Appraisal Specification Report

Client name	Project name	Date	Project number
Project Center	Maidenhead Station Access Appraisal	6th September 2017	60552150

Revision History

Revision	Revision date	Details	Authorised	Name	Position
1	06/09/17		GJ	Gareth Jones	PM

Introduction

This document outlines the approach which is proposed to be use to assess the impacts of the proposed Maidenhead Station surface access works. This Appraisal Specification Report is part of the overall business case submission for the proposed scheme in a submission by Project Centre on behalf of the Royal Borough of Windsor and Maidenhead (RBWM), for scheme funding from Thames Valley Berkshire Local Enterprise Partnership (LEP).

The main station works capital cost components are shown indicatively below);

Table 1. Identified Station Access Scheme Core Components

Scheme Item
King St/Queen St/A308 junction works
Public realm-pedestrian linkages improvements
Lighting
Cycle parking
Car park relocation

Challenges and Issues

Crossing demand at Maidenhead Station will increase significantly as a result of improvements to the rail network and development in and around the town centre. There is a need to improve access and interchange at the station to encourage rail passengers to arrive / make onward journeys by modes of transport other than the private car.

Key issues relating to access to the Station include:

- Insufficient priority to pedestrians and cyclists, requiring them to cross a four-lane road in three or four stages to access the station.
- Approaches to crossings are too narrow for shared use, resulting in conflict between pedestrians and cyclists.
- Waiting areas and footways do not have sufficient capacity to cope with the numbers of pedestrians and cyclists waiting to cross.
- There is limited space for passengers waiting to be picked up, with no seating or landscaping.
- The forecourt needs to be redesigned to give greater priority to pedestrians and ensure that it fulfils function as providing a gateway to the town centre.

Options

A range of options have been explored including schemes with or without an adjacent bus station, the potential inclusion of a pedestrian footbridge over the A308 and alternative junction arrangements at the A308 / King Street, as well as the potential partial opening of Broadway to two-way traffic.

The current preferred option has sought to identify a scheme which is within the overall budget and supplies the desired 'gateway' improvement, while also representing value for money.

Transport Modelling

Model Availability and Scope

Two models are available for use as part of the scheme assessment;

- A localised Linsig model developed for the localised scheme location.
- A more strategic scale VISUM highway model, recently developed and available for use in this submission.

Data age, Availability, and Survey programme

It is not proposed that further data collection will be required for the VISUM model, with the base models being recently dated – the VISUM model has a base year of 2016.

For additional information on the VISUM model basis, refer to;

"REPORT NO 001, ROYAL BOROUGH OF WINDSOR AND MAIDENHEAD STRATEGIC HIGHWAY MODEL (RBWM-HM2), DATA COLLECTION REPORT June 2017"

The Linsig model is currently under development, using 2017 data.

Supply model structure, calibration and validation

A local model validation report has been generated for the VISUM model, entitled;

"REPORT NO 002, ROYAL BOROUGH OF WINDSOR AND MAIDENHEAD HIGHWAY MODEL (RBWM-HM2), LOCAL MODEL VALIDATION REPORT, June 2017"

This is a highway-only model (AM and PM peaks) and forms the basis for local plan policy evaluation and localised testing within the Royal Borough, shaping transport planning policies and strategies. Within the LMVR it is identified as being used to "Inform the development of major transport schemes by assessing their likely impacts on the local and strategic highway networks, and providing information in support of business cases and funding bids."

The location of the proposed scheme at Maidenhead station sits within the "Area of Detailed Modelling". Modelling detail in this area are characterised by "representation of all trip movements, small zones, very detailed networks and junction modelling".

A close up view of the GEH performance of the model around the area of interest shows a good level of performance overall.

It is therefore considered appropriate for use in this case.

Demand model structure, realism and sensitivity testing

Initial testing of the scale of impact of the scheme within the VISUM model suggests that the impact will be sufficiently small such that a highway-only model will suffice.

This has been conducted using a forecast year of 2032, which is considered sufficient at the upper end, an additional year is advisable for impact / benefit calculation, which would be envisaged to be the opening year of 2019.

Forecasting

The VISUM model forecasting approach is identified within the document entitled;

"REPORT NO 001, ROYAL BOROUGH OF WINDSOR AND MAIDENHEAD LOCAL PLAN ASSESSMENT, USING RBWM STRATEGIC HIGHWAY MODEL, June 2017"

The modelling approach incorporates an uncertainty log based approach for anticipated network and development changes.

Economic Appraisal Methodology

The economic assessment methodology will require different approaches to be employed for the different elements. These elements remain in type to those assessed previously by Pell Fischman in the document entitled;

“Maidenhead Railway Station Opportunity Area, Preliminary Economic Assessment Forecort and Queen Street / King Street / A308 Scheme, January 2017”

The current scheme elements and previous methodology components are identified below;

Table 2. Comparison of current scheme elements and previous assessment methodology components

Scheme Element	Accident Impact (Annex1)	Station Ped Access (Annex 2)	Car Park Access (Annex 3)	Journey Ambiance (Annex 4)	Cycle Parking (annex 5)	Public Realm / Regeneration (Annex 6)	Road Traffic Times (Annex 7)	Health Benefits, HEAT (Annex 11)
King St/Queen St/A308 junction works	✓						✓	
Public realm-pedestrian linkages		✓		✓		✓		
Lighting				✓				
Cycle parking					✓			✓
Car park relocation			✓					

Given that the previous analysis was largely structured along WebTAG lines and that the overarching scheme components remain the same, to a large extent this revised analysis will follow the previous methodology, similarly making use of WebTAG guidance / data book values, but to reflect the revised scheme details.

A number of amendments have been identified though, specific changes to the revised assessment will include;

- In order to capture the impact of re-routing due to the road junction changes, the identified VISUM model is proposed to be used, with checks of localised junction performance in LinSIG and potential iteration between the two. Forecast years of 2019 (opening year) and 2032 (mid-scheme life) are identified. Outputs from the VISUM model to be fed into TUBA to calculate road user time monetary impact.
- Inclusion of an amount of growth in station users (as opposed to maintaining base levels for future years) will be applied to assess the amount of social benefits accrued by passengers as a result of the station improvements.

  The growth assumptions will be sense checked against forecast year growth information previously identified in association with Crossrail and any other applicable sources. From 2009 to 2016 the observed annual average growth in passengers per annum at maidenhead station was approximately 2.85%. Forecast from 2017 to 2026 indicate a corresponding value of approximately 3.4%
- With the increase in pedestrian numbers travelling to / from the rail station and the station being the primary trip attractor / generator of trips between itself and the town centre on the other side of the road, it is to be expected that pedestrian movements crossing the road, and associated accidents, would increase at approximately the same rate.

  The accident impact appraisal method will follow a similar approach as to work to date, but utilising current accident figures and assumptions in accident reduction rates applicable to the revised scheme, as well as the growth rate assumptions.
- While the appraisal to date has included some social aspect benefits related to the traveller perceived station environment improvements, there have been no similar benefits calculated for the perceived junction access environment improvements.

  The WebTAG data book, provides fewer social parameters that are applicable to junction improvements than TfL’s ‘Business Case Development Manual’ (BCDM) and therefore the latter will be applied for this part of the analysis.

- Aside from background traveller growth, there would be an anticipated increase in users arising directly as a result of improved journeys to the station, and a net revenue increase as a result.

  Both the rail Passenger Demand Forecasting Handbook (PDFH) and TfL's BCDM provide elasticities with respect to the increase in revenue associated with station improvements, the former is identified to be applied in the core analysis.

- Wider impacts are difficult to approximate for relatively small schemes, especially without an applicable public transport model to consider agglomeration effects.

  TAG Unit A2.1 identifies a broad 10% uplift to business user benefits being applicable, which will be the base case. It also identifies that total wider impact benefits are typically in the range of 10% to 30% of total TEE user benefits, it is proposed this range is used for sensitivity testing.

- The analysis to date has taken a standard area based public realm value for the regeneration impact component. However, Maidenhead town as a whole contains a population of 75,000 and the daily passenger numbers is in the region of 12,300 total entries and exits per day. This emphasises the higher than normal relative proportion of people who encounter the rail station and benefit from its regeneration, due to the station's gateway nature. Sensitivity testing on multipliers to reflect this gateway aspect will be explored.

- The distributional assessment will focus on two elements;
  - presentation of the VISUM model network impacts (flows and delays)
  - summary of the demographic breakdown of rail users, based upon a 2013 user survey

- Scheme related dependent development has been identified; this will be included as an additional benefit, but will be outside the core BCR calculation.

Environmental Appraisal Methodology

Given the relatively small scale of the scheme, a qualitative assessment is viewed as sufficient for much of the environmental appraisal, which will make reference to the following aspects;

- Noise
- Air Quality
- Greenhouse gases
- Landscape
- Townscape
- Heritage of historic resources
- Biodiversity
- Water environment

Noise and air quality impacts are anticipated to be localised shifts, with an anticipated transfer in movements resulting in an increase in traffic using the Braywick Rd / Stafferton Way roundabout, but a reduction in right-turn related queuing from Queen Street where pedestrian movements are greater.

The degree of reporting will depend on the results of the VISUM outputs, if changes in flows cross thresholds as identified in DMRB Volume 11, Section 3, Part 7.

With the scheme related public realm improvements a net townscape benefit would be expected, with little change to landscape, aspects of heritage, biodiversity and water, and a qualitative assessment is viewed as sufficient for these aspects.

Social Appraisal Methodology

Most of the social impact items will have been discussed within the economic benefit calculations. The scale of impact will be summarised, and a qualitative assessment made for all aspects.

Table 3. Social Appraisal Components / Methods

Sub-impact	Assessment Method
Commuting and Other users	Quantitative & qualitative – Analysis of station user survey to report on the demographic / purpose breakdown
Reliability impact on Commuting and Other users	Qualitative
Physical activity	Quantitative & qualitative – application of HEAT
Journey quality	Quantitative – Application of webtag / tfl (as available and appropriate) parameter values for unit impact of scheme elements, factored over time and passengers
Accidents	Quantitative & qualitative, using previously identified method
Security	Quantitative & Qualitative, applying perception values to affected passenger numbers
Access to services	Quantitative & Qualitative, using passenger survey for rail traveller demographic breakdown
Affordability	Qualitative
Severance	Largely qualitative, based on routing / demand changes
Option values	Quantitative & qualitative – sensitivity testing to be conducted as identified above

Summary

The identified scheme will add to the ‘gateway’ effect of Maidenhead Station, improving access to the town centre and having a positive regenerative impact. The above appraisal has been specified to capture the material impact of the scheme in terms of costs and benefits and produce an appraisal appropriate to the size of the scheme and being fit for purpose.

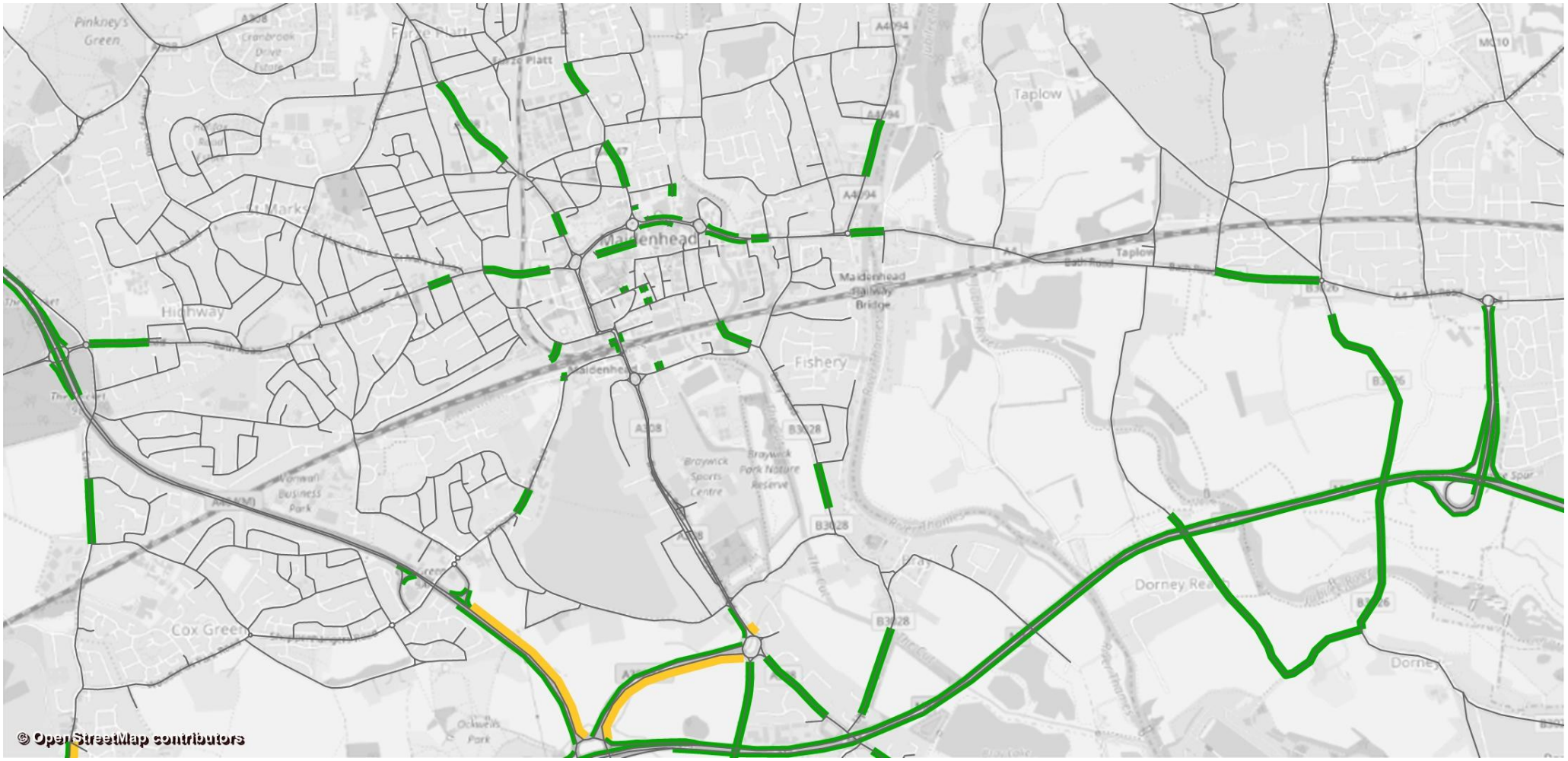

Figure 1 – VISUM Model AM Peak GEH Performance (Green: <5, Yellow: 5-10, Red: >10)

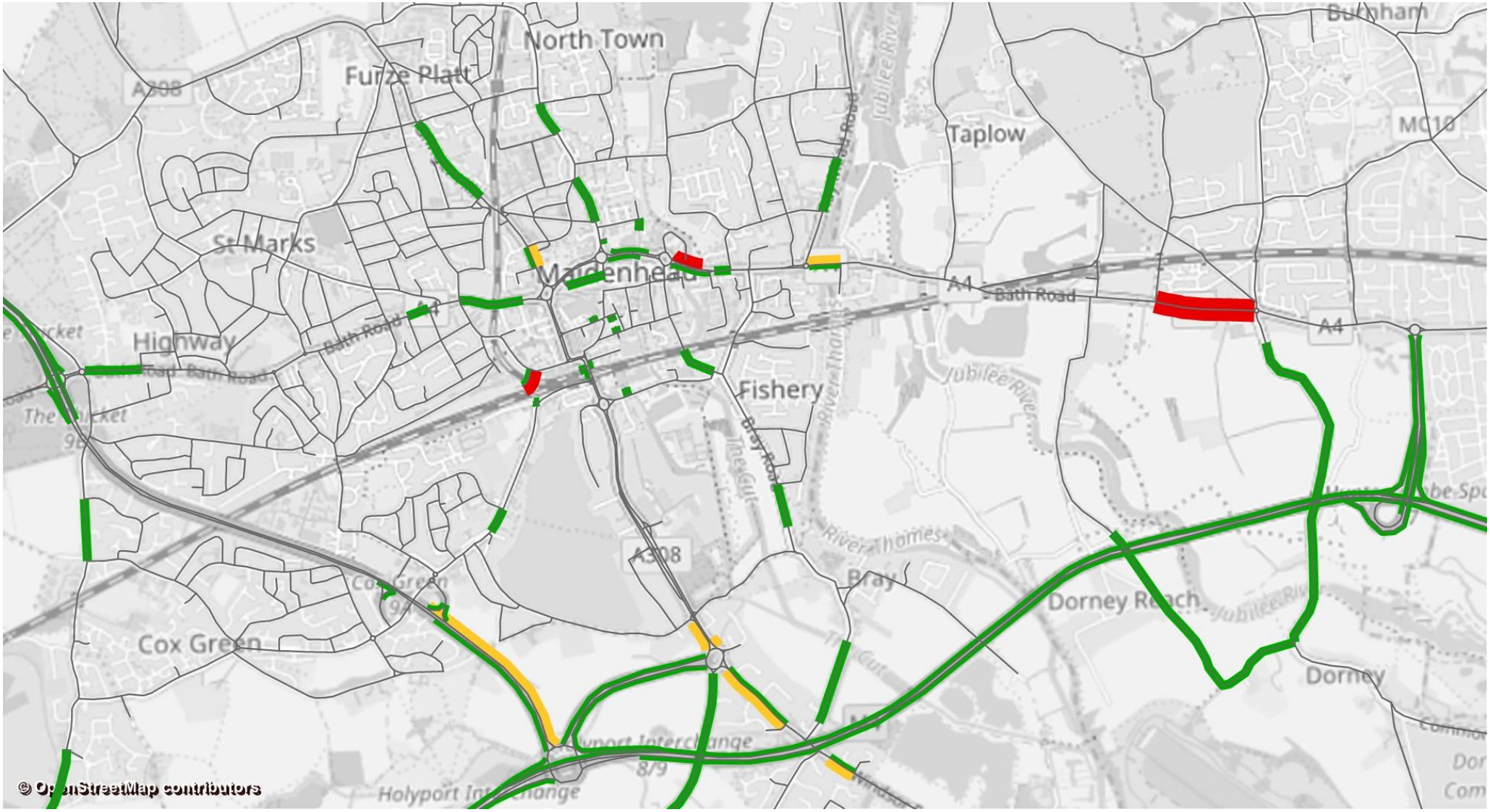

Figure 1 – VISUM Model PM Peak GEH Performance (Green: <5, Yellow: 5-10, Red: >10)