

Traffic and Transportation Assessment

An Bord Pleanála appointed an in-house Inspector to examine and report on the application for development of a New Civic Plaza at College Green, Dublin 2 and Ancillary Traffic Management Measures, including undertaking an Oral Hearing. I have been commissioned to assist the Inspector in a specialist capacity in considering traffic and transportation related matters.

This Report is in four main sections covering:-

- (1) The Plaza Proposal and its transportation aspects as set out in EIAR and in the relevant submissions to the hearing by Dublin City Council.
- (2) Summary of Observer Submissions made to the Oral Hearing relating to transportation.
- (3) Assessment of impacts on general traffic, bus transport, LUAS, cycling and walking.
- (4) Conclusions.

1. PROPOSED COLLEGE GREEN CIVIC PLAZA -- TRANSPORTATION ISSUES

1.1 Environmental Impact Assessment Report (EIAR).

This report is dated October 2017. Section 1 of the EIAR is the Non-Technical Summary (NTS).

1.1.1 The proposal is set out in Section 1.2 of the NTS of the EIAR of October 2017 by Dublin City Council (DCC) as follows:-

“The Proposed Project involves the development of a Civic Plaza and the introduction of traffic management measures and minor road works in the area of College Green, Dublin.”

1.1.2 The EIAR (NTS) states that the core area of the works occupies an area of approximately **14,400 m²** and extends east-west from the junction with South Great George’s Street to the front of Trinity College. Figure 1.2 of Chapter 1-3 of the EIAR indicates the Extent of the works Area.

1.1.3 The NTS states that there are approximately **6,500 cyclists** passing through College Green daily, as well as **75,000 pedestrians**.

1.1.4. The NTS states that buses passing through College Green (east-west) would be re-routed using Parliament Street and Winetavern Street. It stated that a 5-minute walk catchment analysis showed that overall, a similar number of people would be served by the new routing as is currently served by existing routes.

1.1.5 In relation to traffic flows, referring to the modelling exercise carried out, the NTS states (NTS 7) that the projected change in flows is dispersed among the wider street network serving the city centre and it is envisaged that 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.

- 1.1.6 Chapter 4 of the EIAR gives the proposed Project Description and this is indicated on Figures 4.2 to 4.10. Traffic and Transportation Impacts are dealt with in Chapter 6 of the EIAR. Of note is the do-nothing scenario which includes traffic measures carried out in 2017 involving changes on Burgh Quay, and Aston, Wellington and Essex quays and a ban on right-turns for general traffic from Bachelor's Walk to O'Connell Bridge. Local Traffic arrangements in College Green include signalization of West-East junction from College Green to College Street. It also states that the College Green Bus Gate Restrictions would be applied on a 24-hour basis when the LUAS became operational but this measure does not seem to have been implemented as of April 2018.
- 1.1.7 The EIAR (Chapter 6-8) describes Westmoreland Street as 3-lane and College Street 2-lane with no specific provision for cyclists on-street or off-street. It would appear that the dedicated 2-way cycle tract now in College Street was added after the writing of this paragraph of the EIAR.
- 1.1.8 The Do-Minimum vs Do-something modelled changes in traffic are set out in Table 6.3. of the EIAR. The projected changes in buses and bus passengers are shown in Fig 3-32 to 3-44 of the NTA Modelling Report in Appendix B of the Further Information Request response. Modelled journey times are given in Figures 3-28 to 3-31 of the NTA Report. In response to a specific question on measured journey times from An Bord Pleanála, Table 4.1 on page 45 of the Response to the further information gives information on peak and off peak journeys.
- 1.1.9 Section 6.2.2.2 of the EIAR the Do-minimum scenario was predicted not to involve significant changes in traffic patterns. For the Do-Something scenario it states that the primary differences in traffic patterns associated with the Proposed Project relate to changes from the diversion of buses and taxis to other routes and includes the removal of through private car traffic from

Parliament Street during the daytime. The EIAR notes that some streets would have increased traffic and others reduced traffic but the impact of such changes is not detailed.

1.1.10 Section 6.1 of the EIAR describes the **Future Receiving Environment**. (Chapter 6-12). Public Transport Projects are listed in Section 6.4.1 for 2018 and 2035 and include:-

- LUAS Cross City, 2018
- DART Frequency Increase, also 2018
- GDA Cycle Network Plan by 2035
- Core Bus Network, including Bus Connects
- Swiftway BRT Lines
- DART Expansion Plan
- New Metro North
- Dublin Corridor Study proposals
- Dublin City Centre Transport study
- Integration and ITS measures.
- Various Road Network Projects.

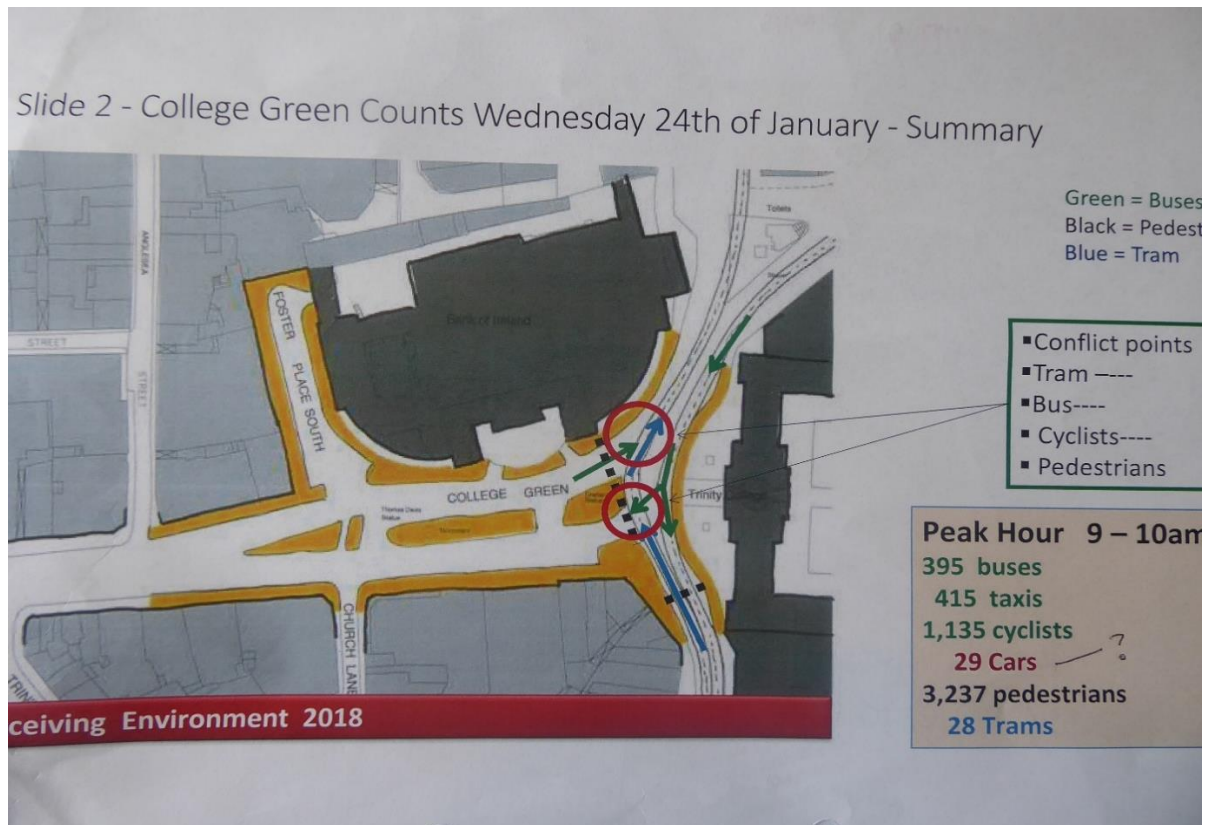
I note the above and will offer comment on the above in the Assessment part of this report.

1.2 **Dublin City Council Direct Evidence to the Oral Hearing.**

An introduction was given jointly by Ms. Ali Grehan, City Architect, Mr Paul Keogh, Project Architect, Mr Seamus MacGearailt, Consulting engineer and Mr Brendan O' Brien, Head of Technical Services, Dublin /City Council.

1.2.1 On Day 2 of the Hearing, Mr O'Brien presented a detailed description of the Transportation issues and gave a summary of the changing transport network environment of College Green, while also outlining the Dublin City Council transport assessment. Mr O'Brien described the Current **receiving transport**

environment at College Green and noted that in January 2018, some 395 Dublin Bus Services passed through college Green between 09:00 and 10:00 am. Slide 2 of his presentation also indicated pinch points in College Green. (see below)



Slide 2, Mr O'Brien Day 2 of Hearing.

1.2.2 Mr O'Brien stated that on 29 January 2018, following a request from the National Transport Authority, 17 bus routes were diverted from College Green and a further 28 were diverted on 5th March. He noted that southbound taxis were to be excluded from College Green, Monday to Friday from 07:00 to 10:00 am.

1.2.3 The longer term solution outlined by Mr O'Brien was to remove the conflicting movements from College Green and this is illustrated in slide 16 of his presentation.

1.2.4 Mr Donal McDaid (ARUP) followed Mr O'Brien on Day 2 of the Hearing and his evidence is titled **Transport Assessment, Impact and Mitigation Measures**. He referred to Section 6.2 of the EIAR and outlined three scenarios as follows:

- A 'Do-Nothing' scenario defined locally to College Green as what would be envisaged under the Railway Order for LUAS Cross City but including 'North and South Quays Traffic Management Measures' which came into effect in August 2017.
- A 'Do-minimum' scenario which includes Pedestrianisation of Suffolk Street, change in Lower Grafton Street to allow 2-way bus and taxi movement. (previously Railway Order presumed segregated LUAS running on Lower Grafton Street)
- A new cycle track along the northern side of College Green into Westmoreland Street.

1.2.5. Mr Seamus MacGearailt gave evidence on Day 2 of the Hearing. His presentation dealt mainly with construction details. The main transportation elements covered were the proposed bus turnaround at Foster Place and the 2-way cycle track on the south side of the proposed plaza.

1.2.6 Mr MacGearailt also gave details of the Greater Dublin Cycle Network Plan for College Green and its environs. This is shown below. College Green is at the joining / crossing of primary routes (red) 7 and 11 with secondary routes (blue) C2 and 13E.

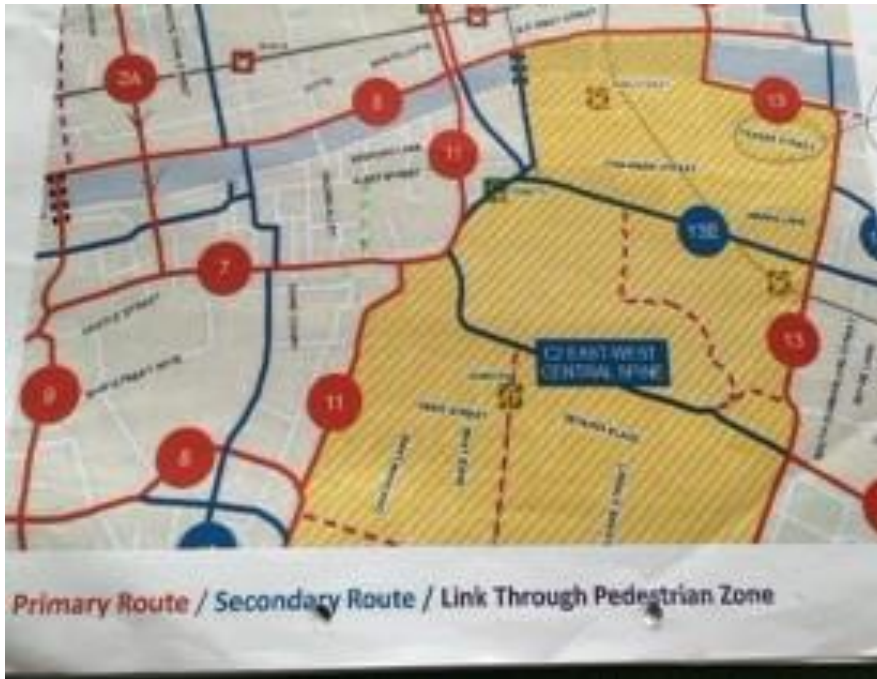


IMAGE 7 from Mr Mac Gearailt brief of evidence.

1.3 DUBLIN CITY COUNCIL CLOSING SUBMISSION

Ms Deirdre Hughes made the closing submission for the City Council on Day 12. Relative to transportation issues she said that there was very early consultation in April 2016 on traffic issues and it was clear from that time that east-west bus movements were to be removed from College Green. Cumulative impacts had been assessed. It was not accepted that the EIAR was deficient and safety measures were included in the documentation. Regarding possible conditions attaching to a Grant of Approval, Ms Hughes said there should not be a condition regarding a thoroughfare through the carriageway (plaza). She said the proposal was not premature and noted the expected delivery date for Metrolink to be 2027.

2.0 SUBMISSIONS MADE AT THE HEARING RELATING TO TRANSPORTATION

2.1 SUBMISSIONS BY PRESCRIBED BODIES

National Transport Authority (NTA)

Submission was made on Day 2 of the Hearing by Mr Hugh Cregan. This submission re-iterated support indicated in the two submissions made in 2017 for the project. The submission indicated that NTA support was based on 2-way bus movement being facilitated in Parliament Street and the inclusion of segregated cycling facilities on Dame Street.

Mr Cregan returned to the Hearing at final submission stage and stated that the NTA would support one-way bus movement on Parliament Street. In his closing submission he said the DCC proposal would greatly assist in the vehicular movement challenges for all modes of transport and would provide a much more efficient public transport corridor in N-S and S-N direction. He said the NTA would look for the use of most modern Euro VI engines in buses on Parliament Street.

Mr Colleary gave details of modelling. He also answered questions relating to model parameters and outputs. Questions on M50 variable speed limits and on DART Underground were answered by Mr O'Brien of DCC.

Dublin Bus

Dublin Bus were represented throughout the Hearing. Their submission on Day 2 of the Hearing by Ms Mulcrone submitted that:-

1. Dublin Bus has a unique position in terms of understanding bus transport.

2. Comparisons with other cities need to focus on relevant transportation facts. In this regard the existence in Copenhagen of the pedestrianised Stroget area of a parallel street with buses was noted and later in the hearing a photo of the City Hall Square in Copenhagen was submitted which shows wide streets immediately adjacent to the pedestrianised Square.
3. It was not appropriate to move bus routes from College Green to the Quays as these areas were already congested and it was not a solution to move a problem to another area where footpaths were already full.
4. Use of Winetavern Street for northbound bus routes would not work.
5. There is a lack of suitable alternatives to use of College Green as a major bus artery.

In her closing submission on Day 12, relative to transportation, Ms Mulcrone cautioned against **group think**, and said there had been no concern for pedestrian accessibility to the city centre. She said that bus routes should not be moved where need had not been shown. With pedestrian congestion already on the quays there would be extreme severance of pedestrian linkage to city centre accessibility.

2.2 SUBMISSIONS BY ELECTED REPRESENTATIVES

(Parts of Submissions relating to Transportation issues)

Councillor Mannix Flynn

Councillor Flynn made a submission on Day 2 of the Hearing. His points in relation to transportation impacts were as follows:

1. Impacts of bus diversions on to Parliament Street would destroy it. The presence of buses would also block off views from and of that street.
2. LUAS as implemented had mistakes and Plaza proposal was to make the LUAS work.
3. LUAS is now effectively a train and is given (undue) priority over all other forms of traffic
4. He questioned if proper arrangements were made for traffic.

5. He questioned the arrangements for deliveries and cited experience of other streets, including Grafton Street and Henry Street which he described as a nightmare up to the cut-off time of 11:00 am.
6. Some cyclists will not follow rules and he questioned how cycling could be managed in and around the plaza, pointing out the different types and sizes of bicycles.
7. LUAS operational problems were not adequately addressed.
8. The turn from Parliament Street to Dame Street is problematic.
9. In questions on Day 8, Cllr Flynn stated that the 2016 Study was not the same as a plan and traffic measures by DCC were ad-hoc.

Submission on behalf of Ms. Róisín Shorthall T.D.

Deputy Shorthall's submission was read into the record by Mr Ronan Kennedy and dealt almost exclusively with Public Transportation issues. The main points made were:

1. Cannot support the proposal, as it would stop east-west bus transport through College Green and cause problems far outweighing benefits.
2. Hampers objectives to use public transport by bus and undermines the DCC development Plan objective of encouraging use of (bus) public transport.
3. Severe constraints already exist with limited road space.
4. Bus is the ONLY source of transport for many, especially those who are marginalised.
5. Proposal undermines the civic spirit which creation of a civic plaza seeks to enhance.
6. Buses serving Dublin North West constituency area include 40,140,11,13,9,83,16,44, all of which traverse College Green. This gives access to the core of the city
7. Up to 4 million passengers annually would be displaced to the Quays where there is ongoing gridlock.
8. No scope for additional stops on Quays.
9. A single accident on the Quays would sever E-W public transport.
10. Temple Bar surfaces not suitable for bus passengers with disabilities.

11. Use of Winetavern Street highly unsatisfactory. Involves increased distance from city core and adds to journey times.
12. College Green has been central to effective operation of bus network in Dublin. While green line LUAS welcome, it should not result in moving established bus routes with the effect of denying access by bus passengers to city core.

Submission by Councillor Ciaran Cuffe

Councillor Cuffe made his submission on Day 4 (a.m.) of the Hearing. He stated he was an architect and spatial planner and made the following points regarding transportation:

1. He first proposed the pedestrianization of College Green in 2006
2. Pedestrians often hemmed in on narrow footpaths
3. He referred to a homing instinct by Dublin Bus in routing up to 30% of buses through College Green
4. He noted the concept of Traffic Evaporation of which he said that by providing for one mode of transport in a proper manner, people will change from motorised modes of transport.
5. Pedestrians are top of the transport hierarchy.

2.3 SUBMISSIONS BY OBSERVERS

Parts of submissions as they related to transportation issues.

Submission by Mr Thomas Newton, Day 2 of Hearing

Mr Newton described himself as an amateur traffic planner and stated his first involvement with proposals on traffic related to bus lanes in 1967.

Mr Newton submitted a plan of the area and submitted the following:-

1. Cycling had been preferred over a short bus lane.
2. Cycling not suitable for everyone and particularly with age, people become less mobile and there should be room for both.
3. People with disabilities would lose out.
4. A 100 metre long bus lane should be provided on south side of College Green plaza as per map provided.
5. Suffolk Street to be used one way eastbound for buses.
6. Moving buses out will cause major congestion on adjoining routes, with quays as an example. By solving one problem, don't create another.

Submission by Mr Tom Phillips on behalf of the Dublin City Traders Alliance

Mr Phillips made submission on Day 3 (a.m.) of the Hearing. Issues he raised in relation to transportation were as follows:-

1. The proposed plaza was cutting off a key transportation artery without knowing the impact. He likened it to 19th century vascular surgery
2. Dublin City Council use Road Traffic Act inappropriately and in such a way as to avoid doing the right thing
3. A major **independent** holistic transport plan is needed for Dublin
4. He questioned whether the proposal was more appropriately called a scheme for traffic management measures and an ancillary civic plaza rather than what it was currently titled
5. The **need** for the project was not sufficiently demonstrated (Ref S 2.4 of EIS) Also the option of keeping open the east-west corridor for private cars was not referred to as an alternative in the EIS. Later in the Hearing, Mr Phillips pointed out that private cars are currently banned from College Green for 60 hours a week
6. Mr Phillips submitted that changing of bus routes and changing bus stop locations can have a major impact on pedestrian movement patterns and has major potential impacts on businesses.

A closing submission, delivered by Mr Miguel Sarabia asked was the proposal one relating to something essential to the city or arising from LUAS. The submission pointed out that the proposal would be irreversible if carried out, called for a holistic traffic plan for Dublin and said the proposal should be rejected as it was premature.

Submission by Mr Brendan Finnegan, Stock Design Irl. Ltd.

Mr Finnegan's submission dealt mainly with impacts on business but he commented on difficulties with bus route difficulties and submitted that following 3-4 years of disruption due to LUAS works, the plaza proposal should be postponed for 2-3 years.

Submission by Mr Richard Guiney on behalf of Dublin Town (Day 3 a.m.)

Mr Guiney explained that 'Dublin Town' arose from a North American idea to counter the doughnut effect in cities. He said there were 2,500 businesses in the core city area and estimated that there were 450,00 pedestrian movements within the city core per day. While a Red Sea poll showed that 56% of people surveyed liked the idea of a civic plaza there were concerns. He described the plaza as premature. Specifically, Mr Guiney expressed concern at the idea of Georges Street becoming bus only. He noted that bus passengers were comfortable with a 250 metre walk from a bus stop, the distance from High Street to Grafton Street was 530 m so that bus stop location was an issue and could be a barrier to using the bus. He also noted that a metro would relieve overground congestion. Mr Guiney also expressed concern about the ability of the road system to accommodate displaced traffic. He said 85% of people used a traffic mode to get to the city centre.

Mr Michael O'Donnell made a submission on behalf of Hanahoe Solicitors, representing businesses in Parliament Street.

Mr O'Donnell co-ordinated the submission and called expert witnesses (Mr Mc Mahon, architect, Dr Shanahan, pollution expert, Mr Ryan, noise and vibration and Mr Keenan, traffic). The submission was on Day3(p.m.) and Day 4 of the Hearing. While the issues raised were specific to the impacts on Parliament Street, I note the following points made relating to transportation impacts generally and on the Parliament Street area.

1. The Civic Plaza should be part of an integrated transport evaluation
2. A lot of transportation expertise appeared for DCC, but Roughan & O'Donovan were the designers of the plaza itself while Mr O'Brien of DCC with Mr Mc Daid of ARUP dealt with the transportation impacts. Mr O'Donnell questioned how could design be done first and then consequences analysed. He said this was not in accordance with EU Directive.
3. Public Transport would be undermined as city is competing with out-of-town shopping centres. Accessibility should be comparable.
4. **Mr Mc Mahon** submitted that Parliament Street was being sacrificed to seek to solve problems elsewhere

On Day 4 of the Hearing **Dr Imelda Shanahan** made a lengthy and comprehensive submission which was based on a written document, but included cross references and explanations throughout. The main focus was the air quality predicted for Parliament Street. From an overall transportation impact aspect, the following is noted:

1. Dr Shanahan estimates the number of buses which would use Parliament Street under a one-way bus use (southbound) at 1,660 per day with a peak hour figure of 145. This is well in excess of the DCC predicted figure which is 53 buses for peak hour in one direction.
2. Buses are biggest NO₂, NO_x contributors on a unit basis and tour buses are an unknown in relation to age and condition.

3. Baseline assessment year of 2012 not appropriate and should be the current year.
4. Traffic predictions for buses in Parliament Street were based on NTA modelled data, which it was submitted were very much understated.

Mr Tom Ryan gave evidence in relation to noise and vibration. His evidence related mainly to the impact on buildings in Parliament Street arising from bus re-routing and the adequacy of the analysis in the EIAR. His conclusions in relation to traffic impacts were that the noise impact of the re-routed buses would be very significant to profound and that the threshold for vibration impacts used was too high.

Mr Julian Keenan gave evidence to the Hearing on the afternoon of Day 4 in relation to Transportation. His evidence again related mainly to Parliament Street. He noted that as of 15th March 2018 the DCC website showed a 2-way system incorporating Parliament Street, Grattan Bridge and alterations to all traffic signals from Ormonde Quay to Dame Street. In relation to overall transportation he submitted:

1. Policy SCO8 of DCC Development Plan states College to be Green Pedestrian friendly, plaza would not be in accordance with that stated objective
2. In 2.22 to 2.24 of his evidence, Mr Keenan drew a distinction between the Dublin City Centre Consultation document of 2015 and the transport Study of 2016 and says the former has precedence. He shows two photomontages at para. 2.30 of his evidence to illustrate the point.
3. There is no traffic or transport assessment in the 2016 Study to support the feasibility of entirely shutting down the College Green Bus Gate.
4. The SATURN traffic model does not provide refined junction capacity and queuing information specific to junctions.
5. DCC normally require planning applications to include detailed assessment of the transportation systems provided and the impact of the proposed development. National guidelines suggest a threshold of 10% increase. He stated that table 6.3 of the EIAR indicated many significant

increases in traffic flows but there was no detailed capacity analysis of the impact of the redirected or reassigned levels of traffic.

6. Regarding re-directed buses on the Quays, Mr Keenan says the impact of increased frequency of stopping is not meaningfully addressed in the EIAR.
7. In totally blocking the College Green artery, there is a requirement for the Project to demonstrate with supporting evidence that the bypass system is fit for purpose.
8. The EIAR fails to demonstrate that the project constitutes a co-ordinated approach to transportation.

Mr Tony Hanahoe made a submission regarding Parliament Street.

Regarding transportation, he submitted that an integrated city traffic plan had not taken place. He questioned how DCC could maintain that traffic would be reduced in Parliament Street by putting 1600 buses per day on the street. He submitted Parliament street was being effectively turned into a bus depot.

Closing submissions were made by Mr Marcus Hanahoe and by Mr Michael O'Donnell. Mr Hanahoe said the CSE cycleway report was not a suitable basis on which to base the proposal. He said there was a cycle bias in the plan and the process was questionable. He said there was no concern for pedestrians, cyclists and other transport users on the quays. He said the proposal should be rejected based on prematurity.

Mr O'Donnell's final submission as related to transportation stated that the traffic model was not satisfactory and undermined every single element of the proposal. He said the consequences of the approach would be chaos in terms of traffic, urban blight and a city that would die for the lack of an efficient transportation system.

Mr Robert Sinnott made a submission (day 3). His submission was made on his own behalf and on behalf of the Blind Legal Alliance. The submission concentrates on safety of pedestrians, especially of vulnerable pedestrians. As transportation issues impinge on and interact with his concerns, these are

taken into account in the transportation assessment. Of particular note is his submission that a “dismount option” was the correct approach to cycling in College Green if a plaza was to be constructed. I noted also Mr Sinnott’s earlier written submission dated 7th December 2017 which sets out his concerns in a detailed manner.

3.0 ASSESSMENT

3.1 Summary of Direct Transportation Impacts

The **direct physical impacts** which relate to transportation arising from the construction of the Civic Plaza are as follows:

1. No vehicular traffic can access College Green from the East except for Emergency Vehicles
2. Options for access to Brown Thomas and Fleet Street Carparks and the two Drury Street Car-Parks would be reduced.
3. Loading/unloading in College Green would be accessed from Dame Street.
4. Bus routes would be re-routed via Parliament Street southbound and Winetavern Street northbound with additional buses on north and south quays.
5. Cycle route through College Green would be from and towards Westmoreland Street with 2 pedestrian priority crossings and one signal-controlled pedestrian crossing. There would not be direct access from College Green to Grafton Street Lower.
6. Access to Bank of Ireland and Foster Place would be via the plaza, presumably with some form of retractable bollard arrangement.
7. Emergency vehicles (Fire, Ambulance, Garda) would access from the LUAS tracks in front of Trinity College and use the cycle lane on the south side of the plaza.

3.2 Assessment of Impacts on General Traffic –Current Receiving Transport Environment.

3.2.1 The performance of the junction at College Green was covered extensively in Mr O'Brien's evidence above. It was also examined by the Oireachtas Committee on Transportation on 21st February 2018.

3.2.2 The report on the Oral Hearing into the LUAS Cross City (LCC) in 2011 stated (page 269) in the Order that the LUAS proposal "**would not have an unacceptable impact on traffic safety or congestion**" (An Bord Pleanála NA0004)

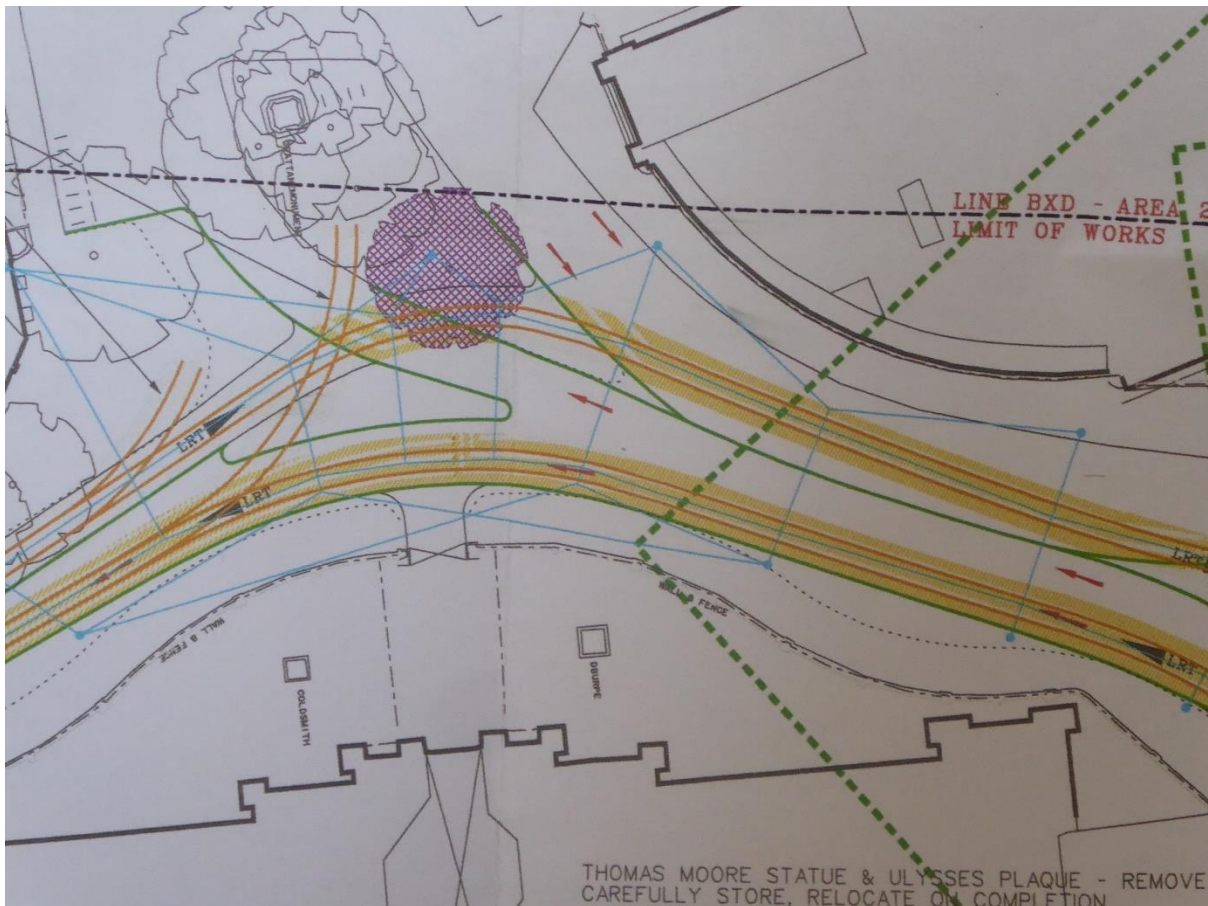
3.2.3 In Mr O'Brien's evidence on Day 2 of the Hearing, 15 slides were devoted to the operation of the junction at College Green with particular reference to the period post December 9th 2017 when LUAS Cross City commenced service. The various slides include photos of bus and LUAS congestion on bridges and in Westmoreland Street, details of traffic counts in College Green and information on delays to buses and LUAS services. It notes that the time for 1.4 kms in AM peak was 1200 seconds representing an average speed of less than 5kph.

The Clifton Scannell Emerson (CSE) report on the Clonskeagh to City Centre cycle route in 2015, was subject of detailed questioning on Day 5 of the Hearing. This report was included in the response to the Further Information Request as Appendix F.

3.2.4 A report commissioned by Dublin City Council in 2010 by CB Richard Ellis into the impact on business of the bus gateway established in 2009 was submitted by Mr T Phillips on Day 10 of the Hearing. Page 17 of that report shows a junction traffic (SCATS) analysis which indicates 3 lanes leading from College Green to Westmoreland Street. The current arrangement has one traffic lane and the cycle track was referred to by Mr McGearailt as an interim cycle track in questioning on Day 9 of the Hearing.

- 3.2.5 Figures 6.1a and b are at too small a scale to be properly interpreted but the description of a Do-minimum scenario (Chapter 6-4) indicates that College Green to College Street would have one of its two lanes converted to a cycle track. It also states (Chapter 6-6) that while previously the Railway Order assumed segregated LUAS running northbound on Grafton Street Lower now two-way traffic would be allowed on Grafton Street Lower. The RPA Drawing reproduced below 3.2.9 helps follow figures 6.1a and 6.1b in the EIAR
- 3.2.6 I would refer here to Slide 2 of Mr O'Brien's evidence on Day 2 which indicate conflict points between LUAS and other traffic and note that one conflict point relates to Northbound Luas at the location of the newly (2017) constructed cycle track outside the Bank of Ireland. This also indicates that the layout as envisaged in the approval for LUAS Cross City (Ref NA0004) did not have a cycle track, but had 2-lanes for general traffic from Dame Street to Westmoreland Street.
- 3.2.7 I note the intention of DCC to pedestrianize Suffolk Street, which previously had predominantly bus traffic in an overall northerly direction. When Suffolk Street and Church Lane were used as a bus route the main traffic flow arising was on Dame Street towards Westmoreland Street and 2 lanes operated past the Bank of Ireland at the time. This change to Suffolk street is described in the NTA Report (Appendix B of RFI) page 9, section 2.3.1 under Annex 1, A1.2 figures A6 and A7. The change results in additional traffic northbound on Lower Grafton Street which is one of the conflict points noted in Slide 2 at 1.2.1 above.
- 3.2.8 In Mr O'Brien's evidence on Day 2, the longer term solution was indicated as removing the conflicting movements from the location as illustrated in slides 15 and 16. This involves prohibiting traffic from the area of the proposed College Green Plaza. No-mention is made of the knock-on impact on general traffic on routes such as North and South quays, Winetavern Street and Parliament Street to which buses and taxis would have to transfer.

3.2.9 The amount of road space available for LUAS and other vehicular traffic is **reduced** from that envisaged in the Railway Order. The changes in arrangements for Suffolk Street are also relevant. It would appear that if the above changes had not been made, the January 2018 congestion would have been as severe. A copy of the relevant RPA Drawing is shown below which was presented to the Oral Hearing on LUAS Cross City in 2011. Of particular note in the drawing below is that 2 traffic lanes are shown running from Dame Street to Westmoreland Street.



DRAWING BXD – RO 29 A-B

ABP REF NA0004

Note: On the left hand side of the Drawing, a spur for a future LUAS line is indicated. This line would have run west through College Green.

Note. DCC submitted a table indicating the timings of the changes in traffic management measures in College Green which is ref Submission no 37, dated 28/3/2018 Oral Hearing)

While I note the changes made to the road layout at College Green, possibly of more importance is that it highlights the **competition** for limited road space between the various transport modes. In this instance, walking, cycling, LUAS, bus, taxi and general traffic were involved to a greater or lesser degree.

3.3 Assessment of Impacts on General Traffic --- Modelling

- 3.3.1 The SATURN model used is well established and has been developed by the NTA to produce an overall model for the Eastern Region. The census data used as explained by Mr Colleary of the NTA is from 2012. Extensive questioning in relation to modelling took place on Day 7 of the Hearing. I note that the Dublin Bus submission of 7th December 2017 recommended that modelling of the College Green area should use a more detailed localized micro model than the macro model used
- 3.3.2 To **verify a baseline situation**, further Information request No 4 sought information on travel times for journeys avoiding the College Green Area and two routes were selected, namely Leeson Street Bridge to the Mater hospital and Shelbourne Park to Heuston Station. These routes (South to North) were 5.5 kms and 4.5 kms (East-West) respectively. The measured times were given in Table 4.1 on page 45 of the RFI.
- 3.3.3 On examination of Table 4.1 it is noted that the time recorded for the current situation for the peak hour journey from Shelbourne Park to Heuston Station was 17 minutes while the off-peak for the same journey was given as 20 minutes. This was queried at the Oral Hearing on Day 1. On Day 6 of the Hearing Mr Mc Daid of ARUP stated that the figures were correct but that the figures were based on the average of three measured runs in 2017 and that

one off-peak run of 26 minutes raised the average and that both off-peak and peak were in fact 17 minutes.

- 3.3.4 From personal observation of the traffic conditions at the corner of Tara Street and Burgh Quay and of Tara Street with Pearse Street and of personal journey times it was suggested to Dublin City Council (DCC) that the current time for that route was much higher in peak hour than 17 minutes and on one occasion, the first 1.6km of the route from Shelbourne Park along Pearse Street to the corner of Tara Street took more than 30 minutes. This question was put to DCC on day 7 of the Hearing (tape 10:50 am) The response was that some of the changes in bus routes and work on the quays may have impacted on the noted journey times.
- 3.3.5 To check further, I travelled the route on Thursday 26th April 2018 leaving Shelbourne Park at 17:52. I arrived at Heuston Station at 18:39 giving me a journey time of **47 minutes**. The predicted journey time for the PM peak in the Do-Something scenario is **24.10 minutes** (Table 3-10, P53 of NTA Report on RFI). **The modelled journey times could not be accepted as accurate.** The difference between observed journey times and those predicted by the model is extremely large, at 47 minutes pre-project as against 26 minutes post-project for PM peak (Table 4.1 Further Information Request Q No 4 page 45 and table 3-10 of NTA Report).
- 3.3.6 Heuston Station to Shelbourne Park was selected to represent journeys likely to be taken by someone either delivering goods or services from the general Inchicore / Ballyfermot area to the Sandymount/Irishtown area. The type of journeys I had in mind were those travelled by healthcare workers, tradespeople, delivery vehicles or people visiting friends or relatives and are instances where public transport, walking or cycling would not provide a suitable alternative means of travel.
- 3.3.7 A second route, namely Leeson Street Bridge to the Mater Hospital was chosen as it represented a likely south-north route which would be as close as possible to the College Green area but which did not go through it. This route

is indicated in Figure 3-28 in the NTA Modelling Report Page 51 in the Repose for further Information Report. Due to the small scale of the drawing and absence of any street names, it requires a knowledge of the area to identify the route with any certainty. The time taken is shown in table 3-5 of the same document. From a Saturday lunch-time (LT) observation of 25 minutes, I consider that the modelled times are substantially less than the actual. A further item of note on this route is that it passes through High Street which is predicted to have increased eastbound flows of 2,788 AADT

3.3.8 The Modelling Report of the NTA was **difficult to follow** and clarifications were provided by Mr Barry Colleary of the NTA on Day 7 of the Hearing. Specifically, Mr Colleary explained that in Annex 1 the Saturn Model network coding changes involved new bus lanes which substituted for general traffic lanes and the different widths of the red lines in the drawings on pages 77-83 did not have a particular significance. It was also agreed that the drawings of the redirected bus routes on pages 85-121 were of insufficient scale and detail to facilitate interpretation. In relation to the data on network links on pages 123-217, Mr Colleary submitted a larger scale drawing of the study area on an A3 page which allows correlation of the links with the projected traffic flows. (*Ref submission 28, O Hearing, dated 21/3/2018*) This is probably less than satisfactory but it allows correlation of the model output data given in Table 6.3 of Chapter 6 the EIAR. Table 6.3 is at Chapter 6-21 of the EIAR. These traffic flows are discussed below.

3.3.9 Referring to **Table 6.3** which is Do-Minimum vs Do-Something for streets in the study area, I have **a number of observations**, which are set out in the following paragraphs.

3.3.10 The Table highlights increases and decreases in projected traffic flows in percentage terms. This is not as meaningful as highlighting the actual increases in AADT. For instance, Anglesea Street is highlighted in red as the flows are predicted to increase by 102%. This is not so significant as the base figure is 748 AADT which approximates to the flow predicted for the turning circle of the plaza which is regarded effectively as a shared space with very

low flows. I would therefore conclude that Table 6.3 is not helpful in identifying the main problem junctions which are those with significantly increased flows and which are at or near capacity at present.

3.3.11 Of more relevance would be the increase in Eastbound flows on **High Street** which, while registering at +17%, equates to an increase of **2,788 AADT** or approximately 300 vehicles in the peak hour. Similarly, Wellington Quay and Essex quay show increases of approximately **2,800 AADT**. Both of these increases are substantial and are against an already high traffic volume and so indicate significant impacts. I would have to point out that as the figures in the RFI modelling output pages 84-121 were at too small a scale to read, I had to rely on the A3 enlargement supplied by DCC on Day 7 of the Hearing which allowed examination and interpretation of the tables in pages 123-217 of the same Modelling Report. I could not find any figures for traffic flows over Grattan Bridge (Capel Street), and this link could reasonably expect to be impacted by the closing off of the straight ahead option towards Parliament Street.

3.3.12 I note the almost complete elimination of traffic from Fleet Street East as Table 6.3 indicates a reduction in traffic from 1809 pcu to 3. This presumably is a result of bus re-routing but implies that this street will not be part of any traffic re-distribution from College Green.

3.3.13 Table 6.3 is insensitive to traffic mix for while Parliament Street indicates a significant decrease in traffic on AADT terms for both ends of the street, as questioning at the Hearing indicated, the replacement of general traffic with a large increase in buses made for a more significant overall impact.

3.3.14 As **Parliament Street** featured prominently during the Hearing, I looked at the traffic predictions for the immediate area. The prediction for Parliament Street shows a reduction in AADT for the north end of the street to 2,830 from 7,165 as per Table 6.3, EIAR. Given that between 700 and 1500 additional buses will use the street it would appear that general traffic of the order of 5,000 AADT will be displaced from Parliament Street under the scheme as all non -

public transport will be banned from 7:00 am to 7:00 pm. To put this figure in context, there is at least one completed motorway section in Ireland where AADT figures of 6,000 were estimated at approval stage. The question arising from the 5,000 AADT drop in traffic is where that traffic will relocate.

3.3.15 The model output as listed in Table 6.3 of the EIAR and also graphically in Figure 6.8 only shows traffic changes west of D'Olier Street. As discussed above significant traffic impacts by way of additional journey times in Pearse Street/ Tara Street are occurring and these streets are all east of D'Olier Street and College Green. It is also noted that there is no reference in Table 6.3 or Figure 6.8 to Winetavern Street although a considerable number of buses are being re-routed along that street.

3.3.16 While the explanatory map is considered somewhat unsatisfactory it allowed **examination of the enlarged network** drawing referred to in 3.3.8 above which related to the NTA Modelling report. I have taken the 2018 Do-Something minus do-Minimum, 24 hours tabulation which runs from page 179 to 185 of the NTA Modelling Report which is included in the EIAR appendices and is also reproduced in the RFI Document under the NTA Modelling Report, pages 178 to 184. For ease of examination, I compare only the pcu figures and give comment on its relationship with total vehicles where relevant. None of the links below appear in Table 6.3 of the EIAR. I take pcu or passenger car unit and AADT (Annual Average Daily Traffic) to represent daily traffic volumes.

Links not included in Table 6.3 EIAR

Link	Location (note X below)	Do-minimum	Do - something	Change Pcu/day	Ref
2156_2155	Fishamble St S-bound	0	1809	+ 1809	1
2155_6263	Fishamble St to Ld Edward Street	0	1284	+1284	1
6263_2155	Ld Edward St. to Fishamble St Northbound	0	221	+221	1
2156_2458	Wood quay West	13,970	11,642	+1,088	2
2257_2410	Capel Street to Bridge	n/r –not recorded	n/r		3
2410_2416	Capel St Bridge (3 lanes)	n/r	n/r		3
6109_2458	Winetavern Street	13271	14269	+998	4
6451_6241	College Green Eastbound	3550	0	-3550	5
6343_6451	College Green Westbound	4852	0	-4852	5
6243_6350	Tara St	n/r	n/r		6
2199_2452	Bachelor's Walk	18513	20183	+1625	7

Note X –The explanatory sketch / drawing supplied referenced as 28 above in paragraph 3.3.6 above does not have any links identified by name so I am relying on the general layout of the drawing to identify some of the links and junctions.

3.3.17 The references in the right hand column in the table above in 3.3.13 are discussed below.

3.3.18 Reference 1 is **Fishamble Street** which is a narrow two-way street with some on-street parking and has a requirement for some hotel set-downs. The projected traffic flow of 1284 pcu at the Lord Edward Street end and the 1809 pcu at the Essex gate end look likely to cause local congestion with the possibility of impinging on main routes either end of the street.

3.3.19 Reference 2 is **Wood Quay west**, past the Civic Offices. There is a bus lane at this location so the projected 1,088 additional pcu and total projection of 13,970 pcu is significant and could have implications for the Winetavern Street Junction.

3.3.20 Reference 3 is **Capel Street** and Capel Street Bridge (Grattan Bridge). The model outputs from the NTA Report do not indicate traffic flows either on Capel Street or Capel Street Bridge. At present there are 3 lanes (southbound only) on Capel Street bridge and the proposal is to ban non-public transport vehicles from 7:00 am to 7:00 pm Monday to Friday. This would appear to have implications for the performance of the junction on the south quays. The model projects a significant (almost 5,000 pcu) drop in traffic, so there would be concern that there could be negative impacts on Capel Street, from where much of the displaced traffic would appear to emanate.

3.3.21 **Winetavern Street** is reference 4. This street is not included in Table 6.3 and has a reasonably significant projected increase in traffic.

3.3.22 **College Green** is Reference 5. Table 6.3 does not include figures for College Green, presumably because it should be obvious that the future figure would be zero. From the model outputs, link 6451_6241 shows an eastbound flow of 3,550 pcu before the scheme and the westbound figure for link 6343_6451 is given as 4,852 pcu. As buses form a big proportion of traffic, I note that total vehicles are given as 1929 eastbound and 3246 westbound. To get a sense of the scale of the traffic, the total College Green flow is **8,402** pcu which

compares with figures given by DCC for O Connell St of **14,000** and Gardiner Street of **20,000** daily flows.

3.3.23 **Tara Street** is reference 6. The traffic flows for Tara Street appear to be influenced by traffic management measures on the south quays particularly and would also be potentially impacted by the transfer of several bus routes on the quays.

3.3.24 **Bachelor's Walk** is reference 7. The increase in traffic projected is significant. The current projection, involving one general traffic lane and multiple junctions, would suggest potential capacity problems.

3.3.25 Questioning on Day 7 of the Hearing (Mr MI O'Donnell) included examination of Figure 3-5 of the NTA Report (page 31). This figure indicates that in a do-nothing situation only one junction in the study area had a volume/capacity ration in excess of 90% which appeared to be at variance with the level of congestion regularly observed. Mr Colleary from NTA explained that congestion can arise from a lack of capacity in the links between junctions so an examination of Figure 3-10 was carried out. This shows a number of links which are over-capacity. However, the extent of the gap between volume and capacity appears to be greater in practice than that predicted by the model. This may arise from the fact that **census data is from 2012** and much may have changed in the interim. While the model indicates sub-capacity links with only one sub-capacity junction, the reality appears to be considerably worse. Overall, I consider that while the model indicates areas of difficulty, the extent of the difficulties is underestimated.

3.3.26 On Day 8 of the Hearing there were questions regarding Table 5.3 relating to RFI question 5 on page 49 of the NTA Modelling Report which gives traffic figures for Parliament Street in the Do-Minimum and Do-Something scenarios. This table was replaced in Mr Mc Daid's evidence on Day 2 of the Hearing. The main difference relates to the estimate for Car/Taxi which was originally given as 52 in the Do-something Scenario. The replacement figure is **220** for

peak hour AM flow. It was explained that there had been an error in taking a model output and that a previous model run had been taken.

3.3.27 The revised Table 5.3 potentially impacts on Table 6.3 in Chapter 6-21 of the EIAR as the AADT figures appear to match the original (now corrected) Parliament Street flows rather than the amended figure. It casts further **doubt on the reliability** of the model as a guide to decision making.

3.3.28 In **conclusion**, based on the examination of the links and junctions, the very large discrepancy between observed journey times and those predicted, and the absence of streets from the analysis which are likely to be impacted by the proposal, I consider the model does not form a reliable basis on which to quantify the extent of the traffic impacts arising from the project. The model gives an indication of likely impacts, but the magnitude of the impacts predicted is considered to be greatly understated.

3.3.29 Notwithstanding reservations about the model, the examination of the outputs predicted in the EIAR indicate several areas where significant adverse impacts on congestion could occur.

3.3.30 The **direct** impact on general traffic by the construction of the Civic Plaza is considered to be more significant than predicted in the EIAR. Potentially the impact is greatest on the south and north quays, on Pearse Street and the general area around Christchurch, including High Street. I consider that there is potential for the traffic measures proposed to effect further transfer of some trips onto the Dublin Tunnel / M50 system.

3.3.31 Having regard to the EIAR, the evidence put forward at the Hearing, predictions in the NTA model and my reservations on possible understatement of impacts, I consider the impact on transportation of goods and persons to be **significant and Negative**.

3.3.32 My concern regarding general traffic impacts are heightened by the **permanent** and **non-reversible** nature of the proposed Plaza construction.

3.4 Impacts on Bus Transport

This section examines impacts on bus routes and impacts on passengers.

3.4.1 The CSE report notes that the relocation of westbound buses would make bus stops for 100 buses per hour more remote from the main retail area of Grafton Street and TCD. In addition, it notes that bus stops on the south quays appear at capacity and also the potential for the south quays and Parliament Street to cater for 100 additional buses needs further investigation. While the authors of that report were not available for questioning, the detail suggested as being necessary to answer the questions, does not appear to be clearly addressed in the EIAR.

3.4.2 The written submission made by Dublin Bus on 7th July 2017 is very comprehensive and runs to over 40 pages. It gives detailed statistics on passenger numbers and travel distances for pedestrians. The preferred solution for Dublin Bus was indicated as 2-way running on Parliament Street. It is noted that while Dublin Bus concentrates on impacts of the proposal on bus transport, in Section 4.5.6 of their submission they argue that private car trips on the quays would not disappear as they have to have access to the core area of the city.

3.4.3 Direct impact on bus transport arises from re-routing and impact on journey times and speed. The plaza construction proposes the re-routing of a number of bus routes, which currently run east-west and west-east through College Green. The impacts of the changes are shown in Figure 6-28 of the EIAR while the existing movements are shown in Figure 6-27. This shows east/northbound movements using Winetavern Street (just west of Christchurch Cathedral) and then across the Liffey with a right-turn onto the North Quays using Ormonde Quay (upper and lower) and Bachelor's Walk to

get to O'Connell Bridge. Westbound buses currently using College Green would use the South Quays of Aston's Quay and Wellington Quay and then turn left on to Parliament Street. The impact on running of the buses include the problem of a sharp left turn into Parliament Street, a large increase in bus numbers on both north and south Quays with attendant possibility of congestion at bus stops.

3.4.4 A better graphical illustration of the change is shown in Figures 3-42 and 3-44 of the NTA Modelling Report in Appendix B of the Response to the Request for Further Information (pages 68 and 69). In those figures the Do-nothing AM peak indicates eastbound numbers of **101/hr** on North Quays, westbound on South Quays of **60** with Dame Street carrying **82 east** and **67 westbound**. In the do- something scenario 22 buses are left on Dame Street using the turnaround facility and the North Quays going to **155 buses** and south Quays to **104 buses/hr**. In simple terms almost all the buses now using Dame Street would transfer to the North and South Quays.

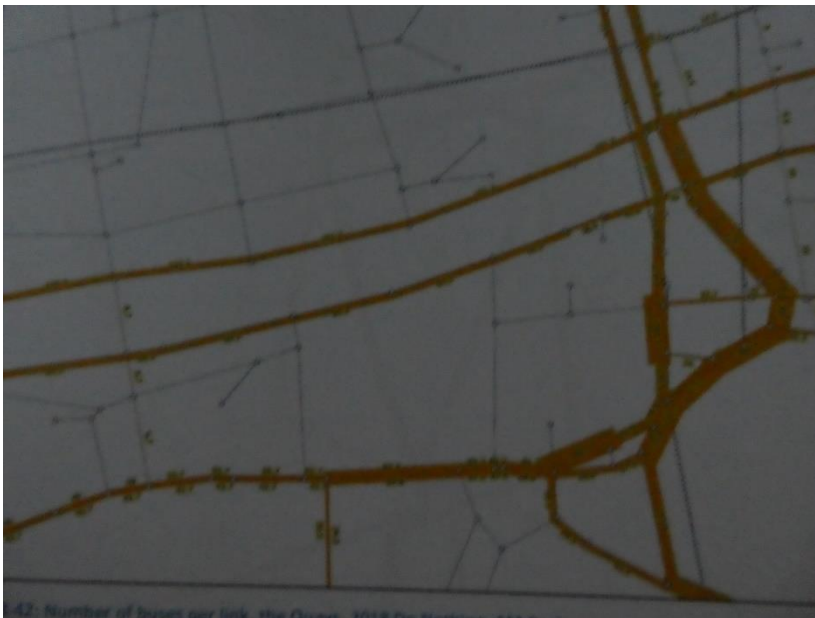


Figure 3-42 AM Peak Do-Nothing Buses

Bachelor's Walk eastbound	101
Aston's Quay westbound	60
Dame Street 2-way	149

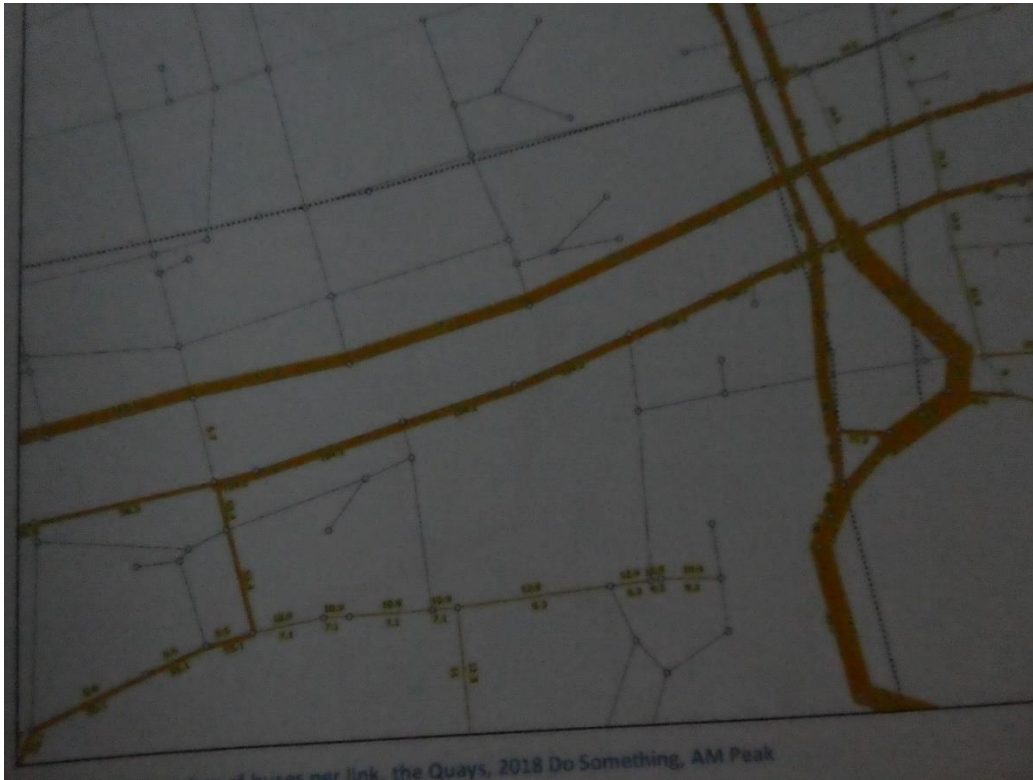


Figure 3-44 AM Peak Do-Something Buses (with Plaza in place)

Bachelor's Walk eastbound	155
Aston's Quay westbound	104
Dame Street	22 (west of Plaza)

3.4.5 The issue of blockages to main arteries was raised at the Hearing. DCC stated that there was a protocol with An Garda Síochána in relation to accidents/incidents. It is clear that if the civic plaza was in place, it could not be realistically used by buses on an emergency basis and no provision has been suggested for that to happen.

3.4.6 In questioning on Day 7, DCC stated that no mitigation measures were necessary as they already existed. It has to be borne in mind that the plaza proposal would change the current situation and would reduce available road space for diversions very significantly. As the north and south quays are one-way east and west (with the exception of a contraflow between Butt bridge and the Rosie Hackett bridge) no realistic route appears to be available

in the case of an emergency closure of either quay. An examination of Fig 3-42 compared with Fig. 3-44 illustrates this point.

- 3.4.7 The Autotrak analysis of the bus turnaround area and of the proposed left hand turn from Wellington Quay to Parliament Street was discussed on Day 10 of the Hearing. It was established that the swept path for a 3-axle bus would be greater than that for a 2-axle bus. It is noted that while there is rere-steering on the 3-axle buses they are considerably longer than the 2-axle buses.
- 3.4.8 A 2-axle bus was tested in the case of the bus turnaround area and deemed by the designers as satisfactory, while autotrak was carried out for the Parliament Street left hand turn. It would appear that questions remain in relation to both operations. Due to potential conflicts with pedestrians in the turnaround area, and as the Parliament Street analysis showing the right side of the bus reaching the edge of the western footpath, further study and checks appear to be necessary before the feasibility of both proposals could be determined.
- 3.4.9 DCC referred to Copenhagen as an example of a city where civic space initiatives had been particularly successful. On the illustration included in the overview presentation on Day 1 of the Hearing a small scale map of the Town Hall Square was included. Although the map was very small scale it was apparent that the square has multi lane roadways running along two sides of the square.
- 3.4.10 The Copenhagen Town Hall Square was raised during questions on Day 11 of the Hearing by Ms. Mulcrone on behalf of Dublin Bus. Reference was made by DCC to the introduction of a new metro station in the vicinity and the proximity of public transport was discussed. DCC stated that public transport was being provided to the western and eastern perimeter of College Green. While the public transport corridor on the east of College Green contains both LUAS and several bus routes, it is noted that the proposal for the western side

of the proposed plaza only provides for between 7 and 12 buses per hour on the bus turnaround area. This constitutes a very limited provision.

3.4.11 Ms Mulcrone submitted an extract from a book indicating the Town Hall Square in Copenhagen and the fact that it is bounded on two sides by wide roads with multiple lanes of traffic is considered relevant as it indicates difference with the College Green situation.

3.4.12 The problem with comparisons with other cities is that it is necessary to examine all aspects of the facilities being compared. In this respect I would consider the best example to take would be that of Oslo City Hall Square. This large square was pedestrianised in the 1990's but that was not done until after the completion of the **Festning Tunnel** in 1990. Wikipedia states this tunnel runs under the City Hall Square and is 1.8 kms long with a total of 6 lanes.

3.4.13 A major perceived impact on bus passengers relate to having new bus stops in inconvenient locations. The calculation made in the EIAR that no replacement stops would be more than 5 minutes walking distance from current stops was disputed at the Hearing. (Day 11, Hearing related to Socio-Economic Impacts). Relocation of bus routes, as happened of necessity during the construction phase of the LUAS project is not unusual. Sometimes the relocated route proves to be more popular than the original and the travelling public often adapt to the new situation. In this case the scale of the movement of bus routes is large and the question of overcrowding on the footpaths of the north and south Quays is an issue.

3.4.14 The neutral impacts on north-south bus routes through College Green is noted and indeed it is possible that better service could result on that corridor if the Plaza was in place.

3.4.15 Dublin Bus (Mr Reid) raised the question of pedestrian clusters and noted specifically the situation on the south end of the Halfpenny bridge where there are steps both onto the bridge and also through an archway into Temple Bar.

- 3.4.16 I note that there was a preference expressed before the Hearing by both the NTA and Dublin Bus for 2-way operation on Parliament Street to avoid using Winetavern Street for northbound buses, which would involve a greater diversion of routes.
- 3.4.17 The EIAR does not have pedestrian surveys for the quays. In questions on Day 6 of the Hearing, Dublin Bus stated that over **50,000 bus passengers** would be transferred per day from College Green to the Quays. This appears to be borne out by figure 3-33 of Appendix B from NTA which estimates that in the morning peak hour which indicates that the north Quays would increase by 1,500 passengers with the south quays increasing by 1,400. It indicates that Dame Street would decrease by almost 3,000 passengers which would be roughly in line with the figure of 50,000 used by Dublin Bus.
- 3.4.18 The issue of disadvantaging of passengers were raised by Dublin bus in their submission. This and the knock-on effects on business are considered a socio-economic impact and are not discussed here. It was noted in the submission of Deputy Shortall that the bus routes from the Dublin North West area were those being moved out of College Green.
- 3.4.19 The problem of bus clustering or bunching was raised on Day 8 of the Hearing by Mr Sinnott. He noted that the problem of negotiating access to a bus when this arises is particularly difficult and dangerous for people with disabilities. He noted also the disruption to transport patterns for bus passengers generally and stated that 55,000 passengers (i.e. the figure for those having to alter bus stops) needed training to adapt to the proposed new regime. Mr Sinnott noted that there was no specific reference in the EIAR about potential bus/pedestrian conflicts.
- 3.4.20 From personal observation I have noted buses requiring up to 4 minutes on the south quays to allow passengers to exit and alight. The length of time required for a bus to fill will obviously reduce considerably when cashless ticketing is achieved.

3.4.21 The steps at the south side of the Halfpenny Bridge make it an area of difficulty for vulnerable pedestrians.

3.4.22 During questioning on Day 11 of the Hearing, which was dealing with Socio-Economic aspects (Appendix G of RFI response) Mr Hamilton for DCC described the impact on bus users as neutral. Subsequent questioning centred on the acceptable walk distance from a bus stop to a destination. The catchment maps shown in figures 6.31 and particularly 6.32 were discussed and the fact that the College Green plaza area was outside a 5 minute walk distance for some re-routed buses is noted.

3.4.23 Having regard to the scale of the bus re-routing, involving up to 50,000 passengers per day, the additional walk distances to College Green for most routes, the potential for overcrowding of footpaths on the quays and congestion aspects of crossing the halfpenny bridge, bus stop capacity issues on the quays and junction issues on Parliament Street, I consider that the impact on bus operation and on bus users is significant and negative.

3.5 Impacts on Cycling

3.5.1 The EIAR refers to impacts on cyclists in section 6.6.2.14. This states that the proposed project will have a significant positive impact on cyclists. An Taisce, as per a submission on Day 3(p.m.) of the Hearing delivered by Mr Colm Ryder supported the proposed project and said that “in general it enhances the historic space, and will promote greater public access and usage of a wonderful setting in a heritage context”. The submission noted a number of reservations. Those considered relevant to transportation and the proposed Civic Plaza are summarised as follows:

1. No reference to agreed GDA Cycle Network and the need to recognise all the long term planned cycle routes
2. More space needs to be given to pedestrians on Dame Street. Need to maintain traffic lanes generally at 3 metres width.

3. Traffic flows should be reversed on Church Lane which would eliminate a right turn from Dame St to Trinity St.
4. The recommended safe bike route between Dame St and Nassau St needs to be outlined with consideration of using Church Alley and Suffolk St
5. The Cycle Track details at the South East (Grafton) corner are extremely difficult to accept and will cause many problems for cyclists as well as conflict with pedestrians. Recommends softening the turn (proposed right angle) with possible consideration of a traffic light system.
6. Recommended that all private car movement (other than deliveries) should be banned from Georges St between Exchequer St and Dame St
7. Proposal to retain customer access to the Bank of Ireland should be monitored.

(Ref Submission 24, dated 14/3/2018 O.Hearing)

3.5.2 Headings 1, 4 and 5 above are considered most relevant to the consideration of transportation impacts of the proposed Civic Plaza.

Item 1 regarding the GDA Cycle Network was examined during the Hearing and it was explained in answer to a question on the difference between blue and red line cycle routes was that the blue was a secondary route. The interaction between the two routes at College Green was observed to be unclear. I note the concern at point 4 of the submission and it touches on the potential for a safer route to be achieved to join Dame Street and Nassau Street.

3.5.3 Item 4 of the submission is the most relevant and touches on a long discussion at the Hearing involving Mr Sinnott and Mr Mac Gearailt (for DCC), regarding the safety aspects of the proposed cycle route on Day 10 of the Hearing with particular reference to the dedicated track in the south side of the plaza, the right hand bend and the safety of pedestrians, particularly those with disabilities.

- 3.5.4. With regard to the proposed cycleway through the plaza it is difficult to envisage cyclists managing a right angled turn in safety without dis-mounting. It is also noted that there is no physical barrier at the Grafton corner referred to which would prevent a cyclist attempting to cross Lower Grafton St to get to Nassau St. The dismount option was raised by Mr Sinnott and the Public Participation Network on DAY 3 (p.m.) of the Hearing. In this case it would effectively require cyclists to dismount over approximately 100 metres involving the south and east sides of the plaza.
- 3.5.5 I note the graphical representation of the proposed Cycle Facilities in Figure 6.46 which indicates a new 2-way cycle track running west-east through the plaza and joining a north-south cycle path sharing with general traffic. It is not clear from this figure that there is no direct route for cyclists wishing to travel from Dame St to Nassau St. The EIAR (Chapter 6-58) states that a formally designated cycle track with signal-controlled crossings would be less favourable as it would actually increase delay and reduce convenience for both cyclists and pedestrians, as well as being inherently less safe when considering the significant pedestrian activity expected.
- 3.5.6 Mr Mac Gearailt's brief of evidence (Hearing Day 1 and 2) gives more detail on the cycling proposals. Image No 11 of his brief of evidence indicates the two pedestrian priority locations along the south side of the plaza. An extract from the GDA Cycle Network Plan was submitted to the Oral Hearing by DCC. This included the system of primary and secondary routes. Mr Mac Gearailt also explained the operation of "passive" cycle routes where general speeds are low and traffic volumes are also low and this allows effective use of these routes for cycling.
- 3.5.7 The requirement to use the bus turn-around area for eastbound cyclists is a further restriction for cyclists. An examination of Image No 1 of Mr Mac Gearailt's brief of evidence shows this feature. It also indicates that the desire line for cyclists heading towards Westmoreland St would be via the north side of the plaza. In questioning on Day 10 of the Hearing the implications of continued access for cars of bank customers was discussed and it would be

difficult to enforce a situation where cars had permission to travel across the plaza in both directions and cyclists were required to take approximately 60 metres diversion to reach Westmoreland St.

3.5.8 I have observed the current situation regarding cycling through College Green on a number of occasions and very many of the cycle movements could be not be considered legal, with courier and delivery bicycles particularly crossing against traffic lights and using footpaths. The situation would be extremely dangerous if normal traffic speeds prevailed. Because for much of the time, there is congestion, the cyclists pass through in relative safety as the junction effectively acts as a shared area.

3.5.9 The main difficulties with the cycleway design through the proposed civic plaza relate to interactions and impacts on and with pedestrians. However, the requirement for cyclists to yield to pedestrians at two locations on the south side of the plaza, coupled with the requirement to observe the signalised crossing opposite TCD amounts to a negative impact on cycling. To illustrate the point, I show a copy of the photomontage from TCD looking west. In questioning on Day 5 of the Hearing, Mr Mac Gearailt indicated that the pedestrian priority idea on the south side of the plaza was favoured over a dismount arrangement and one of the arguments for that was that cyclists do not like discontinuity. The photomontage below shows a situation where it appears that pedestrians are using the traffic light controlled crossing while cyclists are also represented as using the cycleway. One would have to conclude that either the cyclists or the pedestrians are not observing the traffic lights in this representation. It would also seem to contradict the DCC evidence as the discontinuity aspect of the cycleway is, in fact present in this arrangement.

3.5.10 As the scale of the Drawing in the EIAR was small and was made more difficult to follow with the inclusion of the emergency vehicle route, an enlarged version which omitted the emergency vehicles was requested. This was submitted on Day 9 of the Hearing and is reproduced below. The non-linking of the west –east route through the proposed plaza with the north

south route along the LUAS line is of note. Also of note is the right angled bend at the south west of the plaza, the light controlled pedestrian crossing opposite the front gate of TCD and the pedestrian priority in south-north direction at the east end of the plaza.



Enlargement of Slide 9 with emergency vehicles omitted

Green --- cycle way

Orange –LUAS, buses and taxis.

On examination of the photomontage (below) which shows a view from Trinity College, I note that cycling and walking are both shown in the area which is signal controlled. This would appear to be an incorrect representation. On the left a LUAS is shown and on the right a bus is indicated, both apparently stopped at the lights. I note also the proposed route for emergency vehicles behind the line of trees on the left. Access to this route appears very difficult from the area of the pedestrian lights.



Photomontage

Note wide pedestrian crossing point is signal-controlled. Cycling and walking should not be taking place on the crossing at the same time.

3.5.11 I conclude that combining the negative impacts for cycling and the safety implications of the proposed cycleway, there is sufficient grounds for rejection of the proposed cycleway element of the proposed civic plaza.

3.6 Impacts on Taxis

3.6.1 Submissions were made at the Hearing by the Irish Taxi Federation and Tiománaí Tacsai na hÉireann. From the date of the first day of the Hearing taxis were banned from College Green from 7:00 to 10:00 am weekdays and details of this prohibition can be found on the NTA website. Journey times and routes to hotels in the area would be increased. The EIAR describes the impact on taxis in Section 6.6.2.10. This section of the EIAR deals with the

number of taxi spaces in a before and after situation but does not refer to journey times or impacts.

3.6.2 A submission was made (Day 3 of Hearing) on behalf of Tiománaí Tacsáí na hÉireann by **Mr Ger Macken**, who described the process as flawed. He said that a **my taxi** survey indicated that one in five taxi journeys go through College Green. Mr Macken submitted that Anglesea Street should be used for taxis. He described College Green as a key artery and said DCC should do a survey of taxi journeys.

3.6.3 A submission by **Mr Joe Heron** of the Irish Taxi Federation stated:-

1. The proposed plaza will block a main transport artery
2. If approval is granted, taxis should have access to everywhere that buses travel
3. Taxis should have use of Anglesea Street/Fleet Street on a 2-way basis
4. Adequate taxi ranks would be required to be provided at either end of the plaza

3.6.4 Questions were taken on traffic implications for taxis on Day 7 of the Hearing and it was clarified that on the operation of the plaza, that the left-turn for taxis going from Dawson Street to Nassau Street would be re-instated. It was noted that taxis are allowed make this manoeuvre after midnight (and presumably up to 7:00 a.m.) under the current situation. This would explain why the traffic counts in Mr O'Brien's evidence (Day2) indicate only 3 taxis on Grafton Street north as against 295 southbound for the 7-10 am period (counts taken 24th January 2018)

3.6.5 Items raised during questioning on Day 7 of the Hearing related to taxi ranks and their location and the possibility of differentiating between taxis with and without passengers. DCC stated (D Mc Daid) that while longer routes could be efficiently made, there would be a larger impact on some shorter routes. It was stated by DCC that there was no proposal for rickshaws in the plaza proposal.

3.6.6 Maps indicating taxi routes were presented by DCC (ARUP) and discussed on Day 7 of the Hearing. It was clarified that under the scheme to be operated, left turning from Wellington Quay to Parliament Street would be permissible for taxis. It was also stated (DCC) that there were no impact studies on taxis carried out specifically for the EIAR.

3.6.7 While the maps indicating routes for taxis are noted, it must be considered unsatisfactory that such a course of action is needed as it should not be necessary to have recourse to such mapping. Having observed the operation of the junction at College Green and considered the submissions and discussion at the Hearing. I consider the impact on taxis to be negative and moderate.

3.7 Impacts on Pedestrians.

This Section examines the direct impacts on pedestrians and the interaction with Emergency vehicles and Security Issues.

3.7.1 Addition of over 2,500 m² pedestrianised plaza area, previously used by general traffic is a significant positive impact for pedestrians. Regard has to be had to interactions of pedestrians with motor vehicles and cyclists. There would be two less pedestrian crossings in the plaza area as both north-south crossings at the east of the plaza would not be necessary. The conflicts which remain would be potentially with vehicles entering the Bank of Ireland, delivery vehicles and cyclists.

The EIAR deals with impacts on pedestrians in Section 6.6.2.13. It states that the benefits on how pedestrian desire lines for movement were analysed using Pedestrian Route Directness (PRD) methodology.

3.7.2 Figures 6.33 to 6.43 show the improvements arising from the proposed plaza. Figure 6.44 indicates the savings on time from the elimination of the two north-south crossings in College Green. The impact on PRD was raised in

questions on Day 6 of the Hearing when it was suggested by Dublin Bus that the improvements in PRD were not as dramatic as might appear and that the current PRD figures were not particularly high. DCC highlighted that the pedestrian route between O Connell bridge and St Stephen's Green would now be almost uninterrupted.

- 3.7.3 The PRD figures were raised in questions on Day 10 of the Hearing by Mr O'Donnell. It was noted that in most of the figures the designated route for pedestrians was not indicated but short-cuts were evident across the bus turnabout area. This is particularly the case in Figure 6.41 where the pedestrian route is shown across the centre of the turnaround area. Having looked at the drawings, it would seem that they do actually represent a logical pedestrian desire line. As such it raises questions as to the safety aspect of the bus turnaround in so far as potential conflicts between buses and pedestrians are concerned.
- 3.7.4 The EIAR states that apart from the civic space created the project would give positive benefits to pedestrian movements which would be felt mainly in terms of directness of routes. Of note however is the potential conflict with cyclists at the two designated priority locations on the southside of the plaza and also at the new wide pedestrian crossing opposite the front gate of TCD.
- 3.7.5 The submission by Mr Robbie Sinnott of the Blind Legal Alliance noted the requirements for guide dogs for a 60mm kerb as the dogs cannot differentiate footpath from roadway otherwise. He also highlighted the ineffectiveness of tactile surfaces for visually impaired people who suffer from tactile myopathy which is associated with diabetes.
- 3.7.6 The commitment made by Ms Grehan on Day 1 to continue engagement with disability groups before construction was repeated by others on behalf of Dublin City Council is noted. The differences between parties in respect of the fundamentals of the design and the potential conflict with cycle traffic appears to be very large.

3.7.7 The proposed route for **emergency vehicles** is via the proposed 3.5m wide cycleway on the south side of the plaza. Discussions took place with the Gardaí and Dublin Fire Brigade on the matter. The issue was raised on Day 10 of the Hearing and it was suggested that the 3.5metre width would not be sufficient and that a width of 4.8 metres would be appropriate. The difference between attending an incident on the plaza and using it as a through route to reach an incident was discussed and DCC considered that the likelihood was that it would be used for incidents on the plaza.

A number of issues arise namely:

1. As a dished kerb is proposed on the eastern side of the plaza, there would be no way of preventing rogue vehicles using the cycleway / emergency route unless retractable bollards were used. Bollards would not be practical if the route is designated for emergency vehicles.
2. Given the projected volume of cyclists and the proximity of pedestrians there would be an issue with ensuring the clear availability of the route in the event of an emergency.
3. Emergency response vehicles can be seen at times using designated LUAS lanes, but in areas that can be expected to be clear of pedestrians.
4. Relating to security, a potentially serious issue could arise with vehicles driving over the bus turnaround area on to the plaza from the west. This could be difficult to detect before it happened as there is provision for loading and unloading in the plaza, combined with the allowance for private cars and cash-in-transit vehicles permitted to access Bank of Ireland.
5. From observation of College Green the ability of general traffic to move lanes to facilitate emergency vehicles is significant.

3.7.8 The impact of the above, particularly taken together, represents a significant negative impact on safety for users of the plaza.

3.8 Impacts on Hotel Access in the Vicinity of College Green

3.8.1 Submissions were made at the end of Day 2 of the Hearing co-ordinated by Mr Rory Mulcahy SC. These submissions were on behalf of the West Trading Company (Mr Patrick King) read by **Mr Patrick Doohan**. Mr Doohan's submission regarding transportation stated that he had reservations regarding the removal of College Green from its role as a central artery for buses and taxis in the absence of the provision of acceptably short transport routes to bypass the civic plaza. He said he believed the closure of College Green without alternative acceptable traffic routing would give international conference organisers serious reservations whether Dublin is an attractive destination. He said taxis are the predominant method of delivering guests to the city centre hotels. Mr Doohan listed conditions suggested in the event of an approval of the scheme. These were:

1. Taxis to be able to access Parliament Street from Wellington Quay and to use Parliament Street southbound
2. Taxis to be able to use Parliament Street northbound with a right turn from Capel Street Bridge on to Ormonde Quay
3. Provision to be made for unrestricted taxi access to the Nassau Street – Lower Grafton Street- College Green – Westmoreland Street and also the reverse movement.

3.8.2 **Mr Charlie Shiel (Marker Hotel)** made a presentation broadly agreeing with Mr Doohan but adding that daily gridlock was experienced in the Macken Street area with journey times of 40 minutes for 1.5 kilometres reported.

3.8.3 **Mr Tim Fenn**, on behalf of the **Irish Hotels Federation** made a submission recommending the same conditions as Mr Doohan but noted that a core impact of the proposed changes would be the displacement of traffic from College Green to other parts of the city and that the EIAR had concentrated entirely on College Green without any analysis of the impacts on the city core.

- 3.8.4 **Mr Fergal O’Connell**, on behalf of the Fitzwilliam Hotel stated he had concerns about the effects of the scheme on taxi movements in a north – south direction from the Fitzwilliam Hotel.

Mr Paul Chandler, transportation consultant stated that the removal of east-west taxi movement would lead to complex and inconvenient changes to core access routes. Mr Chandler stated that reducing private traffic levels was essential, but that the need to improve the punctuality of the light rail network had to be balanced with satisfactory access for business. He proposed the conditions noted by Mr Doohan and added that there was potential to use Anglesea Street – Fleet Street for taxis and he included a map to illustrate the proposal.

I conclude that the impacts on vehicular access to hotels in the immediate vicinity of the proposed Plaza are moderate and negative.

3.9 Impacts on City Centre Car Parks

This Section deals with issues raised in relation to car parks and also refers to the CBRE Report as it related to transportation.

- 3.9.1 A number of submissions were made in respect to access to car parks following the provision of the civic plaza. **Mr Brian Mc Cann** of Waterman Moylan Engineering Consultants made submissions at the Hearing on behalf of the Irish Parking Association, Park Rite (Fleet Street, Parnell Street and ILAC centre carparks) Mr Mc Cann submitted that while the College Green Plaza was welcomed there were serious reservations in relation to the accompanying traffic management measures and to car park access. Mr Mc Cann stated that access routes to the Fleet Street Car Park had been severed by DCC from Dame Street via College Green in 2015 and from Batchelor’s Walk via O’Connell St Bridge in 2017. For the Fleet St Car Park, Mr Mc Cann submitted that Anglesea Street could be a potential access route. Mr Mc Cann noted that there were 700 on-street car parking spaces in the core City Centre area with **17 private car parks with a total capacity of 7,000 spaces.**

Mr Mc Cann sought conditions on any approval of the proposed Civic Plaza as follows: -

1. DCC would issue a schedule of the off-street private car parks within 6 months for consultation
2. The Schedule would include designation of adequate, suitable and sustainable access routes to the designated car parks
3. The Schedule would include a car park signage scheme
4. Compensate the owner/operator of car parks where vehicular traffic is restricted to public transport only.
5. In relation to Fleet St carpark that access routes should not be restricted by future traffic measurement measures within 25 years of the date of a decision.

3.9.2 **Mr Tom Phillips**, on behalf of the Dublin City Centre Traders Alliance Ltd. also raised the issue of access to car parks. In questioning on Day 9 of the Hearing he pointed out as an example that the current availability of College Green at weekends facilitated better access to the Brown Thomas car park which was important given that Saturday would be deemed a major shopping day. This concurs with Mr O'Brien's statement on the same day that one of the reasons for keeping Parliament Street open to all traffic on Saturdays and Sundays was for weekend shopping.

3.9.3 Regarding the statement on behalf of DCC by Mr Mc Daid on Day 9 of the Hearing that there would be no material change to access to Fleet Street and Trinity Street car parks, this seems to discount the current use of College Green at weekends and after 7:00pm weekdays. Figure 6.11 of the EIAR appears to show traffic southbound on Parliament Street which is not proposed while Figure 6.10 does not indicate the same route as access to the car parks, although this is a permitted movement at present.

3.9.4 On day 10 of the Hearing maps indicating the before and after situations for access to 13 city centre car parks were provided by DCC. Mr Phillips noted the significance of the route through College Green for a number of car parks, including St Stephen's Green, Brown Thomas, Drury Street (2) and Fleet Street. He drew particular attention to the weekend and evening availability currently possible. I note that while Mr Mc Cann represented the car park interests, Mr Phillips was stressing the economic /socio-economic impacts of the diminution of access. In this regard the CBRE Report of 2010, commissioned by DCC, while discussed mainly under socio-economics, has transportation relevance.



Extract p 17 of CBRE Report

- 3.9.5 The CBRE report, commissioned by DCC in 2010, had a brief to determine:
1. If there was a discernible economic impact on the city centre economy, specifically the retail sector, following the introduction of the bus corridor?
 2. Was there a continuing impact on the retail sector?

- 3.9.6 In its Executive Summary, the CBRE Report concluded that in 2010 a discernible economic impact on businesses may have come about as a result of the introduction of the bus corridor in 2009. At that stage, car traffic was prohibited in College Green for 30 hours per week. It noted that there was evidence to show that city centre car parks had been directly impacted. It referred to Gronigen in Holland which has a pedestrianised core and has a population in the order of 200,000.
- 3.9.7 The analysis in the report suggested that the decline in usage of the Brown Thomas Car Park was exacerbated by the bus corridor. It concluded that any further changes to traffic patterns in the city centre would probably encourage the misconception that the city centre is either difficult to access or was “closed to traffic”, which would damage trade further.
- 3.9.8 This report does not deal with potential socio-economic impacts, but one item submitted at the Hearing raises some questions regarding the potential impact arising from transportation issues. On Day 11 of the Hearing Mr Phillips introduced a graph of footfall measurements in O’Connell Street, Henry Street and Grafton Street. This indicated footfall at Clery’s in O’Connell street had dropped from 1.7m in 2007 to 0.8m in 2017. Similar figures for Grafton Street were 3.0m to 2.0m and Henry Street 1.9m to 1.3m. The potential interaction of transportation with footfall and shopping is not clear.
(Ref Submission 35A, O. Hearing, 27/3/2018)
- 3.9.9 It is noted that as per the extract of p17 from the CBRE Report, there were 3 traffic lanes leading from College Green to Westmoreland Street.
- 3.9.10 I conclude that the impacts for vehicular traffic on access to the car parks in the vicinity of the proposed Plaza are significant and negative. I take into account the fact that at present there is a relatively direct access available to the car parks at weekends and evenings and the proposed access arrangements require indirect routing.

3.10 Impact on LUAS Operation

3.10.1 The re-routing of 28 bus routes between January and March of 2018 reduced congestion and facilitated improved operation of the LUAS Cross City.

3.10.2 If the Civic Plaza were in place, clearly potential conflicts would be reduced further with only buses, taxis and bicycles interacting as the road space is shared in the proposal. Notwithstanding the congestion difficulties experienced, the LUAS Cross City is already carrying substantial numbers of passengers and the system is benefitting from a linkage not previously available.

3.10.3 The extent of the improvement in the operation of LUAS from currently as it passes through College Green is considered to be moderate and positive. I note that additional north south buses would be re-routed through Dawson Street through Lower Grafton Street, so some potential conflict would still exist. The impact of any additional taxis using the route could also possibly hinder LUAS operation.

3.11 Future Receiving Environment

3.11.1 Section 6.4 of the EIAR refers to the Future Receiving environment. The elements are listed in section 1.1.10 above. The list of schemes includes the following:

- Completed and committed road and traffic management schemes to 2035
- Cycle Network Plan
- Bus Network proposals
- DART Expansion Plan including DART Underground
- New Metro North from Fingal
- Swiftway BRT Lines
- M50 and radial national road demand management proposals.

3.11.2 In addition to the above list could be added future LUAS lines and re-consideration of an eastern bypass. However, I would select the M50, Future Road Schemes to 2035 and DART Underground as having particular relevance in a future context for the proposed Civic Plaza.

3.12 Road Schemes to 2035

3.12.1 In the NTA Modelling Report which is Appendix B of the RFI document, Table 2-2 gives a list of Road Schemes anticipated to be carried out and which are included in the 2035 coding assumptions. The first scheme on the list is titled “Dublin Tunnel-South Port Link Road” 50 kph single lane urban road to the east of the East Link Bridge. No other scheme within the immediate city centre area is listed in the EIAR.

3.12.2 There are a number of traffic management schemes listed in the EIAR, but no new road space appears to be envisaged. Given the overall population projections for the Dublin Area and the projected increase of 40,000 crossings of the canal cordon in AM peak the next 6 years, it appears anomalous to expect that all increases in transportation demand can be dealt without any additional road space provision. I particularly note that in Section 2.5.5 of the NTA Report relating to the Core Radial Bus Network, reductions in road capacity within the model were predicted in areas where full bus priority could not be accommodated in reality. It is also difficult to reconcile the current (2018) accelerated house building activity with no major road infrastructure plans, given the predominance of houses being built in locations which are largely dependent on road transport.

3.12.3 Given the population projections for the next 20 years, and the absence of planned infrastructure, the accuracy of the 2035 traffic modelling exercise must be seriously questioned.

3.13 M50 and Tunnel

- 3.13.1 The M50 was constructed as a 2x2 motorway between 1987 and 2005. The relationship between the M50 and city centre traffic may appear to be remote, but the capacity and function of both would appear to be interactive. Prior to 1996 virtually all Airport Traffic from the south and the west of the country previously had to use the North Quays and Dorset Street to reach the airport.
- 3.13.2 The M50 was expanded to cater for existing congestion and provide for further traffic growth. The term “*traffic evaporation*” was referred to on a number of occasions at the Hearing. While it is questionable if the concept of traffic evaporation is strictly appropriate in the case of College Green, the M50 is a prime candidate for the inverse effect, namely causing or facilitating “*induced demand*”. It is difficult to understand how, in the space of 7 years an almost double capacity M50 could arrive at unstable flow conditions. The current reported traffic flows of 130,000 vehicles per day represent what is termed “unstable flow.” This phenomenon is clearly indicated in Figure 3.6 of the Transport Strategy for the Greater Dublin Area 2016-2035. The text associated with Fig 3.6 states that an inter-agency approach, which includes TII, NTA and the relevant local authorities is required to manage demand and provide alternative transport modes.
- 3.13.3 At the Hearing, the total capacity of the city centre car parks was given as 7,000 over 17 private car parks. The total number of spaces listed for Blanchardstown centre is 7,000 with 3,600 in Liffey Valley to name but 2 shopping centres. Total parking availability in out-of-town shopping centres likely exceeds 20,000 spaces or up to 3 times that available in the city centre.
- 3.13.4 My first inclination was to see the M50 not having a linkage with College Green. However, when one looks at journey planner apps one finds regularly that journeys which look like they should go through the city are routed via the M50. One recent search just after the PM peak showed Raheny Village to Heuston Station via M50 as **27 kms** taking **30 minutes** while a route using

Matt Talbot Bridge and the south quays showed **11 kms** and **33 minutes**. A second example, off peak showed Terenure to Ballymun Garda Station at **25.5kms** and **27 minutes** via M50 or **11.2 kms** and **33 minutes** via Church Street. That the M50 is even considered as an alternative or competing route in either example above should be of concern given that the M50 represents more than a doubling of the distance travelled and includes a toll.

- 3.13.5 Traffic volumes in the city centre were confirmed on Day 8 of the Hearing as being approximately 14,000 vehicles / day on O’Connell Street with Gardiner Street at approximately 20,000 per day. Separately, it was stated that traffic on Bachelor’s Walk **had reduced by 60% since 2009**. The extent of traffic calming should be welcomed but does raise the question as to whether displaced traffic directly or indirectly transferred to the M50 (or Dublin Tunnel), thereby reducing capacity on those links. If, as appears to be the case, some city centre traffic is being displaced on to the M50, the impact on journey times and distances is much greater than in other cities where there are inner relief roads.
- 3.13.6 The M50 system includes the Dublin Tunnel, originally named the Port Tunnel, which was opened on 20th December 2006. It’s opening facilitated the ban on 5-axle HGV vehicles in the city. Without the tunnel the 5-axle ban would not have been possible. The tunnel also facilitated other traffic management measures.

3.14 Dart Underground

- 3.14.1 Dart Underground was submitted for approval in June 2010 and following an Oral Hearing, a Railway Order was granted on 14th December 2011. Bord Pleanála reference is **29S.NA0005**. The scheme is described in Appendix 6.1 of the EIAR under Section 2.5.9 which has the heading of DART Expansion Programme. Table 2-7 describes the proposed rail service plan and Figure 2-9 shows the line of the DART Underground with new stations at Docklands, Pearse, St Stephen’s Green, Christchurch, Heuston and Inchicore. During questioning at the Hearing, Mr O’Brien stated that his understanding was that

the underground section of the DART expansion did not have a completion date.

- 3.14.2 I read the Transport report by Mr Wallace who was engaged by An Bord Pleanála for the Oral Hearing in 2011. In the Report on the Oral Hearing, the project was noted as having been first mooted in 1971. It was described as having significant enhancement of the public transport network and of having very positive impacts. It was also described as being a missing link in the transport system of the city. It was estimated that it would result in **a 20% increase in DART usage**. The capacity quoted is 12,000 passengers per hour per direction. A projection made at the time of the proposal was that it could triple Greater Dublin Area rail capacity.
- 3.14.3 Specifically, relating to the city centre area, the estimate was that it would result in a **reduction of 9% in LUAS demand and an 8% reduction in Bus demand**.
- 3.14.4 While the estimated cost of the project is large in terms of historical spending on infrastructure in Ireland, by international comparisons with other cities, it is a quite modest proposal.

4 CONCLUSIONS

4.1 Overall Observations

- 5.1.1 The College Green junction could possibly be made more efficient from an operational point of view in the short term, while maintaining the bus routes currently using the Dame Street corridor.
- 5.1.2 There is a much more interactive relationship between the M50, the Dublin Tunnel and rail transport than is generally understood. A more thorough understanding is required of the impacts of each transport form on the overall system.

4.1.3 Historically, the investment in transport infrastructure in Dublin has been very small. When the proposals for DART Underground, the Dublin Tunnel, Eastern Bypass, M50, LUAS and Metro are traced back to inception, massive delays in getting as far as construction are evident. There are clearly opportunities lost over the past 40-50 years. Based on the spread of the city, increases in population, employment and tourism, there is a backlog in investment.

4.1.4 One main function of a more inclusive approach to transportation would be to understand the interaction between the various modes. Establishing the relationship between city centre traffic management and the M50 / Tunnel is seen as an important step in understanding the overall problem. The approach to date has been unduly competitive between modes of transport. As a result, many arguments are about sharing of limited road space.

4.2 Summary of Impact Assessment

4.2.1 In Part 3 of this report, I have drawn conclusions in relation to the different transportation modes, arising from the construction of the proposed plaza at College Green. The criteria used are only based on transportation aspects of the proposal.

4.2.2 In evaluating traffic impacts I take into account the predicted / modelled additional traffic flows in certain streets, the probable impact of banning certain movements, predicted and measured journey times. The main adverse effects on traffic are delay and inconvenience, which has cost implications and raises pollution issues.

4.2.3 The individual assessments are as follows:

- In respect of general traffic, the impact is considered significant and negative.
- In respect of LUAS operation in College Green the impact is considered moderate positive.
- In respect of bus transport, the impact is considered significant and negative.
- In respect of bus passengers, the impact is considered significant and negative.
- In respect of Cycling and Pedestrians, the impacts arising from potential conflicts between cyclists and pedestrians, and of buses and emergency vehicles with both groups are considered unacceptable from a safety point of view.
- In respect of taxis, the impact is considered moderate and negative.
- In respect of hotel access, the impacts are considered moderate and negative.
- In respect of car parks, the impacts are considered significant and negative.
- In respect of Emergency Vehicles, the proposals are considered unsatisfactory.

4.2.4 Regarding the impacts on bus operation, this impact does not relate to how the bus network would function in an altered state. Given the double bus lane on both Quays, the risk of bus “bunching” is would be almost eliminated for the length of the double bus lane. However, it is noted that there are loading bays delineated on some of the bus lanes so there could be impacts arising which would impair the smooth running of buses in these circumstances.

4.2.5 There is a cumulative loss of road space in the city centre area spanning the do-nothing, do-minimum and do-something scenarios. The loss of space for general traffic concerns the 3 basic east-west arteries namely Parnell St, North and South Quays and Dame Street.

- 4.2.6. Parnell St West had a bus lane and 2 traffic lanes. That is now one bus, one northbound LUAS shared lane and one southbound contraflow LUAS track. The Quays at O'Connell St Bridge were 2 traffic lanes and one bus lane in each direction. That is now reversed.
- 4.2.7 Dame Street westbound in College Green has three traffic lanes, while eastbound there are 2 lanes and a taxi-turnaround lane. The traffic lanes are for public transport only from 07:00 to 19:00 Monday to Friday. The proposed position is for no vehicular traffic.
- 4.2.8 In the case of Parnell Street and the North and South Quays, the road space lost by general traffic is now given over to public transport. Uniquely, in the case of Dame Street, the availability of the road space for Public transport is proposed to be removed.
- 4.2.9 The loss in road space is very significant. Relating to traffic volumes, while not indicated in table 6.3 of the EIAR, the model outputs from NTA Report indicate the project would take 8,402 pcu (links 6451_6241 and 6343_6451) from the network. This traffic is made up predominantly of taxis and buses. The relocation of this traffic would constitute a significant negative impact on the wider street network.

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Consultant

23 August 2018.