

Travel Time Survey

Route 11 Brandon/Apperson

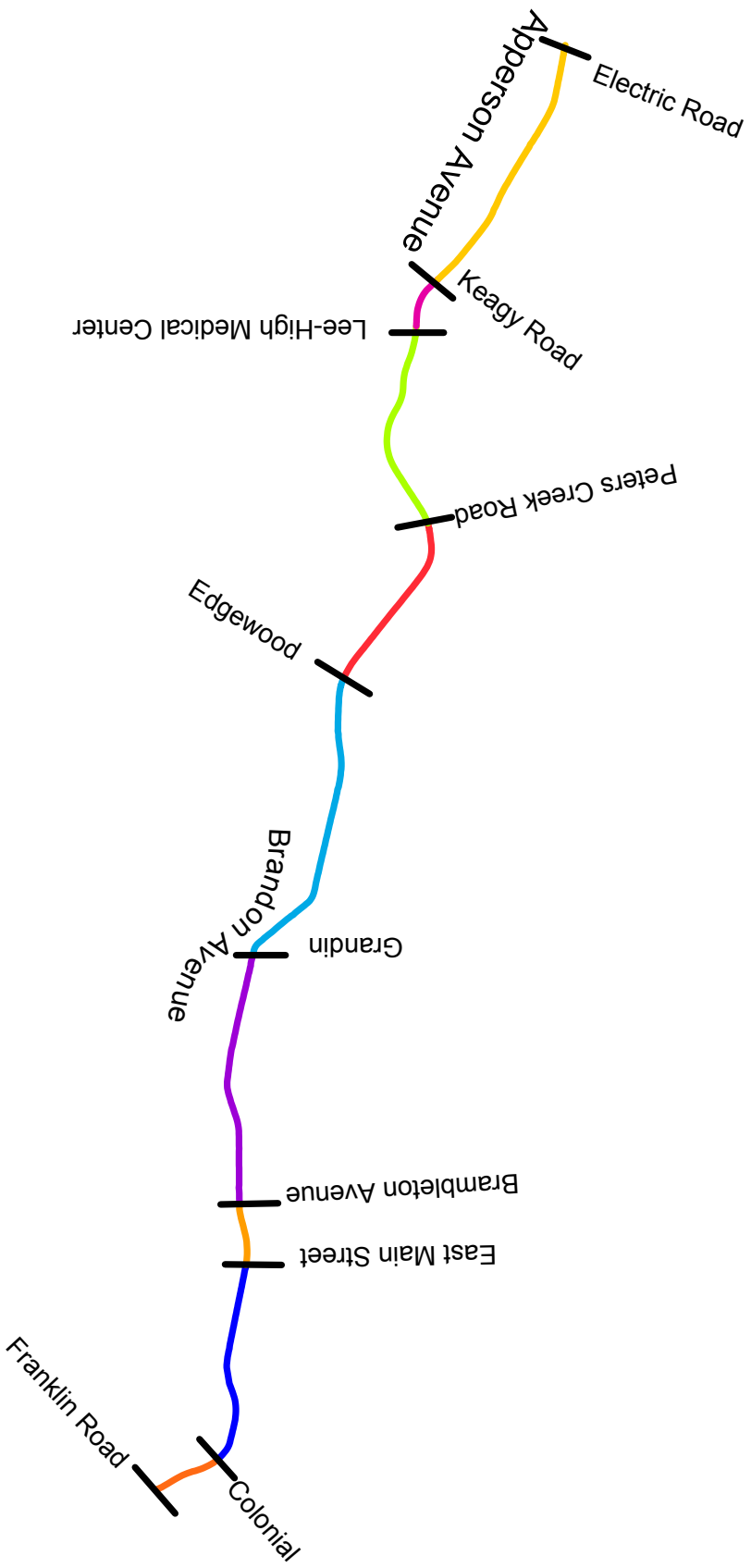


Prepared by the
Roanoke Valley Area Metropolitan Planning Organization

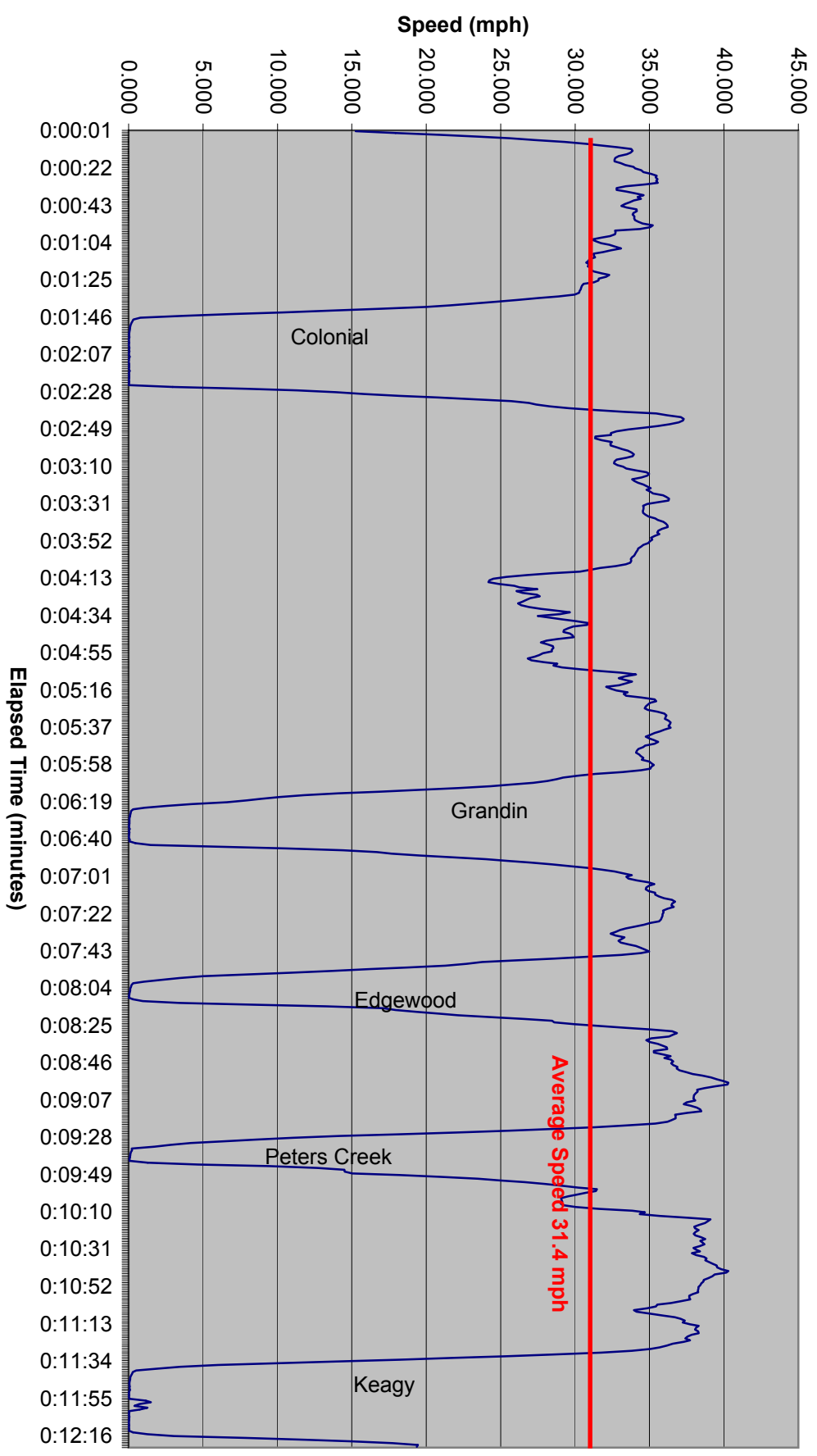
July 2003



Route 11 Corridor



Sample Travel Time Run: Route 11
Westbound Non-Peak
2/21/03 9:59-10:11am



Background

The data included in this report is part of an ongoing project conducted by the Roanoke Valley Area Metropolitan Planning Organization. For a complete overview of the project, including a methodology, please refer to the report *Travel Time Survey Pilot Study-Technical Report-GPS Travel Time Data Collection on the Route 419 Corridor*, which was published in August 2000 (revised December 2000).

No attempt has been made to extensively interpret the data in this report. The report merely attempts to record data to for use and comparison for later studies. The first few pages contain summary tables of selected data. The bulk of the document contains data from each of the travel runs.

Data Summary

Travel time runs varied from 10 minutes to nearly 18 minutes, averaging 13:37 minutes in duration. In general, runs made during peak times and in the westbound direction seem to be the longest (Table 1). The average speed for the 5.31 mile corridor was 25.7 miles per hour. Some of the longest delay times were experienced at the intersection of Electric Road and Apperson Avenue. The longest delay experienced in this set of travel time runs occurred at this intersection and lasted a total of 231 seconds. The fastest travel and running segments were measured during both peak and non-peak times and in both eastbound and westbound directions, but all seemed to occur near the intersection with Peters Creek Road (Table 5). Table 7 shows that most of the Peters Creek segments have, in comparison with other segments, lower numbers of access points.

Table 1 - Brandon/Apperson Travel Time Runs

Date	Period	Direction	Time (h:m:s)	Speed (mph)
July 17, 2003	Peak	Westbound	0:16:43	19.1
July 21, 2003	Non-Peak	Eastbound	0:16:13	19.7
July 21, 2003	Non-Peak	Westbound	0:14:44	21.6
July 3, 2003	Non-Peak	Westbound	0:13:07	24.3
July 17, 2003	Peak	Eastbound	0:13:05	24.4
July 15, 2003	Peak	Eastbound	0:12:36	25.3
February 21, 2003	Non-Peak	Westbound	0:12:21	25.8
July 24, 2003	Peak	Westbound	0:12:01	26.5
July 24, 2003	Peak	Eastbound	0:11:46	27.1
February 21, 2003	Non-Peak	Eastbound	0:10:07	31.5
July 3, 2003	Non-Peak	Eastbound	0:12:45	31.5
July 15, 2003	Peak	Westbound	0:17:58	31.8
Average			0:13:37	25.7

Table 2 - Longest Delay Times

Travel Run	Intersection	Seconds
7-15-03; Westbound; Peak	Electric/Apperson	231
7-21-03; Westbound; Non-Peak	Electric/Apperson	170
7-17-03; Westbound; Peak	East Main/Brandon	119
7-15-03; Westbound; Peak	Brambleton/Brandon	104
7-17-03; Westbound; Peak	Electric/Apperson	94
7-21-03; Eastbound; Non-Peak	Franklin/Brandon	94
7-24-03; Westbound; Peak	Grandin/Brandon	84
7-17-03; Eastbound; Peak	Colonial/Brandon	77
7-17-03; Westbound; Peak	Grandin/Brandon	74

Table 3 - Overall Slowest Travel Segments*

Travel Run	From/To	MPH	Speed Limit
7-21-03; Eastbound; Non-Peak	Colonial/Franklin	2.8	30
7-15-03; Westbound; Peak	East Main/Brambleton	5.9	30
7-3-03; Westbound; Non-Peak	Lee High Med./Keagy	8.2	35
7-15-03; Westbound; Peak	Keagy/Electric	9.5	35
7-15-03; Eastbound; Peak	Brambleton/East Main	9.6	30
7-21-03; Westbound; Non-Peak	Keagy/Electric	10.8	35
7-17-03; Westbound; Non-Peak	Colonial/East Main	11.6	30
7-24-03; Eastbound; Peak	Brambleton/East Main	12.0	30
7-17-03; Eastbound; Peak	Keagy/Lee High Med.	13.8	35
7-3-03; Eastbound; Non-Peak	Colonial/Franklin	14.0	30

*includes running and stopped times

Table 4 - Slowest Running Travel Segments*

Travel Run	From/To	MPH	Speed Limit
7-17-03; Westbound; Peak	East Main/Brambleton	19.6	30
7-15-03; Westbound; Peak	East Main/Brambleton	20.8	30
7-03-03; Eastbound; Non-Peak	Keagy/ Lee High Med.	22.3	35
7-21-03; Eastbound; Non-Peak	Colonial/Franklin	23.0	30
7-17-03; Westbound; Peak	Franklin/Colonial	23.6	30
7-21-03; Westbound; Non-Peak	Franklin/Colonial	23.6	35
7-21-03; Eastbound; Non-Peak	Keagy/ Lee High Med.	24.0	35

*includes running time only (does not include stopped delay time)

Table 5 - Fastest Travel and Running Segments*

Travel Run	From/To	MPH	Speed Limit
2-21-03; Eastbound; Non-Peak	Lee-High Med./Peters Creek	42.7	35
2-21-03; Eastbound; Non-Peak	Peters Creek/Edgewood	42.4	35
7-15-03; Eastbound; Peak	Lee-High Med./Peters Creek	41.3	35
7-17-03; Eastbound; Peak	Lee-High Med./Peters Creek	41.3	35
7-17-03; Eastbound; Peak	Peters Creek/Edgewood	40.8	35
7-15-03; Westbound; Peak	Peters Creek/ Lee-High Med.	40.6	35

*includes running time only (does not include stopped delay time)

Table 6 - Highest Number of Access Points Per Mile

Direction	Segment From	Segment To	Access/Per Mile
Westbound	Edgewood	Peters Creek	53.0
Westbound	East Main Street	Brambleton	45.8
Eastbound	Edgewood	Grandin	43.6
Eastbound	Grandin	Brambleton	40.5
Eastbound	East Main Street	Colonial	34.8
Eastbound	Keagy	Lee-High Medical Cent.	33.3
Westbound	Lee-High Medical Cent.	Keagy	33.3

Table 7 - Lowest Number of Access Points Per Mile

Direction	Segment From	Segment To	Access/Per Mile
Eastbound	Lee-High Medical Cent.	Peters Creek	8.6
Westbound	Franklin	Colonial	8.7
Westbound	Keagy	Electric	12.4
Eastbound	Colonial	Franklin	13.0
Eastbound	Peters Creek	Edgewood	16.7
Westbound	Peters Creek	Lee-High Medical Cent.	18.6

Table 8 VDOT Traffic Estimates

From	To	AADT**
SR 419 Electric Rd	WCL Roanoke	14,000
ECL Salem	Edgewood Street	23,000
Edgewood Street	Grandin Road	12,000
Grandin Road	US 221 Brambleton Avenue	15,000
East Main Street	Franklin Road	20,000

Source: VDOT 2001 Traffic Volume Estimates.

**Annual Average Daily Traffic

Date: February 21, 2003, Westbound Non-Peak

Intersections	Access Points		Speed Limit	Segment Length(mi)	Elapsed Time	Running Time		Stopped Delay Time	Overall Mean Speed(mph)	
	Number	Per/Mile				Time in Motion(s)	Mean Speed (mph)			
Franklin	Segment 1>	2	8.7	30	0.23	0:00:27	28	29.4	0	30.5
Colonial	Segment 2>	15	22.7	30	0.66	0:02:00	79	30.1	41	19.8
East Main Street	Segment 3>	9	45.8	30	0.20	0:00:24	24	29.5	0	29.5
Brambleton	Segment 4>	27	32.2	30	0.84	0:01:31	91	33.2	0	33.2
Grandin	Segment 5>	32	31.6	30	1.01	0:02:27	123	29.6	24	24.8
Edgewood	Segment 6>	32	53.0	30/35	0.60	0:01:27	72	30.2	15	25.0
Peters Creek	Segment 7>	13	18.6	35	0.70	0:01:30	77	32.7	13	28.0
Lee - High Medical Center	Segment 8>	6	33.3	35	0.18	0:00:23	23	28.2	0	28.2
Keagy	Segment 9>	11	12.4	35	0.89	0:02:12	92	34.7	40	24.2
Electric										
Totals/Average	147	27.7	-	5.31	0:12:21	609	31.4	133	25.79	

Date: February 21, 2003, Eastbound Non-Peak

Intersections	Access Points		Speed Limit	Segment Length(mi)	Elapsed Time	Running Time		Stopped Delay Time	Overall Mean Speed(mph)
	Number	Per/Mile				Time in Motion(s)	Mean Speed (mph)		
Electric	Segment 1>	21	23.6	35	0:02:04	92	34.8	33	25.8
Keagy	Segment 2>	6	34.1	35	0:00:21	21	30.2	0	30.2
	Lee - High Medical Center Segment 3>	6	8.6	35	0:00:59	59	42.7	0	42.7
Peters Creek	Segment 4>	10	16.7	35	0:00:51	51	42.4	0	42.4
Edgewood	Segment 5>	44	43.6	35/30	0:02:02	102	35.6	20	29.8
Grandin	Segment 6>	34	40.5	30	0:01:33	93	32.5	0	32.5
Brambleton	Segment 7>	4	20.0	30	0:00:30	26	27.7	4	24.0
East Main Street	Segment 8>	23	34.8	30	0:01:23	67	35.5	16	28.6
Colonial	Segment 9>	3	13.0	30	0:00:24	24	34.5	0	34.5
Franklin									
Totals/Average	151	28.5	-	5.31	0:10:07	535	35.7	73	31.47

Date: July 3, 2003, Westbound Non-Peak

Intersections	Access Points		Speed Limit	Segment Length(mi)	Elapsed Time	Running Time		Stopped Delay Time	Overall Mean Speed(mph)	
	Number	Per/Mile				Time in Motion(s)	Mean Speed (mph)			
Franklin	Segment 1>	2	8.7	30	0.23	0:00:29	29	28.4	0	28.4
Colonial	Segment 2>	15	22.7	30	0.66	0:02:02	85	28.0	36	19.5
East Main Street	Segment 3>	9	45.8	30	0.20	0:00:22	22	32.1	0	32.1
Brambleton	Segment 4>	27	32.2	30	0.84	0:02:29	87	34.7	1	20.3
Grandin	Segment 5>	32	31.6	30	1.01	0:02:00	115	31.7	0	30.4
Edgewood	Segment 6>	32	53.0	30/35	0.60	0:01:35	68	31.9	30	22.9
Peters Creek	Segment 7>	13	18.6	35	0.70	0:01:14	74	34.0	0	34.0
Lee - High Medical Center	Segment 8>	6	33.3	35	0.18	0:01:19	26	24.9	54	8.2
Keagy	Segment 9>	11	12.4	35	0.89	0:01:37	93	34.4	5	32.9
Electric										
Totals/Average	147	27.7	-	5.31	0:13:07	599	31.9	126	24.28	

Date: July 3, 2003, Eastbound Non-Peak

Intersections	Access Points		Speed Limit	Segment Length(mi)	Elapsed Time	Running Time		Stopped Delay Time	Overall Mean Speed(mph)	
	Number	Per/Mile				Time in Motion(s)	Mean Speed (mph)			
Electric	Segment 1>	21	23.6	35	0.89	0:01:37	97	33.0	0	33.0
Keagy	Segment 2>	6	33.3	35	0.18	0:00:42	29	22.3	13	15.4
	Lee - High Medical Center Segment 3>	6	8.6	35	0.70	0:01:28	75	33.6	13	28.6
Peters Creek	Segment 4>	10	16.7	35	0.60	0:01:34	71	30.4	23	23.0
Edgewood	Segment 5>	44	43.6	35/30	1.01	0:03:15	118	30.8	74	18.6
Grandin	Segment 6>	34	40.5	30	0.84	0:01:35	91	33.2	4	31.8
Brambleton	Segment 7>	4	20.0	30	0.20	0:00:22	22	32.7	0	32.7
East Main Street	Segment 8>	23	34.8	30	0.66	0:01:13	73	32.5	0	32.5
Colonial	Segment 9>	3	13.0	30	0.23	0:00:59	31	26.7	38	14.0
Franklin										
Totals/Average	151	28.4	-	5.31	0:12:45	607	31.5	165	24.99	

Date: July 15, 2003, Westbound Peak

Intersections	Access Points Number	Per/Mile	Speed Limit	Segment Length(mi)	Elapsed Time	Running Time		Stopped Delay Time	Overall Mean Speed(mph)	
						Time in Motion(s)	Mean Speed (mph)			
Franklin	Segment 1>	2	8.7	30	0.23	0:00:27	27	30.5	0	30.5
Colonial	Segment 2>	15	22.7	30	0.66	0:01:29	81	29.4	8	26.7
East Main Street	Segment 3>	9	45.8	30	0.20	0:02:18	34	20.8	104	5.9
Brambleton	Segment 4>	27	32.2	30	0.84	0:02:54	90	33.6	65	25.2
Grandin	Segment 5>	32	31.6	30	1.01	0:02:59	128	28.5	51	30.4
Edgewood	Segment 6>	32	53.0	30/35	0.60	0:00:55	55	39.5	0	39.5
Peters Creek	Segment 7>	13	18.6	35	0.70	0:01:02	62	40.6	0	40.6
Lee - High Medical Center	Segment 8>	6	33.3	35	0.18	0:00:18	18	36.0	0	36.0
Keagy	Segment 9>	11	12.4	35	0.89	0:05:36	105	30.4	231	9.5
Electric										
Totals/Average	147	27.7	-	5.31	0:17:58	600	31.8	459	17.72	

Date: July 15, 2003, Eastbound Peak

Intersections	Access Points		Speed Limit	Segment Length(mi)	Elapsed Time	Running Time		Stopped Delay Time	Overall Mean Speed(mph)
	Number	Per/Mile				Time in Motion(s)	Mean Speed (mph)		
Electric	Segment 1>	21	23.6	35	0:01:23	83	38.6	0	38.6
Keagy	Segment 2>	6	33.3	35	0:00:20	20	32.4	0	32.4
	Lee - High Medical Center Segment 3>	6	8.6	35	0:01:09	61	41.3	0	36.5
Peters Creek	Segment 4>	10	16.7	35	0:01:15	75	28.8	0	28.8
Edgewood	Segment 5>	44	43.6	35/30	0:03:25	146	24.9	55	17.7
Grandin	Segment 6>	34	40.5	30	0:01:30	88	34.4	0	33.6
Brambleton	Segment 7>	4	20.0	30	0:01:15	26	27.7	49	9.6
East Main Street	Segment 8>	23	34.8	30	0:01:44	70	33.9	34	22.8
Colonial	Segment 9>	3	13.0	30	0:00:35	33	25.1	2	23.7
Franklin									
Totals/Average	151	28.4	-	5.31	0:12:36	602	31.8	140	25.29

Date: July 17, 2003, Westbound Peak

Intersections	Access Points			Speed Limit	Segment Length(mi)	Elapsed Time	Running Time		Stopped Delay Time	Overall Mean Speed(mph)
	Number	Per/Mile					Time in Motion(s)	Mean Speed (mph)		
Franklin	Segment 1>	2	8.7	30	0.23	0:00:52	35	23.6	17	15.9
Colonial	Segment 2>	15	22.7	30	0.66	0:03:25	86	27.6	119	11.6
East Main Street	Segment 3>	9	45.8	30	0.20	0:00:43	36	19.6	7	16.4
Brambleton	Segment 4>	27	32.2	30	0.84	0:03:10	95	31.8	74	15.9
Grandin	Segment 5>	32	31.6	30	1.01	0:02:32	119	30.6	32	24.0
Edgewood	Segment 6>	32	53.0	30/35	0.60	0:00:59	59	36.8	0	36.8
Peters Creek	Segment 7>	13	18.6	35	0.70	0:01:07	67	37.6	0	37.6
Lee - High Medical Center	Segment 8>	6	33.3	35	0.18	0:00:43	20	32.4	23	15.1
Keagy	Segment 9>	11	12.4	35	0.89	0:03:12	99	32.3	94	16.6
Electric										
Totals/Average		147	27.7	-	5.31	0:16:43	616	31.0	366	19.05

Date: July 17, 2003, Eastbound Peak

Intersections	Access Points Number	Per/Mile	Speed Limit	Segment Length(mi)	Elapsed Time	Running Time		Stopped Delay Time	Overall Mean Speed(mph)	
						Time in Motion(s)	Mean Speed (mph)			
Electric	Segment 1>	21	23.6	35	0.89	0:01:23	83	38.6	0	38.6
Keagy	Segment 2>	6	33.3	35	0.18	0:00:47	25	25.9	22	13.8
Lee - High Medical Center	Segment 3>	6	8.6	35	0.70	0:01:01	61	41.3	0	41.3
Peters Creek	Segment 4>	10	16.7	35	0.60	0:00:53	53	40.8	0	40.8
Edgewood	Segment 5>	44	43.6	35/30	1.01	0:03:20	139	26.2	61	18.2
Grandin	Segment 6>	34	40.5	30	0.84	0:02:22	111	27.2	21	21.3
Brambleton	Segment 7>	4	20.0	30	0.20	0:00:20	20	36.0	0	36.0
East Main Street	Segment 8>	23	34.8	30	0.66	0:02:34	77	30.9	77	15.4
Colonial	Segment 9>	3	13.0	30	0.23	0:00:25	26	31.8	0	33.1
Franklin										
Totals/Average	151	28.4	-	5.31	0:13:05	595	32.1	181	24.35	

Date: July 21, 2003, Westbound Non-Peak

Intersections	Access Points		Speed Limit	Segment Length(mi)	Elapsed Time	Running Time		Stopped Delay Time	Overall Mean Speed(mph)	
	Number	Per/Mile				Time in Motion(s)	Mean Speed (mph)			
Franklin	Segment 1>	2	8.7	30	0.23	0:00:44	35	23.6	10	18.7
Colonial	Segment 2>	15	22.7	30	0.66	0:01:08	67	35.5	0	35.0
East Main Street	Segment 3>	9	45.8	30	0.20	0:00:25	25	28.3	0	28.3
Brambleton	Segment 4>	27	32.2	30	0.84	0:01:54	105	28.8	3	26.5
Grandin	Segment 5>	32	31.6	30	1.01	0:01:59	115	31.7	4	30.6
Edgewood	Segment 6>	32	53.0	30/35	0.60	0:01:45	66	32.9	39	20.7
Peters Creek	Segment 7>	13	18.6	35	0.70	0:01:30	82	30.7	8	28.0
Lee - High Medical Center	Segment 8>	6	33.3	35	0.18	0:00:24	23	28.2	0	27.0
Keagy	Segment 9>	11	12.4	35	0.89	0:04:55	107	29.9	170	10.8
Electric										
Totals/Average		147	27.7	-	5.31	0:14:44	625	30.6	234	21.61

Date: July 21, 2003, Eastbound Non-Peak

Intersections	Access Points		Speed Limit	Segment Length(mi)	Elapsed Time	Running Time		Stopped Delay Time	Overall Mean Speed(mph)
	Number	Per/Mile				Time in Motion(s)	Mean Speed (mph)		
Electric	Segment 1>	21	23.6	35	0:01:27	87	36.8	0	36.8
Keagy	Segment 2>	6	33.3	35	0:00:33	27	24.0	6	19.6
Lee - High Medical Center	Segment 3>	6	8.6	35	0:01:09	69	36.5	0	36.5
Peters Creek	Segment 4>	10	16.7	35	0:01:42	65	33.2	37	21.2
Edgewood	Segment 5>	44	43.6	35/30	0:02:39	116	31.3	43	22.9
Grandin	Segment 6>	34	40.5	30	0:01:25	85	35.6	0	35.6
Brambleton	Segment 7>	4	20.0	30	0:00:39	25	28.8	13	18.5
East Main Street	Segment 8>	23	34.8	30	0:01:44	80	29.7	24	22.8
Colonial	Segment 9>	3	13.0	30	0:04:55	36	23.0	94	2.8
Franklin									
Totals/Average	151	28.4	-	5.31	0:16:13	590	32.4	217	19.65

Date: July 24, 2003, Westbound Peak

Intersections	Access Points		Speed Limit	Segment Length(mi)	Elapsed Time	Running Time		Stopped Delay Time	Overall Mean Speed(mph)	
	Number	Per/Mile				Time in Motion(s)	Mean Speed (mph)			
Franklin	Segment 1>	2	8.7	30	0.23	0:00:27	27	30.5	0	30.5
Colonial	Segment 2>	15	22.7	30	0.66	0:01:48	68	35.0	40	22.0
East Main Street	Segment 3>	9	45.8	30	0.20	0:00:22	22	32.1	0	32.1
Brambleton	Segment 4>	27	32.2	30	0.84	0:02:52	85	35.5	84	17.6
Grandin	Segment 5>	32	31.6	30	1.01	0:02:21	116	31.4	25	25.9
Edgewood	Segment 6>	32	53.0	30/35	0.60	0:00:57	57	38.1	0	38.1
Peters Creek	Segment 7>	13	18.6	35	0.70	0:01:31	77	32.7	14	27.7
Lee - High Medical Center	Segment 8>	6	33.3	35	0.18	0:00:18	18	36.0	0	36.0
Keagy	Segment 9>	11	12.4	35	0.89	0:01:25	86	37.2	0	37.6
Electric										
Totals/Average		147	27.7	-	5.31	0:12:01	556	34.4	163	26.50

Date: July 24, 2003, Eastbound Peak

Intersections	Access Points Number	Per/Mile	Speed Limit	Segment Length(mi)	Elapsed Time	Running Time		Stopped Delay Time	Overall Mean Speed(mph)	
						Time in Motion(s)	Mean Speed (mph)			
Electric	Segment 1>	21	23.6	35	0.89	0:01:21	81	39.6	0	39.6
Keagy	Segment 2>	6	33.3	35	0.18	0:00:34	24	27.0	10	19.1
	Lee - High Medical Center Segment 3>	6	8.6	35	0.70	0:01:17	68	37.1	9	32.7
Peters Creek	Segment 4>	10	16.7	35	0.60	0:01:42	73	29.6	29	21.2
Edgewood	Segment 5>	44	43.6	35/30	1.01	0:02:16	124	29.3	12	26.7
Grandin	Segment 6>	34	40.5	30	0.84	0:01:44	100	30.2	4	29.1
Brambleton	Segment 7>	4	20.0	30	0.20	0:01:00	28	25.7	32	12.0
East Main Street	Segment 8>	23	34.8	30	0.66	0:01:25	71	33.5	14	28.0
Colonial	Segment 9>	3	13.0	30	0.23	0:00:27	28	29.6	0	30.7
Franklin										
Totals/Average	151	28.4	-	5.31	0:11:46	597	32.0	110	27.08	