

CIP.20.07.033

HBS Standard 3 – Terminal 1

Project Summary

This proposal contains the early estimated costs and programme associated with upgrading the Standard 2 HBS equipment in Terminal 1 to Standard 3 HBS in line with EU Regulations.

The primary driver for this upgrade is to ensure that HBS at Dublin Terminal 1 is compliant with the requirements of requirements of Commission Implementing Regulation 2015/1998.

The Regulation requires that the current Standard 2 Explosive Detection Systems (EDS), used as part of the Hold Baggage Screening (HBS) process in Terminal 1 at Dublin Airport be replaced with new compliant Standard 3 EDS equipment, in line with the requirements and timelines set out in this regulation. This Regulation stipulates that Standard 2 EDS equipment is removed from service by 1 September 2020, but also provides for the possibility of extended use for some Standard 2 equipment, by permission from the Appropriate Authority in the State (Irish Aviation Authority) to 1 September 2022, subject to certain conditions. The extended use permission is at the sole discretion of the Appropriate Authority.

While the timeline for the project is being driven by regulatory requirements, the solution implemented will be such as to future proof (capacity, structures and systems) for up to 40mppa at Dublin Airport. This project will be part of Terminal 1's development and is driven by the following:

- **The need to comply with Security Screening Requirements for Hold Baggage Screening**
- **Replacement of end of asset life systems within the T1 BHS system.**
- **Safeguard for the combined T1 and T1 40mppa capacity in respects to the HBS systems in Terminal 1.**

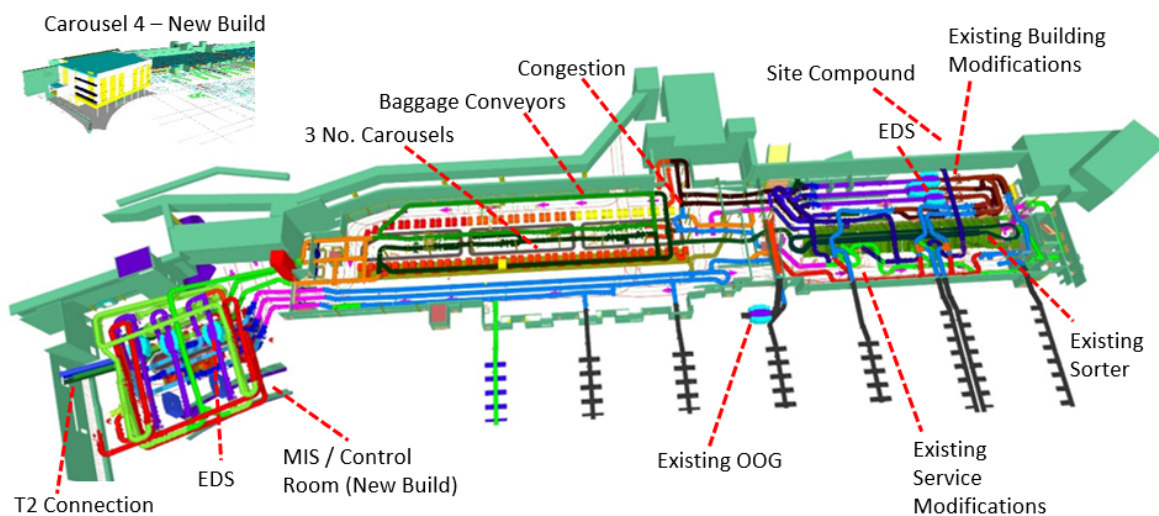


Exhibit 1 : High level representation of proposed design scheme for Terminal 1 BHS

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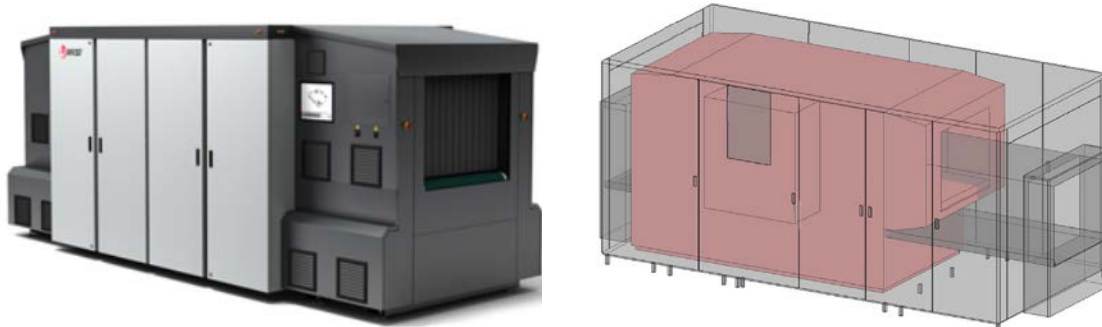


Exhibit 2 : Proposed Standard 3 EDS Screening Machines (and size comparison to existing Standard 2 EDS)

The Baggage Handling System (BHS) in Terminal 1, including the HBS has grown and evolved with various expansions of Terminal 1 to meet growing demand and changing regulations. As a result, the overall BHS system in Terminal 1 is complex and the ability to modify is extremely limited, which raises significant challenges for the installation of the Standard 3 HBS. A 'like for like' replacement in Terminal 1 is **not possible** owing to the increased size and increased weight of Standard 3 machines and the limited physical space and limited vertical load in Terminal 1, coupled with the modifications to existing conveyors at each machine location. In addition, the majority of the components of the BHS system in Terminal 1 are between 17 and 25 years old and are showing signs of impending failure as they reach the end of their design life. The design solution must therefore take into consideration end of life equipment replacement and capacity growth in line with the masterplan and current passenger forecasts.

The solution in Terminal 1 will require the phased replacement of the majority of the BHS and HBS equipment to facilitate the new Standard 3 HBS screening technology and associated conveyor changes. The solution will also require planning permission for a building extension.

The total project in Terminal 1 will include;

- (a) A multi-storey building expansion between Terminal 1 and Terminal 2 to accommodate baggage make-up (ground floor), HBS Screening & baggage processing (first floor), offices and accommodation and screening rooms (second floor)
- (b) Re-design of the existing Baggage Handling System to accommodate Standard 3 HBS equipment and screening process
- (c) Modifications to the existing baggage conveyor system to ensure correct routing into machines and adequate tracking time after screening.
- (d) Modifications to the control system to accommodate the Standard 3 technology.
- (e) Provision of a Terminal 1 / Terminal 2 baggage interconnectivity link (single conveyor each direction)
- (f) Provision of a centralised screening and baggage control room for Terminal 1 and Terminal 2

This project is currently in procurement and the total costs will not be fully known until tender return [REDACTED]. Hence, we are requesting that this project is specifically reviewed and considered under the proposed new **Independent Fund Surveyor (IFS)** process.

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Project Details Summary		
Category: Plant and Equipment		
Primary Driver Regulatory	Secondary Driver Capacity	Total Capex requirement [REDACTED]* <small>* Subject to Independent Fund Surveyor process for duration of delivery of project</small>
Underpinning Assumptions and Cost Benchmarks	<ul style="list-style-type: none"> T1 HBS Standard 3 system upgrade is currently under a procurement process. [REDACTED] [REDACTED] There are significant risks associated with the project, similar to most HBS Standard 3 projects completed to date across the UK and Europe. [REDACTED] [REDACTED] Due to the complexity of the project, the associated risk and the programme challenges it is daa's view and request that this project be controlled under an independent fund surveyor process, which would provide the assurance that capex is scoped efficiently and delivered at efficient cost. Re-use of existing 6-Bay sorter in completed system. Contingency is based on P80 QCRA assessment. 	
Opex Impacts	<ul style="list-style-type: none"> Annual opex impact of €0.5m per annum: <ul style="list-style-type: none"> €0.1m based on tender prices for HBS machine 3rd party maintenance support given the higher specification of the new equipment. €0.2m based on tender prices for IT Costs, i.e. - SCADA (Supervisory Control and Data Acquisition) and PLC (Programmable Logic Controller). Standard 3 HBS equipment is more complex meaning more sophisticated software and hardware support is required. T1 costs are higher due to a higher volume of units and conveyors. €0.2m for additional FTE – 4 x baggage operatives will be required in T1 due to design constraints in the baggage hall which will make it congested and difficult to access. 	

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Project Output	<ul style="list-style-type: none">• Provision of a number of enabling works packages to facilitate the phasing requirements for the project in a live operational environment.• Building expansions and/or alternations required, including alternations to existing building services to facilitate the new system design. Including a multi-storey building expansion between Terminal 1 and Terminal 2 to accommodate baggage make-up (ground floor), HBS Screening & baggage processing (first floor), offices and accommodation and screening rooms (second floor)• Re-design of the existing Baggage Handling System to accommodate Standard 3 HBS equipment and screening process• Modifications to the existing baggage conveyor system to ensure correct routing into machines and adequate tracking time after screening.• Modifications to the control system to accommodate the Standard 3 technology.• Provision of a Terminal 1 / Terminal 2 baggage interconnectivity link (single conveyor each way).• Provision of a centralised screening and baggage control room for Terminal 1 and Terminal 2.
Asset Life	<ul style="list-style-type: none">• 15 Years (BHS) / 10 Years (HBS)
Project Delivery Key Milestones	
Procurement complete:	Q2 2019
Planning Complete	Q2 2019
Start on site:	Q2 2019
Project Handover:	Q3 2022

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LEVEL 1 - Cost Analysis	Represents	Total
Design and Management Costs	Redacted Cost Information	
Construction Costs		
Escalation & Contingency (QCRA P80)		
Total		

LEVEL 2 - Cost Analysis				
Design and Management Costs	Value	Unit	Rate	Total
Multi Discipline Consultant	1	Sum	Redacted Cost Information	
Capitalised Labour	1	Sum		
Baggage & Building Works Design	1	Sum		
Total - to summary				
Construction Costs	Quantity	Unit	Rate	Total
EDS Equipment	6	Nr	Redacted Cost Information	
MIS Room	1	Sum		
Belt Conveyor	1	Sum		
T1 / T2 Connectivity	1	Sum		
Sorter	1	Sum		
Enabling Works / Services etc	1	Sum		
General Project Costs (Planning Costs New Builds, IT Consultants) Surveys / Opening Up works/ Repairs	1	Sum		
Misc Construction Costs	1	Sum		
Interface Management (Construction)	1	Sum		
Total - to summary				

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Escalation & Contingency	Value	%	Total	Total
Project Contingency (P80)	1	Sum	Redacted Cost Information	
Total - to summary				

*. *Subject to Independent Fund Surveyor (IFS) for the duration of the project*

CIP.20.07.031

HBS Standard 3 - Terminal 2

Project Summary

- **This proposal contains the early estimated costs and programme associated with upgrading the Standard 2 HBS equipment in Terminal 2 to Standard 3 HBS in line with EU Regulations.**

The primary driver for this upgrade is to ensure that HBS at Dublin Terminal 2 is compliant with the requirements of Commission Implementing Regulation 2015/1998.

The Regulation requires that the current Standard 2 Explosive Detection Systems (EDS), used as part of the Hold Baggage Screening (HBS) process in Terminal 2 at Dublin Airport be replaced with new compliant Standard 3 EDS equipment, in line with the requirements and timelines set out in this regulation.

This Regulation stipulates that Standard 2 EDS equipment is removed from service by 1 September 2020.

While the timeline for the project is being driven by regulatory requirements, the solution implemented will be such as to future proof (capacity, structures and systems) for up to 40mppa at Dublin Airport.

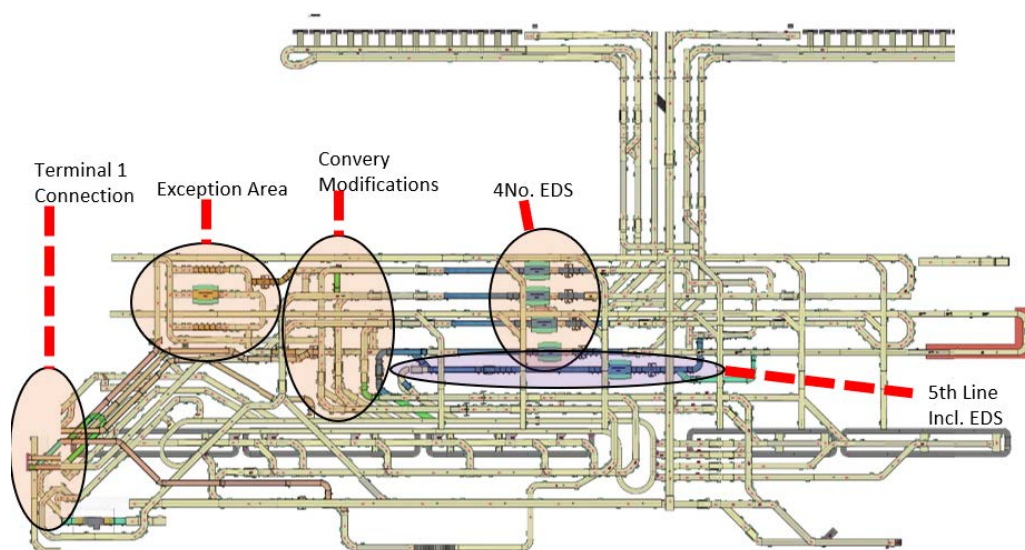


Exhibit 1 : High level representation of proposed design scheme for Terminal 2 HBS

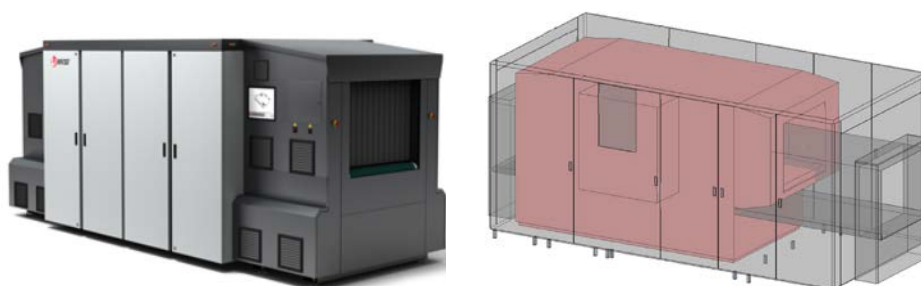


Exhibit 2 : Proposed Standard 3 EDS Screening Machines (and size comparison to existing Standard 2 EDS)

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HBS Standard 3 - Terminal 2

The existing Terminal 2 HBS (Hold Baggage Screening) system was brought into operation in November 2010 deployed with a mix of Standard 2 and Standard 3 EDS (Explosive Detection Systems). These Standard 2 EDS are due to expire on 1 September 2020 currently (in line with Commission Implementing Regulation 2015/1998). In addition, the EDS screening machines currently deployed have an asset life of 10-12 years and will be reaching end of life in this period.

The project comprises the upgrade of the existing T2 baggage systems to deploy Standard 3 EDS systems in line with the current legislative requirements. The works will involve the replacement of existing EDS screening equipment and upgrades to the existing BHS systems to incorporate the new Standard 3 EDS solution. The baggage system in T2 was designed with a certain level of flexibility to facilitate the integration of new Standard 3 EDS equipment.

The scope of works in T2 is as follows;

- replacement of 6 Standard 2 EDS machines with 5 Standard 3 EDS machines.
- replacement of the Super Out of Gauge (SOOG) X-Ray screening machine.
- modifications to the entry and exit conveyors to ensure correct routing into machines and adequate tracking time after screening.
- modifications to the control system to accommodate the Standard 3 technology.
- re-design of the level-3 HBS area including modifications to the structural support and surrounding services.
- the installation of a fifth screening line to meet capacity demand on completion of installation. The current HBS system in T2 has 4 x level-1 screening machines (3 operational and 1 for resilience). At 35mppa, the passenger demand will require 5 x level-1 screening machines (4 operational and 1 for resilience). In addition, it is not possible to currently remove one level-1 HBS machine as 3 machines are required to manage the current passenger demand and the remaining resilience is essential to safeguard from any system failure. The fifth line is therefore also required to enable the project to be delivered.

The solution in Terminal 2 will require the phased installation to facilitate the new Standard 3 HBS screening technology and associated conveyor changes to be carried out while minimising any operational disruptions.

This project is currently in procurement and the total costs will not be fully known until tender return [REDACTED]. Hence, we are requesting that this project is specifically reviewed and considered under the proposed new **Independent Fund Surveyor (IFS)** process.

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HBS Standard 3 – Terminal 2

Project Details Summary		
Category: Plant and Equipment		
Primary Driver Regulatory	Secondary Driver Capacity	Total Capex requirement € [REDACTED]* <i>* Subject to Independent Fund Surveyor process for duration of delivery of project.</i>
Underpinning Assumptions and Cost Benchmarks	<ul style="list-style-type: none">T2 HBS Standard 3 system upgrade is currently under a procurement process. [REDACTED] [REDACTED] There are significant risks associated with the project, similar to most HBS Standard 3 projects completed to date across the UK and Europe. [REDACTED] [REDACTED] Due to the complexity of the project, the associated risk and the programme challenges it is daa's view and request that this project be controlled under <u>an independent fund surveyor process</u>, which would provide the assurance that capex is scoped efficiently and delivered at efficient cost.Majority of existing BHS system to be maintained in current operational layout.Existing HBS screening equipment to be replaced for inline Standard 3 EDS screening machines.Contingency is based on P80 QCRA assessment.	
Opex Impacts	<ul style="list-style-type: none">Annual opex impact of €0.2m per annum:<ul style="list-style-type: none">€0.1m based on tender prices for HBS machine 3rd party maintenance support given the higher specification of the new equipment.€0.1m based on tender prices for IT Costs, i.e. - SCADA (Supervisory Control and Data Acquisition) and PLC (Programmable Logic Controller). Standard 3 HBS equipment is more complex, requiring more sophisticated software and hardware support.	

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HBS Standard 3 – Terminal 2

Project Output	<ul style="list-style-type: none">• Standard 3 compliant system in Terminal 2.• Re-design of the existing Baggage Handling System to accommodate Standard 3 HBS• Replacement of 6 Standard 2 EDS machines with 5 Standard 3 EDS machines.• Replacement of the Super Out of Gauge (SOOG) X-Ray screening machine.• Modifications to the entry and exit conveyors to ensure correct routing into machines and adequate tracking time after screening.• Modifications to the control system to accommodate the Standard 3 technology.• Re-design of the level 3 HBS area including modifications to the structural support and surrounding services.• The installation of a fifth screening line to meet capacity demand on completion of installation.
Asset Life	<ul style="list-style-type: none">• 15 Years (BHS) / 10 Years (HBS)
Project Delivery Key Milestones	
Procurement complete:	Q2 2019
Start on site:	Q2 2019
Project Handover:	Q4 2020

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LEVEL 1 - Cost Analysis	Represents	Total
Design and Management Costs	Redacted Cost Information	
Construction Costs		
Escalation & Contingency (QCRA P80)		
Total		

LEVEL 2 - Cost Analysis				
Design and Management Costs	Value	% Fee	Total Fee	Total
Multi Discipline Consultant	1	Sum	Redacted Cost Information	
Capitalised Labour	1	Sum		
Minor Consultants – External	1	Sum		
Total - to summary				
Construction Costs	Quantity	Unit	Rate	Total
EDS Equipment	6	Nr	Redacted Cost Information	
EDS Equipment (SOOG)	1	Nr		
Enabling Works	1	Sum		
Phasing / Transition / Screening	1	Sum		
T2 Baggage Costs	1	Sum		
T1 / T2 Connectivity	1	Sum		
External Support Teams	1	Sum		
Planning / Surveys – Site etc	1	Sum		
Interface Management	1	Sum		
Total - to summary				
Escalation & Contingency	Value	%		Total
Project Contingency (P80)	1	Sum	Redacted Cost Information	
Total to Summary				

CIP.20.03.072

Additional Booths – T2 & Pier 4 Transfers Facilities

Project Summary

- **Dublin Airport proposes increasing processing capacity throughput for transfer passengers through the Terminal 2 and Pier 4 Transfer facilities.**

In 2018, E-gates and 5 immigration booths were delivered as part of the Pier 4 Transfer facility. This project improved the transfer experience and times for Passengers connecting to onward destinations through Pier 4. It also resulted in removing demand from the Main Terminal 2 Transfer facility.

This project proposes to increase the processing throughput capacity of both facilities as a result of increased demand at 40mppa.

Pier 4 Transfer facility requires one additional immigration booth to ensure queue times are aligned to the recommended levels. The additional booth requires the relocation of a wall to the north of the facility and the wait and search rooms adjoining it. All facilities will be re-provided within the proposed scheme with a safeguard for one additional booth at a later stage. This will result in 6 immigration booths and 5 e-gates within the facility.

Terminal 2 Transfer facility requires a similar intervention to maintain queue times in peak periods. This project proposes to increase the number of immigration booths from 2 to 4 within the existing footprint.

This project will be part of Terminal 2’s development and is driven by the following:

- **The need to provide additional transfer processing capacity**
- **Maintain appropriate levels of service for passengers**
- **Maintain and improve Transfer times**

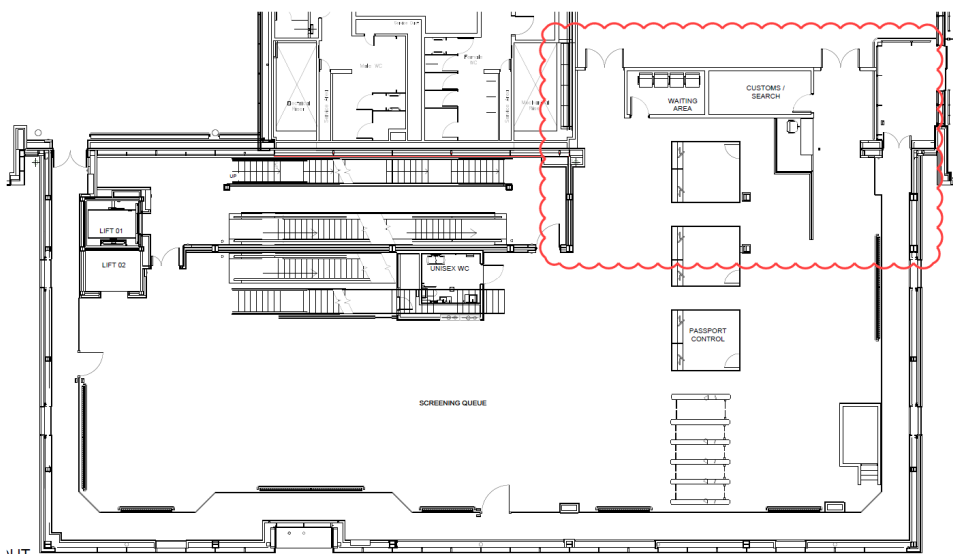


Exhibit 1. Layout of proposed expansion of Pier 4 Facility

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Additional Booths – T2 & Pier 4 Transfers Facilities

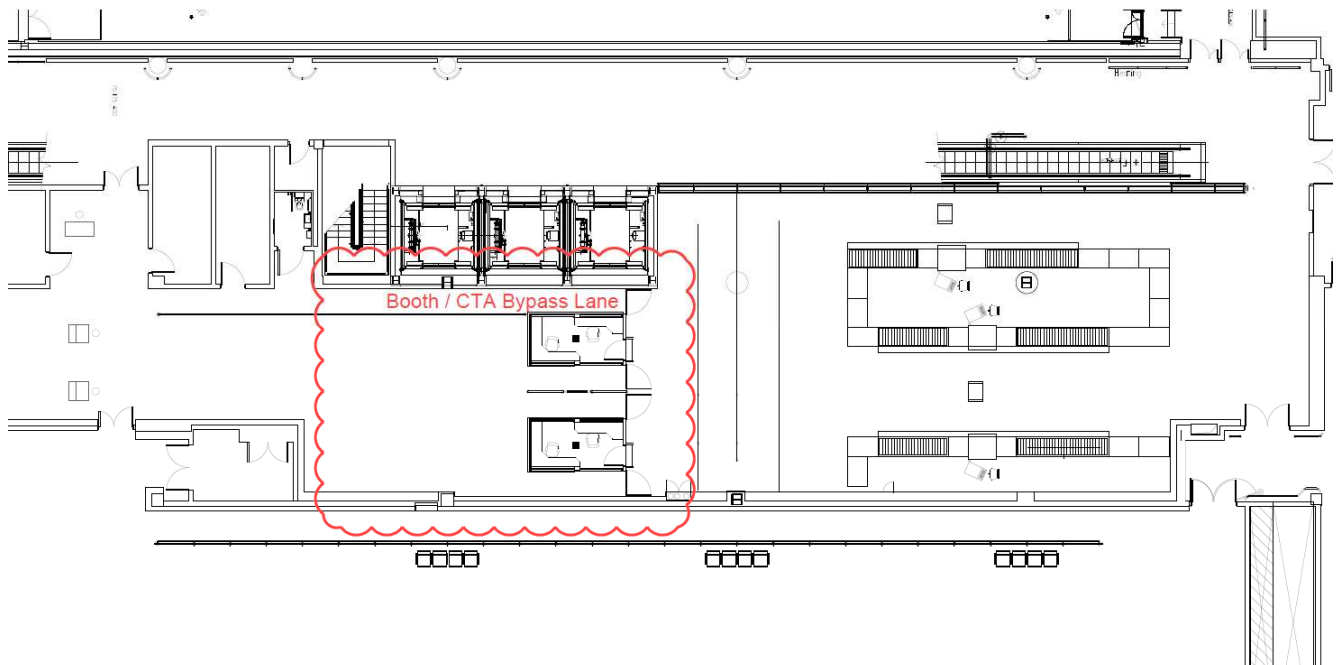


Exhibit 2. Layout of proposed expansion of Terminal 2 Facility

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Additional Booths – T2 & Pier 4 Transfers Facilities

Project Details Summary		
Category: Capacity Development		
Primary Driver Capacity	Secondary Driver Business Volume Growth	Total Capex requirement €0.84m
Underpinning Assumptions and Cost Benchmarks	Design assumptions; <ul style="list-style-type: none">• Safeguarding for increased Transfer demand• Maintain and improve transfer times• Safeguard for future demand Cost assumptions: (refer to general cost assumptions) <ul style="list-style-type: none">• Contingency is calculated at 15% of the TDC plus Design & Management costs Cost Exclusions: (refer to general cost exclusions)	
Opex Impact	<ul style="list-style-type: none">• No Opex increase for additional Customer Service Assistants.	
Project Output	<ul style="list-style-type: none">• 1 new Immigration Booth in Pier 4 Transfer Facility• 2 New Immigration booths in T2 Transfer Facility	
Asset Life	<ul style="list-style-type: none">• 10 years	
Project Delivery Key Milestones		
Feasibility/outline design complete	Q4 2020	
Planning complete	Q2 2021	
Detailed design complete	Q3 2021	
Procurement complete	Q1 2022	
Construction commence	Q3 2022	
Construction complete	Q2 2023	
Project handover	Q2 2023	

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Additional Booths – T2 & Pier 4 Transfers Facilities

LEVEL 1 - Cost Analysis	Represents	Total
Design and Management Costs	13%	€110,000
Construction Costs	64%	€540,000
Escalation, Contingency & Design Variability	23%	€190,000
Total Installed Cost (TIC)	100%	€840,000

LEVEL 2 - Cost Analysis	
Design and Management Costs	Redacted Cost Information
Design & Management Costs	
Total - to summary	
Construction Costs	
Buildings	
Total - to summary	
Escalation, Contingency & Design Variability	
Escalation, Contingency & Design Variability	
Total - to summary	