

Detailed Appraisal		D24 Targeted Road Congestion / Environmental Relief Schemes - (Part 1) Upgrade of the A77 from single to dual carriageway around Ayr, grade separation of key junctions and enhancements south of Ayr						
Estimated total Public Sector Funding Requirement:			<i>Capital Costs/grant</i>				£100m - £250m	
			<i>Annual Revenue Support Present</i>				-	
			<i>Value of Cost to Gvt</i>				£50m - £100m	
			<i>BCR/PVB</i>				0.75 - 1.25 / £50m - £100m	
Summary Impact on STAG Criteria	Environment Safety Economy Integration Accessibility and Social Inclusion	---	--	-	0	+	++	+++
(Judgement based on available information against a 7pt. scale.)								
Intervention Description:								
This forms Part 1 of intervention D24 and consists of link and junction improvements including the upgrading from single to dual carriageway of the A77 between Whitletts Roundabout and Bankfield Roundabout, grade separation of Dutchhouse Roundabout, Whitletts Roundabout and Holmston Roundabout and enhancements south of Ayr.								

Summary: Rationale for Selection
<p>This intervention forms Part 1 of D24 to provide an upgrade of the A77 from single to dual carriageway around grade separation of key junctions and enhancements south of Ayr.</p> <p>The grade separations on the A77 between Whitletts Roundabout and Bankfield Roundabout, would remove the conflict between local and strategic traffic, as well as reducing journey times by approximately 10 minutes. Upgrading the A77 to the east of Ayr would also provide additional capacity for traffic that is likely to be generated as Ayr expands to the southeast. These interventions would also improve access to the ports at Loch Ryan with benefits for freight and passenger traffic.</p> <p>The environmental impacts this intervention has on cultural heritage and landscape have been identified at the strategic level as part of the Strategic Environmental Assessment. Appropriate mitigation and avoidance measures have been identified and will be further refined should this intervention be taken forward.</p>

Table D24.1.1 STPR Objectives

STPR Objectives	
<p><u>STPR Objective 1:</u> To increase rail capacity between Ayrshire and Glasgow including the Kilmarnock line.</p> <p><u>STPR Objective 2:</u> To promote continuing reduction in accident rates and severity rates across the strategic transport network, recognising the need to continue the work of the Strategic Road Safety Plan through the STPR period.</p> <p><u>STPR Objective 3:</u> To reduce the conflict between longer distance and local traffic with a focus on identified key constraint points.</p>	<p><b>1: Neutral</b> – This intervention would not address this objective.</p> <p><b>2: Strongly Positive</b> - Upgrading the A77 from single to dual carriageway, around Ayr, between Whittlets Roundabout and Bankfield Roundabout would reduce levels of congestion and could result in the accident rate reducing by up to 50 per cent and the severity rate reducing by up to 10 per cent. Grade separation of Dutchhouse, Whittlets and Holmston Roundabouts would reduce conflict between strategic trips on the A77 and trips on the east-west routes. Providing enhancements to the A77 south of Ayr would help to reduce accident rates and severity.</p> <p><b>3: Strongly Positive</b> – This intervention includes a number of measures that would reduce the conflict between local and long distance traffic. The A77 around Ayr is approaching theoretical capacity and is particularly affected by the operation of at-grade junctions along the length of the route. Grade separation of the junctions on the A77 around Ayr would reduce the conflict between local and strategic trips.</p>

Table D24.1.2 STAG Criteria

STAG Criteria		
Criteria:	Assessment Summary:	Supporting Information:
Environment:	Minor Benefit / Minor Negative Impact	This intervention involves a considerable amount of new infrastructure that is likely to result in a number of environmental impacts. There is the potential for impacts on biodiversity, water, cultural heritage and landscape as a result of dualling the A77 and through potential improvements south of Ayr. However, the scale of these is uncertain at this stage in the development process. There could be minor positive benefits associated with noise levels through reduced congestion along the route. Impacts on the water environment, soils/geology, cultural heritage and landscape are unknown at this stage. Minor negative effects are anticipated for CO <sub>2</sub> e emissions as the road improvements could increase traffic speeds.
Safety:	Major Benefit	The existing route on the A77 between Whitletts Roundabout and Bankfield Roundabout is mainly rural typical single carriageway. Upgrading this route from single to dual carriageway could reduce the accident rate by up to 50 per cent, based on national rates for these road types. Accident severity is also expected to decrease by up to 10 per cent on the proposed dual carriageway section. Grade separation of Dutch House, Whitletts and Holmston Roundabouts would reduce the conflict between vehicles and could reduce the accident rates as a result. National statistics indicate that grade separation of this section of the trunk road network could reduce the accident rate by up to 40 per cent.
Economy:	Moderate Benefit	<b>Transport Economic Efficiency (TEE):</b> Grade separation of the three junctions on the A77 would reduce journey times and improve journey time reliability on the A77 and the conflicting routes. Provision of a dual carriageway between Whitletts Roundabout and Bankfield Roundabout would reduce congestion thereby improving journey times and journey time reliability.  Journey time and congestion reductions provide the majority of the economic savings of between £50m to £100m, which result in a benefit to cost ratio of between 0.75 and 1.25, indicating value for money overall.  <b>Wider Economic Benefits (WEBs):</b> Improvements to journey time, reliability and quality could have a positive impact on the efficiency and productivity of businesses using the route to travel between Central Scotland, South Ayrshire and Stranraer. Benefits would accrue from lower cost of travel for freight and business users with improved access to customers and suppliers. Improvements to the A77 could also enhance the tourist industry in the southwest of Scotland and support the development of the Loch Ryan ports.  <b>Economic Activity and Location Impacts (EALIs):</b> The impacts of upgrading the route are potentially significant for all sectors and settlements served by the A77. The grade separation of junctions on the A77 and upgrade to dual carriageway around Ayr could have economic benefits on the corridor due to the journey time for the transportation of goods and people being better and more reliable, resulting in increased productivity of people and vehicles. The improvements on the A77 would also support the proposed development areas to the South East of Ayr.
Integration:	Minor Benefit/Minor Negative Impact	<b>Transport Integration:</b> This intervention is not likely to have any significant effect on transport integration.  <b>Transport and Land Use Integration:</b> Provision of a dual carriageway between Whitletts Roundabout and Bankfield Roundabout would support the proposed development at South East Ayr which would access onto the A77 to the south of Bankfield Roundabout.

		<b>Policy Integration:</b> This intervention would not affect policies related to disability, health services, rural affairs or social inclusion. Overall, the intervention could have a negative effect on road traffic reduction aspirations.
<b>Accessibility and Social Inclusion:</b>	<b>Minor Benefit</b>	<p><b>Community Accessibility:</b> Enhancements to the A77 south of Ayr could improve local accessibility in terms of a safer environment for walking and cycling within the towns and safer access to the A77.</p> <p><b>Comparative Accessibility:</b> This intervention would mainly benefit strategic trips on the A77 but would also have benefits for the local communities of Ayr, communities south of Ayr and for trips on the routes that currently conflict with the A77 at its main junctions.</p>

Table D24.1.3 Key Strategic Outcomes

Key Strategic Outcomes (KSO's)		
Objective:	Assessment Summary:	Supporting Information:
<b>Improve Journey Times and Connections:</b>	<b>Major Benefit</b>	This intervention would ensure that local traffic that is travelling across the A77 can do so without delaying traffic travelling along the A77, improving journey times and journey time reliability on the A77 and on the roads that cross the A77, especially at junctions and links that are approaching or are over theoretical capacity.
<b>Reduce Emissions:</b>	<b>Minor Negative Impact</b>	Dualling a section of the A77 could result in increased, less fuel efficient vehicle speeds. This could contribute to an increase in CO <sub>2</sub> e emissions. However, the bypasses would reduce some congestion in the town centres and therefore may negate some of the expected CO <sub>2</sub> e emissions increase.
<b>Improve Quality, Accessibility and Affordability:</b>	<b>Minor Benefit</b>	Upgrading the A77 would increase capacity and lessen congestion on the road; therefore this would increase the quality and standard of road provided for drivers. This intervention would provide improved accessibility to Ayr, Stranraer and the intermediate settlements in the corridor. This intervention would not have any significant impact on affordability.

Table D24.1.4 Scottish Government's Strategic Objectives

Scottish Government's Strategic Objectives		
Objective:	Assessment Summary:	Supporting Information:
<b>Safer and Stronger:</b>	<b>Major Benefit</b>	The provision of a dual carriageway on the A77, around Ayr, grade separated junctions at Dutchhouse, Whitletts and Holmston Roundabouts and improvements south of Ayr could result in reduced accident and severity rates. This intervention would not affect quality, accessibility and affordability of public transport.
<b>Smarter:</b>	<b>Moderate Benefit</b>	This intervention would increase access to schools, colleges and universities along the length of the corridor.
<b>Wealthier and Fairer:</b>	<b>Moderate Benefit</b>	This intervention would result in reduced journey times and improved journey time reliability for the movement of people and goods, resulting in increased accessibility in the area, increased opportunities and productivity. This intervention could assist in the economic development of Ayrshire and the ferry ports on Loch Ryan.
<b>Greener:</b>	<b>Minor Benefit</b>	The enhancements south of Ayr could help relieve congestion which could reduce bus journey times on the local road network, potentially encouraging greater use of public transport. However, this is considered to be an indirect effect as the package does not directly promote use of public transport. Emissions may rise due to increased, less fuel efficient vehicle speeds.
<b>Healthier:</b>	<b>Minor Benefit</b>	The improvements would enhance access to health services, especially at the Ayr Hospital. It is considered that this intervention would not encourage a reduction in car journeys.

Table D24.1.5 Implementability Appraisal

Implementability Appraisal	
<b>Technical:</b>	There are no significant technical issues associated with the grade separation of Dutchhouse, Whitletts and Holmston Roundabouts. The A77 between Whitletts Roundabout and Bankfield Roundabout would require a bridge widening over the River Ayr. It is anticipated that these issues could be tackled using existing technology.
<b>Operational:</b>	The responsibility for operational issues on the proposed measures in this intervention would remain with Transport Scotland and its maintenance contractors. No factors are anticipated to adversely affect the operation of the intervention during its projected life.
<b>Public:</b>	These interventions have not been subject to public consultation. While it is considered that the intervention would be generally welcomed, the environmental impact of the intervention could prompt some negative public response.