

Guidance Note 3

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Project title:	BusConnects.
Subject:	<i>Project Review: Phase 3 (Preliminary Business Case)</i>
Country(s)	Ireland
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A.1. Purpose and Alignment

A.1.1. What is the purpose of the project?

Through its different components, the BusConnects programme aims at improving the current bus system through an increased customer offer, providing improved travel times, greater efficiency and increased reliability. BusConnects is anticipated to transform bus operations and travel in the GDA, rendering bus services more attractive and therefore resulting in significantly increased patronage and mode shift from the private car.

A.1.2. Is the problem the intervention is trying to solve clear?

Yes, in the context that the project is part of a broader strategy to reduce the impact of transport in the Greater Dublin Area, according to the GDA Transport Strategy.

A.1.3. Does this align with PI 2040 and Climate Action Plan?

Yes, subject to a demonstration of the CO2 impact of the project. The project likely falls within the EU Taxonomy on Climate Investments (although this is not certain for the plug-in hybrid vehicles). The project is included as an objective in Project Ireland 2040 and in the Climate Action Plan, 2019.

A.1.4. Have the policy and delivery assumptions been captured, challenged and agreed with all key stakeholders?

There appears to be relatively strong consensus on the project concept amongst key stakeholders. It is noted that the optimization of the route network and the definition of associated priority bus corridors was informed by significant public and stakeholder consultation and engagement.

A.1.5. Is the projects needs/demand analysis robust?

Our review highlights a strong underlying potential for increased bus passenger demand at GDA level, given the improved bus coverage and the high baseline levels of private car use in the Dublin Area. Nevertheless, this outcome would be significantly strengthened through the introduction of strong supporting measures (either now or during the lifetime of the project), such as an integrated ticketing solution, improved public transport integration between bus and other modes, avoiding competitive services where these are not required, as well as strong car restraint measures in the City Centre and at Dublin Airport. The demand forecasts reported might be exceeded with the introduction of such measures, which have only been partially assessed in the scenario testing.

A.1.6. How stable is the scope of the project?

The BusConnects programme comprises different components with a defined scope, albeit with certain aspects or details remaining to be addressed. The anticipated fleet renewal will be undertaken in different batches and informed by ongoing analysis and market consultations, including concerning different potential ways of implementing zero emission bus operation. Some further adaptations are

also likely in relation to other key components, such as the Next Generation Ticketing and during the detailed design of the proposed bus corridors. In our view this is appropriate given the scale and duration of the overall programme, the continuous technological development, the complexity of each component and the dependences between the components themselves.

A.2. Feasibility, Capability and Enabling Projects

A.2.1. Have reasonable alternatives been considered? Is there a clear best option? If there are several options that would meet the need, how was the robustness tested?

Different approaches were followed for each component of the programme with regard to option analysis. The fleet component was informed by the ultimate goal to transition to zero emission operations, with different technological solutions likely to be applied being investigated. Different bus sizes were considered for the busier routes, including double-decker and articulated vehicles.

The Next Generation Ticketing component underwent appraisal of a number of potential combined fare and technology options, yet the option analysis did not consider other, less technology-intensive fare models successfully established elsewhere (e.g. models that offer affordable seasonal travel and prioritize widespread uptake).

Regarding the bus network and the CBCs, an alternative model to the current one combining radial and circular corridors and backbone and feeder routes was proposed, based on identified demand and needs. The initial proposal was substantially modified following the results of the public consultations, with some of key new features discarded.

BusConnects is a 10-year-long programme, comprising many different measures to be implemented until 2030. Significant analysis and option appraisal work remains concerning interventions to take place in the later years of the programme. Given the continuous technological development in this field, this is likely to particularly concern fleet renewal measures, including charging and depot infrastructure. Important measures external but closely associated to the BusConnects programme, such as planned Park and Ride interventions, are also underway.

A.2.2. Does the preferred option represent value for money and a sufficient solution to the problem identified?

The proposed programme does offer value for money according to the economic analysis, with however limited real reserve for degradation of the demand performance or for cost escalation beyond the (admittedly quite high) risk reserves. There remains however significant potential for improved economic performance of the programme in relation to synergies with the likely impact on demand of planned parallel measures (e.g. demand management, P&R, fare related) that were not fully incorporated into the assessment conducted. Significant risks in relation to the long-term demand impact of the COVID pandemic however cannot be ruled out.

A.2.3. Have the constraints been assessed including legislation, policy issues, regulatory issues, environmental issues, and impact on the physical and technical environment?

From our review of the material in the Business Case, there are no evident gaps in the assessment of such constraints. In this regard, it is however noted that much of the environmental assessment of the CBC investment is deferred to the EIA stage that follows the approval of the Programme Business Case. We understand that the relevant legislation to support the BusConnects programme is en route through the statutory processes.

A.2.4. Is the delivery strategy feasible? Have the conditions and constraints within which this strategy is feasible been identified? Does the body have the skills and expertise to deliver the project?

From our review of the material, there are no evident feasibility issues in the delivery strategy. Nevertheless, implementation of the different components and the infrastructure works themselves should be coordinated in a sensible way, such as avoiding traffic disruption (including buses) on parallel corridors during works or aligning new fleet deployment with newly developed CBC infrastructure.

It is clear that NTA have significant expertise in the delivery of CBC projects of this type and scale. Specific expertise regarding implementation and operation of zero emission buses, particularly electric buses and on-street charging, will be required, as is additional expertise in the Next Generation Ticketing. In addition to specialist support and market consultations that may be required, meaningful engagement of GDA bus operators is strongly recommended where possible.

A.2.5. Has there been an initial assessment of the market appetite, particularly for risk?

This has not been assessed as part of the JASPERS Review. Information provided in the Business Plan indicates that market consultations have taken and will take place concerning the zero emission fleet component. Experience in Dublin suggests that there is good market appetite for the CBC works, whereas the market is well-evolved for the provision of electric buses (although the market options are quite limited for double-deck vehicles). Ongoing discussions with suppliers has confirmed good interest in the Next Generation Ticketing element.

A.2.6. Does the Sponsoring Agency have the capacity and capability to undertake the intervention proposed?

Yes. NTA has both the capacity and capability to deliver a project of this type and scale. The Next Generation Ticketing element is one exception, where significant external support is required.

A.2.7. Are there complementary or enabler projects identified to deliver the benefits of this project?

Whilst BusConnects includes a major ticketing component, the Next Generation Ticketing is a much wider programme that will be implemented at GDA and national level. When implemented at the GDA level, NGT is likely to encourage further public

transport and bus use through integrated and more affordable fares. Additionally, the GDA Park and Ride strategy envisages 13 new Strategic Park & Ride sites across 6 different CBCs, mostly in suburban areas. This measure will increase the attractiveness of the bus for suburban travelers.

A.2.8. Has the project's funding priority as part of the Approving Authority's capital allocation been agreed?

This has not been assessed as part of the JASPERS Review.

A.2.9. Has due account been taken of lessons learned from similar projects?

Regarding the NGT and fleet component, there are no comparable projects in Ireland within the transport sector, in terms of type and scale. For that reason, a cost benchmarking exercise was carried out vs. international examples where an ABT system was implemented. Also and regarding the fleet renewal component, the NTA engaged with operators of zero emission buses outside Ireland to gain a better understanding of how to specify and procure this type of buses.

A.3. Costs and Benefits

A.3.1. Are project costs including contingencies and benefits realistic?

Large contingencies in the order of 40% are assumed for the CBC and NGT components. This is quite high for the CBC, given that it is in the process of being developed to a Preliminary Design level of detail. Regarding the NGT, cost will further evolve throughout the competitive process to be launched shortly for the procurement of the proposed ABT solution. Applied risk premiums indicate a 75 % confidence that the estimate can be achieved or outperformed at outturn.

Opportunities for significant cost variation (increases and decreases) are likely to appear during the next stage of development of the programme, particularly in relation to the CBCs. Risks of cost increase in the zero emission fleet component remain, notwithstanding the considerable reserve fleet assumed.

A.3.2. Have cost ranges been identified for different performance scenarios? Have these been benchmarked?

Based on the information in the PBC, CBC unit costs show a significant variation, ranging from approximately €11m/km to €24m/km (including allowances for risk, contingencies and preparation costs). These appear to be on the high side but appear to be justified, given the high share of bus segregation sought along the corridors, as well as the associated land take and cycle infrastructure works also associated with the CBC component.

A.3.3. Has a funding model and/or expenditure trajectory been mapped out? Is the envisaged spend affordable?

This has not been assessed as part of the JASPERS Review.

A.3.4. What drives the cost, schedule, benefits, productivity and performance of the project?

The CBC is the largest component cost-wise, followed closely by the zero emission fleet renewal. All components are expected to drive BusConnects benefits, in particular faster and safer journeys from the CBC works and increased frequencies and overall offer arising from the fleet component.

A.3.5. Has a benefits realisation strategy been considered?

The draft Monitoring and Evaluation Plan is presented as elaborating the first activity (monitoring) but in fact deals with many of the issues covered under the second activity (benefit realisation), which is presented in the main document as being more closely related to the Cost Benefit Analysis. The monitoring itself is focused on the operational stage of the project, and with a clear focus on the quality of service provided. It is noted that the detailed design of the CBC infrastructure is not guided by target journey times or commercial speeds, which would form an indicator for the benefits realisation.

A.4. Stakeholders and Risk

A.4.1. How will the key stakeholders impact on the project?

GDA bus operators and local authorities are expected to have significant input to the further development of the project. This has been recognised by the NTA from the beginning of programme development, with regular engagement and consultation taking place. JASPERS consider engagement with the GDA bus operators and Local Authorities crucial for successful implementation of the programme.

A.4.2. Is a stakeholder management and communications plan in place? Has significant consultation taken place?

Significant public and stakeholder consultation has taken place.

A.4.3. Have the risks for each option been evaluated and the risks for the preferred option been fully assessed?

Yes. A risk assessment has been carried out at both Programme and component level, with both presented in the PBC. A more detailed risk assessment for the CBC infrastructure works has been deferred to the next stage of the work.

A.4.4. Are the cost and time implications of managing the risks included in the cost and time estimate or treated as a separate risk allocation?

Yes. The risk assessment methodology includes procedures for identification, assessment, treatment with control measures, and continuous review. A contingency allowance including optimism bias ranging from 10% to 55% of costs has been applied and this higher value has been applied in the Economic Analysis. Nevertheless, the detailed design of CBC and NGT components and the further

development of the zero emission fleet component should look to reduce this risk premium.

A.4.5. Has a risk identification and management strategy been developed including assignment of responsibility for individual risks?

Yes. A programme specific governance framework has been established, clearly identifying the roles and responsibilities of each stakeholder.

A.4.6. Has the project been stress tested? Have the 'worst case' implications been assessed?

In relation to the works, a high risk premium (75 % confidence of achieving out-turn cost below the cost estimate) has been used to account for cost escalation as a result of a weighted risk analysis. The economic analysis has included this risk premium in the cost for all scenarios, and reports that the project is economically viable at that cost level.

Sensitivity Testing has been undertaken in relation to even further cost escalation, infrastructure development and demand forecasting assumptions including an increased telework test that assumes further reductions in passenger demand through to the long term and an infrastructure sensitivity test that has accounted for the impacts of Metrolink and DART+.

Putting aside the cost issue, which is already well covered by risk pricing, the latter two sensitivity tests alone both retain viability of the project, albeit each showing significant reduction in economic performance bringing the BCR from 1.6 to 1.1 and 1.2 respectively. A combined scenario examining the two impacts together would lead to an economic case with a BCR slightly below 1. Although the COVID impacts are far from certain, this combined outcome underlines the importance of scope and cost optimization of the individual project corridors and careful attention to traffic management design for the corridors to minimize the assessed negative travel time impacts on car transport.

A.4.7. Is the project breaking new ground?

Yes, the project entails two major technological transitions in terms of the fleet and ticketing components and represents a step change in bus reliability and safe cycling provision in Dublin.

A.4.8. Should the project be broken down into smaller steps?

There is scope for phasing the BusConnects programme implementation, particularly concerning CBCs and fleet.

Physical phasing of CBCs could be based on initially focusing on developing those showing best value for money, whilst in some cases avoiding major disruption from simultaneous construction of adjacent or neighbouring corridors. Given the scale of fleet renewal and expansion envisaged, this component will necessarily be phased dependent on factors such as current fleet age, ability of the market, funding availability, CBC works and progress and technological aspects and developments.

It will be desirable that deployment and operation of electric buses is carefully managed to account for CBC works, hence avoiding excessive service traffic disruption, to which these vehicles are particularly sensitive.