Forth Replacement Crossing
Initial Assessment Matrix
South Route Corridor Option 1

Environmental Issues	
Issue	**Comments**
Human / Property	The route corridor severs two proposed housing development sites (west of south Queensferry (HSG2 - Springfield, Queensferry) and west of Port Edgar (HSG7 - Society Road, Queensferry)), and clips the western edge of an environmental proposal (ENV 6 - Springfield, Queensferry) (source: Edinburgh Local Plan, June 2006).
Landscape	Greenbelt - route corridor crosses greenbelt to north of Dundas Castle. Historic Garden & Designed Landscape (HGDL) - route corridor cuts through Dundas Estate. Route corridor passes within 200m of a HGDL at the eastern edge of Hopetoun House Estate. Ancient Woodland of semi-natual origin within 300m.
Visual	Route corridor will be highly visible from Port Edgar and visibile to receptors in South Queensferry. Areas of the route corridor are open and visibile from Fife and surrounding receptors to the west. Area on Dundas Estate screened from South Queensferry by topography.
Water Quality	No flood areas identified.
Cultural Heritage	Listed Buildings (within 100m) - 13 B Listed Buildings (within 100 - 200m) - 1 B & 1 C (S) Listed Buildings (within 200 - 300m) - 4 B & 1 C (S) Potential effects on setting of 23 Grade B Listed (including 13 at Port Edgar and 10 at Echline Cottages).
Biodiversity	Potential direct impact on 2 locally important Sites of Interest for Nature Conservation (SINC). Possible indirect impact on 1 SAC (River Teith) and 1 SINC. Port Edgar within 300m (RAMSAR, SPA and SSSI).
Air and Noise	No clear differentiation could be made between corridors with regard to noise and air, due to lack of baseline noise/air data and traffic data.

Engineering Issues	
Issue	**Comments**
Length Approx. 2.8km	
Junctions Junction/interchange with existing A90 and local road access.	Provide local road access whilst maintaining a free flow arrangement
Horizontal Alignment Based on 120KPH Design Speed. Sub-standard geometry. 2 Step below Des. Min - 510m radius curve connecting to the proposed crossing.	
Vertical Alignment Departure: 2 step below des. Min - Crest Curve K Value = 98	
Local Routes 1 side road crossing. 1 side road diverted/crossing.	Crossing required for A904. Small local road also affected - likely to be diverted but potential requirement for structure. Access required to South Queensferry
Earthworks Bulk Cut - 422,584m^3 Bulk Fill - 81,457m^3 341,127m^3 (surplus)	Cut/embankments generally less than 3m. Glacial till recorded except at approach to shoreline.
Structures 1 overbridge required at A904.	Structure possibly needed at further side road crossing. Structure possibly required at A90 tie-in to provide freeflow traffic movements and access to local routes.
Utilities Crosses BP Pipeline twice. Potential impact on BT plant under approach viaduct. 3 crossings of Scottish Water plant with potential 4th under viaduct. Possible effect on street lighting plant under viaduct at hill to west of Queensferry.	NOTE: Utilities Info Not Complete - still awaiting data from utilities companies.

Economic Issues	
Issue	**Comments**
Pro-rata Section Cost (compared to lowest cost corridor) +0%	
Traffic Approximate daily vehicle kilometres: A90 to FRC - 258,296 M9 (Newbridge) to FRC - 154,718 M9 (West) to FRC - 68,410 **Total = 481,426**	Excellent Connectivity to A90 Edinburgh but poor connectivity for M9 west, local traffic west and Winchburgh Development

Forth Replacement Crossing
Initial Assessment Matrix
South Route Corridor Option 2

Environmental Issues

Issue	Comments
Human / Property	The route corridor severs two proposed housing development sites (west of south Queensferry (HSG2 - Springfield, Queensferry) and west of Port Edgar (HSG7 - Society Road, Queensferry)), and clips the western edge of an environmental proposal (ENV 6 - Springfield, Queensferry) (source: Edinburgh Local Plan, June 2006). Severs Humbie Farm farmland.
Landscape	Greenbelt - route corridor clips greenbelt to north-west of Dundas Castle. Passes within 200m of an Area of Great Landscape Value (AGLV). Cuts through an Area of Landscape Quality (AOLQ - local policy). Passes within 200m of Hopetoun Estate Historic Garden & Designed Landscape (HGDL). Passes within 100m of Dundas Estate HGDL. Long Established Woodland of Plantation Origin - 1 directly affected (Camelhill). Ancient Woodland (of semi-natural origin) within 300m.
Visual	The route corridor will be highly visible from Port Edgar and visible to receptors between Newton and Dundas Castle. Areas of the route corridor are open and visible from Fife and surrounding receptors to the west.
Water Quality	Route corridor crosses one reservoir at Camelhill and the Swine Burn. Two areas identified at risk of flood.
Cultural Heritage	Listed Buildings (within 100m) - 10 B & 1 C (S) Listed Buildings (within 100 - 200m) - 3 B Listed. Listed Buildings (within 200 - 300m) - 4 B 8 C (S) Potential effects on setting of 17 Grade B Listed (including 13 at Port Edgar).
Biodiversity	Potential direct impact on 2 locally important Sites of Interest for Nature Conservation (SINC). Potential indirect impact on 1 SAC (River Teith). Port Edgar within 300m (RAMSAR, SPA and SSSI). Great Crested Newts within 700m of proposed route.
Air and Noise	No clear differentiation could be made between corridors with regard to noise and air, due to lack of baseline noise/air data and traffic data.

Engineering Issues

Issue	Comments
Length Approx. 5.1km	
Junctions Junction/interchange required at M9 interface	Provide local road access whilst maintaining a free flow arrangement. This junction is hampered by the close proximity of the M9 Spur. Existing provisions for traffic from the spur are substandard and improvements are required
Horizontal Alignment Based on 120KPH Design Speed. 720m radius with a superelevation of 7% joining the M9 is a one step relaxation below the desired minimum	
Vertical Alignment Based on 120KPH Design Speed. No sub-standard elements.	
Local Routes 5 side road crossings.	A904 and other side roads affected and would require diversion/structure.
Earthworks Bulk Cut - 144,398m3 Bulk Fill - 337,583m3 193,185m3 (Deficit)	Cut up to 14m deep, embankments 11m high. Glacial till recorded except at approach to shoreline. Possible rock cut, approx., 5m deep approaching structure.
Structures 4 overbridges, 2 underbridge and 1 railway bridge required.	Required at M9 interface, side road crossings and railway line crossing.
Utilities Crosses BP Pipeline. Crosses Scottish Power Overhead Lines. Crosses BT plant in a number of locations. Possible effect on street lighting plant. Up to 6 crossings of Scottish Water Plant.	NOTE: Utilities Info Not Complete - still awaiting data from utilities companies.

Economic Issues

Issue	Comments
Pro-rata Section Cost (compared to lowest cost corridor) + 68.5%	Compared to South Corridor Option 1
Traffic Approximate daily vehicle kilometres: A90 to FRC - 631,391 M9 (Newbridge) to FRC - 108,876 M9 (West) to FRC - 40,313 **Total = 780,580**	Requires all moves A90/M9 extension junction at Dalmeny & M9 J1a. Poor connectivity for M9 west, local traffic west and Winchburgh Development

Forth Replacement Crossing
Initial Assessment Matrix
South Route Corridor Option 3

Environmental Issues	
Issue	**Comments**
Human / Property	The route corridor severs two proposed housing development sites (west of south Queensferry (HSG2 - Springfield, Queensferry) and west of Port Edgar (HSG7 - Society Road, Queensferry)), and clips the western edge of an environmental proposal (ENV 6 - Springfield, Queensferry) (source: Edinburgh Local Plan, June 2006).
Landscape	Greenbelt - route corridor clips greenbelt to west and south of Dundas Estate. Area of Great Landscape Value (AGLV) within 300m. Area of Landscape Quality (AOLQ - local policy) - 2 within 200m. Protection of Open Space (local policy) - 2 within 200m & 2 within 300m. Historic Garden & Designed Landscape (HGDL) - route clips edge of Dundas Estate. Ancient Woodland (of semi-natural origin) - 1 within 300m. Long Established Woodland - 1 within 200m and 1 within 300m.
Visual	The route corridor will be highly visible from Port Edgar and visible to receptors in South Queensferry as well as scattered rural receptors between Newton and Dundas Castle. Areas of the route corridor are open and visible from Fife and surrounding receptors to the west.
Water Quality	Close proximity to Linn Mill Burn plus one small (unnamed) burn. Passes within 500m of 2 lochs/reservoirs. No flood risks identified.
Cultural Heritage	Listed Buildings (within 100m) - 13 B Listed & 7 C (S) Listed. Listed Buildings (within 200 - 300m) - 4 B Listed & 8 C (S) Listed. Potential effects on setting of 13 B Listed buildings at Port Edgar
Biodiversity	Potential direct impact on 2 locally important Sites of Interest for Nature Conservation (SINC). Potential indirect impact on 1 SAC (River Teith) & 1 SINC. Port Edgar within 300m (RAMSAR, SPA and SSSI). Great Crested Newts within 400m of proposed route.
Air and Noise	No clear differentiation could be made between corridors with regard to noise and air, due to lack of baseline noise/air data and traffic data.

Engineering Issues	
Issue	**Comments**
Length Approx. 4.3km	
Junctions Junction/s required at M9 spur interface/s.	Junction required at interface between spur roads in order to provide free flow of traffic.
Horizontal Alignment Based on 120KPH Design Speed. 2 steps below Des. Min - 510m radius curve connecting to M9 Spur (SB). 1 step below Des. Min - 720m radius curve connecting to M9 Spur (NB).	
Vertical Alignment Based on 120KPH Design Speed. Departure: 2 Step Below Des. Min- Crest Curve K Value = 61 connecting to M9 Spur (NB)	
Local Routes 3 side road crossings. 1 side road diversion.	Potential issue with local access road at Humbie Farm. Either structure or diversion necessary.
Earthworks Bulk Cut - 424,556m3 Bulk Fill - 287,448m3 137,108m^3 (Surplus)	Cut/embankments generally less than 3m. Glacial till recorded except at approach to shoreline. No recorded mining but bores relate to workable shales. Recorded mineshaft to north of eastern tie-in.
Structures 4 overbridges. 1 underbridge. 1 railway bridge (in junction)	Structures required at 3 side road crossings and for connection to existing M9 spur.
Utilities BP Pipeline crossing. Directly affects Scottish Power overhead lines. Crosses BT plant in a number of locations. Possible effect on street lighting (incl. at demolished houses). Crosses Scottish Water plant at a number of locations.	NOTE: Utilities Info Not Complete - still awaiting data from utilities companies.

Economic Issues	
Issue	**Comments**
Pro-rata Section Cost (compared to lowest cost corridor) + 33.7%	Compared to South Corridor Option 1
Traffic Approximate daily vehicle kilometres: A90 to FRC - 480,718 M9 (Newbridge) to FRC - 105,056 M9 (West) to FRC - 52,529 **Total = 638,304**	Requires all moves A90/M9 extension junction at Dalmeny. Poor connectivity for M9 west (or all moves J1a), local traffic west and Winchburgh Development

Forth Replacement Crossing
Initial Assessment Matrix
South Route Corridor Option 4

Environmental Issues	
Issue	**Comments**
Human / Property	The route corridor severs two proposed housing development sites (west of south Queensferry (HSG2 - Springfield, Queensferry) and west of Port Edgar (HSG7 - Society Road, Queensferry)), and clips the western edge of an environmental proposal (ENV 6 - Springfield, Queensferry) (Edinburgh Local Plan (June 2006)).
Landscape	Greenbelt - route corridor clips western edge of greenbelt. Area of Great Landscape Value (AGLV) - 1 within 300m. Area of Landscape Quality (AOLQ - local policy) - 1 within 200m. Protection of Open Space (local policy) - 1 within 200m & 1 within 300m. Historic Garden & Designated Landscape - 2 within 200m. Ancient Woodland (of semi-natural origin) - 1 within 300m. Long Established Woodland - 1 directly affected, 2 within 200m, 1 within 300m.
Visual	The route corridor will be highly visible from Port Edgar and visible to receptors in South Queensferry as well as scattered rural receptors between Newton and Dundas Castle. Areas of the route corridor are open and visible from Fife and surrounding receptors to the west.
Water Quality	Two areas identified at risk of flood at Swine Burn (both offline sections of new route corridor connecting to M9).
Cultural Heritage	Listed Buildings (within 100m) - 11 B & 1 C (S) . Listed Buildings (within 100 - 200m) - 1 A/SAM, 2 B & 7 C (S). Listed Buildings (within 200 - 300m) - 1 A & 1 B. 1 Scheduled Ancient Monument /A listed structure within 200m (Duntarvie Castle). Potential effects on setting of 15 B Listed (incuding 13 at Port Edgar).
Biodiversity	Potential direct impact on 2 locally important Sites of Interest for Nature Conservation (SINC). Potential indirect impact on 1 SAC (River Teith). Port Edgar within 300m (RAMSAR, SPA and SSSI).
Air and Noise	No clear differentiation could be made between corridors with regard to noise and air, due to lack of baseline noise/air data and traffic data.

Engineering Issues	
Issue	**Comments**
Length Approx. 6km	
Junctions Junction/s required at M9 spur interface/s.	
Horizontal Alignment Based on 120KPH Design Speed. No sub-standard elements.	
Vertical Alignment Based on 120KPH Design Speed. No sub-standard elements.	
Local Routes 3 side road crossings. 1 side road diversion.	
Earthworks Bulk Cut - 225,097m3 Bulk Fill - 185,267m3 39,830m^3 (Surplus)	Cut/embankments generally less than 10m. Glacial till recorded except at approach to shoreline & at western tie-in. Mining to west of Westfield Farm.
Structures 4 overbridges required. 1 underbridge (extension) required. 1 railway bridge in junction	Structures required at 3 side road crossings, and at interfaces with existing M9.
Utilities Crosses BP Pipeline. Potential impact on BT plant under approach vaduct. Crossing of BT plant at various locations including B8020, Builyeon Road, B9080, A904 and Society Road. Approximately 6 crossings of Scottish Water plant. Possible effect on street lighting plant under viaduct at hill to west of Queensferry. Outfall of Scottish Water wastewater treatment plant.	NOTE: Utilities Info Not Complete - still awaiting data from utilities companies.

Economic Issues	
Issue	**Comments**
Pro-rata Section Cost (compared to lowest cost corridor) + 64.8%	Compared to South Corridor Option 1
Traffic Approximate daily vehicle kilometres: A90 to FRC - 681,616 M9 (Newbridge) to FRC - 122,246 M9 (West) to FRC - 27,486 **Total = 831,347**	Requires all moves A90/M9 extension junction at Dalmeny and M9 J1a. Good connectivity for M9 west and Winchburgh Development but poor connectivity for local traffic west.

Forth Replacement Crossing
Initial Assessment Matrix
South Route Corridor Option 5

Environmental Issues	
Issue	**Comments**
Human / Property	Kirkliston Primary School is within 300m of the proposed route corridor, although impact may be minor as it is a similar distance from the existing motorway. The route corridor severs two proposed housing development sites (west of south Queensferry (HSG2 - Springfield, Queensferry) and west of Port Edgar (HSG7 - Society Road, Queensferry)), and clips the western edge of an environmental proposal (ENV 6 - Springfield, Queensferry) (source: Edinburgh Local Plan, June 2006).
Landscape	Greebelt - route corridor crosses western and southern edge of greenbelt. Area of Great Landscape Value - 1 within 300m. Area of Landscape Quality (AOLQ - local policy) - 1 directly affected at Carmelhill, plus 2 within 300m. Protection of Open Space (local plan policy) - 2 within 300m. Historic Garden & Designed Landscape - 1 directly affected, plus 2 within 100m and 3 within 200m. Long Established Woodland - 3 directly affected, plus 2 within 300m. Ancient Woodland - 1 within 300m.
Visual	The route corridor will be highly visible from Port Edgar and visible to receptors in South Queensferry. Areas of the route corridor are open and visible from Fife and surrounding receptors to the west.
Water Quality	Passes over Swine Burn, Humbie Reservoir and also has close proximity to Linn Mill Burn and Dundas Loch. A number of disused quarries have become waterbodies in proximity to this route corridor. There is a closed reservoir in close proximity to this route corridor. Two areas identified at risk of flood (offline sections to east and in vicinity of Humbie Reservoir & at new route corridor connection to M9).
Cultural Heritage	Listed Buildings (within 100m) - 15 B & 2 C (S). Listed Buildings (within 100 - 200m) - 1 A / SAM, 3 B & 2 C (S). Listed Buildings (within 200 - 300m) - 2 B & 5 C (S). 1 Scheduled Ancient Monument/A Listed Building (Duntarvie Castle) within 200m. Potential effects on setting of 18 B Listed buildings and direct impact upon part of the Dundas Castle designed landscape.
Biodiversity	Potential direct impact on 2 locally important Sites of Interest for Nature Conservation (SINC). Potential indirect impacts on 1 SAC (River Teith) & 3 SINC. Port Edgar within 300m (RAMSAR, SPA and SSSI). Route within 400m of Great Crested Newts.
Air and Noise	No clear differentiation could be made between corridors with regard to noise and air, due to lack of baseline noise/air data and traffic data.

Engineering Issues	
Issue	**Comments**
Length Approx. 10km	
Junctions 3 junctions required at M9 spur interfaces. Major junction/interchange required to connect routes together as they approach FRC.	
Horizontal Alignment Based on 120KPH Design Speed. No sub-standard elements.	
Vertical Alignment Based on 120KPH Design Speed. 1 Step Below Des. Min - Crest Curve K Value = 167 on connection to M9 Spur.	
Local Routes 7 side road crossings. 2 side roads diverted.	Diversion of M9 spur/A8000.
Earthworks Bulk Cut - 459,317m3 Bulk Fill - 295,424m3 163,893m^3 (Surplus)	Cut/Embankments generally about 3-4m. Glacial till recorded except at approach to shoreline, near reservoir & western tie-in. Possible overlap with mining near Swineburn Wood. Quarries in area. Eastern tie-in close to mining area/shaft.
Structures 8 overbridges. 2 underbridges (1 extension). 1 railway bridge. 1 interchange arrangement.	
Utilities Crosses BP Pipeline. Potential impact on BT plant under approach viaduct. Crossing of BT plant at various locations including B8020, Builyeon Road, B9080, A904 and Society Road. Approximately 8 crossings of Scottish Water plant. Possible effect on street lighting plant under viaduct at hill to west of Queensferry. Impact of street lighting on A800. Outfall of Scottish Water wastewater treatment plant.	NOTE: Utilities Info Not Complete - still awaiting data from utilities companies.

Economic Issues	
Issue	**Comments**
Pro-rata Section Cost (compared to lowest cost corridor) + 86.2%	Compared to South Corridor Option 1
Traffic Approximate daily vehicle kilometres: A90 to FRC - 545,292 M9 (Newbridge) to FRC - 101,235 M9 (West) to FRC - 31,151 **Total = 677,678**	Requires all moves A90/M9 extension junction at Dalmeny. Good connectivity for M9 west and Winchburgh Development but poor connectivity for local traffic west.

Forth Replacement Crossing
Initial Assessment Matrix
South Route Corridor Option 6

Environmental Issues	
Issue	
Human / Property	The route corridor severs two proposed housing development sites (west of south Queensferry (HSG2 - Springfield, Queensferry) and west of Port Edgar (HSG7 - Society Road, Queensferry)), and clips the western edge of an environmental proposal (ENV 6 - Springfield, Queensferry) (source: Edinburgh Local Plan, June 2006).
Landscape	Greenbelt - clips northwest edge at Dundas. Area of Great Landscape Value (AGLV) - 1 within 300m. Area of Landscape Quality (AOLQ - local policy) - 1 within 200m. Protection of Open Space (local policy) - 1 within 200m, 1 within 300m. Historic Garden & Designed Landscape - Hopetoun within 100m, Dundas within 300m. Long Established Woodland - 2 directly affected, plus 1 within 100m and 1 within 200m. Ancient Woodland - 1 within 300m.
Visual	The route corridor will be highly visible from Port Edgar and visible to receptors in South Queensferry as well as scattered rural receptors between Newton and Dundas Castle. Areas of the route corridor are open and visible from Fife and surrounding receptors to the west.
Water Quality	One large area of flooding identified in vicinity of route corridor crossing Swine Burn and M9.
Cultural Heritage	Listed Buildings (within 100m) - 1 A, 10 B & 1 C (S). Listed Buildings (within 100 - 200m) - 3 B. Potential effects on setting of 13 B Listed properties. Likely significant effects on the setting of Grade A Listed SAM Duntarvie Castle.
Biodiversity	Potential direct impact on 2 sites of local importance for nature conservation (SINC) Potential indirect impact on 1 SAC (River Teith) and 3 SINCs. Port Edgar within 300m (RAMSAR, SPA and SSSI).
Air and Noise	No clear differentiation could be made between corridors with regard to noise and air, due to lack of baseline noise/air data and traffic data.

Engineering Issues	
Issue	**Comments**
Length Approx. 6.5km	
Junctions Junctions required at interface with M9	
Horizontal Alignment Based on 120KPH Design Speed. 2 steps below Des. Min - 510m radius curve at A904 crossing.	
Vertical Alignment Based on 120KPH Design Speed. No sub-standard elements.	
Local Routes 3 side road crossings.	
Earthworks Bulk Cut - 275,187m3 Bulk Fill - 233,083m3 42,104m^3 (Surplus)	Glacial till recorded except at approach to shoreline, near reservoir and western tie-in. Underlain by oil shale workings. Recorded mine entries near route corridor.
Structures 5 overbridges. 1 underbridge.	Structures required at 3 side road crossings and at connections to existing M9.
Utilities Crosses BP Pipeline. Potential impact on BT plant under approach viaduct. Crossing of BT plant at various locations including B8020, Builyeon Road, A904 and Society Road. Approximately 4 crossings of Scottish Water plant. Possible effect on street lighting plant under viaduct at hill to west of Queensferry. Outfall of Scottish Water wastewater treatment plant.	NOTE: Utilities Info Not Complete - still awaiting data from utilities companies.

Economic Issues	
Issue	**Comments**
Pro-rata Section Cost (compared to lowest cost corridor) + 62.9%	Compared to South Corridor Option 1
Traffic Approximate daily vehicle kilometres: A90 to FRC - 724,665 M9 (Newbridge) to FRC - 133,707 M9 (West) to FRC - 24,432 **Total = 882,803**	Requires all moves A90/M9 extension junction at Dalmeny & M9 J1a. Good connectivity for M9 west and Winchburgh Development but poor connectivity for local traffic west.

Forth Replacement Crossing
Initial Assessment Matrix
North Route Corridor Option 1

Environmental Issues	
Issue	**Comments**
Human / Property	No schools identified within 1km of route corridor. Fife Local Plan maps of development not yet published. Development identified in drafts to date (published 13 March 2007) includes provision for sites for more than 5,500 houses and 175 hectares of employment land during and beyond the plan period (majority in East Dunfermline Expansion Area), and promote redevelopment of Rosyth Naval Base (industrial/commercial use with housing provision on MOD owned land to help regenerate the area). Transport links in the plan include a Rosyth Bypass, a road link from the M90 to Rosyth Europarc, rail links (Inverkeithing to Rosyth Dockyard, and from Dunfermline to Alloa).
Landscape	Semi-Natural Woodland - 1 directly affected, plus 2 within 100m and 1 within 200m. Long Established Woodland - 1 directly affected, plus 2 within 100m and 3 within 300m. Historic Garden & Designed Landscape - 1 within 300m (Fordell).
Visual	Tie in to bridge utilises wooded coastal hill affecting the character. Large embankment before tie in to existing M90 also affects character. Route corridor quickly ties in with existing M90 alignment therefore additonal visual impact minimal along most of route corridor. Some impact at tie in to bridge where wooded coastal hill character affected this will be seen locally in Fife and from South Queensferry.
Water Quality	Within 300m of 4 lochs/reservoirs (within 100m of one). One large area of flood risk identified covering Brankholm Burn and the M90 crossing. Also potential for coastal flooding at southern extent of route corridor before converging with the existing M90.
Cultural Heritage	Within 100m of a SAM (although route corridor follows existing route corridor at this location). Listed Buildings (within 100m) - 5 B & 1 Scheduled Ancient Monument (Middlebank Souterrain Cropmark) Listed Buildings (within 100 - 200m) - 2 A (Existing Forth Bridge and Old Duloch House and walled garden) & 1 B Listed Buildings (within 200-300m) 2 A Listed, 3 B Listed and 1 C (S) Setting and impact issues on 4 B listed buildings.
Biodiversity	Potential direct impact on north shore mudflats (RAMSAR and SPA), and on 2 SSSIs. Potential indirect impacts on 1 SPA (Forth Islands) and 1 SAC (River Teith). SSSIs - 4 within 100m and 1 within 200m.
Air and Noise	No clear differentiation could be made between corridors with regard to noise and air, due to lack of baseline noise/air data and traffic data.

Engineering Issues	
Issue	**Comments**
Length Approx. 7.1km	
Junctions Amendment to existing Ferry Toll Junction and upgrade to Masterton junction.	
Horizontal Alignment Based on 120KPH Design Speed. No sub-standard elements.	
Vertical Alignment Based on 120KPH Design Speed. No sub-standard elements.	
Local Routes Maintain local access.	
Earthworks	Structures not modelled thus far, therefore MX volume output would be misleading. Footprint currently passing through houses/gardens on eastern edge of Rosyth. Existing cutting in boulder clay, history of slope stability problems. Thick deposits of alluvium to south of Masterton. Mining at Middlebank. Potential for contaminated land around Masterton Junction.
Structures	May need to upgrade existing structures to accommodate widening/upgrade of Masterton Junction.
Utilities Crosses Scottish Power Lines at a number of locations. Crosses BT plant in a number of locations. Crosses Scottish Water Plant in a number of locations. Crosses Cable & Wireless at a number of locations.	NOTE: Utilities Info Not Complete - still awaiting data from utilities companies.

Economic Issues	
Issue	**Comments**
Pro-rata Section Cost (compared to lowest cost corridor) + 0%	
Traffic Connectivity maintained/improved for all routes.	

Forth Replacement Crossing
Initial Assessment Matrix
North Route Corridor Option 2

Environmental Issues	
Issue	**Comments**
Human / Property	Careshare Nursery within 300m. Within 700m of Inverkeithing High School. Fife Local Plan maps of development not yet published. Development identified in drafts to date (published 13 March 2007) includes provision for sites for more than 5,500 houses and 175 hectares of employment land during and beyond the plan period (majority in East Dunfermline Expansion Area), and promote redevelopment of Rosyth Naval Base (industrial/commercial use with housing provision on MOD owned land to help regenerate the area). Transport links in the plan include a Rosyth Bypass, a road link from the M90 to Rosyth Europarc, rail links (Inverkeithing to Rosyth Dockyard, and from Dunfermline to Alloa). Crosses 2 Rights of Way.
Landscape	Semi-Natural Woodland - 2 directly affected, plus 1 within 100m and 1 within 300m. Long Established Woodland - 2 directly affected, plus 1 within 100m and 3 within 300m. Historic Garden & Designed Landscape - 1 within 300m.
Visual	Tie in to bridge utilises wooded coastal hill and further hill features utilised affecting the character. Large embankment across flat area at St Margaret's Hope affecting character. Large cutting north-west of Inverkiething. Increased fragmentation of landscape. Route corridor cuts through / utilises coastal hills that are visible to surrounding communities.
Water Quality	Within 300m of 2 lochs/reservoirs. Two areas identified at risk; potential for coastal flooding at southern extent of proposed mainline and in vicinity of proposed crossing of Brankholm Burn.
Cultural Heritage	Listed Buildings (within 100m) - 5 B Listed Buildings (within 100 - 200m) - 1 A & 1 B Listed Buildings (within 200 - 300m) - 2 A, 1 B Listed and 1 C (S) Tie-in of new bridge may affect setting of 4 Grade B Listed buildings and have direct impact on 2 B listed.
Biodiversity	Potential direct impact on north shore mudflats (RAMSAR and SPA), and on 2 SSSIs. Potential indirect impacts on 1 SPA (Forth Islands) and 1 SAC (River Teith). SSSIs - 1 within 100m and 2 within 200m.
Air and Noise	No clear differentiation could be made between corridors with regard to noise and air, due to lack of baseline noise/air data and traffic data.

Engineering Issues	
Issue	**Comments**
Length Approx. 7.0km	
Junctions Junctions required to replace Ferry Toll and Masterton.	
Horizontal Alignment Based on 120KPH Design Speed. No sub-standard elements.	
Vertical Alignment Based on 120KPH Design Speed. No sub-standard elements.	
Local Routes 2 side road crossings. 1 side road diversion.	
Earthworks	Structures not modelled thus far, therefore MX volume output would be misleading. Earthworks footprint cuts through housing & unidentified tanks on Castlelandhill. Potentially 14m deep rock cut at Whinny Hill. Potential contaminated land at Belleknowes Ind. Estate.
Structures 2 overbridges, 3 underbridges, 2 railway crossings, interchange/junction arrangements.	
Utilities Crosses Scottish Power Lines at a number of locations. Crosses BT plant in a number of locations. Crosses Scottish Water Plant in a number of locations. Crosses Cable & Wireless at a number of locations.	NOTE: Utilities Info Not Complete - still awaiting data from utilities companies.

Economic Issues	
Issue	**Comments**
Pro-rata Section Cost (compared to lowest cost corridor) + 4.8%	Compared to North Corridor Option 1
Traffic Connectivity maintained/improved for all routes.	

Forth Replacement Crossing
Initial Assessment Matrix
North Route Corridor Option 3

Environmental Issues	
Issue	**Comments**
Human / Property	Careshare Nursery within 300m. Passes within 700m of Inverkeithing High School. Fife Local Plan maps of development not yet published. Development identified in drafts to date (published 13 March 2007) includes provision for sites for more than 5,500 houses and 175 hectares of employment land during and beyond the plan period (majority in East Dunfermline Expansion Area), and promote redevelopment of Rosyth Naval Base (industrial/commercial use with housing provision on MOD owned land to help regenerate the area). Transport links in the plan include a Rosyth Bypass, a road link from the M90 to Rosyth Europarc, rail links (Inverkeithing to Rosyth Dockyard, and from Dunfermline to Alloa).
Landscape	
Visual	Route corridor quickly ties in with existing M90 alignment, therefore additional visual impact minimal along some of route corridor. Some impact at tie-in to bridge where wooded coastal hill character affected and this will be seen locally in Fife and from South Queensferry. Where route corridor deviates to the east there will be a cutting that may be visible from surrounding receptors at Inverkeithing.
Water Quality	Within 300m of 1 loch/reservoir. Two areas identified at risk; potential for coastal flooding at southern extent of proposed mainline and large area in vicinity of proposed crossing of Brankholm Burn and up to new interchange/junction.
Cultural Heritage	Listed Buildings (within 100m) - 6 B Listed Buildings (within 100 - 200m) - 1 A & 3 B Listed Buildings (within 200-300m) - 2 A & 4 B Potential setting impacts upon 5 B Listed Buildings.
Biodiversity	Potential direct impact on north shore mudflats (RAMSAR and SPA), and on 3 SSSIs. Potential indirect impacts on 1 SPA (Forth Islands) and 1 SAC (River Teith). SSSIs - 4 within 100m and 5 within 200m.
Air and Noise	No clear differentiation could be made between corridors with regard to noise and air, due to lack of baseline noise/air data and traffic data.

Engineering Issues	
Issue	**Comments**
Length Approx. 7.0km	
Junctions Junctions required at tie in point to A 90 and tie in point to M 90. Junctions required to allow access to Rosyth and Inverkeithing as well as local access.	
Horizontal Alignment Based on 120KPH Design Speed. No sub-standard elements.	
Vertical Alignment Based on 120KPH Design Speed. No sub-standard elements.	
Local Routes 4 side road crossings. 4 side road diversions. Maintain local access	
Earthworks	
Structures	Structures not modelled thus far, therefore MX volume output would be misleading. Footprint currently passing through houses/gardens on eastern edge of Rosyth. Existing cutting in boulder clay, history of slope stability problems. Thick deposits of alluvium to south of Masterton. Potential contaminated land at Belleknowes Ind. Estate.
Utilities Crosses Scottish Power Overhead Lines at a number of locations. Crosses BT plant in a number of locations. Crosses Scottish Water Plant in a number of locations. Crosses Cable & Wireless at a number of locations.	NOTE: Utilities Info Not Complete - still awaiting data from utilities companies.

Economic Issues	
Issue	**Comments**
Pro-rata Section Cost (compared to lowest cost corridor) + 2.6%	Compared to North Corridor Option 1
Traffic Connectivity maintained/improved for all routes.	