

**Maximum Level of Airport Charges at Dublin Airport
2020-2024
Draft Determination**

Commission Paper 3/2019

9 May 2019

Commission for Aviation Regulation

3rd Floor, Alexandra House

Earlsfort Terrace

Dublin 2

Ireland

Tel: +353 1 6611700

Fax: +353 1 6611269

E-mail: info@aviationreg.ie

Table of Contents

- 1. Executive Summary 2
- 2. Notice of the Making of a Determination 7
- 3. Introduction..... 8
- 4. Approach to Regulation..... 11
- 5. Passenger Forecast..... 15
- 6. Operating Expenditure 19
- 7. Commercial Revenues 26
- 8. Cost of Capital..... 37
- 9. Capital Costs 50
- 10. Financing, Risk and Financial Viability 68
- 11. Advancing the Interests of Passengers through Quality of Service..... 75
- 12. Other Issues 88
- 13. Compliance with Statutory Requirements 92
- 14. How to Respond to this Draft Determination 96
- 15. Appendix 1: Cross Check Elasticity Estimations for Commercial Revenues 97
- 16. Appendix 2: Assessment of Capital Investment Programme by Project..... 99
- 17. Appendix 3: Quality of Service Proposal for 2020-2024 133

1. Executive Summary

- 1.1 In Autumn 2019, we will make our fifth Determination of the maximum level of airport charges at Dublin Airport. Here we set out our proposals for consultation. Airport charges include charges for taking off, landing and parking aircraft, the use of air bridges, for arriving and departing passengers, and for the transportation of cargo.
- 1.2 We are proposing a price cap of €7.50 per passenger for each of the 5 years 2020 to 2024 inclusive.¹ The new Determination will take effect on the 1 January 2020. We are proposing it will last for 5 years. We are proposing to express the cap on a per passenger basis, with a separate cap for each year (albeit at the same level).

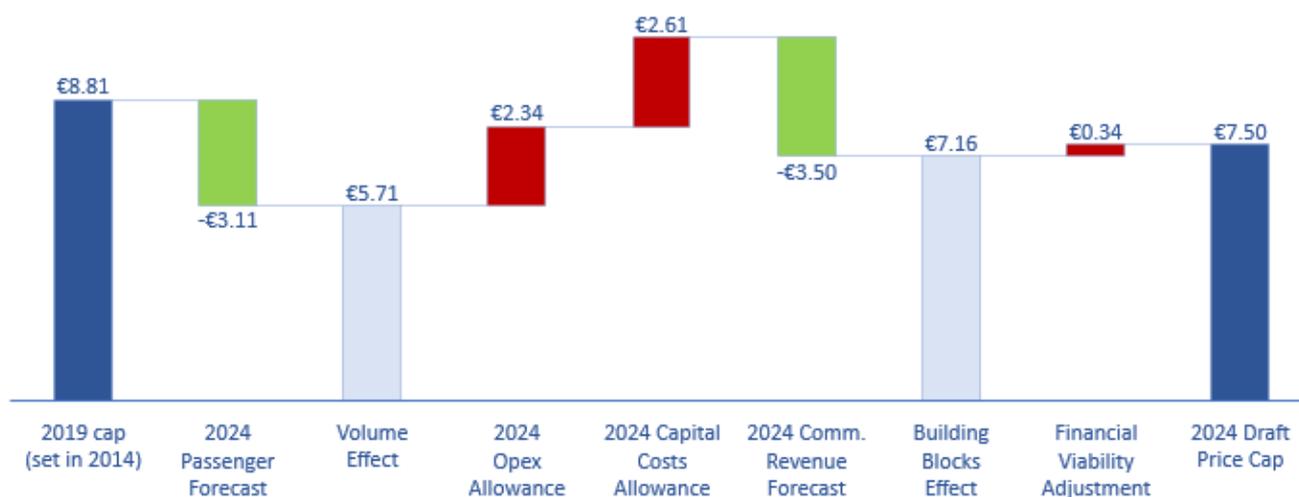
Table 1.1: Proposed Price Cap per passenger 2020-2024

	2020	2021	2022	2023	2024
Price Cap	€7.50	€7.50	€7.50	€7.50	€7.50
Annual Change	-15%	0%	0%	0%	0%

Source: CAR

- 1.3 Our proposed price is a 15% decrease on the base price cap for 2019. Thereafter the price remains flat at €7.50. We do not propose to add any triggers to increase the price in the period; however, two runway triggers remain active. They are currently expected to add €0.26 and €0.02 respectively. We are proposing a quality of service regime which puts €0.36 at risk if Dublin Airport fails to reach our quality targets but it includes a bonus scheme to reduce the at-risk amount. The price is in real terms and will be adjusted for inflation or deflation each year.

Chart 1.1: Arriving at the 2024 Price Cap



Note: The 2019 price cap is the addition of the base price cap (€8.68) and the remuneration of two trigger projects (€0.11): the Pier 2 segregation and the first, out of three, milestones of the north runway. It is expressed in February 2019 prices and it does not include the k factor or adjustments for quality of service in 2019.

- 1.4 Each of the building blocks has significantly changed since we last made a determination in 2014. The changes to each building block result in large impacts on the price cap, operating in different directions. There are two main downward pressures on price, volume of passengers and the level of commercial revenues. The proposed increase in capital costs and operating

¹ All prices in this report, unless otherwise stated, are in February 2019 prices. For information, this price level is the same as the 2018 full year price level.

costs are driving the price in the opposite direction. Within capital costs there are two elements, capital expenditure and the cost of capital, and they are moving in opposite directions, as the large Capital Investment Programme is being somewhat offset by a lower cost of capital.

Approach to Regulation

- 1.5 Our general approach to setting the price cap is consistent with previous determinations, with individual price caps for each year using the RAB based building block approach. We continue to assign all risk within a period to Dublin Airport as, firstly, it is the party best able to manage these risks and secondly, this allocation of risk creates powerful incentives for Dublin Airport to outperform our targets. This outperformance is retained by the airport within the period and redistributed to users in the following period. The price cap we are proposing redistributes the gain from the significant increase in passenger numbers and the higher than expected commercial revenues to users.
- 1.6 For each building block we use forecasts to arrive at targets. It is for Dublin Airport to meet and exceed these targets. This allocation of risk to Dublin Airport represents a powerful incentive to outperform our targets. This is the nature of incentive regulation. Dublin Airport is encouraged to perform as a competitive company would. The one exception to this is the treatment of some capital costs. In this case, unspent allowances are reconsidered at the end of the period.

Passenger Forecasts

- 1.7 Our proposed passenger volume target is 33.6m in 2020 increasing to 37.8m in 2024. We use econometric analysis to estimate a relationship between passenger volume and Gross Domestic Product (GDP). Using a range of models, we arrive at an elasticity of 1.05, meaning if GDP grows by 1% we expect passenger numbers to grow by 1.05%. We then use GDP forecasts from the International Monetary Fund which range from 2.8% to 3.5% per annum for the period to arrive at our passenger volume target.

Operating Costs

- 1.8 Our targets for operating costs increase from €273m in 2020 to €291m in 2024. This compares to the latest outturn costs of €268m in 2018.
- 1.9 We commissioned a bottom up assessment of Dublin Airport's operating costs. This is a comprehensive study which examines all aspects of Dublin Airport's business and establishes an achievable level of efficient costs for the period. This is not a greenfield exercise, rather it takes account of structural inefficiencies which Dublin Airport cannot easily address in the period. An example of a structural inefficiency which we do not address is legacy staff contracts with higher than market rates of salary. In addition, the study does not suggest any structural change to the way Dublin Airport organises its business, for example, the level of insourcing and outsourcing. The study does take account of extra costs for the operation of new infrastructure projects in the Capital Investment Programme. This bottom up exercise arrives at operating costs ranging from €259m in 2019 to €291m in 2024.
- 1.10 We plan to adopt an approach that provides Dublin Airport additional time to reach the achievable efficient level of opex identified by our advisors. Accordingly, we propose to use the outturn 2018 operating cost figure, with staff costs uplifted by 3%, as the operating cost allowance for 2020. This results in an additional €8m in 2020 and €2.5m in 2021; allowing Dublin Airport more time to arrive at the efficient level of costs identified by our consultants, which we propose to use for 2022 to 2024.

Commercial Revenue

- 1.11 Our target for commercial revenue is €257m in 2020 increasing to €296m in 2024. We arrive at this forecast using econometric modelling, establishing relationships between categories of commercial revenue and drivers. The main drivers are passenger numbers and GDP.
- 1.12 The Capital Investment Programme includes a number of revenue generating projects. In most cases we take the view that these projects are required by Dublin Airport to meet our forecasts and so we do not provide specific uplifts to the revenue for the projects. There are two reasons for this. Firstly, some revenue categories such as car parking are capacity constrained and capacity enhancing projects may be required to achieve our forecasts. Secondly, some of the projects are revenue protecting such as retail refreshments. The exceptions are projects in advertising, lounges and fast track products, where we are of the view that these projects should result in incremental revenue.
- 1.13 We reduce our commercial revenue forecasts by a total of €20m across the period for displaced revenue generating business due to the development of the south apron and the north apron. We also reduced our commercial revenue forecasts by €67m to reflect Dublin Airport's outperformance on the rolling scheme targets set in 2014. These two adjustments combined increase the price cap by an average of €0.48 across the 5 years.
- 1.14 We propose ending the use of rolling schemes for both operating costs and commercial revenues.

Cost of Capital

- 1.15 We set the cost of capital at 4%. We commissioned an external review of the cost of capital, this is timely as we last undertook such an exercise in 2005. We arrived at a range of 2.8% to 4.2% with a point estimate of 3.5%. Due to the asymmetric risk of setting a cost of capital which is too low compared to one which is too high, our advisors recommended adding 0.5% aiming up allowance, arriving at a cost of capital of 4%.
- 1.16 The analysis uses a large number of inputs, including market data on how listed airports perform, market and forward-looking data on the risk-free rate, corporate bond yields, total market returns and daa data on the cost of debt.
- 1.17 In 2014 we set the cost of capital at 5.8%. The main drivers of the difference now are a lower risk-free rate, and a lower asset beta.

Capital Expenditure

- 1.18 In early 2019, Dublin Airport submitted its final Capital Investment Programme 2020+ to the Commission. This Programme was developed following an extensive period of consultation with stakeholders, both bilateral and multilateral. We are of the view that this was a comprehensive and meaningful consultation which resulted in a Capital Investment Programme which in many respects is aligned to the needs of users. While most elements of it are supported by at least some stakeholders, not every stakeholder supports every project. It is worth noting that the overall level of support for the Capital Investment Programme from airlines exceeds support for previous investment programmes.
- 1.19 We have undertaken a detailed analysis of the need for each project, the efficiency of the costs and for the capacity projects, their ability to deliver the proposed capacity of 40m passengers per annum. Our proposal is to allow all projects in the Capital Investment Programme, as they are in the interests of current and future users of Dublin Airport. It allows Dublin Airport deliver

key pieces of national infrastructure, which will facilitate a significant increase in the capacity of the airport.

- 1.20 We have updated our fast time simulation models of the airport to incorporate all capacity projects and the Northern Runway. We then model a 40m passenger schedule through the terminals and the airfield to assess the performance of the future airport against key metrics. Overall, the proposals in the Capital Investment Programme will enable the airport to deal with 40m passengers per year.
- 1.21 We have assessed all costs for efficiency. We have reduced the total cost by €148.5m. The total allowed capital investment is just over €2bn including the remaining PACE projects. Throughout the next period, we will monitor delivery of the Capital Investment Programme against timelines and budget.
- 1.22 We reconcile past expenditure in line with the regulatory frameworks we put in place for that expenditure in 2009 and 2014. When we set the allowances for Terminal 2 in 2007, we delayed remuneration of 27% until passenger numbers reached 33m. This is expected to occur in 2020 and so we add €193.5m to the RAB.
- 1.23 The opening RAB in 2020 is €1.8bn. This grows to €3.1bn by the end of the period.

Financial Viability

- 1.24 We assess Dublin Airport's ability to efficiently finance its proposed investments. Primarily this involves enabling it to achieve an investment grade credit rating which should allow it to raise debt in the markets at an efficient price. Our assessment methodology is the same as in 2014; we assess the financial ratios of a hypothetical Dublin Airport only company.
- 1.25 Our initial assessment, with our base price cap, suggests there would likely be some pressure on Dublin Airport to maintain financial ratios consistent with an investment grade rating in the later years of the period. This is not due to the affordability of debt, rather it is a result of Dublin Airport relying solely on debt for funding combined with a large investment programme resulting in a large amount of debt on the balance sheet, increasing the financial risk.
- 1.26 To reduce this risk we apply a financial viability adjustment to the price, bringing forward €133m of future depreciation into the 2020-2024 period. This increases the price to €7.50, reducing the debt requirement by €133m, thereby improving the financial ratios. While there is still a risk the Debt/EBITDA ratio will go above 6 in the final year, we are of the view that there is a probability that there will be slippage in the CIP programme thus reducing the debt requirement.

Quality of Service

- 1.27 In 2009 we introduced a link between the price cap and twelve different quality of service measures where Dublin Airport was incentivised to meet/exceed targets. We have now reviewed these measures to see if they continue to capture what is important to passengers.
- 1.28 In 2018, we established a Passenger Advisory Group composed of organisations representing the diversity of passengers at Dublin Airport. We asked the Group for their views on quality of service. Based on the advice we received, we propose to amend most of the existing measures and introduce 9 new ones; many of which will focus on monitoring quality of service for passengers with disabilities or reduced mobility. Other suggestions made by the Group will be progressed by the Commission outside of this Price Determination process.

Dublin Airport's Proposition

- 1.29 In parallel to this report, we have published Dublin Airport's redacted regulatory proposition. As it does not include publishable forecasts for the passenger numbers, operating costs and commercial revenue building blocks for 2020-2024, we therefore cannot transparently provide comparisons with forecasts. In broad terms, Dublin Airport would prefer a higher price cap than we are proposing based primarily on higher operating costs and a higher cost of capital.
- 1.30 Dublin Airport has provided us with pricing proposals ranging from a flat €9.05 in each year to a flat €9.94 depending on the cost of capital used. For reference, the 2019 base price cap is €8.81 (excluding k2017 as that relates to carried forward under collection in 2017).

Consultation

- 1.31 This is a consultation document. We invite evidence-based submissions on all aspects of our proposals. We expect that our proposed price may change between now and the final determination as we will update our proposals for new information and evidence which is presented to us. We will also have regard to changes in macroeconomic forecasts, changes in aviation demand and changes in financial markets. We make these proposals based on the information available to us at this time.
- 1.32 We invite comments on all aspects of the Draft Determination by no later than **5.00 PM, 8 July 2019**, details on how to respond are in Section 14.

2. Notice of the Making of a Determination

- 2.1 In accordance with Section 32(7) of the 2001 Aviation Regulation Act, we hereby give notice of our intention to make a Determination specifying the maximum level of airport charges at Dublin Airport that daa may levy.
- 2.2 Pursuant to the 2001 Act, we must allow a statutory consultation period of not less than one month from the date of publication of this notice. As in previous periods, we give notice by way of publishing this Draft Determination. The deadline for receipt of representations is **5:00 PM, 8 July 2019**. Interested parties should note the contents of Section 14 concerning the deadline. The conditions contained therein will be strictly applied. Interested parties should also note the guidelines regarding issues such as delivery of documents and confidentiality.

3. Introduction

3.1 This document presents our Draft Determination on the maximum level of Airport Charges that Dublin Airport may levy for the period starting 1 January 2020 and ending on 31 December 2024. Airport Charges cover charges for taking off, landing and parking aircraft, using air bridges, arriving and departing passengers, and the transportation of cargo. This is a set of proposals which we are consulting on before we make our Final Determination later in 2019.

Draft Determination

3.2 We propose setting an annual per passenger price cap of €7.50 for each of the next five years. This represents a 15% decrease on the base price cap in 2019. Adjustments to the price cap will be made if:

- Dublin Airport fails to realise the targets for quality of service as set out in Section 11. A total of €0.36 is at risk;
- One or both of the runway triggers set in the first interim review of the 2014 Determination are reached. The triggers add €0.26 and €0.02 respectively to the price cap; or
- There is inflation or deflation.

3.3 The proposed price cap does not include any sub caps.

3.4 Table 3.1 is the yield table. It shows the inputs under each building blocks which we use to arrive at the price cap. It shows the base price under the building blocks. We have applied an adjustment for financial viability reasons to this base price, by way of reprofiled depreciation. This results in our proposed price cap of €7.50 per passengers for each of the 5 years.

Table 3.1: Yield Table

	2020	2021	2022	2023	2024
Operating costs (€m)	273.1	273.1	283.9	289.7	291.1
Commercial revenues base target (€m)	257.1	267.2	275.9	285.3	295.8
Rolling Schemes (€m)	-46.8	-15.1	-5.3	0	0
Opening RAB (€m)	1,756.2	2,075.0	2,382.0	2,676.4	2,956.2
Closing RAB (€m)	2,075.0	2,382.0	2,676.4	2,956.2	3,221.0
Return of capital - depreciation (€m)	92.1	103.9	116.5	131.1	146.2
Return on capital - cost of capital (€m)	83.0	95.2	107.0	118.2	128.9
Total capital costs (€m)	175.0	199.2	223.5	249.3	275.0
Required revenue (€m)	237.3	220.1	236.8	253.7	270.4
Passengers (m)	33.6	34.6	35.7	36.7	37.8
Base Price cap (€)	7.07	6.35	6.64	6.91	7.16
Financial Viability Adjustment					
Opening RAB (€m)	1,756.2	2,060.1	2,326.0	2,586.9	2,841.1
Closing RAB (€m)	2,060.1	2,326.0	2,586.9	2,841.1	3,088.0
Total capital costs adjusted (€m)	189.6	238.9	254.2	270.9	288.0
Adjusted required revenue (€m)	251.9	259.8	267.5	275.3	283.4
Proposed Price cap (€)	7.50	7.50	7.50	7.50	7.50

Source: CAR

- 3.5 The following chapters of this report provide the rationale for the numbers in the table and for the calculation used.

Consultation Process

- 3.6 We expect to publish a Final Determination in Autumn 2019, most likely around the end of September. Our Final Determination will be informed by the submissions we receive from the public consultation on this Draft Determination. Section 14 has the details about how to respond to this Draft Determination, the deadline is **5:00 PM, 8 July 2019**.
- 3.7 On 30 April 2018, we started our process of engagement with stakeholders in preparation for the 2019 Determination with the public consultation of an Issues Paper. That paper sought comments from parties on how we should proceed, specifically asking about what regulatory policies we should adopt, what methodologies we should apply and what data sources we should use. The paper contained historical data as well as a discussion of many of the issues that might be relevant based on past experience of making determinations. We received five responses, from Aer Lingus, Dublin Airport, IALPA, IATA and Ryanair. Their views informed our Draft Determination, and we refer to the points the parties made in their responses throughout this document. The full responses are available on our website.
- 3.8 In October 2018, Dublin Airport issued a draft Capital Investment Programme to airport users for consultation. Following those meetings, in February of this year we received a final Capital Investment Programme for the period 2020-2024 from Dublin Airport. We have placed these documents on our website. The CIP includes written comments airlines provided to Dublin Airport on its investment plans following the meetings.

Supporting Evidence

- 3.9 We commissioned five studies from external consultants to inform our proposals. The draft reports, published alongside this Draft Determination relate to:
- a review of the efficiency of operating costs conducted by CEPA.
 - advice on the efficient cost of capital conducted by Swiss Economics.
 - simulation modelling of the airfield and terminal buildings conducted by Helios, to support our assessment of Dublin Airport's proposed capacity enhancement projects.
 - a cost efficiency assessment of the proposed Capital Investment Programme conducted by Steer.
- 3.10 The final reports from external consultants will be published alongside our Final Determination. These final reports will address any submissions from stakeholders in relation to them.

Structure of Report

- 3.11 The subsequent chapters in this document explain in more detail how we made this Draft Determination.
- 3.12 Section 4 describes the general approach to regulation that we have followed.
- 3.13 Sections 5, 6, 7, 8 and 9 address the traditional regulatory building blocks of passenger forecasts, operating expenditures, commercial revenues, cost of capital and capital costs. In

each case, we set out the values we propose to allow for over the next five years and how we settled on these numbers.

- 3.14 Section 10 sets out how the Draft Determination enables daa to operate and develop Dublin airport in a sustainable and financially viable manner.
- 3.15 Section 11 discusses how we propose to have regard to quality of service at Dublin airport in our forthcoming Determination.
- 3.16 Section 12 deals with miscellaneous issues that do not fit in other chapters. We discuss three issues identified in the Issues Paper: first, the regulatory treatment of incentive schemes, second, the volume risk and the k factor formula and third, the persons with reduced mobility charge. We also discuss the issue of peak pricing and sub caps that was raised by stakeholders. We discuss our passenger engagement in this regulatory process, which we raised in the Issues Paper, in Section 11. We have not become aware of any additional issues to consider since then.
- 3.17 Section 13 shows how our Draft Determination complies with our statutory objectives and how we have had regard to various statutory factors. This is typically done by referring to the preceding sections.
- 3.18 Section 14 provides details for parties on how to respond to this Draft Determination. Parties must respond by the deadline of **5:00 PM, 8 July 2019**.
- 3.19 There are also three appendices to this report Appendix 1 provides details on econometrics models for forecasting commercial revenues. Appendix 2 shows a granular assessment and related summary table of our proposed approach to allowing for CIP projects. Appendix 3 is a summary of our proposed standards of quality of service, their relation to other building blocks and the views of stakeholders. The spreadsheet model used to calculate the price cap is available on our website.

4. Approach to Regulation

- 4.1 We propose a general approach to regulation which is in line with previous determinations. We propose setting a maximum average charge per passenger for a five-year regulatory period from 2020-2024 year, using the building blocks approach with a single till and having regard to the regulatory asset base (RAB).

Allocation of Risk

- 4.2 Within the next regulatory period, we will continue to assign to Dublin Airport the risks, both upside and downside, of outturns differing from our forecast targets for passenger numbers, opex allowances, commercial revenues and the cost of capital. We allocate these risks to Dublin Airport on the basis that it is the party best able to manage and/or control these risks.
- 4.3 We continue to allocate these risks in two ways. Firstly, the per passenger price cap allocates the volume risk to the airport and secondly, there are no *ex post* adjustments when outturn operating costs, commercial revenues or cost of capital differ from the targets set. While the airport carries these risks, it does so only for a time limited period.
- 4.4 At the end of the regulatory period, the price cap recalculation largely transfers to users the results of materialised risk. Chart 1.1, in the Executive Summary, illustrates that our proposed price cap of €7.50 transfers to users the results of materialised risk, with an overall downward trend.
- 4.5 Up to 2022, there will be a delay in the transfer of some of the risks. Between 2016 and 2018, Dublin Airport outperformed commercial revenues targets that we set in 2014. The rolling schemes set out in the 2014 Determination mean that Dublin Airport will continue to benefit from this outperformance into the new regulatory period. In Sections 6 and 7, we propose to remove the rolling schemes for operational expenditure and commercial revenues, thereby removing this delay in the subsequent regulatory period.

RAB based Building Blocks Approach

- 4.6 We continue to use a RAB based building blocks approach. The calculations of the building blocks require forecasts to set targets for passenger numbers, commercial revenues and operating expenditure. We do not propose to change our approach to forecasts from previous determinations. For passenger numbers and commercial revenues, we continue using historic driver elasticities and the drivers' forecasts. The driver of passenger numbers is Irish GDP, while the main driver for commercial revenues is passenger numbers. For operating expenditure, we continue to base our targets primarily on an external bottom up assessment of the operating costs of Dublin Airport. In sections 5, 6 and 7, we explain the details of our forecasts.
- 4.7 We continue with our single-till approach under which the regulation of airport charges continues to depend on the costs and revenues associated with commercial services at Dublin Airport. We continue to include commercial revenues in our building blocks calculations, but we may exclude some costs and revenues from the till where it protects current and prospective users from the risks associated with a commercial investment that daa wishes to undertake. The opening RAB in 2020 is reduced by €48.1m for the till exit of Dublin Airport City, as decided in December 2014.²
- 4.8 The calculation of the building blocks also requires setting an allowance for capital costs which include the depreciation and the return on capital. We continue to calculate these costs using

²www.aviationreg.ie/_fileupload/2014-12-10%20CP3%20Dublin%20Airport%20City%20valuation%20and%20till%20exit.pdf

a RAB based approach. We discuss the capital costs and future reconciliation in Section 9.

- 4.9 The return on capital depends on the size of the RAB and cost of capital that we allow. We continue to calculate the allowed cost of capital based on the weighted average cost of capital (WACC) and the cost of equity based on the capital asset pricing model (CAPM). Our methodology is in line with regulatory precedent, the recommendations from the Thessaloniki Forum of airport charges regulators and the current thinking of other regulators. We explain this approach in Section 8.
- 4.10 We set quality standards to help ensure that the cost efficiencies achieved by the airport are not made at the expense of the quality of service delivered to passengers and airlines.
- 4.11 When arriving at a price cap, we enable the financial viability of Dublin Airport by checking that, when all the building blocks are taken together, Dublin Airport is able to raise debt at an investment grade credit rating. We continue to use the methodology of the 2014 Determination, based on which we assess the financial ratios of a hypothetical Dublin Airport only company consistent with a minimum of investment grade credit rating.

Interaction between Building Blocks

- 4.12 We have regard to the interactions between building blocks. We facilitate the forecast target of passenger numbers and commercial revenues by allowing achievable and efficient targets for operating costs and by allowing for the remuneration of the ambitious CIP that will enable the airport to handle 40m passengers per annum. We facilitate the remuneration of the CIP by allowing an efficient cost of capital and checking that the price cap enables the financial viability of the airport. In setting our quality of service targets, we have regard to the operational and capital costs building blocks.

Submissions from Stakeholders

- 4.13 In the Issues Paper, we sought the views of stakeholders about the key decisions which need to be made before considering the individual components to arrive at the price cap. In general, stakeholders support the RAB based building blocks approach, single till and the 5-year regulatory period. Below we summarise and respond to the submissions received.

Allocation of Risks

- 4.14 Aer Lingus supports the general principle that the daa should assume the risks that it can manage. However, it has two suggestions. First, it suggests that we check whether the rate of return on regulated equity for outperforming different aspects of the determination aligns with the importance that we attach to each component. Second, Aer Lingus states that the 2014 Determination may have set distorted incentives for daa to focus on increasing traffic, to the detriment of opex cost savings, quality of service and lack of timely investment. It proposes setting bands of passenger volume change to revise capital expenditure levels.
- 4.15 Dublin Airport supports assuming the risks only if we set reasonable targets and ensure that the airport is sufficiently remunerated for efficient opex and capex.
- 4.16 IATA supports setting the cap on a per passenger basis and assigning the risks to Dublin Airport so that the incentives for Dublin Airport to outperform are maintained.
- 4.17 Ryanair supports Dublin Airport assuming all the risks that outturns deviate from the numbers assumed in the building-block calculations, as this is the principle on which incentive-based regulation is founded.

- 4.18 We accept Aer Lingus' point that the strength of the incentives associated with performance relative to the forecasts differs across the building blocks; in particular, given that the price cap is set at a per passenger level, the strongest incentive created for Dublin Airport is to encourage and facilitate growth in passenger traffic. As suggested by Aer Lingus, to a certain extent the strength of the incentive is a function of our building blocks approach. We have sought to address the specific issues described by Aer Lingus through:
- Providing revised opex targets which balance achievability without rewarding an inability to achieve certain efficiencies.
 - Broadening the quality of service regime.
 - Providing significant allowances for capacity projects, enabling Dublin Airport to finance these, and also providing for enhanced within-period capex flexibility.
- 4.19 If Dublin Airport increases traffic through overspending opex, the airport is not remunerated for the overspend. If Dublin Airport lowers the service quality below our targets, we adjust the price cap accordingly. Dublin Airport is also strongly incentivised to deliver capital investment to allow for traffic and revenue growth.
- 4.20 The strong incentives for Dublin airport to increase traffic benefit all users at the beginning of every regulatory period.
- 4.21 We agree with Aer Lingus that if traffic outturns vary significantly from forecasts, the CIP may no longer be appropriate. Should this occur, we now have the established supplementary capex allowance process and a range of proposals for tailored flexibility mechanisms which are set out in Section 9. Our view is that these flexibility mechanisms are superior to pre-determined bands, as there will be ongoing flexibility to consider capital investment in the context of the specific circumstances of outturn traffic numbers.

Dublin Airport's Forecasts

- 4.22 Aer Lingus indicates that some regulators use menu regulation to increase the incentives for regulated entities to provide realistic projections, with subsequent rewards higher for firms who set and exceed challenging targets.
- 4.23 In general, we mitigate the risk of Dublin Airport not providing accurate forecasts by setting targets and allowances based on stakeholders' submissions and our own forecasts, bottom-up assessments and expert reports. Our scope for using menu regulation is limited since we only regulate Dublin Airport. Menu regulation is best used when there are various regulated firms. In such industries, regulators can use menus based on different performance levels between firms.

Totex

- 4.24 Aer Lingus requested that we consider totex to incentivise the airport to minimise overall costs by removing the '*artificial distinction*' between operating and capital expenditure. It adds that when traffic outturn deviates significantly from the forecast in a determination, the airport would be incentivised to consider changing either opex or capex on the basis of which was the more appropriate solution to address the specific issue.
- 4.25 We propose not to use totex in our regulatory approach for Dublin Airport.
- 4.26 Setting a totex allowance would not necessarily facilitate the efficient development of the airport nor protect the reasonable interests of current and future users at the airport. Totex

would allow expenditure to enter the RAB without prior consultation with users or review by the Commission. Conversely, if totex was only within-period, there would be no certainty of ongoing capital expenditure remuneration for Dublin Airport.

- 4.27 Totex may also lower the efficiency incentives for Dublin Airport, as it could have broad scope to overspend some of the base allowances. We have sought to provide an appropriate level of flexibility within groups of efficient capex allowances which relate to projects we deem to be in the interests of airport users. We are also proposing to adopt a new process for enhancing the flexibility of capex allowances for certain projects within the regulatory period. Adding a whole new level of flexibility, between capex and opex, would not be in line with the level of unconstrained flexibility we view as appropriate.
- 4.28 We note that totex has been mostly used by energy and water regulators and it can be argued that these sectors are different to aviation. In the energy and water industries, it can be expected that there is a greater prevalence of maintenance rather than development of capacity projects compared to an airport. Therefore, the line between opex and capex in the energy and water industries can be more arbitrary, but it is necessary for the RAB based building blocks approach that we apply to Dublin Airport.
- 4.29 We consider that it is unlikely that, in the current period, Dublin Airport would have been able to deliver more capital projects within a timeline that would have significantly replaced efficient opex.

5. Passenger Forecast

Summary

Table 5.1: Passenger Numbers Outturns and Forecast

	2015	2016	2017	2018	2019	2020f	2021f	2022f	2023f	2024f
Passengers, (m)	25.0	27.9	29.6	31.5	--	33.6	34.6	35.7	36.7	37.8
Annual Change		11.4%	6.0%	6.5%	--	--	3.1%	2.9%	2.9%	2.9%

Source: CAR

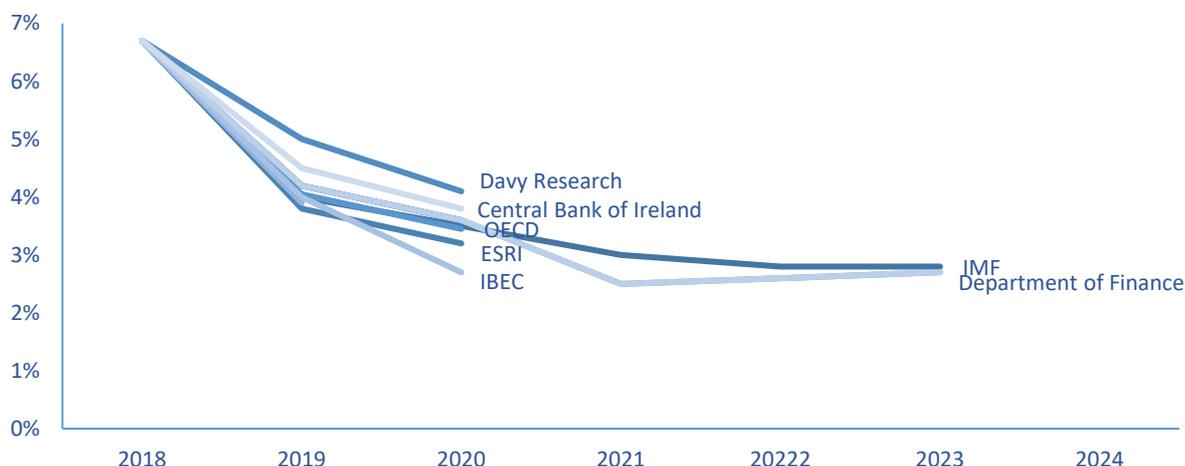
- 5.1 We estimate a target for passenger numbers of 37.8m by 2024. The average annual growth of our target is 3.1% per annum. This is similar to the annual growth we estimated in 2014.
- 5.2 We estimated a GDP elasticity of 1.05 using econometric modelling. Our target assumes that passenger numbers will grow at a slightly faster rate than the growth in Irish Gross Domestic Product (GDP). Our elasticity is slightly higher than the elasticity of 1 used in 2009 and lower than the elasticity of 1.15 used in 2014.

Methodology

- 5.3 As in previous determinations, we continue to estimate passenger growth with Irish GDP as the driver. For econometric analysis we use annual data from 1997 to 2018. In 2014, we used quarterly data, but we obtain the same elasticity results using annual data. Annual data is more stable than quarterly data, which has seasonal effects.
- 5.4 We chose a 1.05 elasticity estimate which reflects the results from 3 out of 4 models that we estimated. We estimated the following statistically significant elasticities:
- 1.06 using all the years available from our sample data
 - 1.06 when we dropped the economic downturn years, 2008 to 2010
 - 1.05 when we dropped both the economic downturn years and the double-digit growth years 2015 and 2016
 - 1.12 when we dropped only the double-digit growth years, resulting in elasticity higher than the others. This result is not supported by the above models.
- 5.5 For 2019, the base year of our forecast, we use Dublin Airport's latest expected forecast. Then, by multiplying each year's GDP growth forecast by the elasticity, we calculate a forecast passenger growth rate.
- 5.6 The accuracy of our model depends on the accuracy of the GDP forecast. In the 2018 Issues paper, we showed that the 2014 Determination forecast passenger levels would have been very close to the outturns if the GDP forecast had been correct. We also noted that the outturn GDP growth of 25.6% in 2015 was not predicted by any forecast.
- 5.7 For Irish GDP forecasts, we use the October 2018 forecasts from the International Monetary Fund (IMF). Should the IMF publish an updated forecast for Irish GDP prior to the Final Determination, we will update our passenger forecasts accordingly. We also used IMF forecasts in 2014. We consider the IMF an independent, unbiased forecaster of Irish GDP. Another advantage of the IMF is it produces a long-run forecast while many other sources do not extend beyond a couple of years.

5.8 The IMF projects Irish GDP to grow by about 3% per annum during the next regulatory period. Chart 5.1 shows how the IMF forecast compares with other sources. The October 2018 IMF forecast is relatively close to the October 2018 forecast from the Department of Finance. The IMF forecast is estimated until 2023. We have assumed the 2023 growth rate remains the same for 2024.

Chart 5.1: Recent Real Irish GDP Forecasts



Source: 2018 Outturn from the CSO, 2019-2023 Forecasts from: Central Bank of Ireland, Quarterly Bulletin Q2 2019, IMF October 2018 Outlook, ESRI Quarterly Economic Commentary Spring 2019, Davy Research macroeconomic forecasts updated on 8 April 2019, OECD real GDP forecast April 2019, Department of Finance Budget 2019 with forecast from Autumn 2018, IBEC Economic Outlook Q1 2019.

Volume Risk Allocation

5.9 We continue to set a per passenger price cap which assigns symmetric (upside and downside) volume risk to Dublin Airport. We assign the volume risk to Dublin Airport as it is best placed to influence passenger numbers and/or respond to changing levels of traffic. This volume risk allocation incentivises the airport to increase traffic in order to increase revenue. Allocating volume risk in a different manner would weaken the incentive for Dublin Airport to grow traffic and respond to changing levels of demand.

Comparison with Dublin Airport's Forecast

5.10 Dublin Airport has not provided a publishable forecast of passenger numbers so we cannot provide a comparison.

5.11 In September 2018, Dublin Airport consulted with stakeholders on the market outlook and passenger forecast methodology. The airport consulted on its future assumptions which can be summarised as: a moderated but stable growth, a broadening of the customer base, and potential downside risks including Brexit, higher oil prices, lower technical fuel stops and runway constraints until 2022. Dublin Airport also consulted on its methodology which separately forecasts three main categories of traffic: Origin and Destination (O&D), transfer and transit traffic.

5.12 In 2017, O&D traffic comprised 94% of all traffic. Dublin Airport indicates that O&D traffic is significantly influenced by the national economy of the country where the traffic originates from. 50% of the O&D passengers originates in Ireland and Northern Ireland.

5.13 Dublin Airport forecasts O&D passenger traffic across 17 different geographical markets. For 16 markets, Dublin Airport estimates the historical relationship between traffic and various

variables, which is used to determine the variables that best explain and predict traffic growth.³

- 5.14 Transfer and transit passenger growth, which represent 6% of total traffic, are forecast according to airline fleet plans and further assumptions based on expert judgement.

Forecast Methodology

Stakeholder Comments

- 5.15 Aer Lingus supports a transparent methodology.
- 5.16 Dublin Airport suggests checking the historical reliability of GDP forecasts from the IMF and OECD. It also recommends taking account of employment, oil prices and consumer confidence trends. It also states that the increasingly diverse passenger mix is not necessarily aligned to Irish GDP.
- 5.17 IATA recommends using the Commission's own forecast.
- 5.18 Ryanair recommends extrapolating recent growth and taking account of airline forecasts based on different airport charges scenarios.

Commission Response

- 5.19 We propose to continue using our own passenger forecast. In 2014, our passenger forecast underestimated the outturn passengers for this regulatory period. However, this was largely due to outturn GDP differing from forecast. In particular, the outturn GDP growth of 25.6% in 2015 was not predicted by any forecast. Passenger numbers were underestimated by the forecasts submitted by all the stakeholders in the previous determination.
- 5.20 Our model is simple and transparent, with all the parameters and variables in the public domain. This allows all parties to comment on how we might improve the forecast, for example, by refining the specification of the model or the data sources. It also allows parties to understand how the forecast might change between the draft and final Determination, provided the overall methodology remains unchanged. For example, if the GDP growth is revised downwards, parties can anticipate a lower passenger forecast. Our forecast, however, relies on the accuracy of the GDP forecast.
- 5.21 While the passenger mix at Dublin Airport has become increasingly diverse, roughly half of the passengers originate from Ireland. As a result, the growth of 50% of the passenger market is directly related to the Irish GDP. Other important markets are Europe and North America. The GDP growth of Ireland and of these countries is likely to be correlated. GDP growth is also likely to be correlated with employment and consumer confidence trends. Therefore, the Irish GDP serves as a reasonable explanatory variable for overall passenger growth. We are not convinced that a more complex model would significantly improve predictive power, and thus it does not merit the added complexity.
- 5.22 From high level calculations, we estimate that our forecasts are not inconsistent with expected passenger numbers at different price cap scenarios. We are open to further considering this point if any stakeholders choose to submit further detailed analysis.

³ The Asia/Pacific market is assumed to grow in line with the Middle East/Ethiopia model, as it has not enough historic data for the regression analysis.

Possible Changes between the Draft and Final Determination

- 5.23 In addition to our considerations of representations from stakeholders, passenger forecasts may change between the draft and final Determination due to:
- Revisions to our forecast for the base year, 2019, based on updated outturns and expectations; and
 - Revisions to GDP forecasts.

6. Operating Expenditure

Summary

Table 6.1: Operating Expenditure Allowances, 2020-2024

Year	2020	2021	2022	2023	2024
Allowance (€m)	273.1	273.1	283.9	289.7	291.1
Per Passenger (€)	8.13	7.88	7.96	7.89	7.70

Source: CAR, CEPA

- 6.1 We estimate that, in 2020 and in 2021, Dublin Airport should maintain overall operating costs at €273.1m. For 2022-2024, our target increases to allow for additional costs largely driven by increased passenger numbers and new projects which will be delivered as part of CIP2020. Table 6.1 summarises the operating expenditure (opex) allowances for the period.

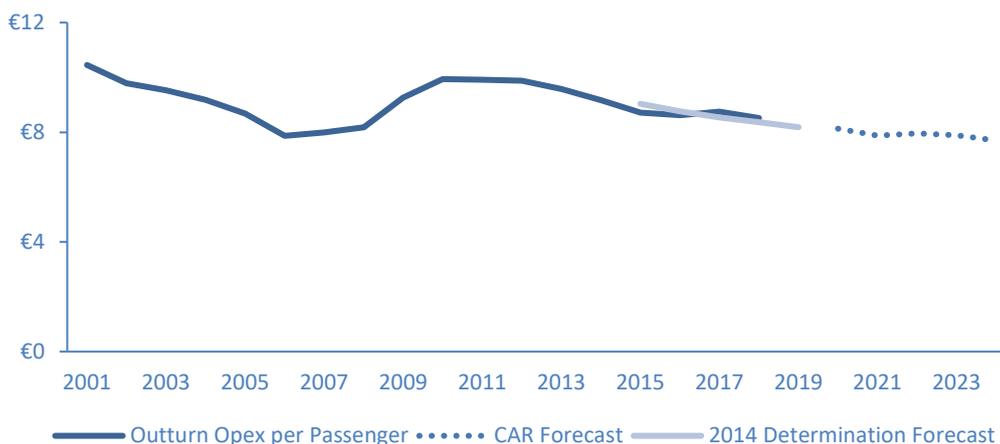
Chart 6.1: Opex Allowances and Outturns



Source: Dublin Airport, CAR

- 6.2 Chart 6.1 shows that Dublin Airport has exceeded the operating expenditure allowances set in the 2014 Determination. In real terms, Dublin Airport's operating costs have grown from €199m in 2014 to €268m in 2018. We are proposing a target for 2020 which is over 35% higher relative to the 2019 allowance. Dublin Airport commissioned a report from Frontier Economics which suggests that opex allowances should rise further again over the forthcoming regulatory period. Dublin Airport has indicated that this report is confidential, so we do not reference any of the numbers in that report.
- 6.3 On a per passenger basis, we are expecting opex to fall from €8.51 per passenger in 2018 to €8.13 in 2020, and further to €7.70 in 2024. We expect Dublin Airport to benefit from economies of scale, with the cost associated with each additional passenger being lower than the average per passenger cost.

Chart 6.2: Opex per Passenger Allowances and Outturns



Source: CAR

General Approach

- 6.4 Our targets are derived from a bottom-up opex efficiency assessment conducted by CEPA, supported by Tailor Airey. This study, published alongside the Draft Determination, addresses the key questions we set out in the Issues Paper in relation to opex. The report complements the bottom up analysis with some top down analysis to provide broader context and to act as an overall sense check.
- 6.5 CEPA was tasked with identifying an achievable efficient level of opex for Dublin Airport over the period 2020-2024. It is not a ‘greenfield airport’ opex assessment. An exercise establishing the efficient costs of a hypothetical, efficient new entrant would have resulted in lower costs. CEPA has provided, appropriately, for structural factors which it believes would be difficult to address in the upcoming regulatory period. However, CEPA arrived at a figure for 2020 of €265.1m, which is €3.1m less than the level in 2018, despite the forecast increase in passenger traffic.
- 6.6 Given the recent growth in passenger traffic, we believe that there are elements within the identified inefficiency which were difficult to avoid in order to facilitate the additional traffic, i.e. to some extent the speed of growth precluded or inhibited an efficient response. This increased traffic is the single biggest factor which is now creating downward pressure on the price cap.
- 6.7 On this basis, together with certain issues regarding immediate achievability particularly with regard to payroll costs, we are proposing a proportionate approach. We propose to give Dublin Airport more time to first reassert control over opex, through the use of a glidepath towards greater efficiency. We have therefore set the opex allowance for 2020 at the level of 2018 outturn expenditure plus, as a transitional measure, €5m, which is a 3% uplift on staff costs. In the absence of better information which we can publish, the 3% uplift broadly reflects commitments Dublin Airport may have made to staff in the immediate term. In general, CEPA found that increases forecast by Dublin Airport/Frontier for 2019 were not justified.
- 6.8 Efficiencies had previously been identified by the Commission and were used in setting the 2014 Determination allowances. In 2014, further efficiencies were identified by the Commission’s consultants but not used by the Commission in setting the allowances. In key cost items, the Commission used “low ambition” levels of efficiency improvements. These efficiencies have not generally been realised by the airport.

6.9 CEPA has developed the allowances based on a bottom-up assessment, but it is not our role to prescribe how Dublin Airport should allocate opex across the various categories, or between staff and non-staff costs. For example, if Dublin Airport can beat the target in one area of expenditure, this will offset any failure to achieve the target in another area. Neither do we prescribe wage levels or staff numbers or how Dublin Airport structures its business.

Bottom Up Efficiency Assessment

6.10 CEPA began working on this project in October 2018, with an initial site visit shortly afterwards. They returned to Dublin to meet with staff from various work areas at the airport, and representatives from some airlines with large operations at Dublin. As well as the published report, CEPA has provided us with an opex model which we have used to inform our published financial model.

6.11 CEPA investigated the increase in outturn opex relative to the targets observed in the current regulatory period. In particular, it was necessary to establish whether it has been driven by:

- The 2014 Determination elasticity assumptions being unrealistically low, combined with the unforeseen increase in passenger traffic;
- A failure by Dublin Airport to achieve efficiencies that were potentially achievable;
- Unprecedented growth in traffic impeding an efficient response; or
- A combination of the above.

Table 6.2: CEPA Proposals and Our Draft Allowances

Year	2020	2021	2022	2023	2024
Draft allowance (€m)	273.1	273.1	283.9	289.7	291.1
CEPA (€m)	265.1	270.6	283.9	289.7	291.1

Source: CAR, CEPA

6.12 CEPA has identified that the increase was indeed driven by a combination of the identified possible explanations. For each line item of opex, it considered Dublin Airport's performance over the period, with the goal of removing identified inefficient developments. This is expenditure which it believes Dublin Airport could have effectively avoided over the period and would have done were it subject to competitive pressures.

6.13 CEPA has used this analysis to derive a baseline target for efficient expenditure in 2019. It has then applied a wide range of line item-specific assumptions and estimates, such as, for example, estimated elasticities with respect to passenger numbers, forecast wage developments and forecast utility costs. CEPA then considered how the 2020 Capital Investment Programme can be expected to impact opex, in order to finalise efficient allowances for the period 2020-2024 (see Table 6.3).

Table 6.3: CEPA Proposed Allowances by Category

Category	2020	2021	2022	2023	2024
Security Staff	39.1	40.0	40.9	41.9	42.9
Central Function Staff	23.6	24.0	23.9	23.9	23.8
Other Staff costs	6.0	6.0	6.1	6.1	6.1
Campus Services Staff	22.4	22.8	23.1	23.5	23.9
Airside Operations Staff	6.7	6.8	6.9	7.0	7.2
IT & Technology	16.1	16.1	16.2	16.3	16.4
Facilities & Cleaning	25.3	25.2	25.2	25.2	25.2
Car Parks	6.7	6.8	6.9	7.0	7.1
Retail	16.0	15.4	15.3	15.1	14.9
Maintenance	28.7	28.8	29.4	29.6	29.7
Capital Projects	2.4	2.8	2.8	2.9	2.9
Utilities	7.6	7.9	8.0	8.2	8.4
Rent & Rates	14.2	14.2	14.2	14.2	14.2
Marketing & Related costs	7.6	7.7	7.7	7.8	7.9
Consultancy Services	6.3	6.4	6.5	6.6	6.7
Insurance	3.8	3.8	3.9	4.0	4.0
Other	23.7	23.7	22.9	23.0	23.1
PRM	8.5	8.7	9.0	9.3	9.5
CIP2020 Related Opex	0.5	3.4	14.8	18.3	17.2

Source: CEPA

Rolling Schemes

- 6.14 The 2014 Determination set out opex rolling schemes which were intended to equalise the incentive for Dublin Airport to achieve efficiencies regardless of the point in time in the regulatory cycle. These 2014 rolling schemes are irrelevant for the purposes of the 2020-2024 opex allowances, given that Dublin Airport did not outperform the targets in any relevant year as set out in Table 6.4.

Table 6.4: 2016-2018 Targets and Outturns

Year	Total gross scheme Target (€m)	Total Outturn (€m)	Difference (€m)
2016	200	241	-41
2017	199	259	-60
2018	200	268	-68

Source: 2014 Determination, CAR

- 6.15 We are proposing to discontinue the rolling schemes in this regulatory period for a number of reasons. Overall, we do not believe they are providing any significant added value to the regulatory model and therefore are simply adding complexity.
- 6.16 We have not seen any evidence that they have been effective in fulfilling their intended purpose, or indeed evidence that their intended purpose is an issue which needs to be addressed. As stated above, it is more important that a detailed bottom-up assessment be carried out in order to establish where the appropriate baseline is, to inform the ongoing allowances. The point in time at which a saving is achieved is less relevant in the context of this approach.

- 6.17 We are concerned that opex savings benefitting from the rolling schemes may not be maintained in future years. In particular, we note that some of the opex overspend in the current period is related to generating commercial revenues which has allowed Dublin Airport to beat those rolling scheme targets. This means that there is the potential for the benefit of a once-off opex overspend to translate into 5 years of commercial revenue rolling scheme reward.
- 6.18 Respondents to the Issues Paper who addressed this question generally state that their effectiveness is, at best, questionable. While Dublin Airport supports their retention, it too questions their effectiveness unless we recognise that current levels of opex are efficient. Given that elements of inefficiency have been identified by CEPA, it is not clear that any stakeholder believes in the effectiveness of the schemes.

Risk Allocation

- 6.19 As stated by Dublin Airport, the allocation of the risk that outturns deviate from targets to Dublin Airport is an integral part of the regulatory model. Dublin Airport is best placed both to control its own opex, and, where elements of opex are less within its control, to manage the risk that they deviate while having regard to its overall performance. This creates appropriate incentives for the regulated entity, in that within the regulatory period, the costs or benefits associated with opex incurred are fully felt by the regulated entity.
- 6.20 We recognise that within a regulatory period, unforeseen changes inevitably occur. This is to be expected to a certain degree; there are also circumstances where opportunities for relative cost savings may unexpectedly present themselves. We remain of the view that the party best placed to react optimally to such an occurrence is Dublin Airport. As suggested by IATA, if there were a significant change in circumstances such that there are substantial grounds to carry out an Interim Review of a determination, we believe that this would be the most appropriate way forward. This would need to be considered in the context of Dublin Airport's overall performance relative to the regulatory settlement.
- 6.21 We have not included an annualised allowance in the price formula for unexpected issues, as suggested by Dublin Airport, as this would weaken the risk allocation incentives. For balance, such a term would need to also consider any unexpected factors which had caused a reduction in opex. This would quickly turn into a yearly review of the opex allowance.

Submissions and Responses on Operating Expenditure

Submissions on General Approach

- 6.22 Aer Lingus states that the opex allowances should be challenging but achievable, noting that the 2014 Determination allowances excluded certain identified efficiencies. This means that the higher than expected staff costs observed in recent years are relative to a target that was itself based on uncompetitively high staff costs. It states that we need to consider in detail why the passenger elasticity of opex in the 2014 determination did not materialise, rather than assuming that economies of scale at the airport are less achievable than previously presumed.
- 6.23 Aer Lingus cautions against the dulling of efficiency incentives by building a level of opex which is inefficiently high into the baseline regulatory targets through, for example, allowing for the costs associated with long-term contracts without fully considering whether they are efficient. This would encourage Dublin Airport to enter into such contracts, on the basis that the costs will be recovered from airport users through a higher opex allowance in future regulatory periods.

- 6.24 Dublin Airport states that operating expenditure has exceeded the 2014 allowances due to a combination of unrealistically low assumed passenger elasticities and the rapid growth in passenger numbers inhibiting what 'would otherwise have been an efficient response'. As the core of its opex submission, Dublin Airport has commissioned a report from Frontier Economics. It has not provided us with a publishable version of this report. The Frontier Report has been considered in detail by CEPA in writing their report. Dublin Airport further states that we should recognise that current opex levels are efficient.
- 6.25 Dublin Airport believes that, in setting allowances, we should consider an efficient baseline, granular volume elasticities and the impact of infrastructural development. It states that any top-down analysis must be based on appropriate comparator airports. On this point, it suggests a number of European airports with passenger traffic over 25 million annually. Dublin Airport also sets out some new lines of operating costs which have been built into the Frontier assessment. It states that we must be cognisant of the link between opex and service quality.
- 6.26 Dublin Airport states that costs associated with longer-term contracts or agreements should be remunerated in full and notes regulatory precedent from the UK whereby certain regulators have provided allowances for redundancy or other workforce transformation costs.
- 6.27 IATA supports a detailed bottom-up study to analyse the current level of efficiency in operating expenditure, to inform the opex allowances for the forthcoming regulatory period. It states that higher opex due to non-materialised efficiencies cannot be allowed in the subsequent regulatory period, as this generates an incentive to increase expenditure towards the end of the period.
- 6.28 Ryanair believes that Dublin Airport has not made sufficient headway in addressing previously identified opex inefficiency. It states that we should set ambitious targets, based on a combination of bottom-up and top-down analysis, and further that benchmark analysis should include airports with a high proportion of low fares airline traffic as well as other secondary hub airports.

Commission Response

- 6.29 The work led by CEPA is in line with the general approach called for by stakeholders. In the application of this approach, we have sought to strike a fair balance between targets which will challenge Dublin Airport, but are achievable, particularly in the context of the overall regulatory settlement.
- 6.30 We are cognisant of the link between opex and quality of service. The quality of service price cap adjustments, both reductions and bonuses, are intended to give effect to this link. The CEPA report does not assume reductions in service standards in order to deliver efficiencies. For example, where they have identified inefficiency in security rostering, this relates to the number of rostered staff rather than the number of X-ray lanes open. For each day of the various weeks used by CEPA for assessing rostering efficiency, we have ensured that our revised security queue targets would have been met; that is, Dublin Airport would not have needed to open more lanes in order to meet the targets. Thus, there is consistency across these building blocks.
- 6.31 We have allowed for a wide range of projects under CIP2020 which will allow Dublin Airport to improve the quality of service it offers, all else equal.
- 6.32 In relation to workforce transformation costs, ultimately Dublin Airport appears not to have included this in the Frontier report; we therefore have no specific proposal to assess.

- 6.33 The comments in relation to appropriate benchmarks have been considered by CEPA in carrying out the bottom up assessment.

Submissions on Rolling Schemes

- 6.34 Dublin Airport supports the retention of the rolling schemes, although it states that their effectiveness is questionable unless we recognise that current levels of opex are efficient.
- 6.35 Ryanair is opposed to the continuation of opex rolling schemes, while IATA are 'not convinced' of their effectiveness currently.

Commission Response

- 6.36 We have decided to discontinue the rolling schemes as set out above.

Submissions on Risk Allocation

- 6.37 Aer Lingus, IATA and Ryanair state that the risk of opex deviating from forecasts should remain with Dublin Airport. IATA believes that the only situation where adjustments should be made due to realised risk is in the case of changes in regulatory requirements, but states that a review of the determination may be the most appropriate way forward in such a situation.
- 6.38 Dublin Airport states that, while it recognises that the allocation of risk to Dublin Airport is an integral part of the regulatory model, in certain circumstances unanticipated costs outside the control of Dublin Airport arise within a regulatory period. Such costs often relate to regulatory compliance; Dublin Airport gives the example of the transfer of responsibility for Hold Baggage Screening in 2017. It states that an annualised, broad cost allowance should be included in the price formula to cover unforeseen costs.

Commission Response

- 6.39 We continue to assign the risk of opex deviating from forecasts to Dublin Airport, for the reasons set out above.

Possible Changes between the Draft and Final Determination

- 6.40 The allowances may be adjusted as a result of submissions received or changes in our passenger forecasts, quality of service targets or in the capital projects that we allow.

7. Commercial Revenues

Summary

Table 7.1: Commercial Revenue Target

	2015	2016	2017	2018	2019f	2020f	2021f	2022f	2023f	2024f
Base Target, (€m)	176.9	200.5	222.6	238.3	248.2	257.1	267.2	275.9	285.3	295.8
2016-18 Rolling Scheme adjustment						-46.8	-15.1	-5.3		
Target for Price Cap						210.3	252.1	270.6	285.3	295.8
Per passenger (after rolling schemes), (€)	7.09	7.23	7.58	7.57		7.66	7.71	7.73	7.77	7.82

Source: CAR

- 7.1 Our proposed target for Dublin Airport’s commercial revenues is €257.1m in 2020, increasing to €295.8m by 2024. This compares to the 2018 outturn of €238.3m. As set out in the 2014 Determination, we adjusted the 2020-2022 target by the outperformance achieved by Dublin Airport during 2016-2018 compared to the rolling schemes set in 2014.
- 7.2 The implied passenger elasticity of our base target, before the rolling scheme adjustment, is 1.2, meaning revenue growth will be 1.2 times passenger growth. The base target implies an average annual growth rate of 3.6%. We assume commercial revenue grows with both passenger numbers and GDP. Higher commercial revenues results in lower airport charges which in turn benefits passengers.
- 7.3 Within the period Dublin Airport is incentivised to exceed this target, as any revenues above this level are retained by Dublin Airport.⁴ We propose to remove the rolling schemes for the next period as we have no evidence of their effectiveness or need.
- 7.4 From 2020-2024, the airport is proposing to deliver various commercial, IT, and capacity projects that will add extra capacity and improve the quality of the commercial offer. These improvements should allow the airport to grow commercial revenues in line with our targets during the next regulatory period.

Approach to setting Commercial Revenue Targets

- 7.5 Our overall target is an aggregate of forecasts in eight categories of commercial revenue. We use econometric modelling to establish the relationship between each category and a key driver. We implement this methodology in three steps. First, we use outturn data from 2001 to 2018 to estimate the elasticity of each category with respect to associated drivers. The elasticity measures how the category of commercial revenues varies due to changes in the specific driver. Second, we select the most appropriate driver based on the robustness of the results. Third, we use outturn revenue from 2018, the estimated elasticity and forecasts of the selected driver to arrive at the target for each revenue category.
- 7.6 Table 7.2 summarises the selected drivers and elasticity for each category. For commercial property we use Irish GDP as the driver. For US Preclearance revenue, we use our forecast of US Preclearance passengers at Dublin Airport. For the remaining six categories we use our

⁴ Except for Access to Installation (ATI) fees where there is no incentive to exceed our forecast of ATI Fees. Examples of ATI fees: rental fees for check-in desks, charges for using common-use self-service.

forecast of total passengers at Dublin Airport.

Table 7.2: Summary of Elasticities

Category	2018 Revenue		Drivers	Elasticity
	(€ m)	%		
Retail	98.8	41.5%	Total Passengers	1.1
Car parking	47.4	20%		1.5
Commercial concessions	29.4	12%		0.7
Commercial property	27.3	11.5%	Irish GDP – CIP displacement	1.0
Advertising	4.8	2%	Total Passengers + CIP uplift	0.7
Lounges, fast track and platinum services	13.9	6%		1.0
US Preclearance	13.0	5%	US Preclearance Passengers	1.0
Other	3.7	2%	Total Passengers	0.0
Total Revenues	238.3	100%		

Source: CAR

- 7.7 The Capital Investment Programme (CIP) includes a number of projects aimed to improving the commercial offerings at Dublin Airport. These projects are discussed in Section 9 and in the associated Appendix 2. We have examined the business cases of all projects and deemed they all either generate a positive return or are required to protect a revenue stream. In this section, we have considered if we should uplift our targets due to the inclusion of these projects. The specific projects in relation to which we intend to apply uplifts can be viewed in the financial model.
- 7.8 Our estimated elasticities for 84% of revenue are equal to, or above, one. Increases in commercial revenues derived from projects in past capital investment programs since 2001 are implicit in the data and the elasticities. Examples of these large-scale projects are the opening of new retail and office space in Terminal 1 (T1X) or Terminal 2 and associated car parks. Therefore, we concluded, for the most part, our targets were sufficiently challenging without adding further uplifts.
- 7.9 We have, however, added revenue uplifts for advertising and for lounges, fast track and platinum services projects. For these categories, historic data is not likely to capture the recent and future revenue growth. We also subtracted revenue associated with the displacement of certain commercial property due to the planned developments in the north and south aprons.
- 7.10 The following sections discuss the base target of each of the subcategories, that is, before the adjustment for rolling schemes from the 2014 Determination.

Direct Retail, Retail Concessions and Food & Beverage

Table 7.3: Retail Revenue Target

	2015	2016	2017	2018	2019f	2020f	2021f	2022f	2023f	2024f
Base Target, (€m)	75.9	86.1	93.3	98.8	102.0	106.1	109.8	113.4	117.1	120.9
Per passenger, (€)	3.04	3.10	3.18	3.14		3.16	3.17	3.18	3.19	3.20

Source: CAR

- 7.11 We forecast that the base target of retail revenue (net of cost of sales) will increase from

€106.1m in 2020 to €120.9m in 2024. Retail remains the largest category of commercial revenue. In 2018, it generated €98.8m of revenue, representing 41.5% of 2018's total commercial revenues. Retail is composed of direct retail, retail concessions and food and beverage.

- 7.12 We estimate a passenger elasticity of 1.1 by regressing annual retail revenue from 2001 to 2018 on passenger numbers. That is, growth in retail slightly exceeds growth in passenger numbers. This is higher than our estimate of 0.67 in the 2014 Determination.
- 7.13 Our estimated passenger elasticity of 1.1 is cross checked using monthly data from January 2001 to September 2018. We also looked at shorter more recent time periods. Monthly data from January 2010 to September 2018 yields a higher elasticity ranging from 1.3 to 1.6 (estimated without and with a time trend, respectively). A summary of these results in displayed in Table A1.1 in Appendix 1.
- 7.14 It is intuitive that retail should grow slightly faster than passenger numbers as it depends not only on the number of passengers but also on the level of disposable income of those passengers. Therefore, our estimated elasticity of 1.1 reflects two effects that increase revenue: 1) higher GDP results in more passengers, and 2) those passengers will have higher disposable income due to the higher GDP. The reverse also holds. Table A1.1 in Appendix 1 shows cross check results from simultaneous estimations of retail on passenger numbers and GDP.
- 7.15 The CIP contains a number of projects specific to this category of revenue, a number of capacity projects that include retail elements and a couple of IT projects that contain enabling technology. We do not propose uplifting retail revenues for these projects as, first, similar projects in previous periods would be captured in our elasticity and, second, part of this expenditure is required to protect this revenue stream into the future.
- 7.16 We consider that our target is achievable because Dublin Airport currently has adequate retail space compared to other airports. Most airports around the world operate with between 600-800m² per million passengers.⁵ Dublin Airport has about 800m² per million passengers.

Car Parking

Table 7.4: Car Parking Revenue Target

	2015	2016	2017	2018	2019f	2020f	2021f	2022f	2023f	2024f
Base Target, (€m)	32.4	38.6	43.5	47.4	49.4	52.1	54.5	56.8	59.2	61.8
Per passenger, (€)	1.30	1.39	1.48	1.50		1.55	1.57	1.59	1.61	1.64

Source: CAR

- 7.17 We forecast that the base target for car parking revenue will increase from €52.1m in 2020 to €61.8m in 2024 (Table 7.4). In 2018, car parking revenue was €47.4m, or 20% of total commercial revenues. The airport generates this revenue from multi-storey walk-to-terminal car parks (short term) and bus-to-terminal surface car parks (long term) and a smaller amount of other car parking revenue. Other car parking revenue comes from coach, executive and staff parking.
- 7.18 In 2013, there was a 42% increase in the capacity of long-term car parks. Since 2013, short-term car parks have been used near capacity year-round. Long-term car parks are used at

⁵ https://publicapps.caa.co.uk/docs/33/1563b_H7_Commercial_Revenues_report_by_SDG.pdf

capacity only during the summer periods.

- 7.19 We estimate a passenger elasticity of 1.5 by regressing annual car parking revenue from 2001 to 2018 on passenger numbers. In 2014, we estimated a passenger elasticity of one. Similar to retail, it is likely that our current elasticity, which is higher than one, reflects the effects of 1) a higher GDP that increases passengers and 2) more passengers with more disposable income.
- 7.20 The elasticity result of 1.5 is crosschecked using monthly data from January 2001 to September 2018 and from January 2010 to September 2018. We obtained an elasticity of 1.3 using both sets of data. The estimation details can be found in Appendix 1.
- 7.21 The airport is proposing five CIP projects aimed at increasing car parking capacity and improving service levels for users from 2022 onwards.
- 7.22 Car parking is currently capacity constrained; therefore our view is that, these projects are required for the airport to achieve our targets. We have not added additional uplifts to our car parking forecast for these projects.

Commercial Concessions

Table 7.5: Commercial Concessions Revenue Target

	2015	2016	2017	2018	2019f	2020f	2021f	2022f	2023f	2024f
Base Target, (€m)	22.2	23.4	28.0	29.4	30.0	30.8	31.5	32.2	32.9	33.6
Per passenger, (€)	0.89	0.84	0.95	0.93		0.92	0.91	0.90	0.90	0.89

Source: CAR

- 7.23 We forecast that the target revenue for commercial concessions will increase from €30.8m in 2020 to €33.6m in 2024. In 2018, commercial concessions were €29.4m, or 12% of total commercial revenues. Commercial concessions relate to revenue streams such as car hire, banking, buses and telephony.
- 7.24 The revenue from commercial concessions responds to changes in passenger numbers. Concession agreements entitle Dublin Airport to receive a share of revenues from concessionaires when, for example, the revenue grows beyond agreed thresholds.
- 7.25 We estimate a passenger elasticity of 0.7 using annual data. We cross check this result by estimating the elasticity using monthly data. Monthly data from January 2001 to September 2018 also yields an elasticity of 0.7. When using monthly data post January 2010, we found a higher elasticity between 0.9 (with a trend) and 1.2 (without a trend). In 2014, we estimated a passenger elasticity of 0.2. The estimation details can be found in Appendix 1.
- 7.26 The CIP includes a proposal to expand the existing car hire facilities at Dublin Airport. According to the airport, the last investment in car rental facilities was in 2007. The airport also states that car hire is now experiencing capacity constraints across most facilities. We have received correspondence from a number of car rental operators, in which they also highlight insufficient current capacity. As this project is needed for future growth, and our targets include growth, we have not added an additional uplift for this project.

Commercial Property

Table 7.6: Commercial Property Revenue Target

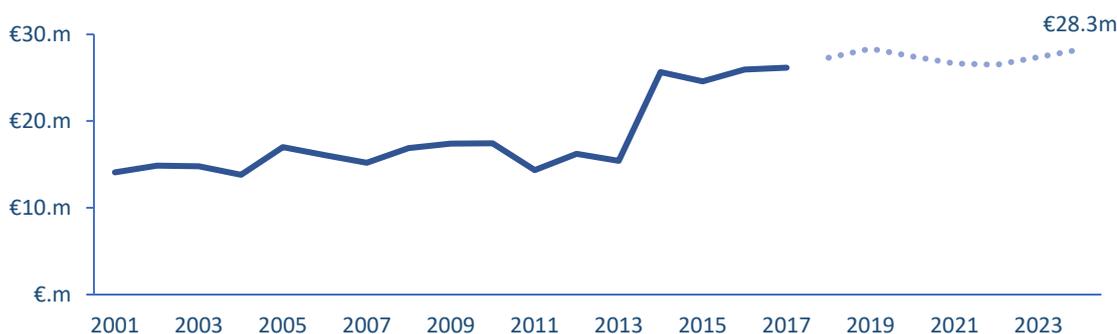
	2015	2016	2017	2018	2019f	2020f	2021f	2022f	2023f	2024f
Base Target, (€m)	24.6	25.9	26.2	27.3	28.3	29.3	30.2	31.1	32.0	32.9
North and South Apron displacement						-1.9	-3.6	-4.6	-4.6	-4.6
Target after displacement					28.3	27.5	26.7	26.5	27.4	28.3
Per passenger, (€)	0.99	0.93	0.89	0.87		0.82	0.77	0.74	0.74	0.75

Source: CAR

7.27 We forecast that the target of commercial property revenue will increase from €27.5m in 2020 to €28.3m in 2024. In 2018, commercial property generated €27.3m or 11.5% of total commercial revenue. Commercial property comprises income from the rental of office buildings, hangars, terminal office space and check-in desks.

7.28 From 2014 to 2018, the total space of commercial property remained the same but vacant property decreased. In the same period, the rental budget per meter square rose by 82%. Chart 7.1 shows the increase in property rents revenue since 2014.

Chart 7.1: Commercial Property Revenue Outturn and Target



Source: Dublin Airport, CAR

7.29 Revenue from commercial property is correlated with Irish GDP. For this reason, we estimate a GDP elasticity, rather than a passenger elasticity. Our estimated GDP elasticity is 1. We used annual data from 2001 to 2018. In 2014, we estimated a passenger elasticity of 0, that is we concluded that there was no significant relationship between rental incomes and passenger numbers.

7.30 As a cross-check, we also estimated simultaneously passenger and Irish GDP elasticities. In this case, the passenger elasticity was -0.3 (not statistically significant) while the GDP elasticity was 1.3. These results support our conclusions that commercial property revenue is likely to be related to GDP rather than passenger numbers.

7.31 Dublin Airport is proposing three investments that will contribute to maintain and increase commercial property revenues. Dublin Airport also highlighted that capacity investments in the north and south aprons will reduce revenue from commercial property due to properties being displaced. In this case we have included adjustments for CIP projects in our forecast as shown in Table 7.6.

Cap on Access to Installations (ATI) Fees

7.32 We will set a cap on Access to Installation fees based on our 2020-2024 revenue forecast provided which is shown in Table 7.7.

Table 7.7: Revenue Target of Lounges, Fast Track and Platinum Services

Category	2019	2020	2021	2022	2023	2024
Total (€m)	3.1	4.3	4.3	4.4	4.5	4.5

Source: CAR

Lounges, Fast Track and Platinum Services

Table 7.8: Revenue Target of Lounges, Fast Track and Platinum Services

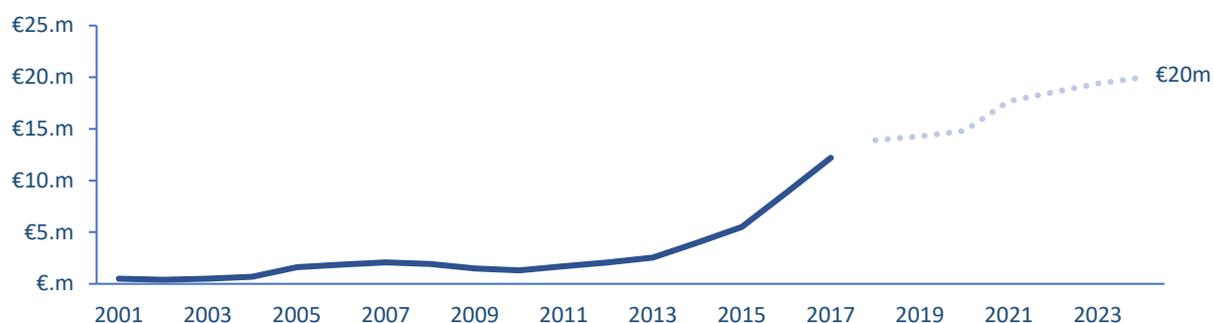
	2015	2016	2017	2018	2019f	2020f	2021f	2022f	2023f	2024f
Base Target, (€m)	5.5	8.8	12.2	13.9	14.3	14.8	15.3	15.7	16.2	16.7
CIP Uplift							2.4	2.8	3.2	3.3
Target after uplift					14.3	14.8	17.7	18.5	19.4	20.0
Per passenger, (€)	0.22	0.32	0.42	0.44		0.44	0.51	0.52	0.53	0.53

Source: CAR

7.33 We forecast that the target revenue for lounges, fast track and platinum services will increase from €14.8m in 2020 to €20m in 2024. In 2018, this category generated €13.9m revenue which is 6% of total commercial revenue. This target is estimated from a combination of using a passenger elasticity of 1 and by including uplifts for CIP projects in this category. The revenue uplifts are shown in Table 7.8.

7.34 Our econometrics analysis resulted in elasticities we consider to be unrealistically high, a passenger elasticity of 2.73 and a GDP elasticity of 3.5. Elasticities are high because revenues were flat until 2014 but grew exponentially in 2015-2017 by, on average, 45% per annum. The exponential growth in this category revenues is show in Chart 7.2. In 2014, we estimated a passenger elasticity of 2.08 for a broader category of other revenues which included this category as well as US Preclearance and other miscellaneous revenues.

Chart 7.2: Outturn and Target Revenue of Lounges, Fast Track and Platinum Services



Source: Dublin Airport, CAR

7.35 Rather than using the above estimated passenger or Irish GDP elasticities, we use a passenger elasticity of 1 and uplift the base forecast for CIP projects in this area.

US Preclearance

Table 7.9: US Preclearance Revenue Target

	2015	2016	2017	2018	2019f	2020f	2021f	2022f	2023f	2024f
Total, (€m)	8.2	9.4	11.2	13.0	15.9	17.5	18.2	19.4	20.1	21.9
Per passenger, (€)	0.33	0.34	0.38	0.41		0.52	0.53	0.54	0.55	0.58

Source: CAR

- 7.36 We forecast that revenue from US Preclearance services will increase from €17.5m in 2020 to €21.9m in 2024 (Table 7.9). In 2018, the revenue from US Preclearance was €13m or 5% of total commercial revenues. We forecast this revenue category by multiplying our forecast of US Preclearance passengers by the current price of using the facility, €8.85.
- 7.37 Analysis has demonstrated that the current facility is at capacity at certain times. There is a project in the CIP (*CIP.20.03.030*) to increase the capacity of this processor. We consider that this project is necessary to deliver the target we have forecast.
- 7.38 We did not obtain statistically significant results for passenger and GDP elasticities and concluded the above estimation technique was a superior approach for this category. Chart 7.3 shows that this revenue category remained flat during 2001-2010. Since 2013, it has steadily grown by, on average, 18% annually. The considerable growth since 2013 may be the cause for the statistically insignificant results.

Chart 7.3: US Preclearance Revenue Outturn and Target



Source: Dublin Airport, CAR

Regulatory Treatment of the US Preclearance Charge

- 7.39 In the 2018 Issues Paper we stated that the US Preclearance charge is not part of airport charges; rather a forecast is included in commercial revenue. We also questioned whether Dublin Airport should be incentivised to maximise this commercial revenue despite airport users not having much choice over whether to use it. In that respect, it could be viewed as similar to the price-capped Airport Charges.
- 7.40 In response to this, Dublin Airport stated that it is not the only provider of US Preclearance services as Shannon Airport also offers this service. Aer Lingus indicates that airlines are not protected by the price cap when paying for the US Preclearance service and that airlines may not be able to access particular contact stands and gate if they do not wish to make use of the US Preclearance facility.

- 7.41 We are seeking the views of stakeholders on the appropriate regulatory treatment of the US Preclearance charge. Should it continue to be unregulated and part of commercial revenues? Or should it be treated as an airport charge? If the US Preclearance charge becomes an airport charge, it will reduce the per passenger commercial revenue and increase the price cap by the values in Table 7.9. For example, in 2020 the price cap would increase by €0.52 and so on. As a result, Dublin Airport would no longer be incentivised to maximise this revenue as it would need to comply with the price cap. In this Draft Determination, we assume that the US preclearance charge is part of commercial revenues rather than aeronautical revenues.

Advertising

Table 7.10: Advertising Revenue Target

	2015	2016	2017	2018	2019f	2020f	2021f	2022f	2023f	2024f
Base Target, (€m)	4.5	4.7	4.4	4.8	4.9	5.0	5.2	5.3	5.4	5.5
CIP Uplift							0.4	0.5	0.5	0.5
Target after uplift					4.9	5.0	5.6	5.8	5.9	6.0
Per passenger, (€)	0.18	0.17	0.15	0.15		0.15	0.16	0.16	0.16	0.16

Source: CAR

- 7.42 We forecast that advertising revenue will increase from €5m in 2020 to €6m in 2024 (Table 7.10). In 2018, advertising generated €4.8m, or 2% of commercial revenue. Advertising includes income from both interior and exterior advertising at Dublin Airport. Most of the advertising is billboard format. Since 2016, Dublin Airport also generates advertising revenue from digital advertising pods.
- 7.43 We use the passenger elasticity of 0.7, estimated using annual data from 2001 to 2018. As a cross check, we also estimated elasticities using monthly data. We estimated an elasticity of 0.8 using monthly data from January 2001 to September 2018. However, we found a higher elasticity of 1 when using monthly data post January 2010. In 2014, we estimated a passenger elasticity of 1.14.
- 7.44 There is a CIP project to expand the provision of digital advertising products in the airport. We have included an uplift for this project in our forecast as detailed in Table 7.10.

Other Commercial Revenue

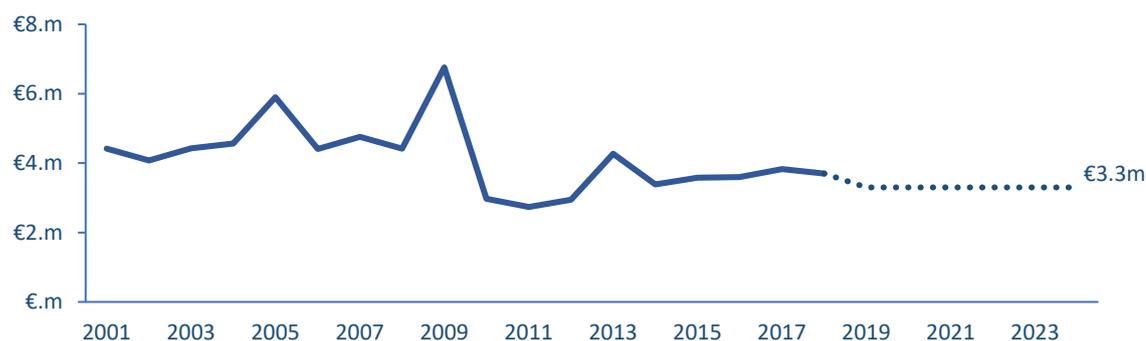
Table 7.11: Other Commercial Revenue Target

	2015	2016	2017	2018	2019f	2020f	2021f	2022f	2023f	2024f
Base Target, (€m)	3.6	3.6	3.8	3.7	3.3	3.3	3.3	3.3	3.3	3.3
Per passenger, (€)	0.14	0.13	0.13	0.12		0.10	0.10	0.09	0.09	0.09

Source: CAR

- 7.45 We forecast that the ‘other commercial revenue’ target will remain constant at €3.3m from 2020 to 2024, this is based on information provided by Dublin Airport (Table 7.11). In 2018, other revenue was €3.7m or approximately 2% of total commercial revenues. We use a passenger elasticity of zero because historical data does not show a significant trend or correlation. Chart 7.4 shows that, since 2001, this revenue category has remained, on average, close to a €4m level, but with significant variation in some years (2005, 2009 and 2013).

Chart 7.4: Other Commercial Revenue Target



Source: Dublin Airport, CAR

Rolling Schemes

Rolling forward the 2015-2019 Schemes

7.46 In the 2014 Determination, we introduced rolling schemes for commercial revenues, having used them for operating costs since 2009. Rolling schemes were composed of both per passenger targets and a gross target. Per passenger targets were set for areas that vary with passenger numbers such as retail, car parking, advertising and other revenue. The per passenger targets compared to how Dublin Airport performed against them are laid out in Table 7.12.

Table 7.12: Per passenger rolling schemes: retail, car parking, advertising and other revenue

Year	Total schemes target (€)	Total schemes outturn (€)	Outperformance (€)
2016	4.80	5.46	0.66
2017	4.88	5.76	0.88
2018	4.87	5.83	0.96

Source: Dublin Airport, CAR

7.47 A gross target was set for commercial property and concessions (excluding ATI revenues). The targets and how Dublin Airport performed against them are laid out in Table 7.13.

Table 7.13: Gross rolling schemes: commercial property and concessions (excluding ATI revenues)

Year	Total gross schemes target (€m)	Total gross schemes outturn (€m)	Outperformance (€m)
2016	37.5	47.4	9.9
2017	39.4	51.7	12.3
2018	40.1	54.9	14.7

Source: Dublin Airport, CAR

7.48 The 2014 financial model sets out how the schemes would be rolled into the price in 2020-2024. In the period 2016-2018, Dublin Airport outperformed our targets and the reward for this will carry into the next period. Rolling forward the schemes reduces Dublin Airport’s commercial revenue targets by €66.6m in the period, thus increasing the revenue that needs to be raised from airport charges by the same amount. Adjustments to our forecasts from these schemes is set out in Table 7.14. Rolling schemes aim to increase the incentive on Dublin Airport to maximise commercial revenues by allowing it to keep the benefit of beating our targets for a longer period than they would in the absence of rolling schemes.

Table 7.14: Adjustments to our forecasts from rolling schemes

2016-2018 Rolling schemes (€m)	2020	2021	2022
Retail, Car Parking and Advertising	32.1	10.2	2.8
Property Rents & Concessions excluding ATI's	14.7	4.8	2.4
Total Adjustments	46.8	15.1	5.3

Source: Dublin Airport, CAR

Rolling Schemes 2020-2024

- 7.49 The motivation for rolling over outperformance as adjustments on future targets is to provide Dublin Airport with an equal incentive to maximise its commercial revenues regardless of the point in time during the regulatory period. However, we are not convinced that they have contributed to Dublin Airport achieving the high levels of commercial revenue it did in the period. We cannot identify any particular behaviour which has been driven by the rolling schemes and that outweighs the delay in passing on the realised benefits to users.
- 7.50 There is also a relationship between operating costs and commercial revenues which is not being captured by the rolling schemes. Having independent rolling schemes in both could result in perverse incentives for the airport. For example, it would be possible to forgo one of the targets to obtain the benefit in the other. This behaviour would not incentivise the efficient operation and development of the airport and would be in detriment of passengers and users of the airport.

Comparison with the Forecast of Dublin Airport

- 7.51 Dublin Airport has not provided a publishable forecast of commercial revenues so we cannot provide a comparison.

Responses to the Issues Paper and Dublin Airport's Regulatory Proposition

Estimation Methodology of Commercial Revenues

- 7.52 Dublin Airport recommends that we review commercial revenues based on profit and loss statements of each activity, as opposed to revenues being completely separated from operating costs. It also supported a forward-looking bottom-up assessment and the consideration of capacity constraints and yield management thresholds. It states that our causal estimation approach is transparent and easy to implement but it is oversimplified and may not be a good indicator of future revenues.
- 7.53 Ryanair supports the use of econometric modelling, benchmarking and bottom up analysis. It suggested that we should take account of changes to the layout and facilities. It stated that historic modelling may carry forward any underperformances into future projections.
- 7.54 We continue to use the same econometric methodology, as in 2014, to set the commercial revenue targets. Our methodology is transparent and easy to implement. This makes it easy to replicate and for other stakeholders to respond to. We are not convinced that using a more detailed model with a potentially higher predictive power outweighs the associated increase in complexity and loss of transparency. Also, our methodology is less data intensive than a bottom-up approach. It allows us to estimate a number of broad revenue categories and avoids the need to assess how individual commercial developments will interact with each other.
- 7.55 Our methodology takes account of changes in layout and facilities implicit in historic data. For

future changes, we have used our judgement and have added appropriate CIP uplifts to our targets. While historic modelling may carry forward underperformances, it also carries forward overperformances (such as that experienced in the current regulatory period).

- 7.56 We discussed the possibility of using profit and loss statements of each activity with Dublin Airport, as it had suggested. However, the airport deemed the level of data required was not readily available.

Benchmarking

- 7.57 Dublin Airport supports benchmarking as a high-level cross-check of forecasts. The airport states that it requires careful selection of comparators and consideration of the context and underlying differences.
- 7.58 Ryanair recommends benchmarking revenues per passenger and the ability of comparator airports to grow revenue per passenger over time.
- 7.59 We have not conducted extensive benchmarking. There are inherent difficulties in benchmarking commercial revenues across airports due to differences in business models (e.g. insourcing vs outsourcing) and passenger profiles.

Rolling Incentives

- 7.60 Dublin Airport supports the rolling scheme to ensure appropriate and consistent incentives to grow commercial revenues.
- 7.61 IATA does not support rolling schemes for commercial revenues.
- 7.62 Ryanair states that rolling incentives would be effective only if the airport was operating at or close to the efficiency frontier.
- 7.63 As discussed above, we propose to remove rolling schemes as we are not convinced that they have contributed to Dublin Airport achieving the high levels of commercial revenue it did in the period. Also, having independent rolling schemes in both opex and commercial revenues could result in perverse incentives for the airport.

Possible Changes between the Draft and Final Determination

- 7.64 In addition to our considerations of representations from stakeholders, commercial revenue forecast may change between the draft and the final Determination due to:
- updated estimates of passenger numbers
 - updated elasticities when additional outturn data is considered
 - Updated forecasts of GDP
 - updated 2019 estimates and outturns of commercial revenues to create the base

8. Cost of Capital

Summary

Table 8.1: Pre-tax Weighted Average Cost of Capital (WACC)

	2019		2014		Difference
	Range	Estimate	Range	Estimate	
Pre-tax WACC	2.8% - 4.2%	4%	3.8% - 5.9%	5.80%	181bps ▼

Source: CAR 2014 Determination

- 8.1 We propose to allow a 4% return on capital. This is 181 basis points (bps) lower than the rate allowed in 2014, but near the top of the range of estimates which we consider reasonable for today. The lower rate reflects current empirical evidence, rather than a change in the methodology.
- 8.2 We commissioned Swiss Economics to assess Dublin Airport’s cost of capital. This is timely as we last conducted an external review of the cost of capital in 2005. In this Draft Determination we use the cost of capital estimated in that report, which is published alongside.
- 8.3 In 2016, the European Commission’s Thessaloniki Forum of Airport Charges Regulators, published a set of recommendations on how to estimate the cost of capital for an airport.⁶ We are guided by those recommendations.
- 8.4 As in previous determinations, we estimate the return on capital rate using a weighted average cost of capital (WACC). This methodology separately estimates the cost of equity and the cost of debt and gives them each a weighting using the estimated efficient level of gearing. The cost of equity is calculated using the capital asset pricing model (CAPM). This methodology was used in all previous determinations and is recommended by the Thessaloniki Forum.
- 8.5 There is one key difference compared to 2014. The total market return is estimated and then divided into the risk-free rate and the equity risk premium, instead of estimating the equity risk premium individually. This approach is used because the total market returns and the risk-free rate are more readily observable than the equity risk premium. Also, the total market risk is a more stable parameter than the risk-free rate.
- 8.6 In this section we summarise the methodology and results for each component of the WACC-CAPM model; full details of the analysis are in the Swiss Economics report. We also discuss submissions received from stakeholders on cost of capital and issues raised in responses to our Issues Paper.

⁶ https://www.aviationreg.ie/_fileupload/ACD/Thessaloniki%20Forum%20WACC%20Dec%202016.pdf

WACC Components

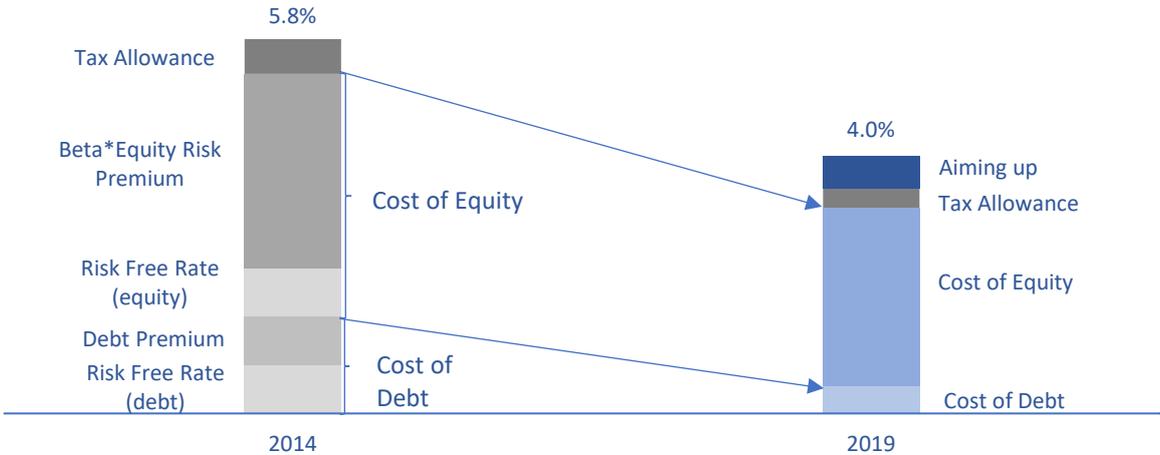
Table 8.2: WACC Components

	2019		2014		Difference
	Range	Estimate	Range	Estimate	
Gearing	45% - 55%	50%	50% - 60%	50%	-
Tax rate	-	12.50%	-	12.50%	-
Risk Free Rate	-0.72% - 0.45%	-0.14%	0.0% - 2.0%	1.50%	164bps ▼
Total Market Returns	6.05% - 6.80%	6.43%	4.5% - 7.0%	6.50%	7bps ▼
Equity Risk Premium	6.19% - 6.94%	6.56%	4.5% - 5.0%	5.00%	156bps ▲
Asset Beta	0.43 - 0.46	0.45	0.5 - 0.6	0.60	0.15 ▼
Equity Beta	0.81 - 0.86	0.84	1.0 - 1.5	1.20	0.36 ▼
Cost of equity	4.75% - 5.94%	5.38%	5.1%-10.3%	8.60%	322bps ▼
Cost of debt	0.65% - 1.04%	0.85%	2.5% - 3.0%	3.00%	215bps ▼
Pre-tax WACC (before aiming up)	2.80% - 4.20%	3.49%	-	-	-
Aiming up		0.50%	-	-	50bps ▲ -
Pre-tax WACC	2.80% - 4.20%	4%	3.8% - 5.9%	5.80%	181bps ▼

Source: CAR 2014 Determination

- 8.7 Ranges are estimated for each of the components, as shown in Table 8.2. To arrive at the cost of capital of 4%, the midpoint estimates for each component is used and an aiming up allowance of 0.5% is added to the result. In 2014, we did not use an explicit aiming up allowance, however we did choose values at the top (or near the top) of each range. The 2014 approach of using top of ranges would yield similar results to our current estimate, given our proposed range and aiming up allowance. The explicit aiming up has the advantage of being transparent and quantifiable.
- 8.8 Chart 8.1 shows that our cost of capital is lower than the rate in 2014 due to lower estimates of the risk-free rate (government bond yields), cost of new debt (corporate bond yields) and the equity beta for Dublin Airport. The gearing of 50% and tax rate of 12.5% remain the same.

Chart 8.1: 2019 vs 2014 WACC



Source: CAR 2014 Determination

8.9 Each component of the WACC is assessed based on quantitative and qualitative evidence, taking account of economic theory and regulatory practice. The sources of evidence used include financial economics and corporate finance theory; empirical results from academic studies; market data of government and corporate bond yields, stock returns, and central bank interest rates; and regulatory precedent in Ireland and Europe.

Cost of Equity

8.10 We estimate the cost of equity to be 5.38%. This is 322 basis points lower than the 8.6% cost of equity that we allowed in 2014. This reduction is for two reasons:

- First, we allow a real risk-free rate of -0.14% which is 164 basis points lower than the 1.5% we allowed in 2014.
- Second, we allow an equity beta of 0.84 compared to the 1.2 allowed in 2014.
- The overall reduction, 322 basis points, is despite allowing a higher equity risk premium of 6.56%, which is 156 basis points higher than the 5% we allowed in 2014.

8.11 We discuss our decision on each component below.

Risk Free Rate

8.12 We allow a real risk-free rate of -0.14%. The rate reflects current evidence from 10-year Irish and German government bond yields and market expectations on future yields and inflation. The methodology applied is the same as in 2014, but it yields a lower risk-free rate because German government bond yields have dropped. In 2014, we concluded that the market conditions could be cited to support risk-free rate values around zero.

8.13 The allowed rate of -0.14% is in line with current thinking of UK regulators for upcoming decisions. For example, a 2019 working paper of the CAA shows a current thinking of a risk-free rate for Heathrow Airport ranging from -1.5% to -1%.⁷ The analysis recognises that this range is significantly below other recent regulatory decisions, but argues that consistency in how WACC components are calculated (i.e. in line with current market observations) is more important than consistency with precedent in relation to the actual number.^{8 9} Ofwat also adopted an early view of a real risk free rate ranging from -1.27% to -0.48% for the cost of capital for the next regulatory period 2020-2025.¹⁰

8.14 The methodology for the estimation of the risk-free rate is in line with two recommendations of the Thessaloniki Forum of Airport Charges Regulators. First, the Forum recommends using bonds issued by the country where the airport is located. The estimated risk-free rate reflects evidence from Irish and German bonds. German bonds were also used because they are perceived to be lower risk and daa is not limited to raising funds in Ireland. For example, much of its existing debt was raised through the European Investment Bank and by issuing Eurobonds. The use of 10-year Irish and German government bonds is also consistent with our

⁷ publicapps.caa.co.uk/docs/33/CAP1762%20Update%20on%20cost%20of%20capital%20for%20RP3%20and%20H7.pdf

⁸ publicapps.caa.co.uk/docs/33/PwC_H7InitialWACCrange.pdf

⁹ Irish regulators chose upper range risk free rate estimates based on UK and Irish regulatory precedent, or longer-term government bond yields rather than based on current yields at the time. Swiss Economics, cost of capital draft report, page 26.

¹⁰ ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-12-Risk-and-return-CLEAN-12.12.2017-002.pdf

2014 Determination and with other Irish regulatory precedent.¹¹

- 8.15 Second, the Forum recommends taking account of expectations for the regulated period and not only based on a reference year. The underlying risk-free rate range has an uplift of between 47 to 66 basis points based on market expectations on future yields. Expected yields were estimated from forward rates of Euro area government bonds and changes in monetary policy in the European and UK Central Banks.

Equity Beta

- 8.16 We use an equity beta for Dublin Airport of 0.84, which is directly derived from the asset beta discussed below. This equity beta estimate is consistent with the Thessaloniki Forum recommendation that airport betas should be lower than 1. The Forum states that the commercial and traffic risk of airports are strongly mitigated by a resilient air transport demand and a low level of competition.¹²
- 8.17 Our 2014 estimate of 1.2 for the equity beta was higher than the recommendation of the Forum. Also, in 2014, we did not adjust the equity beta for the tax benefit of debt. The current methodology adjusts for this. In 2014, we would have obtained a lower equity beta of 1.1, if we had adjusted it.¹³

Asset Beta

- 8.18 The 0.84 equity beta is calculated from a weighted asset beta estimate of 0.45. This compares to the 1.2 equity beta used in 2014 which results from a top of the range asset beta estimate of 0.6.
- 8.19 The asset beta was estimated using evidence from market data for nine stock market listed airports and regulatory decisions for two airports.
- 8.20 The evidence from these airports is weighted based on similarities to Dublin Airport in terms of regulatory environment, demand and business structures. This methodology is in line with the Thessaloniki Forum recommendations that suggest assessing the level of risk according to the airport size, the existence of traffic volume risk and the type of regulation.
- 8.21 The allowed asset beta of 0.45 is lower than the asset betas in previous determinations (0.5 in 2001, 0.61 in 2005 and 2009 and 0.6 in 2014). In 2014, we estimated an asset beta range between 0.5 and 0.6 based on regulatory precedent and using market data (we chose the top of the range, 0.6).
- 8.22 A change is justified by the market evidence but we also note that previous asset betas were estimated for an airport operator that has significantly changed over time. In 2001, the asset beta was calculated for the operator of Dublin, Cork and Shannon (Aer Rianta). In 2005 and 2009, the asset beta was calculated for the Dublin Airport Authority, formed in 2004, and which no longer included Shannon. Since 2014, we calculate the cost of capital for a notional

¹¹ www.cru.ie/wp-content/uploads/2017/06/CER17260-PC4-CER-Transmission-Decision-Paper.pdf
www.cru.ie/wp-content/uploads/2016/07/CER16342-CER-Decision-on-Irish-Water-Revenue-for-2017-2018-4.pdf
www.cru.ie/wp-content/uploads/2015/07/CER15296-Decision-on-TSO-and-TAO-Transmission-Revenue-for-2016-to-2020-1.pdf
www.comreg.ie/media/dlm_uploads/2015/12/ComReg14136.pdf

¹² www.aviationreg.ie/_fileupload/ACD/Thessaloniki%20Forum%20WACC%20Dec%202016.pdf

¹³ The formula used in 2014 was $\text{Beta equity} = \text{Beta asset} \times 1 + \text{Debt} / \text{Equity}$. The formula used now is $\text{Beta equity} = \text{Beta asset} \times 1 + \text{Debt} / \text{Equity} \times (1 - \text{Tax rate})$.

Dublin Airport only entity.

- 8.23 Also, previous asset betas were estimated using a more limited set of comparator airports. In 2001 and 2005, the comparator was the British Airports Authority (BAA), former UK operator of airports. In 2009, we used the asset betas set by the UK Competition Commission for Heathrow (0.47), Gatwick (0.52) and Stansted (0.61). In 2014, we used stock market data of 10 listed comparator airports. However, the market data in 2014 indicated a wide range of asset betas from 0.1 to 0.6.
- 8.24 We reassess the risk of Dublin Airport relative to the updated set of comparator airports. In 2014, we concluded that there was not a compelling reason to revise the asset beta of 2009 (0.61) because there was no change in business risk. At present, we conclude that the following factors reflect a reduction in the business risk of Dublin Airport compared to previous periods.
- 8.25 First, since 2016, the regulatory framework has become more flexible for Dublin Airport due to the new process for consideration of supplementary capex allowances. The 2019 S&P credit rating update for Dublin Airport acknowledges that the *“regulator has so far been supportive of DAA’s investments, as demonstrated by its approval in late 2017 for the compensation of almost €268 million supplementary capex for improvement projects.”*
- 8.26 Second, during this period, the demand structure of Dublin Airport has become more resilient and, therefore, less risky. Below are some of the reasons:
- The Irish economy is perceived as less risky than in previous periods. The credit rating of Ireland has recovered from BBB+ stable (Fitch) in 2012 to A+ stable (Fitch) in 2017.
 - In this regulatory period alone, passengers will have grown 10.3m, from 21.7m in 2014 to 31.5m in 2018. This compares to a growth during the first three regulatory periods of 7.6m.
 - The airport is now more diversified, with 46 scheduled airlines in 2018 (compared to 29 in 2014) and a wider range of passengers and routes than in previous periods, including to North America, Africa and the Middle East.
 - The 2016 Review of the Regulatory Regime for Airport Charges in Ireland found that the market power of Dublin Airport has steadily increased between 2005 and 2014.¹⁴ This is shown using concentration measures for market shares.

Equity Risk Premium

- 8.27 There are two approaches that can be used when estimating the equity risk premium. First, the equity risk premium can be individually estimated. This is the approach we followed in 2014. Second, the total market return may be estimated and then split into the risk-free rate and the equity risk premium. This is the approach we now follow.
- 8.28 The second approach is used because the total market returns and the risk-free rate are more readily observable than the equity risk premium. Also, the total market risk is a more stable parameter than the risk-free rate. Total market returns were estimated from long-term average data of Ireland and Europe.
- 8.29 We allow an equity risk premium of 6.56%, which is higher than the 2014 estimate of 5%. This estimate is derived from a total market returns estimate of 6.43% which is very close to our

¹⁴dtas.ie/sites/default/files/publications/aviation/english/review-regulatory-regime-airport-charges-ireland/review-regulatory-regime-airport-charges-indecon-economic-consultants.pdf

2014 implicit estimate of 6.5%. The difference is due to the lower allowed risk-free rate.

- 8.30 Our methodology follows recent regulatory precedent. An example of recent regulatory precedent in Ireland is the WACC decision of the CRU for Gas Networks Ireland (GNI) from October 2017.¹⁵ In that decision, the CRU referred to regulatory practice in the UK (particularly Ofgem) to justify this methodology.
- 8.31 The majority of past Irish WACC decisions are based on our 2014 approach and rarely report an explicit value for total market returns. However, as shown in the cost of capital report, our estimated total market return is very close to the values implied in Irish precedent.
- 8.32 Our approach is also in line with three recommendations of the Thessaloniki Forum. First, the total market returns were estimated using a reference study (Dimson, Marsh, and Staunton).¹⁶ Second, the study uses historical data over a substantial period, specifically from 1900 to the present. Third, the total market returns were cross checked using forward looking estimates.

Cost of Debt

- 8.33 We allow a real cost of debt for Dublin Airport of 0.85%. It is 214 basis points below our 2014 estimate of 3%, which was at the top of our range at that time. Our cost of debt is also lower than other recent Irish precedents. For example, the CRU allowed a cost of debt of 3% in 2016 and 2.5% in 2017. In 2017, the CRU chose the upper end of its cost of debt range which “takes account of recent precedent from the CER and other regulators” rather than the lower range of 1% that was based on “current market evidence” at the time.¹⁷
- 8.34 We allow for costs of embedded debt and new debt at an investment grade credit rating, as well as for transaction costs, costs of raising debt and a small premium for the observed difference between Irish and European bonds. In 2014, we also estimated the cost of debt for investment grade rating, but we did not consider embedded debt and did not make explicit allowances for transaction or other costs or premia. However, we chose the top of the range value of the cost of debt.
- 8.35 The substantial decrease in our estimate is justified by the observed decrease in the cost of new and embedded debt. In 2014, we also observed a trend of decreasing cost of debt of 100 basis points compared to the 2009 level. In 2014, we also cited lower borrowing costs in the market.
- 8.36 Our methodology for estimating the cost of debt is in line with the Thessaloniki Forum recommendations. The Forum states that acceptable practices include reviewing observable market rates for new debt and reviewing the actual debt portfolio of the airport and its refinancing opportunities for embedded debt.
- 8.37 The cost of debt allowed assumes that 67% of the cost corresponds to embedded debt and 33% to new debt. The weights are based on a debt structure that is achievable in the next period. Embedded debt is assumed to decrease from 2020 to 2024 because loans will mature, and the expiring debt must be replaced with new debt. In addition, projected investment of over €2bn, including the CIP and the North Runway, will result in a significant funding requirement in the next period.

¹⁵ www.cru.ie/wp-content/uploads/2017/06/CER17260-PC4-CER-Transmission-Decision-Paper.pdf

¹⁶ Annual Credit Suisse Global Investment Returns Yearbook by Dimson, Marsh, and Staunton (2018)

¹⁷ www.cru.ie/wp-content/uploads/2017/06/CER17260-PC4-CER-Transmission-Decision-Paper.pdf

Cost of Embedded Debt

- 8.38 We allow a real cost of embedded debt of 0.02%, based on current interest payments by Dublin Airport and adjusted for expected changes in future payments for floating debt. In 2014, we did not estimate the cost of embedded debt. The cost of embedded debt may contain inefficiencies. However, the corollary is that the allowed cost of debt should be an efficiency target that is achievable within the regulatory period and so should include embedded debt.

Cost of New Debt

- 8.39 We allow a real cost of new debt of 0.6%. It is estimated based on bond yields of comparator airports, a forward adjustment and a premium between bond yields of Irish and European utility companies. Evidence in our cost of capital report shows a spread between daa bonds and other airport bonds. The premium between Irish and European utility companies was estimated to reflect the systematic part of the spread, such as macroeconomic risks, rather than a spread due to factors within the control of Dublin Airport, such as the Airport's management.

Transaction costs

- 8.40 We allow an uplift for transaction costs ranging between 50 and 60 basis points. These include issuance costs for new debt and maintenance costs for existing debt. UK regulators have regularly added upticks for these costs. For example, the CAA have included an uptick of 15 to 20 basis points for London Heathrow Airport and London Gatwick Airport for the current price control. In 2014, Comreg added an uptick of 25 basis points.

Investment Grade Credit Rating

- 8.41 We allow for an uptick ranging between 5 and 12 basis points for a cost of debt equivalent to a "BBB" credit rating. The allowed rate of cost of capital should be consistent with our approach to the financial viability of Dublin Airport. The allowed cost of capital should enable the airport to raise debt at any investment grade rating. In 2014, we also used cost of debt rates corresponding to a BBB rating.

Gearing

- 8.42 The weighting of the cost of debt and cost of equity is based on a notional capital structure of 50%. The gearing assumption we use is the same as in 2014.
- 8.43 The Thessaloniki Forum recommends a notional gearing. Other airport regulators have typically chosen values for the notional gearing ratio between 50% and 60%. Examples are Fraport, Aeroporti di Roma, Heathrow and Gatwick.¹⁸

Aiming up

- 8.44 Our pre-tax WACC of 4% includes an aiming up allowance of 0.5% to avoid the long-term consequences of under-estimating the true cost of capital. Over-estimating the true cost of capital leads to excessive airport charges, which harms passengers in the short term. However, an allowed cost of capital that is too low may lead, for example, to insufficient investment capability, which harms passengers in a more substantial long-term way.

¹⁸ www.enac.gov.it/sites/default/files/allegati/2018-Lug/Allegato_23_signed_signed.pdf (Italian)
publicapps.caa.co.uk/docs/33/CAP1155.pdf

8.45 The argument for aiming-up is stronger ahead of new investment plans. According to the UK Regulators Network, the WACC on new investments should be set above the 90th percentile of the range.¹⁹ The investment plans of Dublin Airport over the next years are in excess of €2bn, higher than its current RAB. The Capital Investment Programme 2020+ comprises of capacity projects that will enable growth in passenger numbers to 40m per annum.

Submissions on the Cost of Capital

8.46 Since the publication of the Issues Paper, we have engaged with stakeholders on multiple occasions in relation to the methodology and estimation results of the cost of capital. We held meetings with, and/or received written submissions from, Aer Lingus, Dublin Airport and Ryanair to discuss the methodology and initial estimates. Below we summarise the stakeholder views in relation to each WACC component.

WACC Components

Table 8.3: Our Proposed WACC Ranges and Estimates vs Submissions by Stakeholders

	Commission		Dublin Airport	Ryanair		Difference
	Range	Estimate	Range	Range	Estimate	
Gearing	45% - 55%	50%	40% - 50%	50%	50%	-
Risk Free Rate	-0.72% - 0.45%	-0.14%	0.0% - 2.0%	0.0% - 1.3%	1.0%	114bps ▲
Total Market Returns	6.05% - 6.80%	6.43%	6.6% - 7.0%	6.8% - 5.0%	6.0%	43bps ▼
Equity Risk Premium	6.19% - 6.94%	6.56%	6.6% - 5.0%	5.0% - 5.5%	5.0%	156bps ▼
Asset Beta	0.43 - 0.46	0.45	0.6	0.5 - 0.6	0.5	0.05 ▲
Equity Beta	0.81 - 0.86	0.84	1.2	0.9 - 1.0	0.9	0.06 ▲
Cost of equity	4.75% - 5.94%	5.38%	7.5% - 9.1%	6.2% - 7.9%	6.5%	112bps ▲
Cost of debt	0.65% - 1.04%	0.85%	1.2% - 3.3%	1.5% - 2.0%	1.6%	75bps ▲
Pre-tax WACC (pre aiming up)	2.80% - 4.20%	3.49%	-	-	-	-
Aiming up		0.50%	-	-	-	-
Pre-tax WACC	2.80% - 4.20%	4%	5.0% - 6.2%	3.6% - 5.0%	4.1%	11bps ▲

Source: CAR

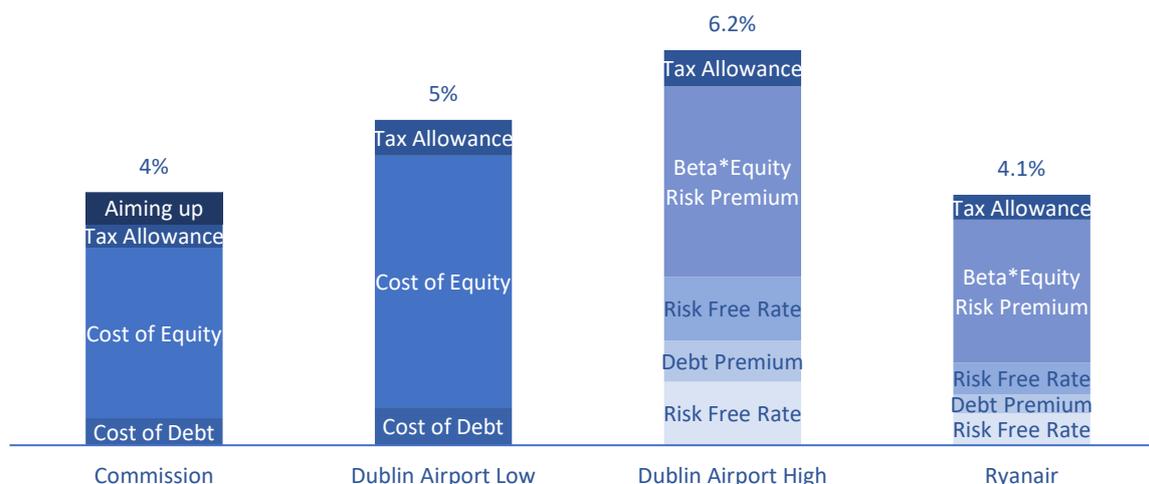
Note: Ryanair conducted its assessment in January 2018.

8.47 Aer Lingus supports a cost of capital estimate at the lower end of our range. A report commissioned by Dublin Airport suggests 6.2%, which is the top end of its range. Based on evidence up to January 2018, Ryanair advises a range that overlaps with our range and arrives to an estimate of 4.1%, which is very close to our proposed rate of 4%.

8.48 Chart 8.2 shows the difference between our proposed estimates and those of stakeholders. The main difference between estimates can be explained by the estimates of the risk-free rate and asset/equity betas.

¹⁹ www.ukrn.org.uk/wp-content/uploads/2018/11/2018-CoE-Study.pdf

Chart 8.2: Our Proposed WACC Estimates (weighted by gearing) vs Submissions by Stakeholders



Source: CAR

Risk-Free Rate

- 8.49 Aer Lingus does not propose an estimate but notes that the risk-free rate has significantly reduced since 2014.
- 8.50 The report commissioned by Dublin Airport supports a lower bound of 0.0% based on forward-looking European government yields and an upper bound of 2% based on the long-run historical average and Irish regulatory precedents.
- 8.51 Ryanair suggests a lower and narrower range but with a point estimate of 1%, near the top of its range. This is based on evidence available up to January 2018. Ryanair also provided the latest available data up to February 2019.²⁰ Ryanair shows that, during this period, the nominal yields have dropped from 1.1% to 0.8% for Irish bonds and from 0.47% to 0.1% for German bonds. Currently, real yields are lower than nominal yields.

Commission Response

- 8.52 Our allowed risk-free rate is supported by recent market evidence and expected trends. The higher ranges are not supported by the observed negative real yields of government bonds, nor the real AAA-rated Euro area forward rates.
- 8.53 The upper value of the range (2%) proposed by Dublin Airport is based on long term historic data and regulatory precedent. In our view, these sources overlook the recent market evolution towards negative real rates and the continued expectation of negative yields in the medium term.

Asset Beta

- 8.54 Aer Lingus does not estimate betas but supports a lower value because of the move to transfer/Hub infrastructure and the improved financial stability of the two largest airlines (Aer Lingus and Ryanair).

²⁰ OECD (2019), Long-term interest rates (indicator). doi: 10.1787/662d712c-en (Accessed by Ryanair on 11 April 2019)

8.55 The report commissioned by Dublin Airport supports a point estimate for the asset beta of 0.6. The report found evidence of higher betas as the global economy recovers from the financial crisis that led to lower betas for airports. In assessing its business risk relative to the comparators, the report states that:

- it faces demand risk over a five-year regulatory period, with no recourse to demand risk mitigating measures within period.
- its investors may face higher risk due to its relative smaller size and higher share of low-cost carriers (over 50% of total passengers).
- a higher capex increases the cost fixity of business and accentuates negative revenue shocks and the volatility of returns. The airport indicates that European regulators have allowed uplifts to the beta of around 10% to 30%. The airport calculates that the uplift for an asset beta of 0.6 ranges from 0.06 to 0.18.
- there are downside risks posed by Brexit. However, the airport also acknowledges that there is material uncertainty about how Brexit may affect demand over the next regulatory period.

8.56 Ryanair indicates that a similar asset beta of 0.43 was estimated for Heathrow airport in November 2017.²¹ It adds that, from peer airports, Copenhagen, Zurich and Vienna are the best comparators to Dublin due to the similar size and location.

Commission Response

8.57 Our cost of capital report found evidence of lower asset beta estimates for all the listed airports compared to Dublin Airport’s assessment. Table 8.4 compares the results in our report and those found in the report of Dublin Airport. Our analysis does not support a consistent increase in beta in recent years.

Table 8.4: Comparison of asset beta estimates

Exchange-listed airports	2-year		5-year		Credit Rating
	CAR daily	Dublin Airport daily	CAR weekly	Dublin Airport daily	
Aena (Spain)	0.44	0.59	0.36	n/a	A3, Moody’s, 2018 A- (S&P equivalent)
Paris	0.51	0.55	0.41	0.51	Aa1, Moody’s, 2018 AA+ (S&P equivalent)
Auckland	0.51	1.02	0.58	0.95	A-, S&P, 2018
Copenhagen	0.06	0.27	0.13	0.29	Baa2, Moody’s, 2019 BBB (S&P equivalent)
Fraport (Frankfurt)	0.4	0.53	0.36	0.44	Not rated
Sydney	0.43	0.53	0.3	0.45	BBB+, S&P, 2018
TAV (Turkey)	0.49	n/a	0.45	n/a	
Vienna	0.35	0.37	0.27	0.21	
Zurich	0.63	0.88	0.54	0.54	AA-, S&P, 2018
Average	0.42	0.59	0.38	0.49	

Source: Swiss Economics and NERA Cost of Capital Reports.

8.58 We found no compelling evidence of increased business risk compared to the sample of listed

²¹ https://publicapps.caa.co.uk/docs/33/PwC_H7InitialWACCrange.pdf

airports.

- The current credit rating of Dublin Airport (A-) is within the range of credit ratings of listed airports and does not support a higher business risk.
- Dublin Airport is willing to assume the demand risk within regulatory periods. The airport is the best placed to manage this risk.
- Passenger numbers at Dublin Airport have grown rapidly in recent years, thus reducing the “smaller airport” risk premium.
- The business risk from a higher share of leisure or low-cost carrier passengers may be relevant for airports with a lower degree of market power. As indicated in paragraph 8.26, the market power of Dublin Airport has steadily increased between 2005-2014.

8.59 In relation to the risk caused by cost fixity, Dublin Airport can, for example, adjust its Capital Investment Programme according to the outturn level of traffic growth within a regulatory period.

8.60 Peer airports are investing comparable or larger amounts in capital projects. Therefore, their estimated asset betas should already include the business risk perceived by the market from the large amount of investments. Examples are:

- 2017-2021 plan of Aena (€2.8 bn in Madrid, Barcelona and Girona Airports) ²²
- 2016-2020 plan of Aeroports de Paris (€3bn) ²³
- plan by 2022 of Auckland airport (€1.1bn) ²⁴
- plan of Copenhagen airport (€2.6bn) ²⁵

Cost of Debt

8.61 Dublin Airport estimates a range for the cost of debt from 1.2% to 3.3% that comes from:

- Its estimated risk-free rate range (0.0% to 2.0%)
- A point estimate for the debt premium of 1% based on the yield spread of comparable Irish corporate bonds (daa, Ryanair and ESB) over a German government bond, matching the years-to-maturity. The airport does not give a range for the debt premium.
- A debt issuance cost allowance of 20 to 30 basis points.

8.62 Dublin Airport states that the expected step-up in capital investment and associated debt funding will put upward pressure on financing costs.

8.63 Ryanair suggests a range for the cost of debt from 1.5% to 2.0% and an estimate of 1.6% at the lower end of the range. This estimate is based on data up to January 2018. Ryanair cites the regulatory precedent of 1.63% allowed by the Northern Ireland Utility Regulator in 2017.²⁶

²²www.aena.es/en/corporate/aena-presents-strategic-plan-2018-2021-designed-consolidate---strong-growth-drive-new-value-generating-lines-business.html?p=1237548067436

²³www.parisaeroport.fr/docs/default-source/groupe-fichiers/presse/dossier-de-presse/press-kit-connect-2020.pdf?sfvrsn=4b930fbd_4

²⁴corporate.aucklandairport.co.nz/airport-of-the-future/building-the-future

²⁵www.cph.dk/en/about-cph/press/news/2018/8/expansion-work-and-new-routes-make-their-mark-on-first-half-for-copenhagen-airport

²⁶www.uregni.gov.uk/sites/uregni/files/media-files/2017-07-04%20RP6%20FD%20Main%20Report%20%28002%29.pdf

- 8.64 Ryanair adds that, in many cases, the cost of debt for European companies follows the European Central Bank (ECB) base rates with a margin. Ryanair provided more recent evidence that the annual average ECB base rates have been below the 2014 level of 0.52% and have further dropped significantly to 0.25% in the first quarter of 2019. Ryanair also provides evidence that real bonds yields of 10 airports issued in 2017 and 2018 range from -1.3% to 0.9%.

Commission Response

- 8.65 Our proposed cost of debt of 1.35%, after aiming up, is similar but slightly lower than the Ryanair estimate of 1.6%.
- 8.66 Dublin Airport estimates its debt premium based on German government bonds. For consistency, Dublin airport should add its debt premium of 1% to its risk-free rate estimate based on German government bonds, which is towards the lower end of its range.

Aiming up

- 8.67 Aer Lingus states that prudent adjustments have already been applied to the WACC and a significant aiming up is unnecessary. It suggests that if further aiming up is required, the lower end of the range should be used as the pre aiming up base. Aer Lingus states that transparency is required in aiming up and pre aiming up adjustments go against the logic to focus on market data.
- 8.68 The report commissioned by Dublin Airport does not recommend an explicit aiming up, but it recommends its top of the range estimate of cost of capital of 6.2%.

Commission Response

- 8.69 Our aiming up adjustment is explicit, making it transparent and quantifiable, and in the interests of airport users as outlined above.

WACC level and level of Funding and Investment

- 8.70 Dublin Airport expects to require significant funding to deliver the next proposed capital investment programme. The airport also indicated that the shareholder expectation is for dividend payments over the next regulatory period. Dublin Airport states that it will not be able to deliver the capital programme in the absence of a cost of capital that adequately compensates investors.
- 8.71 Newer evidence provided by Ryanair in March 2019 shows that despite the drop in the WACC of Schiphol airport to 2.2% in 2017, investments made by Schiphol Group have grown, peaking in 2017 at nearly €500m. Ryanair states that this is empirical evidence that a fall in the cost of capital does not affect an airport's willingness to invest.
- 8.72 The 2019 evidence of Ryanair also shows that despite the lower cost of capital, Schiphol Group has raised around €1.2bn over the period (currently around 50% of Schiphol Group's total borrowings).

Commission Response

- 8.73 Our 4% WACC is an adequate compensation to investors given the current and expected market costs of debt and equity. Our price cap proposal enables the financial viability of the airport. This is discussed in more detail in Section 10.

What can change from the Draft to the Determination

8.74 In addition to our considerations of representations from stakeholders, the allowed rate of the cost of capital may change between the Draft and Final Determination due to market developments, in particular:

- the risk-free rate (Irish and German Government bond yields); and
- the cost of debt (Irish and European corporate bond yields).

9. Capital Costs

Summary Table 9.1: Capital Cost Allowances

	2019	2020	2021	2022	2023	2024
Return on Capital, (€m)	88.9	82.7	93.8	104.1	114.2	124.0
Return of Capital, (€m)	87.1	92.1	103.9	116.5	131.1	146.2
Return of Capital (extra depreciation) (€m)		14.9	41.1	33.5	25.6	17.9
Total, (€m)	176.0	189.6	238.9	254.2	270.9	288.0
Per passenger, (€)		5.65	6.90	7.13	7.38	7.62

- 9.1 Our proposed capital cost allowance is higher than in the last period. Capital costs increase from €176m in 2019 to €189.6m in 2020 and continue to increase up to €288m by 2024 (Table 9.1). This includes the financial viability adjustment we make, bringing forward depreciation of €133m. This adjustment is shown in the Table 9.1 but discussed in Section 10.
- 9.2 There are two main drivers of the change in capital costs, which cause capital costs to move in opposite directions. First, the lower cost of capital, discussed in Section 8, drives the return on capital down for a given Regulatory Asset Base (RAB). Second, the RAB will increase substantially in the period, driving capital costs up. The opening RAB in 2015 was €1624.6m. The opening RAB in 2020 will be €1,756m. The RAB will continue to increase across the period, reaching €3,088 by the end of 2024. This is driven by:
- A capital investment programme for the period 2020-2024 of €2bn, including PACE.
 - Remuneration commencing for T2 'Box 2', adding €193.5m.
 - An allowance for a supplementary capital investment programme, PACE, which we set in 2018.
- 9.3 This section assesses, in turn:
- RAB Roll Forward;
 - Reconciling 2015-2019 Capital allowances and;
 - 2020-2024 Capital allowances.
- 9.4 Finally, it considers submissions received in response to the Issues Paper in relation to capex.

RAB Roll Forward

Opening RAB 2015 – Summary

- 9.5 The 2020 opening RAB is €1756.2m. This compares to an opening RAB in 2015 of €1624.6m.

Table 9.2: Deriving the 2020 Opening RAB

RAB Summary Table	€m	€m
Opening RAB 2015	1624.6	
2015-2019 Capex		343.0
Standard Regulatory Depreciation		-340.9
Accelerated Regulatory Depreciation		-84.4
2015 Till Exit- Dublin Airport City		-48.1
T2 Box 2		193.5
North Runway Trigger		25.2
Pier 2 Segregation Trigger		16.8
PACE Projects		27.8
Interest Adjustment for deliverables		-2.9
2014 Outturn Spending Adjustment		7.3
2015-2019 Outturn Spending Adjustment		-21.1
Opening RAB 2020	1756.2	

Source: CAR

- 9.6 Between 2015 and 2019 we allowed additional depreciation of €84.4 over the normal depreciation profile of €340.9m. This means that the opening RAB is lower than it would otherwise have been.
- 9.7 The opening RAB includes expenditure against the allowances set in 2014 for the period 2015-2019. However, the amount allowed is €21.1m less than Dublin Airport's outturn expenditure, as Dublin Airport exceeded the allowances we set.
- 9.8 It also includes some of the PACE allowances. Most of the PACE projects are not yet complete, therefore we add them to the capital allowances for 2020-2024 rather than to the opening RAB. Two projects will not be remunerated, a total of €27.2m.
- 9.9 Two triggers set for the last period, namely the North Runway trigger Milestone 1 (M1) and the Pier 2 segregation trigger, are included, as the trigger events were reached.
- 9.10 Outside of allowed capex in the period, we have also added €193.5m to the opening RAB for T2 Box 2.
- 9.11 The RAB is reduced by €48.1m to complete the exit of lands associated with Dublin Airport City from the till. This amount is based on a valuation we conducted in 2014 and a policy paper published at that time.²⁷

Reconciling 2014 Expenditure

- 9.12 In 2014, we used Dublin Airport's forecast for 2014 expenditure. The outturn was €7.3m less than the forecast, so the RAB is adjusted by this amount.
- 9.13 In 2014, Dublin Airport forecast it would complete a number of deliverable projects, but these could not be confirmed at the time of the 2014 Final Determination. The outputs of some of these projects are not exactly as intended, we will investigate between now and the final

²⁷ [www.aviationreg.ie/ fileupload/2014-12-10%20CP3%20Dublin%20Airport%20City%20valuation%20and%20till%20exit.pdf](http://www.aviationreg.ie/fileupload/2014-12-10%20CP3%20Dublin%20Airport%20City%20valuation%20and%20till%20exit.pdf)

determination if the outcomes are as intended. For now, we consider these delivered.

Table 9.3: Outstanding Deliverables from 2014

	Delivered (y/n)	Cost (€m)
Airside/ Landside Perimeter Fence	Y*	2.0
Central Apron Reconstruction	Y	14.9
Apron Road Reconstruction	Y	7.7
Airfield Pollution Control	Y*	3.1
Airfield Drainage Upgrade	Y*	23.2

Source: Dublin Airport. *Need further investigation.

Remuneration of Terminal 2 – Box 2

- 9.14 When the allowance for T2 was set in 2007, remuneration of 27% of the capex was deferred until passenger numbers reached 33m. We forecast that this level of passenger traffic will be reached in 2020 and therefore we have added €193.5m to the opening RAB. In the Final Determination, the price cap formula will include a trigger to remove this, should 33m passengers not be reached. Once this is added to the RAB, it will remain in the RAB until fully depreciated, even if passenger numbers subsequently dip below 33m.
- 9.15 The sum includes 27% of 50% of the overspend on the allowance, in line with the 50/50 risk sharing mechanism set out in the 2014 Determination. It also includes return on capital accrued from 2010 (the opening of Terminal 2) to 2018.
- 9.16 We have set a depreciation profile for T2 Box 2 aligned with the remaining asset life of the terminal, i.e. 32 years.

Reconciling 2015-2019 Capital Allowances

- 9.17 In 2014, we set capital allowances across six categories and also set a number of trigger projects. At that time, we set out two broad approaches for reconciling expenditure against the allowances. For trigger projects, we set a 50/50 risk sharing mechanism. For other projects, we grouped the allowances and provided a varying degree of flexibility within the group. Expenditure within a group could be reallocated between projects, or to new projects not initially envisaged but which would fall under the same group heading, provided that the total expenditure in the group did not exceed the allowance. Where a Deliverable is not delivered, the group allowance is revised down by the corresponding amount.

Adjusting the Allowances

- 9.18 In the 2014 Determination we laid out a clear process for Dublin Airport to follow, should the allowances be insufficient. In paragraph 7.74 of the 2014 Determination we stated, “if DAA envisages going over an allowance on a particular group it should consult with users. If users agree to that overspend then in 2019 when reconciling spending, we would increase the allowance by the amount of the consultation. For a consultation to result in an increased allowance it must have unanimous support of users.”²⁸
- 9.19 In 2016, we set out a process to allow for supplementary capital expenditure within the

²⁸ www.aviationreg.ie/fileupload/2014final/2014%20Final%20Determination.pdf

regulatory period.²⁹ In 2018, Dublin Airport made use of this process, resulting in a supplementary allowance of €269.3m for 23 additional business development projects (known as PACE).

- 9.20 Expenditure in some of the other groupings has exceeded the allowances set. Dublin Airport has laid out reasons behind the overspends. However, given that there were two mechanisms open to it which it did not avail of, we do not intend to make any retrospective adjustments to the allowances set. This expenditure was not consulted on by Dublin Airport. It was within the control of Dublin Airport to carry out a consultation on this expenditure.
- 9.21 The corollary of providing flexible allowances to be reconciled at group level is that project-by-project overspends cannot be compared directly to the group allowance, unless all elements of each project which made up that group allowance have been delivered. Dublin Airport has made use of flexibility to not deliver elements of certain projects. Examples of works which were given a flexible allowance in 2014, not proceeded with, and now scoped within CIP2020+ projects relate to phase 3B of the T1 roof repairs project, runway 10/28 approach lighting and masts, and more significant works in relation to replacing the HVAC (Heating, Ventilation and Air Conditioning) system in the Pier 3 services core.
- 9.22 Under the 2014 Determination, overspends can only occur at a group level. At a project level, overspends must instead be viewed as making use of flexibility. We cannot simultaneously allow flexibility for reconciliation, but also consider overspends on a project-by-project basis. For these reasons we do not intend to allow for these overspends.
- 9.23 In some cases, the allowance is dependent on delivering certain projects known as Deliverables. If these projects are not delivered the allowance is adjusted down by the associated amount. This portion of the allowance, together with interest, is returned to users. In the period, this was applied to the Airfield Pollution Control project meaning that the airfield maintenance category has been adjusted down by €20m. The adjusted allowances, the spend and the amount entering the RAB is laid out in Table 9.4. In total €49.6m of expenditure is not allowed.

Table 9.4: Reconciliation of 2015-2019 Allowances

	Allowance (€m)	Adjusted Allowance (€m)	Spent (€m)	Enters RAB (€m)
Airfield Maintenance	125.4	104.2	138.3	104.2
Business Development	67.2	67.2	73.7	67.2
IT	41.1	41.1	41.3	41.1
Landside Terminals	39.1	39.1	55.9	39.1
Revenue	56.2	56.2	57.0	56.2
Other	14.0	14.0	14.3	14.0
Total	343.0	321.9	371.5	321.9

Source: CAR, Dublin Airport

Trigger Projects

- 9.24 Dublin Airport completed one of the trigger projects, Pier 2 segregation. It spent €18.1m against an allowance of €18.1m, which will enter the RAB.

²⁹ www.aviationreg.ie/fileupload/supplementary%20capex%20decision/2016-12-09%20Decision%20on%20process%20for%20supplementary%20capex%20allowances.pdf

Treatment of PACE projects

- 9.25 Six of the PACE projects are complete or will be completed this year and all the conditions have been met. In relation to other stands projects, the review of the Stand Allocation Rules must be completed. The projects entering the opening RAB are:
- Pier 1 Extension
 - South Apron Stands Phase 1
 - T2 CUSS Check-In Facilities
 - Apron Wide CCTV
 - Fixed Electrical Ground Power (FEGP)
 - Pier 3 Underpass
- 9.26 Therefore €27.8m enters the opening RAB for these projects. One project will not be pursued, *T2 Level 15 Bus Gates*, and so this does not feature in the capital costs.
- 9.27 *South Apron PBZ* is complete. However, the condition that Dublin Airport obtains permanent planning permission for this structure has not been achieved and now will not be achieved. This means that the associated €21.3m will not be remunerated.³⁰
- 9.28 The remainder of the PACE projects are added to the capital expenditure allowances for the period 2020-2024 in the same way as the CIP2020 projects, and remuneration will commence in 2020. The projects will be reconciled in 2024 in line with the conditions set in 2018.

North Runway

- 9.29 In 2016, we conducted an interim review of the 2014 Determination to better align the remuneration of the runway project with the timeline for delivery. We divided the trigger into 3 milestones. The first milestone was commencement of the main works. This occurred in 2018, resulting in €25.2m being remunerated. As the project is ongoing the expenditure on the first milestone has not been reconciled against the allowance. Rather, we are continuing to allow for the M1 trigger. This adds 3c to the 2020-2024 price caps.
- 9.30 We anticipate that the remaining runway triggers (M2 and M3) will be reached in the forthcoming regulatory period and that the full project will be reconciled against expenditure in 2024. The M2 and M3 triggers, which are currently estimated at 26c and 2c per passenger according to the Draft Determination forecasts, will be included in the price cap formulae. A 50/50 risk sharing mechanism between the airport and users remains in place for cost over/underruns on this project. In 2017, in our decision on the timing of the runway trigger, we gave Dublin Airport the opportunity to revisit the allowance for the runway project prior to commencing construction of the project.³¹ Dublin Airport declined, meaning that the original allowance together with the 50/50 risk sharing mechanism remains in place.

2019 Expenditure

- 9.31 Our reconciliation of 2014-2019 expenditure relies on Dublin Airport forecasts for expenditure for 2019. We may revise these forecasts for the final determination if more up-to-date forecasts are available. At the time of the next determination we will assess outturn expenditure against these forecasts and adjust accordingly, as we have done for 2014

³⁰ www.aviationreg.ie/fileupload/PACE%20final%20decision/Final%20Decision%20Final%20Draft.pdf, Appendix 2

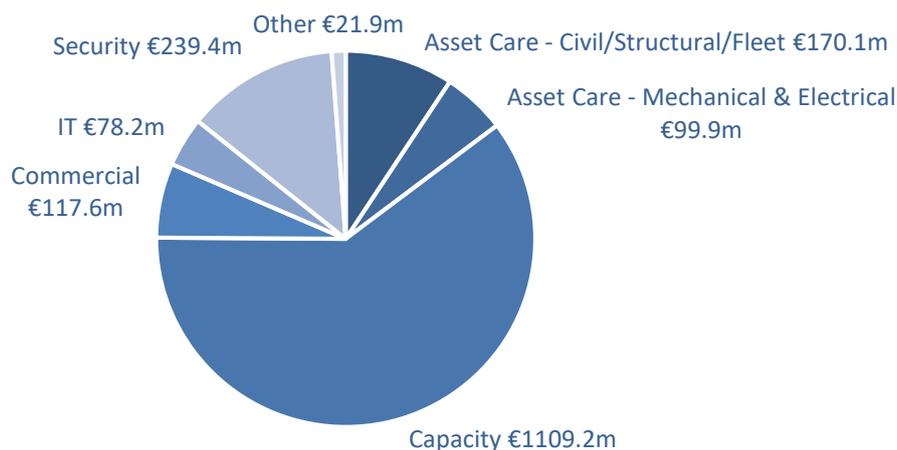
³¹ www.aviationreg.ie/fileupload/Decision%20MASTERCOPY%202017-04-28.pdf

expenditure above.

2020-2024 Capital Allowances – CIP2020+

- 9.32 In February, Dublin Airport submitted a Capital Investment Programme (CIP) totalling €1.8bn for the forthcoming regulatory period. Subsequently, in April, Dublin Airport submitted further proposals, namely:
- A €181.9m allowance for the upgrade to HBS (Hold Baggage Screening) Standard 3 ‘HBS3’ in both terminals.
 - A supplementary allowance of €840k for additional immigration booths for transfer facilities in Pier 4 and T2.
- 9.33 The HBS3 project was not included by Dublin Airport in the initial submission, in order to allow further time for the scope and costing to be developed. The additional immigration booths arose after our consultants, Helios, identified a quality of service issue at these processors. For the purposes of this paper, we consider this combined set of projects as ‘CIP2020’. We have included HBS3 as a security project and the immigration booths as a capacity project.
- 9.34 The Issues Paper set out our intention to:
- Provide allowances only for projects which meet the needs of current and future users.
 - Provide efficient allowances (i.e. no more than the minimum amount of expenditure required to deliver a project).
- 9.35 We have considered the first question, informed where applicable by simulation modelling reports which we commissioned from Helios. We commissioned a report from Steer to assist us in assessing the second question. These three reports are published alongside this paper; they are draft versions and may be updated ahead of the Final Determination in response to submissions received. We have also commissioned a further report from Steer to review the efficiency of the ongoing Hold Baggage Screening Level 3 (HBS3) project and process. We have received a draft version of this report, however, as the value engineering process is ongoing, Steer has not been able to come to a concrete view on an appropriate efficient costing. We expect the value engineering process to be completed in May, at which time Steer will produce a final report for the Final Determination. We have therefore provisionally used the Dublin Airport costing for HBS3.
- 9.36 We have set out how we have come to a view on whether each individual project is in the interests of current and future airport users in Appendix 2. A summary table of the entire set of allowed projects, together with the regulatory treatment, is also in Appendix 2.
- 9.37 In general, we have determined that CIP2020 is in the interests of both current and future users of the airport. Of the 119 projects, we have allowed for 117. We are proposing to allow for a total of €1.84bn to deliver CIP2020. We consider that the two projects we disallowed are not capital projects, as currently proposed, rather than determining that the subject matter they encompass is not in the interests of airport users.

Chart 9.1: Draft Allowances by Category



Helios Simulation Modelling

- 9.38 We commissioned Helios to run simulation modelling of both the airfield and terminal buildings. Having implemented the CIP2020 capacity infrastructure, Helios simulated the operation of a busy day under a 40 mppa (million passengers per annum) traffic scenario. The overall goal was to assess whether the airport system, post-CIP2020, would have appropriate processing capacity to deliver 40 mppa, which was the stated goal of Dublin Airport. The results also allow us to consider facility sizing on a project-by-project basis. The key outputs from the airfield modelling are the taxi-times, and particularly the component of taxi times which is made up of ground delay. The key output from the terminal modelling is the quality of service delivered for passengers, which is indicated by wait times and space per passenger at the various processors, assessed with reference to the IATA ADRM.³²
- 9.39 Overall, the results indicate that the airport system would allow for 40 mppa, while most of the key processors are appropriately sized. Where relevant, we discuss the results on a project-by-project basis in the appendix.
- 9.40 The terminal modelling assumes all facilities are fully staffed. That is because the goal is to assess the sizing of the infrastructure; in reality we would expect these facilities to be staffed according to demand, meaning that the wait times would be more uniform across the day than indicated by Helios. For an ideal result from the model, we would see a quality of service trough at 'Optimum', as defined under the ADRM, or for it to be briefly, moderately sub-optimal. As this is modelling of a 'busy day' schedule, we consider that a relatively brief period of moderate suboptimality is acceptable on the basis that these are limits which should 'not generally be exceeded'.³³
- 9.41 Helios' initial results indicated that wait times at both the main T2 transfer facility and the Pier 4 transfer facility were unacceptable. As outlined above, Dublin Airport has now proposed the installation of additional booths. This has resolved the issue in the model.

Project Allowances- Steer Efficiency Assessment

- 9.42 Steer has carried out an assessment of the efficiency of Dublin Airport's proposed expenditure.

³² IATA Airport Development Reference Manual, 10th Edition. The ADRM provides benchmarks for wait times and space per passenger.

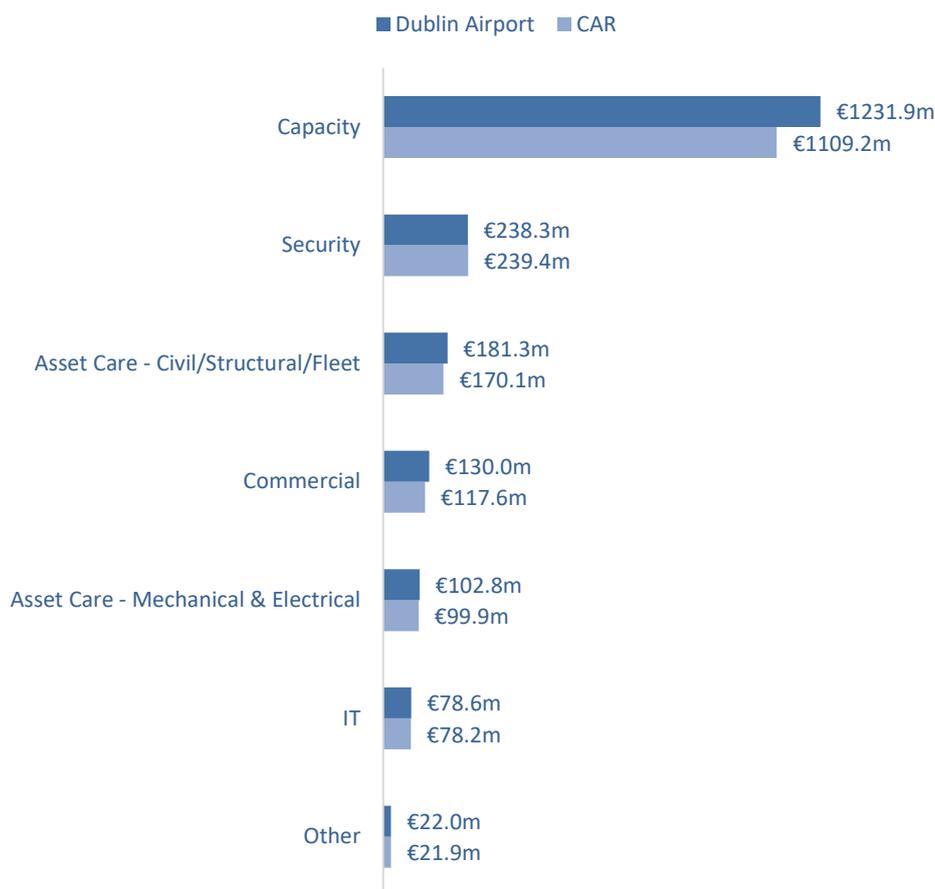
³³ IATA ADRM

There are two aspects to this, namely:

- 1) Assessing whether the scope is efficient to deliver the project as set out by Dublin Airport. This involves identifying any instances where extraneous line items are included in the costing, or the quantification is over or under provided for.
- 2) Having implemented any scope adjustments identified in step 1, applying benchmarked rates for all scope efficient line items (or otherwise assessing their efficiency).

- 9.43 The Steer draft report sets out a cost reduction of €146.7m relative to the Dublin Airport costings. This does not include an assessment of the supplementary projects in relation to HBS3 or the immigration booths. We have commissioned a separate report from Steer on HBS3 in both terminals. This is a complex project for which the value engineering process is ongoing, meaning that there is not yet sufficient detail to allow Steer to take a concrete view on efficient cost allowances. We expect this to change in time for the Final Determination, in order for us to continue to include an allowance for these projects. The relatively small allowance for immigration booths will be assessed by Steer ahead of the Final Determination. For these supplementary projects, we have provisionally used the Dublin Airport costing.
- 9.44 In addition to the Steer report, we identified that there was inconsistency in the staff car parking strategy, in that *CIP.20.01.046* provided for the rehab of spine roads in the Blue Staff Carpark, which will largely be decommissioned. On this basis, Dublin Airport reduced the scope of this project. Combining this with the Steer costing we have provided an allowance of €1m.
- 9.45 Steer has not assessed the IT projects in the same way, but rather considered the proposed IT investment more broadly. This ties in with our view that we should focus on the overall quantum in this grouping, while allowing for maximum flexibility. Steer has benchmarked the quantum of IT related expenditure against other airports, finding that the proposal is in line with, or somewhat conservative relative to, these benchmarks. Steer benchmarked the proposed spend as a proportion of both revenues and total capital investment. As set out in the report, Steer has adjusted rates for 2 projects only. We have therefore allowed for €78.2m in IT expenditure.

Chart 9.2: Allowances Relative to Dublin Airport



Source: CAR, Steer, Dublin Airport

9.46 There are elements of the cost line items within certain projects which Steer have not yet fully assessed for efficiency. These are generally either broad rates or ‘lump sum’ amounts, where there remains a certain element of uncertainty for Steer over what exactly is contained within the scope of these line items. This has been observed more frequently for the relatively smaller projects. In the costings produced by Steer, they have therefore not yet been able to consider any potential scope for variance within these line items. Ahead of the Final Determination, we will work to ensure that all line items included have been subject to an efficiency assessment.

Consultation and Reporting

9.47 Dublin Airport has undertaken a meaningful consultation on CIP2020 as required under Article 8 of the Airport Charges Directive (‘ACD’), and in line with the recommendations of the Thessaloniki Forum of European Airport Charges Regulators.³⁴ In some cases, Dublin Airport has adjusted CIP2020 based on feedback received. In other cases, it has provided reasons why feedback has not been implemented. This is what we would expect to see as part of a meaningful consultation process.

9.48 We intend to require Dublin Airport to report regularly on the delivery of projects against the CIP2020 timelines, similar to the PACE projects. We will publish this report each quarter. We are not proposing any changes to the format used for PACE.³⁵ We also intend to commence

³⁴ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0012&from=EN>

<http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetailDoc&id=29018&no=1>

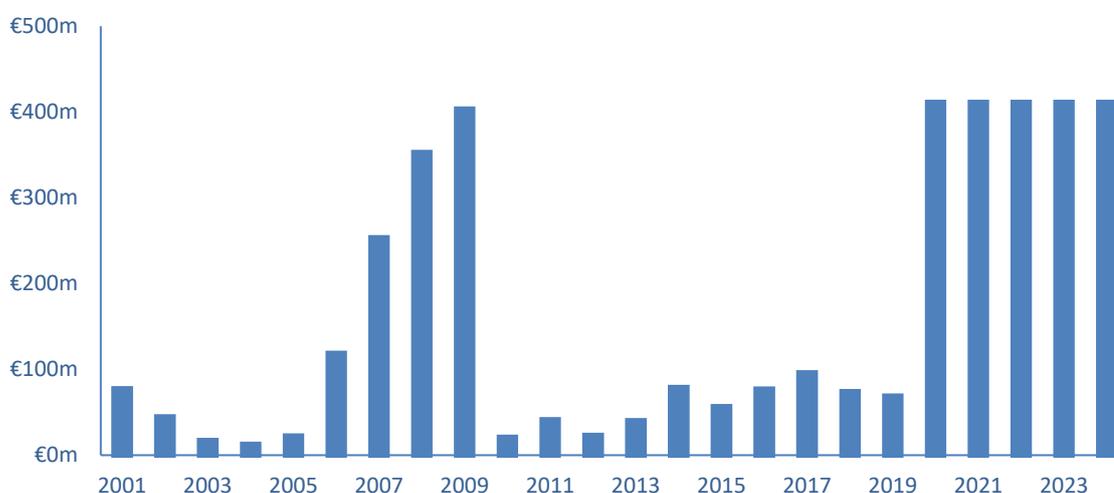
³⁵ <https://www.aviationreg.ie/fileupload/Capex%20Updates/CAPEX%20Delivery%20Update%20Q42018.pdf>

reporting on capex spend annually.

Scale of Proposed Capital Investment

- 9.49 Chart 9.3 shows capital investment at Dublin Airport for 2001 to 2018 and our forecasts for 2019-2024. The proposed investment is at a scale which has clearly never be undertaken by Dublin Airport before. The investment plan would see over €1m in capex being spent in each day of the 5-year period. Only when building T2 was an investment spend close to the proposed achieved, and that was on a single project. The CIP is spread across 117 projects throughout the campus.
- 9.50 We are of the view that the proposed investment programme is challenging and the proposed delivery schedule ambitious. There is a risk that the delivery of some of the proposed projects will spill into the next price determination period.

Chart 9.3: Outturn and Forecast Capital Expenditure, 2001-2024



Time profiling and Asset Lives

- 9.51 For all capital expenditure for which an allowance has been made, we have assumed that Dublin Airport will spend one fifth of the expenditure in each year of the Determination.
- 9.52 Depreciation for all investments in the period has been calculated using annuities. We introduced the annuity approach in 2009. The effect is that the capital costs (return on capital plus depreciation) in each year of the asset life would be equal, if the cost of capital remains the same. This contrasts to straight-line depreciation, where the capital costs are higher initially and decline over the life of the asset. We have also accelerated further depreciation. For further details, see the Financial Viability section.
- 9.53 For expenditure prior to 2019 we propose to continue with the depreciation profiles already set, scaling them for the various adjustments to the RAB discussed earlier in this section.
- 9.54 Chart 9.4 shows the level of depreciation charges into the future. It also shows the return on capital for this period and into the future should the cost of capital remain at 4%. For comparison we also plot the capital cost in the last determination period. This graph assumes no expenditure after 2024, showing only the return on the RAB currently envisioned. Chart 9.4 assumes no expenditure after 2024, showing only the return on the RAB currently envisioned, and also implements the financial viability adjustment which is discussed in Section 10.

Chart 9.4: Future Capital Costs



Source: CAR.

- 9.55 In a number of cases we have adjusted the asset lives proposed by Dublin Airport where they do not reflect what we would expect for the project in question. These are specified in the appendix.
- 9.56 In most cases, the asset lives proposed by Dublin Airport are reasonable and we have implemented them. We have considered the asset life in the context of all elements of the project, including the facilities or output provided for as well as interdependent facilities. On this basis we have made some adjustments to the large capacity projects. These are highlighted in the appendix.

Deliverability and Future Reconciliation

- 9.57 We continue to group the allowances to provide a degree of flexibility to Dublin Airport. For most projects, reconciling outturn expenditure against these allowances will be done at these group levels in the next Determination. We have grouped the projects according to the groupings set out by Dublin Airport in the CIP submission. For certain projects we are proposing a new ‘StageGate’ process. These project costings would not be included in this grouped allowances reconciliation process described in this subsection. Further details on this are set out below.
- 9.58 When reconciling expenditure against the allowances, if a Deliverable project is not expected to be completed by 2024, we expect to revise the group allowance down by the corresponding amount. On the other hand, an allowance which is flexible may be fully or partially reallocated to a different project or projects, which would fall under the group heading, without any downward revision of the group allowance. The project to which it is reallocated may be either another project set out in CIP2020, or a new project. Table 9.5 sets out how the RAB should be rolled forward under various scenarios.
- 9.59 In most cases, in order to retain a Deliverable allowance, Dublin Airport must deliver the project as set out in the CIP proposal. In a number of cases we have adjusted the deliverability requirements. These are set out in the appendix at a project-by-project level, where applicable, and should be noted carefully.

Table 9.5: RAB Roll Forward Principles

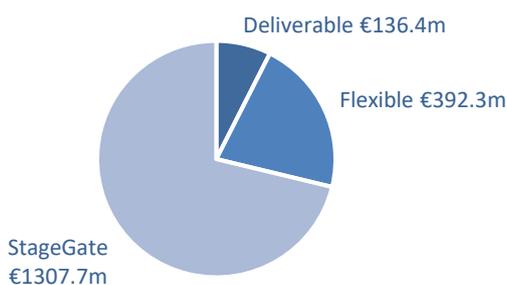
Scenario	Treatment
Investment delivers expected output at lower cost than allowed for.	The lower cost enters the RAB. Dublin Airport benefits from the saving within the determination period only, as the additional capital cost allowance earned over that time is not clawed back.
Investment delivers expected output at higher cost than allowed for.	The overspend will not enter the RAB, unless Dublin Airport can demonstrate substantial user support for the overspend or that the overspend was outside its control.
Investment does not take place, output is not delivered.	The RAB is revised down accordingly. The associated capital cost allowance is clawed back.
Investment delivers different output to that initially envisaged.	The RAB is revised down accordingly and the associated capital cost allowance is clawed back, unless Dublin Airport can show that the changed scope was due to user requirements.
Investment abandoned prior to completion	The RAB is revised down accordingly, monies already spent are clawed back unless users supported the decision to abandon the investment.
Existing asset in RAB has become obsolete or needs to be removed for other development.	No effect on the RAB.
Existing asset in RAB has been sold.	The RAB is revised down by the amount for which the asset was sold (provided that this was at or close to market price).

Source: CAR

9.60 How we view ‘expected output’ depends on the classification of the allowance. In the case of a Deliverable project, the expected output is the specific project for which the allowance was afforded. Where an allowance is flexible, the expected output is expenditure on projects which would fall within the same grouping for which the allowance was afforded. Since the Issues Paper we have made an adjustment based on a submission from Ryanair; in the case of investment being abandoned prior to completion monies already spent are taken back unless Dublin Airport can demonstrate that users supported the decision to abandon the investment.

- 9.61 If, during the upcoming regulatory period, Dublin Airport believes that one (or more) of the grouped allowances is insufficient, it should either:
- Carry out an interim consultation in which it demonstrates to users why, at a group level, the allowance is no longer sufficient to provide capital investment which is in the interests of airport users.
 - Request a supplementary capex allowance, in order to obtain full certainty over remuneration.

Chart 9.5: Allowances by Regulatory Treatment



Source: CAR

- 9.62 The asset care project groupings have a relatively higher proportion of Deliverables, on the basis that these projects have been justified in the interests of maintaining existing assets, which cannot be done other than through the works envisioned. On the other hand, in an area such as IT, we are aware that technology can change quickly. We have therefore maximised the flexibility in this grouping to enable Dublin Airport to optimise its expenditure as opportunities present themselves over the coming regulatory period.

Table 9.6: Group Allowance Totals for Reconciliation

Grouping	Draft Allowance (€m)
Asset Care- Civil/Structural/Fleet	90.7
Asset Care- Mechanical & Electrical	99.9
Capacity	63.3
Commercial	117.6
IT	78.2
Security	58.4
Other	21.9
StageGate	1307.7

Source: CAR

StageGate Process

- 9.63 We are proposing a new process, predominantly for larger scale projects, instead of the grouped allowance and RAB roll forward principles set out above. We have commissioned a report from Steer which is examining how we might provide increased within-period flexibility in relation to scope and costs. We are proposing a broad threshold of €20m for entry into this process, although we have applied some discretion to allow projects below this threshold to enter the process where there remains significant uncertainty regarding the scope. Table 9.7 details the projects we are proposing to enter the StageGate process.
- 9.64 The report from Steer is yet to be finalised; we expect to publish a draft report later this month. We intend to run a parallel consultation process, together with workshops with Dublin Airport and airlines, in advance of setting out a finalised process in the Final Determination.
- 9.65 We are not proposing within-period price cap adjustments as part of the StageGate process. At this stage, we view it as a formalisation of within-period, meaningful consultation. Users would be informed independently through reports from an independent assessor. Ultimately, the outputs from the process are intended to inform the Commission at the time of the next determination, in order to apply a more tailored approach than set out in the broad RAB roll forward principles.
- 9.66 The process will be designed to ensure business cases for projects remain robust as design and costings become more certain, and to provide airlines further opportunities to reassess business case should the fundamentals change. It will also provide greater flexibility for design and costings to adjust as the project develops.

Table 9.7: Proposed StageGate Projects

Project	CIP.20	Draft Allowance (€m)
Apron Rehab Programme	01.002	30.8
Taxiway Rehab Programme	01.003	17.4
T1 Façade, Roof, Spirals	01.020	25.2
Electric Charger Network Facilities	01.071	1.6
ULD Storage	07.032	5
T1 Check-In (Partial Shoreline)	03.011A	25.7
T1 Central Search Relocation	03.012	28.8
T1 Departures Lounge	03.013	28.3
T1 Baggage Reclaim	03.015	19
T2 Early Bag Store and transfer lines	03.028	27.9
Pier 5	03.029	289
Expansion of US Preclearance	03.030	54.5
South Apron Expansion	03.031	70.5
North Apron Development	03.036	158.6
T1 Piers- New Airbridges	03.043A	23.3
West Apron Underpass- Pier 3	03.051B	169
Surface Water Environmental Compliance	03.052	51.6
Apron 5M- 17 NBEs	03.054	71
Airside GSE Charging	03.057	4.9
Hydrant Enablement- Pier 2 & 3	03.071	23.7
HBS Standard 3	07.031 & 0.33	181.9
Total		1307.7

Source: CAR

Asset Care- Civil, Structural, Fleet

- 9.67 We have allowed for all projects in this category. *CIP.01.046* (Staff Carparks Rehab) has been adjusted downwards to €1m, as Dublin Airport has reduced the scope of this project once we identified that the Blue Staff Carpark would shortly be decommissioned and thus investment in the spine roads would be largely nugatory.
- 9.68 The total allowance is therefore €170.1m, of which €53.4m relates to Deliverable projects and €36.7m relates to Flexible projects. Five projects, with a value of €80m, are proposed to enter the StageGate process and so have been excluded from this grouping for the purposes of reconciliation.

Asset Care- Mechanical and Electrical

- 9.69 We have allowed for all projects in this category, with the exception of *CIP.20.02.002* (Second MV Connection Point). As set out in the appendix, we have not allowed for this as it is a feasibility study rather than a capital project and is therefore not suitable for a capital allowance as currently scoped. We are not opposed to a second MV Connection Point in itself.
- 9.70 The total allowance is therefore €99.9m, of which €56.1m relates to Deliverable projects and €43.8 relates to Flexible projects. We are not proposing any projects to enter the StageGate process.

Capacity

- 9.71 We have allowed for all projects in this category.
- 9.72 The total allowance is therefore €1.109bn. Most projects in this section are proposed for entry into the StageGate process and have therefore been excluded from this grouping. The remaining project allowances are flexible, equating to a breakdown of €63.3m in flexible capacity allowances compared to a value of €1.046bn in projects entering the StageGate process.

Commercial

- 9.73 We have allowed for all projects in this category.
- 9.74 We are proposing one Deliverable, *CIP.20.04.002* (Car Hire Consolidation Centre). The total allowance is therefore €117.6m, of which €13.6m relates to a Deliverable project and €104m relates to flexible projects. We are not proposing any projects to enter the StageGate process.

IT

- 9.75 We have allowed for all projects in this category. All allowances are flexible; the total allowance for the grouping is therefore €78.2m. We are not proposing any projects to enter the StageGate process.

Security

- 9.76 We have allowed for all projects in this category. We consider HBS3 in both terminals to be a single security project.
- 9.77 *CIP.20.06.014* (Screening and Logistics Centre) is a time-based Deliverable; it must be operational by the end of 2022 in order for Dublin Airport to have certainty over continued remuneration from 2025. All other allowances are flexible. The total allowance is therefore €239.4m, of which €13.3m relates to the Deliverable project and €44.3m relates to flexible projects. We are proposing that HBS3 (in both terminals) enters the StageGate process, a current estimated value of €181.9m. This has therefore been excluded from the Security grouping for reconciliation purposes.

Other

- 9.78 We have allowed for all projects in this category with the exception of *CIP.20.07.004* (Metro Coordination), again on the grounds that this is not a capital project.
- 9.79 The total allowance for the 'Other' grouping is therefore €21.9m, which is fully flexible.

Submissions Received and Responses

Submissions Received on Historic Capex Reconciliation

- 9.80 Aer Lingus states that where capex allowances are increased within a determination to address increased traffic, we should recognise that Dublin Airport is collecting more revenues than expected when the prevailing price cap was set, and consequently not roll all of these costs into the opening RAB for the next period.
- 9.81 Dublin Airport requests that we consider allowing for remuneration of T2 'Box 2' when 32mppa is reached, rather than 33mppa, and that any trigger would provide for remuneration in the

subsequent year. It further states that Box 2 should be depreciated over the remaining asset life of T2, rather than the initial asset life.

9.82 Dublin Airport asks us to allow capex overspends from the current regulatory period.

Commission Response

9.83 The 2014 Determination is clear that risk, including the volume risk, was assigned to Dublin Airport. It has collected more Aeronautical Revenues due largely to having beaten the passenger numbers targets. For this reason, the supplementary capex process does not provide for within-period price cap adjustments. We would not consider retrospectively adjusting the risk allocation. While not all PACE project allowances will now enter the RAB, as set out above, this is due to project specific factors rather than any reallocation of risk.

9.84 As outlined above, we are proposing to include T2 'Box 2' remuneration in the 2020 opening RAB, with a depreciation profile aligned to the remaining asset life of T2.

9.85 We do not intend to allow for the overspends in the current period, as outlined above.

Submissions received on Broader Developments and Masterplan

9.86 Dublin Airport describes the broader context for the development of CIP2020, namely development to provide for 40 mppa which is compatible with the longer-term strategy to provide for 55 mppa.

9.87 IALPA suggests that a number of significant capital projects should be undertaken at the airport, most notably a project to improve the flow rate on Runway 16, increase the planned length of the North Runway, and a widebody satellite pier on the West Apron.

Commission Response

9.88 The role of the Commission is to determine whether Capex proposals as presented by Dublin Airport are in the interests of current and future users to meet an identified need. This is used purely to inform our building blocks methodology to derive the cap on Airport Charges. We cannot compel Dublin Airport to deliver any particular project, nor is it our role to provide allowances for alternative projects not proposed by Dublin Airport.

9.89 There has been significant engagement between Dublin Airport, airlines and other stakeholders in relation to CIP2020. We note that the capacity proposals are generally supported. Dublin Airport presented an option for a western satellite pier; at this time the airlines generally want the focus to be on further development on the east campus, rather than significant passenger operations west of the crosswind runway. It is clear that future development will need to focus on the West Apron. At a later date, it will be necessary to decide whether this is a third terminal, or a satellite pier such as either of those suggested by Dublin Airport or IALPA.

Submissions Received on 2020-2024 Allowances

9.90 Aer Lingus want downward pressure on airport charges, but in an environment where investment keeps pace with the needs of users.

9.91 IATA believes that allowances should be tied to the intended timing of investments. It is supportive of an annuities based approach.

9.92 Ryanair states that we should only provide an allowance if Dublin Airport can prove that it is

required, efficient and a result of constructive engagement with users, implementing the recommendations of the Thessaloniki Forum on Consultation and Transparency.

Commission Response

9.93 Our approach is aligned with the submissions from Aer Lingus and Ryanair. While we have continued to use an annuities based approach, we have not tied the allowances to the timing of investments, instead allowing for an element of pre-funding. We have determined that this approach is necessary to allow Dublin Airport deliver CIP2020, and thus is in the interests of airport users. For full details see the Financial Viability section.

Submissions Received on Other Issues

9.94 Aer Lingus asks us to consider how we would respond should there be a downturn that warranted a reduction in investment at the airport. It further suggests that we consider capital cost allowances on a per passenger basis.

9.95 Dublin Airport seeks guidance on how early design costs can be remunerated, particularly for projects which are ultimately not progressed.

9.96 Dublin Airport asks us to consider an approach similar to the Gateway process in Heathrow, which it sets out in detail, on the basis that it would provide for enhanced within-period capex flexibility.

9.97 IATA states that, if there are groupings, a strong governance mechanism must be in place in which user agreement is a precondition for reallocations in order to reduce the scope for regulatory gaming and inefficiency. It further states that a combination of ex-ante and ex-post evaluations are the best way to establish the efficient cost of a project.

9.98 Responses which addressed it are opposed to the 50/50 over/underspend risk sharing mechanism which was introduced in the 2014 Determination.

9.99 Ryanair generally supports the RAB roll forward principles as set out in Table 8.2 of the Issues Paper; the exception is where an investment is abandoned, Ryanair states that all capex should be clawed back unless airport users agreed with the decision to abandon the investment.

Commission Response

9.100 We are not proposing to provide capital cost allowances on a per passenger basis as:

- It would weaken the risk allocation incentives.
- It would generate ongoing uncertainty for Dublin Airport over the remuneration of efficient expenditure.
- It would create a discontinuity between project specific allowances and capital cost remuneration.
- The StageGate process will provide a methodology for flexibility in capital investment.

9.101 Our intention is that the StageGate process will provide a forum for ongoing consideration of appropriate levels of capital investment, which will inform the Commission at the time of the next determination.

9.102 Efficient early design costs can be remunerated either through opex, or capitalised and

remunerated through capital costs. As set out above, we are proposing the StageGate process to provide enhanced within-period capex flexibility.

- 9.103 In response to IATA, our view is that we have struck an appropriate balance between flexibility and deliverability. Dublin Airport has an element of pre-determined flexibility in projects not included in the StageGate process, however it must report on the progress of these projects together with any reallocations. StageGate projects will be subject to ongoing consideration as part of that process, which effectively combines ex-ante and ex-post evaluations.
- 9.104 We are not proposing a 50/50 risk sharing mechanism in relation to any expenditure provided for under the 2019 Determination. It remains in place in relation to the North Runway, given that this trigger was met in the current regulatory period.
- 9.105 As set out above, we are proposing to implement Ryanair's suggested amendment to the RAB roll forward principles.

Capital Costs - Comparison with Dublin Airport's submission

- 9.106 Our capital costs are lower than Dublin Airport's submission for the following key reasons:
- Our cost of capital is 4% compared to Dublin Airport's proposal of 6.2% which results in a lower return on capital.
 - Overall we have reduced the 2020-2024 new capex allowances by €148.5m, to €1836.4m. This has the effect of reducing both the depreciation and the return on capital.

Possible Changes between the Draft and Final Determination

- 9.107 Our derivation of the 2020 opening RAB may adjust in response to submissions received of further evidence which we will seek in relation to the delivery of historic Deliverable projects.
- 9.108 The North Runway triggers may change if there is a change to the allowed WACC or passenger forecasts.
- 9.109 The CIP 2020 project allowances may be adjusted as a result of submissions received or further work from Steer in assessing the efficiency of certain line items.
- 9.110 The regulatory treatment and requested allowances which we allowed for or not allowed for may be adjusted in response to submissions received.

10. Financing, Risk and Financial Viability

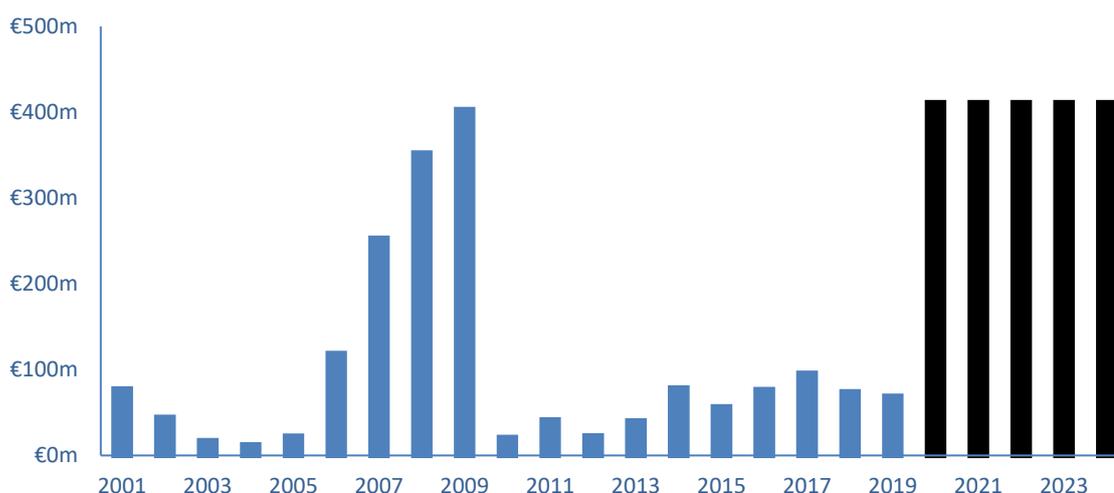
10.1 This section examines Dublin Airport’s ability to raise finance in a cost-efficient way to fund the development of the airport. We make an adjustment to the price cap to improve the Debt/EBITDA ratio, after which the proposals in this Draft Determination are consistent with enabling Dublin Airport to operate and develop in a sustainable and financially viable manner in the interests of airport users.

CIP Programme and Capital Requirements

10.2 Dublin Airport is proposing an ambitious Capital Investment Programme (CIP) for 2020-2024, where the RAB will almost double in the period if the investments are delivered in accordance with Dublin Airport’s proposed timeline. The investment will need to be financed from a mix of debt and retained earnings. Equity investment, other than retained earnings, is not available to Dublin Airport.

10.3 Dublin Airport has not previously invested this level of capital for a sustained period. Chart 10.1 below (copied from Section 9) shows that only at the peak year of construction of T2 did capex come close to the annual level in our proposed decision. For 2020-2024 we are expecting capital expenditure of an average of €411m per year.

Chart 10.1: Capital Expenditure, 2001-2024



10.4 There is a considerable probability that Dublin Airport will not be able to deliver the full CIP in line with its ambitious programme and therefore the capital requirement in the coming period may well be less than Dublin Airport’s expectations. As an example of this we are currently seeing programme slippage in some supplementary capital (PACE) projects approved in 2018, which are less complex than the CIP projects.³⁶ Dublin Airport has also identified the probability of slippage in the CIP documentation, stating that:

“The delivery of the CIP from 2020 will require significant coordination involving a wide range of stakeholders. Many of the proposed projects within this submission will require planning permission and, by its very nature, this can lead to challenges and other unrelated delays. Furthermore, while we are actively preparing our procurement department for a more significant capital investment programme, it is important to be cognisant that a significant upturn in Irish construction will adversely

³⁶ www.aviationreg.ie/_fileupload/Capex%20Updates/CAPEX%20Delivery%20Update%20Q42018.pdf

impact procurement. It follows that the delivery timelines outlined for each project in this submission are also best estimates and subject to change.”³⁷

- 10.5 Irrespective of the probability that the actual funding requirements in 2020-2024 may be less than anticipated, we have allowed all capital projects in the CIP, and we model financial viability based on all the allowed capex occurring within the period.

Financial Viability Assessment

- 10.6 As in past determinations, we maintain our view that an investment grade credit rating would be consistent with enabling Dublin Airport to operate in a sustainable and financially viable manner. Standard & Poor’s (S&P) provides Dublin Airport’s credit rating; investment grade, in S&P terminology, is a BBB rating. Dublin Airport is currently rated 2 notches above this at A-.
- 10.7 In determinations to date, the main focus has been on the FFO/Debt ratio. We believe this is still the most important ratio, but we also consider Debt/EBITDA to be an important indicator. S&P considers Dublin Airport to be in a strong position in terms of business risks and therefore uses the targets identified in Table 10.1 in relation to financial risk. The target for investment grade would be intermediate in this table.

Table 10.1: S&P Cash Flow/ Leverage Analysis Ratios for Low Volatility Companies

	FFO/debt (%)	Debt/EBITDA (x)	FFO/cash interest (x)	EBITDA/interest (x)
Minimal	35+	Less than 2	More than 8	More than 13
Modest	23-35	2-3	5-8	7-13
Intermediate	13-23	3-4	3-5	4-7
Significant	9-13	4-5	2-3	2.5-4
Aggressive	6-9	5-6	1.5-2	1.5-2.5
Highly Leveraged	Less than 6	Greater than 6	Less than 1.5	Less than 1.5

Source: S&P Corporate Methodology 2013.

Source: CAR Calculations

- 10.8 A Debt/EBITDA ratio close to 6 is in line with the ratios generated using Dublin Airport’s proposed building blocks, and we understand, given the position of the other ratios and the general business risk, is likely to be consistent with an investment grade rating.
- 10.9 To calculate the financial ratios we:
- Use Dublin Airport’s anticipated opening net debt position of €650m;
 - Calculate the interest payments by multiplying the regulatory asset base (RAB) by our gearing times the cost of debt plus the aiming up allowance;
 - Use the lower end of Dublin Airport’s dividends policy, 30% of earnings; and
 - Include all capital expenditure which we have had allowances for and €150m of capex to complete the Northern Runway.
- 10.10 Using our base price cap, FFO/debt is consistent with Intermediate financial risk, the ratios for FFO/cash interest and EBITDA/interest are consistent with minimal financial risk, but the Debt/EBITDA ratio increases over the period moving from Significant to Highly Leveraged. The

³⁷[www.aviationreg.ie/ fileupload/2019%20Determination/Capital%20Investment%20Programme%20from%202020%20\(Redacted\).pdf](http://www.aviationreg.ie/fileupload/2019%20Determination/Capital%20Investment%20Programme%20from%202020%20(Redacted).pdf), page 5

results for the period are in Table 10.2.

Table 10.2: Financial Viability with Base Price

	2020	2021	2022	2023	2024
FFO/ Net Debt (%)	20%	14%	13%	13%	13%
Debt/ EBITDA	4.39	6.05	6.70	6.74	6.80
FFO: cash interest	15.00	12.45	11.70	11.91	11.96
EBITDA/ Interest	17.12	14.24	13.40	13.62	13.67

- 10.11 While there is not an issue with Dublin Airport being able to fund the level of debt, the financial risk associated with the amount of debt is high. Based on these results we are of the view that an adjustment on financial viability grounds is warranted, one which aims to reduce the debt requirement and thus the Debt/EBITDA ratio. This enables Dublin Airport to retain an investment grade rating.
- 10.12 It is worth noting that the building blocks result in a price cap which is consistent with a hypothetical company achieving an investment grade rating and funding the investment programme using a mix of debt and equity funding. It is therefore consistent for us to make an adjustment which recognises the fact that Dublin Airport will have to rely more heavily on debt than a hypothetical efficient company with the option to raise finance through either debt or equity would choose to do.

Improving Financial Risk Ratios to Enable Investment Grade

- 10.13 There are a number of options available to us to improve the Debt/EBITDA ratio. The most obvious is to cut capital expenditure and thus cut the amount of debt required. However, we have already identified that all capital projects in the CIP are in the interests of both current and future users. Therefore, such an adjustment would not align with our statutory objectives.
- 10.14 There are a number of other options, which can be divided into two groups; firstly, those which increase the price cap at no cost to the airport (e.g. an increase in the cost of capital or a simple increase in the price cap) and secondly, those which reprofile future revenues into the current period which will result in lower revenues in future periods (e.g. accelerated depreciation, shorter asset lives of investments). Reprofile capex would have elements of both. The advantage of reprofiling revenues is that the next period would start with a lower RAB, all else being equal. Therefore, while airport charges would increase in the current period, users should benefit from the infrastructure at lower cost in future periods than would be the case if we chose a methodology which would simply increase the price cap.
- 10.15 We are proposing accelerating €133m of depreciation into the period to achieve more favourable financial ratios to underpin the rollout of the CIP. We will also use this reprofiling to achieve a flat price in the period. The result is improved ratios, as shown in Table 10.3, across all years, and the Debt/EBITDA now remains below 6 for all years except 2024.

Table 10.3 Financial Viability with Proposed Price

	2020	2021	2022	2023	2024
FFO/ Net Debt (%)	22%	18%	16%	15%	15%
Debt/ EBITDA	4.06	4.89	5.57	5.83	6.08
FFO: cash interest	16.19	15.36	13.95	13.60	13.18
EBITDA/ Interest	18.32	17.16	15.64	15.32	14.89

10.16 The increase above 6 will either resolve itself through Dublin Airport not delivering the CIP exactly to plan, with some of the debt requirements falling to years after 2024, or through savings achieved elsewhere. The effect of this change on price, FFO/DEBT and DEBT/EBITDA are shown in Charts 10.2 and 10.3.

Chart 10.2: Price Before and After Financial Viability Adjustment

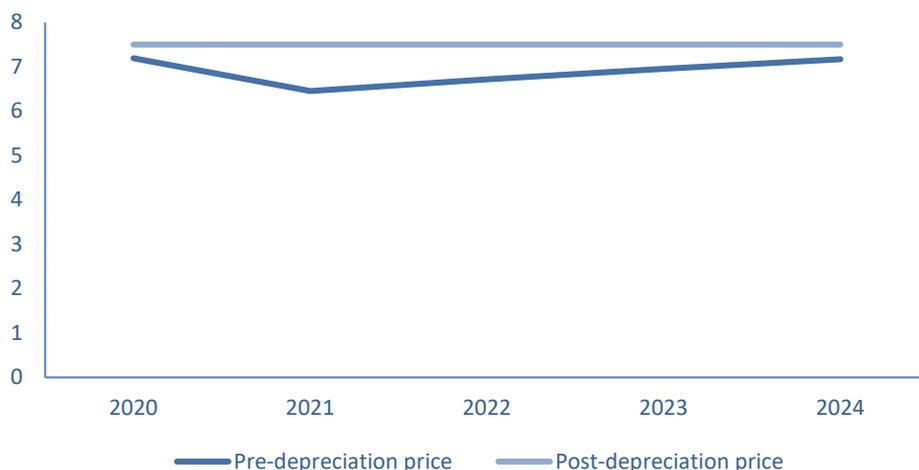
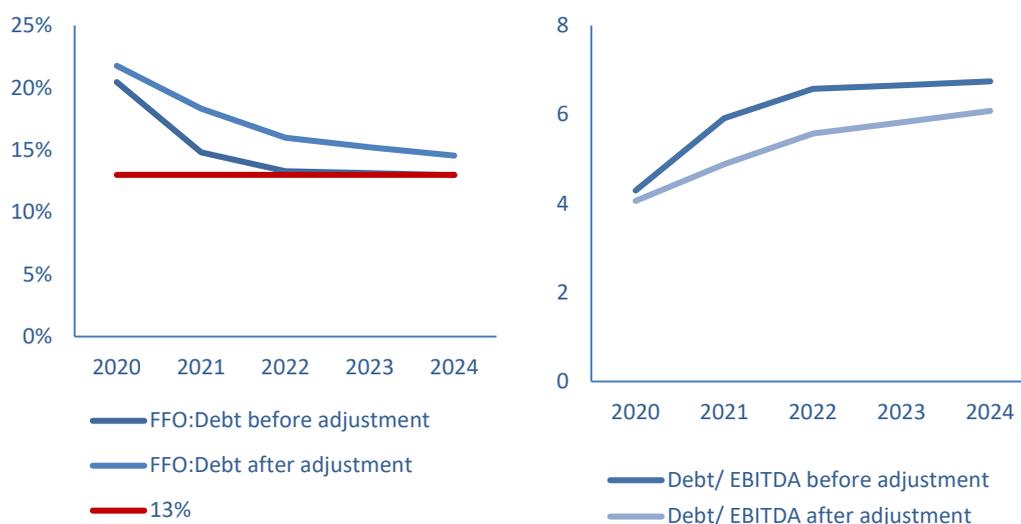


Chart 10.3: Financial Ratios before and After Financial Viability Adjustment

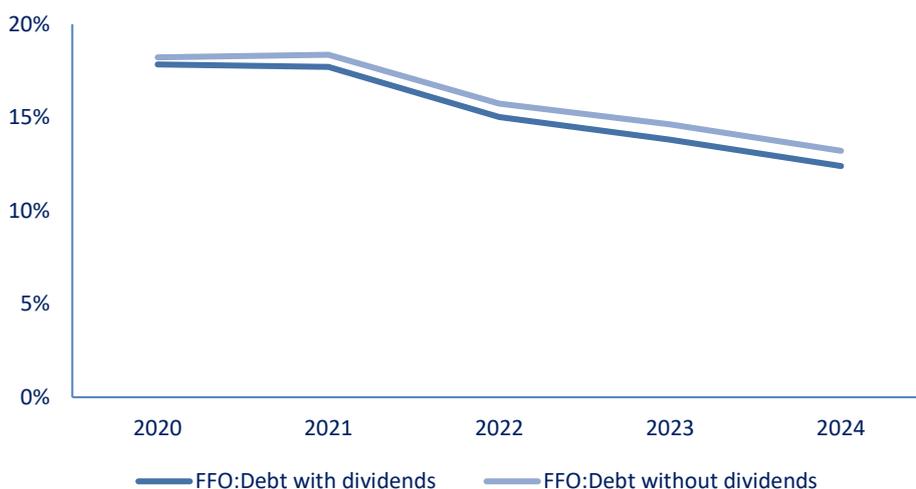


Sensitivity Tests

10.17 Achieving our ratios requires Dublin Airport to achieve our targets for opex and commercial revenues, albeit on a net basis; for example, outperformance in relation to commercial revenues could be used to fund underperformance in opex, and vice versa. We have set challenging but achievable targets, with financial viability in mind.

10.18 A significant risk to the achievement of the financial ratios which we have identified is passenger numbers not materialising as forecast. Chart 10.4 shows the FFO/Debt ratio if traffic flatlined at the 2020 level. In this scenario, and if Dublin Airport continue to raise the planned level of debt, the ratios will move against the retention of investment grade.

Chart 10.4: Traffic Stagnation, FFO/DEBT



- 10.19 The Capital Investment Programme is designed to deliver a capacity of 40m passenger per annum. If passengers stagnate, we would expect the immediate need for some of the projects in the CIP would fall away, thus reducing the debt requirement and improving the ratios. As set out in Section 9, our proposed StageGate process would facilitate constructive engagement between Dublin Airport and users, in the event that the expected growth in passenger numbers does not materialise.
- 10.20 In such a scenario we would also expect Dublin Airport to consider all its costs including the application of its dividends policy.

Dividends

- 10.21 Dublin Airport has a policy to make “an annual dividend payment to the Government of between 30% and 40% of normalised profit after tax subject to the priority that daa plc can maintain a minimum credit rating of BBB+”. At the same time, it plans to grow the business rapidly. When private RAB based regulated companies are being sold, the RAB is a key input into the valuation. In the next period, Dublin Airport plans to grow its RAB by almost 90%. This will increase the value of the company to the shareholder, while the shareholder will not have invested any equity (other than retained earnings). A rule of thumb, in terms of dividend policies, is that growing companies give return to shareholders via the value growth of the company rather than by paying out dividends.
- 10.22 With this in mind, the dividend policy should consider that Dublin Airport is seeking to deliver key pieces of national infrastructure in the period, and a lower dividend requirement would reduce debt and hence the financial risk the company would need to take on to achieve this.
- 10.23

Conclusion on Financial Viability

- 10.24 The proposals in this Draft Determination are consistent with Dublin Airport being able to raise debt at reasonable costs (i.e. corresponding to the costs of raising debt with an investment grade credit rating.) We have a statutory objective, “to enable daa to operate and develop Dublin Airport in a sustainable and financially viable manner.” In addition to this, we also have regard to Dublin Airport’s ability to raise debt as it is in the interest of current and future users that Dublin Airport can fund the CIP.

- 10.25 In this proposal, as we said we would in the Issues Paper, we have aimed to set a price cap which strikes a balance between:
- enabling Dublin Airport to generate timely cash flows from airport charges and raise investment grade debt to maintain and develop the airport infrastructure in an efficient manner; and
 - protecting users against increases in price cap that shield investors in Dublin Airport from general business risk or that serve to cross-subsidise the financial risk of the daa group as a whole.
- 10.26 In 2014 we switched our focus from daa Group to a Dublin Airport standalone entity. This is somewhat hypothetical as Dublin Airport does not raise debt itself, nor does it have a standalone credit rating. All debt is raised at a group level. daa Group engages in a number of activities with different risk profiles compared to Dublin Airport and which have significant capital requirements - altering the financial risk of the group. For example, daa Group is developing a €1bn office development, Dublin Airport Central, which falls outside of the regulated entity.
- 10.27 It is the responsibility of daa group to ensure that the group is financially viable. We focus on enabling the financial viability of the regulated entity part of the group.

Impacts on Passengers and Airlines

- 10.28 In relation to the CIP, when investments enter the RAB, Dublin Airport will receive certainty on the remuneration of the investments for the life of the asset. In effect, the risk is held by the airport users. The implication of a large RAB is that there may need to be increases in the price in future regulatory periods if circumstances change- particularly if passenger numbers decline or there is upward pressure on the WACC. For example, with a current estimated 2024 closing RAB of about €3bn and passenger numbers of 35m, a one percentage point increase in the allowed cost of capital would result in a €1 increase in the price cap.

Debt Markets and Dublin Airport

- 10.29 Through our analysis we have arrived at the position that the full Capital Investment Programme is in the interest of current and future users. The corollary being that if the Programme is not delivered the welfare of users will be lower, at some point in the future. We have therefore arrived at a price which will enable Dublin Airport to finance the investment programme.
- 10.30 Based on our passenger forecasts, and the fast time simulation modelling we have conducted, we are of the view that it would be reasonable for some of the programme to be delivered after 2024 without negatively affecting users. We can work with Dublin Airport to ensure it has the required certainty in relation to delivering investments across multiple regulatory periods (recent flexibility has been given in this regard for the PACE projects and for the Northern Runway).
- 10.31 Dublin Airport and those who provide debt to it have certainty that capital expenditure which enters the RAB will be remunerated efficiently for the life of the assets. This gives investors long term assurances that, if Dublin Airport follows the clear processes set out in our determinations, it will have sufficient funds to service debt. In setting the cost of capital in this proposal we had regard to embedded debt, which gives investors additional certainty.
- 10.32 In the next period we will strengthen the regulatory processes for large scale capital investment, by introducing a new process for ongoing assessment of larger projects, Stage

Gate. Under the new process Dublin Airport will still be incentivised to deliver projects at an efficient cost, but if circumstances change, it will provide a more tailored and project specific process for dealing with potential cost overruns. This will help to ensure that capital projects continue to meet the needs of airport users across the period, and also reduce the risk that Dublin Airport is not remunerated for associated efficient capital expenditure.

- 10.33 As referenced above, we are aware that Dublin Airport cannot raise equity and so is reliant on the debt markets. This underpins the importance we give to the financial viability assessments and is why we are prepared to adjust the price to enable Dublin Airport to have efficient access to debt markets.
- 10.34 We have introduced additional flexibilities in the regulatory model in the last 5 years, primarily a process for assessment of supplementary capital expenditure within a period, to, for example, deal with unexpected passenger traffic demand or unexpected security requirements.
- 10.35 If circumstances change significantly within a period, we can review the determination to assess if it still meets our statutory objectives, amending it if necessary.
- 10.36 Overall, the regulatory system delivers a low risk proposition for investors. This is particularly true in the long term, with the assurances on remuneration of the RAB and with the reassessment of risk at the start of each period.

11. Advancing the Interests of Passengers through Quality of Service

Summary

- 11.1 In 2009, we introduced a link between the price cap and twelve different quality of service measures where Dublin Airport was incentivised to meet/exceed targets. We have now reviewed these measures to see if they continue to capture what is important to passengers.
- 11.2 In 2018, we established a Passenger Advisory Group composed of organisations representing the diversity of passengers at Dublin Airport. We asked the Group for their views on quality of service. We also sought the views of stakeholders on quality of service in the 2018 Issues Paper. Based on the advice we received, we propose to amend most of the existing measures and introduce 9 new ones; many of which will focus on monitoring quality of service for passengers with disabilities or reduced mobility. Other suggestions made by the Group will be progressed by the Commission outside of this Price Determination process.

Background on Quality of Service

- 11.3 We set a price cap to ensure Dublin Airport offers efficiently priced services to its customers. At the same time, we want the airport to provide a quality service to passengers. In 2009, we introduced a link between the price cap and twelve different quality of service measures where Dublin Airport would receive less revenue if it did not meet various targets. In 2014, we retained the same metrics and financial incentives set in 2009, but we set higher targets in most cases to reflect the generally better level of service that was being offered at Dublin Airport. Since 2009, Dublin Airport has met most of the targets despite the significant increase in passenger numbers. While this approach has worked well, we would like to review it now to see if current arrangements continue to capture what passengers need and value.

Improving our Passenger Engagement

- 11.4 In our Strategic Plan 2017-2019, we committed to examine how to better engage the passenger in the regulatory process for the 2019 Determination and improve our understanding of what is important to passengers. Our commitment is in line with the 2017 National Policy Statement on Airport Charges Regulation which states that *“the primary purpose of the regulation shall be to protect and advance the best interests of current and future customers who use Dublin Airport”*.³⁸
- 11.5 In 2017, we looked at how other regulators have sought to improve consumer representation. Our initial assessment showed that our regulatory decisions could take better account of passenger views. Our experience to date has been that passengers have not been well represented in written submissions although our consultations are public and open to all stakeholders. Also, while some respondents to our consultation described how passenger engagement feeds into their regulatory submissions, our general experience is that submissions do not always clearly demonstrate that they are based on high quality passenger research. Our conclusions considered the submissions from stakeholders to the public consultation held in September 2017.

³⁸ www.dttas.ie/sites/default/files/publications/aviation/english/national-policy-statement-airport-charges-regulation/nps-airport-charges-regulations-amended-oct-6.pdf

Passenger Advisory Group

11.6 In September 2018, we established a Passenger Advisory Group (CP12/2018) to improve our understanding of passenger priorities about quality of service and capital investment at Dublin Airport. The Group is composed of thirteen organisations that represent the diversity of passengers at Dublin Airport:

- Leisure passengers are represented by the Consumer's Association of Ireland, the European Consumer Centre and Failte Ireland.
- Older passengers are represented by Age Action and younger by the National Youth Council of Ireland.
- Passengers with disabilities or reduced mobility (referred throughout this document as PRMs) are represented by the National Disability Authority, the Disability Stakeholders Group, the Irish Society for Autism, the National Council for the Blind Ireland and Alzheimer's Europe.
- Business passengers are represented by the Irish Business and Employers Confederation (IBEC), Chambers Ireland and Ireland's inward investment promotion agency, the IDA.

11.7 Between November 2018 and March 2019, we have chaired three meetings. In this Draft Determination, we have taken account of the advice from the Group in deciding how to monitor the quality of service, and in assessing relevant capital investment projects from 2020.

11.8 We will meet the Group in May and June 2019 to discuss our proposals in this Draft Determination about quality of service and relevant capital investment projects. We will consider the advice of the Group in our Final Determination that will be published in September 2019.

Recommendations from the Passenger Advisory Group

11.9 We presented our thoughts on the existing quality of service measures and the most important aspects of the airport service for passengers to the Group and asked for their views. The Group agreed that the four outcomes, listed below, are important to passengers.

- Outcome 1: Airport processes are reliable, efficient and punctual
- Outcome 2: Passengers get the care they need
- Outcome 3: Passengers get the information they need
- Outcome 4: Passengers can use the facilities and services they need

11.10 At the meetings, the Group agreed that most of the existing measures should be retained but suggested that the following should also be monitored:

- The quality of service for PRMs, arriving passengers and transfer passengers.
- The satisfaction of PRMs with the assistance provided for them. Under Regulation 1107/2006, assistance should, among other things, enable PRMs to proceed from a point of arrival at an airport to an aircraft and from the aircraft to a designated point of departure from the airport, including embarking and disembarking.
- The satisfaction of PRMs with the facilities provided for them. Dublin Airport provides the following facilities for PRMs: designated car parking spaces; set down areas on the departures road; accessible toilets and lifts clearly signposted; induction loops to increase the volume of announcements and a counter loop system at the information

desk for passengers with hearing difficulties; special room for passengers with guide dogs and assistance dogs in Terminal 2; and private quiet rooms for passengers with autism.

- Passenger satisfaction with seating, charging points, self-service processes, walking distance, taxi times of aircraft, immigration wait times, baggage reclaim, information on ground transport and taxi queue times.

11.11 The Group requested that the Commission considers implementing indicators of effective passenger engagement by the airport, for example in relation to capital investment projects. Their suggestion was that airport design should take into account passenger views and accommodate the needs of PRMs, wherever possible. Under current legislation, Dublin Airport must comply with S.I. 513/2010 which requires a disability access certificate of a design proposal to be submitted to local planning authorities for approval prior to any airport works commencing. This is a statutory requirement for new buildings and to extensions and material alterations to existing buildings prior to certifying for occupation. Under this regulation, airport design must consider wayfinding and the accessibility of the site, toilets, lifts, among other factors. However, given the importance of consulting with end users, we propose placing a condition on capacity piers and terminal projects whereby Dublin Airport has to demonstrate to us how it best took account of passenger views when developing the infrastructure. We will develop the exact wording of this condition for the Final Determination following receipt of consultation responses.

11.12 The Group also raised many important topics that fall under Regulation 1107/2006 and these will be considered by the Commission as part of our ongoing work programme.³⁹ Having considered the advice of the Passenger Advisory Group, we propose to monitor 9 new quality of service measures and remove one of these existing measures: the satisfaction with the helpfulness of airport staff. We propose to separately monitor this measure without a price cap adjustment. We propose this change because it may not be obvious to passengers who is an airport staff member and who is a subcontractor, ground handler or airline staff. The proposed new quality of service measures and the 11 existing measures are set out in Table 11.1 below. These measures are grouped by the four outcomes listed in 1.7 above.

³⁹ The Commission looks forward to working collaboratively with the Group on these topics, starting at the following meeting of the Group scheduled in May 2019. The topics raised by the Group are: staff training and awareness, quality of training, protocols, refresher courses and internal monitoring; availability of trained staff; accessible signage; accessible information; accessible self-service processes; accessible complaints; process of embarking the aircraft; wheelchair damage; and contingency plans to optimise care and assistance in case of major disruption.

Table 11.1 : Summary of Proposed Quality of Service Measures for 2020-2024

Outcome 1. Airport processes are reliable, efficient and punctual	Passenger Segment	New (N)/ Existing (E)
1. Maximum security queue time	Departing	E
2. Maximum wait time for PRM assistance	Departing PRMs Arriving PRMs	N
3. Availability of outbound baggage system	Departing	E
4. Availability of inbound baggage system	Arriving	E
5. Availability of Fixed Electric Ground Power	All	N
6. Availability of Advanced Docking Guidance System	All	N
7. Availability of escalators, travellators and lifts in Terminal 2.	All in Terminal 2	N
Outcome 2. Passengers get the care they need	Passenger Segment	New (N)/ Existing (E)
8. Satisfaction with PRM assistance	Departing PRMs	N
9. Satisfaction with helpfulness of security staff	Departing Departing PRMs	E N
10. Satisfaction with cleanliness of terminal	Departing Departing PRMs	E N
11. Overall satisfaction	Departing Departing PRMs Arriving	E N E
12. Satisfaction with cleanliness of toilets	Departing Departing PRMs Arriving	E N N
13. Satisfaction with gates	Departing Departing PRMs	E N
14. Satisfaction with walking distance	Departing Departing PRMs Arriving	E N N
Outcome 3. Passengers get the information they need	Passenger Segment	New (N)/ Existing (E)
15. Satisfaction with ease of way finding	Departing Departing PRMs Arriving	E N N
16. Satisfaction with flight information screens	Departing Departing PRMs Arriving	E N N
Outcome 4. Passengers can use the facilities and services they need	Passenger Class	New (N)/ Existing (E)
17. Satisfaction with facilities for PRMs	Departing PRMs	N
18. Satisfaction with availability of trolleys	Departing Departing PRMs Arriving	E N N
19. Satisfaction with ease of automated check-in	Departing Departing PRMs	E N
20. Satisfaction with Wi-Fi	Departing Departing PRMs	E N

Source: CAR 2014 Determination

- 11.13 Having considered the measures proposed in the 2018 Issues Paper, stakeholder submissions and the advice from the Passenger Advisory Group, we are also proposing to monitor some measures without a price cap adjustment. The purpose is to monitor aspects of quality of service that are important for passengers but fall partially or totally outside the control of

Dublin Airport. These measures will not have an impact on the price cap. Monitoring may help to identify trends and encourage collaborative solutions between stakeholders to improve the passenger experience. We will engage with relevant stakeholders to decide the format of monitoring and publication of these metrics ahead of our final determination. The proposed measures are summarised in Table 11.2.

Table 11.2: Proposed Measures without a Price Cap Adjustment

Outcome	Measures	Source
1. Efficient airport processes	<ul style="list-style-type: none"> - Punctuality of flights - Wait times for first bag in carousel (block to first bag) - Wait times for last bag in carousel (block to last bag) - Wait times for immigration inspection 	Dublin Airport Dublin Airport Dublin Airport INIS, US CBP, TSA
2. Passenger care	<ul style="list-style-type: none"> - Satisfaction with helpfulness and courtesy of airport staff - Satisfaction with ease of using the e-gates - Taxi service 	Dublin Airport Dublin Airport Dublin Airport
4. Passenger facilities and services	<ul style="list-style-type: none"> - Satisfaction with eating and drinking facilities - Satisfaction with public transport 	Dublin Airport Dublin Airport

11.14 In the following paragraphs, we describe in detailed our proposed 20 separate measures that are subject to price cap at risk for the period 2020-2024. These measures, and the associated targets, are described in detail in Tables A3.1 and A3.2 in Appendix 3.

Proposed Quality of Service Measures and Targets for the Period 2020-2024

Security Queue Times

11.15 The definition of the queue length is the same as in 2014. The start point will be where the passenger joins the queue. The end point will be where the passenger reaches the walk-through metal detector. This queue length definition was proposed by Dublin Airport in 2014 and corresponds closely to what passengers consider to be queuing time.

11.16 Dublin Airport will continue to be responsible for measuring the security queues and reporting any breaches of the target. We are satisfied that the Blip Track system in place is reasonable. The automated system reports the rolling 15-minute median time taken to get from the start to end of the queue for passengers carrying Wi-Fi or Bluetooth-enabled equipment.

11.17 We propose to change the security queue target from below 30 minutes for 100% of passengers (which is equivalent to 100% of time) to a combined target of 97% of time below 25 minutes and 70% of time below 15 minutes. Using 97% rather than 100% will further allow for situations which may be considered outliers. Our proposal implies that the queue time may be more than 25 minutes for up to 36 minutes in a day and more than 15 minutes for up to 6 hours in a day before breaching the targets. In setting the operating costs allowance, we have taken account of the security staff costs that will enable the airport to meet these targets. In setting the capital costs, we have allowed all the security search related projects.

11.18 We propose the 70% target because Dublin Airport indicated that airlines and passengers benefit more if a large proportion of passengers are processed, for example, in less than 20 minutes, than if a small number of passengers avoid queuing for more than 30 minutes.

11.19 Wait Times for Assistance of Passengers with Disabilities and Reduced Mobility

11.20 We propose to measure the wait times for assistance of departing and arriving PRMs. Dublin Airport supports monitoring this measure as it can impact on the punctuality of flights, known

as on-time-performance (OTP).⁴⁰ We will publish the performance compared to a combined target for pre-advised and non pre-advised arriving and departing passengers. Pre-advised passengers are those that have notified the airline or airport 48 hours in advance of travelling about their requirement for assistance.

- 11.21 Our proposed target will reflect the service level agreement between Dublin Airport and the subcontractor who provides this service (OCS). Dublin Airport and OCS renewed their agreement in 2019. In 2017 and 2018, the satisfaction of PRMs with the assistance provided was over 9.7 in a scale from 1 (not satisfied) to 10 (very satisfied).
- 11.22 We propose setting an annual price cap at risk of €0.01 to incentivise Dublin Airport. All departing passengers at Dublin Airport pay an airport charge to fund the PRM assistance. The charge has been set by Dublin Airport, in cooperation with users, having regard to the quality of service required by passengers and airlines. Passengers and airlines should be informed if the wait times for PRM assistance meet the standards agreed, which correspond to the charge they pay. This is the same reason why we propose to monitor the satisfaction of PRM passengers with the assistance and facilities provided for them, explained below in the passenger satisfaction subsection.

Availability of Baggage Systems

- 11.23 We propose to monitor the baggage handling system as opposed to monitoring the belts only. The outbound system refers to any infrastructure, equipment and software necessary to sort departing bags between check-in and the area where the baggage handlers can continue to deliver the bags to the aircraft. The inbound system refers to any infrastructure, equipment and software necessary to deliver arriving bags brought from the aircraft by the baggage handlers to the baggage hall where passengers can reclaim their luggage. The new definitions aim to prevent operational disruption caused by parts of the system other than the belts, for example software, as happened in summer 2017 in Terminal 2.41
- 11.24 The outbound baggage system measure will continue to be the percentage of operational time when the system is unavailable for more than 30 minutes. The inbound baggage handling system will be the percentage of operational time when the system is unavailable in a month. In 2014, the inbound baggage measure was calculated on a quarterly basis as opposed to a monthly basis. Our proposed target of 99.5% of availability in a month implies that the inbound baggage system may only be down for 3 hours in a month before breaching the target. This compares to 18 hours under the previous target of 99% availability every quarter.
- 11.25 Dublin Airport has consistently met targets during the current period. In 2018, the outbound baggage belt was never unavailable, and the inbound baggage belt was available 99.9% of the time.

Availability of Fixed Electric Ground Power and Advanced Visual Docking Guidance System

- 11.26 We propose to monitor the availability of Fixed Electric Ground Power (FEGP) and Advanced Visual Docking Guidance System (AVDGS). The availability of FEGP is expected to provide significant environmental benefits including lower carbon dioxide emissions and lower ground noise. The availability of AVDGS contributes to better on-time performance, enhanced safety at gates and lower carbon emissions, among other benefits. As set out in Section 9 and the capex appendix, installation of these units is in the interests of airport users. However, this is

⁴⁰ Regulation 1107/2006 states that assistance should be organised to avoid interruption and delay.

⁴¹ www.independent.ie/business/irish/aer-lingus-attacks-daa-over-failures-at-dublin-airport-35883842.html

only the case if they are functional and reliable.

- 11.27 We have allowed for the installation of FEGP and AVDGS units at stands in a range of apron areas as part of the supplementary capital projects (PACE) approved in 2018, and the CIP for the next period. In particular, we note that the Dublin Airport has consulted on the installation of new solid state FEGP units on the basis that they will have 99% uptime.
- 11.28 We propose to monitor these measures without a price cap adjustment in 2020, and from 2021-2024 with a price cap adjustment. Our capital expenditure allowance provides for a new IT system that, from 2021, will enable Dublin Airport to accurately monitor and report to us the performance of FEGP and AVDGS. The proposed measure will ensure the consistent availability of this important equipment in benefit of passengers and airlines.

Availability of Lifts, Escalators and Travellators in Terminal 2

- 11.29 We propose to measure the availability of lifts, escalators and travellators in Terminal 2. Dublin Airport reports that its internal KPI is 98% uptime, with overall performance in 2018 above 99.4% for these assets. We propose to monitor the availability of this equipment, which is key to a good passenger experience, especially for PRMs.
- 11.30 We propose to monitor the equipment in Terminal 2 because Dublin Airport has an automatic monitoring system in place there.

Passenger Satisfaction

- 11.31 We propose to monitor 13 satisfaction measures for departing passengers (13 for PRMs and 11 for non PRMs) and 5 for arriving passengers. For this purpose, we propose to change the source of the survey from the Airport's Council International (ACI) survey to Dublin Airport's Customer Service Monitor. The Customer Service Monitor surveys passengers on a scale from 1 (not at all satisfied) to 10 (very satisfied).
- 11.32 The Customer Service Monitor has two advantages compared to the ACI survey. The first advantage is sample size. The survey of Dublin Airport has a sample size of nearly 8,500 surveys a year, compared to only 3,000 of the ACI survey. The second advantage is the possibility to survey different types of passengers. Dublin Airport directly surveys about 5,800 departing passengers and 2,700 arriving passengers. Currently, Dublin Airport only uses the ACI survey for departing passengers.
- 11.33 The Customer Service Monitor will allow us to monitor:
- The satisfaction measures for non PRM passengers on a quarterly basis, as it was the case with the ACI survey.
 - The satisfaction measures of PRM on an annual basis. Satisfaction measures for arriving PRM passengers is not available due to small sample size.
- 11.34 Dublin Airport will be responsible for consistently surveying passengers in relation to the 13 measures during the regulatory period. Dublin Airport should consult us in advance of any proposed change to the questionnaire or methodology.
- 11.35 Table 11.3 shows the performance of Dublin Airport in 2017 and 2018 in the 13 proposed measures. The table also shows the proposed targets for positive and negative price cap adjustments. We have set targets for the measure, to reflect the current performance across all passenger types. We are proposing passenger satisfaction targets that are above the internal KPI of Dublin Airport of 8 out of 10 for all measures, except for the satisfaction with

walking distance for departing passengers. Ten of our targets are equal or above to 8.5 out of 10 and 3 targets are equal to 9 out of 10. At the same time, we have set challenging targets for positive price cap adjustment according to the highest performance. The exception is walking distance, for which we are proposing to set a target of 7.7, below the internal KPI of Dublin Airport of 8. Our proposed target reflects the current satisfaction of departing passengers, which is slightly below 8. We recognise that the airport may not be able to easily improve the satisfaction with walking distance. We will continue to consider what is the best target for this and all measures based on submissions by stakeholders.

Table 11.3: 2017-2018 Performance of Dublin Airport in proposed satisfaction measures

Outcome 2. Passenger care		2017	2018	Target (breach)	Target (Positive)
8. Satisfaction with assistance	Departing PRMs	9.71	9.70	9.0	9.8
9. Satisfaction with helpfulness of security staff	Departing	9.06	9.06	9.0	9.5
	Departing PRMs	9.18	9.14		
10. Satisfaction with cleanliness of terminal	Departing	8.91	8.95	8.7	9.3
	Departing PRMs	9.08	9.07		
11. Overall satisfaction	Departing	8.63	8.76	8.5	9.3
	Departing PRMs	8.92	9.01		
	Arriving	8.95	9.01		
12. Satisfaction with cleanliness of toilets	Departing	8.45	8.52	8.3	9.0
	Departing PRMs	8.71	8.68		
	Arriving	8.69	8.55		
13. Satisfaction with gates	Departing	8.29	8.29	8.0	8.7
	Departing PRMs	8.60	8.58		
14. Satisfaction with walking distance	Departing	7.85	7.92	7.7	8.7
	Departing PRMs	7.79	7.85		
	Arriving	8.08	8.23		
Outcome 3. Passenger information					
15. Satisfaction with ease of way finding	Departing	8.93	9.01	8.70	9.70
	Departing PRMs	9.12	9.11		
	Arriving	9.39	9.43		
16. Satisfaction with flight information screens	Departing	8.97	9.05	8.70	9.30
	Departing PRMs	9.10	9.11		
Outcome 4. Passenger facilities and services					
17. Satisfaction with facilities	Departing PRMs	9.11	9.02	8.90	9.30
18. Satisfaction with availability of trolleys	Departing	8.89	8.90	8.50	9.70
	Departing PRMs	8.56	8.79		
	Arriving	9.52	9.33		
19. Satisfaction with ease of using automated check-in	Departing	8.98	8.79	8.70	9.00
	Departing PRMs	n/a (small sample)			
20. Satisfaction with Wi-Fi	Departing	n/a	9.22	9.00	9.50
	Departing PRMs		9.13		

Potential Additional Measures about Satisfaction of Arriving Passengers

- 11.36 The Passenger Advisory Group suggested that the airport should display information about ground transport options at arrivals halls, terminal kerbs and similar areas. Examples of ground transport information are bus and taxi locations and directions, bus destinations, times and fares and expected taxi queue times. The Group suggested that the airport should provide real time information and if this is not possible, time tables should be provided. We also identified a gap in the survey about the Wi-Fi service. In the past, only departing passengers were surveyed.
- 11.37 We are working with Dublin Airport on the options available for surveying arriving passenger satisfaction with the provision of information about ground transport and Wi-Fi. Dublin Airport has indicated that there is a challenge to surveying arriving passengers because they tend to stay in the airport for much shorter periods of time compared to departing passengers.

Arrangements to incentivise Dublin Airport meet/exceed Quality of Service targets

- 11.38 We propose to move from a percentage of the price cap at risk to a fixed amount per passenger. We propose fixed price cap adjustments per incident that range from €0.005 to €0.03. We propose that €0.005 is the lowest appropriate price cap adjustment that we should make per incident. In 2014, the price cap adjustments per incident were around or below half a cent (based on a €9 price cap). We propose the total price cap at risk to be €0.36 per passenger, which is 4.8% of the price cap and is similar to the 4.5% of the price cap that applied in 2014.
- 11.39 In 2014, we prioritised effective airport processes by putting the highest levels of revenue at risk for that category. This was followed by passenger care, information and facilities. We propose to continue giving the highest priority to effective airport processes. However, we also propose to increase the relative importance of the availability of facilities and services for passengers. Compared to 2014, we have rebalanced the weights between the second and fourth outcomes. We note that in 2014, we only had one measure that related to passengers being able to use the facilities they need, which was satisfaction with Wi-Fi.
- 11.40 Table 11.4 summarises the total amount at risk proposed under each outcome. Tables A3.1 and A3.2 in Appendix 3 show the per incident price cap at risk for each measure.

Table 11.4: 2019 price cap at risk compared to 2014

Outcome	Per passenger amount at risk	2019 weight	2014 weight
1. Airport processes are reliable, efficient and punctual <ol style="list-style-type: none"> 1. Maximum security queue time 2. Maximum wait time for PRM assistance 3. Availability of outbound baggage handling system 4. Availability of inbound baggage handling system 5. Availability of Fixed Electric Ground Power 6. Availability of Advanced Visual Docking Guidance System 	€0.21	58%	56%
2. Passengers get the care they need <ol style="list-style-type: none"> 7. Satisfaction with PRM Assistance 8. Satisfaction with helpfulness of security staff 9. Satisfaction with cleanliness of terminal 10. Overall Satisfaction 11. Satisfaction with cleanliness of toilets 12. Satisfaction with gates 13. Satisfaction with walking distance 	€0.04	11%	28%
3. Passenger information <ol style="list-style-type: none"> 14. Satisfaction with way finding 15. Satisfaction with flight information screens 	€0.04	11%	11%
4. Passenger facilities and services <ol style="list-style-type: none"> 16. Availability of escalators, lifts and travellers in terminal 2 17. Satisfaction with PRM facilities 18. Satisfaction with availability of trolleys 19. Satisfaction with ease of using automated check-in 20. Satisfaction with Wi-Fi 	€0.07	19%	6%
Total	€0.36	100%	100%

Source: CAR 2014 Determination, CAR calculations

11.41 We also propose to provide a positive incentive for security queue wait times and the 13 passenger satisfaction measures. We propose to waive the highest breach of a measure if the performance of Dublin Airport in security queue times or passenger satisfaction is above the target for their respective positive incentive, as set out below. We propose these positive incentives to facilitate the efficient and economic development of the airport that meets the requirements of users.

11.42 We will continue to assign most of the price cap at risk to objective measures. Table 11.5 shows that 67% of the price cap at risk corresponds to objective measures. This compares to 56% in 2014. This increase is due to a higher number of objective measures. In 2014, there were only 3 objective measures, one for security queue times and two for baggage handling belts. Our current proposal increases the objective measures to 6, as it adds three measures of availability (1) Fixed Electric Ground Power, (2) Advanced Visual Docking Guidance System, and (3) lifts, escalators and travellers in Terminal 2.

Table 11.5: 2019 price cap at risk of objective measures compared to 2014

Measures	Per passenger amount at risk	2019 weight	2014 weight
Objective	€0.24	67%	56%
Subjective	€0.12	33%	44%

Source: CAR 2014 Determination, CAR calculations

11.43 For the maximum security queue target, we propose four bands for negative price cap adjustment per daily breach which increase according to the outturn queue time. The first band starts by reducing the price cap by 0.5c for breaching our combined target of 70% of time under 15 minutes or 97% of time under 25 minutes. The next three bands increase the price reduction to 1 cent if the maximum queue time increases from 25 to 40 minutes, 2 cents if the queue is between 40 and 60 minutes and 3 cents if the queue time is over 60 minutes.

11.44 We also propose a positive price cap adjustment. We will waive the highest breach of the daily security target in a given year, if Dublin Airport has an average performance of 80% of time every month of less than 10 minutes. The positive price cap adjustment is based on monthly performance, while the negative price cap adjustments are based on daily performance. Table 11.6 summarises the maximum queue time targets and price cap at risk.

Table 11.6: Proposed Targets of Maximum Queue Time

Maximum queue time	Price cap at risk per incident
Percentage of time in a day when the queue is less than the target. Total time is the sum of operational minutes in a day minus the minutes when the queue was zero.	
Every month, 80% of time the queue is less than 10 minutes	Waives the highest breach of the targets below
Every day, 70% of time the queue is equal to or more than 15 minutes or 97% of time queue is equal to or more than 25 minutes	Daily -€0.005
Every day, 97% of time the queue is more than 25 but less than 40 minutes	-€0.01
Every day, 97% of time the queue is equal to or more than 40 but less than 60 minutes	-€0.02
Every day, 97% of time the queue is equal to or more than 60 minutes	-€0.03

11.45 The proposal set out in Table 11.6 responds to the views shared by Aer Lingus, Dublin Airport and the Passenger Advisory Group that the current target does not distinguish between a 31-minute or a 51-minute or longer queue. All the targets combined will incentivise Dublin Airport to have lower average security queue times and this benefits passengers and airlines. Table 11.7 shows the number of breaches and the maximum queue time within the breaches every year from 2015-2018. The proposed target would impose a higher price adjustment for the 55-minute breach compared to the others.

Table 11.7: Terminal 1 breaches during the 2014 Determination

Year	Breaches	Maximum Queue Time (minutes)
2015	1	31
2016	2	37
2017	1	33
2018	4	55

Source: CAR, reported by Dublin Airport

Measures that will not be Monitored

11.46 Other potential measures of quality of service were raised in the 2018 Issues Paper, recommendations from the Passenger Advisory Group and submissions of stakeholders. We considered those measures but decided not to monitor them either because they will be captured through other measures or because there is no data readily available to monitor them at this time.

Passengers with Disabilities or Reduced Mobility who Travel without Assistance

11.47 The Passenger Advisory Group stated that present satisfaction measures represent mostly the views of passengers who do not require assistance and supports surveying the satisfaction of PRMs who request and obtain assistance. In response to this, we are proposing to survey wait times for assistance of departing and arriving passengers and the satisfaction of departing passengers with the assistance and facilities for them. Due to sample size issues, we may not survey the satisfaction of arriving PRMs with the assistance and facilities.

11.48 The Passenger Advisory Group supported surveying the satisfaction of PRMs who choose to travel without assistance. The Group stated that these passengers may need less extensive and more targeted assistance only at specific points of the airport journey. For example, passengers with certain disabilities (e.g. autism and Alzheimer's) may walk but may have difficulty finding their way or coping with crowded places and queues. The Group acknowledged the difficulty in identifying these passengers and surveying them, because they may choose not to disclose that they have a disability or reduced mobility.

11.49 In response to this, while we propose to survey the satisfaction of PRMs who travel with assistance, we are not proposing to monitor the satisfaction of PRMs who choose to travel without assistance because the data is currently unavailable. As acknowledged by the Group, PRMs who travel without assistance are difficult to identify and survey.

Check-in

11.50 In the Issues Paper, we stated that while airlines have significant control over the check-in experience, Dublin Airport may have some influence by, for example, providing automated technology. Dublin Airport has suggested that data should be made available by airlines in relation to the typical and/or maximum time it takes for passengers to check-in.

Transfer Passengers

11.51 The Passenger Advisory Group suggested that we should monitor the satisfaction of transfer passengers as they have been rapidly increasing. In the Issues Paper, we considered two measures that may be relevant to transfer passengers: transfer security queue times and satisfaction with the ease of making transfers. We do not propose to monitor transfer passenger queues at this time because, in 2018, Dublin Airport opened a dedicated transfer facility which results in a significant number of passengers not requiring to go through security check. The small number of transfer passengers who cannot use the transfer facility and require security and immigration checks in other areas of the airport would be monitored as part of the proposed targets of security queue wait times (linked to the price cap) and immigration wait times (without price cap at risk).

Aircraft Taxi Times

11.52 The Passenger Advisory Group suggested that we should monitor taxi times of aircraft. Taxi times can have many definitions depending on the context. For airport Collaborative Decision

Making, Eurocontrol defines taxi-in time as the period between landing and parking; and taxi-out time as the period between moving for departure and take-off.

- 11.53 There is little consensus among stakeholders on appropriate or acceptable taxi-in or taxi-out times. Dublin Airport supports monitoring, without a price cap adjustment, the punctuality of arrival and departure flights, as this is an important consideration of passengers. We agree with Dublin Airport's suggestion and will consider how this may be measured without price cap at risk.

Bussing Times

- 11.54 Since November 2017, Dublin Airport has operated a shuttle bus that continuously transports passengers from the terminal bus gates to the South Gates facility. It differs from the buses operated by airlines or ground handlers, as it operates continuously and does not transfer passengers by flight destination. The Passenger Advisory Group suggested monitoring the passenger satisfaction with this facility or its bus journey. We decided not to monitor this measure as the sample size is small and the satisfaction with bussing is captured in overall satisfaction.

12. Other Issues

12.1 In this section we discuss a number of issues which do not naturally fit into one of the other sections.

Incentive Schemes

12.2 In the Issues Paper, we invited submissions on the appropriate regulatory treatment of incentive scheme costs having regard to ICAO principles, our statutory objectives and the potential effect of any policy change on either airport charges or the continued existence of incentive schemes. We stated that we could continue with the current accounting treatment, if appropriate, or consider other approaches to reduce the likelihood of cross subsidisation, such as 1) treating incentive scheme costs as non-recoverable operating expenditure or 2) treating the costs as recoverable or partially recoverable operating expenditure.

Submissions on Incentive Schemes

12.3 Aer Lingus suggests that if we continue enforcing the cap based on revenues net of route incentives, we need to approve the incentives that may be included. Aer Lingus states that incentives must be transparent for users to assess whether they satisfy the principles of non-discrimination and cross-subsidisation. It highlights the need for transparency about the definition, eligibility (which should be based on objective factors) and validity period of incentives.

12.4 Dublin Airport suggests that incentives for growth and increased connectivity are self-funding, and so are justified in the sense that they increase overall use of the airport leading to lower charges on average for all airlines.

12.5 IATA supports considering the cost of incentives as non-recoverable. IATA suggests that users not benefiting from incentive schemes should not be paying for those that do.

12.6 Ryanair supports treating incentive schemes as non-recoverable opex. It adds that netting off “traffic / route incentive schemes” from airport charges revenues has no basis in legislation or the 2014 Determination.

Commission Response

12.7 We propose to continue our current regulatory treatment of incentive schemes, whereby rebates or discounts on airport charges liability accrued in a given year, which relate to schemes which have been consulted on and published, may be netted off against aeronautical revenues for that year. This is in line with the paper recently published by the Thessaloniki Forum of European Airport Charges Regulators, which notes the importance of considering the charging strategy as a whole rather than considering incentive or discount schemes as being particularly distinct from other aspects, such as the basic per passenger and per aircraft movement charges.⁴² Having considered this issue in detail as part of the Forum working group, we are fully aligned with the paper in that regard.

12.8 The perceived distinction between incentive schemes and other aspects of a charging strategy appears to arise from the fact that one is rebated while the others are not. Regardless of this, each will affect the charges paid by airport users, as set out in the menu of charges or the scheme Terms and Conditions, as applicable. There is significant overlap in how airports describe and implement mechanisms to vary charges, but if the ultimate outcome in terms of

⁴² www.aviationreg.ie/_fileupload/2018/Incentives%20and%20Discounts.pdf

airport charges payable is the same, then this is irrelevant. For example, if we were to determine that GROW rebates cannot be netted off against airport charges, Dublin Airport could simply adjust the charging strategy such that all or most of the amounts are instead deducted from the initial invoices, or change the actual menu of charges to provide for tiered levels of airport charges depending on traffic growth.

- 12.9 We agree with Aer Lingus that Incentive Schemes, like any other aspect of the charging strategy, must be Non-Discriminatory in accordance with Article 3 of the ACD, although we would note that this question is more relevant to the annual charges consultation rather than this determination process. Again, we are fully aligned with the Thessaloniki Forum paper with regards to assessing whether a charging strategy is Non-Discriminatory.
- 12.10 Dublin Airport should consult with users on all elements of the charging strategy as part of the annual consultation. The Forum recommends that, at annual consultations, airports should justify airport charging strategies, including incentive schemes, in accordance with the relevant articles in the ACD:
- Issues of public or general interest (Article 3),
 - a common charging system in certain circumstances (Articles 4 and 5),
 - differentiation according to the cost, quality, or scope of services provided or any other objective and transparent justification (Article 10). The Forum particularly notes that justified behavioural or efficiency incentivisation should be considered a valid reason for differentiated charges.
- 12.11 The Forum recommends that it may not be necessary to consult on every element of the charging strategy at every consultation, but rather focus on elements which the airport is proposing to change, or existing elements specifically requested or questioned by users. Terms and Conditions attached to any elements of the charging strategy form part of the strategy, and thus should form part of the consultation, particularly if amendments are proposed.

Under and Over Collection - K Factor

- 12.12 In the Issues Paper, we sought views on 1) whether we should retain the K Factor, and 2) if we retain it, should we improve it and how.
- 12.13 We offered two possibilities to deal with under collections if we removed the K Factor: either under collections are non-recoverable or they could be returned to the airport at the time of making the next determination.
- 12.14 We offered two possibilities to improve the K Factor, if we decided to keep it. Option 1 was to set a fixed K Factor based on outturn passenger numbers, and an updated forecast for passenger numbers ahead of the year in question. Option 2 was to set a provisional K Factor (using either the current methodology or that proposed in Option 1) which would then be adjusted based on final outturns when the final price cap is calculated in the following year.

Submissions on the k factor

- 12.15 Aer Lingus supports removing the K Factor but suggests that, if we decide to retain a modified k-factor, it should be based on the passenger outturn in the last known full year rather than the forecasted traffic for year t+2.
- 12.16 Dublin Airport supports keeping the K Factor due to the complexity of forecasting annual revenues. Dublin Airport supports Option 1 and agrees that there is merit in removing the

volume impact on the K Factor as that is not the intention of the mechanism.

- 12.17 IATA states that the application of a “k” Factor is not uncommon and that it should be based on the most recent traffic forecast.

Commission Response

- 12.18 We propose to retain the K Factor to continue to allow for imperfect pricing by Dublin Airport. We intend to maintain the limit on the K Factor at 5% of the price cap.
- 12.19 We propose to improve the k factor by implementing Option 2. We will therefore set a provisional K Factor as part of the provisional price cap statement, based on outturn passenger numbers and an updated forecast for passenger numbers ahead of the year in question. This would then be adjusted based on final outturns when the final price cap is calculated in the following year. This would work similarly to the adjustment for quality of service. We propose adopting Option 2, rather than Option 1, as it would entirely remove volume risk from the K Factor, ensuring perfect recovery up to the limit on the K Factor.

Persons with Reduced Mobility (PRM) Charge

- 12.20 Dublin Airport notified the Commission of an issue with their current formula to calculate the PRM charge. Dublin Airport proposed two options in relation to the treatment of a cumulative under-recovery to date. In the Issues Paper, we sought stakeholder views on the overall issue and the options proposed.

Submissions on the PRM Charge

- 12.21 Aer Lingus states that the PRM charge is an airport charge and should be within the price cap. Aer Lingus and IATA suggest that there needs to be an incentive for Dublin Airport to manage this service efficiently and reduce costs.
- 12.22 Dublin Airport suggests that the PRM charge should be taken out of the price cap as it is artificially inflating the airport charges incurred by airport users.

Commission Response

- 12.23 We will continue to include revenues from PRM charges in assessing compliance with the annual price cap. We propose not to increase the price cap to allow Dublin Airport to pass on to users the accumulated under-recovery of the PRM charge to date. This is because, in 2014, we granted Dublin Airport a cost allowance for the provision of PRM services which has been higher than the outturn cost per passenger paid by Dublin Airport. Table 12.1 compares the per passenger opex allowance and the outturn PRM costs. As PRM fees are within the price cap, their under-collection has allowed for other airport charges (and/or the K Factor) to be higher than would otherwise have been the case. As set out previously, we do not intend to carry out any retrospective adjustments to risks assigned to Dublin Airport in the 2014 Determination.

Table 12.1: PRM opex allowance compared to outturn costs

	2015	2016	2017	2018	2019
2014 Determination					
Opex allowance (€ m)	5.1	5.4	6.1	6.5	7.0
Per departing passenger (€)	0.46	0.47	0.52	0.54	0.57
Outturns					
Cost (€ m)	5.1	5.9	6.5		
Per departing passenger (€)	0.41	0.42	0.44		
Per Passenger Difference (€)	0.05	0.05	0.08		

Source: 2014 Determination, Dublin Airport regulatory accounts, CAR calculations

Peak Pricing

- 12.24 Aer Lingus suggests that peak pricing by time of day is not consistent with the objective stated in the National Aviation Policy about the development of Dublin Airport as a hub. Aer Lingus indicates that Dublin Airport is already pricing higher at peak times by having lower pricing in winter. It adds that peak pricing by time of day may not have any impact on smoothing demand given that Dublin Airport is currently full over most of the day in summer.
- 12.25 Ryanair asks us to consider whether the regulatory regime should include the use of sub price caps (for example, relating to efficiency, cost of airline requirements, behaviours) rather than a single overall price cap as is the current approach

Commission Response

- 12.26 Our proposal does not include any sub caps requiring Dublin Airport to offer differential prices (including peak prices). Dublin Airport will continue to have discretion on how it sets individual charges at annual consultations, while complying with the ACD.
- 12.27 We continue to hold the view, based on what we observe as part of the annual charges consultation and otherwise, that implementing sub-caps or peak pricing would be a disproportionate interference in Dublin Airport's pricing. The ACD provides a forum for users to consider and challenge the detail of Dublin Airport's pricing proposals. Demand profiles, the supply of various infrastructure, and the desirability of certain behaviours, can all change significantly over a determination period. Even if we considered that there was a particular pricing issue that needed to be addressed as part of a determination, we consider that it would be difficult to foresee how this situation may develop over the period and implement an appropriate granular price cap.

13. Compliance with Statutory Requirements

- 13.1 In this Section, we set out how this Draft Determination complies with our statutory requirements. We must have regard to the statutory objectives and factors set out in Section 33 of the 2001 Airport Aviation Act, as substituted by Section 22(4) of the 2004 State Airports Act. In 2005. Here we set out our interpretation of these objectives and factors.⁴³ This interpretation is consistent with our determinations since 2005. Our statutory objectives permit us to regulate airport charges at Dublin Airport with reference to economic efficiency, which remains the driving principle as in previous determinations.
- 13.2 We have not received any Ministerial Directions. The 2017 National Policy Statement on Airport Charges Regulation proposed to repeal the statutory basis for policy directions by the Minister for Transport, Tourism and Sport to the Commission. Implementing legislation for the policy changes proposed in 2017 has yet to be enacted.

Statutory Objectives

- 13.3 In setting the maximum level of Airport Charges, we have three statutory objectives. Currently, we consider these objectives to have equal weighting, to be read together and in light of each other.

To facilitate the efficient and economic development and operation of Dublin Airport which meet the requirements of current and prospective users of Dublin Airport

- 13.4 We meet this statutory objective by proposing a price cap for Dublin Airport that remunerates forecast efficient operating and capital costs. In Sections 6 and 8, we provide more detail on how we set the draft allowances for operating expenditure and the cost of capital. In Section 9, we set out the proposed allowances for capital investment projects necessary to increase the airport's capacity and meet the requirements of current and prospective users.

To protect the reasonable interests of current and prospective users of Dublin Airport in relation to Dublin Airport

- 13.5 We meet this objective in two ways. First, as stated above, we propose to set a price cap that remunerates the estimated efficient costs for Dublin Airport to provide the services that users require (see Sections 6, 8 and 9).
- 13.6 Second, we propose to set a comprehensive set of quality of service standards (see Section 11). Our proposal on standards of quality of service responds to the advice from the new Passenger Advisory Group and other stakeholders. We established this Group in 2018 to improve our understanding of what is important for passengers at Dublin Airport.

To enable Dublin Airport Authority to operate and develop Dublin Airport in a sustainable and financially viable manner

- 13.7 In Section 10, we set out how this Draft Determination satisfies this statutory objective. First, the proposed price cap remunerates Dublin Airport for all forecast efficient operating and capital costs. Second, the proposed price cap enables the airport to raise the funds necessary to deliver the next Capital Investment Programme at a minimum credit rating of investment grade. Some investment costs will not be fully depreciated by end 2024. These remaining costs will be included in the closing RAB in 2024 with the intention that such costs will be

⁴³ www.aviationreg.ie/fileupload/Image/PR_Policy_PUB2_POL_CP9_2004_AVIATION_ACT.pdf

remunerated through airport charges in future regulatory periods.

Statutory Factors

13.8 In setting the maximum level of Airport Charges, we must have due regard to nine statutory factors.

The restructuring including the modified functions of Dublin Airport Authority

13.9 Since the last Determination, there has been no change in the structure or functions of daa which are relevant for the purposes of fulfilling our statutory function to set the maximum levels of Airport Charges.

The level of investment in airport facilities at Dublin Airport, in line with safety requirements and commercial operations in order to meet the needs of current and prospective users of Dublin Airport

13.10 We propose to set allowances for efficient operational and capital expenditure, together with quality of service targets, which have due regard to this factor.

13.11 In Section 6, we propose efficient allowances for operational expenditure. In setting these allowances, we have regard to the regulatory requirements of the airport in relation to the operational costs. Examples of regulatory requirements are the provision of the security search for departing passengers and assistance to passengers with disabilities or reduced mobility required by Regulation 1107/2006.

13.12 In Section 9, we assess Dublin Airport's Capital Investment Programme. We propose to allow an efficient level of capital investment to meet the needs of current and prospective users, having regard to safety requirements and the commercial operations of the airport. Some capital projects that we allow in the asset care, security, capacity and IT groups respond to various regulatory requirements concerning, for example, building safety, airfield safety and environmental protection.

13.13 In Section 11, we propose our quality of service standards having due regard to the regulatory requirements applicable to Dublin Airport. For example, we set our target for security queue wait times having regard to the duty of Dublin Airport to carry out a thorough security inspection in line with regulatory requirements. Also, we set our targets in relation to the assistance of passengers with disabilities or reduced mobility having regard to the requirement to comply with the quality of service standards in Regulation 1107/2006.

The level of operational income of Dublin Airport Authority from Dublin Airport, and the level of income of Dublin Airport Authority from any arrangements entered into by it for the purposes of restructuring under the State Airports Act 2004

13.14 We are not aware of any income arising from arrangements daa has entered into for the purposes of restructuring under the 2004 State Airports Act.

13.15 In Section 4, we set out our proposed approach to regulation for Dublin Airport. When setting the price cap, we continue to favour a RAB based building blocks approach with a single-till. For this reason, we have included commercial revenues in our price cap calculations, such that Dublin Airport will be able to recover sufficient income from airport charges to meet efficiently incurred costs.

Costs or liabilities for which Dublin Airport Authority is responsible

- 13.16 The Draft Determination has regard to costs and liabilities of Dublin Airport in Sections 6 and 9, where we set out the proposed allowances for operating and capital costs.

The level and quality of services offered at Dublin Airport by Dublin Airport Authority and the reasonable interests of the current and prospective users of these services

- 13.17 In Section 11, we propose a comprehensive set of quality of service standards to incentivise Dublin Airport to offer services in line with the reasonable requirements of current and prospective users. For this purpose, we propose to improve our monitoring scheme for quality of service compared to that used in the 2014 Determination. These proposals have regard to the advice received from the Passenger Advisory Group between November 2018 and March 2019 and other stakeholders. Our engagement with the Passenger Advisory Group is in line with the 2017 Policy Statement of Airport Charges Regulation.

Policy statements, published by or on behalf of the Government or Minister of the Government and notified to the Commission by the Minister, in relation to the economic and social development of the State

- 13.18 In July 2018, we were notified of the 2015 National Aviation Policy and the 2017 Policy Statement on Airport Charges Regulation. The National Aviation Policy is most relevant to the capital investment allowances that support the development of Dublin Airport. We cover the capital project allowances in Section 9.
- 13.19 We discuss how we have regard to Government policies related to the financial structure of Dublin Airport in Sections 8 and 10. We have regard to the Government policies to seek a dividend from Dublin Airport of a minimum of 30% of normalised profit after tax and not to provide additional equity to Dublin Airport.⁴⁴ Our proposed price cap allows for return to shareholders via the return on equity component of the cost of capital. Return can be realised through an increase in retained earnings or the payment of dividends. Due to Government policy, the only source of equity funding available to Dublin Airport is to retain earnings. Payment of a dividend is contingent on the company being able to do so, for example, if the airport can maintain a credit rating of at least investment grade.
- 13.20 The 2017 Policy Statement concluded that economic regulation of Dublin Airport will continue, in recognition of its significant market power. The policy proposes changes to the existing regime in order to achieve the identified policy objectives. While the legislation for the policy changes has yet to be enacted, we have regard to the proposed changes that are related to this Draft Determination.
- 13.21 First, the Policy Statement proposes that we shall no longer be mandated to have specific regard to the financial viability of Dublin Airport in making a determination. The Statement adds that this is intrinsic in the primary objective of protecting the interests of current and future users. In Section 10, we show how our proposed price cap enables the financial viability of Dublin Airport having regard to this policy proposal and our statutory objectives.
- 13.22 Second, the Policy proposes an explicit reference to competition in the revised legislation. In Section 9, we propose to allow capital projects that will increase the processing capacity of the airport, encouraging and facilitating new entrants and thus facilitating competition in the airline market and the ground handling market. This will benefit current and future users by

⁴⁴ www.dttas.ie/sites/default/files/publications/aviation/english/national-aviation-policy-ireland/national-aviation-policy-ireland.pdf

providing for increased choice and value in airport and aviation services.

- 13.23 Third, the Policy proposes that we will be required to have regard to Government policy on climate change and sustainability. In Section 9, we propose to allow projects that will enable Dublin Airport to align itself with environmental policy and reduce its impact on the environment through, for example, improved surface water management systems, wider use of cleaner energy and improved operational efficiency.

The cost competitiveness of airport services at Dublin Airport

- 13.24 We propose a lower price cap than currently in place, which at the same time will enable Dublin Airport to deliver its ambitious Capital Investment Programme. We arrived at a lower price cap due to a volume effect brought by the rapid growth in passenger numbers over the last period and to the efficiency effect embedded in our proposed operational and capital cost allowances.
- 13.25 We continue to read this factor in light of our statutory objective which seeks the efficient operation of Dublin Airport. We set the price cap with regard to the costs that an efficient operator at Dublin Airport would need to incur.

Imposing minimum restrictions on Dublin Airport Authority consistent with the functions of the Commission

- 13.26 We propose to continue to afford Dublin Airport large discretion in how it manages and runs the airport. We have proposed no sub caps. Subject to complying with the price cap, Dublin Airport continues to have discretion on its charging strategy, subject to requirements of the Airport Charges Directive, and its actual expenditure on operating and capital costs.

Such national and international obligations as are relevant to the functions of the Commission and Dublin Airport Authority

- 13.27 In making this Draft Determination, we have regard to national and international obligations currently in place.
- 13.28 We are the Independent Supervisory Authority for the purposes of the Airport Charges Directive. The Directive does not change our role in determining the price cap within which Dublin Airport can set individual Airport Charges through the annual consultation process.
- 13.29 In this Draft Determination, we have regard to the recommendations of the Thessaloniki Forum of airport charges regulators for better implementation of the Directive. We have regard to the recommendations on how to set the cost of capital, which we discuss in more detail in Section 8, and on the assessment of Non-discrimination in Airport Charges which we discuss in the context of incentive schemes in Section 12.
- 13.30 Under national law, we have regard to Dublin Airport's safety and compliance obligations. We have also had regard to the security, immigration and health and safety requirements that airports are subject to.

14. How to Respond to this Draft Determination

- 14.1 We seek the views of interested parties regarding the proposals in this draft Determination. The deadline for responses to this Draft Determination is **5:00 PM, 8 July 2019**. We will not consider submissions received after the deadline.⁴⁵
- 14.2 Responses should be titled “Response to the 2019 Draft Determination CP3/2019” and sent:
- By email to: Info@aviationreg.ie (**preferable**); or
 - By post to: 3rd Floor, Alexandra House, Earlsfort Terrace, Dublin 2, D02 W773
- 14.3 We may correspond with interested parties who make submissions, seeking clarification or explanation of their submissions.
- 14.4 Respondents should be aware that we are subject to the provisions of the Freedom Information legislation. Ordinarily we place all submissions received on our website.⁴⁶ We may include the information contained in submissions in reports and elsewhere as required. If a submission contains confidential material, it should be clearly marked as confidential and a redacted version suitable for publication should also be provided.
- 14.5 We do not ordinarily edit submissions. Any party making a submission has sole responsibility for its contents and indemnifies us in relation to any loss or damage of whatever nature and howsoever arising suffered by us as a result of publishing or disseminating the information contained within the submission.

⁴⁵ The time of receipt of submissions, whether in electronic form or otherwise, shall be the time when we receive the submissions at or in our offices. If we receive a portion of a representation prior to the deadline, and the remainder after the deadline, we reserve the right to only consider the portion received prior to the deadline.

⁴⁶ While we endeavour to ensure that information on our website is up to date and accurate, we accept no responsibility in relation to the accuracy or completeness of our website and expressly exclude any warranty or representations as to its accuracy or completeness.

15. Appendix 1: Cross Check Elasticity Estimations for Commercial Revenues

Net retail

Chart A1.1: Net retail – Estimation of Passenger and GDP Elasticity

Net Retail	Monthly data	Monthly data Post 2010		Annual data		
Model	(1) ^a	(2) ^a	(3) ^a	(4)	(5)	(6)
Passenger Elasticity	1.0***	1.3***	1.6***	1.1***	0.5***	No
GDP Elasticity ^b	n/a			No	1.0***	1.5***
Trend	-0.0004*	No	-0.01**	-0.01	-0.02***	-0.01***
Adj R-squared	0.92	0.97	0.97	0.90	0.99	0.95

a. Models using monthly data include monthly fixed effects. These are mostly significant in model (3), half of them are significant in model (2), and they are mostly not significant in model (1).

b. Monthly GDP data is not available.

All models include a constant.

- 15.1 Our passenger elasticity for retail of 1.1 compares to 0.7 in 2014. We cross check this result by analysing monthly data and annual data including Irish GDP growth. Monthly data post 2010 show that the passenger elasticity has increased in recent years supporting our higher result.
- 15.2 Annual data supports our assumption that retail revenue depends not only on the number of passengers but also on the level of disposable income of those passengers. Ideally, we would simultaneously estimate a passenger and a GDP elasticity of retail. However, we cannot obtain reliable estimates because GDP and passenger numbers have a very high correlation (0.9).
- 15.3 Annual data from 2001 to 2018 shows that when estimated simultaneously, the passenger elasticity is 0.5, lower than when estimated alone (1.1), but the GDP elasticity is 1. The GDP elasticity increases to 1.5 when we do not simultaneously estimate the passenger elasticity.

Car Parks

Chart A1.2: Car Park – Estimation of Passenger and GDP Elasticity

Net Retail	Monthly data	Monthly data Post 2010	Annual data		
Model	(1) ^a	(2) ^a	(3)	(4)	(5)
Passenger Elasticity	1.3***	1.3***	1.5***	0.5*	No
GDP Elasticity ^b	n/a		No	1.4***	1.9***
Trend	-0.001***	0.0004	-0.04***	-0.1***	-0.1***
Adj R-squared	0.80	0.98	0.70	0.91	0.86

a. Models using monthly data include monthly fixed effects. These are all significant in model (2), and mostly significant in model (1).

b. Monthly GDP data is not available.

All models include a constant.

- 15.4 Our passenger elasticity for car parks of 1.5 compares to 1.0 in 2014. We cross checked this result by analysing monthly data from January 2001 to September 2018 and from January 2010 to September 2018. Both sets of data provide an elasticity of 1.3, higher than the elasticity in 2014. We accounted for the seasonality of the data by using dummy variables for each month. The seasonality of long-term car parks revenue is shown in Chart 7.1 in Section 7.

- 15.5 Annual data supports our assumption that car park revenue depends not only on the number of passengers but also on the level of disposable income of those passengers. This is similar to retail revenue. Annual data from 2001 to 2018 shows that when estimated simultaneously, the passenger elasticity is 0.5, lower than when estimated alone (1.5), but the GDP elasticity is 1.4. The GDP elasticity increases to 1.9 when we do not simultaneously estimate the passenger elasticity.

Commercial Concessions

Chart A1.3: Commercial Concessions – Estimation of Passenger Elasticity

Net Retail	Monthly data	Monthly data Post 2010	Annual data
Model	(1) ^a	(2) ^a	(3)
Passenger Elasticity	0.7***	0.9*	0.6*
Trend	-0.0001	0.002	-0.0007
Adj R-squared	0.4	0.77	0.51

a. Models using monthly data include monthly fixed effects. Half of these are significant in model (1), and mostly not significant in model (2).

b. Monthly GDP data is not available.

All models include a constant.

- 15.6 Our passenger elasticity for commercial concessions of 0.6 is higher than the 0.2 estimated in 2014. We crosscheck our result using monthly data. Monthly data from January 2001 to September 2018 also yields an elasticity of 0.7. Monthly data post January 2010 yields a higher elasticity of 0.9.

Lounges, Fast Track and Platinum Services

Chart A1.4: Car Park – Estimation of Passenger and GDP Elasticity

Net Retail	Annual data		
Model	(3)	(4)	(5)
Passenger Elasticity	2.73***	1.7*	No
GDP Elasticity ^b	No	1.7	3.5***
Trend	0.09***	0.1*	0.06*
Adj R-squared	0.95	0.95	0.94

All models include a constant.

- 15.7 Our econometrics analysis resulted in elasticities we consider to be unrealistically high, a passenger elasticity of 2.73 and a GDP elasticity of 3.5. When estimated simultaneously, the passenger and GDP elasticities are 1.7, which is lower than when estimated alone. However, due to the high correlation, only the passenger elasticity is statistically significant.

16. Appendix 2: Assessment of Capital Investment Programme by Project

Asset Care- Civil, Structural, Fleet

16.1 We propose to provide an allowance for all projects in this category.

CIP.20.01.001- Runway 10-28 Delethalisation

16.2 The delethalisation of buried vertical surfaces on a runway strip is required under EASA regulations (CS ADR-DSN.B.165 (c)) to avoid presenting a buried vertical face to aircraft wheels in the event of a runway excursion.⁴⁷ Thus, this project is in the interests of airport users. Dublin Airport has already carried out more than half of the required delethalisation works as part of its Airfield Maintenance expenditure during the regulatory period 2015-2019; this allowance is for the outstanding works. We are proposing that it be flexible.

CIP.20.01.002- Apron Rehab

16.3 The purpose of this project is to rehab certain areas of apron pavement which have been identified by Dublin Airport as unsatisfactory (i.e. in need of immediate attention) or degraded (in need of rehab within the next 2-7 years). In total this project will rehab 67,000 square metres of apron. This project will fall within the scope of the StageGate process; thus there is scope for this costing to adjust as the required solution (for example, overlay only rather than full reconstruction in certain areas) is identified through the detailed condition assessment. We have reviewed the historic maintenance carried out and can confirm that none of this pavement has been rehabbed as part of, at least, the last two determination capex programmes. This project is in the interests of users as it will protect the integrity of a key airport asset and prevent further degradation which could ultimately lead to more costly repairs being required.

CIP.20.01.003- Taxiways Rehab

16.4 The purpose of this project is to rehab certain taxiways which have been identified by Dublin Airport as unsatisfactory (i.e. in need of immediate attention) or degraded (in need of rehab within the next 2-7 years). In total this project will rehab 38,000 square metres of taxiway (Taxiways M2- now renamed W2-, parts of F-Outer, B1, E1, and Link 2). We are proposing to include it in the StageGate process given that the costing assumes full reconstruction is required for all areas; following detailed assessment it may be possible to reduce costs through overlay instead, where the pavement condition allows for this and maximum allowed gradients will not be exceeded. We have reviewed historic maintenance carried out and can confirm that none of these taxiways have been rehabbed as part of, at least, the last two determination capex programmes. This project is in the interests of users as it will protect the integrity of these assets and prevent further degradation which could ultimately lead to more costly repairs being required.

CIP.20.01.004- Apron Roads Rehab

16.5 This project provides for the rehab of 9,750 square metres of apron road around Piers 2 and 3, in front of Hangar 1, and in front of T2. The costing assumes full reconstruction will be required. We propose to make this project a deliverable; the deliverability element relates to apron road and the total quantum of square metres. Thus Dublin Airport must rehab at least 9,750 square metres of apron road over the period 2020-2024 to retain this allowance in full.

⁴⁷ www.easa.europa.eu/sites/default/files/dfu/Annex%20to%20EDD%202017-021-R%20-%20CS-ADR-DSN%20Issue%204_0.pdf

None of the roadways identified have been rehabbed as part of the last two capex programmes, at least. It is in the interests of users as it will protect the integrity of these assets and prevent further degradation, which could ultimately lead to more costly repairs being required.

CIP.20.01.006- Southern Perimeter Maintenance Road Upgrade

- 16.6 This project includes rehab of parts of the southern maintenance road, which is 30 years old, as well as providing 100m of additional width for vehicles to pass every 500m, and replacement/upgrade of 400m of boundary fence. The cost associated with rehab of the existing road has been based on visual inspection which has driven assumptions regarding the requirement for either overlay or full reconstruction.
- 16.7 Since the airfield was re-designated as part of the CPSRA, trucks making deliveries to the airfield maintenance base must use this road, as must Snow and Ice vehicles during winter. This road is therefore being used more frequently and by heavier vehicles, which cannot pass each other given the current width. Thus we take the view that all elements of this project are in the interests of users to ensure efficient vehicle access/egress, as well as reducing the risk of Foreign Object Debris (FOD) in the vicinity of RW10/28, and prevent unauthorised airfield access. We are proposing that the allowance is flexible.

CIP.20.01.008- Runway Approach Lighting Mast Improvement

- 16.8 This project encompasses frangible masts for approach lights to all four runways. The current masts are not frangible. As stated by Dublin Airport, they are thus no longer compliant with EASA standards (see footnote 47 above). This is a clear safety compliance project and thus in the interests of airport users. We propose to make this project a Deliverable.

CIP.20.01.009- Aerodrome Ground Lighting

- 16.9 This project encompasses replacement of end-of-life AGL components for taxiways F-inner, F-outer, M1, P1 & H1, Apron Taxiways 1 & 2, and Link 4, as well as relatively smaller allowances for end-of-life signage replacement and substation works. None of these areas were addressed under the 2015-2019 airfield maintenance allowance. The project also includes replacement of the RW 16 approach light fittings. These fittings are no longer certified by the manufacturer as being compliant with EASA codes and standards, hence they must be replaced. Therefore, all elements of this project are in the interests of users to ensure the continued reliability of key airport assets, and compliance with relevant EASA codes. We propose to make part of the allowance Deliverable and part flexible; in order to retain it Dublin Airport must deliver certified compliant light fittings for the RW 16 approach lighting, however other elements of the costing may be reassigned, or taxiways re-prioritised, over the coming regulatory period.

CIP.20.01.010- Airfield Lighting Control and Management System (ALCMS)

- 16.10 This project would replace the current AGL control system with a new system. This request is part of a longer term multiphase ALCMS programme, out to 2031, recommended by TM3 Airports in a detailed report commissioned by Dublin Airport. We have reviewed the report. In summary, the current ALCMS has been in place since 2006. A new system is required in time for the North Runway and new ATC tower to avoid continued managed solutions and nugatory expenditure, as well as to allow for modern standards of control (for example, Individual Light Control, ILCMS, or Follow-the Greens lighting).
- 16.11 This project is in the interests of users to ensure that AGL control is fit for purpose when the North Runway and associated lighting becomes operational, and more generally to ensure that

Dublin Airport has a modern ALCMS which is reflective of the size and complexity of the operation. We propose to make this project a Deliverable.

CIP.20.01.012- AGL Substation T Development Programme

16.12 This project would replace the current AGL substation T, which dates from the 1980s. This approach was recommended through a report by Dublin Airport's AMD, which identified that the current substation is at capacity and cannot be further modified easily. It noted that additional capacity is required to facilitate new AGL lighting, particularly in the context of PACE airfield projects, the North Runway, and also Low Visibility Procedures (LVP) taxiway lighting for RW 16/34. The report further noted that modern redundancy features are required to mitigate the risk of an unforeseen event impacting AGL and thus airfield operations. This project is in the interests of users as it will lead to increased AGL capacity, as well as more resilience to deal with unforeseen events. We propose to make this project a Deliverable.

CIP.20.01.015- High Mast Lighting Improvement Programme

16.13 This relatively minor project would replace the existing SON-T (high pressure sodium) fittings in high masts at Piers 1, 4, and on the West Apron with LED fittings, as the SON-T fittings become life expired over the forthcoming regulatory period. For passenger stands, EASA requires an average illuminance of at least 20 Lux. Dublin Airport will seek to achieve 30 Lux through this project, which will improve safety both in itself and through ensuring reduced fade-off towards the rear of the stand. The LED fittings will also lead to reduced Opex from 2024, which has been accounted for in the CIP Opex allowance. This work has previously been carried out at other apron areas. It is in the interests of users as it will lead to improved safety through improved illumination on stands, reduced energy costs, and end-of-life replacement of fittings to reduce the risk of failure. We are proposing that the allowance is flexible.

CIP.20.01.016- Airfield Maintenance Base Improvement

16.14 This is a new airfield maintenance base, for storing and maintaining winter vehicles and other supplies such as potassium acetate (PA) tanks for de-icing pavement. The airfield base is the main location from which ongoing airfield maintenance activities are undertaken. Dublin Airport states that the main areas of concern regarding the current base are as follows:

- the cleaning and maintaining of the large-scale equipment such as the Tow Jet Sweepers, the PA Sprayers and the tractors, all of which require large storage sheds with big preparation aprons and significant manoeuvring areas due to their size. Currently, the base can only wash down the vehicles after use in an open unpaved area which could lead to environmental issues.
- The equipment storage facilities are also very limited. There is only enough storage for 50% of the Snow and Ice fleet which leads to a risk to the operational readiness and life expectancy of this equipment. The number of large Snow & Ice items of plant is due to be increased in the near future due to the introduction of the North Runway.
- The project is focused on addressing the wash-down and equipment storage facilities of the main yards to address these shortcomings but in doing so will also deal with the environmental risks associated with the storage of the PA and the washing of the vehicles/equipment.

16.15 Based on the above, our view is that the current base is not properly fit for purpose either operationally or from the perspective of protecting other valuable assets. This project is therefore in the interests of airport users. We are proposing that the allowance is flexible.

CIP.20.01.018- Campus Buildings Critical Maintenance

16.16 This is a broad allowance to cover the maintenance and repair of campus buildings, which are used for a variety of functions, as and when required. Maintaining these buildings such that they continue to be fit for purpose and further degradation is prevented is in the interests of users, and thus we have provided a flexible allowance for this project.

CIP.20.01.020- T1 Façade, Roof, Spirals

16.17 This is a significant project which comprises a number of different elements:

- Removal of the concrete fins and re-cladding the building
- '8 bay' area roof upgrade (referred to as phase 3B)
- Maintenance of spiral ramps, and other minor works in relation to the balconies and antenna mounting

16.18 Dublin Airport has provided us with a significant body of evidence and reports in relation to the façade, louvres (which contain asbestos), and spirals, showing how this combination of solutions was arrived at. In 2018, AECOM reported that ongoing maintenance will not address the root causes of the ongoing issues (including corrosion, ongoing water ingress, spalling from the fins etc) and recommended full re-cladding together with fin removal, as Dublin Airport has now proposed. Pascall Watson produced an optioneering report which considered continued ongoing maintenance, as well as options for re-cladding both with and without removing the fins.

16.19 The 2014 Determination provided a flexible allowance for T1 roof repairs, including phase 3B. However, Dublin Airport identified that these works could be more effectively combined with the re-cladding, and so reallocated part of the 2014 allowance to other projects, as it was entitled to do. It is now seeking to carry out this work as part of this overall upgrade of the T1 weather envelope in the upcoming regulatory period.

16.20 We have reviewed the CORA reports on the condition of the spirals, which identified spalling, blown cover, water ingress, and other defects. As part of this project, Dublin Airport has sought 500k to preserve the spirals and prevent further degradation. The spirals were originally constructed to allow access to carparks on the upper floors of the terminal. The developing Masterplan does not envisage any use for the spirals other than the current uses; currently the spirals are part of the T1 fire escape system, provide access for airport police personal vehicles, and contain a diesel storage tank, extraction vents, and mechanical/electrical installations. Dublin Airport advise that demolishing the spirals would cost €6.4m, including the installation of a new fire escape and relocation of these facilities.

16.21 We note that Dublin Airport has considered a range of options in order to sustain the asset life of T1. On reviewing the above evidence, we agree that the optimal combined solution is that which Dublin Airport has proposed. This project is therefore in the interests of users. As it exceeds the threshold, it will enter the StageGate process.

CIP.20.01.022- T1 Storm Drainage

16.22 This project would install a new drainage system to more effectively discharge rainwater from the T1 roof; currently the downpipes have issues with capacity/blockages which can cause water to back up through the system and ultimately leak into the terminal building. Thus, this project is in the interests of users in order to protect the remaining asset life of T1 and ensure

the passenger experience is not diminished by leakage, as occurs from time to time currently. We are proposing that the allowance is flexible.

CIP.20.01.023- Piers and Terminals Critical Maintenance

16.23 This is a broad allowance for the maintenance of interior floors, walls, doors, as needed, in either terminal, piers, or links. Like *CIP.20.01.018*, the scope of this project has been developed based on previous experience of maintaining the terminal buildings over a five-year period. Although there was no corresponding allowance in the 2014 Determination, Dublin Airport decided to reallocate other funding to this purpose; for example, the works to replace and strengthen parts of the T1 departures floor. This project is in the interests of users as it will maintain the operability of these assets, prevent further and typically more costly degradation, and ensure the passenger experience is not diminished by poorly maintained infrastructure. We are proposing that the allowance is flexible.

CIP.20.01.024- Skybridge Rehab

16.24 The requirement for these works was identified in a 2018 report by Roughan & Donovan, commissioned by Dublin Airport. It recommended works on the joints, structural cables, and terrazzo flooring, in order to prevent further degradation, particularly corrosion. It also noted that elements of the skybridge have failed prematurely, which has largely led to the requirement for this rehab. Dublin Airport has sought remedy from the contractor in question, but it has since ceased trading. We therefore agree with Dublin Airport that there is no viable option other than to undertake these works at cost, and that to do so is in the interests of airport users. We propose to make this project a Deliverable.

CIP.20.01.034- Campus Roads Critical Maintenance

16.25 This project encompasses the rehabilitation and upgrade works on internal campus roads. We have reviewed the results of SCRIM (skid resistance) surveys from 2018, carried out by PMS. The 9.5 km of road identified for resurfacing in this project tie in very closely with addressing the areas of lower resistance as per the outcome of that assessment. Rehabilitating roads where the SCRIM Coefficient is less than 0.45, as intended by Dublin Airport, does not seem to be excessive having regard to TII recommendations.⁴⁸ It should be noted that the Cargobridge Road, which is referenced in the project sheet, is now being addressed during the current regulatory period instead. The associated cost has therefore not been included in this project. Other elements of the project cost are relatively small amounts to carry out works/replacement of street furniture (signs, bollards etc), footpaths, and landscaping. We propose to make this project a Deliverable.

CIP.20.01.039- Airport Roads Critical Maintenance

16.26 Similar to the previous project, this encompasses road rehabilitation and upgrade works, but for external public roads owned by daa group. Again, the road areas identified for resurfacing have been identified through SCRIM surveys which we have reviewed. As daa group is required to maintain these roads to enable their safe use, this project is in the interests of users. We propose to make this project a Deliverable.

CIP.20.01.046- Staff Carparks Critical Maintenance

16.27 This project would rehabilitate the spine roads in a number of staff carparks (initially Green, Orange, Blue, Red and Purple) as well as minor drainage works. The condition has been

⁴⁸ <https://www.tii-publications.ie/library/AM-PAV-06045-01.pdf>

assessed visually by Dublin Airport staff, on the basis of which they have proposed these works (including an assumed split between resurfacing/overlay/inlay). These visual inspections have identified defects such as cracking, potholes, rutting, among others. We identified that there was inconsistency in the staff car parking strategy, in that this project provided for the rehab of spine roads in the Blue Staff Carpark which will largely be decommissioned due to the consolidation of staff carparks under *CIP.20.04.009*. Dublin Airport therefore reduced the scope of this project. On this basis, these works are in the interests of users to protect the operability of these assets and their associated revenues, as well as preventing further degradation. We are proposing that the allowance is flexible.

CIP.20.01.049- Public Carparks Critical Maintenance

16.28 This project includes rehabilitation of spine roads in the Red, Green and Blue Long Term public carparks, replacement of road furniture and bus shelters, drainage, and separately maintenance on the current levels of the Multi Storey Car Parks to deal with cracks, potholes etc. As per the previous project, the condition has been assessed visually by Dublin Airport staff, based on which they have proposed these works (including an assumed split between resurfacing/overlay/inlay, for the purposes of the costing).

16.29 We note that there was an allowance in the 2014 Determination to replace the gravel surface of the Red Long Term carpark which has been completed, and is separate to these identified issues. This project is in the interests of users in order to protect the associated commercial revenues and ensure that the passenger experience is not diminished. We are proposing that the allowance is flexible.

CIP.20.01.056- Campus Facilities and Landside Snow Base Upgrade

16.30 This project would deliver a new purpose-built landside base for maintaining landside roads during snow & ice events. The current facility is based in old farm style sheds. Dublin Airport advises that parts of this facility are in very poor condition, while in general terms it does not allow for the secure storage of salt, landside snow and ice vehicles, or accommodation of staff. On the basis that this poses a clear risk to the ability of the airport to respond effectively to maintain roads during Snow and Ice events, this project is in the interests of users. We are proposing that the allowance is flexible.

CIP.20.01.065- Heavy Fleet & Equipment Replacement

16.31 The project encompasses the replacement of a number of vehicles, vehicles being added to supplement the fleet due to additional pavement, and vehicles being added due to the North Runway (mostly Snow and Ice vehicles).

16.32 In general, Dublin Airport has demonstrated to us that each of these vehicles is required. The possible exception to this is that two of the six foam tenders earmarked for replacement were purchased in 2010 with an expected asset life of 15 years. Given the business criticality of these assets, and the marginal nature of this issue, on balance we have allowed for all vehicles envisioned under this project. We are proposing that the allowance is flexible.

CIP.20.01.069- Light Fleet & Equipment Replacement

16.33 This project provides for the replacement of certain light fleet vehicles as part of the light fleet rolling replacement programme, as well as an overall increase in number by 11 vehicles. We note that the average age of a vehicle at replacement is 5.6 years which is in line with the figures presented by Dublin Airport during consultation. The increase in the number of vehicles seems appropriate given the increased activity on the campus. As a fit-for-purpose light fleet

is necessary to ensure that various airport functions can operate effectively, we have allowed for this project as it is in the interests of airport users. We are proposing that the allowance is flexible.

CIP.20.01.071- Electric Charger Network Facilities

16.34 This project would provide publicly accessible charging facilities for electric vehicles. No detailed information is available regarding the scope, costing, forecast revenues, or locations. We expect that the output from this project would be in the interests of passengers as well as other airport stakeholders using electric vehicles. However, in the absence of any details we cannot come to a definitive view on this, nor can Steer come to a view on cost. On that basis we are proposing this as a StageGate project.

CIP.20.01.074- Advanced Visual Docking Guidance

16.35 This project would continue the roll-out of A-VDGS on stands used for passenger operations. This project encompasses Apron 5H (15 units) and stands 102-104 (8 units); combined with PACE and the North/South Apron capacity projects, these projects will see A-VDGS installed on all such stands. These are the same (Type 1) units as those allowed for under PACE. Unlike the PACE project, Dublin Airport has not received SESAR funding for this project.⁴⁹ In the event that it can obtain SESAR funding for this project, there will be an opportunity for reallocation of the corresponding proportion of this funding allowance to contribute to other asset care projects.

16.36 This project will lead to improved airfield efficiency, safety, and information sharing between stakeholders, particularly in the context of Airport Collaborative Decision Making (A-CDM).⁵⁰ A-VDGS has previously received the support of airlines. This project is in the interests of airport users. Like the PACE project, we propose to make this project a Deliverable.

CIP.20.01.087- AGL Fibre Optic Communication Network Improvement Programme

16.37 This project would reconfigure the AGL cabling system and complete the Southern ring of the AGL fibre optic cabling system around Runway 10. It is currently configured as a star, which is a single point of failure; this project will reconfigure it as a ring, providing improved resilience and simplifying the network to enable easier integration of the North Runway AGL. This project is in the interests of users in order to mitigate the risk of AGL failure and associated operational disruption. We propose to make this project a Deliverable.

CIP.20.01.099- RW 16/34 Lighting for LVP (Low Visibility Procedures)

16.38 During runway operations on RW 28 or RW 10, the crosswind runway functions as a key north-south taxiway. This will continue to be the case in the future during dual parallel runway operations. Currently it cannot be used as a taxiway in low visibility as it does not have LVP taxiway centreline lighting, as required by EASA.⁵¹ The project would install this lighting at the required LVP spacing (i.e. 15 metre intervals). Since 2010, we note that LVP conditions have been observed, on average, on just under 1% of days. Our view is that this is a sufficiently important taxiway operationally, and LVP conditions occur with sufficient frequency, to justify this project in the interests of users. We propose to make this project an outcome based Deliverable, meaning that Dublin Airport must deliver RW 16/34 as a taxiway which can be used during LVP in order to retain this allowance.

⁴⁹ <https://www.sesarju.eu/index.php/>

⁵⁰ <https://www.dublinairport.com/regulation-and-planning/regulatory/airport-cdm>

⁵¹ See footnote 47 above. Section: M.715 (b) (1) (ii)

CIP.20.07.013- Taxiway Re-designation

16.39 This project, which is already being implemented, is to re-designate a number of taxiways at Dublin Airport in order to simplify Air Traffic Control instructions to pilots, as recommended by an AAIU (Air Accident Investigation Unit) report.⁵² As this has been recommended by the AAIU in the interest of safer operations on the airfield, it is in the interests of airport users. We are proposing that the allowance is flexible.

CIP.20.07.032- ULD Storage

16.40 This project would provide additional ULD (Unit Load Device) storage, in the context of the reduction in ULD storage areas in recent years due to apron construction, as well as the increase in movements. We note that additional ULD storage was specifically requested by a stakeholder during consultation.

16.41 However, this project is underdeveloped. No detailed information is available regarding the scope, costing, or locations, other than 8 ULD storage units. Thus, we cannot currently assess whether it would efficiently meet user requirements specifically, despite the support for the broader project outcome, which we are allowing for as it is in the interests of airport users. On that basis we are proposing this project for entry into the StageGate process.

Asset Care- Mechanical & Electrical

16.42 We propose to allow for all projects in this grouping with the exception of the feasibility study into the Second MV Connection Point (*CIP.20.02.002*).

CIP.20.02.001- MV (Medium Voltage) Electrical Network

16.43 This project includes three core elements:

- The replacement of cable on the MV ring
- Transformer and Switchgear replacements
- Replacement of MV SCADA (operating system)

16.44 A 2013 HazOps study carried out by Dublin Airport to identify weaknesses/risks to the airfield power system prompted them to commission PD (partial discharge) surveys on sections of cable, to identify areas of weakness in advance of failure. Based on these results, Dublin Airport replaced certain sections of cable in 2018. While the latest PD test report indicates a current low level of partial discharge on the remaining sections, Dublin Airport has stated that it expects those to further degrade in the next two years, thereby needing to be replaced. Dublin Airport advises that performance and condition of aged transformers and switchgears are monitored by the MV Service provider, with the exact timing of replacement yet to be determined. In relation to the SCADA system, we have reviewed a 2016 report carried out by ABB, which notes that the scope for upgrading subsystems is limited due to software/component incompatibility. The report further notes that it would expect Dublin Airport to upgrade this system 'in the 2020s'. We therefore believe that it is reasonable that this system be replaced in the upcoming regulatory period.

16.45 While it is not clear to us that the test results necessitate replacement of remaining sections of cable, or that there is a specific crystallised requirement to replace transformers and

⁵² <http://www.aaiu.ie/sites/default/files/SRs/IRLD2012005-20170901.pdf>

switchgears, Dublin Airport believes that this is required in order to reduce the risk of an MV network failure. Given the impact such an event would have on airport operations, we have allowed for this project. We propose to make this project a Deliverable.

CIP.20.02.002- Second MV Connection Point

16.46 Currently, the Dardistown substation presents a single point of failure for the entire airport campus. This project would carry out a feasibility study into the provision of a second connection point. However, while we agree that this issue should be explored further, as currently proposed this project is a feasibility study rather than a capital project. The costs associated with carrying out such a study should be considered either as operating expenditure, or else capitalised as part of a capital project proposal.

16.47 Should Dublin Airport wish to proceed with this project over the coming regulatory period, there are a number of mechanisms available, once a more specific proposal or proposals can be put forward. We have therefore not allowed for this project.

CIP.20.02.004- Passenger Boarding Bridges Maintenance, Pier 3 Enhancement, FEGP

16.48 This project includes:

- Maintenance works on existing airbridges, replacing flooring, weathering and external finishes on six Pier 3 airbridges, and separately cable looms and control systems upgrades on the nineteen Pier 4 airbridges.
- A second dual airbridge on Pier 3 (currently intended for stand 315c).
- Installation of solid state technology FEGP (Fixed Electrical Ground Power) units on Piers 1, 2, and 5G, and also replacing the current JetPower units with the solid state units.

16.49 Dublin Airport advise that the flooring replacement is required to reduce the extent of slips/falls on the current (aged) flooring. The external maintenance work will protect the structural integrity of the airbridges from deteriorating. Based on previous experience, Dublin Airport has assumed that the control systems will fall out of technical support after a certain period of time (previously 13 years) and thus these will have to be replaced in the coming regulatory period. The cable looms on the Pier 4 bridges date from the construction of the pier; they have an expected useful life of 12-15 years. Based on the above we have concluded that the maintenance works are in the interests of users in order to ensure the asset life and operability of the bridges.

16.50 We note that currently there is only one dual airbridge available for T1 operations. A second will provide increased flexibility and capacity, especially in the context of the growth in widebody aircraft operations from T1.

16.51 The current JetPower FEGP unit uptime has not exceeded 97% in any year since their installation on Pier 4, while the availability of the solid state units should exceed 99%. Given that the reliability of these units can be expected to further deteriorate as they age, we consider that replacing them during the upcoming regulatory period is in the interests of users. Note that we have included an associated service quality metric in the quality of service section to ensure that either this uptime is achieved or there will be a price cap adjustment in favour of airport users. This element of the project will continue the rollout of these modern FEGP units which commenced under PACE.

16.52 Thus we conclude that all aspects of this project are in the interests of users and have allowed

for this project. We propose that this allowance is partly flexible, partly deliverable; in order to retain it Dublin Airport must deliver the additional dual airbridge on Pier 3 (not necessarily stand 315c).

CIP.20.02.005- Lift Refurbishment and Replacement Programme

- 16.53 This project includes lifts/lift doors and elevators replacement in T1 and the T1 MSCP, as well as lift monitoring technology. We have reviewed Dublin Airport's lift/escalator maintenance and replacement programme. Nearly all of the lifts/escalators being replaced date from the 1990s with a small number from 2000; given that the expected useful life of a lift is 20-25 years, replacement in the upcoming regulatory period is appropriate. Most of those intended for door replacements date from 2010.
- 16.54 Dublin Airport advise that they monitor availability KPIs, in conjunction with monitoring maintenance costs and the availability of spare parts and technical support. These factors lead to identification of where replacement is required. The lift monitoring technology will monitor the status of the T1 lifts to support predictive maintenance. To improve reliability and operability, and prevent increased maintenance costs associated with ageing assets, this project is in the interests of users. We are proposing that the allowance is flexible.

CIP.20.02.006- Water & Foul Sewer Upgrade

- 16.55 This project encompasses the refurbishment/replacement/improvement of elements of both the mains water and foul water systems. The mains works include:
- Completion of a ring of mains piping between the terminals and the reservoir. The current lack of a reservoir mains bypass constitutes a single point of failure, in the event of a supply issue from the reservoir.
 - Installation of an interconnector between T2 and T1 domestic water storage tanks, to effectively increase the storage capacity in T1. Dublin Airport advise that T1 has only approximately 3 hours of storage capacity; where outages have been experienced, this has therefore necessitated closing toilet facilities. T2 has 24 hours of storage capacity.
 - Replacement of sluice valves, hydrants, and sections of the old cast iron mains. Dublin Airport advises that replacement of this equipment is based on a rolling programme, which identifies components for replacement to ensure continued system performance.
- 16.56 The foul sewer works include the replacement of ejector and pumping stations, as well as the replacement of sewer junctions from the South Apron to the main sewer outfall and the junction between the ALSAA swimming pool and MC78. Like the mains water components, Dublin Airport advises that replacement of ejector/pumping stations is based on a rolling programme, which identifies components for replacement to ensure continued system performance. Dublin Airport further notes that the South Apron Outfall sewer collects circa 80% of the airport foul and is a single point of failure that requires regular monitoring, although maintenance access is difficult. The outfall from the ALSAA Swimming Pool junction has experienced repeated blockages. Delays in clearing sewer blockages can lead to surface water or other pollution.
- 16.57 Based on the above we have concluded that all aspects of this project are in the interests of airport users to reduce the risk of asset failure, and/or forestall increasing maintenance costs. We are proposing that the allowance is flexible.

CIP.20.02.007- Life Safety Systems (LSS) Replacement Programme

- 16.58 This project includes the replacement of certain fire alarm panels and devices in both terminals, fire and smoke dampers, smoke extract fans, static invertors (which provide backup power), and the PAVA (public address) system. This is a rolling programme which also received allowances in previous determinations.
- 16.59 Dublin Airport advises that, in order to determine where replacement components are required, they monitor availability KPIs, in conjunction with monitoring maintenance costs and the availability of spare parts and technical support. It further notes that this funding would only replace components which are at least 10 years old, which is in line with the expected useful/compliant lifespan of such equipment. On this basis we conclude that the project is in the interests of airport users in order to ensure that the LSS systems remain compliant, while also forestalling increased maintenance costs. We propose to make this project a Deliverable.

CIP.20.02.008- Terminal Buildings HVAC Replacement Programme

- 16.60 This project encompasses:
- In T1, replacement of certain components of the HVAC system including pumps, chiller plants and ancillary equipment, as well as refurbishment of the energy centre and the continued replacement of the BMS (Building Management System) control system.
 - In T2, the replacement of circulation pumps, a rebuild of the CHP (Combined Heat and Power generator), and upgrades to the BMS.
- 16.61 This is a rolling programme. Dublin Airport again advise that, in order to determine where replacement components are required, it monitors availability KPIs, in conjunction with monitoring maintenance costs and the availability of spare parts and technical support. The T1 energy centre works will deliver 150k per year in opex savings, which has been accounted for in the opex allowances. This project is in the interests of users to ensure that an appropriate level of comfort and safety is provided to passengers and staff in terms of air and water temperature, as well as avoiding escalated maintenance costs from failed components impacting other parts of the systems. We are proposing that the allowance is flexible.

CIP.20.02.009- Campus Buildings- Mechanical, Electrical & LSS Upgrade

- 16.62 This project is a series of roughly 40 smaller projects, most of them less than €100k, across various campus buildings. Most of the works relate to LSS, electrical work (especially HVAC), or energy efficiency projects such as installing LED light fittings or boiler replacement. The LSS requirements have been identified through a survey of the campus buildings, while, as set out above, HVAC components require periodic replacement to ensure reliability and avoid escalating maintenance costs from failed components impacting other parts of the systems.
- 16.63 In relation to the energy projects, Dublin Airport advise that all business cases show a 5-10 year payback period on these investments. We therefore conclude that these projects are in the interests of airport users. We are proposing that the allowance is flexible.

CIP.20.02.010- Pier 3 Life Extension

- 16.64 Pier 3 has a central core that contains the HVAC and electrical equipment, which largely dates from the 1970s and thus is far older than the expected asset life. Dublin Airport advises that, despite maintenance, this equipment can no longer function effectively. This project would replace and relocate this equipment to the roof. It would also relocate the foul drainage system

to an external storage tank. The project does not include redevelopment of the area currently occupied by the central core.

16.65 We note that both the central core and the current foul waste retention tank are classified as confined spaces, as per the Building Regulations. Working in the core currently requires manual handling along vertical ladders, which is not in line with HSA guidance.⁵³ Dublin Airport advises that the foul system becomes blocked intermittently, with local soiling from the current storage tank, which can cause odours in the Pier. This project is therefore in the interests of users to ensure that Pier 3 has functioning and safe HVAC, electrical, and foul drainage systems. We propose to make this project a Deliverable. Dublin Airport advises that the overall expected remaining asset life of Pier 3 is 15 years.

CIP.20.02.013- Small Energy Projects

16.66 This project encompasses a number of work areas, including:

- The continued conversion to LED lighting in the terminals.
- Conversion of road and street lighting to LED.
- Electrical demand management, i.e. the storage of electricity for use during tariff peak times.
- Thermal demand management projects, such as improved thermal infrastructure in campus buildings.
- Gas and water automatic monitoring and power generation.

16.67 Dublin Airport has provided us with business cases demonstrating a positive return, over a 15-year asset life, on each of the above work areas with the exception of the thermal demand management projects. In relation to the thermal demand management projects, Dublin Airport advises that this will not generate incremental savings, but rather forestall increased operating expenditure and align with the 2017 Building Regulations in relation to the conservation of energy.⁵⁴ More broadly, this project will allow Dublin Airport to better align itself with EU and government policy in relation to sustainability. We have therefore concluded that this project is in the interests of airport users; associated reductions in opex have been built into the allowances. We are proposing that the allowance is flexible.

CIP.20.07.030- Photovoltaic Farm

16.68 This project would construct a 40-45 acre photovoltaic farm on the Dublin Airport property. Dublin Airport has provided a business case for this project, indicating a payback period of 13 years with the overall asset life now adjusted to 25 years. When the revised cost of capital and the draft Steer costing are instead applied, the payback period falls to 11 years while the Net Present Value increases to €15m. Dublin Airport's analysis indicates that this project would have supplied 9.3% of Dublin Airport's electrical requirements, or 4.5% of the overall energy requirement, in 2018. The project will also allow Dublin Airport to better align itself with EU and government policy in relation to sustainability.

16.69 This project is therefore in the interests of users; with delivery due in 2023, an associated opex impact has been built in to the allowance for 2024. We propose to make this project a

⁵³ https://www.hsa.ie/eng/Publications_and_Forms/Publications/Retail/Gen_Apps_Work_at_Height.pdf, page 21

⁵⁴ https://www.housing.gov.ie/sites/default/files/publications/files/tgd_I_2017_for_buildings_other_than_dwelling.pdf

Deliverable.

Capacity

16.70 As set out in the main body of this document, we have allowed for all projects in this grouping. Most of these projects exceed the €20m threshold and so will enter the StageGate process. We are also proposing that GSE Charging Facilities (*CIP.20.03.057*) enter the StageGate process on the grounds that the scope is currently underdeveloped. Other allowances are all flexible and have been grouped as capacity projects.

CIP.20.03.004- Gate Post 9 Expansion

16.71 This project would replace the current temporary Gatepost 9 with a permanent solution with increased capacity. The new facility would include 5 vehicle lanes, 4 inbound and 1 outbound, with 2 inbound lanes designated for construction traffic and 2 for other airport operations. The current facility is reportedly undersized for the capacity throughput it is experiencing currently, leading to delays for cargo and construction traffic. The current facility has received approval from the IAA SRD for continued use until July 2020.

16.72 Given the expected increased use of the West Apron for cargo operations, together with construction traffic associated with other capital projects, an expansion of this facility is required in order to allow this traffic enter the CPSRA from the west without further significant delay. As noted below in relation to the Screening & Logistics Centre (*CIP.20.06.014*), we are setting efficient cost allowances. Our view is that effective access facilities to the airfield will be required in order to achieve this level of efficiency and avoid unnecessary delays to the CIP2020 programme. This project is therefore in the interests of airport users.

CIP.20.03.006- T1 Kerbs

16.73 This project provides for increased kerb capacity for T1, through relocation of the drop-off kerb to the other side of the T1 Multi Storey Carpark (MSCP), with the MSCP atrium reconfigured to become the main entrance to the terminal. The need for this was identified by Ricondo in a 2016 assessment carried out for Dublin Airport, the results of which we have reviewed. Ricondo forecast that 300m of drop-off kerb would be required to service 40 mppa, whereas currently there is 215m. This project would more than meet the 40 mppa requirement by providing 360m.

16.74 We note the security benefit of moving the public drop-off kerb further away from the façade of the terminal building. Furthermore, we note that this project is in line with the masterplan-envisaged Ground Transportation Centre in this area. It should be pointed out that Helios' modelling of the terminal buildings does not include the kerbs. However, on the basis of the evidence provided by Dublin Airport in relation to both capacity and security, we have allowed for this project as it is in the interests of airport users.

CIP.20.03.011A- T1 Check-In (Partial Shoreline)

16.75 This project involves the reconfiguration of the T1 Check-In facilities to meet the identified capacity shortfall. It is the first of three mutually interdependent projects which overall will lead to a significant increase in T1 departing passenger capacity (the others being the relocation of central search, and the expansion of the departures lounge). We note that Ryanair are supportive of this partial shoreline configuration, which lends itself to more self-service check-in facilities compared to the current 'islands' configuration. The number of SSKs would increase to 75, which is exactly in line with the number identified by Ricondo as being required.

16.76 This project also includes the replacement of 25 check-in desk/bag drop units as these are being relocated, as well as minor refurbishment works. Dublin Airport advises that this facility safeguards for bag-to-passenger ratio fluctuations, for example due to airline baggage policy changes. In broader terms, Helios conclude that the size of the proposed check-in hall is sufficient to ensure a high level of service (in terms of space per passenger) throughout the day. This project is in the interests of users in order to facilitate the 40 mppa schedule.

CIP.20.03.012- T1 Central Search

16.77 This project provides for the relocation of the T1 central search processor to the mezzanine. Currently the limiting processor in the T1 departures system, there is insufficient space in the area increase the capacity to the extent required to service the 40 mppa schedule. In line with the advice from Ricondo, the mezzanine area will be sufficient for eleven 25m ATRS lanes with EDS C3 cabin baggage scanners; it is also future proofed for full body scanner equipment. Helios' modelling suggests that, provided the assumed processing rates are achieved, this facility will be ideally sized and equipped to deliver the 40 mppa schedule. Note that the ATRS lanes and C3 scanners are not included in this costing but provided for separately under the security projects.

16.78 This project allows for the available terminal building space to be used more effectively for its core function, i.e. the processing of passengers, and is critical to increasing the overall T1 departures capacity. On this basis, we have allowed for it.

CIP.20.03.013- T1 Departures Lounge

16.79 This project provides for additional space in the departures lounge. It is not clear to us that this project is in itself required from a capacity perspective. The IATA ADRM standard for this facility is 2.3 square metres per passenger. We estimate that the space provision per passenger in the current facility would in fact be closely in line with the 40 mppa schedule requirement. However, we note the following:

- The capacity projects have generally received the support of airport users.
- There is interdependency between this project and *CIP.20.03.011* and *CIP.20.03.012*, both of which are required to deliver the 40 mppa schedule.
- The increased space per passenger, and seating area, and increased commercial floor space would lead to both an improved passenger experience and increased commercial revenues (or maintaining current per passenger revenues).

16.80 For these reasons we have allowed for this project.

CIP.20.03.015- T1 Baggage Reclaim

16.81 This project provides for the reconfiguration of the T1 baggage hall to increase the capacity. We have not seen clear evidence from Dublin Airport as to how this project combined with the Rapid Exit Arrivals facility (*CIP.20.03.016*) will address the identified shortfall. The shortfall itself, however, is clearly identified. Helios' modelling meanwhile demonstrates that this solution does provide for sufficient belt frontage (and general circulation space) to deliver the 40 mppa schedule. Dublin Airport advise that this facility has been developed allowing for considerable variation from the hold bags per passenger assumptions.

16.82 On this basis, we have allowed for this project to ensure that the processor can provide an acceptable level of service for passengers.

CIP.20.03.016- T1 Rapid Exit Arrivals

- 16.83 This is a relatively minor project which would allow passengers without hold baggage to exit the terminal building after Immigration but before entering the baggage hall, allowing these passengers to exit rapidly while also reducing the number of passengers in the hall, thereby increasing the available space per passenger. We note that this project was added to the CIP following airline support. For these reasons we have allowed for it as it is in the interests of airport users.

CIP.20.03.017- T1 Shuttle, Bus Lounges, Injection Points

- 16.84 This project involves refurbishing the ground level of the OCTB for use as bus lounges, adjusting the airside kerbs, and adding an arrivals injection point. This is required to facilitate the North Apron bussing strategy, including serving the North Apron PBZ, in order to deliver the 40 mppa schedule. We have therefore allowed for it.

CIP.20.03.018- T1 Immigration Hall

- 16.85 This is a relatively minor project which would supplement the more significant PACE project, in order to allow for an overall solution which delivers on the identified post-PACE requirement for 3 additional booths and 1 additional e-gate. It involves the reconfiguration of the hall, including the relocation of the recently installed e-gates to the Pier 1 side of the hall. This should allow easier access for passengers using the e-gates, in particular from Pier 1. Also, after passing through the e-gates, these passengers would be closer to the T1 exit, potentially avoiding congestion in the corridor towards the baggage hall from joining the flow from the slower-processing booths. Steer, on the other hand, are not convinced of the benefit of relocating the e-gates. As this is a flexible allowance, it remains open to Dublin Airport to re-allocate part of this funding allowance if such a scope change is deemed appropriate.
- 16.86 Helios' modelling shows that this facility is appropriately sized; queues become sub-optimally long for approximately 30 minutes at around 11 pm, peaking at 15 minutes. However, as discussed in paragraph 9.40, this is an acceptable result for the peak period on a busy day. This project is therefore in the interests of airport users in order to facilitate the 40 mppa schedule so we have allowed for it.

CIP.20.03.020- T2 Check-In Optimisation

- 16.87 This project would reconfigure the T2 check-in hall, providing for 6 additional check in-desks, 8 separate BDKs, and 15 SSKs. This facility will require a relative increase in the use of self-service facilities than is the case today. T2 check-in desks are currently a (referral) coordination parameter- they have been deemed a current capacity constraint. Helios confirm that the hall is sufficiently spacious to handle the anticipated demand. This project is in the interests of airport users in order to facilitate the 40 mppa schedule.

CIP.20.03.021- T2 Central Search

- 16.88 This project would expand and reconfigure the T2 central search area to allow for the installation of ATRS lanes and C3 scanners, to increase the capacity of this processor. The equipment itself has been allowed for under security projects. We note that the design is future proofed for the installation of body scanners. Dublin Airport has advised that there is not sufficient space to allow for the installation of 25 metre lanes, as in T1, or for future significant expansion, without fundamental redesign. Assuming that the processing rate per lane is achieved, Helios' modelling shows that this facility is ideally sized and equipped to deliver the 40 mppa schedule. It is therefore in the interests of airport users and we have

allowed for it.

CIP.20.03.028- T2 Early Bag Store and Transfer Lines

- 16.89 This project provides for an early bag store (EBS), with capacity for 950 hold bags, between screening and the make-up positions (MUPs). Dublin Airport's capacity analysis indicated a requirement for additional MUPs in T2, particularly US Preclearance MUPs; Preclearance and non-Preclearance MUPs cannot be shared. The primary strategy for dealing with this shortfall is through the EBS. Currently, early bags arrive at the sorter before the MUPs are available, which can prevent or delay other bags from reaching their allocated MUPs. The EBS will therefore improve the efficiency of make-up by preventing this from occurring. Dublin Airport provided us with evidence clearly quantifying the effect of the EBS, demonstrating that it is required in order to deliver the 40 mppa schedule. Based on this analysis, despite the EBS there would still be underprovision of US Preclearance MUPs to service the 40 mppa schedule; 30 more are required. *CIP.20.03.030* provides for additional US Preclearance MUPs as set out below.
- 16.90 The project also includes a bag transfer line in T2, and an additional inter-terminal transfer connection which provides 2 lines (one in each direction). We note that the demand for transfer lines under the 40 mppa schedule does not necessitate additional capacity. Dublin Airport notes that, with a 10% safety factor to account for surges in demand or late transfers, capacity would be insufficient. However, increasing transfer passengers is a core part of the business strategy of certain airlines, as well as the National Aviation Policy. This project would provide more than sufficient capacity to meet transfer bag demand. On this basis we conclude that all elements of this project are in the interests of airport users and have allowed for it.

CIP.20.03.029- Pier 5

- 16.91 This project provides for a single sided, four storey T2 pier:
- With airbridges serving 8 NBE (narrow body equivalent)/4 widebody FEGP and A-VDGS equipped stands.
 - With a direct link to US Preclearance, each gate being vertically segregated meaning that any gate can be independently used in Preclearance/Non-Preclearance mode.
 - With bussing injection points and 6 bus gates at apron level.
 - Constructed and finished to a similar specification to Pier 4.
- 16.92 The project also includes a South Apron cargo village, in line with Dublin Airport's developing cargo strategy which focuses on this area and on the West Apron.
- 16.93 This project will contribute towards achieving the identified contact gate shortfall in order to serve the 40 mppa schedule. In particular, it provides 4 additional US Preclearance enabled widebody stands. It also includes the configuration of T2 immigration facilities to provide access from Pier 5. Dublin Airport believes that the current capacity of this processor is sufficient; Helios' modelling suggests that the queue would become sub-optimally long for roughly an hour in the early morning and again in the late morning, at 15-16 minutes. This is an acceptable result, as discussed in paragraph 9.40.

- 16.94 From the perspective of the passenger experience, this pier is well located. From the perspective of runway access/egress, Helios' modelling suggests that taxi times will be notably longer than other apron areas. Even at that, it is highly dependent on dual code E taxiways Z/B1, as provided for under PACE. For this reason, we have conditioned the continued remuneration of this project on delivery of the PACE project to provide dual code E taxiways Z and B1.
- 16.95 The design of the pier is multifunctional and relatively complex. We are aware that this project has been developed in coordination with airport users, and this scope has received support. We have allowed for this project in the interests of airport users, to address the shortage of pier served stands.
- 16.96 Our understanding is that the bus gates will negate the requirement for additional bus gates at level 15 in T2, as envisioned under PACE. Dublin Airport has stated it will not be proceeding with this PACE project so it will not be remunerated.

CIP.20.03.030- US Preclearance

- 16.97 This project provides for the reorientation and expansion of the US Preclearance facility, with fixed link to piers 4 and 5. It also includes separate works on Pier 4 intended to increase the Preclearance/Non-Preclearance flexibility of this pier, as well as increasing the number of US Preclearance MUPs for hold baggage.
- 16.98 Dublin Airport identified a requirement to approximately double the processing capacity of both the TSA security and CBP processors. Helios' modelling suggests that the proposed facility is appropriately sized and equipped to deliver the 40 mppa schedule, which forecasts significant growth in US bound flights.
- 16.99 This project would result in the loss of MARS stand 409, an airbridge served, US Preclearance enabled stand. This is a significant opportunity cost, given that Pier 5 would serve 4 such stands (although also providing bus gates) at a cost, estimated by Steer, of €289m- €72m per WB stand.
- 16.100 The Pier 4 flexibility element is intended to address a specific issue whereby delayed US-bound flights lock down the entire departures level, thus impacting non-US operations. It provides for a ground floor link corridor to bring passengers to ground floor gates, meaning that segregation can be maintained between these passengers and non-US passengers in section 1 of the Pier. We understand that this solution has been drawn up in consultation with affected airlines.
- 16.101 This project would also provide 24 additional US Preclearance make-up positions for hold baggage. Combined with the EBS provided for under CIP.20.03.028, it comes close to fulfilling the identified further requirement of 30 US Preclearance MUPs. Currently there is a surplus of Non-Preclearance MUPs in T2; it is not clear whether the full rollout of HBS Level 3 screening in T2 could lead to greater flexibility in the use these MUPs.
- 16.102 We therefore conclude that this project is in the interests of airport users in order to provide capacity for the processing of US bound passengers and hold baggage envisioned under the 40 mppa schedule. The Pier 4 flexibility works are required to avoid operational disruption currently being experienced. We have therefore allowed for all elements of this project. The ongoing remuneration of this facility is dependent on dual code E Z/B1 taxiways.

CIP.20.03.031- South Apron Expansion

16.103 This project includes:

- The provision of a new Pre-Boarding Zone (PBZ) on the South Apron.
- New FEGP and A-VDGS equipped stands to be served by the PBZ and Pier 5.
- The conversion of existing apron into dual code E taxilane.

16.104 Dublin Airport initially identified €9m of overlap with elements of the South Apron Stands Phase 2 PACE project. We requested a more detailed reconciliation in order to assess for any double counting, which resulted instead in a figure of €25m to be deducted. This has been implemented.

16.105 The PBZ and associated stands will replace the current South Gates. Dublin Airport has estimated that the travel time for a passenger from check-in to the PBZ will be 33 minutes, based on an assumption of 15 minutes through central search. Dublin Airport advises that the maximum distance which passengers would walk outside is approximately 100-120 metres, and also that a maximum of 2 stands non-adjacent to the PBZ can be accessed from the PBZ at the same time.

16.106 We have reviewed Dublin Airport's intended future docking chart post-CIP2020; the design of the new PBZ served stands is intended to accommodate all code C wingspans; two of the nine stands will not accommodate the A321 Neo, or the B737 family, while a third stand will not accommodate the B737 family only, due to a combination of length/tail height restrictions. The Pier 5 stands are intended to accommodate all code C/ code E aircraft as applicable.

16.107 This project is part of the overall development of capacity on the South Apron, and so we have allowed for it in the interests of airport users. Remuneration for this project is dependent on the delivery of dual code E Z/B1 taxiways and remuneration of the new PBZ is conditional on Dublin Airport obtaining permanent planning permission for it.

16.108 As discussed in Section 9, the existing south apron PBZ, a PACE project, will not be remunerated as it has not obtained permanent planning permission. To make way for this project, that South Apron PBZ will be removed.

CIP.20.03.033A- Enablement of Pier 3 for Precleared Passengers

16.109 This project provides for a swing gate system which allows for between 1 and 5 widebody stands to operate in Preclearance mode. It also includes a bussing lounge in Pier 4, after the Preclearance facility; the intention is to bus Precleared passengers from this lounge to Pier 3. Combined with Pier 5 and considering the loss of stand 409, this project allows Dublin Airport to exactly meet the 40mppa schedule identified requirement for 18 US Preclearance enabled widebody stands.

16.110 Bussing passengers to a terminal-linked pier is not an optimal solution. This project does not add to the number of available stands, but rather increases the operational flexibility of existing stands. Dublin Airport advise that enabling the South Apron PBZ was considered as an alternative, but the Pier 3 option was preferred on the basis of lower journey times, widebody stands, and superior line of sight from the Preclearance facility.

16.111 However, given that this is a cost-effective solution to reach the required number of Preclearance stands to deliver the 40 mppa schedule, we have allowed for this project.

CIP.20.03.034- Pier 3 Immigration

16.112 This project would reconfigure the Pier 3 Immigration hall to provide increased capacity through relocation of the booths, with two additional booths, and additional circulation/queueing space. This is particularly relevant given the expected increase in Non-EU flights on this pier.

16.113 We note that this project falls short of providing the additional capacity identified by Dublin Airport as being required under the 40 mppa schedule scenario. This is backed up by Helios' modelling, which indicates that queue times reach 20 minutes during the mid-morning period. At a minimum, this project is required in the interests of airport users and we have therefore allowed for it. We note that Dublin Airport has safeguarded for the additional e-gate requirement. Should a more immediate capacity issue arise, Dublin Airport could make use of the flexibility or interim consultation mechanisms.

CIP.20.03.036- North Apron Development

16.114 This project is intended to increase the boarding gate capacity on the North Apron. It includes:

- 5 additional Walk-in/Walk out gates, to serve 4 stands, through an extension of Pier 1 to the east (Pier 1 Module 1).
- A PBZ to serve 12 stands on Apron 5H.

16.115 This project provides gate infrastructure to directly serve the North Apron PACE stands at Hangars 1 & 2 and Apron 5H. We note that these code C stands are intended to accommodate all code C aircraft. Pier 1 Module 2, which is not being proposed for construction during this regulatory period, would serve PACE stands 102-104; these stands are also intended to accommodate all code C aircraft. Dublin Airport advises that MARS stands (and associated pavement strength) are still required in these areas as they are needed for the towing on of widebody aircraft to free up pier served widebody stands, and to future proof the area. Module 1 is the first phase of a potential expansion of Pier 1 all the way to stand 104.

16.116 The project includes A-VDGS and solid state FEGP units for the Hangar 1 & 2 stands. In relation to 5H, *CIP.20.01.076* provides for A-VDGS; it appears that Dublin Airport does not yet intend to install FEGP units on 5H stands.

16.117 A significant portion of the cost of this project relates to the demolition of existing structures to allow for Module 1.

16.118 Dublin Airport has estimated the passenger travel time from check-in to the PBZ at 35 minutes, based on an assumption of 15 minutes through central search. Dublin Airport claims that the maximum distance which passengers would walk outside is approximately 250 metres, and separately that seven walkway served stands can be used from the PBZ at the same time. This would appear to be challenging operationally. We understand that the intended operating mode has been developed in collaboration with airlines.

16.119 This project is in the interests of airport users as it will provide gate capacity to partly meet the identified T1 gate capacity required to service the 40 mppa schedule, and thus we have allowed for it. We note that there remains a partial shortfall. On that basis it is not clear why Dublin Airport has not opted to immediately proceed with the construction of Pier 1 Module 2. On the other hand, we note that overall, the eastward extension of Pier 1 lends itself to modular construction, and Dublin Airport intends to proceed with preparatory work (such as planning permission).

- 16.120 Remuneration of the new PBZ is conditional on Dublin Airport obtaining permanent planning permission for it.

CIP.20.03.043A- T1 New Airbridges

- 16.121 This project provides for the fitting of six airbridges to stands 201-203 on Pier 2. These are MARS stands, which can accommodate any code E aircraft. It includes significant works within Pier 2, namely refurbishment of the first floor to include relocated Food and Beverage and reconfigured seating area, and refurbishment of the ground floor to include small extension for relocated toilet block and reconfigured seating. The plan for this area is to decommission the Central Apron (Triangle) stands which allows for the expansion of Apron Taxiway 2 to accommodate code E aircraft.
- 16.122 Dublin Airport's capacity assessment identifies that additional widebody pier-served stands are required either on Pier 1 or Pier 2 to serve Non-Preclearance widebody aircraft. This project has been proposed as the solution.
- 16.123 We note that certain short haul carriers have expressed a preference for airbridge served stands. While subject to the stand allocation rules, a review of which is currently ongoing, we note that this project will increase the number of airbridges which may be available for allocation to such carriers.
- 16.124 Dublin Airport advises that the remaining asset life of Pier 2 is approximately 20 years, in line with the asset life of this project. Under *CIP.20.01.002*, and specifically in relation to apron pavement around Pier 2, only the pavement at stands 203-208 is intended for rehab under the 2020-2024 programme. This is despite parts of stands 202 and 201 being degraded or unsatisfactory, and therefore potentially unsuitable for fully loaded widebody operations. Dublin Airport advise that the more significant issues at these stands are at the interfaces with areas intended for rehab and can be addressed as part of the adjoining works. Provided that this pavement remains fit for use for widebody operations, this project is in the interests of airport users and we have allowed for it. As both this project and *CIP.20.01.002* are StageGate projects, there is more flexibility for the scope of these projects to adjust if necessary.

CIP.20.03.049- De-Icing Pad at Runway 10R

- 16.125 This project provides for a de-icing pad, as an enhancement to the PACE project to provide additional line-up points, for the current Runway 10. This avoids the situation of an aircraft, which has exceeded the 30-minute holdover time after being de-iced on stand, having to return to stand to be de-iced again, leading to congestion on the airfield. Runway 10R is the intended primary departures runway during dual runway 10 operations. This project has received support from airport users. Based on the above, we have allowed for this project in the interests of airport users.

CIP.20.03.051B- West Apron Underpass- Pier 3

- 16.126 This project would provide a vehicle underpass in order to allow for reliable and efficient western access. Access is required in the immediate term to facilitate use by General Aviation, cargo, MRO, and the parking of standby aircraft- particularly in the context of the PACE West Apron stands and new Apron 5M (*CIP.20.03.054*). This allows stands on the eastern campus to be used for passenger operations. Dublin Airport advises that the tunnel has been sized to fit all current and anticipated vehicles.
- 16.127 Dublin Airport analysis indicates that the 40 mppa schedule would involve 875 vehicle trips to/from western stands across the day, peaking at 243 trips during the 0500 hour. The

underpass is a necessary first phase in the broader 55 mppa masterplan which relies on significant passenger operations from the West Apron.

- 16.128 We conclude that the development of reliable and efficient east-west connectivity as part of CIP2020 is in the interests of airport users.
- 16.129 Dublin Airport has considered a range of options for the eastern underpass entrance, namely all four piers and Apron 5G. It has settled on Pier 3, primarily on the basis of location, operational efficiency, and the lack of stand impact. This is in line with the recommendation of a report it commissioned from Airport Creators. We are aware that other stakeholders hold different views on the location; we have also reviewed a report commissioned by an airline stakeholder which instead recommends alternatives. On review of the evidence which has been made available to us to date, however, it is clear to us that the Pier 3 location is superior to all other options. On that basis we are proposing to provide an allowance in line with the Pier 3 scoped project. However, as this project will enter the StageGate process there will be potential for the scope, location and cost associated with this project to evolve, should that be the outcome of the process.

CIP.20.03.052- Surface Water Environmental Compliance

- 16.130 This project is the first phase of a three-phase programme to overhaul the management and treatment of surface water run-off across the airport.
- 16.131 This project is in line with Dublin Airport's drainage masterplan. Dublin Airport advises that it engages with a range of regulatory bodies in drawing up this masterplan, which envisages a campus wide approach to drainage. We note that this project has been future proofed in terms of pipeline capacity; the capacity will allow for a 55 mppa flight schedule as envisioned in the overall masterplan, including significant further development on the west apron.
- 16.132 Based on the above, we have allowed for this project in the interests of airport users as we believe it is necessary to allow for development of the airport. The ongoing remuneration for this project is contingent on Dublin Airport maintaining compliance with any Trade Effluent Discharge Licences (TEDL) or other regulatory requirements. This project replaces the Pollution Control project in the 2015-2019 CIP, which Dublin Airport did not proceed with on the basis that it would no longer be sufficient to meet discharge limit requirements. As a Deliverable, that project allowance will not enter the 2020 opening RAB and thus will not be remunerated.

CIP.20.03.054- Apron 5M

- 16.133 This project provides for a new 17 NBE apron, to the north of the West Apron, west of the crosswind runway. It also includes 2 code E stands. The stands will allow for unrestricted use by code C/code E aircraft, as applicable. The stands are safeguarded for the future provision of A-VDGS and FEGP.
- 16.134 Dublin Airport identified a requirement for 154 NBE stands (including 10% contingency) relative to a post-PACE count of 134 (and from this number, 4 NBE on the triangle should also be discounted due to *CIP.20.03.043A*). With a net gain of 6 NBE on the South Apron, Apron 5M is required to address the shortfall. This is supported by Helios' airfield model, which notes a peak stand demand of 145 NBE under the 40 mppa schedule. We have therefore allowed for this project as it is in the interests of airport users.
- 16.135 Dublin Airport advises that the pavement specification has been designed for use by Boeing 777-300ER aircraft, in order to safeguard the entire pavement for future widebody operations as envisaged under the 55 mppa masterplan. Steer report that the pavement thickness is

insufficient for WB aircraft. This issue will need to be clarified between Dublin Airport and Steer ahead of the Final Determination, in order that we can ensure that either nugatory expenditure is avoided or an inappropriate allowance is afforded.

CIP.20.03.057- Airside GSE Charging Facilities

16.136 This project would provide for airside Ground Service Equipment (GSE) charging facilities, meaning that groundhandlers can switch to electric GSE. As well as facilitating this, it will allow Dublin Airport to better align itself with EU and government policy in relation to sustainability. The project has received user support. For these reasons it is in the interests of airport users.

16.137 We are proposing that this project enter the StageGate process on the grounds that the scope is currently underdeveloped, with no details on locations available, although it does assume 33 Trickle Charger and 33 Rapid Charger units. This will allow the potential for scope adjustments to ensure the project can best meet the needs of stakeholders who operate GSE airside.

CIP.20.03.071- Piers 2 and 3 Hydrant Enablement

16.138 This project provides for the installation of fuel hydrants and associated pipelines on Pier 2 and Pier 3 stands.

16.139 The remaining asset life of these piers is 20 and 15 years respectively. Dublin Airport has confirmed that this project is in line with the longer-term plans for these piers, and also that associated works will be coordinated with the apron rehab programme to ensure no nugatory spend is incurred.

16.140 This project will allow for faster and more efficient refuelling, while reducing the number of vehicles on the apron—this is particularly important given the expected increase in widebody operations from these piers. A project to provide this facility is already underway for Piers 1 and 4. On this basis, our view is that this project is in the interests of airport users and we have allowed for it.

CIP.20.03.072- Additional Booths (Pier 4 and T2 Transfers)

16.141 This project provides for additional immigration booths at both the main T2 and Pier 4 transfer facilities. Helios' initial results indicated unacceptable wait times at these facilities. As a result, Dublin Airport proposed additional booths. Helios' results in relation to wait times now suggest that this facility will be appropriately sized in order to deliver the 40 mppa schedule. This project is therefore in the interests of airport users and we have allowed for it.

Commercial

16.142 We have allowed for each project in this section. Based on a cost of capital of 5.8%, and reasonable projections and assumptions, these projects have a positive business case; the exceptions are the Car Parking Management System (*CIP.20.04.001*) and Commercial Property Refurbishment (*CIP.20.04.025*), which are rather intended to protect existing revenues. We are proposing a reduced cost of capital, and the Steer draft costings have identified that some of these projects could be delivered with less expenditure. The NPV (net present value) of these projects would increase further relative to that which was originally presented by Dublin Airport. In most cases, there is also a passenger experience aspect to these projects, either from improved facilities, increased capacity, or both. Based primarily on these two factors, we have allowed for these projects in the interests of airport users.

16.143 With the exception of the Car Hire Consolidation Centre (*CIP.20.04.002*), which is a Deliverable, all other project allowances are flexible.

CIP.20.04.001- Car Parking Management System

16.144 This project would replace car park management equipment (new software, entry/exit terminals, pay stations, barriers, CCTV) in the short term and long term car parks. The current equipment dates from 2006; Dublin Airport advises that it will no longer be supported by the vendor after 2019. Furthermore, we note that the new software and equipment will have improved functionality, including improved integration capability with airlines or other travel services such as the airport lounges and Fasttrack. This project is therefore in the interests of airport users in order to protect existing carpark revenues and improve the customer experience.

CIP.20.04.002- Car Hire Consolidation Centre

16.145 This project would deliver 3,000 additional car rental spaces together with support facilities (fuel positions, wash bays, offices, maintenance areas). Currently during peak periods, operators must use supplementary facilities offsite. We have received correspondence from a number of car rental operators, in which they both highlight insufficient current capacity and express support for this project. We note that the sizing of this facility has been developed following demand forecast analysis, carried out by Ricondo in consultation with car rental operators, out to 2024. We propose to make this project a Deliverable, therefore it must be completed in order for the allowance to be retained.

16.146 In the 2014 Determination, we allowed €10.1m for a consolidated car hire centre (*CIP.15.2.009*). Dublin Airport reallocated this flexible allowance to other commercial revenue projects, as it was entitled to do under the 2014 Determination.

CIP.20.04.003- Food & Beverage Fit-out (T1X)

16.147 This project provides shell and core fit-out for a large new Food and Beverage (F&B) unit in the T1 departures lounge. Dublin Airport has identified that F&B is now underprovided in this area, relative to a benchmark F&B space requirement for a departure lounge of 450 square metres per million annual passengers. Dublin Airport provided us with a range of survey and review data indicating relative (and increasing) dissatisfaction with F&B offerings in this area.

CIP.20.04.004- Digital Advertising Infrastructure

16.148 This project provides for digital advertising infrastructure in the terminals.

CIP.20.04.005- Eastlands Long Term Carpark

16.149 This project provides 2,000 additional car parking spaces for the Red Long-Term carpark to satisfy demand identified in the business case. All spaces will be available to be used interchangeably for hire car storage, when there is insufficient capacity in the consolidated facility. There is a synergy between these two projects in that during peak times there is a high level of demand for public carparking spaces but lower demand for the storage of hire cars as more of these are rented, and vice versa during off peak times.

CIP.20.04.006- T1 Multi Storey Carpark Block B

16.150 This project encompasses two additional floors on top of Block B of the T1 MSCP, with 480 additional spaces, to meet Short Term car parking demand identified in the business case. The

project sheet as published in the final CIP document incorrectly states that the project would provide 600 spaces.

- 16.151 We note that the remaining asset life of the T1 MSCP is at least 15 years; given the above reduction in the number of available spaces, the payback period extends out to 16 years. We believe that, with maintenance, the core T1 MSCP should exceed this and not risk the associated revenues over the full 25-year asset life of this project. Dublin Airport has confirmed that no aspects of the lift/lift shaft extension works included in this project have also been costed into *CIP.20.02.005* (Lift Refurbishment and Replacement Programme).

CIP.20.04.007- T2 MSCP

- 16.152 This project adds two floors to the T2 Multi Storey Carpark, with 680 spaces, in order to meet the Short Term car parking demand identified in the business case.

CIP.20.04.009- Staff Car Park

- 16.153 This project would provide for 1,480 spaces for staff car parking (with a further 800 provided for under *CIP.20.03.036*). This still leaves some underprovision relative to the Dublin Airport identified 40 mppa requirement, which Dublin Airport states will require a change in modal split (shift to public transport) or through the use of the public car parks during off peak periods.

- 16.154 In the 2014 Determination, we allowed €1.5m for a consolidated staff car (*15.2.017*) which was of reduced scope relative to this project. Dublin Airport reallocated this flexible allowance to other commercial revenue projects, as it was entitled to do under the 2014 Determination.

CIP.20.04.016- Platinum Services Upgrade Works

- 16.155 This project encompasses general décor, furniture, and kitchen facilities upgrades, as well as a capacity expansion, of the Platinum Services facility. The capacity expansion includes an increase in suite capacity as well as a General Aviation ‘Porch’ in order to free up space for commercial passengers in the main facility.

- 16.156 We note that no upgrades have been assumed in the business case, but rather the expected revenues are assumed to be generated from the expansion of the facility only. The corollary of this is that the upgrades are not required to deliver the incremental revenues. However, we agree with Dublin Airport that facilities such as these require frequent renewal in order to protect existing revenues and customer satisfaction. We have therefore allowed for both aspects of this project.

CIP.20.04.017- Airline Lounges

- 16.157 This project would increase the lounge capacity of the lounges in piers 1 and 3, T2 level 35, and T2 arrivals for a total of 2,000 additional square metres. It also provides for upgrades to the general décor, furniture and shower facilities, as well as additional chargepoints. Again, the expected incremental revenues are assumed to be generated from the expansion of the facility only. Dublin Airport has provided evidence of worn/dated furniture in these lounges. For the reasons set out in relation to platinum services, we again allow for all aspects of this project.

CIP.20.04.018- Fast Track Improvements

- 16.158 This includes upgrades to the current departure facility, namely visual improvements, a barista bar, and ‘seamless security equipment’; the latter includes an automated entry system

together with security equipment which would further speed up the process for passengers. Dublin Airport believes that these improvements are required in order to protect Fast Track revenues through maintaining a competitive edge over the central search facilities. The project also includes a new arrivals Fast Track product in both terminals, which would effectively involve a 'queue skip' into the existing immigration lanes.

CIP.20.04.021- West Apron Accommodation & Welfare Facilities

16.159 The project provides for the construction of new commercial office, storage, and welfare facilities on the West Apron. As well as providing commercial revenues, this project will encourage use of western stands on the West Apron and Apron 5M, particularly for cargo operators and standby aircraft, through the provision of suitable support facilities.

CIP.20.04.023- Post US Preclearance Food & Beverage Facility

16.160 This project would provide a shell and core fit-out for a Food & Beverage Facility in Pier 4, post US Preclearance. Currently, the F&B offering post US Preclearance is limited. We note that the core production facility downstairs will be able to service satellite units upstairs in the Pier.

CIP.20.04.025- Commercial Property Refurbishment

16.161 This is a broad allowance for the maintenance and refurbishment of the suite of commercial properties, rather than tied to specific works. This project is in the interests of users in order to protect these revenues. A similar allowance was provided for in the 2014 Determination, which has been spent in full; Dublin Airport note that key works delivered in the current period include the refurbishment of Sky Bridge House, and airline accommodation. The potential uses of this allowance include fitting out of offices, furniture minor mechanical and electrical services, minor life safety systems works, and IT.

CIP.20.04.030- T2 New Kitchen

16.162 This project provides for a new kitchen facility to improve the F&B offering in the T2 departures lounge. Dublin Airport has pointed out various feedback and survey results which indicate passenger dissatisfaction with the F&B offering in the T2 departures lounge, and more broadly across the airport. We note that the PRM toilets which would make way for this facility are not currently in use, and there is no plan to replace them.

CIP.20.07.010- Office Consolidation and Refurbishment

16.163 This is a project of significant scale which would refurbish the upper floors of T1 to increase back-of-house office space, free up Cloghran House and the Cargo 6 building for lease, and replace the Cargo 1 and North Terminal buildings which are to be demolished as part of the capacity expansion projects. Dublin Airport staff currently based at these buildings would be relocated to the upper floors of T1.

16.164 While the associated commercial revenue increases will derive only from increased property rents, there remains a need to relocate staff from the facilities earmarked for demolition. In addition, Dublin Airport has identified that this project would lead to a significant annual opex saving, as well allowing for working efficiencies through the centralisation of staff. We therefore conclude that all elements of this project should be allowed in the interests of airport users. The associated opex savings of over €1m per year have been built into the opex allowances.

CIP.20.08.001- Retail Refurbishments, Upgrades, and New Developments

16.165 This project provides for retail refurbishments, and new shops in piers 1 and 4, T2, and the South Gates PBZ. It also includes an operational contingency budget to react to unforeseen opportunities/issues in order to drive revenues. In relation to the South Gates, Dublin Airport advises that the new retail unit (or elements of it) will only be installed in the current location and then moved if this is cost effective. Otherwise this unit will be installed subsequent to the relocation of the South Gates PBZ.

CIP.20.08.002- Retail Marketing & Media Installation

16.166 This project would install digital advertising into retail units.

IT

16.167 We propose to provide an allowance for each project in this group. The efficient operation of the airport, which is in the interests of airport users, requires robust and modern IT systems. However, this is a fast developing area and we do not want to tie Dublin Airport into expenditure on particular projects. Thus, rather than assessing these projects individually we are proposing a broad allowance which may be allocated by Dublin Airport to any IT expenditure over the period 2020-2024.

16.168 This is in line with the approach taken by Steer, who have found it difficult to assess this expenditure on a project-by-project basis and have thus generally applied a broader overall benchmark approach. It is also in line with the approach we took in the 2014 Determination, when we were presented with a small number of projects which comprised many elements rather than the larger number of more granular projects presented as part of the 2020 CIP.

Security

16.169 We have allowed all projects in this group. All allowances are flexible with the exception of the Screening and Logistics Centre, which is a time based Deliverable, and HBS3, which we are considering as a single project that will enter the StageGate process. Where security equipment below is referenced as End-of-Life ('EoL'), Dublin Airport advise that this means that, over the forthcoming regulatory period, either:

- The vendor will no longer provide the support necessary to maintain passenger processing ability and/or regulatory compliance, or
- Dublin Airport has determined that specific equipment will no longer be capable of properly or reliably fulfilling its intended purpose, due to faults and/or wear and tear.

16.170 On this basis we have allowed for all requested EoL replacements in the interests of ensuring the safe, secure, and efficient operation of the various facilities and processors. Clearly this is in the interests of airport users.

CIP.20.06.001- Cabin Baggage X-Ray Replacement & EDS Upgrade

16.171 This project provides for the replacement of 52 EoL cabin baggage X-Ray devices across both terminals, vehicle control points (VCPs), and other areas such as platinum services, with EDS (Explosive Detection System) C3 devices. This equipment provides improved detection relative to current single view machines. The C3 machines also provide improved throughput, and do not require removal of LAGs (Liquids and Gels) and electronics from cabin baggage.

16.172 The central search capacity projects have a dependency on the throughput rate which can be achieved by these machines, which has been assumed in Helios' terminal simulation modelling as well as Dublin Airport's own facility sizing assumptions. This project is therefore in the interests of airport users from the perspective of security, passenger processing, and the passenger experience.

CIP.20.06.007- Full Body Scanners

16.173 This is a pilot project to install a total of 4 body scanners after the walk-through metal detectors (WTMDs) in selected central search lanes in both terminals. Dublin Airport is proposing this in anticipation of potential future regulatory changes to mandate full body screening; the scanners will also reduce the need for hand searches for alarm resolution in these selected lanes. However, the primary purpose is to allow Dublin Airport test out how these machines would function as part of the central search process, without undermining passenger processing ability.

16.174 This pilot allows Dublin Airport to assess this in advance of committing to likely significant expenditure to achieve compliance in future periods. We believe that this is a prudent approach and thus have allowed for this project in the interests of future airport users.

CIP.20.06.009- T1 Additional ATRS Lane

16.175 This project would convert the T1 staff security lane into another passenger ATRS lane. Staff screening would be provided in central search during periods of low demand, where an existing lane will be switched to a staff search mode. In periods of peak demand staff will be directed to the arrivals staff search lane. Following the relocation to the mezzanine scheduled for Q4 2022, it is intended that this area will be used for Fast Track. While we have not independently assessed the need for this extra lane, Dublin Airport forecasts that it will be required to maintain queue times through central search in advance of the move to the mezzanine. On this basis we have allowed for this project in the interests of airport users.

CIP.20.06.014- Screening & Logistics Centre

16.176 This project would create new facilities for screening airside construction vehicles and supplies to allow them to enter the CPSRA with reduced delay. There are two phases, effectively an interim followed by a permanent solution:

- Phase 1: Two compounds, (near taxiway E6 and to the north of the North Apron) to supplement the existing construction access in the short term. These are intended to be in place by the end of 2019.
- Phase 2: A large centralised screening and logistics centre.

16.177 Dublin Airport believes that, given the size of the CIP, this project would pay for itself over the forthcoming regulatory period alone. The issue of whether this facility should be funded by Dublin Airport itself, in order to reduce capital expenditure, arose during consultation. We would point out that, unless the allowance for a project and/or group of projects has been exceeded, the regulatory model in place provides limited incentives to Dublin Airport to reduce capital expenditure below the allowances; the key incentive is to avoid exceeding allowances. Thus, there is the potential for a loss of welfare for airport users where overall this project would lead to reduced capital expenditure, but incentives for Dublin Airport to achieve these efficiencies are insufficient to proceed with this facility without associated remuneration.

16.178 We are seeking to provide efficient cost allowances. While an airside works allowance has been

included in the costings where appropriate, we believe that effective storage and access facilities to the airfield will be required in order to achieve this level of efficiency. While it cannot yet be quantified, this facility would continue to provide benefits in future CIP cycles.

- 16.179 We have therefore allowed for this project in the interests of users, given that overall we expect it to reduce capital expenditure in this period and in future periods. We propose to make this project a Deliverable, and furthermore given the time critical nature of the business case the Screening Centre must be delivered by the end of 2022 in order for this allowance to be retained.

CIP.20.06.015- Boundary Intrusion Detection Systems

- 16.180 This project encompasses an automated intrusion detection system on the boundary of the CPSRA, through a set of cameras being directed by ground-based radar. As it will assist in the detection of unauthorised access to the CPSRA, it will improve the security of airport users and staff and therefore we have made an allowance for it.

CIP.20.06.016- Surface Road Blockers & Mobile Barriers

- 16.181 This project provides for protection against hostile vehicles at the VCPs. As this would assist in preventing hostile vehicles from entering the CPSRA, we have allowed for this project in the interests of the security of airport users and staff.

CIP.20.06.022- Redevelopment of Training Facility (ASTO)

- 16.182 This project involves the conversion of Castlemoate House into a dedicated staff training facility, primarily for security staff. Dublin Airport's Airport Security Programme (ASP), which is provided for under EU Regulation and which must be approved by the IAA SRD, now sets out a greater number of more detailed testing requirements.⁵⁵ The facility will include an ATRS lane and a WTMD for training.

- 16.183 We note that Dublin Airport also considered a purpose built facility but chose the Castlemoate facility on the basis of cost, with the costing of a purpose built facility estimated at €8m. This project is in the interests of airport users to ensure that fit-for-purpose training facilities are available to meet these standards, which are in turn designed to improve detection capabilities.

CIP.20.06.025- Explosive Detection Dogs & Mobile X-Ray Unit

- 16.184 This project encompasses improvement of the Explosive Detection Dog (EDD) facilities (namely kennels and vehicle transportation) and 2 mobile X-Ray devices. This project is in the interests of airport users as it will lead to improved detection capability.

CIP.20.06.030- VCP Automation for Remote Screening

- 16.185 This project would provide for remote viewing of images from screening at the VCPs, allowing for centralised viewing. Dublin Airport advises that this will allow staff to develop specialisation and expertise in this function, unlike today where all certified ASUs undertake this duty. This should lead to a consistent, high standard of screening across the airport campus. Therefore, we have allowed for this project on the basis that it will improve detection capability, which is in the interests of airport users.

⁵⁵ <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:097:0072:0084:EN:PDF>

CIP.20.06.031- T1 Autopass Replacement and T2 Installation

16.186 This project would provide automated boarding pass scanners to replace those in T1, which are EoL, and roll out new units in T2 to replace the current staffed booths. These automated units require less staff, and allow for increased passenger flow, compared to manned units. We have therefore allowed for this project to ensure that the boarding pass scan process does not become a pinch point either through insufficient processing capacity, or EoL equipment.

CIP.20.06.036- TSA X-Ray and FBSS Replacement

16.187 This project encompasses like-for-like replacement of EoL X-Ray and body scanner equipment for the TSA security processor.

CIP.20.06.041- Security Screening Equipment – End of Life

16.188 This project replaces EoL Explosive Trace Detectors (ETDs), Liquid Explosive Detectors (LEDs), Walk Through Metal Detectors (WTMDs), Hand Held Metal Detectors (HHMDs), and mobile radios. Steer suggest that the number of LEDs and ETDs could be reduced where the C3 ETD machines are deployed due to the current requirement for 10% random searches potentially no longer applying (although Steer has not adjusted the costing to reflect this). In response to this point, Dublin Airport advise that this equipment will have to be replaced in full because:

- It expects false alarm rates of up to 10% from the C3 equipment once deployed. These alarms will have to be resolved by supplementary screening methods such as ETDs and LEDs.
- An approach whereby there are options in relation to compliance provides for flexibility/redundancy in the processor.

16.189 On this basis we have allowed for the replacement of this equipment in full.

CIP.20.06.042- ATRS Central Search T1 & T2

16.190 This project provides for fifteen (including 2 redundancy) 25 metre ATRS lanes to be installed into the new mezzanine central search facility provided through *CIP.20.03.012*. It also includes the relocation of the 19 metre ATRS lanes currently in operation in T1, to T2. We note that these lanes, combined with the C3 X-Ray equipment, are required in order to deliver the passenger processing rates assumed for the sizing of these facilities. As the key departure processor, this project is therefore in the interests of airport users.

CIP.20.06.044- Replacement of T1 Access Controllers

16.191 The project encompasses the replacement of EoL access controllers, which allow authorised personnel to access restricted areas.

CIP.20.07.031 & CIP.20.07.033- HBS Standard 3 in T1 and T2

16.192 This project would upgrade the Standard 2 Hold Baggage Screening (HBS) equipment to Standard 3 equipment in T1 and T2. This is a significant and complex project with a challenging timeline, particularly in T1. It is required under EU aviation security regulations.⁵⁶ It is therefore in the interests of airport users and we have allowed for it.

⁵⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R1998&from=EN> Section 12.4.2

16.193 We are in receipt of a draft report which we commissioned from Steer on efficient expenditure on HBS. However, the value engineering process is ongoing and Steer have not yet had sight of a finalised scope or costings which would enable them to take a concrete view on an efficient allowance. We are expecting that full details will be available for Steer to review by the end of May. We have therefore provisionally used Dublin Airport's most recent costing of €181.9m in advance of Steer receiving full information in time for the Final Determination. In any case this project will enter the StageGate process.

Other

16.194 We have allowed for all projects in this section with the exception of *CIP.20.07.004* as it is not a capital project. The other three project allowances are flexible and have been grouped as 'Other Projects'.

CIP.20.07.001- Programme Management

16.195 This project provides for managing the delivery of the CIP programme. We have allowed for it in the interests of airport users, to ensure efficient and effective monitoring of the delivery of the CIP programme.

CIP.20.07.002- Minor Projects

16.196 This is a broad allowance to cover the cost of minor reactive works of less than €100k, which are currently unforeseen. This can include projects in any area of the airport campus. The corresponding allowance in the 2014 Determination was €10m; given the increase in passenger numbers and complexity of the operation, we believe the proposed increase to €12.5m is appropriate, although it should be noted that under the asset care section we are also proposing to provide broad allowances for the maintenance of terminal and campus buildings.

16.197 We have allowed for this project, as it is in the interests of airport users to ensure minor refurbishment or reactive maintenance is carried out.

CIP.20.07.004- Metro Coordination

16.198 This is a minor project allowance to cover the cost of a single FTE dedicated to coordinating with the MetroLink project over the forthcoming regulatory period. While we do not dispute the importance of coordinating with the MetroLink works, like *CIP.20.02.002*, this cannot be considered a capex project. Consequently we have not allowed for it.

CIP.20.07.014- Terminal Operations Improvement Projects

16.199 This project provides for a range of works within the terminal buildings in relation to the refurbishment/upgrade of seating, washrooms, trolleys, signage, and the PRM reception in T2.

16.200 This project has a significant passenger experience benefit with a relatively minor cost, which we expect to be reflected in the results from Quality of Service monitoring. The project encompasses a number of key issues raised by our Passenger Advisory Group (PAG). On that basis it is in the interests of airport users and we have allowed for it.

CIP.20	Project	Draft Allowance	Asset Life	Reconciliation*
Appendix A- Asset Care- Civil, Structural, Fleet				
01.001	Southern Runway 10/28 Delethalisation	2.2	20	F
01.002	Apron Rehabilitation	30.8	20	S
01.003	Airfield Taxiway Rehabilitation	17.4	20	S
01.004	Apron Road Rehabilitation	3.9	20	D
01.006	Airfield Southern Perimeter Road Upgrade	4.0	15	F
01.008	Runway Approach Lighting Mast Improvement	11.1	20	D
01.009	Aerodrome Ground Lighting (AGL) Improvement	4.7	15	D
01.010	Airfield Lighting Control Management System Improvement	4.9	10	D
01.012	AGL Substation T Development	3.7	30	D
01.015	High Mast Lighting Improvement	0.7	15	F
01.016	Airfield Maintenance Base Improvement	4.4	20	F
01.018	Campus Buildings Critical Maintenance	1.5	15	F
01.020	Terminal 1 Façade, Roof & Spirals	25.2	20	S
01.022	Terminal 1 Storm Water Drainage System	1.1	15	F
01.023	Piers & Terminals Critical Maintenance	1.7	15	F
01.024	Skybridge Rehabilitation	1.2	20	D
01.034	Campus Roads Critical Maintenance	6.2	15	D
01.039	Airport Roads Critical Maintenance	4.9	15	D
01.046	Staff Car Parks Critical Maintenance	1.0	15	F
01.049	Public Carpark Critical Maintenance	2.3	15	F
01.056	Campus Facilities & Landside Snow Base Upgrade	2.8	20	F
01.065	Airport Heavy Fleet & Equipment Replacement	11.0	7	F
01.069	Airport Light Vehicle Fleet Replacements & Augmentation	2.4	5	F
01.071	Electric Charger Network Facilities	1.6	10	S
01.074	Advance Visual Docking Guidance System	5.4	10	D
01.087	AGL Fibre Optic Communication Network Improvement	2.0	20	D
01.099	RWY 16/34 Lighting for Low Visibility Procedures (LVP)	5.5	10	D
07.013	Airfield Redesignation	1.5	15	F
07.032	ULD Storage	5	15	S
Appendix B- Asset Care- Mechanical and Electrical				
02.001	Medium Voltage (MV) Electrical Network	6.3	20	D
02.004	Passenger Boarding Bridges (Maintenance & Pier 3 Enhancement) & FEGP	17.2	15	D
02.005	Lift Upgrade Programme- Terminal & Multi-Storey	6.2	20	F
02.006	Airport Water & Foul Sewer Upgrade	4.9	25	F
02.007	Life Safety Systems (LSS) Upgrade	10.1	10	D
02.008	Terminal Buildings- HVAC Upgrade	17.8	20	D

CIP.20	Project	Draft Allowance	Asset Life	Reconciliation*
02.009	Campus Buildings: Mechanical, Electrical & LSS Upgrade	9.4	15	F
02.010	Pier 3 Life Extension Works- Mechanical, Electrical & Foul Drainage	14.0	15	D
02.013	Small Energy Projects	5.4	15	F
07.030	Large Energy Project- Photovoltaic Farm	8.5	25	D
Appendix C- Capacity				
03.004	Gate Post 9 Expansion (West Lands)	8.5	20	F
03.006	Terminal 1 Kerbs	13.6	15	F
03.011A	Terminal 1 Check-In (Partial Shoreline)	25.7	10	S
03.012	Terminal 1 Central Search- Relocation to Mezzanine Level	28.8	15	S
03.013	Terminal 1 Departure Lounge (IDL) Reorientation & Rehabilitation	28.3	15	S
03.015	Terminal 1 Baggage Reclaim Upgrade & Alterations	19.0	15	S
03.016	Terminal 1- Rapid Exit Arrivals	1.9	10	F
03.017	Terminal 1 Shuttle, bus lounges & injection points	1.9	15	F
03.018	Terminal 1- Immigration Hall	1.8	15	F
03.020	Terminal 2 Check-In Area Optimisation	13.2	15	F
03.021	Terminal 2 Central Search Area Expansion	4.7	15	F
03.028	Terminal 2 Early bag store & transfer lines	27.9	10	S
03.029	New Pier 5 (T2 and CBP Enabled)	289.0	40**	S
03.030	Expansion of US Pre-Clearance Facilities	54.5	25	S
03.031	South Apron Expansion (Remote Stands, Taxiway and Apron)	70.5	40**	S
03.033A	Enablement of Pier 3 for Precleared US bound passengers	7.3	15	F
03.034	Pier 3 Immigration (Upgrade & Expansion)	4.7	6	F
03.036	North Apron Development- Pier 1 Extension (Module 1) & Apron 5H PBZ	158.6	40**	S
03.043A	Terminal 1 Piers- New Airbridges (6NBE/3WB)	23.3	20	S
03.049	De-icing pad at Runway 10R	5.0	20	F
03.051B	West Apron Vehicle Underpass- Pier 3 Option	169.0	50	S
03.052	Surface Water Environmental Compliance	51.6	20	S
03.054	New Remote Apron 5M- 17 NBEs	71.0	40**	S
03.057	Airside GSE Charging Facilities (Ground Handlers)	4.9	10	F
03.071	Hydrant Enablement- Pier 2 & 3	23.7	20	S
03.072	Transfer Immigration Booths – Pier 4 and T2	0.84	10	F
Appendix D- Commercial Revenues				
04.001	Car Parking Management System (Maintenance & upgrade)	3.4	10	F

Maximum Level of Airport Charges at Dublin Airport 2020-2024, Draft Determination

CIP.20	Project	Draft Allowance	Asset Life	Reconciliation*
04.002	Car Hire Consolidation Centre	13.6	20	D
04.003	New Food & Beverage Fit-out (T1X)	0.9	20	F
04.004	Digital Advertising Infrastructure	2.2	5	F
04.005	Long Term Car Parking- Eastland's	9.4	20	F
04.006	Terminal 1 Multi-Storey Car Park Block B	17.4	25	F
04.007	Terminal 2 Multi-Storey Car Park	14.9	25	F
04.009	Staff Car Park	5.8	20	F
04.016	Platinum Services Upgrade Works	2.1	10	F
04.017	Airline Lounges- Expansion, Upgrade & New	11.4	12	F
04.018	Fast Track Improvements	1.7	7	F
04.021	West Apron- Accommodation & Welfare Facilities	3.8	25	F
04.023	Food & Beverage Provision & Fit-out- Post CBP	1.4	20	F
04.025	Commercial Property Refurbishment	6.0	7	F
04.030	New Kitchen in Terminal 2	2.3	20	F
07.010	Office Consolidation & Refurbishment (primarily Level 4 & 5, Terminal 1)	11.9	25	F
08.001	Retail Refurbishments, Upgrades and New Developments	8.0	5	F
08.002	Retail Marketing & Media Installation	1.5	5	F
Appendix E- IT				
05.001	Airfield Optimization	5.6	5	F
05.002	Digital Passenger Experience	1.8	5	F
05.003	Integrations and Data	5.1	5	F
05.004	Baggage Systems	1.3	5	F
05.005	Business Efficiency	6.2	5	F
05.006	Commercial Systems	2.3	5	F
05.007	Reliability, Safety, Security & Compliance	8.2	5	F
05.008	Operational Devices (Support & Maintenance)	1.8	5	F
05.009	Network Components- Lifecycle & Growth	6.8	5	F
05.010	Passenger Processing (excl. Security Screening)	11.0	5	F
05.011	Security Technology Innovation (Biometrics & FOD Detection)	5.0	5	F
05.012	Servers and Storage- Lifecycle & Growth	5.6	5	F
05.014	User Devices (Desktops, Mobile, Telephone, Radio)	3.7	5	F
05.015	New Data Centre Hosting Location	4.0	15	F
05.016	Microsoft Enterprise	6.0	3	F
05.020	Innovation Fund	4.0	5	F
Appendix F- Security				
06.001	Cabin Baggage X-Ray Replacement & EDS Upgrade	16.8	7	F

Maximum Level of Airport Charges at Dublin Airport 2020-2024, Draft Determination

CIP.20	Project	Draft Allowance	Asset Life	Reconciliation*
06.007	Full Body Scanners	1.8	7	F
06.009	ATRS- Additional Lane in Terminal 1	0.5	7	F
06.014	Screening and Logistics Centre	13.3	15	D
06.015	Intrusion Detection Systems for Dublin Airport Boundaries	4.0	7	F
06.016	Surface Road Blockers & Temporary Mobile Barriers	1.0	7	F
06.022	Redevelopment of Training Facility (ASTO)	1.2	15	F
06.025	Detection: Explosive Detection Dogs (EDD) and Mobile X Ray Unit	0.2	6	F
06.030	VCP Automation to Enable Remote Screening	0.7	7	F
06.031	Autopass- T1 Replacement & T2 Install	1.8	7	F
06.036	TSA- X-Ray & FBSS Replacement	0.4	7	F
06.041	Security Screening Equipment- End of Life	4.5	7	F
06.042	ATRS- Central Search Areas (T1 and T2)	11.0	7	F
06.044	Replacement of T1 Controllers for Access Control System	0.5	7	F
07.031/033	HBS3- T1 and T2	181.9	15	S
Appendix G- Other				
07.001	Programme Management	4.9	5	F
07.002	Minor Projects	12.5	7	F
07.014	Terminal Operations Improvement Projects	4.5	5	F

* 'F' is Flexible, 'D' is Deliverable, 'S' is StageGate. Note that some projects marked as Deliverable have particular output or time based conditions- for details see the text in this appendix.

** Asset Life varies from Dublin Airport request.

Appendix 3: Quality of Service Proposal for 2020-2024

Table A3.1: Objective Measures

Measure and Source	Target	Price cap at risk per incident	Relation to Opex/Capex and exceptions	Stakeholder Views
1. Maximum queue time at central search – departing passengers				
Percentage of time in a day when the queue is less than the target. There are four bands of price adjustment according to the queue time. Total time is the sum of operational minutes in a day minus the minutes when the queue was zero. <u>Source: Dublin Airport</u>	Every month 80% of time < 10 min ¹	Note 1	The proposed opex allowance enables achievable staff efficiencies for the proposed service levels. The ATRS ² , EDS ³ and biometrics projects allow for further efficient processing and staff rostering from 2022. The proposed opex allowance also allows for maintenance. <u>We propose the same exceptions as in 2014.</u>	Aer Lingus supports an adjustment scale depending on the time taken to bring the metric within target. Dublin Airport supports 95% of time below 30 minutes. It also supports a measure of average time. The Passenger Advisory Group supports this target.
	Every day 70% of time => 15 min or 97% of time => 25 min	Daily -€0.005		
	97% of time > 25 but < 40 min	-€0.01		
	97% of time =< 40 but < 60 min	-€0.02		
	97% of time => 60 min	-€0.03		
2. Maximum wait time for assistance – departing and arriving PRM ⁴				
<u>Source: OCS - Dublin Airport</u>	Pre-advised	Non pre-advised	In opex, we will allow the fixed cost of the PRM contract as renewed in 2019. In capex, we will allow the refurbishment of lifts, escalators and travellators, and the relocation of the PRM reception in T2. <u>Proposed exception: major operational disruption</u>	Dublin Airport supports monitoring this measure, as it is important for on time performance. The Passenger Advisory Group supports measures related to the quality of PRM assistance.
Percentage of passengers in a day that are assisted from the terminal reception point within the targets	Reflective of SLA between Dublin Airport and the services provider (OCS).			
Percentage of passengers in a day that are assisted from aircraft to terminal holding point onwards within the targets				
3. Availability of outbound baggage handling system – departing passengers				
Percentage of operational time when the system is unavailable for more than 30 minutes. <u>Source: Dublin Airport</u>	0%	-€0.01	Our proposed opex allows for maintenance and the new cost item for hold baggage screening. Our proposed capex allows for IT baggage systems and the T2 transfer lines. <u>Same exceptions as in 2014.</u>	Aer Lingus, Dublin Airport and the Passenger Advisory Group support the current daily target.
4. Availability of inbound baggage handling system – arriving passengers				
Percentage of operational time when the system is unavailable in a month. Unavailable time is the sum of downtime of the system in a month. <u>Source: Dublin Airport</u>	99.5%	-€0.03	We propose to allow for maintenance in opex and IT baggage systems in capex. <u>Same exceptions as in 2014.</u>	Aer Lingus supports a daily measure. The Passenger Advisory Group supports monitoring inbound baggage systems.
5. Availability of Fixed Electric Ground Power (FEGP) – all passengers				
		Monthly		

Maximum Level of Airport Charges at Dublin Airport 2020-2024, Draft Determination

Percentage of operational time when FEGP is unavailable in a month. <u>Source: Dublin Airport</u>	99%	-€0.03 from 2021	We allow FEGP and AVDGS units in various apron areas as part of the 2018 supplementary capital projects, and the next CIP. We will also allow IT investment in the monitoring system as part of the CIP. <u>Exceptions:</u> trials of new units, damage or misuse by third party, major operational disruption, maintenance or closure (e.g. due to other works), that does not affect operations, set in consultation with users.	Dublin Airport states that these measures are generally not monitored at other airports. We note that FEGP is monitored at Heathrow airport, Gatwick airport and Aeroports de Paris, while AVDGS is monitored at Heathrow airport.
6. Availability of Visual Docking Guidance System (AVDGS) – all passengers				
Percentage of operational time when the AVDGS is unavailable in a month. <u>Source: Dublin Airport</u>	99%	-€0.03 from 2021	We will allow for the refurbishment of lifts and escalators in the CIP and IT investment in the monitoring system. Same <u>exceptions</u> as FEGP and when units are shut down by fire alarm activation (not due to a fault in the alarm).	Dublin Airport states its KPI is 98%, with overall performance above 99.4% in 2018.
7. Availability of escalators, lifts and travellers in Terminal 2- all passengers				
Percentage of operational time when units are unavailable in a month. <u>Source: Dublin Airport</u>	99%	-€0.03 from 2021		

1. min: minutes. 2. Automatic Return Tray System (ATRS). 3. Explosive Detection System (EDS). 4. PRM: Passengers with disabilities or reduced mobility.

Note 1. Positive incentive: reaching this target waives the highest daily security breach in a year. Source: CAR

Table A3.2: Subjective measures

Departing		Arriving	Measures Source: Dublin Airport Customer Service Monitor	Targets		Price cap at risk per incident	Relation to Opex/Capex and Exceptions	Stakeholder Views
PRM	Other			Min	Note1			
✓			8. Satisfaction with PRM assistance	9.0	n/a	-€0.01 A ²	See measure No.2.	Dublin Airport asks us to show that the benefits of including arrival measures surpasses the costs. We propose to employ the existing survey of Dublin Airport. There are no additional costs compared to the status quo, but passengers will benefit from increased transparency and better incentives for the airport. The Passenger Advisory Group and Ryanair support measures related to both arriving and departing passengers. In particular, the Passenger Advisory Group supports monitoring the satisfaction of PRM and non PRM passengers in relation to automated check-in, way finding (signage), flight information screens and walking distance.
✓	✓		9. Helpfulness of security staff	9.0	9.5	-€0.01 Q ³	See measure No. 1.	
✓	✓	✓	10. Cleanliness of terminal	8.7	9.0	-€0.01 Q	Opex will allow for cleaning staff required according to terminal space. Capex will allow for refurbishments.	
✓	✓	✓	11. Overall satisfaction	8.5	9.0	-€0.01 Q	Capex will allow for projects to enhance the physical and digital experience of passengers. Projects range from improvements in terminals and piers to biometrics and website developments. Opex will allow, among others, for terminal services staff required to maintain the passenger experience.	
✓	✓	✓	12. Cleanliness of toilets	8.2	9.0	-€0.01 Q	See measure No. 9. Capex will allow refurbishments.	
✓	✓		13. Satisfaction with Gates	8.0	8.5	-€0.01 Q	Capex will allow for addition of space, seating, lounges and retail offerings.	
✓	✓	✓	14. Walking distance	7.5	8.5	-€0.01 Q	Capex will allow for the reconfiguration of the T1 immigration hall which is expected to improve walking distance from Pier 1.	
✓	✓	✓	15. Finding your way	8.7	9.5	-€0.01 Q	Capex will allow for digital signage and interactive screens. Opex assumes a lower level of staffing because the use of physical signage and technology should improve wayfinding.	
✓	✓		16. Flight information screens	8.7	9.3	-€0.01 Q	Capex will allow for investment in these screens.	
✓			17. Satisfaction with PRM facilities	8.7	9.0	-€0.01 A	See measure No.2.	
	✓		18. Ease of using automated check-in	8.7	9.0	-€0.01 Q	Capex will allow for investment in software and platforms supporting automated check-in.	
✓	✓	✓	19. Availability of trolleys	8.5	9.7	-€0.01 Q	Capex will allow for trolleys to increase by 2,249 from the 2,500 currently in circulation.	
✓	✓		20. Availability with Wi-Fi	9.0	9.5	-€0.01 Q	Capex will allow for an IT innovation fund which proposes to explore how to enable better use of Internet bandwidth.	

1. Positive incentive: exceptional performance in one satisfaction measure will compensate for a breach in another from any outcome. 2. A: Annually. 3. Q: Quarterly