



## **Draft Integrated Implementation Plan 2019-2024**

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# 1 Introduction

## 1.1 Introduction

The National Transport Authority (the “Authority”) is a statutory body established by the Minister for Transport on 1 December 2009.

The Authority was set up under the Dublin Transport Authority Act 2008. Its roles and functions are set out in that Act, the Public Transport Regulation Act 2009, the Taxi Regulation Act 2013, the Vehicle Clamping Act 2015 and the Public Transport Act 2016.

At national level, the Authority has responsibility for securing the provision of public passenger land transport services. This includes the provision of subsidised bus and rail services through contracts with Bus Éireann, Dublin Bus, Go Ahead and Iarnród Éireann, and with private bus operators; and the provision of light rail services directly itself or through assignment to Transport Infrastructure Ireland (TII).

The Authority is responsible for the management of the State’s rural transport programme and also licenses public bus passenger services delivered by private operators. Regulation of small public service vehicles (taxis, hackneys and limousines) also falls within the ambit of the Authority as does regulation of vehicle clamping activities. Other areas of national responsibility include integrated information systems for public transport customers and management of the Integrated Ticketing Scheme for Ireland (the Leap Card system). Allied with these national functions, the Authority is the enforcement body for passenger rights in relation to rail, buses and coaches, and ferries.

Also at a national level, the Authority has the function of providing public transport infrastructure and cycling infrastructure across the State including bus stops, bus shelters, bus stations and bus fleets, as well as cycling facilities and schemes to promote cycling<sup>1</sup>.

Within the Greater Dublin Area (GDA) the Authority carries additional responsibilities including:

- strategic planning of transport;
- development of an integrated, accessible public transport network;
- promoting cycling and walking;
- provision of public transport infrastructure generally including light rail, metro and heavy rail; and
- effective management of traffic and transport demand.

The GDA includes the local authority areas of Dublin City, Fingal, Dún Laoghaire-Rathdown, South Dublin, Kildare, Meath and Wicklow.

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<sup>1</sup> Beyond the Greater Dublin Area, projects that have been included in adopted lower-tier land use/transport Plans and subject to associated appropriate levels of SEA and AA are capable of being proceeded with.

Projects that have not been included in adopted lower-tier land use/transport Plans and subject to associated appropriate levels of SEA and AA will not be proceeded with until they have been included in adopted lower-tier Plans and subject to associated appropriate levels of SEA and AA.

This Plan provides a context for lower-tier planning, including the specification of mitigations measures/targets (see Section 4 and accompanying SEA and AA Reports).

On behalf of the Department of Transport, Tourism and Sport, the Authority also manages the following programmes:

- Regional Cities Public Transport Programme;
- Accessibility Programme;
- Smarter Workplaces and Smarter Travel Campus travel programme;
- Green Schools travel programme; and
- Rural Transport Programme.

## 1.2 Requirement for an Integrated Implementation Plan

Section 13(1) of the Dublin Transport Authority Act 2008 requires the Authority, following the approval of a transport strategy for the region by the Minister for Transport, Tourism and Sport, to prepare an integrated implementation plan covering a six year period. The Transport Strategy for the Greater Dublin Area 2016-2035, was approved in February 2016. The preparation of this Integrated Implementation Plan was aligned with the Government's review of capital spending which commenced in 2016 and culminated with the publication of the National Development Plan 2018-2027 in February 2018.

## 1.3 Content of an Implementation Plan

Section 13 of the Dublin Transport Authority Act 2008 (the "Act") sets out the required contents of an integrated implementation plan ("Plan"). A Plan is required to comprise the following:

- an infrastructure investment programme, identifying the key objectives and outputs to be pursued by the Authority over the period of the Plan;
- the actions to be taken by the Authority to ensure the effective integration of public transport infrastructure over the period of the Plan;
- an integrated service plan, identifying the key objectives and outputs to be pursued by the Authority in relation to the procurement of public passenger transport services over the period of the Plan;
- the actions to be taken by the Authority in relation to small public service vehicles,
- the actions to be taken by the Authority to ensure the effective integration of public passenger transport services over the period of the Plan; and
- such other matters as the Authority considers appropriate or as may be prescribed by the Minister for Transport, Tourism and Sport (the "Minister").

## 1.4 Plan Process

The following process is outlined in the Act for the preparation of a Plan:

- Taking direction from the Minister, the Plan should have regard to any proposals received from public transport authorities and operators and the need to ensure the most beneficial, effective and efficient use of Exchequer resources;
- The Authority is required to have regard to written guidance on multi-annual funding from the Minister;

- During the preparation of the integrated implementation plan, the Authority is required to consult with and consider the views of stakeholders and invite public submissions on the Plan; and
- The Authority is required to submit a draft Plan to the Minister for approval. The Minister may approve the draft, approve with modifications, require resubmission in a modified form or refuse to approve it.

## 2 Background to the Implementation Plan

### 2.1 Congestion

Ireland continues to emerge from the severe economic recession of recent years and the associated high levels of unemployment that existed during that time. The economy is growing strongly; more and more people are at work; and the number of visitors to the country is at record levels. Alongside the recovery, however, are growing challenges, with traffic and transport among the key issues facing the Dublin region.

During the recession the demand for transport fell dramatically due to factors such as reduced business activity, people spending less money, emigration and unemployment. The Dublin City Canal Cordon Count showed the numbers travelling in and out of the City Centre between 7am and 10am dropping from 207,379 people in 2006 to 181,042 in 2010, a decrease of 13%. Overall numbers using bus fell by 16% while rail passengers decreased by 30%. As well as reduced public transport usage, the number of cars and commercial vehicles on our roads also decreased. Congestion was reduced during this time and travel times became shorter as the roads had fewer vehicles using them.

Now in 2018 that position has changed dramatically. Traffic levels have grown steadily since the economy began to recover with 211,000 recorded travelling into Dublin City Centre in the morning peak in 2017. Traffic grew at a rate of 3% across the national road network in 2017 with the highest growth rate in the Mid-West and Border at 3.9%. On the M50, the highest daily flow recorded was 170,711 between the N2 and N3. The Average Annual Daily Traffic (AADT) count for this section has risen from 125,653 in 2014 to 144,624 in 2017, a rise of 15%.

Congestion is now one of the most significant challenges facing the State, and as we plan for significant population growth, and associated economic activity and social, cultural and recreational activity, we must provide a transport system that not only addresses this challenge but supports and fosters further development.

### 2.2 Environment

The significance of the need for action to reduce the use of fossil fuels and diminish the generation of greenhouse gases is widely recognised. Transport, as a major producer of greenhouse gases, has a major role to play in the achievement of those objectives.

The Authority is required to adhere to the National Climate Change Adaptation Framework, which was published by the Minister for Communications, Climate Action and Environment in 2018, and the Department of Transport, Tourism and Sport's Sectoral Adaptation Plan, published in 2017

Based on these adaptation plans, while bearing in mind the limited scope of the Integrated Implementation Plan as set out in legislation, the Authority will seek to ensure primacy for transport options which provide for unit reductions in carbon emissions. This can most effectively be done by promoting public transport, walking and cycling, and by actively seeking to reduce car use in circumstances where alternative options are available. In addition, transitioning to lower emission vehicles for transport use is also fundamental to reducing transport related carbon emissions.



To date the Authority has focussed significant levels of investment in these sustainable modes, including the reopening of the Phoenix Park Tunnel and the delivery of Luas Cross City. This will continue under this Plan.

The design, planning, construction and operation of all transport schemes identified in this plan will be required to take full account of the natural and built environment. This is generally undertaken by compliance with EU Directives such as the EIA Directive (2011/92/EU, as amended), the Habitats Directive (92/43/EEC) and others such as those relating to Flood Risk. In many instances this adds to the complexity of projects and in some cases may lead to their deferral or cancellation. This relates to even small cycle and pedestrian schemes. The Authority, as it has done to date, will engage with all environmental authorities at the earliest possible time in order to ensure that clear decisions on the feasibility of schemes and their design requirements can be arrived at in a timely fashion and that exchequer investment is protected.

In accordance with European Directive 2001/42/EC – on the assessment of the effects of certain plans and programmes on the environment – and national legislation, a Strategic Environmental Assessment (SEA) is being carried out as part of the preparation of the Plan. This is a formal, systematic evaluation of the Plan prepared in accordance with the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (SI No. 435 of 2004), as amended by the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (S.I. No. 200 of 2011). The objective of the SEA Directive is ‘to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development...’ (Article 1 SEA Directive). SEA is required to be undertaken on the transport plan as it contributes towards the framework for future development consent of projects listed in Annexes I and II to Directive 2011/92/EU, as amended by 2014/52/EC.

The overall findings of the SEA, set out in the SEA Environmental Report that accompanies the Plan, include that:

- the Authority has integrated all recommendations arising from the SEA process into the Plan;
- the Plan facilitates a mode shift away from the private car to public transport, walking and cycling and associated positive effects, including those relating to:
  - contributions towards reductions in greenhouse gas emissions and associated achievement of legally binding targets;
  - contributions towards reductions in emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement of air quality and protection of human health;
  - contributions towards reductions in consumption of non-renewable energy sources and achievement of legally binding renewable energy targets;
  - energy security;
  - enhancing the public realm;
- certain Plan provisions would be likely to result in significant positive effects upon environmental management and protection; and

- certain Plan provisions would have the potential to result in significant negative environmental effects upon the environment. The integration of detailed mitigation into the Plan has ensured that these effects are mitigated.

The SEA identifies that implementation of the Plan will contribute towards efforts to achieve a number of the 17 Sustainable Development Goals<sup>2</sup> of the 2030 Agenda for Sustainable Development, which were adopted by world leaders in 2015 at a United Nations Summit and came into force in 2016.

Appropriate Assessment (AA) is a requirement of the European Habitats Directive 92/43/EEC – on the conservation of natural habitats and wild flora and fauna - as transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. The purpose of the AA is to provide a focused and detailed impact assessment of the implications of the Plan, alone and in combination with other strategic actions and projects, on the integrity of European Sites in view of their conservation objectives. The AA concludes that it is considered that the Plan will not have a significant adverse effect on the integrity of the Natura 2000 network of sites<sup>3</sup>.

The details of the approach to the AA and the findings are set out in the AA Natura Impact Report that accompanies the Plan. In a similar manner to the Environmental Report of the SEA, this separate document should be read and considered in parallel with the Plan.

## 2.3 Spatial Planning

How the growth in economic activity is manifested spatially has been a serious challenge for transport in recent decades. Dispersal of workplaces to peripheral areas instead of focussing on central areas and locations served by public transport has led to an over-reliance on the private car for trips to work.

While certain economic activities, by virtue of their physical characteristics, may require peripheral greenfield sites, offices, retail and a plethora of service industries would be most appropriately sited in existing centres where they can avail of a range of transport options.

In recent times, these latter activities have also migrated to suburban areas, into office parks and non-central locations. The economic cost to firms, and to the State, in terms of congestion, access to the labour force and the requirements for new infrastructure, of such patterns is significant.

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<sup>2</sup> Including:

- Goal 3. Ensure healthy lives and promote well-being for all at all ages
- Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12. Ensure sustainable consumption and production patterns
- Goal 13. Take urgent action to combat climate change and its impacts
- Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

<sup>3</sup> Except as provided for in Section 6(4) of the Habitats Directive, viz. There must be:

- a) no alternative solution available;
- b) imperative reasons of overriding public interest for the plan/programme/strategy/project etc. to proceed; and
- c) Adequate compensatory measures in place

The most striking example of this pattern is the M50, where despite a major upgrade completed in 2010, the level of usage of the motorway at peak times, linked considerably to historic development patterns, has virtually eroded the additional capacity created by the upgrade.

In order to develop a coherent spatial planning hierarchy, and as a means of addressing imbalances between spatial planning trends and the provision of services, which has led to the above issues, Government published the National Planning Framework (NPF) as part of Project Ireland 2040 in February 2018. It places a strong emphasis on the role of the 5 cities in accommodating population growth and growth in all associated activities within and adjacent to their existing built-up areas, as a means of facilitating sustainable travel. In each city, transport infrastructure and services are seen as key future growth enablers, with focus paid in particular to bus enhancement, MetroLink, expansion of DART and the Cycle Network in Dublin, and much enhanced Citywide public transport networks in the other cities. The NPF was subject to full Strategic Environmental Assessment (SEA) and Stage 2 AA (Appropriate Assessment). Further detail on the NPF is provided in section 4.3.2.

The NPF will be given regional expression through the Regional Spatial and Economic Strategy (RSES) and the associated Metropolitan Area Strategic Plan (MASP), both being prepared by the Eastern and Midland Regional Assembly in cooperation with the NTA, in accordance with legislation. Within the Greater Dublin Area, each local authority will continue to ensure their City and County Development Plans, and their local plans, are consistent with the NTA Transport Strategy in accordance with legislation. The Transport Strategy has been subject to SEA and AA and such procedures also apply to City and County Development Plans and Local Area Plans. It is anticipated that, during the lifetime of this plan, the transport planning functions of the NTA, and their engagement with land use planning, will be extended to the other Metropolitan Areas, in line with the NPF. As such, the mechanisms for the closer integration of land use planning, and transport planning and investment, will be rolled out and extended nationally, leading to a more coherent relationship between the location of housing, employment, retail and commercial development, and transport services. Any future Transportation Strategies for these Metropolitan Areas will be required to be subject to SEA and AA as appropriate.

## **3 Scope of the Implementation Plan**

### **3.1 Approach**

The earlier sections of this document set out the background and context to this Plan and the challenges now emerging. The remaining sections set out the key elements relating to infrastructure, services and integration/accessibility aspects of the Plan.

Because some of the Authority's functions apply solely to the Greater Dublin Area and others apply nationally, the Plan has been prepared reflecting this varying geographic scope. Accordingly, while the majority of the Plan relates only to the Greater Dublin Area, certain areas such as public transport services and activities related to small public service vehicles, are dealt with on a national basis.

#### **3.1.1 Infrastructure Investment Programme**

Chapter 4 sets out the central Infrastructure Investment Programme. This provides the overall funding provision over the six year period of the Plan. It identifies and describes the key investment areas, namely:

1. Bus Investment;
2. Light Rail Investment;
3. Heavy Rail Investment; and
4. Integration Measures and Sustainable Transport Investment.

The subsequent chapters 5 to 8 detail the investment proposals under each of these respective areas, including identifying key objectives and outputs, as well as certain measures for the effective integration of public transport infrastructure.

#### **3.1.2 Integrated Service Plan**

Chapter 9 details the integrated service plan provisions including the key objectives and outputs to be pursued by the Authority in relation to the procurement of public passenger transport services over the period of the Plan. It addresses bus and rail services as well as small public service vehicles. This chapter also describes the integrated services for those non-urban and rural services that operate within the Greater Dublin Area. A core element of the Integrated Services Plan relates to the reviews of the Metropolitan Bus networks in the cities to be carried out under the BusConnects programme.

#### **3.1.3 Integration and Accessibility**

Chapter 10 identifies various measures proposed in relation to the integration of public passenger transport services and the ease and convenience of use of those services. It deals with integrated ticketing, real time passenger information, journey planning, fares, branding and optimising interchange. In addition, it sets out proposals in the area of accessibility and passenger rights.

#### **3.1.4 Risks and Constraints**

Chapter 11 details some of the key risks and constraints that are relevant in relation to the overall delivery of the Plan, including funding, resources, planning and legal challenge risk.

## 4 Overall Infrastructure Investment Programme

### 4.1 Introduction

The overall infrastructure programme is guided by various national and regional policies but is fundamentally dependent upon the level of capital funding available for the programme.

As part of Budget 2018, the capital funding allocation to the Authority was provided for the years 2018 to 2021 inclusive. In line with the provisions of Section 13(4) of the Dublin Transport Authority Act 2008, the Department of Transport, Tourism and Sport has provided guidance on the funding amounts likely to be provided to the Authority for the remaining period of this Plan.

### 4.2 Available Funding

Overall the level of capital funding anticipated to be available to the Authority over the six year period 2019 to 2024 is approximately €4.6 billion for investment in public/sustainable transport in the GDA. The available funding is set out in Table 7 below.

It should be noted that programmes which are managed by the Authority on an administrative basis on behalf of the Department of Transport, Tourism and Sport, including the Accessibility Programme, are not included in the funding profile below. In addition, funding of the infrastructure management and maintenance of the national rail network is managed directly by the Department of Transport, Tourism and Sport. Accordingly, it is dealt with under a separate budget and does not form part of the allocations set out in Table 7.

**Table 7 – Capital Public / Sustainable Transport Funding 2019-2024**

	2019	2020	2021	2022	2023	2024	Total
<b>Public / Sustainable Transport Capital Funding (€m)</b>	<b>245.1</b>	<b>453.5</b>	<b>781.5</b>	<b>751.7</b>	<b>1,144.8*</b>	<b>1,239.0*</b>	<b>4,615.6</b>

*\* Subject to final confirmation from the Department of Transport, Tourism and Sport.*

As set out above, the available funding levels increase significantly over the first three years of the Plan period, with funding in excess of €1 billion envisaged for each of the final two years of the Plan. This reflects a ramping up of the major public transport projects in the early years.

In relation to current funding, the Department of Transport, Tourism and Sport has stated that “current funding is budgeted by the Minister for Public Expenditure and Reform on an annual basis as part of the annual Estimates process” and that it is not possible to state current allocation amounts, which relate particularly to funding of Public Service Obligation payments to transport operators, for the period of the Plan.

### 4.3 Priority Investment Areas

#### 4.3.1 Transport Strategy

While the infrastructure investment plan is framed by the available funding under the national capital plan, it is also guided by a number of other policies. A key policy shaping the Plan is the

Transport Strategy for the Greater Dublin Area 2016-2035, which established an overall framework for transport investment over the next two decades. The priorities in this investment plan align with the objectives and priorities set out in that transport strategy, focussed on improving public and sustainable transport across the region.

In particular the transport strategy recognised the role of the bus system as the backbone of public transport in the Dublin area. It identified the need for the development of a Core Bus Network to deliver much improved bus movement on the identified corridors within the GDA, and proposed delivery of that network during the earlier period of the transport strategy.

Similarly the transport strategy also identified the need for investment in light rail, primarily through the development of the MetroLink project, and in heavy rail (inclusive of expanded electrification on the suburban rail lines), as well as in other areas such as cycling facilities, pedestrian movement, interchange facilities, information provision and park & ride developments. All of these objectives and priorities have been carefully considered in the development of this Plan.

#### 4.3.2 National Planning Framework and the National Development Plan 2018-2027

In February 2018 the Government published Project Ireland 2040, which comprised the National Planning Framework and the National Development Plan 2018-2027. The National Development Plan sets out the Government's priorities across all capital investment areas up to 2027.

The National Planning Framework sets out ten National Strategic Outcomes (NSOs) which are then prioritised for investment in the National Development Plan. The ten NSOs are:

- NSO 1: Compact Growth;
- NSO 2: Enhanced Regional Accessibility;
- NSO 3: Strengthened Rural Economies and Communities;
- NSO 4: Sustainable Mobility;
- NSO 5: A Strong Economy, supported by Enterprise, Innovation and Skills;
- NSO 6: High-Quality International Connectivity;
- NSO 7: Enhanced Amenity and Heritage;
- NSO 8: Transition to a Low-Carbon and Climate-Resilient Society;
- NSO 9: Sustainable Management of Water and other Environmental Resources; and
- NSO 10: Access to Quality Childcare, Education and Health Services.

A number of these NSOs, such as NSO 2, NSO 3, NSO 4, NSO 6 and NSO 8, are predominately transport focussed, or have a significant transport element. Other NSOs also have transport related components.

The National Development Plan provides for the following allocations in respect of these NSOs up to 2027:

<b>NSO 2:</b> Enhanced Regional Accessibility	<b>€7.3 billion</b>
<b>NSO 3:</b> Strengthened Rural Economies and Communities	<b>€4.5 billion</b> (Regional/local roads)
<b>NSO 4:</b> Sustainable Mobility	<b>€8.6 billion</b>

<b>NSO 6:</b> High-Quality International Connectivity	<b>€4.8 billion</b> (Non-Exchequer funding)
<b>NSO 8:</b> Transition to a Low-Carbon and Climate-Resilient Society	<b>€0.2 billion</b> (For electric vehicles)

### 4.3.3 Strategic Framework for Investment in Land Transport

Another significant policy document is “*Investing in our Transport Future: A Strategic Framework for Investment in Land Transport*” (“SFILT”) published by the Department of Transport, Tourism and Sport in August 2015. SFILT sets out a set of priorities to guide the allocation of the State’s investment to best develop and manage Ireland’s land transport network over the coming decades.

Chapter 6 of SFILT identifies a series of priorities regarding future land transport investment in Ireland, and a series of principles to underpin and frame all future investment in land transport in Ireland.

The three priorities stated in SFILT are:

- Priority 1: Achieve steady state maintenance (meaning that the maintenance and renewal of the existing transport system is at a sufficient level to maintain the system in an adequate condition);
- Priority 2: Address urban congestion; and
- Priority 3: Maximise the value of the road network.

In delivering on the steady state maintenance objective set out in SFILT, the Plan includes for:

- Planned replacement programme for the bus fleet operated under Public Service Obligation (“PSO”) contracts;
- Tram refurbishment and asset renewal in the case of light rail; and
- To the extent within the Authority’ remit, support for the operation of the existing rail network within the GDA.

It also seeks to increase the usage of the existing assets, with additional longer trams to be introduced on the Luas Green Line, additional stations to be opened on the rail network and a range of measures in the areas of ticketing, fares, information and roadside facilities to be implemented to improve the attractiveness and convenience of public transport.

In relation to the second SFILT priority - addressing urban congestion – the Plan includes measures to substantially improve public transport and enhance cycling and walking facilities. In particular, it recognises that improving the overall bus system is critical to resolving the congestion challenges in the short to medium term. This reflects the low density nature of the Dublin metropolitan area, which makes rail solutions uneconomic on many corridors.

The BusConnects Dublin programme is a set of interlinked projects aimed at radically transforming the bus system in Dublin, so that journeys by bus will be fast, reliable, punctual, convenient and affordable.

But it is not just the bus system that will be transformed under BusConnects Dublin. The same corridors that are important for buses are also the main cycling routes in the city centre. BusConnects Dublin will see safe cycling facilities provided along each corridor, segregated as far

as practicable from other traffic. The cycling infrastructure delivered under this programme will form the core of the region's cycling network and deliver a radical step-change in cycling facilities.

While improving the overall bus system is a key focus area of this Plan, the further development of the light rail network and the heavy rail network is essential to provide the longer-term solutions that will allow the GDA to grow and develop. The Plan provides for the development of the MetroLink project, with its construction to commence in 2021 and for the implementation of elements of the DART Expansion Programme, centring on expanding the DART network and the level of DART services.

Details of all of the above proposals are set out in later chapters of this Plan.

#### 4.4 Overall Programme Approach

The Infrastructure Investment Programme forms an integral and central part of the Plan. Over the six year period of the Plan, just over €4.6 billion will be invested through the Authority in public transport infrastructure and related cycling/walking infrastructure, aligned with the transport strategy for the GDA and with relevant national policies.

The overall Infrastructure Investment Programme is divided into four sub-programmes. These are:

1. Bus;
2. Light Rail;
3. Heavy Rail; and
4. Integration Measures and Sustainable Transport.

The table below indicates the total Infrastructure Investment Programme sub-divided into its constituent sub-programmes.

**Table 9 – Funding Profile for the Integrated Implementation Plan by Sub-Programme**

Sub-Programme	2019 (€m)	2020 (€m)	2021 (€m)	2022 (€m)	2023 (€m)	2024 (€m)
Bus	108.9	186.5	242.5	215.0	255.0	260.0
Light Rail	16.2	72.0	262.0	275.7	569.0	579.0
Heavy Rail	67.7	108.0	167.0	166.0	225.8	315.0
Integration Measures & Sustainable Transport	52.3	87.0	110.0	95.0	95.0	85.0
Yearly Totals	245.1	453.5	781.5	751.7	1,144.8	1,239.0

Each of these sub-programmes is addressed in turn in the following chapters, with details provided on the objectives of the particular sub-programme and projects intended for delivery under that sub-programme.

The sub-programme amounts in the table above are subject to adjustments during the period of the Plan in line with project prioritisation, progress of projects and Exchequer funding constraints.



In addition, the alignments and details of proposed transport projects set out in the following chapter are indicative only and are subject to further development as the design and planning processes for individual projects progress. Accordingly, some of the details of the individual proposals will be subject to amendment as this design development work is undertaken. The design and planning of individual projects will be carried out in accordance with prevailing legislation relating to environmental assessment and public consultation.

## 4.5 Accessibility Considerations

While the Authority manages the Accessibility Programme on behalf of the Department of Transport, Tourism and Sport, the issue of accessibility and universal design will also be considered and addressed in all of the transport elements to be delivered under the Plan. During 2018, Ireland ratified the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD). This includes obligations for State bodies to take appropriate measures to “*enable persons with disabilities to live independently and participate fully in all aspects of life*”.

In delivering this Plan, the Authority will ensure that the obligations set out in Article 9 of the UN CRPD are delivered, and that careful consideration of the needs of all users, regardless of their age, size, ability or disability, will continue to form a central part of transport planning and delivery.

## 4.6 Environmental considerations

The development of the Plan has been accompanied by consideration of environmental issues through, in particular, the Strategic Environmental Assessment process and the Habitats Directive Assessment process. These processes have fed back into the making of the Plan, in particular in relation to those locations where impacts have been identified as a result of the proposed development of transport infrastructure. Details of the environmental analysis and mitigation measures identified are presented in the accompanying Environmental Report and Natura Impact Report.

The assessments identified a number of schemes which may have potential negative impacts on the environment. These mainly relate to the Bus and cycle networks and the electrification of the Northern rail line. Potential impacts identified include land-take, habitat loss and disturbance. The risk of flooding as a result of new infrastructure is also a key consideration and ongoing studies in this regard will be taken into account as the Plan is implemented. Mitigation measures such as choosing alignments of least impact, minimising land-take, best practice construction methods and timing, replacement of lost habitats etc. will all be examined as projects progress. In the case of the Northern rail line, this is dealt with in Chapter 7 and in the Natura Impact Report.

Notwithstanding the above, it must also be borne in mind that the Plan is likely to have significant positive impacts on the environment as a result of the anticipated mode shift away from the private car to public transport, walking and cycling. Positive impacts identified include reduction in greenhouse gas emissions, improved air quality and health, and enhancements to the public realm. As such, both positive and negative impacts of the proposed schemes and policies need to be taken into account in a balanced manner.

In general, the process of environmental assessment will continue through the project development stage for individual schemes forming part of the Plan. In delivering the Plan, the Authority will, in collaboration with the relevant agencies, actively address the protection and enhancement, where practicable, of the natural, built and historic environment associated with

these schemes. Projects which are taken forward to development consent stage will be supported by environmental appraisal, Habitats Directive Assessment and Environmental Impact Assessment (EIA) where appropriate. All transport projects will be constructed in accordance with applicable design standards and environmental regulations and mitigation measures in accordance with good practice will be incorporated into the design and construction of these schemes.

#### **4.6.1 Regulatory framework for environmental protection and management**

In implementing this Plan, the Authority will cumulatively contribute towards – in combination with other users and bodies – the achievement of the objectives of the regulatory framework for environmental protection and management, including compliance with EU Directives - including the Habitats Directive (92/43/EEC, as amended), the Birds Directive (2009/147/EC), the Environmental Impact Assessment Directive (2011/92/EU, as amended by 2014/52/EC) and the Strategic Environmental Assessment Directive (2001/42/EC) – and relevant transposing Regulations.

#### **4.6.2 Lower-level Decision Making**

Lower levels of decision making and environmental assessment should consider the sensitivities identified in Section 4 of the SEA Environmental Report, including the following:

- Candidate Special Areas of Conservation and Special Protection Areas;
- Features of the landscape that provide linkages/connectivity to designated sites (e.g. watercourses, areas of semi-natural habitat such as linear woodlands etc);
- Salmonid waters;
- Shellfish waters;
- Freshwater pearl mussel catchments;
- Natural Heritage Areas and proposed Natural Heritage Areas;
- Areas likely to contain a habitat listed in Annex 1 of the Habitats Directive;
- Un-designated sites of importance to wintering or breeding bird species of conservation concern;
- Entries to the Record of Monuments and Places and Zones of Archaeological Potential;
- Entries to the Record of Protected Structures;
- Architectural Conservation Areas; and
- Relevant landscape designations.

#### **4.6.3 Corridor and Route Selection Process for relevant new infrastructure**

The following Corridor and Route Selection Process will be undertaken for relevant new infrastructure:

Stage 1 – Route Corridor Identification, Evaluation and Selection

- Environmental constraints (including those identified in Section 4 of the SEA Environmental Report) and opportunities (such as existing linear infrastructure) will assist in the identification of possible route corridor options;
- Potentially feasible corridors within which infrastructure could be accommodated will be identified and these corridors assessed. The selection of the preferred route corridor will

avoid constraints and meet opportunities to the optimum extent, as advised by the relevant specialists; and

- In addition to the constraints identified above, site-specific field data may be required to identify the most appropriate corridors.

#### Stage 2 – Route Identification, Evaluation and Selection

- Potentially feasible routes within the preferred corridor will be identified and assessed. The selection of preferred routes will avoid constraints and meet opportunities to the optimum extent, as advised by the relevant specialists, taking into account project level information and potential mitigation measures that are readily achievable;
- In addition to the constraints identified above, site specific field data may be required to identify the most appropriate routes; and
- In addition to environmental considerations, the identification of route corridors and the refinement of route lines is likely to be informed by other considerations.

#### 4.6.4 Appropriate Assessment

All projects and plans arising from this Plan will be screened for the need to undertake Appropriate Assessment under Article 6 of the Habitats Directive. A plan or project will only be authorised after the competent authority has ascertained, based on scientific evidence, Screening for Appropriate Assessment, and subsequent Appropriate Assessment where necessary, that:

1. The plan or project will not give rise to significant adverse direct, indirect or secondary effects on the integrity of any European site (either individually or in combination with other plans or projects); or
2. The plan or project will have significant adverse effects on the integrity of any European site (that does not host a priority natural habitat type/and or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000; or
3. The plan or project will have a significant adverse effect on the integrity of any European site (that hosts a natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.

#### 4.6.5 Protection of European Sites

No plans or projects giving rise to significant cumulative, direct, indirect or secondary impacts on European sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction,

operation, decommissioning or from any other effects shall be permitted on the basis of this Plan (either individually or in combination with other plans or projects<sup>4</sup>).

#### 4.6.6 Climate Change, Emissions and Energy

As identified in the SEA Environmental Report that accompanies this Plan, the Plan facilitates sustainable mobility and associated positive effects, including those relating to:

- Reductions in/limits in increases of greenhouse gas emissions and associated achievement of legally binding greenhouse gas emissions targets;
- Reductions in/limits in increases of all emissions to air and associated achievement of air quality objectives, thereby contributing towards improvement of air quality and protection of human health;
- Reductions in/limits in increases of consumption of non-renewable energy sources and achievement of legally binding renewable energy targets; and
- Energy security.

In implementing the Plan, the Authority will support relevant provisions contained in the National Climate Change Adaptation Framework (2018), the National Mitigation Plan (2017) and the Department of Transport, Tourism and Sport's 2017 "Adaptation Planning – Developing Resilience to Climate Change in the Irish Transport Sector".

The implementation of the Plan will incorporate relevant targets and actions arising from the sectoral adaptation plan for transport that will be prepared to comply the requirements of the Climate Action and Low Carbon Development Act 2015.

Cognisant of the imperative to reduce emissions the Authority will seek to ensure primacy for transport options that provide for unit reductions in carbon emissions. This can most effectively be done by promoting public transport, walking and cycling, and by actively seeking to reduce car use in circumstances where alternative options are available.

During the preparation and/or review of policies and plans relating to climate change, carbon emissions and energy usage, the Authority will seek to integrate Plan objectives, as appropriate.

#### 4.6.7 Other SEA Recommendations

In implementing the Plan, the Authority will ensure that the mitigation measures included in Table 9.2 of the SEA Environmental Report are complied with.

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<sup>4</sup> Except as provided for in Section 6(4) of the Habitats Directive, viz. There must be:

- a) no alternative solution available,
- b) imperative reasons of overriding public interest for the plan/programme/strategy/project etc. to proceed; and
- c) Adequate compensatory measures in place.

## 5 Bus Investment

### 5.1 Background

Operating under a contract with the Authority, Dublin Bus carried a total of c.136 million passengers in 2017. When combined with Bus Éireann commuter services in the Dublin region, 143 million passengers were carried on State operated bus services in the Dublin area, compared with 38 million on Luas and 33 million passengers on the DART and rail commuter services.

In percentage terms, the bus system accounts for over 67% of public transport passenger journeys in the Greater Dublin Area. That means that whilst the bus carries two thirds of all public transport passengers, Luas carries 18% and DART plus commuter rail services deliver the remaining 15%.

Given the low density dispersed development pattern that has occurred over recent decades as Ireland's towns and cities have grown, it is clear that the bus will continue to play this central and dominant role in the expanded market for transport well into the future. Investment in the development of bus-based public transport is, therefore, not just for the short term but also for the medium and long term.

The emergence of increasing road congestion in recent years has underlined the need to provide an enhanced level of public transport provision to provide an alternative to car-based commuting. In the short-term most of such enhanced provision must realistically be provided by the bus mode, both due to the suitability of bus-based transport in the low-density development context, and also due to the faster implementation capability of bus-based public transport as opposed to rail-based public transport.

Various actions and investments are required to improve the attractiveness of the bus system. This will require a network-wide approach addressing network and fleet enhancement, increased bus priority and focusing on customer facilities such as information provision (including Real Time Passenger Information), high quality bus stop and shelter facilities, optimised service routings and convenient interchange facilities between other services and modes. The means of payment for public transport will also be transformed over the lifetime of this plan with new ticketing equipment being deployed on city bus services, supporting new technologies, including contactless bank cards and bar codes.

Throughout 2017 and 2018 the Authority has brought together all aspects of bus investment under one programme called BusConnects. This brand has been applied to major bus investment packages for each city, with BusConnects Dublin representing the programme for the Dublin region.

### 5.2 Objective and Elements

BusConnects Dublin aims to overhaul the current bus system in the Dublin region by:

- building a network of new bus corridors on the busiest bus routes to make bus journeys faster, predictable and reliable;
- completely redesigning the network of bus routes to provide a more efficient network, connecting more places and carrying more passengers;

- developing a state-of-the-art ticketing system supporting the use of credit and debit cards, mobile phones and bar codes to link with payment accounts and making payment much more convenient;
- implementing a cashless payment system to vastly speed up passenger boarding times;
- revamping the fare system to provide a simpler fare structure, allowing seamless movement between different transport services without financial penalty;
- implementing a new bus livery providing a modern look and feel to the new bus system;
- rolling out new bus stops with better signage and information and increasing the provision of additional bus shelters;
- developing park and ride facilities at key locations; and
- transitioning to a new bus fleet using low emission vehicle technologies.

BusConnects Dublin is a programme of integrated actions which, together, will deliver a bus system that will enable more people to travel by bus than ever before, and allow bus commuting to become a viable and attractive choice for employees, students, shoppers and visitors. Many of these initiatives are already underway including the core bus corridor project, the Next Generation Ticketing (NGT) project and the Dublin area bus network review.

The component elements of BusConnects Dublin extend over a number of areas of this Plan. This section of the Plan is focussed on the infrastructure elements, but excluding the ticketing system which is covered in chapter 10.

### 5.3 Proposed Investment Areas

Within this sub-programme, the proposals in relation to Bus investment are encompassed in three investment areas:

- Core Bus Corridors and Improved Interchange Facilities;
- Bus Fleet Investment; and
- Bus Stop and Shelter Provision.

Given the statutory remit of the Authority, the proposals under this Plan in respect of the first item - Core Bus Corridors and Improved Interchange Facilities – is related to the Greater Dublin Area only, while the proposals in respect of the two investment areas encompass the full State.

The proposals under each of these areas are elaborated on in the following sections. Later chapters address the remaining areas of BusConnects Dublin.

A total of €1,267.9 million is anticipated to be invested under the bus sub-programme. The annual amounts over the six years of the Plan are stated in the table below. The stated amounts in the table below are subject to adjustments during the period of the Plan in line with project prioritisation, progress of projects and Exchequer funding constraints.

	2019 (€m)	2020 (€m)	2021 (€m)	2022 (€m)	2023 (€m)	2024 (€m)	Total (€m)
<b>Bus Investment</b>	<b>108.9</b>	<b>186.5</b>	<b>242.5</b>	<b>215.0</b>	<b>255.0</b>	<b>260.0</b>	<b>1,267.9</b>

The proposed investment areas are elaborated on in the following sections.

## **5.4 Core Bus Corridors – BusConnects Dublin**

### **5.4.1 Current Status**

Currently on the busiest bus routes in the Dublin region, bus lanes are only in place for less than one third of the corridor. This means that for most of the journey, buses are competing for space with general traffic and so are also affected by the increasing levels of congestion. This compromises the performance of the bus system, reducing bus speeds and negatively affecting reliable and punctual journey times, which is a vital component of a public transport system.

Up until recently, there was a large amount of bus layover and parking in Dublin City Centre, utilising scarce kerbside space. Following work undertaken over recent years in redesigning bus services, the scale of this issue has been significantly reduced. However, some potential still remains for further relocation of layover and bus parking away from central areas.

Separately, there is, at present, bus prioritisation provided at a number of signalised traffic junctions in the GDA. The use of prioritisation technology at additional signalised junctions has the potential to further improve bus performance while still retaining general network performance for other traffic.

### **5.4.2 Core Bus Corridors**

As part of the development of the Transport Strategy, a number of studies were undertaken which identified Core Bus Corridors where the demand for travel necessitates significant levels of infrastructural investment in order to minimise delays to bus services.

This Core Bus network represents the most important bus routes in the region, and are generally characterised by a high frequency of bus services, high passenger volumes, and with significant trip attractors located along each route. The identified core network comprises sixteen radial bus corridors, three orbital bus corridors and six regional bus corridors. While this network represents the core high frequency bus routes, it is supplemented by other bus services operating on lower frequency routes and by local buses running on other routes.

This network of Core Bus Corridors will serve significant origins and destinations across the Dublin Metropolitan Area and throughout the GDA, particularly those locations not directly served by heavy rail and light rail. It will also provide greater opportunity for reliable and convenient interchange with these services.

### **5.4.3 Proposals**

#### **Enhanced Bus Priority**

As outlined above much has already been achieved in catering for bus movement in the GDA, and it is an objective of the Plan to build on that work. In order to ensure an efficient, reliable and effective bus system, it is intended, as part of the Plan, to progress the development of the Core Bus Corridors to achieve, as far as practicable, continuous priority for bus movement.

This will mean enhanced bus priority on these corridors through enhanced bus lane provision and traffic management measures, which will remove current delays on the bus network in the relevant locations. This will enable the bus to provide a faster and more reliable alternative to car traffic along these routes, making bus transport a more attractive alternative for road users. It will



also make the overall bus system more efficient, as faster and more reliable bus journeys means that many more people can be moved with the same level of vehicle and driver resources.

Initial information in relation to the radial Core Bus Corridors, set out below, was published in June 2018:

- Clongriffin – City Centre;
- Swords – City Centre;
- Ballymun – City Centre;
- Finglas – Phibsborough;
- Blanchardstown – City Centre;
- Lucan – City Centre;
- Liffey Valley – City Centre;
- Clondalkin – Drimnagh;
- Greenhills – City Centre;
- Kimmage – City Centre;
- Tallaght – Terenure;
- Rathfarnham – City Centre;
- Bray – City Centre;
- UCD Ballsbridge – City Centre
- Blackrock – Merrion; and
- Ringsend – City Centre.

A number of orbital routes will also comprise an important element of the bus system, ensuring that many more trips within the Metropolitan Area can be undertaken by public transport in a convenient and efficient manner. Six orbital routes are proposed for development as part of the network of Core Bus Corridors, comprising:

- Dún Laoghaire – Dundrum;
- Dundrum / UCD – Tallaght;
- Dundrum – Finglas;
- Ranelagh – Drumcondra;
- Tallaght – Blanchardstown; and
- Blanchardstown – Kilbarrack.

These orbital corridors may be amended and others may be added as a result of the orbital bus service proposals emerging from the separate review of bus services across the Dublin region. It is intended that a targeted set of bus priority works will be carried out in relation to these orbital corridors initially to address the specific locations giving rise to the main delays on the orbital network. Proposals to provide for more comprehensive bus priority on these orbital routes will be brought forward for implementation in the later stages of the Plan.

Overall it is planned to deliver approximately 230 kilometres of one-way bus lanes on the radial corridors included in the Core Bus Network by 2027. Within the period of this Plan, it is intended to develop half of this overall amount – 115 kilometres of bus lanes. This will remove the delays currently being experienced on these routes, which will grow worse as congestion increases, and allow the buses to transport their many thousands of passengers with greater certainty about the arrival times to their destinations.

### **Improved Interchange Facilities**

The development of the above Core Bus Corridors, in tandem with the root-and-branch review of the Metropolitan Bus Network, will give rise to significant opportunities for a wider range of trips



to be undertaken using interchange. This may comprise interchange between new orbital bus services and enhanced radial services and between bus and rail modes. As such, it is important that there is an appropriate level of investment in improving interchange facilities.

This investment will be undertaken according to the following principles:

- Seamless and efficient transfer between all intended transport modes;
- Better integration with the local urban context, including public realm and existing and future land uses;
- High quality passenger information relating to all public transport modes serving the interchange and to the interchange surrounds;
- Safe and secure passenger interchange in terms of shelters, lighting, seating and pedestrian accessibility; and
- Integration of management systems, maintenance, architecture, property etc. across operators.

There are several categories of interchange that will require investment. The focus of investment will be on the key suburban interchanges which will form the hubs of the emerging network, including those served by rail. These include Blanchardstown, Liffey Valley, Clongriffin, Finglas, Tallaght and Dundrum. Consideration of how passengers will interchange between services within Dublin City Centre will also be important, while facilities for all locations where DART, Luas and Bus meet will also require examination, particularly as passenger numbers increase.

## **5.5 Bus Fleet**

### **5.5.1 Current Status**

In terms of bus fleet, there was significant investment in the bus fleet in the early years of the last decade. However, the economic downturn meant that investment in bus fleet renewal was limited from about 2007 and into the early years of the current decade. As a result, the average age of the Dublin Bus fleet had dis-improved. Older buses, in addition to not offering the same level of passenger comfort as more modern buses, have higher operating and maintenance costs, which in turn puts further pressure on the limited public service subsidy amounts.

The appropriate approach to bus fleet management revolves around a continuous programme of bus fleet replacement. Having a consistent level of vehicle replacement each year avoids the peaks and troughs that characterised previous approaches.

The desirable maximum age of a standard double deck bus operating at optimal use with minimal service disruption is about 14 years, with maintenance and running costs increasing significantly after that point. In general, 12 years is a better target as manufacturers are prepared to offer warranties on the bus chassis and certain other elements up to a limit of 12 years.

Vehicle appearance, availability and reliability are all critical issues which affect the quality of the service provided to the passenger. Maintaining a low average fleet age is a key part of the quality strategy which contributes to the attractiveness of modern public transport and reinforces the stated Government policy of shifting the modal split away from private cars.

New vehicles also incorporate a number of improved features which are designed to improve the bus environment for the Customer. These include a more spacious interior with better width and head heights in both upper and lower saloons, improved heating and ventilation systems, improved seating, next stop information, Wi-Fi capability, improved wheelchair accessibility, a

separate buggy space and centre doors. All of these factors make bus journeys more comfortable and thereby increase the relative attraction of commuting by bus.

A further feature of the replacement of older buses with modern new vehicles is the consequent reduction in exhaust emission levels. All vehicles purchased since 2015 all meet the latest Euro VI standards for emissions. As most of the vehicles being replaced date back to 2000/2001 the reduction in emissions, especially in nitrous oxides and particulates, is very significant.

The average Dublin Bus fleet age at end of 2017 was 7.2 years. Operating on a 12 year maximum age for double deck bus vehicles, it is intended to achieve a steady state situation that maintains the average age of the double deck bus fleet at between 6 and 7 years.

In relation to the wider subvented network, this comprises a number of operators, primarily Bus Éireann, with different fleet mixes which include a large quantity of coaches, reflecting the longer routes being operated. A similar principle applies in relation to these vehicle types, whereby a planned and consistent replacement programme will operate, ensuring an optimum fleet age for each vehicle type.

### **5.5.2 Proposal**

As outlined in section 5.5.1 above given the importance of the bus fleet quality in the provision of an attractive public transport service, it is proposed to invest in a fleet renewal programme that seeks to ensure that the average bus fleet age for publicly subsidised services maintains an average of between 6 and 7 years. This renewal programme will require a continuous level of investment that will allow a consistent level of vehicle replacement each year.

In relation to the Dublin metropolitan services, now operated by Dublin Bus and Go-Ahead Ireland Limited, the steady state replacement levels are approximately 90 vehicles per year. In relation to the Public Service Obligation services operated by Bus Éireann, the steady state replacement levels are somewhat less, at approximately 55 to 60 vehicles per year.

It is intended to seek to maintain the steady state replacement level of bus/coach vehicles during the period of the Plan. In addition, as passenger demand increases, extra vehicles will be purchased to provide the capacity to meet the demand where it is required.

Recent bus fleet investment has seen the procurement of an enhanced and modern standard of vehicle. On double deck vehicles, these improvements have included:

- Second door provision on buses to speed up boarding and alighting at stops. Dwell times at stops is a significant portion of the overall journey time;
- Improved seating in the form of individual seating rather than standard bench type seating;
- Better identification of wheelchair spaces;
- Improvements in legroom spacing;
- Straight access stairs to upper deck;
- Separate buggy space;
- Audio announcements and visual displays facilitating next-stop identifications; and
- Wi-Fi provision and USB charging points.

It is intended that similar specifications will apply to future bus vehicle acquisitions under this Plan, with further accessibility and passenger convenience features being key considerations for all new fleet.

In relation to regional fleet, the Authority is introducing a new vehicle type, a low entry, wheelchair accessible vehicle (via entrance door ramp) capable of operating regional routes at coach type speeds. This will significantly enhance the ease of wheelchair access onto this regional fleet, allowing simple “roll-on” boarding via a ramp at the vehicle entrance door rather than the more complex wheelchair lift arrangements on other coaches. Further improvements in accessibility performance of the fleet will be pursued during the period of the Plan.

The next section sets out the approach to be adopted in relation to environmental and energy performance of the new fleet.

### 5.5.3 Low Emission Vehicles

One of the objectives set out in the National Development Plan 2018-2027 is to “[t]ransition to low emission buses, including electric buses, for the urban public bus fleet, with no diesel-only buses purchased from July 2019”.

The Authority will complete its evaluation of the various vehicle technologies for use in new bus fleet for urban areas and will put in place an arrangement to transition to an alternative low emission vehicle type from mid-2019. In particular, it will monitor the potential, as the technology matures, for fully electric bus vehicles to be utilised in urban areas, with the benefits of zero tailpipe emissions and low noise levels.

## 5.6 Bus Stops and Shelters

### 5.6.1 Current Status

Ensuring the quality of the bus vehicles addresses one component of the customer experience. Another important component is the level of quality of roadside provision of bus shelters and bus stops. This is currently significantly less than it could be, partially because of limited investment.

The types of deficiencies that currently exist include:

- Poor standard of many older bus stops – corroded poles, limited or no information;
- In rural areas, frequently no hard standing of any type – bus stops poles set in grass verge;
- Poor road surfaces at stops;
- Poor design and construction of bus bays;
- Poor quality route and fare information at many stops;
- Poor lighting;
- Lack of appropriate footpath connections to many bus stops, particularly in rural areas;
- Lack of bus shelters in locations where they should be provided;
- Poor standard of many older bus shelters;
- Advertising considerations compromising bus shelter layouts and provision;
- Poor quality of seating in bus shelters in general;
- Lack of bus-bays or indentations to facilitate other vehicles passing the stopping bus;
- Lack of stop sharing between operators;
- Lack of conformity in bus stop infrastructure types;
- Inadequate or no cycle parking facilities at many stops which are appropriate for their provision;
- Lack of litter bins at most bus stops and bus shelters; and
- Graffiti present at many locations.

### 5.6.2 Proposal

It is the objective of this Plan to put in place a programme to improve the quality of roadside facilities for bus services incorporating a common design approach, uniform styling and standardised information formats, such as:

- A standardised style of pole, flag (head plate at top of pole) and information panel, under the Transport for Ireland brand, will be used at all bus stops;
- There will be a rationalisation of bus stop poles and sharing of nearby bus stops between operators;
- Key bus stop locations, being busy bus stops and key interchange locations, will be equipped with bus shelters, where space permits, incorporating comprehensive information panels and appropriate seating; and
- The Authority will prepare and issue design guidelines for bus stopping areas, to ensure a consistent standard and high quality approach in the provision of bus stopping facilities.

The Authority has commenced the rollout of the standardised type of bus pole, flag and information panels and will proceed with the transition of all bus stops to the new layouts. Within the main urban areas, these new bus stops will be delivered as part of the overall BusConnects programme. The Authority will continue to coordinate the provision of bus stop facilities for publicly subsidised bus services and will also prescribe standards of bus stop facilities, layouts and information provision for privately operated services.

It is intended that the full roll-out of the new bus stop poles, flags and information panels will be completed across the State during the period of the Plan.

## 6 Light Rail Investment

### 6.1 Background

The first light rail lines in Dublin – St. Stephen’s Green to Sandyford and Tallaght to Connolly – began operating in 2004. In the subsequent years, the Red Line was extended to Docklands, opening in December 2009, and a spur to Citywest/Saggart was opened in July 2011. Similarly, the Green Line was extended to Cherrywood/Bride’s Glen, with services commencing in October 2010.

The most recent extension to the light rail system was Luas Cross City, which extended the Green Line northwards to Broombridge. The 5.6 km Luas Cross City link was opened for passenger service in December 2017, adding a further thirteen new tram stops to the overall light rail system and allowing easy interchange to the Luas Red Line.

The Government’s National Development Plan 2018-2027 includes for the further development of the light rail network. It provides for the implementation of MetroLink, a north-south urban light rail metro service that will run between Swords and Sandyford, connecting key destinations including Dublin Airport and the City Centre along the 26km route. It also provides for capacity enhancements to the Green Line in advance of its transition to metro service and for planning and development work on further extensions to the light rail network.

### 6.2 Objectives

The main objective of the investment programme in light rail (Luas) and metro infrastructure is to provide additional, high capacity, public transport services in the GDA where demand on prospective routes is in excess of what can reasonably be provided by bus-based transport but less than the capacity of heavy rail. Allied to this is the objective of securing a substantially greater modal shift from private car use to public transport and, in this regard, the reliability, speed and frequency of light rail/metro (which derive, in part, from a high degree of segregated running) makes this mode an attractive means of transport.

The objectives of this sub-programme are to:

- Provide additional capacity on the Luas Green Line through additional fleet, longer trams and other associated works, in advance of its upgrade to metro standard;
- Complete the planning and design for the MetroLink scheme and commence its construction in 2021;
- Preserve and enhance the performance of the existing light rail network through investment in fleet capacity, ticketing systems, customer information improvements and enhanced access and facilities at Luas stops;
- Improve interchange arrangements with other transport modes; and
- Undertake planning and design work on a number of proposed extensions to the overall light rail network.

### 6.3 Proposed Investment Areas

The proposals in relation to light rail investment are encompassed in three investment areas:

- MetroLink;
- Fleet and Network Enhancement; and
- Network Development.

Given the statutory remit of the Authority, the proposals under this Plan in respect of above investment areas are related to the Greater Dublin Area only.

A total of €1,773.0 million is anticipated to be invested under the light rail sub-programme. The annual amounts over the six years of the Plan are stated in the table below. The stated amounts are subject to adjustments during the period of the Plan in line with project prioritisation, progress of projects and Exchequer funding constraints.

	2019 (€m)	2020 (€m)	2021 (€m)	2022 (€m)	2023 (€m)	2024 (€m)	Total (€m)
<b>Light Rail Investment</b>	<b>16.25</b>	<b>72.0</b>	<b>262.0</b>	<b>275.7</b>	<b>569.0</b>	<b>579.0</b>	<b>1,773.9</b>

The proposed investment areas are elaborated on in the following sections.

## 6.4 MetroLink

### 6.4.1 Background

A metro project connecting Swords and Dublin City Centre has been proposed and suggested for many years. A detailed proposal was developed for a scheme extending from St. Stephen's Green to Swords and received planning approval from An Bord Pleanála in 2010. However, due to Ireland's subsequent and significant economic downturn, the Government decided to postpone the project in 2011.

In 2015, the Authority published the Fingal/North Dublin Transport Study Report, which assessed the need for a metro solution against various alternatives that had been identified. It concluded that a metro scheme was the appropriate solution to meet the public transport needs of the Swords – Airport – City Centre corridor. This recommendation then informed the Transport Strategy for the Greater Dublin Area 2016-2035, which also included the objective to upgrade the Green Line to metro standard. These two projects were subsequently combined as MetroLink. The Government has included MetroLink (from Swords to Sandyford) in the National Development Plan 2018-2027 published in February 2018, with a planned completion date of 2027.

### 6.4.2 Proposed Scheme

The MetroLink project will provide a north-south urban railway service that will run between Swords and Sandyford, connecting key destinations including Dublin Airport and the City Centre along the 26km route.

A large proportion of the route will be underground, including where it passes under the important city centre area and Dublin Airport. The underground section will terminate in the south city area, where the metro will connect to, and run southwards on, the existing Luas Green Line. The Luas Green Line will be upgraded to metro standard as part of the project.

There will be a total of 25 stations (including 15 new stations), 3,000 additional Park and Ride spaces, and a journey time of approximately 50 minutes from Swords to Sandyford.

As well as serving the needs of Dublin Airport, the MetroLink project will cater for the current and the forecast population growth along the Swords/Dublin Airport to City Centre corridor. In Census 2016, Fingal registered the highest growth rate in the country at 8.1%, having risen by 13.9% in the

previous inter-censal period. Failure to put appropriate plans in place now to meet the long-term transport needs of this area would mean increased congestion down the line which would ultimately threaten our future economic development.

The upgrading of the Luas Green Line to a metro level of service as far as Sandyford will cater for the increased demand for travel being experienced along that corridor, including from the expanding employment zone at Sandyford. It will also facilitate a higher frequency and higher capacity Luas service from Bride's Glen which, via interchange at Sandyford, will serve the travel demand from the Cherrywood Strategic Development Zone and the expanding districts of Ballyogan and Carrickmines. In the longer-term, the development of Bray and Old Conna will benefit from the additional capacity provided by MetroLink.

As well as serving the above destinations, MetroLink will also serve a large number of significant destinations, including Ballymun, Dublin City University and the Mater Hospital, and will interchange with other rail and bus services in the vicinity of Glasnevin, O'Connell Street, Tara Street, and St. Stephens Green.

Work on the design and planning of MetroLink was commenced in 2016 by the Authority in collaboration with Transport Infrastructure Ireland. It is intended that the project will commence construction in 2021 and will be completed in 2027.

The indicative allocation to the MetroLink project under the National Development Plan 2018-2027 is €3 billion. The final scheme cost estimate can only be fully established subsequent to further design development of the project and the finalisation of the planning process.

## 6.5 Fleet and Network Enhancement

Like any network with increasing passenger numbers, further investment will be required to ensure that the Luas system retains the carrying capacity to deliver the number of passengers seeking to use the service. This will require investment in longer vehicles and additional rolling stock. Capacity constraints are already in evidence in the city centre areas of both the Red Line and the Green Line at some peak time periods and additional investment in increasing the carrying capacity of these lines will be required over the period of the Plan.

The Luas Green Line from Broombridge to Bride's Glen has seen significant passenger growth over the last few years, with a significant rise following the completion of Luas Cross City. That growth is expected to continue as places such as Sandyford and Cherrywood are expanded. In order to accommodate a continuation of that growth in advance of MetroLink, the capacity of the Green Line will need to be increased.

As part of Luas Cross City, seven 54.6 metre trams were introduced to the newly extended Green Line. To cater for the increasing demands on this line over the coming years, further upgrading of the capacity of the Green Line will be undertaken. This will include lengthening the existing Green Line fleet of 40m long vehicles to 54.6m, the purchase of 8 no. additional vehicles to address future passenger demand, modifications to Sandyford Depot to maintain the longer and larger fleet of vehicles and other measures to increase the tram capacity of the Green Line in advance of its upgrade to metro standard as part of the MetroLink project.

As well as increasing overall carrying capacity of the light rail system, it is intended to continue investment in measures to improve accessibility to Luas stops and to further improve facilities at these stops. These works will include such items as provision of cycle parking, better footpath connections to certain stops, and additional parking and drop-off facilities at some locations.

There will also be investment in improving interchange facilities with other transport modes. This will include more integration between bus and Luas services with convenient interchange facilities between these modes, as well as measures such as increased cycle parking at Luas stops. Additional information provision for transport interchange will also feature at Luas stops.

## **6.6 Network Development**

While MetroLink will constitute the main extension of the light rail system that will proceed to construction during the period of the Plan, it is also intended to undertake the planning and design of further extensions to the light rail network. Those additional extensions will be constructed subsequent to the Plan period.

The Transport Strategy for the GDA identified four extensions to the light rail network. These were:

- Luas to Finglas;
- Luas to Lucan;
- Luas to Bray; and
- Luas to Poolbeg.

The National Development Plan 2018-2027 provides for the undertaking of appraisal, planning and design of these four network expansions.

In addition to the planning work on these extensions, investment will also be required to maintain the existing light rail network in a steady state and to ensure that services continue to be delivered efficiently. This will include expenditure to maintain, renew and manage the existing infrastructure and rolling stock. In addition, other smaller interventions will be undertaken during the period of the Plan, including the potential conversion of the Luas stop at Connolly to other transport uses, the enlargement of the Luas Park & Ride site at Red Cow and other park and ride enhancements associated with the Luas network.



## 7 Heavy Rail Investment

### 7.1 Background

Heavy rail represents the high capacity end of the public transport spectrum. It is targeted to be provided on corridors that are predicted to have in excess of about 7,500 passenger movements in the peak hour. It provides the core high capacity network that is central to the Greater Dublin Area's mass transit system.

The rail system currently comprises a number of individual rail lines:

- The Northern line, extending northwards from Connolly Station, providing an electrified DART service from Malahide and Howth (Howth is served by a branch line from Howth Junction), diesel commuter services from Drogheda/Dundalk and an Intercity service linking to Belfast;
- The South-Eastern line, extending southwards from the city centre, providing an electrified DART service as far south as Greystones and a diesel service further southwards, serving towns such as Arklow, Gorey, Enniscorthy, Wexford and Rosslare. This line is significantly constrained south of Bray, being a single track with limited passing capacity;
- The Kildare line, providing diesel commuter services as far southwards as Portlaoise and Carlow plus Intercity services to Waterford, Cork, Limerick and Galway. While most services terminate at Heuston Station, the recently opened Phoenix Park Tunnel link now allows services on this line to be routed into the central city stations of Connolly, Tara, Pearse and Grand Canal Dock; and
- The Maynooth line, providing diesel commuter services from Maynooth, with a lower frequency service extending to Longford and also providing Intercity services to Sligo. Through a newly constructed branch line, commuter services are now provided to Hansfield, Dunboyne and M3 Parkway.

There has been significant investment in rail over recent years, with the rail fleet in particular benefiting from modernisation and renewal. The Phoenix Park Tunnel link has been re-opened to passenger service; additional rail stations have been added; additional track capacity has been provided on the Kildare line; the newly constructed line from Clonsilla to the M3 Parkway has opened; major safety improvement works have been undertaken on the various lines.

### 7.2 Objectives

The objectives of rail investment are to:

- Implement key elements of the DART Expansion Programme;
- Eliminate the current signalling restrictions in the city centre through the completion of the City Centre Re-signalling project;
- Protect the safety and reliability of the GDA railway system through investment in upgrading of train control and monitoring systems;
- Continue investment in a level crossing closure programme;
- Enhance customer information systems and ticketing systems; and
- Continue the upgrading and enhancement, including accessibility, of train stations in the GDA.

### 7.3 Proposed Investment Areas

The proposals in relation to heavy rail investment are encompassed in seven investment areas:

- DART Expansion Programme;
- City Centre Re-signalling Project;
- National Train Control Centre;
- Ticketing / Revenue Systems;
- Station Improvement / Other Enhancements Programme;
- Non-DART Fleet; and
- Network Development.

A total of €1,049.5 million is anticipated to be invested under the heavy rail sub-programme. The annual amounts over the six years of the Plan are stated in the table below. The stated amounts are subject to adjustments during the period of the Plan in line with project prioritisation, progress of projects and Exchequer funding constraints.

The Authority's statutory remit in relation to the provision of rail infrastructure encompasses the Greater Dublin Area only and the investment programme for heavy rail is, accordingly, directed to this region.

	2019 (€m)	2020 (€m)	2021 (€m)	2022 (€m)	2023 (€m)	2024 (€m)	Total (€m)
<b>Heavy Rail Investment</b>	<b>67.7</b>	<b>108.0</b>	<b>167.0</b>	<b>166.0</b>	<b>225.8</b>	<b>315.0</b>	<b>1, 049.5</b>

The proposed investment areas are elaborated on in the following sections.

### 7.4 Investment Areas

#### 7.4.1 DART Expansion Programme

The Transport Strategy for the Greater Dublin Area 2016-2035 includes the DART Expansion Programme, which will provide a major expansion of the DART system, providing fast, high-frequency electrified services to Drogheda on the Northern Line, Hazelhatch (or further southwards) on the Kildare Line, Maynooth and M3 Parkway on the Maynooth/Sligo Line, while continuing to provide DART services on the South-Eastern Line as far south as Greystones<sup>5</sup>.

The DART Expansion Programme also incorporates the DART Underground Project, which is an underground rail link through the City Centre, allowing DART services to operate on the Kildare line and travel through the tunnel, enabling passengers to connect with DART services on the other three rail lines.

As confirmed in the National Development Plan 2018-2027, the initial sequencing of investment will focus on delivery of non-underground tunnel elements of the programme using the recently opened rail link and existing connector tunnel under the Phoenix Park.

<sup>5</sup> All subject to compliance with the EU Habitats and Birds Directives; please refer to Section 4 of this Plan containing mitigation and the accompanying Natura Impact Report.

This will enable additional services to be put in place much earlier, using existing infrastructure with some enhancements. The initial focus will be on fleet acquisition and measures necessary to allow the services to be introduced such as resignalling, junction and station changes.

As part of the DART Expansion Programme, it is intended to purchase bi-mode multiple units that can operate as electric powered or diesel/battery powered train sets. This will allow DART to be expanded initially without electrification, with the units running in electric powered mode along the electrified sections of line and in diesel/battery mode along the other sections. Electrification<sup>6</sup> will follow to provide a more energy efficient rail network with lower carbon emissions. Electric multiple units (EMUs) will also be purchased as part of the DART enlargement. This will enable DART services to be extended as far as Drogheda on the Northern Line, Celbridge/Hazelhatch (or potentially further southwards) on the Kildare Line, Maynooth and M3 Parkway on the Maynooth/Sligo Line, while continuing to provide DART services on the South-Eastern Line as far south as Greystones. Because of the lead time for delivery of new fleet, the expansion of DART services will continue subsequent to the period of the Plan. The project will also include new stations to provide interchange with bus, LUAS and Metro networks and a new depot, or depots, to cater for the expanded DART fleet.

The significant benefit to using the recently opened rail link and existing connector tunnel under the Phoenix Park and the proposed sequence of investment, is that it will enable additional passenger services to be put in place much earlier using existing infrastructure with some enhancements. This integrated rail network will provide a core, high-capacity transit system for the region and will deliver a very substantial increase in peak-hour capacity on all lines from Drogheda, Maynooth, Celbridge/Hazelhatch and Greystones. The route for the remaining element of the overall DART Expansion Programme, the DART Underground Tunnel, will be established and protected to allow for its future delivery.

In specifying the new fleet, careful consideration will be given to the issue of accessibility of the new vehicles, including the potential for improved platform to train access for wheelchair users.

The indicative allocation to the DART Expansion Programme under the National Development Plan 2018-2027 is €2 billion.

#### 7.4.2 City Centre Re-signalling Project

One of the most significant constraints on the existing rail network was the limitation on the number of train paths through the city centre section between Connolly and Grand Canal Dock stations. The on-going City Centre Re-signalling project provides for significant capacity enhancement through this section by upgrading the signalling system and by providing additional turn-back facilities at Grand Canal Station, delivering the potential for approximately 50% additional train paths per direction in the critical city centre area. Its completion unlocks this major bottleneck in the city centre, and will have positive spin-off effects for DART, Commuter and Intercity passengers.

In addition, it will provide the necessary capacity through the city centre to cater for other projects within the Greater Dublin Area, including in particular, additional DART services under the DART Expansion Programme.

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<sup>6</sup> Subject to compliance with the EU Habitats and Birds Directives; please refer to Section 4 of this Plan containing mitigation and the accompanying Natura Impact Report.

The project extends from Malahide and Howth in the north to Sandymount in the south. It is being delivered in a series of 4 interlinked phases, which are:

- Phase 1 of the City Centre Re-signalling Project cover areas between Malahide / Howth and Killester;
- Phase 2 covers the area from East Wall junction to Killester;
- Phase 3 covers the signalling area from Tara Street to Sandymount, and the infrastructure and permanent way changes at Grand Canal Dock Station.; and
- Phase 4 covers the Connolly area, which includes replacement of the signalling control system and thereby facilitating future city centre enhancement improvement works.

The section between Malahide to Killester (including the Howth Branch) and the section from Connolly to Sandymount were completed prior to 2019. Works in the Connolly Station area and in the section from Killester to East Wall Junction are scheduled to be commissioned in late 2019, with the decommissioning of any redundant equipment scheduled to take place in early 2020.

The project will be completed during the period of the Plan.

### **7.4.3 National Train Control Centre (NTCC)**

Much of the rail network in Ireland is controlled and managed from the existing 'Central Traffic Control' (CTC) centre located at Connolly Station in Dublin.

The existing CTC facility is approaching the limit of its capacity with systems and equipment nearing the end of their useful lives. While various parts of the CTC systems have been replaced over the years, much of the technology and systems date back over 20 years. Accordingly, while operating safely, these systems are far less effective and efficient when compared with more modern technology. This has resulted in increasing operational inefficiencies with an increased risk of service non-availability.

This project will provide an upgraded National Train Control Centre (NTCC) to cater for immediate and future rail control requirements. This modern NTCC will integrate signalling and communications control across the entire Iarnród Éireann network, thereby optimising rail traffic management, providing accurate real-time travel information for trip planning and reducing the impact of delay and disruption on the network. The new NTCC will provide the ability to increase the capacity on the network and support the enhanced services proposed by the DART Expansion Programme.

The proposed NTCC facility will also facilitate the potential co-location of transport related third parties including a regional traffic control centre and other transport control centres. This will enable a more effective management of traffic control for the region and the management of emergency situations as they occur.

It is proposed to provide a new facility in Heuston station and a back-up facility in Connolly station. Planning and development work has commenced and the new facilities will be completed over the period of the Plan.

### **7.4.4 Ticketing and Revenue Systems**

Customer Information, Ticketing and Revenue systems are essential to the smooth operation of a modern railway, which continuously transform the manner in which customers can interact and transact with the train service operator. In recent years there has been significant investment in these areas which have made it easier for customers to buy tickets and use the railway.

It is proposed to continue this investment programme and one key objective is to modernise customer information provision through upgrading systems and processes over the coming years. In this information age, customers have expectations of ease of access to service details and timely notification of any alterations that may impact on their journey experience. Accessing information in real time while 'on the move' has become an established norm.

Customers currently receive information through visual, voice and mobile media when at stations or on-board services. The piecemeal development of systems to inform these media has led to inconsistent information provision with parts of the network lacking basic information systems.

Systems are generally of poor quality and life expired where available. Real time passenger information is taken from the signalling system with significant gaps in coverage and granularity. Public address systems generally allow for local communications with a smaller proportion also controllable from some central locations. Very limited wayfinding and modal interchange information is available to users. Systems do not provide for seamless self-service and require much staff intervention, especially during times of disruption.

The objective for the future is to provide relevant, accurate, accessible (i.e. suitable for those with sight impairment or other disabilities) and consistent information to customers at the times required and through their media of choice. The overarching strategy is to integrate systems and information provision under a Customer Communications Centre (CCC) to be established within and co-ordinated by the planned National Train Control Centre (NTCC). Automated systems will enable customers to self-service for all routine information while freeing staff to concentrate on activities that add value and address non-standard informational requirements.

A second key objective is to continue to develop the capabilities deployed through the Customer First Programme in 2017 and 2018 which encompasses an online seat reservation system, booking office and on-board ticketing systems, revenue management systems, customer relationship management systems and marketing campaign management tools. It is critical that an ongoing development roadmap is in place which will enhance existing capabilities and avoid a return to a future state of life expired legacy systems.

#### **7.4.5 Station Improvement and Other Enhancements**

The appearance, quality, accessibility and security of rail stations all influence usage of the rail network and impact significantly on passenger satisfaction with rail transport. While much has been done over recent years to develop new stations and refurbish some existing stations, more still needs to be done in this area.

Pearse Station, one of the most important stations on the network, requires major roof renewal works. The current Pearse Station roof is life expired and requires intervention to address its degraded condition. It is proposed to replace the current roof with a new roof which is designed to sympathetically address the architectural value of the station. It is intended that work will commence in 2018 to replace the roof of Pearse Station, with the project to be completed in 2020.

Within the funding envelope available, smaller scale improvement works will be carried out at various other stations on the rail network, with the objective of enhancing the overall attractiveness of the rail network. As part of these refurbishment and renewal works, enhanced passenger information provision and other passenger focused facilities that improve the attractiveness and convenience of the rail system will be included.

It is also proposed to continue investing in the accessibility programme to improve access for all to the heavy rail network.

#### **7.4.6 Non-DART Fleet**

While a substantial level of investment will be in DART fleet, there is a continued need to enhance the non-DART fleet.

The Class 22000 fleet of intercity Railcars was introduced between 2007 and 2012 and operate in 3, 4 and 5 car formation trainsets or multiples thereof. These trains operate on all Intercity routes radiating to and from Dublin and many services carry Intercity commuters on journeys of 1 hour or more into Dublin.

In order to address the short term demands on services in the early years of the Plan, it is proposed to supplement the existing fleet with either additional new intercity railcar carriages or second hand fleet or, potentially, both. It is noted that due to the unique gauge of the Irish rail network, any second-hand fleet purchased or leased is likely to require modification to operate in Ireland. Investigations will be carried out in the early period of the Plan in relation to the potential for introducing additional fleet in the short-term.

The development of the Enterprise Intercity cross border service to a high quality, high frequency hourly service operated with Translink NIR is likely to require new fleet in 2025-2027. During the period of the Plan, it is expected that a procurement process for this fleet would commence in 2023.

#### **7.4.7 Network Development**

While the main network development over the period of the Plan will be the DART Expansion Programme, other network developments are envisaged. It is anticipated that a number of additional stations will be opened or added to the network in developing areas which have a sufficient level of demand to support the provision of a train station. Exact locations will be determined at the relevant time, but likely locations include Kishogue on the Kildare line, Pelletstown on the Maynooth Line and, subject to sufficient development in its vicinity, Woodbrook on the South-Eastern Line.

In addition, works may be undertaken on the Bray to Greystones section of the network to provide enhanced service capacity along this section. The exact works to be undertaken will be identified and assessed during the Plan period. Other works are envisaged to occur at various stations, where enhancement works such as accessibility improvements, platform changes, passenger access arrangements, information systems and other alterations will be constructed.

It is also proposed to deliver a car park expansion programme, including a number of large new strategic park and ride sites at key locations.

## 8 Integration Measures and Sustainable Transport Investment

### 8.1 Background

This investment sub-programme spans from the provision of walking, bus and cycling infrastructure to safety improvements and sophisticated traffic control systems. It also includes supporting initiatives for public transport customers such as travel information provision.

Through all its elements it supports the use of the overall public transport system and enhances the accessibility, convenience, and attractiveness of the public transport offering as well as directly providing for the cycling and walking modes of travel. Accessibility will form a central part of each sub-area of this investment category, with all projects and elements taking account of the needs of all users.

Finally, it seeks to optimise the management of the region's roads and streets, in the context of the delivery of this programme and the changing needs of a city-region.

### 8.2 Objectives

The main objective is to encourage the continuation of modal shift to cycling, walking and public transport in the context of increased regional demand for travel. Within that overall objective, key priorities include:

- Cycling/Walking, including:
  - Delivery of the Greater Dublin Area Cycle Network Plan, including both commuting and recreational routes;
  - Identification, and enhancement, of a strategic pedestrian network in urban areas;
  - Delivery of “permeability” schemes, providing attractive short-cuts and direct routes for pedestrians and cyclists;
  - Provision of cycle parking facilities, including at public transport interchange points;
  - Expansion of bike sharing schemes;
  - Pedestrianisation and pedestrian improvement schemes; and
  - Pedestrian / cycle / tourist signage.
- Traffic Management, including:
  - Traffic management schemes, in particular within Dublin City Centre;
  - Development of integrated bus/cycling/walking transport corridors;
  - Traffic re-routing projects in urban areas, to enhance facilities for shoppers, pedestrians and cyclists;
  - Traffic control and information schemes, including public transport prioritisation systems; and
  - Development of parking facilities, including both local Park & Ride sites, and strategic Park & Ride sites.
- Safety, including:
  - Removal of accident black spots, especially those involving vulnerable road users;
  - Implementation of lower speed limits where appropriate;
  - Provision of pedestrian / cycle crossings; and
  - Junction safety improvement schemes.

- Integration Projects, including:
  - Real Time Passenger Information;
  - Integrated Ticketing;
  - Integrated Journey Planner; and
  - Other transport Information systems.

### 8.3 Proposed Investment Areas

The investment will be across four key areas which are:

- Cycling / Walking;
- Traffic Management;
- Safety; and
- Integration.

Given the nature of this programme, involving numerous projects with many of low capital cost, it is not proposed to provide a full listing of all of the projects that are envisaged to receive investment. Accordingly, the following sections set out some of the key projects or groups of projects envisaged to be delivered.

Given the statutory remit of the Authority, the proposals under this Plan in respect of the first three areas – Cycling/Walking, Traffic Management and Safety – are related to the Greater Dublin Area only with the exception of the public bike share schemes which relate to the full State. In addition, the proposals in the Integration investment area relate to the full State.

A total of €524.3 million is anticipated to be invested under the Integration Measures and Sustainable Transport sub-programme. The annual amounts over the six years of the Plan are stated in the table below. The stated amounts in the table below are subject to adjustments during the period of the Plan in line with project prioritisation, progress of projects and Exchequer funding constraints.

	2019 (€m)	2020 (€m)	2021 (€m)	2022 (€m)	2023 (€m)	2024 (€m)	Total (€m)
<b>Integration Measures and Sustainable Transport Investment</b>	<b>52.3</b>	<b>87.0</b>	<b>110.0</b>	<b>95.0</b>	<b>95.0</b>	<b>85.0</b>	<b>524.3</b>

The proposed investment areas are elaborated on in the following sections.

### 8.4 Cycling / Walking

#### Cycling Network

The delivery of sufficient mode share for cycling to meet the National Cycle Policy Framework/Smarter Travel targets depends on the creation of an integrated cycle network for the GDA. Links between key nodes, such as residential, employment, educational and retail areas, are critical elements of a successful utility cycling network. The Greater Dublin Area Cycle Network Plan, planned in conjunction with local authorities, comprises safer, cycle-friendly routes in urban



areas and a series of high quality inter-urban cycle routes, the latter also supporting leisure and recreational cycling.

This network incorporates a variety of routes including two-way segregated cycle tracks, off-road greenways, contra-flow lanes and locations where cyclists will share with general traffic. It will also necessitate traffic management changes, in particular, enhancements to junctions which are hostile to cycling and it may also incorporate some reallocation of road-space to cycling, particularly on-street parking at certain locations. Under BusConnects, it is intended to provide for segregated cycle facilities on all Core Bus Corridors in each metropolitan area.

While delivery of the network will take place over a number of years, it is intended that significant sections of the network will be developed during the period of the Plan. In particular, BusConnects Dublin includes for the development of approximately 200km. of cycle tracks / cycle lanes by 2027. It is expected that by the end of the plan period, 50% - 100km. – on the routes will have been completed.

#### Public Cycle Parking

In recent years there has been a significant increase in cycling numbers in the region, particularly in Dublin City Centre, for a range of journey purposes. This has led to a clear shortage of bicycle parking spaces emerging at peak times at many locations throughout the region. The Authority will assess the need for more public bicycle parking in conjunction with local authorities and relevant stakeholders. This assessment will have, as its core objective, the provision of high quality cycle parking as close as possible to the main destinations in the relevant area, while continuing to facilitate pedestrian movements and accessibility for those with mobility impairments. In line with the outcomes of that assessment, appropriate investments will be made in the provision of additional cycle parking. In advance of that assessment, a provisional target of 1,000 additional cycle parking spaces is proposed.

#### Walking Facilities

All trips include an element of walking, and in central urban areas walking represents the most significant mode of transport overall. To support existing walking trips and to promote an increase in its mode share, improvements to walking facilities are a key focus of this sub-programme. Such improvements take the form of more direct linkages with new pedestrian links and footpaths provided where none currently exist, better surface quality, reduced waiting times at road crossings, safer routes for all pedestrians including children and people with mobility impairments, pavement widening, longer pedestrian phases at signals, shared space where appropriate and the provision of an enhanced overall pedestrian environment.

As part of this process, a strategic pedestrian network plan will be developed, in collaboration with the local authorities, encompassing the main urban centres of the region, which will identify the key pedestrian linkages in those areas and propose measures to enhance the key identified routes. This may include widening footpaths where appropriate, providing better surfacing and by removing unnecessary poles, signs, street cabinets, advertising and other street clutter.

#### Public Bike Sharing Schemes

The Dublin bike share scheme has been phenomenally successful since its launch in September 2009. Arising from its success, there is substantial demand for its expansion to serve a wider area of the city as well as its introduction to other urban centres in the region. Over the period of the Plan it is intended to facilitate the expansion of the “dublinbikes” scheme in addition to introducing public bike sharing schemes to other appropriate areas of the GDA.

Bike schemes have also been introduced in the cities of Cork, Galway and Limerick, with all three schemes commencing operations in at the end of 2014. Further expansions of these schemes and the introduction of additional schemes will be assessed and progressed during the Plan.

## **8.5 Traffic Management**

### Traffic Re-routing Schemes

There are a number of areas in each city centre and in certain large urban areas, where traffic routing changes would provide required space for the introduction, or improvement, of public transport, including light rail in Dublin and Core Bus Corridors and cycle schemes in all locations. Each of these schemes will require extensive consultation and negotiation to resolve competing demands for the available road space.

The objective of implementing these schemes is to increase public transport capacity and performance, improve pedestrian and cyclist access and enhance the overall urban environment for shoppers, visitors and residents, while still providing appropriate capacity for car based transport.

### Development of Parking Facilities

Park and ride operates successfully at several locations in the GDA, usually linked to a rail or Luas station. Building on this, the Transport Strategy identifies a network of strategic park and ride facilities in the GDA. A number of those facilities are dependent upon the development of rail infrastructure along the relevant corridor.

In conjunction with the development of BusConnects Dublin, and increased rail capacity, it is intended to progress the delivery of a number of these sites as part of the Plan. An assessment will also be undertaken to determine if the proposed strategic park and ride site at Liffey Valley could be initially operated as a bus-based site, in advance of the implementation of Luas Lucan. If that assessment is positive it is proposed to implement that development during the Plan.

Along the south-east corridor, encompassing the M11 / N11 national road, it is intended to implement additional park and ride provision, including the potential enlargement of the existing parking facilities at Greystones. This would be delivered in conjunction with increased service frequency on the train line.

In addition, it is intended to further supplement existing park and ride provision at appropriate locations, where there is sufficient demand, and to introduce additional local park and ride facilities.

In urban locations, while parking measures will seek to limit the number of private car parking spaces, the need to obtain road space for items such as cycle lanes, bus lanes, taxi ranks and similar is likely to place additional pressure on the availability of on-street parking. In tandem with enhancement of park and ride provision, the necessity for additional off-street public car parking will be assessed. Where justified, consideration will be given to advancing the development of such facilities for retail and other non-commuter trips.

### General Traffic Management Schemes

Traffic management schemes take a multitude of forms, from junction upgrades to assist traffic flow to traffic signalisation projects to the introduction of speed restraints, including new 30 kph zones. These projects deliver significant benefits, predominately on a localised basis, at relatively low costs. It is intended to deliver a programme of such projects each year of the Plan period, with

the details of the individual projects being determined on an annual basis in line with identified needs and priorities.

#### Traffic Control and Information Schemes

Somewhat related to traffic management schemes, traffic control and information schemes refer to traffic monitoring and control systems and intelligent transport systems. Areas of concentrated population density rely upon complex traffic control systems to optimise transport movement. Linked to the whole area of traffic control the area of intelligent transport systems has grown in significance in recent years, reflecting the growing capability and deployment of technology in the transport sector.

Over the period of the Plan it is intended to continue to invest in the development of traffic control systems, including the further expansion of coordinated traffic signal control in the GDA and the other metropolitan areas, as well as focussing on elements of intelligent transport systems providing tangible transport user benefits.

An important part of this investment will be the provision of bus priority at appropriate signal control junctions.

#### Demand Management

Pursuant to section 71 of the Dublin Transport Authority Act 2008, the Authority intends to develop, during the period of the Plan, a “demand management scheme” for the GDA setting out measures in relation to managing transport demand across the region. Public consultation will take place in relation to those proposals which may include measures to:

- a) reduce the need to travel,
- b) reduce the use of mechanically propelled vehicles and particularly private cars,
- c) increase travel by public transport, bicycle or on foot as an alternative to the private car,
- d) encourage travel at less congested periods other than by means of a congestion charge, and /or
- e) reduce trip length.

#### Strategic Traffic Management

During the period of the Plan, the Authority intends to prepare, adopt and implement a strategic traffic management plan for the GDA, identifying the actions to be taken to secure, in the view of the Authority, the optimal movement of persons, goods and vehicles.

This strategic traffic management plan will be subject to public consultation during its development, and the feedback received will be considered in the finalisation of the proposals.

## **8.6 Safety**

Much has been accomplished in recent years in reducing injuries and fatalities from traffic accidents. While several factors contribute to this reduction, one of the key reasons relates to investment in safer roads and streets and the associated focus on safer junctions.

It is intended to continue this focus on safety related improvements throughout the national transport network. This will seek to address issues at high accident frequency locations, where feasible infrastructure solutions are available. In addition, investment will be used to increase pedestrian and cyclist safety at junctions where current arrangements may not adequately facilitate those transport modes. Finally, investment will be provided for increased provision of pedestrian and cyclist crossing facilities where none may currently exist.

It is intended to deliver a programme of such projects each year of the Plan period, with the details of the individual projects being determined on an annual basis, in consultation with local authorities, An Garda Síochána and other relevant bodies, in line with identified needs and priorities.

## **8.7 Integration Measures**

Various integration measures will be supported by capital investment. Such measures are particularly oriented to the customer experience, including travel information online, integrated ticketing, and information at public transport stops and stations.

These measures are described more fully in Chapter 10 given that they are best explained within the context of service delivery to public transport customers.

## **8.8 Accessibility measures**

A separate Accessibility Programme is managed by the Authority on behalf of the Department of Transport, Tourism and Sport, which addresses specific deficiencies such as the provision of lifts/ramps at railway stations, accessible bus stops, next stop announcements and similar. It is understood that this programme will continue during the Plan period with an increased level of funding, and the Authority will manage and deliver those enhancements.

In tandem with that separate Accessibility Programme, the Authority will also undertake other accessibility related improvements such as:

- Improved audible and visual announcements on the rail and bus networks, replacing some systems which have reached the end of their useful lives;
- Provision of new regional bus fleet that gives an increased level of accessibility to wheelchair users; and
- Development of an accessible smart phone App which gives audible directions, location information and vehicle/service updates in real time.

In addition, in developing projects and delivering services, the Authority will ensure that in planning those projects and service, the needs of all users, regardless of their age, size, ability or disability, will be carefully considered.

## 9 An Integrated Service Plan

### 9.1 Introduction

Over time and as the impacts of investment in the transport system take effect, more people will see the public transport option (including cycling and walking) as the optimum way to go to work and education, to go shopping or to pursue leisure activities and fewer people will use private cars for these and other travel purposes. An integrated service plan, identifying the key objectives and outputs to be pursued by the Authority in relation to public passenger transport services, is essential to influence travel behaviour and secure this modal shift.

An integrated network of public transport services needs to provide:

- A well designed network of routes covering the region so that an increasing proportion of the population lives within a reasonable walking distance of public transport;
- Reliable and predictable services with the appropriate frequency for the locations served;
- A network that connects where people live with centres of employment, shopping centres, schools and colleges, hospital and medical facilities and leisure facilities;
- Punctual services that adhere to timetables supported by “always-available” Real Time Passenger Information that is accurate particularly where unavoidable disruptions occur;
- An easily understood network with logical route numbering that is intuitive and consistent across the region;
- A simple and affordable fares structure supported by a convenient and easy to use payment system;

To achieve this the Authority will strive to provide a comprehensive network of bus services coordinated with train and tram services supported by modern information and ticketing systems, all fully integrated within and between modes. Early in the plan the Authority will establish transport planning criteria to guide the development of the bus network including addressing the objectives of meeting social need, achieving value for money and maximising available resources.

The service outputs that the Authority will pursue and integrate over the period of the Plan are described in this Chapter under the following categories:

- BusConnects – Metropolitan Network Reviews;
- High Capacity Public Transport;
- Taxis; and
- Local and Rural Transport.

Chapter 10 sets out supporting programmes in Integration and Accessibility which will enhance service delivery across all the modes of public transport.

### 9.2 BusConnects – Metropolitan Network Reviews

#### 9.2.1 Introduction

Bus networks continually evolve and change in tandem with changes in population and employment patterns. The on-going development of rail, light rail, and the Core Bus Networks over the period of this Plan will also lead to a reconfiguration of the bus network to reflect those changes and to seek to optimise the efficiency and attractiveness of the overall public transport

provision. The BusConnects programme will deliver a fully redesigned network of routes and services to address the deficiencies in the current network. Some key changes will include:

- The increased capacity of the existing heavy and light rail networks in the GDA will create the potential for bus to play an enhanced feeder role with an associated increase in interchange between all modes;
- In areas where the bus is the sole mode of public transport available, the network will be further developed to achieve transport planning criteria on mode share, coverage and sustainability;
- As the overall public transport network develops, there will be an increasing need to provide convenient and attractive interchange facilities at key points of interchange between the various transport modes; and
- The development of the Core Bus Network will include significant changes to the pattern of services.

### **9.2.2 Key Objectives**

Over the period of the Plan, bus will continue to provide the majority of public transport trips. It is important that bus services continually improve and that new and existing unmet demand is provided for in an efficient manner.

The following high level key objectives, which will seek to improve the customer experience, will be further developed into transport planning criteria for the bus network:

- Provide a well-designed and effective bus network that optimises routes and services to meet passenger demand;
- Ensure the efficient use of available resources in delivering bus services;
- Seek to reduce overall journey times and improve the reliability of bus services;
- Improve service patterns by enhancing services in off-peak periods, in the evenings, and at weekends. 24-hour bus services will be introduced on key cross-city corridors in Dublin;
- Develop greater interchange with other transport modes;
- Provide increasingly simple and convenient means of payment for public transport journeys;
- Provide an attractive, comfortable, clean, accessible and modern bus fleet;
- Ensure value for money for bus passengers;
- Improve the environmental performance of the bus fleet; and
- Assess and progress the appropriate delivery model for Public Service Obligation (PSO) bus services in the general economic interest.

### **9.2.3 Bus Services Reviews**

In order to implement the above high level objectives, the bus network will continue to be reviewed on an on-going basis over the Plan period. The following considerations will form a central part of service reviews of publicly contracted bus services:

- Changes to bus services will be focussed on passenger needs;
- Amendment of bus frequencies and operating times to better match demand;
- Improvements to bus service coverage in built-up areas that are not well served by rail and to disadvantaged areas, where appropriate;
- Improved access to significant destinations including local town centres, workplaces, health facilities, educational facilities, leisure facilities and retail areas;
- Services that cater for growth in population and employment; and

- Greater public transport integration by providing good interchange opportunities as the public transport network evolves.

The service measures that the Authority will focus on in such reviews will incorporate the following:

- Introduction of changes that need to be made as a result of traffic management changes/public realm initiatives in urban centres;
- Investigation of further potential for cross city routes;
- Assessment of scope for further reductions in terminating buses in the city centre;
- Provision for alternative bus routings through the city centre;
- Rationalisation of underperforming routes and amalgamation of services;
- Review of orbital bus routes, to achieve more reliable and frequent services; and
- Extension of bus routes to areas where there is new passenger demand.

#### 9.2.4 Bus Licensing

The Authority licences all commercial public bus passenger services operating within the State. This “Regulated Competition” approach, which ensures the overall demand is met by a combination of commercially provided (i.e. no state funding) and Public Service Obligation services (with State funding). In 2010, the Authority published “*Guidelines for the Licensing of Public Bus Passenger Services*”, which provides advice and guidance to potential licence applicants about the processes and principles of the commercial public bus licensing system.

During the Plan period, the Authority will review the effectiveness of the statutory Guidelines and, as part of this review, will engage with and seek the views of bus operators and other stakeholders. In operating the licensing system the Authority will maintain its strong record of timely bus licence decisions.

Integration of private and public service obligation services will continue to be pursued including national bus route numbering, improved availability of travel information, including real time information and the publication of wider data and statistics relating to bus services, both publicly subsidised and commercially licensed. Also the Authority will develop quality standards to be achieved by licensed services following consultation with key stakeholders.

To support more efficient application for, and processing of, bus licenses the Authority will develop its Information Technology systems for improved route analysis and to assess demand in determining the public service obligations that arise when considering applications for commercial bus licences.

#### 9.2.5 Appropriate Delivery Model

The subsidised funding of Public Service Obligation services is governed by Public Transport Contracts between the Authority and relevant operators. In the case of subsidised bus services in the GDA, Dublin Bus and Bus Éireann and recently Go Ahead operate these services, with payments being made by the Authority for the provision of the contracted services.

The first tranche of contracts with Dublin Bus and Bus Éireann ran from 2009 to 2014 with further contracts with stronger performance criteria established for the period 2014 to 2019 (December). The contracts meet the current criteria set down in EU law, setting standards of operational performance and customer service and contain penalties for non-performance.

The applicable legislation empowers the Authority to either enter into direct award contracts with Dublin Bus and Bus Éireann, or the Authority may competitively tender some or all PSO services.



The Authority determined in 2013 that a proportion (approximately 10%) of subsidised services would be competitively tendered. Subsequently, three tender competitions were initiated in 2015:

1. Dublin metropolitan routes (10% of Dublin Bus PSO services);
2. Dublin commuter routes (Kildare corridor); and
3. Waterford City services.

(Competitions 2 and 3 together comprise approximately 10% of Bus Éireann PSO services).

Go Ahead Ireland were awarded the contact for the Dublin Metropolitan routes and by December 2018 had commenced operations on approximately half of the services; the remaining services to commence in early 2019.

Bus Éireann was the successful tenderer for competition 2 and Go Ahead Ireland was the successful tenderer for competition 3. These services will commence in 2019.

The Authority will determine the appropriate delivery model for PSO bus services from 2019 to 2024 in accordance with national and EU legislation.

### **9.2.6 Local and Rural Transport**

The Authority assumed responsibility for the management of the Rural Transport Programme (RTP) on behalf of the Department of Transport, Tourism and Sport in 2012. The objective of the Rural Transport Programme is to provide a quality nationwide community based public transport system in rural Ireland which responds to local needs. A restructuring programme was implemented in the period 2014 / 2015.

The objectives of the restructuring programme included:

- Manage the RTP programme fully in-house;
- Ensure a more efficient delivery structure;
- Ensure that Rural Transport is integrated with mainstream transport services;
- Procure Service Providers to enter into contracts with the Authority (framework method and direct award);
- Provide a clear identity for the programme through branding;
- Provide an increasing proportion of fully wheelchair accessible services;
- Provide a solid base to expand / adapt services to meet current and future identified needs; and
- Support Government initiatives such as those of the Commission for Economic Development of Rural Areas – CEDRA.

The Authority has developed and has rolled out a single brand name for rural transport services – “Local Link” which is an integral element of the over-arching public transport brand Transport for Ireland. This has been supported with national and local promotional activities.

Seventeen Transport Co-Ordination Units (TCUs) were established nationally under the restructuring programme to replace the previous thirty five Rural Transport Groups. Three of these TCUs serve the greater Dublin Area:

- Louth/Meath/Kildare TCU;
- Kildare/South Dublin TCU; and
- Carlow /Kilkenny/Wicklow TCU.



It is intended rural and local transport will be further developed over the period of the Plan, providing additional services to link people to jobs, education, and retail centres and, in particular, to reduce rural isolation of the elderly, other rural dwellers and people with mobility impairments.

Since assuming responsibility for this programme, new routes, including scheduled commuter routes, have been introduced and existing routes modified to optimise the service provision, and it is intended that this process will continue over the duration of this Plan. A number of criteria are considered, and will continue to be considered, in the route review process including:

- Creating better links between local rural services and longer distance scheduled bus and rail services;
- Continuing to target social inclusion;
- Exploring means to integrate non-emergency Health Service Executive transport requirements into the Local Link network of services; and
- Exploiting opportunities for new and innovative services to support local and community enterprise and tourism initiatives.

The Authority's vision for rural transport is that as budgets allow, rural transport services will continue to grow and will be provided consistently across the country. The over-arching objective is that all rural communities will have the opportunity to access local villages and towns where public services are located (e.g. An Post, doctors' surgeries, men's clubs, community facilities etc.) using public transport at a reasonable frequency, and to connect with other public transport services for onward journeys.

### 9.3 Rail Services

The rail network consists of heavy rail operated nationally by Irish Rail including DART, commuter and Intercity services, and light rail operated by a contracted operator, Transdev, along the Green and Red lines in Dublin.

The role of the rail network is to provide high capacity, high speed public transport spines. The stations and stops provide local hubs for walking, cycling, feeder bus and park and ride journeys, as well as playing a role in land-use development. It is the intention of the Authority, over the lifetime of this Plan, to enhance the rail network in order that it continues to play a critical role in the movement of people and the promotion of economic activity in the region.

All rail services are Public Service Obligation services and are governed by Public Transport Contracts. For heavy rail the current contract is with Irish Rail. For light rail, i.e. Luas, the Authority and Transport Infrastructure Ireland (TII) are joint contracting parties with Transdev who operate the Luas services, with day to day management functions of the contract being assigned by the Authority to Transport Infrastructure Ireland.

Over the period of the Plan, and similar to that set out above for the bus system, the Authority's broad objectives for rail services are as follows:

- To optimise services in order to meet passenger demand;
- To maximise connectivity by rail between the main centres of economic activity and Dublin City Centre;
- To improve overall journey times and reliability for trains and trams in the Greater Dublin Area;
- To manage effectively the operating contracts for rail services;
- To constantly seek to improve the quality of the customer's experience, and

- To improve access for people with disabilities.

### 9.3.1 Heavy Rail

The Irish Rail contract with the Authority involves payments being made by the Authority for the provision of the contracted services on the heavy rail network. The current agreement with Irish Rail was signed in December 2009 for a period of 10 years, to December 2019 and a further 10-year Direct Award contract will be put in place for the services post-2019.

Similar to the bus service agreements, the contract addresses the current criteria set down in legislation, which requires the setting of standards of operational performance and customer service, and a regime to manage areas of non-performance. The Authority monitors the contracted performance of Irish Rail on a quarterly basis and publishes the outcomes on the website [www.nationaltransport.ie](http://www.nationaltransport.ie).

Since the signing of the contract on 3<sup>rd</sup> December 2009, the Authority has strengthened the performance provisions and has also dis-aggregated performance indicators so that a more forensic focus can be applied to service performance. The Authority will continue this process throughout the Plan period through further strengthening the next contract.

As with bus, rail services will be reviewed on an on-going basis over the period of this Plan. Each year the service pattern will be reviewed in the light of changes to demand and passenger feedback.

Completion of the City Centre Re-signalling Project will unlock opportunities for additional train paths through Connolly Station. This will allow for improved configurations for Intercity and commuter services.

An enhanced timetable including the provision of a ten minute headway DART service throughout the core operating day was introduced in late 2018. Further service enhancements will be developed during the life of this Plan and will be implemented subject to the availability of additional subvention for the operation of those, should that be required. Additional rolling stock, when delivered, will provide further opportunities to increase and improve heavy rail services.

### 9.3.2 Light Rail

In December 2018 NTA and Transport Infrastructure Ireland (TII) are in the process of tendering for a new operator to operate and maintain (O&M) the Luas system. The current separate contracts for the operation of the Luas services and the maintenance of the track and fleet expire in Q3 2019. TII and NTA have agreed to bring the operation of the Luas services and the maintenance of the Luas infrastructure and fleet into the one procurement where they were previously separately procured albeit the maintenance contracts were novated into the operations contract.

The Luas system provides an effective and efficient public transport in Dublin which currently requires no operating subsidy. There will be no new Luas lines introduced during the life of this plan, however to complement the significant capital investment in light rail, the following actions are proposed:

- In order to meet anticipated demand, the capacity on the Luas Green Line will be increased through lengthening the existing trams;
- Where interacting with on-street traffic, priority for Luas will be enhanced with longer green-time at junctions given to trams, where appropriate; and

- Service patterns will be subject to on-going review over the period of the Plan.

### 9.3.3 Tram stops and train stations

The passenger experience at tram stops and rail stations will be enhanced in order that the following objectives are met:

- Platforms, stations and trains to be fully accessible by people with mobility impairments and people with disabilities;
- Improved access by foot or on cycle from the surrounding area;
- Provision, where appropriate, of bus stopping areas, taxi ranks and passenger drop off facilities;
- Provision of shelters, well maintained, well lit and with seating, where appropriate and space permits;
- Improved security features for waiting passengers, where deemed necessary;
- Display of stop/station specific timetables and real time train and tram arrival information;
- Display of fares information;
- Display of other travel information including local area maps and maps of connecting bus and rail services;
- Sufficient and secure cycle parking;
- Station car parking in outer areas, where appropriate and not already present;
- Ancillary facilities (toilets, refreshments etc.) at larger train stations; and
- Additional Leap card readers will be installed at busy stops.

## 9.4 Rail Customer Systems

The Authority is working closely with Irish Rail in the completion of a significantly enhanced capability to meet customer demands under the “Customer First” programme including:

- New and enhanced on-line booking capabilities;
- New booking office equipment and systems;
- Improved Customer Relationship Management tools to support promotional activities, business travel, tours and groups, loyalty and complaints handling;
- Improved supporting revenue and fares management systems; and
- New on-line (near time) hand held ticketing equipment for in-service customer handling.

The Authority jointly with Irish Rail will develop the requirements and seek supplier(s) for significantly enhanced customer information systems, in particular systems to provide:

- Much improved audible and visual information on platforms and in trains;
- Improved Real Time countdown displays on all platforms;
- Improved Real Time predictions for train arrivals/departures for web and mobile phone App platforms;
- Improved facilities to manage disruptions to train services; and
- A high quality public address system that covers all stations and platforms.

## 9.5 Taxis and Hackneys

The objectives of the Authority in relation to small public service vehicles (SPSV), comprising taxis, hackneys and limousines, over the period of the Plan, are as follows:

- To increase the number and availability of wheelchair accessible vehicles in the SPSV fleet;
- To promote the provision and maintenance of quality, customer oriented, appropriately regulated SPSV services for the benefit of both the service providers and public users;
- To increase the level of regulatory compliance through communication and enforcement;
- To develop a professional, safe, efficient and customer friendly service by small public service vehicle operators and booking services, promoting protection of service users and providers alike; and
- To support the provision of additional taxi ranks in appropriate locations.

In addressing the above objectives, the Authority will implement the following strategic actions:

- The Authority will seek to improve the accessibility of the national vehicle fleet, with a target that 10% of the fleet to be wheelchair accessible by 2020, with a target to rise subsequently to 100% in 2035;
- The Taxi Regulation (Small Public Service Vehicle) Regulations 2015 came into operation on 31 January 2015. Together with the Taxi Regulation Acts 2013 and 2016, these constitute the legislative framework for the sector. The regulatory framework will be revised as required throughout the period of the Plan to ensure appropriate standards for the industry;
- The Authority will continue to enhance the quality and standard of vehicle in the fleet through standards regulation and at least annual inspections of each vehicle to determine its suitability for use as a small public service vehicle;
- The Authority will consult with the industry and relevant stakeholders regarding the enhancement of the sustainability of the SPSV fleet, particularly with regard to the electric vehicles;
- The Authority will assess the potential for the introduction of a quality grading system for the small public service vehicle industry, to promote the enhancement of customer service provision and, subject to that assessment and consultation, will implement such a system;
- In consultation with An Garda Síochána, the Authority will review the requirements for entry into the industry as an operator, together with continued suitability;
- The monitoring and legal enforcement of appropriate vehicle and driver standards will be further increased and reviewed for continuous improvement over the period of the Plan. The Authority will encourage and promote further joint operations with multiple enforcement agencies for the protection of service users and providers;
- Taxi fares and the prevailing economic environment will be reviewed at approximately two year intervals or such other period as considered appropriate by the Authority;
- The Authority will promote the public use of Driver Check, the public facing safety app which allows a check of the registered status of a driver and vehicle; and
- The Authority will support the provision of taxi ranks at appropriate locations within Dublin City and other centres of activity within the GDA where demand exists and promote the further integration of SPSV services with other forms of public transport. The Authority will liaise with, and provide funding to, the local authority in relation to the provision of appropriate replacement taxi ranks at alternative locations in consultation with the industry and stakeholders when public construction activities require same.

## 10 Integration and Accessibility

### 10.1 Leap card

The Leap card scheme was launched to the general public in December 2011.

Initially Leap was launched as a “Pay-As-You-Go” electronic purse using reloadable contactless chip cards. Further roll-out of the scheme introduced the Student Travel Card, visitor cards (1, 3, 7, 14, 21 and 28 day options), family cards and Tax saver personalised Leap cards. As of early 2018 there were over 3 million cards sold which are being used for over 10 million journeys per month. Approximately 80% of all journeys are now completed using Leap cards.

In 2015 the Department of Social Protection (DSP), working jointly with the Authority, launched the Public Services Card (PSC) free travel variant, which includes a version of the Leap card application stored electronically on the PSC. Customers with free travel rights simply touch on and off in exactly the same manner as fare paying passengers. By 2018 there were over 800,000 PSCs with free travel entitlements issued by DSP.

The Leap card offers unique smart ticketing opportunities including fare capping (daily and weekly), discounting for through journeys by card and instant auto-top-up of the purse value on the card. Fare capping is where a customer can use their Leap card for as many services as they like either daily or weekly and they will be assured that their costs will be fixed or ‘capped’ at attractive rates.

Mobile topping up, which was introduced in 2016 has proven popular with over 20% of all top-ups taking place on mobile phones.

Within the period of the Plan the Authority will evaluate and where appropriate implement other enhancements including:

- Extension of the Leap card scheme to all neighbouring regions particularly the commuter areas along public transport corridors including installation of the equipment necessary for Leap;
- Extending the use of mobile phone Near Field Communication (NFC) App launched in 2016 to support other Leap functions including communicating card status information to customers;
- Use of the Leap card scheme to pay for car parking at park and ride sites.

### 10.2 Next Generation Ticketing

During the period of this Plan the Authority anticipates that the Leap scheme will reach saturation and the use of cash to pay for journeys will steadily decline. For city services cash may be completely removed as a means of payment on bus. This is particularly important for heavily used services where the speed of boarding is an important element of the overall journey time.

In other regions and cities internationally, payment for public transport and related services is moving away from what are now well established schemes such as Leap, or Oyster in London to other operating models. In particular, transport authorities are exploiting technology changes to provide a significantly enhanced customer experience. The exponential improvements in the speed, volume and cost of “over the air” data communications has opened up a previously unthinkable range of opportunities in the sector.

In 2012 Transport for London introduced the use of contactless bank cards as an alternative to Oyster smart cards. Similar schemes have been implemented in several Dutch cities and many other European and US cities are moving to Account Based solutions where passengers are given the choice to pre-load an account, or post pay from a bank or other account using a unique electronic ID (Mobile phone, smart card, identity card, contactless bank card etc.) to touch on/off when traveling. These emerging solutions support faster boarding and alighting, much improved customer choices in how to pay for travel, simple and easily understood ticket product offerings delivered in a secure and convenient manner. The Authority is now developing the specification for new ticketing technologies, mobile ticketing, bar code ticketing and contactless bank cards.

During the period of the Plan the Authority will commence the implementation of an account based solution involving acceptance of contactless bank cards, bar codes and mobile tickets. The migration to new technologies will be managed carefully and must ensure the benefits and strengths of the Leap scheme are maintained throughout the period of migration.

As the existing on-bus ticketing equipment which is currently deployed is close to its “end of life” the Authority will work with service providers to develop the appropriate plans to refresh this equipment. These procurements shall be supported by the migration plan to an Account Based solution, in addition to supporting the current Leap Card with Real Time Passenger Information.

The Authority has implemented a comprehensive suite of well recognised Real Time Passenger Information (RTPI) systems based on Automatic Vehicle Location (AVL) data provided by transport operators to centrally control systems.

The central systems receives data from all Dublin Bus, Go Ahead and Bus Éireann vehicles and Rail and Luas services which is subsequently processed to provide frequent and accurate predictions directly to customers in five forms:

- Over 700 on-street signs at bus stops and in key locations;
- Through a mobile App available to almost all mobile smart phone platforms;
- On-line through the Authority’s customer facing website [www.transportforireland.ie](http://www.transportforireland.ie);
- In key transport hubs, including Dublin Airport, on modern flat screen displays along with other pertinent local public transport information; and
- Using mobile SMS messaging.

The accuracy of the system at over 96% for Dublin City Bus services in the GDA is well above industry norms. Bus Éireann are working with the Authority to achieve similar level of accuracy.

The Authority is working with the private bus sector to develop means by which data from their services can be displayed on the RTPI system with an initial objective of displaying scheduled times for private operators in the GDA. Currently scheduled data is displayed for some private operators.

It is intended to continue the roll-out to other locations for RTPI displays and to assess other arrangements for wider provision of arrival time information.

### **10.3 Journey Planning**

The Authority has developed a web-based public transport National Journey Planner to enable advance planning of any public transport journey on the island of Ireland, including the GDA, from door to door, incorporating walking. The Journey Planner also displays fares options and real time information to web and app users. A separate App has been developed specifically for cycling journey planning. The Planners are available:

- Through a mobile App – Real Time Ireland (Apple iPhones and Google Android devices);

- On-line through the Authority's customer facing website [www.transportforireland.ie](http://www.transportforireland.ie).

Over the period of the Plan, the Authority will further enhance the function and information provision of the Planners and will revise it on a continual basis to ensure that it maintains up-to-date information in relation to all available public transport services.

The Authority will seek to develop and implement a version of the mobile App that supports people with a range of disabilities. The App will use location based information to advise users of the location of stops and the real time predictions of approaching services. It is also likely the App will provide in-journey advice of approaching stops.

## 10.4 BusConnects – Fares Reviews

Easily understandable and attractive fares are extremely important in making public transport attractive. Each year operators apply to the Authority for fares adjustments and approvals for promotional discounting. Following detailed analyses the Authority publishes formal determinations setting out the fare levels approved and the reasons for any increases or decreases. In addition to granting fares increases that are necessary to protect services, the Authority has sought, through each fares determination, to simplify the complex fares offerings and to bring in consistency across services.

Over the period of the Plan, the Authority will:

- Continue progress on delivering an integrated public transport fares structure for the GDA and regional cities;
- Further simplify Dublin City Bus, Irish Rail and Luas fares by reducing the variety of products on offer;
- Continue to support and as appropriate increase the differential between Leap fares and cash fares to increase use of Leap;
- Determine the best means to set fares at the boundary between the Irish Rail Short Hop Zone, the outer commuter zone and intercity pricing;
- Develop the fare structure to encourage inter-modal journeys;
- Develop multi-journey and interchange price incentives through the Leap card;
- Gradually remove anomalies in Bus Éireann's distance based pricing; and
- Continue to develop increased consistency across operators in terms of distance/zone pricing, discount pricing, child/young persons and student pricing.

## 10.5 Public Transport Brand

The remit of the Authority in relation to the development of a public transport brand is set out in Section 57(2) of the Dublin Transport Authority Act 2008 which states *"The Authority shall, for the purposes of promoting public transport, design, develop and secure the implementation of a single transport brand to be used by all public transport operators providing services in accordance with a public transport services contract with the Authority in the GDA"*.

On its establishment, the Authority identified the need to streamline the information flow for public transport consumers. There was no single point or portal where a person could easily plan a trip between any two points in Ireland using:

- Journey planning;
- Real Time Passenger Information;
- Maps; and



- Timetables.

A unified brand, Transport for Ireland, was created to provide a 'one entity – one stop shop' solution encompassing all the different transport providers.

The objective of the brand is to make it easier for consumers including visitors to Ireland, to recognise and interact more effectively with the transport system and to have easy access to information on all aspects of travel such as timetables etc. It supports and enhances the service provision of private and public bus companies and provides reassurance to the public that they are travelling within a national and regulated public transport framework.

The brand has its own website which provides a gateway to services such as the National Journey Planner, Real Time Information, Leap, taxi consumer information, and passenger rights. It is deployed on the increasing number of apps that the Authority has launched and operates as co-branding with contracted operators' brands on fleet, their websites, and information leaflets.

The brands of individual operators are strong and contribute well to the promotion of public transport in Ireland, but they only present a portion of the offering to the public. The sense of integration, multi-mode opportunities to make a particular journey and easy access to information must be increased over the period of the Plan.

During the period of the Plan, the Authority will:

- Continue to promote the single unifying public transport brand for all scheduled public transport vehicles serving the GDA, to assist people in understanding the public transport network as a single entity. The Transport for Ireland brand will be clearly visible on travel information media, on all tickets and at all stops and stations and, in time, on all scheduled public transport vehicles.
- Branding will be incorporated on direction signs to and from public transport stops and stations in all town centres, supplemented where appropriate with local maps indicating bus stops and rail stations, located prominently in town centres;
- Branding will be used on service specific maps, supplemented with public transport network maps where appropriate, at bus stops, rail stations and in public transport vehicles;
- Examine the feasibility of establishing a unified call centre for public transport information;
- In accordance with the National Development Plan 2018-2027, implement new bus branding, integrating bus vehicles of different operators and types; and
- The website [www.transportforireland.ie](http://www.transportforireland.ie) will be enhanced and developed in line with best international examples.

## 10.6 Accessibility

Accessibility improvements to public transport services throughout the country are being advanced in the context of *Transport Access for All*, the Department of Transport, Tourism and Sports Sectoral Plan under the Disability Act 2005, and related Government strategies, in particular the National Disability Inclusion Strategy 2017-2021. The Department's plan sets out a series of policy objectives and targets for accessible public transport across all modes and significant progress has already been achieved in recent years.



Accessibility features, such as wheelchair access and audio/visual aids, are built into all new public transport infrastructure and vehicles from the design stage, with newer systems such as Luas being fully accessible.

Accessibility improvements to existing older public transport infrastructure and vehicles are being delivered as extensively as possible having regard to the availability of resources.

Over recent years there has been a significant increase in the numbers of accessible public transport vehicles together with improved access to much of the public transport infrastructure. Changes have occurred in the ways transport services are delivered as well as in the research and consultation necessary to provide the groundwork for further accessibility measures to be planned and progressed in the coming years.

Many targets have already been achieved and significant progress has been made towards the realisation of several others. Work on the remaining targets is on-going, including through accessibility improvement grants under the Accessibility Programme to install accessible bus stops, upgrade train stations to make them wheelchair accessible and for the introduction of more wheelchair accessible vehicles to the taxi fleet.

The Authority will ensure that its investment programme and service plans continue to deliver on the Department's national objectives for accessibility.

#### **10.6.1 Accessibility for Buses**

The Authority's objective is that bus services should be available to all users and that investment plans and service practices should ensure that the specific needs of those with disabilities are particularly addressed.

The Dublin City Bus fleet is now 100% low-floor wheelchair accessible and will be maintained so by means of the infrastructure investment programme. This will ensure that all scheduled buses on Dublin's City Bus services subsidised by the Authority will continue to be fully wheelchair accessible, with boarding arrangements, seating and internal layout addressing the needs of all passengers.

All of Dublin's City Bus fleet is now equipped with audio next stop announcements and approximately 90% are equipped with visual next stop announcements. The remaining fleet without visual next stop announcements are older fleet which will be replaced in the early years of the Plan. All new bus fleet purchased under the plan will continue to be equipped with these facilities.

All fleet to be operated under the new contracted service in the Dublin area will be fully low-floor wheelchair accessible and equipped with audio and visual next stop announcements.

Bus Éireann operates a mixed bus and coach fleet for commuter services in the GDA. Overall, approximately 85% of their coach fleet has some form of wheelchair accessibility. The investment programme will increase this to 100% over the period of the Plan.

The accessible coaches have one wheelchair space, and wheelchair users are required to make a reservation 24 hours in advance. The potential for deploying additional low floor wheelchair accessible bus fleet, not requiring advance notification, on appropriate routes within the commuter network will be piloted in the early period of the Plan.

To complement the allocation of wheelchair accessible coaches to a route, appropriately sited and designed bus stop locations need to be provided. These will be delivered on a route basis,

matching the fully accessible coach fleet. In addition, all new buses and coaches are also fitted with public address and audible and visual next stop systems.

Some Bus Éireann bus stations throughout the country have received accessibility upgrades in recent years. However, further work is required at various bus stations and this will be implemented via the Department of Transport, Tourism and Sport's separate Accessibility Programme.

A number of private operators utilise wheelchair accessible vehicles. Measures will be put in place through the licensing system to increase the level of accessible services available on commercially licensed bus passenger services.

### **10.6.2 Accessibility for rail**

All operational rolling stock (DART, Commuter & InterCity) is accessible internally for those with reduced mobility. In specifying new rail fleet, careful consideration will be given to the issue of accessibility of the new vehicles, including the potential for improved platform to train access for wheelchair users.

Since 2000 all new railway stations have been designed and constructed in accordance with accessibility standards/best international practice. In relation to existing stations, a programme managed by the Authority on behalf of the Department of Transport, Tourism and Sport is currently on-going to improve the accessibility of various Irish Rail stations across the State.

The Luas system was designed from the beginning to be accessible for all. Accessible features of trams include anti-slip floor coating, wide doors, high visibility handrails, two designated areas for wheelchairs, four priority seats for those with special mobility requirements, on-board digital displays for stop names and other information, automatic audio announcements on board and induction loops for passengers using hearing aids. Stops can be accessed by lifts where required, with ramps at one or both ends of the platforms allowing passengers to cross the tram tracks at track level. These features have been replicated in the construction of Luas Cross City.

### **10.6.3 Small Public Service Vehicles**

In June 2018, the number of wheelchair accessibility vehicles in the small public service fleet (taxi, hackneys and limousines) was approximately 9.3% of the overall fleet. Overall, there are (June 2018) 1,899 accessible vehicles in the fleet compared to just 850 in 2014. Under the Greater Dublin Area Transport Strategy 2016-2035, the objective is to achieve 10% of the fleet as wheelchair accessible vehicles by 2020 and 100% to be wheelchair accessible by 2035.

### **10.6.4 Passenger Rights and Accessibility**

#### **Rail**

EU Regulation 1371/2007 on rail passenger rights and obligations has specific provisions relating to the rights of disabled persons and persons with reduced mobility. The Authority was designated as the national enforcement body in December 2010.

The EU rail passenger rights legislation is to ensure that passengers with reduced mobility can travel in a way that is comparable to other citizens. Railway companies and station managers have to establish non-discriminatory access rules for the transport of disabled persons and persons of reduced mobility, including for example the elderly.

Railway companies are required to provide disabled persons and persons with reduced mobility with assistance on board a train and during boarding and disembarking from a train free of charge. Assistance is provided on condition that the railway company, the station manager, the ticket vendor or the tour operator with which the ticket was purchased is notified of the person's need for such assistance at least 48 hours before the assistance is needed.

### **Ferries**

EU Regulation 1177/2010 created rights for passenger when travelling by sea and inland waterway. The Regulation became effective from 18 December 2012 and the Authority was designated as the responsible national enforcement body for the purposes of the Regulation in Ireland. The Regulation is similar to those in the aviation and rail sectors. The rights include non-discrimination and assistance for disabled persons and persons with reduced mobility.

### **Bus/Coach**

Finally, the rights of passengers travelling on long distance buses/coaches sector are covered by EU Regulation 181/2011 for which the Authority assumed the national enforcement body role in May 2013.

Subject to certain exceptions, this regulation applies to passengers travelling with regular services where either the boarding or the alighting point is within the European Union and where the scheduled distance of the service is 250 km or more. Some of its provisions apply to all services, including those of shorter distance.

The new rights applicable to long distance services (i.e. of more than 250 km) include, amongst others:

- specific assistance free of charge for disabled persons and persons with reduced mobility both at terminals and on board and, where necessary, transport free of charge for accompanying people.

Additionally, there are rights applicable to all services (including those below 250 km) including:

- non-discriminatory treatment of disabled persons and persons with reduced mobility as well as financial compensation for loss or damage of their mobility equipment in case of accident; and
- minimum rules on travel information for all passengers before and during their journey as well as general information about their rights in terminals and online; where feasible, this information shall be provided in accessible formats upon request.

The Authority will expeditiously handle all complaints regarding passenger rights on trains, buses, coaches, and ferries and will mandate changes to operating practices, where so required, to support accessibility rights.

## **10.7 Safety and Personal Security**

One of the primary objectives of this plan is to increase the use of public transport. In order to achieve this objective, trains, trams and buses in the Greater Dublin Area must be safe and must be perceived as safe at all times, in all locations. The Authority will liaise with transport operators, local authorities and An Garda Síochána in order to safeguard the welfare, safety and personal security of the travelling public, and invest in improved infrastructure where deemed necessary.

## 11 Risks and Constraints

### 11.1 Overview

As with all programmes, it is important to be aware of the main constraints and key risks that could impact the delivery of the various measures set out in the Plan. Various external factors may influence the progress of certain schemes or proposals. In some cases mitigation measures can be put in place to reduce potential adverse effects but in many cases amelioration measures are not within the ambit of the Authority.

The following sections detail the main constraints that need to be considered and the key risks that are applicable to the Plan.

### 11.2 Constraints

There are a number of significant constraints that could impact upon the delivery of the Plan. These include:

- a) **Authority resources:** a key constraint in the delivery of the programme is the Authority's personnel resources. The level of capital investment and the extent of service development over the period of the Plan require additional personnel resources within the Authority to deliver the Plan's proposals. Discussions have commenced at central Government level to address this issue;
- b) **Agency resources:** within certain agencies, particularly local authorities, additional resources will also be needed to deliver the cycling and walking programmes and support the development of the bus network and the various traffic management measures required under the Plan. The Authority will support the relevant agencies in securing the additional personnel needed;
- c) **Funding:** the availability of funding to implement the proposals needed to upgrade our transport system is one of the most significant constraints. While an indicative funding profile for capital investment has been provided by the Department of Transport, Tourism and Sport, the subsequent provision of that funding each year will be essential to the delivery of the Plan proposals. In relation to funding under the current budget to support both the Public Service Obligation payments and the Authority's administration costs, the provision of adequate funding will be essential to support the implementation of the relevant enhancements; and
- d) **Industry resources:** the delivery of this Plan will require thousands of specialist personnel, from engineering design professionals, to project managers to skilled craftspeople. Within the civil engineering industry, there is evidence of growing pressures on the availability of specialist resources in certain areas, such as engineering design professionals. This may be mitigated by the use of international resources and the use of firms with access to international partners.

### 11.3 Risks

As with all major investment plans there are a variety of risks that have the potential to impact the delivery of the intended outputs. In the case of this Plan, some of the key identified risks include:

- a) **Planning approvals:** the delivery of the programme is dependent upon achieving the requisite planning approvals in a timely manner. Failure to achieve planning approvals in a reasonable timeline will impact upon the commencement and completion of the relevant projects;
- b) **Legal challenges:** the right to challenge decisions and plans through the courts system available to persons and organisations, and ensures the protection of individual rights and compliance with applicable legislation. Careful adherence with good practice and legislative requirements will mitigate the potential for successful challenges;
- c) **Construction inflation:** construction costs in Ireland and across western Europe, which is relevant in the case of large infrastructure projects, is increasing and poses the potential of significant cost increases in project delivery;
- d) **Cost increases:** the potential for cost increases stems from many factors including project scope expansion, cost estimation issues, cost inflation and inadequate project management. Mitigation measures include tight scope and budgetary controls as well as professional project management;
- e) **Industrial relations:** the implementation of some Plan measures may give rise to industrial relations issues. The State has a comprehensive framework in place for the resolution of industrial disputes; and
- f) **Time delays:** the timely delivery of the measures set out in the Plan is necessary to enable the intended outcomes. Time delays erode and defer the benefits to be obtained from the particular project or service enhancement. Careful project managements will be put in place to monitor delivery against intended timelines.