# Appendix ROUNDABOUT ANALYSIS TECHNICAL MEMORANDUM

Note that roundabout analysis parameters recommended by WisDOT have evolved between mid 2012 and mid 2013. The memo attached is dated August 2012, at which time WisDOT was moving away from RODEL as the preferred analysis software for roundabouts, and moving towards HCS 2010 and Sidra. As part of that migration, analysis parameters were updated. Subsequent to the August 2012 memo attached, WisDOT provided guidance on updated parameters for roundabout analysis, per FDM updates in March 2013.

***Table 20.2 Choosing Appropriate Analysis Tool***

|  |  |  |
| --- | --- | --- |
| **Analysis Tool** | **Appropriate Situations** | **Section** |
| HCS 2010 (version  6.41 or newer) | One or two lane entries, single lane partial bypasses, no more than four approach legs | FDM 11-26-20.4.5 |
| Sidra Intersection  (version 5.1 or newer) | One, two or three lane entries, one or two lane partial bypasses, up to 8 approach legs | FDM 11-26-20.4.6 |

***Table 20.3 Recommended Headway Values***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Number of Circulating**  **(Conflicting) Lanes** | **Critical**  **Headway, tc** | **Follow-up**  **Headway, tf** | **Parameter A** | **Parameter B** |
| One | 4.2\* sec | 2.8 sec | 1286 | 0.000778 |
| Two or Three | 4.0 sec | 2.8 sec | 1286 | 0.000722 |

Analysis of roundabouts within the US 41/WIS 441 Operational Needs Study utilized the updated parameters identified above. Although the analysis in the August 2012 memo attached were not updated, the impacts of the change in analysis parameters is still noteworthy, as roundabout geometry previously identified as providing acceptable traffic operations through RODEL analysis are in some cases now indicating unacceptable traffic operations through HCS 2010/Sidra analysis.

Interchange locations within the US 41/WIS 441 Operational Needs Study that have been identified as having roundabouts as potential improvement concepts have an additional Risk Assessment cost associated with them. This cost is an additional 10% of the BCCE, and accounts for the potential for further refinement to how roundabouts are designed, constructed and operated in the future.