

**APPENDIX C**  
**TRAFFIC ANALYSIS**



## Capacity and Level of Service Analysis

Output from HCS+

No-Build Scenario with Year 2007 Traffic Volumes



Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 E-Mail: \_\_\_\_\_

-----Two-Way Two-Lane Highway Segment Analysis-----

Analyst                    Thomas Witt  
 Agency/Co.                KYTC Planning  
 Date Performed            5/15/2007  
 Analysis Time Period      Weekday Peak Hour  
 Highway                    US62  
 From/To                    MP 23.000 to MP 25.463  
 Jurisdiction               Grayson County  
 Analysis Year              2007  
 Description    Programming Study

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

Highway class	Class 2				
Shoulder width	2.0	ft	Peak-hour factor, PHF	0.90	
Lane width	10.0	ft	% Trucks and buses	7	%
Segment length	2.5	mi	% Recreational vehicles	0	%
Terrain type	Level		% No-passing zones	50	%
Grade: Length		mi	Access points/mi	30	/mi
Up/down		%			
Two-way hourly volume, V	1218	veh/h			
Directional split	64 / 36	%			

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

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.993	
Two-way flow rate, (note-1) vp	1363	pc/h
Highest directional split proportion (note-2)	872	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	55.0	mi/h
Adj. for lane and shoulder width, fLS	3.7	mi/h
Adj. for access points, fA	7.5	mi/h
Free-flow speed, FFS	43.8	mi/h
Adjustment for no-passing zones, fnp	1.1	mi/h
Average travel speed, ATS	32.1	mi/h

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Percent Time-Spent-Following

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Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.1*	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1353	pc/h
Highest directional split proportion (note-2)	866	
Base percent time-spent-following, BPTSF	69.6	%
Adj.for directional distribution and no-passing zones, fd/np	6.8	
Percent time-spent-following, PTSF	76.3	%

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Level of Service and Other Performance Measures

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Level of service, LOS	D	
Volume to capacity ratio, v/c	0.43	
Peak 15-min vehicle-miles of travel, VMT15	846	veh-mi
Peak-hour vehicle-miles of travel, VMT60	3045	veh-mi
Peak 15-min total travel time, TT15	26.3	veh-h

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Notes:

1. If  $vp \geq 3200$  pc/h, terminate analysis-the LOS is F.
2. If highest directional split  $vp \geq 1700$  pc/h, terminate analysis-the LOS is F.

\* These items have been entered or edited to override calculated value

## Capacity and Level of Service Analysis

Output from HCS+

No-Build Scenario with Year 2030 Traffic Volumes





Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 E-Mail: \_\_\_\_\_

-----Two-Way Two-Lane Highway Segment Analysis-----

Analyst Thomas Witt  
 Agency/Co. KYTC Planning  
 Date Performed 5/15/2007  
 Analysis Time Period Weekday Peak Hour  
 Highway US62  
 From/To MP 23.000 to MP 25.463  
 Jurisdiction Grayson County  
 Analysis Year 2030  
 Description Programming Study

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

Highway class	Class 2				
Shoulder width	2.0	ft	Peak-hour factor, PHF	0.92	
Lane width	10.0	ft	% Trucks and buses	7	%
Segment length	2.5	mi	% Recreational vehicles	0	%
Terrain type	Level		% No-passing zones	50	%
Grade: Length		mi	Access points/mi	30	/mi
Up/down		%			
Two-way hourly volume, V	1793	veh/h			
Directional split	56 / 44	%			

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

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.993	
Two-way flow rate, (note-1) vp	1963	pc/h
Highest directional split proportion (note-2)	1099	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	55.0	mi/h
Adj. for lane and shoulder width, fLS	3.7	mi/h
Adj. for access points, fA	7.5	mi/h
Free-flow speed, FFS	43.8	mi/h
Adjustment for no-passing zones, fnp	0.8	mi/h
Average travel speed, ATS	27.8	mi/h

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Percent Time-Spent-Following

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Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1949	pc/h
Highest directional split proportion (note-2)	1091	
Base percent time-spent-following, BPTSF	82.0	%
Adj.for directional distribution and no-passing zones, fd/np	3.7	
Percent time-spent-following, PTSF	85.6	%

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Level of Service and Other Performance Measures

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Level of service, LOS	E	
Volume to capacity ratio, v/c	0.61	
Peak 15-min vehicle-miles of travel, VMT15	1218	veh-mi
Peak-hour vehicle-miles of travel, VMT60	4483	veh-mi
Peak 15-min total travel time, TT15	43.8	veh-h

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Notes:

1. If  $vp \geq 3200$  pc/h, terminate analysis-the LOS is F.
2. If highest directional split  $vp \geq 1700$  pc/h, terminate analysis-the LOS is F.

## Special Classification Count

# Kentucky Transportation Cabinet - Division of Planning Traffic Count Record

District # 4

I.D. # 4 0 0 6 2 - 0 2 5 . 1 H 4

R  N  N  N  N  S  M  M  M  M  A  D

Route Code: U=U.S., K=Ky or Parkways, R=County Rd, F=FS  
 Milepoint: M M M M  
 Array: T=Tube, H=2 tubes, L=Loop, B=2 loops, M=mbxd, R=Radar, P=Piezo, W=WIM Piezo

Add  Delete  Combine  
 Must be accompanied by reason

Estimate  
 Special  
 Index

STA # 0 4 3 2 0 4 A 2 V C L 1

County Number: C C C  
 Station#: S S S  
 Lanes at Station: N L P T M A  
 Machine # of All Machines at Station:

Lanes Counter is counting:  
 A=All Lanes, B=Part NB & SB, C=Part EB & WB, 1=lane 1, 2=lane 2  
 N=all NB, E=all EB, S=all SB, W=all WB

Counter is counting:  
 V=Vehicles, A=Axes  
 Type Record:  
 V=Volume, C=Cls x Spd, L=Lan x Spd, W=WIM

### ESTIMATE

# of houses \_\_\_\_\_ x 10 = \_\_\_\_\_  
 # of Business \_\_\_\_\_ x 25 = \_\_\_\_\_

Total

File # E 0 7 0 0 0 0 1

County name Grayson

Route US 62

Latitude N 3 7 4 9 0 9 4

Station number 204 Machine # 14772-0015

City name \_\_\_\_\_

Road/Street name \_\_\_\_\_

Longitude W 8 6 2 4 5 9 8

Type Record (check one)  Volume  Class  Length

Type Sensor (check one)  Tube  Loop  Radar  Other

	Time	Month	Day	Year
Recorder Set Out	11:31	5	7	07
Recorder Picked Up	12:00	5	9	07

**Station Location & Description (use back if necessary):**

Comments

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over (more on back)

Field Technician *[Signature]*

KENTUCKY TRANSPORTATION CABINET-DEPARTMENT OF HIGHWAYS  
 DIVISION OF TRANSPORTATION PLANNING

\*PORTABLE TRAFFIC RECORDER REPORT\*

ROUTE: US0062      GRAYSON COUNTY      STATION Z04

WEEK OF MAY 07 TO MAY 13 2007

DATE:	07	08	09	10	11	12	13	TOTALS
DAY:	MON	TUE	WED	THU	FRI	SAT	SUN	
12- 1 AM		80	75					155
1- 2 AM		34	33					67
2- 3 AM		22	23					45
3- 4 AM		28	33					61
4- 5 AM		47	56					103
5- 6 AM		155	162					317
6- 7 AM		251	275					526
7- 8 AM		346	430					776
8- 9 AM		669	764					1433
9-10 AM		494	618					1112
10-11 AM		463	624					1087
11-12 AM		521	598					1119
12- 1 PM	541	596						1137
1- 2 PM	573	624						1197
2- 3 PM	598	566						1144
3- 4 PM	689	678						1367
4- 5 PM	779	822						1601
5- 6 PM	811	791						1602
6- 7 PM	638	733						1371
7- 8 PM	483	513						996
8- 9 PM	396	516						912
9-10 PM	341	338						679
10-11 PM	241	243						484
11-12 PM	110	124						234
TOTALS:	6200	9634	3691					19525

AVERAGE DAILY TRAFFIC: 9469

MONTHLY FACTOR: 97  
 AXLE FACTOR : 100  
 TOTAL HOURS : 48  
 AM HIGH HOUR: 764 BETWEEN 8- 9 AM ON WEDNESDAY  
 PM HIGH HOUR: 822 BETWEEN 4- 5 PM ON TUESDAY  
 MILE POINT : 25-1  
 COUNTED BY : DIST 4  
 DATA SOURCE : CLASS  
 ARRAY : 2 TUBES  
 LANES COUNTED: ALL LANES

KENTUCKY TRANSPORTATION CABINET-DEPARTMENT OF HIGHWAYS  
 DIVISION OF PLANNING-TRAFFIC SURVEY AND ANALYSIS SECTION  
 \*\*VEHICLE CLASSIFICATION COUNT\*\*

COUNTY: GRAYSON  
 DISTRICT: 4  
 MILEPOST: 25.100  
 ROAD DESIGNATION: R 9469 IN 2007  
 LATEST ADT COUNT: 9469 IN 2007  
 LOCATION INFORMATION: BTWN KY 1214 AND KY 88 (SPECIAL COUNT)  
 STATION: Z04 BOTH  
 ROUTE: US 62  
 TYPE COUNT: AUTOMATIC  
 FUNCTIONAL CLASS: 7

TIME PERIOD	DATE	MOTOR-CYCLES	PASSENGER CARS	OTHER 2 AXLE 4 TIRE VEHICLES	SINGLE UNIT TRUCKS						SINGLE TRAILER TRUCKS			MULTI-TRAILER TRUCKS			TOTAL VEHICLES	
					BUSSES	2 AXLE 6 TIRE	3 AXLE	4 OR MORE AXLE	4 OR LESS AXLE	5 AXLE	6 OR MORE AXLE	5 OR LESS AXLE	6 AXLE	7 OR MORE AXLE	OTHERS			
06-07AM	5/ 7/07	3	181	60	2	3	6	0	4	4	1	0	0	0	0	0	0	265
07-08AM	5/ 7/07	4	267	90	1	10	5	0	5	7	1	0	0	0	0	0	0	391
08-09AM	5/ 7/07	3	511	148	12	16	3	4	11	7	3	0	0	0	0	0	0	718
09-10AM	5/ 7/07	7	367	137	4	16	6	4	8	10	3	0	0	0	0	0	0	560
10-11AM	5/ 7/07	8	358	137	2	15	5	6	6	7	2	1	0	0	0	0	0	548
11-12AM	5/ 7/07	4	377	131	2	14	8	4	7	9	2	0	0	0	0	0	0	561
12-01PM	5/ 7/07	8	394	129	2	12	7	1	8	7	3	0	0	0	0	0	0	599
01-02PM	5/ 7/07	8	404	138	3	12	5	4	9	14	2	0	0	0	0	0	0	575
02-03PM	5/ 7/07	8	405	117	2	11	7	2	10	11	1	0	0	0	0	0	0	686
03-04PM	5/ 7/07	7	485	138	8	17	8	3	10	7	3	0	0	0	0	0	0	804
04-05PM	5/ 7/07	12	570	166	5	14	9	4	12	8	4	0	0	0	0	0	0	801
05-06PM	5/ 7/07	15	573	166	3	13	5	4	12	8	2	0	0	0	0	0	0	688
06-07PM	5/ 7/07	12	497	149	1	9	3	2	8	4	2	0	0	0	0	0	0	501
07-08PM	5/ 7/07	6	356	110	0	11	4	3	5	3	1	1	0	0	0	0	0	459
08-09PM	5/ 7/07	6	339	97	1	5	5	0	3	1	0	0	0	0	0	0	0	342
09-10PM	5/ 7/07	4	261	65	0	4	0	1	6	1	0	0	0	0	0	0	0	244
10-11PM	5/ 7/07	3	200	35	0	2	0	0	2	1	1	0	0	0	0	0	0	120
11-12PM	5/ 7/07	3	86	22	1	0	0	0	1	1	1	1	0	0	0	0	0	80
12-01AM	5/ 7/07	2	57	15	0	0	1	0	2	1	1	1	0	0	0	0	0	34
01-02AM	5/ 7/07	2	25	7	0	0	0	0	0	0	0	0	0	0	0	0	0	24
02-03AM	5/ 7/07	0	16	6	0	0	0	0	0	2	0	0	0	0	0	0	0	31
03-04AM	5/ 7/07	1	17	9	0	0	1	0	0	1	0	0	0	0	0	0	0	53
04-05AM	5/ 7/07	1	34	9	0	1	0	0	2	4	1	0	0	0	0	0	0	159
05-06AM	5/ 7/07	3	102	49	0	2	0	0	1	1	1	0	0	0	0	0	0	9814
TOTAL VEHICLES		130	6882	2130	49	187	90	41	134	120	35	7	0	0	9	0*	9814	
PERCENT OF TOTAL		1.3	70.1	21.7	0.5	1.9	0.9	0.4	1.4	1.2	0.4	0.1	0.0	0.1	0.0	0.1	0.0	

% HEAVY TRUCKS = 672/ 9814 = 6.8 %  
 AXLES / TRUCK = 2350/ 672 = 3.497  
 % TRAILER TRUCKS = 305/ 9814 = 3.1 %  
 % TRAILERS @PK HR= 24/ 804 = 3.0 %  
 PEAK HOUR BETWEEN 04-05PM = 804 VEHICLES  
 TOTAL HOURS = 24  
 AXLE CORRECTION FACTOR = 0.95  
 % SINGLE UNIT TRUCKS = 367/ 9814 = 3.7 %  
 % SINGLE UNIT @ PK HR = 32/ 804 = 4.0 %  
 % TRUCKS AT PEAK HOUR = 56/ 804 = 7.0 %

\* NOTE: RECOMMENDED OTHERS DISTRIBUTION IS CARS 00 %  
 OTHER 2 AXLE 4 TIRE VEHICLES 00 %  
 4 OR LESS AXLE SINGLE TRAILER TRUCKS 00 %