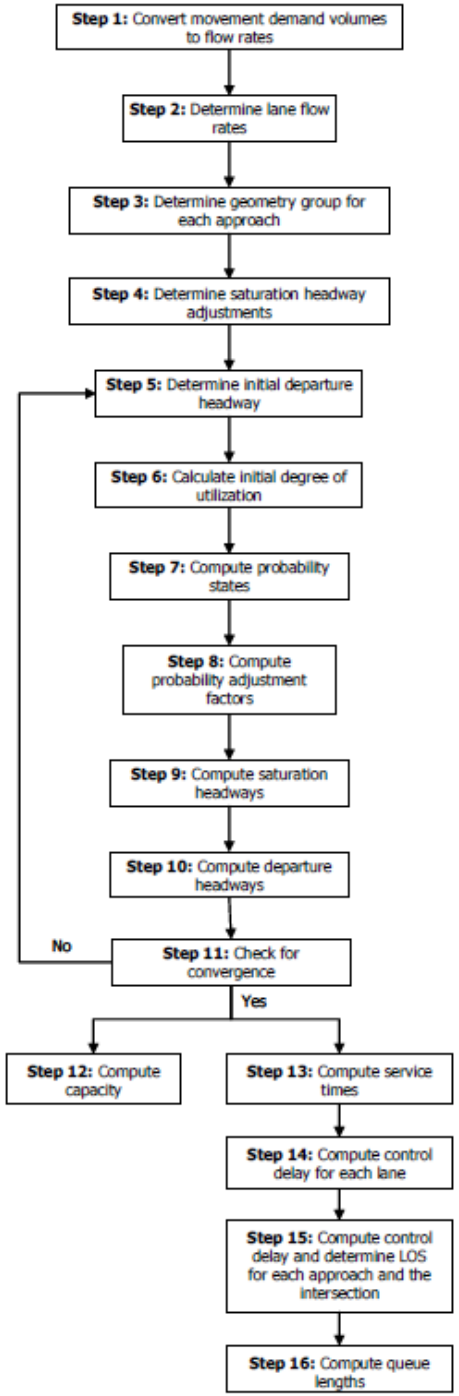
CE 572 – Spring 2015
Class 24

2015.03.23

10	Class 24 (3.23) Applications and analysis Exam review Introduction to HCS AWSC intersection module	Class 25 (3.25) Applications and analysis AWSC intersection module	Class 26 (3.27) Applications and analysis TWSC intersection module
11	Class 27 (3.30) Applications and analysis TWSC intersection module	Class 28 (4.01) Applications and analysis Signalized intersection module	Class 29 (4.03) Applications and analysis Signalized intersection module
12	Class 30 (4.06) Applications and analysis Signalized intersection module	Class 31 (4.08) Applications and analysis Signalized intersection module	Class 32 (4.10) Applications and analysis Intersection control decisions
13	Class 33 (4.13) Applications and analysis Intersection control decisions	Class 34 (4.15) Applications and analysis Intersection control decisions Exam preparation	Class 35 (4.17) Exam #2
14	Class 36 (4.20) HCM Applications Guide	Class 37 (4.22) HCM Applications Guide	Class 38 (4.24) HCM Applications Guide
15	Class 39 (4.27) HCM Applications Guide	Class 40 (4.29) HCM Applications Guide	Class 41 (5.01) HCM Applications Guide
16	Class 42 (5.04) HCM Applications Guide	Class 43 (5.06) HCM Applications Guide	Class 44 (5.08) HCM Applications Guide


Step 1: Convert movement demand volumes to flow rates
Step 2: Determine lane flow rates
Step 3: Determine geometry group for each approach
Step 4: Determine saturation headway adjustments
Step 5: Determine initial departure headway
Step 6: Calculate initial degree of utilization
Step 7: Compute probability states
Step 8: Compute probability adjustment factors
Step 9: Compute saturation headways
Step 10: Compute departure headways
No
Step 11: Check for convergence
Yes
Step 12: Compute capacity
Step 13: Compute service times
Step 14: Compute control delay for each lane
Step 15: Compute control delay and determine LOS for each approach and the intersection
Step 16: Compute queue lengths

Parametric Analysis:
An analysis taken to describe, analyze and examine the different relations amongst various parameters

Sensitivity Analysis:
The study of how the uncertainty in the output of a mathematical model or system (numerical or otherwise) can be apportioned to different sources of uncertainty in its inputs.

Assignment 31 - HCS and AWSC Intersection Analysis

1. Review pages 21.10 - 21.19 in HCM 2010. This section covers the basic AWSC intersection methodology for automobiles.
2. Use the HCS to verify the results for Example Problem #1 (pp 32.56 - 32.61). Prepare an interpretation of the results: what is the meaning of the results for a traffic engineer?
3. Select one output parameter from the HCS analysis and conduct a parametric or sensitivity analysis based on one input parameter. Present your results in a spreadsheet.

Assignment 32 - Reading

Read the paper "Saturation Headways at Stop-Controlled Intersections", Transportation Research Record 1457. See Resources page under AWSC Intersections.