

APPENDIX I – ARCADY Assessment of the Existing Junction

- 1.1.1 As outlined in section 4.2 of the report the existing operation of the roundabout was assessed using a modelling program called ARCADY.
- 1.1.2 Information required for an ARCADY assessment includes a vehicle turning count and basic geometrical information relating to the junction layout. A turning count was undertaken by Jacobs at this junction on 8 March 2007 and the geometrical information was obtained from the Ordnance Survey mapping. It should be noted that Ordnance Survey mapping can contain errors that are significant for this type of detailed assessment; hence ARCADY outputs should be considered as providing only a broad assessment of capacity.
- 1.1.3 The results of this initial assessment indicate that the existing roundabout operates well in the PM peak with the demand/capacity ratio well below the maximum of 0.85.
- 1.1.4 In the AM peak however the assessment shows excessive queues forming on the A413 approach to the roundabout from the west (i.e. from Aylesbury/Beaconsfield direction). The demand/capacity ratio for this approach to the roundabout is 1.19 at its highest, which is well above the desirable maximum of 0.85.
- 1.1.5 This initial assessment does not wholly support the observations on site, nor the suggestions made at the Stakeholder meeting that a left turn slip lane is required at the bottom of Gore Hill (A355).
- 1.1.6 It should be noted that ARCADY does not take into account neighbouring junctions and the available space for queuing. In the AM peak the queue lengths on the A413 approach from the West are longer than the available 730 metres between this junction and the A404/A413 junction. The programme also assumes free flowing exits from the junction. ARCADY effectively treats the junction in isolation from the surrounding road network. Due to the proximity of the Tesco roundabout, together with the fact that during site visits queuing was observed on Gore Hill and between the Gore Hill and the Tesco roundabouts during peak hours, it is recommended that more complex modelling of these junctions is undertaken.
- 1.1.7 It is recommended that the ARCADY outputs are checked based on information obtained from a full topographical survey of the junction prior to any feasibility options being progressed to preliminary and detailed design.