A601 (M) SOBC Analysis

DRAFT

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Important

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Introduction

- This document outlines the assumptions that underpin the following pieces of analysis:
  - Land Value Uplift
  - Accident Analysis
  - Journey Times
  - Present Value of Cost
- All analysis has been undertaken to 2010 prices and 2010 present values in line with WebTag guidance. The GDP deflator from the WebTag Databook (2019) has been used to adjust the price base. Whilst the discount rate as set out in HM Treasury's Green Book has been used to derive present values.

Land Value Uplift (LVU)

- Two development sites envisaged to be enabled by option 5 through provision of at grade junctions.

- Development sites are currently defined to be of greenfield land use. Gross hectarage across respective sites are 6 and 27.

- Current land value estimated using MHCLG land value estimates for policy appraisal data (2017).

- Greenfield land is estimated to be £25k (2017 prices) per hectare in Lancashire.

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Land Value Uplift

- Residential land is estimated to be £2.1m in Lancaster and (2017 prices) per hectare
- To proxy the office land value for Lancaster, the land value for Blackpool in Lancashire Enterprise Partnership (LEP) has been used. This relates to £450k (2017) prices per hectare.
- Development across sites to be a blend of 60% residential and 40% office post scheme delivery.
- Land value estimates for policy appraisal (2017) per hectare data used to estimate future land value.
- 10 year appraisal period adopted: 2022 – 2031.
- Gross LVU estimated by subtracting future land value from current land value.

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Land Value Uplift

- Gross Land Value Uplift converted to Net Land Value Uplift as per WebTag TAG UNIT A2.2. The following factors have been adopted:
  - Displacement - 37.4%. Source: HCA Additionality Guide
  - Market price adjustment factor - 1.19. Source: WebTag May 2019 Databook
  - Land amenity loss - £29k (2010 prices) per hectare. Source: DfT Valuing Housing Impacts Workbook
- Transport external costs (TEC) – assumed to be nil. Enough capacity on the road to accommodate development related traffic.
- Non – transport complimentary measures (NTCI) – assumed to be nil at this stage. Though analysis acknowledges flood mitigation measures would be required to enable development land.
- ***Note – the Net LVU is sensitive to both TEC and NTCI values.***

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Accident Analysis

- Accident analysis relating to the closure of Nether Beck has not been undertaken at this stage given the low traffic flows on that route.
- Traffic flows grown to a future year with Tempro growth forecasts have been used.
- All vehicles (Cars & LGVs, OGVs) are assumed to be diverted along proposed diversion routes.
- Closure of the A601(M) will result in a 34km diversion for OGVs and 3km diversion for LGVs and Cars.
- 34km diversion is along:
  - 10km of motorway
  - 18km of single carriageway (40+ mph)
  - 6km of dual carriageway
- 3km diversion is along:
  - 1km of single carriageway at speeds of 40+ mph
  - 2km of single carriageway at speeds of 30/40 mph

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Accident Analysis

- Accidents are a factor of vehicle kilometres. Vehicle kilometres have been estimated by applying vehicle flows to length of diversion/link.
- Accident rates for various link types are taken from the WebTag Data Book (May 2019).
- The link types selected vary by the type of road the diversion passes through as well the various options proposed for the A601(M).
- Average percentage of fatal, serious and slight accidents by link type are obtained from the WebTag Data Book (May 2019).
- Cost per accident severity obtained from WebTag Data Book (May 2019) are applied to the annual number of fatal, serious and slight accidents across the appraisal period.
- Both 30 and 60 year appraisal period presented: (2022-2051) & (2022 – 2081).

Accident Analysis

- Analysis does not take into account proposals for an at grade junction at this stage.

- Accident savings have been presented on the difference between the cost of accidents under both option 1a (Do Nothing) and option 1b (Do Minimum) versus costs of accidents through the various options.

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Journey Time Analysis

- 20 year appraisal period (2022 – 2041). Based on text from the OAR that indicates minimal impacts envisaged on traffic.
- The date of data collection of raw traffic counts has been taken as November 2018.
- Northbound and southbound movements combined to give total flow along the corridor.
- Flows grown for 10 years from 2017 baseline flows then flatlines for the remaining appraisal period years.
- The flows along the A601(M), northbound and southbound, have been taken as consistent between Options 1 (do nothing/minimum) and 5. The difference being the added JTs for each option.
- Diversion routes have been divided up according the lengths of the route that fall into various speed limits.

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Journey Time Analysis

- OGVs travelling at 60mph restricted roads are assumed to be averaging 56mph
- OGVs travelling at 50mph restricted roads are assumed to be averaging 35mph
- OGVs on 30mph restricted roads travel at the speed limit
- All other vehicle types in this analysis (Cars&LGVs) are considered to be travelling at the speed limit
- Diversion time has been calculated by dividing the distance of each section by the speed limit of that section.

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Journey Time Analysis

- Diversion doesn't take into account any existing levels of congestion at this stage.
- Volume 13 of the Economic Assessment of Road Schemes, Section 1 (COBA Manual), Chapter 9 provides formulae used for the conversion of 12hr counts into AADT.
- Diversion routes have been divided up according the lengths of the route that fall into various speed limits.
- Total added journey time has been taken as the sum of time taken to complete the divided sections of the route.

Journey Time Analysis

- Business and commute trips are assumed to take place on weekdays, it has been assumed that there are 253 days that make up the working year (number of weekdays in a year, excluding bank holidays).
- Leisure trips are assumed to take place on every day of the year, and as such have been multiplied by 365 to obtain the leisure trips per year.
- Journey purpose proportions have been extracted from WebTAG and have been applied to the annual flows to obtain the proportions of trips per year that are business/commute/leisure trips.
- Values of Time have been extracted from the WebTAG data book for business/commute/leisure trips by vehicle type. These values have been applied to the annual proportions mentioned above to monetise added journey times.
- Journey time savings are based on the difference between the journey times under option 1a and 1b versus journey times across the various options.

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Present Value of Costs

- 25% contingency has been applied to the costs.
- All costs are taken to be in 2019 prices. No inflation has been applied to scheme costs.
- Optimism Bias of 44% has been applied to costs relating to roads as per guidance in WebTag TAG UNIT A1.2
- Optimism Bias of 66% has been applied to costs relating to bridges as per guidance in WebTag TAG UNIT A1.2
- Present Value of Costs (PVC) has been generated by adjusting the price base to 2010 using the GDP Deflator from WebTag Data Book (May 2019).
- Costs have been discounted back to 2010 present values using discount rates set out within the HM Treasury Green Book.
- 30-year and 60-year appraisal periods considered.

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