6 Traffic and Transportation

6.1 Introduction

This chapter presents the Traffic and Transportation Assessment for the construction and operation of the Proposed Project. The Proposed Project is presented in detail in Chapter 4 and includes the construction of a new pedestrian plaza at College Green to enhance the street environment in this very central location in Dublin City.

6.2 Methodology

This chapter presents the findings of the assessment of the impact of the Proposed Project on the transportation networks both at a local and strategic level.

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). This exercise compared the do-minimum and do-something scenarios to understand the change in traffic flows on the street network and also to understand any impact on public transport users as a result of the Proposed Project. These two scenarios are as defined below:

- **Do-minimum (DM)** – Existing street network and public transport provision and any future proposals recommended in the Greater Dublin Transport Strategy 2016 – 2035 for each assessment year (2018 and 2035). Further details on the infrastructure in place in each assessment year is presented in **Section 6.4**.
- **Do-something (DS)** – As above but with the Proposed Project and associated traffic management measures in place.

The relevant results from the transport modelling are presented in **Appendix 6.1**.

In addition to the impact on traffic, the local impacts on bus users as a result of the rerouting of buses has also been assessed along with construction traffic impacts.

This assessment has been carried out generally in accordance with the Traffic and Transport Assessment Guidelines (Transport Infrastructure Ireland 2014).

6.3 Existing Receiving Environment

6.3.1 Local Street Network

There are a number of streets and junctions that will be directly or indirectly impacted by the development of the Proposed Project. These streets are presented in **Figure 6.1** and described in the following section.

Figure 6.1 - Local Street Network

College Green

Currently, College Green is a public transport only area between the hours of 07:00-19:00 Monday to Friday. A large traffic island provides Sheffield stands for 26 bicycles, a taxi rank and is used as an informal area for parking motorcycles. There are currently two pedestrian crossings at College Green facilitating pedestrian movements from Grafton Street to College Street. The pedestrian crossings are separated by the existing traffic island. There are an additional 24 cycle parking spaces provided to the south of College Green near the junction with Grafton Street.

There is a very significant volume of pedestrians crossing College Green on a daily basis, and this corridor could be considered one of the primary walking routes in Dublin City Centre. College Green connects the pedestrianised shopping street of Grafton Street with O'Connell Street, in addition Trinity College has one of its primary pedestrian entrances located at College Green.

Dame Street

Dame Street extends from Parliament Street in the west to College Green in the east. Westbound, two general traffic lanes are provided from College Green to the junction with South Great George's Street. Eastbound, a bus lane and a single traffic lane are provided along the same length. Pedestrian footpaths are provided on either side of the street. Signalised pedestrian crossings are provided at the junctions with South Great George's Street, Trinity Street and Church Lane. There are no dedicated cycling lanes present along this section of Dame Street. A total of 18 bicycle spaces are provided along Dame Street (14 on the northern side and 4 on the southern side).

As with College Green there are very high pedestrian flows along Dame Street along with a high throughput of cyclists as Dame Street acts as an important east – west route through the south city centre.

In terms of traffic flow, the majority of traffic on Dame Street is either buses or taxis due to the upstream restrictions at College Green.

Lower Grafton Street and Nassau Street

Nassau Street (between Dawson Street and Grafton Street) was converted to one-way in early 2015 to accommodate the Luas Cross City construction works and would be returned to two-way following completion of the works.

Pedestrian footpaths are maintained throughout the ongoing works of Luas Cross City. Due to the closure of Suffolk Street to through traffic, pedestrians have free movement through the Suffolk Street / Grafton Street junction. Signalised pedestrian crossings are present at the Grafton Street / College Green junction and outside the study area at the junction with Nassau Street and Dawson Street. There are no dedicated cycle facilities provided on these streets.

As noted earlier, there is a significant volume of pedestrians using the western side of Lower Grafton Street to cross College Green.

Westmoreland Street and College Street

Westmoreland Street and College Street merge at College Green with Westmoreland Street facilitating northbound traffic and College Street facilitating southbound traffic.

Westmoreland Street consists of a three lane street while College Street is a two lane street following the construction of the Luas tracks. There is no specific provision for cyclists on-street or off-street. Pedestrians are catered for with footpaths and signalised staggered pedestrian crossings on Westmoreland Street and College Street.

Foster Place

Foster Place provides access to Bank of Ireland, as well as other offices and cafes. The uses on Foster Place includes on-street car parking and a subsidiary rank for taxis feeding the taxi rank in the central median on College Green. There are 8 bicycle spaces provided using Sheffield stands on the western side and pedestrians are catered for with footpaths along the perimeter.

South Great George's Street

South Great George's Street connects Dame Street to Aungier Street as well as Cuffe Street to the south. This street comprises of a single lane in each direction with a central bus-only lane travelling northbound onto Dame Street. Cyclists are catered for with an on-street advisory cycle lane in the southbound direction only. There are pedestrian footpaths on both sides of the street with a signalised pedestrian crossing on South Great George's Street at the junction with Exchequer Street.

There is a signalised pedestrian crossing on all arms of the junction with Dame Street. Public bicycle parking is also provided at the corner of South Great George's Street and Dame Lane with spaces for 20 bicycles and also along both sides of South Great Georges Street.

Trinity Street

Trinity Street is one-way southbound between Dame Street and St. Andrew's Street. Access is provided to Dame Lane off Trinity Street approximately 25m from its junction with Dame Street. Footpaths are provided on each side of the street. Provision is made for approximately 20 bicycle spaces on the eastern side of Trinity Street.

St. Andrew's Street

St. Andrew's Street is one-way eastbound from Trinity Street to Church Lane. Cyclists are catered for with a dedicated contra-flow cycle lane. A loading bay is provided outside the post office on the northern side of the street. Six bicycle spaces are provided beside the loading bay. The paved area outside the tourist office is used as an informal area for parking motorcycles. Footpaths are provided on each side of the street.

Church Lane

Church Lane is one-way northbound from St. Andrew's Street to College Green. Right and left turning lanes are provided at this junction. There are no dedicated cycling facilities along Church Lane. Footpaths are provided on each side of the street.

Suffolk Street

The existing layout of Suffolk Street provides a single traffic lane in each direction with footpaths on either side of the street. Suffolk Street was closed to through traffic in early 2015 to facilitate the Luas Cross City works. It is envisaged that this layout will remain following the completion of the Luas Cross City works. Prior to this, Suffolk Street was one-way westbound catering primarily for buses and taxis. A total of 8 bicycle parking spaces are provided on Suffolk Street.

6.3.2 Existing Public Transport

The following section describes the existing public transport operating in the vicinity of the Proposed Project.

Buses

A number of bus routes currently run through the Proposed Project area. These are presented in **Table 6.1**.

Table 6.1 - Existing Buses in the Study Area

Bus Route	To / From
Dublin Bus	
7b	Mountjoy Sq. to/from Shankill
9	Limekiln Avenue to/from Charlestown
13	Grange Castle to/from Harristown
14	Beaumont (Ardlea Rd.) to/from Dundrum Luas Station
15	Clongriffin to/from Ballycullen Rd.
16	Ballinteer (Kingston) to/from Dublin Airport
25a	Merrion Sq. to/from Lucan (Esker Church)
27	Jobstown to/from Clare Hall
37	Baggot St. / Wilton Terrace to/from Blanchardstown Centre
38a	Burlington Rd. from/from Damastown
39a	UCD Belfield to/from Ongar
40	Liffey Valley Shopping Centre to/from Charlestown Shopping Centre
41x	UCD Belfield to/from Knocksedan
44	DCU to/from Enniskerry
46x	Phoenix Park to/from Dún Laoghaire
49	Tallaght (The Square) to/from Pearse Street
54a	Ellensborough / Kiltipper Way to/from Pearse Street
56a	Tallaght (The Square) / Ringsend Road
61	Eden Quay to/from Whitechurch
65	Blessington / Ballymore to/from Poolbeg
65b	Citywest to/from Poolbeg
66a/x	Merrion Sq. to/from Leixlip (Captain's Hill)
67x	Merrion Sq. to/from Maynooth
68/a	Newcastle / Greenogue Business Park to/from Fleet Street
69/x	Fleet St. to/from Rathcoole
70	Burlington Rd. to/from Dunboyne
77a/x	Citywest to/from Ringsend Road
79/a	Aston Quay to/from Spiddal Park / Park West (79a)
83/a	Kimmage to/from Harristown
84x	Hawkins St. to/from Newcastle / Kilcoole
116	Parnell Sq. to/from Whitechurch
122	Drimnagh Road to/from Ashington
123	Walkinstown (Kilnamanagh Rd.) to/from Marino
140	Palmerston Park to/from Finglas (Ikea)
142	Portmarnock to/from UCD Belfield
145	Heuston Rail Station to/from Ballywaltrim
150	Rossmore to/from Fleet Street
151	Foxborough (Balgaddy Road) to/from Docklands
747	Heuston Rail Station to/from Dublin Airport
Bus Eireann	
109	Dublin – Dunshaughlin – Navan – Kells – Virginia – Cavan Town
111	Athboy – Trim – Batterstown – Dublin
120	Tullamore – Edenderry – Prosperous – Clane – Dublin
126	Dublin – Kill – Naas – Newbridge - Kildare
130	Athy – Kilcullen – Dublin

Bus Route	To / From
132	Bunclody – Kidavin – Ballon – Tullow – Baltinglass - Dublin
133	Dublin Airport – City Centre – Ashford – Wicklow
Aircoach	
700	Dublin Airport – Dublin City Centre
704x	Cork – Dublin City – Dublin Airport
McConnos Buses	
180	Monaghan to/from Dublin
Sillan Tours	
179	Cavan - Dublin
JJ Kavanagh	
717	Clonmel – Kilkenny – Dublin City – Dublin Airport
John Kearns	
845	Portumna - Dublin

A number of the bus services noted above have been temporarily diverted to alternative routes to facilitate the construction of Luas Cross City along Westmoreland Street, College Green, Nassau Street and Dawson Street. Following the completion of the Luas Cross City works, it is intended that these services would return to their previous routes, with the exception of those which run along Suffolk Street. These bus services will be rerouted to Grafton Street Lower through College Green along the Luas tracks currently under construction.

It is important to note that the city's bus services and routes are subject to change, amendment and alteration on an on-going basis to improve the services with changing demographics and public transport use both within the city centre and in the wider hinterland of Greater Dublin. However, as part of this assessment the baseline conditions with respect to the routing of bus services through the study area has been assumed as that presented above. The general routes which buses take through the study area are summarised in **Figure 6.2**.

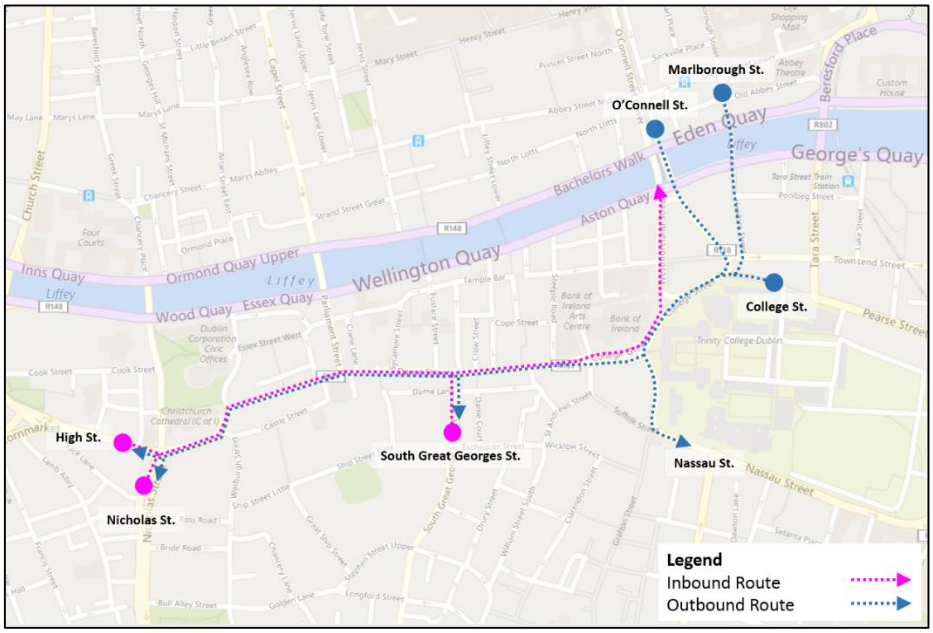

Figure 6.2 – General Routes of Existing Buses through College Green

Taxi

There is an existing taxi rank which is located on College Green adjacent to the traffic island supporting the Thomas Davis statue and Memorial Fountain. This taxi stand is approximately 24 metres long accommodating 5 taxis.

A second taxi rank is provided on Foster Place which accommodates approximately 9 permanent taxi bays and a further 11 night time bays. Taxis park in this area while awaiting spaces at the College Green rank to become available.

Dublin Bikes

There are two Dublin bike stations in close proximity to the study area on Exchequer Street and on Fownes Street Upper by the Central Bank.

6.4 Future Receiving Environment

The future receiving environment outlines any committed projects which will be completed by 2018 and 2035 which represent the opening year and design horizon years for this assessment. The projects presented in the following sections represent the assumptions made for the purposes of the traffic modelling with regard to the delivery of infrastructure in 2018 and 2035. These all form part of the do-minimum assessment scenario.

6.4.1 Public Transport Projects

6.4.1.1 Scheduled to be completed in 2018

A number of public transport changes are scheduled to be completed by 2018 including Luas Cross City and increased DART frequencies. The planned changes and assumptions made in this assessment are detailed in the following sections.

Luas Cross City

The Luas Cross City is an extension of the existing Luas Green Line beginning at the current Green Line Terminus at St. Stephen's Green, connecting with the Luas Red Line at O'Connell's Street / Abbey Street and continuing northbound to the DIT Grangegorman Campus, Phibsborough and terminating at the Broombridge Rail Station. This scheme passes immediately adjacent to the Proposed Project. Luas Cross City is currently under construction and is scheduled to be open at the end of 2017.

DART Frequency Increase

The DART frequency increase will provide for increased rail throughput, in particular an increase of up to 17 trains per hour (tph) running across the Loop Line Bridge across the Liffey.

6.4.1.2 Scheduled to be Completed in 2035

A large number of public transport proposals are included in the Transport Strategy for the Greater Dublin Area 2016 – 2035. For the purposes of this assessment, it has been assumed that all proposals made in that document have been delivered by 2035. The main proposals contained in the Transport Strategy for the Greater Dublin Area 2016 – 2035 are summarised below:

- GDA Cycle Network Plan;
- Core Bus Network;
- Swords/Airport-City Centre, Blanchardstown-UCD and Clongriffin-Tallaght Swiftway BRT lines;
- DART Expansion Programme;
- New Metro North from Fingal / North Dublin Transport Study;
- Dublin Corridor Study proposals;
- Dublin City Centre Transport Study; and
- Integration and ITS Measures.

6.4.2 Road Network Projects

6.4.2.1 Scheduled to be Completed by 2018

A number of changes to the road network that could affect the traffic flow in the vicinity of the site are assumed to be in place by 2018 prior to the opening of College Green Plaza. Those local to the Proposed Project are listed below:

- One bus lane and one traffic lane on Bachelors Walk;
- Two bus lanes and one lane of traffic on Eden Quay;
- Two bus lanes and one traffic lane along George's Quay;
- Two bus lanes (one for stopping) and one traffic lane along Aston Quay, Wellington Quay and Essex Quay. Left turn provided public transport only for traffic turning from Wellington Quay to Parliament Street.
- One bus lane (with indented bus stops) and one traffic lane on Burgh Quay. Dedicated lanes for left, right and straight movements at junction with O'Connell Bridge.
- No right turn to Nassau Street from Dawson Street. Two-way traffic along Dawson Street between St. Stephens Green and Duke Street, public transport only north of Duke Street.
- Suffolk Street closed to traffic with bus routes previously using this street rerouted to Grafton Street Lower.

- College Green eastbound restricted to bus-only (i.e. no taxis).

6.4.2.2 Scheduled to be Completed by 2035

In addition to the street network changes to be implemented in the short term, there are a number of long term proposals that are envisaged to be completed by 2035. The following lists some of the relevant road network proposals that will become operational between 2018 and 2035:

- Road / traffic management infrastructure upgrades;
- M50 and radial national road demand management proposals;
- Integration and ITS Measures;
- Dublin Corridor Study proposals; and
- Dublin City Centre Transport Study Proposals.

6.5 Details of the Proposed Project

The Proposed Project is described in detail in Chapter 4. The following key components of the Proposed Project relevant to this chapter are noted below:

- It is proposed to provide a civic plaza space at College Green which would be reserved for pedestrians and cyclists, preventing all traffic travelling from Dame Street through College Green to Westmoreland Street, and travelling in the opposite direction, from D'Olier Street to Dame Street.
- Buses currently using Dame Street to cross the city will be diverted onto other routes, while buses which 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.
- Parliament Street will be restricted to public transport only from 7am to 7pm Monday to Friday.
- The proposals include a dedicated two-way cycle track on the eastern and southern sides of the plaza.
- 32 bicycle parking spaces are proposed within the plaza.
- The existing permanent taxi rank on College Green will be relocated to Dame Street with capacity increased from 5 taxis to 8. The existing nightime rank with capacity for 3 taxis on the northern side of Dame Street will be converted to a permanent taxi rank. Additional night time capacity equating to 21 spaces will also be provided through the use of proposed loading bays on Trinity Street, Church Lane and Dame Street.

The Proposed Project is presented in **Figure 4.1** in Chapter 4.

6.6 Predicted Impacts

The Proposed Project will have an impact during both the construction and operational phases, both of which are considered in the following sections.

6.6.1 Construction Stage

6.6.1.1 Construction Access

It is envisaged that access to the site during the construction phase will be from Dame Street.

Dublin City Council operate a Heavy Goods Vehicle restriction within Dublin City Centre where 5 axle Heavy Goods Vehicles are banned within the city centre from 07:00-19:00 every day. Any Heavy Goods Vehicle wishing to access the restricted zone has to apply for a permit and is also obliged to use the designated Heavy Goods Vehicle routes within the restricted zone as illustrated in **Figure 6.3**.

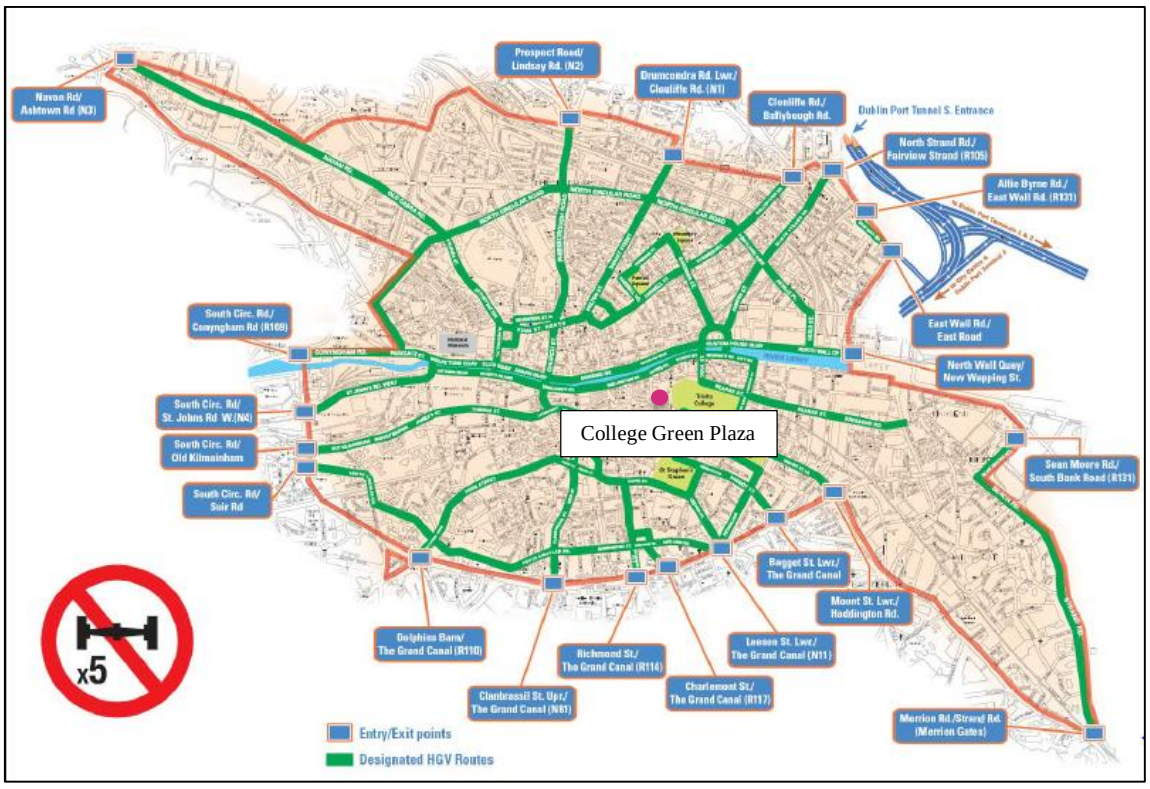

Figure 6.3 - Dublin City Council – HGV Routes

College Green lies within this restricted zone and there are three possible routes designated for site traffic to and from the designated Heavy Goods Vehicle Routes.

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.

Figure 6.4 presents the HGV access routes to serve the construction phase of the College Green Plaza. Construction vehicles will arrive and depart the site via one of the following routes:

- North or South Quays/Bridge Street/High Street/Dame Street; and
- Patrick Street/Dame Street.

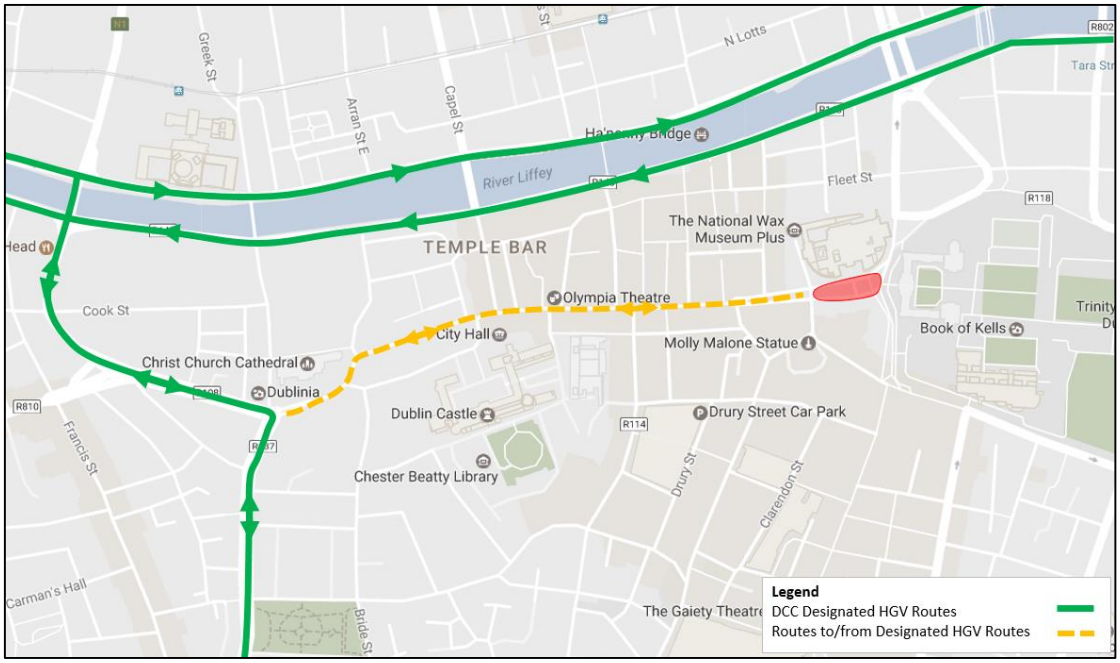

Figure 6.4 - Construction Access Routes

6.6.1.2 Construction Traffic Generation

Construction traffic would be generated from a number of sources during the construction of the College Green Plaza, primarily attributable to:

- Removal of spoil;
- Materials delivery; and
- Equipment delivery.

In terms of construction staff, it is envisaged that during peak construction activity, the site will engage approximately 50 construction personnel. Considering a 11-hour (07:00-18:00 Monday to Friday) working day, it is likely that most of the construction staff will arrive to the site before the local AM peak traffic period and will depart after PM peak hour. No car parking spaces will be provided within the works area to minimise the impact of construction traffic on the local road network.

It is envisaged that peak daily HGV traffic would be in the region of 8-10 one-way trips, during the most onerous construction stage (excavation). It has been robustly assumed that 30% of these trips would occur in the peak hour equating to 6 two-way trips.

6.6.1.3 Construction Traffic Impact

The construction of the Proposed Project would result in an additional 6 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.

6.6.2 Operational Stage

6.6.2.1 Traffic Impacts

The traffic modelling work undertaken by the National Transport Authority allows the impact of the Proposed Project on the Dublin street network to be assessed. Overall the results show both increases and decreases in traffic flows on various streets across the network as traffic on the street system reassigns following the closure of College Green. For the purposes of this assessment, all streets where an increase of greater than 2.5% would be experienced as a result of the proposed project have been extracted from the model for both the morning and evening peak hours for the 2018 and 2035 assessment years. This information is presented in **Appendix 6.1**.

The projected change in traffic flows in the local area are summarised below:

- There will be a slight increase in traffic along the city quays in 2018 resulting from the reassignment of buses and taxis from College Green (i.e. Aston Quay 5%-8% increase, Burgh Quay 6%-8%, Wellington Quay 5-8%%). In 2035, there are reductions in traffic flows along some of the city quays during the morning peak period (e.g. Ormond Quay -10%) with increases experienced on most quays in 2035.
- Traffic along Dame Street/ Lord Edward Street, Christchurch Place and High Street experience an increase in traffic during the morning peak period and a slight reduction during the evening peak period in 2018 with increases in both peak periods in 2035.
- Traffic along some local streets parallel to Parliament Street experience increases in traffic flow including Fishamble Street, Bridgefoot Street and Winetavern Street.
- Traffic through Temple Bar, Nassau Street and Dawson Street will not experience any significant change.

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 provision of additional bus priority measures committed for the Quays will act to mitigate any potential increase in delays along these routes for buses and taxis.

The environmental impact of the development on individual road links as a result of the changes to traffic routings are considered further in the Chapter 7 '*Air Quality and Climate Factors'* and Chapter 8 '*Noise and Vibration'* which are the direct environmental impacts as a result of traffic increases or decreases.

6.6.2.2 Pedestrian and Cyclist Impacts

The Proposed Project will result in a significant positive impact on pedestrians and cyclists.

The Proposed Project will provide pedestrians with a significant increase in pedestrian space, removing the existing pinch points on either side of College Green. 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. Many of these pedestrians also must cross two streams of traffic on College Green in two separate stages with substantial delays experienced by pedestrians. The removal of these crossing points will therefore result in a substantial time saving to 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 cycle track along the eastern and southern sides of the proposed plaza. This will connect in future to improved cycle facilities on Dame Street and Westmoreland Street providing a cohesive cycle route through the city centre. The Proposed Project will therefore greatly improve the quality of service and safety of cyclists passing through College Green.

A total of 32 cycle parking spaces will be provided in College Green Plaza as part of the Proposed Project. This represents an increase of 6 spaces over and above what is currently available in College Green.

6.6.2.3 Public Transport Impacts

Bus Routes

As identified in Section 6.3.2, bus services and bus routes change and evolve on an on-going basis. For the purposes of this assessment, the bus re-routing arrangements set out in the following section have been identified and used in the evaluation of the Proposed Project. Further refinements and changes to these routes may occur in the future.

The rerouting of buses assumed in this assessment is summarised below:

- Routes which currently originate/terminate in the vicinity of College Green (e.g. 65, 68, 150) would continue to use Dame Street terminating at the new

turning around facility proposed at the junction of Foster Place and Church Lane;

- Routes which currently use South Great George's Street before passing through College Green and vice versa (e.g. 122, 16), would be rerouted to Patrick Street, Nicholas, Winetavern Street, North Quays in the inbound direction. Some routes may also be maintained along South Great Georges Street turning left onto Dame Street and onwards to Winetavern Street. Outbound, at O'Connell Bridge, buses will either use D'Olier Street and Westmoreland Street as per the existing situation or may be permitted in future to turn right directly from O'Connell Bridge onto Aston Quay. These routes would be rerouted to the South Quays, Parliament Street and Patrick Street (outbound, route 16 would use Parliament Street and South Great Georges Street). This is illustrated in **Figure 6.5**;

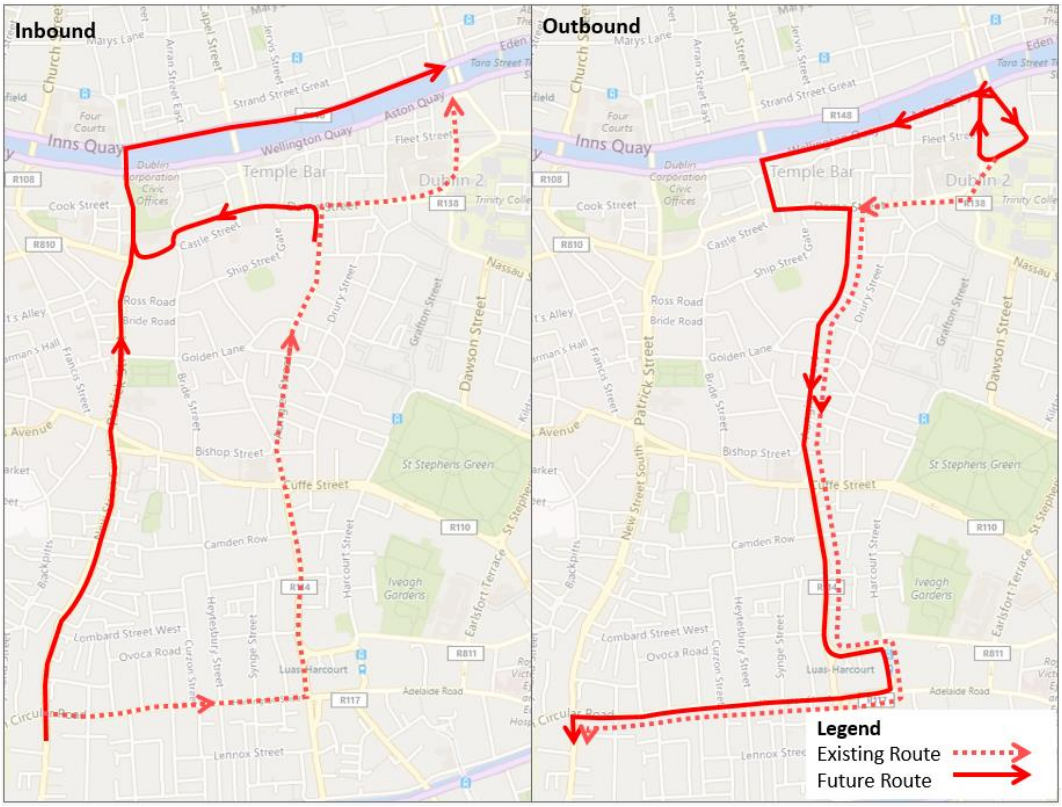

Figure 6.5 - Future Rerouting of Buses Which Currently Pass Through College Green to South Great Georges Street

- Routes which currently pass through College Green other than those using South Great Georges Street which do not terminate originate in the vicinity (e.g. 27, 123), would be rerouted onto the South Quays and Parliament Street in the outbound direction. At O'Connell Bridge, buses will either use D'Olier Street and Westmoreland Street as per the existing situation or may be permitted in future to turn right directly from O'Connell Bridge onto Aston Quay. In the inbound direction, buses would be rerouted along Winetavern Street and the North Quays. This is illustrated in **Figure 6.6**.

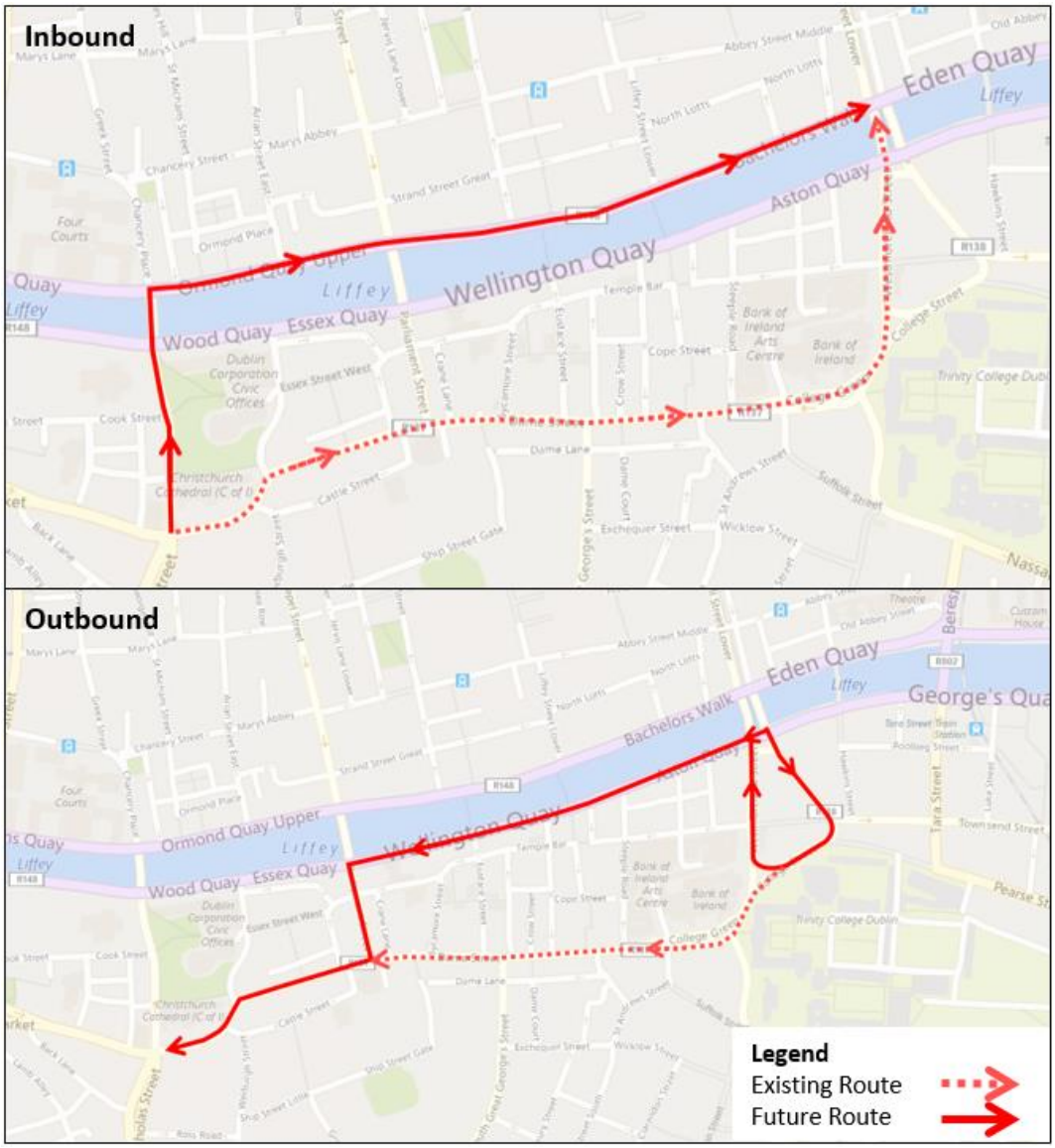

Figure 6.6 - Future Rerouting of Buses Which Currently Pass Through College Green to High Street

Bus Stop Locations

The re-routing of buses noted above will result in the relocation of bus stops to alternative locations along the new bus routes. The distance which bus stops are moving from their current location varies between routes but all relocated stops will be within comfortable walking distance of the existing stops (maximum relocation of approximately 500m).

To assess the impact on bus passengers, a walk catchment analysis was undertaken for existing routes passing through College Green and compared to the walk catchments for the proposed alternative routes. To simplify the assessment, the general routes of buses, as well as representative bus stops were included, rather than an assessment of each individual route. This assessment looked at residential/employment populations living/working within a 5 minute walk catchment of stops along each route. The 5 minute walk catchments are illustrated

in **Figure 6.7** and **Figure 6.8** for both the existing and future routes. The results of the catchment analysis are presented in **Table 6.2**.

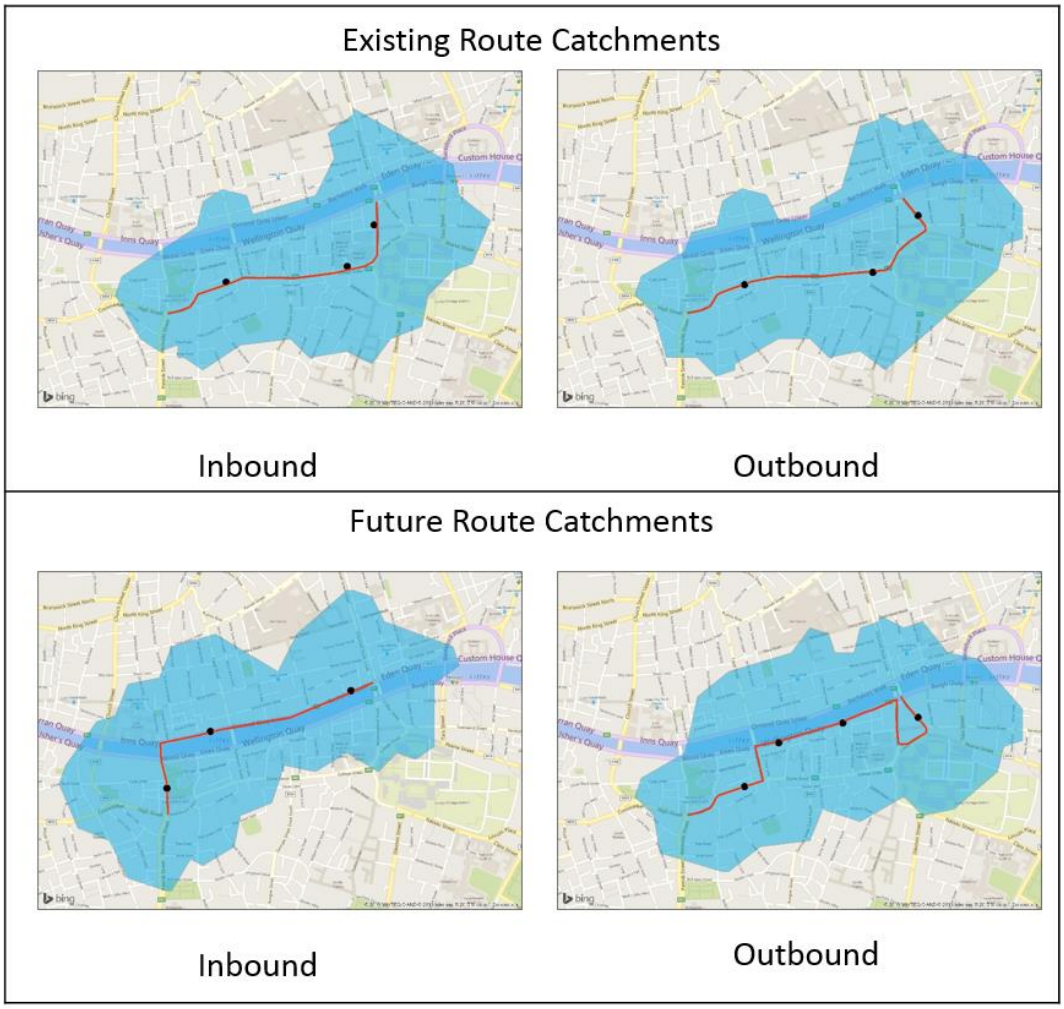

Figure 6.7 - Existing and Future Catchments for Routes Currently Passing Through College Green, Dame Street and High Street

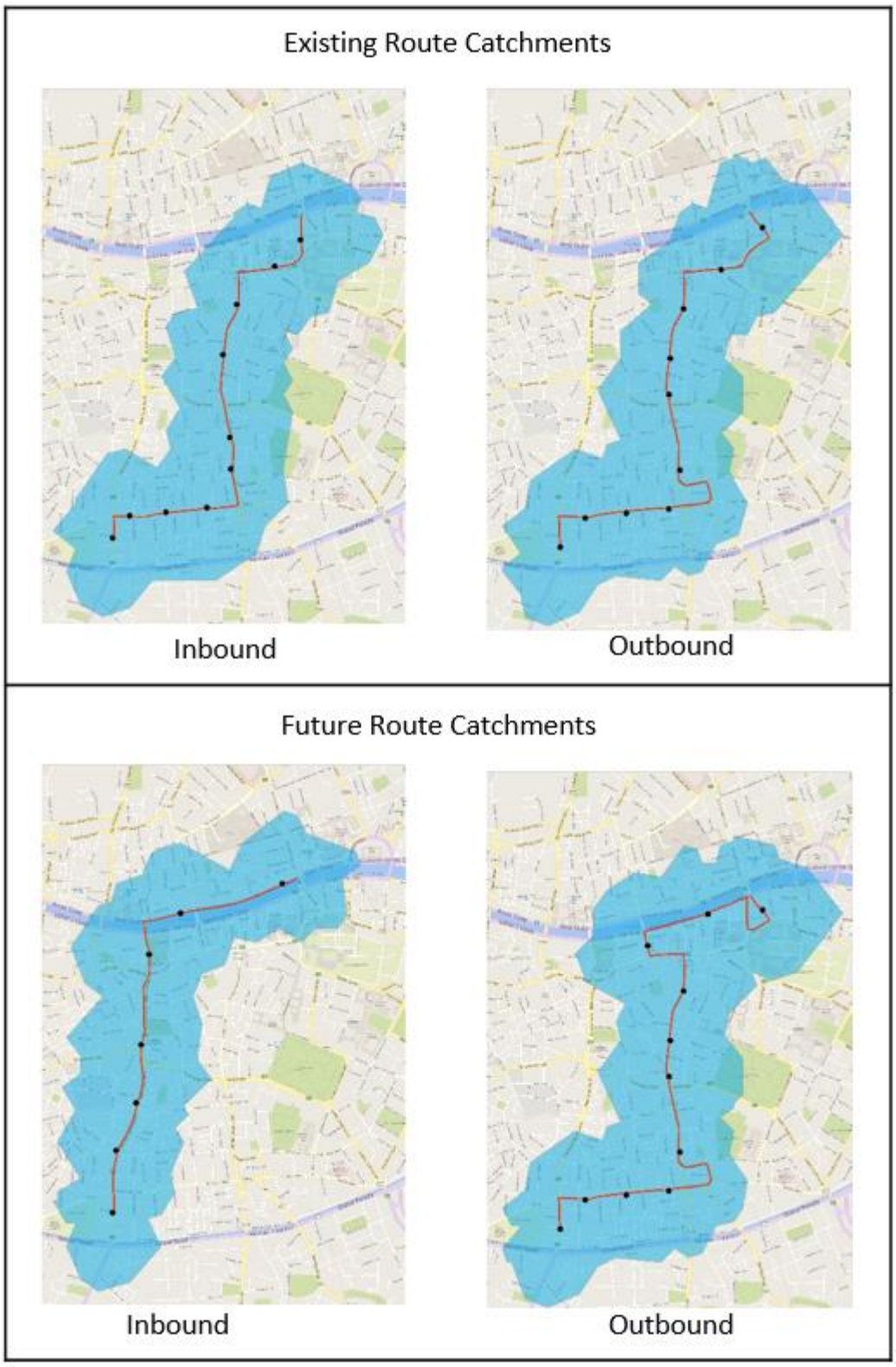

Figure 6.8 - Existing and Future Catchments for Routes Currently Passing Through College Green, Dame Street and Parliament Street

Table 6.2 - Number of People Living or Working with a 5 minute Walk of Existing and Future Bus Routes

Routes Currently Passing Through College Green, Dame St and High St			
Direction	**Base Route**	**Future Route**	**Change**
Inbound	35,022	35,338	+316
Outbound	37,378	39,060	+1,682
Routes Currently Passing Through College Green, Dame St and Parliament St			
Direction	**Base Route**	**Future Route**	**Change**
Inbound	59,415	49,372	-10,043
Outbound	63,227	74,926	+11,699

As can be seen in **Table 6.2**, routes which currently pass through College Green, Dame Street and High Street, would see a small increase in people working or living within a 5 minute walk catchment in each direction.

For routes which currently pass through College Green, Dame Street and Parliament Street, there would be a decrease in people living or working within a 5 minute walk catchment of the future bus routes. This is largely due to the movement of the route to Patrick Street which is further from the large employment areas around St. Stephens Green. However, the rerouting of the inbound route would bring buses closer to high employment centres such as Wood Quay and Jervis Street/Henry Street. This results in an increase to the number of people within a 5-minute walk catchment. On balance, the changes to inbound and outbound buses along these routes is considered to be neutral as overall, it would serve a similar number of people.

Generally, this assessment shows that while bus stops may be moving further away from some users, it will also move closer to others and overall there is a small increase in the total number of people that would be served by buses along the future routing. It is also worth noting that the distance which routes are moving are all within comfortable walking distance of the existing routes. For these reasons, on balance, the local impact of the bus route changes on bus users is considered to be neutral.

Bus Stop Capacity on North/South Quays

As part of a separate project, DCC propose to increase the length of bus bays, on the North and South Quays in order to provide additional kerbside capacity. The additional bus lanes on the north and south quays will also assist in maximising the existing kerb side space. Additional bus lanes, as planned on the North and South quays will allow buses to access and egress more easily to their stops without impeding following buses and causing the buses to bunch. This better use of the road space and kerb space will enable buses to adhere more closely to their schedules, thereby loading and unloading passengers in a more timely fashion. The more efficient turnover of passengers will in turn assist in reducing congestion on the footpaths.

Taxis

To facilitate the Proposed Project, it is necessary to remove a total of 5 taxi ranks spaces from College Green (located on the eastbound carriageway in the traffic island). In addition, it is proposed to remove the taxi rank on Foster Place. This taxi rank accommodates approximately 9 permanent taxi bays and a further 11 night time bays.

As part of the Proposed Project it is proposed to provide a new taxi rank accommodating approximately 8 taxis on the southern side of Dame Street between South Great George's Street and Trinity Street. In addition, the existing night-time rank on the northern side of Dame Street just east of South Great George's Street which accommodates 3 taxis will be converted to a permanent rank.

In addition to this, the following three loading bays which are proposed will also act as a night-time rank between the hours of 19:00 and 07:00:

- Southern side of Dame Street between South Great George's Street and Trinity Street with space for approximately 7 taxis;
- Eastern side of Trinity Street just north of the junction with St Andrew's St with space for approximately 6 taxis; and
- Western side of Church Lane with space for approximately 4 taxis.

In summary, it is proposed to remove 14 permanent taxi rank spaces and replace it with a new taxi rank with capacity for 11 permanent taxi spaces. Additionally, it is proposed to remove 14 night-time bays and replace them with 17 night-time bays.

While there is some reduction in day time taxi rank capacity as a result of the Proposed Project, the night time capacity has been increased.

In addition, DCC propose providing an additional 10 space taxi rank on College Street as part of a separate project. Combined with the College Green Plaza proposals, this will result in an increase in provision for taxis in the College Green area.

The proposed taxi rank facilities are presented in **Figure 4.2**.

Mode Split

To understand the impact on public transport use as a result of the proposed scheme, the mode split data was extracted from the model for both the do minimum and do something assessment scenarios. This showed that the mode split for all modes was identical for each scenario (16% public transport in 2018 and 30% in 2035) across the metropolitan area meaning that the proposed scheme would have no impact on public transport use in the city.

6.6.2.4 Impact on Access to Bank of Ireland

Access to, and egress from, the Bank of Ireland customer car park is via College Green. The Proposed Project will continue to facilitate access / egress to / from this car park through the proposed plaza.

Access to and egress from the cash transit operations to the rear of the Bank of Ireland is provided via Foster Place. The Proposed Project will continue to facilitate access /egress to / from this area through the proposed plaza and via Foster Place.

6.7 Mitigation Measures

6.7.1 Construction Stage

6.7.1.1 General Construction Traffic Strategy

Construction traffic will be limited to certain routes and times of day, with the aim of keeping disruption to existing traffic and public transport to a minimum. To minimise disruption to the local areas, construction traffic volumes will be managed through the following measures which include:

- During peak hours, ancillary, maintenance and other site vehicles movements will be discouraged.
- Daily construction programmes will be planned to minimise the number of disruptions to surrounding streets by staggering HGV movements to avoid site queues.
- No car parking will be provided on site for staff.
- The Contractor will be required to promote travel by sustainable modes of transport. A framework mobility management plan is presented later in this section.

6.7.1.2 Hours of Working

Construction operations on site will generally be between the hours of 07:00 and 18:00, Monday to Friday, and 08:00 to 14:00 on Saturdays. Similarly, deliveries of materials to site will generally be between the hours of 07:00 and 18:00, Monday to Friday, and 08.00 to 14:00 on Saturdays. However, it is acknowledged that works outside of these hours will be required on occasion. Any works proposed outside the core site hours will be agreed in advance with Dublin City Council.

The construction shift times will ensure any staff travelling to the site by car will have limited impact on the peak periods of 08:00-09:00 in the morning and 17:00-18:00 in the evening as it is envisaged most construction staff will arrive to work before 08:00 in the morning and leave after 18:00 in the evening.

6.7.1.3 Construction Traffic Management Plan

As part of the construction works the appointed Contractor shall prepare a Construction Traffic Management Plan (CTMP) which will outline their approach to the Proposed Project and detail potential impacts for the public road system. This will include provision of transport facilities and encouragement of car sharing for staff. It will also include measures to mitigate any potential noise and air quality impacts resulting from construction activities, namely from traffic movements in and out of the site.

The CTMP will provide details of intended construction practice for the development, including:

- Location of the site and materials compound(s) including area(s) identified for the storage of construction refuse.
- Location of areas for construction site offices and staff facilities.
- Details of site security fencing and hoardings.
- Details of pedestrian routes through College Green.
- Details of the timing and routing of construction traffic to and from the construction site and associated directional signage, to include proposals to facilitate the delivery of abnormal loads to the site.
- Measures to obviate queuing of construction traffic on the adjoining road network.
- Measures to prevent the spillage or deposit of clay, rubble or other debris on the public road network.
- Alternative arrangements to be put in place for pedestrians and vehicles in the case of the closure of any public road or footpath during the course of site development works.
- Details of appropriate mitigation measures for noise, dust and vibration, and monitoring of such levels.
- Containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained. Such bunds shall be roofed to exclude rainwater.
- Off-site disposal of construction/demolition waste and details of how it is proposed to manage excavated soil.
- Means to ensure that surface water run-off is controlled such that no silt or other pollutants enter local surface water sewers or drains.

The CTMP will be agreed with both Dublin City Council and An Garda Síochana, prior to commencement of works.

6.7.1.4 Mobility Management

The Contractor will be required as part of the contract to introduce a Mobility Management Plan (MMP) for its workforce to encourage access to the site by means other than by private car. The following section identifies some of the measures the Contractor will provide as part of the MMP. The Mobility Management Plan will form part of the Construction Traffic Management Plan and will be agreed with DCC prior to works beginning on site.

Cycling: Cycle parking spaces will be provided on the site for construction staff, in addition lockers will be provided to allow cyclists store their cycling clothes.

Car Sharing: Car sharing among the construction staff should be encouraged, especially from areas where construction staff may be clustered. The Contractor will aim to organise shifts in accordance to staff origins, hence enabling higher levels of car sharing. Such a measure offers a significant opportunity to reduce the proportion of construction staff driving to the off-site car parking facility, and will minimise the potential traffic impact on the road network surrounding this facility.

Public Transport: The Contractor will issue an information leaflet to all staff as part of their induction on site highlighting the location of the numerous bus routes that operate in the vicinity of the site. The Contractor will also offer the "Travel to Work Scheme" to employees.

6.7.2 Operational Stage

Other than the proposed measures included as part of the Proposed Project, no further mitigation measures are proposed.

6.8 Residual Impacts

During construction, the Proposed Project will result in a temporary increase in traffic volumes along Dame Street and approach routes to the construction site. However, as noted in **Section 6.6.1** these increases will be negligible and not result in any material impact on the operation of the local road network.

Once operational, the College Green Project will improve pedestrian, cyclist and public transport mobility through the centre of the city. The Proposed Project will result in changes to traffic flows on a number of road links within the city centre. The residual impacts in terms of traffic are considered further in the Chapter 7 '*Air Quality and Climate Factors'* and Chapter 8 *'Noise and Vibration'* which are the direct environmental impacts as a result of increased traffic.

6.9 Difficulties Encountered

6.9.1 Defining the Baseline

A number of temporary traffic management measures have been made in the city centre since 2015 to facilitate the construction of Luas Cross City. While some of the changes made as part of this proposal were temporary (rerouting of buses), others were permanent (closure of Suffolk Street) meaning that the existing situation on the ground was not reflective of the actual baseline following construction of Luas Cross City. For the purposes of this assessment, the future baseline (following the construction of the Luas Cross City) has been assumed.

6.9.2 Changes to City Centre Traffic Management Proposals

Since the modelling assessment was completed and the results presented for inclusion in the preparation of the EIS for the College Green Project, a number of changes have been made to the traffic management arrangements planned in the City Centre as part of other projects that were considered in the evaluation of the Proposed Project. The relevant changes from the measures that were included in the transport model are:

- Reversal of direction of flow around Church Lane, Andrew's Street, and Trinity Street.
- PT (bus & taxi) only from O'Connell Street to Rosie Hackett Bridge, with local access from Harbour Court aka the Eden Quay Bus Gate.
- Bus only on Kildare street, 2-way. 1 traffic lane as far as Molesworth Street for local access. General traffic access one way from Setanta Place to Molesworth Street for local access.

The details of the proposed amendments are as follows:

- The flow around Church Lane, Andrew's Street, and Trinity Street to remain as it currently operates.
- Following a public consultation process, the proposal to restrict vehicular traffic on Eden Quay to public transport only has been amended. Under the revised proposals, traffic travelling eastward on Bachelors Walk will be able to either turn left on to O'Connell Street or continue straight on to Eden Quay. All other private vehicle movements to Eden Quay will be banned.
- The modelling work had assumed that southbound movement on Kildare Street between Naasau Street and Setanta Place would be restricted to public transport only. Instead, it is intended that general traffic will also be able to travel southbound on this link, allowing general car traffic entering Naasau Street via Frederick Street South, to use this route.

Each of these changes has been reviewed to assess whether or not they are likely to alter the results. This assessment is based on professional judgement and a review of the relevant traffic assignments.

- Having reviewed the transport modelling output, the impact of retaining the current flow direction at Church Lane etc. will only have minor traffic routing impacts in the immediate vicinity of the change. Traffic on Andrews

Street is likely to increase as traffic accessing South William street etc. will now use this route. Traffic on Church Lane is likely decrease as traffic accessing South William Street etc. is now using Andrews Street.

- Allowing straight through traffic from Bachelors Walk to Eden Quay is unlikely to change the impacts of the College Green Plaza. The key reason for this is that traffic wishing to access the North Quays east of Eden Quay, cannot route through Dame Street due to the recently introduced right turn restriction on O'Connell Bridge, and the existence of the 12-hour bus gate at College Green. The alternative routes are via Kevin Street or further south or via King Street North or further north.
- General traffic use of the southbound traffic lane on Kildare Street from Nassau Street to Setanta Place is unlikely to have any impact on the results. The impact is limited to egress from Fredrick Street South. In the modelled arrangement this traffic can route via Lincoln Place and Merrion Row to arrive at the same location. All other possible traffic movements are accommodated at the Setanta Place and Molesworth Street junctions.

6.10 References

National Transport Authority (2016) *Transport Strategy for the Greater Dublin Area 2016-2035*

Transport Infrastructure Ireland (2014) *Traffic and Transport Assessment Guidelines*