| Appraisal Summary Table | | Date produced: 19 February 2014 | | | | | | ontact: |
|---|--------------------------------------|---|---|---|---------------------|----------------|---|--|
| Name of scheme: Description of scheme: | | M4 J3-12 Smart Motorway Proposal to implement Smart Motorways on this stretch of the M4. | | | | | Name Organisation | Lynne Stinson Highways Agency |
| Impacts | | Summary of key impacts | | | Asse ssi | | Role | Promoter |
| | | | | Quantitative | • | Qualitative | Monetary £(NPV) | Distributional 7-pt scale/ vulnerable grp |
| Economy | Business users & transport providers | There is an overall improvement in the transport economic efficiency of business users as a result of the scheme, principally in the form of savings in journey time. | Value of journey time changes(£) 785.6M Net journey time changes (£) | | | | | vuinerable grp |
| Ecor | | 92% of total TEE benefit during normal operation is attributable to to changes in business journey times and vehicle operating costs. A total of 56.7M vehicle hours are saved by business users in the opening year during | 0 to 2min 2 to 5min | | > 5min | | | |
| | | normal operation The scheme contributes to savings of journey time in the opening year each way | 200 FM | M2 000 | 75 FM | N/A | 585.3M | N/A |
| | | between J13 and J1 of 4.8 minutes in the am, 5.1 minutes in the pm and 1.9 minutes in the inter peaks respectively. There is an increase of 5 to 9 minutes in journey time between J3 & J12 during | 380.5M | 329.6M | 75.5M | | | |
| | Reliability impact on | Construction, depending on construction phase An assessment of reliability benefits has been undertaken using MyRIAD. | | | | | | |
| | Business users Regeneration | The assessment has been undertaken in line with standard assumptions for the impacts of the introduction of Smart Motorw ays. | NA | | | N/A | 289.8M | N/A |
| | negeneration | A total of 5 Regeneration Areas in the vicinity of the scheme have been assessed in terms of changes in accessibility to/from these areas brought about by the scheme. | The analyses concluded that there is a slight positive impact in terms of a small increase, generally <5%, in the area accessible within a 1hr travel time. It is concluded this is insufficient to generate a direct increase in employment. N/A | | | N/A | N/A | N/A |
| | Wider Impacts | These are not assessed for Highways Agency Schemes | | | | N/A | N/A | N/A |
| ental | Noise | For opening year, the complete extent of the Scheme will be provided with low noise surfacing. For the 15 th year after Scheme opening, the complete extent of the Scheme | | | | | | |
| Environmenta | | will have low noise surfacing for both the Do-Minimum scenario and the Do-Something scenario. This results in negligible adverse noise differences for the Scheme when | | | | | | |
| Envi | | comparing the Do-Minimum and Do-Something noise levels for the 15th year. Importantly, how ever, it is noted that the noise climate across the study area for the 15th year after Scheme opening with the Scheme in operation is an improvement on that for the Do- | | | | n/a | -4.02M | Slight Adverse |
| | | Minimum scenario in opening year. | | Net Difference in Population Annoyed = +208 | | | | |
| | | No properties meet the criteria for noise insulation under the provisions of the NIR (out of a total of 23,025 residential properties w itihn 600 metes of the Scheme). | | | | | | |
| | | The noise changes to all non-residential sensitive receptors in the study area (including 20 schools and 1 hospital) are negligible. | | | | | | |
| | Air Quality | There are 10 Air Quality Management Areas declared along the Scheme and affected | For PM10 air quality will be improved at 4663 properties, stay the same at 1014 properties and worsen at 7341 properties. For NO2 air quality will be improved at 4766 properties, stay the same at 167 properties and worsen at 8085 properties. Net Total Assessment score for PM10 +562 Net Total Assessment score for NO2 +688 | | | . Ν/Δ | | 0-20%: Slight Beneficial |
| | | Inlers are 10 Air Quality wanagement Areas declared along the Scheme and affected links. As a result of the scheme, 22 receptors are predicted to experience an increase of more than 0.4 µg/m3 in NO2 with concentrations of NO2 above the objective value of 40 | | | | | -4.64M | 20-40%: Neutral |
| | | μ g/m3. Regional emissions of PM10 are predicted to increase by 4 tonnes/year in the the opening year. Regional emissions of NOx are predicted to increase by 95 tonnes/year. | | | | | | 40-60%: Neutral 60-80%: Neutral |
| | Croophouse | Predictions carried out using EFT calculations. There is an increase of 4.18 million tonnes | | | | | | 80-100%: Neutral |
| | Greenhouse gases Landscape | The M4.3-12 Smart Motorw ay scheme generally involves limited interventions to an | Change in non-traded carbon over 60y (CO2e) 4180129 Change in traded carbon over 60y (CO2e) 0 | | N/A | -194.87M | | |
| | | established motorw ay corridor (namely the introduction of additional gantries and localised carriagew ay widening/structures replacements), that constitutes part of | | N/A | | Slight Adverse | N/A | |
| | Tow nscape | existing landscape character. As a result the scheme is unlikely to give rise to significant landscape effects. The M4 J3-12 Smart Motorw ay corridor passes through rural and urban fringe | | | | | | |
| | Herbert of Heater | landscapes rather than dense, urban townscapes. As a result, WebTAG Unit 3.3.8 is not considered to be relevant. | N/A | | N/A | N/A | | |
| | Heritage of Historic resources | There is the potential for Slight Adverse impacts to the setting of 2 scheduled monuments, 8 listed buildings, 2 Conservation Areas and a number of undesignated heritage assets. There is also the potential for Slight Adverse physical impacts to a number of | NA | | Slight Adverse | N/A | | |
| | Biodiversity | undesignated heritage assets. Any local impacts on existing soft estate can largely be mitigated by careful siting of | | | | | | |
| | | infrastructure and new planting and management. No significant impact on designated sites of nature conservation importance is anticipated. There will be a very minor loss of habitats that will be mainly restricted to the motorway soft estate of broad-leaved | N/A | | | | | |
| | | plantation, scrub and grassland, with impacts predicted as slight adverse. Following mitigation measures for great crested newts, bats, otters, dormouse, water vole and | | | | Slight Adverse | N/A | |
| | | badger impacts to fauna is predicted as neutral, apart from reptiles and breeding birds w here there is potential for a slight adverse impact from habitat loss and increased mortality from the carriagew ay being nearer to bird habitat. | | | | | | |
| | Water Environment | There will be little impact upon the water environment as the scheme involves minimal additional impermeable areas and discharges will be limited to current rates. As the | | | | | | |
| | | scheme involves very little change from the existing situation and with suitable mitigation measures the magnitude of all the impacts is considered to be negligible. Therefore the | N/A | | | Neutral | N/A | |
| | | implementation of the proposed scheme is likely to be of low significance for the water environment in terms of impacts on surface and groundwater quality, drainage and flood risk. | | | | | | |
| Social | Commuting and Other users | There is an overall improvement in the transport economic efficiency of consumer users as a result of the scheme, principally in the form of savings in journey time. | | urney time char journey time cha | • | 1 | | |
| Š | | 8% of total TEE benefit during normal operation is attributable to to changes in consumers journey times and vehicle operating costs. A total of 82.0M vehicle hours are saved by consumer users in the opening year during | 0 to 2min | 2 to 5min | > 5min | | | Significant impact on |
| | | normal operation The scheme contributes to savings of journey time in the opening year each w ay | | | 74.014 | N/A | -48.8M | the low est income quintile in the pm peak only. |
| | | between J13 and J1 of 4.8 minutes in the am, 5.1 minutes in the pm and 1.9 minutes in the inter peaks respectively. | 231.9M | 145.4M | 71.8M | | | Only. |
| | Reliability impact on | There is an increase of 5 to 9 minutes in journey time between J3 & J12 during construction, depending on construction phase. An assessment of reliability benefits has been undertaken using MyRIAD. | | | | | | |
| | Commuting and Other users | of the introduction of Smart Motorways. | | N/A | | N/A | 284.7M | |
| | Physical activity | These impacts primarily concern schemes which are aimed at cycling and w alking. As such interventions are not part of the M4 J3-12 Smart Motorw ay scheme proposals, it was not deemed appropriate to consider the impacts on physical activity. | N/A | | N/A | N/A | N/A | |
| | Journey quality | The scheme includes signage and signals to provide clear and unambiguous information to the driver and is expected to alleviate congestion and improve journey time reliability. With the achieve in place driver stress in | N/A | | Large Benefical | N/A | N/A | |
| | Accidents | With the scheme in place driver stress is predicted to be lower There is a decrease in accidents on the scheme section and the surrounding network | A reduction of 33 fatal, 303 serious and 1622 slight | | | 107 51: | No significant adverse impacts on | |
| | | due to a combination of reassignment of traffic to a safer road, hazard elimination during design and the introduction of ASR. | accidents over the appraisal period. | | N/A | 104.5M | any vulnerable user group. | |
| | Security | The TAME guidance for road schemes advises that they should never have anything other than a negligible impact on security. Accordingly this aspect has been excluded from the appraisal. | N/A | | | N/A | N/A | N/A |
| | Access to services | The TAME guidance for road schemes advises that they should never have anything other than a negligible impact on accessibility. Accordingly this aspect has been excluded | N/A | | N/A | N/A | N/A | |
| | Affordability | from the appraisal. | | | | | Significant impact on | |
| | | All income groups are subject to adverse impacts in all time periods, principally due to increases in vehicle operating costs. | N/A | | Moderate Adverse | N/A | the low est income quintile in the inter and pm peaks only. | |
| | Severance | The TAME guidance advises that a highway scheme may have an impact on severance | | | | | | ppoule ciny: |
| | | but the TAG Unit (A4.1) indicates that this is dependent on whether the scheme has a impact on pedestrian movements, ie whether the infrastructure presents a physical barrier to pedestrian movement. It is not expected that the scheme will provide a barrier | | N/A | | | N/A | N/A |
| | | pedestrian movements, either physically or by increasing traffic (compared to the existing situation). | | | | | | |
| | Option values | The scheme does not involve the loss or introduction of a new mode of transport; accordingly option values are unaffected. | | N/A | | N/A | N/A | N/A |
| ounts | Cost to Broad Transport Budget | All costs attributable to Central Government Capital Costs: £563.3M + Operating & Maintenance costs of £44.9M | 608.2M | | N/A | 608.2M | N/A | |
| Public Accounts | Indirect Tax Revenues | rect Tax Revenues There is an increase in indirect tax revenues resulting from an increase in travel | | | | | | |
| Publ | | distances, higher speeds and a resulting increase in vehicle operating costs with associated increased tax revenues. | | 327.3M | | N/A | 327.3M | N/A |