

Weston Package Phase 1
Major Scheme Business Case

DfT F-forms Preferred Scheme



West of England Partnership

Bath & North East
Somerset Council



North
Somerset
Council

South Gloucestershire
Council



South West RDA

Table 3.17 / F1 - Appraisal Summary Table (Preferred Scheme)

Preferred Scheme		Weston Package Phase 1	To enable the sustainable development of Weston	Present Value of Costs to Public Accounts £m
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT	ASSESSMENT
ENVIRONMENT	Noise	The decrease in the number of people annoyed is mostly due to a redistribution of traffic over the network. An estimated 64 properties would be exposed to a level above 68 dBL _{Aeq} . Night-time noise levels likely to remain unchanged.	No. of people annoyed: Without scheme: 4,730 With scheme: 4,698	Net change in population annoyed with project: -32 NPV £548,500
	Local Air Quality	No designated AQMA in area. There will be an overall decrease in PM ₁₀ and NO ₂ concentrations at properties in the area. Concentrations remain below the objective with or without the Scheme. The improvement is due to reductions in congestion.	Air quality improves at 4040 properties for PM ₁₀ and 3964 for NO ₂ , and worsens at 4451 properties for PM ₁₀ and 4527 for NO ₂	An overall improvement in air quality PM ₁₀ =-71 NO ₂ =-124 Beneficial
	Regional Air Quality	There will be an overall improvement in regional air quality.	26.2 tonne reduction in NO _x emissions and 0.6 tonne reduction in PM ₁₀ emissions compared with the minimum in the opening year	3.3 % reduction in NO _x emissions and 3.1 % reduction in PM ₁₀ emissions in opening year Beneficial
	Greenhouse Gases	Reduction in carbon emissions with the scheme due to reduction in delays and congestion	Reduction in tonnes carbon over 60yr appraisal period = 135 Reduction in tonnes carbon in opening yr = 3	£4140 Beneficial
	Landscape	Scope to bring benefits to townscape through appropriate design and adequate mitigation. Some additional visual intrusion where close to properties.	n/a	Moderate adverse
	Townscape	Same as Landscape	n/a	Same as Landscape
	Heritage of Historic Resources	The proposed schemes within this option would not impact directly or indirectly on designated archaeological sites or built heritage. The only schemes likely to impact on non-designated archaeological monuments are the Airfield Bridge Link and the Cross Airfield Link. Also potentially, Worle Station. These impacts could be mitigated through the implementation of standard archaeological measures which will preserve any affected sites by record. The scope of these measures would be set by North Somerset Council	n/a	Neutral
	Biodiversity	Potential dust and pollution impacts to 3 Regional Wildlife Sites, neutralised through construction best practice. Neutral impacts are predicted on internationally and nationally designated sites. Habitat re-creation will be undertaken although there will be a net loss of habitats that is generally restricted to improved or amenity grassland, but includes some areas of rough grassland and potentially some species-rich grassland. Wildlife underpasses and fencing to improve safety for protected species, but minor impacts through loss of habitat.	n/a	Slight adverse
	Water Environment	Principal impacts will include an increase in highway runoff and associated contaminants which could increase flood risk and water quality deterioration in receiving surface and ground water. As such routine runoff should be attenuated and appropriate methods of treatment provided prior to discharge. Construction of the highway within the floodplain will also act as a physical barrier, impeding flood flows and occupying floodplain storage potentially increasing flood risk to the scheme and others. It is assumed that as part of the costed scheme flood risk will be mitigated by providing compensatory floodplain measures and flood relief structures. However the scheme will result in a permanent alteration in the hydrological regime of the local rhyme and floodplain system and associated ecology.	n/a	Slight adverse

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OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT	ASSESSMENT
ENVIRONMENT (cont.)	Physical Fitness	<p>It is assumed that no travel is over 30 minutes at each of the proposals. Existing pedestrian access is relatively good and would be maintained or improved through the provision of signalised pedestrian crossings.</p> <p>The existing cycling provision is limited in places and would be improved through the provision of cycle lanes and cycle advance areas. Improved facilities would be used by children travelling to school and for commuting.</p> <p>The Cross Airfield Link would include provision for pedestrians and cyclists, and would reduce some walking and cycling journey times, especially from the new development sites to the town centre.</p>	n/a	Slight beneficial
	Journey Ambience	<p>Many of the schemes are based on a similar alignment to that which currently exists. Junction improvements, signal improvements and directional signage would improve traffic flow and reduce frustration.</p> <p>Fear of potential accidents would be reduced through improved junctions and sightlines and provision of cycle lanes would reduce vehicle/cyclist interaction and reduce risk of associated accidents.</p>	n/a	Moderate beneficial
SAFETY	Accidents	There is a reduction in accidents at the M5 Junction 21 and elsewhere along the road network with the Preferred Scheme.	n/a	PVB £6.35m
	Security	Additional CCTV and passenger waiting facilities at Worle station to reduce the fear of crime, safer crossing facilities at multiple locations, more direct bus services to Worle station to save walking trips from existing terminus, and improved bus termini.	n/a	Slight Beneficial
ECONOMY	Public Accounts	Based on TUBA assessment, with the cost price base and discount for the economic appraisal to the year 2002, and an appraisal period of 60 years.	Central Govt PVC £18.59m, Local Govt PVC £7.62m	PVC £26.20m
	Transport Economic Efficiency: Business Users & Transport Providers	Based on TUBA assessment, with the benefit price base and discount for the economic appraisal to the year 2002, and an appraisal period of 60 years.	Users PVB £71.550m, Transport Providers PVB -£0.647m, Other PVB -£36.22m	PVB £34.68m
	Transport Economic Efficiency: Consumers	Based on TUBA assessment, with the benefit price base and discount for the economic appraisal to the year 2002, and an appraisal period of 60 years.	Users PVB £67.828m	PVB £67.828m
	Reliability	More reliable journey times from the M5 jct. 21 to Weston, and more reliable journey times into Weston compared to the A370 by using the CAL. Bus journey time will also be more reliable due to the bus priority measures and for the service using the CAL and the ABL.	n/a	Moderate Beneficial
	Wider Economic Impacts	<p>The scheme does not affect a Regeneration Area, but the WP1 is designed to enable the sustainable development of Weston, and the importance of transport improvements to the regeneration of Weston has been identified in the Vision for Weston and subsequent Weston ADF.</p> <p>In particular, the Package will reduce the actual and perceived constraint on existing and potential businesses in the town by improving Junction 21; improving access for business and employees between existing/proposed employment sites off Winterstoke Road (south) and areas of multiple deprivation and the regeneration area; and by improving the Gateway.</p> <p>It will also improve access through the improvements at Worle Station and the enhanced bus services enabled by the CAL and ABL to link the town centre, development sites, and Worle station.</p>	n/a	Neutral

Preferred Scheme		Weston Package Phase 1	To enable the sustainable development of Weston	Present Value of Costs to Public Accounts £m
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT	ASSESSMENT
ACCESSIBILITY	Option values	Bus priority, Worle station interchange and improved foot/cycleways would improve transport options	n/a	Slight Beneficial
	Severance	New pedestrian/cycle crossings and new Airfield Bride Link would reduce severance	n/a	Moderate Beneficial
	Access to the Transport System	Bus priority measures and interchange at Worle station would improve access to public transport. The Cross Airfield Link and Airfield Bridge Link would provide a direct route for buses.	n/a	Moderate Beneficial
INTEGRATION	Transport Interchange	Provision of a bus interchange and improvements to Worle station will enhance the passenger waiting environment and improve connectivity between transport modes.	n/a	Moderate Beneficial
	Land-Use Policy	Integration with land use policies is mainly beneficial with a slight adverse impact on environment policies relating to landscape and ecology	n/a	Beneficial
	Other Government Policies	Integration with other government policies is mainly beneficial with a slight adverse impact on environmental policies relating to landscape and ecology	n/a	Beneficial

Analysis of Monetised Costs and Benefits

Noise		
Local Air Quality		
Greenhouse Gases		
Journey Ambience		
Accidents		6,352
Consumer Users		67,828
Business Users and Providers		34,683
Reliability		
Option Values		
Present Value of Benefits (see notes) (PVB)		108,863
Public Accounts		
Present Value of Costs (see notes) (PVC)		26,204
OVERALL IMPACTS		
Net Present Value (NPV)		82,659
Benefit to Cost Ratio (BCR)		4.15
		<i>NPV=PVB-PVC</i>
		<i>BCR=PVB/PVC</i>

Notes : All values in £,000's in 2002 prices and values

This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Value of greenhouse gases is -172 which is not included above as this spreadsheet does not permit negative numbers

Economic Efficiency of the Transport System (TEE) - Preferred Scheme

Consumers	ALL MODES	ROAD	BUS & COACH	RAIL	OTHER	
<i>User benefits</i>	TOTAL	Private Cars and LGVs	Passengers	Passengers		
Travel time	69,646	55,382	14,830	-566		
Vehicle operating costs	-1,806	-1,806				
User charges	-12			-12		
During Construction & Maintenance	0	0	0	0		
NET CONSUMER BENEFITS	67,828 (1)	53,576	14,830	-578	0	
Business						
<i>User benefits</i>		Goods Vehicles	Business Cars & LGVs	Passengers	Freight	Passengers
Travel time	68,802	33,094	30,119	6,081		-492
Vehicle operating costs	2,741	1,107	1,634			
User charges	6	0	0	0	0	6
During Construction & Maintenance	0	0	0	0	0	0
Subtotal	71,549 (2)	34,201	31,753	6,081	0	-486
<i>Private sector provider impacts</i>				Freight	Passengers	
Revenue	7,263			10,865	-3,602	
Operating costs	-7,910			-7,910		
Investment costs	0					
Grant/subsidy	0					
Subtotal	-647 (3)			2,955	-3,602	0
<i>Other business impacts</i>						
Developer contributions	-36,220 (4)	-36,220				
NET BUSINESS IMPACT	34,682 (5) = (2) + (3) + (4)					
TOTAL						
Present Value of Transport Economic Efficiency Benefits	102,510 (6) = (1) + (5)					

Notes: Benefits appear as positive numbers, while costs appear as negative numbers.

All values in £,000's in 2002 prices and values

Public Accounts - Preferred Scheme

	ALL MODES	ROAD	BUS & COACH	RAIL	OTHER
Local Government Funding	TOTAL	INFRASTRUCTURE			
Revenue	0	0			
Operating Costs	4,791	4,791			
Investment Costs	39,046	39,046			
Developer and Other Contributions	-36,220	-36,220	0	0	
Grant/Subsidy Payments	0	0	0	0	
NET IMPACT	7,617 (7)	7,617	0	0	0
Central Government Funding					
Revenue	0	0			
Operating Costs	0	0			
Investment Costs	18,772	18,772			
Developer and Other Contributions	0	0	0	0	
Grant/Subsidy Payments	0	0	0	0	
Indirect Tax Revenues	-186	-1,100	1,507	-593	
NET IMPACT	18,586 (8)	17,672	1,507	-593	0
TOTAL Present Value of Costs (PVC)	26,203 (9) = (7) + (8)				

Notes: Costs appear as positive numbers, while revenues and 'Developer and Other Contributions' appear as negative numbers.
All values in £,000's in 2002 prices and values

Appraisal Cost Proforma Summary Sheet - Preferred Scheme

Assumptions:

Price Year Base (Earliest - 1998)	2008
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Note: Promoters are requested to enter the price year base they are using into the above

Investment cost optimism bias (%)	44
Operating cost optimism bias (%)	0

QRA P(80) (total)	8,476
QRA P(50) (total)	6,174
Design Year Operating Cost (usually 15 years from opening year)	598
Operating Cost (all years total)	41,466

COST BREAKDOWN:

All values in £,000's (thousands)

Financial Year	Investment Cost (in price year base in cell C3, excluding risk)	Cost including real cost inflation (Base Cost)	Risk adjusted cost using QRA P (mean)	Risk adjusted cost including Optimism Bias	Risk adjusted cost including OB deflated and discounted to 2002 Market Prices
2009/10	1,523	1,569	1,569	2,259	1,742
2010/11	2,284	2,423	2,423	3,490	2,600
2011/12	2,284	2,496	2,496	3,594	2,587
2012/13	10,084	11,677	13,168	18,962	13,187
2013/14	13,097	17,527	21,145	30,448	20,458
2014/15	10,487	14,876	18,123	26,097	16,942

Totals for remaining appraisal years:

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Totals:	39,759	50,568	58,924	84,850	57,515
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Preferred Scheme

BEFORE and AFTER IMPLEMENTATION COMPARISONS

This should be populated with estimates from the local transport model for the approval stage being bid for and any earlier approval stages.

	Before Implementation			Post - Implementation
	Programme Entry	Conditional Approval	Full Approval	
Capital Cost (£000)	57,816			
Annual Operating Cost (£000)	9,131			
Annual Maintenance Cost (£000)	3,278			
Annual Revenue (£000)	7,263			
Annual Passenger Trips (Bus) (m) -2016	5.49			
Annual Passenger Trips (Bus) (m) -2031	6.21			
Annual Passenger Km (Bus) (m) -2016	59.39			
Annual Passenger Km (Bus) (m) -2031	68.35			
Congestion Benefits (£000)	118,595			
Mode Shift (%) - 2016	2%			
Mode Shift (%) - 2031	3%			