

1 EIA Non-Technical Summary

1. Introduction

Dublin City Council (DCC) proposes to undertake the development of a civic plaza and to implement traffic management measures in the area of College Green, Dublin. The site location is shown on **Figure NTS.1**. The Environmental Impact Assessment Report (EIA) is a statement of the potential impacts on the environment, which may result from the proposed College Green Project (the ‘Proposed Project’).

The Proposed Project involves the development of a civic plaza at College Green, the rerouting of traffic away from College Green, relocation of some taxi parking and loading areas to nearby streets and other minor works.

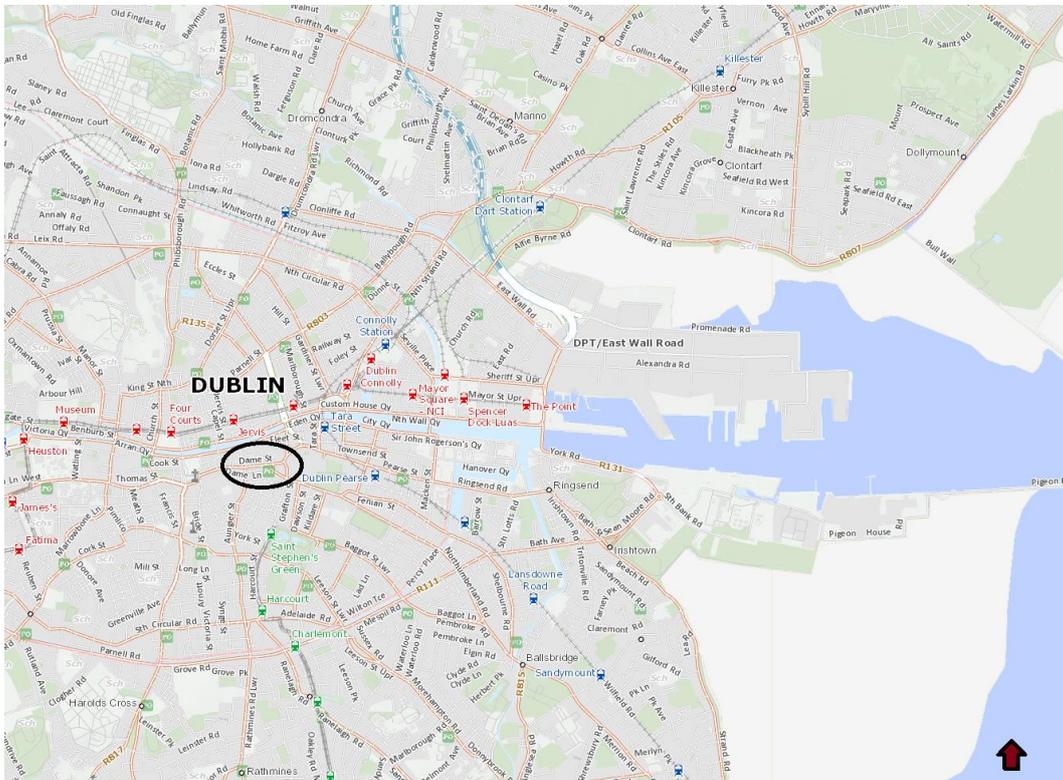


Figure NTS.1 - Site Location

The Proposed Project is described in further detail in **Section 4** of this Non-technical summary (NTS).

The (EIA) documents a systematic analysis of the impact of the Proposed Project in relation to the existing environment and follows guidelines published by the Environmental Protection Agency.

2. Background to the Project and Alternatives Considered

The Proposed Project will transform College Green and redefine the area as a Civic Space of National importance in line with DCC's long standing objective. The Proposed Project will contribute to the achievement of the vision for College Green set out both in the Dublin City Development Plan 2016-2022 and the Public Realm Strategy for the City.

A number of concept and design alternatives were considered in the development of the Proposed Project. Initially a public realm strategy was developed which considered a number of strategy options. A preferred option was selected which formed the basis for the further development of the Proposed Project.

In order to accommodate the rerouted traffic due to the removal of the east-west traffic at College Green, a number of traffic management measures were explored. This included the provision of two-way bus lanes on Parliament Street. However, this scenario resulted in the exceedance of air quality standards on Parliament Street and was ruled out. On this basis, it was proposed to retain Parliament Street in its current form as southbound only and to limit the number of buses being rerouted on this street.

The layout of the civic plaza was developed by the design team in close consultation with DCC, key stakeholders and the EIAR team. The design also considered the opinions received during the consultation process. The original western boundary of the plaza only extended as far as the junction with Church Lane. Further research by the design team established that College Green had historically extended from Trinity College and Grafton Street as far as the junction of Trinity Street with Dame Street. On this basis, the plaza was extended to run the full historic length of College Green, and centred on an axis between the centre of Dame Street and the entrance to Trinity College, with Foster Place as a separate and more recent adjunct to it as the result of the 19th century extension of the Parliament Building.

A number of options for the provision of cycling through the civic plaza or through alternative routes were also considered. It was deemed that the option which provides two one-way cycle lanes either side of the western end of College Green joining at the central turnaround and running along the south side of the plaza as a two-way dedicated cycle route, joining with the Westmoreland Street route at the north-east end of Grafton Street is preferred.

During the development of the final design, various options were explored on the basis of a number of specific issues to be addressed, including the following:

- Tree species, spacing and location;
- Types of surfacing to be used;
- Consideration of the removal of the railings at Bank of Ireland;
- Inclusion and number of the water jet fountains; and
- Relocation of statues.

These issues were then resolved into the final scheme design. The final agreed architectural design and traffic management measures form the Proposed Project that is presented and assessed in this EIAR.

3. Consultation

DCC, the design team and the EIAR team carried out extensive consultation during the concept and design development of the Proposed Project. Initially, a series of public consultation events and surveys were carried out to seek opinions on the challenges and opportunities at College Green.

During the preparation of the EIAR, a scoping process was undertaken where an outline of the proposed EIAR was provided to consultees requesting comment/input on the final scope and content of the document.

Further consultation was carried out with key stakeholders including various Dublin City Council departments, the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRGA), Business Organisations, including Dublin Town, IBEC, Dublin Chamber and Temple Bar Company and other interested Parties including the National Council for the Blind, Bank of Ireland, Office of Public Works and the Taxi Regulator.

A statutory public consultation shall be carried out in conformity with the applicable legislation including Section 175 of the Planning and Development Act, 2000 as amended, Part 10 of the Planning and Development Regulations 2001 as amended and any other applicable legislation.

4. Proposed Project Description

The Proposed Project involves the development of a civic plaza at College Green and the introduction of traffic management measures. The core area of works consists of College Green and parts of Dame Street, Trinity Street, St. Andrew's Street, Church Lane, and the very northern end of Grafton Street. The overall site area is approximately 13,960m². Refer to **Figure NTS2**.

The space created by the Proposed Project will have the potential to transform College Green and to redefine the area as a Civic Space of National importance.

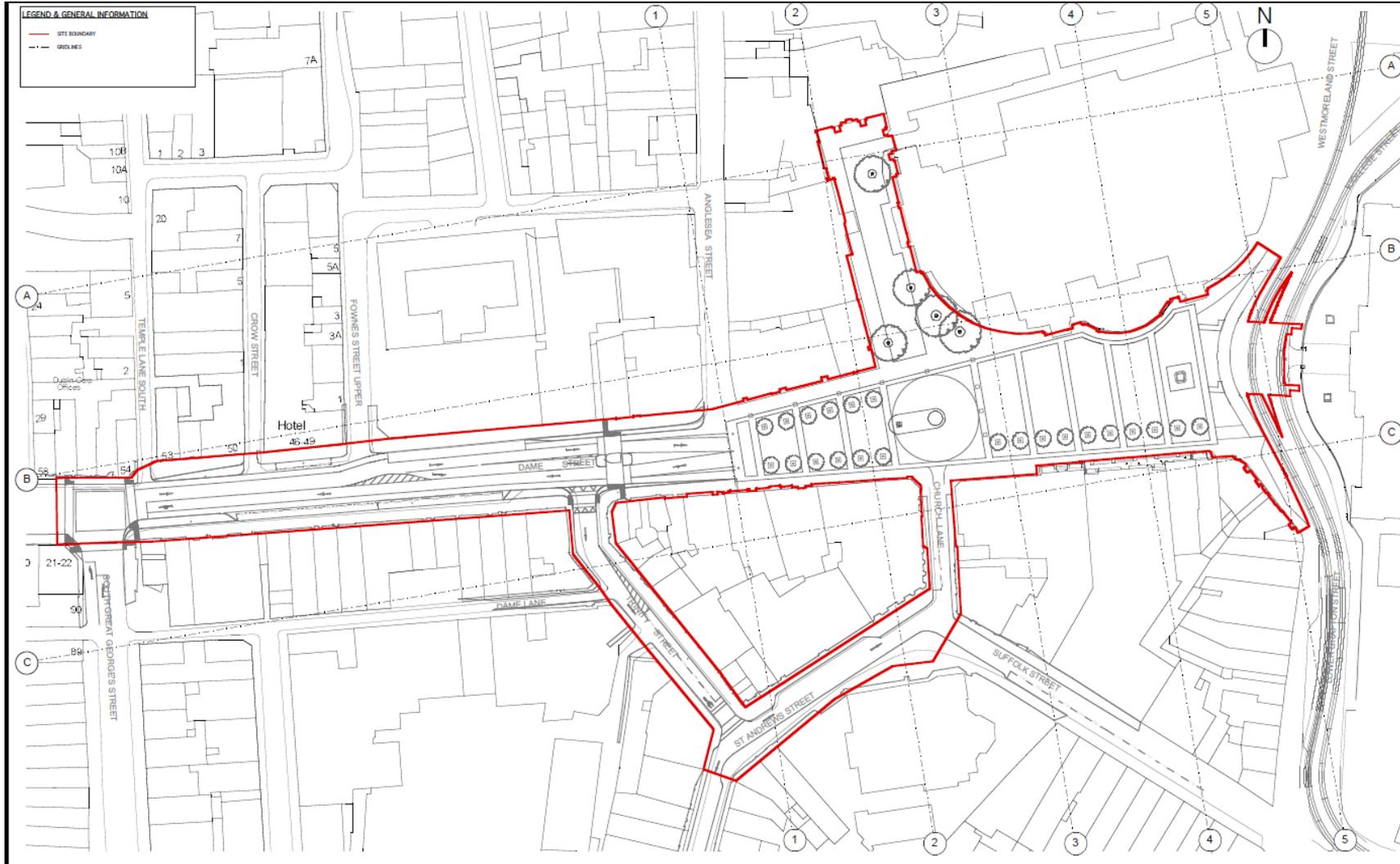


Figure NTS.2 - Proposed College Green Project

Civic Plaza

It is proposed to develop a civic plaza at College Green, extending from Grafton Street Lower to the junction with Anglesea Street, occupying an area of circa 7,300m². The pedestrian oriented space will improve the environment of College Green, making it attractive and accessible to a greater diversity of users. The creation of a level (step-free) surface across the space will facilitate movement of wheelchairs, buggies, suitcases and people using mobility aids.

The civic plaza will have the following features:

- The Thomas Davis memorial will be repositioned to the ‘circus’ area at the junction with Foster Place. A minimal repositioning of the Henry Grattan statue is also proposed.
- A total of 22 new trees will be planted in place of the eight that currently exist- ten in a single line along the south side of the plaza, and a further twelve forming an avenue at the approach to the space from Dame Street.
- Street furniture including seating, litter bins, bollards, cycle stands, planters and tree grilles will be selected to be consistent throughout and relate to the design of the space.
- It is proposed to install the infrastructure to make provision for special events.
- A fountain in the form of a number of stainless steel plates imbedded in the paving. When not in operation, the plates are nearly invisible and events can take place above them. When in operation, 32 jets of water can rise from 1m to 6m in height.
- Light and dark granite setts will be used to create the design wedge pattern. Existing setts in Foster Place will be removed, stored on/off-site and re-laid.
- Tall lighting columns are proposed along the northern and southern boundary of the plaza to further define the space, leaving the centre of the space for temporary events.
- It is proposed to complement the existing drainage system with the installation of a Sustainable Urban Drainage System (SuDS), where possible.

Traffic management measures

As part of the Proposed Project, all vehicular through traffic will be removed from the College Green area. Buses will continue to run along the same route as the new Luas tracks in front of Trinity College.

Buses which currently traverse College Green from Dame Street, Grafton Street and College Street will be diverted onto other routes. Those buses which will continue to use Dame Street will turn around at College Green, in a new turning circle at the junction of Foster Place and Church Lane. Otherwise, traffic will be allowed to take a right turn from Dame Street onto South Great George’s Street, a turn that is not currently permitted.

Parliament Street will be public transport only from 7am to 7pm, Monday to Friday. However, access to loading vehicles will be permitted on the southern section of Parliament Street before 11am availing of the right-turn from Essex Gate.

Works on Dame Street are required to tie in with the plaza at the eastern end of Dame Street and to provide cycling and pedestrian facilities between the civic plaza and South Great George's Street.

Alternative taxi ranks and loading bays will be provided in the study area, to make up for those which are to be removed as part of the Proposed Project. These are proposed at Dame Street, Trinity Street and Church Lane.

Two one-way cycle lanes on either side of Dame Street will join at the central turnaround and run along the south side of the plaza as a two-way dedicated cycle route that joins with the College Street route at the north-east end of Grafton Street.

Construction Strategy

The construction phase of the Proposed Project is likely to take 12 – 18 months, and is expected to commence in 2018, subject to, and shortly after receipt of a planning consent. Access through College Green will be maintained for pedestrians and cyclists for the duration of the works. Access to adjacent businesses will also be maintained.

5. Planning and Policy

The review of strategic, statutory and non-statutory plans clearly demonstrates that there is an extremely supportive and consistent policy framework for the College Green Project. At a national level, the National Spatial Strategy 2002-2020 (DoHPCLG, 2002) advocates the provision of pedestrian friendly zones as a component of encouraging cities to develop thriving, human-scale, cultural and social environments. In other words, pedestrianisation is a valuable policy tool to achieve attractive liveable city centres, where the creation of space for people over cars, supports the status of city centres as high quality destinations with robust economies. The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 (Dublin Regional Authority, Mid-East Regional Authority, 2010) and Retail Planning Guidelines for Planning Authorities (DoHPCLG, 2012) reinforce this policy theme, correlating high-quality city centre public realm, with footfall growth providing customers for city centre businesses.

The Dublin City Development Plan 2016-2022 (DCC, 2016) supports the proposal for College Green as part of a dynamic and progressive planning policy agenda to improve the public realm and experience of the city, complement the protection and appreciation of the architectural and historic heritage, reposition College Green as the hub of Dublin's Civic spine, and give the city a public realm that is befitting of a European city tourist destination. The proposed civic plaza is supported in policy as an important tool to enhance and increase footfall in the city centre, thereby supporting commercial and retail businesses. The College Green Plaza is directly proposed in accordance with objective SCO8 of the Dublin City Development Plan 2016–2022: *“prioritise the re-development of College Green as a civic space, to include the pedestrianisation of Foster Place.”*

The redevelopment of College Green is further supported in the Dublin City Centre Transport Study (NTA and DCC, 2016) and The Heart of Dublin City

Centre Public Realm Masterplan (DCC, 2016), completing a comprehensive supportive policy environment for the Proposed Project.

6. Traffic and Transport

This section presents the Traffic and Transportation assessment for the construction and operation of the Proposed Project.

It is envisaged that access to the site during the construction phase will be from Dame Street. The Construction Access Strategy to serve the construction phase of College Green will be consistent with these designated HGV routes in the city centre and they will form the primary access and egress routes between the construction site and the external road network. The construction of the Proposed Project would result in an additional six trips on Dame Street during the peak hour. The impact of construction traffic is therefore considered to be slight and would result in negligible impact on the surrounding road network.

In order to understand the traffic impacts of the Proposed Project, the National Transport Authority have undertaken a detailed transport modelling exercise using the NTA's Regional Modelling System East Regional Model (ERM). In general, the projected change in traffic flows is dispersed among the wider street network serving the city centre and it is envisaged that overall there will be no significant change in traffic conditions on the surrounding street network during the peak hour periods, with congestion remaining on the strategic access routes serving the city centre. However, the recently completed additional bus priority measures along the north and south Quays has already seen measured significant journey time benefits for buses and taxis on this key east-west access route into and out of the city centre.

The Proposed Project will result in a significant positive impact on pedestrians and cyclists through the significant increase in pedestrian space, which will remove the existing pinch points on either side of College Green and removing the need for pedestrians to cross a busy road at this location. At present, approximately 75,000 pedestrians pass through College Green on a daily basis, contending for space on footpaths which at peak times are insufficiently wide to cater for the peak demand. The Proposed Project will therefore result in a substantial time saving to the large number of pedestrians passing through College Green as well as improve the general safety of pedestrians through the removal of traffic in the area.

Similarly, there are approximately 6,500 cyclists currently passing through College Green on a daily basis, who will benefit greatly from the Proposed Project. Cyclists currently share the road through College Green with large volumes of cars and buses that pass through College Green with no dedicated facilities provided. The Proposed Project includes proposals for a two-way cycleway along the eastern and southern sides of the proposed plaza and will therefore greatly improve the quality of service and safety of cyclists passing through College Green.

In order to facilitate the Proposed Project, buses which currently pass through College Green will be rerouted. In general, existing bus routes will be rerouted to

the north and south quays using Parliament Street or Winetavern Street to connect to the existing bus routes outside the study area.

The re-routing of buses will result in the relocation of bus stops to alternative locations along the new bus routes. To assess the impact on bus passengers, a 5-minute walk catchment analysis was undertaken for existing routes passing through College Green and compared to the 5-minute walk catchments for the proposed alternative routes. Generally, this assessment showed that overall, a similar number of people would be served by the new routing as is currently served by existing routes.

7. Air Quality and Climate

The impact of the proposed College Green Project has been assessed both during the construction phase and the operational phase for both air quality and climate.

In relation to climate, both the construction and operational phases of the Proposed Project will not be significant and will have a negligible impact on greenhouse gas emissions in a national context.

In relation to air quality, the construction phase of the Proposed Project will be of medium risk and thus a range of mitigation measures will be required to be implemented.

The operational phase of the Proposed Project was assessed in the opening year, 2018 and in 2035. The model utilised, ADMS-Roads, is an approved model for modelling road traffic emissions in urban areas and was validated against Dublin City Centre monitoring data for the Year 2012. The validation study found that good agreement was achieved between the observed and modelled data.

The baseline monitoring and modelling review found that existing levels of PM₁₀ / PM_{2.5} (particulate matter) are in compliance with the ambient air quality standards. In relation to nitrogen dioxide (NO₂), both the short-term and annual mean limit values are breached at hot-spot locations at the façade of buildings along the main arteries. Although levels measured at Winetavern Street are below the ambient air quality standard, levels elsewhere in the city centre are significantly higher for NO₂.

Modelling of the Do Something (DS) scenario for PM₁₀ / PM_{2.5} in both 2018 and 2035 confirms that compliance with the ambient air quality standards is maintained for all years and scenarios and thus the impact of the Proposed Project on level of PM₁₀ / PM_{2.5} in the study area is negligible.

Modelling of the DM scenario for NO₂ in the opening year has determined that the Proposed Project will be overall beneficial with a significantly greater number of receptors improving in air quality relative to the number of receptors which deteriorate in air quality. In relation to the short-term limit value, full compliance is achieved at the building façades in the study area for both the opening and future years.

There will however be a period of time, between opening year and 2022, during which a number of first-floor façades are likely to remain above the annual mean NO₂ ambient air quality standard and between opening year and 2024, during which some ground level façades are likely to be in excess of the annual mean NO₂ ambient air quality standard.

However, in the absence of the Proposed Project, the impact on existing ground floor and first-floor façades will be greater with a higher number of receptors experiencing air quality in excess of the annual mean NO₂ limit value for a period of time.

8. Noise and Vibration

This chapter assesses the noise and vibration impact of the Proposed Project on the existing noise environment.

Currently the College Green area is dominated by high sound emissions from traffic. The 2012 Dublin City ‘Noise Map’ indicates that sound emissions from traffic in the College Green area currently fall within the 60-65dB(A) band for night time (L_{night}) and the ‘greater than 75dB(A)’ band for the day time (L_{day}) period. These levels are considered undesirable with reference to the Noise Action Plan.

Noise impacts during the construction phase of the Proposed Project are expected to arise from the use of plant during excavation, site clearance and development of the plaza. The Contractor will take specific noise abatement measures and comply with the recommendations of BS 5228 Code of practice for noise and vibration control on construction and open sites, 2014 and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001. Normal working hours during the construction phase will be employed, however it may be necessary to work outside of these hours at night and at weekends during certain activities and stages of the development.

The assessment of the operational impacts of the Proposed Project was based around the do-minimum (DM) Scenario which represents movement and access in the city centre as it exists currently, taking into account permitted and planned developments and do-something (DS) scenario which includes the Proposed Project.

The modelling outputs for the daytime 2018 DS scenario predict an increase of 5% in residential addresses points in the undesirable daytime category and a decrease of 2% in residential locations in the desirable category.

The study concludes that when comparing the DM and DS 2018 scenarios for nighttime, a 5% increase in residential locations in the undesirable band and a slight decrease of approximately 1% in the desirable band is predicted.

There will be no significant impact on biodiversity due to the proposed works following the proposed best practice construction management measures and tree replacement.

10. Archaeology, Architectural and Cultural Heritage

Irish Archaeological Consultancy Ltd prepared this assessment on behalf of Dublin City Council, to study the impact, if any, on the archaeological, architectural and cultural heritage resource of the proposed pedestrian plaza at College Green, Dublin 2 (OS Sheet 18).

The Proposed Project area has been subject to development since the 1650s and whilst much of the area has been subject to modern disturbance, it is not clear as to how that disturbance has impacted on archaeological features or deposits that have the potential to survive beneath the current ground level. This is particularly the case in the eastern part of the Proposed Project where later medieval burials were found at a significant depth as part of the Luas Cross City.

It is possible that groundworks associated with the development may have a significant or profound negative impact on any features of archaeological significance that may survive below ground level.

All ground disturbances associated with the Proposed Project shall be subject to continuous archaeological monitoring. Monitoring will be carried out under licence to the DoAHRGA in consultation with the National Museum and the Dublin City Archaeologist. Full provision will be made available for the resolution of any archaeological remains that may be discovered (i.e. preservation by record), should this be deemed an appropriate manner in which to proceed.

Furthermore, a suitably qualified archaeologist will be appointed as part of the detailed design team in order to advise on specific potential impacts as and when they may arise. This will result in continuous impact assessment of the detailed works, allowing mitigation measures to be agreed in advance, in full consultation with the statutory bodies.

The buildings that have been erected on either side of College Green mainly date from the 18th and 19th centuries and the majority of them are protected structures, as are several buildings in the project area in Dame Street, Foster Place, St. Andrew's Street and Grafton Street. The southern side of College Green, along with Trinity Street, St Andrew's Street and Church Lane, are also within an Architectural Conservation Area. The entire project area is within an area that is designated as a Conservation Area within the City Development Plan.

The present proposal is to remove traffic from College Green and to provide for new paving and lighting to maximise its potential as a prime urban space. This would involve relocating the two memorials, the Henry Grattan statue being slightly moved, while the Thomas Davis memorial would be turned to face westward and moved a short distance westward to the junction of Foster Place and Church Lane.

The design would include the removal of the trees that surround the Henry Grattan statue in the centre of the street and the planting of a new line of trees along the frontage of the protected structures on the southern side of the street.

College Green has the potential to be a significant urban space on a European scale, arising from the fine set of buildings that surround the triangular space that is terminated by the front of Trinity College, and which has the highly significant Bank of Ireland building on the northern side. The principal impediment to fulfilling its potential is the heavy traffic through the space and the present proposal would reclaim this space from the traffic, resulting in a positive outcome for built heritage.

11. Townscape and Visual

The Townscape and Visual Impact Assessment (TVIA) pertains to the proposed College Green Project, which seeks to convert the existing carriageways into a shared surface plaza for pedestrians and cyclists. The study was undertaken in accordance with the Guidelines for Landscape and Visual Impact Assessment (GLVIA - 2013), which is the industry standard and includes specific provision for 'Townscape' assessments. The townscape appraisal considered the way in which the Proposed Project ties into the existing urban fabric and character in terms of both form and function. Whereas, the visual impact appraisal utilises 'before-and-after' images (photomontages) of the College Green setting to consider the effects of visual change to the street scene from six representative viewpoint locations within and around College Green. The 'significance' of both townscape impacts and visual impacts is derived from a balance of the 'sensitivity' of the urban setting those that view it, versus the 'magnitude' of change to the urban fabric and street scenes.

For this project, the TVIA required a high degree of interaction between the Architectural design team that designed the plaza and the Cultural Heritage consultants. This allowed a comprehensive understanding of the design intent within the context of a heritage-rich urban environment. It also avoided confusion crossovers between disciplines and the risk of non-expert impact judgements being made.

In relation to townscape impacts, it is considered that the sensitivity of College Green can only be considered to be Very High. This is on the basis that it is critical element of the urban fabric of Dublin City. It is a major node for vehicular transport, cyclists and pedestrians and the heart of tourist activity. It is defined by landmark buildings and contains a number of protected monuments. These factors are reflected in the objectives and policies of the Dublin City Development Plan (2016-2022) in respect of urban design, architectural heritage and transport, which relate to a balance of protection and enhancement of College Green. Whilst it is acknowledged that there will be moderately negative townscape impacts during the construction stages of the proposed plaza, these will be short-term. Once completed, the shared surface plaza is deemed to contribute positively to the form and function of College Green and will strengthen it as a key node in the central city.

The new surface treatments and urban elements proposed in the plaza design are well organised to subtly define and suggest the uses of different portions of the plaza, whilst highlighting heritage features and tying-in seamlessly with the new public transport corridor (Luas Cross City and bus/taxi lanes) that is currently under construction.

In relation to visual impacts, it is again considered that there will be negative effects on the visual context of College Green during the construction stage of the proposed plaza. However, following completion of the plaza the visual effects at all six of the representative viewpoints are considered to be positive and the visual setting enhanced. This is principally due to the transformation of this space from a cluttered and traffic-dominated junction into a simply organised social and civic space (as it had been in earlier times). The visual enhancement of College Green is also a function of the use of high quality materials that reflect the heritage setting, strengthening of visual axis, the opening up of clearer views of landmark buildings and monuments as well as a general de-cluttering of the space.

Overall, it is not considered that any significant townscape and visual impacts will result from the Proposed Project. Negative short-term impacts experienced during the construction phase will be followed by positive effects that will enhance this urban setting.

12. Land, Soil and Water

The impact of the Proposed Project on Land, Soil and Water was assessed.

The study area is located in Dublin City Centre and has been an urban setting since 1709. The soils and subsoils consists of made ground which refers to soil which has either been altered or placed by man. Beneath the made ground the material consists of hard brown to black clay with occasional layers of gravel and cobbles overlying limestone bedrock. The bedrock is at approximately 3 - 4m below ground level.

Considering that the location of the site has been in an urban environment for centuries, and is currently in an area of high traffic volumes, it is possible that there is soil contamination at the site.

The bedrock underlying the study area is classified by the GSI as a Locally Important Aquifer which is productive only in local zones (LI) and belongs to the Dublin Groundwater Body. The locally important aquifer is considered to be of medium importance according to the IGI guidelines.

Aquifer or groundwater vulnerability is a relative measure of the ease with which the groundwater could be contaminated by human activity and depends on the aquifer's intrinsic geological and hydrogeological characteristics. The GSI has classified the aquifer vulnerability underlying the site as Medium to High in the western side of the site and Extreme in the eastern part of the site. However, based on rock head level it is more likely to be Extreme and at risk from pollution.

The study area is located within Hydrometric Area 09 which is the EPA classification for the catchments flowing into Dublin Bay.

The principal catchments are the River Liffey, Tolka River and Dodder River catchments and their associated sub-catchments. There are no open water courses rivers in the vicinity of the site. Surface water bodies that are considered to be relevant to the Proposed Project include the River Liffey, Grand Canal and Dublin Bay.

The study area is located outside of the Eastern Catchment Flood Risk Assessment and Management (CFRAM) predicted extreme fluvial flood extent and tidal flood extent. The risk of both fluvial and tidal flooding is therefore considered to be very low. The risk of groundwater flooding to the site is considered to be low. There is a minor risk of pluvial flooding to the site.

There are no sensitive features such as abstraction wells, hydrological sites, groundwater dependent ecological sites or geological heritage sites which are likely to be impacted by activities within the site. The features of importance identified in the study includes the soil, which is of low importance and the bedrock aquifer which is of medium importance.

During the construction phase the activities which may pose a potential impact include the excavation of inert soils, the excavation of made ground, contamination of soils and contamination of groundwater. The magnitude of excavating inert soils is negligible and the significance is imperceptible. The excavation of any hotspots of soil contamination will be a Permanent Positive impact on the soils environment and therefore, the magnitude of this impact is Minor Beneficial. The magnitude of the potential impact from contamination of is Small Adverse for soils or Negligible for groundwater. As a result, the significance of the potential impact on both the soil and groundwater is imperceptible.

The Proposed Project will have not have any impact on floodplain storage and conveyance. The Proposed Project will also not increase flood risk off site.

The operational phase of the Proposed Project is predicted to have an overall neutral long-term impact on the land, soil and water within the study area. There will be a reduction in traffic within the area reducing the potential for associated hydrocarbons spills.

Mitigation measures will include a project-specific Construction Management Plan (CMP) during the construction phase. The CMP will cover all potentially polluting activities and include an emergency response procedure. Appropriate storage and temporary bunds will be put in place to prevent the accidental release of hazardous materials. Mitigation during the construction phase will include implementing best practice during excavation works to avoid sediment running into the drainage system which discharges to the River Liffey.

No mitigation measures are required during the operational phase.

Upon application of the mitigation measures the magnitude of any residual impacts both in the construction and operational phase are Negligible. As a result, the significance of all the residual impacts is Imperceptible.

13. Resource and Waste Management

This section describes the potential environmental effects of the generation and management of solid waste streams from the Proposed College Green Project, in the context of the existing local and national resource and waste management environment. The assessment considered the following aspects:

- The legislative context;
- The construction phase, including excavation; and
- The operational phase.

Surplus materials and wastes will be generated during the excavation, construction and operation phases of the Proposed Project. An estimated 15,172m³ of excavation material will be required to be removed from the Proposed Project location for off-site recovery or disposal.

A detailed construction and demolition waste management plan (CDWMP) will be prepared and implemented by the Contractor following appointment and prior to commencing work on site.

Following implementation of a number of mitigation measures the residual impacts associated with the Proposed Project were determined to be as follows:

The residual impact of excavation waste will be:

- The impact of excavation waste is expected to be slight, negative and short-term.
- The impact of construction waste is expected to be imperceptible.
- The impact of operational waste is expected to be imperceptible.

14. Material Assets: Utilities

Potential impacts on material assets (utilities) are evaluated during both the construction and operational phases of the Proposed Project. Mitigation measures are proposed, where required.

During both the construction and operational phases of the Proposed Project, some realignment, upgrade, or replacement of services and utilities may be required in conjunction with or to accommodate the proposed works, as outlined below.

- Some local diversions may be required to power supplies. A new public lighting regime is proposed, and new ducting and mini pillars will be provided to cater for same.
- It is intended to complement the existing drainage regime by the installation of Sustainable urban Drainage Systems (SuDS) features, where possible.
- The existing gas utilities will be retained.
- Localised diversion of telecommunications services is anticipated, and new traffic ducting will be required.

During the construction phase, the Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained unless this has been agreed in advance with the relevant service provider and local authority. Works will be carried out in ongoing consultation with the relevant utility companies and/or DCC. Where new services are required, the Contractor will apply to the relevant utility company for a connection permit where appropriate.

Due to the measures incorporated in the design i.e. SuDS, no mitigation measures will be necessary during the operational phase.

It is considered that residual impacts associated with the Proposed Project will vary from imperceptible to slight negative and will be short term in nature during construction and imperceptible during operation.

15. Material Assets: Land Use and Property

This section describes the potential impacts of the Proposed Project on land use at, and adjacent to, College Green. Land-use considers if there will be severance, loss of rights of way or amenities, conflicts, or other changes likely to ultimately alter the character and use of the surroundings.

All works for the proposed College Green Project are contained within the public road way, public footpaths and adjoining side streets.

The subject site is located at the core of a historic city centre and is surrounded by a broad range of uses. The eastern edge of College Green is dominated by Trinity College Dublin (TCD). The northern boundary is bounded by the Bank of Ireland. The Foster Place cul-de-sac is dominated by taxi parking.

The street section from Anglesea Street to the former Central Bank Plaza comprises office and institutional uses but does not include any active street uses. Moving westwards along Dame Street beyond the central bank plaza, the land use notably changes again with a predominance of bars, restaurants and cafes.

The southern edge to College Green includes large comparison retailing units accommodated within typically former institutional/banking structures, along with smaller units. The Ulster Bank building on the corner of Church Lane is a dominant presence. The character of the street changes slightly with the commencement of Dame Street, with a wide range of units including office, bars, language institutes, hotel and services.

The construction of the project will require temporary use of lands (currently roads) for the construction site, which shall transition to a permanent change as the Project is completed.

There will be no direct impact on any property adjoining the subject site. However, premises bounding the site at College Green will experience temporary disruption to pedestrian and vehicular access to their premises during the construction phase.

The use of College Green as a pedestrian plaza will significantly improve the functionality, attractiveness and integration of the location and facilitate public events and activities. In the long-term the College Green plaza is expected to become one of the core focal points of the city centre, sustaining a permanent positive legacy for the city.

16. Population and Human Health

This chapter addresses potential impacts of the Proposed Project on population and human health, including potential impacts from traffic and transportation, air quality and climate, noise and vibration, townscape and visual, land, soil and water and material assets: utilities.

The overall impacts of the Proposed Project on population and human health will be permanent and positive due to the enhanced form and function of College Green, enriched visual setting, improved public realm and increased space.

The Proposed Project will result in a positive impact on business, retail and tourism by improving the public realm in a city centre site, increasing the space available to people and activity, and improving the quality of the experience of visiting Dublin. The Proposed Project will also improve convenient walking access to economic, commercial, tourism, educational and social facilities in the area.

Enhancement of the townscape and visual setting of the area should also encourage more people to access the area by foot or by bicycle, subsequently resulting in increased physical activity of the local population and visitors alike.

The changes in traffic flows associated with the Proposed Project will be overall beneficial to air quality in the study area.

The noise impact assessment predicts a 5% increase in residential locations in the undesirable band and a slight decrease of approximately 1% in the desirable band is predicted in 2018.

17. Risk of Major Accidents and/or Disaster

This section presents an assessment of the likely significant adverse effects on the environment arising from the vulnerability of the Proposed Project to risks of major accidents and/or natural disasters.

The site-specific risk assessment identifies and quantifies risks due to the Proposed Project focusing on: unplanned, but possible and plausible events occurring during the construction and operational phases.

From examining all plausible risks associated with the Proposed College Green Project, the scenario which is considered to be the highest risk in terms of a major accident and/or disaster was identified as 'unpermitted vehicle on pedestrian plaza'. This risk includes the threat of vehicle related terrorist attacks. The outcome of the assessment identified that while this event would have 'very serious' consequences should it occur; the risk is considered 'unlikely.'

Design measures- such as metal planters and retractable bollards will hinder any vehicles entering the plaza from the west, and signage will indicate that the plaza is a pedestrian priority area.

Further, ongoing discussions with An Garda Siochana in relation to security issues at the proposed College Green civic plaza and other public places in Dublin City will continue through the detailed design phase. Any mitigation required by An Garda Siochana will be implemented at that stage, including additional physical intervention measures, where necessary. As is current policy, policing plans will be prepared for any major public events.

18. Interactions and Cumulative Impacts

The potential inter-relationship and interaction of key aspects and/or effects is considered in each of the individual sections of the EIAR.

The qualitative assessment was based on information contained within this EIAR and consultation with the relevant sub-consultants.

To facilitate the identification and consideration of interactions, an EIAR workshop was held on 16th December 2016 with attendees including relevant sub-consultants, the Arup EIAR Team and Dublin City Council.

The following summarises the main environmental interactions anticipated as a result of this Proposed Project:

- Traffic and Transportation and Air Quality and Climate;
- Traffic and Transportation and Noise and Vibration;
- Traffic and Transportation and Archaeology, Architectural and Cultural Heritage;
- Traffic and Transportation and Townscape and Visual;
- Traffic and Transportation and Resource and Waste Management;
- Air Quality and Climate and Material Assets: Land Use and Property;
- Noise and Vibration and Archaeology, Architectural and Cultural Heritage;
- Noise and Vibration and Land, Soil and Water;
- Noise and Vibration and Material Assets: Land-Use and Property;
- Biodiversity and Townscape and Visual;
- Biodiversity and Land, Soil and Water;
- Land, Soil and Water and Hydrology and Resource and Waste Management;
- Archaeology, Architectural and Cultural Heritage and Townscape and Visual;
- Archaeology, Architectural and Cultural Heritage and Land, Soil and Water;
- Archaeology, Architectural and Cultural Heritage and Resource and Waste Management;

- Archaeology, Architectural and Cultural Heritage and Material Assets: Utilities;
- Population and Human Health and Traffic and Transportation;
- Population and Human Health and Air Quality and Climate;
- Population and Human Health and Noise and Vibration;
- Population and Human Health and Townscape and Visual;
- Population and Human Health and Material Assets: Utilities;
- Population and Human Health and Risk of Major Accident and/or Disaster; and
- Traffic and Transportation and Risk of Major Accident and/or Disaster.

As the proposed College Green Project is located adjacent to the Luas Cross City which is currently under construction, there is an immediate interface between the two projects. This interaction has been taken into consideration, as relevant.

The proposed traffic measures outlined in the NTA Transport Strategy for the Greater Dublin Area 2016 – 2035 have been considered cumulatively in this EIAR. Particularly, Chapter 6 '*Traffic and Transportation*', Chapter 7, '*Air Quality and Climate*' and Chapter 8 '*Noise and Vibration*'.