



A Second Runway for Gatwick Appendix

A29

Fuel Strategy

YOUR LONDON AIRPORT
Gatwick

Gatwick Aviation Fuel Strategy

**In response to
Airports Commission
Assessment
Framework Modules**

9th May 2014





Contents

| | |
|---|---------|
| Introduction | Page 3 |
| Aviation Fuel Development Phases | Page 3 |
| Appendix B – Airports Commission Assessment Framework Modules | |
| Airport Masterplan | |
| - Section 18 | Page 4 |
| - Section 19 | Page 4 |
| - Section 20 | Page 5 |
| Engineering plans – Objectives | |
| - Section 21 | Page 5 |
| - Section 22 | Page 6 |
| - Section 23 | Page 7 |
| - Section 24 | Page 7 |
| - Section 25 - Energy & Utility | Page 7 |
| - Section 26 - Energy & Utility | Page 8 |
| - Section 27 - Energy & Utility | Page 8 |
| - Section 28 – Geo-environmental | Page 8 |
| - Section 29 – Geo-environmental | Page 9 |
| - Section 30 – Surface Development | Page 9 |
| - Section 31 – Surface Development | Page 9 |
| Mitigation Strategies | |
| - Section 32 | Page 10 |
| - Section 33 | Page 10 |
| - Section 34 | Page 10 |
| - Section 35 | Page 11 |
| - Section 36, 37 & 38 Noise | Page 11 |
| - Section 39 – Air Quality | Page 11 |
| - Section 40 – Place | Page 12 |
| - Section 41 – Biodiversity | Page 12 |
| - Section 42 & 43 – Water | Page 12 |
| - Section 44 – Community | Page 13 |
| - Section 45 – Community | Page 13 |
| - Sections 46 & 47 – Community | Page 13 |
| Development Strategies | |
| - Section 48 | Page 13 |
| - Section 49 – Financing plans | Page 14 |
| - Section 50 – Construction | Page 14 |
| - Section 51 – Construction | Page 15 |
| - Section 52 – Construction | Page 15 |
| - Section 53 – Construction | Page 15 |
| - Section 54 – Planning | Page 16 |
| - Section 55 – Planning | Page 16 |
| - Section 56 – Engagement | Page 16 |



Introduction

The aviation fuel facilities serving the airport comprise of the fuel depot and hydrant network on the airport, plus the off airport inbound pipeline delivery system. These individual items of infrastructure are all currently operating well below capacity and therefore the airport could see significant increases in traffic before the fuel infrastructure comes under capacity pressure.

In addition, the responsibility to fund fuel related infrastructure rests with the asset owners. For the on airport infrastructure, Gatwick Airport Storage and Hydrant Co Ltd (GASHCo) have the responsibility for funding system enhancements; whilst the inbound delivery pipeline infrastructure is the responsibility of the various pipeline owners.

This report sets out the responses to the relevant sections in the Airports Commission Assessment Framework Module Appendix B and addresses the issues associated with the incremental development of the aviation fuel facilities to meet the growth needs of the airport up to 2050.

Aviation Fuel Development phases

a) Up to 2040

In the first instance, up to 2040, a two runway Gatwick Airport would need no fuel related enhancements as the fuel facilities operate well within current capacities of the infrastructure. As a result there is no further impact on any aspect of the various community, environment, construction, noise or economic aspects posed within the sections in Appendix B.

b) 2040 to 2050

Between 2040 and 2050, the inbound delivery infrastructure continues to serve the airport fuel demand, but the on airport storage capacity comes under pressure. One additional fuel tank would be required within the current GASHCo demise, which represents only a minor enhancement of fuel infrastructure.

c) By 2050

By 2050, further fuel related enhancements would be required, comprising of upgraded pumping capacity on the inbound delivery pipelines plus the construction of two additional fuel tanks at a new location on the airfield and the associated pipework.

No comments have been made with regard to the upgrading of pumping capacity, as these investments would be made by the pipeline owners, and the pumping stations are situated in Hampshire, Kent and Bedfordshire and therefore not directly included in the enlarged Gatwick footprint

In responding to the sections in Appendix B of the Airports Commissions Assessment Framework Modules, the aviation fuel responses deal with the latter two phases of the aviation fuel development from 2040 and 2050, as up until 2040 the existing infrastructure is



being utilised.

Appendix B – Airports Commission Assessment Framework Modules

Airport Masterplan

Section 18

2040 - Construction of one new fuel tank at the current fuel depot

- Highly viable with virtually no risks and high benefits to the airport operation.
- Some noise during construction, but virtually silent in operation with no impact on the environment or any local community
- Would enhance the resilience of the airport
- Would not alter the current conditions of safety and security
- Very little physical change to the airport
- No impact on local air quality nor any housing loss
- No impact on existing or planned airspace structures

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- A highly viable and simple way to provide Gatwick with the necessary extra fuel storage capacity and an easy option to provide the transition from today's operation to that of a two runway airport.
- Some noise during construction, but virtually silent in operation.
- Would have no impact on the local community as any new facility would be well away from residential and business areas.
- A slight increase in ground contamination risks given the presence of additional jet fuel stored at the airport, however, appropriate mitigation procedures will all but eliminate the risk to ground water and other contamination issues
- Would enhance the resilience of the airport
- Would not alter the current conditions of safety and security

Section 19

2040 - Construction of one new fuel tank at the current fuel depot

- The provision of one additional fuel tank will support the growth in ATM's, passenger numbers and the passage of freight, but have no impact on actual ATM's and passenger movements.
- No impact on landside or public road volumes as all fuel is delivered by way of subterranean pipeline



- A slight increase in vehicle movements airside will accompany the higher number of ATM's.

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- The provision of two further fuel tanks will again support the growth in ATM's, passengers and freight volumes, but have no actual impact on these aspects of airport operations
- No impact on landside or public road volumes as all fuel is delivered by way of subterranean pipeline
- A further slight increase in vehicle movements airside will be a result of the further fuel development

Section 20

2040 - Construction of one new fuel tank at the current fuel depot

- With the growth of more fuel efficient aircraft, it is forecast that the fuel volume by 2040 will reach 3,661,000,000 litres per annum. This takes into account the predicted aircraft fleet mix and the split between long haul flights and short haul.

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- With the further development of fuel efficient aircraft and assessing the fleet mix and range of destinations, it is predicted the annual fuel volumes will reach 4,097,000,000 litres

Engineering plans – Objectives

Section 21

2040 - Construction of one new fuel tank at the current fuel depot

- Apart from generating construction industry jobs during the build programme, the additional fuel tank will not result in any additional employment once operational
- The new fuel tank is to be within the current demise of GASHCo, and therefore there would be no impact on natural habitats and biodiversity
- An additional fuel tank would involve a small amount of additional electrical consumption and as a result a tiny increase in carbon emissions.
- Protection of the ground and water quality is already a priority at the current fuel depot, and the additional fuel tank would not materially alter this situation. There would be no change from the current flood risk situation, as provision for the proposed additional tank has already been made.
- No impact on the existing landscape, as provision for the additional tank has already been made within the current demise
- This development has no impact on the quality of life for local residents or the wider population and no housing loss



- The cost of this development rests with GASHCo and has no bearing on GAL's investment
- Delivery of this option would see a total project time of twelve to eighteen months
- The current fuel related infrastructure will support airport operations well past 2030
- It would be a requirement for GASHCo to meet the latest global best practices for any new fuel facility

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Apart from generating construction industry jobs during the build programme, the two additional fuel tanks at the new facility will not result in any additional employment once operational, as operations would be combined with the current facility
- The two new fuel tanks would represent a new development and there may be a minor impact on natural habitat within the new development footprint.
- Two new fuel tanks would involve additional electrical consumption and as a result a small increase in carbon emissions.
- Protection of the ground and water quality is already a priority at the current fuel depot, and the new facility would safeguard the current high standards of operational integrity. Flood risk issues would be minimised due to the small area to be developed, together with the sophisticated drainage measures what would accompany any new fuel facility.
- Impact on the existing landscape would be small
- This development has no impact on the quality of life for local residents or the wider population and no housing loss
- The responsibility for funding this development would either rest with GASHCo or another third party operator if GAL were to select an alternative service provider. GAL would not have any funding responsibilities.
- Delivery of this option would see a total project time of eighteen to twenty four months from commencement
- The current fuel related infrastructure will support airport operations well past 2030
- It would be a requirement for GASHCo or any other operator to meet the latest global best practices for any new fuel facility.

Section 22

2040 - Construction of one new fuel tank at the current fuel depot

- The engineering requirement for one new fuel tank would involve shallow ground works
- Pipework to facilitate the connections to the existing system
- Steelwork involved in the actual tank construction
- Minor alterations to the electrical installation



2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- The construction of two additional tanks would involve some earth works to prepare the site
- Shallow ground works and the construction of a protective bund
- Preparation of the substructure to contain any fuel loss
- The provision of oil interceptors and drainage networks
- Steelwork and electrical installations
- Perimeter fence and access road

Section 23

2040 - Construction of one new fuel tank at the current fuel depot

- Estimated to be in the range of £3m to £5m at current prices

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Estimated to be in the range of £10m to £20m at current prices, subject to final design

Section 24

2040 - Construction of one new fuel tank at the current fuel depot

- Given the minor nature of the construction, the issues associated with energy, utilities, geo environmental issues and surface development works are minimal

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Largely as above, but at a slightly enhanced level

Section 25 – Energy & Utility

2040 - Construction of one new fuel tank at the current fuel depot

- The energy and general utility requirement for the single additional tank will be virtually nil

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- The energy and general utility requirement for the two new tanks will be very small. The facility is expected to be fully automated and unstaffed. As a result, extremely small volumes of general utilities will be used, with the exception of electricity. Compared with the current facility, the new facility would be expected to consume around only 50% of the current electricity usage, mainly due to only having two tanks compared with the four that would then exist at the current fuel depot.



Section 26 – Energy & Utility

2040 - Construction of one new fuel tank at the current fuel depot

- Largely non applicable as the responsibility for this element of infrastructure enhancement sits with GASHCo

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- As above, this is largely non applicable as the funding responsibility sits with a third party

Section 27 – Energy & Utility

2040 - Construction of one new fuel tank at the current fuel depot

- Industry best practice provides for emergency shutdown of electrical power supply and any enhancement of current infrastructure would comply with such standards

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Industry best practice provides for emergency shutdown of electrical power supply and any enhancement of current infrastructure would comply with such standards

Section 28 – Geo-environmental

2040 - Construction of one new fuel tank at the current fuel depot

- The current ground condition is in use as a fuel depot, and as such suitable mitigation procedures are in place to deal with any oil based leaks or spills. No further ground examinations would be proposed, as the proposed development is within the current demise of the fuel depot, where provision has been made for an additional tank

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Prior to the development of a new fuel depot on a “green field site” a detailed ground condition survey would be required and an obligation placed on the future operator to ensure that there is no degradation of the ground as a result of its activity. This is custom and practice within the industry.
- Only modest engineering work would be required to fulfil the requirements of best practice in terms of soil protection
- There would be no physical constraints on completing this requirement



Section 29 – Geo-environmental

2040 - Construction of one new fuel tank at the current fuel depot

- Aviation fuel is obviously a potential source of ground contamination, however, the current facilities protect from causing ground and water contamination through a series of bunds, interceptors and drains.
- No issues exist for flooding at the current location

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Aviation fuel is obviously a potential source of ground contamination; however current industry standards mitigate the risk as far as is reasonably practical through a series of bunds, interceptors and suitable drainage facilities.
- The provision of a new fuel facility would not materially add to any flood issues, either to the sites or from the site, as there would be very little hard standing areas to cause water runoff.
- A ground condition survey would be required prior to commencement of construction to determine the condition of the ground on handover to an operator, who would be contractually bound to maintain the ground condition.

Section 30 – Surface Development

2040 – Construction of one new fuel tank at the current fuel depot

- This is not applicable for this phase of the development as it simply adds a structure within the current demise

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Any new fuel facility could be placed at a number of locations within an enlarged airport boundary, however for safety reasons the facility should be located away from the extended centreline of the runway, and away from the PSZ.

Section 31 – Surface Development

2040 - Construction of one new fuel tank at the current fuel depot

- Not applicable for this phase, as the new tank sits within an existing facility

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- It is anticipated that any extended boundary of the airport will include both green field and brown field zones. The development of a new fuel facility is a relatively simple project and can be situated on either brown or green field locations.
- Ground preparation would include levelling the site, providing shallow foundations and carrying out the construction phase



- The fuel depot would be a relatively minor ancillary facility and have little impact on the overall general construction project. No abnormal building issues would be utilised.

Mitigation strategies

Section 32

2040 - Construction of one new fuel tank at the current fuel depot

- This section is not applicable as it is an addition to an existing facility

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- There is no impact on surface access in this phase of the development
- No impact on noise nor air quality arising from the development of two additional fuel tanks
- Any ground water issues can be mitigated against
- No impact on place, quality of life, community and delivery as a result of two further fuel tanks being built

Section 33

2040 – Construction of one new fuel tank at the current fuel depot

- No change from the current impact with the construction of one additional fuel tank

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Jet fuel can have a harmful impact on the local community in the event of an accident. Latest industry best practice will mitigate these risks to a minimum and include leak detection systems, interceptors, latest technology infra-red fire alarms and smoke detectors.

Section 34

2040 - Construction of one new fuel tank at the current fuel depot

- Very little in terms of opportunities for local environmental enhancements associated with this phase of the development

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Very little in terms of opportunities for local environmental enhancements associated with this phase of the development, nor any realistic prospect of local



community engagement

Section 35

2040 - Construction of one new fuel tank at the current fuel depot

- The highest standards of environmental protection and industry best practice will be utilised during this phase of the development

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Long term environmental protection of soil and water in terms of leaks and spills of jet fuel are the issue to be mitigated against during this phase. Sophisticated monitoring of the facility 24 hrs a day, and linked to the latest best practice in terms on operational standards will minimise any long term risk to the environment. In the event that contamination does form during the life of the project, legally binding obligations on the operator will require the remediation of any contamination.

Sections 36, 37 & 38 - Noise

2040 - Construction of one new fuel tank at the current fuel depot

- Apart from construction related noise during building, the operation of the additional tank is virtually silent. Some noise will emanate from the pumps, but the additional tank would have very little impact on duration and volume of noise as the development is within the current fuel depot.

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Apart from construction related noise during building phase, the operation of two new tanks is almost silent. Some noise will emanate from the pumps transferring the fuel, but given the probable location in the centre of the airport, the impact on the local community will be de minimis.

Section 39 – Air Quality

2040 - Construction of one new fuel tank at the current fuel depot

- No issues with air quality during this phase

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- No particular issues with air quality with two additional fuel tanks. Jet fuel vaporises at 34 degrees centigrade, which is an extremely rare occurrence in the UK. As a result odours and vapour would be almost non existent



Section 40 - Place

2040 - Construction of one new fuel tank at the current fuel depot

- Given the minor nature of this phase of the development, there is no impact on landscapes, waterscapes, townscape nor is there believed to be any heritage issues

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- A fuel depot is a relatively minor ancillary facility at an airport and with the proposed two additional fuel tanks, the impact on landscapes, waterscapes and townscape is minimal. Efforts can be taken to screen the development from sightlines. It is not thought that there would be any impact on heritage structures; however this could only be confirmed once the final location was selected.

Section 41 - Biodiversity

2040 - Construction of one new fuel tank at the current fuel depot

- No impact on bio diversity during this phase of the development

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- A fuel depot is a relatively minor ancillary facility at an airport and with the proposed two additional fuel tanks the impact on bio diversity is minimal. It is unlikely that anything other than minimal impact on flora and fauna would result from this phase of the development. The key issue is to ensure no leakage or spills from the depot that could impact on the bio diversity, however global best practice now ensure very high compliance with this requirement.

Sections 42 & 43 - Water

2040 - Construction of one new fuel tank at the current fuel depot

- No impact on water quality matters during this phase of the development

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- The construction and operation of a fuel depot should have no impact on water quality issues as it is important to ensure there is no discharge of fuel from the site. This is common normal practice at modern fuel depots operating to global best practice.
- As the two new fuel depots will be automated and therefore unmanned, there is minimal impact on foul drainage systems, and given the lack of hard standing areas, surface water runoff is minimised



- The only requirement for a major water supply would be for firefighting purposes, which would be drawn from the fire main network, possibly backed up by a water tank on site. The principal firefighting medium is foam.

Section 44 - Community

2040 - Construction of one new fuel tank at the current fuel depot

- It would be difficult to enhance the integrity, identity and prosperity of the local community through the construction of one additional fuel tank

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Given the relatively small scale of the new fuel tanks and the proximity being well away from the local community, there is no realistic prospect of being able to enhance the identity and prosperity of the local community, nor have any impact on social cohesion.

Section 45 - Community

2040 - Construction of one new fuel tank at the current fuel depot

- Not applicable, as no homes or structure need to be demolished

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Although the location of the new facility is not yet known, it is unlikely that it will be situated in an area currently occupied by residential or commercial buildings. Therefore the prospect of demolishing buildings is remote

Sections 46 & 47 - Community

2040 - Construction of one new fuel tank at the current fuel depot

- There are no realistic prospects of engaging with the local community on any aspects of decision making with regard to the new fuel tank

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- There are no realistic prospects of engaging with the local community on any aspects of decision making with regard to the two new fuel tanks

Development Strategies

Section 48

2040 - Construction of one new fuel tank at the current fuel depot



- Apart from construction jobs created during the build programme, no additional jobs would be created with the construction of one additional tank
- The construction of one additional tank would only be a small project and therefore have minimal carbon emissions
- No public funds, nor GAL funds would be used in this phase of the development
- Given the specialised nature of fuel infrastructure, it may not be possible to engage with the local community on matters of design and management

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Apart from construction jobs created during the build programme, no additional jobs would be created with the construction of two additional tanks, as once operational, the facilities would be automated.
- The construction of two additional tanks would only be a small project and therefore have minimal carbon emissions
- No public funds, nor GAL funds would be used in this phase of the development
- Given the specialised nature of fuel infrastructure, it may not be possible to engage with the local community on matters of design and management

Section 49 – Financing plans

2040 - Construction of one new fuel tank at the current fuel depot

- Not applicable and the funding for this phase of the development would be met by GASHCo, with a current cost estimate of £3m to £5m
- No GAL or public funds would be required

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Not applicable and the funding for this phase of the development would be met by GASHCo, or the appointed operator. The current cost estimate is £10m to £20m, depending on the detailed design.
- No GAL or public funds would be required

Section 50 - Construction

2040 - Construction of one new fuel tank at the current fuel depot

- The build programme for one tank is twelve to eighteen months sometime around 2040, and therefore represents no risk to the timetable

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- The build programme is eighteen to twenty four months sometime around 2050 and therefore represents no risk to the timetable



Section 51 - Construction

2040 - Construction of one new fuel tank at the current fuel depot

- This is a minor project of minimal complexity, contained entirely within the current demise. No issues are anticipated with regard to completing this element in timely manner

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- This is a relatively minor project of minimal complexity, No issues are anticipated with regard to completing this element in timely manner

Section 52 - Construction

2040 - Construction of one new fuel tank at the current fuel depot

- The provision of one additional tank represents only a minimal step change and has no material impact on any transition process

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- The provision of two further tanks again represents a step change in additional capacity and therefore has no impact on any transitional programme.

Section 53 - Construction

2040 - Construction of one new fuel tank at the current fuel depot

- The assumption made with regard to additional fuel capacity is to plan to meet the extra demand for fuel in a timely manner so as not to unduly burden the airline users with additional costs ahead of time.
- Detailed fuel volume forecasts have been undertaken and the development programme is designed to harmoniously match demand with additional fuel capacity

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- The assumption made with regard to additional fuel capacity is to plan to meet the extra demand for fuel in a timely manner so as not to unduly burden the airline users with additional costs ahead of time.
- Detailed fuel volume forecasts have been undertaken and the development programme is designed to harmoniously match demand with additional fuel capacity



Section 54 - Planning

2040 - Construction of one new fuel tank at the current fuel depot

- This element of the programme would be covered by the wider planning programme as part of the supporting services element. Clearly, all relevant planning and safety assessments will need to be complied with prior to construction commencing

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- This element of the programme would be covered by the wider planning programme as part of the supporting services element. Clearly, all relevant planning and safety assessments will need to be complied with prior to construction commencing
- Specialist Industry risk and safety assessments would need to be undertaken

Section 55 - Planning

2040 - Construction of one new fuel tank at the current fuel depot

- No specific risks are anticipated with regard to securing planning consent for this element of the development

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- Provided the industry best practice in terms of risk assessment and safety procedures are adopted, then no specific issues are expected during the planning process

Section 56 - Engagement

2040 - Construction of one new fuel tank at the current fuel depot

- The development of one additional fuel tank is a minor development and therefore the consultation with the local community could be dealt with through the normal planning process

2050 - Construction of two remote fuel depots in the enlarged Gatwick demise

- The development of two further tanks should be included in the wider community dialogue; however, given the specialised nature of fuel infrastructure, there will be limited scope for adopting local community views.