

# British Airways i360 at Brighton

## Background information paper

### Maintenance / Repairs / Renewals Sinking Fund

May 2022

- 1 This document provides a summary description of the maintenance / repairs / renewals policy for the British Airways i360 observation tower at Brighton (“**the i360**”).
- 2 The main design work for the i360 was carried out during the period 2008 to 2014 and it was constructed during the period 2014 to 2016, opening in to the public in July 2016. Much of the work was carried out in factories and workshops off-site in a number of countries including France, Spain, the Netherlands, Italy and Australia. The main contractor for the project was Hollandia from the Netherlands, and the principal subcontractors were Poma from France and Mackley from the UK.
- 3 There are 3 main components which together comprise the complete i360 project; (1) the 162m high tower structure; (2) the 19m diameter glass pod in which the passengers travel from beach level to the top of the tower; and (3) the building at beach level which both supports the operation of the i360 but also provides additional visitor facilities including a restaurant, café, retail outlet and conference/meeting rooms.
- 4 The tower, the pod and the associated drive system and control system (which enable the pod to ascend and descend the tower) are unique and are not based on any similar design anywhere else in the world. They have been designed and constructed on a bespoke basis. They are extremely complex, and they require a dedicated on-site “*technical team*” of qualified technical staff to prepare the i360 for operation each day, and to perform a prescribed series of checks and tests on a regular basis (daily / weekly / monthly and annually). In addition, in January each year the i360 is closed down to allow a full test and inspection, which is independently monitored under the UK government’s ADIPS scheme for inspection and testing of “*passenger carrying devices*”. A certificate with a 12-month period of validity is issued on the successful completion of the annual inspection, and the i360 cannot operate without a valid certificate.
- 5 All of the requirements set out above form part of the normal operating procedures and costs, and are as a consequence, included in the budgets for each financial year and are reported in the management accounts and the formal (statutory) annual accounts. Included in these costs is not only the staff costs for the *technical team*, but also the costs of any routine spare parts and consumables, and the external costs of specialist firms which carry out some of the technical services where appropriate. In particular, this includes parts and services provided by Poma who carried

- out the design, manufacture and installation of the pod, the drive system and the control system.
- 6 The i360 has a nominal “*design life*” of 50 years, which matches the time period used for the *design life* of UK buildings. This can be contrasted with typical “*plant and machinery*” where an expected useful life would perhaps be around 25 to 30 years for electrical and mechanical equipment in major buildings, and also – for example – equipment such as motor vehicles where a lower life still would be normal.
  - 7 The 50-year *design life* of the i360 is not intended to explicitly represent the useful life of the project - there is no particular event which occurs that would allow it to be used for, say, 50 years but then not be able to be used in year 51.
  - 8 The i360 has a number of “plant and machinery” components which are likely to require either a major refurbishment or a full replacement well within a 50-year period (in some cases more than once). These include, as examples only:-
    - a. The pod / counterweight suspension cables (8 number)
    - b. The drive cable (which raises and lowers the pod)
    - c. The main drive motor and gearbox
    - d. The secondary drive motor
    - e. The braking system
    - f. The drive drum bearings and the bull wheel bearings
    - g. The pod air conditioning units
    - h. The pod and platform door mechanisms
    - i. The control system hardware and software (which is potentially likely to become outdated / unsupported within the design lifetime).
  - 9 The tower itself is not anticipated to require replacing, but the corrosion protection system has an expected life of approximately 20 years which means that a major re-coating of the paint and protection layers will be required sometime after around 20 years. In order to access the external face of the tower to carry out this work the external aluminium cladding will have to be removed and replaced.
  - 10 The building itself is more conventional and the only major refurbishment that can be anticipated is the replacement of the electrical and HVAC systems at some time around 25 to 30 years.
  - 11 It is difficult to estimate the costs of these possible refurbishments or replacements, either individually or collectively, and in any event not all of them are necessarily going to be required.
  - 12 At present day costs the estimates are likely to be in the range of several tens of thousands of pounds up to several hundred thousand pounds for each item. Previously a figure of £3,000,000 had been proposed for the i360 “sinking fund” value; the current operating performance has been reasonably positive during the first five years since the project opened to

the public<sup>1</sup> and as such a lower value may be appropriate. It is therefore not thought necessary to commence building up a reserve until say 2027/28. Thereafter an annual contribution to the reserve of £150k would build up to £1.5m by the 20<sup>th</sup> year after the 2016 opening. Payments would continue at that level so as to maintain an adequate reserve as major maintenance needs arise. These payments would be subject to regular technical review and increased or decreased according to need.

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16<sup>th</sup> May 2022

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<sup>1</sup> Although it is noted that a major change has already been made to install a 100% copper power rail system on the tower in place of the initially installed predominately aluminium power rail system

