



The Glasgow City Region City Deal

CLYDE WATERFRONT & RENFREW RIVERSIDE AND GLASGOW AIRPORT INVESTMENT AREA ENVIRONMENTAL IMPACT ASSESSMENT

NON - TECHNICAL SUMMARY

July 2017



NON-TECHNICAL SUMMARY OF THE ENVIRONMENTAL STATEMENT

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Figure 1 – Aerial of Both Future Developments

1 INTRODUCTION

- 1.1.1 The purpose of this Non-Technical Summary (NTS) is to summarise the findings of the Environmental Impact Assessment and other key information contained in the Environmental Statement.
- 1.1.2 Sweco is the lead consultant for both the CWRR infrastructure project and the GAIA infrastructure project (the Proposed Developments). Sweco has provided key consultancy support to develop the project designs and the planning applications

and supporting documentation. The Environmental Statement (ES) has been prepared to support planning applications for the CWRR and GAIA projects. The ES also supports applications to Marine Scotland for marine licences.

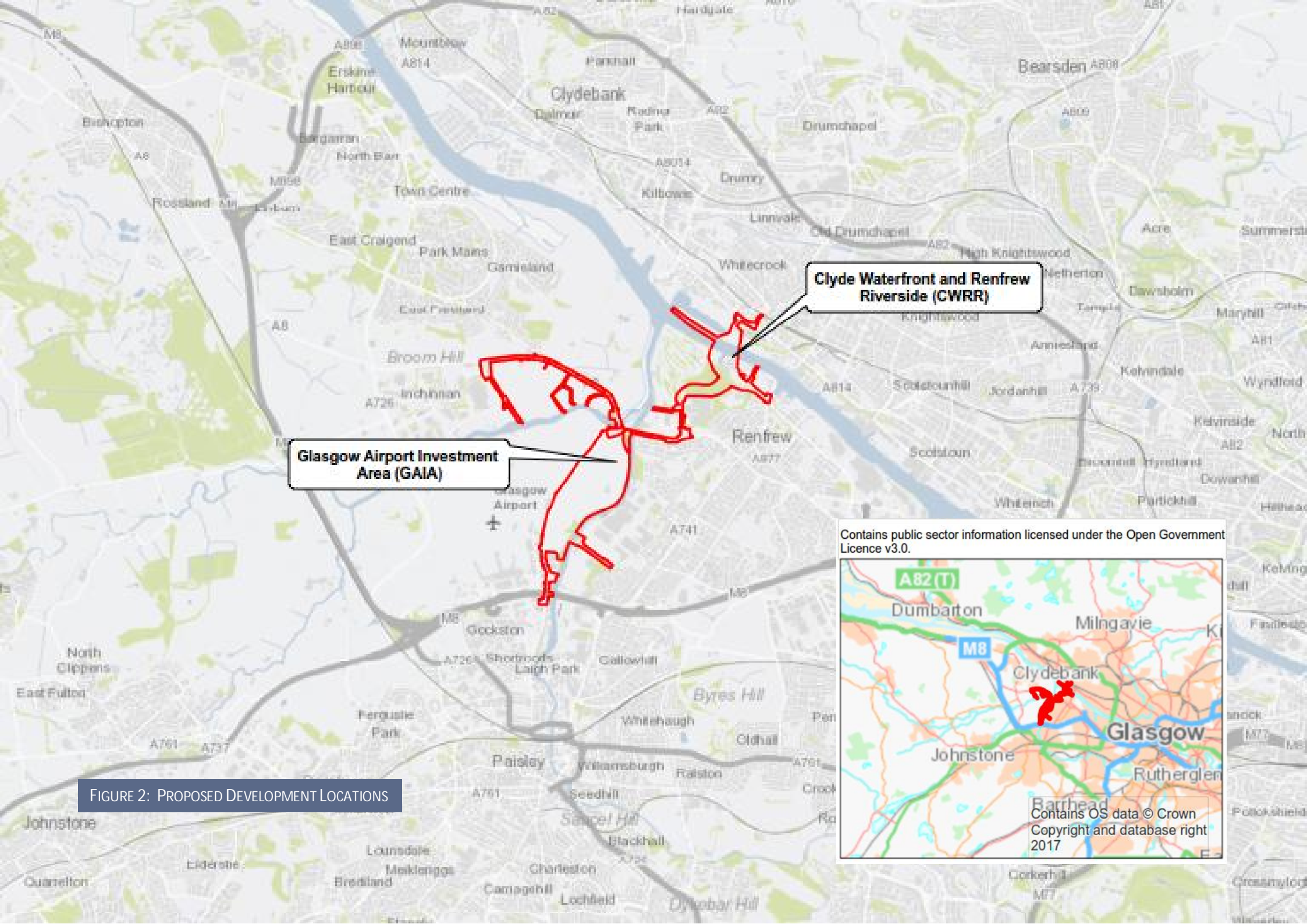
- 1.1.3 The CWRR project will see the construction of a new opening bridge across the River Clyde and the construction of the Renfrew North Development Road. The design and operation of the bridge will ensure that the navigation rights of the river are maintained, and that the important role of the river to the regional economy is supported. The proposals also include new and improved cycling and walking infrastructure.
- 1.1.4 The GAIA project involves the realignment of Abbotsinch Road between Arran Avenue and Greenock Road / Inchinnan Road, a new bridge across the White Cart Water (the Wright Street Link) and improved facilities for cyclists and pedestrians. GAIA also covers the Inchinnan Cycleway application which includes a new cycle bridge over the Black Car. All development for GAIA is aimed at improving connections between the Westway, Inchinnan and Airport Business Parks and as an enabler for the delivery of a world class business and commercial offering located around the airport.
- 1.1.5 This new infrastructure is being delivered as part of the Glasgow City Region (GCR) City Deal which is investing £1.13bn in infrastructure projects across eight local authority areas within the region. This investment, which includes £274m on three infrastructure projects in Renfrewshire, focuses on transport and infrastructure projects to support business and employment growth. Analysis by independent consultants on behalf of the GCR identified CWRR as the highest performing project included in the City Deal, in relation to its contribution to economic growth (GVA) for the Region.

- 1.1.6 The CWRR project is being progressed in parallel with the GAIA applications, but under three discrete planning applications due to the project location, which crosses three local authority boundaries, namely: Renfrewshire, West Dunbartonshire and Glasgow City Councils. Planning applications will be submitted to each authority under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 ('TCP EIA Regs'). The project also has the potential to impact upon the marine environment and as such, an application will be made to Marine Scotland, under the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2007 (MW EIA Regulations).
- 1.1.7 The GAIA project is being progressed under two separate planning applications, both of which will be submitted to Renfrewshire Council. One application comprises the Inchinnan Cycleway which includes a new cycle bridge over the Black Cart, with the other comprising the Abbotsinch Road Realignment, the Wright St Link & the Abbotsinch Cycleway. There will also be a Marine Licence Application for the GAIA project.

- 1.1.8 Renfrewshire Council (the applicant) is playing a key role in delivering three of the biggest infrastructure projects: the CWRR project and the GAIA project (mentioned above) and also the Glasgow Airport Access Project (AAP). The AAP project is being progressed separately and is not part of this assessment. These projects, together with other Glasgow City Region City Deal projects being delivered by other local authorities, will transform local and regional connectivity resulting in job opportunities through business growth and inward investment.

Photograph 1: View of the Clyde





Glasgow Airport Investment Area (GAIA)

Clyde Waterfront and Renfrew Riverside (CWRR)

FIGURE 2: PROPOSED DEVELOPMENT LOCATIONS

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2 THE ENVIRONMENTAL IMPACT ASSESSMENT

- 2.1.1 The ES records the results of the EIA which has examined the effects of the proposed developments on a wide range of environmental topics which were agreed with the local planning authorities (planning decision makers) and the statutory consultees through a formal scoping process.
- 2.1.2 As the designs were developed for both projects, consultees were issued with a scoping update to allow them to revisit the agreed scope.
- 2.1.3 The conclusions of the assessment for each topic are summarised in this NTS.
- 2.1.4 In carrying out the EIA, Sweco has utilised a number of experienced specialist consultants to assist in the assessment process in addition to in-house specialists, including ITP Energised (ecology, air quality and land use), WSP (noise) and Headland Archaeology (archaeology).
- 2.1.5 Mitigation is an important aspect of EIA, and comprises the measures proposed through the consideration of alternatives, physical design, construction best practice, project management or operation to avoid, reduce or compensate any significant adverse effects on people and the environment resulting from the proposed developments. The project team has considered mitigation as an integral part of the overall project design process throughout the EIA and the design of the proposed development elements.

- 2.1.6 The purpose of the ES is intended to enable stakeholders and decision makers to understand the nature of the proposed developments and to evaluate the identified likely significant effects. In the case of the competent authorities for these two Proposed Developments, they may use that knowledge in deciding whether to grant consent and if so, what conditions might be appropriate. The ES therefore serves to aid the decision-making process and to present information in a readily accessible form.

EIA LEGISLATION

- 2.1.7 Both proposed developments include infrastructure elements that are to be constructed in terrestrial and in marine environments. This means that there are two main Regulations that cover the requirement for the EIA.
- 2.1.8 Under Category 10(f) of the Town and Country Planning TCP EIA Regulation¹), both projects require EIA as the road infrastructure proposed in each exceeds the stated 1 hectare threshold and there is potential for significant environmental effects. This view is supported by the Screening Opinions received from all competent authorities (Local Planning Authorities and Marine Scotland) following the submission of a Screening Request by the Renfrewshire City Deal team in June 2016. Further information and a copy of the screening request is provided in Volume 1, Chapter 4 of the ES.

¹ New Town and County Planning EIA Regulations in Scotland came into force in May 2017. These Regulations (the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017) provide 'transitional arrangements' for applications where a Scoping Opinion was sought from the planning authority before the new Regulations came into force. Scoping opinions for the CWRR and GAIA EIAs

were sought prior to May 2017 and this City Deal Renfrewshire ES has therefore been completed in accordance with the previous EIA Regulations.

- 2.1.9 With regards to the Marine elements, Marine Scotland have screened that the CWRR project only, has the potential to have significant impacts upon the marine environment and therefore an EIA for CWRR is required under the MW EIA Regulations.
- 2.1.10 For the GAIA project, Marine Scotland have screened that the project will require a Marine Licence but that an EIA under the MW EIA Regulations is not required. Therefore Marine Scotland will be a statutory consultee only for GAIA during the planning process.



3 THE PROPOSED DEVELOPMENT SITES

CWRR

- 3.1.1 CWRR is bisected by the River Clyde running east to west and includes the residential areas of Yoker and Clydebank to the north and Renfrew to the south, extending from beyond Ferry Road in the east to Dock Street in the west. It extends from Dumbarton Road / Glasgow Road in the north to the A8 (Inchinnan Road) in the south and is approximately 8km to the west of Glasgow City Centre (see Figure 1).
- 3.1.2 Land use on the north side of the River Clyde comprise a mix of new residential developments on the waterfront and more traditional housing along the A814 Dumbarton Road/Glasgow Road with a number of industrial and commercial sites in particular those associated with Rothesay Dock. There are also a number of vacant, brownfield parcels of land that relate to the previously industrial nature of the River Clyde.
- 3.1.3 To the south of the River Clyde and east of the confluence of the Black Cart and White Cart Waters, the land use is varied, with well-defined areas of residential, commercial and industrial developments, in addition to areas of semi natural woodland and open parkland.
- 3.1.4 The River Clyde has a long history of heavy industrial and commercial use and this continues today. It is used by large commercial vessels and leisure craft users and provides economic benefit to the commercial companies involved and to the wider communities.
- 3.1.5 The terrain across the study area is generally flat with a number of locally raised embankments and cuttings remaining from previous infrastructure / transport development.



DIAGEO

BLYTHSWOOD

CHRISTIE'S & SONS
(METAL MERCHANTS) LTD

CLYDE CROSSING POINT

ROTHESAY
DOCK

CLYDEBANK

YOKER

RENFREW

RIVER CLYDE

FIGURE 3: CWRR AERIAL PHOTOGRAPH

GAIA

- 3.1.6 The Proposed GAIA Development is located on an area of land which lies predominantly north of the M8, approximately 10km to the west of Glasgow City Centre, south of the River Clyde (Figure 4). The development area lies adjacent to the Clyde Waterfront and Renfrew Riverside City Deals project (see Figure 1).
- 3.1.7 The site comprises a number of land use and landscape types including agricultural farmland, riparian margin, river corridors, airport and commercial uses, and existing roadway. Land ownership is a mixture of private and publicly owned parcels

- 3.1.8 . The northern extent of the Proposed Development area is defined by the A8 Inchinnan Road and Greenock Road, and the confluence of the White Cart Water and the Black Cart Water. North of this, an area of agricultural farmland separates the site from the River Clyde. Glasgow Airport, Inchinnan Business Park and the village of Inchinnan sit to the west of the site. To the east lies the White Cart Water, the Westway Business Park and the western suburbs of Renfrew. The Sanderling Road roundabout, to the immediate south of the M8 and airport site, defines the southern extent of the Proposed Development along Abbotsinch Road. Photograph 3: Existing A8 (Greenock Road).



Photograph 1 – Existing Abbotsinch Road



INCHINNAN
BUSINESS PARK

INCHINNAN CYCLEWAY BRIDGE LOCATION

BLACK CART
WATER

EXISTING ABBOTSINCH ROAD

NETHERTON FARM

GLASGOW
AIRPORT

WESTWAY
INDUSTRIAL PARK

WRIGHT STREET BRIDGE LOCATION

WHITE CART WATER

M8

SANDERLING ROAD
ROUNDABOUT

FIGURE 4: GAIA AERIAL PHOTOGRAPH

CWRR PROJECT NEED

- 4.1.6 Both banks of the River Clyde in this area were previously part of the heavy industrial fabric of this part of the conurbation. De-industrialisation over many years has left a legacy of derelict and under-used sites and although there is some business activity in the area, the quality of uses is generally poor and a number of sites have lain vacant for many years. There are also areas of poor environmental quality that are a result of industrial decline over the past decades and a lack of investment. Without improvements to the accessibility of the area, market forces are unlikely to lead to significant improvement in the quality of uses, development of vacant or underused sites or lead to economic growth.
- 4.1.7 The complex consenting regime and costs associated with providing a new crossing over the Clyde also poses barriers to private sector development.

GAIA PROJECT NEED

- 4.1.8 Although there has been limited success in promoting development and growth in the area of the project in recent years, this has been hampered by the connectivity deficits. Significant areas of vacant and underdeveloped land exist in the project area, some of which have lain vacant for many years.
- 4.1.9 A number of initiatives, including previous masterplanning strategies by the airport and Renfrewshire Council, have been deployed over a period of time to stimulate economic growth centred around the airport, but in the absence of investment in infrastructure and in improvements to accessibility in the area these initiatives have had limited success. The City Deal will provide the necessary investment in infrastructure to overcome the blocks to economic development of the area.
- 4.1.10 There has been a limited amount of investment in recent years in improving the quality of the environment associated with elements of the project area. Investment will continue over the next few years, most notably the significant investment by Renfrewshire Council associated with Paisley Town Centre. However, the perception of the area as a good place to do business continues to be hampered by a legacy of run down sites and poor environmental quality. The project provides the opportunity to address a number of these issues and to open up the area that surrounds Glasgow Airport as an attractive waterfront location and connecting link to other major transport hubs.

5 SITE SELECTION AND DESIGN

CWRR

- 5.1.1 At the start of the CWRR project, the Renfrewshire City Deal team considered a range of initial strategic options for improvements to infrastructure in the Clyde Waterfront area, including a do nothing option. These options formed part of early business case development and identified that the option which best met objectives was the development of the Renfrew Northern Development Road with a bridge crossing of the River Clyde and other improvements to walking, cycling and public transport links.
- 5.1.2 Following this work, three corridors were identified as potential crossing points of the River Clyde. Corridor options were developed for these alternatives including road and cycleway connections on either side of the river to the existing surface transport network. In addition, a link road was identified south of the river to provide connectivity to the potential development sites adjacent to Meadowside Street, linking to the junction of Kings Inch Road and Ferry Road.
- 5.1.3 These corridor options were then sifted against the project objectives and the corridors retained from this sift were then developed in more detail with indicative route options in each corridor. The route options were developed with a focus on the potential connectivity to existing road infrastructure and the creation/enhancement of development areas.
- 5.1.4 The route options were then appraised by the project team and client against the full scheme objectives at a risk and objectives workshop. The options remaining following this sift were then taken forward for more detailed assessment to identify the best performing option overall.

- 5.1.5 Enhanced facilities for non-motorised users (NMUs) were developed at each stage of the design process to integrate with the new road proposals.

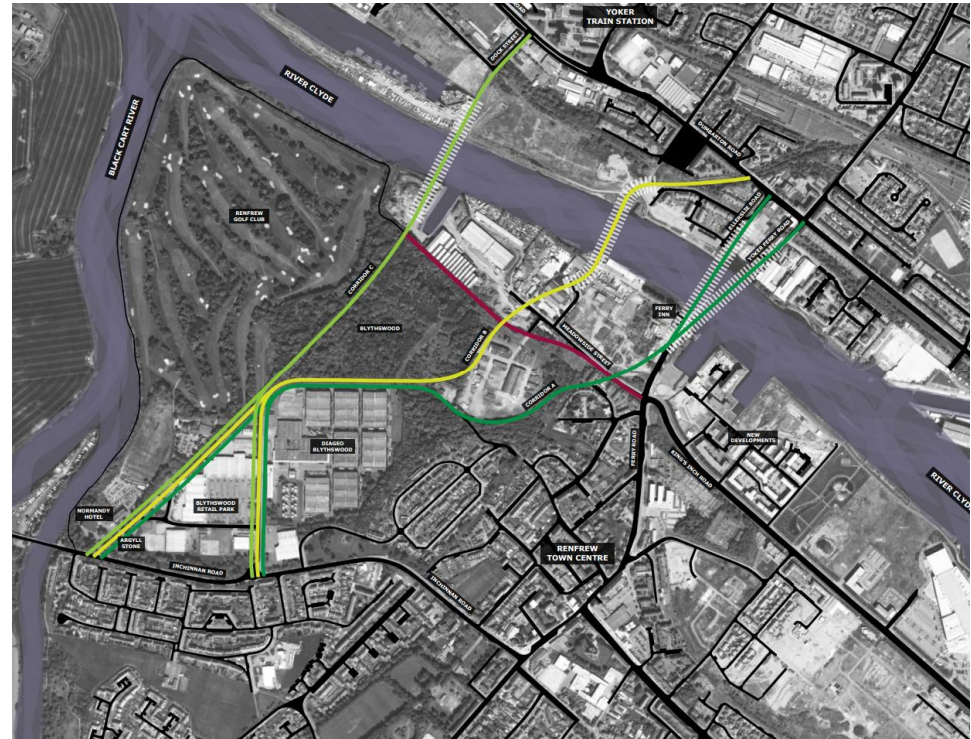


Figure 5: CWRR Alternatives Considered

- 5.1.6 Consultation was undertaken with the community and key stakeholders at key stages throughout the development and EIA process. Further information is provided in Chapter 7 below.

GAIA

5.1.7 The same approach was applied for the GAIA project. Initial options development work for the GAIA project involved identification of key corridor options (Figure 6). Three principal corridors were identified around Abbotsinch Road, Wright Street and a corridor for a proposed cycle link to Inchinnan Business Park from the northern terminus of Abbotsinch Road. Enhanced facilities for non-motorised users (NMUs) were developed at each stage of the design process to integrate with the new road proposals.

Abbotsinch Road

5.1.8 Three potential route options were developed for realignment of Abbotsinch Road (Netherton Farm) taking account of existing conditions and constraints. All three options were considered to meet project objectives and were then assessed in more detail against key engineering, environment and traffic / economic criteria. Two options were identified from this process as preferred and taken forward for further design development and assessment. The final preferred alignment was determined through further discussion with Glasgow Airport to effectively integrate the City Deal Development Masterplan and the Glasgow Airport Masterplan, optimising development potential and flexibility.

Wright Street

5.1.9 Four route alignment options were considered for the Wright Street corridor to provide a new road bridge over the White Cart Water to connect the road network west of the river with development sites along Wright Street on the east side of the river. Sifting against project objectives removed one of these options and three alignments were taken forward for further assessment.

5.1.10 The outcome of the technical assessments of the alignment options was that one option was least preferred (and therefore sifted out) and the remaining two options performed very similarly such that the decision on the preference was to be determined following further consultation with stakeholders.

5.1.11 The options for the structural form of the Wright Street Bridge were also assessed against a series of technical criteria which addressed buildability, durability and maintenance, aesthetics, environment and sustainability and whole life costs. The assessment of various structural options for the bridge crossing identified that a multi span steel composite bridge formed the preferred option although this would be subject to affordability review.

Inchinnan Cycleway and Bridge

5.1.12 The Inchinnan Cycleway corridor follows the A8 Greenock Road from the roundabout at the north east of Inchinnan Business Park through its junctions with Old Greenock Road at Inchinnan and Abbotsinch Road junction to the Rolling Lift (Bascule) Bridge over the White Cart Water in the east. Two on-road and two off-road options were considered for the cycleway. Early work identified that it would not be possible to accommodate a cycleway on the existing listed bridge structures at Inchinnan Bridge and White Cart Bridge and that a new off-line cycleway bridge would be required to provide a dedicated route which could connect with Inchinnan Business Park.

5.1.13 Consultation was undertaken with the community and key stakeholders at key stages throughout the development and EIA process. Further information is provided in Chapter 7 below.

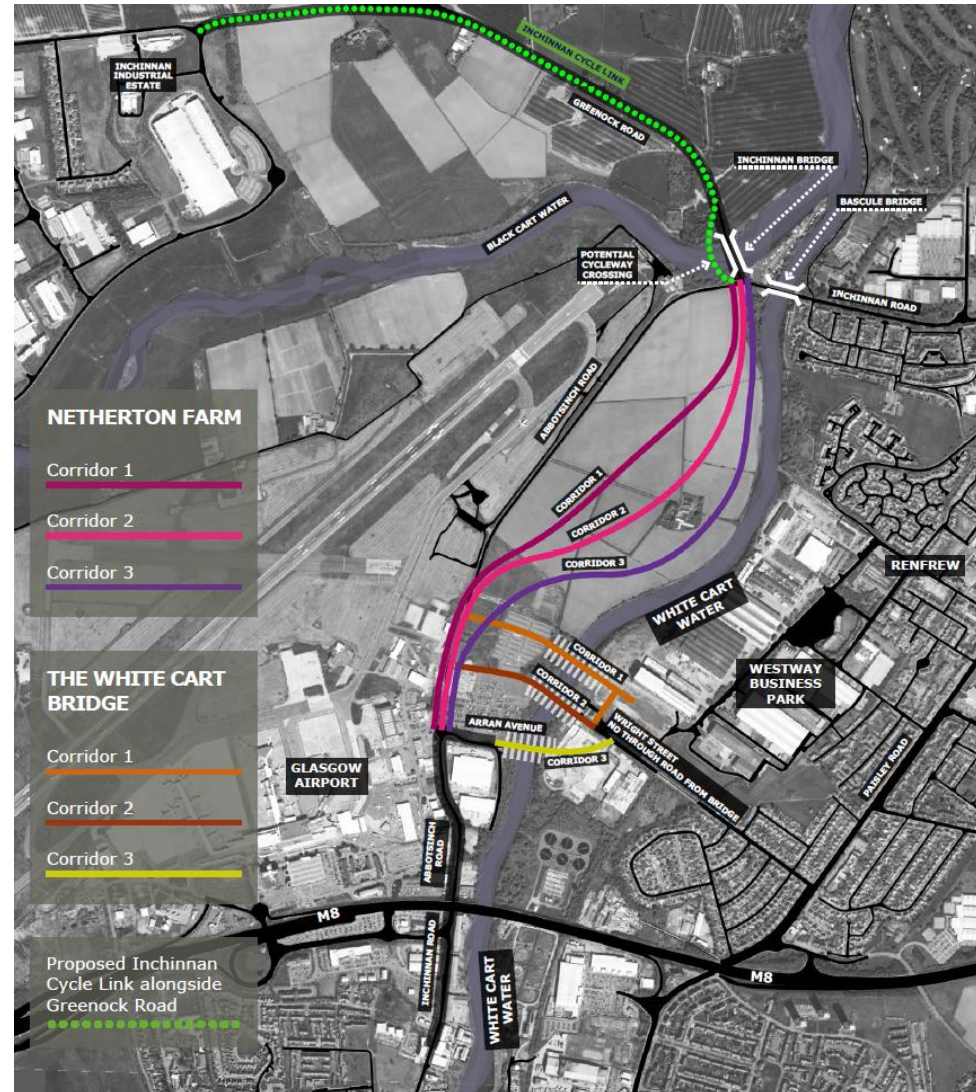
5.1.14 Various structural options for a new cycle bridge crossing of the Black Cart Water were developed and appraised. The one selected, scored highest against environmental criteria (due to the limited working required in the watercourse) and also for its whole life costing. This option also scores well for bridge aesthetics, which are of particular importance, given the proximity to the nearby Category A listed Inchinnan Bridge.



Photograph 5: View of Black Cart Water looking west

5.1.15 The options for the remainder of the cycleway along the corridor of the A8 (Greenock Road) was identified as a 3.0m shared cycleway. Alternatives considered included on and off road options and both north and south of A8 (Greenock Road).

Figure 6: GAIA Alternatives Considered



6 PROPOSED DEVELOPMENT

CWRR

- 6.1.1 The CWRR project (Figure 7) will see the construction of a new 'opening' bridge across the River Clyde and the construction of the Renfrew North Development Road. On the north side of the Clyde, the bridge is located to the east of Rothesay Dock with the final position determined by environmental, land take considerations and community comments. The bridge is linked south of the river to the new Renfrew North Development Road (RNDR) via Meadowside Street, which also forms part of the project and extends east to a junction with Ferry Road and Kings Inch Road in Renfrew.
- 6.1.2 The RNDR connects Meadowside Street to Inchinnan Road further south. The road skirts along the eastern edge of Blythswood (thereby minimising effects on trees and habitat in that area) and utilising a section of existing road at Argyll Avenue to its roundabout junction with Inchinnan Road. An off street cycleway will also be developed as part of the proposals (Inchinnan Road Cycle Link) extending along Inchinnan Road, from Argyll Avenue west to the junction with Abbotsinch Road/Greenock Road.
- 6.1.3 On the north bank of the river, the road from the bridge head will link to Dock Street and continue to the junction of Dock Street / Glasgow Road, with a cycleway extending from the northern landing of the bridge northwards to Yoker Railway Station (Yoker Train Station Cycle Link).
- 6.1.4 A layby berth structure for river traffic will be provided adjacent to the finger pier next to Rothesay Dock on the north side of the River Clyde. This location is preferred as being on the north side of the river, downstream of the new bridge location, it provides

an emergency mooring point for vessels transiting upstream in the event that the Clyde Crossing fails to open for any reason. In addition, it provides an optimum location to minimise the period of time the bridge is open for the passage of vessels travelling upstream.

- 6.1.5 The bridge, which will accommodate vehicles, pedestrians and cyclists, will create an important new connection between the communities and businesses on both sides of the river. This will increase the potential for business growth, with businesses gaining access to increased numbers of customers and suppliers, and giving local people new travel options to employment, education, healthcare and leisure locations throughout Yoker, Clydebank in the north, Paisley and Renfrew in the south and the wider Glasgow and Clyde Valley Region.

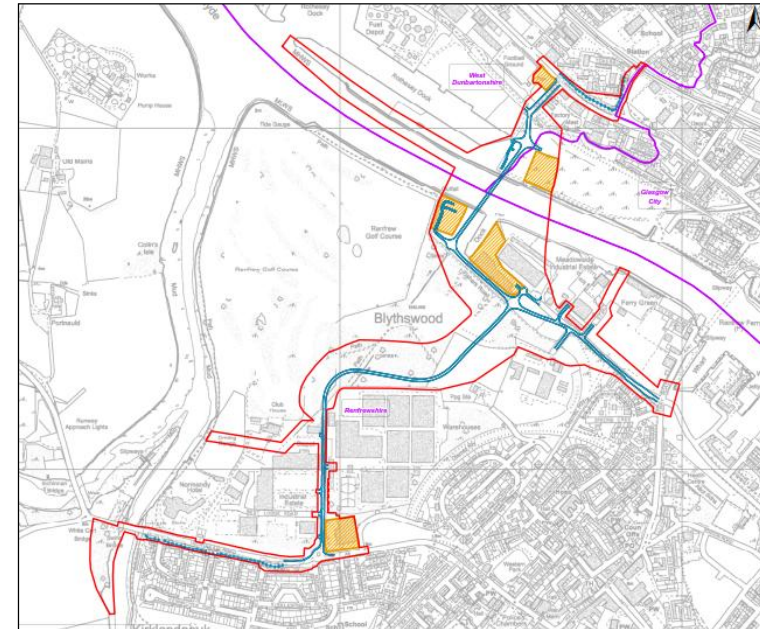


Figure 7: CWRR Proposed Development

6.1.6 Figure 7 shows the CWRR project with full details on the proposed infrastructure elements that are being applied for provided within Volume 2, Chapter 1 of the ES.

GAIA (INCLUDES GAIA AND INCHINNAN CYCLEWAY & BRIDGE)

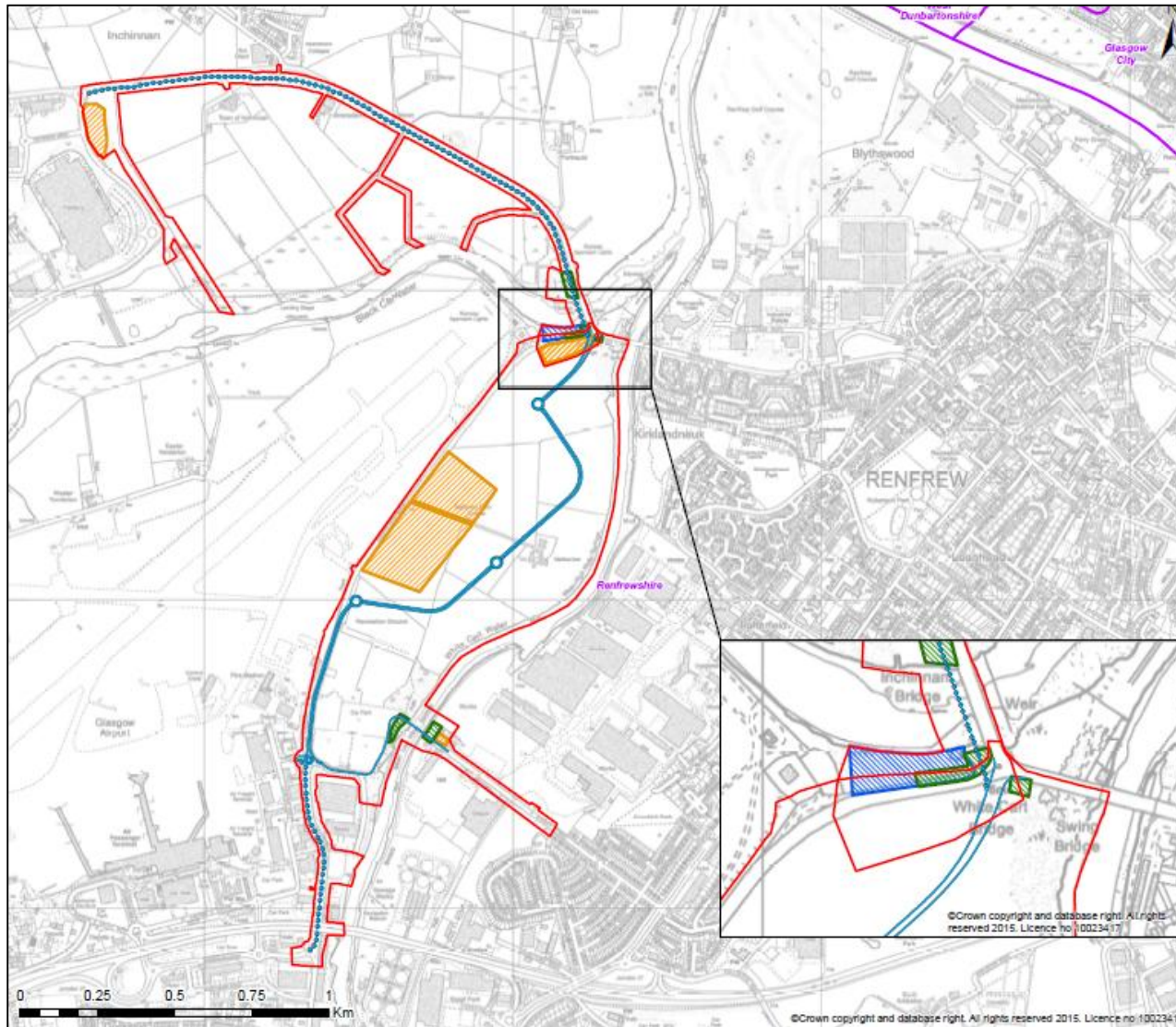
6.1.7 The route of Abbotsinch Road Realignment has been informed by ongoing consultation with Glasgow Airport, the Glasgow Airport Masterplan, both of which has informed the GAIA Development Masterplan. The road travels north from Arran Avenue roundabout, before extending east and passing through agricultural fields around Netherton Farm before connecting into an upgraded A8 Greenock/Inchinnan Road junction. The preferred option was selected as it optimised development potential. New shared cycleway/ footways will also be constructed along each side of the realigned Abbotsinch Road.

6.1.8 The Wright Street Link (Photograph 6) includes a new bridge with a shared cycleway across the White Cart Water linking Wright Street, the Westway Business Park and adjacent areas east of the river with the proposed Abbotsinch Road Realignment, west of the river. The link utilises the existing road corridor on Arran Avenue and Wright Street, minimising land take on developable plots on the east side of the river. In addition, Wright Street will remain a 'no through road' with no direct connection from Paisley Road to the west side of the river. This decision was taken to ensure that the new link did not create a 'rat run' through residential areas. Accordingly, use of the new bridge and link road will be effectively restricted to traffic accessing and egressing Westway from west of the river and existing business on Wright St.



Photograph 6: Existing Wright Street Link

- 6.1.9 A proposed shared cycleway (Inchinnan Cycleway) will be located south of the A8 Greenock Road adjacent to, but set back from, the road. This is the preferred option as it promotes good practice by providing a cycleway remote from the road and avoiding interaction with a 132kV underground electricity cable in this area. Construction of a new pedestrian and cycle bridge will carry the cycleway over the Black Cart Water (Black Cart Cycleway Bridge) and provide a safe route for NMUs avoiding the A8 Greenock Road and narrow footways over the listed Inchinnan Bridge.
- 6.1.10 Finally, the GAIA proposals (Figure 8) also include a new shared cycleway (Abbotsinch Road Cycleway Link) on the west side of Abbotsinch Road between Arran Avenue and Sanderling Road; the location of which minimises land take and enhances NMU connectivity to Glasgow Airport by providing a connection from the new cycleway along the realigned Abbotsinch Road to the existing cycle routes at Sanderling Road and on Inchinnan Road.



6.1.11 Figure 8 shows the GAIA project with full details on the proposed infrastructure elements that are being applied for provided in Volume 3, Chapter 1 of the ES.

Legend

- ▭ Proposed development boundary
- ▭ Council boundary
- - - Indicative line of new cycle link
- Indicative line of new / upgraded road
- ▨ Potential laydown areas
- ▨ Potential location for construction compound
- ▨ Potential compensatory flooding area

Figure 8: GAIA Proposed Development

7 CONSULTATION

SCOPING

- 7.1.1 Implicit in both the Marine and Town and Country Planning EIA Regulations is a requirement for adequate scoping of the EIA process.
- 7.1.2 These Regulations make provision for an applicant to write to a relevant competent authority and request a formal opinion of the information to be provided in an ES. This is known as a Scoping Opinion. A request for a Scoping Opinion must include as a minimum, a plan sufficient to identify the land, a brief description of the development and its possible effects on the environment and any other information the applicant may wish to provide.
- 7.1.3 The principle aim of the formal scoping exercise for the proposed developments has been to establish the concerns and issues generated which require consideration as part of the EIA. This exercise has also informed the significance of those concerns, and has identified key issues and those of lesser importance.
- 7.1.4 The screening and scoping exercises for both projects were the formal opening of lines of communication with consultees on EIA and planning, however there had been consultation during the optioneering and initial design stages.
- 7.1.5 Further information on this earlier consultation is provided in the Pre-Application Consultation reports submitted in support of the planning applications. Consultation for the EIA has continued after scoping on the detail required for specific EIA topic headings. The City Deals project team has adopted a transparent approach to scoping, with the objective of

addressing potential effects at the early project design stage when they can most easily and cost effectively be accommodated and to provide wider stakeholders and the public with an opportunity to comment on the proposals and their assessment from an early stage.

ADDITIONAL CONSULTATION

- 7.1.6 The City Deal team has engaged proactively with the local press and media outlets, and an initial press release to announce the intention of Renfrewshire Council to proceed with the two proposed developments (CWRR and GAIA) was released in October 2014.
- 7.1.7 Consultation with the public was undertaken from the outset of the project and again during the optioneering and outline design stages. The consultation was carried out by the wider project team and has taken a variety of forms depending on need and best practice.



Photograph 7 - Public Exhibition Event at Braehead

- 7.1.8 Three key rounds of Public Exhibitions have been undertaken (development proposals, developed proposals and finalising proposals) and the details of the locations and dates and outcomes are all provided in the Pre-Application Consultation reports. The purpose of these exhibitions was to provide the local community with a number of opportunities to keep them updated with progress, to present them with the latest information and most importantly to give them to opportunity to continue to comment on the Proposed Developments.
- 7.1.9 The Public Exhibitions were advertised through a number of outlets including social media (Twitter and Facebook), local newspaper adverts and regular updates on the City Deal website (<http://www.renfrewshire.gov.uk/citydeal>).
- 7.1.10 Each round of public exhibitions was held at a number of different locations to increase its accessibility and at times when it was thought that the majority of local residents would be able to attend. Over the course of the project, 13 public exhibitions have been held, the exhibitions have had over 1500 attendees and a total of 571 feedback forms have been received to date. The feedback from the exhibition has been compiled and is provided in the Pre-Application Consultation Report. The feedback received has been taken into account where relevant in preparing the ES.

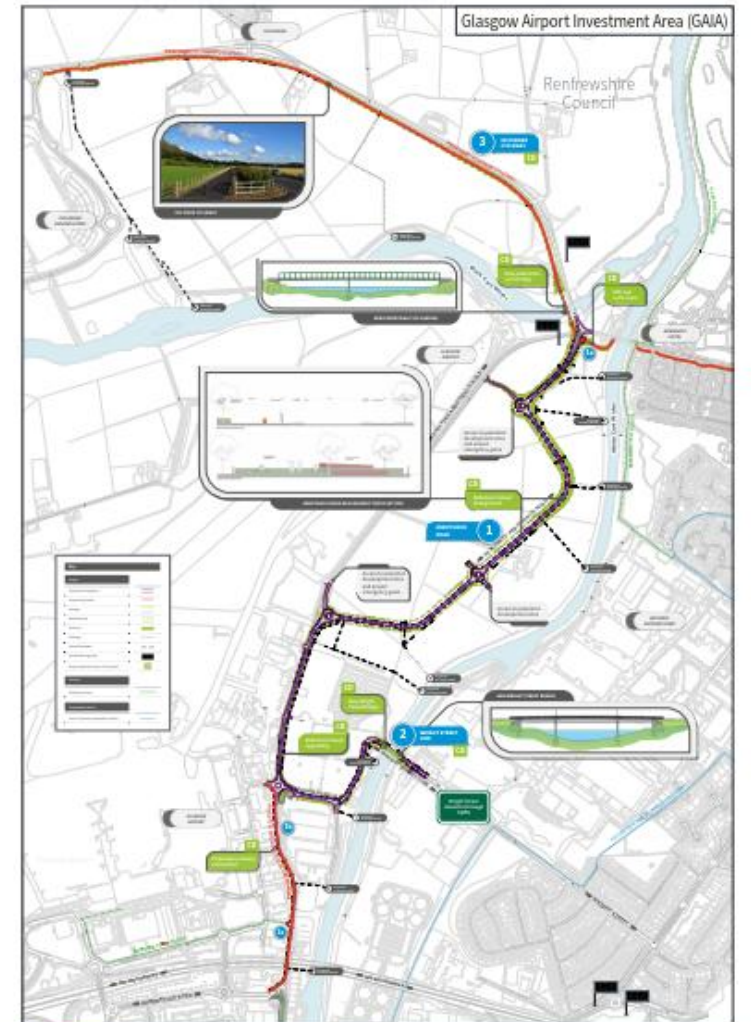


Image of a Public Exhibition Boards

Land Use

- 8.1.1 The potential changes to land use within the area of the Proposed Development has been assessed. The site is bisected by the River Clyde. North of the river, the site and study area is predominantly urban and industrial, while south of the river the study area includes areas of industry, residential development around Renfrew and woodlands at Blythswood.
- 8.1.2 Approximately 9.0 hectares of land is required to accommodate the permanent footprint of the Proposed Development. A number of mitigation measures have been adopted to avoid, reduce or remedy the impacts of the Proposed Development on land uses within the study area. These measures include improvement of core path REN/2 which runs from the bascule bridge to Meadowside Street, following the eastern bank of the White Cart Water as it follows the Renfrew Golf Course. Part of this path would be incorporated into the new upgraded road at West Meadowside Street which is predicted to have a beneficial effect for users of the path.
- 8.1.3 Mitigation measures have also been included to ensure water based access along the River Clyde is maintained during construction. No significant effects on users of this water body are predicted.
- 8.1.4 No adverse effects on land use have been identified which are considered to be significant in accordance with the Environmental Impact Assessment (EIA) Regulations.

Geology, Soils, Hydrogeology and Contaminated Land

- 8.1.5 This assessment of potential effects arising from the Proposed Development on geology, soils, hydrogeology and environmental issues associated with contaminated land has been undertaken. The environmental baseline has been established from a detailed desk study review of the Proposed Development area, including available existing site investigation information.
- 8.1.6 Mitigation measures for the construction phase will comprise standard good construction practices. Mitigation measures for the longer term operational phase are likely to comprise standard engineering design mitigations, which may include: screening of imported or reused fill materials (including dredged soils), with appropriate risk assessment to confirm their suitability for use; and dedicated remediation of soils or groundwater in areas of localised contamination identified by the site investigation or during construction. The recommended mitigation measures are considered sufficient to minimise the identified potentially significant effects on sensitive receptors to a non-significant level.
- 8.1.7 In summary, based on the currently available information no adverse residual or cumulative effects have been identified which are considered significant in the context of the EIA Regulations.

Water Quality, Drainage and Flood Risk

- 8.1.8 The assessment of the potential impacts on the water environment has been informed by consultation, desk-based assessments, topographic/bathymetric surveys and hydrodynamic modelling. Modelling was undertaken to assess the impact of the proposed Clyde Crossing, new areas of road within the floodplain and the new layby berthing structure and associated dredging, upon flood risk.
- 8.1.9 There are three key surface water bodies within the study area; the River Clyde and its tributaries the White Cart Water and Black Cart Water. The water bodies are heavily modified and have poor ecological status; however they have associated European-level habitat designations (Black Cart and Inner Clyde Special Protection Areas designated for birds) and support other protected species including Atlantic salmon, sea trout, river lamprey, European eel and otter.



Photograph 8 – The River Clyde from the southbank

- 8.1.10 The engineered nature of the River Clyde means that flood risk is generally low, although it presents a tidal flood risk to a small number of industrial and commercial premises at the river edge. The Clyde is also subject to annual dredging to maintain the navigable channel during low tide. In accordance with relevant policy, the Proposed Development has been designed to achieve a neutral or better outcome with respect to flood risk and drainage including mitigation such as the provision of cross-drainage and relief culverts amongst others.
- 8.1.11 There is considered to be potential for some temporary residual effects of the dredging, piling and excavation operations on water quality (and aquatic ecology) in the River Clyde and Cart, which cannot be fully mitigated. However, following implementation of best practice and site-specific mitigation during construction, the significance of residual effects is predicted to be not significant overall on water quality. Works in the River Clyde and Cart will also be subject to marine licencing and adhere to the licensing conditions of Marine Scotland, thereby providing an additional level of protection.
- 8.1.12 With the implementation of sustainable drainage systems (SuDS) to treat drainage from carriageways and new hardstanding areas prior to outfall, residual effects on water quality are also predicted to be not significant during operation.
- 8.1.13 Residual effects on drainage, hydrology and flood risk are therefore predicted to be not significant during both construction and operation of the Proposed Development.

Landscape, Townscape and Visual Effects

- 8.1.14 An assessment of the potential impacts from the proposed development upon landscape, townscape and visual effects has been completed. The LVIA has been informed by a combination of desk and site-based assessment techniques. The findings of the LVIA have been used to inform the landscape and engineering design of the Proposed Development
- 8.1.15 The landscape design proposals for the Proposed Development have been developed which are intended to integrate the development into its existing surroundings and seek to enhance the local environment where possible. The landscape design includes: new street trees; shrub planting; amenity grassland; and replacement woodland planting.
- 8.1.16 An assessment of landscape and visual effects during the construction phase of the Proposed Development has been carried out and some adverse landscape and visual effects have been identified, however no significant effects have been identified and all effects would be experienced for a temporary duration of up to 30 months. Adverse effects identified primarily relate to the presence of construction compounds and construction operations which would give rise to limited landscape and visual effects.
- 8.1.17 An assessment of landscape and visual effects at the opening year of the Proposed Development has been carried out. This has also identified that landscape and visual effects of the Proposed Development would be limited and no significant effects have been predicted.

- 8.1.18 The two key components of the development which have the potential to give rise to landscape change are: the introduction of a new bridge across the River Clyde, the 'Clyde Crossing'; and the creation of a link road between Argyll Avenue and the proposed Clyde Crossing which will go through the eastern extent of the Blythwood woodland. Taken together, these elements are considered to give rise to a minor adverse effect at the opening year of operation, which is not considered to be significant.



Photograph 9 – Photomontage of New Clyde Crossing

- 8.1.19 In terms of visual effects, no permanent adverse effects have been identified and therefore no significant effects on visual receptors have been reported in the Landscape and Visual Impact Assessment (LVIA).
- 8.1.20 No cumulative developments have been identified which have the potential to give rise to significant landscape and visual effects in combination with the Proposed Development.

Ecology and Nature Conservation

- 8.1.21 An assessment of the potential impacts from the proposed development upon the ecological environment has been completed. The ecological assessment has been informed by a combination of desk and site-based assessment techniques and surveys. During the scoping process it was agreed that species surveys would be carried out for the following;
- Phase 1 Habitat survey;
 - invasive non-native species survey (INNS);
 - badger (*Meles meles*) survey;
 - bat survey;
 - otter (*Lutra lutra*) survey; and
 - water vole (*Arvicola amphibious*) survey.
- 8.1.22 The desk based assessment determined that there were no statutory designated sites within the area directly affected by the Proposed Development. Three statutory designated sites of international importance (the Inner Clyde Special Protection Area (SPA), Black Cart Water SPA and Inner Clyde Ramsar Site) are however located within 10 km of the Site, in addition to two nationally important sites (the Inner Clyde and Black Cart Water Site of Special Scientific Interest (SSSI), which are recorded within 2 km of the Proposed Development.
- 8.1.23 Two areas of ancient woodland (Blythswood and an unnamed woodland), were identified within the area directly affected by the development, as were two Site of Importance for Nature Conservation (SINC).

INNS

- 8.1.24 Both the desk study and field surveys identified the presence of Himalayan balsam, Japanese knotweed and giant hogweed (Invasive Non-Native Species) and a report on the location and spread of these species were prepared.

Badger

- 8.1.25 Although consultation and a desk study confirmed historical records of badger within the search area, no evidence of this species was recorded by the field surveys within the Site and wider 100m study area, despite the presence of suitable habitat. Consequently, badger is not assessed as an Important Ecological Feature and will not be considered further as part of the assessment of ecological effects.

Bats

- 8.1.26 Bats were identified within the agreed study area and were collectively assessed as an Important Ecological Feature due to the desk study providing historical records (of bats) for the search area and the survey indicating their established use and the importance of the site of the Proposed Development and the wider area for roosting, commuting and foraging. The survey indicated that the areas of key interest include the buildings associated with Christies and Sons (Metal Merchant), the trees located within Blythswood and linear features such as the local road/street networks, the River Clyde and the Black and White Cart Waters.

Otter

- 8.1.27 Although otter were identified within the 250m study area they are not located near the proposed works. Consequently, otter is not assessed as an Important Ecological Feature and were not considered further as part of the assessment of ecological effects.

Water Vole

- 8.1.28 Although consultation and a desk study confirmed historical records of water vole for the search area, owing to an absence of suitable habitat within the Site boundary, no evidence of this species was recorded in surveys. Consequently, water vole is not assessed as an Important Ecological Feature and were not considered further as part of the assessment of ecological effects.

Fish

- 8.1.29 Due to the presence of suitable habitat along both the Black Cart Water, White Cart Water and River Clyde for fish species, freshwater fish, and in particular, Atlantic salmon and brown (sea) trout were considered as part of the assessment of ecological effects.

Barn Owl

- 8.1.30 Although dedicated surveys had been scoped out for this species group, incidental records confirmed the presence of barn owl within the Site potentially utilising the Christies' Scrapyard building as a roost. Consequently, barn owl were assessed as an Important Ecological Feature and were considered as part of the assessment of ecological effects.

Summary

- 8.1.31 Following the assessment of effects and the application of appropriate mitigation the ecological assessment found significant effects would remain on semi-natural woodland habitat (negative due to loss even though will be compensated for), Invasive Non-Native Species (beneficial effect due to removal) and bats (negative due to loss of habitat – trees and buildings).



Photograph 10: Blythwood

Archaeology and Cultural Heritage

- 8.1.32 The potential impacts of the Proposed Development on archaeological and cultural heritage features within the site boundary and the surrounding area have been considered. Both physical impacts and impacts upon setting have been considered.
- 8.1.33 A baseline study and walkover study were carried out to inform the cultural heritage assessment.
- 8.1.34 Designated heritage assets in the immediate vicinity of the development include the Category A Listed Rolling Lift Bridge over the White Cart Water; a pair of carved stones known as the Argyll Stone and St Conval's Chariot, which are Category B Listed; and the Ferry Inn, a Category C Listed public house beside Renfrew Ferry. A search of designated heritage assets in the wider area (up to 1km) has not identified any which have a wider setting that could be significantly affected by the Proposed Development.
- 8.1.35 There are also a number of undesignated heritage assets in the immediate vicinity of the Proposed Development and a number of assets identified from historic maps, which may survive as archaeological features.
- 8.1.36 The assessment predicted that there will an effect of minor significance on the site of a former shipyard, as a result of demolition of a late 19th century fabrication shed (currently the Christies and Sons (Metal Merchants) Ltd warehouse) and potential disturbance to buried archaeological remains.

- 8.1.37 The new bridge across the River Clyde may also affect the future viability of the Renfrew Ferry. The possibility of the ferry staying open to take passengers when the bridge is lifted and closed to road traffic is a decision for the private operator; however, if the ferry service were to close this would be predicted to result in an effect of minor significance.



Photograph 11: The Clyde and the Renfrew Ferry

- 8.1.38 Mitigation measures will include a programme of archaeological investigation, comprising archaeological evaluation followed by excavation and recording of any identified features of archaeological interest, and historic building recording of affected structures.

Noise and Vibration

- 8.1.39 A detailed assessment of potential noise and vibration effects associated with the Proposed Development has been undertaken. The assessment has considered the effects that could arise during both construction and operational phases.
- 8.1.40 The completed assessment has drawn upon the results of consultation with the Environmental Health Departments of West Dunbartonshire Council, Glasgow City Council and Renfrewshire Council as well as the results of a detailed baseline noise survey and detailed noise modelling and prediction exercises.
- 8.1.41 An initial appraisal of potential impacts identified that significant noise or vibration effects are anticipated not to arise as a result of the following:
- road traffic induced groundborne vibration;
 - construction traffic noise;
 - noise from bridge operation including opening and closing; or
 - noise from traffic diversions associated with the construction / delivery of the Proposed Development.
- 8.1.42 However, the potential for significant effects was identified for the following aspects, which have therefore been subject to more detailed assessment:
- construction noise affecting existing and proposed local sensitive receptors;
 - construction vibration affecting existing and proposed local sensitive receptors;
 - operational phase road traffic noise level changes associated with the use of the Proposed Development and affecting existing and proposed local sensitive receptors; and
 - operational phase road traffic induced airborne vibration level changes associated with the use of the development affecting existing and proposed local sensitive receptors.
- 8.1.43 The assessment of construction noise has identified that, with the committed mitigation measures, effects will not be significant for the vast majority of the time, although there remains the potential for significant effects to arise, at a small number of properties, south of Meadowside Street, for limited durations during essential works. Such effects would be short term and could be managed to further reduce impact.
- 8.1.44 The assessment of construction vibration has identified that, with the committed mitigation measures, significant effects would be avoided.
- 8.1.45 The assessment of the operational phase has concluded that the effects associated with road traffic noise, changes in noise nuisance and airborne vibration nuisance would not be significant for the vast majority of these receptors. A small number of dwellings (circa 20), all of which are south of Meadowside Street, would be subject to significant effects. A single 'other' receptor (a cycle path) has been identified to be subject to a significant effect, but only for short sections in close proximity to the Proposed Development.

Local Air Quality

8.1.46 The main elements of the Proposed CWRR Development that will impact on traffic flows and therefore potentially affect air quality within Renfrewshire and the neighbouring local authority areas of West Dunbartonshire and Glasgow City are identified in the Air Quality assessment as:

- Yoker Train Station Cycle Link;
- Connection of Clyde Crossing approach road at Dock Street with the A814 Glasgow Road/Dumbarton Road;
- New Clyde Crossing;
- Argyll Avenue (the extension of Argyll Avenue from Inchinnan Road to Meadowside Street East); and
- Inchinnan Road Cycle Link.

8.1.47 The Cycle Links will influence traffic signalling sequences and hence traffic flows and also have the potential to reduce the number of vehicles on the road as more people choose active travel options as an alternative to car travel.

8.1.48 An automatic monitoring station was set up at the Junction of Kelso Street with Dumbarton Road in April 2017 to carry out baseline air quality monitoring in order to address the consultation responses from Glasgow City Council (GCC) regarding concerns for potential impacts of increased traffic on air quality along Dumbarton Road. Monitoring is proposed to continue at this location until completion of the construction phase.

8.1.49 The predicted local air pollutant concentrations due to changes in traffic flows associated with the Proposed Development are below the Air Quality Objectives (AQOs) for each assessment method at all sensitive receptors.

8.1.50 When the sensitivity analyses was carried out, the worst case predicted effects were at two locations (Love Street within the Air Quality Management Area (AQMA) and adjacent to a potential future residential location (proposed Turnberry Homes development, located north of the River Clyde). However, the predicted concentrations remain below the relevant Air Quality Objectives and beneficial effects are predicted in the hotspot areas of the Renfrew Town Centre AQMA and on Dumbarton Road between Yoker and Scotstoun.

8.1.51 The Proposed Development is not predicted to create a requirement for any new AQMAs or to require amendments to existing AQMAs.

8.1.52 The Proposed Development will not prevent the councils from implementing existing actions and plans to improve local air quality.

8.1.53 The Proposed Development is not predicted to introduce any new receptors into an area of poor air quality.

Climate Change Mitigation and Adaptation

- 8.1.54 The approach to addressing climate change mitigation and adaptation in EIAs for Proposed Developments has changed significantly in recent years. Detailed guidance now exists to ensure greenhouse gas (GHG) emissions are minimised and extensive data sets have been produced that project likely changes in climate in different regions. This new guidance and data has been used to assess the potential effects of the Proposed Development on climate change as well as the resilience of the Proposed Development and its surrounding environment to climate change.
- 8.1.55 The mitigation of climate change has been addressed here through the implementation of a new specification for the management of carbon in infrastructure: PAS 2080. While it is not yet scientifically possible to determine the direct effects on the climate from the carbon associated with the Proposed Development, the scale of the project is such that no significant climate change is expected to occur as a result. Nevertheless, the PAS 2080 carbon reduction process is ongoing and will continue through to completion of construction to ensure that any residual effects on the climate are minimised.
- 8.1.56 The ability of the Proposed Development to adapt to climate change, also known as project resilience, has been addressed as per requirements of the recently implemented EU Directive on EIA, and associated Institute of Environmental Management and Assessment (IEMA) guidance.
- 8.1.57 Potential new effects caused by climate change, as well as the impact of climate change on existing effects, were considered by all environmental and engineering disciplines and reported back to the Climate Change Co-ordinator. The assessments

predicted that there would be no significant adaptation effects, i.e. not only has the Proposed Development been designed to be sufficiently resilient to projected climate changes, but also its surrounding environment is not predicted to encounter any significant climate change effects.

Socio-economics

- 8.1.58 The socio-economic chapter provides an assessment of the potential social and economic impacts associated with the Proposed Development. The assessment has examined how the Proposed Development will impact upon the existing and future communities and the local/regional economies.
- 8.1.59 The assessment has been prepared in accordance with best practice guidance and has been informed by detailed baseline and policy analysis, economic modelling and relevant conclusions from a related Retail & Economic Impact Assessment.
- 8.1.60 The assessment concluded that the Proposed Development has the potential to create approximately 216 net temporary construction jobs in its construction phase and 564 net additional FTE jobs when operational, resulting in significant beneficial socio-economic effects. Taking account of proposed mitigation or enhancement measures, including the use of community benefit clauses within relevant contracts to secure community benefits and measures to minimise disruption to marine traffic, other residual socio-economic effects are predicted to be not significant in EIA terms. This includes potential retail and trade diversion, effects on population levels, housing provision and the property market.

Traffic and Transport

- 8.1.61 The assessment predicted that there would be the potential for likely significant effects of the Proposed Development, through increased traffic on the local road network. There will be mitigation in place to minimise these effects, but they will remain significant in some areas close to the bridge crossing.
- 8.1.62 The overall traffic effects are significant in areas particular around the bridge heads but these are limited spatially and reduce to minor as traffic moves away from the bridge (i.e. local traffic). The significant increases in the overall traffic in and around the bridge heads are primarily due to the low flows currently on these minor routes, and the new crossing attracting local trips to the area. The access roads are designed to cater for these predicted future traffic flows and will be optimised through traffic light timings. The existing modelling also shows that the projected traffic flows can be accommodated effectively through the local road network.
- 8.1.63 There are predicted temporary effects to the area from the construction traffic, which will be mitigated through a detailed Traffic Management Plan.
- 8.1.64 The proposed development significantly improves accessibility to key services such as employment, health, education, transport and leisure, and provides a significant beneficial effect for Non-Motorised Users (NMUs), particularly those making cross-river trips between the Renfrew and Yoker areas.

Land Use

- 9.1.1 The potential changes to land uses within the area of the Proposed GAIA Development have been assessed. The site predominantly comprises of agricultural farmland around Abbotsinch Road and A8 (Greenock Road), with two watercourses - the Black Cart and the White Cart Waters – passing through the proposed development area. Recreational land in the area includes a small number of formal and informal footpaths and cycleways. These routes are often isolated or in poor condition.
- 9.1.2 Approximately 4.5 hectares of land is required to accommodate the permanent footprint of the Proposed Development. A number of mitigation measures have been proposed to avoid, reduce or remedy the impacts of the Proposed Development on land uses within the study area. These measures include improvements to the condition of Core Path REN/13 which runs along the existing Abbotsinch Road, and maintaining connectivity of Core Path REN/20 which runs along part of the White Cart Water near the location of the proposed Wright Street Link. These improvement works will result in significant beneficial effects for users of the paths.
- 9.1.3 No adverse effects on land use have been identified which are considered to be significant in accordance with the Environmental Impact Assessment (EIA) Regulations.

Geology, Soils, Hydrogeology and Contaminated Land

- 9.1.4 This assessment of potential effects arising from the Proposed Development on geology, soils, hydrogeology and environmental issues associated with contaminated land has been undertaken. The environmental baseline has been established from a detailed desk study review of the Proposed Development area, including available existing site investigation information.
- 9.1.5 Mitigation measures for the construction phase will comprise standard good construction practices. Mitigation measures for the longer term operational phase are likely to comprise standard engineering design mitigations, which may include: screening of imported or reused fill materials (including dredged soils), with appropriate risk assessment to confirm their suitability for use; and dedicated remediation of soils or groundwater in areas of localised contamination identified by the site investigation or during construction. The recommended mitigation measures are considered sufficient to minimise the identified potentially significant effects on sensitive receptors to a non-significant level.
- 9.1.6 In summary, based on the currently available information no adverse residual or cumulative effects have been identified which are considered significant in the context of the EIA Regulations.

Water Quality, Drainage and Flood Risk

9.1.7 The assessment of the potential impacts on the water environment has been informed by consultation, desk-based assessments, topographic/bathymetric surveys and hydrodynamic modelling. Modelling was undertaken to assess the impact of the proposed new infrastructure upon flood risk.

4.



Photograph 12: White Cart River looking east towards Westway

9.1.8 There are two key surface water bodies within the study area; the White Cart Water and Black Cart Water, which join to become the River Cart before its confluence with the River Clyde. The water bodies are heavily modified and have poor ecological status; however they have associated European-level habitat designations (Black Cart and Inner Clyde Special

Protection Areas designated for birds) and support other protected species including Atlantic salmon, sea trout, river lamprey, European eel and otter.

9.1.9 The River Cart (White Cart and Black Cart) is subject to river (fluvial) flooding, and to a greater extent tidal flood risk impacting a small number of industrial and commercial receptors, and parts of Glasgow Airport and the existing Abbotsinch Road. Implementation of the White Cart Flood Prevention Scheme has reduced fluvial flood risk posed by the White Cart relative to historical conditions.

9.1.10 In accordance with relevant policy, the Proposed Development has been designed to achieve a neutral or better outcome with respect to flood risk and drainage including platforming with freeboard protection (the minimum required height above the design flood level to account for uncertainties in flood design and other factors such as post-construction settlement) against flooding (e.g. Abbotsinch Road realignment) and provision of cross-drainage, flood relief culverts (within the raised cycleway section east of Abbotsinch Road) and compensatory floodplain storage, where required. Flood modelling predicts that the proposed development will have a negligible impact upon flood risk, with post-development peak water levels predicted to be within 7mm of existing values.

9.1.11 Following implementation of mitigation and compliance with SPP within the design, the significance of residual effects is predicted to be not significant in the context of the EIA Regulations on water quality, drainage, hydrology and flood risk, during both construction and operation.

Landscape, Townscape and Visual Effects

- 9.1.12 An assessment of landscape and visual effects during the construction phase of the Proposed Development has been carried out and while some minor adverse landscape and visual effects have been identified and one significant visual effect on one property (Netherton Farm) has been identified, all effects would be experienced for a temporary duration of up to approximately one year. Adverse effects identified primarily relate to the presence of construction compounds and construction operations which would give rise to limited landscape and visual effects.
- 9.1.13 An assessment of landscape and visual effects at the opening year of the Proposed Development has been carried out. This has also identified that landscape and visual effects of the Proposed Development would be limited with no significant landscape effects predicted and only one significant visual effect predicted on Netherton Farm, which is a residential receptor located directly adjacent to the proposed realignment of Abbotsinch Road.
- 9.1.14 The three key components of the development which have the potential to give rise to landscape change are: the realignment of Abbotsinch Road; the Black Cart Cycleway Bridge, which also requires the clearance of some existing vegetation; and the Wright Street Link Bridge. Taken together, these elements are considered to give rise to a minor adverse level of effect at the opening year of operation, which is not significant.



Photograph 13 – Photograph of Abbotsinch Road (existing)

- 9.1.15 Limited adverse visual effects have been identified and one significant effect on a visual receptor has been identified, at the property at Netherton Farm. The part of the development which has the greatest potential to give rise to adverse visual effects is the proposed Abbotsinch Road realignment which will position the road further to the east than its current alignment within an open area of arable fields. However, overall it is predicted that this change will be perceived by a limited number of visual receptors with Netherton Farm being the only highly sensitive receptor predicted to be experience a significant visual effect.

Ecology and Nature Conservation

9.1.16 An assessment of the potential impacts from the proposed development upon the ecological environment has been completed. The ecological assessment has been informed by a combination of desk and site-based assessment techniques and surveys. During the scoping process it was agreed that species surveys would be carried out for the following;

- Phase 1 Habitat survey;
- invasive non-native species survey (INNS);
- badger (*Meles meles*) survey;
- bat survey;
- otter (*Lutra lutra*) survey; and
- water vole (*Arvicola amphibious*) survey.

9.1.17 The desk based assessment determined that there were no statutory designated sites within the area directly affected by the Proposed Development. Three statutory designated sites of international importance (the Inner Clyde Special Protection Area (SPA), Black Cart Water SPA and Inner Clyde Ramsar Site) are however located within 10 km of the Site, in addition to two nationally important sites (the Inner Clyde and Black Cart Water Site of Special Scientific Interest (SSSI), which are recorded within 2 km of the Proposed Development.

9.1.18 No areas of ancient woodland were identified within the proposed development area, however, one area of ancient woodland was identified within 250m of the site (Teuchean Wood). There were no local nature reserves (LNR's) or RSPB Nature Reserves and Important Bird areas.

INNS

9.1.19 Both the desk study and field surveys identified the presence of Himalayan balsam, Japanese knotweed and giant hogweed (Invasive Non-Native Species) and a report on the location and spread of these species was prepared.

Badger

9.1.20 Although consultation and a desk study confirmed historical records of badger within the search area, no evidence of this species was recorded by the field surveys within the Site and wider 100m study area, despite the presence of suitable habitat. Consequently, badger is not assessed as an Important Ecological Feature and will not be considered further as part of the assessment of ecological effects.

Bats

9.1.21 Bats are collectively assessed as an Important Ecological Feature due to the desk study providing historical records (of bats) for the search area, coupled with their established use and importance of the Site and wider 30m/100m study area for commuting and foraging by bat activity surveys, in particular, the farm house of Netherton Farm linear features such as the local road/street networks and the Black and White Cart Waters. Consequently, bats are considered further as part of the assessment of ecological effects.

Otter

9.1.22 Otter was assessed as an Important Ecological Feature due to the identification of otter activity within and adjacent to the proposed development area comprising spraint and resting places, presence of suitable foraging and resting up habitat along both the Black Cart and White Cart Waters and historical records for the search area, which were provided through

consultation and by the desk study. Therefore, otter was considered as part of the assessment of ecological effects.

Water Vole

- 9.1.23 Although consultation and a desk study confirmed historical records of water vole for the search area, no evidence of this species was recorded the field surveys, despite the presence of suitable riparian habitats. Consequently, water vole was not assessed as an Important Ecological Feature and was not be considered further as part of the assessment of ecological effects.

Fish

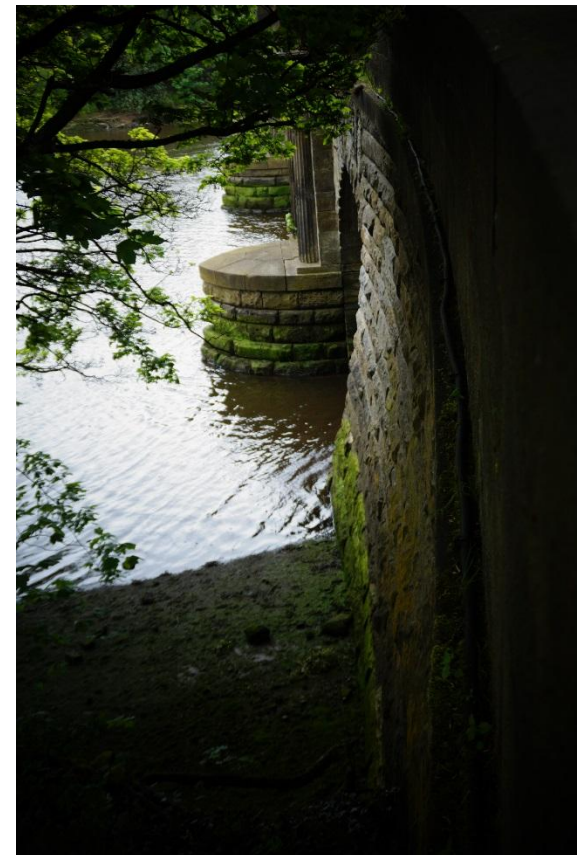
- 9.1.24 Consultation and a desk study provided historical records of brown (sea) trout, Atlantic salmon and bullhead for the Site and search area. In the absence of specific survey effort, freshwater and migratory fish are assessed as Important Ecological Features due to the presence of suitable habitat along both the Black and White Cart Waters for migratory fish species. Consequently, freshwater fish, in particular, Atlantic salmon and brown (sea) trout were considered further as part of the assessment of ecological effects.

Ornithology (Birds)

- 9.1.25 Although dedicated surveys had been scoped out for this species group, incidental records confirmed the presence of barn owl within the Site potentially utilising the Netherton Farm buildings as a roost. In addition, whooper swan are known to forage adjacent to the A8 north of the Black Cart Water. Consequently, barn owl and whooper swan are assessed as an Important Ecological Feature and will be considered further as part of the assessment of ecological effects.

Summary

- 9.1.26 Following the assessment of effects and the application of appropriate mitigation the ecological assessment found that the effects on semi natural woodland habitat, bats and barn owl will be significant in EIA terms (moderate significance). Other effects will not be significant (minor or negligible significance).



Photograph 14 – Black Cart Riverbank

Archaeology and Cultural Heritage

- 9.1.1 The potential impacts of the Proposed Development on archaeological and cultural heritage features within the site boundary and the surrounding area have been considered. Both physical impacts and impacts upon setting have been considered.
- 9.1.2 A baseline study and walkover study were carried out to inform the cultural heritage assessment.
- 9.1.3 Designated heritage assets in the immediate vicinity of the development include the one Scheduled Monument, All Hallows Church, Inchinnan, which is the site of the former parish church occupying an early monastic site; three Category A Listed bridges at the river crossing at Inchinnan; and a Category C Listed Farmhouse at Town of Inchinnan.
- 9.1.4 Category A Listed Rolling Lift Bridge over the White Cart Water; a pair of carved stones known as the Argyll Stone and St Conval's Chariot, which are Category B Listed. A search of designated heritage assets in the wider area (up to 1km) has not identified any which have a wider setting that could be significantly affected by the Proposed Development.
- 9.1.5 There are also a number of undesigned heritage assets in the immediate vicinity of the Proposed Development and a number of assets identified from historic maps, which may survive as archaeological features.
- 9.1.6 The assessment predicted that there effect of moderate significance on Inchinnan Bridge, which is a Category A Listed Building, from the proposed cycleway bridge alongside Inchinnan Bridge, which will impact on its setting.
- 9.1.7 There will be an effect of moderate significance on White Cart Bridge, which is a Category A Listed Building, as a result of

modifications to the parapet which are necessary to accommodate a redesigned road junction.

- 9.1.8 There will be an effect of minor significance on Netherton, a 19th century farm that is thought to occupy the site of an earlier settlement shown on 17th and 18th century maps. Archaeological remains relating to earlier phases of occupation may be disturbed by construction works, and the setting of the farm will be adversely affected by the proximity of the realigned Abbotsinch Road.
- 9.1.9 Mitigation measures will include a programme of archaeological investigation, comprising archaeological evaluation followed by excavation and recording of any identified features of archaeological interested, and historic building recording of affected structures such as Inchinnan Bridge.



Photograph 15: The Listed Black Cart Bridge

Noise and Vibration

- 9.1.10 A detailed assessment of potential noise and vibration effects associated with the Proposed Development has been undertaken. The assessment has considered the effects that could arise during both construction and operational phases.
- 9.1.11 The completed assessment has drawn upon the results of consultation with the Environmental Health Departments of West Dunbartonshire Council, Glasgow City Council and Renfrewshire Council as well as the results of a detailed baseline noise survey and detailed noise modelling and prediction exercises.
- 9.1.12 The work has also been undertaken with due regard to local, regional and national planning policy and the adopted assessment methodologies have been based on applicable British Standards and best practice guidance.
- 9.1.13 The completed assessment has also accounted for committed noise and vibration mitigation measures.
- 9.1.14 An initial appraisal of potential impacts identified that significant noise or vibration effects are not predicted to arise as a result of the following:
- road traffic induced groundborne vibration; or
 - noise from traffic diversions associated with the construction / delivery of the Proposed Development.
- 9.1.15 However, the potential for significant effects was identified for the following aspects, which have therefore been subject to more detailed assessment:
- construction noise affecting existing and proposed local sensitive receptors;
 - construction traffic noise;
 - construction vibration affecting existing and proposed local sensitive receptors;
 - operational phase road traffic noise level changes associated with the use of the Proposed Development and affecting existing and proposed local sensitive receptors; and
 - operational phase road traffic induced airborne vibration level changes associated with the use of the development affecting existing and proposed local sensitive receptors.
- 9.1.16 It has been predicted that with the proposed mitigation measures in place, the effect of construction noise can be controlled to range from none to minor (not significant) at worst. The predicted effects would be short term, temporary and local in nature.
- 9.1.17 For construction vibration, it has been predicted that impacts would be negligible at worst (not significant). The predicted effects would be short term, temporary and local in nature.
- 9.1.18 The assessment of operational phase road traffic noise has considered the effects that would arise in the short term (immediately following the opening of the scheme), and in the long term (at the design year which is 17 years after completion of the development).

- 9.1.19 In both the short and the long term, the vast majority of local receptors (dwellings and 'other' receptors) would be subject to effects of none, negligible and minor (not significant). A single property, Netherton Farm, which is in relatively close proximity to the Proposed Development, has been predicted to be subject to a greater residual adverse effect, with moderate (significant) identified in the short term, but reducing to minor (not significant) in the long term.
- 9.1.20 Consideration has also been given to key sensitive developments which have been granted planning permission but that are not yet built, or which are pending a planning decision. It has been identified that all considered sites would be subject to negligible noise level changes as a result of the Proposed Development.
- 9.1.21 The effects as a result of night-time road traffic noise level changes and effects across the wider area (outside the Calculation Area) have been predicted to be minor at worst (not significant).

Local Air Quality

- 9.1.22 The main elements of the Proposed Development that will impact traffic flows and hence air quality within Renfrewshire are: Inchinnan Cycleway; Black Cart Cycleway Bridge; Abbotsinch Road Realignment; Wright Street Link and Wright Street Link Bridge; and Abbotsinch Road Cycleway Link.
- 9.1.23 The construction and operation of the above will change the traffic flows on the local road network, which will have an effect on the generation of traffic emitted pollutants and thus have the potential to directly affect local air quality. The cycleways may affect traffic signalling sequences and will therefore potentially influence traffic flows. The cycleways also have the potential to reduce traffic flows as people choose active travel options instead of car travel. The Wright Street Link and Crossing will provide an alternative route for HGVs to and from the Westway Business Park avoiding residential areas in Renfrew.
- 9.1.24 The pollutants considered within the assessment of the operational phase of the project are the products of vehicle engine combustion, namely nitrogen dioxide (NO₂) and fine particulates (PM₁₀ and PM_{2.5}). Carbon monoxide (CO) was included in the baseline assessment, however the concentrations across the study area were significantly below the Air Quality Objectives (AQO) and even very significant changes in traffic flows would not result in predicted exceedances of the CO objective at sensitive receptor locations. This pollutant has therefore been scoped out of the assessment and is not assessed further in the future scenarios.

- 9.1.25 There is also the potential for the Proposed Development to affect local air quality during the construction phase, although this will be limited to areas of construction activity and be over a period of 12 months. Emissions will be controlled by site-specific mitigation measures which will be detailed in a Construction Environmental Management Plan (CEMP).
- 9.1.26 The predicted concentrations at all sensitive receptors within the modelled study area are below the AQOs for each pollutant for each modelled scenario and assessment method. The Proposed Development is not predicted to create a requirement for any new Air Quality Management Areas (AQMAs) or require amendments to existing AQMAs.
- 9.1.27 The Proposed Development does not prevent Renfrewshire Council from implementing existing actions and plans to improve local air quality. Mitigation measures embedded in the design to encourage sustainable travel choices will assist the local authority in achieving further improvements to local air quality.
- 9.1.28 The Proposed Development does not introduce any new receptors into an area of poor air quality.

Climate Change Mitigation and Adaptation

- 9.1.29 The same approach as set out above (paragraphs 8.1.55 – 8.1.58) was adopted and the assessments predicted that there would be no significant adaptation effects, i.e. not only has the Proposed Development been designed to be sufficiently resilient to projected climate changes, but also its surrounding environment is not predicted to encounter any significant climate change effects.

Socio-economics

- 9.1.30 An assessment has been undertaken that identifies and assesses the likely significant socio-economic effects resulting from the Proposed Development, during both its construction and operational phases. Taking account of relevant additionality factors, the assessment examines potential effects relating to employment, population and housing provision. The assessment focuses on potential socio-economic changes within a Local Study Area, comprising the area covered by a 15-minute drive time distance from the approximate centre of the Development Site. A Wider Study Area extending across the Renfrewshire Council area has also been considered.
- 9.1.31 The assessment has been prepared in accordance with best practice guidance (including HM Treasury's Green Book). It has been informed by detailed baseline analysis, policy reviews and economic modelling.
- 9.1.32 The assessment concludes that the Proposed Development has the potential to create or support approximately 57 net temporary construction jobs over the construction phase of the project, resulting in a Slight/Moderate and not significant beneficial socio-economic effect. The Proposed Development also has the potential to support or unlock 6,803 net additional full time equivalent (FTE) jobs over the operational phase, resulting in Moderate - Moderate/Substantial and significant beneficial socio-economic effects. Taking account of proposed mitigation or enhancement measures, including the use of community benefit clauses within relevant contracts to secure community benefits, all other residual socio-economic effects are predicted to be not significant in EIA terms. This includes potential effects on population levels, housing provision and the property market.

Traffic and Transport

- 9.1.33 The Proposed Development replaces an existing road with the realignment of Abbotsinch Road and adds a new connection the Wright Street Link Road.
- 9.1.34 The assessment predicted the potential for local traffic effects associated with the Proposed Development through increased traffic on the local road network surrounding the proposals.
- 9.1.35 There are small increases in traffic flows on certain routes particularly around Abbotsinch Road. The A8 Greenock Road / A8 Inchinnan Road / Abbotsinch Road junction between Inchinnan Bridge and the White Cart Bridge is a major constraint for the area, this has been mitigated with lane and signal improvements.
- 9.1.36 It is predicted that whilst operation of the junction improves with the proposed development, the operational benefits may diminish over time as additional traffic is attracted to the junction as a consequence of the improvements in traffic flows and reductions in queuing.
- 9.1.37 The Proposed Development provides a significant step change in the NMU provision for the area. Temporary effects arising from construction traffic will also be mitigated through a detailed Traffic Management Plan.

10 CUMULATIVE ENVIRONMENTAL EFFECTS

Introduction

10.1.1 The cumulative assessment has identified that there would be no potential for significant cumulative environmental effects of the proposals on the following EIA topics which were scoped out of the assessment at an early stage:

- Land use;
- Geology, hydrogeology, soils and contaminated land;
- Water quality, drainage and flood risk;
- Climate change mitigation and adaptation; and
- Traffic and transport.

10.1.2 A more detailed assessment of the potentially significant cumulative environmental effects of the Proposed Developments was undertaken for the remaining environmental topics in this EIA, taking account of the cumulative effects of CWRR, GAIA and other reasonably foreseeable developments in two future assessment scenarios (2020 opening year and 2037 future year). The findings of these assessments are summarised below.

Landscape, Townscape and Visual Effects

- No significant residual landscape, townscape and visual cumulative effects are predicted for the CWRR and GAIA Proposed Developments in the 2020 opening year assessment.
- In the longer term (up to 2037), as the GAIA City Deal Masterplan sites are developed, it is predicted that there would be significant residual effects on local landscape character due to the combined effect of GAIA and the development of the Masterplan sites around the area of the realigned Abbotsinch Road.
- Significant cumulative visual effects are also predicted for a small group of receptors (residential properties and users of paths) located to the east of the White Cart Water and south of A8 Inchinnan Road due to the combined effect of development of GAIA and the long term development of Renfrewshire City Deal Masterplan sites in the area of the realigned Abbotsinch Road.

Ecology and Nature Conservation

- A cumulative major (significant) adverse cumulative effect to semi-natural woodland habitat from both habitat loss and fragmentation at a Local Authority Level (2020 and 2037) is predicted.
- A cumulative moderate (significant) beneficial cumulative effect through the removal and treatment of invasive non-native species at a Local Level (2020) is predicted with no further significant cumulative effects predicted for the period up to 2037.
- A cumulative moderate (significant) adverse (irreversible (individual) / reversible (populations)) effect to bats through direct mortality and adverse irreversible effects through habitat fragmentation and disturbance at a Local Authority Level (2020 and 2037) is also predicted.

Archaeology and Cultural Heritage

- No significant cumulative effects on cultural heritage are predicted from the Proposed Developments in combination with other proposed developments in the 2020 assessment.
- Development of the Masterplan sites east of Abbotsinch Road in the longer term is predicted to have a significant cumulative effect on cultural heritage at Netherton farmstead from any demolition of the farmhouse and removal of any associated archaeological remains in its vicinity.

Noise and Vibration

- 10.1.3 The potential for significant cumulative effects on noise were identified during the scoping process for the cumulative environmental assessment.
- 10.1.4 Potential cumulative effects (i.e. lesser or greater effects than those identified for the Proposed GAIA and CWRR Developments individually), have been identified to arise only during the operational phase, as a result road traffic noise and road traffic induced airborne vibration.
- 10.1.5 The effects associated with road traffic noise, changes in noise nuisance and airborne vibration nuisance predicted would not be significant for the vast majority of these receptors.
- 10.1.6 A small number of dwellings (circa 50), comprising Netherton Farm and a sample south of Meadowside Street, would be subject to significant cumulative effects. A single 'other' receptor (a cycle path) has been identified to be subject to a significant cumulative effect primarily associated with the Proposed CWRR Development, but only for short sections in close proximity to the Proposed CWRR Development.
- 10.1.7 One other significantly affected receptor is identified, as well as others outside this area, but in all cases, these effects are identified to be as a result of other developments associated with the LDP (as included within the assessed cumulative scenario), and not the Proposed GAIA or CWRR Developments.
- 10.1.8 Outside the cumulative Calculation Area no significant effects are identified to arise from the GAIA or CWRR Developments.

Local Air Quality

- 10.1.9 The potential for significant cumulative effects on local air quality were identified during the scoping process for the cumulative environmental assessment. Detailed assessment of traffic model data subsequently identified that the predicted air pollutant concentrations for the cumulative effects scenario in 2020 and 2037 are below the Air Quality Objectives (AQOs) for at all sensitive receptors.
- 10.1.10 The changes associated with the cumulative developments are not predicted to create a requirement for any new Air Quality Management Areas (AQMAS) or to require amendments to existing AQMAS.
- 10.1.11 While the worst case assessment predicts a moderate Adverse effect at one potential future residential location (proposed Turnberry Homes development, located north of the River Clyde), this is due to the percentage change in magnitude and the overall predicted annual mean concentrations of each pollutant are predicted to be significantly below the AQOs. The overall effect at this location is not significant and the cumulative development scenarios do not introduce any new receptors into an area of poor air quality.
- 10.1.12 No adverse cumulative effects on local air quality have been predicted which are considered significant in the context of the EIA Regulations. The overall significance on local air quality of the cumulative developments is Not Significant.

Socio-Economic Effects

- Cumulative effects on construction employment for the Opening Year 2020 assessment are expected to be significant (beneficial) at the local and regional (Clyde Valley) levels taking account of the socio-economic effects of construction of the Proposed Developments with other development proposals anticipated in the area.
- In the longer term, significant cumulative beneficial employment effects are predicted from the development of the Renfrewshire City Deal Masterplans (CWRR and GAIA) residential and commercial sites in the Future Year (2037).

In-Combination Effects

- 10.1.13 The assessment has also addressed the potential for significant cumulative effects from the combination of different types of environmental impacts from the Proposed Developments.
- 10.1.14 This assessment has identified that significant in-combination effects from the simultaneous construction of CWRR and GAIA are predicted in a few key locations where activities can exert a number of environmental effects including noise, vibration, dust nuisance and visual effects which cumulatively undermine amenity for receptors.
- 10.1.15 Committed mitigation presented throughout this ES will avoid or reduce the likelihood of significant in-combination effects, but potential remains for some short term significant residual effects on users of the NMU route following Meadowside Street, and for residential receptors located very close to roads such as Meadowside Street east and at Netherton Farm.
- 10.1.16 Following opening of the CWRR and GAIA Proposed Developments, significant changes in peak hour operational traffic flows have been predicted along Meadowside Street and there is potential for significant adverse effects from these traffic changes in part due to the low traffic flows that use this road currently.
- 10.1.17 The assessment has predicted that there could be significant noise effects for dwellings in the group of two tenements on Meadowside Street located close to the junction with Ferry Road. There is limited opportunity for mitigation in this location, although noise insulation of eligible receptors will reduce the level of noise effects inside these dwellings. Overall a significant residual in-combination effect is predicted for some properties in this location following opening of the Proposed Developments.
- 10.1.18 Significant beneficial in-combination effects are predicted for non-motorised users (NMUs) through the combined step change in provision and quality of new and upgraded footpaths and cycleways within the development areas for CWRR and GAIA. Enhanced facilities should support increased journeys in the study area by NMUs by improving connections with key destinations such as employment areas and through the new cross Clyde connection from the Clyde Crossing.
- 10.1.19 In the longer term, up to 2037, the implementation of the City Deal Proposed Developments with the Renfrewshire City Deal Masterplan has the potential to offer combined benefits in areas such as Blythswood and Netherton from enhancements to the public realm, improved non-motorised user (NMU) facilities and as landscaping associated with the developments establishes. Future development of residential and commercial sites in the CWRR and GAIA Masterplans is also predicted to bring significant new employment opportunities for people living in the region.

11 COMMENTING ON THE PLANNING APPLICATION

11.1.1 There will be five separate planning applications submitted for the Renfrewshire City Deal CWRR and GAIA Projects.

- CWRR 1 – Application to Renfrewshire Council;
- CWRR 2 – Application to West Dunbartonshire Council;
- CWRR 3 – Application to Glasgow City Council;
- GAIA – Application to Renfrewshire Council; and
- Inchinnan Cycleway and Bridge – Application to Renfrewshire Council.

Making Representation to the Relevant Local Authority

11.1.2 Please note any person wishing to make a representation on the proposals must submit these in writing, including their name and address, to the relevant planning authority. This can be done online and each planning authorities planning portals can be found at the following links;

- Renfrewshire:
<http://pl.renfrewshire.gov.uk/online-applications/search.do?action=simple&searchType=Application>
- Glasgow:
<https://publicaccess.glasgow.gov.uk/online-applications/search.do?action=simple&searchType=Application>
- West Dunbartonshire:
https://www.west-dunbarton.gov.uk/uniform/dcsearch_simple.asp

11.1.3 The CWRR planning applications and supporting documents (including the ES) submitted to each of the three competent authorities will be identical apart from the contact and address noted on the planning application forms. This package of information will be sent to each authority to ensure that it can be processed through each of their planning application processes.

11.1.4 The GAIA project has been separated into two applications and will have different application forms and differing supporting information (for example, design and access statements, drainage assessments) but the ES will be submitted in support of both and the EIA has considered the effects of all elements of the GAIA project and the Inchinnan Cycleway and Bridge. This ensures that the potential impacts associated with either or both projects are fully assessed.

11.1.5 The ES, planning applications and all supporting documentation will be publicly accessible through the various competent authorities' planning websites shown across the page.

11.1.6 Copies of all submitted documents will also be available on the Renfrewshire City Deal Website - <http://www.renfrewshire.gov.uk/citydeal>.

11.1.7 Information leaflets will also be available at the following locations with instructions for anyone interested in accessing these documents via the website:

- Renfrew Community Library, Paisley Road, PA4 8LJ
Opening Hours: Monday, Wednesday, Friday and Saturday – 9am until 5pm, Tuesday and Thursday – 9am until 8pm, Sunday closed.
- Paisley Library/Heritage Centre, 68 High Street, Paisley, PA1 2BB
Opening Hours: Monday, Wednesday, Friday and Saturday – 9am until 5pm, Tuesday and Thursday – 9am until 8pm, Sunday closed.
- Knightswood Library, 27 Dunterlie Avenue, Glasgow, G13 3BB
Opening Hours: Monday, Wednesday, Friday and Saturday – 10am until 5pm, Tuesday and Thursday – 10am until 8pm, Sunday closed.
- Clydebank Library, Dumbarton Road, G81 1XH
Opening Hours: Monday to Thursday – 9.30am until 7.55pm, Friday and Saturday – 9.30am until 4.55pm, Sunday closed.

11.1.8 Hard copies of the ES are available for a charge of £500 or electronic CD copies can be provided for £25 (including VAT). Both can be obtained by writing to: Renfrewshire City Deal Team, Development and Housing Services, Fourth Floor (South Wing), Renfrewshire House, Cotton Street, Paisley, PA1 1JD. Or you can email your request to citydeal@renfrewshire.gov.uk.