

# CE 572 – Spring 2015

Intersection Traffic Operations

Class 02

21 January 2015

# HCM2010

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## METHODOLOGICAL DETAILS

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- + Chapter 10: Freeway Facilities
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- + Chapter 18: Signalized Intersections
- + Chapter 20: All-way Stop-Controlled Intersections
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- + Chapter 7: Interpreting HCM and Alternative Tool Results
- + Chapter 11: Basic Freeway Segments
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QUICK JUMP

## Assignment 02 - Field Observations at an All-Way Stop-Controlled Intersections

During the next two weeks of class, we will be studying the operation of all-way stop-controlled (AWSC) intersections. One of the best methods of studying the operation of this type of intersection is through field observations. Your task is to observe the intersection of 6th Street and Line Street for a period of one hour during the afternoon peak hour (between 4:15 pm and 5:15 pm). Consider the following questions as you make your observations:

1. Are there continuous queues on any of the three approaches?
2. During these periods of continuous queuing, do you observe a particular order of vehicle departure from each stop line into the intersection?
3. What is the [approximate] mean headway between the consecutive departure of vehicles on one approach?  
[Base your answer on a sample of ten headways that you record.]
4. What factors do you think affect the value of this headway?
5. What other observations of interest did you make?

	A	B	C	D	
1	<b>Inputs/Given Data</b>				
2	$V_{NB}$		veh/hr		
3	$V_{WB}$		veh/hr		
4	$s_{s1}$	3.9	sec/veh		
5	$s_{s3}$	5.8	sec/veh		
6					
7	<b>Calculations</b>				
8	$h_{NB}$		sec/veh		
9	$h_{WB}$		sec/veh		
10					
11	<b>Results</b>	<b>NB</b>	<b>WB</b>		
12	$h$			sec/veh	
13	$X$				
14					

```
Public Function DepartureHeadway(SubVol, ConVol)
'This function calculates the departure headway for one AWSC intersection approach.
'Input variables:
'SubVol = volume on subject approach, veh/hr
'ConVol = volume on conflicting approach, veh/hr
'lambdaSub = flow rate on subject approach, veh/sec
'lambdaCon = flow rate on conflicting approach, veh/sec
'DepartureHeadway is the departure headway for the subject approach, sec/veh

lambdaSub = SubVol / 3600
lambdaCon = ConVol / 3600

term1 = 3.9 + 7.41 * lambdaCon
term2 = 1 - 3.61 * lambdaSub * lambdaCon

DepartureHeadway = term1 / term2

End Function
```