



## Wheelchair Accessibility: Proposed Licence Conditions - Regulatory Impact Assessment

July 2019

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# Glossary

Glossary of Key Terms	
Accessibility	Refers to the design of services, products and devices for people with disabilities and other difficulties.
Administrative cost	Potential costs that may be incurred due to additional administrative activities required to comply with the proposed new licence condition(s), covering both the private and public sector.
Benefits to cost ratio ("BCR")	Refers to the ratio of total quantifiable benefits that might be earned from increasing accessibility to the total cost that might be incurred to deliver the increased accessibility by all stakeholders. A BCR of greater than 1 means the change has a positive benefit.
Business as usual	Refers to an assumed market development scenario based on existing characteristics and trends.
Capital cost	Potential costs incurred due to additional capital requirements to deliver accessibility in line with the proposed new licence condition(s), for example the cost to purchase a new vehicle or retrofit existing in order to comply.
Inflation	Inflation is a quantitative measure of the rate at which the average price level of a basket of selected goods and services in an economy increases over a period of time. It is the constant rise in the general level of prices where a unit of currency buys less than it did in prior periods.
Net present value ("NPV")	The value in the present period of the costs and benefits that are incurred over a given time period.
Operating cost	Potential costs incurred to operate additional/new equipment acquired to deliver accessibility as per regulatory changes.
Retrofitting for accessibility	Refers to the design changes required in a currently non-accessible vehicle to deliver accessibility for disabled users as per the proposed new licence condition(s). Accessibility solutions to retrofit a vehicle would vary with numerous factors such as the age, make, and size of the vehicle.  For example: Some potential solutions for a high floor type bus could include installation of a wheelchair lift, removal of seats and/or addition of handrails or doors, whereas, for a low floor type bus, potential solutions could include installation of a foldable or telescopic wheelchair ramp, removal of seats and/or addition of handrails.
Stakeholders	Refers to all groups of people or organisations that would be affected by the proposed regulatory changes. Some key stakeholders included in this report are the users of commercial bus transport, the operators of commercial buses and the National Transport Authority.
Willingness to pay	Refers to the stated preference of users to pay for the associated accessibility features.

# Key Assumptions

## Key Assumptions

This report is based on a range of information and statistics provided by the National Transport Authority (“NTA”), publicly available literature and guidance on conducting regulatory impact assessments.

Whilst we have endeavoured to use robust evidence, the report relies on a number of specific assumptions stated below.

Wider considerations based on overall approach:

- The report relies on operator returns data collected by the NTA. The robustness of this data is limited in the context of the analytical review as it was collected for an alternative purpose.
- The report relies on international studies based in other jurisdictions for willingness-to-pay estimates with regards to users. Irish users may have different willingness-to-pay rates associated with accessibility features than those observed in these studies.
- The report relies on historic and available data to estimate key assumptions and future trends.
- The report assumes that operators will not exit the market because of the additional regulatory requirements. However, operators may choose to make that decision if they are unable to comply.
- The report assumes the market continues to function as it does today and operators do not significantly change approaches to fares or services patterns. If operators did change strategies as result of the proposed new licence condition(s) this could have additional impacts not captured.
- The economic value of vehicles that are required to be replaced is assumed to be zero as these buses will no longer be viable for resale within the commercial bus passenger market. The buses are likely to still have a finite commercial resale value in alternative markets such as tours or private hire but this commercial resale value has not been included in the scope of this report due to the uncertainty.
- The BCR is highly sensitive to changes to the inputs which have not been verified through a consultation.
- The report assumes that any new vehicles entering the market after the start of this study will have accessibility features.
- As this report is a RIA that looks at market level impacts, the average costs to operators quoted may differ significantly from costs incurred by some individual operators. The costs quoted have not been validated through consultation. The costs of compliance assumptions applied have been developed through a literature review and supported by analysis.

Key assumptions underlying the analytical approach:

- Based on a review of existing data and historic trends a number of assumptions have been developed and applied within the analysis, including:
  - Passenger growth in demand is assumed to be 5% per annum, based on a review of historic trends.
  - The proportion of passengers with accessibility issues is assumed to be 13.5% of total demand, based on Census 2016 data from the Central Statistics Office (“CSO”).
  - The average revenue per passenger journey is assumed to be €6.14. It is acknowledged that this figure is an average reflecting a range of journeys including short and longer distance.
  - The average wage for an operator is €21.82 per hour and €25.98 for the public sector reflecting CSO data, with a 30% uplift to reflect total labour costs
  - The growth in accessible vehicles within the fleet is assumed to be 4% per year, based on a review of historic trends, evidence from other markets and composition of existing vehicle fleet age.

In order to calculate the cost of compliance we have relied on:

- The cost of existing vehicles and the cost of new vehicles with accessibility;
- The cost to refurbish a vehicle with accessibility features;
- The economic value of vehicles to be replaced is assumed to be zero;
- The operating and maintenance costs of existing vehicles;
- The additional operations and maintenance costs associated with vehicle refurbishment or new vehicle
- The average asset life of a vehicle is assumed to be 20 years; and
- The financing cost rate for operators to spread the cost over the lifetime of the asset, taken as 4.15% as per evidence from the Central Bank of Ireland for loans under €1 million.

In addition the following has also been assumed:

- **Time Horizon** - For the purpose of the analysis a 20 year time horizon has been relied on, with the start date of the analysis being 2017 due to this being the last year with full data and running to 2036.
- **Discount Rate** - As benefits and costs will arise over the evaluation period, there is a need to use a discounting process to evaluate future costs and benefits to present values. As per the RIA Guidance, the discount rate advised by the Department of Finance is 4.0%.
- **Inflation and exchange rates** - As part of the analysis we have needed to convert historical and international data in to consistent units. In doing this we have relied on exchange rate data published on XE.com and for inflation we have relied on the Consumer Price Index publishes by the Central Statistics Office.

# 1 Executive Summary

## Overview

The NTA is considering potential changes to the licence conditions for public bus passenger services with regard to wheelchair accessibility, with the aim of taking appropriate measures to ensure persons with disabilities' access to transport on an equal basis.

These implementation options relate to regulatory changes, within the licensing process, to ensure that operators deploy universally accessible fleets over a set timeframe. The objective of this is to ensure people across Ireland have equal access to public transport and can play a full role in society and the economy.

This report considers the impacts of wheelchair accessibility implementation options based on those that have been initially developed by the NTA. It provides an overview of expected costs, benefits and wider impacts of alternative implementation options.

## Analytical framework

As part of the study we have developed a framework to explore the different options and where possible quantify incremental costs and benefits. This covers users, operators, the public sector and wider society. This follows the following approach:

- Estimating the 'business as usual' costs and benefits based off extrapolated market data trends and assumptions.
- Estimating the additional costs and benefits associated with implementing the proposed new licence condition(s) within the market.
- Calculating the NPV of the incremental difference between 'business as usual' and implementing the proposed new licence condition(s).
- Estimating the additional benefits using evidence from publicly available literature.
- The cumulative NPV of the costs and benefits is reported as a BCR.

The approach is underpinned by the Department of the Taoiseach's revised RIA Guidelines.

## Scenarios

The implementation option scenarios that have been considered within the analysis are as follows:

- **Do Something 1:**
  - Option 1 - Total Accessibility by 2023;
  - Option 2 - Total Accessibility by 2029; and
  - Option 3 - Total Accessibility by 2032.
- **Do Something 2:**
  - Option 4 - Rural/Urban Accessibility by 2023, Interurban by 2026;
  - Option 5 - Rural/Urban Accessibility by 2029, Interurban by 2032; and
  - Option 6 - Rural/Urban Accessibility by 2032, Interurban by 2035.

For all scenarios it has been assumed a ramp up period in the accessibility from 0%, 25%, 50%, 75% and 100% in the years leading up to total accessibility.

## Findings

A number of exploratory options were examined to assess the impact on different stakeholder groups affected by the licensing changes. The analysis of the implementation options provided the following sights:

- In general the regulatory policies presented provide for a positive BCR when accounting for impacts on operators, users and the public sector.
- The BCR estimates ranged from 0.58 to 2.83, with 83% of the scenarios having a BCR greater than 1.
- In general the earlier the implementation of an option, the higher the BCR. This is largely driven by the significant proportion of the benefits accruing to users. However, the earlier the implementation of an option, the higher the net cost to small and medium operators.
- It may not be feasible for some small and medium operators to continue their service if they must incur costs associated with the proposed new licence condition(s). This could lead to loss of service.
- There are likely to be significant wider social benefits from improving accessibility and it is not possible to fully capture a monetary value on all of these. These are likely to include greater participation for those with disabilities, improved health and wellness as well as improvements in general wellbeing.

## 2 Policy Issues & Objectives

This section provides an overview of the policy issues and the key objectives sought from reform.

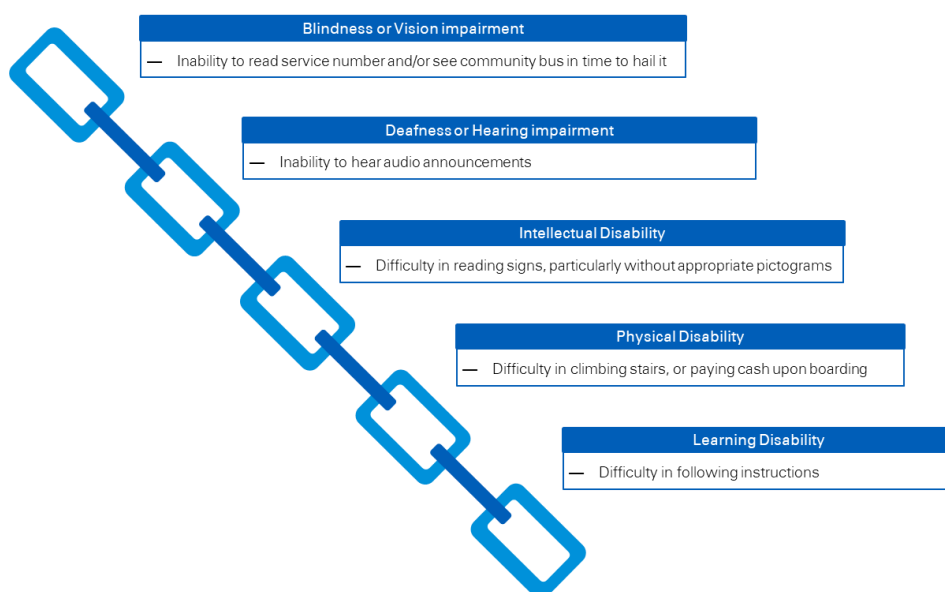
### 2.1 Issue

Accessible public transport is an essential prerequisite to enable people with disabilities to participate in normal activities of daily living, i.e. work, education, leisure and social activities. It is estimated that by 2026<sup>1</sup>, people with disabilities would account for roughly 16 percent of the population, and thus should be given equal consideration in the design and provision of public transport to enable them to gain access to all that society has to offer.

People with disabilities might face various kinds of barriers at varying stages of a journey. They need to be confident that a journey will work effectively and consistently. If even one component of the journey presents a barrier, then the journey cannot be undertaken. This may undermine the confidence of a person with disability, and as a result their mobility and quality of life may diminish.

Barriers faced by passengers, particularly those with disabilities, can be physical in nature, caused by policies or systems, by staff practices and/or due to lack of information.

**Figure 1 Breakdown of challenges faced by passengers with disability<sup>2</sup>**



Making buses more accessible is in line with the Department of Justice and Equality, National Disability Inclusion Strategy 2017 - 2021<sup>3</sup>, which made a commitment to set out the minimum accessibility standards for fleet operating public transport services with regard to new licences and

<sup>1</sup> National Disability Authority, 2018, Factsheet 1: Disability Statistics

<sup>2</sup> Based on National Disability Authority studies

<sup>3</sup> [Department of Justice and Equality, "National Disability Inclusion Strategy, 2017-2021"](#)

on the renewal of existing licences. This was reaffirmed in the Joint Committee on Transport, Tourism and Sport Accessibility Consultative Committee Work Programme (Q3 2018)<sup>4</sup>.

To deliver appropriate regulatory reform, there is a need to assess potential impacts on users, operators, the public sector and wider society arising from regulatory changes, as well as a need to consult with stakeholders to explore various impacts and options. The aim is to ensure that revised licence conditions that set out reformed accessibility standards for fleets use evidence-led insights.

## **2.2 Existing Regulatory Framework**

There are currently a range of existing policies that influence the accessibility of the bus market in Ireland. A summary of the key existing ones is provided below.

### **Public Transport Regulation Act 2009**

The Public Transport Regulation Act of 2009 provides a statutory basis for the licensing of public bus passenger services. It empowers the NTA to establish licence categories and to attach minimum accessibility standards as a condition of the licence.<sup>5</sup>

There are five types of licence categories defined in the NTA's Guidelines for the Licensing of Public Bus Passenger Services ("the Guidelines"). The proposed new licence condition(s) would only be applied to the regular licence category.

Changes to the licence conditions are only permitted when an operator has applied for a new licence, or to amend or renew an existing licence. Therefore, the NTA cannot unilaterally apply new licence conditions to all existing licences.

### **National Disability Inclusion Strategy, 2017-2021**

The Department of Justice and Equality's, National Disability Inclusion Strategy 2017-2021, sets out the approach to improve the accessibility and availability of public transport for people with disabilities.

The obligations arising from this objective apply to all operators of public transport services, both public and private. The approach reflects the requirements of the Disability Act 2005 which places a statutory obligation on public service providers to support access to services and facilities for people with disabilities.

Of relevance are a number of other government policy objectives and recommendations, including:

- The Accessibility of Public Transport for People with Disabilities report contains recommendations from the Joint Committee on Transport, Tourism and Sport to strive for equal

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<sup>4</sup> [Joint Committee on Transport, Tourism and Sport, "Accessibility of Public Transport for People with Disabilities"](#)

<sup>5</sup> [The National Transport Authority, "Public Transport Regulation Act 2009"](#)

access to all public transport services for people with disabilities (across all operators, physical infrastructure and facilities) as soon as practicably possible<sup>6</sup>.

- The Comprehensive Employment Strategy for People with Disabilities 2015-2024 identified transport as a facilitator of the employment activity of people with disabilities. The strategy highlighted the development of accessible transport as a key support in the securing of employment by people with disabilities. As part of this priority, the NTA is tasked with examining the introduction of conditions on licensed commercial operators of public transport services to provide wheelchair accessible vehicles<sup>7</sup>.
- The Transport Access for All is a high level plan, relating to accessible public transport, for the Department of Transport, Tourism and Sport. This plan is based on the requirements of the Disability Act 2005 and related public policy and strategies<sup>8</sup>.

### **EU Regulation 181 / 2011**

The Council of the European Union and the European Parliament through regulation 181 / 2011, created equal rights for people with reduced mobility stating that they are able to travel without difficulties and at no extra cost. Carriers, travel agents and tour operators can only refuse to sell a person a ticket or take a person on board if it's physically impossible given the design of the vehicle, the bus stop or the terminal building or doing so would breach health and safety requirements<sup>9</sup>.

### **EU Buses and Coaches Directive (2001 / 85 / EC)**

The Directive relates to special provisions for vehicles used for the carriage of passengers comprising more than eight seats in addition to the driver's seat, and amending Directives 70 / 156 / EEC and 97 / 27 / EC. The 2001 directive was enacted by the voting into force of the Framework Directive on Vehicle-Type Approval (May 10<sup>th</sup> 2007). This makes it mandatory that all new urban buses must ensure accessibility for disabled people. Since April 2009, a scheme of vehicle type approval has been introduced in Ireland on a phased basis. Under the scheme all new minibuses, buses and coaches registered since October 29<sup>th</sup> 2011 must have type approval before they can enter into service. In order to obtain type approval such vehicles must comply with the requirements of the EU Buses and Coaches Directive 2001 / 85 / EC which includes requirements for passengers with reduced mobility<sup>10</sup>.

### **UN Convention on the Rights of Persons with a Disability**

The UN Convention on the Rights of Persons with a Disability was ratified by Ireland on March 7<sup>th</sup> 2018 and deposited at the UN on March 20<sup>th</sup> 2018. It protects equal treatment for all people with disabilities with respect to human rights and fundamental freedoms. The most relevant articles are as follows:

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<sup>6</sup> [Joint Committee on Transport, Tourism and Sport, "Accessibility of Public Transport for People with Disabilities"](#)

<sup>7</sup> [Government of Ireland, "Comprehensive Employment Strategy for People with Disabilities 2015-2024", page 54, 2.13"](#)

<sup>8</sup> [The Department of Transport, "Tourism and Sport, "Transport Access for All \(2012 Edition\)"](#)

<sup>9</sup> [The Council of the European Union and the European Parliament, "Regulation \(EU\) No 181/2011 of the European Parliament and of the council of 16 February 2011"](#)

<sup>10</sup> [The European Parliament and Council, "Directive 2001/85/EC"](#)

- Article 9 - Accessibility stipulates that State Parties shall take appropriate measures to ensure persons with disabilities' access to transport on an equal basis<sup>11</sup>.
- Article 20 - Personal mobility stipulates that State Parties shall take effective measures to ensure personal mobility with the greatest possible independence for persons with disabilities<sup>12</sup>.

The above national and international regulations, directives and strategies should be considered in the development of the new licence condition(s).

## 2.3 Objectives

The policy objective underlying the proposed changes to the existing licensing conditions is to deliver equal access to public transport across the population. An inaccessible public transport system is seen to negatively impact on the capacity of people with reduced mobility to engage and participate in all spheres of Irish society, including economic, educational, civic and social.

The primary objective of the proposed changes is therefore to improve the social and service quality standards with regards to the needs of passengers, especially those with reduced mobility. This will be achieved by introducing new licence conditions for public bus passenger services with regard to wheelchair accessibility.

These changes would only be applied to the regular licence category as per the Guidelines for the Licensing of Public Bus Passenger Services. The proposed licence condition changes would require a minimum percentage of public buses to provide the licensed service of being wheelchair accessible. This minimum requirement will increase over time until all vehicles meet the required standard. Operators that do not comply with the accessibility standards will be denied a licence to operate.

This type of regulatory change within the bus sector has been applied in a range of other countries previously, including UK (inc. Northern Ireland), US, Australia, and France.

## 2.4 Market structure

In the last five years, the licensed “commercial” bus services sector has seen a significant and sustained growth in Ireland. This market has large variability and diversity in the scale, frequency and type of commercial bus services provided by operators.

Commercial bus services include large scale inter-city and interurban bus services which provide express or multi-stop connections to and from the country’s main towns, cities and airports; commuter services that bring passengers to employment and education; urban and suburban services as well as rural services that generally link small towns, villages and rural areas.

There are large variations in the size and scale of operators providing commercial bus services in terms of licences held and the number and type of vehicles used to provide these services. An operator holding a single licence may provide numerous services per hour or per day on that licence, using several vehicles with large passenger capacities. On the other hand an operator can also hold

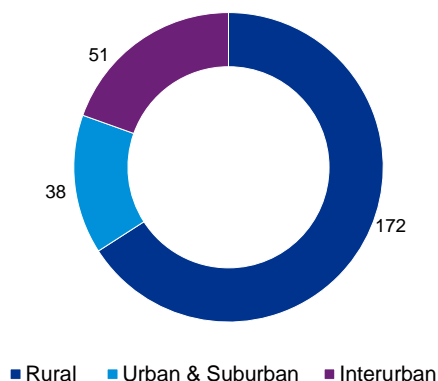
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<sup>11</sup> [United Nations, “Article 9 - Accessibility”](#)

<sup>12</sup> [United Nations, “Article 20 - Personal Mobility”](#)

several licences, each of which may have a small number of services per week or per month, and provide all of these services using one vehicle with a lower passenger capacity<sup>13</sup>. Figure below shows a breakdown of services operating in regions based on each active licence.

**Figure 2 Number of licences per service type**



Source: National Transport Authority

For the purposes of the analysis around 40% of vehicles are classed as Urban/Rural and 60% classed as Interurban.

Urban bus fleets are primarily single or double decker low floor buses appropriate for shorter commuter journeys, which are fitted with ramps to facilitate wheelchair users.

Rural and Interurban bus fleets comprises of mini and midi buses and coaches, as in general these services involve longer journeys. Coaches may be fitted with lifts to facilitate wheelchairs<sup>13</sup> however exact data on vehicle types is unavailable.

Furthermore, these vehicles have a range of passenger seat capacities and different designs. For the purposes of the study Dublin Bus and Bus Éireann have been removed from the analysis as these operators already have predominantly accessible vehicles and therefore their inclusion could bias outputs relative to non-State operators.

## 2.5 Outline and Description of Proposed Options

The purpose of this report is to review alternative license conditions relating to the speed of implementation of the accessibility requirements, and the implications of these alternative conditions to support policy making.

In order to assess the impacts of potential changes the following scenarios have been identified:

- **Do Nothing:** No adjustments to existing licensing conditions. The fleet is assumed to develop accessibility levels based on natural trends.

<sup>13</sup> National Transport Authority, "Commercial Bus Services in Ireland - 2018"

- **Do Something - 1:** Adjustments made to licensing conditions. Amending existing licence conditions to require all operators to implement the required level of accessibility over a given time period.
- **Do Something - 2:** Adjustments made to licensing conditions. Amending existing licence conditions to require operators to implement the required level of accessibility but with time profiles segmented by market type.

Where a 'Do Something' option is explored, the aim is to identify the minimum cost of compliance. In terms of the timing of the introduction of new licence condition(s), initial NTA proposals have identified 2023 as a target date for 100% compliance and this is used as the baseline option.

As discussed, licence category operators, are often divided into two main sub-classes 'Urban/Rural' and Interurban services. These form the basis for any sub-division, with approximately 40% of services being classed as Urban/Rural and 60% being classed as Interurban. The NTA identified a potentially longer rollout schedule for the Interurban market segment with a target date of 2026 for 100% compliance.

In addition to these core 'Do Something' options, it is prudent to run a number of sensitivity tests in relation to the time horizon, costs levels and underlying accessibility trends to understand the varying level of possible impact.

In the following sections, the potential impacts associated with these different options are explored and are assessed accordingly.

## 3 Analytical Framework

This section provides a summary of the analytical framework employed to measure the impacts associated with the Wheelchair Accessibility: Proposed Licence Conditions.

### 3.1 Overview of Framework

The analytical framework aims to explore the implementation options set out above in Section Two.

To analyse the impacts of the proposed new licence condition(s), evidence from the Regulatory Impact Assessment (“RIA”) Guidance, provided by the Department of the Taoiseach<sup>14</sup> was relied on in conjunction with the Guidelines.<sup>15</sup>

This has been supported by a range of wider public evidence, including:

- Department for Transport (1998) Proposed PSV accessibility regulations: regulatory impact assessment.
- European Union (2014) Study on the socio-economic impact of new measures to improve accessibility of goods and services for people with disabilities.
- N. Fearnley, S. Flügel, F. Ramjerdi (2011) Passengers' valuations of universal design measures in public transport.
- Joint Committee on Transport, Tourism and Sport (2018) Accessibility of Public Transport for People with Disabilities.
- National Transport Authority (2014) - Public Consultation on Transitioning to a Wheelchair Accessible Licensed Bus Sector: Issues Paper
- OECD (2017) Economic Benefits of Improving Transport Accessibility.
- Steer Davies Gleave (2015) Access for all benefit research: impacts of station accessibility improvements.
- Federal Transit Administration - Transit Cooperative Research Program (2002) Effective approaches to meeting rural intercity bus transportation needs.

This evidence forms the basis for the analytical approach to consider the accessibility regulatory change.

The impact of regulations associated with improving accessibility can be complex, and in order to consider the implications a framework is required to review the costs and benefits for different groups of stakeholders. The aim of this being to assess the overall impacts, while recognising implications for stakeholder groups may be different.

There is recognition that operators and users are not homogenous. Regulation can impact on large, medium and small scale operators differently, as well as the fact there are different markets being served with a range of potential solutions. Meanwhile for users, disabled and non-disabled users are

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<sup>14</sup> Department of the Taoiseach, 2009, Revised RIA Guidelines: How to Conduct a Regulatory Impact Analysis

<sup>15</sup> National Transport Authority, 2010, Guidelines for the Licensing of Public Bus Passenger Services

also likely to be impacted differently. This reflects that there are likely to be benefits to both disabled users as well as those with accessibility challenges such as those travelling with young children or heavy baggage. There are also likely to be impacts to government bodies and wider society within Ireland.

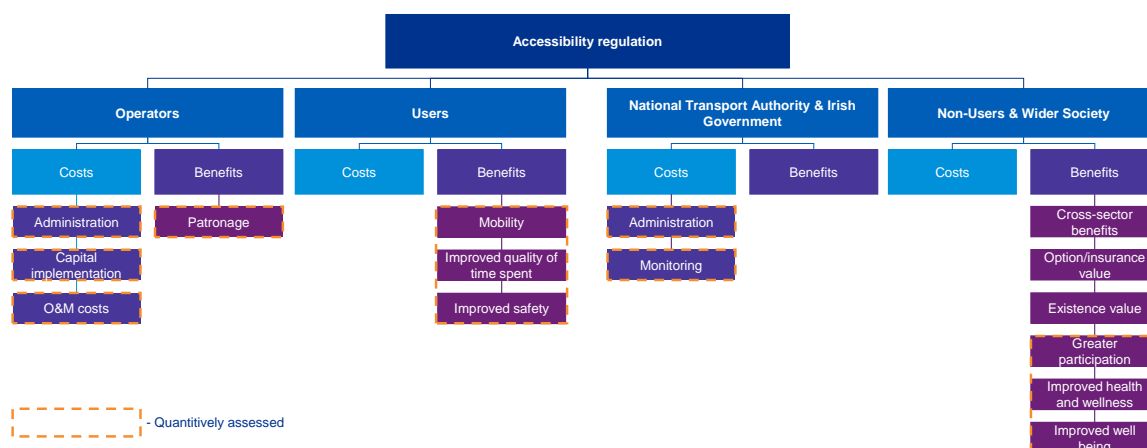
In considering stakeholders, the following groups within the framework have been identified:

- Operators
  - o Large scale operators (>40 vehicles)
  - o Medium scale operators (10 - 40 vehicles)
  - o Small scale operators (<10 vehicles)
- Users
  - o Disabled people (c.13.5% of total users)
  - o Non-Disabled people (c.86.5% of total users)
- NTA & Irish Government
- Non-users & Wider society

The RIA framework aims to identify potential cost and benefit impacts for these stakeholders and, where possible, quantify these. In considering the impacts, evidence from publicly available literature has been used as the basis for the approach. There may be some elements for which it is not possible to identify monetary values and as such should be considered in a more holistic manner.

The below framework identifies all the various potential impacts and allocates these by stakeholder group. However, the analysis requires using evidence that groups some of these impacts together, such as the user and wider society impacts to determine a quantitative value.

**Figure 3 Framework for measuring the impacts associated with the accessibility regulation**



Source: KPMG analysis (based on OECD study)

The analysis using this framework is based on considering the 'business as usual' situation in relation to a range of market variables. This includes the development of the bus fleet and accessibility specifically.

Subsequently, the incremental effects of implementing the proposed new licence condition(s) on the bus fleet are estimated, reflecting on administrative, operating and capital costs. The estimation of

potential benefits is more challenging as impacts are less certain and rely on a wider range of evidence. This includes demand growth, improved customer journeys and wider social benefits.

Throughout the analysis a bottom-up methodology was adopted, whereby the costs and benefits of the new licence conditions have been considered at the level of the average vehicle level, to identify the overall impact at a national level.

## 3.2 Existing Situation and Trends

Based on the information available from the NTA, this section describes the existing situation and explores current trends which may continue naturally over the time horizon. This must be considered as part of developing the ‘business as usual’ scenario to reflect what would happen if there was no policy change. This forms the benchmark through which alternative ‘Do Something’ options are then compared.

This section includes the review of current and historic publicly available information covering:

- Number of licensed operators;
- Size of bus fleet;
- Overall market demand;
- Age of fleet and replacement rate;
- Disabled accessibility; and
- Disabled population.

For the purposes of this study Dublin Bus and Bus Éireann have been removed from the data.

Throughout the report this information forms the basis of the analysis.

### 3.2.1 Licensed Operators

In Ireland there are currently 122 commercial operators who will be required to be in line with the implementation of changes to licensing conditions.

Throughout the period 2013 - 2017, the number of licensed operators has remained constant, ranging from 120 to 125. In terms of the numbers of licences held by each operator, approximately 51% have one licence while circa 16% hold more than four licences.

**Table 1 Number of Operators with Active Regular Licences**

Year	Number of Operators	Number of Licences				
		1 Licences	2 Licences	3 Licences	4 Licences	>4 Licences
2017	122	51%	20%	7%	7%	15%

Source: National Transport Authority

### 3.2.2 Size of Bus Fleet

In order to calculate the impact of the proposed new licence condition(s), an understanding of the current size of the commercial bus fleet that is subject to the proposed changes is required. The below table provides an overview of the total size of the bus fleet over time. The average number of full time vehicles counted per operator was 8.2 vehicles.

**Table 2 Number of Operators with Active Regular Licences**

Year	Number of Vehicles used on Full Time basis	Total Number of Vehicles Counted
2013	784	877
2014	810	1,000
2015	823	1,052
2016	950	1,196
2017	1,002	1,214

Source: National Transport Authority

For the purpose of the analysis we have relied on the number of vehicles used on a full time basis as the baseline fleet impacted by the proposed new licence condition(s).

### 3.2.3 Market Demand

Total passenger demand in 2017 was 25.78m journeys, of which approximately 5.21m journeys were undertaken by passengers under the free travel scheme<sup>16</sup>. This represents a growth of circa 28% in total passenger journeys over 5 years and circa 8.7% increase in free travel (“FT”) passenger journeys between 2013 and 2017.

Total revenue also increased from roughly €136m in 2013 to €178m in 2017. This represents an estimated average revenue of €6.89 per passenger journey in 2017, after accounting for annual FT payments. However, without FT payments this amounts to €6.14 per passenger journey

**Table 3 Passenger Demand and Revenue**

Year	Total Annual Passenger Journeys	Estimated Free Travel Passenger Journeys	Total Annual Passenger Revenue (€m)	Total Annual FT Payment (€m)	Total Revenue (€m)
2013	20.10	4.79	115.89	20.05	135.94
2014	20.75	4.73	129.55	20.10	149.65
2015	22.73	4.92	143.19	20.42	163.61
2016	25.25	5.29	155.62	20.49	176.11
2017	25.78	5.21	157.69	20.10	177.78

Source: National Transport Authority

As above, for the analysis we have relied on an assumed market growth in passenger demand over the period of 5% per annum. This reflects the varying level of demand observed over the period, although it should be noted that future demand will be driven by a range of factors impacting on passenger’s needs and the choices they face. For a given passenger journey the revenue for an operator been estimated at €6.14, which excludes FT payments.

<sup>16</sup> The free travel scheme covers various groups including those aged 66 or over, those getting disability allowance, blind pension, carers allowance or invalidity pension as well as others. Since April 2017, people transitioning to a job are also entitled to keep their free travel for a period of 5 years under the Make Work Pay initiative.

### 3.2.4 Age of Fleet and Replacement Rates

The average age of the operational fleet in 2017 was 7.9 years. In general, buses have a useful asset life of up to 20 years. This will influence the cost profile for operators. The table below provides the trend in average age of vehicles.

**Table 4 Average Age of Vehicles used to Provide Regular Services**

Year	Average Vehicle Age in Years
2013	7.1
2014	6.6
2015	7.0
2016	7.2
2017	7.9

Source: National Transport Authority

The analysis has been conducted based on size of operator, the assumed average age of the fleet for large operators is 7.8 years, for medium operators 6.9 years and for small operators 9.1 years.

### 3.2.5 Disabled Accessibility

In 2017, the total number of accessible vehicles was 468 out of a regular used fleet of 1,002 vehicles. This represents 47% of the fleet.

Of the 468, 216 are low-floor wheelchair accessible and 252 have lifts suitable for wheelchair access. The number of accessible vehicles is growing at a faster rate than the overall vehicle fleet.

**Table 5 Number of Accessible Vehicles**

Year	Vehicles that are Low-Floor Wheelchair Accessible	Vehicles with Lifts Suitable for Wheelchair Access	All Accessible Vehicles	Proportion of Full Time Vehicles that are Disabled Access
2013	119	224	343	44%
2014	128	180	309	38%
2015	154	201	355	43%
2016	189	242	431	45%
2017	216	252	468	47%

Source: National Transport Authority

This level of accessibility in the explored bus market is lower than other relevant markets, as set out in the table below. This is of interest as there is often movement between these markets.

**Table 6 Proportion of Vehicles that are Accessible in Other Relevant Markets**

Year	Dublin Bus	Bus Éireann (Regional City Fleet)	Bus Éireann (Coach fleet)	GB Bus Market (DfT, Annual Bus Statistics)
2017	100%	100%	78%	98%

Source: National Transport Authority and UK Department for Transport

**All figures quoted are illustrative and for discussion only.**

For the analysis we have assumed a replacement rate of the fleet with accessible vehicles at 4% per annum.

### 3.2.6 Disabled Population

During the 2016 Census, the number of people stating they had a disability was 643,131 or 13.5% of the total population. This is an increase of 8% from 2011. The most common forms of disability include those with chronic illness, limitations to basic physical activities and difficulty in learning, remembering and concentrating.

This group has higher levels of social and economic exclusion compared to the rest of the population, with the 2016 Census recording an unemployment rate of 26.3% among this group compared to 12.9% for the population as a whole. Currently, urban areas are seen to provide greater availability of accessible public transport services.

In addition, general trends in demographics are leading to older populations who have a higher risk of disability than other groups. As such, the number of disabled people in Ireland is expected to continue to increase. In Ireland by the age of 85, 60% of people have a disability and this rises to 80% by the age of 93. However, these numbers are very small and the majority of people with a disability are of working age (18-65 years of age).

By 2026, it is expected that the population with a disability will increase by roughly 20 per cent. One-third of this increase is due to the increased size of the population and two-thirds of the increase is due to the ageing of the population.<sup>17</sup>

## 3.3 Potential Costs

The introduction of the proposed new licence condition(s) will impose costs on operators and the public sector. This includes capital and operational costs, as well as labour costs associated with additional administration and monitoring requirements. As the conditions and processes are consulted on and developed, these costs will likely need to be reviewed.

We have explored the costs primarily using publicly available evidence and literature and noted the sources of information below. This includes information that has been provided by the NTA.

<sup>17</sup> National Disability Authority, 2018, Factsheet 1: Disability Statistics

### 3.3.1 Operators

The majority of the costs associated with the introduction of proposed new licence condition(s) will fall on operators, who will be required to ensure compliance in order to renew licences. Exact costs for a given operator will be determined by factors such as existing accessibility levels, age and size of fleet, operating structures, processes and financing approach. The aim of this analysis is to consider the average cost of compliance rather than estimate the cost for a specific operator.

#### i. Administration

Operators will be required to familiarise themselves with the regulatory obligation, prepare and develop a strategy for implementation and ensure forms and reporting structures are complied with. As per the RIA guidance, in order to calculate the administrative burden, the wage rates, the time for given activities and the number of businesses impacted on are required.

The cost of labour is assumed to be the average transportation and storage sector hourly wage which was recorded as EUR 21.82<sup>18</sup> in 2017, with an assumed additional 30% uplift to reflect total cost of labour.

Based on discussion with NTA, it is assumed that the new conditions would require the following levels of input from an operator in relation to time requirements.

- Familiarisation with obligation - 0.5 days (one-off)
- Preparation of plan - 3 days (one-off)
- Filling in forms, verification & submitting the information - 0.5 days (annual)

These assumptions of time input will need to be reviewed in discussion with stakeholders as the policy develops.

#### ii. Implementation Costs

There are both capital and operating costs associated with implementation of new licence condition(s) that will apply to operators to ensure accessibility at a given point in time.

This includes the need to purchase new vehicles with appropriate features or retrofitting existing vehicles in order to comply. The decision whether to purchase a new vehicle or retrofit will be for operators to determine based on commercial situations, and influenced by current vehicle characteristics and age.

In order to identify the cost of compliance, the level of accessibility that would be delivered naturally based on trend should be reviewed, with the focus of the assessment on the additional cost for operators above this business as usual situation. An underlying assumption is that any new vehicles entering the market from this point will have accessibility access. This assumption, that of all new

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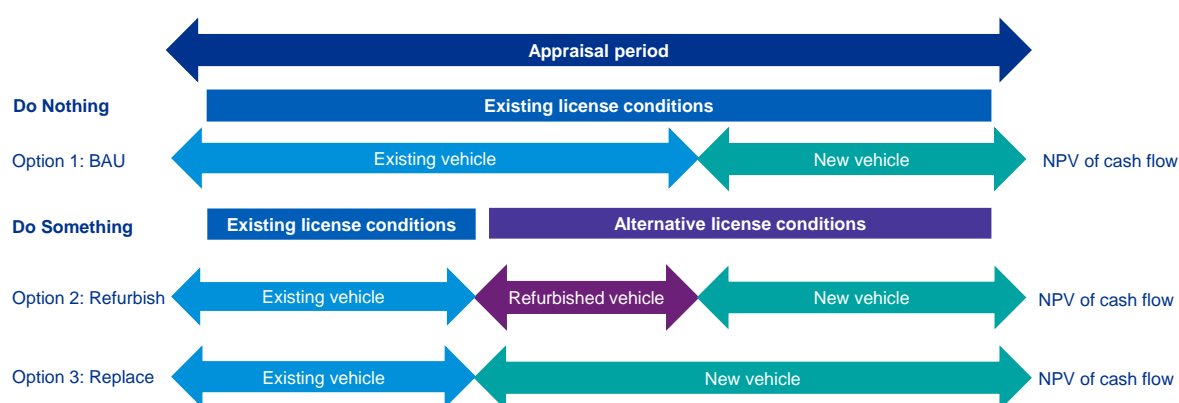
<sup>18</sup> Ireland Central Statistics Office, 2017

vehicles c.98% are accessible, is based on general trends across similar markets such as Great Britain<sup>19</sup> and therefore most buses for resale will be accessible.

In addition to capital costs, there are also potential ongoing operating and maintenance costs associated with the introduction of new licence conditions. This is linked to where accessibility features have additional maintenance requirements to ensure they are functional. Certain accessibility features require higher levels of fuel across day-to-day operational use as well as additional training for staff.

The below figure provides a summary of the cash flow implications given operators' decision regarding implementation timing.

**Figure 4 Implications for operator cash flow**



The net cost to comply for each vehicle category will be the difference between the discounted cash flow under business as usual conditions, and the discounted cash flow for the commercially preferred option to refurbish or replace each vehicle category. Operators are assumed to be rational actors and select the option which requires the minimum cost of compliance.

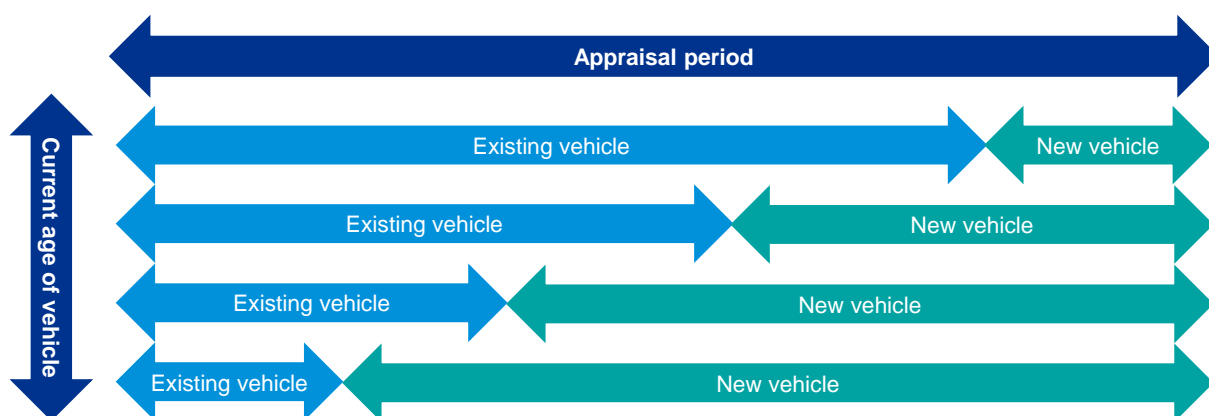
In order to calculate the NPV of these options the following assumptions are involved:

- The cost of existing vehicles and the cost of new vehicles with accessibility;
- The cost to refurbish a vehicle with accessibility features;
- The economic value of vehicles to be replaced is assumed to be zero as these buses will no longer be viable for resale within the commercial bus passenger market. The buses might still have a finite commercial resale value in alternative markets such as tours or private hire, however, the commercial resale value has not been included in the scope of this study;
- The operating and maintenance costs of existing vehicles;
- The additional operations and maintenance costs associated with vehicle refurbishment or new vehicle;
- The average asset life of a vehicle; and
- The financing cost rate for operators to spread the cost over the lifetime of the asset.

<sup>19</sup> Department for Transport, 2017/18, Annual bus statistics

An additional complexity is the age of the vehicle which has implications for the NPV lines of the different options. This is because if a vehicle is 20 years of age already, it would be expected to be replaced imminently anyway, whereas if a vehicle is new, it is expected to have another 20 years of services.

**Figure 5 Implications for Operator Cash Flow**



The above approach provides the overall methodology through which to review the costs for operators in terms of the burden of the introduction of new licence condition(s) over the appraisal period.

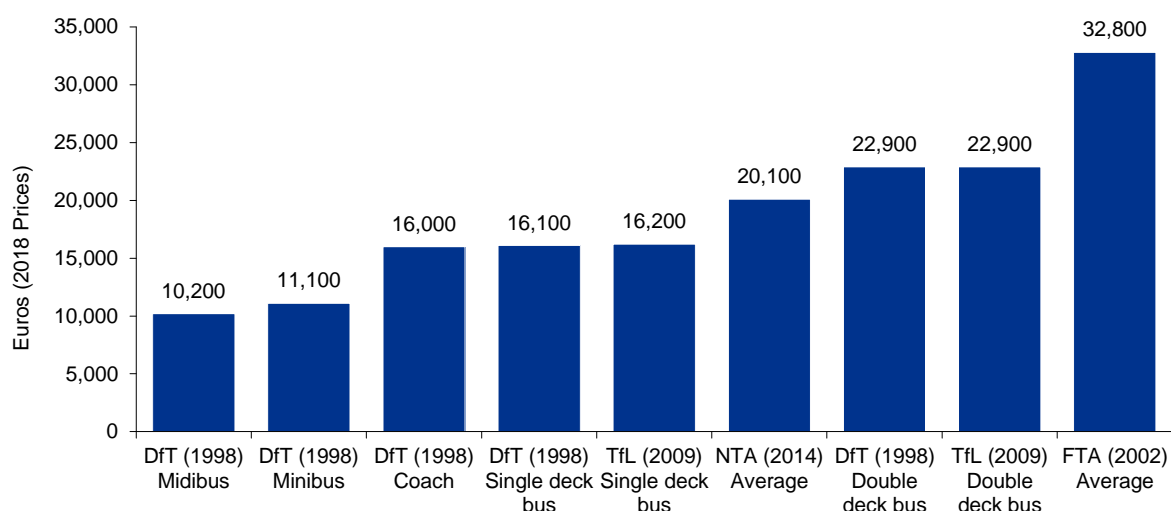
In addition to the age of the vehicle other factors are expected to impact on costs for operators. However, it has not been feasible to account for these due to limitations in the evidence base including:

- **Accessibility solutions:** There are a range of potential solutions that require a mix of automatic / manual wheel chair ramp, telescopic or cassette lift, removal of seats, and/or new/additional doors and handrails. There is not enough evidence regarding the specific solutions operators will decide to implement; as such accessibility must be treated in a broader sense.
- **Vehicle types:** Alternative vehicle types are likely to have different costs associated with compliance. This will be determined by vehicle size, layout and number of access points. There is no publicly available data to estimate a breakdown of the fleet by vehicle type.
- **Operating structure:** The process by which operators manage fleets and staff will likely impact how efficiently vehicles are maintained, financed and operated.

In terms of identifying the key assumptions used in the analysis we have undertaken a literature review of available cost information. As the policy develops, there will be a need to consult with operators, retailers, manufactures and others to explore these assumptions further.

The below figure sets out evidence available with regards to the cost of accessibility features, using data from the UK Department for Transport (DfT), Transport for London(TfL), NTA and the US Federal Transit Administration (FTA), these range from around €10k to €33k.

**Figure 6 Example cost of additional features to support accessibility (*adjusted for inflation, exchange rates and rounded to nearest hundred*)**



Source: UK Department for Transport (DfT), Transport for London (TfL), National Transport Authority (NTA) and US Federal Transit Administration (FTA)

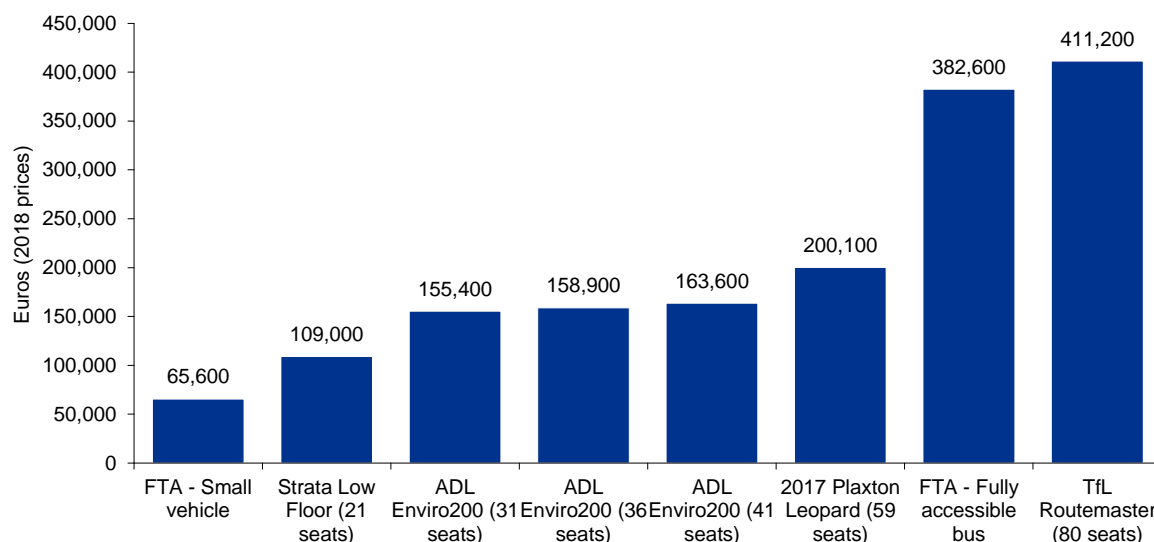
**All figures quoted are illustrative and for discussion only.**

Based on the figure above it is possible to suggest that compliance cost will vary by vehicle type. In general there are a number of implications specifically recognising.

- **Mini Bus:** A mini bus is expected to be on the low end of seating capacity i.e. with an estimated 8-20 seats, primarily of a high floor make. Cost estimates are likely to vary from the average to the lower band of compliance.
- **Midi Bus:** A midi bus is expected to be of a medium seating capacity i.e. with an estimated 21-30 seats. These types of buses, while historically primarily high floor, have low floor variants available today in the market and have found popular use in urban transportation. Cost estimates are likely to vary from the average to the lower band of compliance.
- **Single and double deck bus:** Capacity and layout of these buses can vary greatly, meaning solutions are also likely to vary. Cost estimates are likely to vary from the average to the upper band of compliance.
- **Coach:** A coach is expected to be of on the higher end of seating capacity i.e. with an estimated 40 seats or higher. As coaches are primarily used in interurban operations, they are designed for greater luggage access closer to the ground. The seats, placed over luggage compartments, are much higher from the ground and thus can be referred to as of high floor make. Cost estimates are likely to vary from the average to the upper band of compliance.

In addition to the overall accessibility features, we have also explored the costs associated with vehicles. The figure below provides a summary of values reflecting the variations within fleets ranging from around €66k to €411k. It is expected that delivering accessibility features within a new vehicle will be slightly lower than when retrofitting a vehicle.

**Figure 7 Example capital cost of vehicles, (adjusted for inflation, exchange rates and rounded to nearest hundred)**

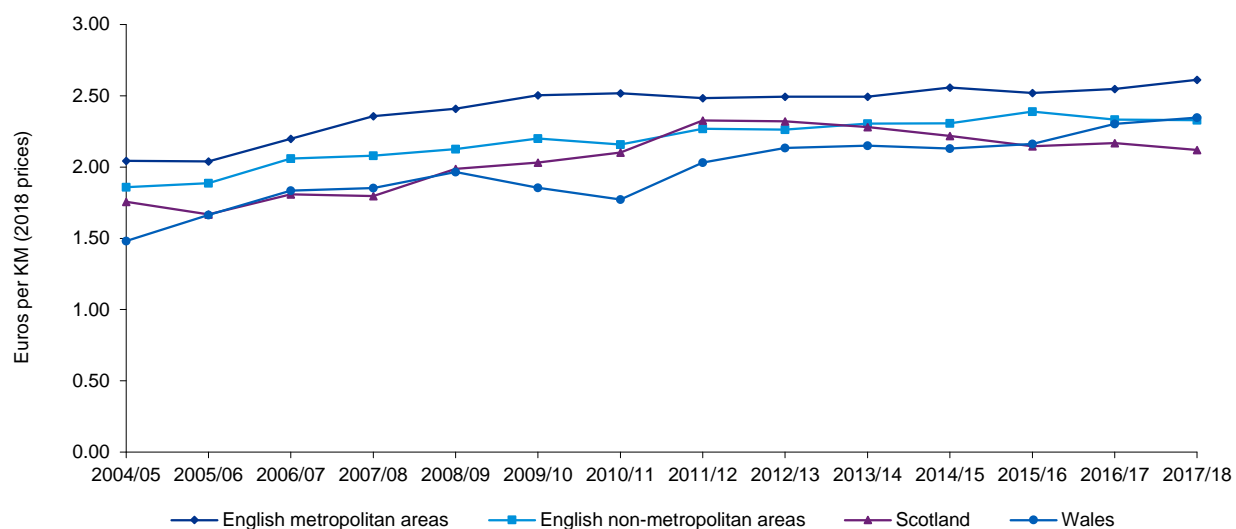


Source: Transport for London (TfL), mistral-bus.com and US Federal Transit Administration (FTA)

**All figures quoted are illustrative and for discussion only.**

In terms of the overall operating costs of a vehicle per mile, accounting for administration and depreciation, evidence is published annually by the UK DfT by regional market type, and set out in the figure below. In general this shows vehicles operating in urban environments have slightly higher costs than more rural markets.

**Figure 8 Cost of operating vehicles per mile including administration and depreciation, (adjusted for inflation and exchange rates)**



Source: UK Department for Transport

**All figures quoted are illustrative and for discussion only.**

Given our review of the costs, the table below provides an overview of the average capital cost associated with refurbishment and replacement of an average vehicle of age 7.9 years, based on assumptions discussed with NTA.

Further consideration should be given to a public consultation to gain input from stakeholders and operators on expected capital costs.

**Table 7 Overview of Expected Capital Costs**

Description	Amount (rounded to the nearest thousand)
Capital cost: Non-accessible bus	€195
Capital cost: Retrofit	€21
Capital cost: Accessible bus	€220
Annual operating cost: Non-accessible bus	€100
Annual operating cost: Retrofit	€2
Annual operating cost: Accessible bus	€105

Source: Assumptions based on literature review

**All figures quoted are illustrative and for discussion only.**

The minimum cost of compliance is a function of both the age of the vehicle and of the timing of the policy introduction. In general for newer vehicles it likely to be more cost effective to retrofit, and for older vehicles it is likely to be more cost effective to replace.

Recognising the significant variation in the potential cost of compliance we have also undertaken a sensitivity test using the lowest and the highest numbers available in relation to capital and operating cost estimates.

**Table 8 Overview of Sensitivity amounts**

Description	Lowest sensitivity amount (rounded to the nearest thousand)	Highest sensitivity amount (rounded to the nearest thousand)
Capital cost: Non-accessible bus	€56	€381
Capital cost: Retrofit	€10	€33
Capital cost: Accessible bus	€65	€411
Annual operating cost: Non-accessible bus	€30	€158
Annual operating cost: Retrofit	€1	€4
Annual operating cost: Accessible bus	€34	€195

Source: Assumptions based on literature review

**All figures quoted are illustrative and for discussion only.**

In addition to the capital costs identified we have assumed an additional financing cost of 4.15%<sup>20</sup> spread over the lifetime of asset. This is to reflect the fact many operators would need to undertake this from a commercial perspective and are unlikely to have the upfront capital required.

For illustration and discussion purposes only,

- **Interurban Operations:** An operator providing interurban services would generally have a coach type bus which is more suitable for longer journeys. Assuming a coach with a seating capacity of 50, it would require capital costs that are closer to the highest sensitivity amount in Table 8 to comply with proposed new licence condition(s) requirements for wheelchair accessibility in commercial buses.
- **Urban Operations:** An operator providing urban services would generally have a low floor single or double decker bus which is ideal and most convenient for smaller journeys. To comply with accessibility licence conditions, the operator would incur costs ranging between costs listed in Table 7 and highest sensitivity amounts in Table 8.
- **Rural Operations:** An operator providing rural services would generally operate a mini/midi bus. Assuming a high floor type bus with approximately 20 seats, the operator would incur costs similar to the lowest sensitivity amounts listed in Table 8.

The costs above are as estimated on the understanding of market prices to acquire new buses and requirements to retrofit the particular bus type. It should be acknowledged that these figures are rough estimates and would be highly sensitive to the size of operator's fleet as they could attract bulk discounts; make and layout of the bus, and the accessibility solution chosen.

### 3.3.2 NTA & Irish Government

In addition, the NTA and Irish government will need to shoulder the administrative set up costs as well as ongoing monitoring costs. This is to ensure that operators are fully aware of the regulatory requirements and to ensure they are in compliance with these.

#### Administration

NTA and the Irish government will need to ensure they are familiar with the obligation, design information material for operators, inform the subjected entities and verify information submitted.

The cost of labour is assumed to be the average public administration and defence hourly wage which was EUR 25.98<sup>21</sup> per hour, with an assumed addition 30% uplift to reflect total costs of labour.

It is assumed that the proposed new licence condition(s) will require the following levels of input in relation to time requirements.

- Familiarization with obligation - 20 days (one-off)
- Designing information material - 30 days (one-off)

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<sup>20</sup> Central Bank of Ireland, 2019, Retail Interest Rates (New business rates for NFC loans under €1 million)

<sup>21</sup> Ireland Central Statistics Office, 2017

- Informing the subjected entities - 10 days (one-off)
- Verification of information submitted - 10 days (annual)

This is based on discussions with the NTA.

#### i. **Monitoring**

The monitoring framework is yet to be fully defined. It would be expected that there will be additional information needed in the submission of requests for operating licences. This will require additional review. As per above the cost of labour is assumed to be EUR 25.98 per hour.

It is assumed that the new licence conditions would require the following levels of input in relation to time requirements.

- Familiarisation with obligation (enforcement) - 0.1 days (one-off)
- Verification (enforcement) - 0.1 days

This is based on discussions with the NTA.

### 3.4 **Potential Benefits**

Identifying and quantifying the benefits of improved accessibility can be challenging as it is an area with uncertainty and still being explored. The 2017 OECD review of the economic benefits of improving transport accessibility flagged this that analysis of accessibility is often overlooked, and there are significant potential benefits that often offset costs of intervention.

There are a range of benefits covering users, operators as well as non-users & wider society, with details provided below.

#### 3.4.1 **User Benefits**

When considering improving accessibility, users can be thought of as those that have accessibility issues and those that don't. The identified benefits are based on the OECD (2017) analysis which suggests user benefits take three forms: mobility benefits, improvements in quality of time spent travelling and safety.

- **Mobility:** Users are able to better engage and access the network, benefiting from being able to travel more freely and with greater confidence over a greater distance, accessing more opportunity. There are potential cost savings for some customers who are able to now access public transport who couldn't previously, along with time savings where those with restricted accessibility are better able to board and disembark from vehicles. Overall this can mean that more users are better able to access employment, education, as well as healthcare, leading to improvements in economic outcomes.
- **Improved quality of time spent:** Users benefit from improved levels of comfort and convenience. Disabled users are able to travel more independently, and free of dependence on friends, family and volunteer assistance. This can also reduce stigmatic harm, humiliation and embarrassment for users.

- **Improved safety:** Risks associated with boarding and disembarking in non-accessible vehicles are reduced for users and staff. This can lower the overall number of accidents and damage to property including wheelchairs.

The benefits from each of these are likely to be more significant for disabled users, although non-disabled users are also likely to gain some benefits as well.

The OECD recommends that all of the above benefits are accounted in an additive manner in the context of cost-benefit analysis. Measuring the value of these benefits, however, can be challenging, especially at a market-wide level.

We have relied on evidence from international studies relating to willingness-to-pay premiums and generalised journey impacts as an overarching measure of user benefit where these are seen to account for the improvements above. Where generalised minutes for accessibility features have been set out, these have been converted into monetary values using value of time assumptions.

The table below provides a summary of these impacts.

**Table 9 Summary of User Benefits Evidence**

Impact	Source
Willingness-to-pay estimates per trip ranged from 0.30-0.37 USD for all passengers to 0.51-0.72 USD for passengers with limited mobility in regards to low floor passenger transport vehicles.	N. Fearnley, S. Flügel, F. Ramjerdi (2011), Passengers' valuations of universal design measures in public transport
Generalised minutes for accessibility features for bus users is 1.19 minutes.	UK Department for Transport, 2019, WebTAG

We use these impacts as the basis for assumptions of the user benefits impact set out in the table below, having adjusted these for inflation and exchange rates. These are used to calculate the benefits that passengers derive from an additional journey in an accessible vehicle relative to a non-accessible vehicle.

**Table 10 Willingness-to-pay values per journey from accessibility features**

Options	Non-Disabled User	Disabled User
Benefits - Case 1	€0.27 per journey	€0.47 per journey
Benefits - Case 2	€0.34 per journey	€0.66 per journey
Benefits - Case 3	€0.19 per journey	€0.19 per journey

**All figures quoted are illustrative and for discussion only.**

Willingness to pay values for Benefits Case 1 and 2, listed in the above table, are referred from N. Fearnley, S. Flügel, F. Ramjerdi (2011), Passengers' valuations of universal design measures in public transport, Norway and values for Benefits Case 3 is referred from DfT, 2019, WebTAG, U.K.

### 3.4.2 Operators

Whilst operators will incur a range of costs, there are also potential benefits associated with improvements in accessibility. The main benefit is likely to be increased levels of demand which could drive revenue.

The majority of this would be expected to be driven by disabled users, although there could be increased levels of demand from others with accessibility issues, such as those with excess luggage and prams for young children. The previously undertaken UK DfT study estimated that accessible vehicles are associated with a 4-5% increase in demand. This assumption has not been applied however; rather we have used the willingness to pay assumptions to estimate a potential demand impact.

In order to calculate the demand impacts we have relied on the user benefit willingness-to-pay values, along with value of time and elasticity assumptions. The elasticity assumption applied was -0.55<sup>22</sup> based on evidence from TRL considering the explicit long run elasticity of bus markets. The value of time assumption applied was €8.41 per hour, based on a review of the UK DfT evidence base<sup>23</sup>.

The below table provides estimated demand impacts used within the analysis.

**Table 11 Demand Impacts based on Willingness-to-pay estimates**

Benefits case	Impact	Source
Benefits - Case 1	1.5% Demand Uplift - Non-disabled user	Calculation of the lower limit of demand based off data provided in N. Fearnley, S. Flügel, F. Ramjerdi (2011), Passengers' valuations of universal design measures in public transport.
	2.5% Demand Uplift - Disabled user	Calculation of the lower limit of demand based off data provided in Fearnley, N., S. Flügel, F. Ramjerdi (2011), Passengers' valuations of universal design measures in public transport.
Benefits - Case 2	1.8% Demand Uplift - Non-disabled user	Calculation of the higher limit of demand based off data provided in Fearnley, N., S. Flügel, F. Ramjerdi (2011), Passengers' valuations of universal design measures in public transport.
	3.5% Demand Uplift - Disabled user	Calculation of the higher limit of demand based off data provided in Fearnley, N., S. Flügel, F. Ramjerdi (2011), Passengers' valuations of universal design measures in public transport.
Benefits - Case 3	1% Demand Uplift - Non-disabled user	Calculation based off DfT, 2019, WebTAG
	1% Demand Uplift - Disabled user	Calculation based off DfT, 2019, WebTAG

There may be some additional benefits to operators in the form of operating and maintenance savings in relation to using a newer vehicle and also improvements in worker safety. However we have not sought to quantify these impacts.

<sup>22</sup> TRL, 2004, The demand for public transport: a practical guide

<sup>23</sup> Department for Transport, 2019, WebTAG

### 3.4.3 Social impact

In addition to the direct impacts for users and operators, there is also the potential for wider sociality benefits. Many of these benefits are challenging to quantify, but should be recognised with the overall assessment.

#### i. Non-Users

Non-user benefits arise in the form of cross-sector benefits, option value and existence value, as set out below.

- **Cross-sector benefits:** Economic benefits that are delivered in another sector due to expenditure in the transport sector. In relation to improvements in accessibility, there is likely to be cross over with other social service and healthcare programs. This could reduce the cost of delivering these services in the longer run.
- **Option value:** The value that individuals attribute to a particular resource that they do not currently use, but may want the option to use if they at some point deem it desirable to do so. In effect, this being a value of uncertainty that people may one day need to use the accessibility feature.
- **Existence value:** Defined as a person's willingness-to-pay for a resource for which they have no plans to use now or in the future. In relation to accessibility, this is the value that disabled and non-disabled people derive from guarantees of equal protection and non-discrimination in use of a service.

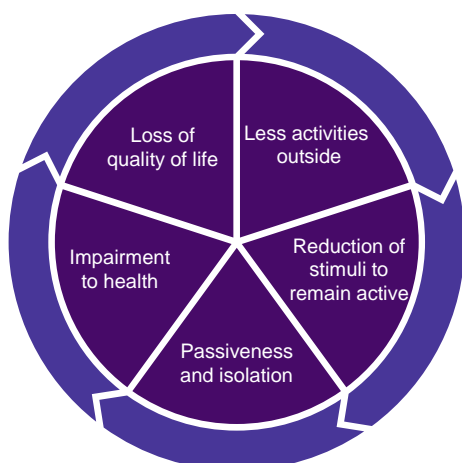
#### ii. Wider Society

There is a range of additional benefits which occur through increasing freedom through providing solutions which enable people to pursue life chances, opportunities and ways of life, accounting for social justice. Through improving accessibility there is the potential for:

- Greater participation;
- Improved health and wellness; and
- Improved subjective wellbeing.

In considering this, it is important to consider the vicious circle of immobility which can lead to negative impacts for individuals. Improved accessibility can help to influence this.

**Figure 9 Vicious Circle of Immobility**



### **iii. Calculating the social impacts**

Placing values on the above wider impacts is challenging as the evidence base is still in development and likely to be context specific.

In order to calculate these wider impacts we have therefore relied on the UK WebTAG social impacts methodology<sup>24</sup>. This provides estimates of the social value of additional bus trips facilitated by a policy which would not have been feasible via other modes under 'Do Nothing' circumstances. This being the value that travellers place on the activity that they undertake at the destination.

These values are partly captured via fares and also within the user benefit calculation, as such, these are not seen as additional impacts but are recorded for transparency purposes.

## **3.5 Analytical Assumptions**

In addition to the cost and benefits identified, there is a need to undertake the analysis in line with the RIA guidance, including appropriate time horizons, discount rates and reporting of the findings.

### **3.5.1 Time Horizon**

Infrastructure projects generally are appraised over a 20 year timeframe. Productive sector projects are usually appraised over a 10 year period. For the purpose of this report an assumption of 20 years has been relied on. With the start date of the analysis being 2017 due to this being the last year with full data and running to 2036.

### **3.5.2 Discount Rate**

As benefits and costs will arise over the evaluation period, there is a need to use a discounting process to evaluate future costs and benefits to present values. As per the RIA Guidance, the discount rate advised by the Department of Finance is 4.0%.

<sup>24</sup> Mott MacDonald (2013) Monetising the social impact of bus travel

### **3.5.3 Inflation and exchange rates**

As part of the analysis we have to convert historical and international data in to consistent units. In doing this we have relied on exchange rate data published on XE.com and for inflation we have relied on the Consumer Price Index publishes by the Central Statistics Office.

### **3.5.4 Other Factors**

As part of the RIA guidance, there is also a requirement to explore whether significant impacts exist under any of the following headings:

- National competitiveness;
- The socially excluded and vulnerable groups;
- The environment;
- Whether there is a significant policy change in an economic market, including consumer and competition impacts;
- The rights of citizens;
- Compliance burdens, including administrative burdens; and
- North-South and East-West relations.

Where relevant these are explored within the findings.

## 4 Implementation Options

This section provides an analysis of the implementation options based on the policy options identified in Section 2.5, 'outline and description of proposed options' and the analytical framework set out in Section 3 with the corresponding assumptions.

### 4.1 Introduction

The implementation options that have been considered within the analysis are as follows:

- **Do Nothing;**
- **Do Something 1:**
  - Option 1 - Total Accessibility by 2023;
  - Option 2 - Total Accessibility by 2029; and
  - Option 3 - Total Accessibility by 2032.
- **Do Something 2:**
  - Option 4 - Rural/Urban Accessibility by 2023, Interurban by 2026;
  - Option 5 - Rural/Urban Accessibility by 2029, Interurban by 2032; and
  - Option 6 - Rural/Urban Accessibility by 2032, Interurban by 2035;

For the purposes of the analysis 40% of vehicles have been classed as Urban/Rural and 60% classed as Interurban.

### 4.2 Analytical approach

The analysis undertaken aims to estimate the additional costs and benefits associated with the proposed accessibility licence conditions over and above the 'Do Nothing' scenario where no intervention is made. It follows the below overall approach.

- The **first phase** of the analysis considered the market outcomes where no changes to the current licence conditions are delivered and the market develops naturally to become more accessible over time. The 'Do Nothing' option assumes that the market will continue to develop along existing trends and assumptions that we explored in the sections above.
- In the **second phase**, a range of scenarios were developed which set out alternative policy option where levels of accessibility are required for licensing conditions. For all scenarios it has been assumed a ramp up period in the accessibility from 0%, 25%, 50%, 75% and 100% in the years leading up to total accessibility.
- In the **third phase**, the cost of compliance for a vehicle by age and accessibility scenario is calculated over the time horizon. In this the analysis reflects on the options to either retrofit or purchase a new vehicle adjusting for financing, operating costs and discount rates. For each vehicle age the lowest cost of compliance is assumed to be selected. We then estimate the blended cost of compliance given the average age of vehicles by large, medium and small

operators. This cost of compliance is then applied to the number of vehicles that are required to comply with the proposed new licence condition(s) over the time horizon.

- In the **fourth phase**, the additional administrative costs of compliance are calculated based on estimated labour costs and additional days of effort for operators and public sector.
- In the **fifth phase**, the benefits have then been calculated based on the assumed willingness to pay assumptions, increased demand and social value estimates. Three sets of assumptions have been used to calculate these reflecting on the range of evidence available and set out in Section 3.4. These being is driven off incremental changes in passenger journeys relative to the 'Do Nothing' scenario.
- In the **sixth phase**, the profile of the costs and benefits have been brought together to estimate the Net Present Value (NPV) and the Benefits Cost Ratio (BCR). These provide an overall assessment of value for money of the policy.

**Note on Social Value:** The social value estimate is excluded from the BCR. The social value is the value that travellers place on the activity they undertake at their destination, this however only accrues to those that would not make the trip in the absence of the bus (i.e. not able to). It is likely however that some of the social benefit calculated is also captured with the fare and user benefits and as such this social value should not be additional, but is the value users are placing on the additional activities they can access.

The findings are provided below.

## 4.3 Do Something 1 - Findings

In this section we report the findings from the analysis when all operators have a consistent point of compliance.

### 4.3.1 Option 1 - Total Accessibility by 2023

Option 1 assumes the changes to licensing conditions require 100% accessible vehicles by 2023 and all operators must be compliant. Table 12 below sets out the NPV of the stakeholder costs and benefits for different benefits cases based on willingness-to-pay rates as set out in Section 3.4.1 Table 10.

**Table 12 Option 1 Net Present Value of the Stakeholder Costs and Benefits**

Stakeholder	Impact (000's)	Net Present Value (Benefits - Case 1)	Net Present Value (Benefits - Case 2)	Net Present Value (Benefits - Case 3)
Operators - Large	Administration	2	2	2
Operators - Medium	Administration	14	14	14
Operators - Small	Administration	65	65	65
Operators - Large	Capital & Operating costs	457	457	457
Operators - Medium	Capital & Operating costs	6,790	6,790	6,790
Operators - Small	Capital & Operating costs	4,457	4,457	4,457
<b>Operator</b>	<b>Total</b>	<b>11,785</b>	<b>11,785</b>	<b>11,785</b>
NTA	Administration	33	33	33
NTA	Monitoring	12	12	12
<b>NTA</b>	<b>Total</b>	<b>45</b>	<b>45</b>	<b>45</b>
<b>All stakeholders</b>	<b>Total costs</b>	<b>11,830</b>	<b>11,830</b>	<b>11,830</b>
Operator	Revenue uplift (demand)	10,147	13,055	6,275
Users	Disabled user benefits	4,710	6,672	1,944
Users	Non-disabled user benefits	11,084	13,716	7,780
Social (inc. Users)	Social value	7,861	8,359	4,346
<b>All stakeholders</b>	<b>Total benefits (excluding social value)</b>	<b>25,941</b>	<b>33,443</b>	<b>15,999</b>
<b>All stakeholders</b>	<b>Net benefits (excluding social value)</b>	<b>14,111</b>	<b>21,612</b>	<b>4,169</b>
<b>All stakeholders</b>	<b>BCR Ratio</b>	<b>2.19</b>	<b>2.83</b>	<b>1.35</b>

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**All figures quoted are illustrative and for discussion only.**

The above table highlights that operators face costs of compliance in present value of around €11.8m, mostly via higher capital and operating costs. Small and medium sized operators bear the majority of these costs. The NTA meanwhile faces costs of around €45,000 via administration and monitoring.

In terms of benefits, across the different willingness-to-pay scenarios, operators receive an uplift driven by demand of between €6.2m to €13.1m. Benefits accruing to users of the service are valued at €15.8m, €20.3m and €9.7m over the appraisal period.

Under this option, an additional €7.8m of social value is expected to be generated from ‘Benefits - Case 1’, €8.3m from ‘Benefits - Case 2’ and €4.3m from ‘Benefits - Case 3’.

The net benefit from this option is expected to be €14.1m for ‘Benefits - Case 1’, €21.6m for ‘Benefits - Case 2’ and €4.1m for ‘Benefits - Case 3’. All of these present positive BCRs between 1.35 and 2.83, although in only ‘Benefits - Case 2’ are operator costs recovered.

### 4.3.2 Option 2 - Total Accessibility by 2029

Option 2 assumes the changes to licensing conditions require 100% accessible vehicles by 2029 and all operators must be compliant. Table 13 below sets out the NPV of the stakeholder costs and benefits for different benefits cases based on willingness-to-pay rates as set out in Section 3.4.1 Table 10.

**Table 13 Option 2 Net Present Value of the Stakeholder Costs and Benefits**

Stakeholder	Impact (000's)	Net Present Value (Benefits - Case 1)	Net Present Value (Benefits - Case 2)	Net Present Value (Benefits - Case 3)
Operators - Large	Administration	1	1	1
Operators - Medium	Administration	8	8	8
Operators - Small	Administration	37	37	37
Operators - Large	Capital & Operating costs	215	215	215
Operators - Medium	Capital & Operating costs	3,386	3,386	3,386
Operators - Small	Capital & Operating costs	1,942	1,942	1,942
<b>Operator</b>	<b>Total</b>	<b>5,589</b>	<b>5,589</b>	<b>5,589</b>
NTA	Administration	19	19	19
NTA	Monitoring	7	7	7
<b>NTA</b>	<b>Total</b>	<b>26</b>	<b>26</b>	<b>26</b>
<b>All stakeholders</b>	<b>Total costs</b>	<b>5,615</b>	<b>5,615</b>	<b>5,615</b>
Operator	Revenue uplift (demand)	3,565	4,587	2,205
Users	Disabled user benefits	1,655	2,344	683
Users	Non-disabled user benefits	3,895	4,819	2,734
Social (inc. Users)	Social value	2,762	2,937	1,527
<b>All stakeholders</b>	<b>Total benefits (excluding social value)</b>	<b>9,115</b>	<b>11,750</b>	<b>5,622</b>
<b>All stakeholders</b>	<b>Net benefits (excluding social value)</b>	<b>3,500</b>	<b>6,136</b>	<b>7</b>
<b>All stakeholders</b>	<b>BCR Ratio</b>	<b>1.62</b>	<b>2.09</b>	<b>1.00</b>

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**All figures quoted are illustrative and for discussion only.**

The above table highlights that operators face costs of compliance in present value of around €5.6m, mostly via higher capital and operating costs. Small and medium sized operators bear the majority of these costs. The NTA meanwhile faces costs of around €26,000 via administration and monitoring.

In terms of benefits, across the different willingness-to-pay scenarios, operators receive an uplift driven by demand of between €2.2m to €4.6m. Benefits accruing to users of the service are valued at €5.5m, €7.2m and €3.4m over the appraisal period.

Under this option, an additional €2.8m of social value is expected to be generated from 'Benefits - Case 1', €2.9m from 'Benefits - Case 2' and €1.5m from 'Benefits - Case 3'.

The net benefit from this option is expected to be €3.5m for 'Benefits - Case 1', €6.1m for 'Benefits - Case 2' and €6,000 for 'Benefits - Case 3'. All of these present a neutral or positive BCRs between 1.0 and 2.09, although in none of the scenarios are operator costs recovered.

### 4.3.3 Option 3 - Total Accessibility by 2032

Option 3 assumes the changes to licensing conditions require 100% accessible vehicles by 2032 and all operators must be compliant. Table 14 below sets out the NPV of the stakeholder costs and benefits for different benefits cases based on willingness-to-pay rates as set out in Section 3.4.1 Table 10.

**Table 14 Option 3 Net Present Value of the Stakeholder Costs and Benefits**

Stakeholder	Impact (000's)	Net Present Value (Benefits - Case 1)	Net Present Value (Benefits - Case 2)	Net Present Value (Benefits - Case 3)
Operators - Large	Administration	1	1	1
Operators - Medium	Administration	5	5	5
Operators - Small	Administration	25	25	25
Operators - Large	Capital & Operating costs	115	115	115
Operators - Medium	Capital & Operating costs	1,840	1,840	1,840
Operators - Small	Capital & Operating costs	1,041	1,041	1,041
<b>Operator</b>	<b>Total</b>	<b>3,027</b>	<b>3,027</b>	<b>3,027</b>
NTA	Administration	13	13	13
NTA	Monitoring	5	5	5
<b>NTA</b>	<b>Total</b>	<b>18</b>	<b>18</b>	<b>18</b>
<b>All stakeholders</b>	<b>Total costs</b>	<b>3,045</b>	<b>3,045</b>	<b>3,045</b>
Operator	Revenue uplift (demand)	1,414	1,819	874
Users	Disabled user benefits	656	930	271
Users	Non-disabled user benefits	1,544	1,911	1,084
Social (inc. Users)	Social value	1,095	1,165	606
<b>All stakeholders</b>	<b>Total benefits (excluding social value)</b>	<b>3,614</b>	<b>4,660</b>	<b>2,229</b>
<b>All stakeholders</b>	<b>Net benefits (excluding social value)</b>	<b>569</b>	<b>1,615</b>	<b>-816</b>
<b>All stakeholders</b>	<b>BCR Ratio</b>	<b>1.19</b>	<b>1.53</b>	<b>0.73</b>

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**All figures quoted are illustrative and for discussion only.**

The above table highlights that operators face costs of compliance in present value of around €3.0m, mostly via higher capital and operating costs. Small and medium sized operators bear the majority of these costs. The NTA meanwhile faces costs of around €18,000 via administration and monitoring.

In terms of benefits, across the different willingness-to-pay scenarios, operators receive an uplift driven by demand of between €0.9m and €1.8m. Benefits accruing to users of the service are valued at €2.2m, €2.8m and €1.4m over the appraisal period.

Under this option, an additional €1.1m of social value is expected to be generated from 'Benefits - Case 1', €1.2m from 'Benefits - Case 2' and €0.6m from 'Benefits - Case 3'.

The net benefit from this option is expected to be €0.6mm for 'Benefits - Case 1', €1.6m for 'Benefits - Case 2' and -€0.8m for 'Benefits - Case 3'. These present a mix of negative and positive BCRs between 0.73 and 1.53, and in none of the scenarios are operator costs recovered.

## 4.4 Do Something 2 - Findings

In this section we report the findings from the analysis when all operators have a consistent point of compliance. For the purposes of the analysis 40% of vehicles are classed as Urban/Rural (U&R) and 60% classed as Interurban (I).

### 4.4.1 Option 4 - Rural/Urban Accessibility by 2023; Interurban by 2026

Option 4 assumes the changes to licensing conditions are implemented by 2023 for rural/urban operators and by 2026 for Interurban operators. Table 15 below sets out NPV of the stakeholder costs and benefits for different benefits cases based on willingness-to-pay rates as set out in Section 3.4.1 Table 10.

**Table 15 Option 4 Net Present Value of the Stakeholder Costs and Benefits**

Stakeholder	Impact (000's)	Net Present Value (Benefits - Case 1)		Net Present Value (Benefits - Case 2)		Net Present Value (Benefits - Case 3)	
		R&U	IU	R&U	IU	R&U	IU
Operators - Large	Administration	1	1	1	1	1	1
Operators - Medium	Administration	17	14	17	14	17	14
Operators - Small	Administration	65	50	65	50	65	50
Operators - Large	Capital & Operating costs	184	196	184	196	184	196
Operators - Medium	Capital & Operating costs	2,714	2,965	2,714	2,965	2,714	2,965
Operators - Small	Capital & Operating costs	1,784	1,857	1,784	1,857	1,784	1,857
<b>Operator</b>	<b>Total</b>	<b>9,848</b>		<b>9,848</b>		<b>9,848</b>	
NTA	Administration	32	25	32	25	32	25
NTA	Monitoring	14	11	14	11	14	11
<b>NTA</b>	<b>Total</b>	<b>46</b>	<b>36</b>	<b>46</b>	<b>36</b>	<b>46</b>	<b>36</b>
<b>All stakeholders</b>	<b>Total costs</b>	<b>9,930</b>		<b>9,930</b>		<b>9,930</b>	
Operator	Revenue uplift (demand)	4,059	3,947	5,224	5,076	2,512	2,440
Users	Disabled user benefits	1,885	1,832	2,669	2,596	778	758
Users	Non-disabled user benefits	4,434	4,311	5,488	5,336	3,112	3,025
Social (inc. Users)	Social value	3,224	3,111	3,421	3,299	1,842	1,779
<b>All stakeholders</b>	<b>Total benefits (excluding social value)</b>	<b>20,468</b>		<b>26,389</b>		<b>12,625</b>	
<b>All stakeholders</b>	<b>Net benefits (excluding social value)</b>	<b>10,538</b>		<b>16,459</b>		<b>2,695</b>	
<b>All stakeholders</b>	<b>BCR Ratio</b>	<b>2.06</b>		<b>2.66</b>		<b>1.27</b>	

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**All figures quoted are illustrative and for discussion only.**

The above table, highlights that operators face costs of compliance in present value of around €9.8m, mostly via higher capital and operating costs. Small and medium sized operators in the rural and

urban market bear the majority of these costs. The NTA meanwhile faces costs of around €82,000 via administration and monitoring.

In terms of benefits, across the different willingness-to-pay scenarios, operators receive an uplift driven by demand of between €4.9m to €10.3m. Benefits accruing to users of the service are valued at €7.7m, €12.5m and €16.1m over the appraisal period.

Under this option, an additional €6.3m of social value is expected to be generated from 'Benefits - Case 1', €6.7m from 'Benefits - Case 2' and €3.5m from 'Benefits - Case 3'.

The net benefit from this option is expected to be €10.5m for 'Benefits - Case 1', €16.5m for 'Benefits - Case 2' and €2.7m for 'Benefits - Case 3'. All of these present a positive BCRs between 1.27 and 2.66, although only in 'Benefits - Case 2' were operator costs recovered.

#### 4.4.2 Option 5 - Rural/Urban Accessibility by 2029; Interurban by 2032

Option 5 assumes the changes to licensing conditions are implemented by 2029 for rural/urban operators and by 2032 for Interurban operators. Table 16 below sets out the net present value of the stakeholder costs and benefits for different benefits cases based on willingness-to-pay rates as set out in Section 3.4.1 Table 10.

**Table 16 Option 5 Net Present Value of the Stakeholder Costs and Benefits**

Stakeholder	Impact (000's)	Net Present Value (Benefits - Case 1)		Net Present Value (Benefits - Case 2)		Net Present Value (Benefits - Case 3)	
		R&U	IU	R&U	IU	R&U	IU
Operators - Large	Administration	1	1	1	1	1	1
Operators - Medium	Administration	11	8	11	8	11	8
Operators - Small	Administration	37	25	37	25	37	25
Operators - Large	Capital & Operating costs	86	68	86	68	86	68
Operators - Medium	Capital & Operating costs	1,355	1,104	1,355	1,104	1,355	1,104
Operators - Small	Capital & Operating costs	777	626	777	626	777	626
<b>Operator</b>	<b>Total</b>	<b>4,099</b>		<b>4,099</b>		<b>4,099</b>	
NTA	Administration	19	13	19	13	19	13
NTA	Monitoring	8	5	8	5	8	5
<b>NTA</b>	<b>Total</b>	<b>27</b>	<b>18</b>	<b>27</b>	<b>18</b>	<b>27</b>	<b>18</b>
<b>All stakeholders</b>	<b>Total costs</b>	<b>4,144</b>		<b>4,144</b>		<b>4,144</b>	
Operator	Revenue uplift (demand)	1,426	848	1,836	1,090	883	525
Users	Disabled user benefits	663	393	939	558	273	163
Users	Non-disabled user benefits	1,558	927	1,929	1,147	1,094	650
Social (inc. Users)	Social value	1,185	711	1,292	746	715	452
<b>All stakeholders</b>	<b>Total benefits (excluding social value)</b>	<b>5,815</b>		<b>7,499</b>		<b>3,588</b>	
<b>All stakeholders</b>	<b>Net benefits (excluding social value)</b>	<b>1,671</b>		<b>3,355</b>		<b>-556</b>	
<b>All stakeholders</b>	<b>BCR Ratio</b>	<b>1.40</b>		<b>1.81</b>		<b>0.87</b>	

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**All figures quoted are illustrative and for discussion only.**

The above table highlights that operators face costs of compliance in present value of around €4.1m, mostly via higher capital and operating costs. Small and medium sized operators in the rural and urban market bear the majority of these costs. The NTA meanwhile faces costs of around €45,000 via administration and monitoring.

In terms of benefits, across the different willingness-to-pay scenarios, operators receive an uplift driven by demand of between €1.4m and €2.9m. Benefits accruing to users of the service are valued at €3.5m, €4.6m and €2.2m over the appraisal period.

Under this option, an additional €1.9m of social value is expected to be generated from 'Benefits - Case 1', €2.0m from 'Benefits - Case 2' and €1.2m from 'Benefits - Case 3'.

The net benefit from this option is expected to be €1.7m for 'Benefits - Case 1', €3.4m for 'Benefits - Case 2' and -€0.6m for 'Benefits - Case 3'. These present a mix of negative and positive BCRs between 0.87 and 1.81, and in none of the scenarios are operator costs recovered.

#### 4.4.3 Option 6 - Rural/Urban Accessibility by 2032; Interurban by 2035

Option 6 assumes the changes to licensing conditions are implemented by 2032 for rural/urban operators and by 2035 for Interurban operators. Table 17 below sets out the NPV of the stakeholder costs and benefits for different benefits cases based on willingness-to-pay rates as set out in Section 3.4.1 Table 10.

**Table 17 Option 6 Net Present Value of the Stakeholder Costs and Benefits**

Stakeholder	Impact (000's)	Net Present Value (Benefits - Case 1)		Net Present Value (Benefits - Case 2)		Net Present Value (Benefits - Case 3)	
		R&U	IU	R&U	IU	R&U	IU
Operators - Large	Administration	1	1	1	1	1	1
Operators - Medium	Administration	8	5	5	5	5	5
Operators - Small	Administration	25	15	25	15	25	15
Operators - Large	Capital & Operating costs	45	25	46	25	46	25
Operators - Medium	Capital & Operating costs	735	394	736	394	736	394
Operators - Small	Capital & Operating costs	416	223	416	223	416	223
<b>Operator</b>	<b>Total</b>	<b>1,893</b>		<b>1,893</b>		<b>1,893</b>	
NTA	Administration	13	7	13	7	13	7
NTA	Monitoring	5	5	5	5	5	5
<b>NTA</b>	<b>Total</b>	18	12	18	12	18	12
<b>All stakeholders</b>	<b>Total costs</b>	<b>1,923</b>		<b>1,923</b>		<b>1,923</b>	
Operator	Revenue uplift (demand)	566	135	729	174	351	84
Users	Disabled user benefits	263	62	373	89	108	26
Users	Non-disabled user benefits	618	148	765	183	434	104
Social (inc. Users)	Social value	518	158	542	159	347	147
<b>All stakeholders</b>	<b>Total benefits (excluding social value)</b>	<b>1,792</b>		<b>2,313</b>		<b>1,107</b>	
<b>All stakeholders</b>	<b>Net benefits (excluding social value)</b>	<b>-131</b>		<b>390</b>		<b>-816</b>	
<b>All stakeholders</b>	<b>BCR Ratio</b>	<b>0.93</b>		<b>1.20</b>		<b>0.58</b>	

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**All figures quoted are illustrative and for discussion only.**

The above table highlights that operators face costs of compliance in present value of around €1.9m, mostly via higher capital and operating costs. Small and medium sized operators in the rural and

urban market bear the majority of these costs. The NTA meanwhile faces costs of around €30,000 via administration and monitoring.

In terms of benefits, across the different willingness-to-pay scenarios, operators receive an uplift driven by demand of between €0.4m and €0.9m. Benefits accruing to users of the service are valued at €1.1m, €1.4m and €0.6m over the appraisal period.

Under this option, an additional €0.6m of social value is expected to be generated from 'Benefits - Case 1', €0.7m from 'Benefits - Case 2' and €0.5m from 'Benefits - Case 3'.

The net benefit from this option is expected to be -€0.1m for 'Benefits - Case 1', €0.6m for 'Benefits - Case 2' and -€0.8m for 'Benefits - Case 3'. These present a mix of negative and positive BCRs between 0.58 and 1.20, and in none of the scenarios are operator costs recovered.

## 4.5 Sensitivity Analysis

When considering costs and benefits associated with policy change and explored above, it is prudent to explore the relative impacts where these are significantly higher or lower than expected. This reflects upon the uncertainty of the available evidence base.

This section of the report describes the impact of altering key inputs on the BCR. All inputs have been altered by in the following ways:

- Reduced by 50%; and
- Increased by 50%.

**Table 18 Sensitivity Analysis of Benefit Cost Ratio findings**

Input	Impact on BCR of a 50% reduction	Impact on BCR of a 50% increase
Growth Rate in Passenger Journeys	21% lower	25% higher
Existing level of accessibility within the fleet	179% higher	93% lower
Willingness-to-pay assumptions	50% lower	51% higher
Revenue per Passenger	11% lower	6% higher
NTA Administration Fees	Negligible	Negligible
Operator Administration	Negligible	Negligible
Difference in capital costs of accessibility compared to non-accessible	37% higher	20% lower
Difference in operating costs of accessibility compared to non-accessible	30% higher	18% lower

**All figures quoted are illustrative and for discussion only.**

Please see section 4.5, 'Sensitivity Analysis Findings' for a discussion on the consequences of changes in Inputs to the overall BCR.

## 4.6 Sensitivity Analysis Findings

As can be seen in Sensitivity Analysis table above, changes to the inputs can have a significant effect on the BCR. The effects of sensitivities on the overall BCR are as follows:

- **Growth Rate in Passenger Journeys** has an important effect on the BCR due to a higher growth rate which would lead to a larger number of passengers enjoying the benefits of the changes to licensing conditions. Therefore, changes in the growth rate have large effects on the BCR. The overall effect of doubling this input is to increase the BCR by 25%. The overall effect of halving this input is to decrease the BCR by 21%.
- **Current level of accessibility within the fleet** has a very significant impact on the BCR. This is because where the current fleet is assumed to be 50% less accessible the impact relative to the 'Do Nothing' is much more significant. The opposite holds where the fleet is assumed to be more accessible than it currently is.
- **Willingness-to-pay** has a strong relationship with the overall user benefits as it impacts on both the user benefits directly and via increased levels of demand. The overall effect of increasing the assumptions by 50% will increase the BCR by 51%. The overall effect of halving this input is to decrease the BCR by 50%.
- **Revenue per Passenger** has a close relationship with operator revenue uplift, however this only forms part of the overall benefit delivered. As such, a 50% increase in revenue per passenger only impacts the BCR by 6%, and a 50% reduction impacts the BCR by 11%.
- **NTA and Operator Administration** inputs have a relatively small overall impact on the BCR. The overall effect of increasing or decreasing this input has negligible effect on BCR.
- **Difference in capital costs of accessibility compared to non-accessible** increasing this input would decrease the BCR by 20% whereas halving the input would increase the BCR by 37%.
- **Difference in operating costs of accessibility compared to non-accessible** increasing this input by 50% would decrease the BCR by 18% whereas halving the input would increase the BCR by 30%.

A consultation to explore the costs and benefits associated with a shift to accessibility is important. This would help to reduce uncertainty around the BCR from the changes in licensing conditions.

## 4.7 Operator-level analysis

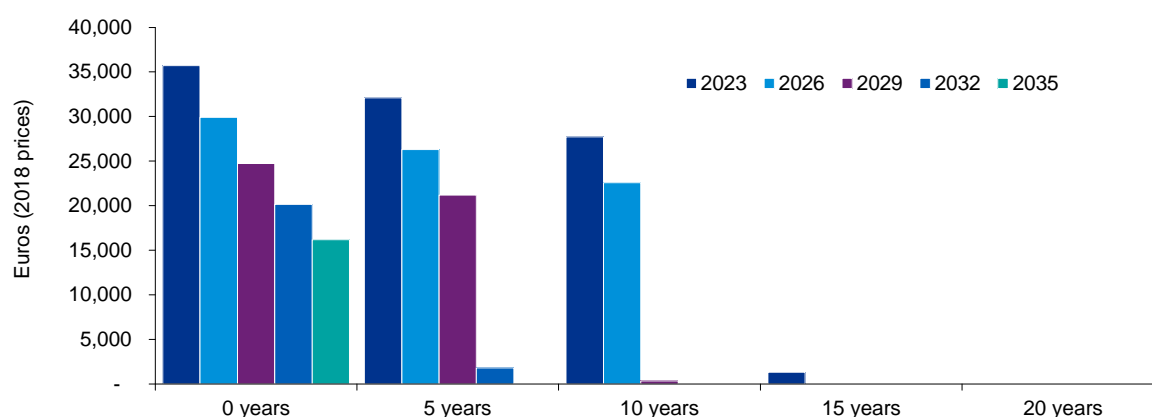
The findings set out below provide for insight into the overall market impacts associated with potential reforms. This section explores the costs of compliance that operators may face in order to comply with the policy, reflecting on age of vehicles, vehicle types and size of fleet currently not accessible.

The figures used in this section differ to above in that they are current prices but not the present value.

The figure below provides the estimated cost of compliance relative to business as usual reflecting additional capital, operating and financing costs, by age of vehicle and by date of compliance. This shows the cost of compliance currently for an operator with a new vehicle is the highest relative to the 'Do Nothing' scenario, although this decreases with a delayed date requiring compliance.

This is driven by the fact that older vehicles will be replaced naturally over the course of the time horizon and indeed often before the policy becomes implemented, such as a 20 year old vehicle. It is assumed that in the 'Do Nothing' scenario non-accessible vehicles are naturally replaced by accessible ones.

**Figure 10 Estimated cost of compliance relative to the Do Nothing scenario per vehicle by age in current prices**

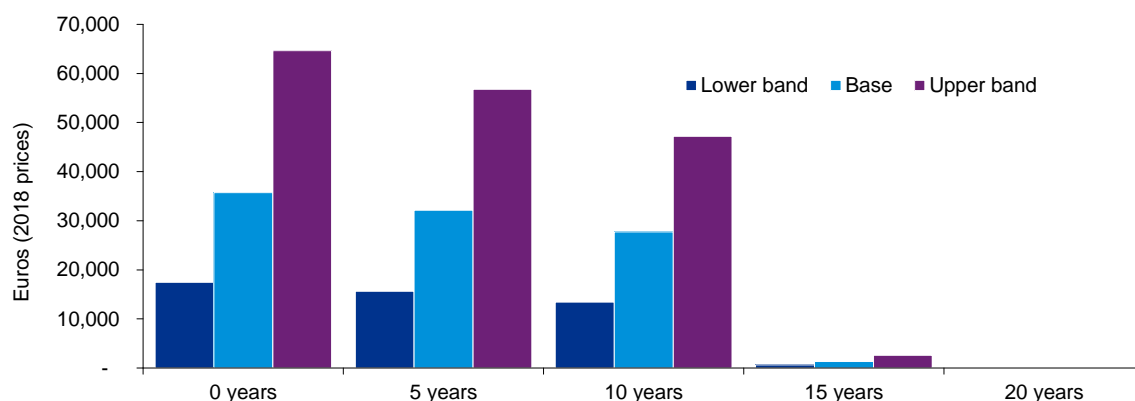


The figure below provides a sensitivity of the potential costs that operators could face for a given vehicle type, given the range of potential costs identified within the literature review. These reflect a combination of capital, operating and financing for operators over the appraisal period.

The overall analysis undertaken has assumed an average cost of compliance per vehicle although there is recognition that different types of vehicle have different costs of compliance. This is partly driven by the type of solution required and scale.

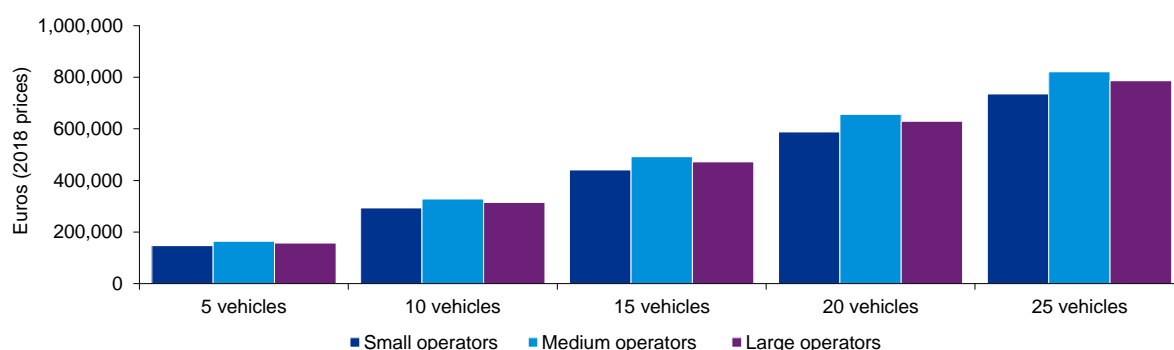
In general it may be expected that different markets may have different types of vehicles operating and therefore different cost. Double-deckers tend to be the most expensive to modify, whilst midi and mini buses tend to be least expensive.

**Figure 11 Estimated cost of compliance per vehicle by range relative to the Do Nothing scenario assuming compliance by 2023 in current prices**



We have explored the implications for operators based on fleet size accounting for operator type, with the results provided in current prices in the figure below. The overall costs are based on the relative average ages of fleets owned by different sized operators and the number of vehicles that need to be made accessible.

**Figure 12 Estimated cost of compliance for an operator relative to Do Nothing scenario assuming compliance by 2023 by operator size and average vehicle age in current prices.**



This section sets out the variations in cost of compliance that may exist between individual operators and licence holders due to the number of vehicles that exist in their fleet, the age of their vehicles and the type of vehicles under operation.

Further consultation with operators may allow for these cost variations to be explored in more detail.

## 4.8 Findings

The above section provides the findings from a number of exploratory options. The analysis of the implementation options provided the following sights:

- In general the regulatory policies presented provide for a positive BCR when accounting for impacts on operators, users and the public sector.

- The BCR estimates ranged from 0.58 to 2.83, with 83% of the scenarios having a BCR greater than 1.
- In general the earlier the implementation of an option, the higher the BCR. This is largely driven by the significant proportion of the benefits accruing to users.
- The earlier the implementation of an option, the higher the net cost to small and medium operators. In only 11% of scenarios where operators cost covered by increased revenue generated by passenger demand.
- The overall analysis is at the market level however, when considering individual operators, it is likely costs will vary by age of fleet, vehicle type and total number of vehicles.

## 5 Discussion

### 5.1 Implications of the Findings

The previous section provided analysis of possible options resulting from the introduction of the changes to licensing conditions. The implication of these findings are as follows:

- The earlier the implementation of the changes, the higher the BCR. However, the earlier the implementation of the changes, the higher the net cost to small and medium operators.
- It may not be feasible for some small and medium operators to continue their service if they must incur costs associated with the changes. This could lead to loss of service or require alternative market strategies.
- The BCR is highly sensitive to changes to the inputs. Validating these inputs through consultation would reduce uncertainty.

### 5.2 Additional Qualitative Considerations

In considering the findings from the assessment, there are seven specific considerations that are reviewed below as per the RIA guidance.

- **National Competitiveness** - No quantified impacts on national competitiveness in Ireland is assumed although there are likely to be general improvements in connectivity. The policy may have minor improvements on the overall functioning of the labour market which could have a minor impact on productivity. This mechanism occurs via expanding the potential employment opportunities for individuals and providing companies with greater levels of choice for workers.
- **The Socially Excluded and Vulnerable Groups** - Significant improvements for disabled people and others with accessibility issues across Ireland through better access to services and employment opportunities. This should also lead to improvements in health and mental wellbeing. There are also benefits from wider society from knowing that everyone is able to access the same opportunities.
- **The Environment** - No specific impacts on the environment.
- **Whether there is a significant policy change in an economic market, including consumer and competition impacts** - There is potential for the bus market to become less competitive if the capital and operational costs of compliance are significant enough to force participants out of the market and create barriers to entry. Market exit has not been assumed within the analysis, although it could occur if the compliance burden is too significant for some specific operators to make required rates of return.
- **The Rights of Citizens** - The changes in licensing conditions aim to ensure more equal access for users of public transport. As such the overall rights of citizens in Ireland should be improved.
- **Compliance Burdens, including Administrative Burdens** - The administrative burden has been accounted for within the analysis with the expectation there will be costs for both operators and

NTA covering familiarisation and implementation. There will also be ongoing costs associated with compliance as well as monitoring and enforcement within the licensing process.

- **North-South and East-West Relations** - No specific impacts on North-South and East-West relations.

### 5.3 Areas of Uncertainty

The analysis of the changes in licensing conditions has highlighted several areas of uncertainty in some of the key variables. The economic benefits of the changes are more uncertain and several assumptions were made largely based on publicly available studies.

In the table below the main areas of uncertainty to which the analysis is sensitive are highlighted and which may benefit from further analysis, sensitivity tests and consultation with stakeholders.

**Table 19 Areas of Uncertainty Surrounding the Analysis and Assumptions**

Area of Uncertainty	Reason
Trends in take-up of accessible vehicles	Historic data was relied on to identify accessible vehicles within the market. These trends vary greatly by operator type and indeed historic trends do not necessarily determine future trends. This significantly influences the findings as a quicker than or lower than expected take up with increase or decrease the expected additional benefits and costs.
Trends in patronage	Historic data was relied on to estimate future trends in patronage levels, as with the above historic trends do not necessarily determine future trends.
Average additional capital cost associated with accessibility	Publicly available sources were used to estimate retrofit and replacement costs for the fleet in order to be compliant. However, these could be higher or lower for individual operators and based on their specific set of circumstances and availability of products.
User benefit values	The user benefits were assessed based on willingness-to-pay estimates from N. Fearnley, S. Flügel, F. Ramjerdi (2011) and WebTAG (2018). These are based on studies from Norway and the UK. More context specific insights from Ireland could provide greater confidence in the findings.
Market exit of operators	It was assumed that operators will not exit the market because of the additional regulatory requirements. However, operators may choose to make that decision if they are unable to comply as the market becomes not financially viable.
Operator strategic decision making	The analysis undertaken assumes the market continues to function as it does to today and operators do not significantly change approaches to fares or services patterns. If operators did change their strategies as result of the proposed new licence condition(s) this could have additional impacts.

## 6 Conclusion

In conclusion, a number of policy options in relation to improving accessibility with the bus fleet were examined to assess the impact on different stakeholders affected by the changes in licensing conditions.

The analysis of the policy options was based on NTA returns and publicly available data. The economic benefits of the changes to licensing conditions are uncertain and are based largely on publicly available studies from other jurisdictions. The calculated BCR's are also highly sensitive to changes to the inputs. These inputs have not been validated through consultation.

The analysis of the implementation options provided the following findings:

- In general changes to licensing conditions were seen to represent a positive impact when accounting for user, operator and public sector impacts.
- The earlier the implementation of the changes to licensing conditions, the higher the BCR. However, the earlier the implementation of the changes to licensing conditions, the higher the net cost to small and medium operators.
- The analysis of the changes to licensing conditions has highlighted several areas of uncertainty in some of the key variables. The economic benefits of the proposed new licence condition(s) are more uncertain several assumptions were made largely based on publicly available studies.
- It may not be feasible for some small and medium operators to continue their service if they must incur costs associated with the introduction of the proposed new licence condition(s). This could lead to loss of service.
- There are likely to be additional benefits that cannot be quantified related to non-users and society.

## Appendix 1 Literature review

In exploring the impacts of the introduction of accessibility licence condition(s), a number of publicly available reports that provides insights were reviewed, a short summary of these is provided below.

**Table 20 Review of literature on assessing impacts of accessibility**

Study	Key insights
OECD (2017) Economic Benefits of Improving Transport Accessibility	<p>The OECD set up a roundtable group to consider the economic impacts of improved accessibility covering both disabled users as well as those with reduced level of access, such as individuals travelling with young children or heavy luggage.</p> <p>This is in recognition that benefits are often overlooked within the traditional transport appraisal and evaluation practices whilst the costs are often well known. This means that it can be challenging for policy makers to introduce policies even where benefits are recognised.</p> <p>This roundtable work identified a framework for assessing impacts as considering improved accessibility for users, non-users, operators, government and wider society. This included reviewing work undertaken to date from a range of sources.</p>
Fearnley, N., S. Flügel, F. Ramjerdi (2011), Passengers' valuations of universal design measures in public transport	<p>This study was taken on behalf of the Norwegian Public Roads Administration to understand passengers 'willingness-to-pay' for different accessibility features.</p> <p>This included additional information at stations and on-board vehicles, improved accessibility features boarding (i.e. low-floor vehicle) as well as improved shelter at stations. As part of this study individuals were offered a range of options and selected preferences.</p> <p>For low floor passenger transport vehicles, the willingness-to-pay estimates per trip ranged from 0.30-0.37 USD for all passengers to 0.51-0.72 USD for passengers with limited mobility. It should be noted that where multiple features are implemented these are not always additional.</p>
Steer Davies Gleave, (2015) Access 4 All Benefit Research	<p>SDG undertook an ex-post review of the Access for All (A4A) programme on behalf of the UK DfT, which funded initiatives to improve accessibility at key stations on the rail network.</p> <p>The programme spend £370m between 2004 and 2015, delivering small scale improvements at more than 1,100 stations. As part of this a subset of stations were reviewed. Using a webTAG based approach the schemes were seen to have an overall BCR of 2.4:1, with one scheme having a BCR as high as 11.3:1.</p> <p>Demand changes included within the analysis were based on survey information. This assumed that the percentage that stated they had increased their usage were multiplied with the assumed increase, 1/3 more trips for those saying they had increased their number of trips "significantly" and 1/10 more trips for those saying they had increased their number of trips "slightly". Over half the benefits were seen to accrue to existing users.</p>
European Commission (2014) Study on the socio-economic impact of new measures to improve accessibility of goods and services for people with disabilities	<p>Study commissioned by the European Commission as a foundation for its Impact Assessment for a European Accessibility Act, which was announced within the European Disability Strategy 2010-2020.</p> <p>The objective of the study was to consider the potential socio-economic impacts of new measures to improve accessibility of goods and services for people with disabilities. During this study 15 priority goods and services were considered, including bus transport services. The current approaches undertaken by different member states was seen as a barrier and cost to cross-border trade, with significant costs to business occurring.</p> <p>Implementing a European Accessibility Act there was seen to benefit to business across the EU through reducing costs.</p> <p>As part of the study, the total cost of accessibility across Europe within the bus transportation ranged from €408.5m to €837.6m in 2020. The annual opportunity for customers in 2020 meanwhile was calculated at between €749.9m and €3.2bn.</p>

<p>Joint Committee on Transport, Tourism and Sport (2018) Accessibility of Public Transport for People with Disabilities</p>	<p>The Joint Committee on Transport, Tourism and Sport undertook a study in 2018 to identify issues with accessibility of public transport for people with disability in Ireland. This highlighted the negative impacts on the capacity of people with disabilities to engage and participate in all spheres of Irish society, including economic, educational, civic and social.</p> <p>Specifically, the study explored the relationship between disabled people and public transport and identified some recommendations to solve these. The recommendations covered:</p> <ul style="list-style-type: none"> <li>- Equal access</li> <li>- Planning and decision making</li> <li>- Towards a fully accessible public transport service</li> <li>- A whole journey approach</li> <li>- Orientation and way finding</li> <li>- Service interruptions</li> <li>- Clear feedback and / or compliant pathways</li> <li>- Performance</li> <li>- Travel costs</li> <li>- Unplanned travel</li> <li>- Technological innovation</li> <li>- Commercial bus and coach services</li> <li>- Accessible taxis</li> </ul>
<p>Department for Transport (1998) Proposed PSV accessibility regulations: Regulatory impact assessment</p>	<p>The UK DfT undertook a regulatory impact assessment in 1998 covering the introduction of accessibility regulation for bus and coaches in the UK with varying compliance mandates required between 2015 and 2020. This identified both the costs and benefits of introducing the proposed regulation. This regulation was envisioned to cover between 44,000 and 55,000 buses.</p> <p>In present value, the total capital costs associated with rolling out a fully accessible bus fleet was estimated to be £478m, with ongoing annual costs of £74m. This was funded via additional revenue estimates of between £100 and £126m per year.</p> <p>The capital costs were assumed to vary between £6,600 and £13,600 per vehicle, with this being the additional features required compared to a conventional vehicle. This covers both the need for a powered ramp as well as the introduction of CCTV which was required so the driver has sight of the device for operation.</p> <p>The ongoing costs were assumed to relate to an increase in maintenance, repair and fuel costs as per evidence at the time. It was assumed that maintenance and repair costs would increase by 6%, with these accounting for 15% of total operating costs. Meanwhile fuel costs were assumed to increase by 6%, with these accounting for 10% of operating costs.</p> <p>The benefits were based on evidence at the time where introduction of accessible vehicles has led to increases of up to 12% in demand on some services. In undertaking the analysis an assumption of 4-5% increase in patronage growth was assumed on bus services.</p> <p>Overall the findings of the RIA were seen to show the introduction regulation was required to ensure the bus fleet became fully accessible and that the costs and benefits were sustainable over the long run.</p>
<p>National Transport Authority (2014) - Public Consultation on Transitioning to a Wheelchair Accessible Licensed Bus Sector: Issues Paper</p>	<p>The National Transport Authority (NTA) carried out a public consultation on ways to support the transition to a wheelchair accessible licensed bus and coach sector. The commercial bus and coach sector provides public transport services under licences awarded by the NTA under the Public Transport Regulation Act 2009. It accounted for almost 7% of all passenger journeys in 2013.</p> <p>Improving the accessibility of the transport system enhances the opportunity for people with disabilities to participate fully in society and is important both for the intrinsic value of accessible transport provision, and as an enabler of access to other services. Some components of Ireland's public transport offering have registered considerable progress in enhancing the accessibility of services with the assistance of state funding but, in the licensed bus and coach sector however, progress has been slower. The paper looked at some of the issues involved in achieving progress towards</p>

	<p>more complete achievement of policy objectives in this area.</p> <p>There is a strong public policy rationale for improving the accessibility of the licensed bus and coach sector. This objective is affirmed in the strategic framework of the Department, the NTA and the NDA and is consistent with international obligations to deliver equal opportunities for people with disabilities.</p> <p>However, the capacity of the sector to bear regulation depends on its overall health and medium-term prospects.</p> <p>Accessibility could be achieved through a number of approaches based on analysis of various international approaches, such as providing mandatory deadlines along with business as usual, state funding for incremental costs of accessibility and finally, the option of equivalent service accessibility which provides a further approach and can be said to benefit from greater proportionality than some of the full accessibility options.</p>
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## Appendix 2 Detailed results of analysis

### Table 21 Option 1 - Total Accessibility by 2023 - Profile of costs and benefits (Net Present Value)

Stakeholder	Impact	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Required level of accessibility			0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'
Operators - Large	Admin	2	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Operators - Medium	Admin	14	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Operators - Small	Admin	65	0	0	0	5	5	5	5	4	4	4	4	4	4	3	3	3	3	3	3	3
Operators - Large	C & O	457	2	2	2	20	26	33	38	64	52	44	38	32	27	22	17	14	10	7	5	2
Operators - Medium	C & O	6,790	27	26	25	286	376	468	546	920	763	651	562	488	425	348	278	217	163	115	72	34
Operators - Small	C & O	4,457	23	22	21	207	270	332	385	654	523	430	358	295	242	197	158	123	92	65	41	19
Operator	Total	11,785	52	50	48	519	678	840	976	1643	1343	1130	963	820	699	571	457	358	269	190	121	58
National Authority	Admin	33	0	0	0	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1
National Authority	Monitoring	12	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
National Authority	Total	45	0	0	0	3	2	2	2	2	3	3	3	3	3	3	3	3	3	3	2	2
All stakeholders	Total costs	11,830	52	50	48	522	680	842	978	1645	1346	1133	966	823	702	574	460	361	272	193	123	60
Benefits - Case 1																						
Operator	Demand	10,147	0	0	0	0	0	521	1184	1126	1064	999	928	853	773	688	597	501	398	289	174	52
Users	Disabled	4,710	0	0	0	0	0	242	550	522	494	464	431	396	359	319	277	232	185	134	81	24
Users	Non-disabled	11,084	0	0	0	0	0	569	1293	1230	1163	1092	1014	932	844	751	652	547	435	316	190	56
Social (inc. Users)	Social value	7,861	0	0	0	0	0	404	916	872	824	774	719	661	599	533	463	388	309	224	135	40
All stakeholders	Total benefits	25,941	0	0	0	0	0	1332	3027	2878	2721	2555	2373	2181	1976	1758	1526	1280	1018	739	445	132
All stakeholders	Net benefits	14,111	-52	-50	-48	-522	-680	490	2049	1233	1375	1422	1407	1358	1274	1184	1066	919	746	546	322	72
Benefits - Case 2																						
Operator	Demand	13,055	0	0	0	0	0	670	1523	1449	1370	1285	1194	1097	994	885	768	644	512	372	224	66
Users	Disabled	6,672	0	0	0	0	0	343	779	741	700	657	610	561	508	452	393	329	262	190	114	34
Users	Non-disabled	13,716	0	0	0	0	0	704	1600	1522	1439	1350	1255	1153	1045	930	807	677	538	391	235	70
Social (inc. Users)	Social value	8,359	0	0	0	0	0	429	975	928	877	823	765	703	637	567	492	412	328	238	143	42
All stakeholders	Total benefits	33,443	0	0	0	0	0	1717	3902	3712	3508	3291	3059	2811	2548	2267	1968	1650	1313	954	573	170
All stakeholders	Net benefits	21,612	-52	-50	-48	-523	-681	875	2925	2064	2162	2158	2094	1989	1847	1693	1508	1290	1041	761	450	109
Benefits - Case 3																						
Operator	Demand	6,275	0	0	0	0	0	322	732	696	658	618	574	528	478	425	369	310	246	179	108	32
Users	Disabled	1,944	0	0	0	0	0	100	228	217	204	191	178	162	148	132	114	96	76	55	33	10
Users	Non-disabled	7,780	0	0	0	0	0	399	908	864	816	766	712	654	592	527	458	384	305	222	133	40
Social (inc. Users)	Social value	4,346	0	0	0	0	0	223	507	482	456	428	397	365	331	295	256	214	171	124	75	22
All stakeholders	Total benefits	15,999	0	0	0	0	0	821	1868	1777	1678	1575	1464	1344	1218	1084	941	790	627	456	274	82
All stakeholders	Net benefits	4,169	-52	-50	-48	-522	-680	-21	890	132	332	442	498	521	516	510	481	429	355	263	151	22

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**Table 22 Option 2 - Total Accessibility by 2029 - Profile of costs and benefits (Net Present Value)**

Stakeholder	Impact	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Required level of accessibility			0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%	100%	100%	100%
		000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'
Operators - Large	Admin	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Operators - Medium	Admin	8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0
Operators - Small	Admin	37	0	0	0	0	0	0	0	0	0	4	4	4	4	3	3	3	3	3	3	3
Operators - Large	C & O	215	0	0	0	0	0	0	0	0	0	20	21	24	25	41	29	21	15	10	6	3
Operators - Medium	C & O	3,386	0	0	0	0	0	0	0	0	0	289	332	364	386	652	468	340	243	165	101	46
Operators - Small	C & O	1,942	0	0	0	0	0	0	0	0	0	170	197	214	222	369	265	192	137	93	57	26
<b>Operator</b>	<b>Total</b>	<b>5,589</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>485</b>	<b>555</b>	<b>607</b>	<b>638</b>	<b>1066</b>	<b>766</b>	<b>557</b>	<b>399</b>	<b>271</b>	<b>167</b>	<b>78</b>
National Authority	Admin	19	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	1	1	1
National Authority	Monitoring	7	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0
<b>National Authority</b>	<b>Total</b>	<b>26</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>All stakeholders</b>	<b>Total costs</b>	<b>5,615</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>488</b>	<b>558</b>	<b>610</b>	<b>641</b>	<b>1069</b>	<b>769</b>	<b>560</b>	<b>401</b>	<b>272</b>	<b>168</b>	<b>79</b>
<b>Benefits - Case 1</b>																						
Operator	Demand	3,565	0	0	0	0	0	0	0	0	0	0	0	93	773	688	597	501	398	289	174	52
Users	Disabled	1,655	0	0	0	0	0	0	0	0	0	0	0	44	359	319	277	232	185	134	81	24
Users	Non-disabled	3,895	0	0	0	0	0	0	0	0	0	0	0	103	844	751	652	547	435	316	190	56
<i>Social (inc. Users)</i>	<i>Social value</i>	2,762	0	0	0	0	0	0	0	0	0	0	0	71	599	533	463	388	309	224	135	40
<b>All stakeholders</b>	<b>Total benefits</b>	<b>9,115</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>240</b>	<b>1976</b>	<b>1758</b>	<b>1526</b>	<b>1280</b>	<b>1018</b>	<b>740</b>	<b>445</b>	<b>132</b>
<b>All stakeholders</b>	<b>Net benefits</b>	<b>3,500</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-488</b>	<b>-558</b>	<b>-370</b>	<b>1335</b>	<b>689</b>	<b>757</b>	<b>720</b>	<b>617</b>	<b>468</b>	<b>277</b>	<b>53</b>
<b>Benefits - Case 2</b>																						
Operator	Demand	4,587	0	0	0	0	0	0	0	0	0	0	0	120	996	885	768	644	512	372	224	66
Users	Disabled	2,344	0	0	0	0	0	0	0	0	0	0	0	62	508	452	393	329	262	190	114	34
Users	Non-disabled	4,819	0	0	0	0	0	0	0	0	0	0	0	126	1045	930	807	677	538	391	235	70
<i>Social (inc. Users)</i>	<i>Social value</i>	2,937	0	0	0	0	0	0	0	0	0	0	0	77	638	567	492	412	328	238	143	42
<b>All stakeholders</b>	<b>Total benefits</b>	<b>11,750</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>308</b>	<b>2549</b>	<b>2267</b>	<b>1968</b>	<b>1650</b>	<b>1312</b>	<b>953</b>	<b>573</b>	<b>170</b>
<b>All stakeholders</b>	<b>Net benefits</b>	<b>6,135</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-488</b>	<b>-558</b>	<b>-302</b>	<b>1908</b>	<b>1198</b>	<b>1199</b>	<b>1090</b>	<b>911</b>	<b>681</b>	<b>405</b>	<b>91</b>
<b>Benefits - Case 3</b>																						
Operator	Demand	2,205	0	0	0	0	0	0	0	0	0	0	0	58	478	425	369	310	246	179	108	32
Users	Disabled	683	0	0	0	0	0	0	0	0	0	0	0	18	148	132	114	96	77	55	33	10
Users	Non-disabled	2,734	0	0	0	0	0	0	0	0	0	0	0	72	593	527	458	384	305	222	133	40
<i>Social (inc. Users)</i>	<i>Social value</i>	1,527	0	0	0	0	0	0	0	0	0	0	0	40	330	295	256	214	171	124	75	22
<b>All stakeholders</b>	<b>Total benefits</b>	<b>5,622</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>148</b>	<b>1219</b>	<b>1084</b>	<b>941</b>	<b>790</b>	<b>628</b>	<b>456</b>	<b>274</b>	<b>82</b>
<b>All stakeholders</b>	<b>Net benefits</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-488</b>	<b>-558</b>	<b>-462</b>	<b>578</b>	<b>15</b>	<b>172</b>	<b>230</b>	<b>227</b>	<b>184</b>	<b>106</b>	<b>3</b>

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**Table 23 Option 3 - Total Accessibility by 2032 - Profile of costs and benefits (Net Present Value)**

Stakeholder	Impact	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Required level of accessibility			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%
		000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'
Operators - Large	Admin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Operators - Medium	Admin	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
Operators - Small	Admin	25	0	0	0	0	0	0	0	0	0	0	0	0	4	3	3	3	3	3	3	3
Operators - Large	C & O	115	0	0	0	0	0	0	0	0	0	0	0	0	13	15	16	16	26	16	9	4
Operators - Medium	C & O	1,840	0	0	0	0	0	0	0	0	0	0	0	0	216	244	256	257	409	251	144	63
Operators - Small	C & O	1,041	0	0	0	0	0	0	0	0	0	0	0	0	123	138	145	145	231	142	81	36
Operator	Total	3,027	0	0	0	0	0	0	0	0	0	0	0	0	356	400	420	423	670	413	238	107
National Authority	Admin	13	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	1	1	1
National Authority	Monitoring	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
National Authority	Total	18	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	3	3	2	2	2
All stakeholders	Total costs	3,045	0	0	0	0	0	0	0	0	0	0	0	0	358	402	422	426	673	415	240	109
Benefits - Case 1																						
Operator	Demand	1,414	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	501	398	289	174	52
Users	Disabled	656	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	232	185	134	81	24
Users	Non-disabled	1,544	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	547	435	316	190	56
Social (inc. Users)	Social value	1,095	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	388	309	224	134	40
All stakeholders	Total benefits	3,614	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1280	1018	739	445	132
All stakeholders	Net benefits	568	0	0	0	0	0	0	0	0	0	0	0	0	-362	-403	-423	856	346	326	205	23
Benefits - Case 2																						
Operator	Demand	1,819	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	644	513	372	224	66
Users	Disabled	930	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	329	263	190	114	34
Users	Non-disabled	1,911	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	677	538	391	235	70
Social (inc. Users)	Social value	1,165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	414	328	238	143	42
All stakeholders	Total benefits	4,660	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1650	1314	953	573	170
All stakeholders	Net benefits	1,615	0	0	0	0	0	0	0	0	0	0	0	0	-358	-402	-422	1224	641	538	333	61
Benefits - Case 3																						
Operator	Demand	874	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310	246	179	107	32
Users	Disabled	271	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96	76	55	34	10
Users	Non-disabled	1,084	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	384	305	222	133	40
Social (inc. Users)	Social value	606	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	214	171	124	75	22
All stakeholders	Total benefits	2,229	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	790	627	456	274	82
All stakeholders	Net benefits	-816	0	0	0	0	0	0	0	0	0	0	0	0	-358	-402	-422	364	-46	41	34	-27

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**Table 24 Option 4 - Rural/Urban Accessibility by 2023; Interurban by 2026 - Profile of costs and benefits (Net Present Value) (Collated)**

Stakeholder	Impact	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Required level of accessibility (R&U)			0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Required level of accessibility (IU)			0%	0%	0%	0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'
Operators - Large	Admin	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Operators - Medium	Admin	31	0	0	0	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Operators - Small	Admin	115	0	0	0	5	5	5	10	8	8	8	8	8	8	6	6	6	6	6	6	6
Operators - Large	C & O	380	1	1	1	8	10	13	28	41	38	36	47	39	31	25	20	15	11	8	5	2
Operators - Medium	C & O	5,679	11	10	10	114	150	187	399	587	553	530	690	577	493	396	312	241	179	125	78	37
Operators - Small	C & O	3,641	9	9	9	83	108	133	283	415	379	354	451	353	281	224	177	136	101	71	44	21
Operator	Total	9,848	21	20	20	211	274	339	722	1053	980	930	1198	979	815	653	517	400	299	212	135	70
National Authority	Admin	57	0	0	0	3	2	2	4	4	4	4	4	4	4	4	4	4	4	2	2	2
National Authority	Monitoring	25	0	0	0	1	1	1	2	2	2	2	2	2	0	0	0	2	2	2	2	2
National Authority	Total	82	0	0	0	4	3	3	6	6	6	6	6	6	4	4	4	6	6	4	4	4
All stakeholders	Total costs	9,930	21	20	20	215	277	342	728	1059	986	936	1204	985	819	657	521	406	305	216	139	74
Benefits - Case 1																						
Operator	Demand	8,006	0	0	0	0	0	208	474	451	622	998	928	853	773	688	597	500	398	290	174	52
Users	Disabled	3,717	0	0	0	0	0	97	220	209	289	463	431	396	359	320	277	232	185	135	80	24
Users	Non-disabled	8,745	0	0	0	0	0	228	517	492	679	1090	1014	932	845	751	652	547	435	316	190	57
Social (inc. Users)	Social value	6,335	0	0	0	0	0	161	367	349	482	773	719	660	599	533	463	388	308	225	268	40
All stakeholders	Total benefits	20,468	0	0	0	0	0	533	1211	1152	1590	2551	2373	2181	1977	1759	1526	1279	1018	741	444	133
All stakeholders	Net benefits	10,538	-21	-20	-20	-215	-277	191	483	93	604	1615	1169	1196	1158	1102	1005	873	713	525	305	59
Benefits - Case 2																						
Operator	Demand	10,300	0	0	0	0	0	268	609	580	800	1285	1194	1097	995	885	768	644	512	372	224	67
Users	Disabled	5,265	0	0	0	0	0	137	311	296	409	657	610	561	508	452	393	330	262	190	115	34
Users	Non-disabled	10,824	0	0	0	0	0	282	640	609	841	1350	1255	1153	1045	930	807	677	538	392	235	70
Social (inc. Users)	Social value	6,720	0	0	0	0	0	172	390	371	512	823	765	703	637	567	492	412	328	238	268	42
All stakeholders	Total benefits	26,389	0	0	0	0	0	687	1560	1485	2050	3292	3059	2811	2548	2267	1968	1651	1312	954	574	171
All stakeholders	Net benefits	16,459	-21	-20	-20	-215	-277	345	832	426	1064	2356	1855	1826	1729	1610	1447	1245	1007	738	435	97
Benefits - Case 3																						
Operator	Demand	4,952	0	0	0	0	0	129	293	279	384	617	574	527	478	425	370	310	247	179	108	32
Users	Disabled	1,536	0	0	0	0	0	40	91	86	120	192	178	163	148	132	115	96	77	55	33	10
Users	Non-disabled	6,137	0	0	0	0	0	160	363	345	476	765	712	654	593	527	458	384	305	222	133	40
Social (inc. Users)	Social value	3,621	0	0	0	0	0	89	203	193	266	428	397	365	331	295	255	215	170	124	268	22
All stakeholders	Total benefits	12,625	0	0	0	0	0	329	747	710	980	1574	1464	1344	1219	1084	943	790	629	456	274	82
All stakeholders	Net benefits	2,695	-21	-20	-20	-215	-277	-13	19	-349	-6	638	260	359	400	427	422	384	324	240	135	8

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**Table 25 Option 4 - Rural/Urban Accessibility by 2023; Interurban by 2026 - Profile of costs and benefits (Net Present Value) (Rural and Urban)**

Stakeholder	Impact	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Required level of accessibility (R&U)			0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'
Operators - Large	Admin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Operators - Medium	Admin	17	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Operators - Small	Admin	65	0	0	0	5	5	5	5	4	4	4	4	4	4	3	3	3	3	3	3	3
Operators - Large	C & O	184	1	1	1	8	10	13	15	26	21	18	15	13	11	9	7	5	4	3	2	1
Operators - Medium	C & O	2,714	11	10	10	114	150	187	218	368	305	260	225	195	170	139	111	87	65	46	29	14
Operators - Small	C & O	1,784	9	9	9	83	108	133	154	262	209	172	143	118	97	79	63	49	37	26	16	8
Operator	Total	4,765	21	20	20	211	274	339	393	661	540	455	388	331	283	231	185	145	110	79	51	28
National Authority	Admin	32	0	0	0	3	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1
National Authority	Monitoring	14	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1
National Authority	Total	46	0	0	0	4	3	3	3	3	3	3	3	3	2	2	2	3	3	2	2	2
All stakeholders	Total costs	4,811	21	20	20	215	277	342	396	664	543	458	391	334	285	233	187	148	113	81	53	30
Benefits - Case 1																						
Operator	Demand	4,059	0	0	0	0	0	208	474	451	426	399	371	341	309	275	239	200	159	116	70	21
Users	Disabled	1,885	0	0	0	0	0	97	220	209	198	185	172	158	144	128	111	93	74	54	32	10
Users	Non-disabled	4,434	0	0	0	0	0	228	517	492	465	436	406	373	338	300	261	219	174	126	76	23
Social (inc. Users)	Social value	3,224	0	0	0	0	0	161	367	349	330	309	288	264	240	213	185	155	123	90	134	16
All stakeholders	Total benefits	10,378	0	0	0	0	0	533	1211	1152	1089	1020	949	872	791	703	611	512	407	296	178	54
All stakeholders	Net benefits	5,567	-21	-20	-20	-215	-277	191	815	488	546	562	558	538	506	470	424	364	294	215	125	24
Benefits - Case 2																						
Operator	Demand	5,224	0	0	0	0	0	268	609	580	548	514	478	439	398	354	307	258	205	149	90	27
Users	Disabled	2,669	0	0	0	0	0	137	311	296	280	263	244	224	203	181	157	132	105	76	46	14
Users	Non-disabled	5,488	0	0	0	0	0	282	640	609	576	540	502	461	418	372	323	271	215	157	94	28
Social (inc. Users)	Social value	3,421	0	0	0	0	0	172	390	371	351	329	306	281	255	227	197	165	131	95	134	17
All stakeholders	Total benefits	13,381	0	0	0	0	0	687	1560	1485	1404	1317	1224	1124	1019	907	787	661	525	382	230	69
All stakeholders	Net benefits	8,570	-21	-20	-20	-215	-277	345	1164	821	861	859	833	790	734	674	600	513	412	301	177	39
Benefits - Case 3																						
Operator	Demand	2,512	0	0	0	0	0	129	293	279	263	247	230	211	191	170	148	124	99	72	43	13
Users	Disabled	778	0	0	0	0	0	40	91	86	82	77	71	65	59	53	46	38	31	22	13	4
Users	Non-disabled	3,112	0	0	0	0	0	160	363	345	326	306	285	262	237	211	183	154	122	89	53	16
Social (inc. Users)	Social value	1,842	0	0	0	0	0	89	203	193	182	171	159	146	132	118	102	86	68	50	134	9
All stakeholders	Total benefits	6,402	0	0	0	0	0	329	747	710	671	630	586	538	487	434	377	316	252	183	109	33
All stakeholders	Net benefits	1,591	-21	-20	-20	-215	-277	-13	351	46	128	172	195	204	202	201	190	168	139	102	56	3

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**Table 26 Option 4 - Rural/Urban Accessibility by 2023; Interurban by 2026 - Profile of costs and benefits (Net Present Value) (Interurban)**

Stakeholder	Impact	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Required level of accessibility (IU)			0%	0%	0%	0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'
Operators - Large	Admin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Operators - Medium	Admin	14	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Operators - Small	Admin	50	0	0	0	0	0	0	5	4	4	4	4	4	4	3	3	3	3	3	3	3
Operators - Large	C & O	196	0	0	0	0	0	0	13	15	17	18	32	26	20	16	13	10	7	5	3	1
Operators - Medium	C & O	2,965	0	0	0	0	0	0	181	219	248	270	465	382	323	257	201	154	114	79	49	23
Operators - Small	C & O	1,857	0	0	0	0	0	0	129	153	170	182	308	235	184	145	114	87	64	45	28	13
Operator	Total	5,083	0	0	0	0	0	0	329	392	440	475	810	648	532	422	332	255	189	133	84	42
National Authority	Admin	25	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	1	1	1
National Authority	Monitoring	11	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	1	1	1	1	1
National Authority	Total	36	0	0	0	0	0	0	3	3	3	3	3	3	2	2	2	3	3	2	2	2
All stakeholders	Total costs	5,119	0	0	0	0	0	0	332	395	443	478	813	651	534	424	334	258	192	135	86	44
Benefits - Case 1																						
Operator	Demand	3,947	0	0	0	0	0	0	0	0	196	599	557	512	464	413	358	300	239	174	104	31
Users	Disabled	1,832	0	0	0	0	0	0	0	0	91	278	259	238	215	192	166	139	111	81	48	14
Users	Non-disabled	4,311	0	0	0	0	0	0	0	0	214	654	608	559	507	451	391	328	261	190	114	34
Social (inc. Users)	Social value	3,111	0	0	0	0	0	0	0	0	152	464	431	396	359	320	278	233	185	135	134	24
All stakeholders	Total benefits	10,090	0	0	0	0	0	0	0	0	501	1531	1424	1309	1186	1056	915	767	611	445	266	79
All stakeholders	Net benefits	4,971	0	0	0	0	0	0	-332	-395	58	1053	611	658	652	632	581	509	419	310	180	35
Benefits - Case 2																						
Operator	Demand	5,076	0	0	0	0	0	0	0	0	252	771	716	658	597	531	461	386	307	223	134	40
Users	Disabled	2,596	0	0	0	0	0	0	0	0	129	394	366	337	305	271	236	198	157	114	69	20
Users	Non-disabled	5,336	0	0	0	0	0	0	0	0	265	810	753	692	627	558	484	406	323	235	141	42
Social (inc. Users)	Social value	3,299	0	0	0	0	0	0	0	0	161	494	459	422	382	340	295	247	197	143	134	25
All stakeholders	Total benefits	13,008	0	0	0	0	0	0	0	0	646	1975	1835	1687	1529	1360	1181	990	787	572	344	102
All stakeholders	Net benefits	7,889	0	0	0	0	0	0	-332	-395	203	1497	1022	1036	995	936	847	732	595	437	258	58
Benefits - Case 3																						
Operator	Demand	2,440	0	0	0	0	0	0	0	0	121	370	344	316	287	255	222	186	148	107	65	19
Users	Disabled	758	0	0	0	0	0	0	0	0	38	115	107	98	89	79	69	58	46	33	20	6
Users	Non-disabled	3,025	0	0	0	0	0	0	0	0	150	459	427	392	356	316	275	230	183	133	80	24
Social (inc. Users)	Social value	1,779	0	0	0	0	0	0	0	0	84	257	238	219	199	177	153	129	102	74	134	13
All stakeholders	Total benefits	6,223	0	0	0	0	0	0	0	0	309	944	878	806	732	650	566	474	377	273	165	49
All stakeholders	Net benefits	1,104	0	0	0	0	0	0	-332	-395	-134	466	65	155	198	226	232	216	185	138	79	5

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**Table 27 Option 5 - Rural/Urban Accessibility by 2029; Interurban by 2032 - Profile of costs and benefits (Net Present Value) (Collated)**

Stakeholder	Impact	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Required level of accessibility (R&U)			0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%	100%	100%	100%
Required level of accessibility (IU)			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%
		000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'
Operators - Large	Admin	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Operators - Medium	Admin	19	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2	2	2	2	2	2
Operators - Small	Admin	62	0	0	0	0	0	0	0	0	0	4	4	4	8	6	6	6	6	6	6	6
Operators - Large	C & O	154	0	0	0	0	0	0	0	0	0	7	9	9	18	25	22	19	21	13	8	3
Operators - Medium	C & O	2,459	0	0	0	0	0	0	0	0	0	115	133	146	286	407	341	290	342	216	126	57
Operators - Small	C & O	1,403	0	0	0	0	0	0	0	0	0	68	79	85	163	231	193	164	194	122	72	32
<b>Operator</b>	<b>Total</b>	<b>4,099</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>195</b>	<b>226</b>	<b>245</b>	<b>477</b>	<b>671</b>	<b>564</b>	<b>481</b>	<b>565</b>	<b>359</b>	<b>214</b>	<b>102</b>
National Authority	Admin	32	0	0	0	0	0	0	0	0	0	2	2	2	4	4	4	4	4	2	2	2
National Authority	Monitoring	13	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	2	2	2	2	2
<b>National Authority</b>	<b>Total</b>	<b>45</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>6</b>	<b>6</b>	<b>4</b>	<b>4</b>	<b>4</b>
<b>All stakeholders</b>	<b>Total costs</b>	<b>4,144</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>198</b>	<b>229</b>	<b>248</b>	<b>481</b>	<b>675</b>	<b>568</b>	<b>487</b>	<b>571</b>	<b>363</b>	<b>218</b>	<b>106</b>
Benefits - Case 1																						
Operator	Demand	2,274	0	0	0	0	0	0	0	0	0	0	0	37	309	275	239	500	398	290	174	52
Users	Disabled	1,056	0	0	0	0	0	0	0	0	0	0	0	17	144	128	111	232	185	135	80	24
Users	Non-disabled	2,485	0	0	0	0	0	0	0	0	0	0	0	41	338	300	261	547	435	316	190	57
<i>Social (inc. Users)</i>	<i>Social value</i>	1,896	0	0	0	0	0	0	0	0	0	0	0	29	240	213	185	388	308	225	268	40
<b>All stakeholders</b>	<b>Total benefits</b>	<b>5,815</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>95</b>	<b>791</b>	<b>703</b>	<b>611</b>	<b>1279</b>	<b>1018</b>	<b>741</b>	<b>444</b>	<b>133</b>
<b>All stakeholders</b>	<b>Net benefits</b>	<b>1,671</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-198</b>	<b>-229</b>	<b>-153</b>	<b>310</b>	<b>28</b>	<b>43</b>	<b>792</b>	<b>447</b>	<b>378</b>	<b>226</b>	<b>27</b>
Benefits - Case 2																						
Operator	Demand	2,926	0	0	0	0	0	0	0	0	0	0	0	48	398	354	307	644	512	372	224	67
Users	Disabled	1,497	0	0	0	0	0	0	0	0	0	0	0	25	203	181	157	330	262	190	115	34
Users	Non-disabled	3,076	0	0	0	0	0	0	0	0	0	0	0	51	418	372	323	677	538	392	235	70
<i>Social (inc. Users)</i>	<i>Social value</i>	1,998	0	0	0	0	0	0	0	0	0	0	0	31	255	227	197	412	328	238	268	42
<b>All stakeholders</b>	<b>Total benefits</b>	<b>7,499</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>124</b>	<b>1019</b>	<b>907</b>	<b>787</b>	<b>1651</b>	<b>1312</b>	<b>954</b>	<b>574</b>	<b>171</b>
<b>All stakeholders</b>	<b>Net benefits</b>	<b>3,355</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-198</b>	<b>-229</b>	<b>-124</b>	<b>538</b>	<b>232</b>	<b>219</b>	<b>1164</b>	<b>741</b>	<b>591</b>	<b>356</b>	<b>65</b>
Benefits - Case 3																						
Operator	Demand	1,408	0	0	0	0	0	0	0	0	0	0	0	23	191	170	148	310	247	179	108	32
Users	Disabled	436	0	0	0	0	0	0	0	0	0	0	0	7	59	53	46	96	77	55	33	10
Users	Non-disabled	1,744	0	0	0	0	0	0	0	0	0	0	0	29	237	211	183	384	305	222	133	40
<i>Social (inc. Users)</i>	<i>Social value</i>	1,167	0	0	0	0	0	0	0	0	0	0	0	16	132	118	102	215	170	124	268	22
<b>All stakeholders</b>	<b>Total benefits</b>	<b>3,588</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>59</b>	<b>487</b>	<b>434</b>	<b>377</b>	<b>790</b>	<b>629</b>	<b>456</b>	<b>274</b>	<b>82</b>
<b>All stakeholders</b>	<b>Net benefits</b>	<b>-556</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-198</b>	<b>-229</b>	<b>-189</b>	<b>6</b>	<b>-241</b>	<b>-191</b>	<b>303</b>	<b>58</b>	<b>93</b>	<b>56</b>	<b>-24</b>

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**Table 28 Option 5 - Rural/Urban Accessibility by 2029; Interurban by 2032 - Profile of costs and benefits (Net Present Value) (Rural and Urban)**

Stakeholder	Impact	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Required level of accessibility (R&U)			0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%	100%	100%	100%
		000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'
Operators - Large	Admin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Operators - Medium	Admin	11	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
Operators - Small	Admin	37	0	0	0	0	0	0	0	0	0	4	4	4	4	3	3	3	3	3	3	3
Operators - Large	C & O	86	0	0	0	0	0	0	0	0	0	7	9	9	10	16	12	9	6	4	3	1
Operators - Medium	C & O	1,355	0	0	0	0	0	0	0	0	0	115	133	146	155	261	187	136	97	66	40	19
Operators - Small	C & O	777	0	0	0	0	0	0	0	0	0	68	79	85	89	148	106	77	55	37	23	10
Operator	Total	2,267	0	0	0	0	0	0	0	0	0	195	226	245	259	429	309	226	162	111	70	35
National Authority	Admin	19	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	1	1	1
National Authority	Monitoring	8	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	1	1	1	1
National Authority	Total	27	0	0	0	0	0	0	0	0	0	3	3	3	2	2	2	3	3	2	2	2
All stakeholders	Total costs	2,294	0	0	0	0	0	0	0	0	0	198	229	248	261	431	311	229	165	113	72	37
Benefits - Case 1																						
Operator	Demand	1,426	0	0	0	0	0	0	0	0	0	0	0	37	309	275	239	200	159	116	70	21
Users	Disabled	663	0	0	0	0	0	0	0	0	0	0	0	17	144	128	111	93	74	54	32	10
Users	Non-disabled	1,558	0	0	0	0	0	0	0	0	0	0	0	41	338	300	261	219	174	126	76	23
Social (inc. Users)	Social value	1,185	0	0	0	0	0	0	0	0	0	0	0	29	240	213	185	155	123	90	134	16
All stakeholders	Total benefits	3,647	0	0	0	0	0	0	0	0	0	0	0	95	791	703	611	512	407	296	178	54
All stakeholders	Net benefits	1,353	0	0	0	0	0	0	0	0	0	-198	-229	-153	530	272	300	283	242	183	106	17
Benefits - Case 2																						
Operator	Demand	1,836	0	0	0	0	0	0	0	0	0	0	0	48	398	354	307	258	205	149	90	27
Users	Disabled	939	0	0	0	0	0	0	0	0	0	0	0	25	203	181	157	132	105	76	46	14
Users	Non-disabled	1,929	0	0	0	0	0	0	0	0	0	0	0	51	418	372	323	271	215	157	94	28
Social (inc. Users)	Social value	1,252	0	0	0	0	0	0	0	0	0	0	0	31	255	227	197	165	131	95	134	17
All stakeholders	Total benefits	4,704	0	0	0	0	0	0	0	0	0	0	0	124	1019	907	787	661	525	382	230	69
All stakeholders	Net benefits	2,410	0	0	0	0	0	0	0	0	0	-198	-229	-124	758	476	476	432	360	269	158	32
Benefits - Case 3																						
Operator	Demand	883	0	0	0	0	0	0	0	0	0	0	0	23	191	170	148	124	99	72	43	13
Users	Disabled	273	0	0	0	0	0	0	0	0	0	0	0	7	59	53	46	38	31	22	13	4
Users	Non-disabled	1,094	0	0	0	0	0	0	0	0	0	0	0	29	237	211	183	154	122	89	53	16
Social (inc. Users)	Social value	715	0	0	0	0	0	0	0	0	0	0	0	16	132	118	102	86	68	50	134	9
All stakeholders	Total benefits	2,250	0	0	0	0	0	0	0	0	0	0	0	59	487	434	377	316	252	183	109	33
All stakeholders	Net benefits	-44	0	0	0	0	0	0	0	0	0	-198	-229	-189	226	3	66	87	87	70	37	-4

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**Table 29 Option 5 - Rural/Urban Accessibility by 2029; Interurban by 2032 - Profile of costs and benefits (Net Present Value) (Interurban)**

Stakeholder	Impact	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Required level of accessibility (IU)			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%
		000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'
Operators - Large	Admin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Operators - Medium	Admin	8	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Operators - Small	Admin	25	0	0	0	0	0	0	0	0	0	0	0	0	4	3	3	3	3	3	3	3
Operators - Large	C & O	68	0	0	0	0	0	0	0	0	0	0	0	0	8	9	10	10	15	9	5	2
Operators - Medium	C & O	1,104	0	0	0	0	0	0	0	0	0	0	0	0	131	146	154	154	245	150	86	38
Operators - Small	C & O	626	0	0	0	0	0	0	0	0	0	0	0	0	74	83	87	87	139	85	49	22
Operator	Total	1,832	0	0	0	0	0	0	0	0	0	0	0	0	218	242	255	255	403	248	144	67
National Authority	Admin	13	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	1	1	1
National Authority	Monitoring	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
National Authority	Total	18	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	3	3	2	2	2
All stakeholders	Total costs	1,850	0	0	0	0	0	0	0	0	0	0	0	0	220	244	257	258	406	250	146	69
Benefits - Case 1																						
Operator	Demand	848	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300	239	174	104	31
Users	Disabled	393	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	139	111	81	48	14
Users	Non-disabled	927	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	328	261	190	114	34
Social (inc. Users)	Social value	711	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	233	185	135	134	24
All stakeholders	Total benefits	2,168	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	767	611	445	266	79
All stakeholders	Net benefits	318	0	0	0	0	0	0	0	0	0	0	0	0	-220	-244	-257	509	205	195	120	10
Benefits - Case 2																						
Operator	Demand	1,090	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	386	307	223	134	40
Users	Disabled	558	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	198	157	114	69	20
Users	Non-disabled	1,147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	406	323	235	141	42
Social (inc. Users)	Social value	746	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	247	197	143	134	25
All stakeholders	Total benefits	2,795	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	990	787	572	344	102
All stakeholders	Net benefits	945	0	0	0	0	0	0	0	0	0	0	0	0	-220	-244	-257	732	381	322	198	33
Benefits - Case 3																						
Operator	Demand	525	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	186	148	107	65	19
Users	Disabled	163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	46	33	20	6
Users	Non-disabled	650	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	230	183	133	80	24
Social (inc. Users)	Social value	452	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	129	102	74	134	13
All stakeholders	Total benefits	1,338	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	474	377	273	165	49
All stakeholders	Net benefits	-512	0	0	0	0	0	0	0	0	0	0	0	0	-220	-244	-257	216	-29	23	19	-20

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**Table 30 Option 6 - Rural/Urban Accessibility by 2032; Interurban by 2035 - Profile of costs and benefits (Net Present Value) (Collated)**

Stakeholder	Impact	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Required level of accessibility (R&U)			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%
Required level of accessibility (IU)			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	50%	75%	100%	100%
		000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'
Operators - Large	Admin	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Operators - Medium	Admin	13	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2	2	2
Operators - Small	Admin	40	0	0	0	0	0	0	0	0	0	0	0	0	4	3	3	6	6	6	6	6
Operators - Large	C & O	70	0	0	0	0	0	0	0	0	0	0	0	0	5	6	6	11	15	11	9	7
Operators - Medium	C & O	1,129	0	0	0	0	0	0	0	0	0	0	0	0	87	97	102	179	246	181	133	104
Operators - Small	C & O	639	0	0	0	0	0	0	0	0	0	0	0	0	49	55	58	101	138	103	76	59
<b>Operator</b>	<b>Total</b>	<b>1,893</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>146</b>	<b>162</b>	<b>170</b>	<b>299</b>	<b>407</b>	<b>303</b>	<b>226</b>	<b>180</b>
National Authority	Admin	20	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	4	4	2	2	2
National Authority	Monitoring	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2
<b>National Authority</b>	<b>Total</b>	<b>30</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>6</b>	<b>6</b>	<b>4</b>	<b>4</b>	<b>4</b>
<b>All stakeholders</b>	<b>Total costs</b>	<b>1,923</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>148</b>	<b>164</b>	<b>172</b>	<b>305</b>	<b>413</b>	<b>307</b>	<b>230</b>	<b>180</b>
Benefits - Case 1																						
Operator	Demand	701	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	159	116	174	52
Users	Disabled	325	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	74	54	80	24
Users	Non-disabled	766	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	219	174	126	190	57
<i>Social (inc. Users)</i>	<i>Social value</i>	676	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155	123	90	268	40
<b>All stakeholders</b>	<b>Total benefits</b>	<b>1,792</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>512</b>	<b>407</b>	<b>296</b>	<b>444</b>	<b>133</b>
<b>All stakeholders</b>	<b>Net benefits</b>	<b>-131</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-148</b>	<b>-164</b>	<b>-172</b>	<b>207</b>	<b>-6</b>	<b>-11</b>	<b>214</b>	<b>-47</b>
Benefits - Case 2																						
Operator	Demand	903	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	258	205	149	224	67
Users	Disabled	462	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	132	105	76	115	34
Users	Non-disabled	948	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	271	215	157	235	70
<i>Social (inc. Users)</i>	<i>Social value</i>	701	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	165	131	95	268	42
<b>All stakeholders</b>	<b>Total benefits</b>	<b>2,313</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>661</b>	<b>525</b>	<b>382</b>	<b>574</b>	<b>171</b>
<b>All stakeholders</b>	<b>Net benefits</b>	<b>390</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-148</b>	<b>-164</b>	<b>-172</b>	<b>356</b>	<b>112</b>	<b>75</b>	<b>344</b>	<b>-9</b>
Benefits - Case 3																						
Operator	Demand	435	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	124	99	72	108	32
Users	Disabled	134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	31	22	33	10
Users	Non-disabled	538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154	122	89	133	40
<i>Social (inc. Users)</i>	<i>Social value</i>	494	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	86	68	50	268	22
<b>All stakeholders</b>	<b>Total benefits</b>	<b>1,107</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>316</b>	<b>252</b>	<b>183</b>	<b>274</b>	<b>82</b>
<b>All stakeholders</b>	<b>Net benefits</b>	<b>-816</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-148</b>	<b>-164</b>	<b>-172</b>	<b>11</b>	<b>-161</b>	<b>-124</b>	<b>44</b>	<b>-98</b>

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**Table 31 Option 6 - Rural/Urban Accessibility by 2032; Interurban by 2035 - Profile of costs and benefits (Net Present Value) (Rural and Urban)**

Stakeholder	Impact	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Required level of accessibility (R&U)			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	50%	75%	100%	100%	100%	100%	100%
		000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'
Operators - Large	Admin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Operators - Medium	Admin	8	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Operators - Small	Admin	25	0	0	0	0	0	0	0	0	0	0	0	0	4	3	3	3	3	3	3	3
Operators - Large	C & O	45	0	0	0	0	0	0	0	0	0	0	0	0	5	6	6	6	10	6	4	2
Operators - Medium	C & O	735	0	0	0	0	0	0	0	0	0	0	0	0	87	97	102	103	164	100	57	25
Operators - Small	C & O	416	0	0	0	0	0	0	0	0	0	0	0	0	49	55	58	58	92	57	33	14
Operator	Total	1,230	0	0	0	0	0	0	0	0	0	0	0	0	146	162	170	171	270	167	98	46
National Authority	Admin	13	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	1	1	1
National Authority	Monitoring	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
National Authority	Total	18	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	3	3	2	2	2
All stakeholders	Total costs	1,248	0	0	0	0	0	0	0	0	0	0	0	0	148	164	172	174	273	169	100	48
Benefits - Case 1																						
Operator	Demand	566	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	159	116	70	21
Users	Disabled	263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	74	54	32	10
Users	Non-disabled	618	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	219	174	126	76	23
Social (inc. Users)	Social value	518	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155	123	90	134	16
All stakeholders	Total benefits	1,447	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	512	407	296	178	54
All stakeholders	Net benefits	199	0	0	0	0	0	0	0	0	0	0	0	0	-148	-164	-172	338	134	127	78	6
Benefits - Case 2																						
Operator	Demand	729	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	258	205	149	90	27
Users	Disabled	373	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	132	105	76	46	14
Users	Non-disabled	765	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	271	215	157	94	28
Social (inc. Users)	Social value	542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	165	131	95	134	17
All stakeholders	Total benefits	1,867	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	661	525	382	230	69
All stakeholders	Net benefits	619	0	0	0	0	0	0	0	0	0	0	0	0	-148	-164	-172	487	252	213	130	21
Benefits - Case 3																						
Operator	Demand	351	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	124	99	72	43	13
Users	Disabled	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	31	22	13	4
Users	Non-disabled	434	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154	122	89	53	16
Social (inc. Users)	Social value	347	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	86	68	50	134	9
All stakeholders	Total benefits	893	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	316	252	183	109	33
All stakeholders	Net benefits	-355	0	0	0	0	0	0	0	0	0	0	0	0	-148	-164	-172	142	-21	14	9	-15

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

**Table 32 Option 6 - Rural/Urban Accessibility by 2032; Interurban by 2035 - Profile of costs and benefits (Net Present Value) (Interurban)**

Stakeholder	Impact	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Required level of accessibility (IU)			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	50%	75%	100%	100%
		000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'	000'
Operators - Large	Admin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Operators - Medium	Admin	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
Operators - Small	Admin	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3
Operators - Large	C & O	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	5	5	5
Operators - Medium	C & O	394	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76	82	81	76	79
Operators - Small	C & O	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	46	46	43	45
Operator	Total	663	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	137	136	128	134
National Authority	Admin	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1
National Authority	Monitoring	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
National Authority	Total	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	2	2	2
All stakeholders	Total costs	675	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	131	140	138	130	136
Benefits - Case 1																						
Operator	Demand	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	104	31
Users	Disabled	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	14
Users	Non-disabled	148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	114	34
Social (inc. Users)	Social value	158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134	24
All stakeholders	Total benefits	345	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	266	79
All stakeholders	Net benefits	-330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-131	-140	-138	136	-57
Benefits - Case 2																						
Operator	Demand	174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134	40
Users	Disabled	89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69	20
Users	Non-disabled	183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	141	42
Social (inc. Users)	Social value	159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134	25
All stakeholders	Total benefits	446	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	344	102
All stakeholders	Net benefits	-229	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-131	-140	-138	214	-34
Benefits - Case 3																						
Operator	Demand	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	19
Users	Disabled	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	6
Users	Non-disabled	104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	24
Social (inc. Users)	Social value	147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134	13
All stakeholders	Total benefits	214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	165	49
All stakeholders	Net benefits	-461	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-131	-140	-138	35	-87

Note: Figures presented in nearest thousand, which may result in marginal rounding differences.

## Appendix 3      High Level Cost Distribution for Average Vehicle

**Table 33 Example cost matrix based on average, lower and upper bound costs of compliance by 2023 (assumed vehicle fleet age 7.9 years old), in current prices**

Cost of compliance by 2023*	Number of vehicles per licensed fleet that are non accessible									
	1	2	3	4	5	6	7	8	9	10
Lower costs of compliance	€15,000	€30,000	€45,000	€60,000	€75,000	€90,000	€105,000	€120,000	€135,000	€150,000
Average costs of compliance	€31,000	€62,000	€93,000	€124,000	€155,000	€186,000	€217,000	€248,000	€279,000	€310,000
Upper costs of compliance	€53,000	€106,000	€159,000	€212,000	€265,000	€318,000	€371,000	€424,000	€477,000	€530,000

\*Assumed vehicle age of 7.9 years. Assumed average cost of compliance in current prices rather than net present value, figures presented in nearest thousand.

\*\* The average cost is based on an assumed average vehicle type reflecting smaller vehicles are likely to be on the lower band, and larger vehicles on upper band.

