Draft Report
July 2022

Dublin Airport CIP2020+
Efficiency Assessment Review

Commission for Aviation Regulation
Our ref: 24211501

steer

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Contents

Executive Summary

Overview

Steer, in its capacity as Independent Fund Surveyor (IFS) at Dublin Airport, was appointed by the Commission for Aviation Regulation ("Commission" or "CAR") to review Dublin Airport's updated Capital Investment Plan (CIP) proposals for the period 2020-2026, also referred to as CIP2020+, and to propose alternative capital expenditure estimates where appropriate. This is our Draft Report for publication alongside the Draft Decision of the maximum level of airport charges at Dublin Airport 2020+.

Our review covered the programme of projects in the CIP2020+, as presented in Dublin Airport's proposed 'Capital Investment Programme 2020+ Review' document, dated May 2022. This included several new projects that Dublin Airport has introduced since the last review, notably those covered in a new envelope of 'Sustainability 'projects, but equally some projects have been suspended. The review also included an assessment of the latest business case covering the Apron 5H project, first presented as part of the Airport's PACE programme of projects in 2018, but with changes to its scope and cost. The IFS requirements were to:

- Assess the specification of each project given the output it is intended to deliver, to determine whether they are over or under specified;
- Highlight any instances of inefficient project phasing;
- Highlight any incidents of double-counting across other projects within this plan, or indeed from either the 2014 determination or the 2018 Interim Review in relation to the PACE projects; and
- Review the proposed costings to determine whether or not they are reasonable and efficient for the project.

The issue of whether the proposed projects are necessary and desired by users was not included in the scope. This has been separately assessed by CAR.

Approach

This review was undertaken based on expert assessment of the information supplied to us by CAR and Dublin Airport. To further inform our review we made use of our own and publicly available benchmarking and market data.

We have reviewed the efficiency of specifications and costings of each project individually and also considered them in aggregate to assess whether any synergies can be assumed, or whether double counting exists. More specifically, for each project we have:

- Reviewed the efficiency of the project's specifications, with specific attention paid to:
  - effectiveness and quality of scope;
  - project phasing and synergies with other projects;
  - existing asset conditions; and
  - alternative scopes.
- Assessed potential synergies and double counting with:
  - other projects within CIP2020;
  - projects within the 2014-Previous CIP2020+; and
  - the PACE projects.

Reviewed Dublin Airport's cost estimates and developed our own independent cost estimates, adjusted for any assessed inefficiencies, inconsistencies, synergies, double counting and considering our own cost benchmarks.

We have developed a RAG (Red/ Amber/ Green) assessment methodology to assist in summarising our views on each of the projects. This RAG assessment has been applied separately to each project to consider whether the scoping and cost assumptions are efficient. The RAG categories are defined as follows:

Coding	Scope Assumption Definition	Cost Assumption Definition
Green	We assess that the scope and specification of the project will achieve the project outcomes or output deliverables.	Based on the information provided and assessed, we assess that the project costs are reasonable.
Amber	We assess that there are challenges/risks to the scope and specification but that the outputs/outcomes as defined in the scope will broadly be achieved.	Based on the information provided and assessed, we assess that the majority of the project costs are reasonable, but there are either isolated elements within the costs that we consider to be inefficient, or there are outstanding items to assess in these projects to conclude the assessment.
Red	We assess that the scope and specification of the project will not achieve the project outcomes or output deliverable, or will do so in a clearly inefficient way.	Based on the information provided and assessed, we consider a substantial portion of the costs to be inefficient.

Key Findings

Regarding the overall cost assessment, the table below provides a summary of our findings. We have identified a -€76.29m cost saving opportunity across the CIP2020+ projects examined, equating to a potential reduction of -2.8%.

In addition, we also assess there to be a potential -€3.77m cost efficiency saving in PACE project 5H.

Appendix	Category	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	*IFS 2022 cost estimate (€m)*	2022 Cost Difference IFS vs Dublin Airport (€m)	2022 Cost Variance IFS vs Dublin Airport (%)
A, B, E, F & G	"Core" 2020-2024	438.75	518.96	517.13	-1.83	-0.4%
A, B, E, F & G	"Core" 2025-2026	N/A	220.08	144.68	-75.40	-34.3%
C	Capacity	1,092.89*	1,411.97	1,413.08	+1.11	+0.1%
D	Commercial	118.50	190.46	187.48	-2.98	-1.6%
H	Sustainability	51.61*	394.58	397.38	+2.81	+0.7%
	Total	**1,702.30**	**2,736.04**	**2,659.75**	**-76.29**	**-2.8%**
PACE	Apron 5H		Redacted		-3.77	-3.6%

Note: (*) Surface Water Environmental Compliance project has been moved from Appendix C - Capacity to Appendix H - Sustainability

The individual cost assessments for each project, including RAG assessment, are presented at the beginning of each of the seven cost category chapters presented later in this report.

Our total in this Draft Report, is €2,660m, which is -€76m lower than Dublin Airport's assessment. This includes an uplift of c+€31.30m by the IFS due to Dublin Airport understating of cost inflation in 2021, so that if Dublin Airport adjusted its inflation estimates upwards as we have done, then the delta would stand at a reduction of about -€108m.

Glossary

Acronym	Definition
AGL	Airfield Ground Lighting
APU	Auxiliary Power Unit
ARI	Aer Rianta International
ATC	Air Traffic Control
ATM	Air Traffic Movement
ATRS	Automated Tray Return System
AVD	Airfield Visual Display
A-CDM	Airport Collaborative Decision Making
BoH	Back of House
Capex	Capital Expenditure
CAR	Commission for Aviation Regulation or the “Commission”
CBP	US Customs and Border Protection – a US Federal Agency
CCTV	Closed-Circuit Television
CIP	Capital Investment Programme
CSA	Central Screening Area
CSF	Civils, Structures and Fleet
CUSS	Common Use Self Service (at airport check in)
EASA	European Aviation Safety Agency
ETD	Explosive Threat Detection System
ERP	Enterprise Resource Planning
FBSS	Full Body Scanning Systems
FEGP	Fixed Electrical Ground Power
FIDS	Flight Information Displays
FOD	Foreign Object Debris
F&B	Food and Beverage
GDPR	General Data Protection Regulation
GSE	Ground Support Equipment
HBS	Hold Baggage Screening
HHMD	Hand Held Metal Detector
HVAC	Heating, Ventilation, and Air Conditioning
H&S	Health and Safety
IAA	Irish Aviation Authority
IDL	International Departure Lounge
IT	Information Technology
LVP	Low Visibility Procedures
MARS	Multi Aircraft Ramp System
MPPA	Million Passengers per Annum
MV	Medium Voltage

Acronym	Definition
MVA	Mega Volt Amps
MRO	Maintenance Repair and Overhaul
MSCP	Multi Storey Car Park
M&E	Mechanical and Electrical
OCTB	Old Central Terminal Building
Opex	Operating Expenditure
PACE	Dublin airport's supplementary capital investment programme dated December 2017 and named 'Programme of Airport Campus Enhancement'
PBB	Passenger Boarding Bridge
PBZ	Passenger Boarding Zone, or Pre-Boarding Zone
PCN	Pavement Classification Number
Redacted	
PRM	Passengers with Reduced Mobility
Q&A	Questions & answers process between Steer and Dublin Airport on the projects covered in the CIP2020 document
RAG	Red/Amber/Green assessment methodology
SAF	Sutainable Aviation Fuel
SSK	Self-Serve (check-in) Kiosk
TSA	Transportation Security Administration – agency of the U.S. Department of Homeland Security
VCC	Vertical Circulation Core (e.g. Stairways, Ramps, Lifts and Escalators)
VCP	Vehicle Check Point (or Control Post)
WTMD	Walk Through Metal Detector

1 Introduction

This Report

1.1 Steer was appointed by the Commission for Aviation Regulation ("Commission" or "CAR") to provide an independent review of the revised and extended Capital Investment Programme 2020+ (CIP2020+) developed by Dublin Airport, covering their proposed capital investment projects at the airport for the period 2020-2026.

1.2 This report presents our Draft assessment, including our Draft cost estimate of the CIP2020+.

Background

Previous CIP2020+ review

1.3 In 2019, Steer was appointed by the Commission to review Dublin Airport's Capital Investment Plan (CIP) proposals for the period 2020-2024 also referred to as CIP2020+, and to propose alternative capital expenditure estimates where appropriate.

1.4 We reviewed the efficiency of specifications and costings of each project individually and also considered them in aggregate to assess whether any synergies could be assumed, or whether double counting existed.

1.5 The table below provides a summary of our findings from the previous CIP2020 review. We identified a -€95.5m cost savings opportunity across the projects examined, equating to a potential reduction of -5.3%.

Table 1.1: Previous CIP2020-2024 review finding summary

Appendix	Category	Dublin Airport cost est. (€m)	*Draft Steer cost est. (€m)*	Final Steer cost est. (€m)	Cost diff. (€m)	Cost diff. (%)
A	Asset Care - CSF	181.3	*170.7*	179.9	-1.4	-0.8%
B	Asset Care - M&E	102.8	*100.9*	100.9	-1.9	-1.9%
C	Capacity	1,226.8	*1,108.3*	1,144.5	-82.3	-6.7%
D	Commercial	130.0	*117.6*	118.5	-11.4	-8.8%
E	Information Technology	78.6	*78.2*	78.2	-0.4	-0.5%
F	Security	56.4	*57.5*	57.5	+1.1	+2.0%
G	Other	22.0	*22.7*	22.7	+0.8	+3.5%
	Total	**1,797.8**	***1,656.0***	**1,702.3**	**-95.5**	**-5.3%**

1.6 Our cost estimates were incorporated in the CAR's final decision on CIP2020 published in October 2019 in the 2019 determination.

Key changes since the previous CIP2020+

1.7 Since the previous assessment (which took place in 2019), there have been several events and changes to legislation that have impacted significantly on Dublin Airport's capex submission in 2022. These include:

- Changes in legislation;
- COVID-19; and
- Rapid construction cost inflation.

Changes in legislation

1.8 These include:

- Aircraft Noise (Dublin Airport) Regulation Act 2019 (November 2019);
- Emergency Measures in the Public Interest (COVID-19) Act 2020 (March 2020);
- Climate Action and Low Carbon Development (Amendment) Act 2021 (July 2021).

1.9 The changes in legislation have had the impact of delaying projects, potentially exposing projects to inflationary and legislative cost increases, restricting the movement of supply chain materials and labour forces over time which could increase unit costs, and have driven the introduction of several new sustainability projects to support Dublin Airport's new carbon reduction agenda.

COVID-19 and cost inflation

1.10 The aviation industry has been severely impacted by the COVID-19 pandemic. Dublin Airport saw its passenger traffic reduced by -78% in 2020 and -74% in 2021 compared to levels achieved in 2019[1]. The fall in passenger numbers, and the resultant drop in income created significant economic challenges for the Airport and its stakeholders.

1.11 The Capital Investment Programme which was agreed with CAR and commenced at the end of 2019 has been significantly disrupted by the crisis. Dublin Airport has explained that several projects were postponed to minimise expenditure and preserve the airport's cashflow. Despite the remaining uncertainty of timing and pace of the air traffic recovery, the airport expects significant growth in airline capacity in 2022 as a result of a better control of the virus and its effects in Europe, together with the lifting of travel restrictions.

1.12 The latest traffic forecast, produced by CAR, expects passenger volumes to fully return to 2019 levels in 2025. Dublin Airport has its strategic business plan defined around the achievement of a 40 MPPA traffic threshold[2]. In the high scenario, the airport expects to reach this threshold in 2027, i.e. four years later compared to its pre COVID-19 forecast.

1.13 Beyond the impact on air traffic volumes, the COVID-19 crisis has also contributed to high levels of volatility and uncertainty in various commodity markets, leading to some restrictions in the flow of labour and materials, and inflationary pressures in the construction sector,

[1] CIP2020+ Review – Final Report, Dublin Airport, May 2022.

[2] CIP2020+ Review – Consultation presentation, January 2022.

where the airport states that prices of various materials and construction price indices have in some instances experienced annual double-digit growth[3].

New CIP2020+ review

1.14 In December 2021, the Final decision on a second interim review concerning 2022 was issued by CAR, driven by the impact of COVID-19 on the economy, commodity prices and air traffic supply, demand and longer-term volume forecasts. The decison was made to propose the extension of the regulatory period to 2026, an addition of 2 years to the original term.

1.15 CAR stipulated a review of the full regulatory building blocks to be completed for 2023, including the review of a revised Capital Investment Plan. Steer was appointed by CAR to commence the review in January 2022.

Scope of Review

1.16 The purpose of this assignment was to update the previous CIP review provided in 2019 based on the new CIP2020+ developed by Dublin Airport and submitted in May 2022.

1.17 The new CIP2020+ had a combined proposed Capital Expenditure (Capex) of €2.736m, which is +€1.033m higher than the final agreed figure in 2019. The list of projects comprises proposed spending split into 4 key functions:

- Core: grouping the Asset Management, Security, IT and Other categories of the previous CIP2020+;
- Commercial;
- Capacity; and
- Sustainability as a new category.

1.18 In addition, the Apron 5H project, originally proposed in the PACE programme of works in 2018, has also been re-evaluated as a result of significant change to the scope and costs.

Table 1.2: CIP2020+ – Project Groupings

Appendix	Group	No. of Projects	Proposed Capex (€m)
A, B, E, F & G	"Core"	74	739
C	Capacity	25	1,412
D	Commercial	20	190
H	Sustainability	10	395
	Total	**118**	**2,736**

1.19 The full list of the projects is in Appendix i.

1.20 Some projects have been removed, some have been added and some modified since the previous CIP 2020+. Therefore, for these we were required to:

- Reassess their scope/specification given the outputs they are intended to deliver, to determine whether they are over or under specified;
- Identify incidences of potentially inefficient phasing; and

[3] Construction price inflation surges to 13% and expected to rise further, Irish Examiner, 22/04/2022. https://www.irishexaminer.com/business/economy/arid-40856267.html, accessed 11/05/2022.

- Highlight any incidents of double counting across projects.

1.21 The review included an assessment of the proposed costing for each project to determine if they were reasonable and efficient. Where we disagreed with the proposed costs (higher or lower) we have provided our own cost assessment (as we did in our 2019 review).

1.22 Many of the projects are largely unchanged, especially in their scoping, since 2019. The primary focus for this assessment was to address the following:

- Scoping assessments for new projects and incumbent projects that have changed since 2019; and
- Cost assessments for all projects:
  - Scope-related changes to costs have been assessed, notably with a focus on the larger quantities, rates and lump sums; and
  - The inflationary impact on costs (also referred to as escalation) has been assessed for all projects in the Core category as well as the capacity, commercial and sustainability categories.

1.23 The approach to 'how' each project was assessed for each of the above is covered in Chapter 2.

1.24 The issue of whether the proposed projects are necessary and desired by users, i.e. the "need" of the the project, was not included in our scope of work, as this is separately assessed by the Commission.

2 Approach

Introduction

2.1 In line with the earlier stated objectives, our review as the Independent Funds Surveyor (IFS) has addressed the requirements as follows:

- Assess the efficiency of the specifications of each CIP project with respect to the outputs expected to be delivered, with particular focus on new projects and the changes to incumbent projects;
- Assess the efficiency of Dublin Airport's cost estimates for each of the projects of the CIP and any obvious inefficiencies in project planning or phasing, with particular focus on:
  - total costs of new projects;
  - costs associated with scope changes on incumbent projects; and
  - changes in costs caused by the impact of inflation across all projects.
- Identify any incidences of double counting across the projects, against the previous CIP (2014-2019) and the PACE projects; and
- Review the proposed costings to determine whether or not they are reasonable and efficient for the project.

Methodology

2.2 We have followed the approach outlined in Figure 2.1, including iterations as needed to ensure that all review objectives are consistently met for each project.

Figure 2.1: Assessment methodology

Phase 1 – Kick Off Meeting

2.3 The kick off meeting took place virtually on 26 January 2022 with representatives from the IFS, CAR and Dublin Airport. Presentations were delivered by Dublin Airport, providing the context to the updated CIP, highlighting the key changes to the previous CIP.

Phase 2 – Data Collection

2.4 We received the interim CIP Consultation Report on 02 March 2022, and the final version on 04 May 2022. These documents outlined the projects' objectives, specifications, changes since the previous CIP2020+ and included Level 1 cost estimates.

2.5 Level 3 costs were sent by Dublin Airport to the IFS on 08 March 2022.

- On request, Dublin Airport also shared additional information (where available) for each project, including detailed inflation (escalation) calculations, drawings and additional specifications.

2.6 Further information was provided through a questions & answers (Q&A) process between the IFS and Dublin Airport.

Phase 3 - Specification review

Core projects

2.7 The specifications of the Core projects that were presented in 2019 has not been reviewed as their scope remains unchanged since the previous CIP2020+.

Other projects – Capacity, Commercial and Sustainability

2.8 For projects which were new or had a scope change compared to the previous CIP2020+, the comprehensiveness of their scope has been reviewed. We then assessed their efficiency in achieving the required outputs, taking note of:

- The scope's effectiveness in achieving the objective of the project;
- Whether there are any alternatives that could be considered;
- The quality of the specification;
- Phasing and synergies with other projects;
- Relationship with existing asset conditions and lifecycles; and
- Any evidence of double counting.

2.9 Where our assessment envisaged significant potential modifications to the project, either through improved specification change, or alternative suggestions, these were fed through to the Steer cost assessment.

2.10 For projects which have not changed since the previous CIP2020+, their scope was compared to the previous submission just to confirm that there had been no scope change. No further scope review was conducted on these projects.

Phase 4 - Cost estimate review

Core projects

2.11 This suite of projects has only had a cost adjustment relating to inflation, and as such the IFS conducted an assessment of the assumptions driving the inflationary cost increase for each project.

2.12 For the additional two years at the end of the regulatory period, the IFS provided its assessment on Dublin Airport's proposal to apply a pro rata increase to its 'typical' Core capex projects for these extra two years.

Other projects

2.13 For projects in the Capacity, Commercial and Sustainability portfolio that have only been adjusted for inflation, a similar exercise was carried out as with the Core projects, described in paragraph 2.11.

2.14 For projects that were either new to the CIP, or have had an adjustment made to their scope, we conducted a deeper assessment of the efficiency of the project cost estimates provided by Dublin Airport. This was undertaken using a bottom-up approach, starting from Dublin Airport's Level 3 cost estimates which were analysed using a range of cost benchmarks.

2.15 For incumbent projects that were assessed in 2019 but have had a change to their scope, the assessment was conducted primarily on the newly added scope costings.

2.16 The applied unit rates, design and management cost multipliers, associated indirect costs and contingency assumptions were benchmarked using data collected from other assessments and industry knowledge.

2.17 The cost review has, furthermore, considered efficiencies identified from the specifications review, taking account of any additional cost impacts from proposed changes to specification, project clustering, and incidences of double counting.

2.18 Some costs are at a very early stage of development, and some projects are still at the feasibility stage. For these projects there was less information available to review, and we have therefore assessed them at a more holistic level, testing the project cost for reasonableness.

Double counting review

2.19 We reviewed the projects' cost estimates for double counting with:

- Other projects from the 2020CIP+;
- Projects included in the previous 2014-Previous CIP2020+; and
- Against the PACE projects from 2018.

2.20 Any double counting identified has been accounted for in our cost estimate review.

Phase 5 – Results and Report

2.21 Based on our review, we have developed a Steer Level 3 cost estimate for each individual project, against which the costs assumed by Dublin Airport have been compared.

2.22 These have then been aggregated up to Level 2 and Level 1 costs for this Draft Report.

2.23 We have additionally developed a RAG (Red/Amber/Green) assessment methodology to assist in summarising our views on each of the projects. This RAG assessment has been applied separately to consideration of whether the scope and cost assumptions are considered efficient. The RAG categories are defined as follows (note that for all categories Steer assessment of project cost may be higher or lower than that proposed by Dublin Airport):

Table 2.1: RAG Assessment Methodology

Coding	Scope Assumption Definition	Cost Assumption Definition
Green	We assess that the scope and specification of the project will achieve the project outcomes or output deliverables.	Based on the information provided and assessed, we assess that the project costs are reasonable.
Amber	We assess that there are challenges/risks to the scope and specification but that the outputs/outcomes as defined in the scope will broadly be achieved.	Based on the information provided and assessed, we assess that the majority of the project costs are reasonable, but there are either isolated elements within the costs that we consider to be inefficient, or there are outstanding items to assess in these projects to conclude the assessment.
Red	We assess that the scope and specification of the project will not achieve the project outcomes or output deliverable, or will do so in a clearly inefficient way.	Based on the information provided and assessed, we consider a substantial portion of the costs to be inefficient.

Draft Report

2.24 This is the Draft Report, to be issues in conjunction with CAR's Draft Decision.

Final Report

2.25 Where necessary, as outlined below, further assessment of the projects will be conducted after the issue of the Draft Report, firstly to follow up further cost and scope queries that have yet to be concluded, and secondly to take consideration of any feedback that is received from Dublin Airport or other industry stakeholders.

2.26 In addition, the newly added Core projects will require some further analysis ahead of the Final Report in relation to aspects of their scope and will require further consideration of certain lump sums.

2.27 The Final Report, in conjunction with CAR's Final Decision, will be issued later in 2022.

2.28 For each project, the Final Report will retain the Draft Report conclusions that are contained in this report, and will be supplemented by a 'Final Report conclusion' which will cover the following:

- Where lump sums and quantities, which were yet to be validated at the time of the Draft Report, have been assessed as a result of receiving further supporting documentation;
- Where project costs have been amended as a result of new intelligence or feedback, allowing a change to either a rate or a quantity;
- Where further clarification questions around the project scope have been answered; and
- Where no changes have been made.

3 Conclusion

Key Results

3.1 Our summary level results for overall proposed capex expenditure are presented in Table 3.1. These highlight the cost variance calculated for each group of projects.

3.2 At the beginning of each of the 4 cost group chapters, we also provide a table showing the RAG critique for each individual project, for both the cost and the specification/scope assessments.

3.3 Our assessment concludes that there is a cost reduction potential of -€76.29m, or -2.8% as the table below indicates.

Table 3.1: Cost summary for Dublin CIP2020+

Appendix	Category	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)	2022 Cost Variance IFS vs Dublin Airport (%)
A, B, E, F & G	"Core" 2020-2024	438.75	518.96	517.13	-1.83	-0.4%
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H	Sustainability	51.61	394.58	397.38	+2.81	+0.7%
	Total	**1,702.30**	**2,736.04**	**2,659.75**	**-76.29**	**-2.8%**
PACE	Apron 5H	N/A	Redacted		-3.77	-3.6%

3.4 In addition to the CIP 2020+ projects, we have assessed the PACE project, Apron 5H, and consider an efficient project cost to be Redacted, which is -€3.77m, or -3.6% lower than the Dublin Airport cost estimate.

Key Issues

Lump Sums

3.5 Within some of the Level 3 cost estimates presented by Dublin Airport, there were lump allowances included for various construction activities and design services. The IFS requested breakdowns of all these lumps sums so that it could assess the proposed cost of each item. In some instances, Dublin Airport provide a breakdown of the lump sums in sufficient detail to allow an assessment to be made. There were other instances where Dublin Airport has provided an explanation for the basis of the allowance, but not a breakdown of the overall

figure. There are also some lump sum allowances that the IFS is still awaiting a breakdown for. With the information provided thus far, the IFS has assessed the costs for as many of these items as possible. However, once the outstanding information is provided, the IFS will update its cost assessment for the Final Report.

Escalation (19% to 23%)

3.6 Due to the enforced delay to the delivery of its capital programme because of the COVID-19 pandemic, Dublin Airport has reassessed and replanned its Capital Investment Plan (CIP) up to and including 2026. This exercise has resulted some of the original CIP2020 projects being deferred to future years. While some new projects not included in the original CIP2020 have been added, and some have been removed, most projects included in the original CIP2020 remain in Dublin Airport's updated CIP. Dublin Airport has requested an uplift in the escalation allowance included in its projects. The need for this increase is because of the impact of the COVID-19 pandemic on the original delivery programme for these projects. In addition, the increased market volatility in the construction sector because of global political and economic factors, such as the war in Ukraine, putting upward pressure on construction costs.

3.7 The escalation calculation was developed in two parts:

- The first part addressed the need to uplift the base date of each project cost from its original base of Q4 2018 (when the projects were presented as part of the original CIP2020 review) to its new base date of Q4 2021. Dublin Airport assessed that the uplift in escalation for this period was +19%, which was based on Society of Chartered Surveyors Ireland (SCSI) indices.
- The second part of the calculation was to assess the escalation allowance required from the new base date (Q4 2021) to the midpoint of the construction programme for each project.

3.8 Dublin Airport has subsequently advised that, based on more up to date information available to them from the SCSI, the escalation uplift required to update the cost from its original base date to Q4 2021 was actually +23%. The IFS has accepted this position and has included the +23% escalation uplift in its assessment of project costs. However, the cost estimates that Dublin Airport issued to the IFS only contain a +19% uplift. Dublin Airport has been asked to update their cost estimates to reflect the +23% uplift for our Final Report. Until they do so, a direct comparison of Dublin Airports CIP2020+ submission cannot be made with the (higher) IFS cost assessments in the Draft Report.

Escalation (base date and date to which estimate has been inflated to)

3.9 There are some projects where Dublin Airport has only applied a single escalation uplift calculation to the cost estimate. In these instances, it is not clear what the original base date of the cost estimate was, and what time period the escalation allowance is deemed to cover. Dublin Airport needs to confirm the base date for these projects and the date to which the project has been inflated to. At present, the IFS has not amended the escalation percentage uplift applied to these projects as the timescales for these projects is not clear. Dublin Airport needs to confirm the base date of the cost estimates for these projects and the date to which they are being inflated so that the IFS can finalise its assessment of the escalation allowances included in these projects.

IFS Queries

3.10 In undertaking the review of Dublin Airports CIP2020+ programme, the IFS has raised over 300 technical and commercial queries to Dublin Airport on the projects included in its submission. While Dublin Airport has responded to all those queries, the time taken to respond to them has coincided with the preparation of the IFS Draft Report. As a result, not all the responses provided by Dublin Airport have been reviewed and incorporated by the IFS within either the scoping reviews or the cost assessment. However, they will be reviewed and included in the IFS Final Report that is due to be issued later this year.

3.11 In some cases, the responses received from Dublin Airport has resulted in the IFS raising more queries on these projects. These queries are in the process of being collated and issued to Dublin Airport. Once the IFS receives responses to these queries, they will be assessed and included within the Final Report. In particular, the newly added Core projects are based on very high level estimates, which will require further analysis ahead of our Final Report in order to provide a conclusion on their efficiency.

Sustainability – Terminal 1 Feasibility Study

3.12 The project CIP.20.09.009 - Terminal 1 and Campus Sustainability Feasibility – will assess the development requirements for a sustainable strategy for the upgrade or replacement of Terminal 1 and interconnected buildings, in support of the airport's target of reducing its absolute carbon emissions by 51% by 2030.

3.13 The conclusions from the sustainability feasibility study potentially have a major influence on the asset life of Terminal 1 and associated facilities, potentially bringing forward the date when further amendments to the terminal infrastructure may be required. Therefore, any refurbishment, upgrade or expansion of T1 areas and equipment may be impacted by the outcome of the feasibility study expected in Q2 2025.

3.14 This could affect several CIP2020+ projects such as:

- CIP.20.01.020 - Terminal 1 Façade, Roof & Spirals;
- CIP.20.02.008 - Terminal Buildings HVAC Upgrade;
- Terminal 1 Passenger Journey Group capacity projects; and
- CIP.20.07.010 - Office Consolidation & Refurbishment.

3.15 We recommend that Dublin Airport fast-tracks the feasibility study or considers a first phase to quickly determine if and how Terminal 1 and connected buildings can be upgraded. That would enable Dublin Airport to adapt the above mentioned CIP2020+ projects to the results of this feasibility study before a significant amount of money has been spent.

4 Project Reviews – Core

Summary

Table 4.1: Core costs escalation assessment

Cost Category	2019 CAR Allowance (€m)	Dublin Airport 2022 (€m)	IFS 2022 (€m)	Increase/Decrease in Escalation Allowance (€m)
Appendix A – Asset Care (CSF)	179.99	210.82	210.76	-0.06
Appendix B – Asset Care (M&E)	100.92	117.03	117.75	+0.72
Appendix E – Information Technology	78.32	93.21	92.10	-1.11
Appendix F – Security	57.54	69.42	70.64	+1.22
Appendix G – Other	21.98	28.48	25.88	-2.60
Total	**438.75**	**518.96**	**517.13**	**-1.83**

Table 4.2: Additional Core projects for 2024-2026

CIP Number	Project Title	RAG Costs	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
CIP.20.07.035	MV Resilience Substation		N/A	57.69	57.69	-
CIP.20.07.036	Upgrade to Hold Baggage Sortation Equipment		N/A	43.88	45.35	+1.47
CIP.20.06.045	Security Scanners		N/A	28.03	29.43	+1.40
CIP.20.06.046	Terminal Kerb Security Mitigation		N/A	12.48	12.20	-0.27
N/A	'Typical' Core Additional Years (2025/26) Flexible Allowance		N/A	78.00	-	-78.00
Total			**N/A**	**220.08**	**144.68**	**-75.40**

4.1 Overall our estimates for the projects in the Core envelope suggest that the overall costs could be decreased by -€77.23m relative to Dublin Airport's estimate.

Cost approach to Core projects

Dublin Airport Approach

4.2 The Core Projects are a grouping that were allowed for in the 2019 Determination. They cover civils, mechanical, electrical, security and IT projects. The scope of these projects has not changed from the 2019 Determination, but Dublin Airport has requested an uplift in the escalation allowance included in these projects. This is largely driven by the impact of the COVID-19 pandemic on the original delivery programme for them, coupled with a significant increase in construction cost inflation, driven by several factors creating volatility in the market, including the upward pressure on costs driven by the war in Ukraine.

4.3 The Core Projects are included in the following appendices:

- Appendix A – Asset Care (CSF);
- Appendix B – Asset Care (M&E);
- Appendix E – Information Technology;
- Appendix F – Security; and
- Appendix G – Other.

4.4 Dublin Airport submitted its escalation calculations for the projects included in the appendices noted above. In those calculations, Dublin Airport set out the CAR 2019 determination for each project, and the escalation allowance that was included in it. Dublin Airport's methodology for dealing with escalation was to omit the original escalation allowance from the project before adding back in the revised escalation allowance.

4.5 The escalation calculation was developed in two parts. The first part addressed the need to uplift the base date of each project cost from its original base of Q4 2018 (when the projects were presented as part of the CIP2020 review) to the end of Q4 2021. Dublin Airport assessed that the uplift in escalation for this period was +19% and this was based on Society of Chartered Surveyors Ireland (SCSI) indices. The second part of the calculation was to assess the escalation allowance required from the new base date (Q4 2021) to the midpoint of the construction programme for each project.

4.6 In additional to the above, Dublin Airport are also seeking approval for an annual allowance for the final two years of the regulatory period that would cover their anticipated expenditure for ongoing maintenance and upkeep of their assets that are essential to the day-to-day operation of the airport. Dublin Airport propose that this allowance should be based on a pro rata assessment of the annual spend on typical Core projects (primarily maintenance-based) based on the allowances agreed in the 2019 Determination and the subsequent uplift for escalation. This is in essence a request for an allowance - the projects at this stage have not been individually specified. Dublin Airport's proposal was for a sum of €78m to cover this two-year period.

4.7 The only exception to this is four new projects to be delivered in these additional two years (2025 and 2026), in addition to the allowance referenced above, and their scope and costs have been reviewed in the same way that all other projects in the Capacity, Commercial and Sustainability project groups have been assessed.

IFS Assessment

4.8 We reviewed Dublin Airport's approach to dealing with the uplift in escalation for the Core projects, and we agreed with most of what they had set out. The escalation uplift percentages

were based on the Society of Chartered Surveyors Ireland (SCSI) tender price indices. The SCSI is the recognised professional body for cost managers, quantity surveyors and project managers in Ireland, and they produce the only independent assessment of construction tender prices in Ireland. We considered searching for, and using, other forward inflation indices for specific project types, such as IT, but did not find any other industry-specific index that we felt are robust enough and more appropriate to use than the SCSI indices above, which, in themselves, are considering construction projects which contain a blend of different project costs, including buildings, airfields, labour and IT costs. We therefore agree with Dublin Airport that these indices are the most appropriate to use to calculate the uplift in escalation across all project types.

4.9 We disagreed with Dublin Airport's approach in respect of monies that had already been spent on projects. We have deducted monies spent to date from the assessment of each individual project so that the revised escalation calculation only assesses monies still to be spent, as opposed to the total estimated cost of the project. By not omitting the monies already spent on projects, we consider that the escalation uplifts proposed by Dublin Airport are over inflated.

4.10 At the time of producing their cost forecasts, Dublin Airport used the SCSI inflation figures up to Q2 2021, and then estimated inflation for the period Q2 to Q4 2021. This totalled an inflation rate of approximately +19% from Q4 2018 to Q4 2021. However, since then, the SCSI rates have been updated, and the actual cost inflation for Q4 2018 to Q4 2021, according to the SCSI index, has risen by approximately +23% rather than the Dublin Airport forecast of +19%.

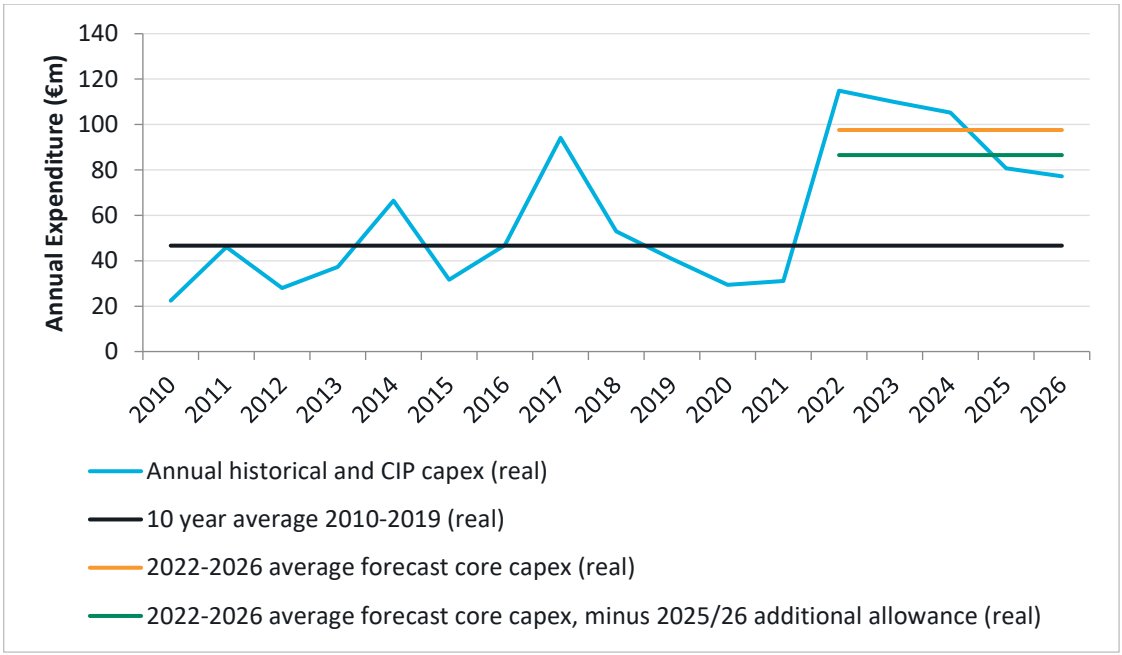
4.11 We have therefore decided to increase the Dublin Airport allowance due to escalation for this period, which equates to an increase of about €16m for the Core projects between Q42018 and Q4 2021. We would also request that after the publication of this Draft Report, Dublin Airport updates its Level 3 cost sheets for all projects in the programme to reflect this additional enhancement of escalation (of circa +4%) between Q4 2018 and Q4 2021, so that our respective calculations will represent like-for-like in the Final Report.

4.12 We have then assessed the additional escalation that Dublin Airport have applied to each project, adding a further amount from Q4 2021 to the mid-point of each project. The cost inflation rate that has been applied for the future years ranges between +4% and +4.5% per annum, and applies only to the money yet to be spent (i.e. the money already spent has been deducted from our calculations). We consider this to be a reasonable inflation rate and have only made some minor adjustments where we identified there to be an error in the calculation. These amounts were not considered to be material.

4.13 Figure 4.1 below shows how Dublin Airport's proposed capex on Core projects from 2022 onwards compares with historical Core capex (the blue line). Costs have been inflated or deflated accordingly to 2019 levels. The specific year of future capex on the blue line is less certain, so a better way to assess it is to average out the expenditure over the remaining five years 2022-2026:

- The orange line shows the proposed average annual allowance for the Core capex projects (2022-2026), including the four new projects and the requested additional €78m allowance.
- The green line shows the same forecast but has had the €78m removed.
- The black line shows the average annual Core capex for the decade 2010-2019.

Figure 4.1: Dublin Airport Core Capex Historical and Proposed Expenditure (Indexed to 2019 prices)



4.14 The original Core allowance (2019-2024) was intended to cover a five year period. It was an ambitious programme compared to previous versions; and in practice it may have been challenging to complete it within the five years. It was noted in 2019 that there was an element of catch-up on historically lower investment and it was not expected that this level of expenditure would become the new run-rate on an ongoing basis.

4.15 Only a relatively small proportion has been spent by the end of 2021 (around €66m). The remaining Core allowance has now been inflated from 2019, leaving approximately €417m (including inflation) for the three year period 2022-2024.

4.16 In addition, we understand that CAR proposes to allow for the four new core projects, which adds a further €145m (nominal).

4.17 Finally, by adding a further €78m allowance, as requested by Dublin Airport, for 2025 and 2026, this takes the average Core capex (in 2019 values) to just under €100m per year for the five year period (the orange line). This is over twice the ten year average (black line) between 2010 and 2019 (€47m). Even when the additional requested €78m is removed, the average remains high at c€87m per year (the green line).

4.18 Thus, the allowed Core programme (including the additional four projects) remains ambitious even before additional requested allowances associated with undefined projects is considered.

4.19 As another means of comparing the Core capex request for the next five years, the total Core capex from the 2019 Determination totalled €439m (€532 in 2022 terms). By comparison, the remaining Core capex of €417m added to the four new requested project (€145m) totals €563m i.e. higher than the 2019 Determination, even before the additional €78m is considered.

4.20 We also note that many of the newly added sustainability projects, such as Airport Charging, Terminal 2 sustainable upgrade, FEGP, Photovoltaic Farm phase 2, and sustainable fleet, will replace the need for similar projects which would previously have been included within the Core project groupings.

4.21 Furthermore, Dublin Airport does not specify how it considers such a pro-rata allowance of €78m should be divided across the Core groupings (asset care, IT, etc).

4.22 Based on the above, our position is that the additional requested allowance of €78m should not be included in the overall assessment at present. Whilst we fully accept that there may be some level of expenditure that requires additional allowances on projects in the final two years of the regulatory period, we consider that the Core allowance without this additional Capex assumption is likely to track more closely to the achievable levels of project delivery.

4.23 There are mechanisms available to Dublin Airport to seek an increase within a Core allowance grouping, should such a requirement be specifically identified: flexibility within project groupings, capex consultation, or making a supplementary capex submission to CAR at the appropriate time whereby an assessment of their proposed costs at project level can be undertaken at that point.

4.24 We understand that CAR proposes to enhance flexibility within the Asset Care CSF grouping, so that Dublin Airport can more freely spend this Core allowance on projects which are as yet undefined.

4.25 Thus, the Core allowance, excluding the additional €78m, is likely to be sufficient to cover Core capex requirements to 2026, and even if not, there are better mechanisms available to Dublin Airport to make use of if a specific additional need is identified within the regulatory period.

4.26 The approach to escalation, namely adjusting the initial growth from +19% to +23%, removing monies already spent, and then applying additional cost inflation to the planned mid-point of the project, has also been applied to the other projects in the capacity, commercial and sustainability envelopes.

Table 4.3: Core costs escalation assessment

Cost Category	Dublin Airport 2022 (€m)	IFS 2022 (€m)	Increase/Decrease in Escalation Allowance (€m)
Appendix A – Asset Care (CSF);	210.82	210.76	-0.06
Appendix B – Asset Care (M&E);	117.03	117.75	+0.72
Appendix E – Information Technology;	93.21	92.10	-1.11
Appendix F – Security; and	69.42	70.64	+1.22
Appendix G – Other.	28.48	25.88	-2.60
Total	**518.96**	**517.13**	**-1.83**

4.27 Dublin Airport have proposed a total cost for the above five Core project envelopes of €518.96m, which is +€1.83m higher than our assessment.

4.28 However, this assessment is not strictly like-for-like as the IFS costs include an escalation rate of +23% to bring the costs up to the end of 2021, compared to Dublin Airport's rate of +19%. This has added about +€13.56m to the IFS figure and demonstrates why the IFS requests that Dublin Airport recasts its Level 3 costs in order to show the higher escalation costs for 2021.

CIP.20.07.035 – MV Resilience Substation

Project description

Introduction

4.29 Dublin Airport proposes the construction of a second 110kV substation with a location to be a significant distance away from its existing electricity connection point at Dardistown 110kV substation. This project is defined by the airport as an 'exceptional' Core project required within the extended CIP period up to 2026.

Figure 4.2: MV Resilience Substation

Source: Dublin Airport's Capital Investment Programme 2020+ Review Final Report

Objective

4.30 The project aims to provide a reliable HV/MV supply to Dublin Airport following a 6-8 Hour recovery time in the event of a catastrophic failure. It also aims to provide resilience that will allow for co-ordinated critical maintenance and upgrade to the Dardistown Facility HV/MV Substation.

Context

4.31 Electricity is supplied to Dublin Airport via a dual 110kV (HV) supply. The two supplies come over diverse underground routes and enter the airport at the main airport 110kV/10kV substation known as Dardistown Substation. A dual supply at 110kV is generally considered secure and dependable but both incoming supplies connect to the Dublin Airport network at the same point in Dardistown. This represents a single point of failure. Although a single point of failure event is unlikely (e.g. catastrophic fire or explosion, aircraft incident or terrorist attack) the operational impact would be significant. The recovery time from a single point failure is likely to be greater than 1 month, according to Dublin Airport.

Scope

4.32 The project scope comprises:

- Feasibility / investigation into the need for a second 110kV substation with a location to be a significant distance away from the existing Dublin Airport electricity connection point at Dardistown 110kV substation; and
- Design, planning and construction of the new substation including associated controls, services, ducting, hardstanding, access, site protection and security.

Change in scope versus Previous CIP2020+

4.33 This is a new project.

Stage

4.34 The project has not progressed to the feasibility stage at the moment. However, ESBN¸ the distribution system operator, advises a 24/36 Month duration for construction of the new MV facility.

4.35 The project timeline as indicated by Dublin Airport is the following:

- Start of construction Q1 2024
- Construction complete Q1 2027

Key project metrics

Table 4.4: MV Resilience Substation – Key project metrics

Metric	Value
Project cost estimate	€ 57,690,000
Power supply	110 kV

Scope/Specifications review

4.36 This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report.

Table 4.5: MV Resilience Substation – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	• Reviewed after the Draft Report submission.
Alternative scopes	Reviewed after the Draft Report submission.
Quality of specifications of scope/scope change	Reviewed after the Draft Report submission.
Phasing and synergies with other projects	• Reviewed after the Draft Report submission.
Existing asset conditions	Reviewed after the Draft Report submission.
Double counting	Reviewed after the Draft Report submission.

Scope/Specifications – Conclusion

Table 4.6: MV Resilience Substation – Scope/Specifications - Conclusion

Description	RAG
This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report.	

Cost estimate review

Table 4.7: MV Resilience Substation – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	7.25	7.25	-
Construction Costs	36.26	36.26	-
Escalation, Contingency & Design Variability	14.18	14.18	-
Total	**57.69**	**57.69**	**-**

Table 4.8: MV Resilience Substation – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	7.25	7.25	-
Total	**7.25**	**7.25**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	36.26	36.26	-
Total	**36.26**	**36.26**	**-**
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	14.18	14.18	-
Total	**14.18**	**14.18**	**-**

4.37 There is no variance in assumptions between Dublin Airport and Steer in the Level 3 items.

Cost - Draft Report Conclusion

4.38 This is a new project. We have reviewed Dublin Airport's 2022 estimate and it is a very high-level cost estimate. We have raised several queries in relation to the build-up of rates for various items included in their estimate. When we receive responses from Dublin Airport, we will review them and complete our cost assessment.

4.39 The allowances included in Dublin Airport's estimate for design and management, preliminaries and contingency are all reasonable.

4.40 The allowance for escalation included in Dublin Airport estimate is a percentage uplift of 15.29%. Dublin Airport need to confirm the base date for this project and the midpoint for construction so that we can check the percentage uplift applied and conclude our assessment of the escalation allowance.

4.41 Once Dublin Airport respond to the queries noted above, we will complete our assessment of their cost estimate. This will be addressed in the Final Report later this year.

Overall conclusion

4.42 Our overall conclusion of the project review is as follows:

Table 4.9: Terminal 1 Central Search - Relocation to Mezz Level – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report. Dublin Airport needs to respond to our queries and provide the base date and construction mid-point date so that we can complete our assessment of their costs. This will be addressed in the Final Report later this year.	

CIP.20.07.036 – Upgrade to Hold Baggage Sortation Equipment

Project description

Introduction

4.43 Dublin Airport proposes the replacement and the upgrade to hold baggage sortation equipment across Terminals 1 and 2. This project is defined by the airport as an 'exceptional' Core project required within the extended CIP period up to 2026.

Objective

4.44 The project aims to allow the terminals' HBS systems to meet with current and future regulatory service of quality measures by improving system performance and reliability, addressing system failures by introducing an acceptable level of resilience and also upgrading equipment that will require less maintenance in a physically constrained environment and ensuring that system capacity will meet short to medium term capacity projections.

Context

4.45 The hold baggage sortation systems at Terminal 1 and 2 at Dublin Airport transport outbound hold baggage from the check in desks to the relevant dispatch chutes or carousels for collection by ground handling agents and loading to the aircraft. The inbound luggage is delivered from the ground handling agents via loading conveyors in the baggage sortation halls to arrival carousels in the baggage reclaim hall. Dublin Airport advises that the hold baggage sortation equipment has arrived at the end of its asset life and has not been upgraded or replaced as part of the recent HBS Standard 3 Security Compliance Upgrades to Terminal 1 and 2.

Scope

4.46 The project scope comprises:

- T1 6 Bay departure system sorter replacement;
- Replacement of end of life T1 Arrivals delivery lines and carousels 6 to 10;
- Replacement of end of life T1 Arrivals carousels 2 to 5;
- End of life Terminal 1 Area 14 Carousel 5 replacement;
- End of life Terminal 1 Check In outbound delivery conveyor replacement; and
- Terminal 2 sorter redundancy line upgrade.

Change in scope versus Previous CIP2020+

4.47 This is a new project.

Stage

4.48 The project has not progressed to the feasibility stage at the moment. However, the timeline as indicated by Dublin Airport is the following:

- Start of pre-construction Q1 2023
- Start of construction Q2 2024
- Construction complete Q4 2026

Key project metrics

Table 4.10: Upgrade to Hold Baggage Sortation Equipment – Key project metrics

Metric	Value
Project cost estimate	€ 43,880,000
Construction cost estimate	€ 24,580,000

Scope/Specifications review

4.49 This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report.

Table 4.11: Upgrade to Hold Baggage Sortation Equipment – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	Reviewed after the Draft Report submission.
Alternative scopes	Reviewed after the Draft Report submission.
Quality of specifications of scope/scope change	Reviewed after the Draft Report submission.
Phasing and synergies with other projects	Reviewed after the Draft Report submission.
Existing asset conditions	Reviewed after the Draft Report submission.
Double counting	Reviewed after the Draft Report submission.

Scope/Specifications – Conclusion

Table 4.12: Upgrade to Hold Baggage Sortation Equipment – Scope/Specifications - Conclusion

Description	RAG
This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report.	

Cost estimate review

Table 4.13: Upgrade to Hold Baggage Sortation Equipment – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	4.92	4.92	-
Construction Costs	24.58	24.58	-
Escalation, Contingency & Design Variability	14.38	15.85	+1.47
Total	**43.88**	**45.35**	**+1.47**

Table 4.14: Upgrade to Hold Baggage Sortation Equipment – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	4.92	4.92	-
Total	**4.92**	**4.92**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**

Fittings / Furnishings & Equipment	24.58	24.58	-
Total	**24.58**	**24.58**	**-**
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	14.38	15.85	+1.47
Total	**14.38**	**15.85**	**+1.47**

4.50 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 4.15: Upgrade to Hold Baggage Sortation Equipment – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation	Redacted		

Cost - Draft Report Conclusion

4.51 This is a new project. We have reviewed Dublin Airports 2022 estimate and the items of scope that are included in their estimate are based entirely on lump sum allowances. We have asked Dublin Airport to provide a breakdown of all the lump sums so that we can assess them. When we receive responses from Dublin Airport, we will review them and complete our cost assessment. This will be completed in our Final Report later this year.

4.52 The allowances included in Dublin Airports estimate for design and management, preliminaries and contingency are all reasonable.

4.53 The allowance for escalation included in Dublin Airport estimate is a percentage uplift of 19%. Dublin Airport need to confirm the base date for this project and the midpoint for construction so that we can check the percentage uplift applied and conclude our assessment of the escalation allowance. The allowance for escalation included in the IFS assessment is currently 23%.

4.54 Once Dublin Airport respond to the queries noted above, we will complete our assessment of their cost estimate. This will be addressed in the Final Report later this year.

Overall conclusion

4.55 Our overall conclusion of the project review is as follows:

Table 4.16: Upgrade to Hold Baggage Sortation Equipment – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report. Dublin Airport needs to respond to our queries and provide the base date and construction mid-point date so that we can complete our assessment of their costs. This will be addressed in the Final Report later this year.	

CIP.20.06.045 – Security Scanners

Project description

Introduction

4.56 Dublin Airport proposes to build on the previous CIP2020+ project - CIP.20.06.007 – Full Body Scanners - to deploy 38 new security scanners. This project is defined by the airport as an 'exceptional' Core project required within the extended CIP period up to 2026.

Figure 4.3: Security Scanners

Source: Dublin Airport's Capital Investment Programme 2020+ Review Final Report

Objective

4.57 The project aims to ensure Dublin Airport meets its future regulatory and security requirements as airport activity is anticipated to grow to around 40mppa.

4.58 This project aims to reduce opex by reducing the number of airport security officers required to staff each security lane and potentially the total number of lanes required at peak times throughout the airport. The project also aims to improve the overall passenger experience through a reduced need for manual body searching.

Context

4.59 In 2019, the initial proposal of Dublin Airport concerning security scanners was to run a 2-year pilot of the new flat panel category of security scanners which was emerging on the market during that period. Given the impact and consequent delays caused by the COVID-19 pandemic, the pilot in Dublin Airport did not proceed; however, several Irish and European airports have since been able to deploy the new security scanners into live operational environments and have shared their experience and throughput with Dublin via direct contact and ACI working groups to the extent that Dublin Airport is confident to substitute the pilot for an entire deployment.

Scope

4.60 The project proposes to build on the original CIP2020+ project CIP.20.06.007 - Full Body Scanners to deploy a further 38 Security Scanner units across three projects. Ultimately the airport will have a total of 42 Security Scanner units made up of 4 from the original project and 38 from this new project made up of:

- Terminal 1 Security Scanners - Deploy a further 17 (19 total) Security Scanner systems in the Central Search Area, Platinum, and staff entry checkpoint areas.

- Terminal 2 Security Scanners - Deploy a further 15 (17 total) Security Scanner systems in the Central Search Area, passenger transfer and staff entry checkpoint areas.
- External Checkpoints Security Scanners - Deploy six further Security Scanner systems in the VCP, Fire-Station and maintenance base areas of the campus.

Change in scope versus Previous CIP2020+

4.61 This is a new project.

Stage

4.62 The project timeline as indicated by Dublin Airport is the following:

- Start of pre-construction Q1 2022
- Start of construction Q1 2024
- Construction complete Q4 2026

Key project metrics

Table 4.17: Security Scanners – Key project metrics

Metric	Value
Project cost estimate	€ 28,030,000
No. of security scanners	38

Scope/Specifications review

4.63 This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report.

Table 4.18: Security Scanners – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	Reviewed after the Draft Report submission.
Alternative scopes	Reviewed after the Draft Report submission.
Quality of specifications of scope/scope change	Reviewed after the Draft Report submission.
Phasing and synergies with other projects	Reviewed after the Draft Report submission.
Existing asset conditions	Reviewed after the Draft Report submission.
Double counting	Reviewed after the Draft Report submission.

Scope/Specifications – Conclusion

Table 4.19: Security Scanners – Scope/Specifications - Conclusion

Description	RAG
This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report.	

Cost estimate review

Table 4.20: Security Scanners – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	3.27	3.27	-
Construction Costs	16.35	16.35	-
Escalation, Contingency & Design Variability	8.41	9.81	+1.40
Total	**28.03**	**29.43**	**+1.40**

Table 4.21: Security Scanners – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	3.27	3.27	-
Total	**3.27**	**3.27**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Fittings / Furnishings & Equipment	16.35	16.35	-
Total	**16.35**	**16.35**	**-**
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	8.41	9.81	+1.40
Total	**8.41**	**9.81**	**+1.40**

4.64 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 4.22: Security Scanners - Relocation to Mezz Level – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted		+0.86
Escalation to midpoint of construction			+0.54

Cost - Draft Report Conclusion

4.65 This is a new project. We have reviewed Dublin Airport's 2022 estimate and the rates for most of the scope included in their estimate are reasonable. The allowances for civil, mechanical and electrical works and the FBSS system management are based on lump sum allowances and we have asked Dublin Airport to provide a breakdown of those sums so that we can assess them.

4.66 There are several apparent arithmetical errors in Dublin Airport's estimate and these errors have been corrected in the IFS assessment.

4.67 The allowances included in Dublin Airport's estimate for design and management, preliminaries and contingency are all reasonable.

4.68 The only other variance from the 2019 assessment is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage, applied to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

4.69 Once Dublin Airport respond to the queries noted above, we will complete our assessment of their cost estimate. This will be addressed in the Final Report later this year.

Overall conclusion

4.70 Our overall conclusion of the project review is as follows:

Table 4.23: Terminal 1 Central Search - Relocation to Mezz Level – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report. Subject to receiving breakdowns for lump sum allowances included in Dublin Airports estimate and acknowledgement of the arithmetical errors contained within it, the costs for remaining items included in their estimate are reasonable. The IFS assessment will be completed in the Final Report later this year.	

CIP.20.06.046 – Terminal Kerb Security Mitigation

Project description

Introduction

4.71 Dublin Airport proposes the implementation of three terminal kerb security mitigations:

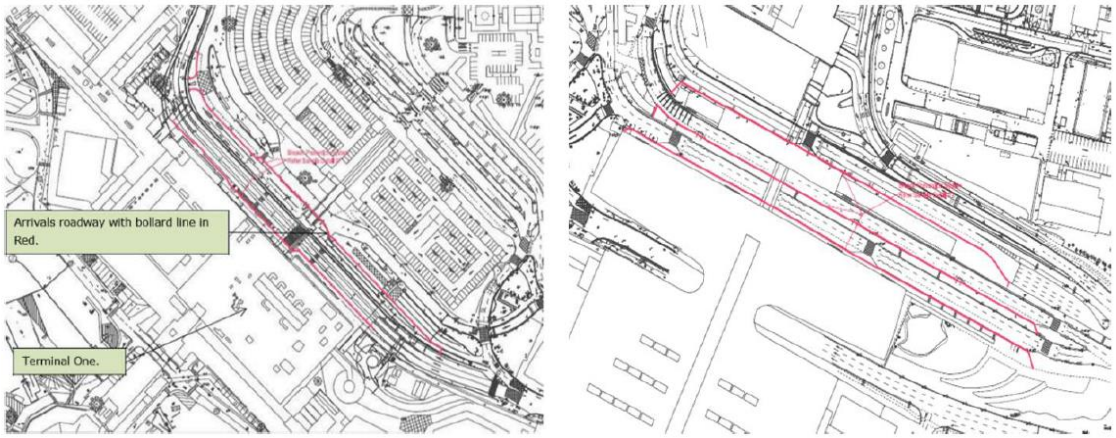
- Anti-vehicle borne improvised explosive devices (Anti-VBIED) systems at T1 departures and arrivals;
- Anti-VBIED systems at T2 departures and arrivals; and
- Anti-person borne improvised explosive devices (Anti-PBIED) systems at T1 departures and arrivals.

4.72 This project is defined by the airport as an 'exceptional' Core project required within the extended CIP period up to 2026.

Figure 4.4: Terminal Kerb Security Mitigation – Anti-VBIED example

Source: Dublin Airport's Capital Investment Programme 2020+ Review Final Report

Figure 4.5: Terminal Kerb Security Mitigation – T1 Kerb (left) and T2 Kerb (right)



Source: Dublin Airport's Capital Investment Programme 2020+ Review Final Report

Objective

4.73 The project aims to be prepared as best is possible for the risks associated with PBIED and VBIED, with the expectation that property damage and loss of life to its staff and passengers would be considerably reduced as a result of implementing recommended mitigations.

Context

4.74 Following a number of high-profile attacks across Europe on airports including Brussels, Istanbul, Paris and Glasgow, Dublin Airport commissioned a report to identify threats and risks at Dublin Airport from similar events happening at Terminals 1 & 2. Specifically, the investigation looked at the impact on the campus of equivalent attacks on those that had occurred in Europe.

4.75 To achieve this, Dublin Airport appointed an independent third-party assessment of the risks of such attacks on the landside areas of the Dublin Airport Campus. This assessment considered the threat from PBIED and VBIED both external to and inside the terminal buildings.

4.76 The consultant completed assessments on the basis of inspection, blast and vehicle ramming modelling and their experience in similar assessments in other European countries. From the assessment, a number of risk mitigations projects were developed.

Scope

4.77 The risk mitigation projects have been prioritised, with the following three proposed for delivery in this CIP period:

- T1 Departures and Arrivals anti-VBIED systems: Provision of anti-VBIED systems in front of departures and arrivals. This is to be achieved by deploying standard bollards which can resist a vehicle attack to this area.
- T2 Departures and Arrivals anti-VBIED systems: Provision of anti-VBIED systems Infront of Departures and Arrivals. This is to be achieved by deploying standard bollards which can resist a vehicle attack to this area.
- T1 Departures and Arrivals PBIED systems: Provision of measures which would reduce the impact of such a PBIED attack in the T1 landside area (i.e. external glazing exploding outwards). This would be achieved through the replacement of the existing ageing arrival level and departure level front elevation glazing and frames facing towards the T1 forecourts with toughened materials which would reduce the injury from fragmentation. It is noted that such glazing already exists in T2 and has been already retrofitted in T1's mezzanine area.

Change in scope versus Previous CIP2020+

4.78 This is a new project.

Stage

The project timeline as indicated by Dublin Airport is the following:

- Pre-construction Q3 2021
- Start of construction Q3 2023
- Construction complete Q4 2025

Key project metrics

Table 4.24: Terminal Kerb Security Mitigation – Key project metrics

Metric	Value
Project cost estimate	€ 12,480,000
Construction cost estimate	€ 8,200,000

Scope/Specifications review

4.79 This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report.

Table 4.25: Terminal Kerb Security Mitigation – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	Reviewed after the Draft Report submission.
Alternative scopes	Reviewed after the Draft Report submission.
Quality of specifications of scope/scope change	Reviewed after the Draft Report submission.
Phasing and synergies with other projects	Reviewed after the Draft Report submission.
Existing asset conditions	Reviewed after the Draft Report submission.
Double counting	Reviewed after the Draft Report submission.

Scope/Specifications – Conclusion

Table 4.26: Terminal Kerb Security Mitigation – Scope/Specifications - Conclusion

Description	RAG
This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report.	

Cost estimate review

Table 4.27: Terminal Kerb Security Mitigation – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	1.64	1.64	-
Construction Costs	8.20	7.98	-0.22
Escalation, Contingency & Design Variability	2.64	2.58	-0.06
Total	**12.48**	**12.20**	**-0.27**

Table 4.28: Terminal Kerb Security Mitigation – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	1.64	1.64	-
Total	**1.64**	**1.64**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**

Construction Costs	8.20	7.98	-0.22
Total	**8.20**	**7.98**	**-0.22**
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	2.64	2.58	-0.06
Total	**2.64**	**2.58**	**-0.06**

4.80 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 4.29: Terminal Kerb Security Mitigation – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Strip out of existing finishes	Redacted		-0.16
Escalation to midpoint of construction			-0.04
General Management and Staff Prelims 20%			-0.03

Cost - Draft Report Conclusion

4.81 This is a new project. We have reviewed Dublin Airport's 2022 estimate and the rates for most of the scope included in their estimate are reasonable. The allowance for strip out works is higher than we would expect and we have reduced this rate. As a result of this change, the allowances for temporary works, main contractor's preliminaries, design development and contingency have been reduced.

4.82 There are several items in Dublin Airport's estimate that are based on lump sum allowances. We have asked Dublin Airport to provide a breakdown of these allowances so that we can assess them.

4.83 The allowances included in Dublin Airport's estimate for design and management, preliminaries and contingency are all reasonable.

4.84 The allowance for escalation included in Dublin Airports estimate is a percentage uplift of 15.29%. Dublin Airport need to confirm the base date for this project and the midpoint for construction so that we can check the percentage uplift applied and conclude our assessment of the escalation allowance.

4.85 Once Dublin Airport respond to the queries noted above, we will complete our assessment of their cost estimate. This will be addressed in the Final Report later this year.

Overall conclusion

4.86 Our overall conclusion of the project review is as follows:

Table 4.30: Terminal 1 Central Search - Relocation to Mezz Level – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	

This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report.
Subject to receiving breakdowns for lump sum allowances concluding our assessment of escalation, the costs for remaining items included in Dublin Airports estimate are reasonable. The IFS assessment will be completed in the Final Report later this year.

5 Project Reviews – CIP2020+ Appendix C – Capacity

Summary

Table 5.1: Appendix C - Capacity – Summary

CIP Number	Project Title	RAG Costs	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
CIP.20.03.004	Gate Post 9 Expansion (West Lands)		8.48	8.98	7.73	-1.25
CIP.20.03.012	Terminal 1 Central Search - Relocation to Mezz Level		31.46	49.14	48.64	-0.50
CIP.20.03.013	Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation		32.90	47.04	38.75	-8.29
CIP.20.03.015	Terminal 1 Baggage Reclaim Upgrade & Alterations		18.99	24.74	25.57	+0.83
CIP.20.03.017	Terminal 1 Shuttle, bus lounges and injection points		1.87	3.86	4.00	+0.14
CIP.20.03.018	Terminal 1 - Immigration Hall		1.79	2.01	2.08	+0.07
CIP.20.03.020	Terminal 2 Check-in Area Optimisation		13.21	15.82	16.36	+0.53
CIP.20.03.021	Terminal 2 Central Search Area Expansion		4.62	5.59	5.77	+0.18
CIP.20.03.024	Terminal 2 Immigration Hall - Reorientation		N/A	2.45	2.45	0.00
CIP.20.03.028	Terminal 2 Transfer lines & Early Bag Store		27.91	34.41	35.57	+1.16
CIP.20.03.029	New Pier 5 (T2 and CBP Enabled)		298.66	339.13	338.06	-1.07
CIP.20.03.030	Expansion of US Pre-Clearance Facilities		55.08	87.29	87.29	-
CIP.20.03.031	South Apron Expansion (Remote Stands, Taxiway and Apron)		71.26	207.53	207.44	-0.09
CIP.20.03.077	South Apron Support Centre - Conversion of FCB		N/A	11.61	11.71	+0.11

CIP Number	Project Title	RAG Costs	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
CIP.20.03.078	Pier 4 DeFlex		N/A	4.33	4.48	+0.15
CIP.20.03.033 A	Enablement of Pier 3 for Precleared US bound passengers		7.58	9.00	9.30	+0.30
CIP.20.03.034	Pier 3 Immigration (Upgrade & Expansion)		4.65	10.57	10.63	+0.05
CIP.20.03.036	North Apron Development – Pier 1 Extension (Module 1) & Apron 5H PBZ		163.51	239.94	239.84	-0.11
CIP.20.03.051B	West Apron Vehicle Underpass - Pier 3 Option		168.97	245.06	253.98	+8.93
CIP.20.03.072	T2 & Pier 4 Transfers Facilities		0.55	0.70	0.72	+0.02
CIP.20.03.074	Taxiway Romeo Extension		N/A	7.32	7.03	-0.29
CIP.20.03.075	Fuel Hydrant Network		N/A	32.86	32.60	-0.25
CIP.20.03.076	Aircraft Deicing		N/A	1.33	1.28	-0.05
CIP.20.03.079	Engine Test Site Facility (Code E)		N/A	16.02	16.62	+0.59
CIP 20.03.080	Yellow Green Taxiway Centreline AGL		N/A	5.24	5.20	-0.04
N/A	Cancelled or Deferred Projects		181.40	-	-	-
Total			**1,092.89***	**1,411.97**	**1,413.08**	**+1.11**

Note: (*) Excludes the Surface Water Environmental Compliance project which has been reallocated to Appendix H - Sustainability

5.1 Overall our estimates for the projects in the Capacity envelope suggest that the overall costs could be increased by +€1.11m, mainly caused by the rise in inflation assumptions since Dublin Airport's submission more than offsetting the cost efficiencies identified.

5.2 Our upwards adjustment in project escalation costs to the end of 2021 from +19% to +23% has increased the IFS assessment for the Capacity group of projects by +€9.16m. If the Dublin Airport proposed cost estimate was increased to take account of this additional +4% cost increase due to escalation, this would show the IFS assessment as identifying a cost reduction of -€8.05m.

5.3 Individual reports for the projects in this Appendix are presented below.

CIP.20.03.004 – Gate Post 9 Expansion (West Lands)

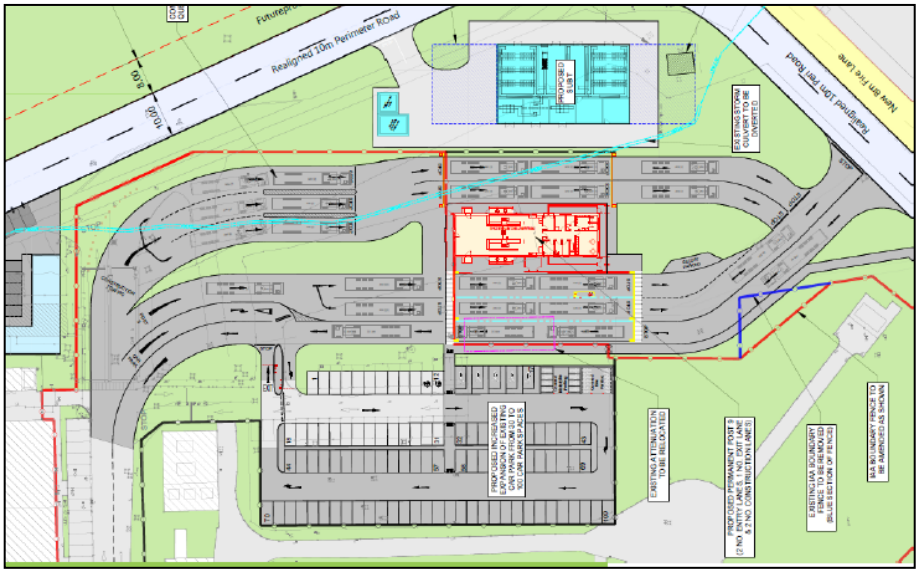
Project description

Introduction

5.4 Gate Post 9 has been designed and constructed to replace a temporary adjacent facility and is required to maintain regulatory compliance. The new gate post provides a five-lane vehicle checkpoint with four inbound lanes and one outbound lane. The lanes are covered by a canopy and are provided with all the equipment to function as a vehicle airlock. This project was progressed throughout 2020 and was completed and handed over to operations in March 2021.

5.5 This new vehicular security check point is similar to the existing Gate Post 4 with a 5 lane Vehicle Check Point (VCP).

Figure 5.1: Gate Post 9 Expansion (West Lands)



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.6 The objective was to increase the capacity for security checked vehicular access to the western campus development.

Context

5.7 The existing security checked vehicular access was a temporary solution in 2016 and continues to operate under a temporary permit.

Scope

5.8 The scope covers the construction of roads, car park, and the 5 lane VCP in outline format including the following:

- 5 lane vehicle check point with 4 inbound lanes and 1 outbound lane. 2 inbound lanes are designated for construction traffic only, with the other 2 inbound lanes for other airport operations;
- The lanes are covered by a canopy and are provided with all the equipment to function as a vehicle airlock;

- A control post with all the security requirements has been constructed; and
- A car park and equipped staff facilities.

Change in scope versus Previous CIP2020+

5.9 It is understood that there has been no change in scope to the Previous CIP2020+, and has been confirmed by Dublin Airport.

Stage

5.10 The Capital Investment Programme 2020+ Review Stakeholder Consultation document indicates that this project has been completed. The programme provided indicates the following milestones:

- Pre-Construction (Feasibility/Design/Planning Application/Procurement) Q1-Q2 2021
- Construction Q3-Q4 2021
- Project handover Q4 2021

Key project metrics

Table 5.2: Gate Post 9 Expansion (West Lands) – Key project metrics

Metric	Value
Dublin Airport construction cost estimate (2022)	€ 5,470,000
Dublin Airport estimate (2020)	Level 3 cost estimate included in CIP 2020 Final
No. of vehicle check lanes	4 inbound lanes and 1 outbound lane. 2 inbound lanes being designated for construction traffic only, with the other 2 inbound lanes for other airport operations.

Scope/Specifications review

Table 5.3: Gate Post 9 Expansion (West Lands) – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	No change to the project
Alternative scopes	No change to the project
Quality of specifications of scope/scope change	No change to the project
Phasing and synergies with other projects	No change to the project
Existing asset conditions	No change to the project
Double counting	No change to the project

Scope/Specifications – Conclusion

Table 5.4: Gate Post 9 Expansion (West Lands)- Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope met the outputs required of the project.	

Cost estimate review

Table 5.5: Gate Post 9 Expansion (West Lands) – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	1.09	1.09	1.09	-
Construction Costs	5.47	5.47	5.47	-
Escalation, Contingency & Design Variability	1.92	2.42	1.16	-1.25
Total	**8.48**	**8.98**	**7.73**	**-1.25**

Table 5.6: Gate Post 9 Expansion (West Lands) – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	1.09	1.09	1.09	-
Total	**1.09**	**1.09**	**1.09**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Facilitation & Demolition Works	0.55	0.55	0.55	-
Substructure	0.07	0.07	0.07	-
Superstructure - Frame	0.08	0.08	0.08	-
Superstructure - Others	0.35	0.35	0.35	-
Internal Finishes	0.09	0.09	0.09	-
Fitting /Furnishings & Equipment	0.04	0.04	0.04	-
Services	0.52	0.52	0.52	-
External Works	2.38	2.38	2.38	-
Main Contractors Preliminaries	1.40	1.40	1.40	-
Total	**5.47**	**5.47**	**5.47**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin AIrport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin AIrport (€m)**
Escalation, Contingency & Design Variability	1.92	**2.42**	1.16	-1.25
Total	**1.92**	**2.42**	**1.16**	**-1.25**

5.11 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.7: Gate Post 9 Expansion (West Lands) – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin AIrport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin AIrport (€m)
Escalation	Redacted			-1.25

Cost - Draft Report Conclusion

5.12 The allowances for design and management and construction costs are unchanged from the 2019 assessment. The variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%. As the project was completed in early 2021, we are awaiting confirmation from Dublin Airport as to whether there are still any further monies to be paid to suppliers, as this may impact our escalation assessment. This will be addressed in the Final Report later this year.

5.13 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. Subject to Dublin Airport confirming whether there are any monies still to be paid to suppliers, the cost of this project is reasonable.

Overall conclusion

5.14 Our overall conclusion of the project review is as follows:

Table 5.8: Gate post 9 Expansion (West Lands) – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope met the outputs required of the project. With exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate aligned with the IFS 2019 estimate. Subject to checking whether there are still monies to be paid to suppliers, and the potential impact that may have on our assessment of escalation, the cost estimate for this project is reasonable.	

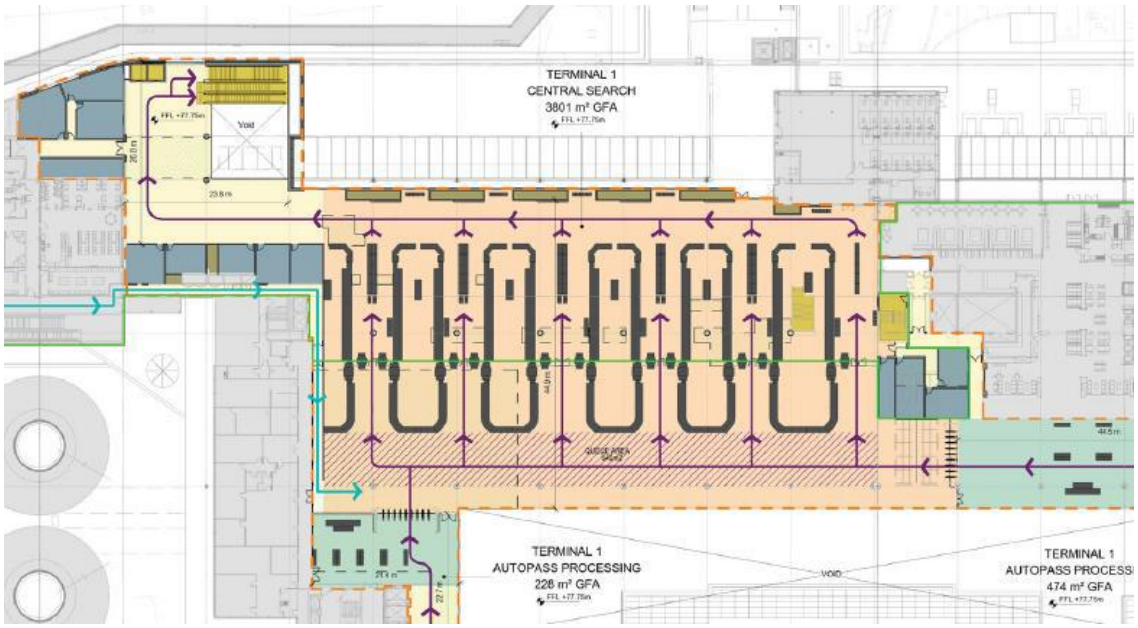
CIP.20.03.012 – Terminal 1 Central Search - Relocation to Mezzanine Level

Project description

Introduction

5.15 Dublin Airport proposes to relocate the central search in Terminal 1 to the mezzanine level. In a first phase the existing departure level central search will be upgraded with new screening equipment and full-body scanners.

Figure 5.2: Terminal 1 Central Search - Relocation to Mezz Level



Source: Dublin Airport's Capital Investment Programme 2020+ Review and Stakeholder Consultation

Objective

5.16 The T1 central search is proposed to be expanded to meet the 40mppa facility requirements and to be relocated to mezzanine level to provide sufficient space for the expansion of the international departure lounge and T1 check-in. The main objectives are to increase security processing capacity and to provide a more seamless security screening process for passengers. Also, the security screening equipment needs to be upgraded to EDS C3 standard and full-body scanners will be introduced.

Context

5.17 No further space is available to extend the central search area on the same level. Before relocation to mezzanine level can occur, Dublin Airport states that a new Phase 1 is needed to enable upgrading of the existing security screening equipment to EDS C3 standard.

Scope

5.18 The project scope comprises measures to be carried out in 2 phases.

5.19 Scope Phase 1: Upgrade of existing checkpoint with new security screening equipment and full-body scanners:

- Departure floor strengthening to carry the new equipment and modifications to existing floor finishes and upgrades to floor coverings;
- Modifications to existing electrical, IT, HVAC and life safety systems to fulfil requirements of the new security equipment; and
- Measures to renew the security equipment in phases during live operations.

5.20 Scope Phase 2: Relocation of the central search to mezzanine level

- The mezzanine level will be enlarged through the infill of floor slabs to provide space for screening and queuing areas;
- Relocation of risers, back of house offices and the T1 lounge; demolition of escalators;
- Introduction of a new vertical circulation core at the rear to access the IDL as well as new search rooms and supervisor office; and
- Reconfiguration of the self-connect route from the baggage reclaim hall.

Change in scope versus Previous CIP2020+

5.21 There are the following scope changes to Previous CIP2020+: the full scope of the new Phase 1 will be added to the project scope.

Stage

5.22 For project phase 1 design, planning and construction will be carried out in 2022. Project phase 2 is currently on hold with feasibility/outline design complete. Planning and design will commence in Q1 2023.

- Phase 1: Construction complete Q4 2022
- Phase 1: Start of operation Q1 2023
- Phase 2: Design, procurement complete Q1 2025
- Phase 2: Start of construction Q1 2025
- Phase 2: Construction complete Q4 2026

Key project metrics

Table 5.9: Terminal 1 Central Search - Relocation to Mezz Level – Key project metrics

Metric	Value
Project cost estimate	€49,143,641
25 m ARTS lanes on mezz level Number: Throughput per lane: Capacity per hour:	 11 lanes 370 pax/lane/hour* 4,070 pax/hour
Existing 17 m ARTS lanes Number (excl. fast track): Throughput per lane: Capacity per hour:	 14 lanes (new security equipment EDS C3, full body scanners) 265 pax/lane/hour (225 pax/lane/hour in Previous CIP2020+) 3,710 pax/hour (3,150 pax/hour with 2019 throughput)

Note: (*) According to Dubln Airport forecast

Scope/Specifications review

Table 5.10: Terminal 1 Central Search - Relocation to Mezz Level – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	• Dublin Airport has provided a current throughput for existing 17m ATRS lanes of 265 Pax/lane/hour and a forecasted throughput for new 25m ATRS lanes of 370 Pax/lane/hour. Even if the optimistic throughput of the 25m lanes can be reached, the capacity of the relocated central search with 11 lanes will be only 10% above the existing checkpoint with 14 lanes (excl. fast track). Reasons for a lower than estimated throughput of the 25m lanes could be throughput limitations of the C3 scanners or the FBS. Therefore, risks remain that the capacity of the relocated central search will finally not be higher than the existing one. • Additionally, with the introduction of EDS C3 scanners to the existing 17m lanes it can be assumed that the capacity will be increased and hence an expansion of the central search might not be needed so soon. • Longer walking distances and two extra level changes negatively affect passenger experience.
Alternative scopes	Alternative scopes might be considered for projects CIP.20.03.012-13 (T1 Central Search, T1 Departure Lounge) to improve passenger experience and flows • Option without relocation of central search to mezzanine level with less commercial space on departure level; • Option with an additional VCC behind the check-in islands to improve passenger flow and wayfinding; and • Option with fast track security next to the CSA.
Quality of specifications of scope/scope change	• Level 3 costs only partly provide a sufficiently detailed breakdown of the specification of the works. • Quantities (sqm) cannot be verified from drawings or are given as a lump sum (e.g. upgrade of self-connect route). • Allowances for adaptations of passenger flows (signage, layout changes for check-in set-ups) are not included. • Lump sum costs for phase 1 have not been specified.
Phasing and synergies with other projects	Construction works need to be phased and aligned with other T1 projects due to dependencies and possible synergies: • CIP 20.03.013 – T1 Departure Lounge: – Relocation of central search need to be completed before T1 departure lounge can be expanded into the available space. – New VCC cannot be built unless an interim bypass will be constructed in departure lounge. • CIP.20.04.018 – Fast Track Improvements: Staff security to be relocated during Phase 1 of the project. • CIP.20.06.001 – Cabin-Baggage X-Ray Replacement & EDS Upgrade: New C3 machines to be installed during Phase 1 of the project. • CIP.20.06.007 – Full Body Scanners: Full body scanners to be installed during Phase 1 of the project.

Subject	Comments
	• CIP.20.06.041 – Security Screening Equipment - End of Life: New security equipment to be installed during Phase 1 of the project. • CIP.20.06.042 – ATRS - Central Search Areas: New ATRS lanes to be installed during Phase 2 of the project. • CIP.20.09.009 – Terminal 1 Sustainable Upgrade Feasibility: Feasibility study to be completed before procurement of Phase 2 to incorporate the findings into this project (including the possible decision to replace Terminal 1).
Existing asset conditions	T1 is 50 years old and refurbishments including a sustainability upgrade will be required in the future. Security screening equipment (LED, ETD, HHMD and WTMD) will reach end of life in the next CIP period according to Dublin Airport (see also CIP.20.06.041).
Double counting	None identified.

Scope/Specifications – Conclusion

Table 5.11:Terminal 1 Central Search - Relocation to Mezz Level – Scope/Specifications - Conclusion

Description	RAG
The project is intended to fulfil the capacity requirements for 40mppa which might be achievable by the suggested relocation to mezzanine level. However, there are risks that the anticipated increases in throughput of the 25m lanes cannot be achieved. In this case there is a risk that the needed capacity gains cannot be provided and goals not be fulfilled by relocating the central search to mezzanine level. Additionally, with the introduction of EDS C3 scanners to the existing 17m lanes it can be assumed that the capacity will be increased and hence an expansion of the central search might not be needed as soon. For above reasons, it is highly recommended to carefully examine the achievable throughput of 17m as well as 25m ATRS lanes with new security equipment before executing phase 2 of this project. The review should continue within the StageGate process. The passenger experience could be negatively affected by longer walking distances and two extra level changes. Alternative layouts and scopes might be considered for an integrated solution with reconfiguration of T1 check-in and the departure lounge. Cost implications of possible alternatives cannot be estimated at this stage.	

Cost estimate review

Table 5.12: Terminal 1 Central Search - Relocation to Mezz Level – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	4.02	5.09	5.09	-
Construction Costs	19.52	25.46	25.46	-
Escalation, Contingency & Design Variability	7.92	18.59	18.09	-0.50
Total	**31.46**	**49.14**	**48.64**	**-0.50**

Table 5.13: Terminal 1 Central Search - Relocation to Mezz Level – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	4.02	5.09	5.09	-
Total	**4.02**	**5.09**	**5.09**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Refurbishment to Mezzanine	13.42	13.28	13.28	-
Vertical Circulation Core	2.90	3.26	3.26	-
Structural Infill	3.20	3.57	3.57	-
Equipment	-	-	-	-
Builders work and service diversions	-	5.36	5.36	-
Total	**19.52**	**25.46**	**25.46**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	7.92	18.59	18.09	-0.50
Total	**7.92**	**18.59**	**18.09**	**-0.50**

5.23 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.14: Terminal 1 Central Search - Relocation to Mezz Level – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation to midpoint of construction	Redacted			-0.80
Escalation (from estimate base date to Q4 2021)				0.29

Cost - Draft Report Conclusion

5.24 A €5m lump sum for temporary works, builders' work and services diversions has been added to the construction costs for this project by Dublin Airport. We have asked Dublin Airport to provide a breakdown of that allowance so that we can assess it. The remaining allowances for construction costs are unchanged from the 2019 allowances. While the percentages for design development, stage works, design and management, and contingency are unchanged from 2019, the costs for these items has increased because of the addition of the €5m lump sum to the construction costs.

5.25 The other variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

5.26 With the exception of the additional €5m lump sum added to the construction costs and the variance in in the escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned

with the IFS 2019 estimate. Once we receive a breakdown of this lump sum, we will assess the cost efficiency of items included within it. This will be addressed in the Final Report later this year. The remainder of the costs within the project are reasonable.

Overall conclusion

5.27 Our overall conclusion of the project review is as follows:

Table 5.15: Terminal 1 Central Search - Relocation to Mezz Level – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The project is necessary to fulfil the capacity requirements for 40mppa which might be achievable by the suggested relocation to mezzanine level. However, there are high risks that the anticipated increases in throughput of the 25m lanes cannot be achieved. In this case there is a risk that the needed capacity gains cannot be provided and goals not befulfilled by relocating the central search to mezzanine level. **Apart from the €5m lump sum for temporary works, builderswork and service diversions that has still to be assessed, the remainder of the cost estimate for this project is reasonable. The assessment of this lump sum will be addressed in our Final Report later this year.**	

CIP.20.03.013 – Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation

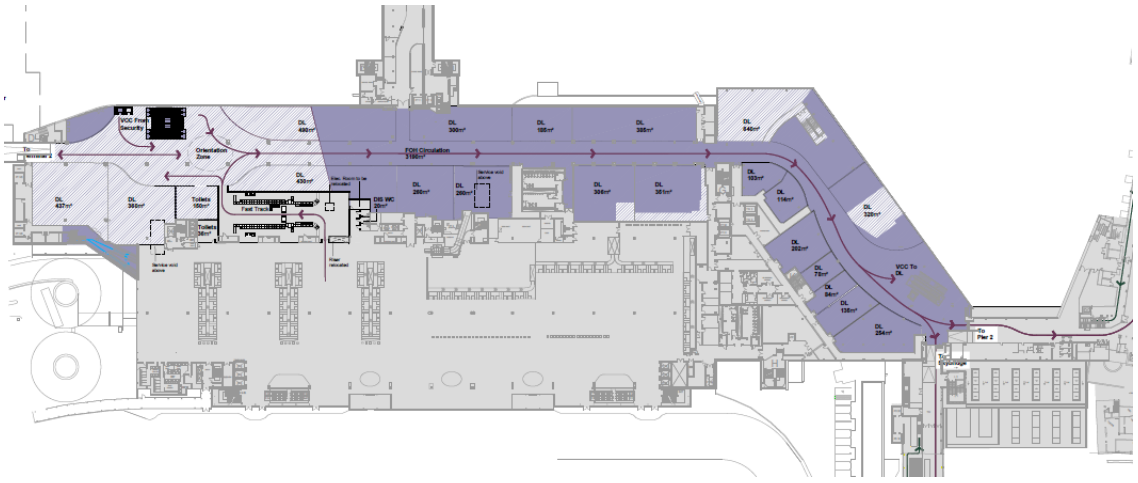
Project description

Introduction

5.29 This project plans to provide vertical circulation down from the new passenger screening facility on the Mezzanine floor, larger orientation space at IDL level and more space in the IDL and re-modelled commercial facilities.

Figure 5.3: Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation

Current Plan



Previous Plan

Source: Dublin Airport

Objective

5.30 The project objectives are to provide a relocated fast track screening facility, relocated airline lounge, expanded and new retail, food and beverage, seating and circulation space.

Context

5.31 The context of this project is the T1 IDL, perhaps more appropriately called the Airside Departure Concourse.

5.32 The driver for this project is stated as 'capacity improvement' as well as enhancement of passenger experience. It would appear that the need to increase the capacity of the Check-in Concourse and the review of central screening, which lead to the re-location of screening at the Mezzanine level probably triggered the re-modelling of this part of the terminal.

Scope

5.33 This project delivers a redesigned IDL by:

- Stripping out the existing security area;
- New vertical circulation from the new mezzanine security zone;
- Relocated Fast Track screening;
- Relocated lounge shell;
- New commercial shell;
- ARI extension and shell;
- New toilets;
- Re modelled circulation, pop/up retail/public seating;
- Commercial landlord core refresh;
- ARI core and fit out; and
- F&B fitout.

Change in scope versus Previous CIP2020+

5.34 In essence the scope is the same as the Previous CIP2020+, however the plans indicate that the main components have been moved around and functionalities more clearly defined.

Stage

5.35 The project is now planned to start in Q4 2024 and handed over in Q1 2027. This is now a 30-month project, whereas before it was an 18-month project. This is considered to be a long time for an internal terminal re-modelling in a critical circulation and commercial area.

5.36 The key linkage of this project is with the new passenger screening project on the mezzanine floor, which is scheduled to complete in Q4 2026. Therefore, dovetailed phasing will be critical to ensure that passengers can use the new vertical circulation down from the passenger screening to access the IDL which is still technically a partial construction site.

Key project metrics

Table 5.16: Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation

Metric	Value
Project cost estimate	€47,039,304

Scope/Specifications review

5.37 No significant changes have been identified between between this proposed project and the one submitted in the Previous CIP2020+.

Table 5.17: Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation - Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient in delivering the proposed project functionality in outline format.
Alternative scopes	None identified.
Quality of specifications of scope/scope change	The specification information is very limited and generalised and differences between the CIP 2019 and the current scheme are not significant in the overall scope concept.
Phasing and synergies with other projects	As noted above this project has a direct synergy with the new passenger Screening project/Central search, 20 03 012. It is also indirectly linked with the T1 Check-in (Partial Shoreline), 20 03 011A, but this project has been deferred.
Existing asset conditions	T1 is undergoing a number of asset sweating/re-lifing projects and within this context 15-year asset life is reasonable.
Double counting	None identified.

Scope/Specifications - Conclusion

Table 5.18: Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation – Scope/Specifications - Conclusion

Description	RAG
The scope for this type of project is efficient at high level, however, the detail of its design/construct programme is limited, which could give rise to the possibility of inaccurate costing. However, this project will be taken through the StageGate process, and such additional detail will be requested and assessed at that time.	

Cost estimate review

Table 5.19: Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	4.13	4.51	3.59	-0.92
Construction Costs	20.64	22.53	17.95	-4.58
Escalation, Contingency & Design Variability	8.13	20.00	17.20	-2.80
Total	**32.90**	**47.04**	**38.75**	**-8.29**

Table 5.20: Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	4.13	4.51	3.59	-0.92
Total	**4.13**	**4.51**	**3.59**	**-0.92**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Works	20.64	22.53	17.95	-4.58
Total	**20.64**	**22.53**	**17.95**	**-4.58**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	8.13	20.00	17.20	-2.80
Total	**8.13**	**20.00**	**17.20**	**-2.80**

5.38 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.21: Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation to midpoint of construction	Redacted			-1.77
Construction of Circulation / pop up retail / public seating				-1.20
ARI Core and Fitout				-1.15

Cost - Draft Report Conclusion

5.39 As with Dublin Airport's 2019 estimate, there is still a limited amount of detail in the level 3 cost assessment. There are several items where the rates included by Dublin Airport are higher than we would expect and we have reduced them. These items include the strip out of the existing security area, the relocation of existing or provision of new shell spaces, and the ARI core and fitout works. We would not expect Dublin Airport to fit out the various shell spaces to the level that they have described and this is reflected in our assessment of their rates. The ARI Core and Fit Out rate has been reduced to **Redacted** /m2, in line with our assessment of the fit out works contained within the 2019 assessment.

5.40 An allowance for **Redacted** % of construction costs has been included for main contractor's preliminaries. While this percentage is reasonable, the 2019 assessment did not contain a specific allowance for this as it was deemed to be included in the rates submitted by Dublin Airport in their assessment. The percentages for design development, stage works, design and management, and contingency are unchanged from 2019.

5.41 The other variance from the 2019 assessment is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the

escalation percentage, applied to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

Overall conclusion

5.42 Our overall conclusion of the project review is as follows:

Table 5.22: Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The scope for this type of project is efficient at high level, however, the detail of its design/construct programme is limited, which could give rise to the possibility of inaccurate costing. However, this project will be taken through the StageGate process, and such additional detail will be requested and assessed at that time. **We would not expect Dublin Airport to fit out the various shell spaces to the level that they have described, and this is reflected in our assessment of their rates. The extent of works to be delivered as part of the shell works needs to be reviewed ahead of the publication of the Final Report.**	

CIP.20.03.015 – Terminal 1 Baggage Reclaim Upgrade & Alterations

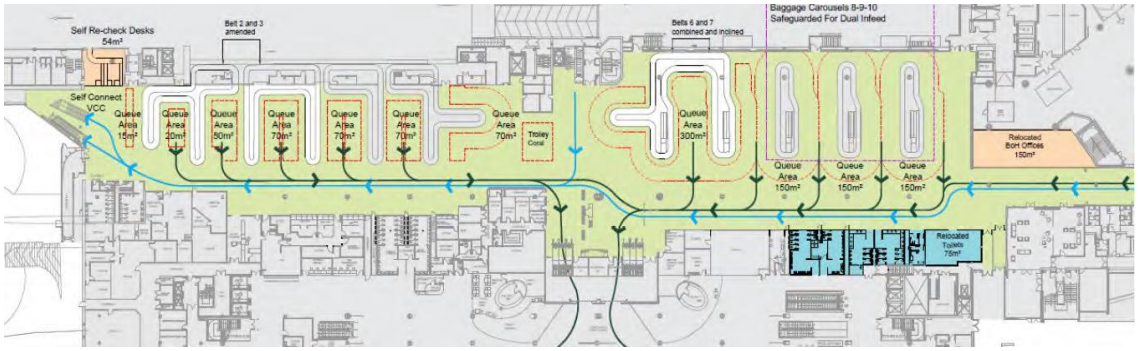
Project description

Introduction

5.43 Dublin Airport proposes the reconfiguration of the baggage reclaim to provide:

- Increased reclaim belt lengths;
- Additional queuing space;
- Improved circulation; and
- General refurbishment.

Figure 5.4: Terminal 1 Baggage Reclaim Upgrade & Alterations



Source: Dublin Airport's Capital Investment Programme 2020+ Review and Stakeholder Consultation

Objective

5.44 This investment aims to deliver a redesigned T1 Baggage Reclaim capability with additional queuing space around belts and widened circulation areas to further reduce passenger congestion, also increasing combined reclaim length from 520m post PACE to 580m overall to, according to Dublin Airport, accommodate the 40mppa peak arrivals demand.

Context

5.45 Planned capacity post PACE is 1,300sqm, whereas Dublin Airport claims the required 40mppa space is 1,800sqm.

Scope

5.46 This project proposes to deliver a redesigned hall increasing available reclaim belt lengths by:

- Combining belts 6 and 7 to a single reclaim;
- Removal of belt 1; and
- Lengthening and layout amendment of belts 2 and 3.

Belts 3 – 5 and 8 – 10 will remain with minor retrofitting works.

5.47 Queuing space around belts and widened circulation areas is also intended to further reduce passenger congestion resulting in the need for the relocation of landside wall (immigration hall). Plus, at the hall's eastern end, a self-connect product is provided to allow passengers check-in their transfer bags immediately after belt collection via a single check-in desk.

Change in scope versus Previous CIP2020+

5.48 There is no proposed change to the project plan submitted in 2019.

Stage

5.49 The project is now planned to start in Q1 2025 and handed over in Q4 2026, i.e., 2 years to complete. Previously, 4 years and 3 months was allocated for this project, so a significant reduction in time is now planned.

Key project metrics

Table 5.23: Terminal 1 Baggage Reclaim Upgrade & Alterations – Key project metrics

Metric	Value
Construction cost estimate	€ 24.7m
Dublin Airport estimation method	Dublin Airport feedback to questions raised has determined that the T1 baggage reclaim upgrades costs were developed in conjunction with external consultants based upon similar projects they have undertaken in other airports.

Scope/Specifications review

Table 5.24: Terminal 1 Baggage Reclaim Upgrade & Alterations – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	This project scope is effective to deliver the envisaged output. No change from Previous CIP2020+.
Alternative scopes	None identified.
Quality of specifications of scope/scope change	The specification information is very limited and generalised and differences between the CIP 2019 and the current scheme are not significant in the overall scope concept.
Phasing and synergies with other projects	Whilst not directly related, the T1 Baggage Reclaim Upgrade & Alterations has synergies with capacity improvements planned in Terminal and Pier redevelopments.
Existing asset conditions	Not applicable.
Double counting	None identified.

Conclusion

Table 5.25: Terminal 1 Baggage Reclaim Upgrade & Alterations – Scope/Specifications - Conclusion

Description	RAG
In the context of the information provided, the Terminal 1 Baggage Reclaim Upgrade & Alterations project scope appears to be effective in meeting the objective and efficient in its scope.	

Cost estimate review

Table 5.26: Terminal 1 Baggage Reclaim Upgrade & Alterations – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	2.38	2.42	2.42	-
Construction Costs	11.92	12.08	12.08	-

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation, Contingency & Design Variability	4.69	10.24	11.07	+0.83
Total	**18.99**	**24.74**	**25.57**	**+0.83**

Table 5.27: Terminal 1 Baggage Reclaim Upgrade & Alterations – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	2.38	2.42	2.42	-
Total	**2.38**	**2.42**	**2.42**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Refurbishment of Baggage Hall & Circulation Space	3.17	3.23	3.23	-
Refurbishment / Construction of new toilets	1.05	1.08	1.08	-
Construction of BOH offices	0.85	0.90	0.90	-
Allowance for new floor and ceiling finishes to baggage hall	3.29	3.14	3.14	-
Relocation of VCC	2.29	2.41	2.41	-
Equipment	1.26	1.32	1.32	-
Total	**11.92**	**12.08**	**12.08**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	4.69	10.24	11.07	+0.83
Total	**4.69**	**10.24**	**11.07**	**+0.83**

5.50 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.28: Terminal 1 Baggage Reclaim Upgrade & Alterations – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.67
Escalation to midpoint of construction				+0.16

Cost - Draft Report Conclusion

5.51 The allowances for design and management and construction costs are mostly unchanged from the 2019 assessment. The key variance from the 2019 assessment is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has

increased the escalation percentage, applied to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

5.52 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is broadly aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

5.53 Our overall conclusion of the project review is as follows:

Table 5.29: Terminal 1 Baggage Reclaim Upgrade & Alterations – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
In the context of the information provided, the Terminal 1 Baggage Reclaim Upgrade & Alterations project scope appears to be effective in meeting the objective and efficient in its scope. The cost estimate for this project is reasonable.	

CIP.20.03.017 – Terminal 1 Shuttle, bus lounges and injection points

Project description

Introduction

5.55 This project is for the refurbishment of the ground floor of the Old Central Terminal Building (OCTB) to create bussing lounges, new OCTB bus parking kerbs and an arrivals injection point into T1.

Figure 5.5: Terminal 1 Shuttle, bus lounges and injection points

Source: Dublin Airport's Capital Investment Programme 2020+ Review and Stakeholder Consultation

Objective

5.56 The objective is to provide additional capacity of departures holding lounges and arrivals terminal injection points for the airport's growing bussing operation.

Context

5.57 T1 provides bus gate capability at Pier 1 and Pier 2.

5.58 With the increase in operations on the North Apron and more operations in the Western Apron, there will be increased bussing demand for departing and arriving passengers from and to T1. The OCTB holding area is for departing passengers and the T1 injection point is for arriving/transferring passengers.

Scope

5.59 The scope meets the requirements of the objective to provide more bussing capacity for T1 departures. The OCTB is used as a shuttle lobby with low bus dwell time. In total 3 bus bays are required to ensure head way can be maintained at peak times. The project has a number of elements including the following:

- Refurbishment of the ground floor of the OCTB to provide departures bussing lounges;
- Bus management improved to provide more flexibility for bus manoeuvring;
- Re-positioning of blast screens by OCTB;

- Arrivals bussing injection point/hall into T1; and
- New canopy/covered walkway to provide weather protection at bus injection point and structural alteration within the building to improve pax experience.

Change in scope versus Previous CIP2020+

5.60 In essence the scope is the same as the Previous CIP2020+, however, as can be seen from the scope, the current project incorporates minor design improvements:

- Canopy provided at bus injection point;
- Bus turning space included;
- Covered walkway to increased number of bus injection points; and
- Bus injection point corridor increased in width.

Stage

5.61 The works are due to commence in Q1 2023 and complete in Q4 2024. Circa 21 months is a long procurement period for a relatively simple scheme given the urgency of demand.

Key project metrics

Table 5.30: T1 Bus lounges and injection points

Metric	Value
Construction cost estimate	€ 3,860,000
No. of bussing lounges/gates	4
Floor area provided (sq m)	1,015

Scope/Specifications review

Table 5.31: T1 Bus lounges and injection points – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient in delivering the proposed project functionality in outline format.
Alternative scopes	None.
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs provide enough detail for outline design stage.
Phasing and synergies with other projects	The bus parking bays and walkway canopies are all airside requiring phasing with airside operations and stand re-alignment.
Existing asset conditions	The OCTB is a listed building with no declared asset life and as this is a listed building the asset life is irrelevant. Since this is essentially a fitting out project a 15-year asset life is reasonable.
Double counting	None identified.

Scope/Specifications - Conclusion

Table 5.32:T1 Bus lounges and injection points – Scope/Specifications - Conclusion

Description	RAG
Based on the information provided and the maturity of the project, the scope for this type of project appears to be efficient. The functionality of the scheme such as bus manoeuvring should be carefully considered.	

Cost estimate review

Table 5.33:T1 Bus lounges and injection points – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.24	0.43	0.43	-
Construction Costs	1.18	2.34	2.34	-
Escalation, Contingency & Design Variability	0.46	1.08	1.22	+0.14
Total	**1.87**	**3.86**	**4.00**	**+0.14**

Table 5.34: T1 Bus lounges and injection points – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.24	0.43	0.43	-
Total	**0.24**	**0.43**	**0.43**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Refurbishment / Alterations	1.18	2.34	2.34	-
Total	**1.18**	**2.34**	**2.34**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.46	1.08	1.22	+0.14
Total	**0.46**	**1.08**	**1.22**	**+0.14**

5.62 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.35: T1 Bus lounges and injection points – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.13
Escalation to midpoint of construction				+0.01

Cost - Draft Report Conclusion

5.63 There is a lot more detail in the 2022 level 3 cost estimate presented by Dublin Airport. Based on our review of the revised material, the scope of works included in the project has increased compared to the 2019 submission. As a result, the cost of this project has increased. There are several queries that we have issued to Dublin Airport regarding the build-up of rates and the breakdown of lump sum allowances included in Dublin Airport's estimate. We are awaiting a response from Dublin Airport to these queries. The percentage allowances for design and management, main contractor's preliminaries and contingency are unchanged from the 2019 assessment.

5.64 The other variance from the 2019 assessment is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage, applied to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

5.65 Once we receive responses to the outstanding queries, we will assess the cost efficiency of items included within it. This will be addressed in the Final Report later this year. The remainder of the costs within the project are reasonable.

Overall conclusion

5.66 Our overall conclusion of the project review is as follows:

Table 5.36: T1 Bus lounges and injection points – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
Based on the information provided and the maturity of the project, the scope for this type of project appears to be efficient. The functionality of the scheme such as bus manoeuvring should be carefully considered. **Subject to assessing the items where we are awaiting responses from Dublin Airport to queries, the cost of the remaining elements within the estimate are reasonable. These items will be addressed in the Final Report later this year.**	

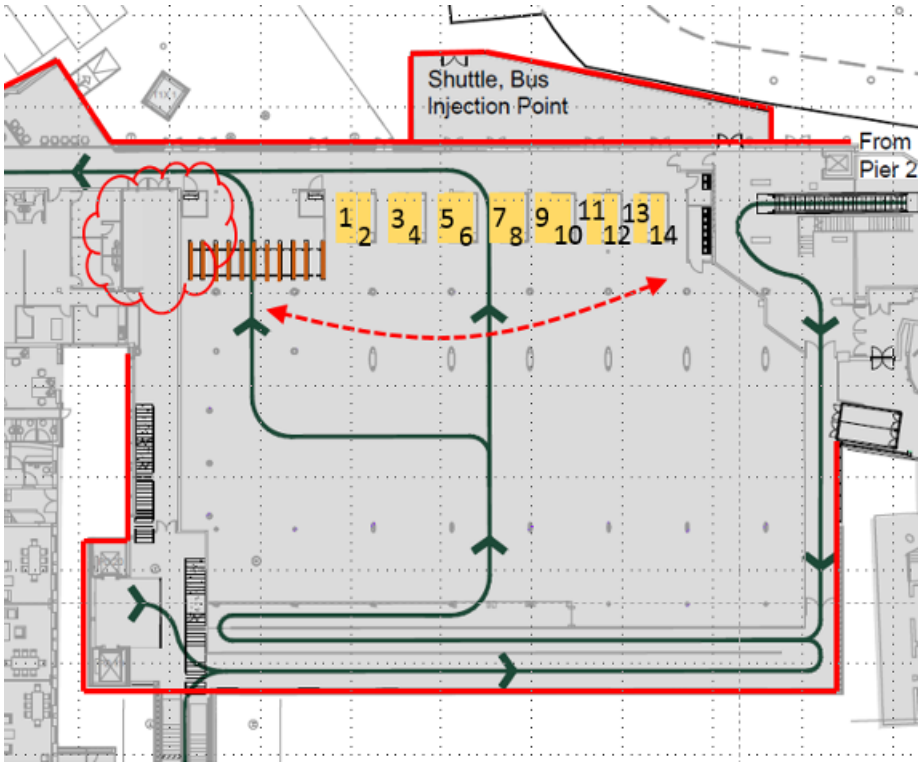
CIP.20.03.018 – Terminal 1 - Immigration Hall

Project description

Introduction

5.68 Dublin Airport proposes the reconfiguration of Terminal 1 immigration with the addition of 3 booths and one e-gate to accommodate peak hour demand anticipated at 40 mppa.

Figure 5.6: Terminal 1 Immigration Hall Reconfiguration



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.69 This project's aim is to increase the processing capacity of the hall for a 40mppa airport, to reorganize for facilitating optimum e-gate usage and to reduce queuing times at T1 immigration.

Context

5.70 An approved PACE project provided the expansion of T1 immigration in 2 phases. A reorganisation of the space is aimed to improve e-gate usage and visibility for EU nationals from Pier 1.

Scope

5.71 The scope of this project includes replacement of the existing 11 booths with 14 new booths, relocation of e-gates to the Pier 1 side with the provision of one additional e-gate and relocation of the observation room to the north. As a result of this expansion, the existing staff bypass airlock and office area need modifications.

Change in scope versus Previous CIP2020+

5.72 There is no change to the Previous CIP2020+.

Stage

5.73 The Project is currently on hold with feasibility/outline design complete. Planning and procurement will continue and expect to be finalised in Q1 2023.

- Design, procurement complete Q1 2023
- Construction start Q1 2023
- Construction complete Q4 2024
- Project handover Q1 2025

Key project metrics

Table 5.37: Terminal 1 – Immigration Hall – Key project metrics

Metric	Value
Project cost estimate	€ 2,007,836
Number of e-gates	11 (10 existing relocated plus 1 new e-gate)
Number of booths	14 (all new)
Cost per square metre	Not disclosed

Scope/Specifications review

Table 5.38: Terminal 1 – Immigration Hall – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	Project objectives will be met by the suggested scope.
Alternative scopes	A layout without relocation of existing e-gates should be considered for cost savings.
Quality of specifications of scope/scope change	Level 3 costs provide a reasonably detailed breakdown of the specification of the works.
Phasing and synergies with other projects	• Construction works need to be phased and aligned with other T1 projects due to dependencies and possible synergies. • CIP.20.04.018 Fast track improvements: a new fast track will be introduced at immigration and will affect the layout of the queuing area; both projects should be aligned and carried out at the same time.
Existing asset conditions	Information on asset life of existing immigration booths which will be replaced has not been provided. However, the replacement is necessary for this project due to a reduced width of the new booths. The existing 10 e-gates which have been installed in 2017 will be relocated.
Double counting	None identified. No double counting with PACE Immigration Project.

Scope/Specifications – Conclusion

Table 5.39: Terminal 1 – Immigration Hall – Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope will meet the outputs required of the project. However, the relocation of the e-gates would not necessarily improve their usage and therefore cannot be considered as an efficient initiative. An alternative layout without relocation of the e-gates should be developed and evaluated to realise cost savings.	

Cost estimate review

Table 5.40: Terminal 1 – Immigration Hall – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.23	0.23	0.23	-
Construction Costs	1.13	1.13	1.13	-
Escalation, Contingency & Design Variability	0.44	0.66	0.73	+0.07
Total	**1.79**	**2.01**	**2.08**	**+0.07**

Table 5.41: Terminal 1 – Immigration Hall – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.23	0.23	0.23	-
Total	**0.23**	**0.23**	**0.23**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Refurbishment / Alterations	1.13	1.13	1.13	-
Total	**1.13**	**1.13**	**1.13**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.44	0.66	0.73	+0.07
Total	**0.44**	**0.66**	**0.73**	**+0.07**

5.75 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.42: Terminal 1 – Immigration Hall – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.06
Escalation to midpoint of construction				+0.01

Cost - Draft Report Conclusion

5.76 The only variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

5.77 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

5.78 Our overall conclusion of the project review is as follows:

Table 5.43: Terminal 1 – Immigration Hall – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope will meet the outputs required of the project. However, the relocation of the e-gates would not necessarily improve their usage and therefore cannot be considered as an efficient initiative. An alternative layout without relocation of the e-gates should be developed and evaluated to realise cost savings. With exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost estimate for this project is reasonable.	

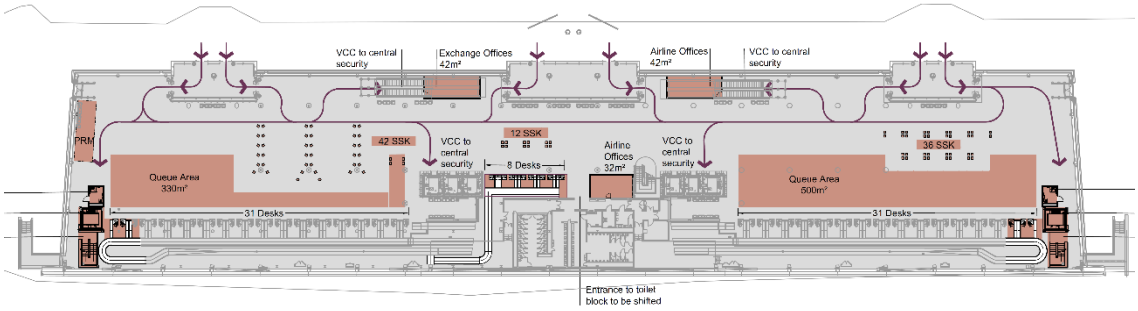
CIP.20.03.020 – Terminal 2 Check-in Area Optimisation

Project description

Introduction

5.79 Dublin Airport proposes the reconfiguration of the existing Terminal 2 check-in area to add extra check-in units, to optimise queuing space and circulation and to relocate the PRM facility to a central location.

Figure 5.7: Terminal 2 Check-in Area Optimisation



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.80 This project proposes the upgrade of the Terminal 2 check-in hall infrastructure to facilitate on-going passenger growth with technology upgrades and new installations. The main objectives are to improve capacity within the existing footprint to meet the 40mppa facility requirements, to better utilise the existing floor area and to improve passenger experience through technology and improved circulation spaces.

Context

5.81 Phase 3 of the Common Use Self Service "CUSS" project is now being implemented and improves space utilisation through a common-use 2 step bag-drop process. However, Dublin Airport states that the future passenger growth requires additional check-in facilities (check-in positions, bag drops and SSKs) to meet the anticipated demand.

Scope

5.82 The project scope includes installation of additional facilities (6 check-in desks, 8 bag drops and 14 Self Service Kiosks (SSKs), modification & lengthened of collector belts, relocation of existing functions (airline offices, exchange offices, toilets at both sides), a new PRM office as well as alteration of the lift and stair access at both sides.

Change in scope versus Previous CIP2020+

5.83 The project has no change to the project as proposed during the Previous CIP2020+.

Stage

5.84 The Project is currently on hold with feasibility/outline design complete. Planning and procurement will commence in Q1 2023.

- Design, procurement complete Q1 2025
- Construction start Q1 2025

- Construction complete Q4 2026
- Project handover Q4 2026

Key project metrics

Table 5.44: Terminal 2 Check-in Area Optimisation – Key project metrics

Metric	Value
Project cost estimate	€ 8,197,591
Total number of bag drop/check-in desks	70 (56 existing + 14 new)
Total number of SSKs	90 (76 existing + 14 new)

Scope/Specifications review

Table 5.45: Terminal 2 Check-in Area Optimisation – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	All project objectives can be met by the suggested scope and layout.
Alternative scopes	None.
Quality of specifications of scope/scope change	Level 3 costs only partly provide a reasonably detailed breakdown of the specification of the works. Some items are provided in a lump sum and cannot be properly assessed (e.g. baggage system alterations). The cost of SSKs seem to be missing in the Level 3 costs.
Phasing and synergies with other projects	No synergies with other projects identified.
Existing asset conditions	T2 is only 11 years old and hence the assets affected by this project do not need to be replaced in the coming CIP period. Existing check-in desks and SSKs will be further utilised.
Double counting	None identified. No double counting with PACE CUSS Project.

Scope/Specifications – Conclusion

Table 5.46: Terminal 2 Check-in Area Optimisation – Scope/Specifications - Conclusion

Description	RAG
With the proposed scope all objectives can be accomplished in an efficient and effective way.	

Cost estimate review

Table 5.47: Terminal 2 Check-in Area Optimisation – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	1.64	1.64	1.64	-
Construction Costs	8.34	8.20	8.20	-
Escalation, Contingency & Design Variability	3.23	5.99	6.52	+0.53
Total	**13.21**	**15.82**	**16.36**	**+0.53**

Table 5.48:Terminal 2 Check-in Area Optimisation – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	1.64	1.64	1.64	-
Total	**1.64**	**1.64**	**1.64**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	8.34	8.20	8.20	-
Total	**8.34**	**8.20**	**8.20**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	3.23	5.99	6.52	+0.53
Total	**3.23**	**5.99**	**6.52**	**+0.53**

5.85 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.49: Terminal 2 Check-in Area Optimisation – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.45
Escalation to midpoint of construction				+0.08

Cost - Draft Report Conclusion

5.86 The only variance from the 2019 assessment is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage, applied to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

5.87 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

5.88 Our overall conclusion of the project review is as follows:

Table 5.50: Terminal 2 Check-in Area Optimisation – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
With the proposed scope all objectives can be accomplished in an efficient and effective way.	

Description	RAG Assessment
With exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost estimate for this project is reasonable.	

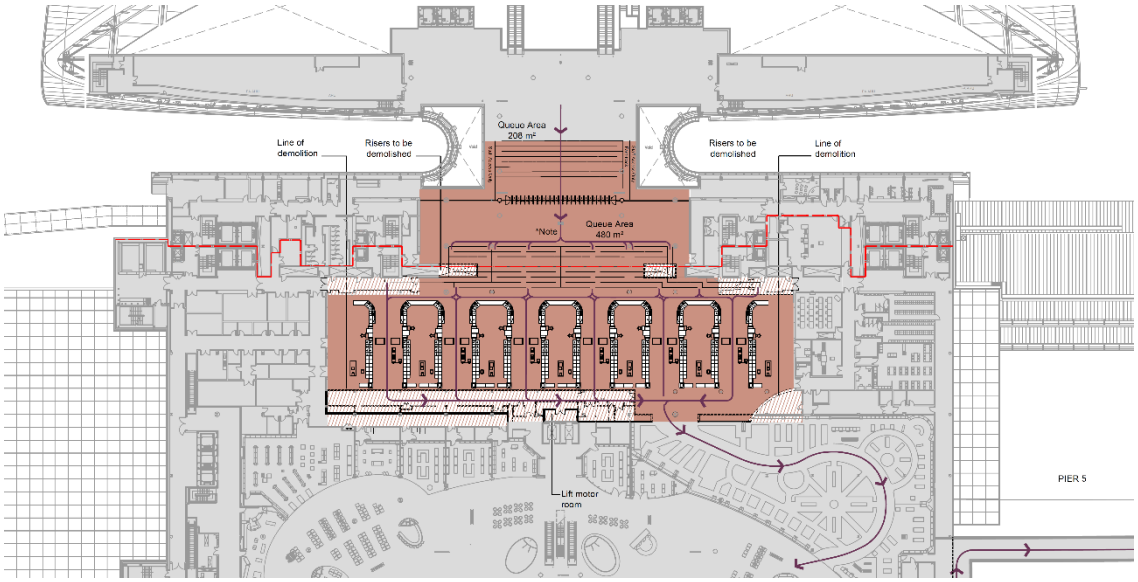
CIP.20.03.021 – Terminal 2 Central Search Area Expansion

Project description

Introduction

5.90 Dublin Airport proposes to reconfigure and expand the queue and screening space of Terminal 2 CSA, allowing for the deployment of the latest screening equipment.

Figure 5.8: Terminal 2 Central Search Area Expansion



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.91 The main objectives are to meet the anticipated increased demand for T2 security processing capacity, to provide Automated Tray Return System (ATRS) lanes and upgrade screening equipment to EDS C3 standard, to safeguard space for future implementation of full body scanners and other potential changes and to enhance passenger experience for queuing, accessibility and security processes.

Context

5.92 The existing central security search is expected to reach its capacity limit during forecasted peak demand hours, resulting in a below standard service level. The current search equipment is nearing its end of life in terms of asset life and regulatory compliance and needs to be replaced with latest screening technologies. 17 m long ATRS lanes do not fit into the existing space.

Scope

5.93 The scope of the project includes :

- Relocation of boarding card representation and landside dividing screens;
- Partial removal of risers;
- Reduction of the retail area to the line of lift core including the removal of the retail back of house corridor;

- Demolition works and new walls on both sides of the checkpoint to provide the needed space for the new ATRS lanes; and
- Fit-out and finishes of the expanded spaces.

Change in scope versus Previous CIP2020+

5.94 The project has no change to the project as proposed during the Previous CIP2020+.

Stage

5.95 The project is currently on hold with feasibility/outline design complete. Planning and procurement will commence in Q1 2023.

- Design, procurement complete Q1 2025
- Construction start Q1 2025
- Construction complete Q4 2026
- Project handover Q4 2026

Key project metrics

Table 5.51: Terminal 2 Central Search Area Expansion – Key project metrics

Metric	Value
Construction cost estimate	€2,895,716
Project cost estimate	€5,589,827
17 m ATRS lanes	11

Scope/Specifications review

Table 5.52: Terminal 2 Central Search Area Expansion – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The project objectives will be fully met by the suggested scope in an effective and efficient manner.
Alternative scopes	None identified.
Quality of specifications of scope/scope change	Level 3 costs only partly provide a reasonably detailed breakdown of the specification of the works. Quantities (sqm) cannot be justified by drawings or are given as a lump sum (e.g. upgrades to existing risers).
Phasing and synergies with other projects	Construction works need to be phased and aligned with other T2 projects due to dependencies and possible synergies: • CIP.20.04.018 – Fast Track Improvements: Fast track improvements for security T2 to be combined with new fast track security lane. • CIP.20.06.042 – ATRS - Central Search Areas: Existing ATRS lanes with new screening equipment from T1 including remote screening to be installed as part of the project. T1 central search therefore has to be already relocated. • CIP.20.06.031 Autopass - T1 Replacement & T2 Install: New autopass installation should be carried out within this project since boarding card presentation will be moved to the bridge area.
Existing asset conditions	T2 is only 11 years old and hence the CSA area does not require any major refurbishments. Dublin Airport state security

Subject	Comments
	screening equipment (LED, ETD, HHMD and WTMD) will reach end of life in the next CIP period (see also CIP.20.06.041).
Double counting	None identified.

Scope/Specifications – Conclusion

Table 5.53: Terminal 2 Central Search Area Expansion – Scope/Specifications - Conclusion

Description	RAG
With the proposed scope, all objectives can be accomplished in an efficient and effective way. However, future expansion of the central search area would require further reduction of retail or office space and costly refurbishments.	

Cost estimate review

Table 5.54: Terminal 2 Central Search Area Expansion – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.58	0.58	0.58	-
Construction Costs	2.90	2.90	2.90	-
Escalation, Contingency & Design Variability	1.14	2.11	2.30	+0.18
Total	**4.62**	**5.59**	**5.77**	**+0.18**

Table 5.55: Terminal 2 Central Search Area Expansion – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.58	0.58	0.58	-
Total	**0.58**	**0.58**	**0.58**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Facilitation & Demolition Works	0.09	0.09	0.09	-
Refurbishment Security Area & Queue Space	2.80	2.80	2.80	-
Total	**2.90**	**2.90**	**2.90**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	1.14	2.11	2.30	+0.18
Total	**1.14**	**2.11**	**2.30**	**+0.18**

5.96 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.56: Terminal 2 Central Search Area Expansion – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.16
Escalation to midpoint of construction				+0.03

Cost - Draft Report Conclusion

5.97 The only variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

5.98 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

5.99 Our overall conclusion of the project review is as follows:

Table 5.57: Terminal 2 Central Search Area Expansion – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
With the proposed scope, all objectives can be accomplished in an efficient and effective way. However, future expansion of the central search area would require further reduction of retail or office space and costly refurbishments. **With exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost estimate for this project is reasonable.**	

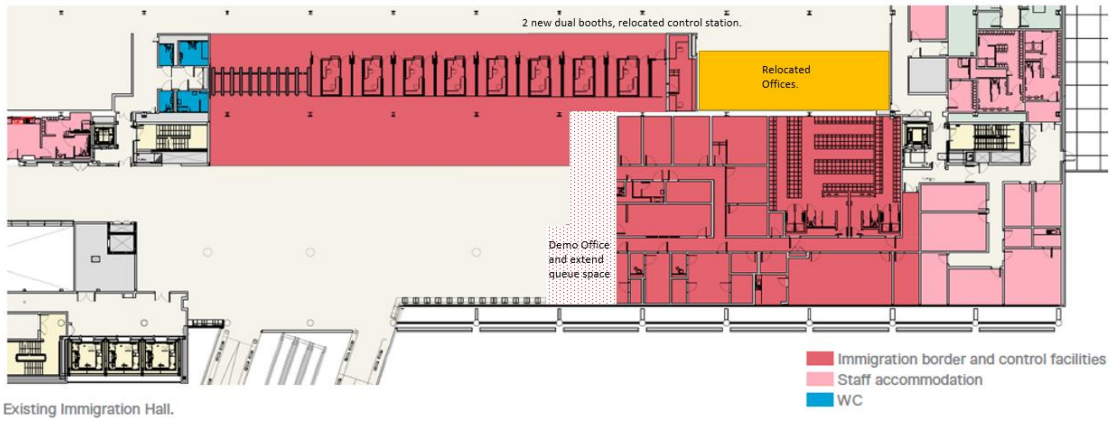
CIP.20.03.024 – Terminal 2 Immigration Hall – Reorientation

Project description

Introduction

5.100 Dublin Airport proposes the installation of 2 additional immigration officer booths and expansion of the queuing space for the Terminal 2 immigration checkpoint.

Figure 5.9: Terminal 2 Immigration Hall Reorientation



Source: Dublin Airport's Capital Investment Programme 2020+, support information sketch

Objective

5.101 The objective is to increase the capacity for Terminal 2 immigration to cope with forecasted peak hour demand and to provide the needed future capacities for Pier 5 Arrivals.

Context

5.102 The existing Immigration Hall is expected to reach its capacity limit during forecasted peak demand hours.

Scope

5.103 The scope covers the installation of 2 additional immigration officer dual booths, the relocation of the existing control station with staff bypass and the relocation of 285 sqm of immigration offices to increase queuing space.

Change in scope versus Previous CIP2020+

5.104 This is a new project, however, a similar scope with a different arrivals route has previously been included in the new Pier 5 project. This scope has therefore been removed from the Pier 5 project.

Stage

5.105 The project is currently on hold with a high-level concept complete. Feasibility and design is planned to commence in Q1 2023.

- Design, procurement complete Q2 2024
- Construction start Q3 2024
- Construction complete Q4 2026
- Project handover Q4 2026

Key project metrics

Table 5.58: Terminal 2 Immigration Hall Reorientation – Key project metrics

Metric	Value
Construction cost estimate	€1,540,000
Project cost estimate	€2,447,675
Area for relocation of immigration offices	285 sqm office area converted into queuing space 285 sqm new immigration offices at different location nearby
No of additional immigration officer dual booths	2 (4 immigration lanes)

Scope/Specifications review

Table 5.59: Terminal 2 Immigration Hall Reorientation – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope shown on the concept sketch is efficient and effective in meeting the project objectives.
Alternative scopes	None identified.
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs do not reflect the scope shown in the concept sketch. The additional queuing space in the concept sketch is below the 285 sqm in level 3 costs. The 2 new immigration officer booths as well as the relocation of the existing control station with staff bypass are missing in level 3 costs and need to be added. This will be followed up with Dublin Airport before the submission of the Final Report.
Phasing and synergies with other projects	The project needs to be phased and aligned with other projects due to dependencies and possible synergies: • CIP.20.03.029 New Pier 5; • CIP.20.03.030 – Expansion of US Pre-Clearance Facilities; and • The expansion of T2 immigration needs to be completed before the start-up of Pier 5 including the new arrivals corridor on the second floor of the CBP building.
Existing asset conditions	T2 is only 11 years old and hence the immigration area does not require any major refurbishments.
Double counting	None identified.

Scope/Specification – Conclusion

Table 5.60: Terminal 2 Immigration Hall Reorientation – Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope/scope change will meet the outputs required of the project.	

Cost estimate review

Table 5.61: Terminal 2 Immigration Hall - Reorientation – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.31	0.31	-

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Construction Costs	1.54	1.54	-
Escalation, Contingency & Design Variability	0.60	0.60	-
Total	**2.45**	**2.45**	**-**

Table 5.62: Terminal 2 Immigration Hall - Reorientation – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.31	0.31	-
Total	**0.31**	**0.31**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Relocation of immigration offices	1.54	1.54	-
Total	1.54	1.54	-
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.60	0.60	-
Total	**2.45**	**2.45**	**-**

5.106 There is no variance in assumptions between Dublin Airport and Steer in the Level 3 items.

Cost - Draft Report Conclusion

5.107 This is a new project that was not included in the 2019 assessment. We have issued queries to Dublin Airport regarding the rate breakdowns for the provision of new fit out works to create new queuing space and new immigration offices. We have also queried the lump sum for MEP works. In addition, confirmation is required as to whether the new immigration officer booths have been included in the cost estimate, and whether the extent of queuing space included is reflected in the latest design.

5.108 No monies have been spent to date on this project. Our assessment of escalation has increased the escalation percentage, applied to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

5.109 Our current cost assessment is unchanged from Dublin Airport's but we need to assess the implications of the responses provided thus as well as the responses still to be provided. This will be addressed in the Final Report later this year.

Overall conclusion

5.110 Our overall conclusion of the project review is as follows:

Table 5.63: Terminal 2 Immigration Hall - Reorientation – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope/scope change will meet the outputs required of the project.	

Description	RAG Assessment
Our current cost assessment is unchanged from Dublin Airport's but we need to assess the implications of the responses provided thus as well as the responses still to be provided. This will be addressed in the Final Report later this year.	

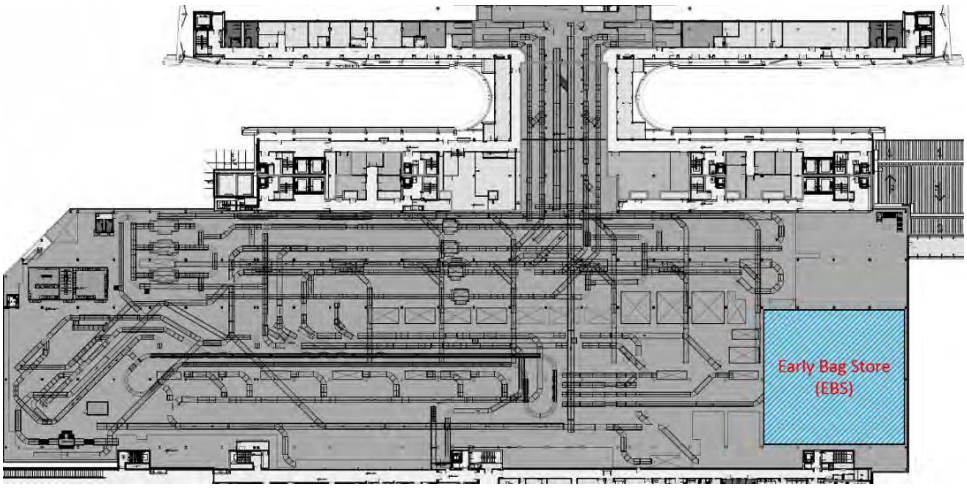
CIP.20.03.028 – Terminal 2 Early Bag Store & Transfer Lines

Project description

Introduction

5.112 Dublin Airport is proposing to re-introduce the Terminal 2 Early Bag Store (EBS) and Transfer lines project following feedback from key Terminal 2 airlines and bi-lateral meetings. This project includes a 4th Transfer input line, inter-terminal transfer line and the construction of a 950 capacity EBS in Terminal 2. It is planned to deliver a handling capacity to meet demand up to 40mppa.

Figure 5.10: Terminal 2 Early Bag store & Transfer Lines



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.113 The objective is to install a 4th HBS Standard 3 Transfer input line, an additional inter-terminal transfer line and to construct an automated 950 bag position, lane-based EBS.

Context

5.114 Terminal 2 currently has three transfer input lines. As transfer demand is expected to grow in the future, there will be a need to increase the number of transfer input lines to 4, to introduce an additional inter-terminal transfer line and to provide an EBS to handle through-checked transfer bags that have long transfer dwell times. Capacity analysis has identified this project will facilitate future demand for the bag transfer products up to 40mppa.

Scope

5.115 This project's scope has three components:

- Construction of the 950 bag EBS;
- Introducing an additional inter-terminal transfer line; and
- Construction of a 4th transfer input line at the T2 baggage systems to provide the capacity to process transfer bags through HBS Standard 3 security screening and meet airport demands when the airport reaches 40 mppa.

Change in scope versus Previous CIP2020+

5.116 The scope of this project has not been changed since the Previous CIP2020+ review.

5.117 In response to questions relating to the demand forecast for the EBS and the basis on which this has been developed, Dublin Airport clarified that for the Draft Consultation, it had been using scheduling and demand data in its forecasting model that indicated there would only be a requirement for the EBS in terms of managing make-up capacity from around 2028.

5.118 However, following stakeholder engagement post Draft Consultation, an airline indicated an operational need for the EBS sooner than originally anticipated in this forecast. Dublin Airport has not been provided with the specific required changes but intends to continue to work with stakeholders to understand the requirements. At present, capacity for 950 bags appears to be sufficient; Dublin Airport will verify this at the next stage of design in conjunction with updated data provided by stakeholders. The final solution will be reported and consulted on when this project enters its StageGate process.

5.119 The space required in Terminal 2 baggage hall has been safeguarded for the installation of the EBS. The Mezzanine platform for the 950 bag lane storage EBS has still to be constructed. The recently complete Std3 HBS will have sufficient capacity to accommodate the transfer bag demand beyond 2026 once augmented by the EBS and additional transfer lines to be completed by Q3 2026

Stage

5.120 Planned milestones are summarised below:

- Feasibility/Outline design start Q1 2024
- Planning complete not specifically identified
- Design complete not specifically identified
- Procurement complete not specifically identified
- Construction commence Q1 2025
- Project handover Q3 2026

Key project metrics

Table 5.64: Terminal 2 Early bag store and Transfer line– Key project metrics

Metric	Value
Project cost estimate	€34,410,000

Scope/Specifications review

5.121 There are no detailed scope specifications provided for review. This project will not start its preconstruction activities (Feasibility, Design, Planning, procurement) until the beginning of 2024. However, the Transfer input lines and EBS are required to provide Terminal 2 baggage system with the capacity to process all transfer bags, including inter-terminal transfers departing T2 through a full HBS Std3 security screening process. Through checked transfer bags with long transfer dwell times (early bags) will be appropriately stored in the EBS before being retrieved and sent to flight makeup for their departure flight.

Table 5.65: Terminal 2 Early bag store and Transfer line– Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The automated EBS scope and capacity remain unchanged, so the scope is efficient in identifying the work to be carried out at this time. The introduction of a 4th Transfer line and additional

Subject	Comments
	inter-terminal transfer line is reasonable to progress at the same time as the Terminal 2 automated EBS as they are functional components of the same transfer process and are needed to meet the transfer product demand. Furthermore to meet EU and US security requirements, all transfer bags must be cleared through the HBS Std3 security screening. Hence these projects are integral to the baggage handling and baggage transfer processes in Terminal 2.
Alternative scopes	None provided, however when the project planning, design and procurement processes are progressed to feasibility and design, any alternative options or scopes will need to be considered. However, any alternative proposals will need to comply with the rigorous Std 3 baggage security screening requirements and deliver handling and EBS capacity required to support transfer process demand.
Quality of specifications of scope/scope change	No detailed specifications provided for evaluation. This project has not started, and detailed designs and specifications will be produced when feasibility and design start in Q1 2024.
Phasing and synergies with other projects	This project is now associated with other projects under the South Apron Hub group which comprise a suite of projects to enhance the Terminal 2 transfer hubbing passenger journey experience, improve operational efficiency, and ultimately provide increased transfer hubbing capacity, sized to accommodate peak hour passenger demand to 40mppa. These other projects are: • CIP 20.03.029 - Pier 5; • CIP 20.03.030 – Expansion of US Pre-Clearance; • CIP 20.03.031 – South Apron expansion; • CIP 20.03.033.1 – Enabling of Pier 3 for precleared US bound passengers; • CIP 20.03.072 – Transfer Immigration booths; • CIP 20.03.077 – South Apron Airside support centre; and • CIP 20.03.078 - Pier 4 De-Flux.
Existing asset conditions	The Terminal 2 baggage system should be in good condition although not evaluated for this assessment. The system has recently completed its upgrade to incorporate the Std 3 HBS screening technology. An area has been safeguarded in the Terminal 2 baggage system to accommodate the additional transfer input lines and the 950 bag automated EBS solution.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 5.66: Terminal 2 Early bag store and Transfer line– Scope/Specifications - Conclusion

Description	RAG
This projects' scope is efficient and effective in relation to the scope of the delivery of the EBS and transfer lines. However, in the Draft consultation the original forecast demand for the EBS indicated it would be needed in 2028. However, the post Draft stakeholder consultations with airlines have indicated an operational need from stakeholders for the EBS sooner than originally anticipated. It would be considered appropriatefor Dublin Airport to re-evaluate the transfer product demand profiles for Terminal 2 in the post COVID-19 period	

Description	RAG
to validate the airline forecast transfer demand and Early Bag Store demand timeline horizons and the required EBS and Transfer input processing capacity.	

Cost estimate review

Table 5.67: Terminal 2 Early bag store and transfer line – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	3.60	3.60	3.60	-
Construction Costs	18.00	18.00	18.00	-
Escalation, Contingency & Design Variability	6.31	12.81	13.97	+1.16
Total	**27.91**	**34.41**	**35.57**	**+1.16**

Table 5.68: Terminal 2 Early bag store and transfer line – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	3.60	3.60	3.60	-
Total	**3.60**	**3.60**	**3.60**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Transfer Lines	18.00	18.00	18.00	-
Total	**18.00**	**18.00**	**18.00**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	6.31	12.81	13.97	+1.16
Total	**6.31**	**12.81**	**13.97**	**+1.16**

5.122 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.69: Terminal 2 Early bag store and transfer line – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation to revised base date of Q4 2021	Redacted			+0.99
Escalation to midpoint of construction				+0.16

Cost - Draft Report Conclusion

5.123 The only variance from the 2019 assessment is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the

escalation percentage, applied to revise the base date from Q4 2018 to Q4 2021, from +19% to +23%.

5.124 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

5.125 Our overall conclusion of the project review is as follows:

Table 5.70: Terminal 2 Early bag store and transfer line – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The construction of an automated EBS is appropriate given the anticipated growth in through checked transfer passenger traffic and stakeholder consultation that has been carried with Airlines to date. **With exception of the revised escalation calculation, the remainder of Dublin Airport's 2022 estimate is aligned with the IFS 2019 estimate. The cost estimate for this project is reasonable.**	

CIP.20.03.029 – New Pier 5 (T2 & CBP Enabled) - Apron Works

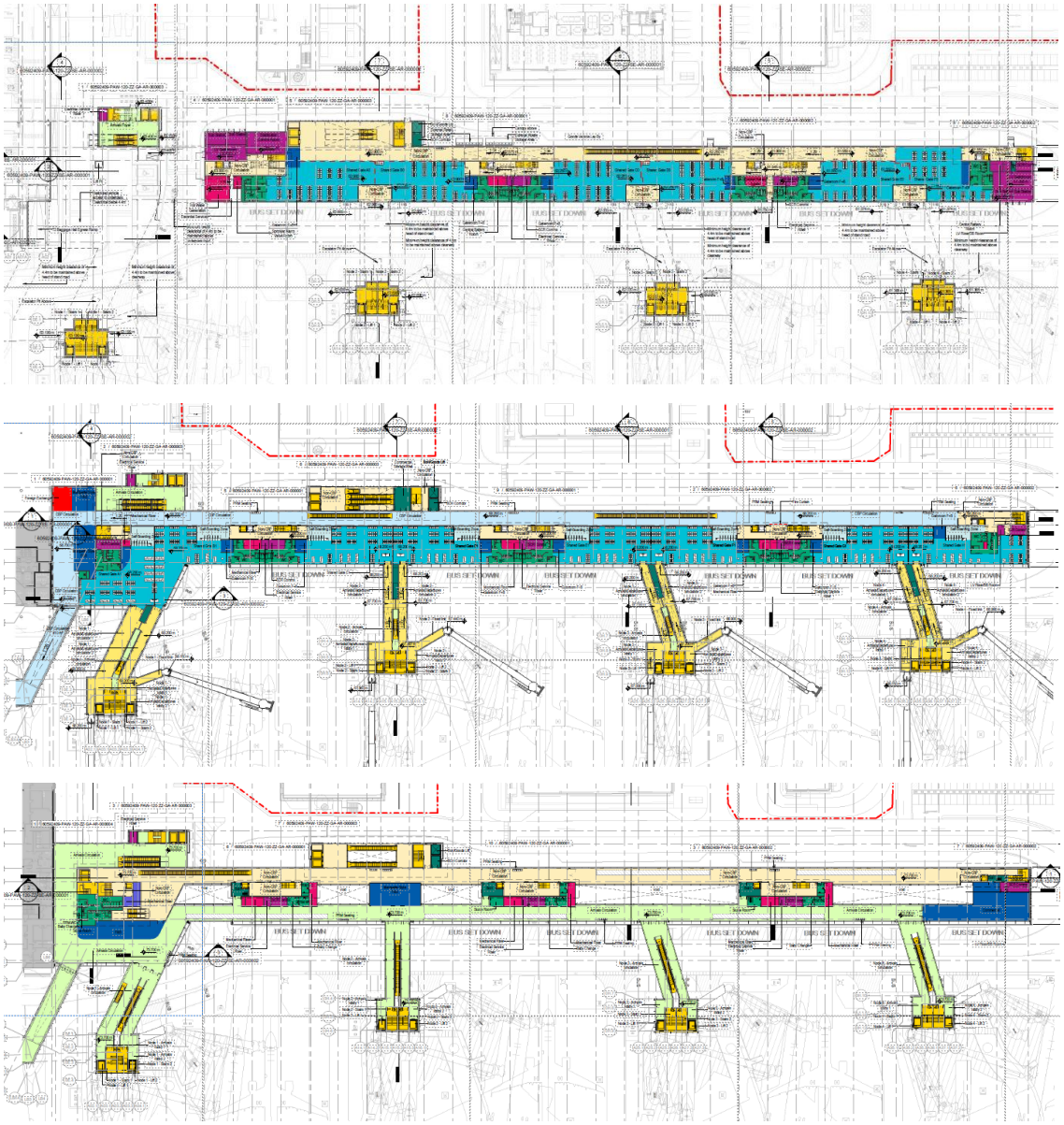
Introduction

5.127 This project provides 4 wide-body (WB), CBP enabled MARS stands operated from a new pier (Pier 5) which is a development planned as an expansion of T2. Six new apron level, non CBP gates are now planned in lieu of the South Gates PBZ. All first floor gates provide for CBP and non CBP operations.

5.128 A second-floor arrivals corridor is provided for links to Pier 4 Transfers or, Terminal 2 Immigration.

Current Plans

Figure 5.11: New Pier 5 (T2 & CBP Enabled) - Apron Works



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.129 The project objective is to provide for the forecast growth in demand through the provision of 4x CBP enabled wide-body stands. The MARS stands also provide flexibility, allowing up to 8x narrow-body aircraft instead, for both CBP and non-CBP services.

Context

5.130 T2 occupies a highly developed part of the airport campus and therefore additional pier development will require creative planning as well as the removal of existing facilities. Due to these considerations it is only possible to develop a single sided pier, which is not the most economical solution.

5.131 The impact of additional passengers arriving from Pier 5 requires an access route to be provided through existing offices at the arrivals level in T2.

Scope

5.132 The scope of the project in planning terms meets the stated objective, but in addition it provides a range of multi-functional gates and stands which adds flexibility for future traffic growth. In addition, this multi-functionality brings into play additional functional and regulatory requirements.

Change in scope versus Previous CIP2020+

5.133 In essence the scope is the same as the Previous CIP2020+, however as can be seen from the plans the main components remain, but the plans have been refined and the functionality more clearly defined. The 6 apron non-CBP bus gates now replace the current South Gates PBZ capacity, negating the need to relocate the PBZ.

5.134 The current plan now includes new cargo warehouse development costs at Corballis Park in this project. Previously only a secure access to a development site East of RNY 132 was included in the Pier 5 allowance.

5.135 Other changes include:

- Gate lounge configuration better aligned to end-user airline requirements, including automated e-gate document check;
- Additional vertical circulation capacity was added to ensure contingency and continuity of operations;
- Airbridge, fixed links and vertical cores adjusted to accommodate flexible bus operations; and
- Rooftop plant is now designed with a perimeter enclosure to ensure consistency of aesthetics.

5.136 The Pier 5 design has also been reviewed and refined from a sustainability perspective, with building fabric and mechanical systems upgraded to comply with new legislation and regulatory requirements. The following summarises a number of the fundamental changes impacting cost:

- Increased lighting efficacies;
- Increased building fabric performance;
- Higher efficiency heat recovery;
- Future proof for lower temperature Heat Pump and Higher Temperature chiller installations; and
- Façade treatments considered to optimise the effects of solar gain.

Stage

5.137 The project is now planned to start in Q1 2024 and be handed over in Q1 2029. This is now a 63-month programme, whereas before it was a 42-month project.

5.138 The key linkage of this project is with the expanded CBP facility on Pier 4. The Pier 5 construction itself can be accessed from landside and so cause minimal disruption to the South Apron, until the phase for constructing the new MARS stands is commenced.

Key project metrics

Table 5.71: Terminal 2 New Pier 5 (T2 and CBP enabled)

Metric	Value
Construction cost estimate	€ 339,130,000
No of WB gates	4
No of NB gates with PBB	8
No of PBB	8
No of bussing gates	6

Specifications review

Table 5.72: Terminal 2 New Pier 5 (T2 and CBP enabled)

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient in delivering the proposed project functionality.
Alternative scopes	None available.
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs provide sufficient detail for outline design stage.
Phasing and synergies with other projects	Completion and operational dates need to be phased with the following projects to ensure smooth operations because they are interdependent, and all contribute to the capacity improvements of 40mppa. 20 03 031 S Apron Expansion (Q3 2025 – Q3 2029) 20 03 030 Expansion of CBP in T2 (Q1 2025 – Q4 2027)
Existing asset conditions	The asset lives remain unchanged from the information presented in 2019.
Double counting	None identified.

Conclusion

Table 5.73: Terminal 2 New Pier 5 (T2 and CBP enabled)

Description	RAG
The multifunctional ability of Pier 5 meets the brief of providing maximum operational flexibility with an enhanced solution; the project is efficient. This is a large project driven by the stated need for more WB Code E stands for pre-cleared US flights. It does in fact provide gates for only 4 WB stands with PBB access and is a single sided pier which means that this is not as economic as a double-sided pier, e.g. Pier 4.	

The flexibility built into the design also enables the pier to operate for Code C, NB aircraft in both precleared US mode and non-precleared mode or, 4 Code E WB non-pre-cleared mode. 8 gates are provided for PBB access to aircraft and 6 gates provided for bussing/walk on access to aircraft.	

Cost estimate review

Table 5.74: Terminal 2 New Pier 5 (T2 and CBP enabled) – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	38.71	53.83	43.37	-10.46
Construction Costs	192.02	197.99	200.57	+2.58
Escalation, Contingency & Design Variability	67.92	87.31	94.11	+6.81
Total	**298.66**	**339.13**	**338.06**	**-1.07**

Table 5.75: Terminal 2 New Pier 5 (T2 and CBP enabled) – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	38.71	53.83	43.37	-10.46
Total	**38.71**	**53.83**	**43.37**	**-10.46**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Pier 5	N/A	110.46	113.04	+2.58
Link Between Pier 5 and CBP	N/A	6.61	6.61	-
Demolitions	N/A	9.90	9.90	-
Relocations	N/A	7.57	7.57	-
Flight Catering Building Conversion	N/A	Incl. elsewhere	Incl. elsewhere	N/A
Security Gate 4	N/A	6.81	6.81	-
Cargo	N/A	54.16	54.16	-
Garages	N/A	2.49	2.49	-
Total	**192.02**	**197.99**	**200.57**	**+2.58**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	67.92	87.31	94.11	+6.81
Total	**67.92**	**87.31**	**94.11**	**+6.81**

5.139 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.76: Terminal 2 New Pier 5 (T2 and CBP enabled) - Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Fees - Cargo	Redacted			-2.61
Inflation Allowance - Cargo				+1.41
General Contingency - Cargo				+1.20

Cost - Draft Report Conclusion

5.140 There is a lot more detail in the 2022 level 3 cost estimate presented by Dublin Airport with almost 2,000 individual cost lines. As some additional scope has been added to the project, the cost of the project has increased from the 2019 assessment.

5.141 We have reviewed the detailed estimate provided by Dublin Airport, and the rates included for the scope described are reasonable. The overall gross internal floor area of the pier has increased from the previous estimate and we have requested that Dublin Airport demonstrates the basis of their quantification for this.

5.142 There are a small number of lump sums included in the estimate, representing just under 8% of the cost of the project. We have requested breakdowns of the sums, and while Dublin Airport have responded to our queries by explaining what is included in the lump sums, we have not received an actual breakdown of these sums that will allow us to fully assess the costs. This will be concluded for the Final Report later this year.

5.143 In the Pier 5 element of the estimate, there were apparent arithmetical errors in the calculation of the contractor's design fees and the contractor's design oversight fees. These errors have been corrected in our assessment.

5.144 As the overall estimate for this project has been broken down into 7 separate estimates, the percentage uplift for escalation that has been applied to each of the 7 individual estimates varies from +6.6% up to +28.4%. Dublin Airport have included separate allowances for inflation on design fees. The sum of all the allowances for escalation included within the various sections of the estimate is €52.99m. This equates to +18.6% of the cost of the project. For a project of this scale, with the programme duration that it intending to deliver to, the allowance for escalation is reasonable.

Overall conclusion

5.145 Our overall conclusion of the project review is as follows:

Table 5.77: Terminal 2 New Pier 5 (T2 and CBP enabled) – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The multifunctional ability of Pier 5 meets the brief of providing maximum operational flexibility with an enhanced solution; the project is efficient.	

Description	RAG Assessment
Dublin Airport needs to confirm the base dates for each of the 7 separate estimates that make up the overall cost estimate for this project, so that allowance for escalation can be assessed. The overall area of Pier 5 needs to be reconciled with the 2019 estimate. Subject to concluding these items, the remainder of Dublin Airport's 2022 estimate is reasonable.	

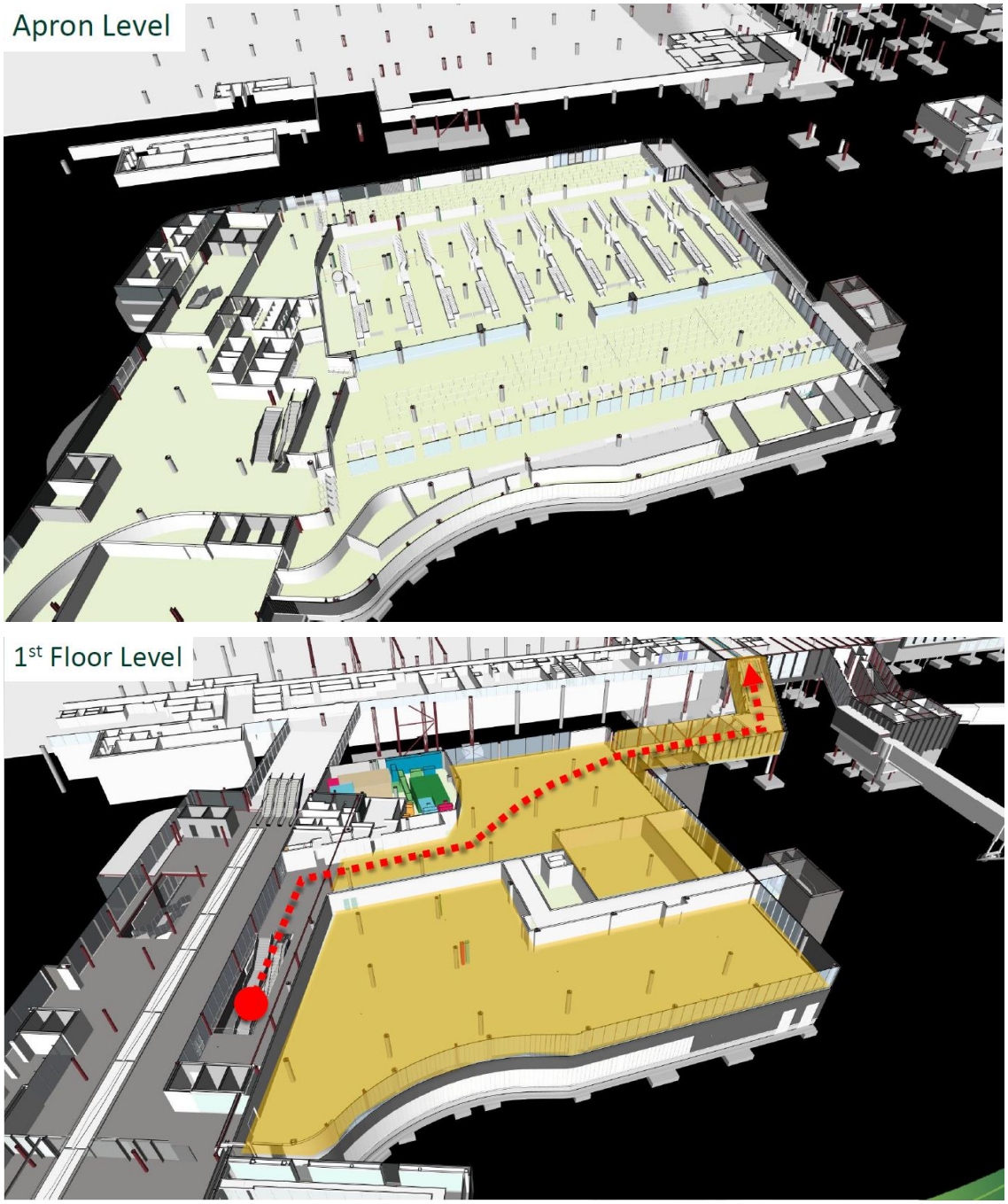
CIP.20.03.030 – Expansion of US Pre-Clearance Facilities

Project description

Introduction

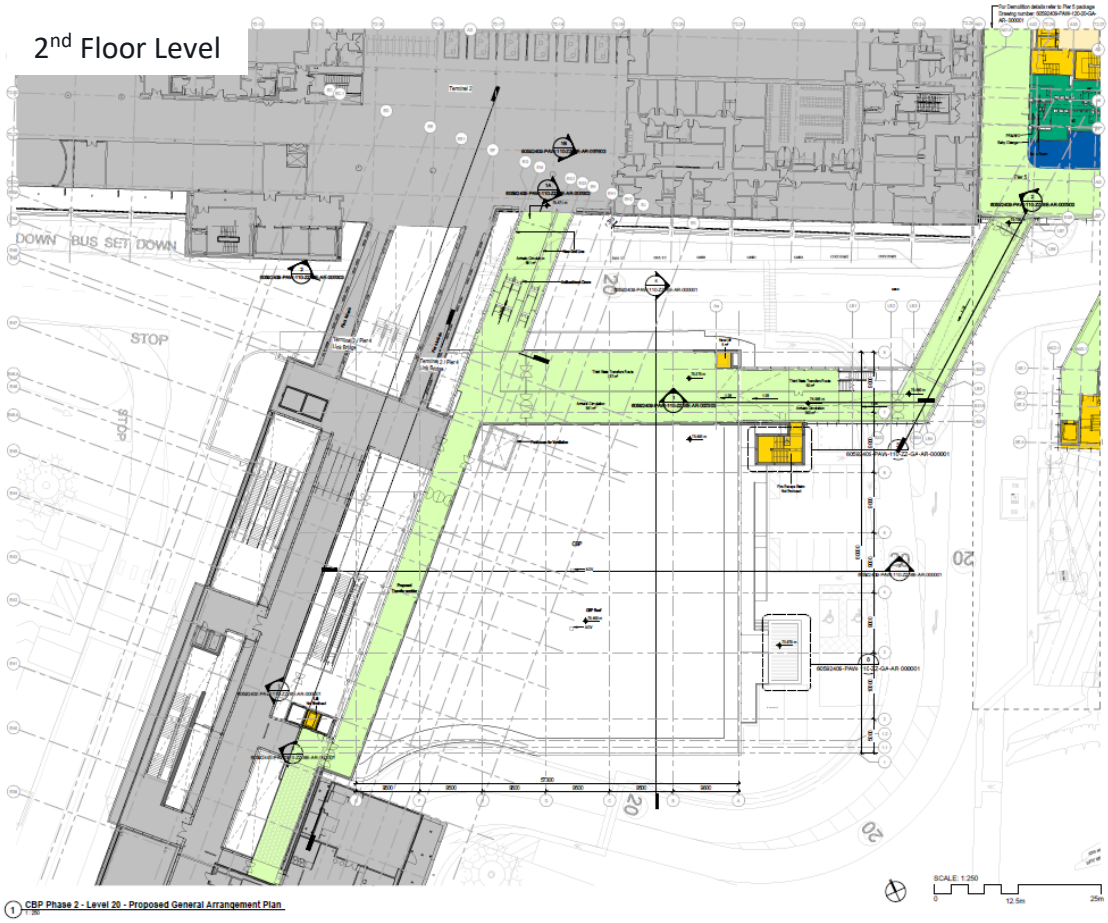
5.146 Dublin Airport proposes to expand and re-orientate the US pre-clearance facilities including the addition of a first floor to the expanded building with various other functions as well as to provide departure, arrival and transfer corridors to connect Terminal 2 and Pier 4 to the new Pier 5.

Figure 5.12: Expansion of US Pre-Clearance Facilities – Apron & first floor



Source: Dublin Airport's Capital Investment Programme 2020+ Review and Stakeholder Consultation Presentation

Figure 5.13: Expansion of US Pre-Clearance Facilities – Second floor



Source: Dublin Airport's Capital Investment Programme 2020+, Sheet no. 60592409-PAW-110-20-GA-AR-000002

Objective

5.147 This project proposes to reconfigure and expand the US preclearance facilities in Pier 4 to increase capacity to meet passenger growth requirements. Objectives are also to increase efficiency and throughput by upgrading screening equipment, to safeguard for future expansion eastward by linking the new Customs and Border Protection (CBP) facilities to Pier 4 and new Pier 5 as well as to enhance passenger experience by improving service levels along with reducing queuing times.

5.148 Additional objectives are:

- To provide additional space for a new CBP Lounge;
- To provide additional commercial space for retailing/F&B for departing Pier 5 passengers;
- To provide temporary handler accommodation during early South Apron Hub enablement phases; and
- To provide departure, arrival and transfer corridors to connect Terminal 2 and Pier 4 with the new Pier 5.

Context

5.149 The current configuration of the facilities limits further expansion and thus it is proposed to re-orient and increase the facility to provide more capacity. The expanded building provides an ideal location for connection corridors with Pier 5 on top of the US pre-clearance facilities.

Scope

5.150 The project scope consists of 4 parts: Expansion of CBP facility, commercial facilities, temporary handler accommodation and Pier 5 connection.

- The expansion of the CBP facility includes installation of 11 new 19m Automatic Tray Return System (ATRS) lanes with EDS C3 equipment, 30 CBP officer positions as well as provision of an additional area for queuing, circulation, staff accommodation and secondary screening.
- Commercial space on the first floor along the departure corridor with CBP Lounge, retailing and F&B including full service kitchen. Fit-out of the spaces will be provided in a Phase 2 to be ready for the start-up of Pier 5.
- Temporary handler accommodation during early South Apron Hub enablement phases on the first floor. Temporary infrastructure within the space for the CBP Lounge including offices, control room, rooms for storage, drying, training and meetings as well as toilets and showers.
- The connection to Pier 5 includes installation of a new vertical circulation core (VCC) from apron level to L15, a connecting departure corridor to Pier 5 on the first floor including toilet facilities, a connecting arrivals corridor from Pier 5 on the second floor as well as a 3rd state transfer corridor on the third floor including VVC to connect it with the arrivals corridor. Full connections to Pier 5 will be realised in a Phase 2 since the expanded US pre-clearance facilities will be completed ahead of Pier 5.

Change in scope versus Previous CIP2020+

5.151 The following scope has been omitted from the project:

- The CBP baggage make-up area extension with 24 new make-up positions, a new entrance to baggage hall behind Pier 5 and modifications to the vehicle flow through the baggage hall has been omitted and is currently under review. If this part is still required, Dublin Airport will look to fund it through CIP.20.03.028 - Terminal 2 Early Bag Store & Transfer Lines with final proposal and costs to be presented and consulted on through the StageGate process.; and
- Increased flexibility for Pier 4 gate room utilisation is not any more part of this project and is now provided in the new project CIP.20.03.78 - Pier 4 Deflex without any scope changes.

5.152 The following scope has been added to the project:

- Additional first floor including provision for optimised post-CBP Pier 5 corridor, retail, F&B including full-service kitchen and airline lounge space;
- Temporary handler accommodation on the new first floor during early South Apron Hub enablement phases;
- Arrivals and transfer corridors on 2nd and 3rd floor;
- Design has also been reviewed and refined from a sustainability perspective; and
- EDS C3 cabin screening equipment for the new ATRS security lanes.

Stage

5.153 The project is currently on hold with feasibility/outline design complete. Planning and procurement will continue in Q1 2023.

- Design, procurement complete Q1 2025
- Construction start Q1 2025
- Construction complete Q4 2027

5.154 We have asked Dublin Airport to provide additional detail on the timeline for the 2 construction phases including the period in which temporary handler accommodation is needed. We will update our Report when this information has been provided.

Key project metrics

Table 5.78: Expansion of US Pre-Clearance Facilities – Key project metrics

Metric	Value
Construction cost estimate	€ 49,986,927
Project cost estimate	€87,291,475
19m ATRS Lanes including EDS C3 screening equipment	11
CBP Officer positions	30

Scope/Specifications review

Table 5.79: Expansion of US Pre-Clearance Facilities – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The project objectives for expansion of US preclearance facilities and the connections with Pier 5 will be met by the suggested scope. Temporary handler accommodation on level 15 is potentially inefficient due to high costs for toilets and showers which cannot be reused and will be demolished after a few years. This will be followed up before the Final Report. Handler accommodation to be better placed on ground level for efficient operations.
Alternative scopes	Cost savings are possible if F&B will be provided without a full-service kitchen. Temporary handler accommodation (maybe container solution) to be provided at a different location on ground level.
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs provide sufficient detail for outline design stage. We have asked Dublin Airport to explain for what reason so much different security equipment needs to be purchased which partly seems to be redundant. We will update the report when this information has been provided.
Phasing and synergies with other projects	The project needs to be phased and aligned with other projects due to dependencies and possible synergies: • CIP.20.03.029 New Pier 5: The expansion of US Pre-Clearance facilities including the connection to Pier 5 need to be completed before the start-up of Pier 5. • CIP.20.03.077 South Apron Airside Support Centre: Temporary handler accommodation provided during early South Apron Hub enablement phases on the first floor have to be provided at the time needed during South Apron Hub enablement (timelines of projects to be aligned).
Existing asset conditions	Information on asset life of existing equipment (except X-rays and FBSS which will be replaced in CIP.20.06.36) has not been provided. Therefore, it remains unclear what CPB/TSA-equipment can be re-used. The existing preclearance area is to

Subject	Comments
	be completely refurbished as part of the project even though the existing Pier 4 has only been opened in 2010.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 5.80: Expansion of US Pre-Clearance Facilities – Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope/scope change will meet the outputs required of the project. Alternative scopes of F&B without full-service kitchen and temporary handler accommodation at a different location on ground level should be considered. This will be followed up before the submission of the Final Report later this year.	

Cost estimate review

Table 5.81: Expansion of US Pre-Clearance Facilities – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	7.10	13.77	11.38	-2.39
Construction Costs	35.50	49.99	50.23	+0.24
Escalation, Contingency & Design Variability	12.47	23.54	25.69	+2.15
Total	**55.08**	**87.29**	**87.29**	**-0.00**

Table 5.82: Expansion of US Pre-Clearance Facilities – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	7.10	13.77	11.38	-2.39
Total	**7.10**	**13.77**	**11.38**	**-2.39**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
CBP	N/A	49.99	50.23	+0.24
Total	**35.50**	**49.99**	**50.23**	**+0.24**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	12.47	23.54	25.69	+2.15
Total	**12.47**	**23.54**	**25.69**	**+2.15**

Cost - Draft Report Conclusion

5.155 There is a lot more detail in the 2022 level 3 cost estimate presented by Dublin Airport. As some additional scope has been added to the project, the cost of the project has increased from the 2019 assessment.

5.156 We have reviewed the detailed estimate provided by Dublin Airport, and the rates included for the scope described are reasonable.

5.157 We have requested breakdowns of the sums included in the estimate for CIP process costs and planning process costs and an explanation as to why these costs are included in the estimate. Dublin Airport needs to provide an explanation for the OCIP contributions that are included in their estimate, along with a breakdown of the sum included. The assessment of these items will be concluded for the Final Report later this year.

5.158 The percentage uplift for escalation is +23.5%. Dublin Airport have also included a separate allowance for escalation on design fees. We have requested that Dublin Airport confirm the base date of their cost estimate so that the allowance for escalation can be assessed.

Overall conclusion

5.159 Our overall conclusion of the project review is as follows:

Table 5.83: Expansion of US Pre-Clearance Facilities – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope/scope change will meet the outputs required of the project. Alternative scopes of F&B without full-service kitchen and temporary handler accommodation at a different location on ground level should be considered. Dublin Airport needs to confirm the base date for the estimate so that allowance for escalation can be assessed. A breakdown of the lump sums for CIP process costs and planning process costs needs to be provided along with a justification for their inclusion in the estimate. Subject to concluding these items, the remainder of Dublin Airports 2022 estimate is reasonable.	

CIP.20.03.031 – South Apron Expansion (Remote Stands, Taxiway and Apron)

Project description

Introduction

5.161 The project proposes to construct new stands and apron, in conjunction with other works, served by a dual code E taxilane.

5.162 This project is brought forward from the previous CIP2020+ but with a revised scope.

Figure 5.14: South Apron Expansion (Remote Stands, Taxiway and Apron)

Source: Dublin Airport's Capital Investment Programme 2020+ Review

Objectives

5.163 The expansion of the South Apron is intended to facilitate Pier 5 and associated stands, particularly the requirement to relocate nine existing narrow-body stands to the southern edge of the apron and the development of dual code E taxilanes, designed to ease congestion; maximise efficiency; and enhance safety of operations.

5.164 An increase in capacity is planned to be provided through the demolition of existing infrastructure and the construction of new stands, mainly narrow body but with some MARS provision. These areas are planned to be accessed by a redeveloped code E dual taxilane.

Context

5.165 The South Apron expansion must expand further to the south following detailed feasibility to mitigate jet blast issues. The remote southern stands now extend into the originally safeguarded space for the relocated South Gates Passenger Boarding Zone (PBZ), which is no longer feasible due to proximity to the diverted Cuckoo Stream and public safety zone. However, this is mitigated by the availability of bus gate capacity at Level 10 of the proposed Pier 5.

Stage

5.166 The project is currently at initial concept stage. The design stage and procurement stage are due for completion in Q3 2025 and then Construction commencement in Q3 2025. Handover is

scheduled 4 years later in Q3 2029. A project of this size would naturally be large, but this programme is considered to be excessive, unless a multi-phased approach is being considered.

- Feasibility/Outline design complete by Q3 2025
- Planning complete by Q3 2025
- Design complete by Q3 2025
- Procurement complete by Q3 2025
- Construction commence from Q3 2025
- Project handover by Q3 2029

Key project metrics

Table 5.84: South Apron Expansion (Remote Stands, Taxiway and Apron) – Key project metrics

Metric	Value
Dublin Airport construction cost estimate (2022)	€207,530,000
Dublin Airport estimate (2020)	€ 71,259,553
No of aircraft stands	Existing 9 x Code C remote/walk-on stands [includes 1 x Code E MARS] Proposed 8 x Code C walk-on stands [includes 4 x Code E MARS] plus 9 x Code C remote stands [includes 2 x Code E MARS] Net Gain 8 x Code C remote stands [includes 5 x Code E MARS]
No of fixed links and PBBs	None

Scope/Specifications review

5.167 The South Apron Expansion project now includes the following main declared changes in scope:

- Demolition and relocation of various ancillary buildings, clearing the site for the proposed development;
- Development of changed areas of airfield pavement;
- Diversion of the Cuckoo Stream;
- Increased volume of onsite attenuation, driven by more stringent discharge limits dictated by Irish Water during the course of consultation;
- Development of a de-icing tank storage facility;
- Additional South Apron Ground Service Equipment (GSE) parking/ULD storage; and
- Relocation of the PBZ now omitted following apron design refinement.

Table 5.85: South Apron Expansion (Remote Stands, Taxiway and Apron) – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The proposed scope appears to deliver the required objectives.
Alternative scopes	Drawing D18033-DAA-006-02-001-DR-C-SK9000 for CIP.20.03.074 gives an indication of some of the pavement development for project CIP.20.03.031. It appears that there are some large areas of pavement infill between the two taxiway edges in the area of the Taxiway Z-B1 Widening Project. Dublin Airport has been asked if consideration been given to giving these midfield areas over to grass to both save on

Subject	Comments
	pavement costs and associated drainage. The airport has confirmed that "*midfield grass areas were considered in the development of both schemes. For the South Apron, the area between taxiways is existing. For Taxiway Z / B1 the island area between the existing and new has been left to reduce pavement costs*". Nonetheless, it appears that the existing pavements between taxiways in the South Apron area could revert to grass as suggested to save on both drainage and pavement maintenance costs (acknowledging the additional costs of pavement removal). It is noted that a large proportion of the new paved area is situated over existing airfield pavement. Consideration might be given to re-using this existing pavement to reduce costs where possible, depending on residual life analysis and suitability for future traffic. We need to better understand Dublin Airport's proposed scoping assumptions in relation to grassing and re-use of existing pavement. We will follow up on this with Dublin Airport ahead of the Final Report before we conclude our analysis on the StageGate 0 cost allowance.
Quality of specifications of scope/scope change	For over €200m investment, the level of information provided is high level for accurate assessment and understanding of scope in any detail. We will follow up on this with Dublin Airport ahead of the Final Report before we conclude our analysis on the StageGate 0 cost allowance.
Phasing and synergies with other projects	Note project overlaps highlighted in reporting below for CIP.20.03.052 and scope overlaps below.
Existing asset conditions	Not known. There are areas of existing pavement which could be considered for rehabilitation rather than reconstruction, depending on pavement assessment.
Double counting	**PACE project (SCP 17.3.005)**: Dublin Airport has confirmed that Taxiway Z/B1 is a separate PACE project (SCP 17.3.005) to South Apron Expansion, the costs for which do not appear in this project. **CIP.20.03.052:** Potential overlap with CIP.20.03.052 – Surface Water Environmental Compliance: • Diversion of the Cuckoo Stream; • Increased volume of onsite attenuation; • Development of a de-icing tank storage facility. CIP.20.03.052 completion Q4 2026 and CIP.20.03.031 completion Q3 2029 – therefore it appears that the attenuation, diversions and pollution control needs of the south apron expansion should already be baked into the surface water project, if not already, noting that geographically the major new attenuation and pollution control facilities are relatively close to the south apron.

Scope/Specifications – Conclusion

Table 5.86: South Apron Expansion (Remote Stands, Taxiway and Apron) - Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope/scope change will meet the outputs required of the project.	

However, we need to better understand Dublin Airport's proposed scoping assumptions in relation to grassing and re-use of existing pavement. We will follow up on this with Dublin Airport ahead of the Final Report before we conclude our analysis on the StageGate 0 cost allowance.	

Cost estimate review

Table 5.87: South Apron Expansion (Remote Stands, Taxiway and Apron) – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	9.24	32.37	27.39	-4.98
Construction Costs	47.45	113.09	113.00	-0.09
Escalation, Contingency & Design Variability	14.57	62.07	67.04	+4.98
Total	**71.26**	**207.53**	**207.44**	**-0.09**

Table 5.88: South Apron Expansion (Remote Stands, Taxiway and Apron) – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	9.24	32.37	27.39	-4.98
Total	**9.24**	**32.37**	**27.39**	**-4.98**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Airfield Works	N/A	113.09	113.00	-0.09
Total	**47.45**	**113.09**	**113.00**	**-0.09**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	14.57	62.07	67.04	+4.98
Total	**14.57**	**62.07**	**67.04**	**+4.98**

5.168 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.89: South Apron Expansion (Remote Stands, Taxiway and Apron) – Main Level 3 variances

Item	2019 CAR Allowance (€m)	daa 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs daa (€m)
Escalation, Contingency & Design Variability	Redacted			+0.50

Cost - Draft Report Conclusion

5.169 There is a lot more detail in the 2022 level 3 cost estimate presented by Dublin Airport. As some additional scope has been added to the project, the cost of the project has increased from the 2019 assessment.

5.170 Dublin Airport needs to provide a breakdown of the €500,000 allowance for the enhancement of fuel infrastructure. They also need to confirm the basis of the design development allowance for

the enhancement of fuel infrastructure that is €2,950,000, bearing in mind that this sum is significantly higher than the actual allowance that has been included. Dublin Airport needs to provide an explanation for the OCIP contributions that are included in their estimate, along with a breakdown of the sum included. The assessment of these items will be concluded in the Final Report later this year.

5.171 The rate for the jet blast fence is higher than we would expect and we have reduced this in our assessment. There were also minor arithmetical errors in the calculation of the main contractor's preliminaries allowance and the main contractors NEC fee. These errors have been corrected in our assessment.

5.172 The percentage uplift for escalation is +28.4%. Dublin Airport have also included a separate allowance for escalation on design fees. We have requested that Dublin Airport confirm the base date of their cost estimate so that the allowance for escalation can be finalised.

5.173 Dublin Airport has included a €9m deduction for monies that were already included in the PACE projects for the South Apron stands. However, in the CIP2020 review, a deduction of €25m was agreed. We have asked Dublin Airport to review this issue and advise whether the deduction in their latest estimate is an error, or if not, what the reasoning is for the lower amount (€9m) being deducted. The assessment of this item will be concluded in the Final report later this year.

Overall conclusion

5.174 Our overall conclusion of the project review is as follows:

Table 5.90: South Apron Expansion (Remote Stands, Taxiway and Apron) – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope/scope change will meet the outputs required of the project. Dublin Airport needs to explain the basis the allowances included for enhancement to fuel infrastructure and OCIP contributions so that these allowances can be assessed. They also need to confirm the base date for the estimate so that allowance for escalation can be assessed. They also need to review the PACE deduction included in their latest estimate against the much larger deduction that was made in the CIP2020 review and confirm what the correct level of deduction is. Subject to concluding these items, the remainder of Dublin Airports 2022 estimate is reasonable	

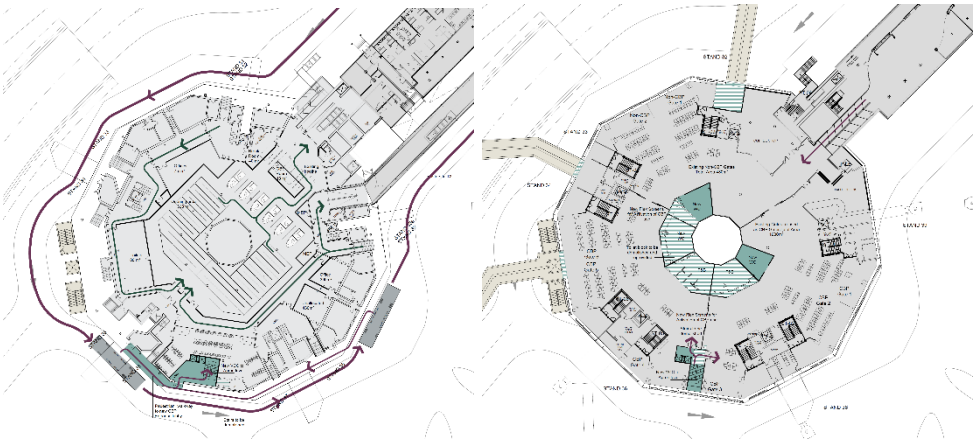
CIP.20.03.033A – Enablement of Pier 3 for Precleared US bound passengers

Project description

Introduction

5.175 Dublin Airport proposes the enablement of Pier 3 for precleared US bound passengers transported by shuttlebus from Pier 4 to Pier 3. Therefore, a bus waiting lounge at Pier 4 and injection points at Pier 3 as well as Pier departure lounge reconfigurations is proposed to be provided.

Figure 5.15: CIP.20.03.033A – Enablement of Pier 3 for Precleared US bound passengers



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.176 This project is proposed to enable Pier 3 to accommodate precleared US bound passengers and to enable access by a shuttle bus service from Pier 4. The project objectives are to increase number of wide-body stands and gates for US flights, to provide flexibility for precleared and non-precleared operations for Pier 3 and to provide shuttle bus access of US precleared passengers from Pier 4 to Pier 3.

Context

5.177 Due to its close location to US Preclearance facilities and its wide-body stands capacity, Pier 3 is suitable for such US flights and also could be enabled as a satellite for US Preclearance activities in the future.

Scope

5.178 The scope for the shuttle bus operation of US precleared passengers from Pier 4 to Pier 3 includes introduction of a new bus waiting lounge in Pier 4 and its injection point in Pier 3 (demolition of existing stairs, placement of new VCC at apron level and construction of pedestrian walkway from bus to VCC) as well as bus parking positions at Pier 3 and 4.

5.179 Reconfiguration at departures level to enable simultaneous precleared and non-precleared operations includes six existing gates and separation of them into three zones by 3 new sets of glass screens with new toilet unit and new F&B in each zone, demolition of the existing toilets and general making good of floors, ceilings and walls.

Change in scope versus Previous CIP2020+

5.180 There is no change to the Previous CIP2020+.

Stage

5.181 Project stage is currently at concept design with feasibility/outline design complete. Planning and procurement will commence in Q1 2023 with start of construction Q2 2025 and completion until Q2 2026.

Key project metrics

Table 5.91: Enablement of Pier 3 for Precleared US bound passengers – Key project metrics

Metric	Value
Project cost estimate	€ 4,754,191
Cost per square metre	Not disclosed

Scope/Specifications review

Table 5.92: Enablement of Pier 3 for Precleared US bound passengers – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	All project objectives will be met by the suggested scope in an effective way. The number of wide-body stands, and gates enabled for US flights will be increased and sufficient flexibility of the pier will be provided.
Alternative scopes	Consideration of a fixed link from Pier 4 to Pier 3 or additional preclearance area in Pier 3.
Quality of specifications of scope/scope change	Level 3 costs only partly provide a reasonably detailed breakdown of the specification of the works. Several quantities (sqm) cannot be verified from drawings or are given as a lump sum (e.g. general allowance for alterations required to the facade). Some quantities in drawings or differ from the quantities provided in Level 3 costs: • The size of the bus waiting lounge in Pier 4 is different in drawings (0m²) and Level 3 cost sheet (97m²). Therefore, clarification will be sought after the submission of the Draft Report. • Size of WCs, areas for paving, etc. are not provided in drawings.
Phasing and synergies with other projects	The project needs to be phased and aligned with other projects due to dependencies and possible synergies: CIP.20.03.51B West Apron Vehicle Underpass - Pier 3: The installation of new VCCs and fixed links to the northern side of Pier 3 are associated to the construction of the West Apron Underpass; level 15 layout and the façade of Pier 3 need to be adapted as part of the CBP enablement of these gates.
Existing asset conditions	Information on the asset life of existing infrastructure and equipment has not been provided. Some refurbishments and replacements are expected due to the age of Pier 3.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 5.93: Enablement of Pier 3 for Precleared US bound passengers – Scope/Specifications -Conclusion

Description	RAG
The suggested scope provides an efficient and effective solution to further increase the number of gates enabled for US flights without constructing an additional preclearance area in Pier 3 or a fixed link from Pier 4 to Pier 3. Both alternatives would have much higher costs.	

Cost estimate review

Table 5.94: Enablement of Pier 3 for Precleared US bound passengers – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.95	0.95	0.95	-
Construction Costs	4.75	4.75	4.75	-
Escalation, Contingency & Design Variability	1.87	3.30	3.60	+0.30
Total	**7.58**	**9.00**	**9.30**	**+0.30**

Table 5.95: Enablement of Pier 3 for Precleared US bound passengers – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.95	0.95	0.95	-
Total	**0.95**	**0.95**	**0.95**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Pier 4 Works	0.37	0.37	0.37	-
Pier 3 Alterations	4.20	4.20	4.20	-
Airfield Works	0.18	0.18	0.18	-
Total	**4.75**	**4.75**	**4.75**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	1.87	3.30	3.60	+0.30
Total	**1.87**	**3.30**	**3.60**	**+0.30**

5.182 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.96: Enablement of Pier 3 for Precleared US bound passengers – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.26

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation to midpoint of construction	Redacted			+0.04

Cost - Draft Report Conclusion

5.183 The only variance from the 2019 assessment is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage applied, to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

5.184 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

5.185 Our overall conclusion of the project review is as follows:

Table 5.97:Enablement of Pier 3 for Precleared US bound passengers – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The suggested scope provides an efficient and effective solution to further increase the number of gates enabled for US flights without constructing an additional preclearance area in Pier 3 or a fixed link from Pier 4 to Pier 3. Both alternatives would have much higher costs. With exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost estimate for this project is reasonable.	

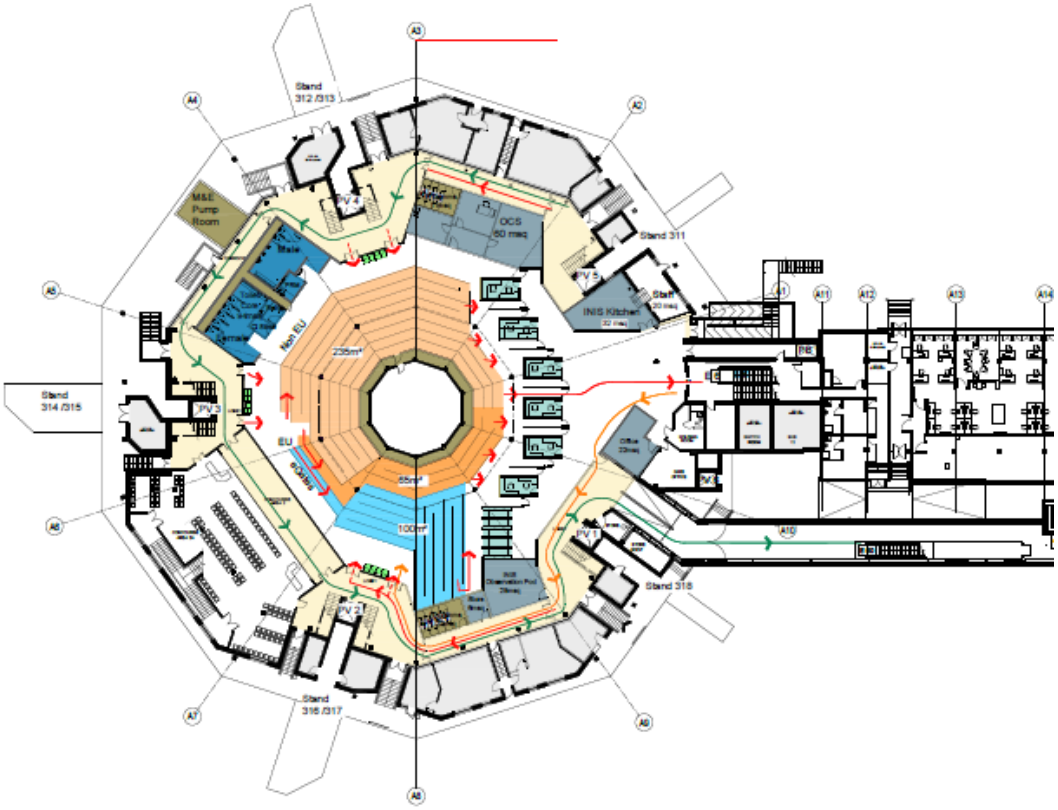
CIP.20.03.034 – Pier 3 Immigration (Upgrade & Expansion)

Project description

Introduction

5.186 Dublin Airport proposes the reconfiguration and refurbishment of the Pier 3 immigration hall with an expansion of the immigration checkpoint capacity.

Figure 5.16: Pier 3 Immigration (Upgrade & Expansion)



Source: Dublin Airport's Capital Investment Programme 2020+, amd/DAA Infrastructure Planning & Development, Jan 2021

Objective

5.187 This project is proposed as a short-term plan to increase the capacity of the Pier 3 Immigration through 2 additional booths and 4 e-gates. It includes enlarging the queuing spaces and adding passenger facilities (washrooms). It also aims to improve transfer passenger routes and processes to T2 as well as passenger flows and perception.

Context

5.188 The main drivers of the project are the increasing international passenger numbers due to larger wide-body aircraft moving to Pier 3, which significantly increases the queuing times at immigration in excess of 35 minutes. In addition, the existing access to the immigration and the visual aesthetics of the immigration area is considered to provide an unfavourable passenger experience.

Scope

5.189 The scope includes the provision of 6 relocated booths, 4 new e-gates, removal of the existing central core spaces to improve line of sight to the booths and add queuing space, installation of new washrooms and new Mechanical, Electrical, Plumbing (MEP) area, relocation of offices and other rooms surrounding the centre of the hall and reconfiguration of circulation corridors including a new bypass for transfer passengers.

Change in scope versus Previous CIP2020+

5.190 After design refinement, the needed works turned out to be much more complex than anticipated with significant impacts on costs.

5.191 There are the following scope changes to Previous CIP2020+:

- The area of the toilet facility has increased and a new external pump room is needed to facilitate toilets;
- Passenger queuing area has increased and queue monitoring system will be installed;
- Installation of 4 e-gates;
- Removal and relocation of high-mast lighting electrical room to apron sub-station;
- Smart access control system for Terminal 2 passenger transfer route; and
- Additional communications equipment room for operational resilience.

Stage

5.192 Project is currently in the design and planning stage.

- Design, procurement complete Q2 2023
- Construction start Q2 2023
- Construction complete Q4 2024
- Project handover Q1 2025

Key project metrics

Table 5.98: Pier 3 Immigration (Upgrade & Expansion) – Key project metrics

Metric	Value
Project cost estimate	€ 8,120,706
Number of immigration booths and e-gates	6 new booths, 5 new e-gates

Scope/Specifications review

Table 5.99: Pier 3 Immigration (Upgrade & Expansion) – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope of the project is effective to deliver the envisaged output.
Alternative scopes	None identified.
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs provide sufficient detail for outline design stage.
Phasing and synergies with other projects	No synergies with other projects identified.

Subject	Comments
Existing asset conditions	Information on asset life of existing infrastructure and equipment has not been provided. Some refurbishments and replacements are needed due to the age of Pier 3. All existing immigration booths will be replaced.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 5.100: Pier 3 Immigration (Upgrade & Expansion) – Scope/Specifications -Conclusion

Description	RAG
We conclude that the scope including the changes will meet the outputs required of the project.	

Cost estimate review

Table 5.101: Pier 3 Immigration (Upgrade & Expansion) – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.58	0.62	0.62	-
Construction Costs	2.92	8.12	8.12	-
Escalation, Contingency & Design Variability	1.15	1.84	1.89	+0.05
Total	**4.65**	**10.57**	**10.63**	**+0.05**

Table 5.102: Pier 3 Immigration (Upgrade & Expansion) – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	8.12	0.62	0.62	-
Total	**-**	**0.62**	**0.62**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Refurbishment & Building Works	0.00	8.12	8.12	-
Total	**-**	**8.12**	**8.12**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	8.74	1.84	1.89	+0.05
Total	**-**	**1.84**	**1.89**	**+0.05**

5.193 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.103: Pier 3 Immigration (Upgrade & Expansion) – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Inflation/escalation to midpoint of construction (commencement 1H 2023, completion 2H 2024)	Redacted			+0.05

Cost - Draft Report Conclusion

5.194 The cost of this project has increased from the 2019 assessment due to the additional scope that has been included in the project. The new level 3 estimate provided by Dublin Airport only lump sums for all the required works. We queried this with Dublin Airport, and they have subsequently provided a revised level 3 estimate for this project that contains a more detailed breakdown of the scope required to deliver the project. We have reviewed the updated level 3 estimate and there are queries that we issued to Dublin Airport regarding the rate breakdowns for several items included in their latest estimate. Once we receive responses to these queries, we will finalise our assessment for this project in the Final Report later this year.

5.195 The only variance from the 2019 assessment is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage applied, to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

5.196 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

5.197 Our overall conclusion of the project review is as follows:

Table 5.104: Pier 3 Immigration (Upgrade & Expansion) – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope including the changes will meet the outputs required of the project. With exception of the outstanding queries on the rate breakdowns for various items, the cost estimate for the remainder of the project is reasonable.	

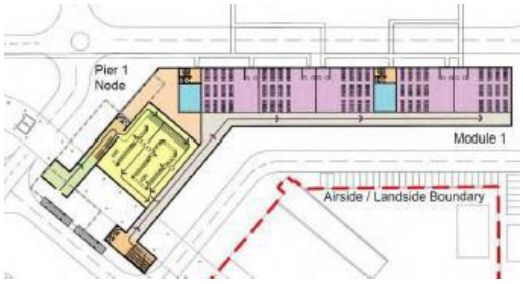
CIP.20.03.036 – North Apron Development – Pier 1 Extension (Module 1)

Project description

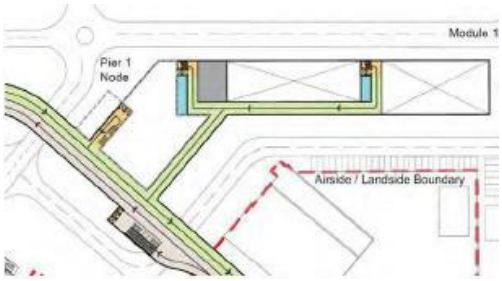
Introduction

5.198 Dublin Airport proposes to develop the North Apron Area with the construction of a new Pier 1 East (Module 1), associated contact stands and site development works, to the east of the existing Pier 1.

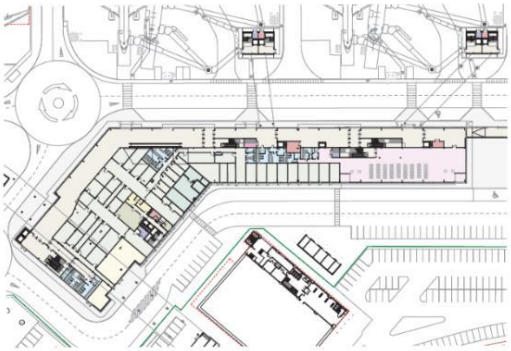
Figure 5.17: North Apron Development – Pier 1 Extension (Module 1)



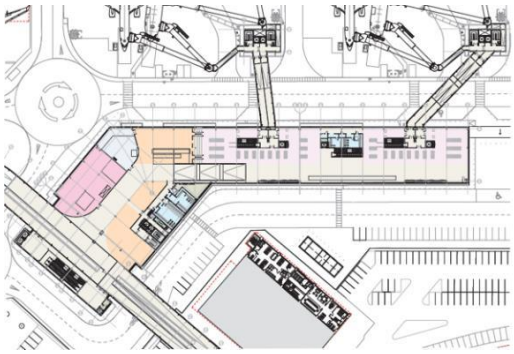
Previous scheme – Apron level



First floor level



Current scheme – Apron level



First floor level

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.199 The North Apron (aprons to the North of Piers 1 and 2) accommodates approximately 58% of the short-haul point-to-point flights operating from Dublin Airport today. In line with the masterplan and customers expressed preference, the next logical step for the North Apron is the continued development of this stand capacity through the expansion of pier facilities toward the east. This development will provide capacity for approximately 4 million passengers per year.

Context

5.200 The physical context is that the North sector is already a highly developed part of the airport campus and therefore additional gate/pier development will require careful planning as well as the removal of existing facilities to create the space for the new stands and gates.

Scope

5.201 The scope of the project in planning terms meets the stated objective or project need as it provides 6 Code C (narrow body) aircraft stands, all with a walk on capability. It also provides bussing to the remote Code C stands on the North Apron campus.

5.202 However, there is the additional provision of 3 Code E (wide body) aircraft stands, also accessed by designated walk on routes from the new pier, two of which also have airbridge access for both the Code E and Code C aircraft in a MARS stand configuration. Whilst this provides flexibility it does appear to provide additional functionality not specifically required by the objective.

5.203 In mitigation, the provision of the optional use of airbridges mitigates the need to develop complex and costly retrofit airbridges to existing Pier 1 or Pier 2 proposed under original CIP2020+ project CIP 20.03.043A, with the latter not feasible following an internal review.

Change in scope versus Previous CIP2020+

5.204 The changes reflect scope and design refinement following further operational review, brief development, site survey, and changes in regulation and legislation.

5.205 *Demolition* - To maximise the Module 1 pier extension, there is a proposal to demolish Hangar 3 to provide space for one further walkout MARS stand, comprising two additional narrow-body stands.

5.206 *Module 1 Pier* – The departure level has been moved to the first floor, providing the opportunity for significant optimisation of the asset, within a similar building footprint to the initial proposal with the following anticipated benefits:

- Level uninterrupted departures access from the Skybridge;
- Additional departure passenger amenity space including seating; retail offering; F&B; and lounge space;
- Introduction of elevated fixed links, providing safe walkout access to contact stands coupled with the optional use of airbridges;
- Apron level optimised to accommodate the handler relocations, replacing the need for a significant stand-alone Ancillary Support Building;
- All contact gates are also arranged to accommodate remote bus operations, providing remote Apron 5G and 5H flexibility – negating the requirement for the development of the PBZ;
- Apron level optimised to include two additional walkout contact gates, which double as bus gates to service remote Aprons 5G and 5H – also negating the requirement for development of PBZ; and
- The Module 1 design has also been reviewed and refined from a sustainability perspective, with building fabric and mechanical systems upgraded to comply with new legislation and regulatory requirements. The following summarises a number of the fundamental changes impacting cost:
  - Sustainable heat source technology - centralised air to water heat pumps, reversible to facilitate both heating and cooling;
  - Integration of Thermally Activated Building Structures (TABS) to work in tandem with the proposed heat source; and
  - Façade treatments to optimise the effects of solar gain.

5.207 *Skybridge* – The Skybridge flow has been swapped to optimise the departure routing, allowing for a seamless connection between the existing Terminal 1, the new Module 1 and the existing Pier 1. All North Apron departing passengers can now benefit from the new amenity space.

5.208 *Ancillary Relocations* – As a consequence of the extent of demolitions, coupled with the requirements driven from the additional stand capacity, an element of ancillary accommodation will be relocated to an existing greenfield site to the East of Hangar 5. In particular, this site will accommodate the new iIncident reception facility and airside management unit, in addition to GSE storage and battery charging facilities.

5.209 *Site Clearance and Potential Remediation* - The North Apron has been in operational use for decades, and a significant risk of ground contamination exists. The extent of this is not known at this time. Should this risk be realised, it will be raised through the Stage Gate process.

Stage

5.210 The project is currently at initial concept stage. The design stage and procurement stage are due for completion in Q3 2025 and then construction commencement in Q4 2025. Handover is scheduled 3 years later in Q3 2028. Albeit large, for such an airfield project this programme is considered to be excessive, unless a multi-phased approach is being considered.

- Feasibility/Outline design complete Q3 2025
- Planning complete Q3 2025
- Design complete Q3 2025
- Procurement compete Q3 2025
- Construction commence Q4 2025
- Project handover Q3 2028

Key project metrics

Table 5.105: North Apron Development - Pier 1 Extension (Module 1)

Metric	Value
Project cost estimate	€ 239,942,861
Floor area (termina only)	11,337m2
Module 1 gates walk on	5
Bus gates	2
Airbridge gates (open lounge configuration)	4
No of aircraft stands	6 x Code C [includes 3 x Code E MARS]
No of fixed links and PBBs	2 x Fixed Links 4 x PBBs

Scope/Specifications review

Table 5.106: North Apron Development - Pier 1 Extension (Module 1) - Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient in delivering the proposed project functionality. The changes to the project effectively provide a flexible layout of Code C and E stands and walk on ability from both airbridge stair towers and from apron level lounges. In morning and evening waves the airport has confirmed that it sees the module primarily being used by LCC's in walkout configuration. During

Subject	Comments
	mid-day waves the module will be used by both short, medium and long-haul full-service carriers.
Alternative scopes	The need for the Code E MARS stand has been queried, given the short-haul nature of these stands. Dublin Airport has confirmed that Apron 5H has been optimised to provide both Code C and Code E Flexibility. The Code C stands will service short haul remote operations, the Code E will serve peak time overflow/disruption capacity and the parking of long dwell tows. Dublin Airport has confirmed that the additional MARS stand is only walk out as it is complex to add skybridges and airbridges until the next module is constructed, and therefore additional investment in airbridges will not be made for this stand in CIP2020+.
Quality of specifications of scope/scope change	Information made available remains very high level given the early project stage.
Phasing and synergies with other projects	The airport has been asked if a feasibility study has been produced to determine the best location for the reallocation of MRO facilities on the campus, given that this project removes some of this. Dublin Airport has confirmed that the airport masterplan prepared in 2018 identified sites for potential MRO development safeguarding at a high level. One site east of 16/34 was identified opposite Hangar 6 and a larger site was identified west of 16/34 south of the Runway 10L threshold and line up area. The proposed Western MRO feasibility added to project CIP.20.04.021 will assess the western sites and possible alternatives at a greater level of detail to understand technical and cost suitability. It is recommended that this assessment is completed well in advance of the removal of facilities at the North Apron Development location. Dublin Airport has confirmed that there is no overlap between the ancillary relocations stated in this project and project CIP.20.04.021 as one is for ground handlers and the other for cargo operators.
Existing asset conditions	The residual asset life of Pier 1 is 30 yearsIt is not clear why site clearance and potential remediation has been raised as an additional item when compared to the original CIP2020 submission. Dublin Airport has stated that further analysis of existing site conditions, based on experience in this area, has identified that there is the possibility of contamination. Should the risk be realised it will be raised at the StageGate process.
Double counting	None identified.

Scope/Specifications - Conclusion

Table 5.107: North Apron Development - Pier 1 Extension (Module 1) – Scope/Specifications - Conclusion

Description	RAG
This is a large project with the object of delivering more LCC walk-on contact stands. The project requires the demolition of existing hangars and other buildings, the construction of a new apron and taxiways as well as the gate lounge buildings i.e. the new Module 1 pier. Although this multifunctional ability exceeds the stated brief and provides an	

enhanced solution, the project is efficient at high level, but the lack of sufficient design information will require thorough evaluation at StageGate.	

Cost estimate review

Table 5.108: North Apron Development – Pier 1 Extension (Module 1) – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	14.74	34.30	29.46	-4.84
Construction Costs	108.36	137.22	136.79	-0.44
Escalation, Contingency & Design Variability	40.41	68.42	73.59	+5.17
Total	**163.51**	**239.94**	**239.84**	**-0.11**

Table 5.109: North Apron Development – Pier 1 Extension (Module 1) – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	14.74	34.30	29.46	-4.84
Total	**14.74**	**34.30**	**29.46**	**-4.84**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
North Apron - Module 1	21.75	59.33	59.27	-0.06
North Apron - Airfield Works	33.71	37.56	37.56	-
North Apron - North Apron Demo + Relocations	N/A	17.59	17.59	-
North Apron - Fielf of Dreams	N/A	12.80	12.80	-
Hangar Relocation	N/A	9.95	9.57	-0.38
Total	**108.36**	**137.22**	**136.79**	**-0.44**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	40.41	68.42	73.59	+5.17
Total	**40.41**	**68.42**	**73.59**	**+5.17**

5.211 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.110: North Apron Development – Pier 1 Extension (Module 1) – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Main contractor preliminaries - Apron works	Redacted			-0.38
Contractor design oversight fees - during construction period (equates to circa 3% of construction costs) - External works				+0.24

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Contractor design fees (equates to circa 5% of construction costs) - External works	Redacted			-0.15

Cost - Draft Report Conclusion

5.212 The cost of this project has increased from the 2019 assessment due to the additional scope that has been included in the project.

5.213 The rate for the jet blast fence is higher than we would expect and we have reduced this in our assessment.

5.214 We have reduced the allowance for main contractor's preliminaries from 25% to 20%. This has reduced the provision for preliminaries in the overall estimate. As a result of these changes, the allowance in our estimate for contractor's design fees and contractors design oversight fees are less than Dublin Airports.

5.215 As the overall estimate for this project has been broken down into 5 separate estimates, the percentage uplift for escalation that has been applied to each of the 5 individual estimates varies from 10% up to 31.95%. The sum of all the allowances for escalation included within the various sections of the estimate is €42.6m. This equates to 21.60% of the cost of the project. For a project of this scale, with the programme duration that it intending to deliver to, the allowance for escalation is reasonable. However, Dublin Airport needs to confirm the base dates for the individual estimates so that the overall assessment for escalation can be assessed. This will be addressed in our Final Report later this year.

5.216 With the exception of the items noted above, the costs for the remaining elements of the project are reasonable.

Overall conclusion

5.217 Our overall conclusion of the project review is as follows:

Table 5.111: North Apron Development – Pier 1 Extension (Module 1) – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
Although the multifunctional ability exceeds the stated brief and provides an enhanced solution, the project is efficient at high level, but the lack of sufficient design information will require thorough evaluation. **The assessment of escalation needs to be concluded once Dublin Airport confirms the bases dates of the various elements within the overall estimate. The cost estimate for the remainder of the project is reasonable.**	

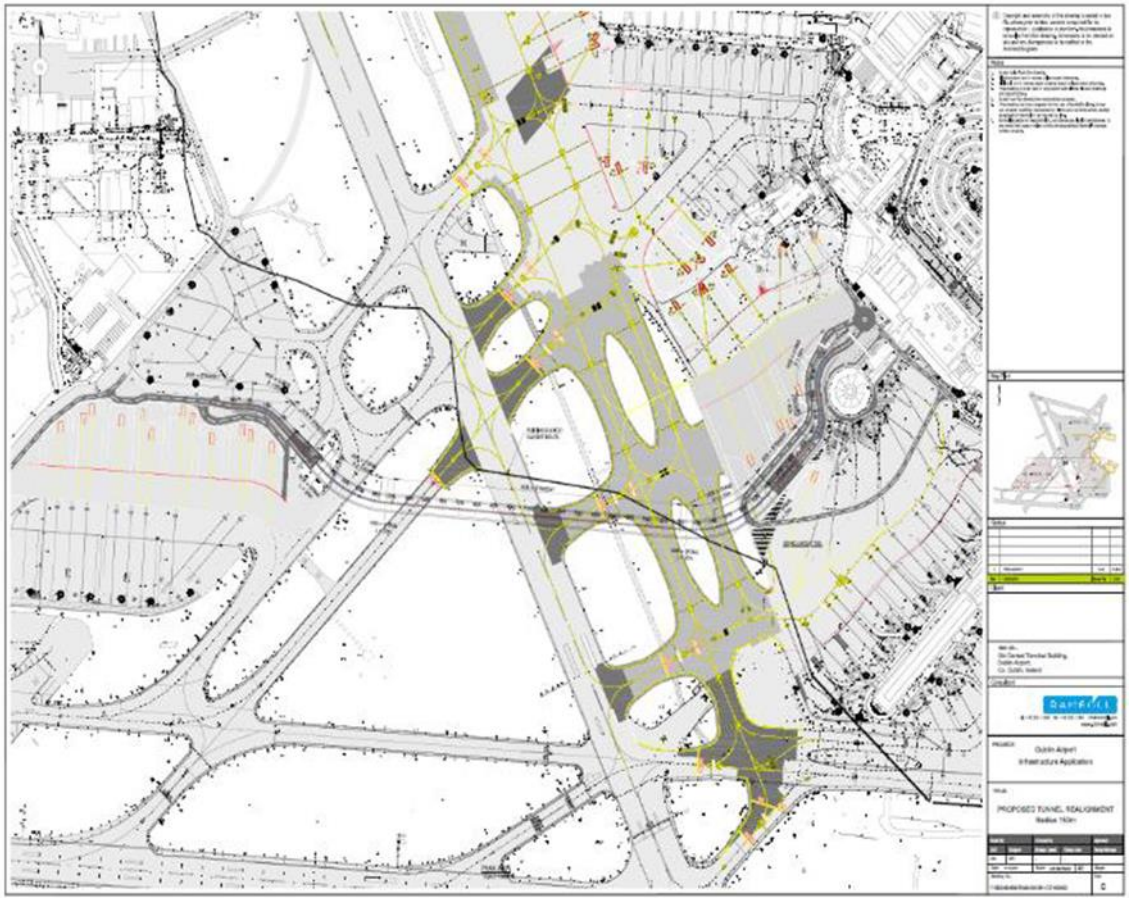
CIP.20.03.051B – West Apron Vehicle Underpass - Pier 3 Option

Project description

Introduction

5.218 This project proposes the construction of a vehicle underpass below Runway 16-34 linking Pier 3 to the Western Campus.

Figure 5.18: West Apron Vehicle Underpass - Pier 3 Option



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objectives

5.219 The current Dublin Airport masterplan envisions an expansion of the airport to the west campus, keeping the crosswind Runway 16-34 operational. To meet future capacity uplift, full use of the west apron and additional aircraft stands will be required. Initially, the underpass will maintain access to existing western cargo operations once the North Runway goes live in 2022 and closes the current western access surface crossing.

Context

5.220 The underpass ultimately maintains safe and reliable access to existing proposed western aircraft stands, focusing on critical cargo and continency operations. Without the underpass connectivity, these operations will have to be allocated to eastern campus stands utilising capacity ideally reserved for passenger operations. In the absence of reliable access to the west, the airport's capacity will be restricted to the stand capacity in the eastern campus. Current Cargo, GA and

contingency operations allocated to the west would have to be allocated back to eastern campus stands utilising capacity ideally reserved for passenger operations.

Scope

5.221 Dublin Airport proposes a dual cell two-lane underpass in both directions. The underpass will be constructed using cut-and-cover techniques which, given the alignment, will require either taxiway closures or temporary realignment and the temporary closure of runway activity on Runway 16/34.

5.222 The underpass alignment is currently proposed to be at the centre of the airfield linking Pier 3 to the western campus. This location is intended to allow for ease of access via the internal road network from the north and south aprons.

5.223 A ramp approximately 210m long will provide access to the underpass from the northern side of Pier 3. The underpass will run below the existing Apron Taxiways 4 and Taxiway F2 before reaching the RWY 16/34, continuing under taxiways H2 and M2 and will then ramp up another approximately 140m to surface level at the west apron.

5.224 The underpass alignment results in the need for a reconfiguration of aircraft stands and access roads around Pier 3. The installation of fixed links and new elevated walkways that cross over the new underpass ramp (required to access some of the reconfigured stands north of Pier 3). Dublin Airport has advised that this alignment has been designed to safeguard for a possible extension of Pier 3 in the future.

Change in scope versus Previous CIP2020+

5.225 The change in scope since CIP 2020 is therefore significant in terms of:

- Underpass cross section – change from single cell to dual cell, providing greater flexibility, resilience and safety.
- Underpass horizontal alignment – resulting in a 60m shortening overall;
- Inclusion of “future pipework” to facilitate drainage surface water masterplan.

Stage

5.226 The project is currently at initial feasibility/outline design stage having reportedly commenced in Q4 2021. The design stage and procurement stage are due for completion in Q2 2024. However, construction commencement is identified in the received documents as being in Q3 2023. This is prior to design completion and it is assumed therefore that this overlap represents both the implementation of enabling works and some level of early contractor involvement, or contractor design. Handover is scheduled approximately 3 years later in Q4 2026. This will be a large and complex project and therefore the three year programme is considered reasonable.

- Feasibility/Outline design complete Q2 2024
- Planning complete Q2 2024
- Design complete Q2 2024
- Procurement compete Q2 2024
- Construction commence Q3 2023
- Project handover Q4 2026

Key project metrics

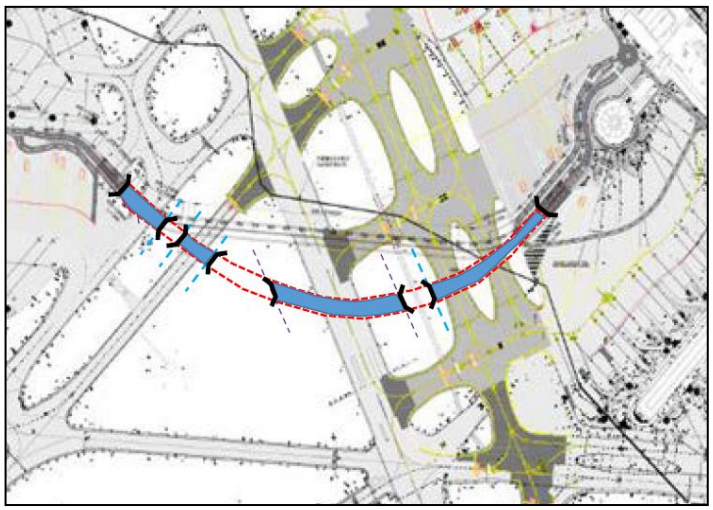
Table 5.112: West Apron Vehicle Underpass - Pier 3 – Key project metrics

Metric	Value
Dublin Airport construction cost estimate (2022)	€245,060,000
Dublin Airport estimate (2020)	€168,968,409
Underpass length	950m (including access ramps) 791m (excluding access ramps)
No. of cells	2
Lanes per cell	2 (One lane for faster vehicles up to 2.8 m wide and another lane for slow-moving vehicles up to 4.1 m wide in each cell)
Cell headroom	4.55m

Scope/Specifications review

Table 5.113: West Apron Vehicle Underpass - Pier 3 – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is effective in delivering an underpass in the desired location to provide suitable vehicle access. Several options have been considered, along with several construction methods. The chosen construction method of cut and cover provides the simplest and most cost-effective solution, but does present challenges for aircraft operations, where taxiway/runway routes require to be closed for excavation works. Dublin Airport has confirmed that closures of taxiways and Runway 16/34 will be required but will be reduced as much as possible. Exact restrictions and operational impacts are unknown at this stage of the project. Dublin Airport has provided a risk analysis, carried out by Ricondo and Arup (April 2022) which has demonstrated the need to adopt a twin cell underpass to meet current safety and operational standards. In this regard the scope appears to be effective in bringing the underpass scheme in line with safety requirements. While the routing is effective in providing a direct link from east to west, the proposed alignment, as shown on the drawings provided, appears to conflict with future link taxiway 3 (SCP 17.3.001). This needs careful consideration as it appears to create a major project dependency. This may be achievable, but it may also be avoidable. The inclusion of future drainage infrastructure and enabling works appears to have been considered effectively.
Alternative scopes	**Revised Alignment:** Consider revised alignment to minimise programme dependencies with future Link Taxiway 3 (SCP 17.3.001) and Dual Taxiway F (SCP 17.3.003). Indicative alignment below:

Subject	Comments
	 Such an alternative alignment may also offer opportunities for open air sections of the underpass, where this passes under areas outside of the taxiway graded strips (treatment similar to taxiway bridges) or runway strip. This could allow for a reduction in the requirement to provide ventilation, based on shorter lengths between open air sections. If Runway 16/34 were to be reclassified as a taxiway, such opportunities would increase in scale (noting that the airlines strongly requested the airport to retain Runway 16/34 in the short to medium term, i.e. within this decade, for crosswind runway operations. However, Dublin Airport has confirmed that it did consider inserting large roof openings to the surface, however, there are limited areas that are outside the taxiway and or runway strips. The only possible location is east of Runway 16/34. Dublin Airport has used this location as a "service corridor" for critical airfield services like the fuel hydrant for the northern part of the airfield, airfield electrical services, north - south storm sewer, etc. All these services would have to be relocated to facilitate reducing the roof slab extent. Ventilation would still need to be provided for the majority of the underpass to remove smoke in the event of the fire. This would also result in additional haulage of material from site and would enlarge the excavation or result in retaining walls from roof of tunnel to surface. There was deemed to be no net cost reduction by undertaking these works and it was not welcomed from a risk and delethalisation point of view. **Major Service Crossings**: Dublin Airport has been asked if the underpass construction can be coordinated with other major service crossing requirements that may be needed, such as for future apron developments on the western side of runway 16/34 and/or the fuel hydrant network crossing for example. The airport has confirmed that future West Apron services are being considered as part of this development and will be included in the design and construction of the underpass. Co-ordination with other airfield projects will also be undertaken as the project moves closer to construction. The West Apron Fuel Hydrant project is a stop gap project and required in advance of the

Subject	Comments
	underpass to service the existing West Apron activities and stakeholders.
Quality of specifications of scope/scope change	Information made available remains very high level given the early project stage.
Phasing and synergies with other projects	This project requires limited diversions of the Cuckoo Stream and other drainage culverts/pipes. To avoid abortive work the diversion of the Cuckoo Stream outside the works area, as proposed under CIP.20.03.052, should occur first, removing the need to diversion under this package. Reconfiguration of the Pier 3 stands is reliant on the completion of the Link 3 Extension Taxiway submitted under PACE, as the adjusted stands extend into the existing taxilane. Multiple areas of the Pier 3 stands are also noted as "Unsatisfactory" under CIP.20.01.002 – rehabilitation of this pavement should account for Code E WB traffic.
Existing asset conditions	New asset
Double counting	None observed

Scope/Specifications – Conclusion

Table 5.114: West Apron Vehicle Underpass - Pier 3 - Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope/scope change will be effective in delivering direct vehicle access from east to west, albeit the chosen method has a risk of significant disruption to aircraft surface movements during the construction period, which will need to be carefully considered and managed.	

Cost estimate review

Table 5.115: West Apron Vehicle Underpass - Pier 3 Option – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	20.40	14.16	14.16	-
Construction Costs	101.98	152.63	152.63	-
Escalation, Contingency & Design Variability	46.59	78.27	77.81	-0.46
Total	**168.97**	**245.06**	**244.59**	**-0.46**

Table 5.116: West Apron Vehicle Underpass - Pier 3 Option – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	20.40	14.16	14.16	-
Total	**20.40**	**14.16**	**14.16**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs - Tunnels & Ramps	92.05	138.69	138.69	-

Construction Costs - Pier 3	9.93	13.94	13.94	-
Total	**101.98**	**152.63**	**152.63**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	46.59	78.27	77.81	-0.46
Total	**46.59**	**78.27**	**77.81**	**-0.46**

5.227 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.117: West Apron Vehicle Underpass - Pier 3 Option – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Inflation/escalation from estimate base date to Q4 2021 - Tunnels & Ramps	Redacted			+7.45
Inflation/escalation from Q4 2021 to construction midpoint - Tunnel & Ramps				+0.60
Inflation/escalation from estimate base date to Q4 2021 - Pier 3				+0.77

Cost - Draft Report Conclusion

5.228 The cost of this project has increased from the 2019 assessment due to the additional scope that has been included in the project. The new level 3 estimate provided by Dublin Airport only lump sums for all the required works. We queried this with Dublin Airport, and they have subsequently provided a revised level 3 estimate for this project that contains a more detailed breakdown of the scope required to deliver the project. We have reviewed the updated level 3 estimate and there are queries that we issued to Dublin Airport regarding the rate breakdowns, lump sums and percentage allowances for various items included in their latest estimate. Once we receive responses to these queries, we will finalise our assessment for this project in the Final Report later this year.

5.229 Currently, the only variance from our assessment is the allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation. Our assessment of escalation has increased the escalation percentage applied, to revise the base date Q4 2021, from 3% to 7%. Dublin Airport needs to confirm the base date for their estimate so that our assessment of escalation can be finalised.

Overall conclusion

5.230 Our overall conclusion of the project review is as follows:

Table 5.118: West Apron Vehicle Underpass - Pier 3 Option – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	

Description	RAG Assessment
We conclude that the scope/scope change will be effective in delivering direct vehicle access from east to west, albeit the chosen method may result in significant disruption to aircraft surface movements during the construction period. **Once received, the responses to our queries on the revised level 3 estimate received from Dublin Airport need to be assessed. This will be addressed in our Final Report later this year.**	

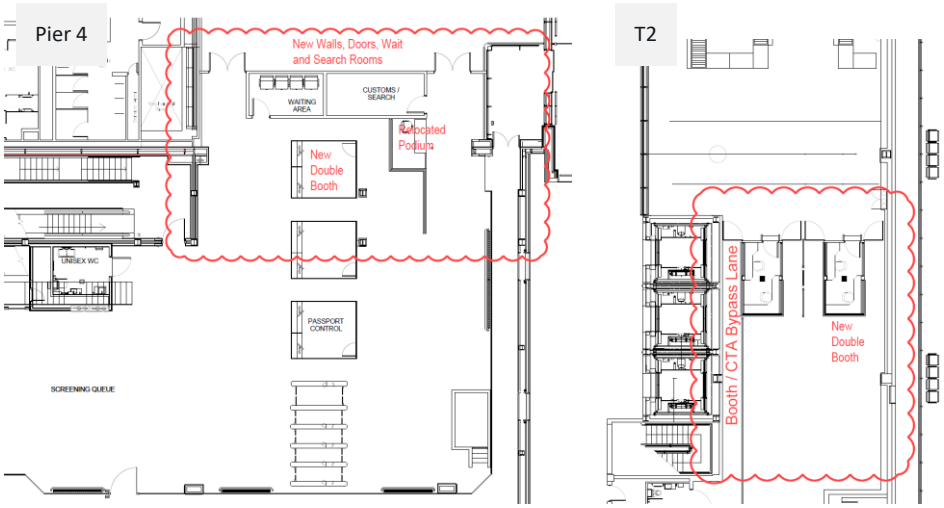
CIP.20.03.072 – T2 & Pier 4 Transfer Facilities

Project description

Introduction

5.232 Dublin Airport proposes the expansion of the existing T2 and Pier transfer immigration checkpoints by adding new immigration booths.

Figure 5.19: T2 & Pier 4 Transfer Facilities



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.233 This project is proposed to increase the immigration capacity for transfer passengers through 1 additional booth in Terminal 2 and 1 additional booth in Pier 4.

Context

5.234 As passenger traffic is forecast to reach 40mppa, Dublin Airport proposes increasing processing capacity throughput for transfer traffic in line with this overall growth.

5.235 The project will be part of Terminal 2's development and is driven by the following aims:

- Provide additional transfer processing capacity;
- Maintain appropriate levels of service for passengers; and
- Maintain and improve transfer times.

Scope

5.236 The scope for T2 includes the provision of a new immigration double booth including doors as well as the demolition/relocation of the existing double booth including doors and partition walls.

5.237 The scope for Pier 4 includes the provision of a new immigration double booth, new search and waiting rooms, the relocation of a wall as well as the demolition of an existing immigration booth and the existing search and waiting rooms.

Change in scope versus Previous CIP2020+

5.238 The project has no change to Previous CIP2020+. However, at detailed design stage Dublin Airport will look to optimise the proposed scheme and if feasible swap new immigration booths for e-gates.

Stage

5.239 The project is currently on hold with concept design complete. Planning and procurement will continue in Q1 2023 and construction be completed in Q4 2024.

Key project metrics

Table 5.119: T2 & Pier 4 Transfer Facilities – Key project metrics

Metric	Value
Project construction cost estimate	€ 356,580
Terminal 2 immigration booths	2 booths (1 new, 1 relocated)
Pier 5 immigration booth and e-gates	3 booths (1 new, 2 existing), 5 existing e-gates

Scope/Specifications review

Table 5.120: T2 & Pier 4 Transfer Facilities – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope of the project is effective to deliver the envisaged output.
Alternative scopes	The planned expansion for Pier 4 immigration increases capacity only by approx. 10%. Therefore, the waiting and search rooms should be allocated differently to allow further expansions in the future.
Quality of specifications of scope/scope change	Level 3 costs provide a reasonably detailed breakdown of the specification of the works.
Phasing and synergies with other projects	No synergies with other projects identified.
Existing asset conditions	Information on asset life of existing T2 immigration has not been provided. Relocation of the existing double booth including doors and partition walls might not be feasible due to its condition.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 5.121: T2 & Pier 4 Transfer Facilities – Scope/Specifications -Conclusion

Description	RAG
The suggested scope for expansion of the T2 & Pier 4 transfer immigration facilities will enable Dublin Airport to meet the defined project objectives in an effective and efficient way. To allow for future expansions of Pier 4 immigration, however, a slightly alternative scope should be considered.	

Cost estimate review

Table 5.122: T2 & Pier 4 Transfer Facilities – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.07	0.07	0.07	-
Construction Costs	0.36	0.36	0.36	-
Escalation, Contingency & Design Variability	0.13	0.27	0.29	+0.02
Total	**0.55**	**0.70**	**0.72**	**+0.02**

Table 5.123: T2 & Pier 4 Transfer Facilities – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.07	0.07	0.07	-
Total	**0.07**	**0.07**	**0.07**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Pier 4 Works	0.36	0.36	0.36	-
Total	**0.36**	**0.36**	**0.36**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.13	0.27	0.29	+0.02
Total	**0.13**	**0.27**	**0.29**	**+0.02**

5.240 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.124: T2 & Pier 4 Transfer Facilities – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation to new base date of Q4 2021	Redacted			+0.02

Cost - Draft Report Conclusion

5.241 The only variance from the 2019 assessment is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage applied, to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

5.242 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

5.243 Our overall conclusion of the project review is as follows:

Table 5.125: T2 & Pier 4 Transfer Facilities – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The suggested scope for expansion of the T2 & Pier 4 transfer immigration facilities will enable Dublin Airport to meet the defined project objectives in an effective and efficient way. To allow for future expansions of Pier 4 immigration, however, a slightly alternative scope should be considered. **With exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost estimate for this project is reasonable.**	

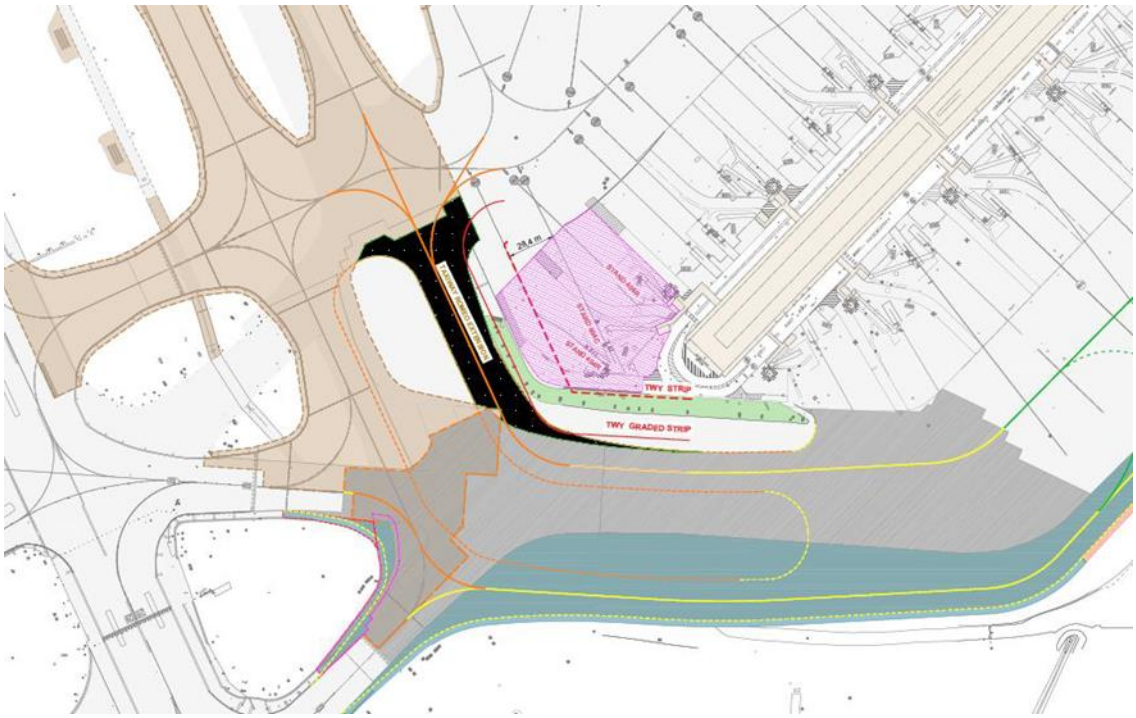
CIP.20.03.074 – Taxiway Romeo widening

Project description

Introduction

5.244 This project includes the development of (future) Taxiway Romeo between Link 1 and Link 2 to enable continuous dual code E operations north and south of the airfield.

Figure 5.20: Taxiway Romeo Widening



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objectives

5.245 This project, described as Phase 3 works (see context below), is planned to join up the PACE Phases 1 and 2 to enable unconstrained concurrent Dual Code E aircraft movements North and South of the airfield, ultimately planned to mitigate bottlenecks and delays to Runway 10R and 28L and traffic accessing or egressing from the South Apron.

Context

5.246 This project is part of a wider suite of airfield taxiway projects as airport activity is anticipated to grow to around 40 mppa in the coming years. Furthermore, South Apron activity is expected to grow significantly with the introduction of Pier 5; as such, Dublin Airport has explained that this project is critical to:

- Maintaining efficient access and egress from the South Apron;
- Reduce taxiway delay;
- Reduce taxi fuel burn and carbon emissions; and
- Improving on-time performance.

5.247 The Dublin Airport 40 mppa masterplan shows dual code E taxiways from Link 6 to the South Apron. Implementation of the masterplan design was broken into three phases aligned to forecast demand and adjacent development need:

- Phase 1 - dual code E taxiways between Link 2 to Link 6, delivered through PACE;
- Phase 2 - dual code E taxiways between Link 1 to South Apron, delivered through PACE; and
- Phase 3 - dual code E taxiways between Link 1 to Link 2, delivered through this CIP cycle.

5.248 Phases 1 and 2 have been delayed and Phase 3 delivery will now likely commence in tandem with Phases 1 and 2 in this CIP period. Therefore, this project requests funding for the Phase 3 element only. All three projects are necessary to increase taxiway capacity and improve efficiency and safety.

Scope

5.249 The project is primarily made up of taxiway re-alignment and pavement works; however, the following is also envisaged:

- Taxiway pavement expansion (removing grass area);
- Centre and edge taxiway lighting;
- Drainage and attenuation;
- Taxiway markings and signage;
- Re-alignment of stand 404C, with the potential omission of stand 404R;
- Re-alignment of stand 404C lead-in, AVDGS and fuel hydrant; and
- Relocation of jet blast fence, apron lighting and GSE parking.

5.250 It is noted that an asset life of 20 years is being reported for this new taxiway. This is considered the minimum life that should be expected from a new taxiway, and futureproofing for a 30 year or even 40-year life may be a better long term use of investment.

Change in Scope

5.251 This is a new project.

Stage

5.252 The project is currently at initial concept stage. The design stage and procurement stage are due for completion in Q3 2024 and then construction commencement in Q4 2024. Handover is scheduled 1 year later in Q3 2025. For such an airfield project this programme is considered to be efficient, and typical of other similar projects at similar airports.

- Feasibility/Outline design complete Q3 2024
- Planning complete Q3 2024
- Design complete Q3 2024
- Procurement compete Q3 2024
- Construction commence Q4 2024
- Project handover Q3 2025

Key project metrics

Table 5.126: CIP.20.03.074 – Taxiway Romeo widening – Key project metrics

Metric	Value
Dublin Airport construction cost estimate (2022)	€ 7,320,000

Metric	Value
Dublin Airport estimate (2020)	n/a
Pavement area	Circa 4,000m^2

Scope/Specifications review

Table 5.127: CIP.20.03.074 – Taxiway Romeo widening – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	We note that the scope is very high level due to the project stage, making it difficult to establish a clear view on the project's efficiency. The proposal, insofar as it is indicated, appears to be logical and efficient.
Alternative scopes	A large area of the proposed new taxiway Romeo is situated over existing pavements. If these pavements are suitable, they could be considered for use in the permanent works, rather than construction of new pavements.
Quality of specifications of scope/scope change	At this stage in the project, the details appear to be very high level. However, the need for the project has been determined through very detailed capacity modelling.
Phasing and synergies with other projects	This project links into and is reliant upon the dual taxiway foxtrot project [SCP 17.3.003] – Dublin Airport has confirmed that all three phases of the dual code E taxiway between links 1 and 6, including the new taxiway Romeo project, are being considered in tandem. Efficiencies may be created through combined procurement and delivery of all phases of the dualling. Depending on timing and need, there may be some benefits in procuring and implementing the south apron taxiway widening works in tandem with this project.
Existing asset conditions	A large area of the proposed new taxiway Romeo is situated over existing pavements. If these pavements are suitable, they could be considered for use in the permanent works, rather than construction of new pavements.
Double counting	Taxiway Romeo does not appear to overlap with the scope for the dualling of the remainder of taxiway Foxtrot within previous PACE and CIP submissions. Dublin Airport drawing D18033-DAA-006-02-001-DR-C-SK9000 a large area of pavement titled "*proposed critical twys pavement*", "*proposed new pavement in SATW project*" and "*existing pavement rehabilitated in SATW project*". However, Dublin Airport has clarified that the dark portion of drawing D18033-DAA-006-02-001-DR-C-SK9000 (named Taxiway Romeo Extension) is the physical taxiway pavement required for Taxiway R.

Scope/Specifications – Conclusion

Table 5.128: Taxiway Romeo widening - Scope/Specifications - Conclusion

Description	RAG

In overall terms, the project at this early stage is considered effective in delivering improvements to the taxiway network, reducing hot spots by improving the ability for simultaneous routes along the taxiway Foxtrot corridor. We, therefore, conclude that the scope/scope change will meet the outputs required of the project.	

Cost estimate review

Table 5.129: Taxiway Romeo widening – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.89	0.86	-0.04
Construction Costs	4.47	4.29	-0.18
Escalation, Contingency & Design Variability	1.96	1.88	-0.08
Total	**7.32**	**7.03**	**-0.29**

Table 5.130: Taxiway Romeo widening – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.89	0.86	-0.04
Total	**0.89**	**0.86**	**-0.04**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	4.47	4.29	-0.18
Total	4.47	4.29	-0.18
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	1.96	1.88	-0.08
Total	**1.96**	**1.88**	**-0.08**

5.253 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.131: Taxiway Romeo widening – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Main Contractor Preliminaries	Redacted		
Inflation/escalation from Q4 2021 to construction midpoint			
Design and Management Fees			

Cost - Draft Report Conclusion

5.254 This is a new project that was not included in the 2019 assessment. We have issued queries to Dublin Airport in relation to the rate breakdowns for the reconstruction of the existing pavement

and the installation of new jet blast fence. The responses to these queries will be assessed in our Final Report to be issued later this year.

5.255 We have reduced the allowance for main contractor's preliminaries from Redacted % to Redacted %. This implication of this change is a reduction to the allowances for the LVP and phasing allowance, design development allowance, design and management allowance and contingency allowance.

5.256 The allowance for escalation is also reduced because of the reduction in the allowance for main contractor's preliminaries. No monies have been spent on this project thus far. Dublin Airport need to confirm the base date of their assessment to so that our assessment of escalation can be concluded.

5.257 With the exception of the revised escalation calculation, and the outstanding queries, the remainder of Dublin Airport's 2022 estimate is reasonable.

Overall conclusion

5.258 Our overall conclusion of the project review is as follows:

Table 5.132: Taxiway Romeo widening – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
In overall terms, the project at this early stage is considered effective in delivering improvements to the taxiway network, reducing hot spots by improving the ability for simultaneous routes along the taxiway Foxtrot corridor. We, therefore, conclude that the scope/scope change will meet the outputs required of the project. **The responses to our rate breakdown queries need to be assessed and the escalation assessment needs to be finalised. This will be addressed in the Final Report later this year. The allowance for the remaining items in the estimate is reasonable.**	

CIP.20.03.075 – Fuel Hydrant Network

Project description

Introduction

5.260 Dublin Airport proposes the installation of a fuel hydrant system to service aircraft on the end of Pier 1, Pier 3, West Apron, and to provide future-proofing for Apron 5H.

Figure 5.21: Fuel Hydrant Network

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.261 The provision of fuel hydrants in place of the existing tanker arrangement is considered an optimal fuelling method since it provides a more environmentally friendly, fast and reliable method. It also has an overall positive impact on the safety and efficiency of everyday airport operations. This proposed project builds on the existing system serving Pier 1 and Pier 4, and consists of a network of underground pipe, control valves, stand discharge points and remote bowser loading bay.

Context

5.262 Dublin Airport proposes to cancel the original CIP2020+ "Hydrant Enablement - Pier 2 and 3" project CIP.20.03.71 given changes in its apron fuelling rollout strategy and replace it with this new "Fuel Hydrant Network" project that will cover the development of hydrants to Pier 3 and the eastern end of Pier 1; in addition to a West Apron into-plane facility and future-proofing for remote Apron 5H. Hydrant enablement of Pier 2 will be re-assessed in the next CIP period, along with the wider strategy for the re-development of the pier.

Scope

5.263 The project is made up of the following deliverables:

- Pier 1 (Eastern End) – Extension of existing fuel pipes, installation of control valves and apron discharge points to each aircraft position.

- Pier 3 – Extension of existing fuel pipes, control valves, and apron discharge points to each wide-body aircraft position, installed during underpass aircraft stand realignment works.
- West Apron - Extension of existing fuel pipe to the west, installation of control valves and the development of an inter-plane to allow western bowser loading; and
- Apron 5H – Installation of ducts and sleeves for future hydrant pipe installation to 5H stands. Sleeves to be installed as part of 5H pavement construction from the grass area at the head of 5H to future hydrant pot location at each aircraft position.

Change in scope

5.264 This is a new project.

Stage

5.265 The project is currently at initial concept stage. The design stage and procurement stage are due for completion in Q3 2024 and then construction commencement in Q4 2024. Handover is scheduled 3 years later in Q2 2027. This programme is considered to be reasonable for the implementation and commissioning of a multi-phased fuel infrastructure project.

- Feasibility/Outline design complete Q3 2024
- Planning complete Q3 2024
- Design complete Q3 2024
- Procurement compete Q3 2024
- Construction commence Q2 2027
- Project handover Q2 2027

Key project metrics

Table 5.133: Fuel Hydrant Network – Key Project Metrics

Metric	Value
Dublin Airport total cost estimate (2022)	€ 32,860,000
Dublin Airport estimate (2020)	n/a new project

Scope/Specifications review

Table 5.134: Fuel Hydrant Network – Scope/Specification Review

Subject	Comments
Effectiveness of scope/scope change	The scope is very high level at present. However, the fuel main routes appear to be logical and therefore likely effective.
Alternative scopes	Given the buried nature of these assets within operationally critical areas and the difficulty of getting back to them, potentially Dublin Airport should consider a longer asset life than the stated 20-years.
Quality of specifications of scope/scope change	At this stage in the project, the details appear to be very high level. However, the need for the project has been determined through fuel capacity modelling and future demand. Additional, more detailed project assessment will take place as part of the the StageGate process.
Phasing and synergies with other projects	**Apron 5H** – Installation of ducts and sleeves for future hydrant pipe installation to 5H stands. Sleeves to be installed as part of

Subject	Comments
	5H pavement construction from the grass area at the head of 5H to future hydrant pot location at each aircraft position. **West apron vehicle underpass (CIP.20.03.051B**) - The merits of considering replacing the western spur crossing of runway 16/34 with a coordinated crossing within the west apron vehicle underpass (CIP.20.03.051B) excavation has been considered. Dublin Airport has confirmed that the Western fuel spur is required before the underpass is available. The introduction of the North Runway in Q3 2022, will divert all traffic around the full north runway perimeter road (8km journey). This additional journey will put additional cost on 3rd party stakeholders maintaining existing operations on the West Apron. **Sustainable Aviation Fuels (SAF) (CIP.20.09.002)** – Dublin Airport has been asked how the move towards SAF is being integrated into this project. Project CIP.20.09.002 is programmed for completion only after CIP.20.03.075 construction starts. This implies that the potential benefits of the SAF study and any integration of its findings into the future hydrant network may be compromised. Dublin Airport has confirmed that they consider these projects to be treated separately and are not dependent on each other. Given that project CIP.20.09.002 has not yet commenced, it is not clear how this conclusion has been formed.
Existing asset conditions	New asset
Double counting	None observed

Scope/Specifications - Conclusion

Table 5.135: Fuel Hydrant Network - Scope/Specifications -Conclusion

Description	RAG
We conclude that the scope/scope change will meet the outputs required of the project. The project is, however, at a very early stage with only high level costs available. Therefore, a more detailed project assessment will take place as part of the StageGate process when further project detail becomes available.	

Cost estimate review

Table 5.136: Fuel Hydrant Network– Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	3.47	3.33	-0.14
Construction Costs	17.35	16.66	-0.69
Escalation, Contingency & Design Variability	12.03	12.61	+0.58
Total	**32.86**	**32.60**	**-0.25**

Table 5.137: Fuel Hydrant Network – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	3.47	3.33	-0.14
Total	**3.47**	**3.33**	**-0.14**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	17.35	16.66	-0.69
Total	17.35	16.66	-0.69
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	12.03	12.61	+0.58
Total	**12.03**	**12.61**	**+0.58**

5.266 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.138: Fuel Hydrant Network – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Main Contractor Preliminaries	Redacted		-0.65
Inflation/escalation from estimate base date to Q4 2021			+0.74
Design and Management Fees			-0.14

Cost - Draft Report Conclusion

5.267 This is a new project that was not included in the 2019 assessment. We have reduced the allowance for main contractor's preliminaries from Redacted% to Redacted%. This implication of this change is a reduction to the staging allowance, design development allowance, design and management allowance and contingency allowance.

5.268 Dublin Airport has provided a breakdown for the lump sum allowance for the large valve chambers which is reasonable. They have also provided details of the basis of the lump sums for the fuel hydrant at stand item and the instrumentation and electrical works. While they have not provided a breakdown for these items, the allowances are based on information provided by a specialist supplier. As a result, these allowances are deemed to be reasonable.

5.269 The allowance for escalation is also reduced because of the reduction in the allowance for main contractor's preliminaries. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage applied, to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

5.270 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is reasonable.

Overall conclusion

5.271 Our overall conclusion of the project review is as follows:

Table 5.139: Fuel Hydrant Network– Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope/scope change will meet the outputs required of the project. The project is, however, at a very early stage with only high-level costs available. Therefore, a more detailed project assessment will take place as part of the StageGate process when further project detail becomes available. **With the exception of the allowance for main contractors' preliminaries that we have reduced, the cost for the remaining items included in the estimate are reasonable.**	

CIP.20.03.076 – Aircraft De-Icing

Project description

Introduction

5.273 This project replacesthe original CIP2020+ proposed remote de-icing pad at Runway 10R, which has been deferred to the next CIP period allowing time for development of a holistic airfield wide de-icing strategy.

Figure 5.22: Aircraft De-Icing

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objectives

5.274 Dublin Airport proposes to consolidate existing on-stand de-icing activities to support all stakeholders in severe weather conditions. This project principally involves the provision of new de-icer tanks at strategically identified locations until such time as a more holistic and centralised facility is developed under CIP.20.03.052.

5.275 Currently Glycol is collected by Glycol Recovery Vehicles (GRV's). The aim of this project is to consolidate the fluid strategy across the airfield, reducing the number of fluids used across the airfield to more environmental friendly fluids.

5.276 It broadly includes three key elements: consolidated fluid strategy, consolidated fluid storage and improved de-icing data collection.

Context

5.277 In 2020, Dublin Airport reviewed the overall airfield de-icing strategy. This review concluded that on-stand de-icing was the most efficient and sustainable solution considering the current and forecasted Irish climate. The strategy recommended a phased approach with the development of consolidated on stand de-icing facilities in the near term. And ultimately, several overflows and pressure release remote de-icing pads in the medium to long term.

5.278 This project aims to address the initial phase and consolidate the fluid strategy across the airfield, develop dedicated glycol storage facilities in the North and South Apron and improve coordination and communications with all stakeholders.

Scope

5.279 This project includes de-icing fluid storage and de-icing vehicle parking for the North Apron only. It is made up of four key components:

- Consolidated Fluid Strategy – The preparation of a consultancy led consolidated de-icing strategy to include stakeholder involvement. The output will define final proposals and deployment with a move towards efficient and intelligent utilisation of de-icing fluids.
- Consolidated Fluid Storage – Provision of new consolidated North Apron de-icing fluid storage and a de-icing vehicle park to complement a similar proposal to be developed as part of the South Apron Hub expansion.
- Improved De-Icing Data Collection – New IT monitoring and recording solution to enable the accurate collection of de-icing data, which will inform future de-icing development and operational planning.
- De-Icing Information Sharing and Co-ordinating – Activating the snow module within CDM would enable aircraft allocation to de-icing locations based on readiness, with complete transparency and sharing of de-icing data.

Change in scope versus Previous CIP2020+

5.280 This is a new project.

Stage

5.281 The project is currently at initial concept stage. The design stage and procurement stage are due for completion in Q4 2022 and then construction commencement in Q4 2022. Handover is scheduled 6 months later in Q2 2023. This programme is considered to be reasonable for the implementation and commissioning of new de-icer tanks.

- Feasibility/Outline design complete Q4 2022
- Planning complete Q4 2022
- Design complete Q4 2022
- Procurement compete Q4 2022
- Construction commence Q4 2022
- Project handover Q2 2023

Key project metrics

Table 5.140: CIP.20.03.076 – Aircraft De-Icing – Key project metrics

Metric	Value
Dublin Airport total cost estimate (2022)	€1,328,146
Dublin Airport estimate (2020)	n/a new project
De-icer tanks	5
Parking spaces for de-ice trucks	10

Scope/Specifications review

Table 5.141: Aircraft De-Icing – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is very high level at present. However, the proposals appear to be logical and therefore likely effective.
Alternative scopes	A declared asset life of 7 years appears very low. Consideration of a longer asset life may provide improved long term value for money.
Quality of specifications of scope/scope change	At this stage in the project, the details appear to be very high level. However, the need for the project is driven by future demand for de-icer and the need to control pollutants in the surface water network, as well as having de-icer strategically located.
Phasing and synergies with other projects	It has been questioned if the budget for CIP.20.03.036 and/or SCP 17.2.002 should include the proposed provision of new consolidated apron de-icing fluid storage and de-icing vehicle parks. Dublin Airport has confirmed that both CIP.20.03.036 and SCP 17.2.002 do not include provision for new consolidated de-icing fluid storage and de-icing vehicle parking space. This project includes de-icing fluid storage and de-icing vehicle parking for the North Apron only. This project is linked to CIP.20.03.052 in trying to establish source control of surface water contaminants, for example: reducing polluted water mixing with cleaner water sources.
Existing asset conditions	New asset
Double counting	None observed, except required to achieve the objectives of CIP.20.03.052 Surface Water Environmental Compliance

Scope/Specification – Conclusion

Table 5.142: Aircraft De-Icing - Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope/scope change will meet the outputs required of the project.	

Cost estimate review

Table 5.143: Aircraft De-icing – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.19	0.18	-0.01
Construction Costs	0.94	0.90	-0.04
Escalation, Contingency & Design Variability	0.20	0.19	-0.01
Total	**1.33**	**1.28**	**-0.05**

Table 5.144: Aircraft De-icing – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.19	0.18	-0.01
Total	**0.19**	**0.18**	**-0.01**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	0.94	0.90	-0.04
Total	0.94	0.90	-0.04
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.20	0.19	-0.01
Total	**0.20**	**0.19**	**-0.01**

5.282 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.145: Aircraft De-icing – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Main Contractor Preliminaries	Redacted		-0.04
Design and Management Fees			-0.01
Contingency allowance			-0.01

Cost - Draft Report Conclusion

5.283 This is a new project that was not included in the 2019 assessment. We have reduced the allowance for main contractor's preliminaries from Redacted % to Redacted %. This implication of this change is a reduction to the design development allowance, design and management allowance and contingency allowance.

5.284 We have requested a breakdown for the lump sum for the A-CDM Snow Module and once received, this will be assessed in our Final Report later this year.

5.285 The allowance for escalation is based on a percentage uplift of 2.25%. Dublin Airport need to confirm the base date for their estimate so that the assessment of the escalation allowance can be concluded. No monies have been spent on this project thus far.

5.286 With the exception of the A-CDM Snow Module allowance and finalisation of the escalation assessment, the costs for the remainder of the items in the estimate are reasonable.

Overall conclusion

5.287 Our overall conclusion of the project review is as follows:

Table 5.146: Aircraft De-icing – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope/scope change will meet the outputs required of the project. The assessment of the A-CDM lump sum and the escalation allowance need to be finalised. With the exception of the allowance for main contractor's preliminaries that we have reduced, the cost for the remaining items included in the estimate are reasonable.	

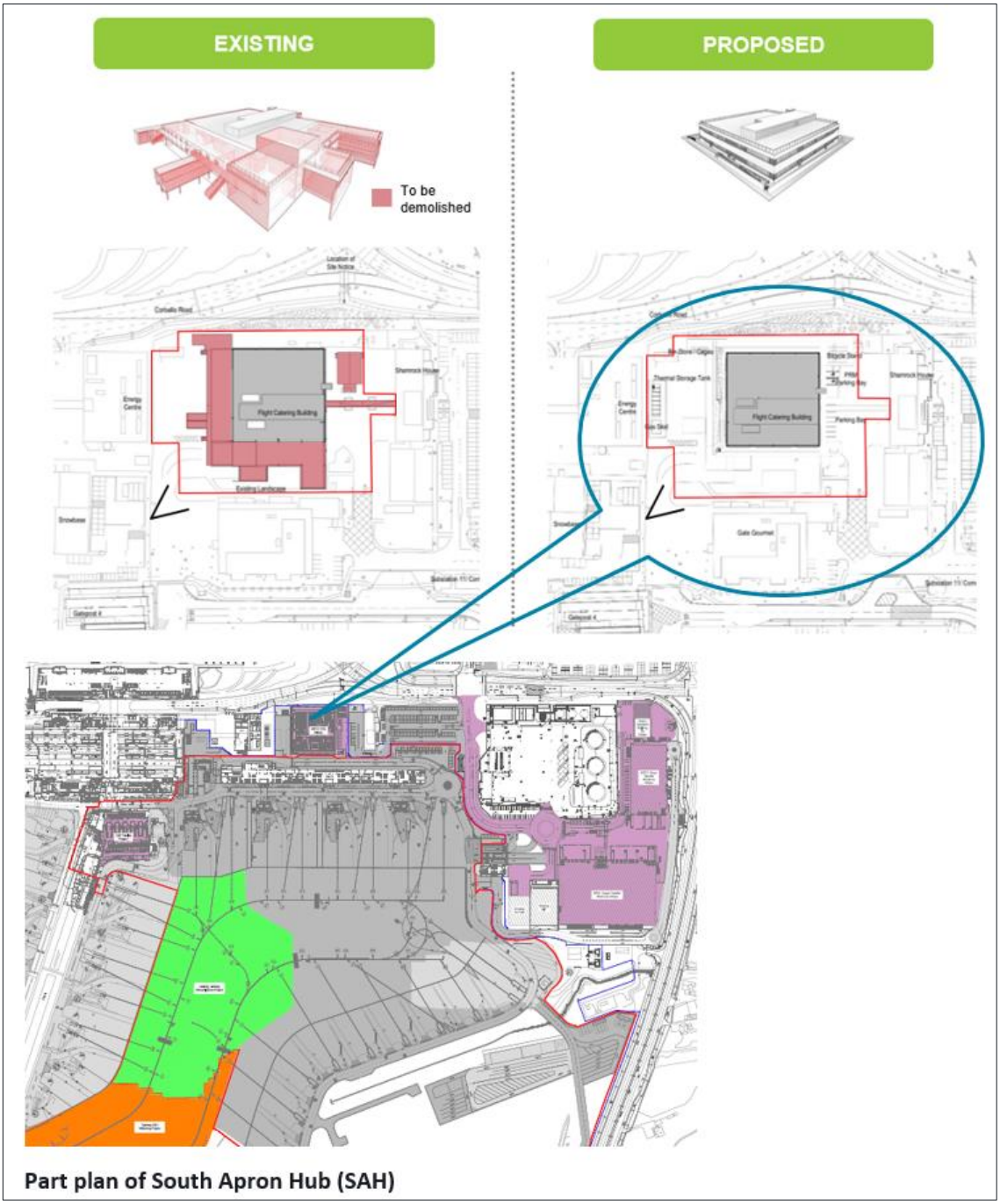
CIP.20.03.077 – South Apron Support Centre - Conversion of FCB

Project description

Introduction

5.289 This project provides accommodation for the ground handlers in the South Apron Hub (SAH) campus as a result of the development of this campus which requires the demolition of the existing ground handler facilities.

Figure 5.23: South Apron Support Centre - Conversion of FCB



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.290 The project objective is to provide new ground handler facilities that have sufficient capacity for future growth in close proximity to the SAH.

Context

5.291 The context of this project is the planned development of the South Apron Hub. Several interdependent projects make up this development which also require physical connectivity. The existing Flight Catering Centre located to the north of the new Pier 5 has been identified as the optimum location and subject to a reduction size and internal re-modelling can provide the accommodation required. Dublin Airport advises that a benefit of this building and planned re-modelling is that it will provide accommodation for a construction management compound and welfare facility in the heart of the SAH site during its construction, thus offsetting site set up and management costs, and then subsequently it will provide the ground handler accommodation.

Scope

5.292 From the information provided, the scope appears to target the key requirements of the functional drivers set out in the CIP 2020+, however, more information on precisely how the existing building is to be re-modelled and significantly reduced in size would give more confidence that the project has been thought through.

Change in scope versus Previous CIP2020+

5.293 New project.

Stage

5.294 The project is now planned to start in Q2 2023 and handed over in Q1 2025. This project is interfaced with Pier 5, start Q1 2024 finish Q1 2029 and South Apron Expansion, start Q3 2025 finish Q3 2029.

Key project metrics

Table 5.147: South Apron Support Centre

Metric	Value
Project cost estimate	€ 11,605,345
Cost per sq metre	€2,818
Floor area	4,118 m2

Scope/Specifications review

Table 5.148: South Apron Support Centre - Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient in delivering the proposed project functionality, but in outline format.
Alternative scopes	None identified.
Quality of specifications of scope/scope change	The specification information is limited but the Level 3 cost build up covers a wide range of building finishes and components.
Phasing and synergies with other projects	This project needs to be co-ordinated with Pier 5 CIP 20.03.029 and be complete as scheduled in Q1 2025 to avoid impacting on the South Apron Expansion CIP 20.03.031 in Q3 2025.

Subject	Comments
Existing asset conditions	The existing asset Flight Catering Building, which is being re-modelled for this project was constructed in 1970; it is now near the end of its asset life, circa 60 years.
Double counting	None identified.

Scope/Specifications - Conclusion

Table 5.149: South Apron Support Centre - Scope/Specifications - Conclusion

Description	RAG
The scope for this type of project is efficient at high level, however, the project details such as functionality and design are limited, giving rise to the possibility of inaccurate cost execution.	

Cost estimate review

Table 5.150: South Apron Support Centre – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	1.26	1.26	-
Construction Costs	8.59	8.59	-
Escalation, Contingency & Design Variability	1.76	1.87	+0.11
Total	**11.61**	**11.71**	**+0.11**

Table 5.151: South Apron Support Centre – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	1.26	1.26	-
Total	**1.26**	**1.26**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Flight Catering Building Conversion	8.59	8.59	-
Total	8.59	8.59	-
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	1.76	1.87	+0.11
Total	**1.76**	**1.87**	**+0.11**

5.295 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.152: South Apron Support Centre – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Tender & Construction Inflation	Redacted		+0.11

Cost - Draft Report Conclusion

5.296 This is a new project that was not included in the 2019 assessment. We have queried the lump sums for making good finishes, alterations to incoming services, external lighting and patch repairs to the existing roof structure. While Dublin Airport have responded to our queries by explaining what is included in the lump sums, we have not received an actual breakdown of these sums that will allow us to fully assess the costs. This will be concluded for the Final Report later this year.

5.297 Dublin Airport needs to provide an explanation for the OCIP contributions that are included in their estimate, along with a breakdown of the sum included. The assessment of this item will be concluded in the Final Report later this year.

5.298 The only variance from our assessment is the allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation. Dublin Airport has included a percentage uplift for escalation of 9.77%. Dublin Airport needs to confirm the base date for their estimate so that we can complete the assessment of escalation.

5.299 Except for the items noted above, the costs for the remaining elements of this project are reasonable.

Overall conclusion

5.300 Our overall conclusion of the project review is as follows:

Table 5.153: South Apron Support Centre – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The scope for this type of project is efficient at high level, however, the project details such as functionality and design are limited, giving rise to the possibility of inaccurate cost execution. Subject to concluding the assessment of the lump sums and escalation that will addressed in the Final report later this year, the remaining elements of the cost estimate are reasonable.	

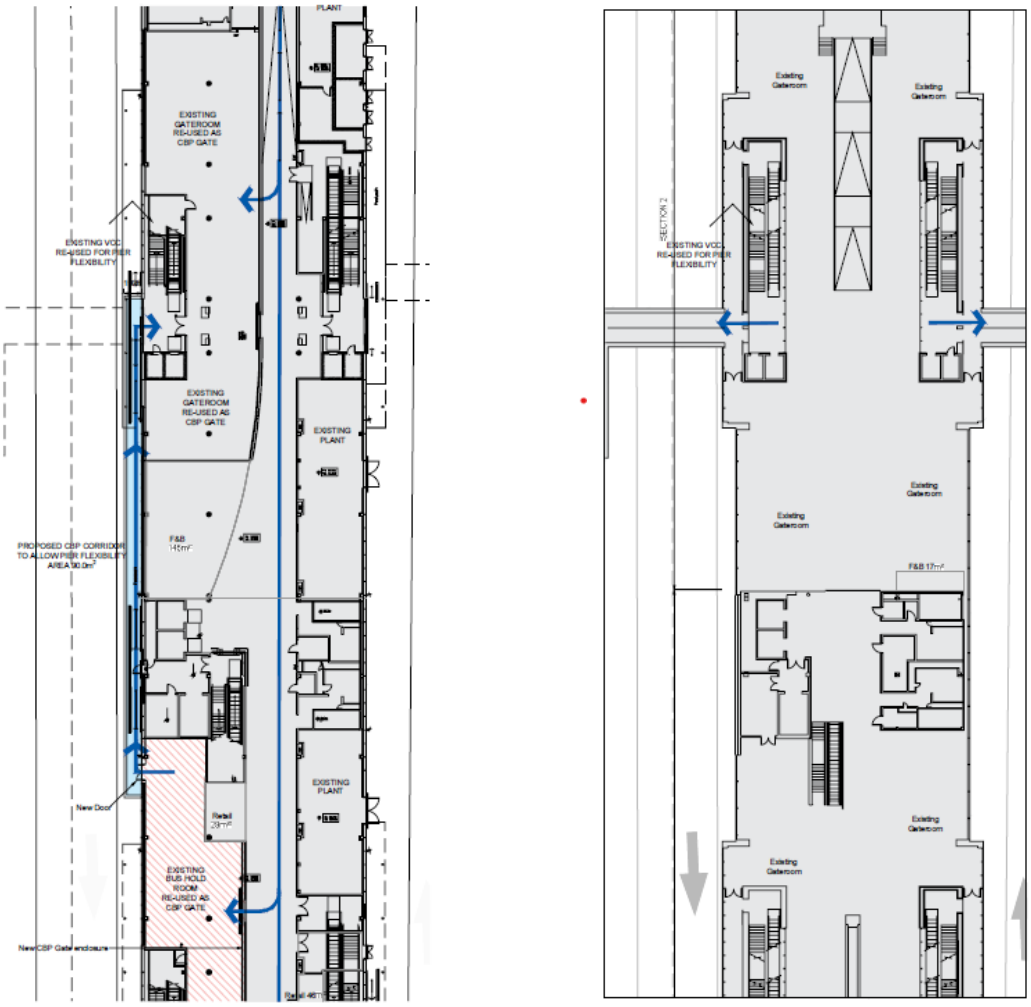
CIP.20.03.078 – Pier 4 Deflex

Project description

Introduction

5.302 The Pier 4 De-Flex project provides for an apron level corridor to the side of Pier 4, providing flexible routing of departing passengers between apron level gates and airbridge vertical circulation cores, so that the gate functionality can flex between CBP and non CBP flights.

Figure 5.24: Pier 4 Deflex



Apron level First floor level

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.303 The project objective is to provide flexible embarking and disembarking for both CBP and non CBP flights, particularly if CBP flights are delayed, preventing the first floor from handling non CBP flights.

Context

5.304 The context of this project is to provide more flexibility for Pier 4 to handle CBP and non CBP flights simultaneously.

Scope

5.305 From the information provided, the scope appears to target the key requirements of the functional drivers set out in the CIP 2020+, however, more information on precisely how the apron corridor is to constructed would give more confidence that the project has been thought through.

Change in scope versus Previous CIP2020+

5.306 New project.

Stage

5.307 The project is now planned to start in Q2 2025 and handed over in Q1 2027. This is a long time for a relatively small project providing key functionality.

Key project metrics

Table 5.154: Pier 4 Deflex

Metric	Value
Construction cost estimate	€ 2,135,700
Project cost estimate	€ 4,330,397
Cost per sq metre	nr
Floor area	nr

Scope/Specifications review

Table 5.155: Pier 4 Deflex – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient in delivering the proposed project functionality, but in outline format.
Alternative scopes	None identified.
Quality of specifications of scope/scope change	The specification information is limited but the Level 3 cost build up covers a wide range of building finishes and components.
Phasing and synergies with other projects	There is a synergy with the CIP 20 03.030, US Pre-Clearance Facilities which has the same (long) procurement programme Q1 2025 – Q4 2027
Existing asset conditions	The existing Pier 4 has a remaining 38 year asset life, so providing this project with a 15 year asset life is too short.
Double counting	None identified.

Scope/Specifications - Conclusion

Table 5.156: Pier 4 Deflex

Description	RAG
The scope for this type of project is efficient at high level, however, the detail of its design/construct programme is limited giving rise to the possibility of inaccurate cost execution.	

Cost estimate review

Table 5.157: Pier 4 Deflex– Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.43	0.43	-
Construction Costs	2.14	2.14	-
Escalation, Contingency & Design Variability	1.77	1.91	+0.15
Total	**4.33**	**4.48**	**+0.15**

Table 5.158: Pier 4 Deflex– Level 2 Costs

Design and Management Costs (DM-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
General Design & Management	0.43	0.43	-
Total	**0.43**	**0.43**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction works	2.14	2.14	-
Total	2.14	2.14	-
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	1.77	1.91	+0.15
Total	**1.77**	**1.91**	**+0.15**

5.308 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.159: Pier 4 Deflex – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Inflation to base date of Q4 2021	Redacted		+0.12
Inflation to midpoint of construction			+0.03

Cost - Draft Report Conclusion

5.309 This is a new project that was not included in the 2019 assessment. We have queried the lump sums for refurbishment of existing buildings and the sum for other works not yet designed. While Dublin Airport has responded to these queries, it has not provided a breakdown of these sums.

While Dublin Airport has stated that the design information is limited as the project is at a very early stage, clarification is still required as to the areas where Dublin Airport think that the design will develop so that we can assess the lump sums included.

5.310 Dublin Airport has provided a breakdown of the rate for the new external covered walkway, but they need to clarify what level of finishes they have budgeted for within their rate. The assessment of this item will be concluded in the Final Report later this year.

5.311 The only variance from our assessment is the allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage, applied to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

Overall conclusion

5.312 Our overall conclusion of the project review is as follows:

Table 5.160: Pier 4 Deflex

– Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The scope for this type of project is efficient at high level, however, the detail of its design/construct programme is limited giving rise to the possibility of inaccurate cost execution. Subject to concluding the assessment of the lump sums and the cost of the external covered walkway, that will be addressed in the Final Report later this year, the remaining elements of the cost estimate are reasonable.	

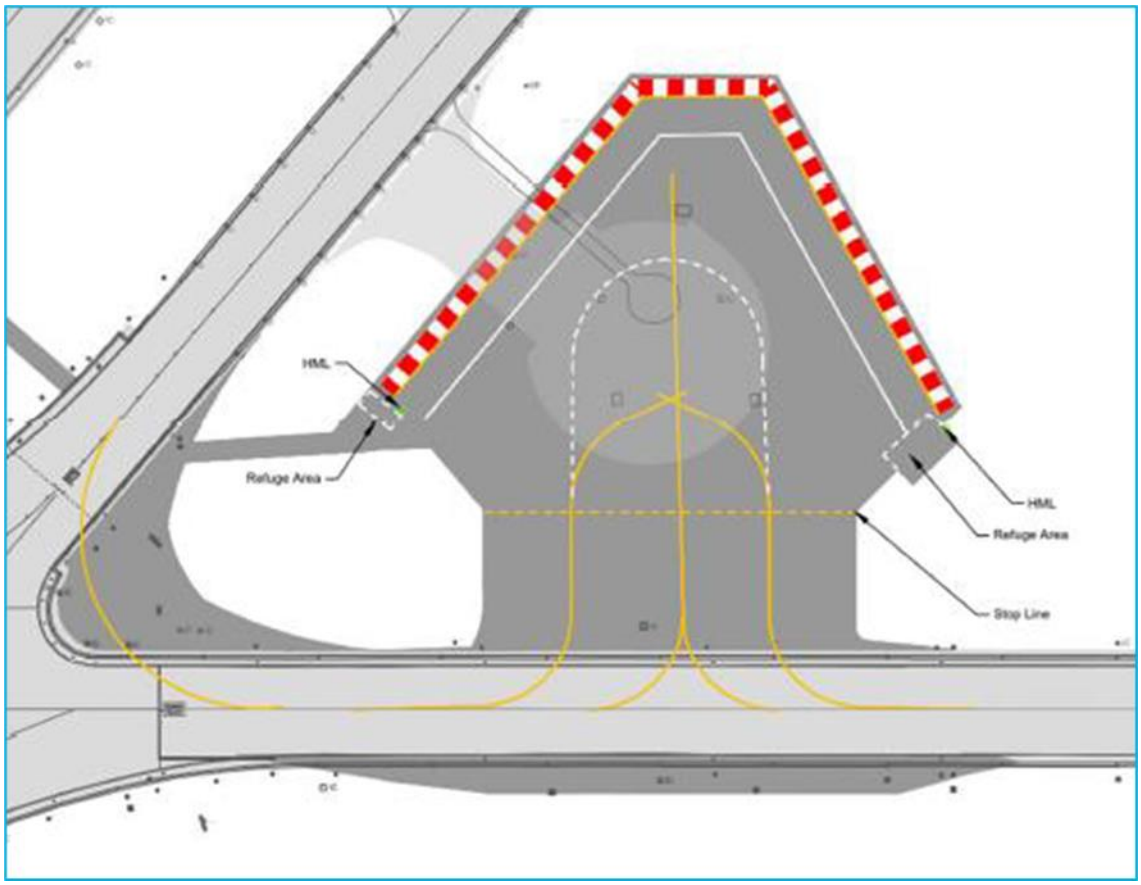
CIP.20.03.079 – Engine Test Site

Project description

Introduction

5.313 Dublin Airport proposes to upgrade the existing Code C Engine Test Site (ETS) facility to accommodate Code E aircraft.

Figure 5.25: Engine Test Site



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

5.314 It is proposed to upgrade the existing Code C engine test site facility to accommodate Code E aircraft or find another suitable location on the airfield for a Code E test facility. The existing Code C facility is located between taxiways Sierra, Whiskey 1 and Runway 16-34 in the centre of the airfield.

Context

5.315 Existing code E engine testing locations will no longer be available with the introduction of the North Runway in 2022 and associated planning condition which states aircraft engine testing at the northern end of the airfield shall cease and shall be relocated away from populated neighbouring areas to a sound-controlled area in accordance with objectives of the Dublin Airport Local Area Plan 2006.

Scope

5.316 This facility will be designed to have a high usability factor, minimal operational constraints and accommodate engine testing up to and including full power runs. The main deliverables of this project will include:

- Detailed design and planning;
- Expanded pavement;
- Code E jet blast fencing;
- High mast lighting;
- Refuge and equipment storage;
- Drainage and attenuation; and
- Taxiway fillets.

Change in scope versus Previous CIP2020+

5.317 This is a new project.

Stage

5.318 The project is currently at initial concept stage. The design stage and procurement stage are due for completion in Q4 2022 and then construction commencement in Q4 2022. Handover is scheduled 6 months later in Q2 2023. This programme is considered to be reasonable for the implementation and commissioning of this new engine test site.

- Feasibility/Outline design complete Q4 2022
- Planning complete Q4 2022
- Design complete Q4 2022
- Procurement compete Q4 2022
- Construction commence Q4 2022
- Project handover Q2 2023

Key project metrics

Table 5.161: Code E Engine Test Site – Key project metrics

Metric	Value
Dublin Airport total cost estimate (2022)	€16,020,000
New pavement area (m^2)	12,641
Code E engine test capacity	1 no. Code E

Scope/Specifications review

Table 5.162: Code E Engine Test Site – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	Given the wind rose data at Dublin Airport, we have queried if all of the blast fence shown on AECOM sketch SK5008 are actually needed. By comparison with the more frequently used Code C facility, it appeared that some of the blast protection may not be needed. However, Dublin Airport has confirmed that the current Code C facility has usability constraints and can only be used in certain wind directions reducing optimal utility, a compromised solution in advance of the new ATC control

Subject	Comments
	tower which is now active and required to allow introduction of the North Parallel Runway. The new Code E facility is designed to provide the maximum utility in 95% of wind conditions. The proposed fence arrangement allows the aircraft to be positioned taking account of eastern, western, and southerly winds. Given the significant cost of the project; operational constraints should be designed out as far as possible. Through further detailed design, jet blast and noise impact modelling it may be possible to refine the fence length and alignment to achieve the most optimal and cost-effective outcome. The ultimate solution will be reported and consulted on at StageGate.
Alternative scopes	We have questioned the potential reduction in blast protection length considered but Dublin Airport has confirmed that this is not possible (see above).
Quality of specifications of scope/scope change	At this stage in the project, the details appear to be very high level. However, given that the concept sketch dates from January 2020 and the construction start is in Q4 2022, the level of detail should be further progressed at this time.
Phasing and synergies with other projects	Code C engine run ups will need to be relocated during the works as the facility is developed over the footprint of the existing one. Dublin Airport has confirmed that during the Code E ETS construction works, Code C engine run-ups will have to be temporary relocated to unused taxiways / aprons on the day, depending on operations. Temporary/potential Code C engine run-ups sites will be agreed between Dublin Airport operations and IAA in advance of construction works.
Existing asset conditions	The re-use of the existing pavement has been queried to check that it is strong enough for the upgrade to Code E aircraft use (appreciating that they will not be at MTOW). Dublin Airport has confirmed that it believes the existing pavements to be suitable given the aircraft will not be loaded and frequency of use is low.
Double counting	None observed

Scope/Specifications – Conclusion

Table 5.163: Code E Engine Test Site - Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope/scope change will meet the outputs required of the project.	

Cost estimate review

Table 5.164: Engine Test Site – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	1.95	1.96	+0.01
Construction Costs	9.76	9.79	+0.03
Escalation, Contingency & Design Variability	4.31	4.87	+0.55
Total	**16.02**	**16.62**	**+0.59**

Table 5.165: Engine Test Site – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	1.95	1.96	+0.01
Total	**1.95**	**1.96**	**+0.01**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Fittings / Furnishings & Equipment	9.76	9.79	+0.03
Total	9.76	9.79	+0.03
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	4.31	4.87	+0.55
Total	**4.31**	**4.87**	**+0.55**

5.319 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.166: Engine Test Site – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Inflation/escalation from estimate base date to Q4 2021	Redacted		+0.55
Staging allowance at 2%			+0.03
General Design and management @ 20%			+0.01

Cost - Draft Report Conclusion

5.320 This is a new project that was not included in the 2019 assessment. We have requested breakdowns for rates for new high mast lighting, relocation of existing lighting mast and the new blast wall. In addition, we have requested breakdowns for the lump sums for landscaping and AGL, signage and linemarking. With the exception of the new blast wall, the costs of the other items noted above amount to a small proportion of the overall cost of the project. The responses to these queries will be assessed in our Final Report to be issued later this year. The cost of the remaining items in Dublin Airports estimate are reasonable.

5.321 There is a minor arithmetical error in calculation of the staging allowance in Dublin Airports estimate and this has been corrected in our assessment. This adjustment has resulted in minor changes to the allowances for design development, night working and low visibility working.

5.322 The only other assessment is the allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage applied, to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

Overall conclusion

5.323 Our overall conclusion of the project review is as follows:

Table 5.167: Engine Test Site – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope/scope change will meet the outputs required of the project. The assessment of the rates and lump sums that have been queried need to be assessed in the Final Report later this year. The costs for the remaining items in the cost estimate are reasonable.	

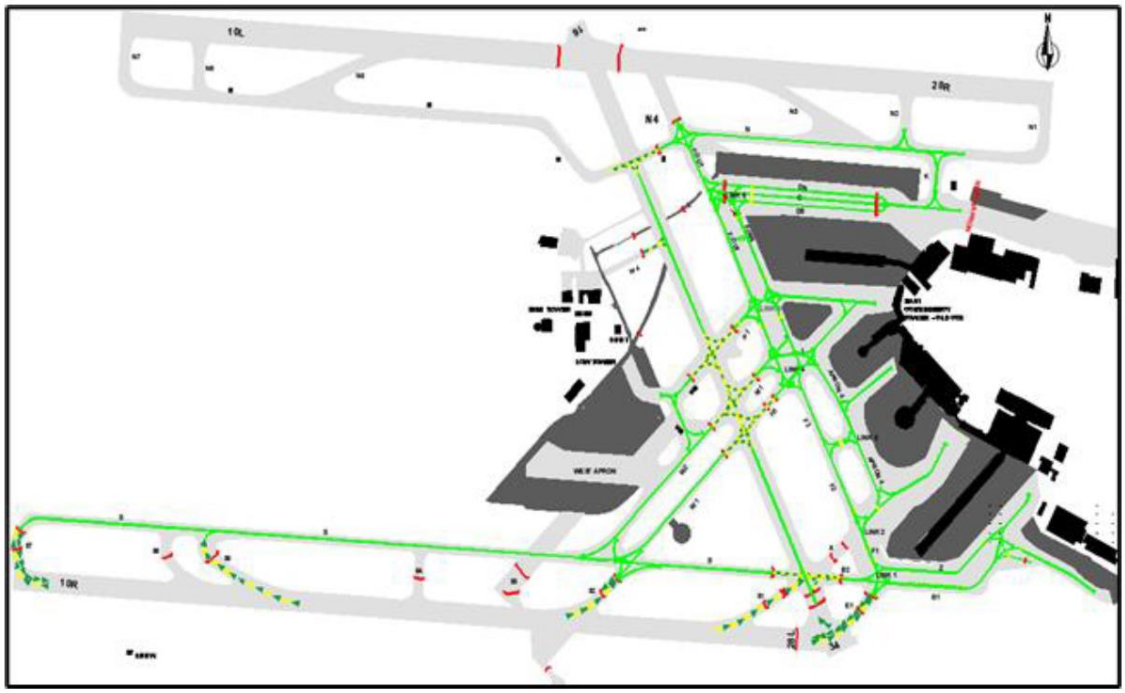
CIP.20.03.080 – Yellow Green Taxiway Centreline AGL

Project description

Introduction

5.324 Dublin Airport proposes to replace existing taxiway centreline fittings associated at all entry points to the Northern and Southern Runways with Yellow/Green AGL fittings, including any circuitry reconfiguration. This project is defined by the airport as an 'exceptional' Core project required within the extended CIP period up to 2026.

Figure 5.26: Yellow Green Taxiway Centreline AGL



Source: Dublin Airport's Capital Investment Programme 2020+ Review Final Report

Objective

5.325 Once the Runway 16-34 LVP lighting project is completed, Runway 16-34 will have a Yellow / Green centreline AGL's configuration on all entry and exits points to Runway 16-34. The North and South Runways will not be aligned to Runway 16-34, and this will introduce taxiway centreline lighting inconsistencies across the airfield.

5.326 This project is intended to bring all taxiway AGL centreline lights in line with EASA recommendations in regulation CS ADR-DSN.M.710 Taxiway Centre Line Lights and CS ADR-DSN.M.715 Taxiway Centre Line Lights on Taxiways, Runways and Rapid Exit Taxiways. This is to ensure consistent taxiway colour code lighting on all taxiways across the airfield for all operators.

Context

5.327 As part of the Runway 16-34 Low Visibility Procedures (LVP) lighting project, Dublin Airport has committed to demonstrate compliance with the EASA recommendation in regulations CS ADR-DSN.M.710 Taxiway Centre Line Lights and CS ADR-DSN.M.715 Taxiway Centre Line Lights on Taxiways, Runways, Rapid Exit Taxiways or on other Exit Taxiways.

5.328 The proposed Runway 16-34 LVP lighting project includes the following parameters (green taxiway centreline lights along Runway 16-34 with a Yellow/Green taxiway centreline for entry & exit taxiways. This has been accepted by the Dublin Airport safety regulatory team.

5.329 On Runway 10R-28L (Southern Runway) the circuitry was reconfigured on Taxiways E1 and S7 as a safeguard measure during the Runway 10R-28L overlay project following discussions at Local Runway Safety Team (LRST) in 2014 and again at LRST in 2020. While these works were safeguarded as part of the runway overlay works, it was agreed to install the yellow / green AGL's at a later date when Dublin Airport was in a position to roll out this lighting configuration to all taxiways, in a holistic manner.

5.330 On Runway 10L-28R (Northern Runway), a yellow / green taxiway centreline AGL configuration was installed on all exit (i.e. lead-off) taxiways but lead-on AGL's were not provided, because at the time it was not consistent with other taxiways AGL configurations at Dublin Airport.

Scope

5.331 This project will replace existing taxiway centreline fittings associated at all entry points to the Northern and Southern Runways with Yellow / Green AGL fittings including any circuitry reconfiguration, as required.

Change in scope versus Previous CIP2020+

5.332 This is a new project.

Stage

5.333 The project timeline as indicated by Dublin Airport is the following:

- Pre-construction Q1 2021
- Start of construction Q4 2024
- Construction complete Q4 2026

Key project metrics

Table 5.168: Yellow Green Taxiway Centreline AGL – Key project metrics

Metric	Value
Project cost estimate	€ 5,240,000
Construction cost estimate	€ 3,230,000

Scope/Specifications review

5.334 This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report.

Table 5.169: Yellow Green Taxiway Centreline AGL – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	Reviewed after the Draft Report submission.
Alternative scopes	Reviewed after the Draft Report submission.
Quality of specifications of scope/scope change	Reviewed after the Draft Report submission.
Phasing and synergies with other projects	Reviewed after the Draft Report submission.

Existing asset conditions	Reviewed after the Draft Report submission.
Double counting	Reviewed after the Draft Report submission.

Scope/Specifications – Conclusion

Table 5.170: Yellow Green Taxiway Centreline AGL – Scope/Specifications - Conclusion

Description	RAG
This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report.	

Cost estimate review

Table 5.171: Yellow Green Taxiway Centreline AGL– Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.65	0.62	-0.03
Construction Costs	3.23	3.10	-0.13
Escalation, Contingency & Design Variability	1.36	1.48	+0.12
Total	**5.24**	**5.20**	**-0.04**

Table 5.172: Yellow Green Taxiway Centreline AGL– Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.65	0.62	-0.03
Total	**0.65**	**0.62**	**-0.03**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Flight Catering Building Conversion	3.23	3.10	-0.13
Total	**3.23**	**3.10**	**-0.13**
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	1.36	1.48	+0.12
Total	**1.36**	**1.48**	**+0.12**

5.335 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 5.173: Yellow Green Taxiway Centreline AGL– Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Main contractors preliminaries	Redacted		-0.13
Escalation to midpoint of construction			+0.14
Allowance for design and management fees			-0.03

Cost - Draft Report Conclusion

5.336 This is a new project that was not included in the 2019 assessment. Dublin Airport has provided an explanation of the rate for the replacement of taxiway centreline lighting that is reasonable.

5.337 We have reduced the allowance for main contractor's preliminaries from Redacted % to Redacted %. This implication of this change is a reduction to the design development and management contingency allowances.

5.338 The only other assessment is the allowance for escalation. No monies have been spent on this project thus far. Our assessment is based on a percentage uplift for escalation of 21.55%. Dublin Airport needs to confirm the percentage uplift that they have applied to their estimate along with the base date of their estimate.

Overall conclusion

5.339 Our overall conclusion of the project review is as follows:

Table 5.174: Yellow Green Taxiway Centreline AGL– Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
This project has been added recently to the CIP2020+ by Dublin Airport. Therefore, its scope/specifications will be reviewed after the submission of the Draft Report. The assessment of escalation needs to be finalised in the Final Report later this year. The costs for the remaining items in the cost estimate are reasonable.	

6 Project Reviews – CIP2020+ Appendix D – Commercial

Summary

Table 6.1: Appendix D - Commercial – Summary

CIP Number	Project Title	RAG Costs	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
CIP.20.04.001	Car Parking Management System (Maintenance & upgrade)		3.10	3.98	4.07	+0.09
CIP.20.04.002	Car Hire Consolidation Centre		13.62	33.00	33.07	+0.07
CIP.20.04.003	New Food & Beverage Fit-out (T1X)		1.32	3.37	2.47	-0.90
CIP.20.04.004	Digital Advertising Infrastructure		2.17	8.33	8.38	+0.05
CIP.20.04.005	Long Term Car Parking - Eastland's (2,000 spaces)		9.42	13.07	13.54	+0.47
CIP.20.04.007	Terminal 2 Multi-Storey Car Park (680 spaces)		14.94	22.36	20.71	-1.65
CIP.20.04.009	Staff Car Park		5.77	7.25	7.47	+0.22
CIP.20.04.016	Platinum Services Upgrade Works		2.10	7.13	7.63	+0.50
CIP.20.04.017	Airline Lounges - Expansion, Upgrade & New		11.36	16.81	17.33	+0.51
CIP.20.04.018	Fast Track Improvements		1.69	6.87	6.58	-0.29
CIP.20.04.021	West Apron - Accommodation & Welfare Facilities		4.48	2.93	3.12	+0.19
CIP.20.04.023	Food & Beverage Provision & Fit-out – Post CBP		1.82	4.46	4.18	-0.28
CIP.20.04.025	Commercial Property Refurbishment		5.98	6.89	6.87	-0.02

CIP Number	Project Title	RAG Costs	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
CIP.20.04.030	New Kitchen in Terminal 2		2.28	2.26	2.26	-
CIP.20.07.010	Office Consolidation & Refurbishment		11.61	19.79	19.46	-0.33
CIP.20.08.001	Retail Refurbishments, Upgrades and New Developments		8.00	11.71	11.78	+0.07
CIP.20.08.002	Retail Marketing & Media Installation		1.50	1.90	1.97	+0.06
CIP.20.04.031	Fuel Farm Welfare		N/A	4.06	2.71	-1.35
CIP.20.04.032	Drop Off / Pick Up		N/A	5.24	4.84	-0.40
CIP.20.04.034	OCTB Refurb		N/A	9.05	9.05	-
CIP.20.04.006	Terminal 1 Multi-Storey Car Park Block B (466 spaces)		17.36	-	-	-
Total			**118.50**	**190.46**	**187.48**	**-2.98**

6.1 Overall our estimates for the projects in the Commercial envelope suggest that the overall costs could be decreased by €2.98m.

6.2 Our upwards adjustment in project escalation costs to the end of 2021 from +19% to +23% has increased the IFS assessment for the Commercial group of projects by +€4.45m. If the Dublin Airport proposed cost estimate was increased to take account of this additional +4% cost increase due to escalation, this would show the IFS assessment as identifying a cost reduction of -€7.43m.

6.3 Individual reports for the projects in this Appendix are presented below.

CIP.20.04.001 – Car Parking Management System (Maintenance & upgrade)

Project description

Introduction

6.4 All car park projects have been re-assessed with resultant projects prioritised; Dublin Airport proposes to deliver the car parking management system upgrade and maintenance within the CIP cycle up to 2026.

Figure 6.1: Car Parking Management System (Maintenance and upgrade)

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.5 To continue running and managing revenue collection in car parks, Dublin Airport advises that the existing Car Parking Management Systems (CPMS) need to be upgraded and replaced. The existing CPMS is now reported as being end of life (the existing system has a 10-year asset life), with current version of system support.

Context

6.6 The existing CPMS (installed in 2006) is planned to allow efficient and effective management of front-end customer operations, delivering improved service as well as collection of revenue.

Scope

6.7 The scope of this project consists of replacing the following equipment across the 4 short term car parks and the 3 long term car parks:

- 20 entry barriers (number confirmed in response to a question to Dublin Airport);
- 20 exit barriers (number confirmed in response to a question to Dublin Airport);
- 21 pay stations;
- 34 barriers;
- 34 CCTV cameras;
- 34 ANPR (Auto Number Plate Recognition) cameras; and

- Provision of new sensor technology hardware (focus on specific sections of short-term car parks for premium paying customers).

6.8 In response to a question regarding delays in procuring this CPMS replacement, Dublin Airport has stated the need to closely manage the existing CPMS to ensure its continuing serviceability. However, it has also stated that the procurement of the CPMS replacement is necessarily linked with the proposed new e-commerce platform. It does not want to procure a new CPMS in advance of the new e-commerce system in case it will not be compatible.

Change in scope versus Previous CIP2020+

6.9 There is no change to the project scope identified. Dublin Airport states that given the interdependencies of the CIP2020+ car parking projects CIP.20.04.001/005/007/009, they should be treated as a single flexible envelope allowing the airport to expedite delivery and react to its passengers and staff needs when the traffic will recover from COVID-19 and will continue to grow to 40mppa.

Stage

6.10 This project has not started, and no works were completed pre-pandemic. Hence the project is currently at initial concept stage. The delay in this replacement programme means the car park system is being closely managed in the interim whist waiting for the replacement of the CPMS to be completed.

6.11 The procurement of the CPMS replacement linked with the proposed new e-commerce platform. Dublin Airport does not want to procure a new system in advance of the e-commerce system in case it will not be compatible.

6.12 The outlined procurement route is the following:

- Feasibility/ Outline design Start — Q2 2023
- Detailed Design Complete — not specifically identified
- Procurement Complete — not specifically identified
- Construction commence — Q2 2024
- Project handover — Q3 2025

Key project metrics

Table 6.2: Car Parking Management System – Key project metrics

Metric	Value
Construction cost estimate	€ 2,500,000
Entry/exit stations	20 new entry and 20 exit barriers
Pay stations	21 new pay stations
Barriers	34
CCTV Cameras	34
ANPR cameras	34
Sensor technology	Provision of new sensor technology

Scope/Specifications review

6.13 The scope of this project is under development. Currently this project's requirements and benefits are only defined at business case level only.

Table 6.3: Car Parking Management System – Scope/Specifications review

Subject	Comments
Effectiveness of scope	The scope is efficient in identifying the work to be carried out in outline format. The project scope has not been changed since the review in 2019 which DAA stated 24 entry and 16 exit terminals are required, but dialogue with Dublin Airport has identified this as being incorrect. The correct number is 20 entry and 20 exit terminals, but still totals 40 units. Given that the entry and exit terminals are priced the same, this has nil impact on the costings.
Alternative scopes	None
Quality of specifications	The Level 3 costs and CIP description present inconsistent evaluations for the number of entry and exit lanes to be provided by the CPMS specification for the CPMS. Following a clarification Question to Dublin Airport they have verified that the CPMS will provide equipment for 20 Entry lanes and 20 Exit Lanes.
Phasing and synergies with other projects	The procurement of new CPMS is linked with the proposed new e-commerce platform. Dublin Airport do not want to procure a new system in advance of the e-commerce system in case it will not be compatible, and changes are required. The Installation work in the car parks need to be co-ordinated with the other renewal projects to avoid on site clashes and inefficient working: • CIP.20.04.005 Long Term Car Park Capacity; • CIP.20.04.006 T1 MSCP; and • CIP.20.04.007 T2 MSCP.
Existing asset conditions	Existing system dates from 2006. 10 years is a normal economic life for IT systems such as this. By the time this project is implemented the system will have been in service 19 years nearly twice the expected life of a system. Dublin Airport has identified the need to closely manage the existing CPMS asset. Even so, this may result in the existing system becoming unserviceable and/or repairable.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 6.4: Car Parking Management System (Maintenance and upgrade) Scope/Specifications -Conclusion

Description	RAG
We conclude that there has been little scope change for the replacement CPMS project since the review in 2019, and therefore the proposed plans remain an effective solution to achieve the project plans.	

Cost estimate review

Table 6.5: Car Parking Management System – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.19	0.19	0.19	-
Construction Costs	2.50	2.50	2.50	-
Escalation, Contingency & Design Variability	0.42	1.29	1.38	+0.09
Total	**3.10**	**3.98**	**4.07**	**+0.09**

Table 6.6: Car Parking Management System – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.19	0.19	0.19	-
Total	**0.19**	**0.19**	**0.19**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Fittings / Furnishings & Equipment	2.50	2.50	2.50	-
Total	**2.50**	**2.50**	**2.50**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.42	1.29	1.38	+0.09
Total	**0.42**	**1.29**	**1.38**	**+0.09**

6.14 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.7: Car Parking Management System – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.09

Cost - Draft Report Conclusion

6.15 The only variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

6.16 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

6.17 Our overall conclusion of the project review is as follows:

Table 6.8: Car Parking Management System – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that there has been little scope change for the replacement CPMS project since the review in 2019, and therefore the proposed plans remain an effective solution to achieve the project plans. **With exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost estimate for this project is reasonable.**	

CIP.20.04.002 – Car Hire Consolidation Centre

Project description

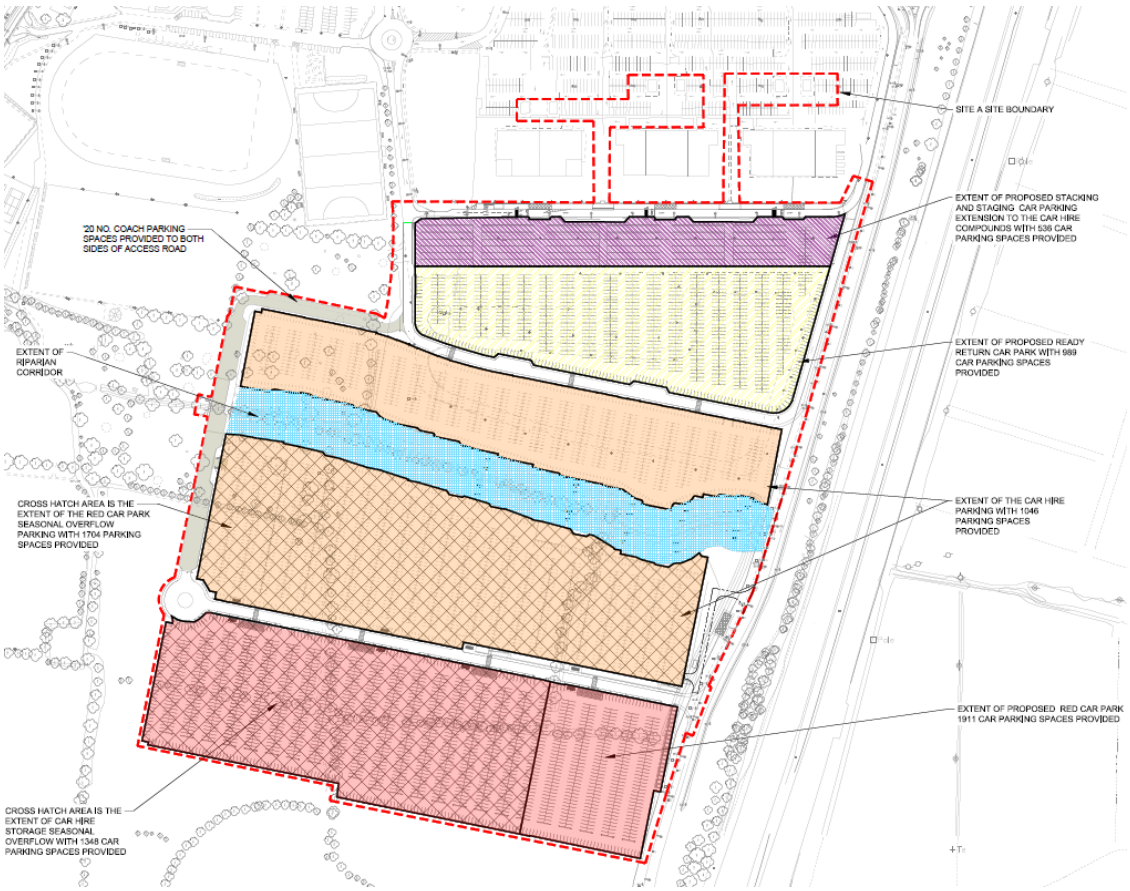
Introduction

6.18 This project is for the expansion of existing car hire facilities.

Figure 6.2: Car Hire Consolidation Centre - Picture

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Figure 6.3: Car Hire Consolidation Centre - Plan



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.19 The objective of this project is to increase capacity at the car hire consolidation centre, providing approximately 4,000 additional spaces, upgrading the service areas and improved mobility access, pedestrian/cycle lane as well as heavy vehicle drop off bays.

Context

6.20 The background to this project is the need to expand and upgrade the car hire facilities to enable an improved quality of service as customer complaints are increasing. This is primarily because the facilities are outdated, require regular maintenance and have structural issues and there is inadequate parking and servicing facilities.

Scope

6.21 The scope provides for the facility upgrade and modernisation to be undertaken in 3 phases, with phases one and two delivered in this CIP period up to 2026 and phase three in the next CIP period:

- *Phase 1* – Additional parking spaces to provide circa 4,000 additional car hire storage and return space to the rear of the compounds. To be delivered in this CIP period with costs included in this commercial project.
- *Phase 2* – Expansion and upgrades to the existing compounds buildings/infrastructure, this includes extending the maintenance and servicing areas to the rear of the compounds and replacing many of the end-of-life assets, for example roller doors, skylights, roof leaks etc. To be delivered in this CIP period with costs included in this commercial project.
- *Phase 3* – Additional Mobility improvements including pedestrian access and a cycle lane to be included. A dedicated area to be provided for car transporters and other heavy vehicles to load and offload safely. To be delivered in the next CIP period with costs included in a future CIP commercial project beyond 2026.

Change in scope versus Previous CIP2020+

6.22 In essence the scope is the same as the Previous CIP2020+, however as can be seen from the scope description 4,000 new parking spaces are to be provided; the previous project planned 3,000 new spaces. The work is now planned for 3 phases at the Eastlands location.

6.23 The upgrades to the maintenance building include:

- Increasing internal cleaning positions from 21 to 34;
- Increasing wash bays from 16 to 34;
- Increasing maintenance bays from 18 to 34; and
- Decreasing fuelling bays from 27 to 10.

Stage

6.24 The works are due to commence in Q2 2023 and complete in Q4 2025 and as noted above, are planned in 2 phases. Phase 3 is planned for the following CIP period.

Key project metrics

Table 6.9: Car Hire Consolidation Centre

Metric	Value
Construction cost estimate	€21,259,452
Project cost estimate	€32,997,094
Cost per car parking space	€8,249
No of additional parking spaces	4,000
No of internal cleaning bays	34
No of wash bays	34
No of maintenance bays	34
No of fuelling positions	10

Scope/Specifications review

Table 6.10: Car Hire Consolidation Centre – Scope/Specification review

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient in the context of a high level specification of what is to be provided.
Alternative scopes	None available.
Quality of specifications of scope/scope change	The specification information is limited and generalised, however additional functional provision of car parking spaces and work bays is clearly identified.
Phasing and synergies with other projects	Phasing will be required with the operational use of existing car hire facilities.
Existing asset conditions	For new facilities we would expect a 20-year asset life as specified. For the existing facilities there is approximately 4 years economic life remaining, however the nature of this facility would suggest that re-lifing is possible.
Double counting	None identified.

Scope/Specification - Conclusion

Table 6.11: Car Hire Consolidation Centre

Description	RAG
Based on the information provided, the project appears to provide an efficient and effective solution.	

Cost estimate review

Table 6.12: Car Hire Consolidation Centre – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	-	1.59	1.55	-0.04
Construction Costs	12.97	21.26	20.68	-0.57
Escalation, Contingency & Design Variability	0.65	10.14	10.83	+0.69

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Total	**13.62**	**33.00**	**33.07**	**+0.07**

Table 6.13:Car Hire Consolidation Centre – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management (deemed included below)	-	1.59	1.55	-0.04
Total	**-**	**1.59**	**1.55**	**-0.04**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction and refurbishment costs	12.97	21.26	20.68	-0.57
Total	**12.97**	**21.26**	**20.68**	**-0.57**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.65	10.14	10.83	+0.69
Total	**0.65**	**10.14**	**10.83**	**+0.69**

6.25 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.14: Car Hire Consolidation Centre – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Allowance for other vehicle service bays	Redacted			-0.30
Wash Bays				-0.28
Escalation to midpoint of construction				-0.08

Cost - Draft Report Conclusion

6.26 There is a lot more detail in the 2022 level 3 cost estimate presented by Dublin Airport. As some additional scope has been added to the project, the cost of the project has increased from the 2019 assessment.

6.27 Dublin Airports 2019 assessment stated that design and management costs were included within the construction costs. In their 2022 assessment, they have included a separate allowance for this item based on 7.5% of construction costs. Dublin Airport has acknowledged that their position was too ambitious and that a separate allowance needed to be included for this item in their 2022 assessment. The allowance of 7.5% is reasonable.

6.28 We have reduced the allowance included for the other vehicle service bays and we have also reduced the rate for the provision of wash bays as the cost for both items was higher than we would expect.

6.29 The other variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

6.30 With the exception of the items noted above, the remainder of the costs in Dublin Airports 2022 estimate are reasonable.

Overall conclusion

6.31 Our overall conclusion of the project review is as follows:

Table 6.15: Car Hire Consolidation Centre – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
Based on the information provided, the project appears to provide an efficient and effective solution. **Design and management costs have been added to the latest assessment and the allowances for other service bays and wash bays have been reduced. The allowance for escalation has been increased. The remainder of the cost estimate for this project is reasonable.**	

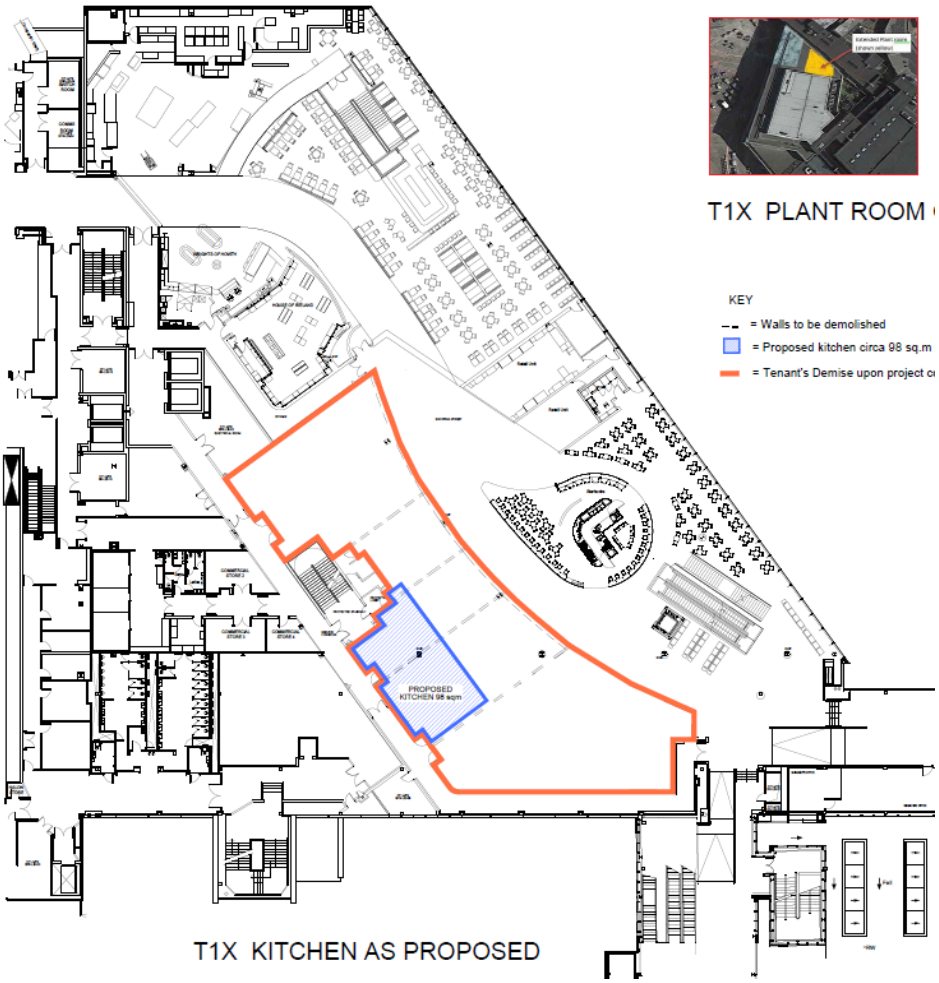
CIP.20.04.003 – New Food & Beverage Fit out (T1X)

Project description

Introduction

6.32 This project provides a shell and core for the fitting out by a concessionaire of a new quality Food and Beverage (F&B) outlet that enables fresh food to be prepared in a new kitchen. Existing retail outlets will be removed to provide the space required.

Figure 6.4: New Food & Beverage Fit out (T1X)



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.33 The project objective is to create more F&B space in the T1 IDL which is estimated to be under catered by approximately 80%.

Context

6.34 The context of this project is the heavily used IDL, perhaps more appropriately called the Airside Departure Concourse, which has seen various 'improvements' over the years in what is effectively an old terminal building.

6.35 The driver for this project is a significantly improved F&B offer.

Scope

6.36 The scope of the project provides for a shell and core for a new F&B outlet together wih a new kitchen. The fitting out of the F&B unit is not included as that is done by the concessionaire.

Change in scope versus Previous CIP2020+

6.37 In essence the scope is the same as the Previous CIP2020+, however cost adjustments have been made to reflect inflation and delivery programmes.

Stage

6.38 The works are due to commence in Q1 2023 and complete in Q3 2023. No further information is available.

Key project metrics

Table 6.16: New Food and Beverage Fit Out (T1X)

Metric	Value
Construction cost estimate	€ 2,214,000
Project cost estimate	€3,367,188
Floor area	700m2

Specifications/Scope review

Table 6.17: New Food and Beverage Fit Out (T1X) - Specifications/Scope review

Subject	Comments
Effectiveness of scope/scope change	The scope of the project is efficient.
Alternative scopes	None available
Quality of specifications of scope/scope change	The specification information is very limited and generalised Level 3 costs/CIP description provide enough detail for outline design stage.
Phasing and synergies with other projects	Apart from the T1 IDL Re-orientation and Rehabilitation which starts a year later in Q4 2024 there are no other synergies.
Existing asset conditions	The asset life is stated as 20 years which is reasonable given the remaining asset life of T1 is 20 years, however Retail and F&B trends may well dictate that a shorter asset life is acceptable, nearer 10 years.

Subject	Comments
Double counting	None identified.

Specifications/Scope - Conclusion

Table 6.18: New Food and Beverage Fit Out (T1X) - Specifications/Scope - Conclusion

Description	RAG
The scope for this type of project is efficient at high level, however, the detail of its design and programme is limited giving rise to the possibility of inaccurate cost execution.	

Cost estimate review

Table 6.19: New Food and Beverage Fit Out (T1X)– Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.08	0.17	0.12	-0.05
Construction Costs	1.02	2.21	1.58	-0.63
Escalation, Contingency & Design Variability	0.22	0.99	0.77	-0.22
Total	**1.32**	**3.37**	**2.47**	**-0.90**

Table 6.20: New Food and Beverage Fit Out (T1X)– Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.08	0.17	0.12	-0.05
Total	**0.08**	**0.17**	**0.12**	**-0.05**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction	1.02	2.21	1.58	-0.63
Total	**1.02**	**2.21**	**1.58**	**-0.63**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.22	0.99	0.77	-0.22
Total	**0.22**	**0.99**	**0.77**	**-0.22**

6.39 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.21: New Food and Beverage Fit Out (T1X) – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
F&B refurburbishment	Redacted			-0.63

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Contingency @ 15%	Redacted			-0.10
Escalation (from estimate base date to Q4 2021)				-0.09

Cost - Draft Report Conclusion

6.40 We have reduced the allowance included by Dublin Airport in their 2022 estimate for F&B refurbishment to align with the allowance included in our 2019 assessment as the rate included by Dublin Airport is higher than we would expect.

6.41 In their 2019 assessment, Dublin Airport stated that the requirement for main contractor's preliminaries were included within the rates for the construction costs in their 2022 assessment, they have included a separate allowance for this item based on 20% of construction costs. Dublin Airport has acknowledged that their position was too ambitious and that a separate allowance needed to be included for this item in their 2022 assessment. The allowance of 20% is reasonable.

6.42 The other variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

6.43 With the exception of the items noted above, the remainder of the costs in Dublin Airports 2022 estimate are reasonable.

Overall conclusion

6.44 Our overall conclusion of the project review is as follows:

Table 6.22: New Food and Beverage Fit Out (T1X) – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The scope for this type of project is efficient at high level, however, the detail of its design and programme is limited giving rise to the possibility of inaccurate cost execution. The allowance for the F&B refurbishment has been reduced in line with our 2019 assessment. A separate allowance has been added to the 2022 estimate for main contractor's preliminaries. The allowance for escalation has been increased. The remainder of the cost estimate for this project is reasonable.	

CIP.20.04.004 – Digital Advertising Infrastructure

Project description

Introduction

6.45 This project proposes updating Dublin Airport Aerpod digital advertisements in Terminal 1 and Terminal 2.

Figure 6.5: Digital Advertising Infrastructure

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.46 Currently, Dublin Airport has 64 Aerpods for commercial digital advertisement. The 64 Aerpods are LED units and expand across both Terminal 1 and 2. The current Aerpods are 70" display units, out of warranty, and at the end of their expected technology lifespan. The objective is to replace these existing Aerpods with 75" screens which Dublin AIrport advises would deliver a 32% reduction in energy consumption are 4K UHD devices with the capability of remote live view of contents.

Context

6.47 This expansion in digital advertising will see Dublin Airport lead the way in the Irish and international digital advertising arena with the proposed installation of large LED 'statement' digital formats in both Terminal 1 and 2. Together with the existing digital Aerpod network, these new formats will provide Dublin Airport with the single largest digital advertising footprint in the market. Currently digital advertising footprint accounts for circa. 15% of its total advertising inventory but contributes **Redacted** % of total revenue. This is set to increase over the coming years with all forecasts (domestic and international) pointing to DOOH (Digital Out of Home) as the only segment set to grow.

Scope

6.48 Currently the digital advertising footprint at Dublin Airport accounts for only circa 15% of the total advertising inventory (Industry standard c.30%).

6.49 Dublin Airport are seeking to update, expand and future proof its digital advertising infrastructure to remain relevant to the market. Investment in digital inventory will offset expected decline in static (OOH) advertising.

6.50 The project scope aims to replace the existing digital displays and formats and upgrade them to meet future advertising needs.

6.51 Replacement of these digital advertising assets will be deployed in the following locations:

- T2 retail concourse (airside) – install one/two large key statement formats;
- Upgrade of at least three existing key advertising static sites to digital LED formats in T2;
- Upgrade of at least two existing key advertising static sites to digital LED formats in T1; and
- Upgrade and expansion of existing digital aerpods network.

6.52 The Project is focused on two programmes of replacement and upgrade activities

- Aerpod Replacement - This includes replacing 64 existing Aerpod screens with a similar number of new generation Samsung 75" 4K UHD LED displays distributed across Terminal 1 and 2.
- Digital Expansion Programme - Following on from the success of the skybridge lower digitisation, the Guinness Storehouse screen in Terminal 1 and the sky Screen in Terminal 2, Dublin Airport will continue to convert static adverstising sites to digital sites to meet the market needs.

6.53 Dublin Airport proposes to convert a total of seven static advertising site to digital sites. the following:

- Upgrade of at least three existing key advertising static sites to digital LED formats Terminal 1 (or similar);
- Upgrade of at least three existing key advertising static sites to digital LED formats in Terminal 2 (or similar); and
- Complete digitisation of the remaining static advertising site on the Terminal 1 skybridge.

6.54 In response to a question relating to the scope of the digital advertising upgrades to establish if the proposed upgrade from 70” to large format 75” screens. Dublin Airport have confirmed this screen replacement programme does not include physical changes to the Aerpods screen display stands, bases and supports etc, to accommodate the larger screen format. They have also confirmed that the upgrade includes all changes/upgrades to the digital advertising management software system.

6.55 Notwithstanding, this project will allow Dublin Airport to expand its digital footprint, introduce more energy efficient devices and will allow Dublin Airport to sell the screen area to more customers than is possible through existing aerpods and traditional static sites and hence will increase the airport’s commercial revenue from advertising.

Change in scope versus Previous CIP2020+

6.56 The original CIP2020+ project proposed the replacement of three Aerpods, due to the remaining now being at end-of-life. Dublin Airport is proposing to increase replacement to 64 Aerpods and the CIP period is now two years longer and the aerpods will become end of life within this CIP and

need replacing. A further change in scope from the original CIP2020+ project proposes the installation of three large LED format displaces, it now proposes to increase this to seven.

Stage

6.57 Dublin Airport have confirmed the dates for completing this project in their responses to questions.

- Feasibility/Outline design Starts — October 2022
- Planning complete — December 2022
- Design complete — January 2023
- Procurement complete — N/A
- Construction commence — February 2023
- Project handover — April 2023

Key project metrics

Table 6.23: Digital Advertising Infrastructure – Key project metrics

Metric	Value
Project cost estimate	€ 8,330,000
Advertising displays	64 Aerpod replacements with 75" 4K UHD Samsung LED displays 7 large format LED displays

Scope/Specifications review

Table 6.24: Digital Advertising Infrastructure – *Scope/Specifications review*

Subject	Comments
Effectiveness of scope/scope change	The scope of the project efficiently delivers the intended additional digital advertising installations. The extension of the CIP by two years means that the existing Aerpods will be reaching end of life within the CIP and will need replacing. The proposal to upgrade the Aerpods with the latest energy efficient devices using larger screen formats increases the advertising area available. Increasing the digital advertising assets at Dublin Airport by replacing the static advertising signage in T1 and T2 with Digital LED format is both efficient form an energy perspective and effective in term of enabling the efficient commercial management of advertising and the display of content and increasing advertising revenues.
Alternative scopes	None specifically identified although the use of energy efficient LED displays should contribute positively towards the sustainability agenda for the airport. The Aerpod replacement is a progressive programme over three years.
Quality of specifications of scope/scope change	No specifications provided. The AerPod replacement programme will initiated in October 2022 None specially identified although the use of energy efficient LED displays should contribute positively towards the sustainability agenda for the Airport. The Aerpod replacement will be completed over a 6-7 Month timescale.
Phasing and synergies with other projects	None specially identified although the use of energy efficient LED displays should contribute positively towards the sustainability agenda for the Airport. The Aerpod replacement will be completed over a 6-7 Month timescale.

Subject	Comments
Existing asset conditions	Current existing AerPod Assets are nearing their planned 5 year for advertising asset life. The existing assets are less energy efficient and have smaller screen area than the planned replacements of Digital Advertising screen assets.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 6.25: Digital Advertising Infrastructure- Scope/Specifications -Conclusion

Description	RAG
This Digital Advertising project is intended to replace the existing life expired AerPod screens at Dublin Airport with new more energy efficient and large screen technology. It will also expanding the digital advertising infrastructure and increase the commercial revenue that can be gained from Digital advertising. The AerPod replacement programme will initiate in October 2022 and describes a project scope and plan that offers an efficient and effective route which should be completed within a 6-7month timescale.	

Cost estimate review

Table 6.26: Digital Advertising Infrastructure – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.09	0.31	0.31	-
Construction Costs	1.79	6.26	6.26	-
Escalation, Contingency & Design Variability	0.29	1.76	1.81	+0.05
Total	**2.17**	**8.33**	**8.38**	**+0.05**

Table 6.27: Digital Advertising Infrastructure – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.09	0.31	0.31	-
Total	**0.09**	**0.31**	**0.31**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	1.79	6.26	6.26	-
Total	**1.79**	**6.26**	**6.26**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.29	1.76	1.81	+0.05
Total	**0.29**	**1.76**	**1.81**	**+0.05**

6.58 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.28: Digital Advertising Infrastructure – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021) 19%	Redacted			+0.09
Escalation to midpoint of construction (6.59%)				-0.04

Cost - Draft Report Conclusion

6.59 The scope included in the 2022 estimate has increased from what was included in the 2019 estimate. As a result, the cost of this project has increased from the 2019 assessment. However, the rates for the individual items included in the 2022 estimate have not changed from the 2019 assessment.

6.60 The other variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

6.61 With the exception of the revised escalation calculation, and the increased quantities included in the 2022 estimate, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

6.62 Our overall conclusion of the project review is as follows:

Table 6.29: Digital Advertising Infrastructure – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The AerPod replacement programme will initiate in October 2022 and describes a project scope and plan that offers an efficient and effective route which should be completed within a 6-7month timescale. With exception of the increased quantities included in Dublin Airports 2022 estimate, and the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost estimate for this project is reasonable.	

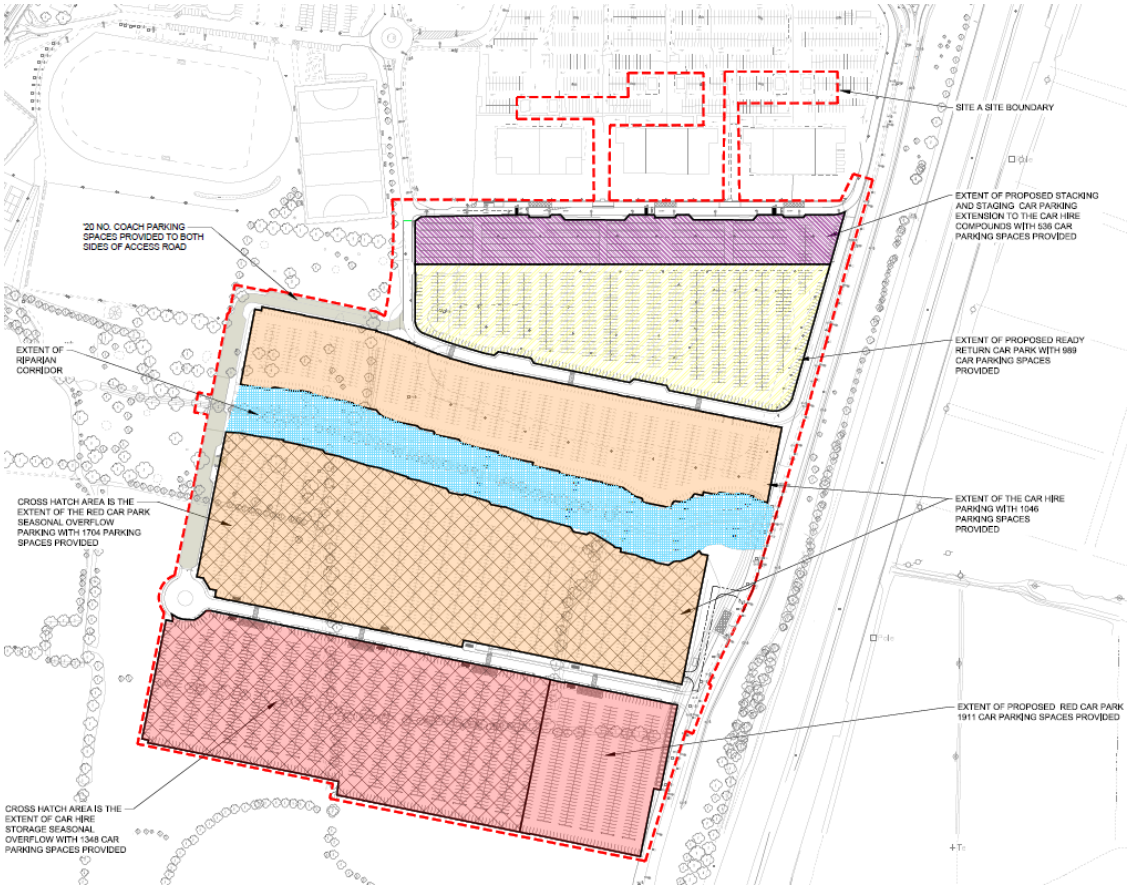
CIP.20.04.005 – Long Term Car Parking – Eastlands

Project description

Introduction

6.63 This project is for the expansion of existing car parking facilities.

Figure 6.6: Long Term Car Parking – Eastlands



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.64 The objective of this project is to add an additional 2,000 new car parking spaces to the existing Express Red car park.

Context

6.65 The airport plans to increase the Public Transport modal share to 40%. However Dublin Airport believes that the demand for car parking space for staff and the public is increasing.

Scope

6.66 The scope of the project consists of 2,000 car parking spaces in Eastlands with connectivity to the current Express Red car park. The following items are included in the scope:

- 2,000 car parking spaces;
- Car park lighting; and
- Passenger kerbs and signage; and bussing facilities.

Change in scope versus Previous CIP2020+

6.67 In essence the scope is the same as the Previous CIP2020+, however the cost has been adjusted in line with inflation.

Stage

6.68 The works are due to commence in Q2 2026 and complete in Q1 2028.

Key project metrics

Table 6.30: Long Term cing Eastlands

Metric	Value
Construction cost estimate	€ 6,966,049
Project cost estimate	€ 13,073,006
Cost per car parking space	€6,536
No of new parking spaces	2,000

Scope/Specifications review

Table 6.31: Long Term Car Parking Eastlands - Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient in identifying the work to be carried out in outline format.
Alternative scopes	None available.
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs provide enough detail for outline design stage.
Phasing and synergies with other projects	Phasing will be required to dovetail with the operational use of existing car hire facilities.
Existing asset conditions	For new facilities we would expect a 20-year asset life as specified. The current Express Red Car Park has been refurbished in 2015.
Double counting	None identified.

Scope/Specifications - Conclusion

Table 6.32: Long Term Car Parking – Eastlands - Scope/Specifications - Conclusion

Description	RAG
The project effectively meets the demands of the objective and the level 3 specification scope is efficient in identifying the work to be carried out.	

Cost estimate review

Table 6.33: Long Term Car Parking – Eastlands – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	1.04	1.39	1.39	-
Construction Costs	7.12	6.97	6.97	-
Escalation, Contingency & Design Variability	1.26	4.71	5.18	+0.47
Total	**9.42**	**13.07**	**13.54**	**+0.47**

Table 6.34: Long Term Car Parking – Eastlands – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	1.04	1.39	1.39	-
Total	**1.04**	**1.39**	**1.39**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	7.12	6.97	6.97	-
Total	**7.12**	**6.97**	**6.97**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	1.26	4.71	5.18	+0.47
Total	**1.26**	**4.71**	**5.18**	**+0.47**

6.69 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.35: Long Term Car Parking – Eastlands – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.38
Escalation to midpoint of construction				+0.09

Cost - Draft Report Conclusion

6.70 There is a lot more detail in Dublin Airports 2022 estimate than was in included in the 2019 estimate. While the overall area of the car park is slightly reduced from the scope of the project has increased from 2019. As a result, the cost of this project has increased from the 2019 assessment.

6.71 We have reviewed the rates included in Dublin Airports 2022 estimate and most of them are reasonable. There were queries that we issued regarding lump sums for road markings and mechanical services respectively and Dublin Airport have responded to them. We are satisfied with the responses that they have provided and the allowances are reasonable for the works required.

6.72 There is an allowance for electrical works that we have also queried and we are awaiting a response to this item. Once received, this will be addressed in our Final Report later this year.

6.73 The main variance from the 2019 assessment is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage, applied to revise the base date to Q4 2021. As the base date for this project was Q2 2020, the escalation percentage has been increased from 11.2% to 15.2%. Dublin Airport needs to confirm the percentage uplift that they have applied to their estimate to so that we can conclude our assessment of escalation.

6.74 Once we receive responses to the outstanding queries, we will conclude our assessment of cost of this project. This will be addressed in the Final Report later this year. The remainder of the costs within the project are reasonable.

Overall conclusion

6.75 Our overall conclusion of the project review is as follows:

Table 6.36: Long Term Car Parking – Eastlands – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The project effectively meets the demands of the objective and the level 3 specification scope is efficient in identifying the work to be carried out. **With exception of the revised escalation calculation, and concluding the outstanding queries, the remainder of Dublin Airports 2022 estimate is reasonable for the works required.**	

CIP.20.04.007 – Terminal 2 Multi-Storey Car Park

Project description

Introduction

6.76 This project is for the provision of additional short-term car parking spaces at the existing Terminal 2 Multi-Storey Car Park.

Figure 6.7: Terminal 2 Multi-Storey Car Park

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.77 Increase capacity of T2 short term car park.

Context

6.78 The airport plans to increase the Public Transport modal share to 40%. However, Dublin Airport believes that the demand for car parking space for staff and the public is increasing.

Scope

6.79 The scope is to provide 2 new floors at the existing T2 ST (c. 680 spaces). The added capacity will be built on top of the T2 Multi-Storey Car Park (2 levels). This allows a direct connection to existing infrastructure thus eliminating the need to build additional entry/ exit points. The existing lift shafts will need to be extended to reach the two new floors.

Change in scope versus Previous CIP2020+

6.80 In essence the scope is the same as the Previous CIP2020+, however the cost has been adjusted in line with inflation.

Stage

6.81 The works are due to commence in Q1 2023 and complete in Q2 2025.

Key project metrics

Table 6.37: Terminal 2 Multi-Storey Car Park

Metric	Value
Construction cost estimate	€ 12,125,683

Metric	Value
Project cost estimate	€ 22,360,411
Cost per car parking space	€32,882
No of new parking spaces	680

Scope/Specifications review

Table 6.38: Terminal 2 Multi-Storey Car Park - Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient in identifying the work to be carried out in outline format.
Alternative scopes	None available
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs provide enough detail for outline design stage.
Phasing and synergies with other projects	The work packages need to be co-ordinated with the other projects to avoid on site clashes and inefficient working: CIP.20.01.039 Airport Roads Optimisation CIP 20 01 034 Campus Roads Critical Maintenance.
Existing asset conditions	The asset life is stated as 25 years. We would expect the asset life of an MSCP to be 50 years, which in this case means that there is 40-year life remaining.
Double counting	None identified.

Scope/Specifications - Conclusion

Table 6.39: Terminal 2 Multi-Storey Car Park - Scope/Specifications - Conclusion

Description	RAG
The project meets the demands of the objective and the level 3 specification scope is efficient in identifying the work to be carried out in outline format.	

Cost estimate review

Table 6.40: Terminal 2 Multi-Storey Car Park– Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	1.69	1.82	1.82	-
Construction Costs	11.24	12.13	12.13	-
Escalation, Contingency & Design Variability	2.00	8.42	6.77	-1.65
Total	**14.94**	**22.36**	**20.71**	**-1.65**

Table 6.41: Terminal 2 Multi-Storey Car Park – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	1.69	1.82	1.82	-
Total	**1.69**	**1.82**	**1.82**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	11.24	12.13	12.13	-
Total	**11.24**	**12.13**	**12.13**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	2.00	8.42	6.77	-1.65
Total	**2.00**	**8.42**	**6.77**	**-1.65**

6.82 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.42: Terminal 2 Multi-Storey Car Park - Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation to midpoint of construction	Redacted			-2.26
Escalation (from estimate base date to Q4 2021)				+0.61

Cost - Draft Report Conclusion

6.83 The scope of this project is unchanged from the 2019 assessment. In their 2022 estimate, Dublin Airport has increased its allowance for main contractor preliminaries in its estimate due to additional measures that are now required to comply with COVID-19 requirements, and the increased costs of insurance premiums. The resulting increase in cost for this item is reasonable.

6.84 The only other variance from the 2019 assessment is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage, applied to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%. There is an apparent arithmetical error in Dublin Airports 2022 estimate and this accounts for the difference with our estimate.

6.85 With the exception of the revised escalation calculation and the increased preliminaries costs, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

6.86 Our overall conclusion of the project review is as follows:

Table 6.43: Terminal 2 Multi-Storey Car Park – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The project meets the demands of the objective and the level 3 specification scope is efficient in identifying the work to be carried out in outline format. With exception of the revised escalation calculation and the increased main contractor preliminaries costs, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost estimate for this project is reasonable.	

CIP.20.04.009 – Staff Car Park

Project description

Introduction

6.88 This project is capacity driven to provide additional car parking for staff and replacement spaces for some existing staff car parking inside the central campus which will be removed due to other developments.

Figure 6.8: Staff Car Park

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

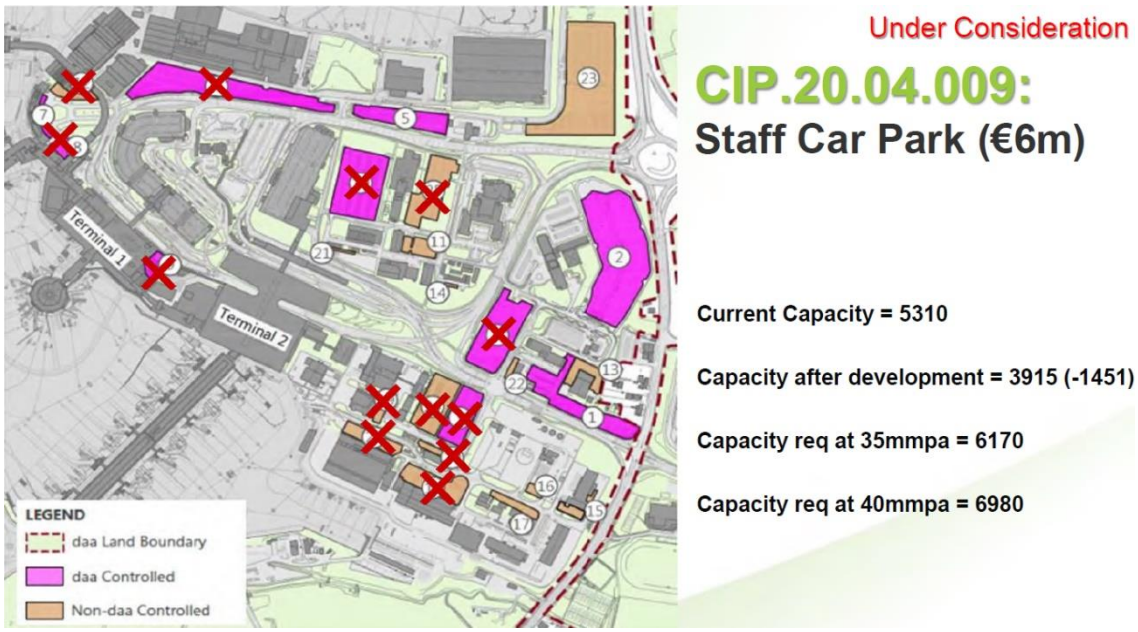
Objective

6.89 The objective is to provide 1,000 staff car park spaces in one location (Eastlands) with bus connections to the central terminal areas and a further 480 spaces in locations yet to be decided.

Context

6.90 The audit plan (below) shows a significant number of staff car parks are being closed in the central campus area due to capacity expansion development. And the shortfall on the numbers given is stated as 1,451 spaces based on current capacity of 5,310 spaces. The demand forecast shows 6,980 spaces will be required for 40mppa i.e. another 1,670 spaces, so the 2,280 spaces stated as the requirement will provide supply beyond this assessed 40 mppa requirement.

Figure 6.9: : Staff Car Park



Source: Dublin Airport

6.91 This project is therefore providing 1,000 new spaces in the existing public car parking site known as LT Green Car Park (refer to plan in Introduction, "Green CP").

Scope

6.92 The scope of the project requires more clarity of which car park is which and the work required to both provide the staff car park (in the existing public car park) and the new public car park, however, the first phase is to provide 1000 car park spaces. A further 480 spaces is to be provided in locations yet to be decided.

Change in scope versus Previous CIP2020+

6.93 In essence the scope is the same as the Previous CIP2020+ but there is a commitment to provide 1,000 spaces and the balance of 480 spaces in locations yet to be decided. The base cost is the same and after adjustment in line with inflation, the total cost is now more than previously allowed.

Stage

6.94 The works are due to commence in Q2 2023 and complete in Q3 2025.

Key project metrics

Table 6.44: Staff Car Park

Metric	Value
Construction cost estimate	€ 4,440,000
Project cost estimate	€ 7,248,113
Cost per car parking space	€7,248
No of new parking spaces	1000 + 480

Scope/Specifications review

Table 6.45: Staff Car Park – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is not fully defined as the location of future staff parking spaces has not been determined.
Alternative scopes	None available
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs are adequate, but lack of clarity in where the work is being executed makes it difficult to validate.
Phasing and synergies with other projects	The provision of 1000 new spaces in Eastlands will require phasing with: CIP 20.04.005 Long Term Parking – Eastlands. CIP 20.04.002 Car Hire Consolidation centre CIP 20 04 001 Car Partking Management System The provision of 800 new spaces (locations to be decided) may impact on other projects. It will require phasing with the loss of central campus staff car parking as CIP capacity projects are executed.
Existing asset conditions	The residual life is 20 years which is what we would expect for a facility of this nature.
Double counting	None identified.

Scope/Specifications - Conclusion

Table 6.46: Staff Car Park – Scope/Specifications - Conclusion

Description	RAG
The project appears to meet the demands of the objective, but for the project to be efficient the future locations of the 480 parking spaces budgeted for, need to be defined, and will be followed up in time for the Final Report.	

Cost estimate review

Table 6.47: Staff Car Park – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.56	0.56	0.56	-
Construction Costs	4.44	4.44	4.44	-
Escalation, Contingency & Design Variability	0.77	2.25	2.48	+0.22
Total	**5.77**	**7.25**	**7.47**	**+0.22**

Table 6.48: Staff Car Park – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.56	0.56	0.56	-
Total	**0.56**	**0.56**	**0.56**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Major Demolition Works	4.44	4.44	4.44	-
Total	**4.44**	**4.44**	**4.44**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.77	2.25	2.48	+0.22
Total	**0.77**	**2.25**	**2.48**	**+0.22**

6.95 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.49: Staff Car Park – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.21
Escalation to midpoint of construction				+0.02

Cost - Draft Report Conclusion

6.96 The only variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

6.97 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

6.98 Our overall conclusion of the project review is as follows:

Table 6.50: Staff Car Park – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The project appears to meet the demands of the objective, but for the project to be efficient the future locations of the 480 parking spaces budgeted for, need to be defined	

Description	RAG Assessment
With exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost estimate for this project is reasonable.	

CIP.20.04.016 – Platinum Services Upgrade Works

Project description

Introduction

6.99 Dublin Airport proposes an upgrade of the existing platinum service facilities, reconfiguration of the existing ground floor, construction of a new first floor above the existing facilities as well as an upgrade of the platinum services car park product.

Figure 6.10: Platinum Services Upgrade Works

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.100 The project objectives are to expand the capacity for platinum services to meet existing and future demand, to upgrade the existing products and to introduce a new product platinum express.

Context

6.101 Platinum services have recently experienced significant growth.

Scope

6.102 The project scope consists of the following four elements:

- Platinum general upgrade: The scope of the upgrade work includes new soft furnishings, fixtures, lighting, design features and kitchen upgrade (replacing existing back-of house kitchen). The scope also includes expansion of the security screening area for more queuing space, larger area for redress post screening and future installation of new Liquids, Aerosols and Gels (LAGS) screening machines.
- Platinum ground floor reconfiguration: The scope includes the reconfiguration of suite 4, upgrade of the presidential Suite and redesign of the current kitchen.
- Platinum first floor expansion: The scope includes construction and fit-out of a new first floor above the existing platinum facility with four private suites including bathrooms, a boardroom, washrooms, office, storeroom stairs and an elevator.

- Platinum carpark services upgrade: The scope includes a ticket issuing terminal and all associated software for its management which will be integrated into the new CPMS. Small civils works will be required for changing the old barriers.

Change in scope versus Previous CIP2020+

6.103 There are the following scope changes to Previous CIP2020+:

- Platinum ground floor reconfiguration;
- Platinum first floor expansion;
- Platinum carpark services upgrade; and
- Omission of expansion of the airside porch with a new communal area.

Stage

6.104 Project is currently at design and procurement stage which will be completed in Q2 2022.

- Design, procurement complete Q2 2022
- Construction start Q2 2022
- Construction complete Q4 2023
- Project handover Q1 2024

Key project metrics

Table 6.51: Platinum Services Upgrade Works – Key project metrics

Metric	Value
Construction cost estimate	€ 4,550,000
Project cost estimate	€7,127,318
Area for platinum general Upgrade (as per Level 3 costs)	758 m^2
Area for platinum ground floor reconfiguration	215 m^2
Area for platinum first floor expansion (as per provided drawing)	356 m^2

Scope/Specifications review

Table 6.52: Platinum Services Upgrade Works – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope meets the project objectives in an efficient and effective way.
Alternative scopes	None identified.
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs provide sufficient detail for upgrade of the facilities.
Phasing and synergies with other projects	There are dependencies and possible synergies with CIP.20.03.016 Terminal 1 - Rapid Exit Arrivals: Press Suite will be refurbished and needs also to be modified by the rapid exit arrivals; BoH corridor of platinum services will be demolished;

Subject	Comments
	future work of the deferred project should be considered when upgrading the existing Platinum facilities.
Existing asset conditions	The asset life of the new facilities is 10 years.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 6.53: Platinum Services Upgrade Works – Scope/Specifications - Conclusion

Description	RAG
The suggested scope for platinum services will enable Dublin Airport to meet the defined project objectives in an effective and efficient way.	

Cost estimate review

Table 6.54: Platinum Services Upgrade Works – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.15	0.34	0.34	-
Construction Costs	1.96	4.55	4.55	-
Escalation, Contingency & Design Variability	-	2.24	2.75	+0.50
Total	**2.10**	**7.13**	**7.63**	**+0.50**

Table 6.55: Platinum Services Upgrade Works – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.15	0.34	0.34	-
Total	**0.15**	**0.34**	**0.34**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	1.96	4.55	4.55	-
Total	1.96	4.55	4.55	-
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	-	2.24	2.75	+0.50
Total	**-**	**2.24**	**2.75**	**+0.50**

6.105 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.56: Platinum Services Upgrade Works – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Contingency @ 20%	Redacted			+0.24
Escalation (from estimate base date to Q4 2021)				+0.24
Escalation to midpoint of construction				+0.02

Cost - Draft Report Conclusion

6.106 The scope included in the 2022 estimate has increased from what was included in the 2019 estimate. As a result, the cost of this project has increased from the 2019 assessment.

6.107 The additional scope included several lump sums for the Platinum ground floor refurbishment, first floor expansion, lift installation and fixtures and fittings. Dublin Airport provided a breakdown of the lump sums for the ground and first floor works and these allowances are reasonable. The explanation for the allowances for the lift installation and the fixtures and fittings is also reasonable. Dublin Airport still needs to provide a breakdown of the lump sum for the provision of new software to operation systems, although this only equates to around 4% of the project cost. The assessment of this item will be addressed in our Final Report later this year.

6.108 The only other key variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

6.109 With the exception of the revised escalation calculation, the outstanding query that Dublin Airport needs to respond to, the remainder of Dublin Airports 2022 estimate is reasonable.

Overall conclusion

6.110 Our overall conclusion of the project review is as follows:

Table 6.57: Platinum Services Upgrade Works – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The suggested scope for platinum services will enable Dublin Airport to meet the defined project objectives in an effective and efficient way. **Except for the revised escalation assessment and the outstanding query that Dublin Airport needs to respond to, the costs for the remaining items in Dublin Airports assessment are reasonable. This will be addressed in the Final Report later this year.**	

CIP.20.04.017 – Airline Lounges - Expansion, Upgrade & New

Project description

Introduction

6.111 Dublin Airport proposes to upgrade the existing 51st and Green Lounge, to upgrade and expand the existing Terminal 2 & Eastern Lounges as well as to relocate the existing Terminal 1 Lounge.

Table 6.58: Airline Lounges - Expansion, Upgrade & New

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.112 The project objectives are to add capacity to meet existing and future demand as the airport grows to 40 mppa over the coming years.

Context

6.113 Dublin Airport notes that the existing lounges are currently at capacity at certain times. Also, the addition of new long-haul routes pre COVID-19 has resulted in extended airline lounge dwell times resulting in higher peaks, impacting the passenger experience. The existing Terminal 1 lounge needs to be relocated from its current position due to the planned relocation of the central search to mezzanine level.

Scope

6.114 The scope includes upgrades to the existing Terminal 2 Lounges (51st&Green, Terminal 2 and Eastern), expansion of the Terminal 2 and Eastern Lounges as well as relocation of the Terminal 1 Lounge.

6.115 The scope for upgrades of the existing 51st&Green, T2 and Eastern Lounges includes new kitchen equipment, internal fit-out and decoration, varying seating types, charging points/ plug sockets, spa-like shower facilities, improved servery to display a variety of food, new furnishings, lighting, etc.

6.116 The scope for expansion of the Terminal 2 and Eastern Lounges includes construction and fit-out of a new upper-level mezzanine floor in each lounge.

6.117 The scope for relocation of the Terminal 1 Lounge includes the fit-out of the new lounge while core and shell will be provided by project CIP.20.03.013 Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation.

Change in scope versus Previous CIP2020+

6.118 There are the following scope changes to Previous CIP2020+:

- Omission of the previously planned four new lounges from the project (Pier 3 Lounge, T2 Level 35 Lounge, T2 Arrivals Lounge, Pier 1 Lounge);
- Upgrade and expansion of the Terminal 2 and Eastern Lounges; and
- Inclusion of the fit-out of the relocated Terminal 1 Lounge which previously was missing in the 2019 submission.

Stage

6.119 Project is currently at design and procurement stage which will be completed in Q2 2022.

- Design, procurement complete Q2 2022
- Construction start Q3 2022
- Construction complete Q3 2026
- Project handover Q3 2026

Key project metrics

Table 6.59: Airline Lounges - Expansion, Upgrade & New – Key project metrics

Metric	Value
Construction cost estimate	€ 10,520,000
Project cost estimate	€16,811,721
Area for upgrade of 51st Green Lounge	440 m^2
Cost per square meter for 51st Green Lounge upgrades	Redacted €/m^2 (average for all works)
Areas for upgrade and expansion of Eastern & T2 Lounges	270 m^2 (upgrade) 430 m^2 (expansion)
Cost per square meter for refurbishment and expansion of Eastern & T2 Lounges	Redacted €/m^2 (refurbishment) Redacted €/m^2 (expansion, average for 2 separate areas)
Area for relocated T1 Lounge fit out	800 m^2
Cost per square meter for relocated new T1 Lounge fit out	Redacted €/m^2

Scope/Specifications review

Table 6.60: Airline Lounges - Expansion, Upgrade & New – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The defined objectives are addressed by the lounge projects.

Subject	Comments
Alternative scopes	None identified.
Quality of specifications of scope/scope change	Level 3 costs provide sufficient detail.
Phasing and synergies with other projects	Information on phasing of the various parts of the lounge project is not available. The new T1 Lounge fit out needs to be phased and aligned with other projects due to dependencies and possible synergies: • CIP.20.03.012 Terminal 1 Central Search - Relocation to Mezz Level: A T1 interim lounge has to be provided as part of this project; a new T1 Lounge can only be constructed after relocation of the CSA to mezzanine level. • CIP 20.03.013 – T1 Departure Lounge: Core and shell for the new T1 Lounge are part of the IDL project; T1 lounge fit out needs to be aligned with that project.
Existing asset conditions	Dublin Airport states that the existing lounges are worn and need to be upgraded due to increased utilisation over recent years.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 6.61: Airline Lounges - Expansion, Upgrade & New – Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope/scope change will meet the outputs required of the project.	

Cost estimate review

Table 6.62: Airline Lounges - Airline Lounges - Expansion, Upgrade & New – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.61	0.79	0.79	-
Construction Costs	8.18	10.51	10.51	-
Escalation, Contingency & Design Variability	2.57	5.51	6.02	+0.51
Total	**11.36**	**16.81**	**17.33**	**+0.51**

Table 6.63: Airline Lounges - Airline Lounges - Expansion, Upgrade & New – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.61	0.79	0.79	-
Total	**0.61**	**0.79**	**0.79**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	8.18	10.51	10.51	-
Total	**8.18**	**10.51**	**10.51**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	2.57	5.51	6.02	+0.51
Total	**2.57**	**5.51**	**6.02**	**+0.51**

6.120 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.64: Airline Lounges - Airline Lounges - Expansion, Upgrade & New – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.49
Escalation to midpoint of construction				+0.03

Cost - Draft Report Conclusion

6.121 The scope included in the 2022 estimate has increased from what was included in the 2019 estimate. As a result, the cost of this project has increased from the 2019 assessment.

6.122 The additional scope includes the refurbishment and fit out of various lounges in Terminal 2 as well as the relocation of the Terminal 1 lounge. The facility rates included in Dublin Airport's latest estimate are in line with the costs incurred on other similar projects and as such they are reasonable.

6.123 The only variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

6.124 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS assessment. The cost of this project is reasonable.

Overall conclusion

6.125 Our overall conclusion of the project review is as follows:

Table 6.65: Airline Lounges - Airline Lounges - Expansion, Upgrade & New – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope/scope change will meet the outputs required of the project. With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS assessment. The cost of this project is reasonable.	

CIP.20.04.018 – Fast Track Improvements

Project description

Introduction

6.126 Dublin Airport proposes improvements to the existing Terminal 1 and Terminal 2 fast track with the relocation of staff security screening before a new fast track for T1 security will be built to access the expanded departure lounge. In addition, fast track arrivals products will be introduced in both terminals.

Figure 6.11: Fast Track Improvements

Source: Dublin Airport's Capital Investment Programme 2020+ Review Consultation Report

Objective

6.127 This project's objectives are to expand the product in Terminal 1 to meet demand and to enhance the visual appearance of the existing departures fast track facilities in Terminals 1 & 2 as well as to extent the product to arrivals by installation of new fast track lanes at immigration.

Context

6.128 Security fast track has experienced significant growth over the past few years with high popularity in a COVID-19/post COVID-19 environment. During peak hours, demand for the product has outpaced current capacity, particularly in Terminal 1. The new Fast track arrival is requested by several airlines for their first and business class and frequent-flyer customers.

Scope

6.129 The project scope includes four separate elements:

- The upgrades to existing T1 & T2 security fast track include the introduction of a Barista bar at the end of the security lane with automatic drink selection, pre-screening, improvements of visual appearance as well as access control by alternative technology. The temporary upgrade of existing T1 security fast track additionally includes the expansion to two security lanes.
- The T1 staff security screening will be moved to a new temporary location to allow the expansion of the T1 fast track. Once the project progresses, Dublin Airport will try to find a permanent location avoiding the need to relocate the facility again.

- The existing T1 security fast track will be relocated on the same level due to the reconfiguration of the departure lounge as well as the relocation of the other security lanes of the central search to mezzanine level; and
- Two arrivals fast tracks will be introduced to the immigration at both terminals (unspecific scope).

Change in scope versus Previous CIP2020+

6.130 There are the following scope changes to Previous CIP2020+:

- Expansion of T1 security fast track to 2 lanes;
- Relocation of existing staff security screening; and
- The costs for fit out of the relocated T1 fast track facility are now included which have not been captured by any other project before.

Stage

6.131 Project is currently in the planning, design and procurement stage with relocation of the T1 staff security screening already to be started in Q2 2022. Separate timelines for the four project elements have not been provided.

- Construction start Q2 2022
- Construction complete Q1 2027

6.132 The completion date in Q1 2027 is determined by the relocation of the T1 fast track which is part of the T1 Departure Lounge Reconfiguration project. Separate timelines for the other project elements cannot be provided at this stage by Dublin Airport and hence possible synergies with other projects cannot be evaluated.

Key project metrics

Table 6.66: Fast Track Improvements – Key project metrics

Metric	Value
Construction cost estimate	€4,761,000
Project cost esitmate	€6,865,838
Security fast track	2 lanes T1, 2 lanes T2
Immigration fast track	1 fast track T1, 1 fast track T2

Scope/Specifications review

Table 6.67: Fast Track Improvements – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	Project objectives will be met by the suggested scope. However, its effectiveness and efficiency cannot be fully assessed since details of the scope, especially for arrivals have not yet been specified. Dublin Airport will only be able to provide additional details on the scope and intended locations of the arrivals fast track lanes in T1&T2 during detailed design phase.
Alternative scopes	Options for fast track arrivals still need to be developed and evaluated.

Subject	Comments
Quality of specifications of scope/scope change	Level 3 costs do not provide a breakdown of the specification of the works while in particular the scope of the Fast Lane product on arrival has not been further specified.
Phasing and synergies with other projects	Information on phasing and project milestones for the project is not available. Fast track improvements should be phased and aligned with other projects due to dependencies and possible synergies: • CIP.20.03.012 Terminal 1 Central Search: Expansion of existing T1 fast track to be aligned with the upgrade of the central search (Phase 1). • CIP.20.03.013 Terminal 1 Departure Lounge: Relocation of T1 fast track to be aligned with works for T1 Departure Lounge reconfiguration which provides core and shell for the project. • CIP.20.03.021 Terminal 2 Central Search Area Expansion: The fast track lane will be relocated and the overall queuing areas at central search be modified; the upgrade project should be part of this project to be carried out in an efficient way. • CIP.20.03.018 Terminal 1 - Immigration Hall: The queuing area will be redesigned and hence the fast track project needs to be carried out at the same time; the fast track arrivals could be part of this project to be carried out in an efficient way. • CIP.20.03.024 Terminal 2 Immigration Hall – Reorientation: The queuing area of immigration T2 will be affected by this project due to new arrival flows from Pier 5; the fast track arrivals should be aligned with the reorientation.
Existing asset conditions	Existing T1 & T2 fast track will be relocated/renewed. Arrivals fast tracks will be new installations. The asset life of the temporary facilities (T1 fast track upgrade and staff security) before relocation has not been provided.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 6.68: Fast Track Improvements – Scope/Specifications - Conclusion

Description	RAG
Project objectives will be met by the suggested scope. A conclusion on the overall efficiency and effectiveness for the arrivals fast tracks is not possible at this stage due to non-availability of scope details.	

Cost estimate review

Table 6.69: Fast Track Improvements – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	-	0.95	0.71	-0.24
Construction Costs	1.50	4.76	4.76	-

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation, Contingency & Design Variability	0.19	1.15	1.10	-0.05
Total	**1.69**	**6.87**	**6.58**	**-0.29**

Table 6.70: Fast Track Improvements – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	-	0.95	0.71	-0.24
Total	**-**	**0.95**	**0.71**	**-0.24**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Fittings furnishings and equipment	1.50	4.76	4.76	-
Total	**1.50**	**4.76**	**4.76**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.19	1.15	1.10	-0.05
Total	**0.19**	**1.15**	**1.10**	**-0.05**

6.133 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.71: Fast Track Improvements – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design and management	Redacted			-0.24
Contingency at 15%				-0.04
Escalation to midpoint of Construction				-0.02

Cost - Draft Report Conclusion

6.134 The cost of this project has increased since the 2019 assessment because the increased scope of works that has been added to the project. In their 2019 estimate Dublin Airport stated that the allowance for design and management was included in the construction rates. In its 2022 assessment, Dublin Airport has included a separate allowance for design and management that is 20% of the construction costs. We have reduced the allowance for this item from 20% to 15%.

6.135 There is an apparent arithmetical error in Dublin Airports 2022 estimate in that it has double counted the allowance of € Redacted for main contractor's preliminaries. This is the main reason for the variance between our assessment and Dublin Airports.

6.136 The only other variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation. Dublin Airport has applied a percentage uplift for escalation of 4.5%. Dublin Airport needs to confirm the base date for their estimate so that we can complete our assessment of the allowance for escalation. This will be addressed in our Final Report later this year.

Overall conclusion

6.137 Our overall conclusion of the project review is as follows:

Table 6.72: Fast Track Improvements – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
Project objectives will be met by the suggested scope. A conclusion on the overall efficiency and effectiveness for the arrivals fast tracks are not possible at this stage due to non-availability of scope details. **Dublin Airport needs to confirm that there is an arithmetical error in its assessment and confirm the base date for its estimate so that the assessment of escalation can be concluded. Subject to concluding these items, the remainder of Dublin Airports 2022 estimate is reasonable.**	

CIP.20.04.021 – West Apron - Accommodation & Welfare Facilities

Project description

Introduction

6.138 Proposal for a new building to provide accommodation and welfare facilities for ground handling staff working on the West Apron.

Figure 6.12: West Apron - Accommodation & Welfare Facilities

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.139 The proposal objective is to deliver accommodation and welfare facilities to cater for ground handling staff associated with Cargo, Maintenance and Parking on the West Apron.

Context

6.140 The remote location of the West Apron means that it is isolated from the facilities provided in the rest of the airport.

6.141 The proposed site does not sit on the West Apron itself, instead it is positioned on the small Apron/Hangar campus to the north and is connected by a road link to the apron.

Scope

6.142 The proposal includes:

- Construction of a 1,666m² accommodation and welfare facility;
- Full fit out of half the internal space; and
- Provision for a Western Apron MRO development feasibility study.

Change in scope versus Previous CIP2020+

6.143 In essence the scope is the same as the Previous CIP2020+, however as can be seen from the scope description, a feasibility study for the development of the Western Apron MRO facility is also now part of the scope for this project.

Stage

6.144 The works are due to commence in Q1 2023 and complete in Q3 2023

Key project metrics

Table 6.73: West Apron Accommodation & Welfare facilities

Metric	Value
Construction cost estimate	€ 4,998,000
Project cost estimate	€ 6,852,394
Floor area	1,666 m2
Cost per m2	€ 2,500

Scope/Specifications review

Table 6.74: West Apron Accommodation & Welfare facilities – Scope/specifications review

Subject	Comments
Effectiveness of scope/scope change	The project is at an early feasibility stage, and therefore the scope is limited in detail.
Alternative scopes	None available.
Quality of specifications of scope/scope change	The specification information is very limited and generalised and differences between the CIP 2019 and the current CIP are not identified, apart from inflation and the inclusion of a feasibility study for the Western Apron MRO .
Phasing and synergies with other projects	The proposed Apron 5M (which is not included in the current investment programme) to be constructed to the east is stated as being provided initially for non-passenger services. In response to questions, Dublin Airport has confirmed that this facility will provide welfare services for this new apron.
Existing asset conditions	For new facilities we would expect a 25-year asset life as specified.
Double counting	None identified.

Scope/Specifications - Conclusion

Table 6.75: West Apron Accommodation & Welfare facilities Scope/Specifications -Conclusion

Description	RAG
The overall scope of a building of 1,666m2 is adequate to validate as a viable project for this functional use. However, the information provided does not enable a technical assessment of the building.	

Cost estimate review

Table 6.76: West Apron Accommodation & Welfare facilities – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.46	0.36	0.36	-
Construction Costs	3.53	2.07	2.07	-
Escalation, Contingency & Design Variability	0.49	0.50	0.69	+0.19
Total	**4.48**	**2.93**	**3.12**	**+0.19**

Table 6.77: West Apron Accommodation & Welfare facilities – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.46	0.36	0.36	-
Total	**0.46**	**0.36**	**0.36**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	3.53	2.07	2.07	-
Total	**3.53**	**2.07**	**2.07**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.49	0.50	0.69	+0.19
Total	**0.49**	**0.50**	**0.69**	**+0.19**

6.145 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.78: West Apron Accommodation & Welfare facilities – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.17
Escalation to midpoint of construction				+0.03

Cost - Draft Report Conclusion

6.146 As the scale of the welfare facilities to be delivered under this project has reduced from the 2019 assessment, the cost of this project has reduced. We have reviewed the detailed estimate provided by Dublin Airport, and the rates included for the scope described are reasonable.

6.147 We requested a breakdown of the sum included in the estimate for the general construction allowance. In response, Dublin Airport confirmed that it has sought budget cost information from a modular contractor and that its allowance is based on the advice received from that supplier. We

have requested a copy of the information provided so that we can fully assess it. This will be addressed in our Final Report later this year.

6.148 The only variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

Overall conclusion

6.149 Our overall conclusion of the project review is as follows:

Table 6.79: West Apron Accommodation & Welfare facilities – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The overall scope of a building of 1,666m2 is adequate to validate as a viable project for this functional use. However, the information provided does not enable a technical assessment of the building. **The assessment of the allowance for the new welfare facilities needs to be concluded in our Final Report later this year.**	

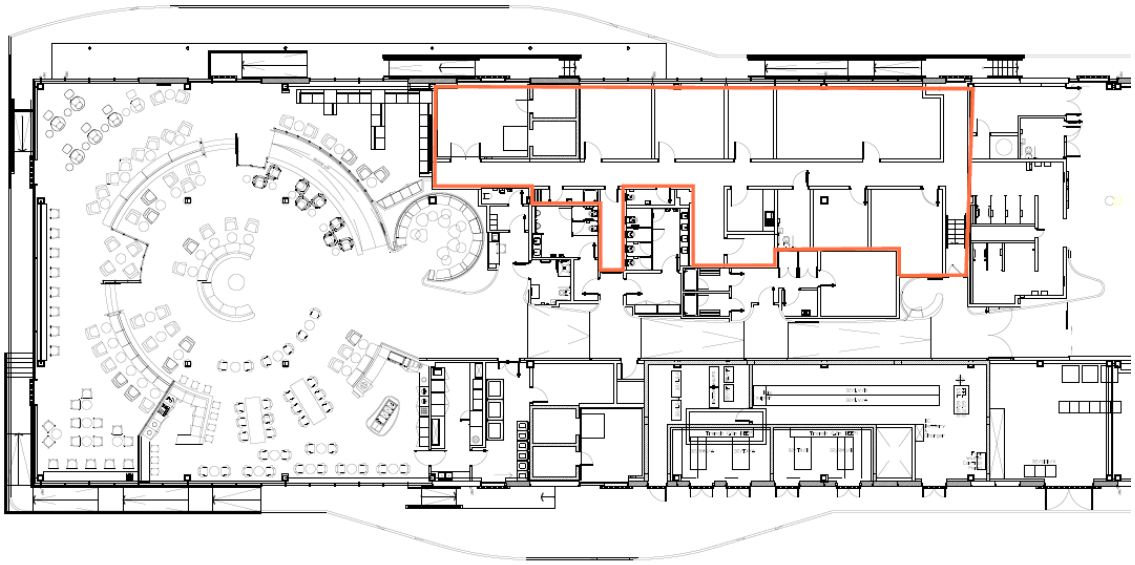
CIP.20.04.023 – Food & Beverage Provision & Fit out – Post CBP

Project description

Introduction

6.150 This project aims to provide a shell and core for the fitting out by a concessionaire of a new quality food and beverage (F&B) outlet that enables an improved food offering for US bound passengers post CBP clearance. Existing underused apron accommodation will be converted to provide the space required.

Figure 6.13: Food & Beverage Provision & Fit out – Post CBP



Source: Dublin Airport Capital Investment Programme 2020+ Review

Objective

6.151 The project objective is to create more F&B space post CBP.

Context

6.152 The current provision of F&B post CBP is considered by the airport to be poor and restricted; this has resulted in penetration drops and low transaction value. It is estimated the under provision is considered to be 63% below industry benchmarks by 2024. This project will rectify this by creating a much larger and improved F&B offer.

Scope

6.153 The scope of the project in planning terms meets the stated objectives, of providing a shell and core for more F&B space in the right location. limited information is provided as the project is at feasibility stage.

Change in scope versus Previous CIP2020+

6.154 In essence the scope is the same as the Previous CIP2020+, however cost adjustments have been made to reflect inflation and delivery programmes.

Stage

6.155 The works are due to commence in Q1 2025 and complete in Q4 2025. No further information is available.

Key project metrics

Table 6.80 Food and Beverage Fit Out - Post CBP

Metric	Value
Construction cost estimate	€ 3,033,600
Project cost estimate	€ 4,460,902
Floor area	700m2
Cost per m2	€ 6,372

Scope/Specifications review

Table 6.81: Food and Beverage Fit Out - Post CBP – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient in delivering the proposed project functionality, but in outline form only.
Alternative scopes	None available.
Quality of specifications of scope/scope change	The specification information is very limited and generalised Level 3 costs/CIP description provide enough detail for outline design stage.
Phasing and synergies with other projects	No other projects dependant, other than the capacity increases proposed for T2/Pier 5.
Existing asset conditions	The asset life is stated as 20 years which is reasonable given the remaining asset life of T1 is 20 years, however Retail and F&B trends may well dictate that a shorter asset life is acceptable, nearer 10 years.
Double counting	None identified.

Scope/Specifications - Conclusion

Table 6.82: Food and Beverage Fit Out Post CBP – Scope/Specifications - Conclusion

Description	RAG
The scope for this project is efficient at high level.	

Cost estimate review

Table 6.83: Food and Beverage Fit Out - Post CBP – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.11	0.23	0.23	-
Construction Costs	1.40	3.03	3.03	-
Escalation, Contingency & Design Variability	0.31	1.20	0.92	-0.28
Total	**1.82**	**4.46**	**4.18**	**-0.28**

Table 6.84: Food and Beverage Fit Out - Post CBP – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.11	0.23	0.23	-
Total	**0.11**	**0.23**	**0.23**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	1.40	3.03	3.03	-
Total	**1.40**	**3.03**	**3.03**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.31	1.20	0.92	-0.28
Total	**0.31**	**1.20**	**0.92**	**-0.28**

6.156 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.85: Food and Beverage Fit Out - Post CBP – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			-0.33
Contingency @ 15%				+0.16
Escalation to midpoint of construction				-0.11

Cost - Draft Report Conclusion

6.157 The scope of this project has not changed from the 2019 assessment. However, the cost of the project has increased. This is due to the inclusion of main contractor's preliminaries in Dublin Airports 2022 assessment. In their 2019 assessment, Dublin Airport stated that this item was deemed to be included in the construction costs for the project. The percentage allowance included by Dublin Airport for this item is reasonable and are in line with most other projects included in their submission.

6.158 The rate included in Dublin Airports 2022 for general construction is in line with the rate included in their 2019 assessment. Dublin Airport provided a breakdown of this rate and we will finalise our assessment of this rate in our Final Report later this year.

6.159 The only variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

Overall conclusion

6.160 Our overall conclusion of the project review is as follows:

Table 6.86: Food and Beverage Fit Out - Post CBP – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The scope for this project is efficient at high level. **The assessment of the general allowance for construction needs to be finalised. This will be completed in our Final Report later this year.**	

CIP.20.04.025 – Commercial Property Refurbishment

Project description

Introduction

6.161 This 'project' is not a specific building refurbishment, but provision of funds to spend on the upgrading of commercial property as needed when a new tenant(s) has been identified. A cost per m^2 rate has been identified and a total budget of €6.9m.

Table 6.87: Commercial Property Refurbishment

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.162 The objective is to have in place approved funds for commercial property refurbishment. This 'project' does not identify any particular building or facility, merely to recognise the increasing demand for good quality commercial property in a campus where many of the buildings may require refurbishment. The target is to refurbish between 500 – 1,500 m2/per year for the CIP period from 2023 to 2026.

Context

6.163 The purpose of this project is to to expand and upgrade the car hire facilities.

6.164 The proportion of facilities that this project targets is:

- Hangars MRO 52%;
- Catering and Cargo 24%;
- Offices 17%; and
- Stores 7%.

6.165 The refurbishments within the scope of this project are typically required 'immediately' when a commercial operator has agreed lease terms. This fact alone will attract a higher cost from a contractor asked to perform 'tomorrow' and complete in a short time.

Scope

6.166 The scope of the project cannot be defined in specific building refurbishments terms as they are not known at the time of this report. Given that a nominal €6.9m has been allocated and a rate for refurbishment of €1,500/m^2 this will allow for circa 4,600m^2 of commercial space to be upgraded.

6.167 A commercial building asset register that identifies each building, its age, last refurbishment, current occupiers, length of current lease, anticipated age-related upcoming refurbishment and anticipated tenant demand, would be helpful to enable some forward planning to be outlined.

6.168 It is noted that there is no reference to airfield maintenance buildings, or airport equipment/maintenance buildings.

Change in scope versus Previous CIP2020+

6.169 In essence the scope is the same as the Previous CIP2020+, however, as can be seen from both the objective and the scope above, the target is slightly less ambitious than was planned previously and the budget allowance has been reduced to 1,500m^2. Given this budget over a 3-year period, 1,533m^2 can be refurbished each year.

Stage

6.170 The works are due to commence in Q2 2022 and complete in Q4 2025 however this is an umbrella timescale as refurbishments will start/complete in response to tenant demand.

Key project metrics

Table 6.88: Commercial Property Refurbishment

Metric	Value
Construction cost estimate	€4,500,000
Project cost estimate	€6,889,159
Cost/m2	€1,500

Scope/Specifications review

Table 6.89: Commercial Property Refurbishment - Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	Because of the varied nature of the refurbishments anticipated in this project it is not possible comment on the scope of individual projects, but the overall scope is effective for budget purposes.
Alternative scopes	None available.
Quality of specifications of scope/scope change	Given that each refurbishment will be different but unknown at this time, we cannot comment on specifics of the quality of the sepcification of each project element, but the overall scope appears adequate for this programme.
Phasing and synergies with other projects	It is assumed that each refurbishment will be a standalone project and phased to minimise disruption to adjoining tenants.
Existing asset conditions	Dependant in individual property to be refurbished, but 7 years is adequate and probably relates to the average lease term.
Double counting	None identified.

Scope/Specifications - Conclusion

Table 6.90: Commercial Property Refurbishment - Scope/Specifications - Conclusion

Description	RAG
The allocated capex of €6.9m could be more accurately justified with a property condition register, however, given the nature of this project, i.e. it is non-specific, it is efficient for setting a budget.	

Cost estimate review

Table 6.91: Commercial Property Refurbishment – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.34	0.34	0.34	-
Construction Costs	4.50	4.50	4.50	-
Escalation, Contingency & Design Variability	1.14	2.05	2.03	-0.02
Total	**5.98**	**6.89**	**6.87**	**-0.02**

Table 6.92: Commercial Property Refurbishment – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.34	0.34	0.34	-
Total	**0.34**	**0.34**	**0.34**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Gen. Fittings Furnishings and Equipment	4.50	4.50	4.50	-
Total	**4.50**	**4.50**	**4.50**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	1.14	2.05	2.03	-0.02
Total	**1.14**	**2.05**	**2.03**	**-0.02**

6.171 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.93: Commercial Property Refurbishment – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.04
Escalation to midpoint of construction				-0.06

Cost - Draft Report Conclusion

6.172 The only variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

6.173 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

6.174 Our overall conclusion of the project review is as follows:

Table 6.94: Commercial Property Refurbishment – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The allocated capex of €6.9m could be more accurately justified with a property condition register, however, given the nature of this project, i.e. it is non-specific, it is efficient for setting a budget. With exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost estimate for this project is reasonable.	

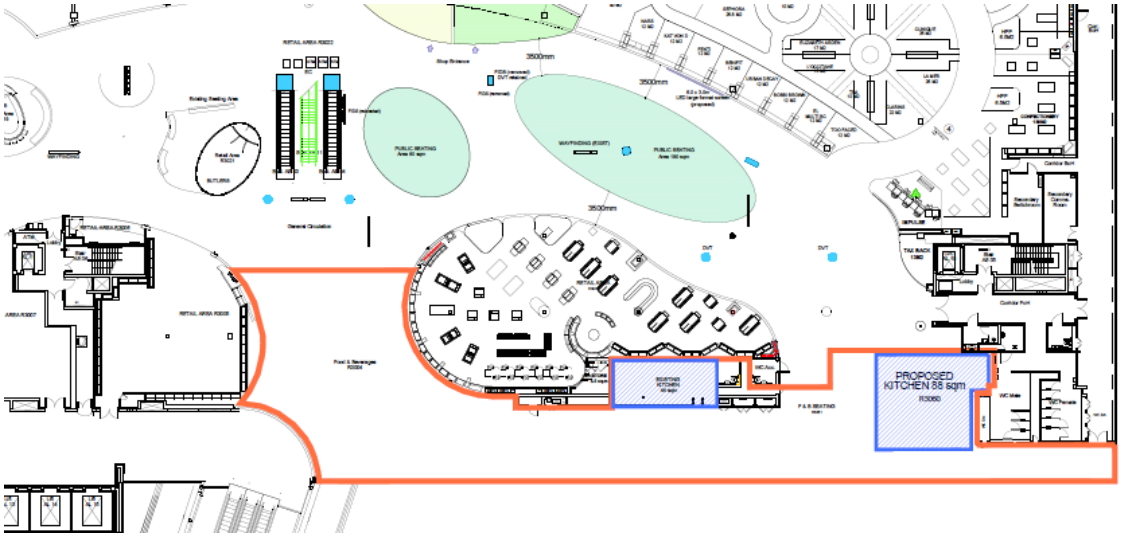
CIP.20.04.030 – New Kitchen in Terminal 2

Project description

Introduction

6.175 This project is intended to provide a new shell and core for a flagship F&B offering including a new kitchen in T2. Currently Dublin Airport states that the kitchens already located in the Slaney Bar and Chocolate Lounge are inadequate for this purpose.

Figure 6.14: New Kitchen in Terminal 2



Source: Dublin Airport's Capital Investment Programme 2020+ Review

Objective

6.176 The project objective is to create a superior F&B offering in the current Slaney Bar and Chocolate Lounge by providing a stripped out shell and new dedicated fully serviced kitchen for fitting out by a concessionaire.

Context

6.177 Dublin Airport states that passengers expect the food and beverage experience to be a premium extension of the terminal passenger journey, with a choice of efficient and comfortable offerings, providing quality food and drink.

Scope

6.178 The scope of the project in planning terms meets the stated objectives. The scope includes stripping out the existing Slaney Bar, Chocolate Lounge, kitchen and providing a new kitchen adjacent the toilets and new plant room

Change in scope versus Previous CIP2020+

6.179 In essence the scope is the same as the Previous CIP2020+, however cost adjustments have been made to reflect minor design changes, inflation and delivery programme.

Stage

6.180 The works are already under way commenced in Q1 2021 and scheduled for completion in Q1 2022. No further information is available.

Key project metrics

Table 6.95: New Kitchen in Terminal 2

Metric	Value
Construction cost estimate	€ 1,657,210
Dublin Airport estimate	€ 3,342,298
Floor area	1144m2
Cost per m2	€ 2,921

Scope/Specifications review

Table 6.96: New Kitchen in Terminal 2 - Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope of the project is efficient.
Alternative scopes	None available
Quality of specifications of scope/scope change	The specification information is very limited and generalised Level 3 costs/CIP description provide enough detail for outline design stage.
Phasing and synergies with other projects	No other projects dependant, other than the capacity increases proposed for T2/Pier 5 .
Existing asset conditions	The asset life is stated as 20 years which is reasonable given the remaining asset life of T2 is 40 years, however Retail and F&B trends may well dictate that a shorter asset life is acceptable, nearer 10 years.
Double counting	None identified.

Scope/Specifications - Conclusion

Table 6.97: New Kitchen in Terminal 2 - Scope/Specifications - Conclusion

Description	RAG
The scope for this project is efficient at high level.	

Cost estimate review

Table 6.98: New Kitchen in Terminal 2 – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.27	0.37	0.37	-
Construction Costs	1.49	1.89	1.89	-
Escalation, Contingency & Design Variability	0.51	-	-	-
Total	**2.28**	**2.26**	**2.26**	**-**

Table 6.99: New Kitchen in Terminal 2 – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.27	0.37	0.37	-
Total	**0.27**	**0.37**	**0.37**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Gen. Fittings Furnishings and Equipment	1.49	1.89	1.89	-
Total	**1.49**	**1.89**	**1.89**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.51	-	-	-
Total	**0.51**	**-**	**-**	**-**

6.181 There is no variance in assumptions between Dublin Airport and Steer in Level 3 items.

Cost - Draft Report Conclusion

6.182 In Dublin Airports CIP2020+ Review submission to CAR, it confirmed that this project had been completed. Dublin Airport has confirmed that the final cost of the project is €2,264,468 and it has provided a level 3 cost estimate that adds up to this figure.

6.183 We have reviewed the cost estimate that Dublin Airport has provided and it has rolled up the costs of the construction work into a single lump sum allowance. We have asked Dublin Airport to provide a breakdown of this figure so that we can assess it. The estimate also contains a lump sum for survey works and we have asked Dublin Airport to provide us with a breakdown of that sum.

6.184 Once Dublin Airport respond to the queries noted above, we will complete our assessment of their cost estimate. This will be addressed in the Final Report later this year.

Overall conclusion

6.185 Our overall conclusion of the project review is as follows:

Table 6.100: Terminal 2 New Kitchen – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The scope for this project is efficient at high level. **Dublin Airport need to respond to our queries so that we can complete our assessment of their cost. This will be addressed in the Final Report later this year.**	

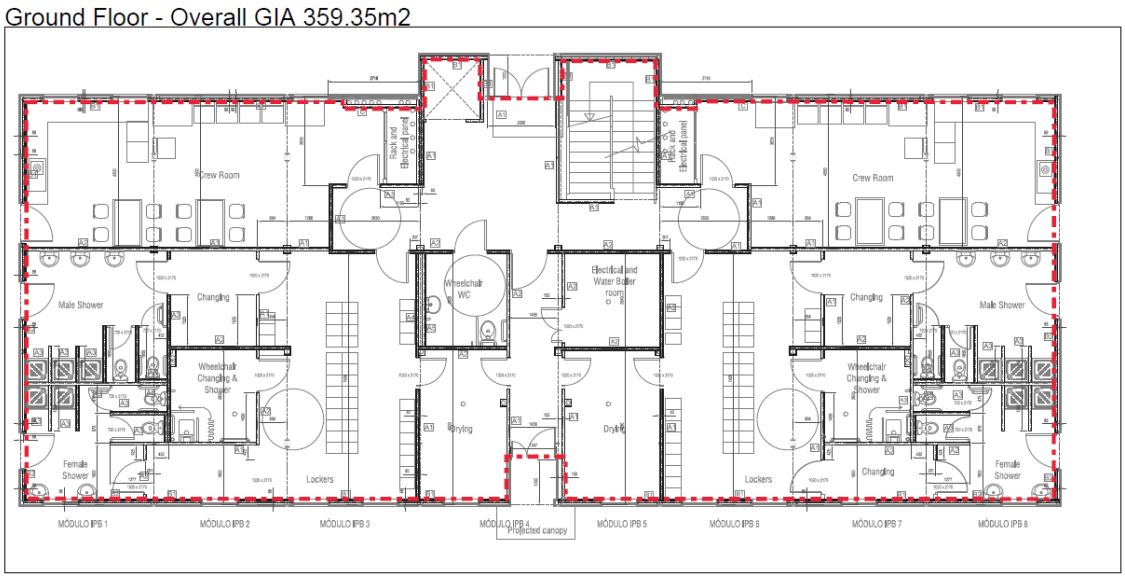
CIP.20.04.031 – Fuel farm welfare

Project description

Introduction

6.186 Dublin Airport proposes the construction of a new accommodation building at the existing fuel farm to provide office space and welfare facilities for the third Into Plane Operator (fuel supplier) as well as potential future operators.

Table 6.101: Fuel farm Welfare



Source: Dublin Airport's Capital Investment Programme 2020+ Ground Floor drawing

Objective

6.187 The objective is to provide additional accommodation capacity to be located at the fuel farm for existing and potential future Into Plane Operators.

Context

6.188 Dublin Airport has removed entry barriers for new fuel suppliers in 2015. The accommodation facility at the fuel farm has been sized for two Into Plane operators who were present at that time. There is now a third Into Plane operator who is accommodated in a facility which will be demolished as part of the Pier 5 enabling works. The market is potentially open to additional operators if they are granted a license by the regulator.

Scope

6.189 The scope covers a feasibility study, the design and construction of a modular 2 storey building with accommodation spaces for two operators with common stairs and toilet facilities. The space for each of the operators includes welfare facilities and crew rooms on the ground floor as well as offices, training and storage rooms on the first floor (total 275 sqm for each operator).

Change in scope versus Previous CIP2020+

6.190 Fuel farm welfare is a new project.

Stage

6.191 The project is currently at concept stage and the feasibility study and design will commence in Q1 2023.

- Design, procurement complete Q2 2023
- Construction start Q2 2023
- Construction complete Q4 2024
- Project handover Q1 2025

Key project metrics

Table 6.102: Fuel farm Welfare – Key project metrics

Metric	Value
Construction cost estimate	€ 2,602,800
Project cost estimate	€ 4,058,806
Total floor space on 2 levels	723 m^2
Cost per sqm	3,600 €/m^2

Scope/Specifications review

Table 6.103: Fuel farm Welfare – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The project objectives can be fulfilled by the suggested scope. A fourth Into Plane Operator does not exist yet and therefore half of the provided accommodation space could remain empty upon handover. We have asked Dublin Airport if the building can be constructed in 2 phases to prevent the space from being unused. This will be followed up after the submission of the Draft report.
Alternative scopes	A modular construction in 2 phases should be considered with phase 2 to be provided at a later stage at a later stage when a possible fourth operator has received a licence.
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs provide enough detail for outline design stage.
Phasing and synergies with other projects	None identified.
Existing asset conditions	This is a new facility with a forecasted asset life of 20 years.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 6.104: Fuel farm Welfare – Scope/Specifications - Conclusion

Description	RAG
Whilst we have outstanding queries relating to the modularity and space utilisation, based on the information received so far, the project appears to be effective and efficient, although this will be confirmed in the Final Report once the queries have been concluded.	

Cost estimate review

Table 6.105: Fuel farm welfare – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.52	0.35	-0.17
Construction Costs	2.60	1.74	-0.87
Escalation, Contingency & Design Variability	0.94	0.62	-0.31
Total	**4.06**	**2.71**	**-1.35**

Table 6.106: Fuel farm welfare – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.52	0.35	-0.17
Total	**0.52**	**0.35**	**-0.17**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Fittings / Furnishings & Equipment	2.60	1.74	-0.87
Total	2.60	1.74	-0.87
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.94	0.62	-0.31
Total	**0.94**	**0.62**	**-0.31**

6.192 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.107: Fuel farm welfare – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
First Floor Demise A&B (2/134.55m2) & Other (94.55m2)	Redacted		-0.36
Ground Floor - Demise A&B (2/140.45m2) & Other (78m2)			-0.36
General Design and management @ 20%			-0.17

Cost - Draft Report Conclusion

6.193 This is a new project. We have reviewed the items included in Dublin Airports estimate and we have reduced the rate for the provision of both the ground floor and first floor accommodation as the rates are higher than we would expect for a project of this nature. As a result, the allowances included in our estimate for design and management and main contractor's preliminaries have also been reduced.

6.194 We have requested a breakdown of the rates that Dublin Airport had included in its estimate and we will review that breakdown and conclude our assessment of these items for the Final Report later this year.

6.195 The only other variance is the allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation is based on a percentage uplift of 13.03%. Dublin Airport need to confirm the base date for their estimate so that our assessment of escalation can be finalised. The allowance for escalation included in our assessment is less than in Dublin Airports estimate because of the changes to the rates noted above.

Overall conclusion

6.196 Our overall conclusion of the project review is as follows:

Table 6.108: Fuel farm welfare – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
Whilst we have outstanding queries relating to the modularity and space utilisation, based on the information received so far, the project appears to be effective and efficient, although this will be confirmed in the Final Report once the queries have been concluded. **The costs included by Dublin Airport for the accommodation are higher than we would expect and we have reduced them. However, the assessment of these items needs to be concluded once we have reviewed the response from Dublin Airport to the queries that we issued. This will be completed in the Final Report later this year.**	

CIP.20.04.032 – Drop Off and Pick Up

Project description

Introduction

6.198 Dublin Airport proposes to introduce a paid drop off and pick up facility at Terminal 1 and Terminal 2 kerbside, with a dedicated free drop off and pick up zone to be located remote of the terminal forecourts.

Figure 6.15: Drop Off and Pick Up

Proposed Terminal 1 Layout | Proposed Terminal 2 Layout

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.199 Dublin Airport states that the project's objective is to reduce car journeys to and from the airport and encourage a greater use of public transport.

Context

6.200 Dublin Airport states that the project has multiple drivers including removal of congestion and traffic build up on the departure roads, extend the asset life of existing infrastructure, together with introducing a product and associated commercial return.

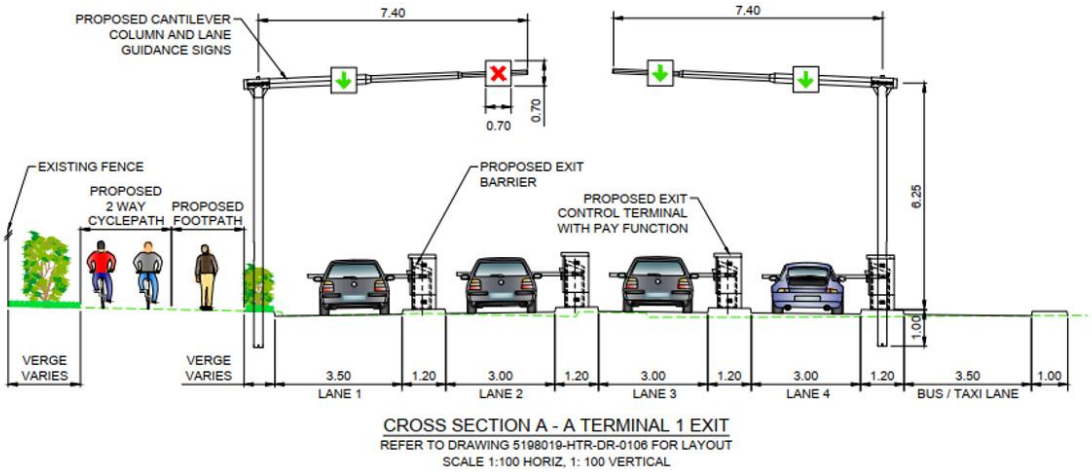
Scope

6.201 The proposed drop off / pick up solution will be similar to certain other airports in Europe, whereby each vehicle accessing the kerb will be required to pay a charge based on kerb dwell time.

6.202 The project scope involves reconfiguration of the access to kerbside locations in Terminal 1 and Terminal 2 with the introduction of payment barriers creating toll lanes, these will be monitored by CCTV cameras and there will be lane indicator displays and gigital clocks.

6.203 The system will use ANPR and CCTV tracking technologies and whilst the final technical solution has not yet been fully designed there will be an element of integration with CPM systems and other Commercial IT system at the airport.

Figure 6.16: Drop Off and Pick Up - Proposed Terminal 1 Gantry System



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

6.204 In response to questions relating to the sharing and integration of DOPU equipment and devices (i.e. cameras and pay station systems etc), Dublin Airport states there will be integration with their current systems. However, the airport also identifies that currently the project is at the feasibility stage, hence the final solution has not yet been fully design. The level of integration will become clearer as the design develops and is finalised.

Change in scope versus Previous CIP2020+

6.205 This is a new project.

Stage

6.207 In response to a question regarding the project schedule, Dublin Airport has identified that the project is currently in feasibility and outline design. The project still needs to progress through planning and procurement; however, construction is anticipated to commence in June 2023 with the project being handed over for operation in January 2024. These timescales look feasible.

- Feasibility/Outline design Starts 15 December 2021
- Planning complete 03 November 2022
- Design complete 05 August 2022
- Procurement complete 19 May 2023
- Construction commences 20 June 2023
- Project handover 26 January 2024

Key project metrics

Table 6.109: Drop Off and Pick Up– Key project metrics

Metric	Value
Project cost estimate	€ 5,240,000
Equipment and technology	≈ 20%
Reconfiguration of access road, Kerb side drop off and pickup areas	≈ 80%

Scope/Specifications review

6.208 No specifications have been provided other that an outline scope of the project's ambitions at business case level. Dublin Airport states that the scope of the project is defined as followed:

- Increase Road Capacity - The campus roads are at capacity at peak times and will not suffice at 40mppa, if customer behaviour and usage remain the same. Traffic management analysis completed in 2018 identified that terminal kerbside locations were reaching capacity with congestion and drop off delays experienced at peak times.
- Developing additional kerb capacity while a possible solution would be highly disruptive, complex, and expensive to deliver. Space constraints limit options for expansion with a requirement to make throughput on the existing road network more efficient. Managing kerb dwell time by introduction of drop off / pick up facility allows for the retention of the existing kerb infrastructure and provide sufficient Terminal kerb capacity out to 40 mppa.
- Reduced Congestion - The drop off / pick up project will reduce kerbside congestion and manage capacity by reducing traffic and public vehicles access.
- Introducing new commercial product – Currently vehicle users of the campus roads experience inconsistent enforcement activities, however, with demand for kerbside drop off and pick up at the terminal forecourt increasing, management of a drop off / pick up areas will enable control of enforcement activities and provides a consistent and convenient solution.
- Commercial Return - This drop off / pick up project will deliver a positive business case with significant revenue opportunity.
- Shift the Modal Split - The project aims to reduce car journeys to and from the airport and to encourage a greater use of public transport.

6.209 However, the intent of this project is to create a further move towards bus ridership which should reduce congestion and create an additional commercial benefit from toll charges for drop off and pick up passenger movements. In response to a question regarding the modal share of passengers using Dublin Airport they clarified that they are seeking to increase bus ridership to 40% of passengers. Currently over 50% of passengers use public transport which includes buses and public hire taxis.

Table 6.110: Drop off and pick up – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is defined at a business case level only. Feasibility planning and design should be progressing, but the final solution has not yet been fully designed, hence there are still several unknowns relating to the level of integration required with other airport systems. The Airport's ambition is to increase bus ridership to 40% of passengers. Currently over 50% of passengers use public transport which includes buses and public hire taxis. However, the project's intent is to create a further shift towards bus ridership and gaining a commercial benefit from the toll charges for drop off and pick up.
Alternative scopes	The project has looked at alternative solutions including the expansion of the Terminal Kerb side parking.
Quality of specifications of scope/scope change	Feasibility/outline design are progressing.
Phasing and synergies with other projects	None identified.
Existing asset conditions	Dublin Airport has forecast that congestion at the Terminal 1 and 2 Kerbside areas will increase as they return to pre-pandemic traffic level and continue to grow to 40mppa.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 6.111: Drop off and pick up – Scope/Specifications - Conclusion

Description	RAG
The project scope as defined at this business case level appears to be achievable and effective in delivering the intended outcome, namely a tolling system for Drop-Off/Pick up. The project should be in Feasibility stage and is still in progress with design due to complete in August 2022. Consequently, the full solution is still to be identified. There will be a level of integration with the Airports' existing carparking management systems (cameras, barriers ANPR etc) and the Airport's existing commercial systems. However, the level of integration to between the DOPU system and these other systems is still to be identified as part of the feasibility and design process. There will need to be some physical reconfiguration of the kerbside areas of Terminal 1 and Terminal 2. Some drawings have been prepared to give an early-stage idea of what these physical reconfigurations will look like. However, these need to be developed further as part of the feasibility and design studies which should be progressing through Q1, Q2 and Q3 of 2022. This project should meet its planned objectives as identified in the CIP documentation to date.	

Cost estimate review

Table 6.112: Drop Off and Pick Up – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.73	0.68	-0.06
Construction Costs	3.67	3.39	-0.28
Escalation, Contingency & Design Variability	0.83	0.77	-0.06
Total	**5.24**	**4.84**	**-0.40**

Table 6.113: Drop Off and Pick Up – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	0.73	0.68	-0.06
Total	**0.73**	**0.68**	**-0.06**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	3.67	3.39	-0.28
Total	3.67	3.39	-0.28
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.83	0.77	-0.06
Total	**0.83**	**0.77**	**-0.06**

6.210 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.114: Drop Off and Pick Up – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Management and Staff Prelims	Redacted		-0.28
Contingency @ 15%			-0.05
Escalation to midpoint of construction			-0.01

Cost - Draft Report Conclusion

6.211 This is a new project. We have reviewed the rates included in Dublin Airports estimate and we have issued several queries to them relating to rate breakdowns for various items and provisional allowances for various items included in their estimate. Once we receive responses to those queries, we will conclude our assessment for these items.

6.212 Dublin Airport has included an allowance for main contractor's preliminaries that equates to Redacted % of the construction cost. This allowance is higher than we would expect and we have reduced the allowance to Redacted % in our assessment. The allowance for design and

management included in our assessment is also reduced because of the revised percentage uplift for preliminaries.

6.213 The only variance from our assessment is the allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation is based on a percentage uplift of 3.38%. Dublin Airport need to confirm the base date for their estimate so that our assessment of escalation can be finalised. The allowance for escalation included in our assessment is less than in Dublin Airports estimate because of the reduction to the percentage uplift for preliminaries.

Overall conclusion

6.214 Our overall conclusion of the project review is as follows:

Table 6.115: Drop Off and Pick Up – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The project scope as defined at this business case level appears to be achievable and effective. Once received, the responses to our queries on the Dublin Airports estimate need to be assessed. This will be addressed in our Final Report later this year.	

CIP.20.04.034 – OCTB Refurbishment

Project description

Introduction

6.215 Dublin Airport proposes a light refurbishment of the landside portion of the Old Central Terminal Building (OCTB) to create a new commercial proposition.

Figure 6.17: OCTB Refurbishment

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.216 The objective is to enable a new use of the vacated landside portion of the building to complement the airside, which will be used for bus gates.

Context

6.217 The OCTB officially opened in 1940. The building has been split into a landside space for office accommodation and an airside space. In 2021, the offices were vacated and thus this section of the building now sits idle. The airside portion on ground level will be upgraded under CIP project CIP.20.03.017 Terminal 1, Bus Lounges, and Injection Points.

Scope

6.218 The scope covers a feasibility study, the design and construction of light refurbishment of all three landside floors as well as modification and improvements to the adjoining front elevation landscaping and access.

Change in scope versus Previous CIP2020+

6.219 OCTB Refurbishment is a new project.

Stage

6.220 The project is currently at high level concept stage and the feasibility study and design will commence in Q3 2022.

- Design, procurement complete Q1 2023
- Construction start Q1 2023
- Construction complete Q1 2024
- Project handover Q1 2024

Key project metrics

Table 6.116: OCTB Refurbishment – Key project metrics

Metric	Value
Construction cost estimate	€ 6,033,600
Project cost estimate	€ 9,049,097
Total floor space on 3 levels	4,190 m^2
Cost per sqm	1,440 €/m^2

Scope/Specifications review

Table 6.117: OCTB Refurbishment – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The project objectives can be fulfilled by the suggested scope. Results of CIP.20.09.009 Terminal 1 and Campus Sustainability Feasibility should be considered for the project since otherwise additional refurbishments might be needed soon after the completion of works.
Alternative scopes	The project scope should be reviewed according to the results of CIP.20.09.009 Terminal 1 and Campus Sustainability Feasibility. Hence it should be considered to postpone the start of this project until the outcome of the feasibility study.
Quality of specifications of scope/scope change	Level 3 costs for light refurbishments provide sufficient detail at this high-level concept stage. The scope also covers modification and improvements to the adjoining front elevation landscaping and access, however, this is not included in provided level 3 costs.
Phasing and synergies with other projects	The refurbishment work of the landside portion of the building needs to be co-ordinated with the upgrade of the airside portion (CIP.20.03.017 Terminal 1, Bus Lounges, and Injection Points) to avoid on site clashes and inefficient working. Results of CIP.20.09.009 Terminal 1 and Campus Sustainability Feasibility need to be considered before commencing with refurbishment works.
Existing asset conditions	The OCTB is more than 80 years old. The asset life after light refurbishments is supposed to be 20 years, however, additional refurbishments might be needed to fulfil the daa sustainability goals for 2030 and beyond.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 6.118: OCTB Refurbishment – Scope/Specifications - Conclusion

Description	RAG
The project objectives can be fulfilled by the suggested scope. However, we recommend Dublin Airport considers the postponement of this project until results of CIP.20.09.009 Terminal 1 and Campus Sustainability Feasibility are available and then to review the scope to avoid additional refurbishments soon after the completion of works.	

Cost estimate review

Table 6.119: OCTB Refurb– Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	1.21	1.21	-
Construction Costs	6.03	6.03	-
Escalation, Contingency & Design Variability	1.81	1.81	-
Total	**9.05**	**9.05**	**-**

Table 6.120: OCTB Refurb – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	1.21	1.21	-
Total	**1.21**	**1.21**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	6.03	6.03	-
Total	6.03	6.03	-
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	1.81	1.81	-
Total	**1.81**	**1.81**	**-**

6.221 There is no variance in assumptions between Dublin Airport and Steer in the Level 3 items.

Cost - Draft Report Conclusion

6.222 This is a new project. We have reviewed the rates included in Dublin Airports estimate and we have sought clarification from them as to the level of specification included in their estimate for the light refurbishment works. Once we receive responses to those queries, we will conclude our assessment for these items.

6.223 No monies have been spent on this project thus far. Our assessment of escalation is based on a percentage uplift of 3.38%. Dublin Airport need to confirm the base date for their estimate so that our assessment of escalation can be finalised.

Overall conclusion

6.224 Our overall conclusion of the project review is as follows:

Table 6.121: OCTB Refurb – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The project objectives can be fulfilled by the suggested scope. However, we recommend Dublin Airport considers the postponement of this project until results of CIP.20.09.009 Terminal 1 and Campus Sustainability Feasibility are available and then to review the scope to avoid additional refurbishments soon after the completion of works. **Once received, the responses to our queries on the Dublin Airports estimate need to be assessed. This will be addressed in our Final Report later this year.**	

CIP.20.07.010 – Office Consolidation & Refurbishment (Level 4 & 5 Terminal 1)

Project description

Introduction

6.225 Dublin Airport proposes the refurbishment of floor levels 4 and 5 in Terminal 1 to create office accommodation for Dublin Airport staff as well as the creation of a consolidated plant enclosure on level 6 (roof).

Table 6.122: Office Consolidation & Refurbishment

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.226 The objective is to create more office space for Dublin Airport employees to be located in a consolidated position i.e. T1.

Context

6.227 One driver for this project is the airport capacity development projects requiring the demolition of existing buildings (e.g. Cargo 1 and the North Terminal) currently partially, or, fully occupied by Dublin Airport staff. Because of the amount of space available on level 4 and 5 that can be upgraded into office accommodation it enables Dublin Airport to double the office space currently in use in T1. This will enable Dublin Airport to move staff from Cloghran House and Cargo 6 into T1 and release this accommodation for commercial letting.

Scope

6.228 The scope delivers a consolidated office space for Dublin Airport staff in Terminal 1. The project proposes an entire strip out, repair and refurbishment of Terminal 1 Levels 4 and 5, including an additional Level 5 light well. Full office and welfare fit-out as well as a consolidated plant enclosure on level 6 (roof) is also included.

Change in scope versus Previous CIP2020+

6.229 After design refinement the refurbishment of the building turned out to be more complex and demanding than previously anticipated by Dublin Airport, given the building's age.

6.230 There are the following scope changes to Previous CIP2020+:

- The office space for refurbishment on levels 4 and 5 has been decreased (increased) from 6,583 sqm to 5,619 sqm (4,500 sqm to circa 12,000 sqm). We have asked Dublin Airport to clarify if there is a decrease or an increase in office space to be refurbished since provided documents include contradicting information.
- The consolidated plant enclosure on level 6 (roof) has been added.
- Minor refurbishment of Cargo 6 has been omitted from this project.

Stage

6.231 The project is currently on hold with feasibility/outline design complete. Planning and procurement will commence in Q1 2023:

- Design, procurement complete Q2 2023
- Construction start Q2 2023
- Construction complete Q4 2024
- Project handover Q1 2025

Key project metrics

Table 6.123: Office Consolidation & Refurbishment – Key project metrics

Metric	Value
Construction cost estimate	€ 11,570,000
Project cost estimate	€ 19,794,509
Total floor space on 2 levels	5,619 m^2
Cost per sqm	2,059 €/m^2

Scope/Specifications review

Table 6.124: Office Consolidation & Refurbishment – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope appears to provide an effective solution to consolidate office spaces. Results of CIP.20.09.009 Terminal 1 and Campus Sustainability Feasibility should be considered for the project since otherwise additional refurbishments might be needed soon after the completion of works.
Alternative scopes	The project scope should be reviewed according to the results of CIP.20.09.009 Terminal 1 and Campus Sustainability Feasibility. That project proposes developing a sustainable strategy for the upgrade or replacement of Terminal 1 and interconnected buildings and hence has a major influence on the asset life of Terminal 1.
Quality of specifications of scope/scope change	Areas on the provided drawings of levels 4 to 6 do not correspond with information for level 3 costs. Level 3 generic information provided, but the floor areas and wall areas are all the same. There is no cost reference to the consolidated plant

Subject	Comments
	enclosure on level 6 (roof). We have asked Dublin Airport to clarify the scope and provide the missing quantities on this part, and will update our assessment in time for the Final Report.
Phasing and synergies with other projects	Refurbishment work needs to be co-ordinated with the other Terminal 1 renewal projects to avoid on site clashes and inefficient working: • CIP.20.01.020 Terminal 1 Façade, Roof and Spirals • CIP.20.01.022 T1 Storm Water Drainage System • CIP.20.01.023 Piers & Terminals critical Maintenance. Results of CIP.20.09.009 Terminal 1 and Campus Sustainability Feasibility need to be considered before commencing with any refurbishment works.
Existing asset conditions	T1 is 50 years old; refurbishment of space for office use with a 25-year asset life will ensure the residual life of T1. Extending the life of T1 beyond 2030 needs to be evaluated in the light of the outcome of "Terminal 1 and Campus Sustainability Feasibility" project.
Double counting	None identified, but similarity of floor and wall areas in m^2 raises the question of what has actually been measured.

Scope/Specifications – Conclusion

Table 6.125: Office Consolidation & Refurbishment (Level 4 & 5 Terminal 1) – Scope/Specifications - Conclusion

Description	RAG
The scope will meet the objective for Dublin Airport office consolidation in Terminal 1. However, we recommend Dublin Airport considers the postponement of this project until results of CIP.20.09.009 Terminal 1 and Campus Sustainability Feasibility are available and then to review the scope to avoid additional refurbishments soon after the completion of works**.**	

Cost estimate review

Table 6.126: Office Consolidation & Refurbishment (Level 4 & 5 Terminal 1) – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	1.25	1.74	1.72	-0.02
Construction Costs	8.36	11.57	11.47	-0.10
Escalation, Contingency & Design Variability	2.00	6.49	6.27	-0.22
Total	**11.61**	**19.79**	**19.46**	**-0.33**

Table 6.127: Office Consolidation & Refurbishment (Level 4 & 5 Terminal 1) – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	1.25	1.74	1.72	-0.02
Total	**1.25**	**1.74**	**1.72**	**-0.02**

Construction Costs (C-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Construction Costs	8.36	11.57	11.47	-0.10
Total	**8.36**	**11.57**	**11.47**	**-0.10**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	2.00	6.49	6.27	-0.22
Total	**2.00**	**6.49**	**6.27**	**-0.22**

6.232 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.128: Office Consolidation & Refurbishment (Level 4 & 5 Terminal 1) – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation to midpoint of construction	Redacted			-0.22
Superstructure				-0.10
Escalation (from estimate base date to Q4 2021)				+0.02

Cost - Draft Report Conclusion

6.233 The cost of this project has increased since the 2019 assessment. We have reviewed Dublin Airports 2022 assessment and we have issued queries to Dublin Airport on several items that include the level of specification included for the internal fit out items, the scope that has been included in the mechanical and electrical services scope.

6.234 In addition to those queries, we have queried the overall area of office refurbishment works to be undertaken as the quantity included in Dublin Airports 2022 estimate is significantly less than the quantity stated in its final CIP2020+ Review submission to CAR. We are awaiting responses to these queries and, once received and reviewed, we will finalise our assessment in our Final Report later this year.

6.235 It is not clear what the basis is for Dublin Airports allowances for design and management and main contractor's preliminaries in their 2022 estimate. We have asked Dublin Airport to confirm what the basis of their calculations are and, once received, we will finalise our assessment for these items in our Final Report later this year. The IFS assessment has included an allowance of 15% of construction costs for both design and management and main contractor's preliminaries costs.

6.236 The only variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

Overall conclusion

6.237 Our overall conclusion of the project review is as follows:

Table 6.129: Office Consolidation & Refurbishment (Level 4 & 5 Terminal 1) – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The scope will meet the objective for Dublin Airport office consolidation in Terminal 1. However, we recommend Dublin Airport considers the postponement of this project until results of CIP.20.09.009 Terminal 1 and Campus Sustainability Feasibility are available and then to review the scope to avoid additional refurbishments soon after the completion of works. There are several outstanding queries that Dublin Airport need to respond to so that we can finalise or assessment. This will be completed in our Final Report later this year.	

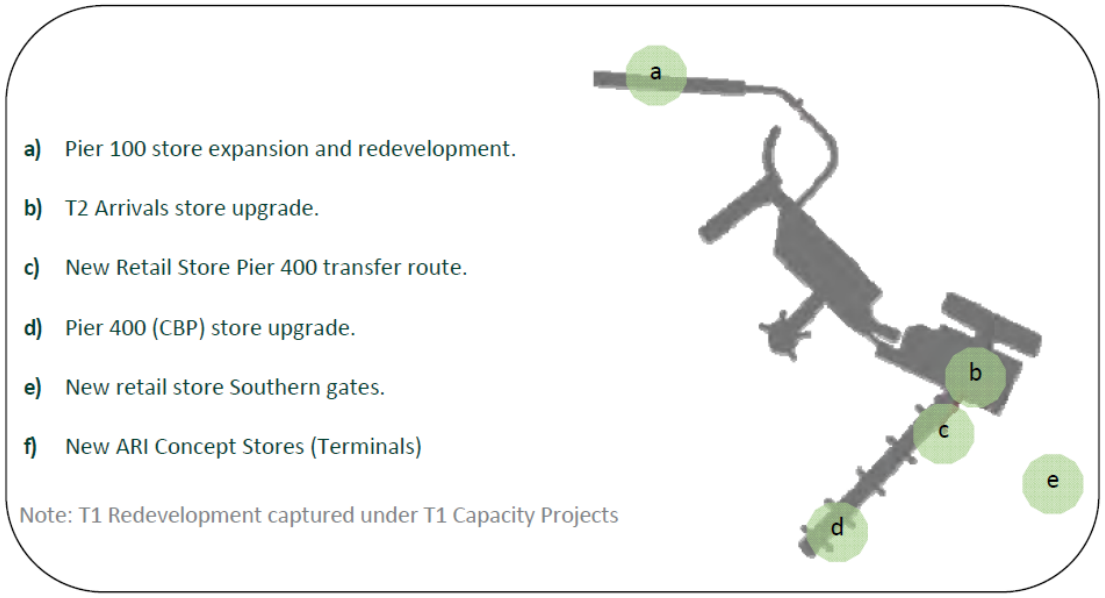
CIP.20.08.001 – Retail Refurbishments, Upgrades and New Developments

Project description

Introduction

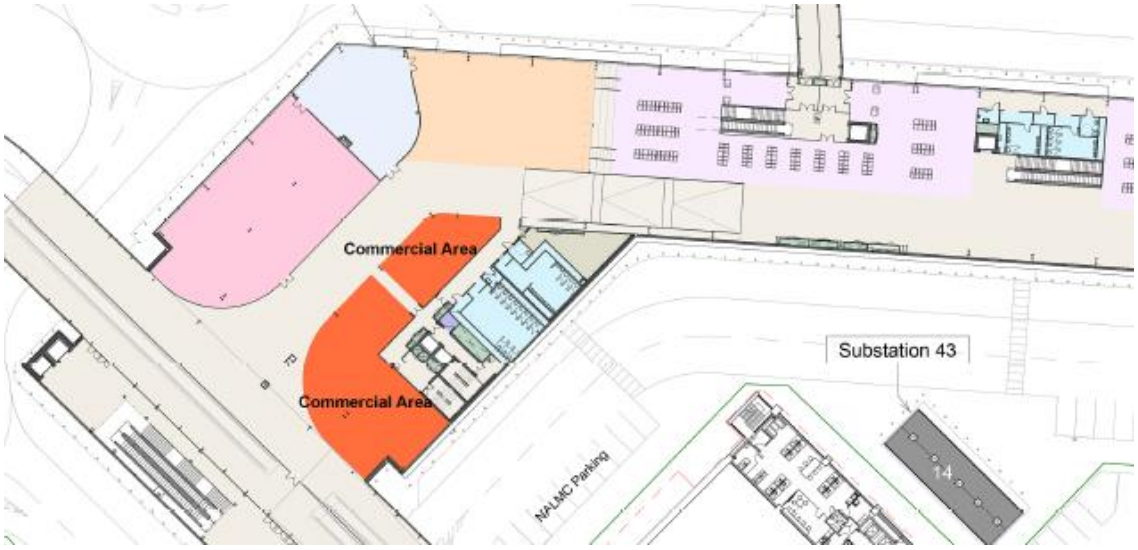
6.238 Dublin Airport proposes refurbishments, upgrades, and expansions of existing retail offerings at Dublin Airport across both terminals and associated piers as well as several new retail developments.

Figure 6.18: Retail Refurbishments, Upgrades and New Developments



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Figure 6.19: Retail Refurbishments, Upgrades and New Developments – New Module 1 Retail Store



Source: Dublin Airport's Capital Investment Programme 2020+, amd daa Infrastructure Planning & Development, 2020

Objective

6.239 The project objectives are to provide new customer-focused retail opportunities and targeted retail outlets positioned in the passenger circulation routes to generate new revenues to compensate for lower spend in main shops.

Scope

6.240 The scope includes the following retail measures:

- Expanded and redeveloped Pier 1 retail store, including shell, core and fit-out;
- New Module 1 retail store, including fit-out with shell provided by North Apron capacity project;
- New Pier 4 transfer node retail store, including shell, core and fit-out;
- New and upgraded Pier 4/5 post-CBP retail stores, core and fit-out with shell provided by South Apron Hub;
- New Southern Gates retail store, including shell, core and fit-out;
- Upgraded Terminal 1 and 2 Arrivals retail store, including shell, core and fit-out;
- New ARI concept stores, including shell, core and fit-out;
- P&C 50/50 New and Refresh brands;
- 2 new logistics adjustable platforms, electric pallet trucks and equipment; and
- Operational contingency.

Change in scope versus Previous CIP2020+

6.241 There are the following scope changes to Previous CIP2020+:

- The fit-out of the new Module 1 Retail Store has been added to the project.
- The fit-out of the new post-CBP Retail Store, located on the ground floor of the CBP building, has been added to the project.
- An upgraded Terminal 1 Arrivals retail store has been added to the scope.

6.242 We will need to continue to follow up on the clarification of scope changes after the submission of the Draft Report.

Stage

6.243 Project is currently on hold with feasibility/outline design complete. Planning and procurement will commence in Q1 2023.

- Design, procurement complete Q1 2023
- Construction start Q1 2023
- Construction complete Q2 2025
- Project handover Q2 2025

6.244 No details on the various sub-projects of the scope have been provided regarding planned construction times and handover.

Key project metrics

Table 6.130: Retail Refurbishments, Upgrades and New Developments – Key project metrics

Metric	Value
Construction cost estimate	€ 7,130,000

Metric	Value
Project cost estimate	€11,713,741
Areas of refurbished, expanded and new stores	Pier 1 retail store: 58 sqm New Module 1 Store: 380 sqm New Pier 4 transfer store: n.a. Upgraded Pier 4 post-CBP store: n.a. New Southern Gates retail store: n.a. Upgraded T2 Arrivals retail store: n.a. New ARI concept stores: • Spectrum: 65 sqm • Gem & I: 65 sqm • Electronics T1 Street: 140 sqm • CTN T1 Arrivals: 77 sqm • CTN Pier 100: 210 sqm • CTN Pier 300: 108 sqm • CTN T2 Arrivals: 228 sqm • CTN Pier 400: 122 sqm • CTN T1 Street: 350 sqm
Cost per square metre	Provided for some of the stores above (various rates)

Scope/Specifications review

Table 6.131: Retail Refurbishments, Upgrades and New Developments – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The overall scope is efficient and effective to meet the project objectives. The location/scope of the ARI concept store in Pier 3 conflicts with the proposed works on departure level of CIP.20.03.033A – Enablement of Pier 3 for Precleared US bound passengers, and therefore should be reviewed.
Alternative scopes	None identified.
Quality of specifications of scope/scope change	Level 3 costs provide sufficient detail at concept stage.
Phasing and synergies with other projects	The phasing of some of the retail stores depend on other projects in which core and shell will be provided. Synergies and dependencies exist with the following capacity projects: • CIP.20.03.013: Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation. • Core and shell of several ARI concept stores are included in this project. There is a conflict regarding the timeline of both projects since the T1 IDL will be handed over approx. 2 years after the completion of the stores. • CIP.20.03.033A: Enablement of Pier 3 for Precleared US bound passengers. • The layout and timeline of one ARI concept store is affected by this project. • CIP.20.03.036: North Apron Development – Pier 1 Extension (Module 1) & Apron 5H PB. • Core and shell of the new Module 1 Store is part of this project. There is a conflict regarding the timeline of both projects since the Pier 1 Extension will be handed over more than 3 years after the completion of the store. It can

Subject	Comments
	be concluded that the new Module 1 store cannot be delivered within the CIP period until 2026. It is assumed that the remaining retail outlets will be standalone projects and phased to minimise disruption to passengers.
Existing asset conditions	The asset life of each of the retail locations of the scope is 5 years. Existing asset conditions of the existing shops have not been provided.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 6.132: Retail Refurbishments, Upgrades and New Developments – Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope/scope change will meet the outputs required of the project. The construction period for the stores located in the Terminal IDL should be extended until the end of 2026 since construction of the related capacity project will not be finished before that date. The construction period for the new Module 1 store will be reliant on the related capacity project, which appears not to be completed before 2028.	

Cost estimate review

Table 6.133: Retail Refurbishments, Upgrades and New Developments – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	-	-	-	-
Construction Costs	8.00	7.13	7.13	-
Escalation, Contingency & Design Variability	-	4.58	4.65	+0.07
Total	**8.00**	**11.71**	**11.78**	**+0.07**

Table 6.134: Retail Refurbishments, Upgrades and New Developments – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design & Management Costs	-	-	-	-
Total	**-**	**-**	**-**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Pier 100	0.35	0.35	0.35	-
T2 Arrivals Store	0.15	0.15	0.15	-
Pier 400	0.34	0.34	0.34	-
CBP	0.22	0.22	0.22	-
South Gates	0.16	0.16	0.16	-
Mod 1 Retail fitout	N/A	0.38	0.38	-
Logistic Infrastructure	0.14	0.14	0.14	-
50/50 cost share vendor installations	1.04	1.04	1.04	-
Concept Stores	4.36	4.36	4.36	-
Total	**8.00**	**7.13**	**7.13**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	-	4.58	4.65	+0.07
Total	**-**	**4.58**	**4.65**	**+0.07**

6.245 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.135: Retail Refurbishments, Upgrades and New Developments – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.15
Escalation to midpoint of construction				-0.08

Cost - Draft Report Conclusion

6.246 The scope of the project has increased since the 2019 assessment and the cost of this project has increased because of the additional scope. We have reviewed the rates included in Dublin Airport's 2022 estimate for the additional scope and they are reasonable.

6.247 The only variance from the 2019 assessment is the increased allowance for escalation. Our assessment of escalation has omitted monies spent to date on the project from the calculation, but it has also increased the escalation percentage applied to revise the base date from Q4 2018 to Q4 2021 from 19% to 23%.

6.248 With the exception of the additional scope included in the project and the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

6.249 Our overall conclusion of the project review is as follows:

Table 6.136: Retail Refurbishments, Upgrades and New Developments – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope/scope change will meet the outputs required of the project. The construction period for the stores located in the Terminal IDL should be extended until the end of 2026 since construction of the related capacity project will not be finished before that date. The construction period for the new Module 1 store should be extended until 2028 since construction of the related capacity project appears not to be completed before. It can be concluded that the new Module 1 store cannot be delivered within this CIP period until the end of 2026 and therefore should be deferred into the next CIP period. The cost of this project is reasonable.	

CIP.20.08.002 – Retail Marketing and Media Installation

Project description

Introduction

6.250 This project is to provide screens for digital retail marketing alongside media and flight information.

Figure 6.20: Retail Marketing and Media Installation

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

6.251 Dublin Airport states that the project objective is to generate engagement, traffic and footfall into the shops to improve the revenue per passenger from the central retail outlets.

Context

6.252 Changing passenger journeys through the airport have reduced dwell times in shops leading to lower revenue per passenger.

Scope

6.253 The scope of the project covers mixed media screens in T1 re-development and T2 central. Installations will include FIDs, interactive displays, video walls and various forms of store branding.

Change in scope versus Previous CIP2020+

6.254 Dublin Airport states that minimal scope changes to Previous CIP2020+ have been made, however, the content of those changes has not been provided and does not affect level 3 costs.

Stage

6.255 The project has already commenced and design/procurement have already been completed in Q1 2022.

- Design, procurement complete Q1 2022
- Construction start Q2 2022
- Construction complete Q2 2025

- Project handover Q2 2025

6.256 No details on the various locations of the media screens have been provided regarding planned construction times and handover.

Key project metrics

Table 6.137: Retail Marketing and Media Installation – Key project metrics

Metric	Value
Construction cost estimate	€ 1,500,000
Project cost estimate	€1,902,632
Area of Media Development Zones	Terminal 1: 2420 sqm Terminal 2: 350 sqm

Scope/Specifications review

Table 6.138: Retail Marketing and Media Installation – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The overall scope is efficient and effective to meet the project objectives.
Alternative scopes	None identified.
Quality of specifications of scope/scope change	There is no specification apart from one site in T2 where the screen locations and size are identified. For the other sites there is insufficient information.
Phasing and synergies with other projects	Synergies and dependencies exist with the following capacity projects: • CIP.20.03.013 - Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation: Media installations will be provided in the new central shops in T1. There is a conflict regarding the timeline of both projects since the T1 IDL will be handed over approx. 2 years after the completion of media installations. • CIP.20.03.021 - Terminal 2 Central Search Area Expansion: One media installation will be provided at the exit of the expanded central search area to the walk-through duty free. There is a conflict regarding the timeline since the T2 Central Search will be handed over approx. 2 years after the completion of media installations. • It is assumed that the remaining media installations will be standalone projects and phased to minimise disruption to passengers.
Existing asset conditions	The asset life of each of the installations is supposed to be 5 years.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 6.139: Retail Marketing and Media Installation – Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope/scope change will meet the outputs required of the project. The timeline for several installations should be extended until the end of 2026 since	

Description	RAG
construction of the related capacity projects in Terminal 1 and 2 appears not to be completed before that date.	

Cost estimate review

Table 6.140: Retail Marketing and Media Installation – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	-	-	-	-
Construction Costs	1.50	1.50	1.50	-
Escalation, Contingency & Design Variability	-	0.40	0.47	+0.06
Total	**1.50**	**1.90**	**1.90**	**-**

Table 6.141: Retail Marketing and Media Installation – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design & Management Costs (Deemed included below)	-	-	-	-
Total	**-**	**-**	**-**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Marketing & Media	1.50	1.50	1.50	-
Total	**1.50**	**1.50**	**1.50**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability (Deemed included above)	-	0.40	0.47	+0.06
Total	**-**	**0.40**	**0.47**	**+0.06**

6.257 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 6.142: Retail Marketing and Media Installation – Main Level 3 variances

Item	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted			+0.06

Cost - Draft Report Conclusion

6.258 The only variance from the 2019 assessment is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage applied, to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

6.259 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost of this project is reasonable.

Overall conclusion

6.260 Our overall conclusion of the project review is as follows:

Table 6.143: Retail Marketing and Media Installation – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope/scope change will meet the outputs required of the project. The timeline for several installations should be extended until the end of 2026 since construction of the related capacity projects in Terminal 1 and 2 appears not to be completed before that date. With exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS 2019 estimate. The cost estimate for this project is reasonable.	

7 Project Reviews – CIP2020+ Appendix H – Sustainability

Summary

Table 7.1: Appendix H - Sustainability – Summary

CIP Number	Project Title	RAG Costs	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
CIP.20.03.052	Surface Water Environmental Compliance		51.61	102.77	102.77	-
CIP.20.09.001	Airport Charging		N/A	80.13	80.83	+0.70
CIP.20.09.002	Alternate Fuels		N/A	1.54	1.54	-
CIP.20.09.003	Anaerobic Digestion		N/A	9.59	9.93	+0.34
CIP.20.09.004	Sustainable Fleet		N/A	18.53	18.53	-
CIP.20.09.005	Fixed Electrical Ground Power Phase 3		N/A	12.46	12.93	+0.47
CIP.20.09.006	Photovoltaic Farm Phase 2		N/A	38.60	39.90	+1.30
CIP.20.09.007	Mobility Improvements		N/A	13.95	13.95	-
CIP.20.09.008	Terminal 2 Sustainable Upgrade		N/A	110.64	110.64	-
CIP.20.09.009	Terminal 1 Sustainable Upgrade Feasibility		N/A	6.37	6.37	-
Total			**51.61***	**394.58**	**397.38**	**+2.81**

Note: *Previously in the Capacity envelope in CIP2020.

7.1 Overall our estimates for the projects in the Sustainability envelope suggest that the overall costs could be increased by +€2.81m, mainly caused by the increase in inflation assumptions since the Dublin Airport submission.

7.2 Our upwards adjustment in project escalation costs to the end of 2021 from +19% to +23% has increased the IFS assessment for the Sustainability group of projects by +€1.73m. If the Dublin Airport proposed cost estimate was increased to take account of this additional +4% cost increase due to escalation, this would show the IFS assessment as identifying a cost increase of +€1.08m.

7.3 Individual reports for the projects in this Appendix are presented below.

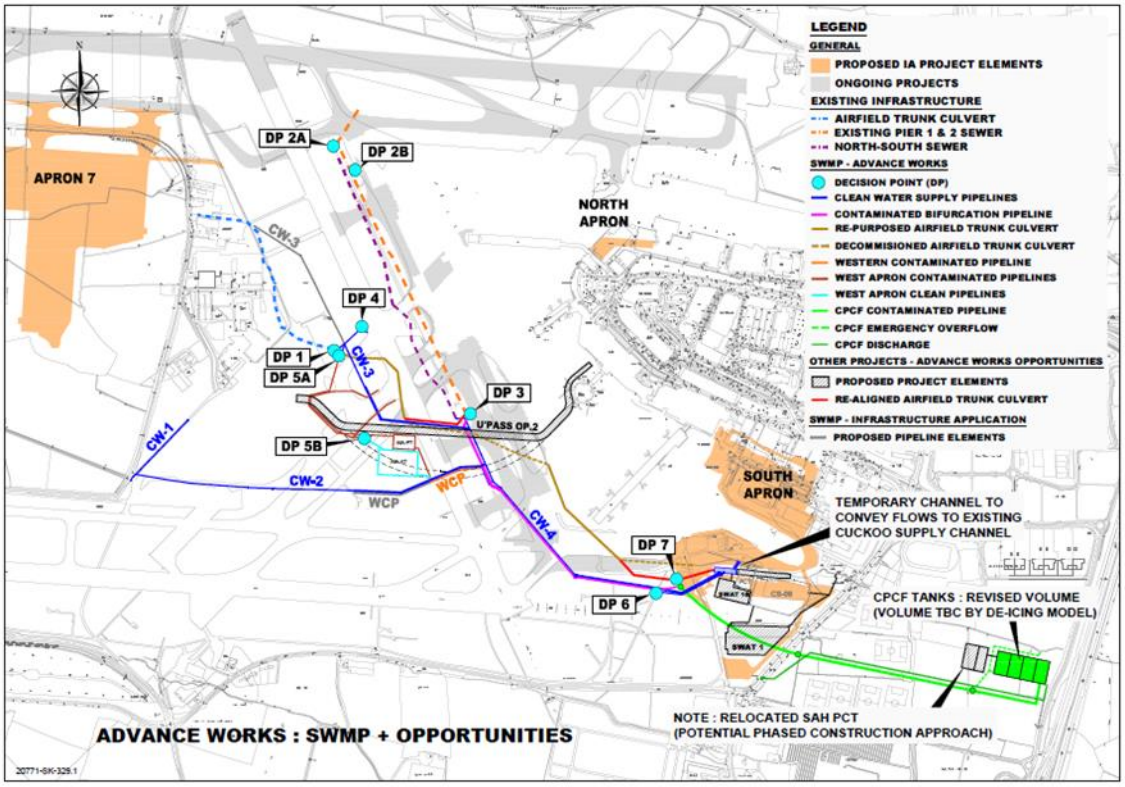
CIP.20.03.052 – Surface Water Environmental Compliance

Project description

Introduction

7.4 The project proposes upgrading the existing surface water collection network, diverting the existing Cuckoo Stream through the airfield, and providing additional storage and treatment facilities for polluted runoff, especially surface water loaded with de-icing contaminants.

Figure 7.1: Surface Water Environmental Compliance



Source: Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objectives

7.5 In general, the objective of this project is source control for surface water contaminants, namely de-icing chemicals and, in particular, aircraft de-icing/anti-icing (glycols). Where new airfield infrastructure is planned, it is necessary to provide appropriate accompanying drainage infrastructure, usually surface water attenuation and polluted water detection/storage.

Context

7.6 The existing surface water infrastructure at Dublin Airport does not meet best practices. It is likely that stricter licencing conditions on discharge flows and loads into the receiving surface water streams will come into place in the near future. As the anticipated passenger growth continues, additional pressure will further overload the existing water infrastructure.

Scope

7.7 This project is a refinement to the original CIP2020 project with the same project number and name, now moved into the sustainability category of projects.

7.8 This project ultimately plans to improve the water quality in local waterways, to be achieved by separating clean water from polluted runoff and providing a more controlled pollution management system, which will reduce the risk of insufficient storage being available to cater for pollution events.

7.9 Dublin Airport has advised that the proposed infrastructure will be implemented over three CIP phases. Only funding for Phase 1 of the overall project is proposed in this CIP period. This includes constructing a downstream centralised storage and treatment facility for polluted runoff and associated pumping stations, network reconfiguration works, a diversion of the Cuckoo Stream, and construction of a roof water interceptor sewer. These include:

- Re-Purposed Airfield Trunk Culvert;
- Decommissioned Airfield Trunk Culvert;
- Western Contaminated Pipeline;
- West Apron Contaminated Pipelines;
- West Apron Clean Pipelines;
- CPCF Contaminated Pipeline;
- Clean Water Supply Pipelines;
- Contaminated Bifurcation Pipeline;
- CPCF Emergency Overflow;
- CPCF Discharge;
- CPCF Attenuation Tanks (split into phase 1 and phase 2 build out); and
- Decision Point Chambers.

Change in scope versus Previous CIP2020+

7.10 The project scope has been refined since the original project was submitted in 2019, primarily relating to:

- Completion of the North-South sewer. The North-South Sewer is the construction of a new 2km sewer to provide additional drainage capacity for contaminated surface water that will drain from newly paved areas in the north of the airfield, specifically for the North Runway and Apron 5H.
- Bird strike mitigation. As noted in 2019 submission, open-air ponds have been replaced with underground storage where required. The cost of underground attenuation and pollution control tanks with associated underground pipelines has increased the estimated cost.

Stage

7.11 The project is currently at initial feasibility stage which commenced in Q1 2021. The design stage and procurement stage are due for completion in Q2 2024 and then construction commencement in Q3 2024. Handover is scheduled 2 years later in Q4 2026. This programme is considered to be reasonable for the implementation and commissioning of this major project.

- Feasibility/Outline design complete Q2 2024
- Planning complete Q2 2024
- Design complete Q2 2024
- Procurement compete Q2 2024

- Construction commence Q3 2024
- Project handover Q4 2026

Key project metrics

Table 7.2: Surface Water Environmental Compliance – Key project metrics

Metric	Value
Dublin Airport total cost estimate (2022)	€102,770,000
Phase 1 Tank Volume	100,000m^3 to 120,000m^3
Phase 2 Tank Volume	160,000m^3 to 180,000m^3
Dublin Airport estimate (2020)	€ 51,601,281
Lagoon Construction Cost (2020)	€ 20,124,673

Scope/Specifications review

Table 7.3: Surface Water Environmental Compliance – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	It does not appear that all the necessary pipe connections and tank outfalls are indicated. However, it is accepted that this project is at a very preliminary level of detail. Notwithstanding this, the proposed scope appears effective in delivering a suitable solution for the assessment, collection and treatment of surface water at the airport, with consideration to an expected increase in traffic, activity and pavement.
Alternative scopes	The current proposed solution would appear to be the most viable. No alternative viable options appear to be available to the project based on responses received from Dublin Airport. However, to avoid the need for expensive rood slabs on the large area attenuation tanks, it has been queried if a mesh roof on supporting steel columns could be used (similar to the tank installed at Birmingham Airport in the UK). Dublin Airport has stated that this cannot be done as the new car hire and long-term car park is to be located above the tanks, as such a solid structural roof is required. However, it is considered that this is a very expensive option, and further consideration to moving the car hire location might be considered. Dublin Airport has also been asked if, for bird mitigation, the use of open tanks with netting and 'bird balls' has been considered to avoid the costly buried tanks. The airport has responded to confirm that the netting option had been considered as part of optioneering, but on the basis of safety risks to aircraft operations, have favoured the buried tanks.
Quality of specifications of scope/scope change	The data provided is very high level. Dublin Airport has confirmed that the costs for the north south sewer are not included within this project. Given the changes in scope, a 20-year asset life for drainage, particularly buried tank infrastructure, appears to be low. Therefore, after the submission of the Draft Report, we will continue to work with Dublin Airport to understand which aspects of the drainage system only have a 20-year asset life.”

Subject	Comments
Phasing and synergies with other projects	• This project requires considerable coordination in design with other projects as follows, for example: • CIP.20.03.051B – West Apron Vehicle Underpass – coordination needed with the routes of the clean water supply pipeline (crossing), contaminated bifurcation pipeline (crossing), realigned airfield trunk culvert, west apron contaminated pipelines around the west underpass portal and timing of decommissioning of airfield trunk culvert; CIP.20.03.051B design completion Q2 2024, and CIP.20.03.052 design completion Q2 2024. • Link 6 Taxiway – coordination with DP2A and DP2B advance works (design required now). Dublin Airport will need to consider this in future detailed phases of design. • Taxiway Foxtrot Link 1 to Link 4 dual code E widening – possible coordination with clean water supply pipelines, timing of decommissioning of airfield trunk culvert, contaminated bifurcation pipeline (design required now). • CIP.20.03.074 – Taxiway Romeo widening – coordination with re-purposed airfield trunk culvert – CIP.20.03.074 design completion Q3 2024, CIP.20.03.052 design completion Q2 2024. • CIP.20.03.031 – South Apron Expansion – coordination with re-purposed airfield trunk culvert – CIP.20.03.031 design completion Q3 2025, CIP.20.03.052 design completion Q2 2024. • CIP.20.03.079 – Code E Engine Test Site – coordination with clean water supply pipeline CW2 – CIP. 20.03.079 design completion Q4 2022, CIP.20.03.052 design completion Q2 2024. Dublin Airport will need to consider this in future detailed phases of design. • To some extent this project appears to future proof for flows coming from the proposed Apron 7 (which does not form part of this CIP2020+). • Note, as a more general phasing requirement, this project maybe required in advance of construction of significant additional areas of pavement. Given the project handover date of Q4 2026, this may need further consideration with regard to surface water attenuation and pollution capture where other increased paved area projects are handed over before this date.
Existing asset conditions	Reported as insufficient for the expected pollution and discharge requirements.
Double counting	None observed

Scope/Specifications – Conclusion

7.12 It is considered that the level of detail presented is very high level for a project that has been on the table since Q1 2021 and has a value of €102,770,000. Notwithstanding this, there appears to be scope for value engineering that has not been fully explored.

Table 7.4: Surface Water Environmental Compliance - Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope/scope change will meet the outputs required of the project but warrants further value engineering within the next detailed stages of the project.	

Cost estimate review

Table 7.5: Surface Water Environmental Compliance – Level 1 Costs

	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	6.68	-	-	-
Construction Costs	33.39	102.77	102.77	-
Escalation, Contingency & Design Variability	11.54	-	-	-
Total	**51.61**	**102.77**	**102.77**	**-**

Table 7.6: Surface Water Environmental Compliance – Level 2 Costs

Design and Management Costs (DM-C)	2019 CAR Allowance (€m)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	6.68	-	-	-
Total	**6.68**	**-**	**-**	**-**
Construction Costs (C-C)	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	13.02	102.77	102.77	-
Total	**9.66**	**102.77**	**102.77**	**-**
Escalation, Contingency & Design Variability	**2019 CAR Allowance (€m)**	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.56	-	-	-
Total	**33.39**	**-**	**-**	**-**

7.13 There is no variance in assumptions between Dublin Airport and Steer in Level 3 items.

Cost - Draft Report Conclusion

7.14 The scope included in this project has changed considerably from the 2019 assessment, and this has resulted in a significant increase to the cost of the project, based on Dublin Airports 2022 estimate. That estimate contains a series of lump sums for all the works required. We have asked Dublin Airport to provide a breakdown of all the lump sums so that we can assess the cost of this project, and, once received, we will assess the cost of each element of the project. This will be addressed in our Final Report later this year.

7.15 Dublin Airport has not shown specific allowances for design and management, main contractors preliminaries, contingency and escalation in its latest estimate. We have asked Dublin Airport to review this and advise whether allowance for these items has been included within the overall construction cost allowances. If that is the case, we will request that Dublin Airport separate the

respective allowances from the construction costs so that we can fully assess the cost of all aspects of the project.

7.16 Dublin Airport also need to confirm the base date of this project, so that, once the escalation allowance has been identified from within the construction costs, we can assess the allowance that has been included in its estimate.

Overall conclusion

7.17 Our overall conclusion of the project review is as follows:

Table 7.7: Surface Water Environmental Compliance – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope/scope change will meet the outputs required of the project, but warrants further value engineering within the next detailed stages of the project. Dublin Airport needs to provide breakdowns for the lump sums that are included in its estimate. It also needs to advise what sums, if any, are included for design and management, main contractor's preliminaries, contingency and escalation. The assessment for this project will be concluded in our Final Report later this year.	

CIP.20.09.001 – Airport Charging

Project description

Introduction

7.18 This project proposes the development of charging infrastructure for electric vehicles across the airport campus, providing charging for Dublin Airport, airlines, handlers, public transport, and public vehicles.

Figure 7.2: Airport EV charging

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

7.19 This project seeks to contribute to achieving regulatory compliance and the airport's carbon reduction targets by providing charging infrastructure to facilitate the airport fleet moving away from fossil fuel-powered vehicles and promoting the use of electric vehicles by providing more sustainable options to airport operators, stakeholders, and passengers.

7.20 Furthermore, the project seeks to improve the airport fleet's performance and reliability, improve air quality, and reduce opex fuel costs

Context

7.21 Dublin Airport has explained that this project is required to achieve the airport's environmental and social governance strategy (ESG) objectives and comply with the EU Clean Vehicle Directive. It will require increased electrical load peak capacity to the existing airport distribution network; hence this project will also need to assess and upgrade the existing substation, switchgear, and electrical cabling network to maintain operational resilience.

Scope

7.22 This project will provide the airport electric vehicle charging infrastructure necessary to support the increasing fleet of electric vehicles operated on the airport and in use by the public. This project has not been initiated in the Dublin Airport internal governance system and hence is in the very early stages of scoping and project definition, hence project costs are early estimates.

7.23 The project proposes to build off the smaller original project "CIP.20.01.071 Electric Charger Network Facilities" which allocated €1.6m to deploy electric vehicle charger facilities. However, none of the studies or output deliverables identified for CIP 20.01.071 including feasibility have been started yet. Discussions are ongoing with stakeholders over EV charging requirements and the location of charging sites has not been finalised.

7.24 It is intended that this project will provide sufficient EV charging positions to support the full EV fleet operating at the airport. The EV charging stations will be standardised plug-in and pantograph overhead charging for buses. GSE chargers will be interoperable for the equipment they are intended to serve.

7.25 This new project is planned to be delivered in 3 stages, subject to an initial and detailed feasibility study which will include stakeholder input:

7.26 Stage 1:

- Airside – Maintenance Base, Snow Base, Fire Station, and Operational Fleet Charging infrastructure. Providing vehicle fleet charging facilities for Dublin Airports' light and heavy maintenance fleet such as vans, trucks, and tractors.
- Landside – Bus and Coach Charging infrastructure. Providing vehicle fleet charging for Dublin Airports' fleet of carpark shuttle and third-party public transport buses and coaches.
- Landside – Police Station and Dog Section vehicle fleet charging infrastructure. Providing vehicle fleet charge points for Dublin Airports' police and dog units.

7.27 Stage 2:

- Airside - North Apron Consolidated Remote GSE Charging – Providing vehicle charging for airline and handler equipment such as trucks, vans, apron buses, tractors, tugs, baggage dollies, and loaders that can be staged remotely.
- Airside - South Apron Consolidated Remote GSE Charging – Providing vehicle charging for airline and handler equipment such as trucks, vans, apron buses, tractors, tugs, baggage dollies, and loaders that can be staged remotely.
- Airside - West Apron Consolidated Remote GSE Charging – Providing vehicle charging for airline and handler equipment such as trucks, vans, apron buses, tractors, tugs, baggage dollies, and loaders that can be staged remotely.
- Airside - Deployment of Upfront GSE Charging – Providing vehicle charging for airline and handler equipment tugs and loaders that need to be staged close to the apron operation, as well as opportunity charge points for airside buses.

7.28 Stage 3**:**

- Landside – Taxi Charging – Providing additional vehicle rapid chargers for dedicated use by public hire taxis;
- Landside – Public Carpark and Car Hire Charging – Dedicated vehicle charge points at short term parking spaces for passenger vehicles, commercial premium and car hire offering; and

- Landside – Consolidated Public Charging Hub – A hub facility with vehicle rapid chargers for use by passengers and staff including waiting area, café, and convenience store.

7.29 There will need to be an upgrade to the HV incomer feeder station and introduce 5 new MV substations with associated cabling and ducting for distribution to consolidated charging areas.

7.30 In addition, the EV charging units will have telecoms and data connectivity to support management and control of the charging units use.

Change in scope versus Previous CIP2020+

7.31 This project is identified as a new project; however, it builds on the original project CIP 20.01.071 Electric charger network facilities which allocated €1.6m to deploy electric vehicle charger facilities, including underground ducting, civil works, electric charge facilities and associated futureproofing.

Stage

7.32 In response to a specific question relating to project delivery dates Dublin Airport confirmed that the project has not been initiated in the Dublin Airport internal governance system.

7.33 The question response further clarified 'the business need has been identified but an implementation schedule is yet to be developed. Following determination, the project will be promoted, and a team established to develop the plan'.

7.34 A project Schedule Gannt chart provided by Dublin Airport identifies all the CIP projects and the planned dates for Pre-construction activities (Feasibility, Design, Planning Application and Procurement), Construction Start and End dates and a date for handover for operation. These are summarised below

7.35 For CIP 20.09.001 Airport EV charging the dates identified are as follows.

- Feasibility/Outline design Starts — Q4 2022
- Planning complete — not specifically identified
- Design complete — not specifically identified
- Procurement complete — not specifically identified
- Construction commence — Q2 2023
- Project handover — Q4 2026

Key project metrics

Table 7.8: Airport EV charging– Key project metrics

Metric	Value
Project cost estimate	€ 80,130,000
Dublin Airport estimate	Level 3 cost estimate included in CIP 2020 Final

Scope/Specifications review

Table 7.9: Airport EV charging – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient in terms identifying the works that need to be carried out and the scope of each of the planned 3 stages. Each stage will need to go through feasibility design planning and procurement before construction.

Subject	Comments
	In terms of effectiveness of scope, CIP 20.01.071 and CIP 20.09.001 should be considered together. The former is providing the feasibility study for the location and upgrade and changes to the MV infrastructure required, and the later will be the feasibility study for the delivery of EV charging capability across the airport including consideration of land acquisition for EV charging locations. This project also needs to align its delivery programme for its EV charging stations in line with or ahead of the EV fleet procurement programme CIP.20.04.004 to ensure sufficient charging capacity is available to support EV procurement.
Alternative scopes	None identified but alternatives will need to be explored during feasibility
Quality of specifications of scope/scope change	This project has not been initiated in the Dublin Airport internal governance system and is hence in the early stages of development. The business need has been identified. At this early stage of project development, the following generic risks are considered relevant: • Design development including unforeseen MV network interventions and emerging/additional stakeholder requirements, • Lack of available space requiring land acquisition, • Complex and extended construction staging requirements to integrate with operations.
Phasing and synergies with other projects	There is a strong synergy and cross over with CIP 20.01.071 which is identified as the precursor project but this project yet to start. In response to a question relating to the cross over of these projects Dublin Airport clarified that it was expected that the feasibility study for CIP 20.01.071 would identify some of the elements of the project CIP 20.09.001. There is a need for alignment of this project with the Sustainable Fleet project CIP 20.04.004 to ensure that there are sufficient charging positions to support the future EV fleet for Dublin Airport and its stakeholders. An implementation schedule is yet to be developed. As mentioned above, the feasibility for CIP 20.01.071 will enable the stakeholder engagement and concept for this project to be progressed ahead of final project determination
Existing asset conditions	N/A
Double counting	None identified.

Scope/Specifications – Conclusion

Table 7.10: Airport EV charging - Scope/Specifications - Conclusion

Description	RAG
The Scope and specification as currently presented should successfully deliver 3 stages of electric vehicle charger installation which can be progressively brought into operation for airport users and the public as they acquire fleets of EV's. The project has not been initiated in the Dublin Airport internal governance system. However, Dublin Airport have established the business need and have identified what activities are likely to be needed in terms of changes to the MV infrastructure and the	

Description	RAG
number and types of EV charging technology required. The airport believes they will be a need for consolidated charging locations for the various EV vehicle types that will be in use on airport and by the public. This may involve some land acquisition; however, this will be determined during the feasibility studies for each stage of the project. The project costs estimates are based on the very early project scoping exercise and will be validated as part of the Stagegate process. The project aims to deliver the Airport EV charging capacity needed to meet Dublin Airport's environmental and social governance strategy (ESG) and objectives and to comply with the EU Clean Vehicle Directive.	

Cost estimate review

Table 7.11: Airport EV charging – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	10.24	10.24	-
Construction Costs	51.22	51.52	+0.30
Escalation, Contingency & Design Variability	18.67	19.07	+0.40
Total	**80.13**	**80.83**	**+0.70**

Table 7.12: Airport EV charging – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	10.24	10.24	-
Total	**10.24**	**10.24**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	51.22	51.52	+0.30
Total	51.22	51.52	+0.30
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	18.67	19.07	+0.40
Total	**18.67**	**19.07**	**+0.40**

7.37 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 7.13: Airport EV charging – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Contingency @ 15%	Redacted		+0.32
Construction			+0.30
Escalation to midpoint of construction			+0.09

Cost - Draft Report Conclusion

7.38 This is a new project. We have reviewed Dublin Airports 2022 estimate and have raised several queries in relation to the build-up of rates that are included in the estimate. Dublin Airport has provided build-ups to these rates and they appear to be reasonable. However, it should be noted that there is very little design information available to allow a detailed assessment of the costs of the project to be made. It should also be noted that this project is anticipated to proceed through the StageGate process, so a further assessment of the project costs will be made once the design for the project has been developed and a more detailed cost estimate provided for review.

7.39 Dublin Airport has included an allowance for main contractor's preliminaries that is based on a **Redacted** % uplift on the construction costs. It has included an allowance for design and management based on on a **Redacted** % uplift on the construction costs, including preliminaries. Both of these allowances are reasonable.

7.40 There is an apparent arithmetical error in Dublin Airport estimate in relation to the allowance for main contractor's preliminaries. We have corrected this in our assessment and the impact of this is a slight increase in the cost of the project. As a result of this change, there is also a small variance in the allowances in the IFS assessment for both contingency and escalation.

7.41 The percentage uplift for escalation included in the project is 13.8%. Dublin Airport need to confirm the base date of their estimate so that the IFS can complete its assessment of the escalation allowance.

7.42 With the exception of the items noted above, the remainder of the costs in Dublin Airports 2022 estimate appear are reasonable for this early stage of the project. However, as the project is developed, a further review of the cost estimate will be undertaken via the StageGate process.

Overall conclusion

7.43 Our overall conclusion of the project review is as follows:

Table 7.14: Airport EV charging – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The Scope and specification as currently presented should successfully deliver 3 stages of electric vehicle charger installation which can be progressively brought into operation for airport users and the public as they acquire fleets of EV's. **The allowance for main contractor's preliminaries, contingency and escalation have increased. The remaining costs included in Dublin Airports estimate are reasonable for this stage of the project but will be subject to further review via the Stagegate process.**	

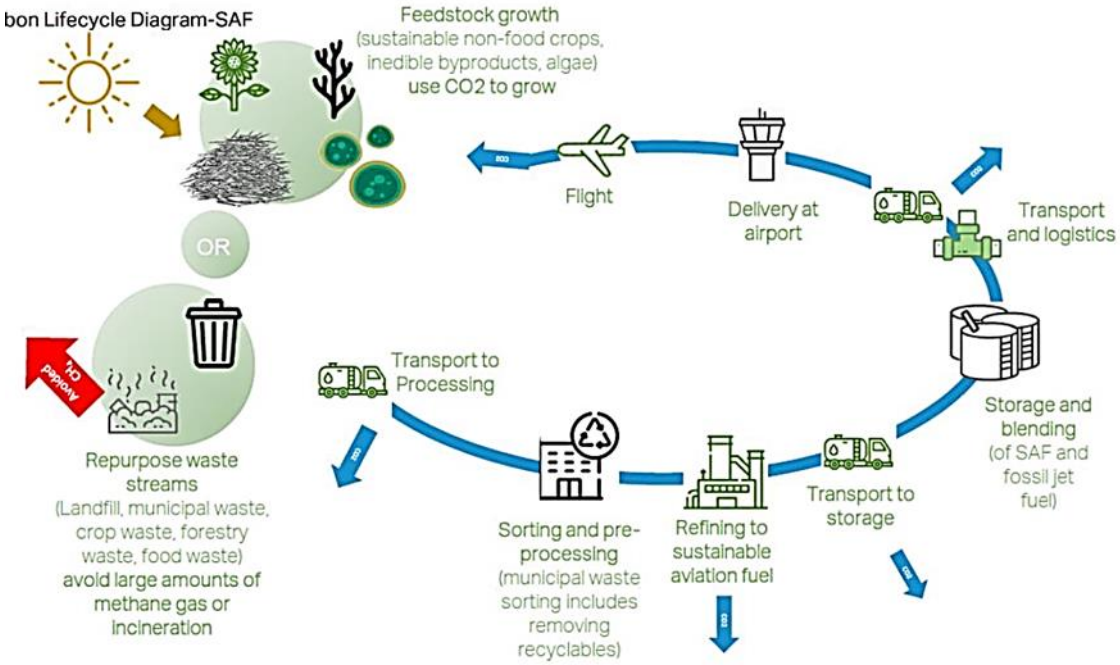
CIP.20.09.002 – Alternate Fuels

Project description

Introduction

7.44 This project proposes to create a transition plan and to develop initial infrastructure for the implementation of Sustainable Aviation Fuel (SAF) at Dublin Airport. This project will also include research and feasibility for the enablement of hydrogen and other alternate aviation fuel sources at Dublin Airport.

Figure 7.3: Alternate Fuels



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objectives

7.45 This project proposes to cover research, planning, design and infrastructure costs associated with the enablement of SAF at Dublin Airport within this CIP period and further research and trials into future hydrogen or other alternate aviation fuels in conjunction with partner suppliers and airlines. Dublin Airport is only at a very early stage in the process towards SAF implementation, but following consultation with local aviation fuel suppliers, the airport reports that it anticipates initial infrastructure requirements "*will include additional SAF fuel storage, fuel blending, fuel testing and hydrant system modifications*".

Context

7.46 Many European airports already have or plan to enable SAF, and many of the airlines that operate at Dublin Airport have trialled or plan to trial SAF in the near future. It is becoming clear that SAF will play a significant role in the de-carbonisation of air travel, help both airports and airlines achieve their sustainability objectives, and meet legislative requirements.

Stage

7.47 The project is new and has not yet commenced. It principally represents the design and management phase, with no implementation of infrastructure (under this project) within the timeframe. The design Stage is due for completion in Q4 2025. This programme is considered to be very lengthy, especially as there is an imperative for its conclusion and also assistance that could potentially be gained from other airports and airport groups who are researching similar aspects.

- Feasibility/Outline design complete Q4 2025
- Planning complete Q4 2025
- Design complete Q4 2025
- Procurement compete Q4 2025
- Construction commences Not provided
- Project handover Not provided

Key project metrics

Table 7.15: Alternate Fuels – Key project metrics

Metric	Value
Dublin Airport total cost estimate (2022)	€1,540,000
Dublin Airport estimate (2020)	n/a new project

Scope/Specifications review

7.48 This project proposes to create a clear implementation plan and initial delivery of fuel infrastructure including alternatives such as SAF at Dublin Airport up to and including demand anticipated at 40 mppa; further work is required to confirm the exact deliverables; however, we anticipate the following and will confirm final output and costs via the StageGate process:

- SAF research, consultation, trails, feasibility study and implementation plan;
- Solution design, planning and procurement;
- Infrastructural delivery of additional fuel storage, testing, batching and distribution systems; and
- Hydrogen and alternative fuel research and trails.

Table 7.16: Alternate Fuels – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	Dublin Airport must ensure that they avoid any duplication in this area where work is ongoing at national, UK and European level, particularly in the areas of hydrogen and alternative fuel research and trails. We have asked how Dublin Airport is avoiding duplication of costs relating to aspects such as SAF and/or hydrogen fuels research, consultation and trails by combining such efforts with other airport groups or associations. Dublin Airport has confirmed that a key focus of the project is to collaborate with stakeholders and other airports and bodies so not to duplicate.
Alternative scopes	Accelerate the delivery programme, at least in part to better inform decisions being made on other projects regarding the fuel hydrant network. We have asked Dublin Airport how some

Subject	Comments
	early-stage results from this project can be fed into project CIP.20.03.075 Fuel Hydrant Network. Dublin Airport has stated that there is no overlap between these projects, although we believe there could be an overlap from the project delivery dates provided. Dublin Airport has also stated that the hydrant project is only to convey fuel to stands and aprons regardless of fuel type. Again, Dublin Airport has started also that this project includes looking at hydrant system modifications, so there does appear to be an overlap that at least needs to be covered off through informed research and knowledge to avoid abortive costs in the future.
Quality of specifications of scope/scope change	The projects' scope needs to be better defined to understand if the fee levels proposed represent value for money. Dublin Airport has confirmed that this project "*will entail SAF research, consultation, trials, feasibility study and the development of an implementation plan. Concept design and planning. Hydrogen and alternative fuel research and trials. The project is also presented as a place holder for the potential delivery of initial required infrastructure. The output of which we will report and consult on through the StageGate process*". It is noted that this statement appears to confirm that part of the project value will be in relation to undefined implementation costs.
Phasing and synergies with other projects	The scope of this project includes initial infrastructure requirements that will include additional SAF fuel storage, fuel blending, fuel testing and hydrant system modifications. While the storage and blending elements could be considered separately, it appears that there is an opportunity/requirement to consider SAF in the design and development of project CIP.20.03.075 – Fuel Hydrant Network which is due for design completion in Q3 2024. CIP.20.09.002 – Alternate Fuels does not commence until Q1 2024 so there does appear to be an overlap in 2024 where CIP.20.09.002 might feed beneficial knowledge to CIP.20.03.075.
Existing asset conditions	New asset, unless SAF to utilise existing tanks and pipelines in which case this project would need to report on suitability and condition of asset.
Double counting	None observed, other than where efforts might be being duplicated where work is ongoing at national, UK and European level.

Scope/Specifications – Conclusion

Table 7.17: Alternate Fuels - Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope/scope change will meet the outputs required of the project in isolation, but its timescale may mean that opportunities elsewhere are being missed and economies might be explored through alliances with other airports/airport groups (knowledge sharing and collaborative research).	

Cost estimate review

Table 7.18: Alternative Fuels – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	1.40	1.40	-
Construction Costs	-	-	-
Escalation, Contingency & Design Variability	0.14	0.14	-
Total	**1.54**	**1.54**	**-**

Table 7.19: Alternative Fuels – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	1.40	1.40	-
Total	**1.40**	**1.40**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	-	-	-
Total	-	-	-
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.14	0.14	-
Total	**0.14**	**0.14**	**-**

7.49 There is no variance in assumptions between Dublin Airport and Steer in the Level 3 items

Cost - Draft Report Conclusion

7.50 This is a new project. The estimate provided by Dublin Airport only contains costs associated with the design and management of the project. There are no construction costs include in their estimate. There is an 10% allowance for contingency and there is no escalation allowance included in the estimate.

7.51 If the rates for the resources listed in Dublin Airport's assessment are for a single resource, then they appear to be high. However, we have asked Dublin Airport to clarify the grade and number of resources that it anticipates utilising on the project against each of the disciplines listed. We will conclude our assessment once we receive their response. This will be addressed in our Final Report later this year.

Overall conclusion

7.52 Our overall conclusion of the project review is as follows:

Table 7.20: Alternative Fuels – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	

Description	RAG Assessment
We conclude that the scope/scope change will meet the outputs required of the project in isolation, but its timescale may mean that opportunities elsewhere are being missed and economies might be explored through alliances with other airports/airport groups (knowledge sharing and collaborative research). **Dublin Airport need to confirm the number and the grade of resources that its estimate is based on so that the costs for this project can be fully assessed.**	

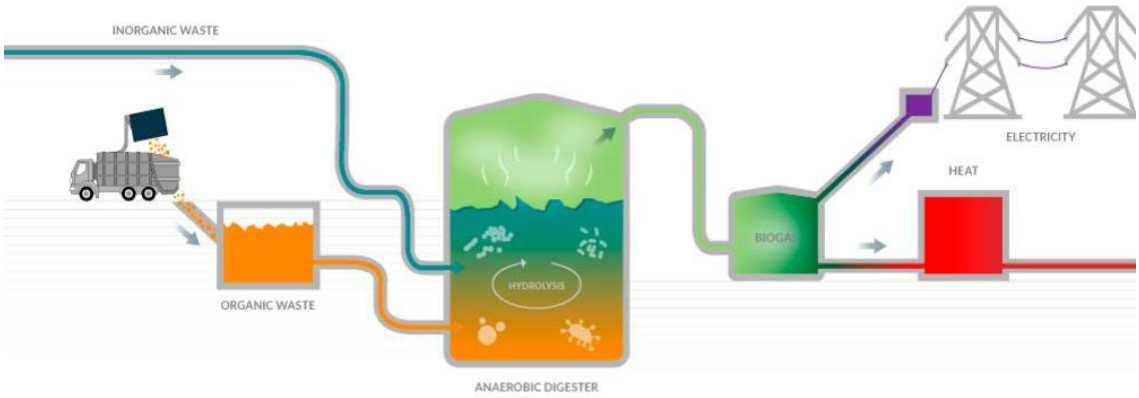
CIP.20.09.003 – Anaerobic Digestion

Project description

Introduction

7.53 This project proposes the development of an anaerobic digestor at Dublin Airport.

Figure 7.4: Anaerobic Digestion



Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

7.54 An anaerobic digestor was identified by Dublin Airport as having high potential for reducing Dublin Airport carbon emissions while also decreasing some of their dependence on fossil fuels using biomethane generated on-site. In addition to the carbon-reducing benefits, the airport proposals explain that the project positively impacts the airports' broader sustainability objectives. The anaerobic digestion process supports a circular economy and reduces waste generation on-site as it can use food waste as a feedstock to produce the biogas.

Context

7.55 The project was identified as part of an overall high-level review on energy performance at Dublin Airport, which was completed in 2019. Further conceptual work has been undertaken in 2022 and this project is now planned to contribute to the airport's sustainability plan.

Scope

7.56 Work is still required to confirm the exact scope of this project and the deliverables. However, Dublin Airport anticipate the following and will confirm final scope, deliverable outputs, and costs through the StageGate process:

- Feasibility study to include assessment of locations, available feedstocks, environmental benefits, revenue opportunities and potential opex savings;
- Infrastructure delivery including detailed design, planning, procurement, construction, and commissioning; and
- Measurement of benefits realisation, including carbon reduction, reduction of waste and net reduction in imported energy.

7.57 In response to questions about the anaerobic digestion system's capacity, performance, and contribution to the Climate Ambitions of Dublin Airport. Dublin Airport have responded indicating that the overall high-level review on energy performance and the anaerobic digestion concept

report were completed in 2019 before the new climate action plan targets had been set. Consequently, Dublin Airport's ambitions have since increased, and a larger anaerobic digestion facility is now proposed.

7.58 This project will be subject to feasibility, but capacity and performance are anticipated as follows:

- Anaerobic digestion Feedstock is assumed to be:
  - Grass c.3,000 tonnes per year; and
  - Food waste c.600 tonnes per year.
- Anaerobic digestion outputs assumed to be:
  - Biogas output currently assumed to be up to 1,800 m3 per day once normalised, however this will be subject to design;
  - Biogas output is currently intended to be used for space heating initially in either Campus or Terminals; and
  - Should the gas be used for Combined Heat and Power Generation, the estimated generation would be approx. 7-10GWh per annum.

7.59 Biogas is currently expected to be used for space heating to offset natural gas use and fossil fuel carbon emissions. If used in the Terminal buildings (to generate heat and electricity) this would represent approximately 40% and 50% for Terminals 1 and 2 respectively. If used for combined heat and power generation it could generate as much as 10% of the airport's annual electricity demand.

Change in scope versus Previous CIP2020+

7.60 This is a new project and was not identified in the Previous CIP2020+.

Stage

7.61 In response to a specific question relating to project delivery dates, Dublin Airport states that the project has not been initiated in the Dublin Airport internal governance system.

7.62 The question response further clarified that the project is in the early stages of project definition and still needs to progress through feasibility under the StageGate process.

7.63 The planned project dates are summarised below:

- Feasibility/Outline design starts — Q2 2023
- Planning complete — not specifically identified
- Design complete — not specifically identified
- Procurement complete — not specifically identified
- Construction commence — Q2 2024
- Project handover — Q4 2025

Key project metrics

Table 7.21: Anaerobic Digestion – Key project metrics

Metric	Value
Project cost estimate	€ 9,590,000
Dublin Airport estimate	Level 3 cost estimate included in CIP 2020 Final

Scope/Specifications review

Table 7.22: Anaerobic Digestion – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The full scope of the anaerobic digestion project is still under development. However, this project will be subject to the StageGate process which will identify full scope confirm output deliverables and costs. It will also evaluate benefits realisation. Given the early stage of project definition, the information provided indicates this project will be efficient and effective in relation to delivering its intended outcomes.
Alternative scopes	This project is primarily intended to generate Biogas for space heating in Terminal 1 and 2. However it is possible the projects' Biogas output could be used for combined heat and power generation. It is estimated that a CHP solution could generate 7-10GWhr of energy for the airport.
Quality of specifications of scope/scope change	The preconstruction activities of feasibility, design, planning and procurement have still to be developed.
Phasing and synergies with other projects	This project will have synergies with the CIP 20.09.006 - Photovoltaic Farm project and will contribute to Dublin Airport's climate action plan for sustainable energy.
Existing asset conditions	Not applicable.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 7.23: Anaerobic Digestion - Scope/Specifications - Conclusion

Description	RAG
This project scope is in early-stage definition and presents deliverable outcomes that should have measurable and realisable benefits. The project will contribute to climate ambitions of Dublin Airport. The project is in early-stage development and has not been initiated in the Dublin Airport internal governance system although the business need has been identified. The output of biogas from the anaerobic digester is initially intended to be used for space heating in either the terminal or campus. They may progress to use it in combined heat and power generation and anticipate it could generate 7-10GW per annum, which could be as much as 10% of the airport's annual power demand. This project is thus expected to provide a significant Opex benefit from 2026 on. The project needs to progress through feasibility stage and establish outline design and technical requirements and identify project development timescales. The project will be evaluated using the StageGate process which will be used to monitor the project's design and development progress.	

Cost estimate review

Table 7.24: Anaerobic Digestion – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	1.17	1.17	-
Construction Costs	5.84	5.84	-
Escalation, Contingency & Design Variability	2.58	2.93	+0.34
Total	**9.59**	**9.93**	**+0.34**

Table 7.25: Anaerobic Digestion – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	1.17	1.17	-
Total	**1.17**	**1.17**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	5.84	5.84	-
Total	5.84	5.84	-
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	2.58	2.93	+0.34
Total	**2.58**	**2.93**	**+0.34**

7.64 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 7.26: Anaerobic Digestion – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted		+0.31
Escalation to midpoint of construction			+0.03

Cost - Draft Report Conclusion

7.65 This is a new project. That estimate contains a series of lump sums for all the works required. We have asked Dublin Airport to provide a breakdown of all the lump sums so that we can assess the cost of this project. We have also asked them to confirm what percentage uplift they have applied to calculate their allowance for main contractor's preliminaries. Once we receive responses to those queries, we will complete our assessment of the cost of the project. This will be addressed in our Final Report later this year.

7.66 The other variance from the IFS assessment is the increased allowance for escalation. No monies have been spent on the project. Our assessment of escalation has increased the escalation percentage applied to revise the base date to Q4 2021 from +12.2% to +16.2%. Dublin Airport need to confirm the base date for their estimate so that the assessment of escalation can be finalised.

Overall conclusion

7.67 Our overall conclusion of the project review is as follows:

Table 7.27: Anaerobic Digestion – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	

Description	RAG Assessment
This project scope is in early-stage definition and presents deliverable outcomes that should have measurable and realisable benefits. The project will contribute to climate ambitions of Dublin Airport. **The assessment of the cost of this project will be completed in the Final Report once we have received responses from Dublin Airport to the outstanding queries.**	

CIP.20.09.004 – Sustainable Fleet

Project description

Introduction

7.68 This project proposes to provide an efficient and effective light and heavy vehicle fleet to meet the needs of the business and the airport sustainable development objectives.

Figure 7.5: Sustainable fleet

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

7.69 Dublin Airport is putting in place a strategy to transition appropriate vehicles, such as the light fleet made up of operational cars, 4x4s and vans as well as the heavy fleet made up of sweepers, tractors, snow and ice clearing vehicles, over to zero or low emission vehicles in line with the Clean Vehicle Directive and Dublin Airports Air Quality Policy.

Context

7.70 The Clean Vehicle Directive sets out minimum targets for 'clean' (low- and zero-emission) vehicles in public procurements. It requires life cycle costing to be completed as part of tenders awarded after 02 August 2022, and this will be reported on and audited. Older vehicles can be used in new contracts so long as the overall life cycle makes sense and 45% of service/fleet are low emission / alternative fuel by 2025.

Scope

7.71 The project scope intends to cover vehicle fleet replacements (light and heavy) owned and operated by Dublin Airport, which includes:

- Replacement of the existing vehicle fleet with light electic vehicles (LEV) options by 2025;
- Augmenting the LEV fleet numbers to ameliorate vehicle non availability during charging;
- Replacement of two existing foam tenders; and
- Replacement of current diesel-driven compact sweepers and forklifts with new zero-emissions variants.

7.72 Sustainable Light Fleet:

- Dublin Airport's proposal explains that they require an effective Light Vehicle Fleet which is required to maintain mobility within the airport-wide campus. The procurement plan will include procurement of some Hybrid vehicles into the fleet. Currently Dublin Airport plan the replacement of 116 light vehicles and augmented by 15 vehicles to offset vehicle non-availability during charging and provide the vehicles needed for operating new assets such as the north runway.

- This project proposes to replace 72 light vehicles and augment the fleet with an additional 15 (87 in total) vehicles. The Dublin Airport response to a question about the proportion of light vehicle replacements that will be EV by 2025 and their asset life. Dublin Airport have indicated the fleet will be 95% EV by 2025 with an expected asset life for Light EV vehicles of 6 years.

7.73 Sustainable Heavy Fleet:

- Dublin Airport requires an efficient and effective fleet of heavy vehicle that meets the needs of the business while complying with the Climate Action Plan, Clean Vehicles Directive and Dublin Airport Air Quality Policy. It has been necessary to re-evaluate the heavy vehicle fleet replacement plan and transition a portion of the heavy fleet to electric vehicles. The airport plans to replace 50 heavy fleet vehicles and procure an additional 7 heavy fleet vehicles within the CIP period.
- To date the CIP.20.01.065 project has replaced 10 vehicles, and Dublin Airport estimate a further 9 vehicle replacements can be funded from this original allowance at market rates. Dublin Airport has an overall requirement to replace 50 heavy fleet vehicles and procure an additional 7 heavy fleet vehicles in the CIP period.
- This project proposes to replace 50 heavy vehicles and augment the fleet with an additional 7 (57 in total) vehicles. The Dublin Airport response to a question about the proportion of heavy vehicle replacements that will be EV by 2025 and their asset life. Dublin Airport have indicated the heavy fleet will be 10% EV by 2025 with an expected asset life for Light EV vehicles of 15 years. However, Dublin Airport point out that it should be noted that currently few heavy fleet vehicle are not operationally viable in EV format.

Change in scope versus Previous CIP2020+

7.74 Dublin Airport has identified this as a new project. However, the scope this project builds on the original CIP light and heavy fleet replacement projects CIP.20.01.069 and CIP.20.01.065 which requested funding of €2,408,000 and €11,040,00 respectively for vehicle replacements.

7.75 In response to a question on average vehicle costs, Dublin Airport clarified that the average cost of light fleet EV's is €78,833 which is circa 30% higher than cost in the previous CIP. For the heavy fleet vehicle costs, the most expensive vehicle is €1.2m and of the 38 additional vehicles required in this CIP, 20 are valued under €200k lowering the project cost.

7.76 The table below identifies the planned vehicle replacement using the original CIP budgets, the total vehicle replacements that Dublin Airport has identified and the balance of vehicle replacements that will be funded in this project:

CIP 2020+ CIP 20.01.069 - Light vehicle replacements CIP 20.01.065 - Heavy vehicle replacements	Vehicles budgeted to be procured under CIP 2020+	Vehicles to be replaced + augmentation	Vehicles to be replaced in this CIP project
Light Fleet replacements	44	116 +15	87
Heavy Fleet replacements	19	50 +7	38

Stage

7.77 In response to a specific question relating to project delivery dates Dublin Airport has indicated the following project dates:

-
- Feasibility Q1 2023

- Procurement Starts Q1 2023
- Procurement completed Q4 2025
-

Key project metrics

Table 7.28: Sustainable Fleet – Key project metrics

Metric	Value
Project cost estimate	€ 18,530,000
Dublin Airport estimate	Level 3 cost estimate included in CIP 2020 Final
No of vehicles to be procured Light fleet vehicles Heavy fleet Vehicles	 87 38

Scope/Specifications review

Table 7.29: Sustainable Fleet– Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient and effective in identifying the procurement of light and heavy fleet vehicles.
Alternative scopes	None identified.
Quality of specifications of scope/scope change	Procurement specifications (Requirements) and technical requirements for vehicles (light and heavy) will need to be prepared.
Phasing and synergies with other projects	The procurement programme will need to be aligned with the EV vehicle charging programme so that there are enough EV chargers, or the right type and capacity provided and in service to ensure the new EV fleet can be charged and be available to support operations.
Existing asset conditions	There are a minimal number of EV vehicle fleet assets. No light vehicle EV appear to have been procured under CIP 20.01.069 but 10 heavy vehicle assets were procured under CIP 20 .01.065
Double counting	None identified.

Scope/Specifications – Conclusion

Table 30: : Sustainable Fleet- Scope/Specifications -Conclusion

Description	RAG
This project's scope is efficient and effective and will meet the requirements as stated in the CIP document. The EV procurement programme will need to be aligned with the EV charger infrastructure programme to ensure there are enough charging facilities available in the right places to ensure the Light and Heavy vehicles are fully available to support the operation.	

Cost estimate review

Table 7.31: Sustainable Fleet – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	-	-	-

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Construction Costs	16.07	16.07	-
Escalation, Contingency & Design Variability	2.46	2.46	-
Total	**18.53**	**18.53**	**-**

Table 7.32: Sustainable Fleet – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	-	-	-
Total	**-**	**-**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	16.07	16.07	-
Total	16.07	16.07	-
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	2.46	2.46	-
Total	**2.46**	**2.46**	**-**

7.78 There is no variance in assumptions between Dublin Airport and Steer in the Level 3 items.

Cost - Draft Report Conclusion

7.79 This is a new project. Dublin Airport has provided a detailed estimate that contains a list of all the vehicles that it intends to procure. In response to a request for substantiation for the costs of the various vehicles included in their estimate, Dublin Airport has provided a substantial amount of supporting information for us to review. We will review this information and cross check it against the estimate provided by Dublin Airport for the Final Report later this year.

7.80 Dublin Airport's estimate includes a 2.5% allowance for contingency. The back-up information provided by Dublin Airport is in the form of quotations from suppliers. However, as it maybe some time before Dublin Airport may place orders for these vehicles, it is prudent to carry a contingency allowance within its estimate, and the 2.5% allowance is reasonable.

7.81 Dublin Airport has included a 12% uplift for escalation in its estimate. No monies have been spent on the project but Dublin Airport need to confirm the base date for their estimate and the midpoint of the procurement programme for the purchase of the vehicles so that we can complete our assessment of the escalation allowance.

7.82 Once we have reviewed the information provided by Dublin Airport, we will conclude our assessment of cost of this project. This will be addressed in the Final Report later this year. Overall conclusion

Overall conclusion

7.83 Our overall conclusion of the project review is as follows:

Table 7.33: Sustainable Fleet – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
This project's scope is efficient and effective and will meet the requirements as stated in the CIP document. **Once we have reviewed the information provided by Dublin Airport, we will conclude our assessment of cost of this project. This will be addressed in the Final Report later this year.**	

CIP.20.09.005 – Fixed Electrical Ground Power Phase 3

Project description

Introduction

7.84 This project proposes to expand Fixed Electrical Ground Power (FEGP) to all remaining airfield contact and remote stands.

Figure 7.6: Fixed Electrical Ground Power Phase 3

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objectives

7.85 The key objectives of this FEGP project are to:

- Install fixed electrical ground power to all remaining contact and remote stands not already enabled;
- Realise the environmental benefits of drawing power from the grid instead of GPUs or APUs, significantly reducing carbon emissions;
- Improve Dublin Airport's energy performance and reduce carbon emissions to meet Climate Action Plan 2021 targets and more comprehensive regulatory and voluntary requirements, targets and objectives; and
- Assist in the airports objective to achieve Airport Carbon Accreditation ((ACA) Level 4 certification, bringing Dublin Airport into line with competitor airports.

Context

7.86 Fixed Electrical Ground Power (FEGP) units have been installed at Dublin Airport through 2 previous rollout phases; this project now proposes a third phase enabling all remaining contact and remote stand. FEGP provides efficient, quiet and sustainable mains electrical power to aircraft while they are on stand during turnarounds and while parked for overnight maintenance activities.

Stage

7.87 The project has not yet commenced. Feasibility is due to start in Q3 2024. The design stage is due for completion in Q1 2025. This feasibility, design and programme is considered to be the minimum required for all aspects of feasibility, planning and design. Dublin Airport may wish to consider starting this process earlier to allow for early contractor involvement in developing what may be a complex phased programme of installation and stand planning.

- Feasibility/Outline design complete Q1 2025
- Planning complete Q1 2025
- Design complete Q1 2025
- Procurement compete Q1 2025
- Construction commences Q2 2025
- Project handover Q3 2026

Key project metrics

Table 7.34: Fixed Electrical Ground Power Phase 3 – Key project metrics

Metric	Value
Dublin Airport total cost estimate (2022)	€12,460,000
Dublin Airport estimate (2020)	This is a new project
New FGPU Units	45
Effective cost per installation	€277k/FGPU

Scope/Specifications review

7.88 This project seeks to install a further 45 new FEGP units to the following locations:

- MRO stands on the North Apron;
- Remote stands on the triangle;
- Stands at the eastern end of Pier 1; and
- Remote stands on the West Apron.

7.89 The project will also reconfigure and re-use the existing FEGP units associated with the underpass realigned stands around Pier 3.

7.90 The project excludes upgrade of the existing medium voltage network connection and additional associated infrastructure.

Table 7.35: Fixed Electrical Ground Power Phase 3 – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The preliminary project scope is very high level but appears to be effective and appears to consider the sustainability targets of Dublin Airport.

Subject	Comments
	Given the need to carry out this project carefully through phases to avoid disruption to the nearby stands, Dublin Airport should consider how to gain efficiencies through early contractor involvement where possible, especially given the logistical issues associated with each FEGP location being an island site airside.
Alternative scopes	None.
Quality of specifications of scope/scope change	The scope addresses the functional requirement of improving the environmental aspects of stand operations and safeguards operations for next generation aircraft.
Phasing and synergies with other projects	This project requires coordination with CIP.20.03.051B – West Apron Vehicle Underpass as some of the stands require reconfiguring to facilitate the new underpass. This means that the FGPU units may need to be installed on the reconfigured stands before the underpass can be completed. CIP.20.09.005 completion is at Q3 2026, CIP.20.03.051B completion is at Q3 2028, three years later therefore this appears satisfactory. Where relevant, this project should be phased to coincide with the apron stand and A_VDGS delivery, apron pavement remediation and CIP.20.03.075 – Fuel Hydrant Network, thereby reducing impacts on operational stands.
Existing asset conditions	New assets, albeit it is noted that some FGPU units may be re-used at the reconfigured stands at the new underpass east portal. The condition and remaining asset life of these units is not known.
Double counting	None observed

Scope/Specifications – Conclusion

Table 7.36: Fixed Electrical Ground Power Phase 3 - Scope/Specifications - Conclusion

Description	RAG
The scope of works appears to be consistent with the project need and we conclude that the scope/scope change will effectively meet the outputs required of the project.	

Cost estimate review

Table 7.37: Fixed Electrical Ground Power Phase 3– Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	0.26	0.26	-
Construction Costs	7.87	7.87	-
Escalation, Contingency & Design Variability	4.34	4.80	+0.47
Total	**12.46**	**12.93**	**+0.47**

Table 7.38: Fixed Electrical Ground Power Phase 3 – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General allowance- Design & Management Costs	0.26	0.26	-
Total	**0.26**	**0.26**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Electricity Distribution to External Plant and Equipment (incl. Telecommunications)	6.05	6.05	-
Minor Building Works & Ancillary Buildings	0.03	0.03	-
Main Contractors Preliminaries	0.76	0.76	-
Other Development Costs	1.03	1.03	-
Total	**7.87**	**7.87**	**-**
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	4.34	4.80	+0.47
Total	**4.34**	**4.80**	**+0.47**

7.91 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 7.39: Fixed Electrical Ground Power Phase 3 – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation to revised base date of Q4 2021	Redacted		+0.36
Escalation to midpoint of construction			+0.07
Contingency at 10%			+0.03

Cost - Draft Report Conclusion

7.92 This is a new project. We have reviewed the estimate provide by Dublin Airport and have issued several queries to them in relation to lump sums or rate breakdowns for the west apron stands, Pier 2 substations, enabling works for portable FEGP, and new FEGP pits. Once we receive responses to these queries, we will conclude our assessment of these items.

7.93 Dublin Airport needs to confirm the basis of its calculation for the contingency sum that it has included in its estimate. The IFS estimate includes design and management costs, construction costs and other development costs in its calculation. As a result, the IFS assessment of this item is more than the allowance in Dublin Airports estimate. This change has a knock-on effect on the escalation allowances included in the IFS assessment.

7.94 The only other variance is the increased allowance for escalation. No monies have been spent on this project thus far. Our assessment of escalation has increased the escalation percentage, applied to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

7.95 Except for the items noted above, the costs for the remaining items in Dublin Airports estimate are reasonable. Once we receive responses to the queries issued to Dublin Airport, we will conclude our cost assessment in the Final Report later this year.

Overall conclusion

7.96 Our overall conclusion of the project review is as follows:

Table 7.40: Fixed Electrical Ground Power Phase 3 – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The scope of works appears to be consistent with the project need and we conclude that the scope/scope change will effectively meet the outputs required of the project. Except for the items noted above, the costs for the remaining items in Dublin Airports estimate are reasonable. Once we receive responses to the queries issued to Dublin Airport, we will conclude our cost assessment in the Final Report later this year.	

CIP.20.09.006 – Photovoltaic Farm Phase 2

Project description

Introduction

7.97 This project proposes the development of additional Solar Photovoltaic Farms for onsite generation of renewable electricity to facilitate a reduction in carbon emissions and energy costs.

Figure 7.7: Photovoltaic Farm Phase 2

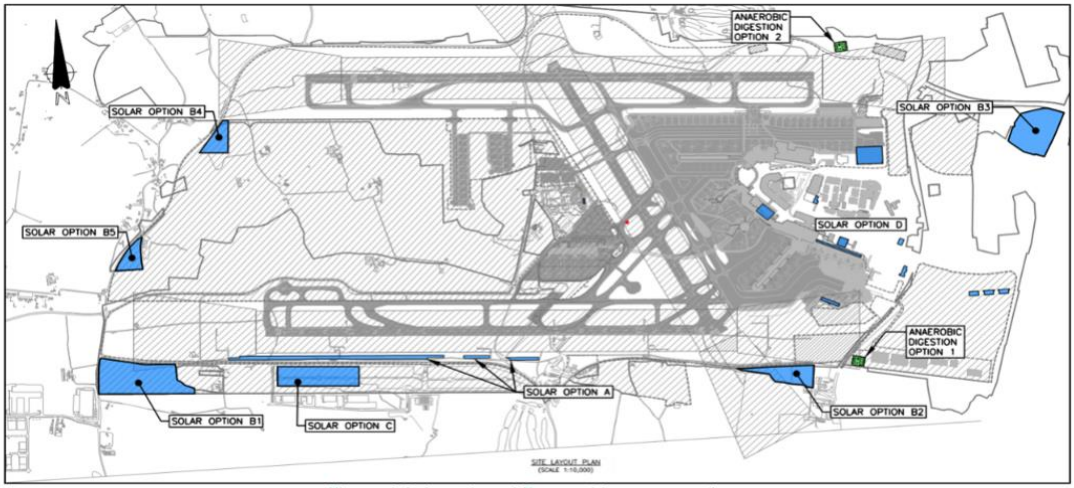


Figure 4-2: Location of Renewable energy options

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

7.98 The project seeks to undertake a detailed assessment of the solar PV potential of previously identified sites and take opportunities forward for detailed design and development to meet Dublin Airport's voluntary and regulatory carbon reduction targets. This project will be used to offset carbon from the increased electrical energy requirements created from the subsequent growth in infrastructure and the electrification of heating and vehicles.

Context

7.99 The Climate Action Plan, first released in 2019 and updated in 2021, put a requirement on the public sector for the first time to deliver absolute reductions in carbon emissions.

Scope

7.100 This project proposes an additional Solar photovoltaic farm development phase 2 and builds off the original CIP2020+ project CIP.20.07.030 which was remitted to deliver up to 7MW. However, through design development process for CIP.20.07.030 it has been identified that additional capacity could be achieved from this land parcel. Therefore, the scope of the proposed new project phase 2 PV project CIP.20.09.006 includes the additional PV panel infrastructure to increase the power output beyond 7MW. The scope includes identifying additional PV phase 2 sites at locations around the airport, some of which may require land purchase, (land acquisition costs are not including).

7.101 Dublin Airport have confirmed in response to questions, that the scope of activities in this project includes installation of PV panels at identified locations, provision of power cable connections to

all the identified PV sites, inverter equipment, battery storage capacity and a microgrid control system to manage power generation and distribution from the various PV site locations.

7.102 However, in their response to questions asked about the anticipated Phase 2 PV project's capacity:

- Peak Power generating capacity (MW); Subject to feasibility study
- Annual energy generating capacity (MWhr); Subject to feasibility study
- Battery storage capacity requirement (MWhr), Subject to feasibility study

7.103 The responses from Dublin Airport confirm that they intended to use the battery storage capacity for the purposes of airport load profile management to mitigate time of use costs, while also providing business resilience.

7.104 Using information in the level 3 costings Dublin airport have estimated an installeation requirement of 12,680 x 1KW PV panels. Each panel will be 8m2. This will create a Ph2 peak generating capacity in the order of 12.6MW. Included in the level 3 costings, Dublin Airport indicate they will install 3 x Tesla Megapack Battery storage system each with 2.5 MWh usable storage capacity (Total battery storage capacity of 7.5 MWhr).

7.105 Currently there is no intention to export electricity as all renewable generation is anticipated to be consumed on campus. The microgrid control system is a key part of enabling the PV, battery, and wider sustainability projects, allowing Dublin Airport to manage onsite generation, storage, and demand in a resilient and efficient way.

7.106 The current peak power demand for the airport is 13MVA and is expected to increase to 18MVA by 2026. In 2019 the airport had an annual imported electricity consumption of 68.5GW hr Gross Import (Net 54GWhr).

7.107 The analysis of PV generating, and storage capacity provision and the associated cost benefits is important to be able to evaluate the contribution this PV generating capacity will deliver to the airport's overall carbon emission reductions targets.

Change in scope versus Previous CIP2020+

7.108 Dublin Airport have declared this project as a new project, although in practice, it follows on from the previous project CIP 20.07.030.

Stage

7.109 In response to a specific question relating to project delivery dates, Dublin Airport confirmed that the project had not been initiated in the Dublin Airport internal governance system.

7.110 The question response further clarified 'the business need has been identified but an implementation schedule is yet to be developed. Following determination, the project will be promoted, and a team established to develop the plan'.

7.111 The planned dates for this project are summarised below:

- Feasibility/Outline design start — Q1 2023
- Planning complete — not specifically identified
- Design complete — not specifically identified
- Procurement complete — not specifically identified
- Construction commence — Q4 2023
- Project handover — Q3 2025

Key project metrics

Table 7.41: Photovoltaic Farm Phase2 – Key project metrics

Metric	Value
Project cost estimate	€ 38,600,000
Generating Capacity Provision	2MW

Scope/Specifications review

7.112 The project scope covers solar PV panels, installation of battery storage capacity and a control system. The project is at inception phase and detailed project requirements still need to establish and develop. The project development stages are identified as follows:

- Feasibility study of the identified locations, including glint and glare assessment;
- Detailed electrical design, including integration to the Dublin Airport MV network;
- Detailed civils design;
- Environmental risk assessment;
- Preparation of planning permission;
- Procurement and installation of solar PV farm; and
- Procurement and installation of associated battery storage and network systems.

Table 7.42: Photovoltaic Farm Phase2 – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope is efficient in identifying the work to be carried out in outline format. The project is in its early stages of inception, However, during the feasibility stage there may emerge a requirement for land acquisition to fulfil the target generation capacity from PV solar panel installations. There is still significant analysis and concept design work to be carried to establish the projects'feasibility, including the PV panel area, generating capacity and battery storage requirements to achieve efficient utilisation of the PV solar energy needed to offset and reduce carbon emissions.
Alternative scopes	Whilst there is no documentation provided fully identifying scope of the feasibility study be it would be anticipated that this project will need to be aligned and consider other sustainability projects such as Airport Charging (CIP 20.09.001) and Sustainable Fleet (CIP 20.09.004) to ensure efficient and effective project capacity and optimisation.
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs provide enough detail to progress to feasibility stage. Detailed project costs and benefits will be derived at feasibility and outline design stage. It will be important to establish the benefit that can be achieved through the installation of suitably sized battery energy storage capacity. In response to a question regarding battery capacity required and technology Dublin Airport state they have based the costing on lithium battery technology and that storage capacity required will be established during feasibility. This type of battery technology is expensive to procure but has significant benefits to energy storage density and maximum charge cycles over other technologies. Battery technology when applied will enable the airport to optimise and reduce the necessity to Import energy from the grid

	and hence reducing the airport's energy demand form the grid and its carbon emissions.
Phasing and synergies with other projects	None identified to date but will be developed during feasibility. However, the programme to get this project operational has several dependencies notably the lead time on procurement of the necessary battery storage capacity and the progress of any necessary upgrades to the Airport's MV distribution network.
Existing asset conditions	The existing PV project CIP 20.07.030 is still in development. The asset life of the facility had an intended life of 7-8 months and is now operating on a temporary permit. The asset life of the new facility is 20 years.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 7.43: Photovoltaic Farm Phase 2 - Scope/Specifications - Conclusion

Description	RAG
We conclude that the project is effective, given the legal requirements on public sector organisations to deliver absolute reductions in carbon emissions. The feasibility study should identify the projects' ability contribute to Dublin Airport's obligations to deliver the reductions in carbon emissions. The battery-based energy storage capacity and technology selection, when carried out in the feasibility study, will identify, and improve the projects' efficiency and effectiveness in terms of its ability to reduce energy imports from the national grid and allow the airport to consider further reduction alternatives for heating and transport at the airport. The need for any land acquisition will be evaluated in the feasibility study, however the costs of land acquisition are not included in the project costings.	

Cost estimate review

Table 7.44: Photovoltaic Farm Phase2 – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	4.39	4.39	-
Construction Costs	21.95	21.95	-
Escalation, Contingency & Design Variability	12.26	13.56	+1.30
Total	**38.60**	**39.90**	**+1.30**

Table 7.45: Photovoltaic Farm Phase2 – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	4.39	4.39	-
Total	**4.39**	**4.39**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	21.95	21.95	-
Total	21.95	21.95	-
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	12.26	13.56	+1.30
Total	**12.26**	**13.56**	**+1.30**

7.113 The variances in assumptions between Dublin Airport and Steer are mainly driven by the following Level 3 items:

Table 7.46: Photovoltaic Farm Phase2 – Main Level 3 variances

Item	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Escalation (from estimate base date to Q4 2021)	Redacted		+1.16
Escalation to midpoint of construction			+0.14

Cost - Draft Report Conclusion

7.114 This is a new project. We have reviewed the estimate provide by Dublin Airport and have issued several queries to them in relation to the rate for the Tesla megapack battery storage, the allowance for the associated control system and the rate for the framing design. Dublin Airport has provided an explanation for all these items, and based on these responses, the allowances and associated costs for these items are reasonable.

7.115 The only variance from the IFS assessment is the increased allowance for escalation. No monies have been spent on the project. The IFS assessment has also increased the escalation percentage applied, to revise the base date from Q4 2018 to Q4 2021, from 19% to 23%.

7.116 With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS estimate.

7.117 The cost of this project is reasonable.

Overall conclusion

7.118 Our overall conclusion of the project review is as follows:

Table 7.47: Photovoltaic Farm Phase2 – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	

Description	RAG Assessment
Assessment of Costs	
We conclude that the project is effective and achievable given the legal requirements on public sector organisations to deliver absolute reductions in carbon emissions. With the exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate is aligned with the IFS estimate. The cost of this project is reasonable.	

CIP.20.09.007 – Mobility Improvements

Project description

Introduction

7.119 Dublin Airport states that over 50% of its passengers now take public transport. It is looking to create mobility improvements by facilitating public transport connectivity including bus connections for passengers. Dublin Airport explains that this is critical to both the future growth of the airport and the airport's commitment to sustainable development.

Figure 7.8: Mobility Improvements

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Document

Objective

7.120 Dublin Airport advises that upgrades to public transport infrastructure and campus walking and cycling improvements are vital components to improve overall airport mobility and its general sustainability objectives. Hence the airport recognises the need to provide quality, attractive and safe bus infrastructure to enable new public transport initiatives such as Bus Connect and encourage the increased use of public transport by airport passengers and staff.

Context

7.121 Public transport provision at Dublin Airport is primarily via bus, most of which is facilitated from bus stops located north of the T1 multi-storey carpark (an area referred to as the Ground Transport Centre) and is accessed from Terminal 1 via the Atrium.

Scope

7.122 This is a new Project, and it is envisaged that upgrades to public transport infrastructure and campus walking and cycling improvements are vital components to improve overall airport

mobility and our general sustainability objectives. The scope of project deliverables is identified in the CIP documentation, however there is little detail available at this time:

- **Dublin Airport Journey Planner App/Portal** – The airport proposes to develop a Journey Planning Online Interactive MMP Guide/Menu with real time information for the most used commuter and travel routes. In addition, this will allow Dublin Airport to offer its staff personal travel plans that will improve the efficiency of staff travel.
- **Terminal 1 Multi Storey Car Park (MSCP) Atrium Refurbishment** – A light refurbishment of the Terminal 1 MSCP Atrium space, designed to enhance the public transport passenger experience, through real time transport information displays and improving general wayfinding between Terminal 1 and the bus and coach kerbs.
  - In response to a question relating to any scope overlap with the original project CIP 20.03.006 – Terminal 1 Kerbs - in CIP 2020, Dublin Airport stated that CIP 20.03.006 completed the refurbishment of the T1 MSCP Atrium area. However, the work around the external kerbs was not commenced as Dublin Airport were aware of the intended metro development in the area, as well as the need to increase on campus bussing infrastructure.
  - Dublin Airport state the costs for this scope of activities is not included as part of the construction total as costs incurred are below the line. We are not clear what this means and there has been no response to a follow-up question requesting clarification. We will update this report when a response has been received.
- **Ground Transport Centre Bus Lane Upgrades -** In line with the Bus Connects program, Dublin Airport proposes bus parking and lane upgrades including kerb, lighting, wayfinding, information display and bus shelter realignment, upgrade, and replacement; designed to improve and encourage public bus utilisation.
- **General Mobility Improvements** – provision of a suite of campus-wide mobility initiatives, including new walking and cycle lanes, cycle shelters, cycle changing, and shower facilities for use by staff.

Stage

7.123 The project is currently at initial feasibility/outline design and at the time of writing should have already started. The Planning/Design/procurement should all be completed by Q4 2022

7.124 Construction commencement in Q1 2023. However, this is a long programme of works which will not complete until Q4 2026. For a relatively simple project this is a long construction time given the ambitions to improve the passenger public transport experience and encourage the move to public transport.

- Feasibility/Outline design start — Q2 2022
- Planning complete — not specifically Identified
- Design complete — not specifically Identified
- Procurement complete — Q4 2022
- Construction commence — Q1 2023
- Project handover — Q4 2026

Key project metrics

Table 7.48: Mobility Improvements – Key project metrics

Metric	Value
Project cost estimate	€ 13,954,702

Metric	Value
No of sub-projects	4

Scope/Specifications review

Table 7.49: Mobility Improvements – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	At this stage of project definition, the scope is efficient in identifying the work to be carried out in outline format. It combines the refurbishment of public transport facilities with improved and dynamic wayfinding information environment including a wayfinding app that should encourage the use of public transport over private vehicle travel.
Alternative scopes	None identified.
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs provide enough detail for outline design stage.
Phasing and synergies with other projects	None identified.
Existing asset conditions	No information provided on the existing asset conditions to which these modifications will be applied. However, it is concluded that these refurbishments will contribute to an improved and informed passenger wayfinding public transport experience.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 7.50: Mobility Improvements- Scope/Specifications - Conclusion

Description	RAG
The project scope identified at this early stage of project definition is appropriate and offers to introduce an efficient and effective travel planning tool application. This project aligns very closely with the objectives to increase passenger travel by public transport. The project has four sub projects which are effectively refurbishments and minor upgrade to existing facilities.	

Cost estimate review

Table 7.51: Mobility Improvements – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	1.67	1.67	-
Construction Costs	9.27	9.27	-
Escalation, Contingency & Design Variability	3.01	3.01	-
Total	**13.95**	**13.95**	**-**

Table 7.52: Mobility Improvements – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	1.67	1.67	-
Total	**1.67**	**1.67**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Estimating the mobility improvements project	6.69	6.69	-
General Management and Staff Prelims	2.58	2.58	-
Total	**9.27**	**9.27**	**-**
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	3.01	3.01	-
Total	**3.01**	**3.01**	**-**

7.125 There is no variance in assumptions between Dublin Airport and Steer in the Level 3 items.

Cost - Draft Report Conclusion

7.126 This is a new project. We have reviewed the estimate provide by Dublin Airport and have issued several queries to them in relation to the lump sum for the Ground Transport Centre Bus area upgrades, the rate breakdowns for the cycle cave, the cycle hub, and the cycle routes expansion. Dublin Airport has provided a breakdown of the lump sum and the various rates that had been requested, and based on these responses, the allowance for the Ground Transportation Centre and the rates for the cycle cave, cycle hub and the cycle routes expansion are all reasonable.

7.127 Dublin Airport needs to confirm the basis of its calculation of the contingency allowance included in its estimate as it is not clear how they have arrived at their allowance. We would expect the calculation to a percentage of the sum of the design and management costs plus the construction costs including prelims and any design development allowance. Once Dublin Airport confirm the basis of its calculation, the IFS will be able to conclude its assessment of this element of the cost.

7.128 Dublin Airport also need to confirm the basis of its calculation of the escalation allowance, including the percentage uplift of 13.03%, included in its estimate. It also needs to confirm the base date of its estimate so that the IFS can conclude its assessment of escalation.

7.129 The basis of Dublin Airports calculation of both contingency and escalation needs to be confirmed so that the IFS can conclude its cost assessment. The remainder of Dublin Airports 2022 estimate is reasonable.

7.130 The allowances for design and management and construction costs are unchanged from the 2019 assessment. The variance from the 2019 assessment is the increased allowance for escalation, contingency and design variability. We have asked Dublin Airport to demonstrate the basis of their escalation calculation including details of the cost indices that they have based their calculation on so that we can assess it.

7.131 With exception of the revised escalation calculation, the remainder of Dublin Airports 2022 estimate aligned with the IFS 2019 estimate. Subject to checking the basis of the revised escalation allowance included in the 2022 estimate, the cost of this project is reasonable.

Overall conclusion

7.132 Our overall conclusion of the project review is as follows:

Table 7.53: Mobility Improvements – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The project scope identified at this early stage of project definition is appropriate and offers to introduce an efficient and effective travel planning tool application. This project aligns very closely with the objectives to increase passenger travel by public transport. The project has four sub projects which are effectively refurbishments and minor upgrade to existing facilities. The basis of Dublin Airports calculation of both contingency and escalation needs to be confirmed so that the IFS can conclude its cost assessment. The remainder of Dublin Airports 2022 estimate is reasonable.	

CIP.20.09.008 – Terminal 2 Sustainable Upgrade

Project description

Introduction

7.133 Dublin Airport proposes to replace the fossil fuel based heating system (HVAC & water) of Terminal 2 with a new system powered by more sustainable energy sources as well as to upgrade the building envelope (roof & façade) to improve energy efficiency.

Figure 7.9: Terminal 2 Sustainable Upgrade

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Presentation

Objective

7.134 The objective is to upgrade Terminal 2 to enable Dublin Airport to reach its sustainability targets and in particular to contribute a large portion to the required 51% overall carbon emission reduction by 2030. Furthermore, legal requirements and voluntary targets regarding energy efficiency improvements, fossil fuel reductions and renewable energy utilization should be met.

Context

7.135 The Climate Action Plan 2021 commits Ireland to a legally binding target of net zero greenhouse gas emissions no later than 2050, and a reduction of 51% on a 2016-18 average baseline by 2030. Therefore, Dublin Airport has been mandated by the government to reduce its absolute carbon emissions by 51% which are produced onsite by 2030, including gas heating of the airport buildings. 40% of the natural gas used by the airport and 15% of Dublin Airport's carbon emissions can be attributed to Terminal 2. Replacing gas heating systems in Terminal 2 and improving the building's energy efficiency would make a significant contribution to achieving the sustainability targets.

Scope

7.136 The scope suggests the replacement of the fossil fuel based heating system as well as upgrades of the building envelope. The following scope details are included in level 3 costs as possible solutions; however, the final technical solutions will be chosen upon completion of a feasibility study:

- Replacement of domestic hot and cold water services;
- Installation of new air source heat pumps;
- Installation of new high efficiency air cooled chillers;
- Replacement of existing air handling units with new high efficiency units;
- Replacement of water pipework;
- Upgrade works to Building Management System and controls and other systems;
- Electrical works to accommodate increased peak loads resulting from heat pump installations, new substation;
- Roof upgrades (25% of roof area): cladding panel replacements, insulation enhancement works and new finishes to areas of Kalzip roofing; and
- Façade upgrades (25% of façade area): replacement of sections of planar glazing and curtain walling and/or installation of new secondary glazing.

Change in scope versus Previous CIP2020+

7.137 The Terminal 2 sustainability upgrade is a new project.

Stage

7.138 The project is at first concept stage and a feasibility study will commence in Q1 2023.

- Design, procurement complete Q4 2023
- Construction start Q1 2025
- Construction complete Q2 2027

Key project metrics

Table 7.54: Terminal 2 Sustainable Upgrade – Key project metrics

Metric	Value
Construction cost estimate	€ 71,990,000
Project cost estimate	€110,635,449
Affected floor area for upgrade	99,300 sqm
Affected roof area for upgrade (25% of total)	12,710 sqm
Affected façade area for upgrade (25% of total)	4,691 sqm

Scope/Specifications review

Table 7.55: Terminal 2 Sustainable Upgrade – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The suggested scope can enable Dublin Airport to meet the project objectives in an efficient and effective way. However, a final evaluation of the scope will only be possible after consideration of the outcomes of the feasibility study.

Subject	Comments
Alternative scopes	Further sustainability measures such as solar panels on the roof should be considered for the feasibility study.
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs provide sufficient detail for the first concept stage. However, the suggested scope only provides possible solutions for sustainability upgrade which might be changed after completion of the feasibility study.
Phasing and synergies with other projects	The sustainability upgrades of Terminal 2 will have an effect on several other Terminal 2 projects, i.e. CIP.20.02.008 Terminal Buildings HVAC Upgrade and several capital projects. Dublin Airport states that an assessment of the impact on other proposed and in progress projects will be undertaken as part of the feasibility study to optimise delivery and if beneficial change or integrate designs. The outcome of the feasibility study should be monitored closely to enable a timely design update of probably affected other T2 projects.
Existing asset conditions	T2 is only 11 years old and hence does not require any major refurbishments soon. The asset life of the sustainability upgrades will be 15 years according to Dublin Airport.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 7.56: Terminal 2 Sustainable Upgrade – Scope/Specifications - Conclusion

Description	RAG
The suggested scope can enable Dublin Airport to meet the project objectives in an efficient and effective way. However, due to the early stage of the project, the scope will be adapted upon the outcome of the feasibility study and only then can be fully evaluated. It is recommended to closely monitor the outcome of the feasibility study to enable a timely design update of probably affected other Terminal 2 projects. The project is required to be passed through the StageGate process, at which point all costs and plans will be required at a more detailed level, prior to the validation of any part of this project, which is currently at a very early stage.	

Cost estimate review

Table 7.57: Terminal 2 Sustainable Upgrade – Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	14.40	14.40	-
Construction Costs	71.99	71.99	-
Escalation, Contingency & Design Variability	24.24	24.24	-
Total	**110.64**	**110.64**	**-**

Table 7.58: Terminal 2 Sustainable Upgrade – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	14.40	14.40	-
Total	**14.40**	**14.40**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	71.99	71.99	-
Total	**71.99**	**71.99**	**-**
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	24.24	24.24	-
Total	**24.24**	**24.24**	**-**

7.139 There is no variance in assumptions between Dublin Airport and Steer in the Level 3 items.

Cost - Draft Report Conclusion

7.140 This is a new project and the level of detail provided in Dublin Airport's estimate is a very high-level assessment of the potential costs of delivering this project. We have reviewed the estimate and have issued queries to Dublin Airport in relation to the rate breakdown for the roof improvements, the energy centre extension and the basis of the 25% allowance of the overall external façade area to which improvement works are going to be undertaken. Dublin Airport has provided a breakdown of the rates and, at this early stage in the project, their allowances are reasonable. They have also provided their reasoning for the 25% allowance of the external façade and this is also reasonable.

7.141 It should be noted that there is very little design information available to allow a detailed assessment of the costs of the project to be made. It should also be noted that this project will proceed through the StageGate process, so a further assessment of the project costs will be made once the design for the project has been developed and a more detailed cost estimate provided for review.

7.142 The allowance for escalation is based on a percentage uplift of 16.42%. Dublin Airport need to confirm the base date for their estimate so that the IFS can conclude it assessment of escalation. This will be completed in the Final Report later this year.

7.143 With the exception of the query over the escalation calculation, the remainder of Dublin Airports 2022 estimate is reasonable.

Overall conclusion

7.144 Our overall conclusion of the project review is as follows:

Table 7.59: Terminal 2 Sustainable Upgrade – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	

Description	RAG Assessment
The Terminal 2 Sustainability Upgrade will enable Dublin Airport to meet the sustainability targets for 2030. The suggested scope can enable Dublin Airport to meet the project objectives in an efficient and effective way. However, due to the early stage of the project, the scope will be adapted upon the outcome of the feasibility study and only then can be fully evaluated. **With the exception of the query over the escalation calculation, based on the information available at this early stage, the remainder of Dublin Airports 2022 estimate is reasonable.**	

CIP.20.09.009 – Terminal 1 Sustainable Upgrade Feasibility

Project description

Introduction

7.145 Dublin Airport proposes the preparation of a feasibility study to develop a sustainability strategy for upgrade or replacement of Terminal 1, associated piers and connected campus buildings.

Figure 7.10: Terminal 1 Sustainable Upgrade Feasibility

Source: Dublin Airport's Capital Investment Programme 2020+ Consultation Presentation

Objective

7.146 The objective is to determine if and how Terminal 1 and connected buildings can be upgraded to enable Dublin Airport to reach its sustainability targets and in particular to contribute to the required 51% overall carbon emission reduction by 2030. Furthermore, it needs to be determined if and how legal requirements and voluntary targets regarding energy efficiency improvements, fossil fuel reductions and renewable energy utilisation can be met.

Context

7.147 The Climate Action Plan 2021 commits Ireland to a legally binding target of net zero greenhouse gas emissions no later than 2050, and a reduction of 51% on a 2016-18 average baseline by 2030. Therefore, Dublin Airport has been mandated by the government to reduce its absolute carbon emissions by 51% which are produced onsite by 2030, including gas heating of the airport buildings. 53% of the natural gas used by the airport and 18.5% of Dublin Airport's carbon emissions can be attributed to Terminal 1 and associated piers. Since the main terminal building is more than 50 years old, it is necessary to determine if and how the buildings can be transformed to achieve the sustainability targets.

Scope

7.148 The scope covers the completion of a feasibility study to determine available options and propose solutions for upgrading or replacing Terminal 1, associated piers and connected campus buildings to switch from fossil fuel-based heating systems (HVAC, water) to carbon neutral alternatives. The scope of the study will include:

- Overall fossil fuel usage study for Dublin Airport;
- Energy balance analysis of T1, Pier 2, Pier 3 and other select campus buildings;
- Thermal modelling;
- Survey and review the existing building envelope, glazing, shading and insulation;

- Identification and technical appraisal of suitable technologies and alternative solutions;
- High-level cost and benefit analysis of alternatives;
- Environmental and financial analysis of the options;
- Holistic masterplan review;
- Development of implementation plan.

Change in scope versus Previous CIP2020+

7.149 The Terminal 1 sustainability upgrade feasibility study is a new project.

Stage

7.150 The feasibility study will commence in Q2 2023 and be completed Q2 2025.

Key project metrics

Table 7.60: Terminal 1 Sustainable Upgrade Feasibility – Key project metrics

Metric	Value
Construction cost estimate	€ 0 (No construction activities involved)
Design and Management Costs	€ 5,414,400
Working weeks	Redacted
Cost per working week	€ Redacted

Scope/Specifications review

Table 7.61: Terminal 1 Sustainable Upgrade Feasibility – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The suggested scope can enable Dublin Airport to meet the project objectives in an effective way. However, input in terms of total working weeks (1,393) is unusually high and overall duration of the feasibility study (2 years) is rather extensive.
Alternative scopes	The feasibility study can be carried out in 2 phases with a phase 1 leading to quick results if parts of the terminal and connected buildings rather should be demolished (or entire stripped out and renewed) before 2030 to fulfil Dublin Airport's sustainability goals. That would enable Dublin Airport to adapt certain CIP2020+ projects related to building which would be demolished or entirely stripped out soon after the completion of works.
Quality of specifications of scope/scope change	Specifications provided in Level 3 costs provide sufficient detail, however, the reason for the unusually high input in terms of working weeks has not been provided.
Phasing and synergies with other projects	The study results regarding if and how Terminal 1 and connected buildings can be upgraded will affect several other projects and could significantly reduce their asset life, e.g.: • CIP.20.01.020 Terminal 1 Façade, Roof & Spirals • CIP.20.02.008 Terminal Buildings HVAC Upgrade • Terminal 1 Passenger Journey Group capacity projects • CIP.20.07.010 Office Consolidation & Refurbishment

Subject	Comments
	The preliminary results of the feasibility study should be available before procurement of the above projects to enable Dublin Airport to adapt those projects before a significant amount of money has been spent.
Existing asset conditions	The main terminal building and parts of connected buildings are over 50 years old. Extending the life of T1 beyond 2030 needs to be evaluated in the light of the outcome of this feasibility study.
Double counting	None identified.

Scope/Specifications – Conclusion

Table 7.62: Terminal 1 Sustainable Upgrade Feasibility – Scope/Specifications - Conclusion

Description	RAG
We conclude that the scope will meet the outputs required of the project. However, we recommend to fast-track the feasibility study or consider a first phase to quickly determine if and how Terminal 1 and connected buildings can be upgraded. That would enable Dublin Airport to adapt several other CIP2020+ projects to the results of this study before a significant amount of money has been spent.	

Cost estimate review

Table 7.63: Terminal 1 Sustainable Upgrade Feasibility– Level 1 Costs

	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
Design and Management Costs	5.41	5.41	-
Construction Costs	-	-	-
Escalation, Contingency & Design Variability	0.95	0.95	-
Total	**6.37**	**6.37**	**-**

Table 7.64: Terminal 1 Sustainable Upgrade Feasibility – Level 2 Costs

Design and Management Costs (DM-C)	Dublin Airport 2022 cost estimate (€m)	IFS 2022 cost estimate (€m)	2022 Cost Difference IFS vs Dublin Airport (€m)
General Design & Management	5.41	5.41	-
Total	**5.41**	**5.41**	**-**
Construction Costs (C-C)	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Construction Costs	-	-	-
Total	**-**	**-**	**-**
Escalation, Contingency & Design Variability	**Dublin Airport 2022 cost estimate (€m)**	**IFS 2022 cost estimate (€m)**	**2022 Cost Difference IFS vs Dublin Airport (€m)**
Escalation, Contingency & Design Variability	0.95	0.95	-
Total	**0.95**	**0.95**	**-**

7.151 There is no variance in assumptions between Dublin Airport and Steer in the Level 3 items.

Cost - Draft Report Conclusion

7.152 This is a new project. The estimate provided by Dublin Airport only contains costs associated with the design and management of the project. There are no construction costs include in their estimate. There is an 10% allowance for contingency and there is also an escalation allowance included in the estimate.

7.153 The overall cost of this project equates to a significant level of resource required to deliver the feasibility study. We have asked Dublin Airport to clarify the grade and number of resources that it anticipates utilising on each of the sections listed in its estimate, along with the amount of time they anticipate spending on each section, so that we can assess the overall cost of the project. Dublin Airport has provided an initial response to the queries raised but this has resulted in further queries that need to be addressed. We will conclude our assessment once we receive responses to these queries. This will be addressed in our Final Report later this year.

7.154 The allowance for escalation is based on a percentage uplift of 6.89%. Dublin Airport need to confirm the base date for their estimate so that the IFS can conclude it assessment of escalation. This will be completed in the Final Report later this year.

Overall conclusion

7.155 Our overall conclusion of the project review is as follows:

Table 7.65: Terminal 1 Sustainable Upgrade Feasibility – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
We conclude that the scope will meet the outputs required of the project. However, we recommend to fast-track the feasibility study or consider a first phase to quickly determine if and how Terminal 1 and connected buildings can be upgraded. That would enable Dublin Airport to adapt several other CIP2020+ projects to the results of this study before a significant amount of money has been spent.	

Description	RAG Assessment
Once Dublin Airport respond to queries from the IFS, the assessment of the cost of undertaking the feasibility study can be concluded.	

8 Project Reviews – Apron 5H

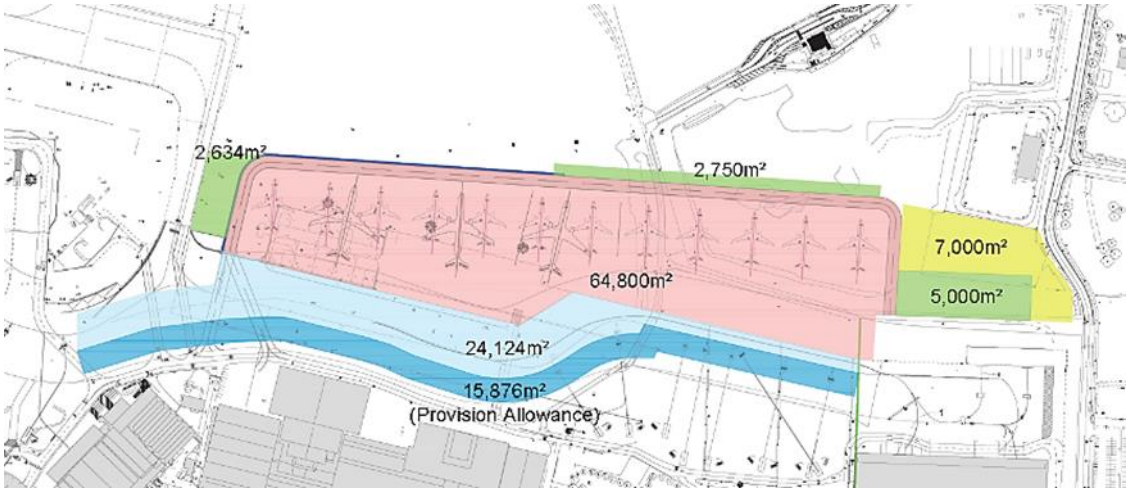
SCP.17.02.002 – Apron 5H (PACE)

Project description

Introduction

8.1 The proposed Apron 5H stands on the North Apron will be an eastwards extension of Apron 5G and provide 12 fully serviceable NBE Code C stands or three Code E parking positions (in MARS configuration).

Figure 8.1: Apron 5H and Taxiway Rehabilitation (Original PACE Submission)



Source: Dublin Airport – PACE Submission Documents

Objectives

8.2 Apron 5H will be located directly adjacent to the future North Runway access taxiway and Dublin Airport expects this to facilitate greater On Time Performance on completion of the North Runway. The planned apron also safeguards for a future satellite boarding facility.

Context

8.3 Dublin Airport Summer 2019 forecast stand demand originally identified a stand requirement of 116 NBEs (Narrow Body Equivalent) during the peak stand demand in the early morning, with a supply of 105 NBEs. This resulted in a shortfall of 11 stands and with contingency provision, the shortfall increased to 21 stands. Apron 5H and the associated North Apron Taxiway Rehabilitation project remains one of the projects required to address this shortfall.

Scope

8.4 The project will provide 12 fully serviceable NBE Code C stands or three Code E parking positions (in MARS configuration).

8.5 Apron 5H encompasses the footprint of the General/Business Aviation parking on Light Aircraft Park 'B' (LAPB). Business aviation parking is being provided as part of this development to compensate for the loss of LAPB.

8.6 The project also includes the necessary rehabilitation of the North Apron taxiway pavement which is over 60 years old, to facilitate this development.

Change in scope versus Previous CIP2020+

8.7 The additional scope introduced since Previous CIP2020+ is:

- Substation F;
- Site Clearance (Stockpile); and
- Additional Planning contributions to Fingal County Council.

Stage

8.8 In January 2022, Fingal County Council approved planning permission for this development and the main works is expected to commence on-site in Q3 2022. The construction period, including enabling works, is circa three years, albeit the main works appears to be two years. These timeframes are considered reasonable. It is noted that the new apron 5H is reliant on completion of certain elements of CIP.20.03.052 – Surface Water Environmental Compliance which has a project handover date of Q4 2026. This does not appear to tie in with the development programme needs for attenuation for the Apron 5H project. This needs additional understanding.

- Feasibility/Outline design complete 2023
- Planning complete 2023
- Design complete 2023
- Procurement complete 2023
- Enabling works (attenuation) start Summer 2022
- Enabling works (substation) Winter 2022
- Main construction commences Summer 2023
- Project handover Summer 2025

Key project metrics

Table 8.1: SCP 17.2.002 – Apron 5H & North Apron Taxiway Rehabilitation – Key project metrics

Metric	Value
Dublin Airport total cost estimate (2022)	€ Redacted
Dublin Airport estimate (2020)	€49,100,000
New Code C stands	12no.
Effective cost per new Code C stand	€ Redacted
New Apron, GA and GSE Pavement Area	82,000m^2
Rehabilitated pavement area	40,000m^2

Scope/Specifications review

Table 8.2: Apron 5H & North Apron Taxiway Rehabilitation – Scope/Specifications review

Subject	Comments
Effectiveness of scope/scope change	The scope addresses (in conjunction with other apron works) the functional requirements of passenger apron capacity and provides aprons of the correct dimension and aircraft code. The scope of works appears to be broadly consistent with the project need. The document "Target PCN (Pavement Classification Number) for PACE Airfield Taxiway and Stands Project" indicates that for this project a target PCN value of 80, consistent with Code E aircraft. This is consistent with the targeted use of the stands for Code E remote parking in MARS configuration, as designed on the western half of the new

Subject	Comments
	apron. However, as it would appear that the eastern half of the stands will only be used by Code C aircraft, some savings in pavement specification may be possible in that location. This is corroborated by the AECOM pavement study carried out in November 2016.
Alternative scopes	The drawings indicate that existing apron pavements are to be demolished and reconstructed. Some efficiencies may be gained through considering overlaying the existing pavements or re-using elements of pavements that will not be trafficked by aircraft. As this apron will be close to the new runway 28R threshold, with some futureproofing on vertical alignment and additional drainage measures, the new apron could form part of a future de-icing pad strategy, allowing quicker release of aircraft from existing contact stands during periods of aircraft de-icing.
Quality of specifications of scope/scope change	Given the project is at an early design stage, the quality of specifications and drawings received, while high level, are sufficiently detailed to describe the proposed works and give a satisfactory indication of scope. It has been noted that risk monies for potential contamination beneath a very old apron site were not originally included. The original PACE submission states that "*Costs based on similar ground conditions typical of works in adjacent areas. No allowance for unforeseen 'poor' ground conditions. No soil investigation completed*". It has also been noted that a contingency against the possibility of contamination of circa €7.5-10 million has been proposed. The airport was asked for further information to underpin this contingency sum. **…… ……. Redacted …….** The sum is based on a unit rate per cubic metre of spoil removal and includes removal, transport and bonding of contaminated materials for transport to the disposal site **…Redacted… Redacted**
Phasing and synergies with other projects	**CIP.20.03.075 Fuel Hydrant Network** includes the part-installation of ducts and sleeves for future hydrant pipe installation to 5H stands. Sleeves to be installed as part of 5H pavement construction from the grass area at the head of 5H to future hydrant pot location at each aircraft position. **CIP.20.03.052 Surface Water Compliance** includes the completion of the north-south sewer. The north-south sewer is the construction of a new 2km sewer to provide additional drainage capacity for contaminated surface water that will drain from newly paved areas in the north of the airfield, specifically for the North Runway and Apron 5H. It is noted that the new Apron 5H is reliant on completion of certain elements of CIP.20.03.052 – Surface Water Environmental Compliance which has a project handover date of Q4 2026. This does not appear to tie in with the development

Subject	Comments
	programme needs for attenuation for the Apron 5H project. This needs additional consideration.
Existing asset conditions	Few existing assets have been retained. This project includes the rehabilitation/reconstruction of 40,000m^2 of existing pavement. The existing pavements require replacement to permit aircraft weights to be accommodated or to replace life-expired pavements. The AECOM pavement study carried out in November 2016 confirms that the taxiway route will not have either the strength or the residual life for the future operations. Other than the pavements, there is limited scope for the reuse of existing assets. From the available data, reference to 'Site Clearance and Redundant Stone Stockpile Removal' has been noted, with the eastern end of new Apron 5H located on top of redundant stone stockpiles. We note that the original project assumed the stone stockpile could be recycled and used across various airfield projects but following Dublin Airport review, this was not feasible. The stockpile thus requires removal, and the resulting site cleared as an enablement phase in advance of constructing the new apron. We have queried if this material can be re-used in another capacity on the airfield or in any of the other projects. However, the airport has confirmed that this stone has already been removed from site. The material was sampled, and determined as non-hazardous, but could not be used within the construction works, and therefore was removed and disposed.
Double counting	None observed

Scope/Specifications – Conclusion

Table 8.3: Apron 5H & North Apron Taxiway Rehabilitation - Scope/Specifications - Conclusion

Description	RAG
The scope of works appears to be consistent with the project need and we conclude that the scope/scope change will meet the outputs required of the project.	

Cost estimate review

Table 8.4: Apron 5H & North Apron Taxiway Rehabilitation – Rolled Up Cost Assessment

		Dublin Airport			IFS	
	Value	% Fee	Total Fee	Total	% Fee	
Design and Management Costs						
Planning/Building Control/Cost Consultants						
Civil/Airfield/Environmental Engineer						
Project Management/Other Costs						
Sub Total (A)	Redacted					
Construction Costs						
New Apron Pavement Area	54,056	m2	Redacted			
Rehabilitation of Existing Apron (Full)	32,745	m2				
New Gse Parking Area (Incl. Potential Areas)	7,944	m2				
Drainage Attenuation	94,745	m2				
Electrical and Other Lighting	94,745	m2				
Preliminaries/Phasing/Operational Restrictions	1	Sum				
Sub Total (B)						
Design Development and Contingency						
Design Development	Redacted					
Contingency						
Other						
Sub Total (C)						
Revised Subtotal less allowance for original escalation				Redacted		
Add escalation to revised base date Q4 2021 @ 29%						
Revised Sub-total Total				Redacted		
Add new scope						
Planning Contributions (New Scope)	1	Sum	Redacted			
Site Clearance - Stockpile (New Scope)	1	Sum				
Substation F (New Scope)						
Civils	1	Sum				
Electrical	1	Sum				
Redacted	1	Sum				
Revised Total				Redacted		

Cost - Draft Report Conclusion

8.9 We have reviewed the latest cost estimate provided by Dublin Airport. That estimate is based on the tender return that Dublin Airport has received from one of its framework contractors, and allowances for design and management, contingency, low visibility procedures and operational disruption allowances that Dublin Airport has included in the overall project estimate. In addition to this, Dublin Airport has also included costs for works to Substation F (that is not included in the contractor's submission), planning contribution to local planning authority, the cost of site clearance that has already been completed and a risk allowance for potential requirement to remove and dispose of a significant quantity of contaminated material.

8.10 There were several queries that we issued to Dublin Airport in relation to the contractor fee percentage included in the tender estimate, escalation and how it has been dealt with, the contractor's risk and what it was deemed to cover. Dublin Airport responded to those queries and their responses have been addressed within our assessment.

8.11 The contractors fee percentage is **Redacted** %. While Dublin Airport confirmed that the fee was competitively tendered as part of the framework procurement activity, this fee level is higher than we would expect and we have reduced it in our assessment. The impact of this change reduces the assessment of the contractors cost element of the estimate, but it also reduces the allowance for contingency and low visibility procedures and operational disruption that are allowances that Dublin Airport has included in the overall project estimate. From our review of the rates included in the contractor's submission, the overall cost of the jet blast fence was higher than we would expect and we have reduced the cost of this element in our assessment.

8.12 Escalation has been included within the rates submitted by the contractor in its tender return. Dublin Airport has confirmed that contractor has absorbed current inflation within its submission. As the contract is be awarded under a target cost contract, Dublin Airport has also confirmed that any future escalation not already included in the contractors tendered rates will be dealt with through the pain/gain mechanism in the contract, where it is in the contractor's interest to manage and minimise its costs on the project. This is a reasonable position to take in terms of dealing with future escalation on this project.

8.13 The planning contribution included in the project cost is more than €5m. While we would not expect a project of this nature to require planning permission, this contribution is a pre-commencement condition of the planning permission that was granted. Dublin Airport has appealed against the levying of this contribution, and if their appeal is successful, this will reduce the cost of the project. Further detail on this point may be available ahead of our Final Report.

8.14 There are a small number of follow up queries that we have issued to Dublin Airport that we are awaiting a response from them. Once received, we will conclude our assessment of the project. However, based on the information that has been reviewed thus far, the IFS assessment of this project is that, in overall terms, the proposed cost of the project is reasonable.

Overall conclusion

8.15 Our overall conclusion of the project review is as follows:

Table 8.5: Apron 5H – (PACE) – Overall conclusion

Description	RAG Assessment
Assessment of scope/specification	
Assessment of Costs	
The scope of works appears to be consistent with the project need and we conclude that the scope/scope change will meet the outputs required of the project. Subject to reviewing Dublin Airports responses to our outstanding queries, the cost of this project is reasonable.	

9 Appendices

Appendix i – Original List of Projects and Costs – CIP as at 2019

Appendix A - Asset Care (CSF)		
CIP.20.01.001	Southern Runway (R10R/28L) Delethalisation Programme	€2,203,254
CIP.20.01.002	Apron Rehabilitation Programme	€37,000,000
CIP.20.01.003	Airfield Taxiway Rehabilitation Programme	€19,000,000
CIP.20.01.004	Apron Road Rehabilitation Programme	€4,600,000
CIP.20.01.006	Airfield Southern Perimeter Road Upgrade Programme	€4,610,924
CIP.20.01.008	Runway Approach Lighting Mast Improvement Programme	€11,125,135
CIP.20.01.009	Aerodrome Ground Lighting (AGL) Improvement Programme	€4,668,749
CIP.20.01.010	Airfield Lighting Control & Management System Improvement Programme	€4,854,754
CIP.20.01.012	AGL Substation T Development Programme	€3,703,429
CIP.20.01.015	High Mast Lighting Improvement	€742,314
CIP.20.01.016	Airfield Maintenance Base Improvement Programme	€4,497,352
CIP.20.01.018	Campus Buildings Critical Maintenance	€1,519,750
CIP.20.01.020	Terminal 1 Façade, Roof & Spirals	€25,830,500
CIP.20.01.022	Terminal 1 Storm Water Drainage System	€1,124,162
CIP.20.01.023	Piers & Terminals Critical Maintenance	€1,912,680
CIP.20.01.024	Skybridge Rehabilitation	€1,202,902
CIP.20.01.034	Campus Roads Critical Maintenance	€6,763,800
CIP.20.01.039	Airport Roads Critical Maintenance	€5,148,954
CIP.20.01.046	Staff Car Parks Critical Maintenance	€1,688,636
CIP.20.01.049	Public Carpark Critical Maintenance	€2,409,236
CIP.20.01.056	Campus Facilities & Landside Snow Base Upgrade	€2,855,024
CIP.20.01.065	Airport Heavy Fleet & Equipment Replacement	€11,043,750
CIP.20.01.069	Airport Light Vehicle Fleet Replacements and Augmentation	€2,408,625
CIP.20.01.071	Electric Charger Network Facilities	€1,645,241
CIP.20.01.074	Advance Visual Docking Guidance System (5G, Pier 1 & Pier 2)	€5,329,994
CIP.20.01.087	AGL Fibre Optic Communication Network Improvement Programme	€2,017,587
CIP.20.01.099	RWY 16/34 Lighting for Low Visibility Procedures (LVP)	€5,500,000
CIP.20.07.013	Airfield Redesignation	€1,500,000
CIP.20.07.032	Unit Load Device (ULD) Storage	€5,000,000
Appendix A Total		**€181,906,752**

Appendix B - Asset Care Mechanical & Electrical (M&E)		
CIP.20.02.001	Medium Voltage (MV) Electrical Network	€6,293,659
CIP.20.02.002	Second Medium Voltage (MV) Connection Point	€1,000,000
CIP.20.02.004	Passenger Boarding Bridges (Maintenance & P3 Enhancement) & Fixed Electrical Ground Power	€18,067,171
CIP.20.02.005	Lift Upgrade Programme -Terminal and Multi-Storey	€6,239,856
CIP.20.02.006	Airport Water & Foul Sewer Upgrade	€4,953,212
CIP.20.02.007	Life Safety Systems (LSS) Upgrade Programme Terminal and MSCP Buildings	€10,107,300
CIP.20.02.008	Terminal Buildings HVAC Upgrade	€17,781,123
CIP.20.02.009	Campus Buildings: Mechanical, Electrical & LSS Upgrade	€9,476,409
CIP.20.02.010	Pier 3 Life Extension Works - Mech, Elec and Foul Drainage	€14,043,473
CIP.20.02.013	Small Energy Projects	€4,831,755
CIP.20.07.030	Large Energy Project - Photovoltaic Farm	€10,000,000
Appendix B Total		**€102,793,958**

Appendix C - Capacity		
CIP.20.03.004	Gate Post 9 Expansion (West Lands)	€9,230,000
CIP.20.03.006	Terminal 1 Kerbs	€13,643,778
CIP.20.03.011A	Terminal 1 Check-In (Partial shoreline)	€30,233,000
CIP.20.03.012	Terminal 1 Central Search - Relocation to Mezz Level	€42,630,000
CIP.20.03.013	Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation	€42,390,000
CIP.20.03.015	Terminal 1 Baggage Reclaim Upgrade & Alterations	€22,170,000
CIP.20.03.016	Terminal 1 - Rapid Exit Arrivals	€2,220,000
CIP.20.03.017	Terminal 1 Shuttle, bus lounges and injection points	€2,840,000
CIP.20.03.018	Terminal 1 - Immigration Hall	€1,490,000
CIP.20.03.020	Terminal 2 Check-in Area Optimisation	€14,770,000
CIP.20.03.021	Terminal 2 Central Search Area Expansion	€5,640,000
CIP.20.03.028	Terminal 2 Early bag store and transfer lines	€27,910,000
CIP.20.03.029	New Pier 5 (T2 and CBP Enabled)	€323,640,000
CIP.20.03.030	Expansion of US Pre-Clearance Facilities	€50,330,000
CIP.20.03.031	South Apron Expansion (Remote Stands, Taxiway and Apron)	€89,750,000
CIP.20.03.033A	Enablement of Pier 3 for Precleared US bound passengers	€8,500,000
CIP.20.03.034	Pier 3 Immigration (Upgrade & Expansion)	€5,730,000
CIP.20.03.036	North Apron Development – Pier 1 Extension (Module 1) & Apron 5H PBZ	€175,310,000
CIP.20.03.043A	Terminal 1 Piers - New Airbridges (6NBE / 3WB)	€33,900,000
CIP.20.03.049	De-icing pad at Runway 10R	€5,000,000
CIP.20.03.051B	West Apron Vehicle Underpass - Pier 3 Option	€171,000,000
CIP.20.03.052	Surface Water Environmental Compliance	€51,000,000
CIP.20.03.054	New Remote Apron 5M - 17 NBEs	€72,085,000
CIP.20.03.057	Airside GSE Charging Facilities (Ground Handlers)	€5,000,000
CIP.20.03.071	Hydrant Enablement - Pier 2 & 3	€23,680,000
Appendix C Total		**€1,230,091,778**

**A further project was added between the Draft and Final Report, taking the number of projects in Appendix C up from 25 to 26, and the overall total from 117 to 118.

Project 20.03.072 - T2 and Pier 4 Transfer Facilities - €0.8m

Appendix D - Commercial		
CIP.20.04.001	Car Parking Management System (Maintenance & upgrade)	€3,104,062
CIP.20.04.002	Car Hire Consolidation Centre	€14,000,000
CIP.20.04.003	New Food & Beverage Fit-out (T1X)	€2,135,313
CIP.20.04.004	Digital Advertising Infrastructure	€2,169,609
CIP.20.04.005	Long Term Car Parking - Eastland's (2000 spaces)	€5,934,895
CIP.20.04.006	Terminal 1 Multi-Storey Car Park Block B (466 spaces)	€18,844,726
CIP.20.04.007	Terminal 2 Multi-Storey Car Park (680 spaces)	€15,083,338
CIP.20.04.009	Staff Car Park	€6,000,000
CIP.20.04.016	Platinum Services Upgrade Works	€2,103,712
CIP.20.04.017	Airline Lounges - Expansion, Upgrade & New	€11,390,214
CIP.20.04.018	Fast Track Improvements	€1,685,400
CIP.20.04.021	West Apron - Accommodation & Welfare Facilities	€4,480,317
CIP.20.04.023	Food & Beverage Provision & Fit-out – Post CBP	€3,216,599
CIP.20.04.025	Commercial Property Refurbishment	€7,971,942
CIP.20.04.030	New Kitchen in Terminal 2	€3,022,237
CIP.20.07.010	Office Consolidation & Refurbishment (primarily Level 4 & 5, Terminal 1)	€15,000,000
CIP.20.08.001	Retail Refurbishments, Upgrades and New Developments	€8,000,000
CIP.20.08.002	Retail Marketing & Media Installation	€1,500,000
Appendix D Total		**€125,642,364**

Appendix E - Information Technology		
CIP.20.05.001	Airfield Optimization	€5,900,000
CIP.20.05.002	Digital Passenger Experience	€1,750,000
CIP.20.05.003	Integrations and Data	€5,050,000
CIP.20.05.004	Baggage Systems	€1,300,000
CIP.20.05.005	Business Efficiency	€6,200,000
CIP.20.05.006	Commercial Systems	€2,300,000
CIP.20.05.007	Reliability, Safety, Security & Compliance	€8,230,000
CIP.20.05.008	Operational Devices (Support & Maintenance)	€1,750,000
CIP.20.05.009	Network Components - Lifecycle & Growth	€6,875,000
CIP.20.05.010	Passenger Processing (excl. Security Screening)	€11,000,000
CIP.20.05.011	Security Technology Innovation (Biometrics & FOD Detection)	€5,000,000
CIP.20.05.012	Servers and Storage - Lifecycle & Growth	€5,570,000
CIP.20.05.014	User Devices (Desktops, Mobile, Telephone, Radio)	€3,700,000
CIP.20.05.015	New Data Centre Hosting Location	€4,000,000
CIP.20.05.016	Microsoft Enterprise	€6,000,000
CIP.20.05.020	Innovation Fund	€4,000,000
Appendix E Total		**€78,625,000**

Appendix F - Security		
CIP.20.06.001	Cabin-Baggage X-Ray Replacement& EDS Upgrade	€14,637,865
CIP.20.06.007	Full Body Scanners	€1,944,267
CIP.20.06.009	ATRS – Additional Lane in Terminal 1	€557,158
CIP.20.06.014	Screening and Logistics Centre	€13,429,872
CIP.20.06.015	Intrusion Detection Systems forDublin Airport Boundaries	€4,001,499
CIP.20.06.016	Surface Road Blockers & Temporary Mobile Barriers	€952,204
CIP.20.06.022	Redevelopment of Training Facility (ASTO)	€1,170,001
CIP.20.06.025	Detection: Explosive Detection Dogs (EDD) and Mobile X Ray Unit	€174,890
CIP.20.06.030	VCP Automation to Enable Remote Screening	€687,341
CIP.20.06.031	Autopass - T1 Replacement & T2 Install	€1,782,245
CIP.20.06.036	TSA - X-Ray & FBSS Replacement	€365,420
CIP.20.06.041	Security Screening Equipment - End of Life	€4,466,825
CIP.20.06.042	ATRS - Central Search Areas (T1 and T2)	€11,694,516
CIP.20.06.044	Replacement of T1 Controllers for Access Control System	€534,573
Appendix F Total		**€56,398,676**

Appendix G - Others		
CIP.20.07.001	Programme Management	€4,000,000
CIP.20.07.002	Minor Projects	€12,540,000
CIP.20.07.004	Metro Coordination	€500,000
CIP.20.07.014	Terminal Operations Improvement Projects	€4,925,266
Appendix G Total		**€21,965,266**

TOTAL		**€1,797,423,793**

Appendix ii – New Project List – CIP 2020+

Superseded Projects

Code	Name	Asset Life	Treatment	Allowance
CIP.20.03.043.1	Terminal 1 Pier New Airbridges	20 Years	StageGate	€23.3m
CIP.20.03.057	Airside GSE Charging Facilities	10 Years	Flexible	€4.9m
CIP.20.03.071	Hydrant Enablement – Pier 2 & 3	20 Years	Flexible	€23.7m
			Total	€51.9m

Deferred Projects

Code	Name	Asset Life	Treatment	Allowance
CIP.20.03.006	Terminal 1 Kerbs	15 Years	Flexible	€13.6m
CIP.20.03.011.1	Terminal 1 Check-in	10 Years	StageGate	€26.0m
CIP.20.03.016	Terminal 1 Rapid Exit Arrivals	10 Years	Flexible	€1.9m
CIP.20.03.049	De-icing Pad at Runway 10R	20 Years	Flexible	€5.0m
CIP.20.03.054	New Remote Apron 5M	32 Years	StageGate	€82.5m
CIP.20.04.006	Terminal 1 Multi-Storey Car Park Block B (466 spaces)	25 Years	Flexible	€17.4m
			Total	€146.4m

Core projects

Core Asset Mechanical and Electrical Projects

Code	Name	CIP2020+ Review			
		Type	Asset Life	Treatment	Cost
Asset Mechanical and Electrical Projects					
CIP.20.02.001	Medium Voltage (MV) Electrical Network	Except	20 Years	Flexible	€7.10m
CIP.20.02.002	Second Medium Voltage (MV) Connection Point	Except	5 Years	StageGate	€1.22m
CIP.20.02.004	Passenger Boarding Bridges (Maintenance & P3 Enhancement) & Fixed Electrical Ground Power	Except	15 Years	Flexible	€19.24m
CIP.20.02.005	Lift Upgrade Programme - Terminal and Multi-Storey	Except	20 Years	Flexible	€7.18m
CIP.20.02.006	Airport Water & Foul Sewer Upgrade	Typical	25 Years	Flexible	€5.59m
CIP.20.02.007	Life Safety Systems (LSS) Upgrade Programme Terminal and MSCP Buildings	Typical	10 Years	Flexible	€12.24m
CIP.20.02.008	Terminal Buildings HVAC Upgrade	Except	20 Years	Flexible	€21.68m
CIP.20.02.009	Campus Buildings: Mechanical, Electrical & LSS Upgrade	Typical	15 Years	Flexible	€11.11m
CIP.20.02.010	Pier 3 Life Extension Works - Mech, Elec and Foul Drainage	Except	15 Years	Flexible	€15.99m
CIP.20.02.013	Small Energy Projects	Except	15 Years	Flexible	€6.25m
CIP.20.07.030	Large Energy Project - Photovoltaic Solar Farm	Except	15 Years	Flexible	€9.46m
				Total	€117.06m

Core Asset Civil, Structural and Fleet Projects

Code	Name	CIP2020+ Review			
		Type	Asset Life	Treatment	Cost
Asset Civil, Structural and Fleet Projects					
CIP.20.01.001	Southern Runway (R10R/28L) Delethalisation Programme	Except	20 Years	Flexible	€2.47m
CIP.20.01.002	Apron Rehabilitation Programme	Typical	20 Years	StageGate	€48.22m
CIP.20.01.003	Airfield Taxiway Rehabilitation Programme	Typical	20 Years	StageGate	€19.33m
CIP.20.01.004	Apron Road Rehabilitation Programme	Typical	20 Years	Flexible	€5.39m
CIP.20.01.006	Airfield Southern Perimeter Road Upgrade Programme	Typical	15 Years	Flexible	€4.83m
CIP.20.01.008	Runway Approach Lighting Mast Improvement Programme	Except	20 Years	Flexible	€13.32m
CIP.20.01.009	Aerodrome Ground Lighting (AGL) Improvement Programme	Except	15 Years	Flexible	€5.23m
CIP.20.01.010	Airfield Lighting Control & Management System Improvement Programme	Except	10 Years	Flexible	€5.23m
CIP.20.01.012	AGL Substation T	Except	30 Years	Complete	€4.30m
CIP.20.01.015	High Mast Lighting Improvement	Except	15 Years	Flexible	€0.91m
CIP.20.01.016	Airfield Maintenance Base Improvement Programme	Except	20 Years	Flexible	€5.24m
CIP.20.01.018	Campus Buildings Critical Maintenance	Typical	15 Years	Flexible	€1.82m
CIP.20.01.020	Terminal 1 Façade, Roof & Spirals	Except	20 Years	Flexible	€27.94m
CIP.20.01.022	Terminal 1 Storm Water Drainage System	Except	15 Years	Flexible	€1.22m
CIP.20.01.023	Piers & Terminals Critical Maintenance	Typical	15 Years	Flexible	€1.87m
CIP.20.01.024	Skybridge Rehabilitation	Except	20 Years	Flexible	€1.33m
CIP.20.01.034	Campus Roads Critical Maintenance	Except	15 Years	Flexible	€7.10m
CIP.20.01.039	Airport Roads Critical Maintenance	Except	15 Years	Flexible	€5.87m
CIP.20.01.046	Staff Car Parks Critical Maintenance	Typical	15 Years	Flexible	€1.18m
CIP.20.01.049	Public Carpark Critical Maintenance	Typical	15 Years	Flexible	€2.86m
CIP.20.01.056	Campus Facilities & Landside Snow Base Upgrade	Except	20 Years	Complete	€2.83m
CIP.20.01.065	Airport Heavy Fleet and Equipment Replacement	Except	7 Years	Flexible	€14.00m
CIP.20.01.069	Airport Light Vehicle Fleet Replacements and Augmentation	Except	5 Years	Flexible	€3.05m
CIP.20.01.071	Electric Charger Network Facilities	Except	10 Years	Flexible	€1.95m
CIP.20.01.074	Advance Visual Docking Guidance System (5G, Pier 1 & Pier 2)	Except	10 Years	Flexible	€6.25m
CIP.20.01.087	AGL Fibre Optic Communication Network Improvement Programme	Except	20 Years	Flexible	€2.28m
CIP.20.01.099	RWY 16/34 Lighting for Low Visibility Procedures (LVP)	Except	10 Years	Flexible	€6.85m
CIP.20.07.013	Airfield Redesignation	Except	15 Years	Flexible	€1.69m
CIP.20.07.032	Unit Load Device (ULD) Storage	Except	15 Years	Flexible	€6.12m
CIP.20.07.031	HBS3 – T1	Except	15 Years	StageGate	€231.00m
CIP.20.07.033	HBS3 – T2	Except	15 Years	StageGate	
				Total	**€441.68m**

Core Security Projects

Code	Name	CIP2020+ Review			
		Type	Asset Life	Treatment	Cost
Security Projects					
CIP.20.06.001	Cabin-Baggage X-Ray Replacement and EDS Upgrade	Except	7 Years	Flexible	€20.28m
CIP.20.06.007	Full Body Scanners	Except	7 Years	Flexible	€2.32m
CIP.20.06.009	ATRS – Additional Lane in Terminal 1	Except	7 Years	Flexible	€0.67m
CIP.20.06.014	Screening and Logistics Centre	Except	15 Years	Deliverable	€14.91m
CIP.20.06.015	Intrusion Detection Systems for Dublin Airport Boundaries	Except	7 Years	Flexible	€4.66m
CIP.20.06.016	Surface Road Blockers and Temporary Mobile Barriers	Typical	7 Years	Flexible	€1.24m
CIP.20.06.022	Redevelopment of Training Facility (ASTO)	Except	15 Years	Flexible	€1.53m
CIP.20.06.025	Detection: Explosive Detection Dogs (EDD) and Mobile X Ray Unit	Except	6 Years	Completed	€0.20m
CIP.20.06.030	VCP Automation to Enable Remote Screening	Except	7 Years	Flexible	€0.92m
CIP.20.06.031	Auto pass - T1 Replacement and T2 Install	Except	7 Years	Flexible	€2.01m
CIP.20.06.036	TSA - X-Ray and FBSS Replacement	Typical	7 Years	Flexible	€0.42m
CIP.20.06.041	Security Screening Equipment - End of Life	Typical	7 Years	Flexible	€6.01m
CIP.20.06.042	ATRS - Central Search Areas (T1 and T2)	Except	7 Years	Flexible	€13.57m
CIP.20.06.044	Replacement of T1 Controllers for Access Control System	Typical	7 Years	Flexible	€0.63m
				Total	**€69.37m**

Core Other Projects

Code	Name	CIP2020+ Review			
		Type	Asset Life	Treatment	Cost
Other Projects					
CIP.20.07.001	Programme Management	Typical	5 Years	Flexible	€8.16m
CIP.20.07.002	Minor Projects	Except	7 Years	Flexible	€14.92m
CIP.20.07.014	Terminal Operations Improvement Projects	Typical	5 Years	Flexible	€5.40m
				Total	**€28.48m**

Core IT Projects

Code	Name	CIP2020+ Review			
		Type	Asset Life	Treatment	Cost
IT Projects					
CIP.20.05.001	Airfield Optimization	Except	5 Years	Flexible	€6.66m
CIP.20.05.002	Digital Passenger Experience	Typical	5 Years	Flexible	€2.08m
CIP.20.05.003	Integrations and Data	Typical	5 Years	Flexible	€6.01m
CIP.20.05.004	Baggage Systems	Typical	5 Years	Flexible	€1.55m
CIP.20.05.005	Business Efficiency	Typical	5 Years	Flexible	€7.38m
CIP.20.05.006	Commercial Systems	Typical	5 Years	Flexible	€2.74m
CIP.20.05.007	Reliability, Safety, Security & Compliance	Typical	5 Years	Flexible	€9.79m
CIP.20.05.008	Operational Devices (Support & Maintenance)	Typical	5 Years	Flexible	€2.08m
CIP.20.05.009	Network Components - Lifecycle & Growth	Typical	5 Years	Flexible	€8.09m
CIP.20.05.010	Passenger Processing (excl. Security Screening)	Except	5 Years	Flexible	€13.09m
CIP.20.05.011	Security Technology Innovation (Biometrics & FOD Detection)	Except	5 Years	Flexible	€5.95m
CIP.20.05.012	Servers and Storage - Lifecycle & Growth	Typical	5 Years	Flexible	€6.63m
CIP.20.05.014	User Devices (Desktops, Mobile, Telephone, Radio)	Except	5 Years	Flexible	€4.40m
CIP.20.05.015	New Data Centre Hosting Location	Typical	15 Years	Flexible	€4.76m
CIP.20.05.016	Microsoft Enterprise	Typical	3 Years	Flexible	€7.14m
CIP.20.05.020	Innovation Fund	Except	5 Years	Flexible	€4.76m
				Total	**€93.11m**

New Exceptional Core Projects

Code	Name	CIP2020+ Review		
		Asset Life	Treatment	Cost
CIP.20.07.035	MV Resilience Substation	15 Years	StageGate	€57.69m
CIP.20.07.036	Upgrade to Hold Baggage Sortation Equipment	15 Years	StageGate	€43.88m
CIP.20.06.045	Security Scanners	8 Years	Flexible	€28.03m
CIP.20.06.046	Terminal Kerb Security Mitigation	20 Years	StageGate	€12.48m
			Total	**€142.08**

Capacity Projects

Code	Name	CIP2020+ Review		
		Asset Life	Treatment	Cost
Capacity Projects				
Terminal 1 Passenger Journey Group				
CIP.20.03.012	Terminal 1 Central Search - Relocation to Mezz Level	15 Years	StageGate	€49.14m
CIP.20.03.013	Terminal 1 Departure Lounge (IDL) Reorientation and Rehabilitation	15 Years	StageGate	€47.04m
CIP.20.03.015	Terminal 1 Baggage Reclaim Upgrade & Alterations	15 Years	Flexible	€24.74m
CIP.20.03.017	Terminal 1 Shuttle, bus lounges and injection points	15 Years	Flexible	€3.86m
CIP.20.03.018	Terminal 1 - Immigration Hall	15 Years	Flexible	€2.01m
CIP.20.03.034	Pier 3 Immigration (Upgrade & Expansion)	6 Years	Flexible	€10.57m
Terminal 2 Passenger Journey Group				
CIP.20.03.020	Terminal 2 Check-in Area Optimisation	15 Years	Flexible	€15.82m
CIP.20.03.021	Terminal 2 Central Search Area Expansion	15 Years	Flexible	€5.59m
CIP.20.03.024	Terminal 2 Immigration Hall - Reorientation	15 Years	Flexible	€2.45m
South Apron Hub Group				
CIP.20.03.028	Terminal 2 HBS Early Bag Store and Transfer Lines	10 Years	StageGate	€34.41m
CIP.20.03.029	New Pier 5 (T2 and CBP Enabled)	28 Years	StageGate	€339.13m
CIP.20.03.030	Expansion of US Pre-Clearance Facilities	25 Years	StageGate	€87.29m
CIP.20.03.031	South Apron Expansion (Remote Stands, Taxiway and Apron)	34 Years	StageGate	€207.53m
CIP.20.03.033.1	Enablement of Pier 3 for Precleared US bound passengers	15 Years	Flexible	€9.0m
CIP.20.03.072	T2 & Pier 4 Transfer Facilities	10 Years	Flexible	€0.70m
CIP.20.03.077	South Apron Airside Support Centre	20 Years	Flexible	€11.61m
CIP.20.03.078	Pier 4 De-Flex	15 Years	Flexible	€4.33m
Others				
CIP.20.03.004	Gatepost 9 Expansion	20 Years	Complete	€8.98m
CIP.20.03.036	North Apron Development	32 Years	StageGate	€239.94m
CIP.20.03.051.2	West Apron Vehicle Underpass Pier 3	50 Years	StageGate	€245.06m
CIP.20.03.074	Taxiway R widening	20 Years	StageGate	€7.32m
CIP.20.03.075	Fuel Hydrant Network Works	20 Years	StageGate	€32.86m
CIP.20.03.076	De-Icing Consolidation	7 Years	Flexible	€1.32m
CIP.20.03.079	Code E Engine Test Facility	20 Year	StageGate	€16.02m
CIP.20.03.080	10L/28R Taxiway Exit AGL	15 Year	Flexible	€5.24m
		Total Excluding Apron 5H		**€1,411.97m**
CIP.20.03.081	Apron 5H and North Apron Taxiway Rehabilitation (Extra over PACE €49.1m)	32 Year	N/A	€29.23m
		Total Including Apron 5H		**€1,441.2m**

Commercial Projects

Code	Name	CIP2020+ Review		
		Asset Life	Treatment	Cost
Commercial Projects				
Car Parks Group				
CIP.20.04.001	Car Parking Management System (Maintenance & upgrade)	10 Years	Flexible	€3.98m
CIP.20.04.005	Long Term Car Parking - Eastland's (2000 spaces)	20 Years	Flexible	€13.07m
CIP.20.04.007	Terminal 2 Multi-Storey Car Park (680 spaces)	25 Years	Flexible	€22.36m
CIP.20.04.009	Staff Car Park	20 Years	Flexible	€7.25m
Food and Beverage Group				
CIP.20.04.003	New Food & Beverage Fit out (T1X)	20 Years	Flexible	€3.37m
CIP.20.04.023	Food & Beverage Provision & Fit-out – Post CBP	20 Years	Flexible	€4.46m
CIP.20.04.030	New Kitchen in Terminal 2	20 Years	Completed	€2.26m
Other Projects				
CIP.20.04.002	Car Hire Consolidation Centre	20 Years	Deliverable	€33.00m
CIP.20.04.004	Digital Advertising Infrastructure	5 Years	Flexible	€8.33m
CIP.20.04.016	Platinum Services Upgrade Works	10 Years	Flexible	€7.13m
CIP.20.04.017	Airline Lounges - Expansion, Upgrade & New	12 Years	Flexible	€16.81m
CIP.20.04.018	Fast Track Improvements	7 Years	Flexible	€6.87m
CIP.20.04.021	West Apron - Accommodation & Welfare Facilities	25 Years	Flexible	€2.93m
CIP.20.04.025	Commercial Property Refurbishment	7 Years	Flexible	€6.89m
CIP.20.04.032	Drop Off / Pickup	5 Years	Flexible	€5.24m
CIP.20.04.031	Fuel farm welfare	20 Years	Flexible	€4.06m
CIP.20.04.034	OCTB Refurb	20 Years	StageGate	€9.05m
CIP.20.07.010	Office Consolidation & Refurbishment	25 Years	Flexible	€19.79m
CIP.20.08.001	Retail Refurbishments, Upgrades and New Developments	5 Years	Flexible	€11.71m
CIP.20.08.002	Retail Marketing & Media Installation	5 Years	Flexible	€1.90m
			Total	**£190.46m**

Sustainability Projects

Code	Name	Type	Asset Life	Cost
Sustainability Projects				
CIP.20.03.052	Surface Water Environmental Compliance		20 Years	€ 102.77
CIP.20.09.001	Airport Charging		15 Years	€ 80.13
CIP.20.09.002	Alternate Fuels		20 Years	€ 1.54
CIP.20.09.003	Anaerobic Digestion		15 Years	€ 9.59
CIP.20.09.004	Sustainable Fleet		5 Years	€ 18.53
CIP.20.09.005	Fixed Electrical Ground Power Phase 3		15 Years	€ 12.46
CIP.20.09.006	Photovoltaic Solar Farm Phase 2		15 Years	€ 38.60
CIP.20.09.007	Mobility Improvements		5 Years	€ 13.95
CIP.20.09.008	Terminal 2 Sustainable Upgrade		15 Years	€ 110.64
CIP.20.09.009	Terminal 1 and Campus Sustainability Feasibility		15 Years	€ 6.37
			Sub Total	**€ 394.58**

Appendix iii - List of Cost Assumptions

Provided information and approach

We received Level 3 estimates for all projects from Dublin Airport. The structure and level of detail of cost information that was provided to us by Dublin Airport varied from project to project. Some of the projects under review provided very detailed Level 3 estimates with quantities and rates for individual items included in the estimate. In some cases, design information was also supplied that allowed quantities to be checked.

However, there were also a significant number of projects where the Level 3 estimates were made up of large undefined lump sums with no supporting back up information provided to justify these sums, or design information for the projects to demonstrate what these sums were for.

Wherever the project did not possess enough information relating to quantities, rates or specification, additional questions were sent to Dublin Airport. In total, over 400 additional questions were initially sent to Dublin Airport, and many more sent between the Draft and Final Reports where it was felt that there was still insufficient information to form an assessment on the project efficiency.

Whilst all questions were answered, many of them failed to provide additional granular information that would have allowed further analysis into the lump sums or quantities of a project, which meant that the costs of several projects could not be fully appraised.

Further to this, another request for more information on lump sums was sent to Dublin Airport. Some additional information was returned, with varying degrees of use and granularity.

Following the submission of the Draft Report in May 2019, and responses to our initial conclusions from Dublin Airport, we reassessed the costs and rates in several of the projects and issued further questions to Dublin Airport in order to answer some remaining unresolved elements.

In some cases, the granular data does not exist as some projects are at an embryonic stage, and such costs are based on estimates.

In reviewing the costs of the projects, we focused primarily on the elements of work that had been quantified. We have used the Dublin Airport Level 3 estimates for each project as the basis for our review.

Where we have relevant cost data or benchmark information, we have used what we consider to be a sensible provision for the quantified items listed in the Dublin Airport build-ups. This allowed us to review and analyse the rates that Dublin Airport had included in their submission and compare them with equivalent cost data that we have from our extensive experience working in the aviation sector. We have predominantly used benchmarks from similar projects at London'sairports. These airports are considered to be of similar size and complexity to Dublin Airport.

Main assumptions

Consultants' fees and design and management costs:

Dublin Airport have included varying percentages for design and management across the projects that have been submitted. We have reviewed the provision for design and management on a project by project basis and are broadly comfortable with the range of allowances that have been provisioned throughout the CIP.

Escalation (19% to 23%)

Due to the enforced delay to the delivery of its capital programme because of the COVID-19 pandemic, Dublin Airport has reassessed and replanned its Capital Investment Plan (CIP) up to and including 2026. This exercise has resulted in some of the CIP2020 projects being deferred to future years. While some new projects not included in the original CIP2020 have been added, and some have been removed, most of the original projects remain in Dublin Airport's updated CIP. Dublin Airport has requested an uplift in the escalation allowance included in its projects. The need for this increase is because of the impact of the COVID-19 pandemic on the original delivery programme for these projects. In addition, the increased market volatility in the construction sector because of global political and economic factors, such as the war in Ukraine, putting upward pressure on construction costs.

The escalation calculation was developed in two parts:

- The first part addressed the need to uplift the base date of each project cost from its original base of Q4 2018 (when the projects were presented as part of the original CIP2020 review) to its new base date of Q4 2021. Dublin Airport assessed that the uplift in escalation for this period was +19%, which was based on Society of Chartered Surveyors Ireland (SCSI) indices.
- The second part of the calculation was to assess the escalation allowance required from the new base date (Q4 2021) to the midpoint of the construction programme for each project.

Dublin Airport has subsequently advised that, based on more up to date information available to them from the SCSI, the escalation uplift required to update the cost from its original base date to Q4 2021 was actually +23%. The IFS has accepted this position and has included the +23% escalation uplift in its assessment of project costs. However, the cost estimates that Dublin Airport issued to the IFS only contain a +19% uplift. Dublin Airport has been asked to update their cost estimates to reflect the +23% uplift as soon as possible. Until they do so, a direct comparison of Dublin Airports CIP2020+ submission cannot be made with the (higher) IFS cost assessments in the Draft Report.

Escalation (base date and date to which estimate has been inflated to)

There are some projects where Dublin Airport has only applied a single escalation uplift calculation to the cost estimate. In these instances, it is not clear what the original base date of the cost estimate was, and what time period the escalation allowance is deemed to cover. Dublin Airport needs to confirm the base date for these projects and the date to which the project has been inflated to. At present, the IFS has not amended the escalation percentage uplift applied to these projects as the timescales for these projects is not clear. Dublin Airport needs to confirm the base date of the cost estimates for these projects and the date to which they are being inflated so that the IFS can finalise its assessment of the escalation allowances included in these projects.

Contingency

This is an allowance to cover the risk of increased costs as a result of issues that are unknown or not defined at the time of preparing the estimate. We would normally expect to see the following contingency allowances, or figures close to these rates:

Feasibility stage: 20% of construction and design costs;

Design stage: 10-15%, depending on the complexity of the project.

Construction stage: 10%.

Exchange rates applied to our benchmarks

As all the projects that we have used to source cost information to compare against Dublin Airport's costs are from UK airports, we have used a conversion factor of 1.18 Euros to the Pound.

Level 3 cost variance table

The Level 3 cost variance table contains a summary of the main variances on a project by project basis, including those driven by escalation only.

Appendix iv - List of Figures

Appendix v - List of Tables

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