Lesson 1.1: Introduction with the West Jordan Network

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Problem 1: How many nodes are in the West Jordan network? How many zones are in the West Jordan network?

There are 149 nodes.

Problem 2: What is the speed limit along 9000 South? How many lanes are present along 9000 South in the Base Condition model?
The speed limit is 32 mph. There are two lanes

Link Properties   ✕

From node: 4	To node: 5

Link ID: 0   Street Name: 9000 South

Length: 0.12113

Speed Limit: distance   32

Free-flow travel time (min): 0.227119

\# of Lanes: 2

Lane Capacity (vph): 847

Jam Density: (veh/distance/ln) 120

Link Type: 2,Highway/Expressway

OK   Cancel

Problem 3: What is link capacity? How is it different from lane capacity?
A link may have multiple lanes, lane capacity is only the capacity for one single lane, but link capacity is the capacity for all lanes that may exist on it.

Problem 4: Describe the link capacity on Redwood Road in the West Jordan Network (how link capacity varies by location, point out bottlenecks, etc.). It might also be a good idea to include the average link capacity and/or use a histogram.

The link capacity in the south is 929 vph, but going north from S Jordan Pkwy it has two lanes each with 892 vph, total link capacity of 1,784 vph.

Problem 5: What is the number of agents/vehicles to be simulated, as reported in the

output_summary.csv file?

There are 25,282 agents

Problem 6: The first large table in the output_summary.csv file describes summary statistics for each iteration of the simulation. What was the average travel time, average trip time index, average speed, and network clearance time (in minutes) for the last iteration? What pattern do you observe in the average travel times and speeds as the iteration number increases? (Plots might be useful to display these patterns/trends.)

Average travel time is 16.02 min, average trip time index is 2.98, average speed is 11.34 mph, network clearance time is 19 minutes.

Problem 7: Similar to Problem 6, use the first large table in the output_summary.csv file to find the average travel time, average trip time index, average speed, and network clearance time (in minutes) for the last iteration? Do you notice many differences in these values compared to the results for the "no work zone" model?

Average travel time is 21.9 min, average trip time index is 4.07, average speed is 8.32 mph, network clearance time is 42 minutes. With higher travel time, all these numbers make sense.

Problem 8: Following the procedure described in Step 5, use screen captures to provide Link MOE plots for Lane Volume and Speed (in MPH), with 15-minute aggregation intervals, for both links between Node 1 and Node 2 (both directions). This should result in 4 images.
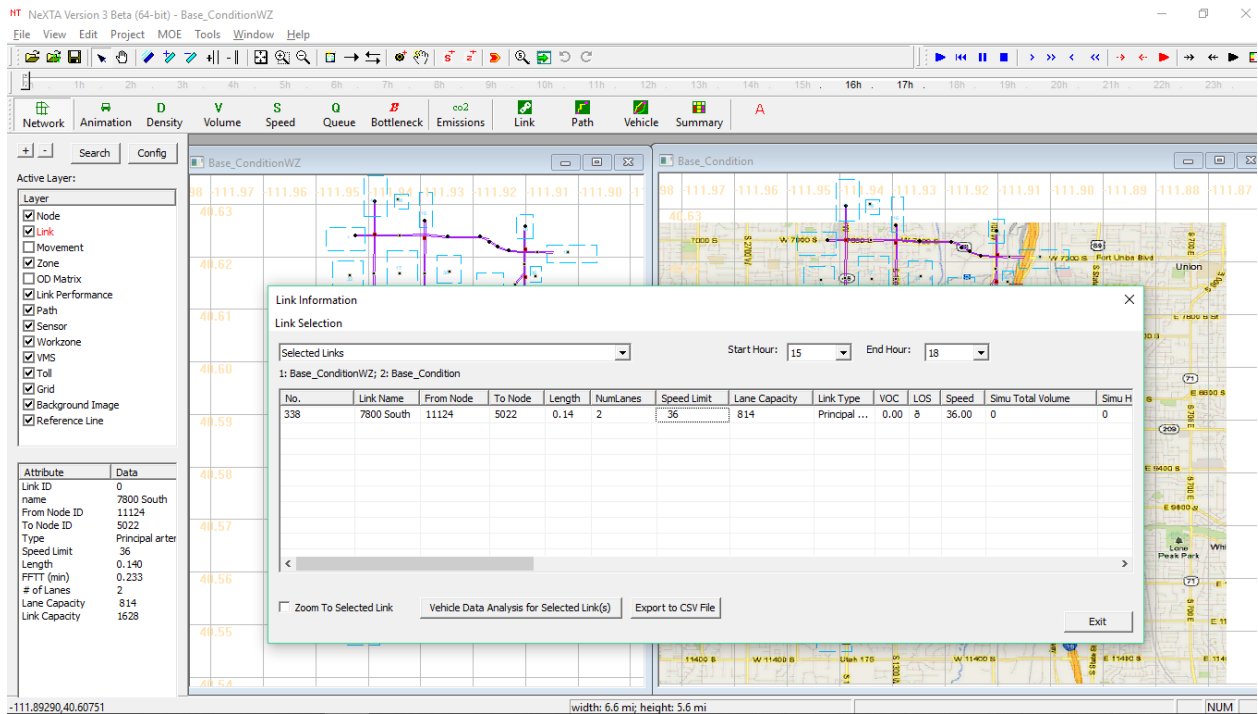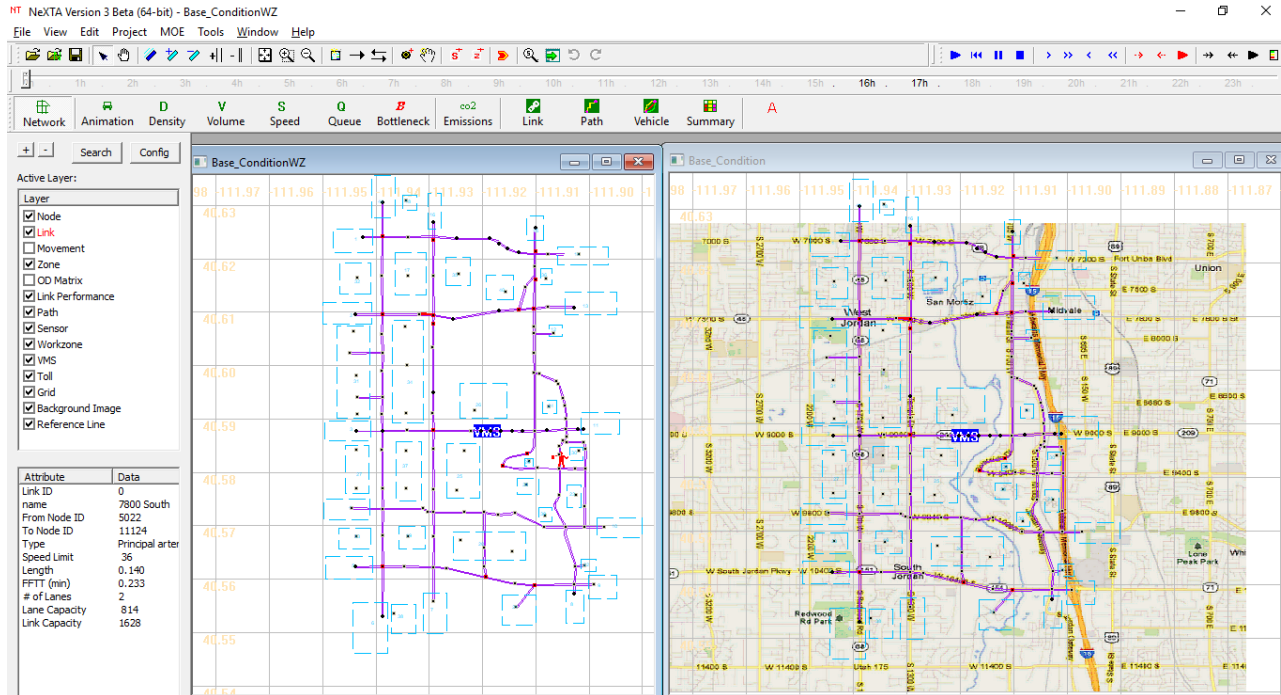
Problem 9: From the plots generated in Problem 8, did you notice any differences in speed and volume on these links between the two networks (with and without the work zone)? Do the differences in speed/volume make sense? Does one direction of travel experience more congestion?

I tried to follow the steps but after doing so many times I could not see the graph as seen in the Step 5.