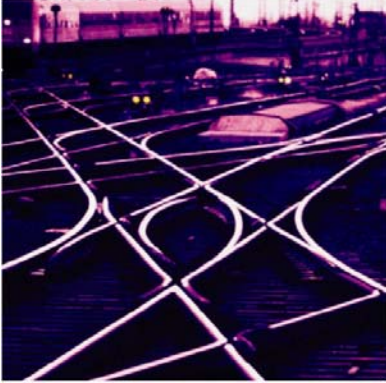


Edinburgh Airport Rail Link



Turnhouse Station Options STAG1 Report

Appendix B

Appraisal Summary Tables (ASTs)



1.1 Appendix B – Appraisal Summary Tables

1.1.1 The findings for the Turnhouse options, set out in Chapters 4 to 10 of the main report, are summarised in STAG Appraisal Summary Tables below.

1.2 Turnhouse Station + Bus Shuttle option

Proposal Details			
Name and address of authority or organisation promoting the proposal: (Also provide name of any subsidiary organisations also involved in promoting the proposal)		Transport Initiatives Edinburgh (tie) 91 Hanover Street EDINBURGH EH2 1DJ	
Proposal Name:	EARL Turnhouse Station + Bus Shuttle option	Name of Planner:	Scott Wilson/Halcrow
Proposal Description:	Construct new station at Turnhouse and connect to Edinburgh Airport by bus shuttle using existing public roads.	Estimated Total Public Sector Funding Requirement:	Capital £114 million (infrastructure) £1 million for buses every 5 years
			Annual £200,000 pa operating costs
			(2004 prices, undiscounted, including optimism bias)
Funding Sought From: (if applicable)		Amount of Application:	
Background Information			
Geographic Context:	Edinburgh Airport is situated due west of the city, close to the Forth Crossings, the M8 and M9 Motorways and major rail links to Fife and Glasgow. The proposal relates to alignments for the Edinburgh Airport Rail Link (EARL), and affects an area of circa 25km ² bounded by Dalmeny, Saughton, and Ratho Station. The area is extremely diverse, including housing, schools, business parks, industrial estates and green belt, as well as major transport corridors including the City Bypass.		
Social Context:	Approximately 25% of the study area described above is residential. The housing type is predominantly low-rise local authority housing. There are no significant areas of deprivation or social exclusion, although the Broomhouse/North Sighthill area is eligible for Urban Programme funding.		
Economic Context:	The area is extremely mixed, ranging from recently developed business parks catering for the financial sector, through older small-scale industrial estates to agricultural land. The area immediately		

around the Airport is dominated by services such as hotels, car rental firms and airline support activities.

Planning Objectives & Criteria	
Objective:	Performance against planning objective:
Operating costs should, at least, be covered by revenues, or be supported by third party contributions based on other benefits;	Additional operating costs are relatively low but not covered by new revenue generated by EARL. Moderate disbenefit
Public sector contributions to capital costs should, at least, be matched by benefits to non-public transport users, such as the relief of road congestion;	Compared to Runway Tunnel alignment, capital costs will be significantly lower meaning that there should be a better balance between costs and benefits. Neutral
Options should be compatible with potential long-term development strategies being considered at each airport as part of the UK strategy for air transport;	Generally supportive of government policies on transport and wider issues. Minor benefit.
Criterion:	Performance against planning criterion:
To serve and expand the airport's catchment area;	All options for developing EARL will have a significant impact on Edinburgh Airport's geographical catchment area. However difficulty of interchange with the Turnhouse options will reduce the attractiveness of using EARL, particularly for regular travellers, although the bus shuttle is likely to be the "least worst" of the Turnhouse options. Moderate benefit.
To encourage modal shift and increase the percentage of passengers accessing the airport by public transport and in so doing, mitigate the impact of long distance travel on local and global travel and the transport network as much as possible;	All options will support this objective, however the extent of modal shift will be constrained by the difficulty of interchange at Turnhouse. Minor benefit.
To reduce congestion on motorways and major roads near the airport;	Impact on congestion is anticipated to be proportional to modal shift from cars. EARL demand under this option is estimated to be less than half that of the Runway Tunnel option. Minor benefit.
To reduce pressure on car parking at the airport;	Impact anticipated to be proportional to modal shift – unattractive interchange will constrain reduction in pressure on car parking. Negligible benefit.

To support the Scottish economy;	Improved accessibility to Edinburgh Airport should have positive benefits for the Scottish economy, but these will be constrained by difficult interchange arrangements at Turnhouse. Neutral benefit.
Airports should contribute to increased surface needs on the basis of achieving sustainable travel and no detriment to the transport network;	Impact anticipated to be proportional to modal shift, but constrained so much by unattractive interchange that benefits likely to be negligible. Neutral benefit.
Rationale for Selection or Rejection of Proposal:	Operation of on-road bus shuttle not attractive proposition in requires substantial subsidy. Therefore not recommended for further consideration.
Implementability Appraisal	
Technical:	Less complex and therefore less challenging than any other option currently under review. Technical issues mostly within range of normal UK experience.
Operational:	Will have some adverse impact on existing rail operations, as yet unquantified. Rail operations will also be disrupted during construction.
Financial:	Requires relatively small amount of initial funding, but needs significant subsidy and bus fleet replacement costs over 60 years.
Public:	Public generally likely to support EARL, but with concerns about intrusion in the urban areas of South Gyle and Turnhouse.

Government's Objectives for Transport		
Objective	Assessment Summary	Supporting Information
Environment:	✓✓	Offers fewer impacts on noise, water resources and flooding. Less cutting and land take results in fewer impacts in terms of spoil generation and disposal, and less loss / severance of agricultural land. As this option involves no tunnelling, the benefits are slightly greater with this option. Major benefits due to Cat Stane not being affected and no grade separated junction required which would have significant landscape and visual impacts. However, air quality would be unlikely to benefit as the modal shift is not be anticipated to be as high as the <i>Runway alignment</i> .
Safety:	○	Given relatively small scale of modal shift neutral impact on accidents anticipated. Bus shuttle likely to feel more secure than sub-surface tunnels, but less secure than the short interchanges envisaged for the Runway Tunnel option.
Economy:	✗	Likely to offer some transport user and transport operator benefits, although not as much as Runway Tunnel option. Relatively inexpensive, therefore may offer attractive value-for-mone, but less effective as a link to airport. EALIs impacts constrained by unattractive interchange arrangements.
Integration:	✓	Offers reasonable transport integration, although not as good as Runway Tunnel option. Generally supportive of transport land-use integration and fits with established government policies.
Accessibility & Social Inclusion:	✓✓	Enhances existing public transport network. Likely to have disbenefits for local accessibility, associated with four-tracking south of Turnhouse, the new station in Turnhouse and the alignment northwards towards the Dalmeny chord. No benefits for any sensitive areas, although certain key people groups will benefit.
<u>KEY</u>	✓✓✓ ✓✓ ✓ ○ ✗ ✗ ✗ ✗ ✗ ✗	Major Benefit Moderate Benefit Minor Benefit No Benefit or Impact Small Minor Cost or Negative Impact Moderate Cost or Negative Impact Major Cost or Negative Impact

1.3 Turnhouse Station + Travellator

Proposal Details			
Name and address of authority or organisation promoting the proposal: (Also provide name of any subsidiary organisations also involved in promoting the proposal)		Transport Initiatives Edinburgh (tie) 91 Hanover Street EDINBURGH EH2 1DJ	
Proposal Name:	EARL Turnhouse Station + Travellator option	Name of Planner:	Scott Wilson/Halcrow
Proposal Description:	Construct new station at Turnhouse and connect to Edinburgh Airport by travellator	Estimated Total Public Sector Funding Requirement:	Capital £321 million
			Annual negligible
			(2004 prices, undiscounted, including optimism bias)
Funding Sought From: (if applicable)		Amount of Application:	
Background Information			
Geographic Context:	Edinburgh Airport is situated due west of the city, close to the Forth Crossings, the M8 and M9 Motorways and major rail links to Fife and Glasgow. The proposal relates to alignments for the Edinburgh Airport Rail Link (EARL), and affects an area of circa 25km ² bounded by Dalmeny, Saughton, and Ratho Station. The area is extremely diverse, including housing, schools, business parks, industrial estates and green belt, as well as major transport corridors including the City Bypass.		
Social Context:	Approximately 25% of the study area described above is residential. The housing type is predominantly low-rise local authority housing. There are no significant areas of deprivation or social exclusion, although the Broomhouse/North Sighthill area is eligible for Urban Programme funding.		
Economic Context:	The area is extremely mixed, ranging from recently developed business parks catering for the financial sector, through older small-scale industrial estates to agricultural land. The area immediately around the Airport is dominated by services such as hotels, car rental firms and airline support activities.		

Planning Objectives & Criteria	
Objective:	Performance against planning objective:
Operating costs should, at least, be covered by revenues, or be supported by third party contributions based on other benefits;	Additional operating costs likely to be low and should be covered by new revenue generated by EARL. Minor benefit
Public sector contributions to capital costs should, at least, be matched by benefits to non-public transport users, such as the relief of road congestion;	Compared to Runway Tunnel alignment, capital costs will not be significantly lower but benefits will be much lower, resulting in it being much less likely that public sector contributions will be matched by non-public transport user benefits. Major disbenefit
Options should be compatible with potential long-term development strategies being considered at each airport as part of the UK strategy for air transport;	Generally supportive of government policies on transport and wider issues. Minor benefit.
Criterion:	Performance against planning criterion:
To serve and expand the airport's catchment area;	All options for developing EARL will have a significant impact on Edinburgh Airport's geographical catchment area. However difficulty of interchange with the Turnhouse options will reduce the attractiveness of using EARL, particularly for regular travellers. Minor benefit.
To encourage modal shift and increase the percentage of passengers accessing the airport by public transport and in so doing, mitigate the impact of long distance travel on local and global travel and the transport network as much as possible;	All options will support this objective, however the extent of modal shift will be constrained by the difficulty of interchange at Turnhouse. Moderate benefit.
To reduce congestion on motorways and major roads near the airport;	Impact on congestion is anticipated to be proportional to modal shift from cars. EARL demand under this option is estimated to be about one half that of the Runway Tunnel option. Negligible benefit.
To reduce pressure on car parking at the airport;	Impact anticipated to be proportional to modal shift – unattractive interchange will severely constrain ability to achieve reduction in pressure on car parking. Minor disbenefit.

To support the Scottish economy;	Improved accessibility to Edinburgh Airport should have positive benefits for the Scottish economy, but these will be constrained by difficult interchange arrangements at Turnhouse. Neutral benefit.
Airports should contribute to increased surface needs on the basis of achieving sustainable travel and no detriment to the transport network;	Impact anticipated to be proportional to modal shift, but constrained so much by unattractive interchange that benefits likely to be negligible. Neutral benefit.
Rationale for Selection or Rejection of Proposal:	Compared to Runway Tunnel option offers weaker economic case and no outweighing benefits under other headings. Therefore not recommended for further development.

Implementability Appraisal	
Technical:	Less complex and therefore less challenging than Runway Tunnel option. Technical issues mostly within range of normal UK experience.
Operational:	Will have some adverse impact on existing rail operations, as yet unquantified. Rail operations will also be disrupted during construction. No significant issues for airfield operations, except during construction of sub-surface sections.
Financial:	Requires relatively small amount of funding, should be readily available from funders anticipated but much smaller benefits than for the Runway Tunnel option.
Public:	Public generally likely to support EARL, but with concerns about intrusion in the urban areas of South Gyle and Turnhouse.

Government's Objectives for Transport		
Objective	Assessment Summary	Supporting Information
Environment:	✓✓	Offers less impacts on noise, water resources and flooding. Less cutting and land take results in less impacts in terms of spoil generation and disposal, and less loss / severance of agricultural land. Major benefits due to Cat Stane not being affected and no grade separated junction required which had significant landscape and visual impacts. The cycleway, Pepper Wood and the Gogar Burn would not be affected significantly (and associated protected species) offering beneficial impacts. However, air quality would be unlikely to benefit as the modal shift is not be anticipated to be as high as the <i>Runway alignment</i> .

Safety:	x	Given relatively small scale of modal shift neutral impact on accidents anticipated. Travellator likely to feel less secure than interchanges envisaged for the Runway Tunnel and bus shuttle options.
Economy:	x x	Likely to offer few transport user and transport operator benefits. Unlikely to offer attractive value-for-money. EALs impacts severely constrained by unattractive interchange arrangements.
Integration:	✓	Offers reasonable transport integration, although not as good as Runway Tunnel option. Generally supportive of transport land-use integration and fits with established government policies.
Accessibility & Social Inclusion:	✓	Enhances existing public transport network. Likely to have disbenefits for local accessibility, associated with four-tracking south of Turnhouse, the new station in Turnhouse and the alignment northwards towards the Dalmeny chord. No benefits for any sensitive areas, and whilst some key people groups will benefit there will be particular difficulties for the mobility impaired.
<u>KEY</u>	✓✓✓ ✓✓ ✓ ○ x x x x x x	Major Benefit Moderate Benefit Minor Benefit No Benefit or Impact Small Minor Cost or Negative Impact Moderate Cost or Negative Impact Major Cost or Negative Impact

1.4 Turnhouse Station + Driverless Shuttle

Proposal Details			
Name and address of authority or organisation promoting the proposal: (Also provide name of any subsidiary organisations also involved in promoting the proposal)		Transport Initiatives Edinburgh (tie) 91 Hanover Street EDINBURGH EH2 1DJ	
Proposal Name:	EARL Turnhouse Station + Driverless Shuttle option	Name of Planner:	Scott Wilson/Halcrow
Proposal Description:	Construct new station at Turnhouse and connect to Edinburgh Airport by driverless shuttle	Estimated Total Public Sector Funding Requirement:	Capital £415 million
			Annual negligible
			(2004 prices, undiscounted, including optimism bias)
Funding Sought From: (if applicable)		Amount of Application:	
Background Information			
Geographic Context:	Edinburgh Airport is situated due west of the city, close to the Forth Crossings, the M8 and M9 Motorways and major rail links to Fife and Glasgow. The proposal relates to alignments for the Edinburgh Airport Rail Link (EARL), and affects an area of circa 25km ² bounded by Dalmeny, Saughton, and Ratho Station. The area is extremely diverse, including housing, schools, business parks, industrial estates and green belt, as well as major transport corridors including the City Bypass.		
Social Context:	Approximately 25% of the study area described above is residential. The housing type is predominantly low-rise local authority housing. There are no significant areas of deprivation or social exclusion, although the Broomhouse/North Sighthill area is eligible for Urban Programme funding.		
Economic Context:	The area is extremely mixed, ranging from recently developed business parks catering for the financial sector, through older small-scale industrial estates to agricultural land. The area immediately around the Airport is dominated by services such as hotels, car rental firms and airline support activities.		

Planning Objectives & Criteria	
Objective:	Performance against planning objective:
Operating costs should, at least, be covered by revenues, or be supported by third party contributions based on other benefits;	Additional operating costs likely to be low and should be covered by new revenue generated by EARL. Minor benefit
Public sector contributions to capital costs should, at least, be matched by benefits to non-public transport users, such as the relief of road congestion;	Compared to Runway Tunnel alignment, capital costs will not be significantly lower but benefits will be much lower, resulting in it being much less likely that public sector contributions will be matched by non-public transport user benefits. Major disbenefit
Options should be compatible with potential long-term development strategies being considered at each airport as part of the UK strategy for air transport;	Generally supportive of government policies on transport and wider issues. Minor benefit.
Criterion:	Performance against planning criterion:
To serve and expand the airport's catchment area;	All options for developing EARL will have a significant impact on Edinburgh Airport's geographical catchment area. However difficulty of interchange with the Turnhouse options will reduce the attractiveness of using EARL, particularly for regular travellers. Minor benefit.
To encourage modal shift and increase the percentage of passengers accessing the airport by public transport and in so doing, mitigate the impact of long distance travel on local and global travel and the transport network as much as possible;	All options will support this objective, however the extent of modal shift will be constrained by the difficulty of interchange at Turnhouse. Moderate benefit.
To reduce congestion on motorways and major roads near the airport;	Impact on congestion is anticipated to be proportional to modal shift from cars. EARL demand under this option is estimated to be about one half that of the Runway Tunnel option. Negligible benefit.
To reduce pressure on car parking at the airport;	Impact anticipated to be proportional to modal shift – unattractive interchange will severely constrain ability to achieve reduction in pressure on car parking. Minor disbenefit.

To support the Scottish economy;	Improved accessibility to Edinburgh Airport should have positive benefits for the Scottish economy, but these will be constrained by difficult interchange arrangements at Turnhouse. Neutral benefit.
Airports should contribute to increased surface needs on the basis of achieving sustainable travel and no detriment to the transport network;	Impact anticipated to be proportional to modal shift, but constrained so much by unattractive interchange that benefits likely to be negligible. Neutral benefit.
Rationale for Selection or Rejection of Proposal:	Compared to Runway Tunnel option offers weaker economic case and no outweighing benefits under other headings. Therefore not recommended for further development.

Implementability Appraisal	
Technical:	Less complex and therefore less challenging than Runway Tunnel option. Technical issues mostly within range of normal UK experience.
Operational:	Will have some adverse impact on existing rail operations, as yet unquantified. Rail operations will also be disrupted during construction. No significant issues for airfield operations, except during construction of sub-surface sections.
Financial:	Requires relatively small amount of funding, should be readily available from funders anticipated but much smaller benefits than for the Runway Tunnel option.
Public:	Public generally likely to support EARL, but with concerns about intrusion in the urban areas of South Gyle and Turnhouse.

Government's Objectives for Transport		
Objective	Assessment Summary	Supporting Information
Environment:	✓✓	Offers less impacts on noise, water resources and flooding. Less cutting and land take results in less impacts in terms of spoil generation and disposal, and less loss / severance of agricultural land. Major benefits due to Cat Stane no being affected and no grade separated junction required which had significant landscape and visual impacts. The cycleway, Pepper Wood and the Gogar Burn would not be affected significantly (and associated protected species) offering beneficial impacts. However, air quality would be unlikely to benefit as the modal shift is not be anticipated to be as high as the <i>Runway alignment</i> .

Safety:	x	Given relatively small scale of modal shift neutral impact on accidents anticipated. Driverless shuttle likely to feel less secure than interchanges envisaged for the Runway Tunnel and bus shuttle options.
Economy:	x x	Likely to offer few transport user and transport operator benefits. Unlikely to offer attractive value-for-money. EALIs impacts constrained by unattractive interchange arrangements.
Integration:	✓	Offers reasonable transport integration, although not as good as Runway Tunnel option. Generally supportive of transport land-use integration and fits with established government policies.
Accessibility & Social Inclusion:	✓	Enhances existing public transport network. Likely to have disbenefits for local accessibility, associated with four-tracking south of Turnhouse, the new station in Turnhouse and the alignment northwards towards the Dalmeny chord. No benefits for any sensitive areas, and whilst some key people groups will benefit there will be particular difficulties for the mobility impaired.
<u>KEY</u>	✓✓✓ ✓✓ ✓ ○ x x x x x x	Major Benefit Moderate Benefit Minor Benefit No Benefit or Impact Small Minor Cost or Negative Impact Moderate Cost or Negative Impact Major Cost or Negative Impact