

CIVL6415, Semester 2, 2024

TRAFFIC ANALYSIS AND SIMULATION

Tutorial Week 2-4

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- This week, we focus on modelling the intersection between Sir Fred Schonell Drive and Coldridge St in a microscopic simulation environment (Aimsun)
- The computer exercise 1 will build on the model what we will start developing today
- Please save and upload your simulation file to Blackboard website until 4pm today. Blackboard->Assessment->Tutorial_W2
- The file that you upload does not have to be complete!

Creating the intersection geometry

- Open Aimsun Next 8.4
- Go to Help>Contents>Aimsun Next 8.4 Tutorials>Editing and read Exercise 1

Wait for instructions

- Find the intersection between Sir Fred Schonell Drive and Coldridge Street
- Import the map into Aimsun
- Read Exercise 2
- Go to <https://qldglobe.information.qld.gov.au/>
- Find the intersection and take a snapshot using the Snipping tool

Wait for instructions

- Find the reference points to place the image correctly

Creating the intersection geometry

- Read Exercise 3

Wait for instructions

- Create sections
- Make sure the section attributes are correct

- Read Exercise 4

Wait for instructions

- Create the node
- Make sure that the lane allocations are correct

Creating the signal plan and the demand

- Read Exercise 14,15 and 17

Wait for instructions

- Signal groups, phases and control plan
- Assume a phase plan for the preliminary application
- See Appendix 1 for further info on traffic signals

- Read Exercise 9 and 12

Wait for instructions

- Define the traffic states and the turn percentages
- Define the traffic demand
- See Appendix 2 for a comparison between OD demand and traffic states

Running the simulation

- Read Exercise 13
- Run the simulation and make sure the signal operates properly

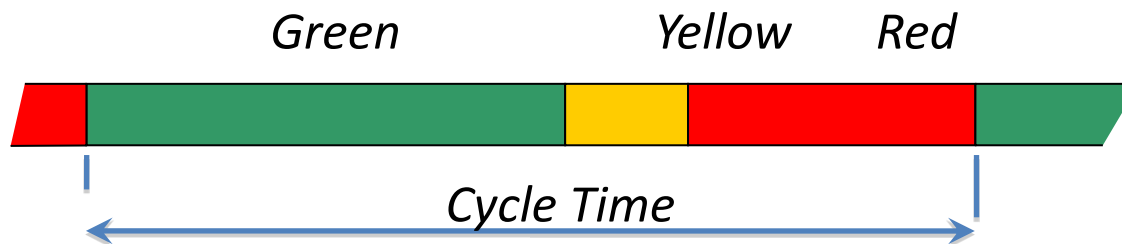


APPENDIX 1

Traffic signals

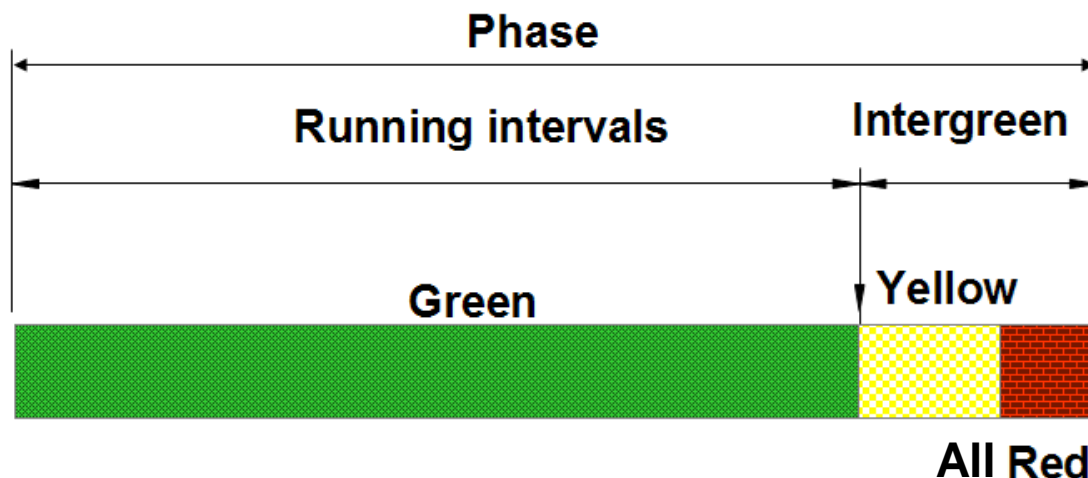
Signal definitions

- **Cycle:** One complete sequence (for all approaches) of signal indications (GYR)
- **Cycle length:** the total time for the signal to complete one cycle (C, in seconds)
- **Green time (G), Yellow time (Y), Red time (R)**
- **All red:** the time within a cycle in which all approaches have a red indication (AR)

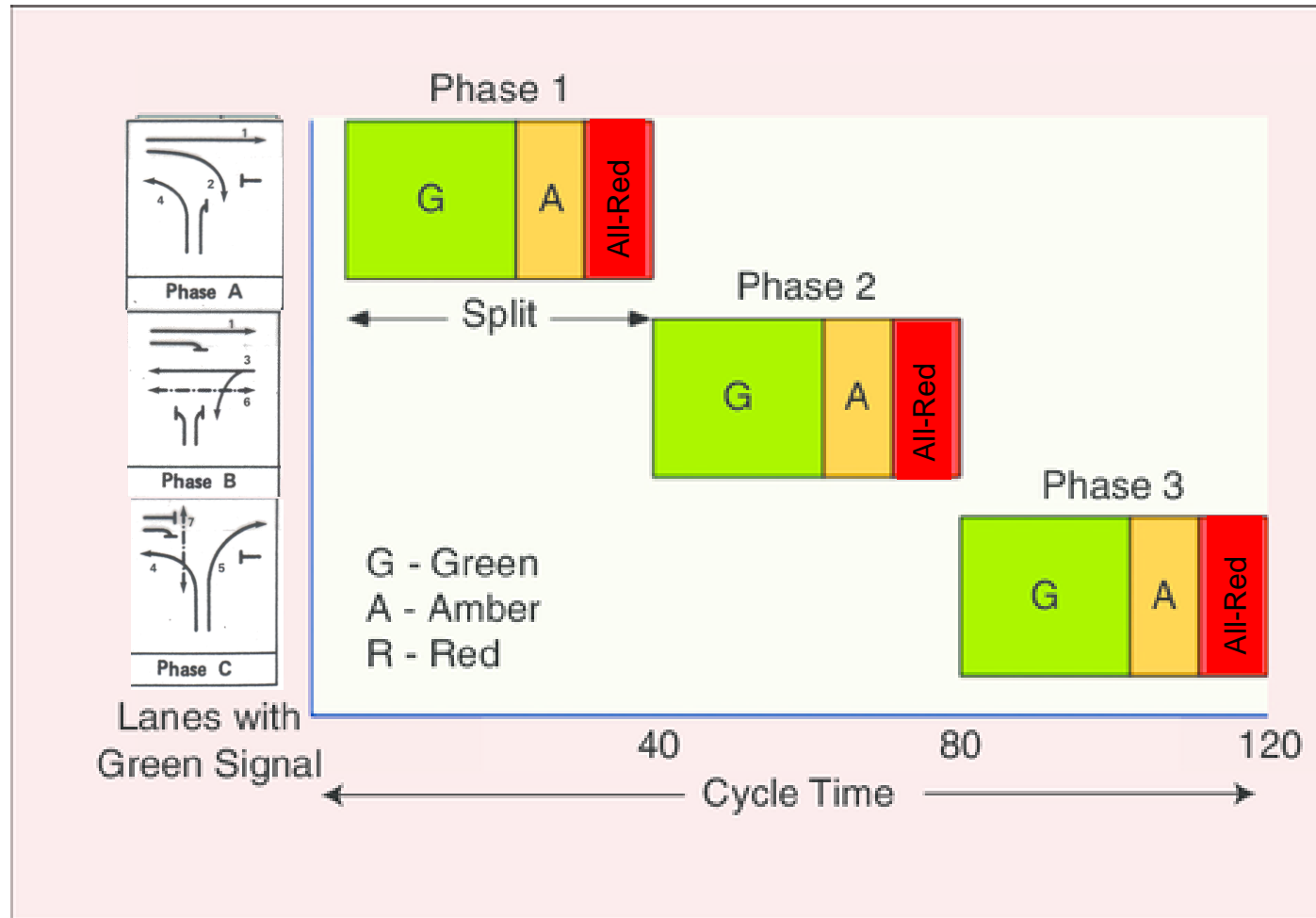


Signal definitions

- **Phase:** The sum of displayed green, yellow, and all red times for a movement or combination of (compatible) movements that receive the right of way simultaneously during the cycle. The sum of phase lengths is the cycle length.
- **Intergreen time:** The sum of yellow and all-red times between green times.



Signal definitions

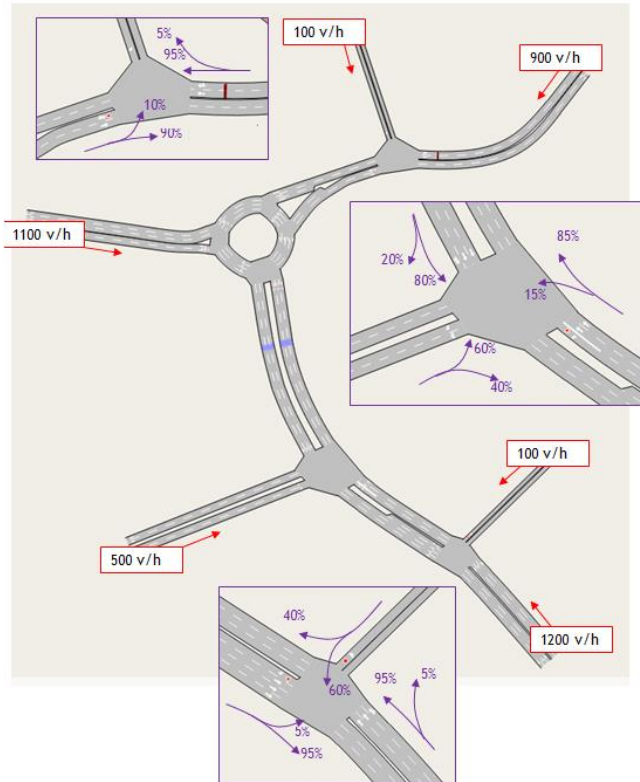




APPENDIX 2

Traffic states vs. OD demand

Traffic States vs. Traffic Demand



Traffic states

- Origin / destination not explicit
- No realistic route choice

O/D tables

- Origin / destination demand
- Route choice / traffic assignment needed