

Appendix A.9.4.1

Phase 2 Project Appraisal Balance Sheet

Project Appraisal Balance Sheet

Part A: Project Context



Date	22 07 2022
Version No.	P02 OSR

Project Title	N4 Carrick-on-Shannon to Dromod
PRS Reference Number	
Project Phase	Phase 2: Option Selection
National Roads Office	Roscommon National Roads Regional Office
TII Project Manager	
Project Description	Delivery of a sustainable transport solution for Carrick-on-Shannon and the wider communities along the N4
Scheme Cost €m (TSB)	Category D (as per NDP Table 5.15)
What Are The Likely Sources of Non-Exchequer Funding	To Be Confirmed
TII Growth Scenario	TII Central Growth
Appraisal Team Author	
Design Team Reviewer	Eileen McCarthy / Mary Hurley / Trevor Van Rensburg
TII Engineering Inspector	
External Auditor	
Modelling Base Year	2021
Scheme Opening Year	2030
Reference Number of Nearest TII Traffic Monitoring Unit(s)	TMU N04 151.0 E, TMU N04 130.0 E

Note - This PABS should be completed with reference to the latest version of TII PAG Unit 7.1. Users should always check that the correct version is followed prior to undertaking the PABS.

Project Appraisal Balance Sheet



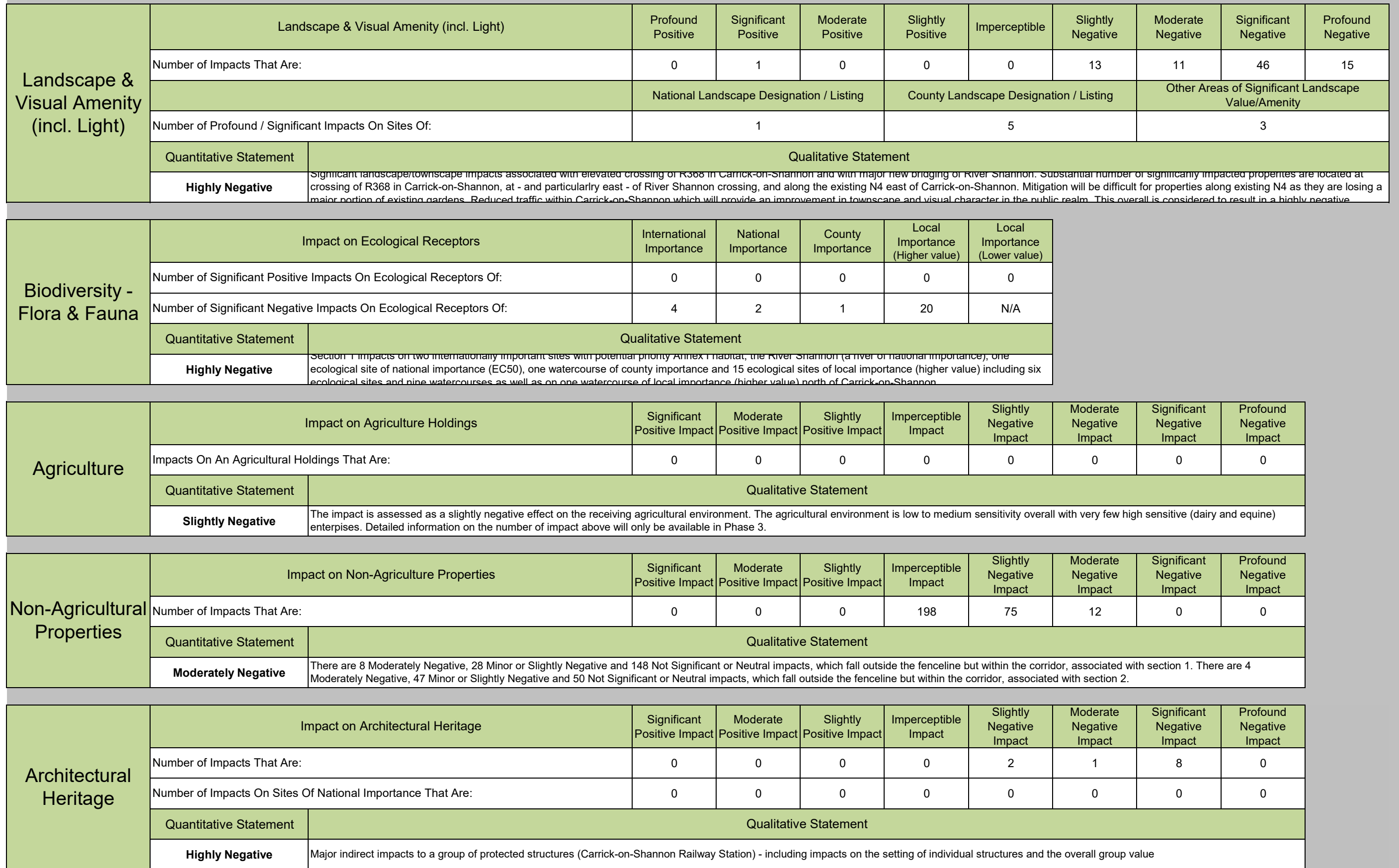
Part B: Environment

Air Quality & Climate	Climate - Carbon Dioxide (CO ₂)				Quantitative Statement Parameter			
	Tonnes of CO ₂ produced in the Do Minimum Scenario?				877,950			
	Tonnes of CO ₂ produced in the Do Something Scenario?				906,225			
	Ratio of CO ₂ produced in Do Something Scenario to Do Minimum Scenario				1.03			
	Greenhouse Gasses				Monetised Benefits (€m)			
	Value of change in emissions							
	Significance Criteria	Substantial Beneficial	Moderate Beneficial	Slight Beneficial	Negligible	Slight Adverse	Moderate Adverse	Substantial Adverse
	Number of Sensitive Locations Experiencing Impacts That Are:					180		
	Index of Overall Change in Exposure	Large Negative Index	Medium Negative Index	Small Negative Index	Small Positive Index	Medium Positive Index	Large Positive Index	
	Nitrogen Dioxide (NO ₂)	○	●	○	○	○	○	
	Particulate Matter (PM ₁₀)	○	○	●	○	○	○	
	Quantitative Statement	Qualitative Statement						
	Slightly Negative	Index of overall change not computed as DMRB out-of-date. Assessment based on outputs from the options study						

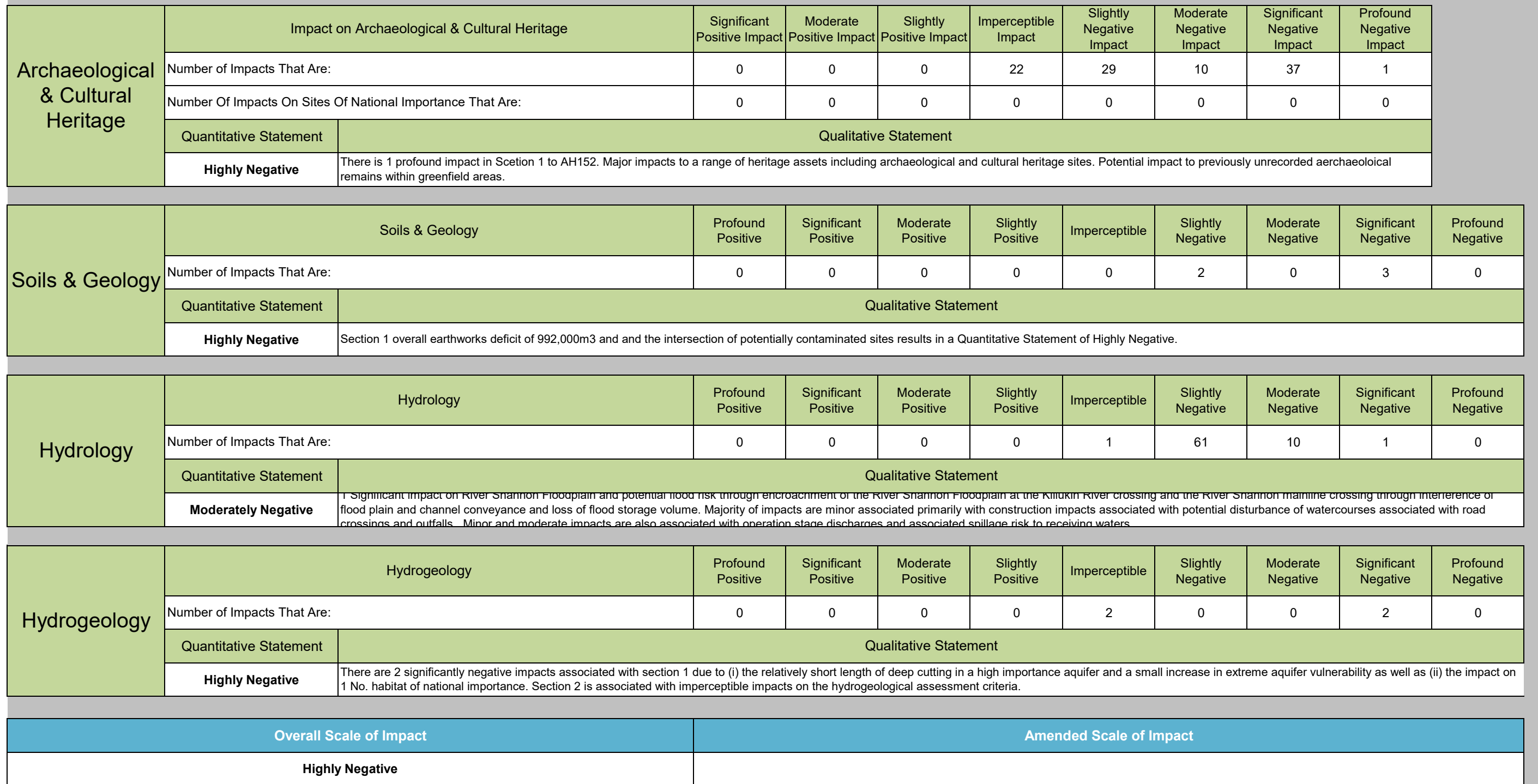
Noise & Vibration	Sensitive Receptors		Quantitative Statement Parameter
	Number of Sensitive Receptors Requiring Mitigation (i.e. the three conditions have been satisfied) Per Kilometre		1.83km
	Number of Sensitive Receptors Requiring Mitigation (i.e. the three conditions have been satisfied), But It Is Not Feasible To Mitigate Noise To The Required Level Per Kilometre		Not yet assessed
	Quantitative Statement	Qualitative Statement	
	Moderately Negative	The number of properties likely requiring mitigation along section 1 is 24. These are clustered at residential areas to the east of the River Shannon for the most part. The number of properties likely requiring mitigation along section 2 is 13. These properties are spread along the length of it.	

Waste	Unacceptable Material		Quantitative Statement Parameter No. (m ³)
	Quantity Of Unacceptable Material Class U1 To Be Disposed Of Off Site?		487,000m3
	Quantity Of Unacceptable Material Class U2 To Be Disposed Of Off Site?		Quantity not known
	Quantity Of Unacceptable Material and Contaminated Land/Hazardous Waste To Be Left In Situ?		Not applicable
	Quantitative Statement	Qualitative Statement	
	Highly Negative	The plan area of contaminated sites was calculated for the option corridors. Where the attributes of Industrial Sites and Historic Pits and Quarries were intersected these were counted as a number. Volumes were not calculated as the depth of the attributes is unknown.	

Part B: Environment



Part B: Environment



Project Appraisal Balance Sheet

Part C: Safety, Physical Activity, Economy, Accessibility and Social Inclusion and Integration Input Sheet



Safety	Collision Reduction		Total Collision Reduction	Casualty Reduction			Value Of Accident Reduction (€m)			
				Fatal	Serious	Minor				
		What is the Collision/Casualty Reduction Over 30 Years?	17.5	-1.4	-0.9	16.8	€ 0.0			
		Quantitative Statement	Qualitative Statement							
	Highly Positive	Along the on-line sections, the rationalisation of junctions and addition of side/parallel roads will significantly reduce the number of collisions and injuries along this section of the N4. Note no reduction for the 30km/h is accounted here.								
	Security		Don't Know / NA	Highly Negative	Moderately Negative	Slightly Negative	Neutral	Slightly Positive	Moderately Positive	Highly Positive
		What is the Expected Impact Of The Project On The Security Of Road Users?	○	○	○	○	○	○	●	○
		Quantitative Statement	Qualitative Statement							
		Moderately Positive	Additional improvements for vulnerable road users is provided. Rationalisation of accesses and junctions will further increase safety and security.							
	Safety - Overall Scale of Impact			Safety - Amended Scale of Impact						
Highly Positive										

Physical Activity	Ambience		Don't Know / NA	Highly Negative	Moderately Negative	Slightly Negative	Neutral	Slightly Positive	Moderately Positive	Highly Positive	
		What is the expected impact of the project upon journey ambience?	○	○	○	●	○	○	○	○	
		Quantitative Statement	Value of Benefit (€m)		Qualitative Statement						
		Slightly Negative			River Shannon crossing will have a visual impact on any water based trip/riverside walk/cycle, reducing the ambience of what is currently a crossing free amenity area.						
	Absenteeism		Don't Know / NA	Highly Negative	Moderately Negative	Slightly Negative	Neutral	Slightly Positive	Moderately Positive	Highly Positive	
		What is the impact of the project on absenteeism?	○	○	○	○	○	○	●	○	
		Quantitative Statement	Value of Benefit (€m)		Qualitative Statement						
		Moderately Positive			Rationalisation of parking, traffic calming, provision of a 30km/h zone and new formal pedestrian crossings, will encourage an increase in active travel and physical activity.						
	Reduced Health Risk		Don't Know / NA	Highly Negative	Moderately Negative	Slightly Negative	Neutral	Slightly Positive	Moderately Positive	Highly Positive	
		What is the impact of the project on the reduction in relative risk for cyclists and walkers?	○	○	○	○	○	○	○	●	
		Quantitative Statement	Value of Benefit (€m)		Qualitative Statement						
		Highly Positive			Rationalisation of parking, traffic calming, provision of a 30km/h zone and new formal pedestrian crossings, will encourage an increase in active travel and physical activity.						
	Physical Activity - Overall Scale of Impact			Physical Activity - Amended Scale of Impact							
	Moderately Positive										

Project Appraisal Balance Sheet

Part C: Safety, Physical Activity, Economy, Accessibility and Social Inclusion and Integration Input Sheet



Economy	Efficiency and Effectiveness		Commuting (€m)	Business (€m)	Other (€m)	Indirect Tax (€m)	Residual Value (€m)	Total Benefits (€m)		
		What Are The Benefits Of The Scheme?	+Value	+Value	+Value	+Value	+Value	+Value		
		Quantitative Statement								
		The Preferred Transport Solution is closely matched in length to the existing N4 and provides the closest connection to Carrick-on-Shannon and also provides direct access to the R368. The reduction in the number of accesses and junction locations along the existing N4 also improves efficiency.								
	Wider Economic Impacts	What Impact Will The Project Have On....	Don't Know / NA	Highly Negative	Moderately Negative	Slightly Negative	Neutral	Slightly Positive	Moderately Positive	Highly Positive
		Increase Competition In Markets?	☐	☐	☐	☐	☐	☒	☐	☐
		Lead To Efficiencies In Clustering Of Economic Activity? (Agglomeration Benefits)	☐	☐	☐	☐	☐	☒	☐	☐
		Attract Inward Investment?	☐	☐	☐	☐	☐	☒	☐	☐
		Expand Local Labour Supply?	☐	☐	☐	☐	☐	☒	☐	☐
		Contribute To Urban Regeneration	☐	☐	☐	☐	☐	☒	☐	☐
		Quantitative Statement	Qualitative Statement							
		Slightly Positive	The Preferred Transport Solution will significantly enhance all five of the wider economic sub-criteria and are expected to be minor or slightly positive							
	Funding Impacts	What Impact Will The Project Have On....	Don't Know / NA	None	< 10%	10%-30%	> 30%			
		What Percentage Of Non-Exchequer Funding Is The Project Expected To Receive?	☐	☒	☐	☐	☐			
		Quantitative Statement	Qualitative Statement							
Neutral		Future funding mechanism is not known at this stage. As the N4 corridor forms part of the TEN-T network and provides a strategically important link to the northwest, there may be potential to secure non-exchequer EU funding.								
Economy - Overall Scale of Impact			Economy - Amended Scale of Impact							
Slightly Positive										

Project Appraisal Balance Sheet

Part C: Safety, Physical Activity, Economy, Accessibility and Social Inclusion and Integration Input Sheet



Accessibility and Social Inclusion	Deprived Areas	What Impact Will The Project Have On.....	Don't Know / NA	Highly Negative	Moderately Negative	Slightly Negative	Neutral	Slightly Positive	Moderately Positive	Highly Positive	
		Area Based Childhood Programme?	☐	☐	☐	☐	☐	☒	☐	☐	
		Rural Social Scheme?	☐	☐	☐	☐	☐	☒	☐	☐	
		Quantitative Statement	Qualitative Statement								
		Slightly Positive	All alternatives offer a decrease in private vehicle trips resulting in positive benefits towards deprivation, with the largest of those coming from the demand management measures with Carrick-on-Shannon and Cortober.								
	Vulnerable Groups	What Impact Will The Project Have On.....	Don't Know / NA	Highly Negative	Moderately Negative	Slightly Negative	Neutral	Slightly Positive	Moderately Positive	Highly Positive	
		Access To Employment or Vital Infrastructure?	☐	☐	☐	☐	☒	☐	☐	☐	
		Quantitative Statement	Qualitative Statement								
		Neutral	Removing traffic from the N4 would benefit pedestrians and cyclists from a reallocation of the existing road space. Appropriate alternatives for vulnerable road users significantly reduces severance across the existing N4								
	Accessibility & Social Inclusion - Overall Scale of Impact			Accessibility & Social Inclusion - Amended Scale of Impact							
	Slightly Positive										

Project Appraisal Balance Sheet

Part C: Safety, Physical Activity, Economy, Accessibility and Social Inclusion and Integration Input Sheet



Integration	Transport Integration	What Impact Will The Project Have On.....	Don't Know / NA	Highly Negative	Moderately Negative	Slightly Negative	Neutral	Slightly Positive	Moderately Positive	Highly Positive	
		Connectivity of the Strategic Road Network?	☐	☐	☐	☐	☐	☐	☐	☐	☒
		Connectivity Between Transport Modes?	☐	☐	☐	☐	☐	☐	☐	☐	☒
		Sustainable Transport Networks?	☐	☐	☐	☐	☐	☐	☐	☐	☒
		Access to Other Transport Infrastructure Such As Ports and Airports?	☐	☐	☐	☐	☐	☐	☐	☐	☒
		Quantitative Statement	Qualitative Statement								
		Highly Positive	An existing deficiency in the national primary network and the TENT-T comprehensive network is addressed and a vital link from Dublin to the northwest region provides improved transport infrastructure for use by public transport.								
	Land Use Integration	What Impact Will The Project Have On.....	Don't Know / NA	Highly Negative	Moderately Negative	Slightly Negative	Neutral	Slightly Positive	Moderately Positive	Highly Positive	
		Objectives of Local and County Development Plans?	☐	☐	☐	☐	☐	☐	☐	☐	☒
		Strategic Connectivity for High Value Trips?	☐	☐	☐	☐	☐	☐	☐	☐	☒
		Urban Sprawl?	☐	☐	☐	☐	☐	☐	☐	☐	☒
		Quantitative Statement	Qualitative Statement								
		Highly Positive	Active travel provisions cater for short distance trips and service local areas. The demand management measures improves local connectivity. The Preferred Transport Solution improves transport integration at the local level.								
		Geographic Integration	What Impact Will The Project Have On.....	Don't Know / NA	Highly Negative	Moderately Negative	Slightly Negative	Neutral	Slightly Positive	Moderately Positive	Highly Positive
	Cross Border Connectivity?		☐	☐	☐	☐	☐	☐	☐	☐	☒
	The Trans European Transport network?		☐	☐	☐	☐	☐	☐	☐	☐	☒
	Quantitative Statement		Qualitative Statement								
	Highly Positive		Active travel provisions cater for short distance trips and service local areas. The demand management measures will serve to improve local connectivity. Preferred Transport Solution improves transport integration at the local level								
	Other Government Policy Integration	How Will This Project Impact On The Wider Objectives of....	Don't Know / NA	Highly Negative	Moderately Negative	Slightly Negative	Neutral	Slightly Positive	Moderately Positive	Highly Positive	
		National Spatial Strategy/National Planning Framework	☐	☐	☐	☐	☐	☐	☐	☐	☒
		Quantitative Statement	Qualitative Statement								
		Highly Positive	The Preferred Transport Solution is in line with national, regional and local planning policy.								
	Integration - Overall Scale of Impact			Integration - Amended Scale of Impact							
Highly Positive											

Project Appraisal Balance Sheet

Part D: PABS Summary Table



Project Title			PRS Reference Number	0	Project Description								Scheme Cost (€m)		Date									
N4 Carrick-on-Shannon to Dromod			Modelling Base Year		2021	Delivery of a sustainable transport solution for Carrick-on-Shannon and the wider communities along the N4								Category D (as per NDP Table 5.15)		22 07 2022								
			Scheme Opening Year		2030																			
Criteria		Quantitative Statement	Summary of Keys Impacts (Qualitative Assessment)					Quantitative Assessment					Monetised (€m over 30 yrs)											
Environment	Air Quality and Climate	Slightly Negative	Index of overall change not computed as DMRB out-of-date. Assessment based on outputs from the options study					Additional CO ₂ (Tonnes)			28275			Value of Change in Emissions (€m)										
								Ratio of CO ₂ Do-Min/Do-Some			1.03			€0.000										
								Index of Overall Change in Exposure NO ₂			Medium Negative Index													
								Index of Overall Change in Exposure PM ₁₀			Small Negative Index													
								Sub Ben.	Mod Ben	Sli Ben.	Negligible		Sli Adv.	Mod Adv.	Sub Adv.									
						No. of Sensitive Locations Experiencing Impacts That Are:					0	0	0	0		180	0	0						
	Noise and vibration	Moderately Negative	The number of properties likely requiring mitigation along section 1 is 24. These are clustered at residential areas to the east of the River Shannon for the most part. The number of properties likely requiring mitigation along section 2 is 13. These properties are spread along the length of it.					No. of Sensitive Receptors Requiring Mitigation				1.83km												
								No. of Sensitive Receptors Requiring Mitigation (Not Feasible)				Not yet assessed												
	Waste	Highly Negative	The plan area of contaminated sites was calculated for the option corridors. Where the attributes of Industrial Sites and Historic Pits and Quarries were intersected these were counted as a number. Volumes were not calculated as the depth of the attributes is unknown.					Unacceptable Material/Contaminated Land/Hazardous Waste to be ...																
								Disposed of Off Site		U1 [m ³] 3	U2 [m ³] Quantity not known		Left in Situ [m ³ land waste]		Not applicable									
	Landscape & Visual Amenity (incl. Light)	Highly Negative	Significant landscape/townscape impacts associated with elevated crossing of R368 in Carrick-on-					PP	Sig P	Mod P	Sli P	I	Sli N	Mod N	Sig N	PN								
								0	1	0	0	0	13	11	46	15								
	Biodiversity, Flora & Fauna	Highly Negative	Section 1 impacts on two internationally important sites with potential priority Annex I habitat, the River Shannon (a river of national importance), one ecological site of national importance (EC50), one watercourse of county importance and 15 ecological sites of local importance (higher value) including six ecological sites and nine watercourses as well as on one watercourse of local importance (higher value) north of Carrick-on-Shannon. Section 2 impacts on two internationally important sites with potential priority Annex I habitat and four ecological sites of local importance (higher value) including one					No. Of Impacts That Are:			National		1		County		5		Other		3			
													No. of Profound/Significant Impacts on Sites Of:											
								Number of Positive Impacts		0		0		0		0		0						
	Agriculture	Slightly Negative	The impact is assessed as a slightly negative effect on the receiving agricultural environment. The agricultural environment is low to medium sensitivity overall with very few high sensitive (dairy and equine) enterprises. Detailed information on the number of impact above will only be available in Phase 3.					Number of Negative Impacts		4		2		1		20		N/A						
								Impact on Agricultural Holdings that are:																
	Non-Agricultural Properties	Moderately Negative	There are 8 Moderately Negative, 28 Minor or Slightly Negative and 148 Not Significant or Neutral impacts, which fall outside the fenceline but within the corridor, associated with section 1. There are 4 Moderately Negative, 47 Minor or Slightly Negative and 50 Not Significant or Neutral impacts, which fall outside the fenceline but within the corridor, associated with section 2.					Sig P	Mod P	Sli P	I	Sli N	Mod N	Sig N	PN									
								0	0	0	0	0	0	0	0	0								
	Architectural Heritage	Highly Negative	Major indirect impacts to a group of protected structures (Carrick-on-Shannon Railway Station) - including impacts on the setting of individual structures and the overall group value					No. of Impacts That Are:		0		0		2		1		8		0				
								No. of Impacts on Sites of National Importance That Are:		0		0		0		0								
Archaeological and Cultural Heritage	Highly Negative	There is 1 profound impact in Scetion 1 to AH152. Major impacts to a range of heritage assets including archaeological and cultural heritage sites. Potential impact to previously unrecorded aerchaeolocal remains within greenfield areas.					No. of Impacts That Are:		0		0		22		29		10		37		1			
												No. of Impacts on Sites of National Importance That Are:		0		0		0		0		0		
Soils & Geology	Highly Negative	Section 1 overall earthworks deficit of 992,000m3 and and the intersection of potentially contaminated sites results in a Quantitative Statement of Highly Negative.					PP	Sig P	Mod P	Sli P	I	Sli N	Mod N	Sig N	PN									
							0	0	0	0	0	2	0	3	0									
Hydrology	Moderately Negative	1 Significant impact on River Shannon Floodplain and potential flood risk through encroachment of the River Shannon Floodplain at the Killukin River crossing and the River Shannon mainline crossing through interference of flood plain and channel conveyance and loss of flood storage volume. Majority of impacts are minor associated primarily with construction impacts associated with potential disturbance of watercourses associated with road crossings and outfalls. Minor and moderate impacts are also associated with operation stage discharges and associated spillage risk to receiving waters.					Number Of Impacts That Are:																	
							PP	Sig P	Mod P	Sli P	I	Sli N	Mod N	Sig N	PN									
Hydrogeology	Highly Negative	There are 2 significantly negative impacts associated with section 1 due to (i) the relatively short length of deep cutting in a high importance aquifer and a small increase in extreme aquifer vulnerability as well as (ii) the impact on 1 No. habitat of national importance. Section 2 is associated with imperceptible impacts on the hydrogeological assessment criteria.					Number Of Impacts That Are:																	
							PP	Sig P	Mod P	Sli P	I	Sli N	Mod N	Sig N	PN									
Safety	Collision Reduction	Highly Positive	Along the on-line sections, the rationalisation of junctions and addition of side/parallel roads will significantly reduce the number of collisions and injuries along this section of the N4. Note no reduction for the 30km/h is accounted here.					Collision Reduction Over 30 Years										Value of Change (€m)						
								Collisions		Casualties		Fatal		Serious		Minor								
Safety	Security	Moderately Positive	Additional improvements for vulnerable road users is provided. Rationalisation of accesses and junctions will further increase safety and secutity.					17.5		14.5		-1.4		-0.9		16.8		€0.0						
Physical Activity	Ambience	Slightly Negative	River Shannon crossing will have a visual impact on any water based trip/riverside walk/cycle, reducing the ambience of what is currently a crossing free amenity area.															€0.0						
	Absenteeism	Moderately Positive	Rationalisation of parking, traffic calming, provision of a 30km/h zone and new formal pedestrian crossings, will encourage an increase in active travel and physical activity.															€0.0						
	Reduced Health Risk	Highly Positive	Rationalisation of parking, traffic calming, provision of a 30km/h zone and new formal pedestrian crossings, will encourage an increase in active travel and physical activity.															€0.0						
Economy	Transport Efficiency and Effectiveness		The Preferred Transport Solution is closely matched in length to the existing N4 and provides the closest connection to Carrick-on-Shannon and also provides direct access to the R368. The reduction in the number of accesses and junction locations along the existing N4 also improves efficiency.															Commute	Business	Other	Value of Change			
																		+Value	+Value	+Value				
																		Indirect Tax		Res. Value		€0.0		
Economy	Wider Economic Impact	Slightly Positive	The Preferred Transport Solution will significantly enhance all five of the wider economic sub-criteria and are expected to be minor or slightly positive					Slightly Positive																
	Funding	Neutral	Future funding mechanism is not known at this stage. As the N4 corridor forms part of the TEN-T network and provides a strategically important link to the northwest, there may be potential to secure non-exchequer EU funding.					Expected Percentage of Non-Exchequer Funding																
								Neutral																
Accessibility and Social Inclusion	Deprived Geographic Areas	Slightly Positive	All alternatives offer a decrease in private vehicle trips resulting in positive benefits towards deprivation, with the largest of those coming from the demand management measures with Carrick-on-Shannon and Cortober.					Impact on Deprived Areas																
								Slightly Positive																
	Vulnerable Groups	Neutral	Removing traffic from the N4 would benefit pedestrians and cyclists from a reallocation of the existing road space. Appropriate alternatives for vulnerable road users significantly reduces severance across the existing N4					Impact on Access to Employment or Vital Infrastructure																
Integration	Transport Integration	Highly Positive	An existing deficiency in the national primary network and the TENT-T comprehensive network is addressed and a vital link from Dublin to the northwest region provides improved transport infrastructure for use by public transport.					Highly Positive																
	Land-Use Integration	Highly Positive	Active travel provisions cater for short distance trips and service local areas. The demand management measures improves local connectivity. The Preferred Transport Solution improves transport integration at the local level					Highly Positive																
	Geographical Integration	Highly Positive	Active travel provisions cater for short distance trips and service local areas. The demand management measures will serve to improve local connectivity. Preferred Transport Solution improves transport integration at the local level					Highly Positive																
	Integration with Other Government Policies	Highly Positive	The Preferred Transport Solution is in line with national, regional and local planning policy.					Highly Positive																
Overall Scale of Impact		Environmental	Highly Negative	Economy	Slightly Positive	Summary of Benefits																		
		Safety	Highly Positive	Accessibility & Social	Slightly Positive	Present Value of Benefits (PVB)		€0		Net Present Value (NPV)				€0										
		Physical Activity	Moderately Positive	Integration	Highly Positive	Present Value of Costs (PVC)				Benefit to Cost Ratio (BCR)				0.00										