

Step 4: Display the link volume Total Link Volume

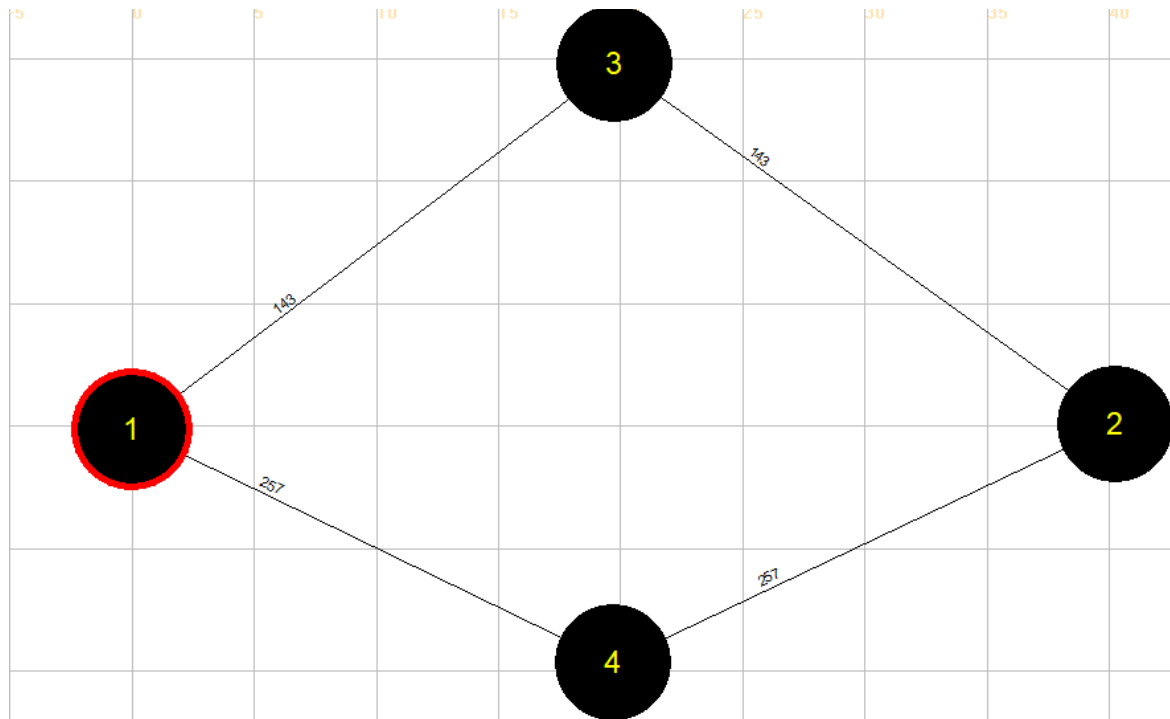


Figure 1: Total link volume

Step5) Prepare statistics for the base case scenario.

Find/Filter Vehicles

1: OD Pair Filter:

Origin Zone: 1 Destination Zone: 2 Demand Type: All Vehicle Type: All Info Class: All VMS Responsive Only: ☐ Departure Time (min): 0 (0:00) Time Interval: 1440

At least: 2 vehicles Travel Distance >= 0 distance Passing Impact Links: N/A

Speed <= 300 distance

Find Critical OD Pairs

Value of Time Range

Lower bound: 0

Upper bound: 100

2: OD List:

Origin Zone	Destination...	Braess Net...	Avg Travel ...	Avg Distance	Avg Speed	TT STD	Travel Time...
1	2	400	76.7	46.0	36.0	12.8	0.3

1 OD pair(s) selected.

3: Path List:

Path No	Count	Percentage	Travel Time...	Distance
1	257	64.3	78.5	46.0
2	143	35.8	73.4	46.0

Export

Vehicle Data Analysis for Listed OD Pairs

4: Vehicle List:

Vehicle ID, type, departure time, travel time, toll paid

No. 0, SOV, @840.1 min, 46.1 min, \$0.00
No. 1, SOV, @840.3 min, 46.5 min, \$0.00
No. 2, SOV, @840.4 min, 47.0 min, \$0.00
No. 3, SOV, @840.6 min, 47.4 min, \$0.00
No. 4, SOV, @840.7 min, 47.9 min, \$0.00
No. 5, SOV, @840.9 min, 48.3 min, \$0.00
No. 6, SOV, @841.0 min, 48.8 min, \$0.00
No. 8, SOV, @841.3 min, 49.1 min, \$0.00

Export

Exit

Figure 2: Path selection information and vehicle list

Step 6: Use the “summary” button to verify the overall network performance.

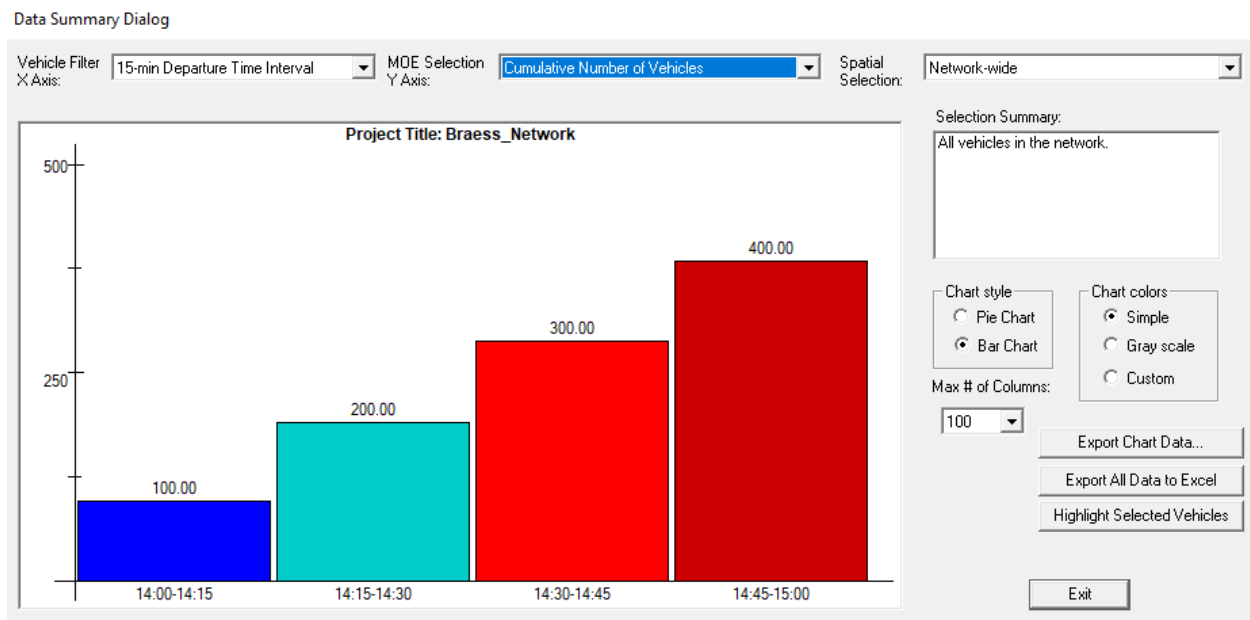


Figure 3: Cumulative number of vehicles for 15-min departure time interval

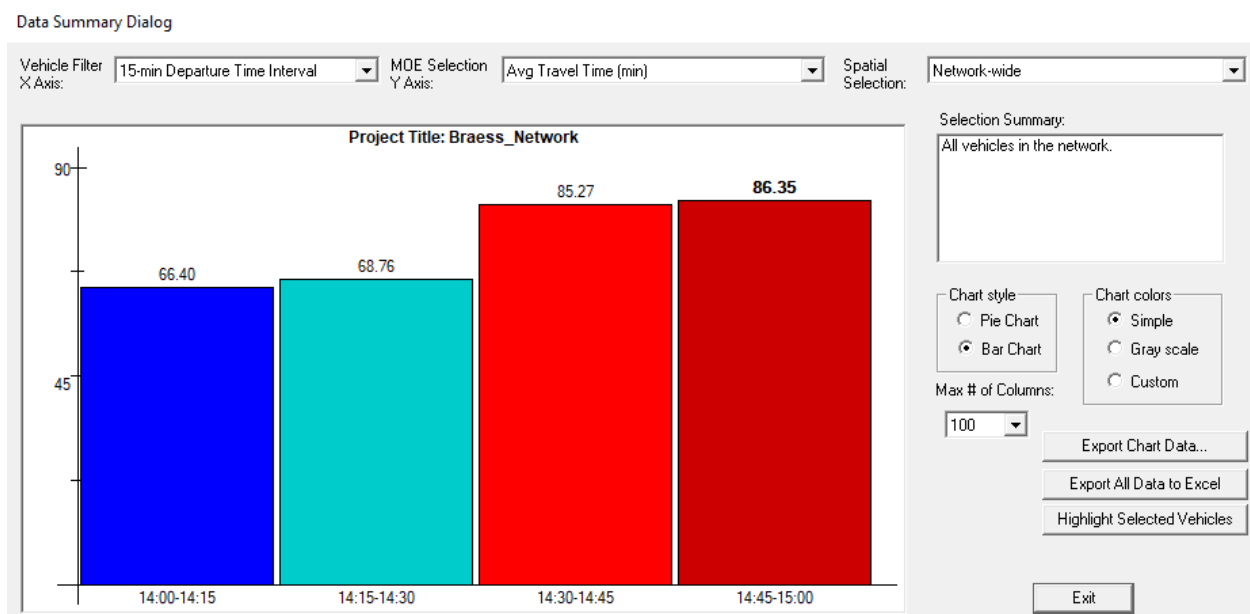


Figure 4: The average travel time using bar chart

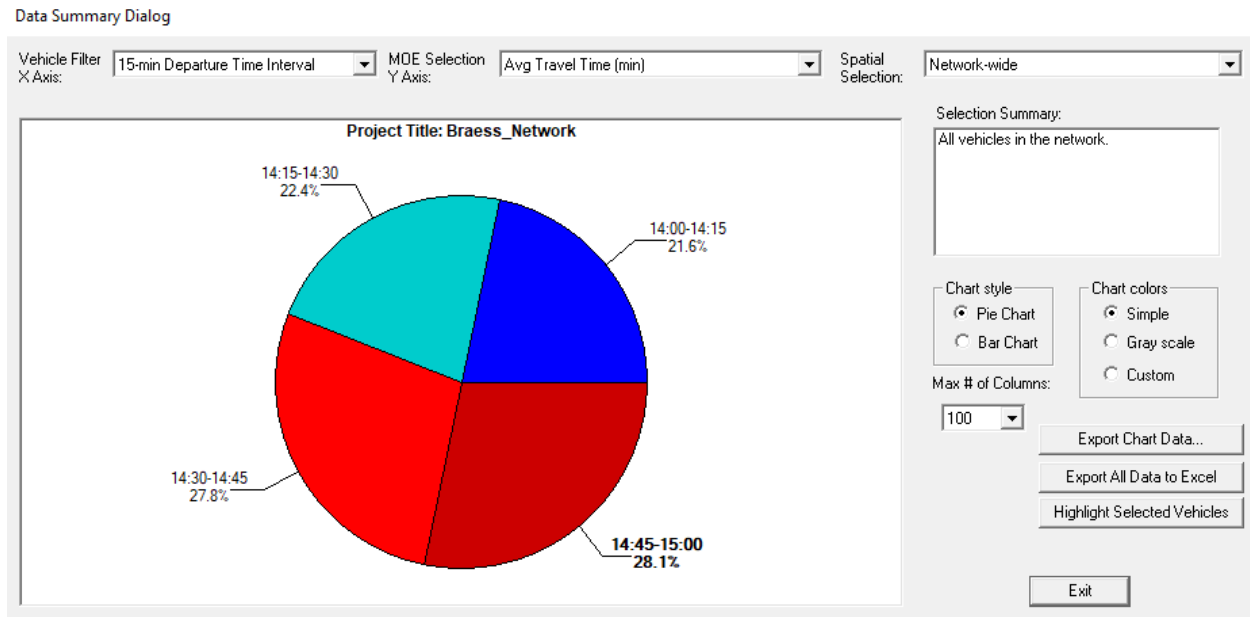


Figure 5: Average travel time using pie chart

Task 4: Using NEXTA to display the shortest path in Braess network.

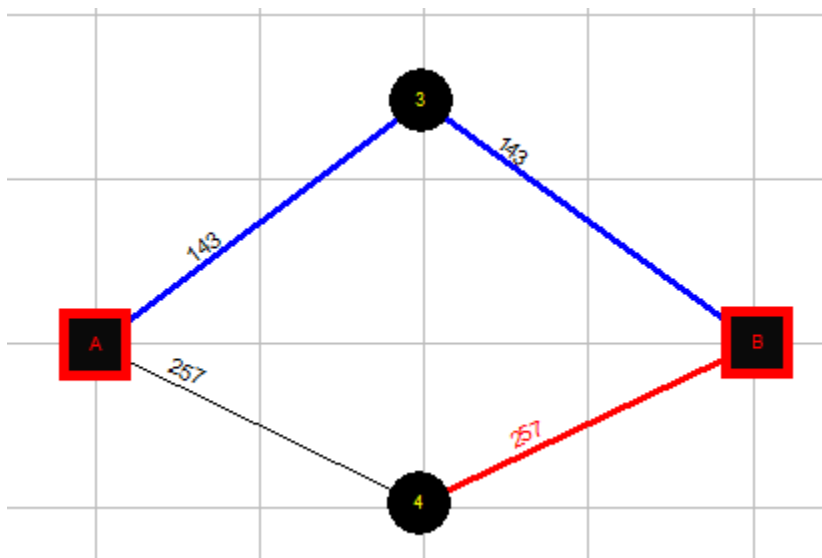


Figure 6: The shortest path (blue links) from A (1) to 3 to B (2)

For example, I avoided node number 3

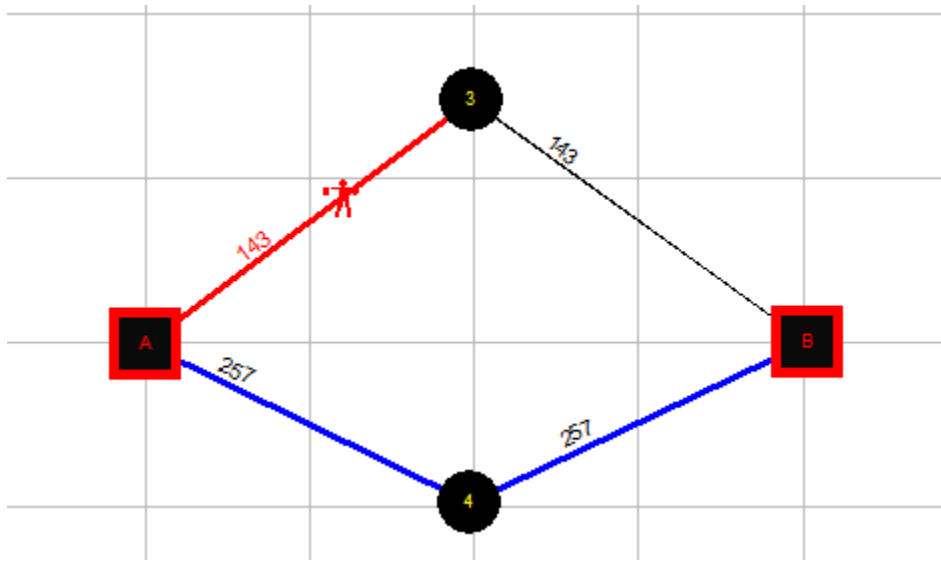
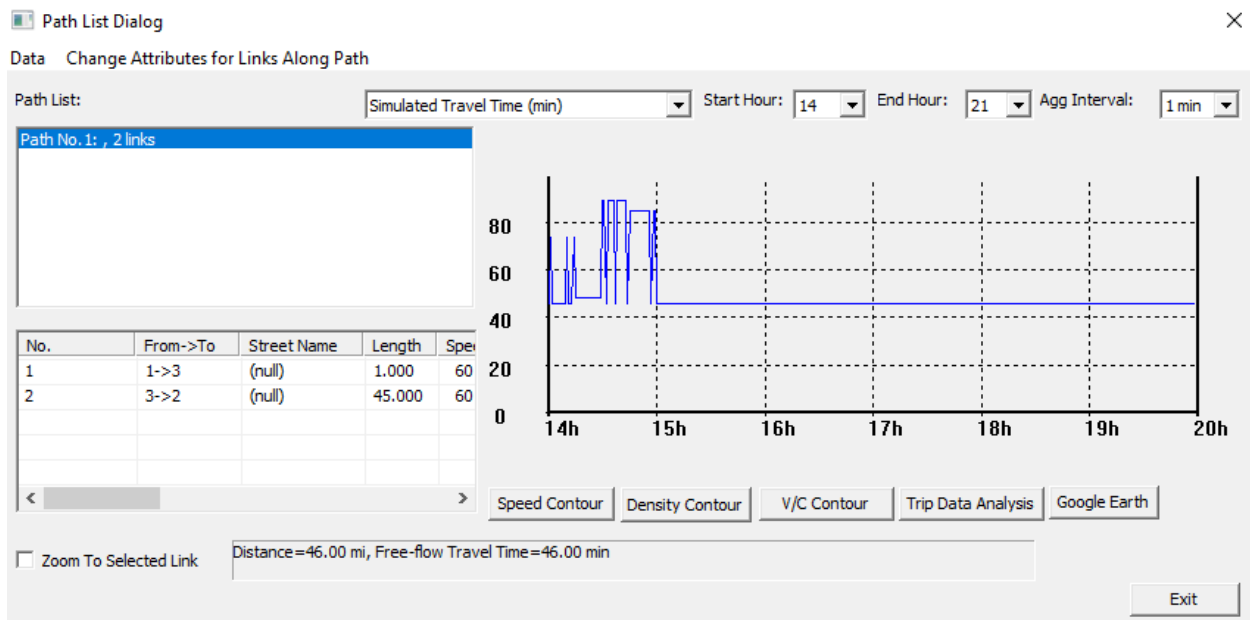


Figure 7: The shortest path has changed after avoiding node number 3



Free-flow Travel Time (min)	# of lanes	Lane Satur
1.00	1	1800.00
45.00	3	1800.00

Lane Capacity	Link Type	Sensor Type	Count	
100.00	Freeway			
1900.00	Freeway			

Figure 8: Travel time and flow and other links data

Task 5: Compare System-wide Performance Differences between Two Networks.

Task 6: Add Toll:

Link from node A (1) to node 3 was selected to be a toll link

A	B	C	D	E	F	G	H	I	J
Link	Scenario	Start Day	End Day	Start Time	End Time	Toll for Demand Type 1	Toll for Demand Type 2	Toll for Demand Type 3	Toll for Demand Type 4
[1,3]	0	0	100	0	1440	1	1	1	0.5

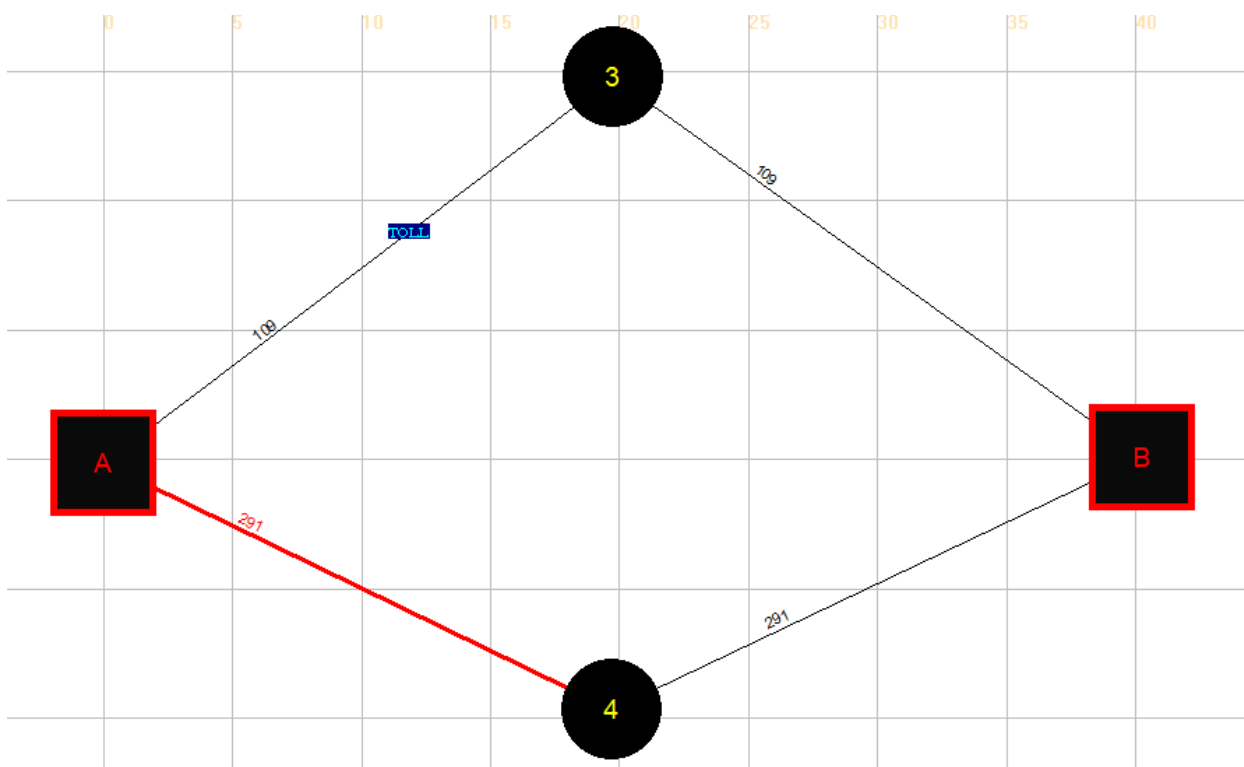


Figure 9: The toll was assigned for the link from 1 to 3

Due to the toll, some users shift their routes which impact the traffic volume to decrease from 149 to 109 as shown on the above figure.