

Detailed Appraisal		D27 – Rail Enhancements between Inverclyde/Ayrshire and Glasgow						
Estimated total Public Sector Funding Requirement:		<i>Capital Costs/grant</i> <i>Annual Revenue Support Present</i> <i>Value of Cost to Gvt</i> <i>BCR/PVB</i>				£250m - £500m - £100m - £250m 1.25 - 1.75 / £250m - £500m		
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 intervention would provide four trains per hour each between Glasgow and Ayr, Glasgow and Kilmarnock and Glasgow and Gourock, with each route served by two semi-fast services and two stopping services.								
The Paisley Canal line would be reconnected to the Ayrshire line with four trains-per-hour between Glasgow and Johnstone. This would also provide an alternative route for passenger and freight services to and from Ayrshire. The intervention would also provide two trains-per-hour between Glasgow and Wemyss Bay.								
As well as additional rolling stock, this is likely to require the following infrastructure enhancements:								
<ul style="list-style-type: none">• Signalling upgrades between Kilwinning and Paisley;• Reinstatement of the line from Elderslie to Paisley Canal, provision of double track and electrification on the existing Paisley Canal branch and increased track capacity between Paisley and Glasgow;• Provision of turnback facilities at Johnstone;• Extension to the Lugton loop and a new loop between Kilmaurs and Stewarton;• Additional platform capacity at Glasgow Central as described in Intervention D25 (West of Scotland Strategic Rail Enhancements); and• Improvements to stations to enhance the environment for passengers and increase car park capacity (e.g. Prestwick, Ayr, Troon, Glengarnock, Kilwinning).								

Summary: Rationale for Selection

This intervention would provide a 'step-change' in rail service provision to the west and south west. This would result in a significant contribution to the objectives to increase rail capacity to Ayrshire and capacity and journey time to Inverclyde.

The feasibility of this intervention is dependent on being able to provide more platform capacity in central Glasgow to accommodate the services, as proposed in Intervention D25 (West of Scotland Strategic Rail Enhancements).

The improved services provide relief for the identified overcrowding issue on the southwest electric services and give an opportunity for modal shift from road to rail, particularly from Kilmarnock where the increased service frequency is high.

This intervention is expected to have a moderate positive environmental impact on air quality as modal shift from road to rail is envisaged to reduce congestion and subsequently reduce emissions.

Table D27.1.1 STPR Objectives

STPR Criteria	
<p><u>STPR Objective 15.1:</u> To increase rail capacity between Ayrshire and Glasgow including the Kilmarnock line.</p>	<p>15.1: Strongly Positive – This intervention would double the service frequency between Kilmarnock and Glasgow, from the currently committed two trains per hour, to four trains per hour, providing a significant increase in capacity along this route. Rail services on the Ayrshire coast lines currently operate at two trains per hour to Ayr and one train per hour to each of Ardrossan Town and Largs, with additional services during the peaks and to Ardrossan Harbour. This intervention would provide significant additional capacity between Glasgow and Ayrshire, by providing an additional two trains per hour to Ayr. This intervention would provide up to 11,200 additional seats from Ayrshire and Inverclyde into Glasgow during the three hour AM peak.</p>
<p><u>STPR Objective 15.2:</u> To promote continuing reduction in accident rates and severity rates across the strategic transport network.</p>	<p>15.2: Slightly Positive – This intervention could encourage modal shift from cars to rail, potentially resulting in a reduction in the number of accidents due to fewer cars being on the road. However, it would not have any significant effect in promoting a continuing reduction in accident rates and severity rates across the strategic transport network.</p>
<p><u>STPR Objective 15.3:</u> To reduce the conflict between longer distance and local traffic with a focus on identified key constraint points.</p>	<p>15.3: Neutral – This intervention could encourage modal shift resulting in less traffic on the road. This in turn would reduce the conflict between local and strategic traffic through a reduction in the number of commuters travelling by car. However, this may not be significant.</p>
<p><u>STPR Objective 17.1:</u> To increase capacity and reduce journey times by public transport between Glasgow and Inverclyde.</p>	<p>17.1: Strongly Positive – Increasing the frequency of services on this route would increase capacity and reduce existing overcrowding problems. In addition, increasing track speeds or removing some station stops would shorten journey times between Glasgow and Inverclyde. This intervention would provide two extra trains per hour from Inverclyde to Glasgow, resulting in up to 11,200 additional seats from Ayrshire and Inverclyde into Glasgow during the three hour AM peak period.</p>
<p><u>STPR Objective 17.2:</u> To facilitate freight access to Greenock port.</p>	<p>17.2: Neutral - This intervention would not have any impact on improving access to Greenock port.</p>
<p><u>STPR Objective 17.3:</u> To improve the efficiency of the A8/M8 during periods of peak demand with a focus on reducing the conflict between longer distance and local traffic.</p>	<p>17.3: Slightly Positive – This intervention would not have any significant effect on improving the efficiency of the A8/M8 during periods of peak demand. However, the intervention is expected to encourage a modal shift of approximately four per cent from road to rail, which would result in a small decrease in traffic on the M8 and A8.</p>
<p><u>STPR Objective 17.4:</u> To reduce the accident rate to the national road type average on the M8 and A8.</p>	<p>17.4. Slightly Positive – This intervention would not have any significant effect in promoting a continued reduction in accident rates and severity rates across the strategic transport network. However, the intervention could encourage modal shift from cars to rail and there could potentially be a reduction in the number of accidents if there are fewer cars on the road, although this impact is expected to be marginal.</p>
<p><u>STPR Objective 17.5:</u> To promote efficient and effective transport links to support the development and implementation of the proposed national development at Glasgow Airport identified in the NPF2.</p>	<p>17.5: Slightly Positive – This intervention would increase the number of services from Ayrshire and Inverclyde to Paisley Gilmour Street where there would be connections with the Glasgow Airport Rail Link. This intervention would also help to reduce overcrowding on services to Paisley Gilmour Street, making public transport access to Glasgow Airport (via the Glasgow Airport Rail Link) a more attractive proposition for the general public.</p>

Table D27.1.2 STAG Criteria

STAG Criteria		
Criteria:	Assessment Summary:	Supporting Information:
Environment:	Moderate Benefit/Minor Negative Impact	It is expected that improved services would promote modal shift from road to rail. This would bring associated potential direct and indirect beneficial effects in relation to air quality, especially in light of the current air quality issues in Glasgow and Paisley. It is proposed to double track some existing sections, and extend/provide new rail loops which could require some limited land take. There is likely to be more significant land take and the demolition of properties to allow the line between Paisley Canal and Elderslie to be reinstated. Limited nature conservation and cultural heritage interests have been identified in the area required for new rail infrastructure and therefore potential effects are considered to be neutral for biodiversity and neutral to minor adverse for cultural heritage. Effects on water, geology and soils, climatic and landscape would also be neutral or very minor.
Safety:	Minor Benefit	Improving rail services from Inverclyde and Ayrshire to Glasgow would result in some modal shift from road to rail that could contribute to reduction in vehicle trips on the network and fewer accidents. Although this is expected to produce a minor benefit.
Economy:	Moderate Benefit	<p>Transport Economic Efficiency (TEE): Additional services and a reduction in journey times between Glasgow, Ayrshire and Inverclyde are forecast to result in modal shift from road to rail and an increase in total rail patronage in the order of five per cent, with approximately 1,800 new rail passengers travelling in the peak every day. Congestion on the M77 and M8 from Inverclyde is forecast to worsen in the future, therefore journey time savings are likely for journeys transferring from road to rail on these routes. The additional service and infrastructure improvements are likely to improve journey time reliability with reduced waiting times for trips which interchange between services at Paisley Gilmour Street or Glasgow Central. These time saving benefits compared to the present value of costs give a benefit to cost ratio in the order of 1.25 to 1.75.</p> <p>Wider Economic Benefits (WEBs): This intervention would support the wider economy through improving public transport provision and accessibility between Ayrshire, Inverclyde and Glasgow by providing up to 11,200 additional seats into Glasgow during the three hour morning peak period.</p> <p>Economic Activity and Location Impacts (EALIs): This intervention would support the designated regeneration areas of Riverside Inverclyde and Irvine Bay. The improved services on the Inverclyde lines would also support the major residential and business developments proposed for Bishopton by providing an attractive alternative to the car and therefore encouraging the use of more sustainable travel options. This would support the delivery of the development within the relative Structure Plans.</p>
Integration:	Moderate Benefit	<p>Transport Integration: This intervention would provide improved links between services, including those to Glasgow Airport, due to increased frequencies, especially at Paisley Gilmour Street which is recognised as an important interchange. The areas in which the proposed services are to be operated are all within the area of operation of SPT's Integrated Zoncard ticket.</p> <p>Transport and Land-Use Integration: Considerable additional housing requirements have been identified by the Glasgow and Clyde Valley and Ayrshire Joint Structure Plans in Ayrshire, Renfrewshire and Inverclyde. Travel patterns from these areas include significant commuter journeys to Glasgow. The increased rail services and capacity would support these journeys and reduce the need to travel by car. The improved services would also support the major development area at Bishopton and the regeneration areas of Riverside Inverclyde and Irvine Bay.</p>

		Policy Integration: The Joint Ayrshire Structure Plan policy TRANS 2 – Rail Investment, highlights a desire to increase rail services and capacity between Ayrshire and Glasgow. This intervention also supports national policies of encouraging modal shift to more sustainable means of travel.
Accessibility and Social Inclusion:	Moderate Benefit	<p>Community Accessibility: This intervention is not likely to affect public transport network coverage or any local accessibility issues but it would increase the availability and capacity of rail services on existing routes.</p> <p>Comparative Accessibility: The main benefactors of this intervention would be commuters between Inverclyde/Ayrshire and Glasgow.</p>

Table D27.1.3 Key Strategic Outcomes

Key Strategic Outcomes (KSO's)		
Objective:	Assessment Summary:	Supporting Information:
Improve Journey Times and Connections:	Moderate Benefit	<p>This intervention would include doubling the current single track line between Barrhead and Kilmarnock. The impact of delays would be reduced with full double track provision, resulting in reduced journey times and increased journey time reliability. Increased service frequency would also result in improved connections with other services at Kilmarnock and Glasgow. Any modal shift achieved from the car could result in a slight reduction in congestion on the M77 approaching Glasgow, improving journey times on the road. The proposed timetable for services between Glasgow and Kilmarnock shows a journey time saving of about 12 minutes for the fastest services compared with the current timetable.</p> <p>This intervention would also include additional capacity between Glasgow and Paisley. Provision of extra capacity and additional lines would reduce the conflict between stopping trains and fast trains between Paisley and Glasgow, resulting in improved journey time reliability. Improved connections with other rail services are also likely, especially at Paisley Gilmour Street, due to the increased frequency of services.</p> <p>Re-opening the Elderslie to Paisley Canal line, as well as providing additional capacity between Paisley and Glasgow, would increase flexibility and journey time reliability.</p> <p>The increase in track speeds on the Glasgow to Inverclyde lines would shorten journey times making the train more competitive with the car. Also connections between towns in the Inverclyde area would be improved. Connections between Glasgow and Inverclyde would also be improved due to the increased service frequencies.</p>
Reduce Emissions:	Minor/Moderate Benefit	Improvements to rail frequency and services from Glasgow to Inverclyde and Ayrshire would encourage modal shift from road to rail, contributions to reductions in CO ₂ e emissions. Appraisal outputs indicate a slight decline in CO ₂ e from the 2022 forecasts.
Improve Quality, Accessibility and Affordability:	Moderate Benefit	<p>Increasing service frequencies to Ayr, Inverclyde and Kilmarnock from Glasgow Central, along with additional improvements to stations along the routes, would significantly improve the quality of the service and increase accessibility, especially for those without access to a car.</p> <p>There would not be an impact on affordability.</p>

Table D27.1.4 Scottish Government's Strategic Objectives

Scottish Government's Strategic Objectives		
Objective:	Assessment Summary:	Supporting Information:
Safer and Stronger:	Moderate Benefit	This intervention would improve the quality and accessibility of public transport between Glasgow and Renfrewshire, Inverclyde and Ayrshire, including the major development area of Bishopton and the regeneration areas of Riverside Inverclyde and Irvine Bay. Modal shift may be limited and therefore any potential impacts on safety would be negligible.
Smarter:	Minor Benefit	This intervention would increase access to schools, colleges and universities.
Wealthier and Fairer:	Moderate Benefit	This intervention would result in improved journey times and journey time reliability for commuters, other passengers and freight traffic. This would result in increased productivity for staff and the movement of goods and increase opportunities for employment, business, leisure and tourism and would provide improved links between the towns on the routes.
Greener:	Minor/Moderate Benefit	This intervention would promote modal shift to rail with improvements in air quality and reduced CO ₂ e emissions. It would also promote the use of public transport.
Healthier:	Moderate Benefit	This intervention would encourage modal shift from road vehicles to more sustainable rail trips for passenger and freight journeys. It is not likely to significantly affect trips to health services and community services.

Table D27.1.5 Implementability Appraisal

Implementability Appraisal	
Technical:	<p>It is expected that no untried techniques would be required when implementing any aspects of this intervention. However, as the design stages progress, localised issues may arise, such as the risk of subsidence due to mining, which may require increased technical capacities to overcome.</p> <p>Construction of some aspects of this intervention may have an impact on operating existing services, however much of this work could be carried out at times when the disruption would be minimised.</p> <p>There is currently no available platform capacity for the services at Glasgow Central station and it will be necessary to relieve Central Station of some existing services in order to accommodate expansion of services in the west to Ayrshire and Inverclyde, as proposed under intervention D25.</p>
Operational:	<p>Running additional rail services places extra pressure on the rail network and can increase the risk of delays. However, it is expected that these issues would be mitigated by ensuring that the works included within the intervention have sufficient capacity for the proposed service levels. No significant operational impacts are anticipated from this intervention.</p>
Public:	<p>This intervention has not been made public. It is considered that the intervention would be generally supported by the public. However, there may be some local objections to the demolition of properties built on the alignment between Paisley Canal and Elderslie.</p>