particular, new access tracks and paths at Cathkin Braes may be a particular issue due to the versatile nature of soils and range of species and habitats supported	MITIGATE2.6 Minimise soil sealing/ increased areas of hard standing at the Cathkin Braes site	N/A	GCC DRS Private sector/ developers	Cathkin Braes Mountain Bike Project	N/A	N/A
	MITIGATE2.7 Consider the need to develop an access strategy to help minimise walking/ cycling related soil erosion impacts at the Cathkin Braes site	N/A	GCC LES GCV Green Network	Cathkin Braes Mountain Bike Project ENV1	N/A	N/A
Increased potential for overland flow during rain storms (across new areas of hard standing) may contribute to soil erosion at adjacent greenspace sites	MITIGATE2.8 Consider the use of soft landscaping and/ or habitat creation at key sites to minimise overland flow of water and help protect against soil erosion issues. This would also help to reduce flood risk, reduce source water pollution and enhance habitat networks supporting biodiversity objectives	Ensure that all works undertaken account for existing habitat as well as site topography and hydrology	GCC DRS GCV Green Network Private sector/ developers	Cathkin Braes Mountain Bike Project MP9 MP10 VAR4 VAR5	N/A	Theme D 'Greener Glasgow'
<b>Climate change issues</b>						
South cluster development activity will contribute to a significant albeit mostly temporary increase in GHG emissions	<b>Note:</b> see generic GHG mitigation recommendations of relevance to all pre-games activity in Environmental Report Part C section XXXX	N/A	GCC DRS GCC Chief Executive's Department GCC Procurement	Cathkin Braes Mountain Bike Project MP9 MP10 VAR4 VAR5	N/A	N/A

# **Appendix AA: East cluster SEA Design Guide**

# GLASGOW 2014 LTD. EAST CLUSTER PRE-GAMES DEVELOPMENT PROGRAMME SEA DESIGN GUIDE

## East Cluster projects

Venues	Glasgow Green Hockey Centre
Public realm enhancement	MP11 Albert Bridge Refurbishment Works MP13 Gallowgate, London Rd and Saltmarket Railway Bridges Refurbishment MP14 Saltmarket Public Realm Project
Transport infrastructure enhancement	MP12 NCN Route 75 Enhancement Works on Clyde Walkway MP15 London Road Tunnel/ Bridgeton Station Strengthening VAR6 NISA/ Velodrome/ Games Village Access Route Enhancements VAR7 Celtic Park Access Route Enhancements VAR8 Glasgow Green Access Route Enhancements VAR9 Tollcross Leisure Centre Access Route Enhancements
Environmental enhancement	ENV2 Glasgow 2014 Clyde Walkway Pilot Project (CWPP) ENV3 Commonwealth Games Arboretum

Potential environmental effects	SEA recommendations of programme-wide relevance	Supporting technical information and notes on approach	Proposed responsibility for action	Relevant projects	Relevant SEA recommendations from the individual projects assessment	Supported themes from the Glasgow 2014 Legacy Framework
<b>Potential positive environmental effects</b>						
<b>People, health &amp; access</b>						
East cluster VAR projects are likely to improve access to both sustainable and active travel options, particularly around the Calton/ Bridgeton and Parkhead/ Dalmarnock areas. Increased uptake of active travel may support health objectives	ENHANCE3.1 Where relevant, ensure that VAR related bus service enhancements are integrated with sustainable and active travel modes	Ensure that bus and rail timetables are integrated and that cycle racks are provided, where relevant, as part of bus infrastructure enhancements	GCC DRS GCC LES Clyde Gateway URC Private sector (public transport providers)	VAR6 VAR7 VAR8 VAR9	<i>Recommendations from the hockey project assessment:</i> 1.Consider the scope for broadening out the Hockey Centre's access provision enhancements to incorporate a stretch of the Clyde walkway e.g. improving signage and lighting provision 2.Other access orientated enhancement opportunities to consider are raised in the East End Local Development Strategy's (EELDS) potential green network. This outlines the potential for a range of key green links in the east cluster area that could be developed to enhance access provision as well as biodiversity and SuDS provision e.g. between Bridgeton centre and Glasgow Green	Theme A 'Prosperous Glasgow' Theme B 'Active Glasgow' Theme D 'Greener Glasgow' Theme E 'Accessible Glasgow'
	ENHANCE3.2 Where relevant, ensure that VAR related access improvements support the full range of core paths objectives	Many of the VAR projects are aligned with proposed routes from GCC's Core Paths Plan. Example objectives to consider include: 1) connecting homes with workplaces, schools, parks and greenspaces, and 2) providing a safe framework for sustainable travel and informal outdoor recreation	GCC DRS GCC LES GCV Green Network Clyde Gateway URC	VAR6 VAR7 VAR8 VAR9	<i>Recommendations from the MP14 assessment:</i> 3.In conjunction with the Saltmarket public realm project, consider opportunities for increasing awareness about the range of outdoor leisure and recreation opportunities in the vicinity 4.Consider opportunities for integrating a way-marked Saltmarket 'heritage route' with a way-marked 'health' heritage route in Glasgow Green	
	ENHANCE3.3 Consider broadening the scope of VAR related signage improvements to provide user information on sustainable and active travel links as well as the new venues and facilities in the area	One example would be to ensure that signage raises awareness of links between residential/ community centres and the Clyde Walkway (please note: THE Clyde Walkway is also NCN 75 at this point)	GCC DRS GCC LES GCV Green Network Clyde Gateway URC	VAR6 VAR7 VAR8 VAR9	<i>Recommendations from the ENV2 assessment:</i> 5.Ensure that all development coming forward under East cluster growth strategies recognise Clyde Walkway access enhancements and the potential opportunities these may raise for sustainable/ active travel 6.Identify opportunities for 'joining-up gaps' in walking and cycling route provision between existing and planned East cluster community population centres and the Clyde Walkway 7.Consider the potential benefits of running an awareness-raising campaign in key target communities, in tandem with the CWPP. This should outline the healthy living opportunities raised by appropriate levels of exercise	
MP12 and ENV2 should substantially improve Clyde corridor access provision and management in the East cluster area	ENHANCE3.4 Ensure that MP12 and ENV2 works address relevant access issues highlighted in the Clyde Corridor Community and Recreational Access Survey Report  Note: see ENHANCE3.3 also	Example issues highlighted in the study include width restrictions, poor signage and lighting and anti-social behaviour	GCC DRS GCC LES GCV Green Network Clyde Gateway URC	MP12 ENV2		
<b>Wildlife conservation &amp; ecosystem services</b>						
ENV2 may support key LBAP management actions whilst ENV3 is likely to contribute to biodiversity benefits associated with habitat creation/ management/ restoration and environmental education	ENHANCE3.5 Explore synergies between ENV2 and MP12, ensuring that duplication is avoided and resources available for habitat management, creation and rehabilitation are maximised	N/A	GCC DRS GCC LES GCV Green Network Clyde Gateway URC	ENV2 MP12	<i>Recommendations from the ENV2 assessment:</i> 8.Ensure that CWPP considers green network enhancement opportunities outwith the Clyde Walkway's immediate area 9.Where relevant, identify potential green link enhancements that would help integrate the River Clyde green network resource with that of the wider East cluster area 10.Consider the potential role of community allotment projects in enhancing green links between the Clyde Walkway and adjacent areas/ nearby communities 11.Consider opportunities for rolling out relevant CWPP biodiversity and green network management recommendations throughout the East cluster. This may support a more integrated/ strategic approach to east cluster green network enhancements 12.Liaise with relevant stakeholders to identify best-practice in riparian habitat and invasive non-native species management	Theme A 'Prosperous Glasgow' Theme B 'Active Glasgow' Theme D 'Greener Glasgow' Theme E 'Accessible Glasgow'
	ENHANCE3.6 Where relevant, ensure that key VAR project actions consider biodiversity as well as access and public realm objectives	VAR project actions in this context include the revitalisation of public and private landscaped and undeveloped land adjacent to proposed access routes. Biodiversity enhancements may include habitat creation projects of an appropriate scale and informed by related strategies and guidance such as the Clyde Gateway Green Network Strategy. Note: please refer to the East cluster detailed assessment summary in Appendix XXXX for further information	GCC DRS GCC LES GCV Green Network SNH Clyde Gateway URC	VAR6 VAR7 VAR8 VAR9		
<b>Air quality, noise &amp; dust</b>						
Enhanced East cluster access has potential to promote and encourage a modal shift from private car use to sustainable modes for key journeys. This may contribute to a reduction in linear source air pollution in the East cluster area	ENHANCE3.7 Where possible, ensure that walking/ cycling route access enhancements avoid areas of existing poor air quality	The key aim of this recommendation is to avoid unnecessary human exposure to poor air quality. Note: see people, health & access recommendations also	GCC LES GCC DRS	MP14 MP12 VAR6, 7, 8 and 9 ENV2	N/A	Theme A 'Prosperous Glasgow' Theme B 'Active Glasgow' Theme D 'Greener Glasgow' Theme E 'Accessible Glasgow'
	ENHANCE3.8 Raise awareness of East cluster access enhancements amongst communities' outwith the immediate area and consider how the development of complementary measures may further promote modal shift and air quality GHG mitigation benefits	Example complementary measures may include the development of strategically located park and walk/ ride/ cycle facilities. Note: see people, health & access recommendations also	GCC LES GCC DRS Community Planning Partnerships Community Councils	MP14 MP12 VAR6, 7, 8 and 9 ENV2	N/A	
	ENHANCE3.9 Consider the use of targeted awareness raising activity within key East cluster communities to promote the use of Games related walking and cycling access enhancements	Efforts may be focused on communities in proximity to areas that currently experience linear source air pollution problems (e.g. Parkhead/ Dalmarnock which is in proximity to the Parkhead Cross AQMA). Note: see people, health & access recommendations also	GCC LES GCC DRS Community Planning Partnerships Community Councils	MP14 MP12 VAR6, 7, 8 and 9 ENV2	N/A	
<b>Soils &amp; soil quality</b>						
Potential soil contamination issues at the ENV3 and Hockey Sites are likely to be addressed as part of planning conditions, contributing to a net reduction in East cluster soil contamination	Please see generic soil remediation enhancement recommendations of relevance to all pre-games activity in Environmental Report Part C section 3.6	N/A	GCC LES GCC DRS Private sector/ developers	Glasgow Green Hockey Centre ENV3	N/A	Theme A 'Prosperous Glasgow'
<b>Climate change issues (mitigation and adaptation)</b>						
East cluster habitat creation projects (ENV3 in particular) may contribute to minor GHG mitigation benefits by providing a sizeable addition to the area's carbon sink	ENHANCE3.10 Consider opportunities for using the carbon impact of East cluster development activity as a lever for more substantial Games related green network development in the area including woodland and other habitat creation projects where appropriate	This type of opportunity may be explored through ENV2 and MP12 in particular given their objectives (e.g. Habitat network improvement and management), scope (i.e. a substantial section of the Clyde) and the availability of existing and potential habitat in the area (i.e. as informed by the GCV Green Network IHN model). This type of action would support climate change mitigation and adaptation objectives	GCC LES GCC DRS GCV Green Network SNH Clyde Gateway URC Conservation NGOs	MP12 ENV2 ENV3	N/A	Theme A 'Prosperous Glasgow' Theme D 'Greener Glasgow'
East cluster access improvements may help to reduce transport related GHG emissions by facilitating a modal shift from private car use to sustainable modes for key journeys	See enhancement measures ENHANCE3.1, 3.2, 3.3, 3.4, 3.7, 3.8 and 3.9	See enhancement measures ENHANCE3.1, 3.2, 3.3, 3.4, 3.7, 3.8 and 3.9	See enhancement measures ENHANCE3.1, 3.2, 3.3, 3.4, 3.7, 3.8 and 3.9	See enhancement measures ENHANCE3.1, 3.2, 3.3, 3.4, 3.7, 3.8 and 3.9	See enhancement measures ENHANCE3.1, 3.2, 3.3, 3.4, 3.7, 3.8 and 3.9	
Several East cluster projects will contribute to habitat network improvements, supporting ecologically resilient and varied landscapes and local climate change impact resilience	See enhancement measures ENHANCE3.5, 3.6 and 3.10	See enhancement measures ENHANCE3.5, 3.6 and 3.10	See enhancement measures ENHANCE3.5, 3.6 and 3.10	See enhancement measures ENHANCE3.5, 3.6 and 3.10	See enhancement measures ENHANCE3.5, 3.6 and 3.10	
Appropriate design of VAR project landscaping works may support enhanced habitat networks and ecological resilience	ENHANCE3.11 Consider how the appropriate design of East cluster VAR project landscaping works can be delivered to maximise biodiversity, habitat connectivity and climate change resilience benefits	N/A	GCC LES GCC DRS GCV Green Network SNH Clyde Gateway URC	VAR6 VAR7 VAR8 VAR9	N/A	
<b>Landscape &amp; the historic environment</b>						
Sensitive enhancement of public realm around Saltmarket is likely to improve the setting of several key historic environment features and contributing to major improvements to the area's overall townscape	ENHANCE3.12 Consider how an area's key historic environment features can inform and improve project design	This recommendation applies to both statutory and non-statutory historic environment features and may be of particular relevance to VAR projects at Bridgeton/ Parkhead Cross, Glasgow Green and Tollcross Park	GCC LES GCC DRS Historic Scotland Heritage NGOs Clyde Gateway	All East cluster projects	<i>Recommendations from the MP14 assessment:</i> 13.Liaise with relevant stakeholders to identify key aspects of design and/ or materials considerations that should be incorporated with any public realm works at Saltmarket 14.Explore synergies with related public realm/ historic environment enhancement projects and initiatives (e.g. Merchant City Townscape Heritage Initiative) to ensure that the Saltmarket project design is complementary	Theme A 'Prosperous Glasgow' Theme B 'Active Glasgow' Theme C 'International Glasgow' Theme D 'Greener Glasgow' Theme E 'Accessible Glasgow'
VAR project landscaping works should improve townscape in East cluster areas where there are few remaining historic environment features	ENHANCE3.13 Consider how VAR6 and 7 works can help to 'join-up' fragmented historic environment features in and around Parkhead	N/A	GCC LES GCC DRS Historic Scotland Heritage NGOs Clyde Gateway	VAR6 VAR7	15.Consider how potential synergies between public realm enhancement projects and Games related educational/ promotional initiatives can be used to raise awareness about the importance of Glasgow's historic environment (e.g. to the City's tourism offer)	
Well designed approach to development should ensure that most of the East Cluster area's townscape and public realm is enhanced to a degree, especially given the historic environment's currently disjointed nature	See enhancement measures ENHANCE3.12 and 3.13	See enhancement measures ENHANCE3.12 and 3.13	See enhancement measures ENHANCE3.12 and 3.13	See enhancement measures ENHANCE3.12 and 3.13		
Public realm improvements around Saltmarket should ensure that the area's local distinctiveness is enhanced	ENHANCE3.14 Ensure that Saltmarket public realm improvements are delivered in line with the objectives, policies and criteria of the City Centre Conservation Area	N/A	GCC LES GCC DRS Historic Scotland Heritage NGOs Clyde Gateway	MP11 MP13 MP14		
ENV3 related planting of appropriate species of native tree should help to improve Clyde corridor landscape character around the Cuningar Loop site	ENHANCE3.15 Consider the use of a sensitive approach to tree planting strategy at the ENV3 site that restricts planting of non-native species to locations outwith sight lines from the north bank and/ or other key vantage points	One approach may be to use only native tree species on the river banks	GCC LES GCC DRS GCV Green Network SNH	ENV3		
ENV2 related improvements to river bank management may enhance views from the Clyde Walkway up and down the Clyde and across to the south bank	ENHANCE3.16 Consider native tree planting opportunities as part of the ENV2 and MP12 projects to help improve Clyde corridor landscape character in the area	N/A	GCC LES GCC DRS GCV Green Network SNH	ENV2 MP12		
<b>Potential negative environmental effects</b>						
<b>People, health &amp; access</b>						
Temporary risk of construction related air quality/ noise issues affecting public health and amenity. Effects may be particularly pronounced in areas with existing traffic congestion and air quality issues	See mitigation measures MITIGATE3.5, 3.6 and 3.7	See mitigation measures MITIGATE3.5, 3.6 and 3.7	See mitigation measures MITIGATE3.5, 3.6 and 3.7	See mitigation measures MITIGATE3.5, 3.6 and 3.7	See mitigation measures MITIGATE3.5, 3.6 and 3.7	N/A
Air quality/ noise related human health effects may arise during operation as a result of an increased need to travel to the area to access new facilities combined with the effect of East cluster housing and population growth strategies	See mitigation measures MITIGATE3.5, 3.6 and 3.7	See mitigation measures MITIGATE3.5, 3.6 and 3.7	See mitigation measures MITIGATE3.5, 3.6 and 3.7	See mitigation measures MITIGATE3.5, 3.6 and 3.7	See mitigation measures MITIGATE3.5, 3.6 and 3.7	
<b>Wildlife conservation &amp; ecosystem services</b>						
East cluster development adjacent to the Clyde has potential to contribute to increased diffuse source water pollution and increased pressure on aquatic ecosystems (see East cluster individual projects assessment for more detailed information on potential effects)	See mitigation measures MITIGATE3.1, 3.2, 3.3 and 3.4	See mitigation measures MITIGATE3.1, 3.2, 3.3 and 3.4	See mitigation measures MITIGATE3.1, 3.2, 3.3 and 3.4	See mitigation measures MITIGATE3.1, 3.2, 3.3 and 3.4	<i>Recommendations from the hockey project assessment:</i> 16.Ensure that contractors comply with relevant legislation and guidelines to minimise potential issues associated with hydrocarbon contaminated run-off 17.Where significant risks are identified, consider the use of bunds and/ or other physical interventions to reduce the chance of contaminated run-off entering the Clyde at this point 18.Ensure that contractors develop and utilise an appropriate remediation strategy that accounts for risks to ecological receptors during remediation works 19.Ensure that adequate drainage infrastructure and, where	N/A

					appropriate, on-site treatment facilities are installed to minimise the risk of operation related hydrocarbon contaminated run-off entering the Clyde 20. Consider approaches to site configuration (e.g. with respect to car park size and location) that minimise risks of diffuse source water pollution from areas of hard standing	
<b>Water bodies &amp; flooding</b>						
Diffuse source water pollution from several Clydeside projects in the East cluster area raises a potential threat to River Clyde water quality. Chemical and ecological parameters may be affected given the potential for both chemical and nutrient diffuse source water pollution	MITIGATE3.1 Ensure that SuDS approaches are considered as part of MP12 design e.g. use of permeable surfaces and filter drains	Appropriate use of SuDS should ensure that all operational risks to River Clyde water quality, particularly those from increased diffuse source water pollution, are reduced to an acceptable level	GCC DRS GCC LES GCV Green Network Clyde Gateway URC Scottish Water SEPA Private sector	MP12	Recommendations from the hockey project assessment: 21. Consider opportunities/technical design feasibility of a regional approach to Hockey Centre related SuDS infrastructure. This approach would be able to support (as a minimum) water quality, flooding and biodiversity objectives 22. Consider opportunities (including joint funding streams for example for integration of such a scheme with related projects and initiatives – from the CG Strategy and Framework but also from related plans and programmes e.g. the EELDS, South Dalmarnock Masterplan etc	N/A
	MITIGATE3.2 Where relevant, consider how drainage requirements of key East cluster projects can be integrated with proposed regional SuDS schemes	Appropriate use of SuDS should ensure that all operational risks to River Clyde water quality, particularly those from increased diffuse source water pollution, are reduced to an acceptable level	GCC DRS GCC LES GCV Green Network Clyde Gateway URC Scottish Water SEPA Private sector	All East cluster projects		
Increased heavy plant and other traffic during construction may contribute to increased hydrocarbon contaminated run-off	Note: please see recommendations from the individual projects assessment under 'wildlife conservation & ecosystem services'	Appropriate use of SuDS should ensure that all operational risks to River Clyde water quality, particularly those from increased diffuse source water pollution, are reduced to an acceptable level	GCC DRS GCC LES GCV Green Network Clyde Gateway URC Scottish Water SEPA Private sector	Glasgow Green Hockey Centre MP12 ENV3		
New car parking facilities may contribute to an increased risk of hydrocarbon contaminated run-off	Note: please see recommendations from the individual projects assessment under 'wildlife conservation & ecosystem services'	Appropriate use of SuDS should ensure that all operational risks to River Clyde water quality, particularly those from increased diffuse source water pollution, are reduced to an acceptable level	GCC DRS GCC LES GCV Green Network Clyde Gateway URC Scottish Water SEPA Private sector	Glasgow Green Hockey Centre ENV3		
ENV3 habitat management raises potential risks associated with chemical and/ or nutrient contaminated run-off	MITIGATE3.3 Where possible, avoid the use of chemical treatments at the ENV3 site	N/A	GCC DRS GCC LES GCV Green Network Clyde Gateway URC Scottish Water SEPA Private sector	ENV3		
	MITIGATE3.4 Use appropriate soil management and drainage techniques at the ENV3 site to avoid soil erosion and/ or nutrient loading of the Clyde at this point	N/A	GCC DRS GCC LES GCV Green Network Clyde Gateway URC Scottish Water SEPA Private sector	ENV3		
<b>Air quality, noise &amp; dust</b>						
Construction related traffic management may increase congestion and exacerbate existing air quality problems, particularly at Parkhead Cross and Saltmarket. During operation, new facilities and growth strategies will increase the need to travel to and within the area. Unless this increased travel demand can be met with sustainable and active modes, there is a concern that existing air quality problems will be exacerbated and new problems arise	MITIGATE3.5 Ensure close integration between Games plans (e.g. access improvements) and other related plans and projects in the East cluster area  Please see generic air pollution and noise nuisance mitigation recommendations of relevance to all pre-games activity in Environmental Report Part C section 3.6	Key related plans to consider include the EELDS, relevant provisions from City Plan 2 and the Clyde Gateway URC's Business Plan. Key related projects to consider include the Athletes' Village and the New Neighbourhood at Oatlands	GCC DRS GCC LES GCV Green Network Clyde Gateway URC Private sector/ developers	All East cluster projects	Recommendations from the Hockey project assessment: 23. Ensure that the Hockey Centre facility has adequate provision for securing bikes to promote the use of active travel 24. Advertise sustainable modes and routes that can be used to access the facility 25. Highlight the Clyde Walkway as a key active travel route for journeys to and from the Hockey Centre and ensure that any synergies and overlaps with ENV2 are fully considered 26. Recommend that other initiatives within the East cluster area (as delivered through related frameworks e.g. City Plan 2, the EELDS etc) promote the use of active and/ or sustainable travel modes 27. Consider options for integrating any Hockey Centre travel planning activities with those for related initiatives/ facilities in the East cluster area	N/A
	MITIGATE3.6 Ensure that Games related access improvements are communicated as part of related strategies to raise awareness and promote sustainable and active travel use  Please see generic air pollution and noise nuisance mitigation recommendations of relevance to all pre-games activity in Environmental Report Part C section 3.6	N/A	GCC DRS GCC LES GCV Green Network Clyde Gateway URC Private sector/ developers	All East cluster projects		
Acute construction related noise effects may arise in sensitive locations that do not currently experience significant noise problems. MP15 raises noise issues given its location in proximity to residential areas in Bridgeton	MITIGATE3.7 Where relevant, ensure that Bridgeton residents and users of Tollcross Park are pre-warned of any potentially noisy operations  Please see generic air pollution and noise nuisance mitigation recommendations of relevance to all pre-games activity in Environmental Report Part C section 3.6	N/A	GCC DRS GCC LES Clyde Gateway URC Private sector			
VAR9 construction activities may contribute to a significant, albeit temporary, reduction in noise quality in the Tollcross Park candidate-Quiet Area						
<b>Climate change issues (mitigation)</b>						
East cluster development activity will contribute to a significant, albeit largely 'one off' increase in GHG emissions	Note: see generic GHG mitigation recommendations of relevance to all pre-games activity in Environmental Report Part C section 3.6	N/A	GCC DRS GCC Chief Executive's Department GCC Procurement	All East cluster projects	N/A	N/A
<b>Landscape &amp; the historic environment</b>						
Any inappropriate use of design and materials in VAR related signage, street furniture and lighting development at Bridgeton Parkhead Cross, Glasgow Green and Tollcross Park may contribute to an erosion of the area's historic character	MITIGATE3.8 Consider the need to undertake additional assessments of signage/ street furniture development in key areas of historic interest  Please see generic landscape & historic environment mitigation recommendations of relevance to all pre-games activity in Environmental Report C section 3.6	Assess impacts against relevant Conservation Area objectives and criteria and ensure that cumulative effects issues are adequately considered	GCC DRS Historic Scotland Heritage NGOs Private Sector/ developers	VAR6 VAR7 VAR8 VAR9	N/A	Theme A 'Prosperous Glasgow' Theme C 'International Glasgow'

# **Appendix Appendix BB: Games-time traffic management measures – summary scope of works**

**Note:** there are two key types of traffic management measure:

- **Linear measures:** where the aim is to increase flow of Games family vehicles along key routes (i.e. key sections of the GRN). A key characteristic of these measures is that Games family traffic will share the route with other traffic, either permanently (Games lanes) or at certain times (Kerbside controls)
- **Nodal/ site specific measures:** where measures are designed to either: 1) optimise flow of Games family traffic from one key section of the GRN to another (traffic signal controls and junction improvements); or 2) restrict flow of non-Games family traffic onto the GRN by 'nodal' interventions (diversions, road closures etc)

Categories Games-time traffic measures	Generic examples of key project actions and physical development scope of works	Additional details
<b>Linear measures</b>		
<b>Kerbside controls</b>	<p><b>Note:</b> limited/ no significant construction related effects</p> <ul style="list-style-type: none"> <li>• <i>Aim:</i> to minimise the impact of parked cars and loading activities along key stretches of the GRN to ensure that Games family transport remains on schedule</li> <li>• <i>Key management approach:</i> parking and loading restrictions along the GRN where route is coincidental with residential parking areas and businesses (note: GRN has been developed to minimise the impact on areas where there are currently significant amounts of residential parking and/ or loading areas for businesses)</li> <li>• <i>Enforcement strategy:</i> this will be developed following appropriate consultation</li> </ul> <p>Operational issues:</p> <ul style="list-style-type: none"> <li>• The GRN is unlikely to be in operation 24/7 therefore the public and businesses will have access at certain times (e.g. night time)</li> <li>• A key issue to avoid is parked cars being left over night and then impacting on the Games-time operation of the GRN during the day</li> <li>• Where possible the GRN has been selected to avoid these types of impact so this strategy</li> </ul>	



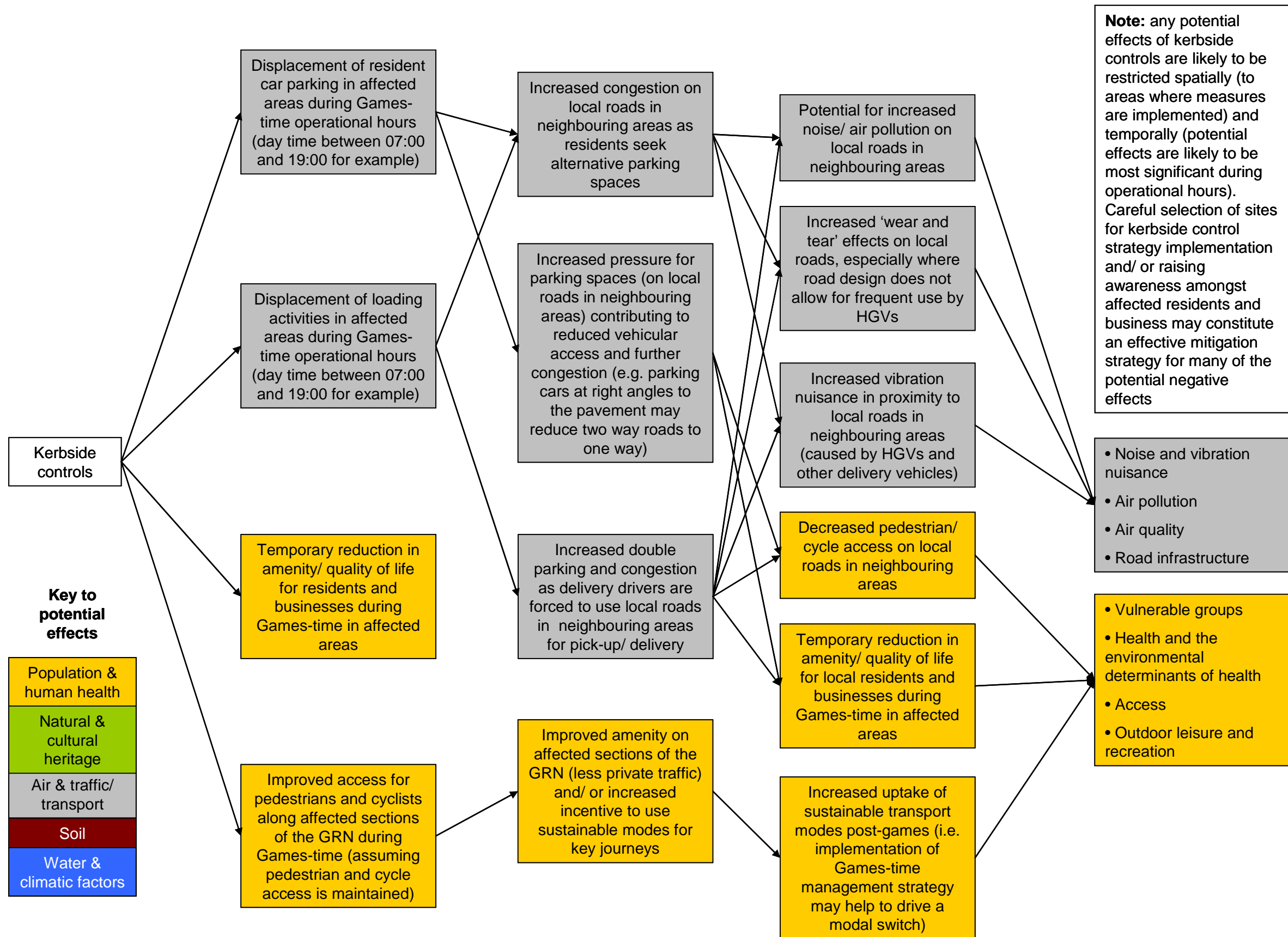
Categories Games-time traffic measures	Generic examples of key project actions and physical development scope of works	Additional details
	<p>should only be implemented where absolutely necessary</p> <ul style="list-style-type: none"> <li>• Key decisions re Kerbside Control strategy are where (i.e. locations where there are a significant residential parking/ business presence) and when (times – when to allow access and when not) to implement</li> </ul>	
<b>Games lanes</b>	<p><b>Note:</b> significant potential for construction related effects</p> <ul style="list-style-type: none"> <li>• There <b>may</b> be some requirement for road widening schemes etc though it is anticipated that Games lanes will generally occupy existing road space</li> <li>• Games lanes will be made distinct with additional road markings and signage</li> <li>• Establishment of temporary traffic management measures during any construction activities where necessary</li> <li>• Physical development of road widening works etc</li> </ul> <p>Operational issues:</p> <ul style="list-style-type: none"> <li>• Games lanes will only be implemented along key sections of the GRN where the priority for Games family vehicles is essential</li> <li>• What will the impact be on pedestrians and cyclists – will cyclists be permitted to use Games Lanes (as they are Bus Lanes) and will pedestrians have the same access as they do now (i.e. pedestrian crossings etc)</li> <li>• At times will Games Lanes be operational and how will this be communicated to other roads users e.g. will the lanes be in operation for the duration of the Games or only when a given GRN</li> </ul>	<p>Key aim of Games Lanes will be to enable the Games family to reach destinations along individual GRN routes more easily whilst minimising the impact of Games family operations on other road users.</p> <p><b>Potential environmental effects of Games Lane operation may include:</b></p> <ul style="list-style-type: none"> <li>• Increased non-Games family congestion and related effects (e.g. increased standing traffic may contribute to temporary decreases in air quality during Games-time)</li> <li>• Increased journey times and reduced accessibility for non-Games family road users</li> <li>• Increased use and/ or congestion on neighbouring side streets (i.e. as a result of non-Games family road users seeking alternative routes to avoid congested GRN where Games lanes are in operation)</li> <li>• Decreased accessibility for pedestrians and cyclists and/ or increased waiting times at key GRN crossings</li> <li>• Awareness-raising delivered pre and during the Games in conjunction with the Games lane (and other) restrictions may encourage private car users to think about alternative travel options and put these into practice post-Games (assuming alternatives prove to be satisfactory). Secondary effect may be increased patronage of bus and train services for similar journeys</li> <li>• Use of Games lanes infrastructure Post-games as a key</li> </ul>

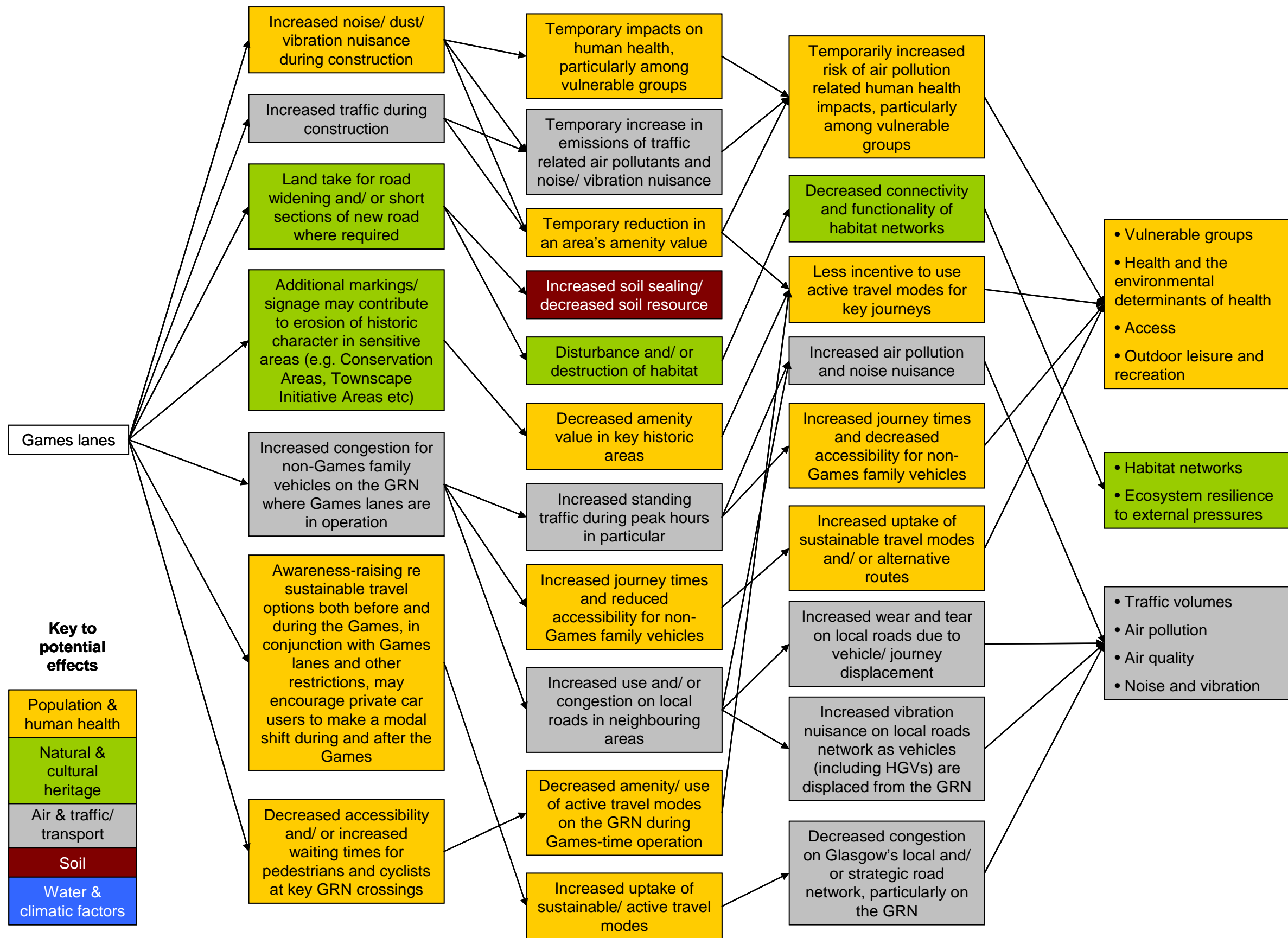
Categories Games-time traffic measures	Generic examples of key project actions and physical development scope of works	Additional details
	journey is required (event timetabling issues)	legacy benefit
<b>Nodal and/ or site specific measures</b>		
<b>Traffic signal controls and junction improvements</b>	<p><i>Traffic signal controls</i></p> <p><b>Note:</b> limited/ no significant construction related effects</p> <p><b>Note:</b> see diagram for further information</p> <ul style="list-style-type: none"> <li>• Use of remotely operated traffic signals to give Games family vehicles greater priority at key junctions at peak times i.e. lights are green for longer for Games family</li> <li>• In effect, this strategy would allow significantly larger Games family traffic flow at key junctions than would otherwise be the case during standard operation e.g. 10 large buses pass through the lights as opposed to three</li> <li>• Application: junctions linking key sections of the GRN</li> <li>• Peak times may include transportation of Athletes to training venues between 08:00 and 09:00 for example</li> </ul>	<p>Traffic signal controls can be modified on an ad hoc basis or modelled to take account of key variables linked to different types of demand. These may include:</p> <ul style="list-style-type: none"> <li>• Event timetable (this informs all other variables i.e. which venues are required on a given day and how many athletes, officials etc will be in attendance)</li> <li>• GRN journeys required on a given day, hour or other planning timeframe (e.g. if a day's events are scheduled at Scotstoun and the SECC only, the GRN journeys required are AV to Scotstoun and AV to SECC. There is therefore no need to alter traffic signal controls on the GRN between AV and Hampden, Cathkin Braes, Kelvingrove, Ibrox etc)</li> <li>• Number of athletes/ vehicles</li> </ul>

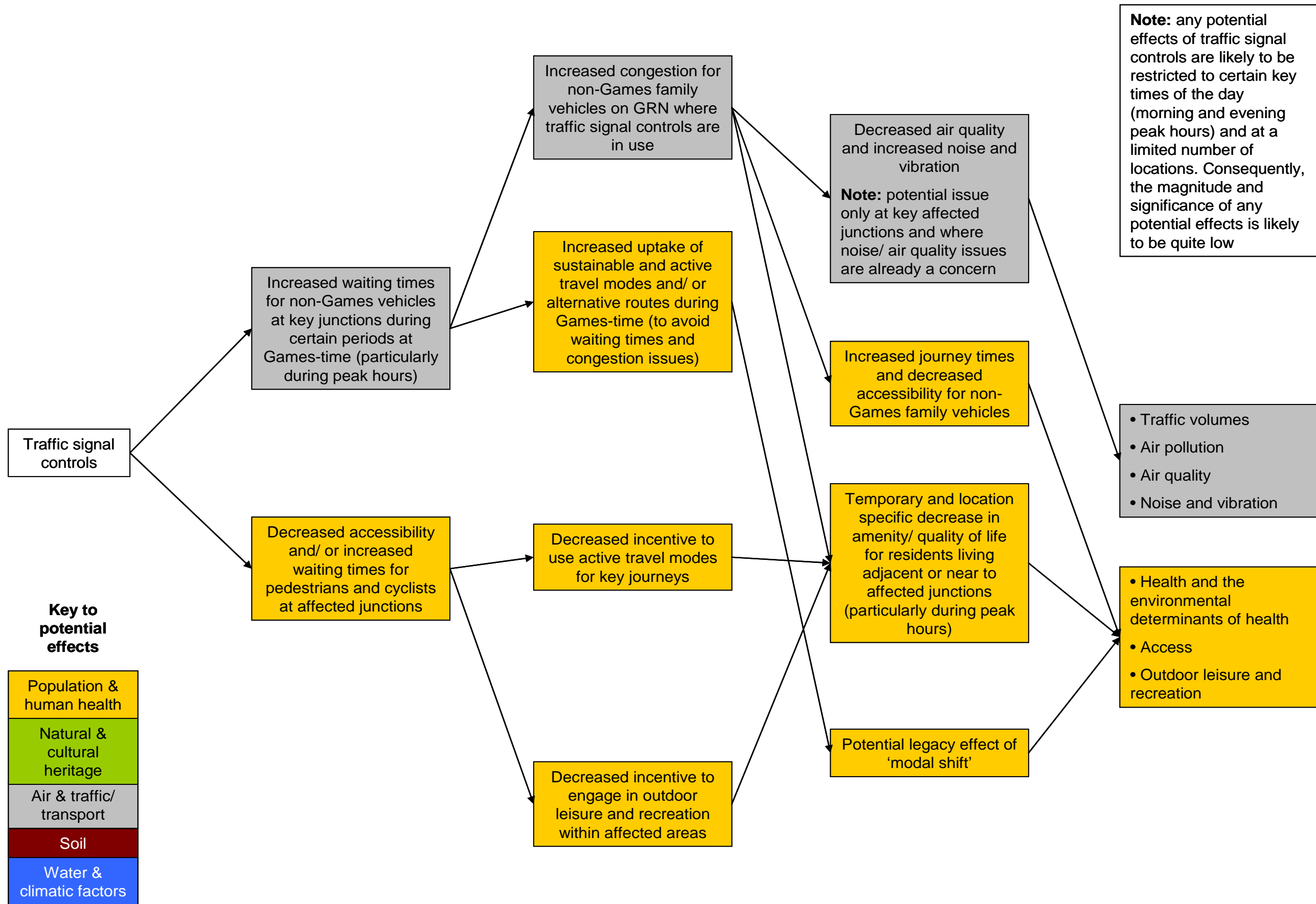
Categories Games-time traffic measures	Generic examples of key project actions and physical development scope of works	Additional details
	<p><i>Junction improvements</i></p> <p><b>Note:</b> significant potential for construction related effects</p> <ul style="list-style-type: none"> <li>• Establishment of temporary traffic management measures during construction where necessary</li> <li>• Physical development of new/ improved junction</li> <li>• Provision of new pedestrian crossings including physical development where necessary</li> <li>• Provision of safe access routes for pedestrians and cyclists including physical development where necessary</li> </ul> <p>Key aims of junction improvement projects are as follows:</p> <ul style="list-style-type: none"> <li>• Reduce delays and congestion (<i>key potential effect:</i> reduction in traffic congestion should reduce standing traffic, particularly at peak times, and therefore also help to alleviate air quality issues – Chris..?)</li> <li>• Improve safety</li> <li>• Improve vehicular access to the surrounding local/ strategic roads network</li> <li>• Improve pedestrian and cyclist access and safety (<i>key potential effect:</i> improved access in this regard should reduce community severance/ fragmentation)</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of new roads and/ or filter lanes, slip roads etc</li> <li>• Physical development required to deliver major refurbishment of short sections of roads, footpaths and cyclepaths (e.g. change running surface, improve alignment)</li> <li>• Small scale soft landscaping enhancements</li> <li>• Land take and/ or removal of green space</li> </ul> <p><b>Potential environmental effects of junction improvement projects may include</b></p> <p>Construction related:</p> <ul style="list-style-type: none"> <li>• Generic temporary traffic management type effects (see CCA for venue development)</li> <li>• Land take and associated potential for habitat disturbance, destruction, fragmentation</li> <li>• Habitat network enhancement as a result of well designed and implemented soft landscaping enhancements</li> </ul> <p>Operation related:</p> <ul style="list-style-type: none"> <li>• Improved/ worsened air quality dependant on receptor location</li> <li>• Improved/ worsened noise impact situation dependant on receptor location</li> <li>• Enhanced safe access for pedestrians and cyclists</li> </ul>
<b>Banned turns and road closures</b>	<p><b>Note:</b> limited/ no significant construction related effects</p> <p><b>Note:</b> see diagram for further information</p> <ul style="list-style-type: none"> <li>• Effective closure of roads during Games-time to free up the GRN for Games family traffic</li> <li>• Considered nodal/ site specific as implementation of the management measure will apply to a</li> </ul>	<ul style="list-style-type: none"> <li>• Displacement of traffic to surrounding streets/ areas</li> <li>• Access issues for cyclists and pedestrians</li> <li>• Congestion, particularly at turning areas</li> </ul>

Categories Games-time traffic measures	Generic examples of key project actions and physical development scope of works	Additional details
	<p>specific location (either a set point in a road or at a key junction) to prevent non-Games family traffic from accessing the GRN</p> <ul style="list-style-type: none"> <li>• Management measure may be implemented through road blocks and/ or other enforcement</li> </ul> <p>Issues to consider:</p> <ul style="list-style-type: none"> <li>• Management may or may not allow pedestrian/ cyclist access dependent on approach to security, event ticketing, venue access etc</li> <li>• Road closure/ banned turns may necessitate provision of a sufficiently sized area where large vehicles can turn around should signs/ other traffic management measures be missed</li> </ul> <p><b>Note:</b> must be implemented in conjunction with other traffic management measures i.e. diversions</p>	
<b>Diversion routes</b>	<p><b>Note:</b> limited/ no significant construction related effects</p> <p><b>See banned turns and road closures</b></p> <p>Operational issues:</p> <ul style="list-style-type: none"> <li>• Diversion routes will probably need to be delivered in conjunction with some of the other proposed traffic management measures (e.g. banned turns and road closures)</li> </ul>	

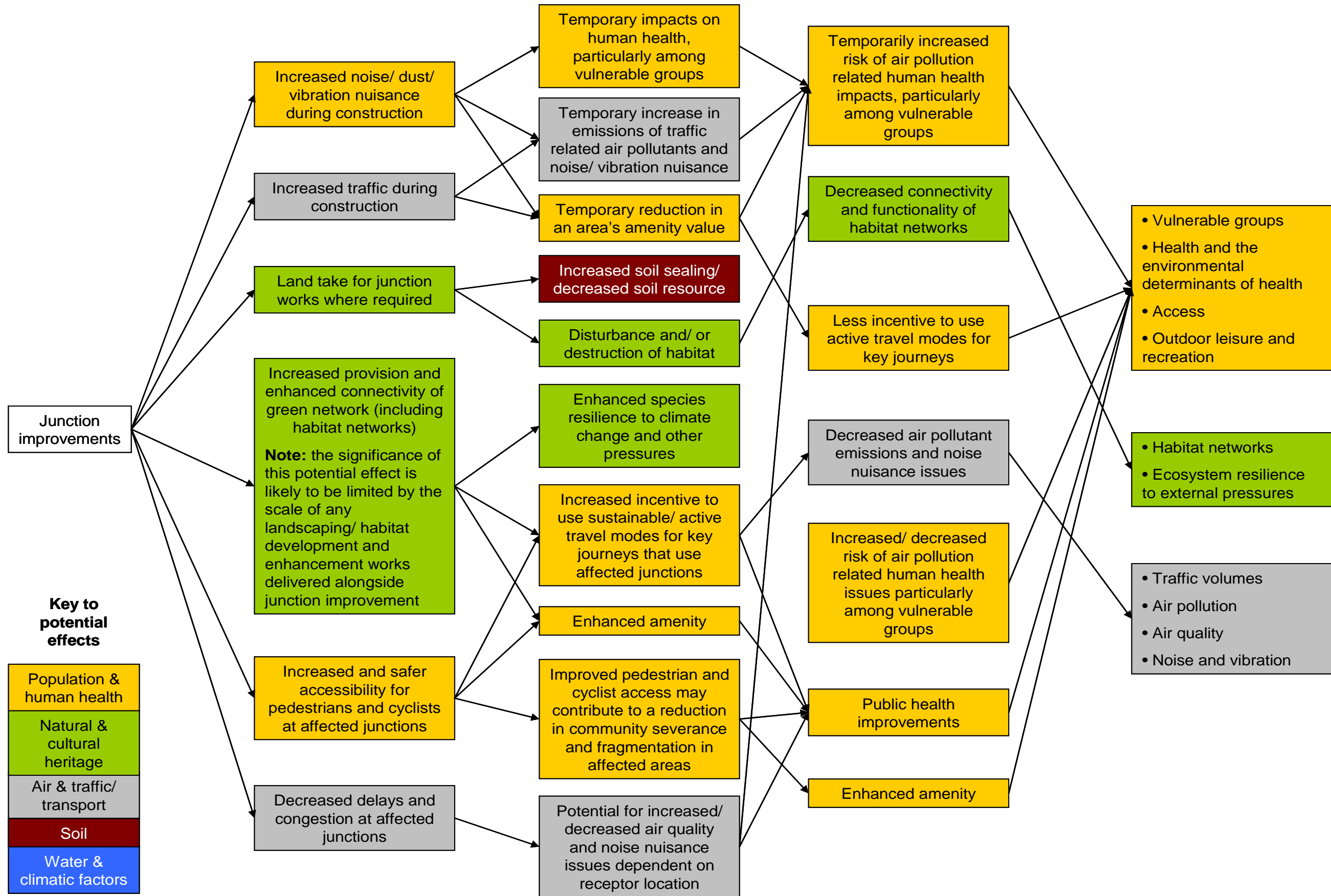
# **Appendix CC: Games-time Causal Chain Analysis outputs**

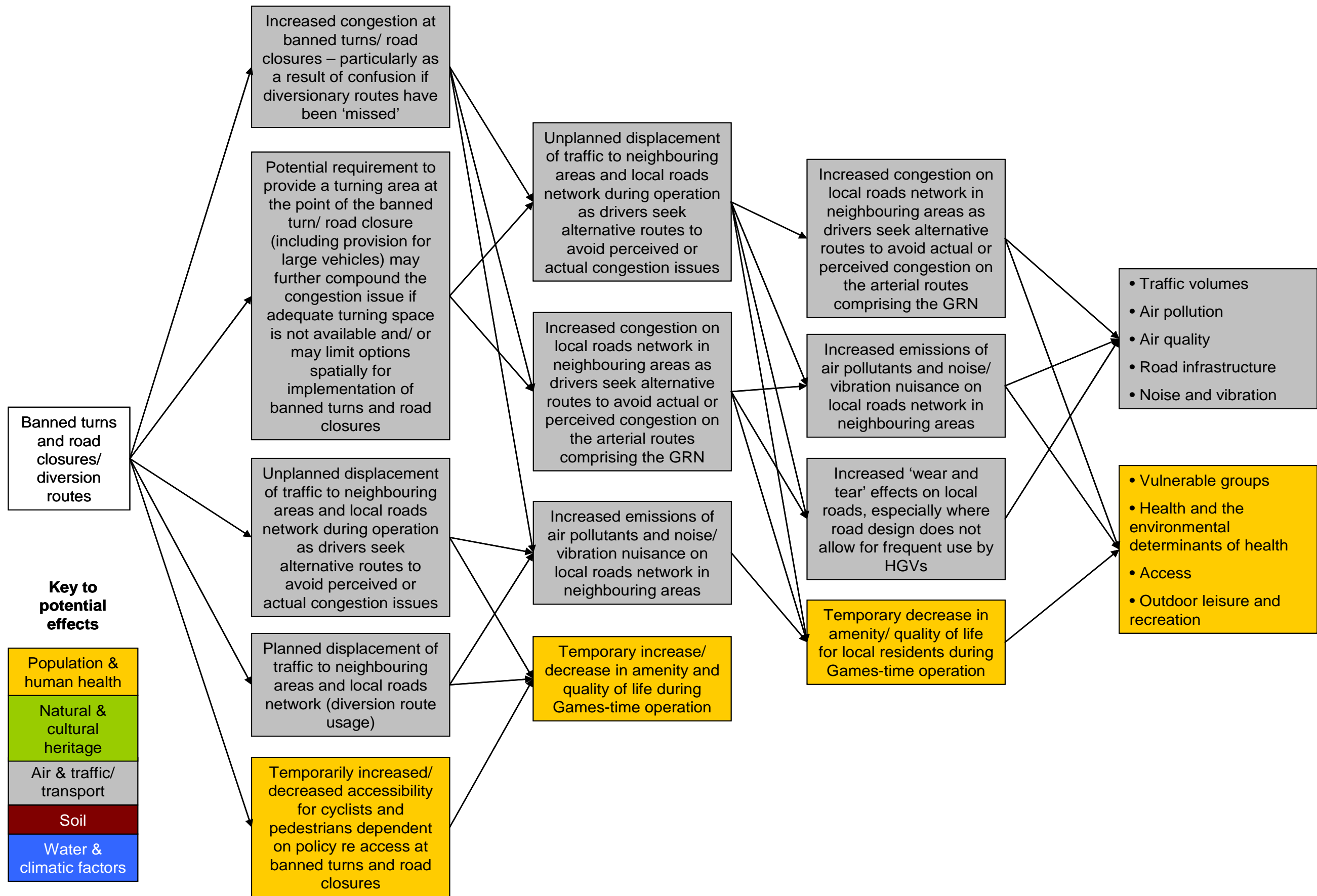












# **Appendix DD: Games-time Causal Chain Analysis summary outputs**

**Note:** please refer to the CCA summary diagrams for information on all potential primary, secondary and resultant/ cumulative effects and key receptors affected. Potential secondary and resultant/ cumulative effects outlined in the summary table below have been prioritised where there are two or more 'causal links' between source and effect. This approach aims to restrict the subsequent spatial analysis part of the assessment to consideration of effects where there is a particularly strong relationship and therefore potential for a more significant effect. All potential primary effects have been included in the analysis.

Generic category of pre-games development activity	Potential primary and secondary environmental effects	Potential resultant/ cumulative environmental effects	Key receptors affected
<p><b>Kerbside controls</b></p> <p><b>Note:</b> limited/ no significant construction related effects</p>	<p><b>Potential primary effects</b>  <i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>• Temporary reduction in amenity/ quality of life (and trading conditions) for residents and businesses during Games-time in affected areas</li> <li>• Improved access for pedestrians and cyclists along affected sections of the GRN during Games-time (assuming pedestrian and cycle access is maintained)</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>• Displacement of resident car parking in affected areas during Games-time operational hours (day time between 07:00 and 19:00 for example)</li> <li>• Displacement of loading activities in affected areas during Games-time operational hours (day time between 07:00 and 19:00 for example)</li> </ul> <p><b>Potential secondary effects</b>  <i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>• Increased congestion on local roads in neighbouring areas as residents seek alternative parking spaces</li> </ul>	<p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>• Decreased pedestrian/ cycle access on local roads in neighbouring areas</li> <li>• Temporary reduction in amenity/ quality of life for local residents and businesses during Games-time in affected areas</li> </ul> <p><i>Air and traffic/ transport related effects:</i></p> <ul style="list-style-type: none"> <li>• Potential for increased noise/ air pollution on local roads in neighbouring areas</li> <li>• Increased 'wear and tear' effects on local roads, especially where road design does not allow for frequent use by HGVs</li> <li>• Increased vibration nuisance in proximity to local roads in neighbouring areas (caused by HGVs and other delivery vehicles)</li> </ul>	<ul style="list-style-type: none"> <li>• Health (as influenced by key environmental determinants)</li> <li>• Health vulnerable groups</li> <li>• Access</li> <li>• Outdoor leisure and recreation</li> <li>• Road infrastructure (integrity)</li> <li>• Noise/ vibration nuisance</li> <li>• Air pollution and quality</li> </ul>

Generic category of pre-games development activity	Potential primary and secondary environmental effects	Potential resultant/ cumulative environmental effects	Key receptors affected
<p><b>Games lanes</b></p> <p><b>Note:</b> significant potential for construction related effects</p>	<p><b>Potential primary effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Increased noise/ dust/ vibration nuisance during construction</li> <li>Awareness-raising re sustainable travel options both before and during the Games, in conjunction with Games lanes and other restrictions, may encourage private car users to make a modal shift during and after the Games</li> <li>Decreased accessibility and/ or increased waiting times for pedestrians and cyclists at key GRN crossings</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Land take for road widening and/ or short sections of new road where required</li> <li>Additional markings/ signage may contribute to erosion of historic character in sensitive areas (e.g. Conservation Areas, Townscape Initiative Areas etc)</li> </ul> <p><i>Air and transport/ traffic related effects:</i></p> <ul style="list-style-type: none"> <li>Increased traffic during construction</li> <li>Increased congestion for non-Games family vehicles on the GRN where Games lanes are in operation</li> </ul> <p><b>Potential secondary effects</b></p> <ul style="list-style-type: none"> <li>Temporary (construction related) increase in emissions of traffic related air pollutants and noise/ vibration nuisance</li> <li>Temporary reduction in an area's amenity value</li> </ul>	<p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporarily (construction related) increased risk of air pollution related human health impacts, particularly among vulnerable groups</li> <li>Less incentive to use active travel modes for key journeys</li> <li>Increased journey times and decreased accessibility for non-Games family vehicles</li> </ul> <p><i>Air and transport/ traffic related effects:</i></p> <ul style="list-style-type: none"> <li>Increased air pollution and noise nuisance</li> <li>Increased wear and tear on local roads due to vehicle/ journey displacement</li> <li>Increased vibration nuisance on local roads network as vehicles (including HGVs) are displaced from the GRN</li> </ul>	<ul style="list-style-type: none"> <li>Health (as influenced by key environmental determinants)</li> <li>Health vulnerable groups</li> <li>Access</li> <li>Outdoor leisure and recreation</li> <li>Road infrastructure (integrity)</li> <li>Noise/ vibration nuisance</li> <li>Air pollution and quality</li> </ul>
<p><b>Traffic signal controls</b></p> <p><b>Note:</b> limited/ no significant construction related effects</p>	<p><b>Potential primary effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Decreased accessibility and/ or increased waiting times for pedestrians and cyclists at affected junctions</li> </ul> <p><i>Air and transport/ traffic related effects:</i></p> <ul style="list-style-type: none"> <li>Increased waiting times for non-Games vehicles at key junctions during certain periods (particularly during peak hours)</li> </ul>	<p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Increased journey times and decreased accessibility for non-Games family vehicles</li> <li>Temporary and location specific decrease in amenity/</li> </ul>	<ul style="list-style-type: none"> <li>Health (as influenced by key environmental determinants)</li> <li>Access</li> <li>Outdoor leisure</li> </ul>

Generic category of pre-games development activity	Potential primary and secondary environmental effects	Potential resultant/ cumulative environmental effects	Key receptors affected
	<p><b>Potential secondary effects</b> N/A</p>	<p>quality of life for residents living adjacent or near to affected junctions (particularly during peak hours)</p>	<p>and recreation</p>
<p><b>Junction improvements</b></p> <p><b>Note:</b> significant potential for construction related effects</p>	<p><b>Potential primary effects</b> <i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Increased noise/ dust/ vibration nuisance during construction</li> <li>Increased and safer accessibility for pedestrians and cyclists at affected junctions</li> </ul> <p><i>Natural and cultural heritage related effects:</i></p> <ul style="list-style-type: none"> <li>Land take for junction works where required</li> <li>Increased provision and enhanced connectivity of green network (including habitat networks). <b>Note:</b> the significance of this potential effect is likely to be limited by the scale of any landscaping/ habitat development and enhancement works delivered alongside junction improvement</li> </ul> <p><i>Air and transport/ traffic related effects:</i></p> <ul style="list-style-type: none"> <li>Increased traffic during construction</li> <li>Decreased delays and congestion at affected junctions</li> </ul> <hr/> <p><b>Potential secondary effects</b> <i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary reduction in an area's amenity value</li> <li>Increased incentive to use sustainable/ active travel modes for key journeys that use affected junctions</li> <li>Enhanced amenity</li> <li>Improved pedestrian and cyclist access may contribute to a reduction in community severance and fragmentation in affected areas</li> </ul> <p><i>Air and transport/ traffic related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary increase in emissions of traffic related air pollutants and noise/ vibration nuisance</li> </ul>	<p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporarily increased risk of air pollution related human health impacts, particularly among vulnerable groups</li> <li>Public health improvements</li> </ul> <p><i>Air and transport/ traffic related effects:</i></p> <ul style="list-style-type: none"> <li>Decreased air pollutant emissions and noise nuisance issues</li> </ul>	<ul style="list-style-type: none"> <li>Health (as influenced by key environmental determinants)</li> <li>Health vulnerable groups</li> <li>Access</li> <li>Traffic volumes</li> <li>Air pollution/ quality</li> <li>Noise/ vibration nuisance</li> </ul>

Generic category of pre-games development activity	Potential primary and secondary environmental effects	Potential resultant/ cumulative environmental effects	Key receptors affected
<p><b>Banned turns, road closures and diversion routes</b></p> <p><b>Note:</b> limited/ no significant construction related effects</p>	<p><b>Potential primary effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporarily increased/ decreased accessibility for cyclists and pedestrians dependent on policy re access at banned turns and road closures</li> </ul> <p><i>Air and transport/ traffic related effects:</i></p> <ul style="list-style-type: none"> <li>Increased congestion at banned turns/ road closures – particularly as a result of confusion if diversionary routes have been ‘missed’</li> <li>Potential requirement to provide a turning area at the point of the banned turn/ road closure (including provision for large vehicles) may further compound the congestion issue if adequate turning space is not available and/ or may limit options spatially for implementation of banned turns and road closures as part of the wider GRN traffic management strategy</li> <li>Unplanned displacement of traffic to neighbouring areas and local roads network during operation as drivers seek alternative routes to avoid perceived or actual congestion issues</li> <li>Planned displacement of traffic to neighbouring areas and local roads network (diversion route usage)</li> </ul> <p><b>Potential secondary effects</b></p> <p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary increase/ decrease in amenity and quality of life during Games-time operation</li> </ul> <p><i>Air and transport/ traffic related effects:</i></p> <ul style="list-style-type: none"> <li>Unplanned displacement of traffic to neighbouring areas and local roads network during operation as drivers seek alternative routes to avoid perceived or actual congestion issues</li> <li>Increased congestion on local roads network in neighbouring areas as drivers seek alternative routes to avoid actual or perceived congestion on the arterial routes comprising the GRN</li> <li>Increased emissions of air pollutants and noise/ vibration nuisance</li> </ul>	<p><i>Population and human health related effects:</i></p> <ul style="list-style-type: none"> <li>Temporary decrease in amenity/ quality of life for local residents during Games-time operation</li> </ul> <p><i>Air and transport/ traffic related effects:</i></p> <ul style="list-style-type: none"> <li>Increased congestion on local roads network in neighbouring areas as drivers seek alternative routes to avoid actual or perceived congestion on the arterial routes comprising the GRN</li> <li>Increased emissions of air pollutants and noise/ vibration nuisance on local roads network in neighbouring areas</li> <li>Increased ‘wear and tear’ effects on local roads, especially where road design does not allow for frequent use by HGVs</li> </ul>	<ul style="list-style-type: none"> <li>Health (as influenced by key environmental determinants)</li> <li>Health vulnerable groups</li> <li>Access</li> <li>Traffic volumes</li> <li>Air pollution/ quality</li> <li>Noise/ vibration nuisance</li> </ul>

# **Appendix EE: Games Route Network environmental constraints analysis summary**



**Note:** key constraints issues under consideration are **people, health & access** (e.g. people/ population centres, health vulnerable groups, key pedestrian and cycle routes such as core paths, NCN routes etc), **wildlife conservation & ecosystem services** (statutory and non-statutory designated sites and all green network sites), **air quality, noise & dust** (AQMAs, emerging air quality issue areas/ sites, NMAs and QAs), **landscape & the historic environment** (designated sites) and **water bodies & flooding** (flood risk areas)

**Note:** the key to constraints categorisation is shown below. It should be noted that a highly precautionary approach has been taken to the assessment of GRN environmental vulnerabilities. The aim has been to highlight the key areas of environmental risk that should be considered during the development of a sustainable strategy for games-time traffic management measure deployment along the GRN

**Key to constraints categorisation for individual chainages:**

<b>No constraint:</b> no sensitivity indicators present
<b>Limited issues/ constraints:</b> one sensitivity indicator present
<b>Significant issues/ constraints:</b> two sensitivity indicators present
<b>Highly significant issues/ constraints:</b> three sensitivity indicators present

<b>Core GRN Journey 1: Athletes' Village to the Tollcross Aquatics Centre</b> (also encompassing the journey to Parkhead Stadium and the NISA/Velodrome)				
<b>GRN chainage</b>	<b>Constraint categorisation</b>	<b>Details of constraints/ key issues</b>	<b>Receptors</b>	<b>Initial recommendations for mitigation of constraints issues</b>
<b>CR13:</b> London Road between Fielden Street to the west and Canmore Street to the east	<b>Significant issues/constraints</b>	<p><b>People, health &amp; access:</b> the journey passes through two areas of residential housing to the chainage's east and west peripheries</p> <p><b>Wildlife conservation &amp; ecosystem services:</b> the journey passes a TPO site and terminates within an SSLI</p> <p><b>Landscape &amp; the historic environment:</b> the journey passes within 50metres of two listed buildings, one of which is Category B</p>	<p>1. Tree Protection Order (TPO) site: Belvidere Hospital</p> <p>2. Listed Buildings (within 50 metres of the chainage):</p> <ul style="list-style-type: none"> <li>• 1281 London Road, C(S);</li> <li>• Calton Parkhead Church and Hall, B</li> </ul> <p>3. Residential areas adjacent to the route in the Canmore and Fielden Street areas</p>	<ul style="list-style-type: none"> <li>• Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from view)</li> <li>• Avoid placing permanent structures within the setting of listed buildings</li> <li>• Avoid removal of trees at Belvidere Park</li> </ul>
<b>CR14:</b> London Road to Tollcross Park from Methven Street to the west via Braidfauld Street	<b>Significant issues/constraints</b>	<p><b>People, health &amp; access:</b> the London Road section of the journey passes through residential housing to the north. The Braidfauld Street section passes through an area of residential housing</p> <p><b>Wildlife conservation and ecosystem services:</b> the journey terminates within an SSLI. No immediate constraints are evident</p> <p><b>Landscape &amp; the historic environment:</b> the journey passes within 50metres of two listed buildings, one of which is Category B. No immediate constraints evident</p>	<p>1. Site of Special Landscape Importance:</p> <ul style="list-style-type: none"> <li>• Tollcross Park</li> </ul> <p>2. Listed Buildings (within 50 metres of the chainage):</p> <ul style="list-style-type: none"> <li>• St Margaret's Tollcross Church B</li> <li>• Tollcross Park, East Lodge C(S)</li> </ul> <p>3. Residential areas adjacent to London road</p>	<ul style="list-style-type: none"> <li>• Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from view)</li> <li>• Avoid placing permanent structures within the setting of listed buildings</li> <li>• Avoid new-build within Tollcross Park outwith that already permitted. Place temporary structures away from undisturbed ground</li> </ul>

<b>Core GRN Journey 2: Athletes' Village to Cathkin Braes</b> (also encompassing the journey to the National Stadium at Hampden Park)				
<b>GRN chainage</b>	<b>Constraint categorisation</b>	<b>Details of constraints/ key issues</b>	<b>Receptors</b>	<b>Initial recommendations for mitigation of constraints issues</b>
<b>CR12:</b> Athletes' Village site (via Dalmarnock Road and Baltic Street) to the river crossing at Richmond Park (Rutherglen Bridge) via Dunn Street	<b>Significant issues/ constraints</b>	<b>People, health &amp; access:</b> the journey passes through an area of residential housing adjacent to Dunn Street to the north <b>Wildlife conservation &amp; ecosystem services:</b> the journey passes within 10 metres of a Corridor of Landscape/ Wildlife Importance. No immediate constraints evident <b>Landscape and the historic environment:</b> Journey passes within 50metres of two Category B listed buildings. No immediate constraints evident	1. Corridor of Landscape/ Wildlife Importance: • Train line running south from Dalmarnock station 2. Listed Buildings (within 50m of the chainage): • Bridgeton Free Church & Hall, B • 103-111 Bridge Street, B 3. Residential areas adjacent to Dunn Street	<ul style="list-style-type: none"> <li>Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings</li> <li>Avoid placing permanent structures within the setting of listed buildings</li> <li>Avoid disturbance and/ or severance of habitat corridors associated with the CLWI site adjacent to Dalmarnock station</li> </ul>
<b>CR10:</b> from Rutherglen Bridge to the north to Polmadie Road (Jessie Street junction) to the south via Shawfield Drive and Rutherglen Road	<b>Highly significant issues/ constraints</b>	<b>Wildlife conservation &amp; ecosystem services:</b> the journey passes within 10m of an SSLI and two CLWIs. No immediate constraints evident <b>Townscape, landscape and the historic environment:</b> the journey passes within 50m of one Category B listed building. No immediate constraints evident	1. Site of Special Landscape Importance: • Richmond Park 2. Corridor of Landscape/ Wildlife Importance: • River Clyde • Railway line adjacent to Polmadie Depot 3. Listed Buildings (within 50m of the chainage) • St Margaret's Polmadie Church manse and hall B	<ul style="list-style-type: none"> <li>Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of the listed building</li> <li>Avoid placing permanent structures within the setting of the listed building</li> <li>Avoid disturbance and/ or severance of habitat corridors associated with the CLWI sites at the Clyde and adjacent to Polmadie depot</li> </ul>
<b>CR11_1:</b> Polmadie Road at Jessie Street to the	<b>Highly significant issues/ constraints</b>	<b>People, health &amp; access:</b> the journey terminates at a residential area at the junction of Polmadie and Aikenhead Roads <b>Wildlife conservation &amp; ecosystem</b>	1. Site of Special Landscape Importance: • Toryglen Park 2. Corridor of Landscape/	<ul style="list-style-type: none"> <li>Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from</li> </ul>

<b>Core GRN Journey 2: Athletes' Village to Cathkin Braes</b> (also encompassing the journey to the National Stadium at Hampden Park)				
<b>GRN chainage</b>	<b>Constraint categorisation</b>	<b>Details of constraints/ key issues</b>	<b>Receptors</b>	<b>Initial recommendations for mitigation of constraints issues</b>
north to Toryglen Park at Aikenhead Road		<p><b>services:</b> the journey passes within 10m of an SSLI and two CLWIs. No immediate constraints evident</p> <p><b>Landscape and the historic environment:</b> the journey passes within 50m of two listed buildings, A and B Category. No immediate constraints evident</p>	<p>Wildlife Importance:</p> <ul style="list-style-type: none"> <li>Railway line adjacent to Polmadie Depot</li> </ul> <p>3. Listed Buildings:</p> <ul style="list-style-type: none"> <li>Sentinel Works (A)</li> <li>Holyrood RC School and Janitors lodge (B)</li> </ul> <p>4. Residential areas at the junction of Polmadie and Aikenhead Roads</p>	<p>view)</p> <ul style="list-style-type: none"> <li>Avoid placing permanent structures within the setting of listed buildings</li> <li>Avoid disturbance and/ or severance of habitat corridors associated with the CLWI site adjacent to Polmadie depot</li> </ul>
<b>CR11_2:</b> Toryglen Park at Aikenhead Road to Hampden Stadium at Curling Crescent via Aikenhead Road	<b>Significant issues/ constraints</b>	<p><b>People, health &amp; access:</b> the journey passes residential areas at Myrtle Park to the north and areas adjacent to Aikenhead Road to the south</p> <p><b>Wildlife conservation &amp; ecosystem services:</b> the journey passes within 10m of an SSLI to the north</p>	<p>1. Site of Special Landscape Importance:</p> <ul style="list-style-type: none"> <li>Toryglen Park</li> </ul> <p>2. Residential areas at the junction of Polmadie and Aikenhead Roads</p>	N/A
<b>CB1:</b> Aikenhead Road at King's Park Avenue to the north to Carmunnock Road at Croftfoot Road to the south	<b>Highly significant issues/ constraints</b>	<p><b>People, health &amp; access:</b> the journey passes through residential areas for its duration and a primary school at Carna Drive and a secondary school at Fetlar Drive to the south</p> <p><b>Wildlife conservation &amp; ecosystem services:</b> the journey passes within 10m of an SSLI. No immediate constraints evident</p> <p><b>Landscape and the historic environment:</b> Journey passes within 50m of one Category B listed building</p>	<p>1.Site of Special Landscape Importance:</p> <ul style="list-style-type: none"> <li>King's Park</li> </ul> <p>2.Corridor of Landscape/ Wildlife Importance:</p> <ul style="list-style-type: none"> <li>Railway line to King's Park Station</li> </ul> <p>3.Listed Building:</p> <ul style="list-style-type: none"> <li>Aikenhead House Stable Block, B</li> </ul> <p>4. Residential areas throughout the journey's</p>	<ul style="list-style-type: none"> <li>Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from view)</li> <li>Avoid placing permanent structures within the setting of listed buildings</li> <li>Avoid disturbance and/ or severance of habitat corridors associated with the railway CLWI site</li> <li>Discourage Games traffic from passing through Carmunnock</li> </ul>

<b>Core GRN Journey 2: Athletes' Village to Cathkin Braes</b> (also encompassing the journey to the National Stadium at Hampden Park)				
<b>GRN chainage</b>	<b>Constraint categorisation</b>	<b>Details of constraints/ key issues</b>	<b>Receptors</b>	<b>Initial recommendations for mitigation of constraints issues</b>
			duration 5. St. Mirin's RC primary school at Carna Drive 6. King's Park Secondary School at Fetlar Drive	
<b>CB2:</b> Carmunnock Road at Raithburn Road to the north to Carmunnock Road at Lainshaw Drive to the south	<b>Highly significant issues/ constraints</b>	<p><b>People, health &amp; access:</b> the journey passes residential areas for its duration and a primary school at Dougrie Road</p> <p><b>Wildlife conservation &amp; ecosystem services:</b> the journey passes within 10m of two SSLIs, a CWLI, an LSINC and a TPO site. No immediate constraints evident</p> <p><b>Landscape and the historic environment:</b> Journey passes within 50m of two Category B and one C(S) listed building</p>	1. Sites of Special Landscape Importance: <ul style="list-style-type: none"> <li>• Downcraig Road Woodland</li> <li>• Open land to the north of Carmunnock</li> </ul> 2. Corridor of Landscape/ Wildlife Importance <ul style="list-style-type: none"> <li>• Linn Park</li> </ul> Site of Importance for Nature Conservation – Local: <ul style="list-style-type: none"> <li>• Downcraig Road Woodland</li> </ul> 3. Tree Protection Order: <ul style="list-style-type: none"> <li>• Linn Park</li> </ul> 4. Listed Buildings: <ul style="list-style-type: none"> <li>• Castlemilk West Parish Church, B</li> <li>• St Margaret Mary's RC Church, B</li> <li>• Mid Netherton farmhouse</li> </ul> 5. Residential areas throughout the journey's duration	<ul style="list-style-type: none"> <li>• Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from view)</li> <li>• Avoid placing permanent structures within the setting of listed buildings</li> <li>• Avoid disturbing land, and severing habitat corridors associated with the SSLI and CLWI</li> <li>• Discourage Games traffic from passing through Carmunnock</li> </ul>

<b>Core GRN Journey 3: Athletes' Village to Scotstoun Squash Centre</b> (also encompassing journey to Glasgow Green, the SECC precinct, Kelvingrove and Kelvinhall)				
<b>GRN chainage</b>	<b>Constraint categorisation</b>	<b>Details of constraints/ key issues</b>	<b>Receptors</b>	<b>Initial recommendations for mitigation of constraints issues</b>
<b>CR10:</b> Newhall Street at the junction with Dunn Street (to the south east) to The Green at the junction with King's Drive and James Street (to the north west)	<b>Highly significant issues/ constraints</b>	<p><b>People, health &amp; access:</b> the journey passes through residential areas to the east for its duration</p> <p><b>Wildlife conservation &amp; ecosystem services:</b> journey passes within 10m of an SSLI and a CWLI. No immediate constraints evident</p> <p><b>Landscape and the historic environment:</b> two Category B listed building complexes lie within 50m of the route</p> <p><b>Water bodies &amp; flooding:</b> within flood potential area</p>	<p>1. Site of Special Landscape Importance:</p> <ul style="list-style-type: none"> <li>Flesher's Haugh (Glasgow Green)</li> </ul> <p>2. Corridor of Wildlife and Landscape Importance:</p> <ul style="list-style-type: none"> <li>River Clyde</li> </ul> <p>3. Listed Buildings:</p> <ul style="list-style-type: none"> <li>117-127 Greenhead Street 91-101 Tullis Street, B</li> <li>97-113 Greenhead Street; 2-12 James St; 100 Tullis St, B</li> </ul> <p>4. Residential areas throughout the journey's duration</p>	<ul style="list-style-type: none"> <li>Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from view)</li> <li>Avoid placing permanent structures within the setting of listed buildings</li> <li>Avoid disturbing land, and severing habitat corridors associated with the SSLI and CLWI</li> </ul>
<b>CR9:</b> The Green at the junction with King's Drive and James Street (to the south east) to Crown Street at the College of Nautical Studies (to the north west) via	<b>Highly significant issues/ constraints</b>	<p><b>Wildlife conservation &amp; ecosystem services:</b> journey passes within 10m of one SSLI and a CWLI. No immediate constraints evident</p> <p><b>Landscape and the historic environment:</b> One Category A and two Category B listed building complexes lie within 50m of the route. The route passes through the Glasgow Central Conservation Area</p> <p><b>Water bodies &amp; flooding:</b> within flood potential area</p>	<p>1. AQMA:</p> <ul style="list-style-type: none"> <li>City Centre</li> </ul> <p>2. Site of Special Landscape Importance:</p> <ul style="list-style-type: none"> <li>Glasgow Green</li> </ul> <p>3. Corridor of Wildlife and Landscape Importance:</p> <ul style="list-style-type: none"> <li>River Clyde</li> </ul> <p>4. Listed Buildings:</p> <ul style="list-style-type: none"> <li>Albert Bridge, A</li> <li>187-203 Old Rutherglen Road, B</li> </ul>	<ul style="list-style-type: none"> <li>Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from view)</li> <li>Avoid placing permanent structures within the setting of listed buildings, particularly the two bridges</li> <li>Any works to listed buildings, or on structures within the Conservation Area may require consent from the planning authority</li> <li>Avoid disturbing land, and severing</li> </ul>

<b>Core GRN Journey 3: Athletes' Village to Scotstoun Squash Centre</b> (also encompassing journey to Glasgow Green, the SECC precinct, Kelvingrove and Kelvinhall)				
<b>GRN chainage</b>	<b>Constraint categorisation</b>	<b>Details of constraints/ key issues</b>	<b>Receptors</b>	<b>Initial recommendations for mitigation of constraints issues</b>
King's Drive and Ballater Street		<b>Air quality, noise &amp; dust:</b> route lies within the City Centre AQMA	<ul style="list-style-type: none"> <li>Glasgow College of Building &amp; Painting, B</li> </ul> 5. Conservation Area: <ul style="list-style-type: none"> <li>Central Area</li> </ul>	habitat corridors associated with the SSLI and CLWI
<b>CR8:</b> Crown Street at the College of Nautical Studies (to the east) to Broomielaw at York Street (to the west) via the Albert Bridge and Clyde Street	<b>Highly significant issues/constraints</b>	<p><b>People, health &amp; access:</b> the journey is adjacent to the Clyde Walkway for its duration and passes several of the City's key business and office areas e.g. the 'International Finance' district at Broomielaw</p> <p><b>Wildlife conservation &amp; ecosystem services:</b> journey passes within 10m of one SSLI and a CWLI. No immediate constraints evident</p> <p><b>Landscape and the historic environment:</b> Five Category A, seven Category B, and one Category C(S) listed buildings lie within 50m of the route. The route passes through the Glasgow Central Conservation Area</p> <p><b>Water bodies &amp; flooding:</b> within flood potential area</p> <p><b>Air quality, noise &amp; dust:</b> route runs within the City Centre AQMA</p>	1. Site of Special Landscape Importance: <ul style="list-style-type: none"> <li>Buchanan St</li> </ul> 2. AQMA: <ul style="list-style-type: none"> <li>City Centre</li> </ul> 3. Corridor of Wildlife and Landscape Importance: <ul style="list-style-type: none"> <li>River Clyde</li> </ul> 4. Listed Buildings: <ul style="list-style-type: none"> <li>Justiciary Courts, Saltmarket (A)</li> <li>The Briggait (A)</li> <li>Victoria Bridge (A)</li> <li>St Andrew's Cathedral (A)</li> <li>Portland St Suspension Bridge (A)</li> <li>140-144 Trongate (B)</li> <li>Union Railway Bridge (B)</li> <li>266-268 Clyde Street (B)</li> <li>286 Clyde Street (B)</li> <li>Statue of Dolores Ibarruri (B)</li> <li>King George V Bridge (B)</li> </ul>	<ul style="list-style-type: none"> <li>Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from view)</li> <li>Avoid placing permanent structures within the setting of listed buildings, particularly the bridges</li> <li>Any works to listed buildings, or on structures within the Conservation Area may require consent from the planning authority</li> <li>Avoid disturbing land, and severing habitat corridors associated with the SSLI and CLWI</li> </ul>

<b>Core GRN Journey 3: Athletes' Village to Scotstoun Squash Centre</b> (also encompassing journey to Glasgow Green, the SECC precinct, Kelvingrove and Kelvinhall)				
<b>GRN chainage</b>	<b>Constraint categorisation</b>	<b>Details of constraints/ key issues</b>	<b>Receptors</b>	<b>Initial recommendations for mitigation of constraints issues</b>
			<ul style="list-style-type: none"> <li>• 54 – 64 Broomielaw; 5 &amp; 9 Oswald Street (B)</li> <li>• 260 Clyde Street C(S)</li> </ul> 5. Conservation Area: <ul style="list-style-type: none"> <li>• Central Area</li> </ul> 6. Key pedestrian and cycle routes: Clyde Walkway/ NCN75 7. Population centres: Broomielaw offices	
<b>CR6</b> (provides access to the Kelvingrove Park area): Anderston Quay at Washington Street (to the east) to Kelvingrove Bowls at Kelvin Way Bridge and Kelvin Hall at Bunhouse Road (to the west) via Finnieston Street, Argyle Street and	<b>Highly significant issues/ constraints</b>	<b>People, health &amp; access:</b> the journey is adjacent to the Clyde Walkway up until Finnieston Street. After this, the journey passes office buildings on Finnieston Street and a densely populated residential area at Argyle Street <b>Wildlife conservation &amp; ecosystem services:</b> journey passes within 10m of a CWLI (Clyde Expressway) and terminates within a SSLI adjacent to a SINC of City-wide importance (River Kelvin) <b>Water bodies &amp; flooding:</b> within flood potential area <b>Air quality, noise &amp; dust:</b> route runs within the City Centre AQMA and an emerging air quality issue area at Finnieston Street <b>Landscape &amp; the historic environment:</b> journey passes within close proximity to several category A and B listed buildings and terminates within the Park	1. AQMA: <ul style="list-style-type: none"> <li>• City Centre</li> <li>• Emerging air quality issue site at Finnieston Street</li> </ul> 2. Corridor of Wildlife and Landscape Importance: <ul style="list-style-type: none"> <li>• Clyde Expressway</li> </ul> 3. Key pedestrian and cycle routes: Clyde Walkway/ NCN75 4. Population centres: <ul style="list-style-type: none"> <li>• Finnieston Street offices</li> <li>• Argyle Street residential properties</li> </ul>	<ul style="list-style-type: none"> <li>• Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from view)</li> <li>• Avoid placing permanent structures within the setting of listed buildings, particularly the bridges</li> <li>• Any works to listed buildings, or on structures within the Conservation Area may require consent from the planning authority</li> <li>• Avoid disturbing land, and severing habitat corridors associated with the SSLI and CLWI</li> </ul>



<b>Core GRN Journey 3: Athletes' Village to Scotstoun Squash Centre</b> (also encompassing journey to Glasgow Green, the SECC precinct, Kelvingrove and Kelvinhall)				
<b>GRN chainage</b>	<b>Constraint categorisation</b>	<b>Details of constraints/ key issues</b>	<b>Receptors</b>	<b>Initial recommendations for mitigation of constraints issues</b>
Dumbarton Road		Conservation Area		
CR5:	<b>Significant issues/ constraints</b>	<b>Wildlife conservation &amp; ecosystem services:</b> Journey passes within 10m of a CWLI <b>Water bodies &amp; flooding:</b> within flood potential area	1. Corridor of Wildlife and Landscape Importance: • River Clyde	<ul style="list-style-type: none"> <li>• Avoid disturbing land, and severing habitat corridors associated with the CLWI</li> <li>• Ensure the flood potential of the area is considered in designs</li> </ul>
<b>CR4:</b> Clydeside Expressway at Cooperage Place in the east to Clydeside Expressway at Hayburn Street in the west	<b>Highly significant issues/ constraints</b>	<b>Wildlife conservation &amp; ecosystem services:</b> journey passes within 10m of three CWLIs <b>Landscape and the historic environment:</b> Route passes within 50m of a Category B listed building <b>Water bodies &amp; flooding:</b> within flood potential area	1. Corridor of Wildlife and Landscape Importance: • River Clyde • River Kelvin • Clyde Expressway 2. Listed Building: • Scotway House (B)	<ul style="list-style-type: none"> <li>• Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from view)</li> <li>• Avoid placing permanent structures within the setting of listed buildings, particularly the two bridges</li> <li>• Any works to listed buildings, or on structures within the Conservation Area may require consent from the planning authority</li> <li>• Avoid disturbing land, and severing habitat corridors associated with the SSLI and CLWI</li> </ul>
<b>CR3:</b> Clydeside Expressway at Hayburn Street in the east to Clydeside Expressway interchange at	<b>Highly significant issues/ constraints</b>	<b>People, health &amp; access:</b> journey runs in close proximity to residential areas at Glasgow harbour <b>Wildlife conservation &amp; ecosystem services:</b> journey passes within 10m of one CWLI <b>Landscape and the historic environment:</b> journey passes within 50m of a Category B listed building	1. AQMA: • Byres Rd/ Dumbarton Rd 2. Corridor of Wildlife and Landscape Importance: • Clyde Expressway 3. Listed Building: • Former Partick Fire Station (30-36 Sandy Road & 120-124 Beith	<ul style="list-style-type: none"> <li>• Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from view)</li> <li>• Avoid placing permanent structures within the setting of listed buildings</li> <li>• Any works to listed buildings, or on structures within the Conservation Area may require consent from the</li> </ul>

<b>Core GRN Journey 3: Athletes' Village to Scotstoun Squash Centre</b> (also encompassing journey to Glasgow Green, the SECC precinct, Kelvingrove and Kelvinhall)				
<b>GRN chainage</b>	<b>Constraint categorisation</b>	<b>Details of constraints/ key issues</b>	<b>Receptors</b>	<b>Initial recommendations for mitigation of constraints issues</b>
Laghall Road/ Sawmill Road in the west		<b>Air quality, noise &amp; dust:</b> route runs within 50m of the Byres Rd/ Dumbarton Rd AQMA	Street (B ) 4. Population centres: • Glasgow Harbour development	planning authority • Avoid disturbing land, and severing habitat corridors associated with the CLWI
<b>CR2:</b> A814/ Clydeside Expressway at Laghall Road/ Sawmill Road interchange in the east to Victoria Park Drive South at Haldane Street in the west	<b>Highly significant issues/ constraints</b>	<b>People, health &amp; access:</b> the journey passes the large and well used outdoor leisure and recreational resource of Victoria Park to the north of Victoria Park Drive South and a residential area to the south <b>Wildlife conservation &amp; ecosystem services:</b> journey passes within 10m of one CWLI and one SSLI <b>Landscape and the historic environment:</b> route passes within 50m of a Category B listed building complex (3 buildings) and a Category C(S) listed building complex (10 buildings). <b>Air quality, noise and dust:</b> route runs past a cNMA	1. CNMA: • Corner of Inchholm Street and Balshagray Crescent 2. Corridor of Wildlife and Landscape Importance: • Clyde Expressway 3. Site of Special Landscape Interest: • Victoria Park 4. Listed Building: • Whiteinch Baths (B) • Former Whiteinch Burgh Hall, former police station and former fire station (35 Inchlee St & 15-16 Victoria Park Drive South) (B) • South Broomhill Avenue – nine Category C(S) listed buildings. • 19-33 Broomhill Terrace & 2 Central Avenue C(S)) 5. Population centres • Residential area to the	• Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from view) • Avoid placing permanent structures within the setting of listed buildings • Any works to listed buildings, or on structures within the Conservation Area may require consent from the planning authority • Avoid disturbing land, and severing habitat corridors associated with the SSLI and CLWI

<b>Core GRN Journey 3: Athletes' Village to Scotstoun Squash Centre</b> (also encompassing journey to Glasgow Green, the SECC precinct, Kelvingrove and Kelvinhall)				
<b>GRN chainage</b>	<b>Constraint categorisation</b>	<b>Details of constraints/ key issues</b>	<b>Receptors</b>	<b>Initial recommendations for mitigation of constraints issues</b>
			south of Victoria Park Drive South <ul style="list-style-type: none"> <li>Victoria Park</li> </ul>	
<b>CR1:</b> Victoria Park Drive South at Haldane Street in the east to Scotstoun Leisure Centre (Danes Drive at Vancouver Road) in the west	<b>Highly significant issues/ constraints</b>	<p><b>People, health &amp; access:</b> the journey passes the large and well used outdoor leisure and recreational resource of Victoria Park to the east and runs through densely populated residential areas in all other orientations</p> <p><b>Wildlife conservation &amp; ecosystem services:</b> journey passes within 10m of one CWLI, one SSLI one SSSI and one I-SINC</p> <p><b>Landscape and the historic environment:</b> route passes within 50m of two Category B listed buildings; and two Conservation Areas</p>	1. Corridor of Wildlife and Landscape Importance: <ul style="list-style-type: none"> <li>Clyde Expressway</li> </ul> 2. Site of Special Landscape Interest: <ul style="list-style-type: none"> <li>Victoria Park</li> </ul> 3. Site of Special Scientific Interest: <ul style="list-style-type: none"> <li>Fossil Grove</li> </ul> 4. Local Site of Importance for Nature Conservation: <ul style="list-style-type: none"> <li>Victoria Park Walkway</li> </ul> 5. Listed Building: <ul style="list-style-type: none"> <li>Whiteinch Homes, 19 Westland Drive (B)</li> <li>Elmbank Hostel, 21 Westland Drive (B)</li> </ul> 6. Conservation Areas: <ul style="list-style-type: none"> <li>Scotstoun</li> <li>Victoria Park</li> </ul>	<ul style="list-style-type: none"> <li>Place new signage (temporary and permanent) where it will not have an adverse effect on the setting of listed buildings (i.e. obscure them from view)</li> <li>Avoid placing permanent structures within the setting of listed buildings</li> <li>Any works to listed buildings, or on structures within the Conservation Areas may require consent from the planning authority</li> <li>Avoid disturbing land, and severing habitat corridors associated with the SSLI, SSSI, I-SINC and CWLI</li> </ul>

# **Appendix II: Proposed indicators for monitoring the significant effects of the CG Strategy and Framework**

SEA objectives	Assessment criteria	Indicators
<b>People, health &amp; access</b>	<b>Will the CG Strategy and Framework...</b>	<b>Proposed monitoring indicators</b>
<b>To improve the health and well being of the population</b>	Promote healthy living and lifestyles	<ul style="list-style-type: none"> <li>• Deaths all ages (position relative to Scottish average)</li> <li>• Coronary heart disease deaths in under 75s (position relative to Scottish average)</li> <li>• Cerebrovascular disease deaths in under 75s (position relative to Scottish average)</li> <li>• Patients prescribed drugs for anxiety/ depression (position relative to Scottish average)<sup>1</sup></li> <li>• Travelling to work by foot, bike or public transport (position relative to Scottish average)<sup>2</sup></li> <li>• Percentage of adults within the Glasgow area that usually travel to work using sustainable methods (% per year)</li> </ul>
	Encourage outdoor recreation and access	
	Promote walking and cycling	
	Promote environmental conditions which support improved health	
	Reduce physical and psychological barriers to outdoor leisure and recreation	
<b>Wildlife conservation &amp; ecosystem services</b>	<b>Will the CG Strategy and Framework...</b>	
<b>To protect and enhance biodiversity, flora and fauna</b>	Promote the development, enhancement and restoration of a multifunctional green network	<ul style="list-style-type: none"> <li>• Number of natural heritage designations within Glasgow<sup>3</sup></li> <li>• Coverage of invasive species within Glasgow (ha)<sup>4</sup></li> <li>• Total area of green network within Glasgow (ha)<sup>5</sup></li> </ul>
	Conserve, enhance and restore the quality and extent of key habitats including those defined in the Glasgow LBAP	
	Rehabilitate inappropriately managed areas of habitat	
	Reduce the threat of invasive non-native species, especially to riparian habitats	
	Increase public understanding of the importance of ecosystem services	

<sup>1</sup> Data to be collected from the Glasgow Centre for Population (GCP) Community Profiles: <http://www.gcph.co.uk/communityprofiles>

<sup>2</sup> Data to be collected from the GCP Healthy Sustainable Travel studies: <http://www.gcph.co.uk/publications/144>

<sup>3</sup> Glasgow City Plan 2: <http://www.glasgow.gov.uk/en/Business/CityPlan/>

<sup>4</sup> Glasgow Local Biodiversity Action Plan: [http://www.glasgow.gov.uk/en/Residents/Parks\\_Outdoors/Ecology/Biodiversity/localbiodiversityactionplan.htm](http://www.glasgow.gov.uk/en/Residents/Parks_Outdoors/Ecology/Biodiversity/localbiodiversityactionplan.htm)

<sup>5</sup> Glasgow and Clyde Valley Green Network Partnership: <http://www.gcvgreennetwork.gov.uk/>

SEA objectives	Assessment criteria	Indicators
<b>Water bodies &amp; flooding</b>	<b>Will the CG Strategy and Framework...</b>	
<b>To improve water quality</b>	Protect, maintain and/ or improve water quality in rivers Lead to water quality protection and/ or improvement measures	<ul style="list-style-type: none"> <li>• Trends in Glasgow and Scottish water quality<sup>6</sup></li> <li>• Percentage of river water body classified as 'poor' or 'bad' within the Glasgow area (% per year)</li> <li>• Area of transitional waters classified as 'poor' or 'bad' within the Glasgow area (km2 per year)</li> <li>• Number of water bodies classified as heavily modified (within the Glasgow area per year)</li> <li>• SEPA National Assessment of Flood Risk<sup>7</sup></li> <li>• Progress made in the Metropolitan Glasgow Strategic Drainage Plan<sup>8</sup></li> <li>• Numbers of SuDS in use in Glasgow<sup>9</sup></li> <li>• Number of households in the 100yr flood map area (within Glasgow per year)</li> <li>• Area of new sites developed within 100yr flood map area (within the Glasgow area)</li> </ul>
<b>To reduce levels of water pollution</b>	To reduce emissions of diffuse and point source water pollution To reduce water pollution by contaminated urban surface runoff	
<b>To reduce the risk of flooding</b>	Increase impermeable surface area lead to development in floodplains	
	Reduce the risk of fluvial and pluvial flooding	
	Reduce the risk of drainage flooding	
	Improve resilience to flooding	
<b>Air quality, noise &amp; dust</b>	<b>Will the CG Strategy and Framework...</b>	
<b>To improve air quality</b>	Reduce emissions of oxides of nitrogen to air	<ul style="list-style-type: none"> <li>• Average concentration of oxides of nitrogen in air at air quality monitoring stations in the Glasgow area (ug/m3 per year)<sup>10</sup></li> </ul>
	Reduce emissions of particulate matter	
	Avoid exacerbating air quality problems	
	Reduce exposure to existing poor air quality	

<sup>6</sup> SEPA Water Quality Statistics: [http://www.sepa.org.uk/science\\_and\\_research/data\\_and\\_reports/water/scottish\\_river\\_water\\_quality.aspx](http://www.sepa.org.uk/science_and_research/data_and_reports/water/scottish_river_water_quality.aspx)

<sup>7</sup> Will be available in 2011: <http://www.sepa.org.uk/flooding.aspx>

<sup>8</sup> [www.scottishwater.co.uk/portal/page/portal/SWE\\_PGP\\_INVESTMENT/SWE\\_PGE\\_INVESTMENT/WHAT\\_MGSDP\\_INTRO](http://www.scottishwater.co.uk/portal/page/portal/SWE_PGP_INVESTMENT/SWE_PGE_INVESTMENT/WHAT_MGSDP_INTRO)

<sup>9</sup> Glasgow City Plan 2

<sup>10</sup> Glasgow Air Quality Action Plan: <http://www.glasgow.gov.uk/en/Residents/Environment/Pollution/Air/LocalAirQualityManagement.htm>

SEA objectives	Assessment criteria	Indicators
<b>To reduce levels of air pollution</b>	Reduce or prevent emissions of linear/ nodal source air pollution (e.g. road traffic related emissions, transport hub emissions etc)	<ul style="list-style-type: none"> <li>Percentage of adults within the Glasgow area that usually travel to work by car (% per year)<sup>11</sup></li> <li>Oxides of nitrogen emissions related to bus travel within Glasgow (ug/m3)</li> <li>Per capita carbon footprint of Glasgow residents (tonnes per year)</li> </ul>
	Reduce or prevent emissions of area source air pollution (e.g. domestic emissions from a neighbourhood area)	
	Reduce the need to travel	
	Reduce traffic congestion	
<b>To reduce noise levels from all sources</b>	Preserve environmental noise quality where it is good and in the candidate Quiet Areas	<ul style="list-style-type: none"> <li>Count of received complaints with regard to noise issues in Glasgow (per year)</li> </ul>
	Reduce noise levels in sensitive locations and in the candidate Noise Management Areas	
<b>Soils &amp; soil quality</b>	<b>Will the CG Strategy and Framework...</b>	
<b>To reduce levels of soil contamination</b>	Prevent input of pollutants to soils	<ul style="list-style-type: none"> <li>Area of statutorily contaminated land within Glasgow (ha per year)</li> <li>Area of derelict land in Glasgow (ha per year)</li> <li>Percentage increase in hectares of woodland habitat within Glasgow (per year)<sup>12</sup></li> </ul>
	Promote the remediation of contaminated soils	
	Promote good/ best land management practices	
<b>To reduce soil sealing and soil loss</b>	Reduce levels of soil sealing	<ul style="list-style-type: none"> <li>Topsoil losses due to erosion within Glasgow (tonnes per year)</li> <li>Surface area of land sealed within Glasgow (ha per year)</li> </ul>
	Promote the development of brownfield sites	
	Promote the use of Sustainable Urban Drainage Systems (SuDS)	
	Reduce the sealing of good quality/ versatile soils	
<b>Climate change issues</b>	<b>Will the CG Strategy and Framework...</b>	
<b>To reduce greenhouse gas emissions</b>	Reduce the need for energy and promote energy efficiency	<ul style="list-style-type: none"> <li>Per capita carbon footprint of Glasgow residents (tonnes per year)</li> </ul>
	Improve land use practices to reduce emissions	
	Encourage transport choice and promote modal shift	

<sup>11</sup> Scottish Transport Statistics: <http://www.scotland.gov.uk/Publications/2009/12/18095042/0>

<sup>12</sup> GCC Contaminated Land Inspection Strategy: <http://www.glasgow.gov.uk/en/Residents/Environment/Pollution/Contaminatedland/>

<sup>13</sup> Dept. Energy & Climate Change statistics: <http://www.decc.gov.uk/>

SEA objectives	Assessment criteria	Indicators
	Consider the carbon impact of construction phases	<ul style="list-style-type: none"> <li>Total number of micro-renewable and community energy projects within Glasgow (per year)<sup>13</sup></li> </ul>
<b>To reduce vulnerability to the effects of climate change</b>	Reduce overall flood risk	<ul style="list-style-type: none"> <li>Numbers of SuDS in use in Glasgow</li> <li>Progress made in the Metropolitan Glasgow Strategic Drainage Plan</li> <li>Area of new sites developed within 100yr flood map area (within the Glasgow area)<sup>14</sup></li> </ul>
	Avoid actions that may close or limit future adaptation	
	Develop ecologically resilient and varied landscapes as part of a wider strategy for the development, enhancement and restoration of a multifunctional green network	
	Consider opportunities presented from climate change impacts	
<b>Landscape &amp; the historic environment</b>	<b>Will the CG Strategy and Framework...</b>	
<b>To conserve and, where appropriate, enhance the historic environment and cultural heritage</b>	Protect statutory and non-statutory sites and features of historic value	<ul style="list-style-type: none"> <li>Number of Scheduled Monuments within the Glasgow area (per year)<sup>15</sup></li> <li>Percentage of Listed Buildings within the Glasgow area that are on the Buildings at Risk Register (by Category; per year)<sup>16</sup></li> <li>Number of locally, regionally and nationally protected landscapes within Glasgow (per year)<sup>17</sup></li> </ul>
	Protect the site and setting of all statutory and non-statutory sites and features of historic value	
	Protect historic landscapes and townscapes	
<b>To maintain and enhance the quality of landscapes and townscapes</b>	Protect and enhance landscape character, particularly along the Clyde corridor	
	Minimise visual intrusion and protect views	
	Protect and enhance local distinctiveness and sense of place	
	Enhance the quality of townscapes and the public realm	
	Reduce litter and graffiti	

<sup>14</sup> [www.scottishwater.co.uk/portal/page/portal/SWE\\_PGP\\_INVESTMENT/SWE\\_PGE\\_INVESTMENT/WHAT\\_MGSDP\\_INTRO](http://www.scottishwater.co.uk/portal/page/portal/SWE_PGP_INVESTMENT/SWE_PGE_INVESTMENT/WHAT_MGSDP_INTRO)

<sup>15</sup> Historic Scotland list of Scheduled Monuments: <http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:10:547868418695501>

<sup>16</sup> Buildings at Risk Register for Scotland: <http://www.buildingsatrisk.org.uk/BAR/>

<sup>17</sup> Glasgow City Plan 2: <http://www.glasgow.gov.uk/en/Business/City+Plan/Part+2+-+Development+Policies/Section+9+-+Greenspace+Landscape+and+Environment/ENV+7+Corridors+of+Wildlife++and+or+Landscape+Importance/>