Appendix 6. SimTraffic/Synchro Parameters

Category	Description
Lane Settings	
Approach Orientation	All approaches should be oriented N, S, E, or W. Exceptions include intersections with more than 2 intersecting streets (e.g. 5-legs). For SHA roadways, the SHA orientation should be used as default.
Lanes and Sharing	Per signs and pavement markings and/or observations (e.g. through lanes with on-street parking may function as right turn bays)
Street Name	Road name and Route Number where applicable - MD State Route number should be entered in with the "#" sign, such as "Wisconsin Avenue #355"
Link Speed	Use posted speed
Area Type	Use CBD for Downtown/TDM Areas
Storage Length	Use Field measurements. Include taper under simulation settings
Right Turn Channelized	Use FREE, YIELD, or SIGNAL with right-turn overlap as appropriate
Add Lanes (#)	Field Verification
Lane Utilization Factor	Use default values
Right Turn on Red?	Field verification
Right Turns on Red (RTOR)	Use default values
Intersection Lane Widths	Use Field measurements
Volume Settings	
Traffic Volume	Based on turning movement counts. Provide guidance on appropriate times for using intersection versus system peak counts for analysis. System peak is necessary for corridor analysis.

Attachment 3. Appendix 6: SimTraffic/Synchro Parameters

Category	Description
Peak Hour Factor (PHF)	Site-specific by INTERSECTION (not approach or lane group) based on peak hour count data. Use PHF from Existing Conditions through all scenarios with a 0.85 minimum and 0.92 for new intersections. Exception to this are land uses with short interval peak conditions, such as schools and churches, which causes a significant imbalance in movements into and out of the site as these locations typically have more variability over the hour. If the LATR/TIS is expanding an existing land use (school or church), use the rates from the existing driveway counts. For a new development, rates from other similar land use can be used or the County and SHA can provide recommendation during scoping.
Heavy Vehicles	Use existing count data. If data is not available, assume 2% default.
Number of Conflicting Pedestrians per Hour	Conflicting Pedestrians per Hour are to be entered as the number of pedestrians crossing the leg that the left or right turn movements are turning on to.
Number of Conflicting Bicycles per Hour	Conflicting Bicyclists per Hour is to be entered as the number of through bicyclists that a right-turn movement must turn across. Where a bike lane is left of the right turn movement, this number is zero.
Node Settings	
Node #	Numbering should be consistent between models and supporting materials
Offset Value (s)	Per timesheet from field controller/ dial sheet
Reference to:	MCDOT files are set to "begin of green"
Timing Settings	
Turn Type	Per timesheet from field controller/ dial sheet
Phase Numbering	Per timesheet from field controller/ dial sheet
Minimum Initial	Per timesheet from field controller/ dial sheet
Yellow Time	Per timesheet from field controller/ dial sheet
All-Red Time	Per timesheet from field controller/ dial sheet
Lagging Phase?	Per timesheet from field controller/ dial sheet
Recall Mode	Per timesheet from field controller/ dial sheet
Phasing Settings	
Maximum Splits	Per timesheet from field controller/ dial sheet
Vehicle Extension (s)	Per timesheet from field controller/ dial sheet

Attachment 3. Appendix 6: SimTraffic/Synchro Parameters

Category	Description
Minimum Gap (s)	Per timesheet from field controller/ dial sheet
Pedestrian Phase	Per timesheet from field controller/ dial sheet
Walk Time (s)	Per timesheet from field controller/ dial sheet
Flash Don't Walk (s)	Per timesheet from field controller/ dial sheet
Dual Entry?	Per timesheet from field controller/ dial sheet
Fixed Force Off?	Per timesheet from field controller/ dial sheet; but MCDOT uses fixed force off
Simulation Settings	
Taper Length	Use Field measurements
Lane Alignment	Based on pavement markings or field observations
Enter Blocked Intersections	Use field observations and SimTraffic simulations. Assume "No" for most intersections and "1 or 2 veh" for unsignalized nodes or models with large signalized nodes
Median Width	Field verification
Link Offset (ft)	Field Verification
TWTL Median	Field Verification
Turning Speed	Use default values
Positioning Distances	Adjust as needed based on field observations
Detector Settings	
	Detector settings shall be in accordance with prevailing SHA practice at intersections within SHA's ROW. The size of loops used for advance detection shall be 6' x 6'. The size of loops use for presence/stop bar detection shall be 6' x 30'.
Simtraffic Settings	
Seeding Interval Duration	Generally, 15 minutes. Use 30-60 for larger and/or severely congested networks
Recording Interval Duration	60 minutes (4 recordings of 15 minutes each)
Record Statistics	No- Seeding, Yes- Recordings
Growth Factor Adjust	No
PHF Adjust	No to Seeding, Recordings 1,3,4. Yes to Recording 2. (S: N | R: N, Y, N, N)

Attachment 3. Appendix 6: SimTraffic/Synchro Parameters

Category	Description
Anti PHF Adjust	No to Seeding and Recordings 1,2,4. Yes to Recording 3 (S: N | R: N, N, Y, N)
Percentile Adjust	No
Number of Runs	Default of 5 runs, additional runs to be discussed at scoping
Random Number Seed	1
Reports	
Synchro	
Intersection Delay Report	Report overall intersection delay only using the latest HCM methodology where applicable and HCM 2000 where NEMA phasing limits use of newer methodology.
Corridor Delay Report	Use Measures of Effectiveness report for Control and Queue delay/vehicles by arterial. Include results by direction and for corridor ("All"). For each direction and for corridor, Total corridor delays = Control Delay + Queue Delay. Use "Denied Delay" for congested networks
Synchro Queue Reports	Include average and 95th percentile queues for each movement. Where queueing results units are in veh, assume 25 ft per vehicle.
Simtraffic	
Queuing Reporting	Default of 5-run report (additional run report to be discussed at scoping), document the maximum 50th and 95th queue for each lane group and, where applicable, add the corresponding maximum upstream queue (B## columns) to the dominant movement.
	95th percentile queues based on SimTraffic analysis results shall be reported for each movement. The available existing storage determined from field measurement and verification shall be reported for each movement. We recommend adding acceptable queuing guidance for congested corridors. Mitigation is often requested for corridors where congestion is expected and vehicles are traveling slow because of congestion.
Additional Parameters	
	Scoping process should identify if Synchro and/or SimTraffic should be used for LOS/delay and queuing outputs. Use of SimTraffic for both is preferred for highly congested corridors/networks.

Attachment 3. Appendix 6: SimTraffic/Synchro Parameters

Category	Description
	Model location should be established using map feature. This will help if M-NCPPC wants to later combine models.
	Map Settings should be adjusted for readability – Street Names, Node Numbers and Arrow Diagrams changed to Size "25"
	SimTraffic models should be calibrated to existing traffic conditions for travel times and queues
	Insert nodes with hidden side streets for drop or add lanes that cannot be otherwise coded
Vehicles in Median Storage (#)	0,1, or 2. Should be based on field observations