CE474: Traffic Systems Design-Fall 2004

Class 11 – Design Project 2 :Actuated Controller Operations
September 29, 2004

Ahmed Abdel-Rahim
Civil Engineering Department, University of Idaho

Requirements for design report 2

- Design report 1 is due at the beginning of class on Wednesday October 6th.
- The report must be no longer than 20 pages, including all text, figures, and tables.
- You will be responsible for developing the optimal signal timing for the intersection to which you have been assigned, given a set of future (projected) traffic volumes. You should define what you mean by an "optimal" signal timing plan and list a set of MOEs to be used in evaluating different design alternatives
- You should examine the following three design parameters:
  - Maximum Green
  - Minimum Green
  - Vehicle extension

Requirements for design report 2

- For these three parameters, your report should clearly describe the design alternatives that you considered (the range of values that you considered for each parameter), the results of the analysis of the alternatives, your final design parameters, and why you selected your final design parameters.
- The report should also include all supporting information including figures, tables, and computations.
- You should design the yellow and all-red intervals according to ITD design standards
- You should design the pedestrian phases according to ITD design standards. Control settings for pedestrian “Push-button” plan, should be presented in your report.
- You should design your detection system according to ITD design guidelines, full details of the detector configuration should be presented in the report.

Requirements for design report 2

- You should discuss the setting for all actuated control parameters and present a rational for the settings you selected for each of the those parameters
- You should conduct your analysis of the design alternatives using the CORSIM simulation model.
- You should compare the performance of the optimal actuated control plan with the performance of the intersection under fixed-time control

Project Tasks

- A2.1 Exiting Conditions – Fixed time MOEs
- A2.2 Review and document ITD design guidelines for actuated control
- A2.3 Design Yellow and All-Red intervals according to ITD standards
- A2.4 Design Pedestrian Phases [Solid Walk, Flashing Walk, and Do Not walk according to ITD design standards
- A2.5 Configure the intersection's detection system according to ITD design guidelines.
- A2.6 Use Synchro to design optimal control settings for the intersection

Project Tasks

- A2.7 Determine the range of values you will examine in your analysis / Determine design alternatives
- A2.8 Determine different setting for advanced actuated control feature. Document your rational for the settings you selected.
- A2.9 Finalize the CORSIM simulation models for different design alternatives
- A2.10 Conduct the analysis using the multiple-run tool in Corsim,
- A2.11 Document the output of your analysis and identify the optimal settings by comparing different MOEs
- A2.12 Compare the actuated MOEs (optimal setting) against the fixed-time MOE's
- A2.13 Final Report-- Documentation