There are many types of data that can be extracted from a properly built and calibrated traffic simulation model. The most basic, and needed, data for traffic engineering studies is the computation of average delay per vehicle for a particular movement (left, straight, right) at an intersection OR the delay of the entire intersection. As per the material presented in CIV 371, delay is an important measure of effectiveness at an intersection and is typically used in determining the level of service (LoS). This tutorial presents a basic method for collecting delay data and determining intersection LoS.

1. Establishing Nodes

VISSIM 4.3 has greatly improved the process of running simulation(s) and processing results. One of the features is the **Node** command. This allows the modeler to gather *intersection level* results.

Click Nodes icon from the left menu.



VISSIM Basics #3 – Collecting Delay Data for Intersections

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Name the node and ensure the **Node evaluation** box is checked. Then repeat this step for each intersection in your network.



Once all the intersections have been marked with nodes, you can proceed to setting up the file structure for data acquisition.

2. Setting File Structure for Evaluation



Then check the Analyzer database box and name the file (it is important that this file be created in the same folder as the *.inp and *.bgr files):

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3. Multirun Simulation

Now, VISSIM is ready to gather intersection data from simulated "hours" of traffic. For the data to be meaningful, there must be several simulation "runs" each with a unique "seed" number to create random events.

Click Simulation-Multirun



Use a random number generator (on your calculator for example) for the **Starting random seed** and set the **Number of runs** to 5 for the generation of initial statistics.

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VISSIM will then execute "5" runs and compile the data.

4. Analyzer Reports

Click Evaluation-Analyzer Reports.



Then click Generate Reports

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VISSIM will launch *Excel* to show the reports:

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From these "base statistics" (the *Average* and *Standard Deviation* of delay compiled from your first 5 runs) you will need to choose a **Number of runs** (n) that will allow you to estimate your parameter (average delay) to a certain level of confidence¹. Once chosen repeat the above steps (3 and 4) with this new **Number of runs**.

Ultimately you will generate a report and see delays computed on each movement and a LoS^2 for each intersection.

¹ see a textbook or reputable web-based resource on statistics for guidance on choosing this "n"

 $^{^2}$ See the latest version of the Highway Capacity Manual and check that VISSIM's LoS agrees with the HCM specifications, change if necessary