

# CAPACITY ANALYSIS

- Existing Conditions (AM/PM)
  - o Highway Segments
    - Rte 92 – east of river
    - Rte 92 – east of Spur 45
    - Spur 45 – east Rte 92
  - o Unsignalized Intersection
    - Rte 45 and Spur 45
  - o Signalized Intersections
    - October 2014
      - Metropolitan Ave. and 7<sup>th</sup> St.
      - Metropolitan Ave. and 4<sup>th</sup> St.
    - April 2015 – after gate operations change at Fort Leavenworth
      - Metropolitan Ave. and 7<sup>th</sup> St.
      - Metropolitan Ave. and 4<sup>th</sup> St.
- Projected Conditions (No-Build, Build + Tolling Scenario, Build + No Tolling Scenario)
  - o Highway Segments (AM/PM)
    - Rte 92 – east of river
    - Rte 92 – east of Spur 45
    - Spur 45 – east Rte 92



Phone: Fax:  
E-Mail:

-----Directional Two-Lane Highway Segment Analysis-----

Analyst MTH  
Agency/Co. TranSystems  
Date Performed 11/6/2014  
Analysis Time Period AM Peak Hour  
Highway Route 92  
From/To Bridge to Spur  
Jurisdiction Platte County  
Analysis Year 2014  
Description Route 92 Centennial Bridge

-----Input Data-----

Highway class	Class 1		Peak hour factor, PHF	0.92	
Shoulder width	8.5	ft	% Trucks and buses	5	%
Lane width	13.0	ft	% Trucks crawling	0.0	%
Segment length	0.4	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	25	%
Up/down	-	%	Access point density	0	/mi

Analysis direction volume, Vd 1050 veh/h  
Opposing direction volume, Vo 300 veh/h

-----Average Travel Speed-----

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.4
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor,(note-5) fHV	1.000	0.980
Grade adj. factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	1141 pc/h	333 pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM 63 mi/h  
Observed total demand,(note-3) V 1350 veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFfS - mi/h  
Adj. for lane and shoulder width,(note-3) fLS - mi/h  
Adj. for access point density,(note-3) fA - mi/h

Free-flow speed, FFfSd 73.5 mi/h

Adjustment for no-passing zones, fnp 2.0 mi/h  
Average travel speed, ATfSd 60.0 mi/h  
Percent Free Flow Speed, PFfS 81.7 %

-----Percent Time-Spent-Following-----

Direction	Analysis(d)	Opposing (o)	
PCE for trucks, ET	1.0	1.1	
PCE for RVs, ER	1.0	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	0.995	
Grade adjustment factor,(note-1) fg	1.00	1.00	
Directional flow rate,(note-2) vi	1141 pc/h	328 pc/h	
Base percent time-spent-following,(note-4) BPTSFD	76.1	%	
Adjustment for no-passing zones, fnp	11.6		
Percent time-spent-following, PTSFD	85.1	%	

-----Level of Service and Other Performance Measures-----

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.67	
Peak 15-min vehicle-miles of travel, VMT15	114	veh-mi
Peak-hour vehicle-miles of travel, VMT60	420	veh-mi
Peak 15-min total travel time, TT15	1.9	veh-h
Capacity from ATS, CdATS	1666	veh/h
Capacity from PTSF, CdPTSF	1692	veh/h
Directional Capacity	1666	veh/h

-----Passing Lane Analysis-----

Total length of analysis segment, Lt	0.4	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSD (from above)	60.0	mi/h
Percent time-spent-following, PTSFD (from above)	85.1	
Level of service, LOSd (from above)	E	

-----Average Travel Speed with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSp1	-	
Percent free flow speed including passing lane, PFFSp1	0.0	%

-----Percent Time-Spent-Following with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

-----Level of Service and Other Performance Measures with Passing Lane-----

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

-----Bicycle Level of Service-----

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	2
Flow rate in outside lane, vOL	1141.3
Effective width of outside lane, We	30.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.10
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If  $v_i$  ( $v_d$  or  $v_o$ )  $\geq 1,700$  pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for  $v > 200$  veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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-----Directional Two-Lane Highway Segment Analysis-----

Analyst MTH  
Agency/Co. TranSystems  
Date Performed 11/6/2014  
Analysis Time Period PM Peak Hour  
Highway Route 92  
From/To Bridge to Spur  
Jurisdiction Platte County  
Analysis Year 2014  
Description Route 92 Centennial Bridge

-----Input Data-----

Highway class	Class 1		Peak hour factor, PHF	0.92	
Shoulder width	8.5	ft	% Trucks and buses	5	%
Lane width	13.0	ft	% Trucks crawling	0.0	%
Segment length	0.4	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	25	%
Up/down	-	%	Access point density	0	/mi

Analysis direction volume, Vd 1000 veh/h  
Opposing direction volume, Vo 430 veh/h

-----Average Travel Speed-----

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.2
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor,(note-5) fHV	1.000	0.990
Grade adj. factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	1087 pc/h	472 pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM 65 mi/h  
Observed total demand,(note-3) V 1400 veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFfS - mi/h  
Adj. for lane and shoulder width,(note-3) fLS - mi/h  
Adj. for access point density,(note-3) fA - mi/h

Free-flow speed, FFfSd 75.9 mi/h

Adjustment for no-passing zones, fnp 1.6 mi/h  
Average travel speed, ATfSd 62.1 mi/h  
Percent Free Flow Speed, PFfS 81.9 %

-----Percent Time-Spent-Following-----

Direction	Analysis(d)	Opposing (o)	
PCE for trucks, ET	1.0	1.0	
PCE for RVs, ER	1.0	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	1.000	
Grade adjustment factor,(note-1) fg	1.00	1.00	
Directional flow rate,(note-2) vi	1087 pc/h	467 pc/h	
Base percent time-spent-following,(note-4) BPTSFd	76.7	%	
Adjustment for no-passing zones, fnp	14.3		
Percent time-spent-following, PTSFd	86.7	%	

-----Level of Service and Other Performance Measures-----

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.64	
Peak 15-min vehicle-miles of travel, VMT15	109	veh-mi
Peak-hour vehicle-miles of travel, VMT60	400	veh-mi
Peak 15-min total travel time, TT15	1.8	veh-h
Capacity from ATS, CdATS	1683	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1683	veh/h

-----Passing Lane Analysis-----

Total length of analysis segment, Lt	0.4	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSD (from above)	62.1	mi/h
Percent time-spent-following, PTSFd (from above)	86.7	
Level of service, LOSd (from above)	E	

-----Average Travel Speed with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSp1	-	
Percent free flow speed including passing lane, PFFSp1	0.0	%

-----Percent Time-Spent-Following with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

-----Level of Service and Other Performance Measures with Passing Lane-----

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

-----Bicycle Level of Service-----

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	2
Flow rate in outside lane, vOL	1087.0
Effective width of outside lane, We	30.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.08
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If  $v_i$  ( $v_d$  or  $v_o$ )  $\geq 1,700$  pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for  $v > 200$  veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.



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-----Directional Two-Lane Highway Segment Analysis-----

Analyst MTH  
Agency/Co. TranSystems  
Date Performed 11/6/2014  
Analysis Time Period AM Peak Hour  
Highway Route 92  
From/To Route 45 to Spur 45  
Jurisdiction Platte County  
Analysis Year 2014  
Description Route 92 Centennial Bridge

-----Input Data-----

Highway class	Class 1		Peak hour factor, PHF	0.92	
Shoulder width	8.0	ft	% Trucks and buses	5	%
Lane width	13.0	ft	% Trucks crawling	0.0	%
Segment length	3.2	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	46	%
Up/down	-	%	Access point density	3	/mi

Analysis direction volume, Vd 610 veh/h  
Opposing direction volume, Vo 160 veh/h

-----Average Travel Speed-----

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.1	1.6
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor,(note-5) fHV	0.995	0.971
Grade adj. factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	666 pc/h	179 pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM 60 mi/h  
Observed total demand,(note-3) V 770 veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS - mi/h  
Adj. for lane and shoulder width,(note-3) fLS - mi/h  
Adj. for access point density,(note-3) fA - mi/h

Free-flow speed, FFSd 66.0 mi/h

Adjustment for no-passing zones, fnp 3.2 mi/h  
Average travel speed, ATSD 56.2 mi/h  
Percent Free Flow Speed, PFFS 85.1 %

-----Percent Time-Spent-Following-----

Direction	Analysis(d)	Opposing (o)	
PCE for trucks, ET	1.0	1.1	
PCE for RVs, ER	1.0	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	0.995	
Grade adjustment factor,(note-1) fg	1.00	1.00	
Directional flow rate,(note-2) vi	663 pc/h	175 pc/h	
Base percent time-spent-following,(note-4) BPTSFD	54.1	%	
Adjustment for no-passing zones, fnp	24.7		
Percent time-spent-following, PTSFD	73.6	%	

-----Level of Service and Other Performance Measures-----

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.39	
Peak 15-min vehicle-miles of travel, VMT15	530	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1952	veh-mi
Peak 15-min total travel time, TT15	9.4	veh-h
Capacity from ATS, CdATS	1651	veh/h
Capacity from PTSF, CdPTSF	1692	veh/h
Directional Capacity	1651	veh/h

-----Passing Lane Analysis-----

Total length of analysis segment, Lt	3.2	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSD (from above)	56.2	mi/h
Percent time-spent-following, PTSFD (from above)	73.6	
Level of service, LOSd (from above)	D	

-----Average Travel Speed with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSp1	-	
Percent free flow speed including passing lane, PFFSp1	0.0	%

-----Percent Time-Spent-Following with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

-----Level of Service and Other Performance Measures with Passing Lane-----

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

-----Bicycle Level of Service-----

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	2
Flow rate in outside lane, vOL	663.0
Effective width of outside lane, We	29.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.12
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If  $v_i$  ( $v_d$  or  $v_o$ )  $\geq 1,700$  pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for  $v > 200$  veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:  
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-----Directional Two-Lane Highway Segment Analysis-----

Analyst MTH  
Agency/Co. TranSystems  
Date Performed 11/6/2014  
Analysis Time Period PM Peak Hour  
Highway Route 92  
From/To Spur 45 to Route 45  
Jurisdiction Platte County  
Analysis Year 2014  
Description Route 92 Centennial Bridge

-----Input Data-----

Highway class	Class 1		Peak hour factor, PHF	0.92	
Shoulder width	8.0	ft	% Trucks and buses	5	%
Lane width	13.0	ft	% Trucks crawling	0.0	%
Segment length	3.2	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	44	%
Up/down	-	%	Access point density	3	/mi

Analysis direction volume, Vd 580 veh/h  
Opposing direction volume, Vo 290 veh/h

-----Average Travel Speed-----

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.1	1.4
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor,(note-5) fHV	0.995	0.980
Grade adj. factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	634 pc/h	322 pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM 65 mi/h  
Observed total demand,(note-3) V 870 veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS - mi/h  
Adj. for lane and shoulder width,(note-3) fLS - mi/h  
Adj. for access point density,(note-3) fA - mi/h

Free-flow speed, FFSd 71.8 mi/h

Adjustment for no-passing zones, fnp 2.8 mi/h  
Average travel speed, ATSD 61.6 mi/h  
Percent Free Flow Speed, PFFS 85.8 %

-----Percent Time-Spent-Following-----

Direction	Analysis(d)	Opposing (o)	
PCE for trucks, ET	1.0	1.1	
PCE for RVs, ER	1.0	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	0.995	
Grade adjustment factor,(note-1) fg	1.00	1.00	
Directional flow rate,(note-2) vi	630 pc/h	317 pc/h	
Base percent time-spent-following,(note-4) BPTSFD	56.6	%	
Adjustment for no-passing zones, fnp	28.3		
Percent time-spent-following, PTSFD	75.4	%	

-----Level of Service and Other Performance Measures-----

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.37	
Peak 15-min vehicle-miles of travel, VMT15	504	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1856	veh-mi
Peak 15-min total travel time, TT15	8.2	veh-h
Capacity from ATS, CdATS	1666	veh/h
Capacity from PTSF, CdPTSF	1692	veh/h
Directional Capacity	1666	veh/h

-----Passing Lane Analysis-----

Total length of analysis segment, Lt	3.2	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSD (from above)	61.6	mi/h
Percent time-spent-following, PTSFD (from above)	75.4	
Level of service, LOSd (from above)	D	

-----Average Travel Speed with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSp1	-	
Percent free flow speed including passing lane, PFFSp1	0.0	%

-----Percent Time-Spent-Following with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

-----Level of Service and Other Performance Measures with Passing Lane-----

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

-----Bicycle Level of Service-----

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	2
Flow rate in outside lane, vOL	630.4
Effective width of outside lane, We	29.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.10
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If  $v_i$  ( $v_d$  or  $v_o$ )  $\geq 1,700$  pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for  $v > 200$  veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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-----Directional Two-Lane Highway Segment Analysis-----

Analyst MTH  
 Agency/Co. TranSystems  
 Date Performed 11/6/2014  
 Analysis Time Period AM Peak Hour  
 Highway Spur 45  
 From/To Route 45 to Route 92  
 Jurisdiction Platte County  
 Analysis Year 2014  
 Description Route 92 Centennial Bridge

-----Input Data-----

Highway class	Class 1		Peak hour factor, PHF	0.92	
Shoulder width	6.0	ft	% Trucks and buses	5	%
Lane width	13.0	ft	% Trucks crawling	0.0	%
Segment length	2.2	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	18	%
Up/down	-	%	Access point density	2	/mi

Analysis direction volume, Vd 420 veh/h  
 Opposing direction volume, Vo 190 veh/h

-----Average Travel Speed-----

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.2	1.5
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor,(note-5) fHV	0.990	0.976
Grade adj. factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	461 pc/h	212 pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM 60 mi/h  
 Observed total demand,(note-3) V 610 veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFfS - mi/h  
 Adj. for lane and shoulder width,(note-3) fLS - mi/h  
 Adj. for access point density,(note-3) fA - mi/h

Free-flow speed, FFfSd 64.8 mi/h

Adjustment for no-passing zones, fnp 2.2 mi/h  
 Average travel speed, ATfSd 57.4 mi/h  
 Percent Free Flow Speed, PFFfS 88.6 %

-----Percent Time-Spent-Following-----

Direction	Analysis(d)	Opposing (o)	
PCE for trucks, ET	1.0	1.1	
PCE for RVs, ER	1.0	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	0.995	
Grade adjustment factor,(note-1) fg	1.00	1.00	
Directional flow rate,(note-2) vi	457 pc/h	208 pc/h	
Base percent time-spent-following,(note-4) BPTSFD	41.5	%	
Adjustment for no-passing zones, fnp	27.4		
Percent time-spent-following, PTSFD	60.3	%	

-----Level of Service and Other Performance Measures-----

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.27	
Peak 15-min vehicle-miles of travel, VMT15	251	veh-mi
Peak-hour vehicle-miles of travel, VMT60	924	veh-mi
Peak 15-min total travel time, TT15	4.4	veh-h
Capacity from ATS, CdATS	1659	veh/h
Capacity from PTSF, CdPTSF	1692	veh/h
Directional Capacity	1659	veh/h

-----Passing Lane Analysis-----

Total length of analysis segment, Lt	2.2	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSD (from above)	57.4	mi/h
Percent time-spent-following, PTSFD (from above)	60.3	
Level of service, LOSd (from above)	C	

-----Average Travel Speed with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSp1	-	
Percent free flow speed including passing lane, PFFSp1	0.0	%

-----Percent Time-Spent-Following with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

-----Level of Service and Other Performance Measures with Passing Lane-----

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

-----Bicycle Level of Service-----



Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	456.5
Effective width of outside lane, We	25.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.03
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If  $v_i$  ( $v_d$  or  $v_o$ )  $\geq 1,700$  pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for  $v > 200$  veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:  
E-Mail:

-----Directional Two-Lane Highway Segment Analysis-----

Analyst MTH  
Agency/Co. TranSystems  
Date Performed 11/6/2014  
Analysis Time Period PM Peak Hour  
Highway Spur 45  
From/To Route 92 to Route 45  
Jurisdiction Platte County  
Analysis Year 2014  
Description Route 92 Centennial Bridge

-----Input Data-----

Highway class	Class 1		Peak hour factor, PHF	0.92	
Shoulder width	8.0	ft	% Trucks and buses	5	%
Lane width	13.0	ft	% Trucks crawling	0.0	%
Segment length	2.2	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	31	%
Up/down	-	%	Access point density	2	/mi

Analysis direction volume, Vd 510 veh/h  
Opposing direction volume, Vo 190 veh/h

-----Average Travel Speed-----

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.1	1.5
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor,(note-5) fHV	0.995	0.976
Grade adj. factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	557 pc/h	212 pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM 65 mi/h  
Observed total demand,(note-3) V 700 veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFfS - mi/h  
Adj. for lane and shoulder width,(note-3) fLS - mi/h  
Adj. for access point density,(note-3) fA - mi/h

Free-flow speed, FFfSd 70.5 mi/h

Adjustment for no-passing zones, fnp 2.8 mi/h  
Average travel speed, ATfSd 61.7 mi/h  
Percent Free Flow Speed, PFfS 87.6 %

-----Percent Time-Spent-Following-----

Direction	Analysis(d)	Opposing (o)	
PCE for trucks, ET	1.0	1.1	
PCE for RVs, ER	1.0	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	0.995	
Grade adjustment factor,(note-1) fg	1.00	1.00	
Directional flow rate,(note-2) vi	554 pc/h	208 pc/h	
Base percent time-spent-following,(note-4) BPTSFD	47.6	%	
Adjustment for no-passing zones, fnp	26.3		
Percent time-spent-following, PTSFD	66.7	%	

-----Level of Service and Other Performance Measures-----

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.33	
Peak 15-min vehicle-miles of travel, VMT15	305	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1122	veh-mi
Peak 15-min total travel time, TT15	4.9	veh-h
Capacity from ATS, CdATS	1659	veh/h
Capacity from PTSF, CdPTSF	1692	veh/h
Directional Capacity	1659	veh/h

-----Passing Lane Analysis-----

Total length of analysis segment, Lt	2.2	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSD (from above)	61.7	mi/h
Percent time-spent-following, PTSFD (from above)	66.7	
Level of service, LOSd (from above)	D	

-----Average Travel Speed with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSp1	-	
Percent free flow speed including passing lane, PFFSp1	0.0	%

-----Percent Time-Spent-Following with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

-----Level of Service and Other Performance Measures with Passing Lane-----

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

-----Bicycle Level of Service-----

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	554.3
Effective width of outside lane, We	29.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	2.05
Bicycle LOS	B

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If  $v_i$  ( $v_d$  or  $v_o$ )  $\geq 1,700$  pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for  $v > 200$  veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

# HCM Unsignalized Intersection Capacity Analysis

## 3: Rte 45 & Spur 45

Existing Conditions  
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	18	164	367	31	37	72
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	178	399	34	40	78
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	911	79	40			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	911	79	40			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	82	75			
cM capacity (veh/h)	227	981	1569			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	198	399	34	118		
Volume Left	20	399	0	0		
Volume Right	178	0	0	78		
cSH	739	1569	1700	1700		
Volume to Capacity	0.27	0.25	0.02	0.07		
Queue Length 95th (ft)	27	25	0	0		
Control Delay (s)	11.6	8.1	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.6	7.4		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			7.4			
Intersection Capacity Utilization			44.8%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 3: Rte 45 & Spur 45

Existing Conditions  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	106	419	181	49	43	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	115	455	197	53	47	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	503	57	47			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	503	57	47			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	75	55	87			
cM capacity (veh/h)	461	1010	1561			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	571	197	53	66		
Volume Left	115	197	0	0		
Volume Right	455	0	0	20		
cSH	814	1561	1700	1700		
Volume to Capacity	0.70	0.13	0.03	0.04		
Queue Length 95th (ft)	147	11	0	0		
Control Delay (s)	19.1	7.6	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	19.1	6.0		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			14.0			
Intersection Capacity Utilization			55.1%		ICU Level of Service	B
Analysis Period (min)			15			

# HCM Signalized Intersection Capacity Analysis

## 3: 7th Street & Metropolitan Ave

Existing Conditions  
AM Peak Hour

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	560	430	33	23	203	441	14	286	16	150	82	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		0.95		0.95	0.95	
Frt	1.00	0.99		1.00	1.00	0.85		0.99		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1770	3501		1770	3539	1583		3505		1681	1644	
Flt Permitted	0.51	1.00		0.47	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	945	3501		870	3539	1583		3505		1681	1644	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	609	467	36	25	221	479	15	311	17	163	89	85
RTOR Reduction (vph)	0	5	0	0	0	280	0	4	0	0	30	0
Lane Group Flow (vph)	609	498	0	25	221	199	0	339	0	147	160	0
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2			6		6						
Actuated Green, G (s)	58.2	58.2		28.6	28.6	28.6		11.0		12.8	12.8	
Effective Green, g (s)	58.2	58.2		28.6	28.6	28.6		11.0		12.8	12.8	
Actuated g/C Ratio	0.58	0.58		0.29	0.29	0.29		0.11		0.13	0.13	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	744	2037		248	1012	452		385		215	210	
v/s Ratio Prot	c0.19	0.14			0.06			c0.10		0.09	c0.10	
v/s Ratio Perm	c0.28			0.03		0.13						
v/c Ratio	0.82	0.24		0.10	0.22	0.44		0.88		0.68	0.76	
Uniform Delay, d1	13.7	10.2		26.2	27.2	29.2		43.9		41.7	42.1	
Progression Factor	1.00	1.00		0.84	0.85	0.87		1.00		1.00	1.00	
Incremental Delay, d2	7.0	0.3		0.7	0.4	2.7		20.4		8.7	15.1	
Delay (s)	20.7	10.5		22.6	23.4	28.2		64.2		50.3	57.3	
Level of Service	C	B		C	C	C		E		D	E	
Approach Delay (s)		16.1			26.6			64.2			54.2	
Approach LOS		B			C			E			D	

### Intersection Summary

HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
6: 4th Street & Metropolitan Ave

Existing Conditions  
AM Peak Hour























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	225	279	201	440	432	226	450	68	3	17	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.91	0.91		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.98		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	3276		1610	3319		1770	3247	
Flt Permitted	0.30	1.00	1.00	0.49	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	562	1863	1583	910	3276		1610	3319		1770	3247	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	245	303	218	478	470	246	489	74	3	18	22
RTOR Reduction (vph)	0	0	178	0	121	0	0	11	0	0	21	0
Lane Group Flow (vph)	114	245	125	218	827	0	221	577	0	3	19	0
Turn Type	Perm	NA	Perm	pm+pt	NA		Split	NA		Split	NA	
Protected Phases		2		1	6		4	4		8	8	
Permitted Phases	2		2	6								
Actuated Green, G (s)	41.4	41.4	41.4	56.1	56.1		22.3	22.3		3.6	3.6	
Effective Green, g (s)	41.4	41.4	41.4	56.1	56.1		22.3	22.3		3.6	3.6	
Actuated g/C Ratio	0.41	0.41	0.41	0.56	0.56		0.22	0.22		0.04	0.04	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	232	771	655	585	1837		359	740		63	116	
v/s Ratio Prot		0.13		0.03	c0.25		0.14	c0.17		0.00	c0.01	
v/s Ratio Perm	c0.20		0.08	0.18								
v/c Ratio	0.49	0.32	0.19	0.37	0.45		0.62	0.78		0.05	0.16	
Uniform Delay, d1	21.6	19.8	18.6	11.5	12.9		35.0	36.5		46.5	46.7	
Progression Factor	0.65	0.61	0.30	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.9	1.0	0.6	0.4	0.8		3.1	5.2		0.3	0.7	
Delay (s)	21.0	13.1	6.3	11.9	13.7		38.1	41.8		46.9	47.4	
Level of Service	C	B	A	B	B		D	D		D	D	
Approach Delay (s)		11.3			13.4			40.8			47.4	
Approach LOS		B			B			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			21.7									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			100.0								24.0	
Intersection Capacity Utilization			65.4%									ICU Level of Service C
Analysis Period (min)			15									
c	Critical Lane Group											



# HCM Signalized Intersection Capacity Analysis

## 3: 7th Street & Metropolitan Ave

Existing Conditions  
PM Peak Hour























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	256	43	37	451	223	40	87	17	518	219	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		0.95		0.95	0.95	
Frt	1.00	0.98		1.00	1.00	0.85		0.98		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1770	3462		1770	3539	1583		3431		1681	1608	
Flt Permitted	0.29	1.00		0.50	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (perm)	537	3462		927	3539	1583		3431		1681	1608	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	278	47	40	490	242	43	95	18	563	238	412
RTOR Reduction (vph)	0	14	0	0	0	206	0	10	0	0	50	0
Lane Group Flow (vph)	170	311	0	40	490	36	0	146	0	507	656	0
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2			6		6						
Actuated Green, G (s)	28.0	28.0		15.0	15.0	15.0		6.0		48.0	48.0	
Effective Green, g (s)	28.0	28.0		15.0	15.0	15.0		6.0		48.0	48.0	
Actuated g/C Ratio	0.28	0.28		0.15	0.15	0.15		0.06		0.48	0.48	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	236	969		139	530	237		205		806	771	
v/s Ratio Prot	c0.05	0.09			c0.14			c0.04		0.30	c0.41	
v/s Ratio Perm	0.15			0.04		0.02						
v/c Ratio	0.72	0.32		0.29	0.92	0.15		0.71		0.63	0.85	
Uniform Delay, d1	37.7	28.5		37.8	41.9	37.0		46.1		19.4	22.8	
Progression Factor	1.00	1.00		0.79	0.81	1.34		1.00		1.00	1.00	
Incremental Delay, d2	10.3	0.9		4.5	22.2	1.2		11.0		3.7	11.3	
Delay (s)	48.1	29.4		34.4	56.2	50.7		57.2		23.1	34.2	
Level of Service	D	C		C	E	D		E		C	C	
Approach Delay (s)		35.8			53.3			57.2			29.5	
Approach LOS		D			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	39.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 6: 4th Street & Metropolitan Ave

Existing Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	415	365	128	307	2	343	5	276	282	296	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.91	0.91		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.90		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	3536		1610	2997		1770	3367	
Flt Permitted	0.55	1.00	1.00	0.19	1.00		0.95	0.98		0.95	1.00	
Satd. Flow (perm)	1023	1863	1583	350	3536		1610	2997		1770	3367	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	451	397	139	334	2	373	5	300	307	322	155
RTOR Reduction (vph)	0	0	274	0	1	0	0	209	0	0	59	0
Lane Group Flow (vph)	8	451	123	139	335	0	239	230	0	307	418	0
Turn Type	Perm	NA	Perm	pm+pt	NA		Split	NA		Split	NA	
Protected Phases		2		1	6		4	4		8	8	
Permitted Phases	2		2	6								
Actuated Green, G (s)	30.9	30.9	30.9	43.3	43.3		17.8	17.8		20.9	20.9	
Effective Green, g (s)	30.9	30.9	30.9	43.3	43.3		17.8	17.8		20.9	20.9	
Actuated g/C Ratio	0.31	0.31	0.31	0.43	0.43		0.18	0.18		0.21	0.21	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	316	575	489	242	1531		286	533		369	703	
v/s Ratio Prot		c0.24		c0.04	0.09		c0.15	0.08		c0.17	0.12	
v/s Ratio Perm	0.01		0.08	0.21								
v/c Ratio	0.03	0.78	0.25	0.57	0.22		0.84	0.43		0.83	0.59	
Uniform Delay, d1	24.1	31.5	25.9	20.6	17.8		39.7	36.6		37.9	35.7	
Progression Factor	0.86	0.87	1.33	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	8.8	1.0	3.3	0.3		18.6	0.6		14.7	1.4	
Delay (s)	20.8	36.3	35.5	23.9	18.1		58.3	37.2		52.6	37.1	
Level of Service	C	D	D	C	B		E	D		D	D	
Approach Delay (s)		35.8			19.8			44.6			43.1	
Approach LOS		D			B			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			37.3				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		24.0			
Intersection Capacity Utilization			77.2%				ICU Level of Service			D		
Analysis Period (min)			15									
c	Critical Lane Group											