

6 Supplementary Material

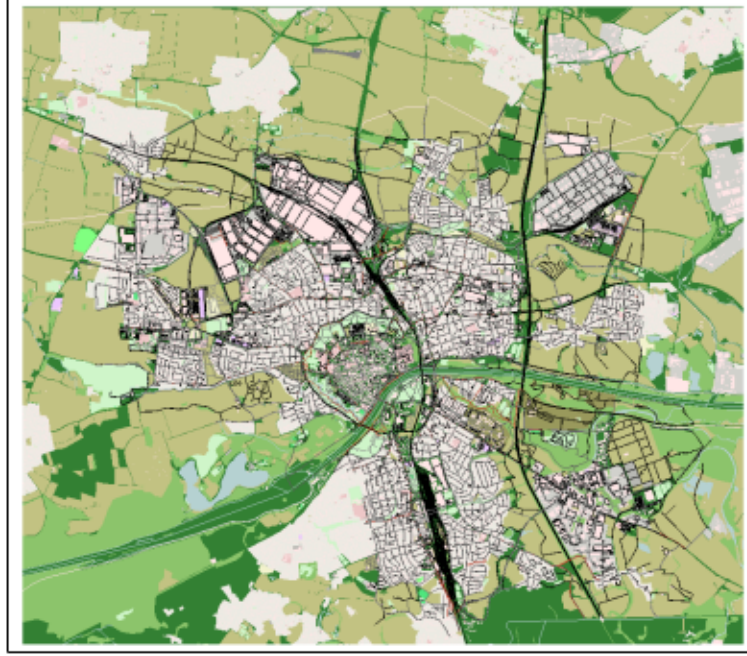


Figure 4: Virtual Ingolstadt transportation network in SUMO

Table 2: System Mean Speed of TSC Models

Model	System Mean Speed (m/s)			
	Median	SD	Diff. Median	Diff. SD
FTSC	5.918178178	0.707045403	-	-
SDQN Compressed	5.553681878	0.750864513	-0.364496301	0.04381911
Observation				
SDQN Default Ob-	5.757223135	0.708185685	-0.160955043	0.001140282
servation				
CDQN Compressed	5.679338594	0.713486021	-0.238839585	0.006440618
Observation				
CDQN Default Ob-	5.667477268	0.711472519	-0.25070091	0.004427116
servation				

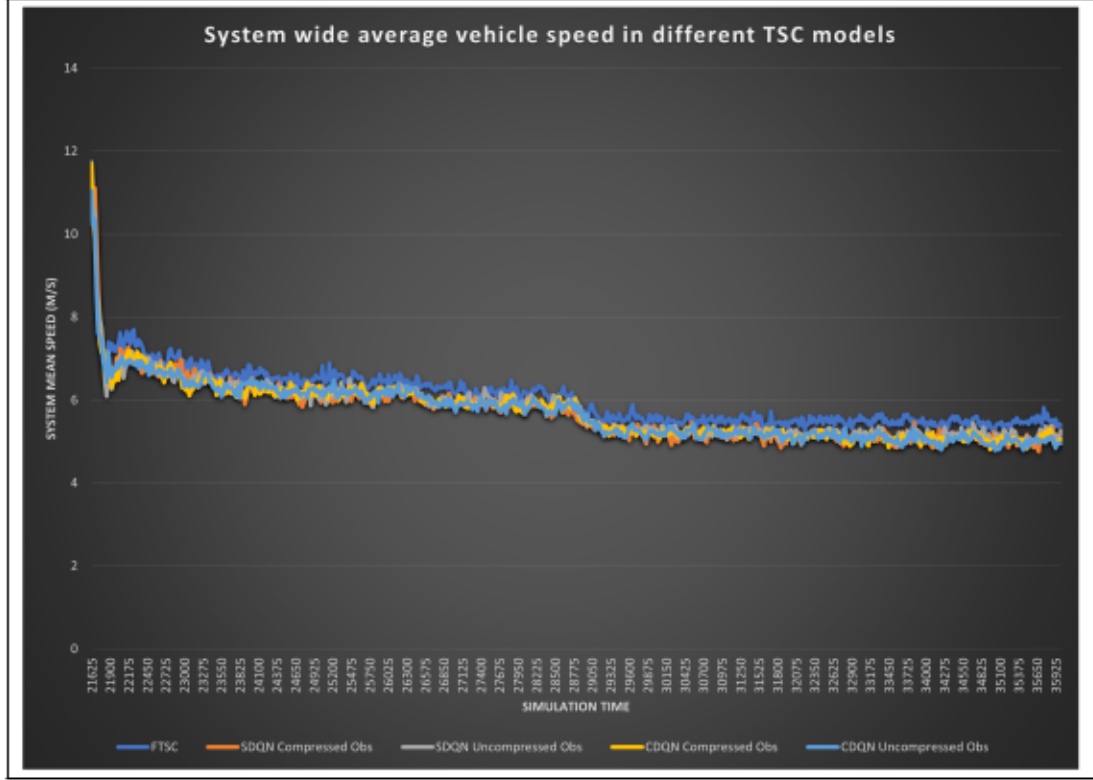


Figure 5: Average vehicle speed in different TSC models in 1 episode

Table 3: CO2 Emissions of TSC Models

Model	CO2 Emissions (kg) Part 1			
	Total	Median	SD	Diff. Total
FTSC	28844.23311	50.35912075	10.51891507	-
SDQN Compressed Observation	30050.17005	52.76928983	10.87117186	1205.936939
SDQN Default Observation	29860.44386	52.58583232	10.80387407	1016.210748
CDQN Compressed Observation	30006.34617	52.84280319	10.79522181	1162.113056
CDQN Default Observation	30053.36003	52.71182289	10.91143183	1209.126919

Table 4: CO2 Emissions of TSC Models

CO2 Emissions (kg) Part 2		
Model	Diff. Median	Diff. SD
FTSC	-	-
SDQN Compressed Observation	2.41016908	0.352256798
SDQN Default Observation	2.226711575	0.284959005
CDQN Compressed Observation	2.48368244	0.276306744
CDQN Default Observation	2.35270215	0.392516765

Table 5: CO2 Emissions of TSC Models

CO2 Emissions (kg) Part 2		
Model	Diff. Median	Diff. SD
FTSC	-	-
SDQN Compressed Observation	2.41016908	0.352256798
SDQN Default Observation	2.226711575	0.284959005
CDQN Compressed Observation	2.48368244	0.276306744
CDQN Default Observation	2.35270215	0.392516765

Table 6: Median system total waiting time, mean speed, CO2 emissions in episode 1 and 2 of training the SDQN with the compressed observation function

Comparison of Episode 1 and 2			
Model	System Total Waiting Time (s)	System Mean Speed (m/s)	Total CO2 Emissions (kg)
FTSC	151780	5.918178178	50.35912075
SDQN Compressed Observation Episode 1	282185	5.612157613	52.74893615
SDQN Compressed Observation Episode 2	244790	5.668489553	52.87522922

Table 7: Standard deviation of system total waiting time, mean speed, CO2 emissions in episode 1 and 2 of training the SDQN with the compressed observation function

Comparison of Episode 1 and 2			
Model	System Total Waiting Time (s)	System Mean Speed (m/s)	Total CO2 Emissions (kg)
FTSC	102164.8037	0.707045403	10.51891507
SDQN Compressed Observation Episode 1	214954.9677	0.771054688	10.98632705
SDQN Compressed Observation Episode 2	179669.5043	0.766414787	10.90043308

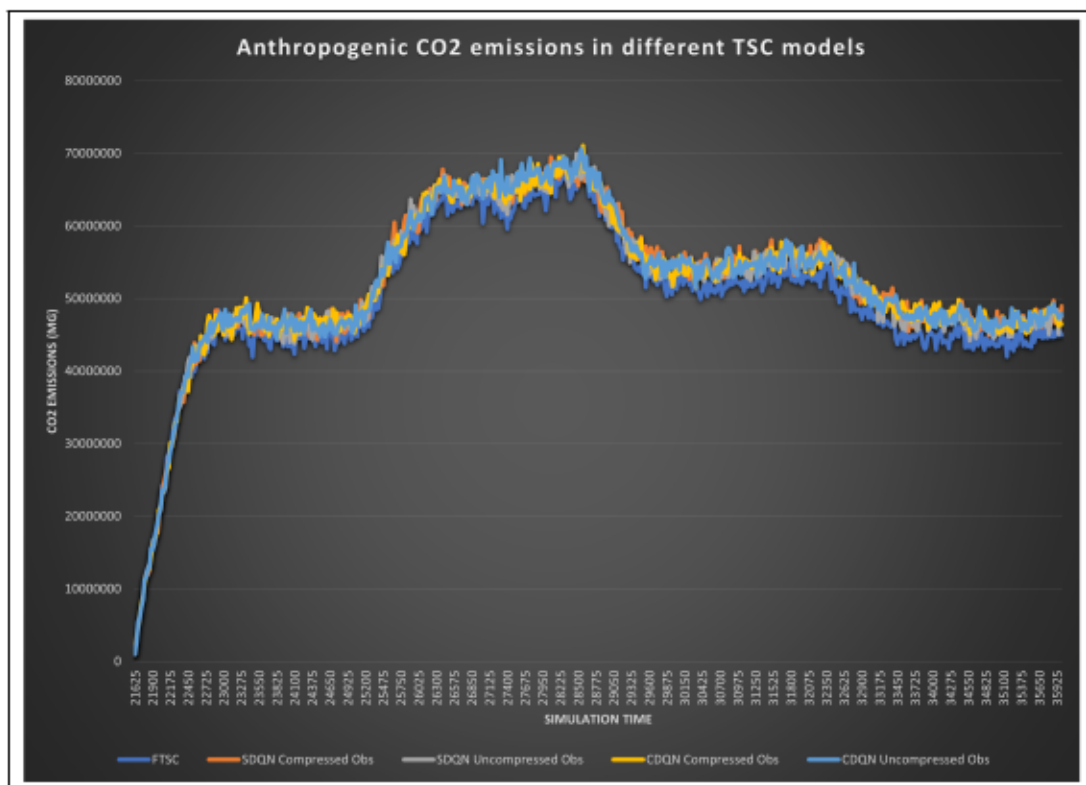


Figure 6: CO2 emissions in different TSC models in 1 episode