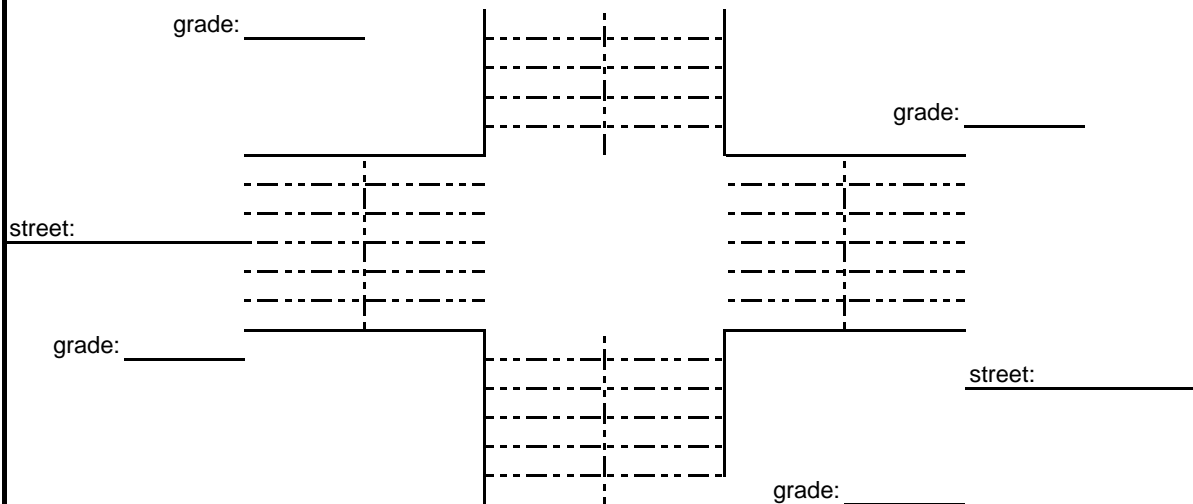


Field Saturation Flow Worksheet

Analyst _____	Intersection/Lane _____
Agency or Company _____	Area Type _____
Date _____	Jurisdiction _____
Analysis Time Period _____	Analysis Year _____
Est. % Turning Veh _____	Est. % Heavy Veh _____

Sketch intersection to be studied including all lane movements. Clearly indicate the study lane, turn lane phasing, north direction, and street names.



Cycle 1	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____
Cycle 2	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____
Cycle 3	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____
Cycle 4	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____
Cycle 5	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 6	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____
Cycle 7	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____
Cycle 8	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____
Cycle 9	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____
Cycle 10	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Field Saturation Flow Worksheet

Analyst _____	Intersection/Lane _____
Agency or Company _____	Area Type _____
Date _____	Jurisdiction _____
Analysis Time Period _____	Analysis Year _____
Est. % Turning Veh _____	Est. % Heavy Veh _____

Cycle 11	Time	Number	Cycle 21	Time	Number
4th Veh	_____	4	4th Veh	_____	4
Last Stopped Veh	_____	_____	Last Stopped Veh	_____	_____
End of Green	_____	_____	End of Green	_____	_____
Cycle 12	Time	Number	Cycle 22	Time	Number
4th Veh	_____	4	4th Veh	_____	4
Last Stopped Veh	_____	_____	Last Stopped Veh	_____	_____
End of Green	_____	_____	End of Green	_____	_____
Cycle 13	Time	Number	Cycle 23	Time	Number
4th Veh	_____	4	4th Veh	_____	4
Last Stopped Veh	_____	_____	Last Stopped Veh	_____	_____
End of Green	_____	_____	End of Green	_____	_____
Cycle 14	Time	Number	Cycle 24	Time	Number
4th Veh	_____	4	4th Veh	_____	4
Last Stopped Veh	_____	_____	Last Stopped Veh	_____	_____
End of Green	_____	_____	End of Green	_____	_____
Cycle 15	Time	Number	Cycle 25	Time	Number
4th Veh	_____	4	4th Veh	_____	4
Last Stopped Veh	_____	_____	Last Stopped Veh	_____	_____
End of Green	_____	_____	End of Green	_____	_____
Cycle 16	Time	Number	Cycle 26	Time	Number
4th Veh	_____	4	4th Veh	_____	4
Last Stopped Veh	_____	_____	Last Stopped Veh	_____	_____
End of Green	_____	_____	End of Green	_____	_____
Cycle 17	Time	Number	Cycle 27	Time	Number
4th Veh	_____	4	4th Veh	_____	4
Last Stopped Veh	_____	_____	Last Stopped Veh	_____	_____
End of Green	_____	_____	End of Green	_____	_____
Cycle 18	Time	Number	Cycle 28	Time	Number
4th Veh	_____	4	4th Veh	_____	4
Last Stopped Veh	_____	_____	Last Stopped Veh	_____	_____
End of Green	_____	_____	End of Green	_____	_____
Cycle 19	Time	Number	Cycle 29	Time	Number
4th Veh	_____	4	4th Veh	_____	4
Last Stopped Veh	_____	_____	Last Stopped Veh	_____	_____
End of Green	_____	_____	End of Green	_____	_____
Cycle 20	Time	Number	Cycle 30	Time	Number
4th Veh	_____	4	4th Veh	_____	4
Last Stopped Veh	_____	_____	Last Stopped Veh	_____	_____
End of Green	_____	_____	End of Green	_____	_____

Field Saturation Flow Worksheet

Analyst _____	Intersection/Lane _____
Agency or Company _____	Area Type _____
Date _____	Jurisdiction _____
Analysis Time Period _____	Analysis Year _____
Est. % Turning Veh _____	Est. % Heavy Veh _____

Cycle 31	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 32	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 33	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 34	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 35	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 36	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 37	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 38	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 39	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 40	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 41	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 42	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 43	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 44	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 45	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 46	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 47	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 48	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 49	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Cycle 50	Time	Number
4th Veh	_____	4
Last Stopped Veh	_____	_____
End of Green	_____	_____

Notes

This form is based on the HCM 2010 field saturation flow form found in HCM Volume 4 for Signalized Intersections Supplemental (Chp 31) or HCM 2000 Chapter 16 Appendix H. This form has been simplified to work for a single person.

The collection can be ideally done with a stopwatch or a wristwatch with a sweep second hand or a digital seconds readout.

Only the times of the 4th vehicle that crosses the stopbar, the last stopped vehicle in the queue, and the end of green (in case the signal is in oversaturated conditions and the last stopped vehicle is never reached) is needed. The number (vehicle position in the queue) of the last stopped vehicle is also needed.

Vehicles should not be counted until they cross the stopbar. If a left or right turn lane is being studied, only count the vehicles when they clear the intersection if they are delayed waiting for opposing traffic or pedestrians.

If vehicles are delayed because of buses, emergency vehicles, stalled vehicles, downstream intersection queues or other disruptions, then the cycle should be discarded by crossing the cycle out on the form.

As long as there are 8 or more vehicles total in the stopped queue, a cycle can be used to calculate saturation flow. A minimum of 15 cycles with 8 or more vehicles are needed for a valid saturation flow measurement.

After gathering the information in the field, enter the appropriate data into the Saturation Flow Rate calculator to calculate the Saturation Headway.

Saturation Headway Calculation =
$$\frac{(\text{Time of last stopped vehicle} - \text{Time of 4th vehicle})}{(\text{Vehicle position of last vehicle} - 4)}$$

Saturation Flow =
$$3600 \text{ s/hr} / \text{saturation headway}$$

For example, if the time of the 4th vehicle was 0:00 (stopwatch start) and the last stopped vehicle was 20.5 seconds and there were 12 vehicles in the queue, the resulting saturation flow would be :

Headway =
$$(20.5 \text{ s} - 0 \text{ s}) / (12 - 4) = 2.56 \text{ s/veh}$$

Saturation Flow =
$$3600 \text{ s/hr} / 2.56 \text{ s/veh} = 1406 \text{ vphpl}$$