Traffic Impact and Access Study

Village on the Common

Residential Development

Littleton, Massachusetts

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Boston, MA

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INTRODUCTION

PURPOSE OF STUDY

The purpose of the report is to evaluate the site access and transportation impacts of the proposed construction of 92 residential duplex units as part of the Village on the Common project proposed by Village on the Common, LLC. Access to the public street system will be provided from the existing terminus of both Farmstead Way and Robinson Road.

The study area for this report will include the roadways and intersections closest to the proposed development. These intersections include:

1. King Street (Route 110) / Farmstead Way
2. Great Road (Route 2A/119) / Robinson Road
3. Great Road (Route 2A/119) / Stevens Street / Meetinghouse Road
4. King Street (Route 110) / Meetinghouse Road / Private Driveway
5. King Street (Route 110) / Great Road (Route 2A/119)

This report defines the existing traffic operating parameters on key roadways and at the intersections within the study area. It also evaluates the capacity of the infrastructure for the estimated future conditions as traffic volumes increase due to anticipated background growth and specific volumes generated by the proposed development.

PROJECT AREA DESCRIPTION

The proposed site, totaling 37.4 acres, is located at the end of the Robinson Road and Farmstead Way cul-de-sacs on an undeveloped parcel. The proponent is proposing access for the proposed 92 units via both roadways to distribute the traffic impacts. For a preliminary site plan, see Appendix G.

Regional access to the project site is provided via Interstate 495 – Exit 31, Great Road (Routes 2A/119) and King Street (Route 110). Great Road provides northwest-to-southeast access through Littleton and provides a connection to Route 2 near the Acton/Concord town line. King Street provides southwest-to-northeast access to the site and provides a parallel route to Interstate 495 between Littleton and Chelmsford.

STUDY METHODOLOGY

This study was prepared using standard guidelines for the preparation of traffic impact studies. It examines the existing conditions of the project area, including intersection geometry and traffic control. It examines a 5-year design horizon (year 2010) for traffic volume projections, which includes an evaluation of the no-build conditions (without the proposed project) and build conditions (with site traffic added). These conditions are compared to determine what, if any, off-site mitigation is necessary to provide reasonable traffic operations in the area after the development is complete.

EXISTING CONDITIONS

The study area for the project was selected to contain the major roadways providing access to the project site, including Great Road, Robinson Road, King Street, and Farmstead Way; it also includes major intersections located along these roadways through which project-related traffic must travel. The study area intersections are listed below and shown graphically within Figure 1.

Study Area

King Street (Route 110) and Farmstead Way
King Street (Route 110) and Meetinghouse Road
King Street (Route 110) and Great Road (Route 2A/119)
Great Road (Route 2A/119) and Stevens Street / Meetinghouse Road
Great Road (Route 2A/119) and Robinson Road

GEOMETRY

Intersection geometry and lane usage were obtained from field inventory conducted by Transportation Engineering & Construction (TEC) in April and May 2005. The field investigation consisted of an inventory of existing roadway geometrics, traffic volumes, and operating characteristics. A description of existing roadway and intersection inventory is provided below.

Roadways

King Street (Route 110)

King Street is a two-lane roadway as it passes Farmstead Way with a total width of 30 feet. A 12.5-foot travel lane is provided in each direction with a 2-3 foot paved shoulder. It is classified as a secondary state highway and is maintained by MassHighway. It provides a local connection between Littleton and Chelmsford that parallels Interstate 495. The speed limit is 40 miles per hour along this section of King Street. As King Street approaches Great Road (Route 2A/119), it widens to a four-lane cross-section (two lanes in each direction) and has a reduced speed limit of 30 miles per hour. Land uses along King Street include former Hewlett-Packard office buildings and several commercial establishments, including a CVS Pharmacy.

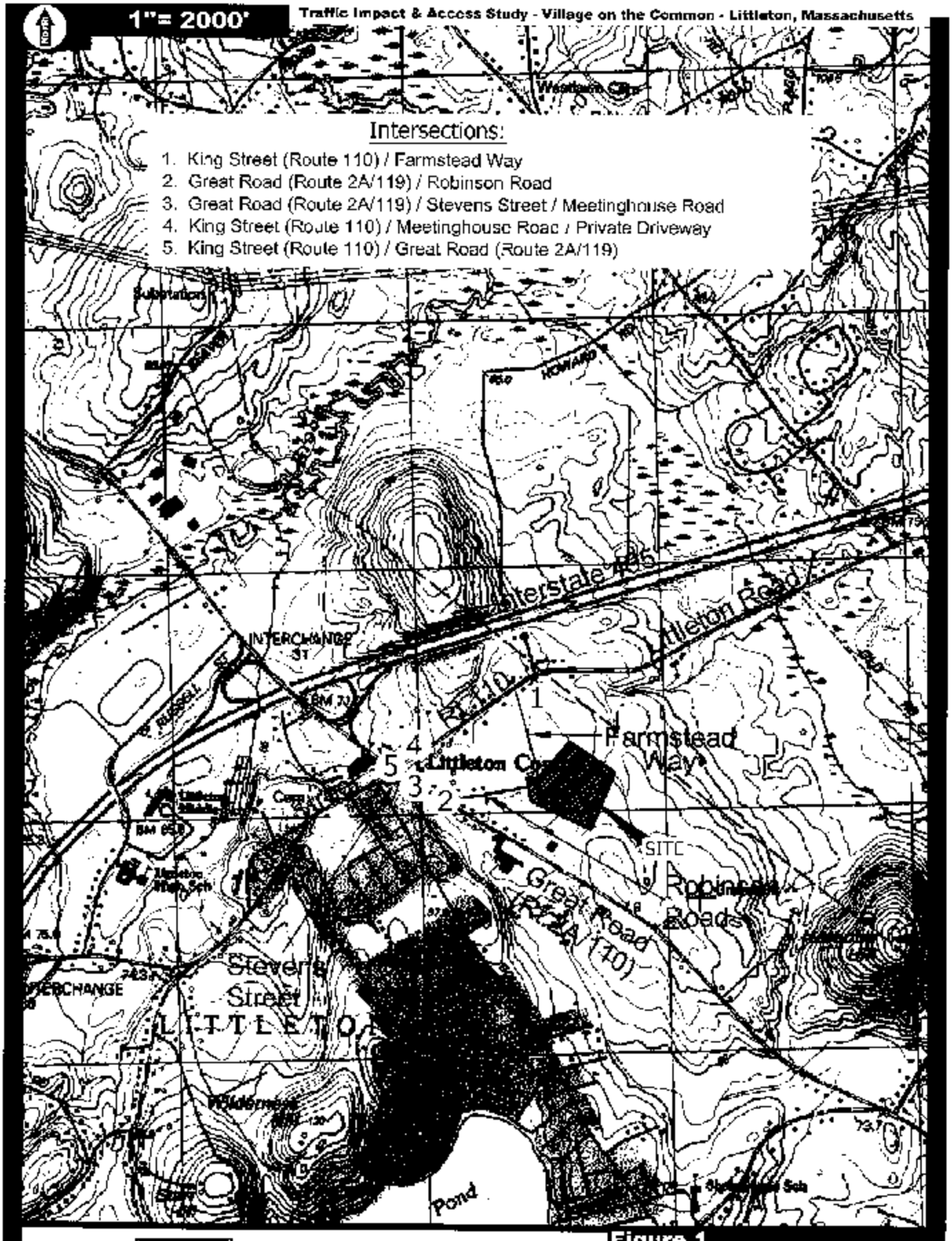

Figure 1

Study Area Locus Map

Farmstead Way

Farmstead Way was created in the early 1990's as a subdivision approved by the Town of Littleton Planning Board. This roadway serves several single family homes and the Cataldo Nursery, located at the end of the road. This road was recently accepted as an approved Town-maintained roadway at the May 2005 Town Meeting. The road is 24 feet wide and has a 5-foot sidewalk on the west side. The data shows approximately 780 current trips per day traveling on Farmstead Way during a May weekday when the Cataldo Nursery is in full operation (a sum of trips in both directions).

Great Road (Route 2A/119)

As a primary state highway, Great Road (Route 2A/119) generally runs in a northwest to southeast direction from Groton, through Littleton, toward the Town of Acton. This roadway is approximately 32 feet wide and consists of a 12.5-foot travel lane in each direction and variable width paved shoulders between 3 feet and 10 feet in the vicinity of Robinson Road. As Great Road approaches King Street, it widens to accommodate a three-lane cross-section between the two sections of Littleton Common. The speed limit along Great Road is 35 miles per hour in this area. There are several commercial and retail uses along Great Road within the study area, including several banks, professional offices, and a supermarket.

Robinson Road

Robinson Road intersects with Great Road approximately 300 feet east of Meetinghouse Road. This roadway currently serves several single family homes and one dentist office. The paved roadway width varies between 22 and 24 feet and there is no sidewalk provided. The roadway currently ends in a small cul-de-sac. The total length of Robinson Road is currently 1,200 feet. The data collected on Robinson Road, near Great Road, shows a daily traffic level of approximately 210 vehicles per day (a sum of trips in both directions).

Intersections

King Street and Farmstead Way

Farmstead Way intersects King Street from the south to form a T-intersection. Farmstead Way has a 12-foot single lane approach that operates under stop sign control. Each King Street approach consists of a 12-foot travel lane. There are no sidewalks along King Street at this intersection.

King Street at Meetinghouse Road

Meetinghouse Road has a one-way approach that intersects King Street from the south to form a four-way intersection with the opposing private driveway for an insurance company. Each King Street approach consists of two 12-foot lanes; the eastbound lanes merge approximately 150 feet east of this intersection. The width of Meetinghouse Road is sufficient to stack two vehicles beside each other.

King Street and Great Road

The King Street approaches to this intersection consist of one shared left-through lane and one shared through-right lane. There are two receiving lanes on the departure side to process through movements. Each Great Road approach consists of one exclusive left-turn lane and one shared through-right lane. There are currently long queues on Great Road during the weekday peak hours due to the noticeable commuter travel trends. The traffic signal currently operates with three phases: King Street, Great Road, and an exclusive pedestrian phase. All left-turns at this intersection currently are required to yield to on-coming traffic and do not have the benefit of left-turn phasing.

This intersection is currently in final design for off-site improvements associated with the Orchard Square redevelopment project, located just east of Robinson Road. TEC has assumed that by 2010 this intersection will be modified based on the GEOD Consulting intersection plan included in their recent traffic study addendum (Refer to Appendix B for a copy of this plan).

Great Road and Stevens Street / Meetinghouse Road

This wide intersection lies at the eastern end of Littleton Common. Stevens Street operates as one-way eastbound and provides sufficient width to be able to stack two vehicles beside each other. Meetinghouse Road operates as one-way away from the intersection and provides a route for right-turning vehicles to bypass the Great Road / King Street intersection. The westbound Great Road approach stacks as two lanes during the weekday evening peak hour. There is one wide eastbound through lane on Great Road at this intersection.

Great Road and Robinson Road

Robinson Road intersects Great Road from the east at an angle to form a T-intersection and lies offset from an existing bank exit driveway. The Robinson Road approach consists of a 20-foot wide flared approach lane and operates under stop-sign control. Patrons to the adjacent dentist office often use the end of Robinson Road for overflow parking. Each Great Road approach consists of one 12-foot travel lane from which turning movements must take place.

EXISTING TRAFFIC VOLUMES

In order to establish existing traffic-volume conditions within the study area, manual turning movement counts (TMCs) counts were conducted at the study area intersections in February, April, and May of 2005 during the weekday morning (7:00 to 9:00 AM), weekday evening (4:00 to 6:00 PM), and Saturday midday (11:00 AM to 1:00 PM) peak periods. The original February traffic counts were updated at Farmstead Way in April and May to obtain actual traffic volumes associated with the Cataldo Nursery during the morning, evening, and Saturday peak periods. Supplemental Saturday data was also collected at Robinson Road in late April. All data is provided within Appendix A.

A review of the TMCs indicates that the peak hour for traffic on King Street, in the vicinity of Farmstead Way, occurs from 7:45 to 8:45 AM during the weekday morning period and from 4:45 to 5:45 PM during the weekday evening period. It should be noted that the individual peak-hour volumes for each intersection were used to present a "worst case" scenario.

Seasonal Adjustment

In order to determine the seasonal adjustment factor, data from nearby MassHighway permanent count stations were analyzed. The data collected from these count stations for the month of April was averaged and compared to the yearly average for the same locations. The result showed that average December traffic volumes are typically lower than average yearly volumes by 6 percent. Therefore, the data collected in April and May was adjusted upwards by a seasonal growth factor of 6% to reflect average traffic conditions.

The 2005 Existing weekday morning and evening and Saturday midday peak-hour traffic volumes are shown on Figures 2 and 3.

Existing Intersection Crash Data

Vehicle Crash information for the study area intersections was provided by the MassHighway Safety Management/Traffic Operations Unit, for the period from January 1, 2001 through December 31, 2003, the most recent three-year period available. The data is summarized by intersection, type, severity, and day of occurrence and presented in Table 1 on the following page while the raw MassHighway data is provided within Appendix F.

The frequency of crashes at the intersection of Great Road (Route 2A/119) and King Street (Route 110) will likely be reduced following the construction of the improvements proposed by GEOD Consulting. The introduction of left-turn phasing will reduce the number of left-turn movements that must yield to oncoming through traffic. The crash history at the intersections of King Street / Farmstead Way and Great Road / Robinson Road do not suggest a distinct need for special design modifications to improve the safety characteristics. It is likely that some of the crashes listed in Table 1 occurred at private driveways in close proximity to the intersections listed since much of the MassHighway crash data is sorted by address.

Public Transportation

The MBTA (Massachusetts Bay Transportation Authority) Commuter Rail operates the Fitchburg line which stops in Littleton. The train station is located on Foster Street near the Route 2 underpass, which is approximately two miles from the project site. The Fitchburg line provides rail service from Fitchburg through Littleton, Acton, Concord, and other towns before terminating at North Station in Boston. The travel time by commuter rail from Littleton to North Station is approximately one hour.

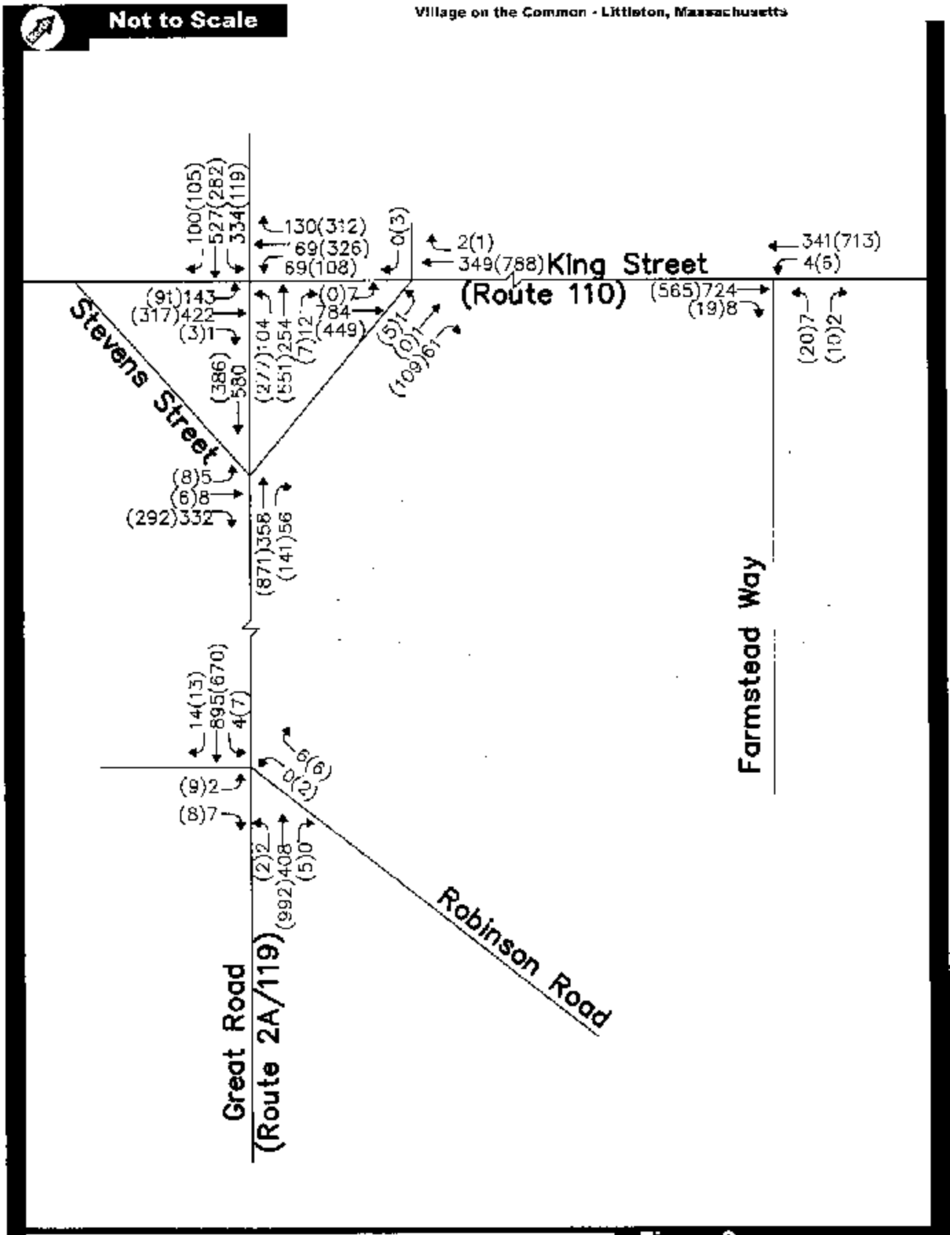

Figure 2

2005 Existing Adjusted Traffic Volumes AM(PM) Peak Hour

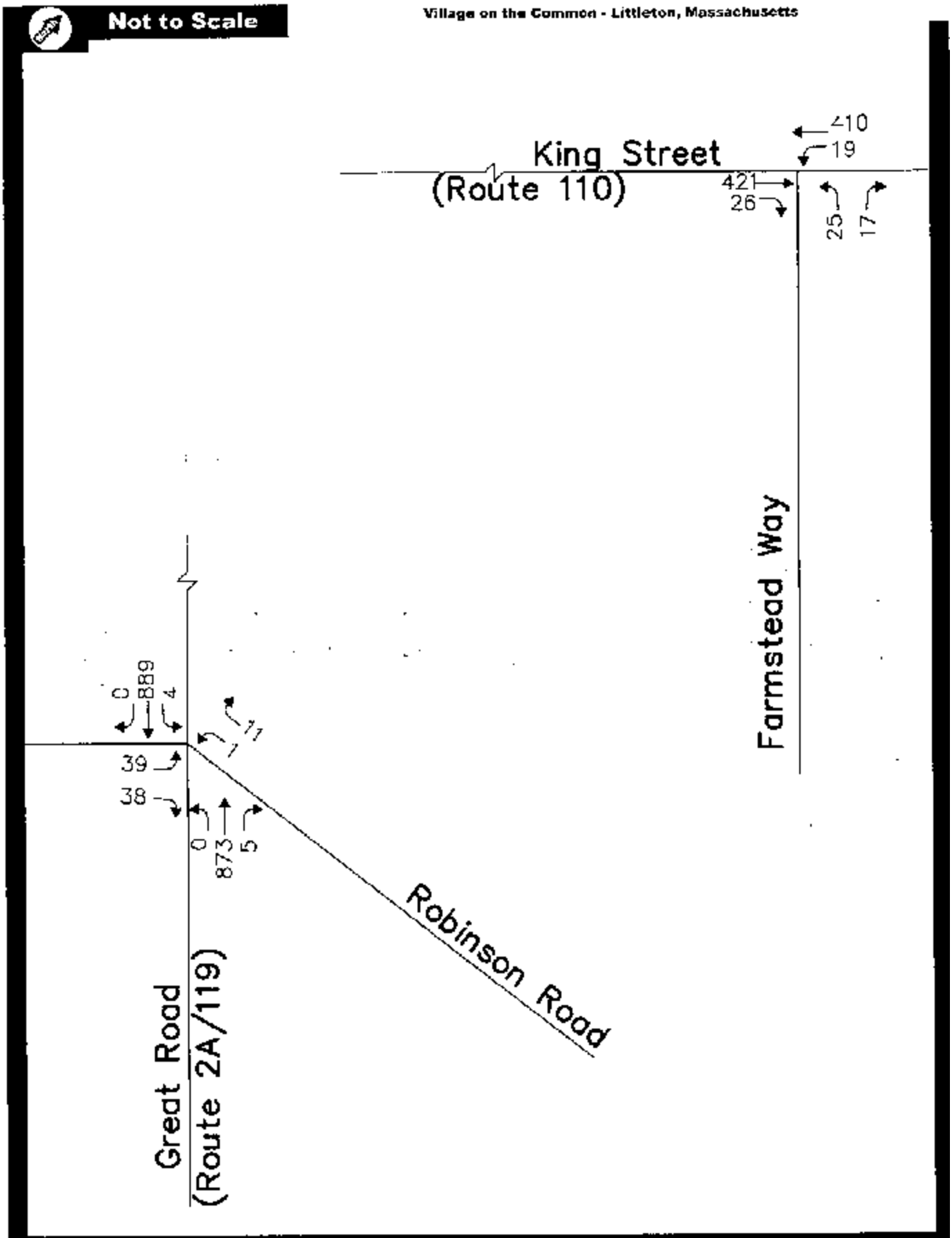

Figure 3

2005 Existing Adjusted Traffic Volumes Saturday Midday

Table 1
Crash Data Summary

Crash Data Summary by Intersection

Year:	Great Road & Robinson Road	Great Road & Stevens Street / Meetinghouse Road	Great Road & King Street	King Street & Meetinghouse Road	King Street & Farmstead Way
2001	4	0	20	1	2
2002	4	2	11	3	2
2003	2	1	11	1	0
TOTAL	**10**	**3**	**42**	**5**	**4**
Average:	3.33	1.00	14.00	1.67	1.33
Rates:	4.42	1.33	12.74	2.80	2.27
Type:					
Angle	3	0	27	3	2
Rear-End	6	3	6	1	0
Head-On	0	0	3	0	0
Unknown	1	0	6	1	2
TOTAL	**10**	**3**	**42**	**5**	**4**
Severity:					
Property Only	8	2	26	4	4
Personal Injury	2	1	12	1	0
Hit-and-Run	0	0	2	0	0
Fatality	0	0	0	0	0
Unknown	0	0	2	0	0
TOTAL	**10**	**3**	**42**	**5**	**4**
Time of Day:					
7am-9am	1	1	11	1	0
10am-3pm	4	1	17	1	1
4pm-6pm	4	0	7	2	3
Other	1	1	7	1	0
TOTAL	**10**	**3**	**42**	**5**	**4**

FUTURE CONDITIONS

Traffic volumes in the study area were projected to the year 2010, which reflects a five-year planning horizon, and is consistent with Massachusetts Environmental Policy Act (MEPA) traffic study guidelines even though the traffic volumes do not exceed the threshold for review of traffic impacts. Independent of the proposed project, traffic volumes on the roadway network in the year 2010 under No-Build conditions, include all existing traffic and new traffic resulting from background traffic growth. Anticipated site-generated traffic volumes for development were superimposed upon the No-Build traffic network to reflect the Build conditions with the project.

BACKGROUND TRAFFIC GROWTH

Traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or a lower rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic. However, the drawback of this procedure is that the potential growth in population and development external to the study area would not be accounted for in the traffic projections.

To provide a conservative analysis framework, both procedures were considered.

General Background Growth

Traffic-volume data compiled by MassHighway from permanent count stations and other interim counts were researched in order to determine traffic growth trends. It was found that traffic-volume data was not collected consistently in the immediate vicinity of the site and therefore similar data from surrounding towns was reviewed. It was determined that a 2 percent compounded annual growth rate should be used to conservatively account for general background traffic growth and development by others not yet identified.

Specific Development By Others

The recently approved study for the Orchard Square Retail Redevelopment project through the Littleton Planning Board, included a list of background projects. The background projects that added traffic to the surrounding roadway network include:

- Orchard Square Development – study prepared by GEOD Consulting
- Woodland-Laurel Hill Residential Development (Acton) study prepared by Vanasse & Associates, Inc.
- Littleton Corporate Center study prepared by Sasaki Associates
- Westford Technology Park West – Phase II study prepared by Rizzo Associates

The traffic volumes from each of these developments were added to the general background traffic to generate the 2010 No-Build traffic volume networks. The supporting information for each project has been provided within Appendix B.

FUTURE PLANNED ROADWAY IMPROVEMENTS

The Orchard Square Development proposed widening along Route 2A/119 to create exclusive left-turn lanes in the vicinity of their site, which lies east of Robinson Road. That project also proposes modifications and widening at the intersection of King Street / Great Road to mitigate traffic impacts there. While these improvements still require final permitting with MassHighway, they were included as part of the 2010 No-Build and Build analysis conditions.

NO-BUILD TRAFFIC VOLUMES

The 2010 No-Build weekday morning and weekday evening and Saturday midday peak-hour traffic-volume networks were developed by applying the 2 percent per year compounded annual background traffic growth rate to the 2005 Existing peak-hour traffic volumes and adding the traffic volumes from the other projects listed above. The 2010 No-Build weekday morning/ evening and Saturday midday peak-hour traffic-volume networks are shown on Figures 4 and 5, respectively.

SITE-GENERATED TRAFFIC

The proposed development project consists of 92 residential duplex units. Traffic volumes expected to be generated by this residential development were forecasted using the Seventh Edition of the ITE *Trip Generation* manual and referencing Land Use Code (LUC) 230, Residential Condominiums. The projected trip generation for the proposed development is summarized in Table 2 on the following page with worksheets provided in Appendix D.

As shown in Table 2, the proposed project is expected to generate approximately 598 vehicle trips on an average weekday (299 vehicles entering and 299 vehicles exiting), with 48 vehicle trips (8 vehicles entering and 40 vehicles exiting) during the weekday morning peak hour and 57 vehicle trips (38 vehicles entering and 19 vehicles exiting) during the weekday evening peak hour.

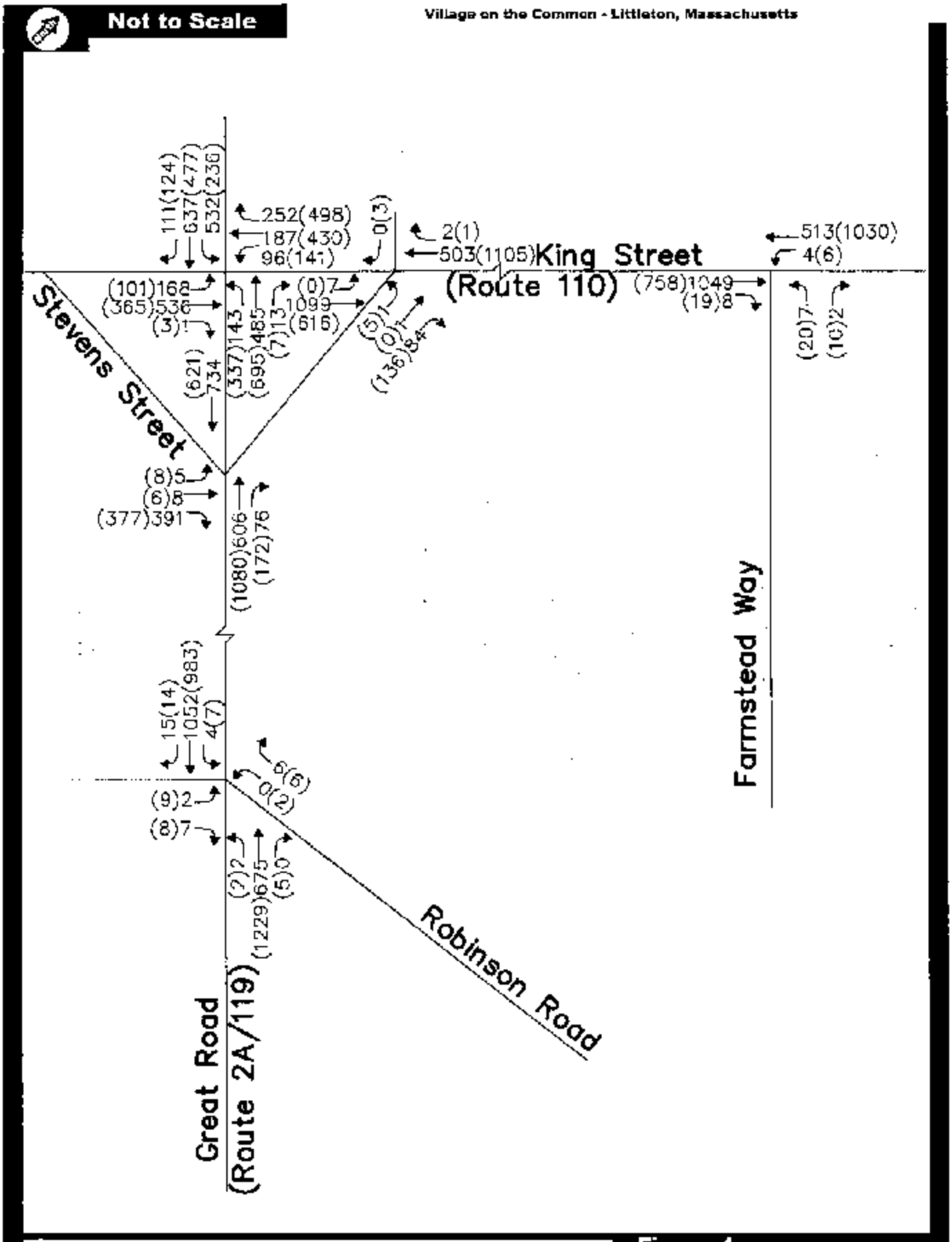

Figure 4

2010 No-Build
Traffic Volumes
AM(PM) Peak Hour

Not to Scale

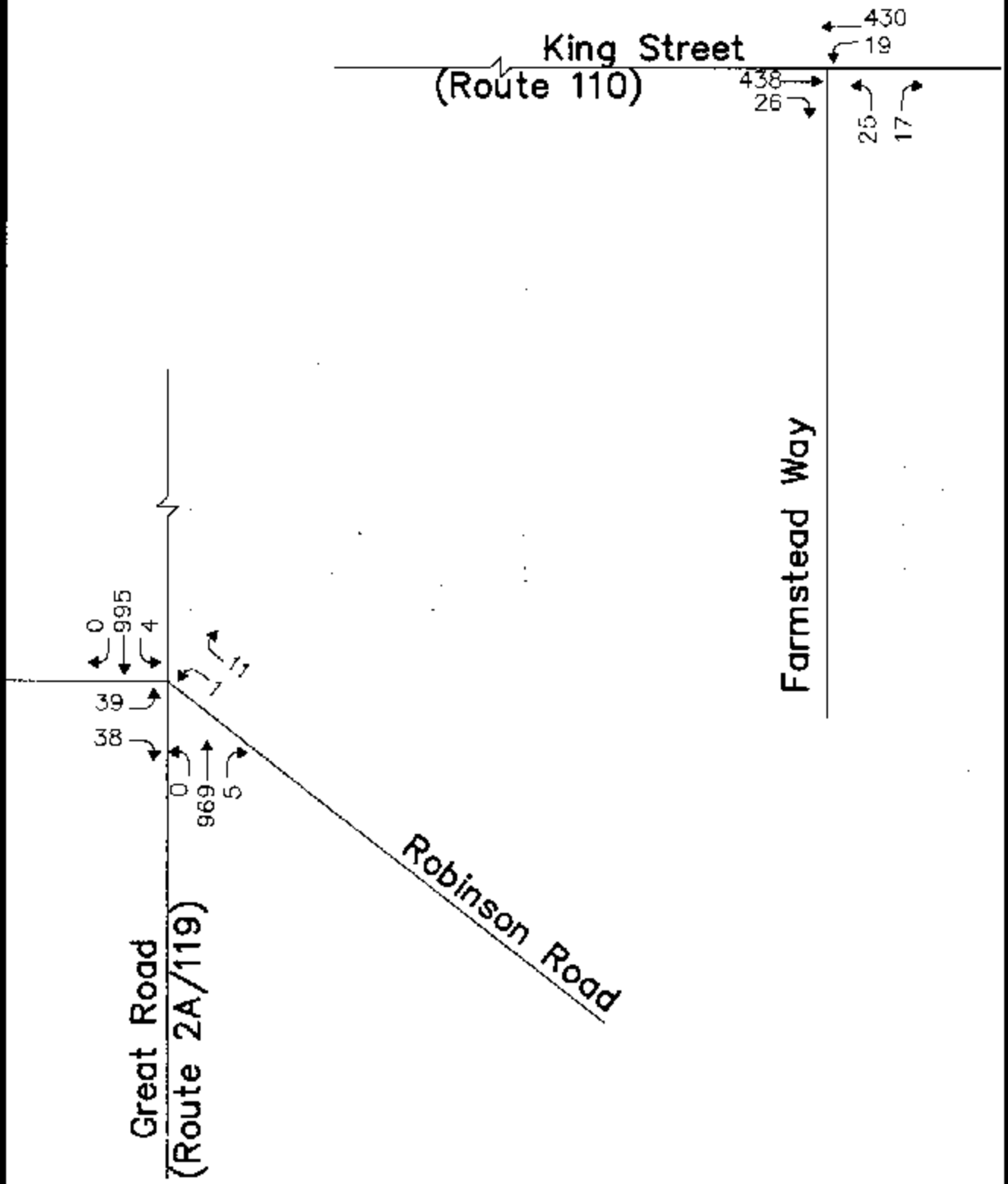

Figure 5

2010 No Build
Traffic Volumes
Saturday Peak Hour

Table 2
TRIP-GENERATION SUMMARY FOR 92 DUPLEX UNITS [a]

	Vehicle Trips
Weekday Daily	598
Weekday Morning:	
Entering	8
Exiting	40
Total	48
Weekday Evening:	
Entering	38
Exiting	19
Total	57

[a] *Trip Generation* manual; Seventh Edition; 2003 (Land Use Code 230)

SITE ACCESS

Access to the proposed development is planned at two locations: Farmstead Way and Robinson Road. The Farmstead Road access will occur as a cross-access easement over the Cataldo Nursery site. The site parking area will be reconfigured to provide an area for a multi-approach stop condition. The Robinson Road driveway access is planned for the end of the cul-de-sac, which will be widened to better accommodate turning buses and emergency vehicles. In order to provide a pedestrian connection to Great Road, the project proponent is willing to upgrade Robinson Road to provide a 24-foot wide roadway with a new sidewalk. The existing 40-foot right-of-way should accommodate the Town's standard roadway design with closed drainage with minor relocation of stone walls. TEC is currently investigating the possibility of realigning the Robinson Road approach to Great Road to provide an intersection that is closer to a 90-degree angle.

TEC reviewed the sight distance characteristics for Farmstead Way and Robinson Road in April 2005. There is sufficient existing sight distance to satisfy the American Association of State Highway Transportation Officials (AASHTO) guidelines for the posted speed limits on Routes 110 and 2A/119, respectively.

TRIP DISTRIBUTION AND ASSIGNMENT

Directional distribution of trips to and from the proposed development is a function of population densities, areas of employment, shopping opportunities, recreational activity, and prevailing traffic conditions on area roadways. The development has a balanced location that should equally distribute trips between the two existing roadways. The directional distribution of generated trips to and from the existing roadways was derived primarily by reviewing the directional split of traffic on the side streets based on the raw data for the intersections of King Street / Farmstead Way and Great Road / Robinson Road. Journey-To-Work data from the U.S. Census Bureau has also been provided within Appendix D and was reviewed for general conformance with the existing travel trends. A summary of the projected trip distribution is provided within Table 3 on the following page.

Table 3
TRIP-DISTRIBUTION SUMMARY

Roadway	Direction (To/From)	Weekday AM/PM Peak Hours
Great Road (Route 2A/119)	East	8-18%
Great Road (Route 2A/119)	West	32-44%
King Street (Route 110)	West	38-44%
King Street (Route 110)	East	6-12%

In general, TEC expects that approximately 70% of the site-related traffic will access/egress the site via the intersection of King Street / Great Road en route to Route 110 or 119 westbound and/or the Interstate 495 interchange. A graphical illustration of the estimated weekday morning, weekday evening, and Saturday midday trip distribution is provided within Figures 6 through 8, respectively. The 2010 Build traffic volume networks (a sum of background traffic and new trips associated with the development) are shown graphically within Figures 9 and 10.

Not to Scale

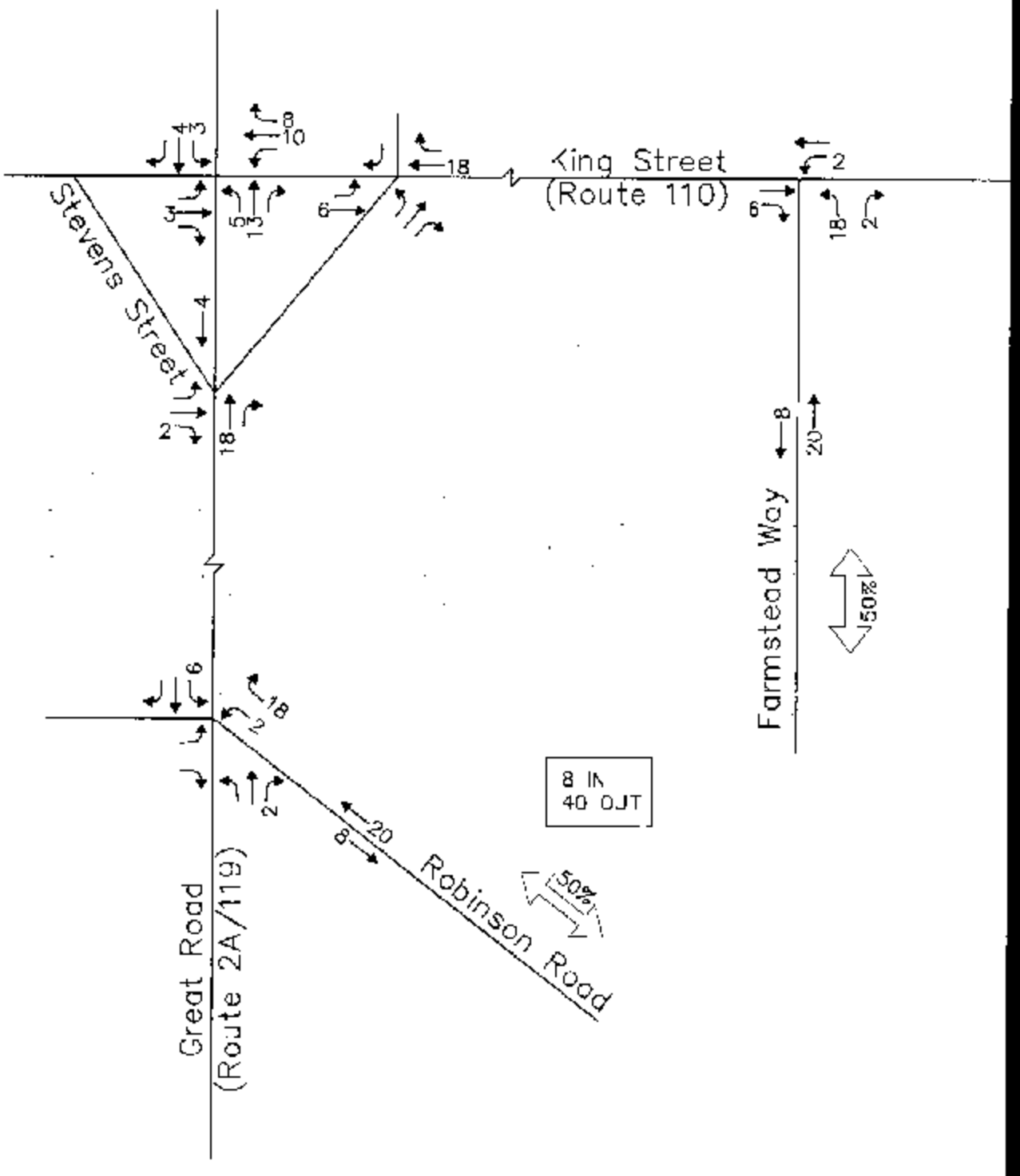

Figure 6

Site Generated Traffic Volumes AM Peak Hour

TEC

Not to Scale

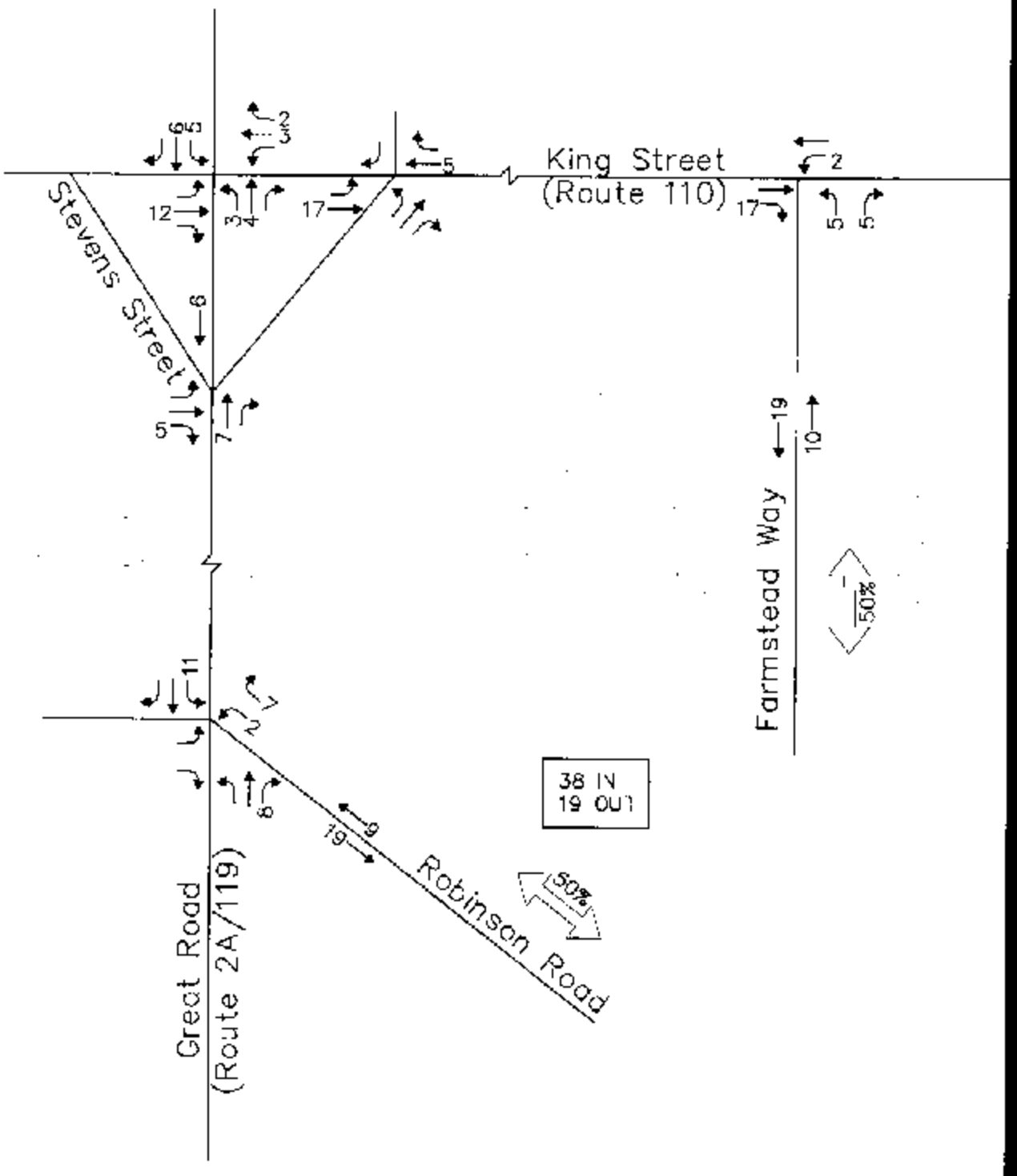

Figure 7

Site Generated Traffic Volumes PM Peak Hour

TEC

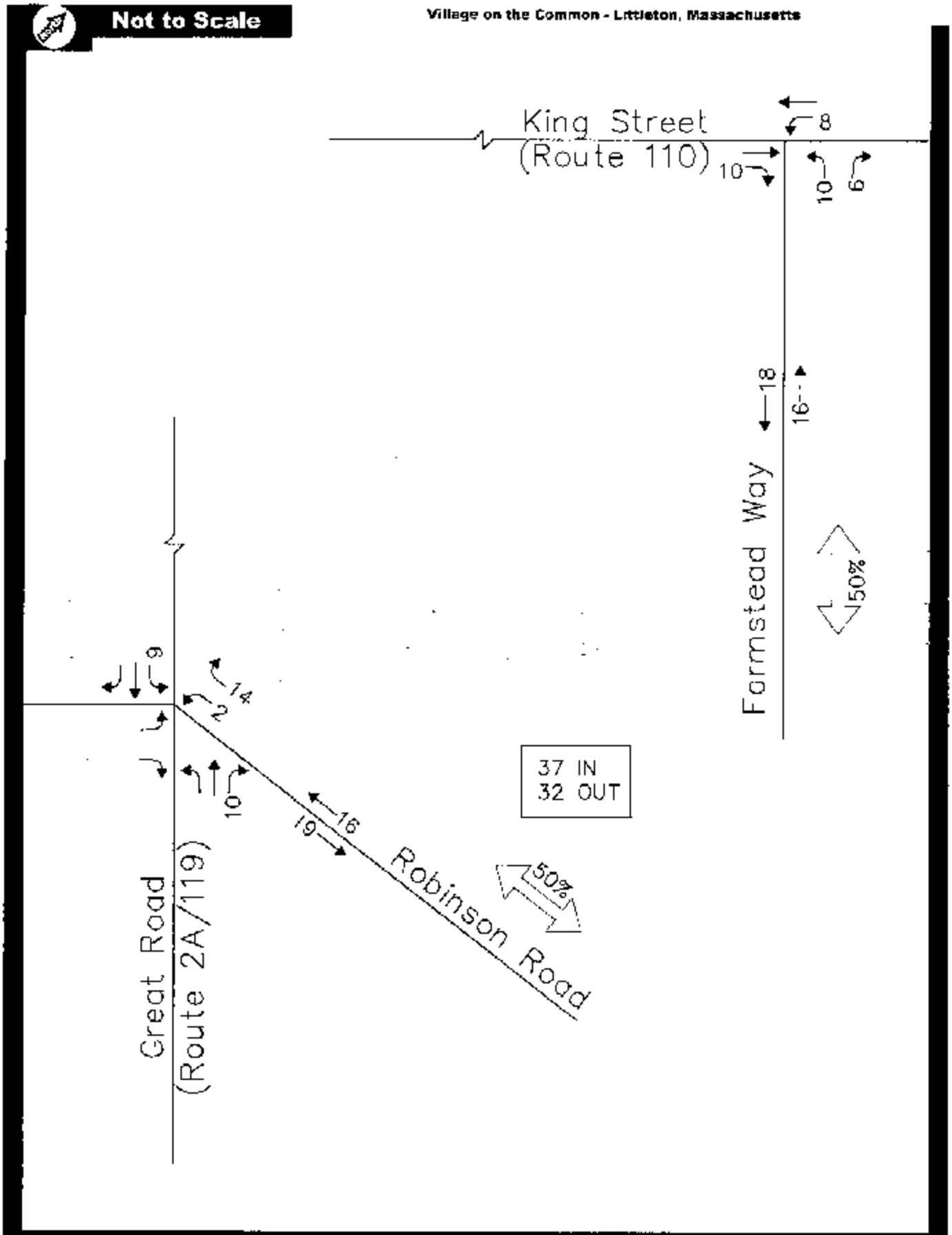

Figure 8

Site Generated Traffic Volumes Saturday Peak Hour

TEC

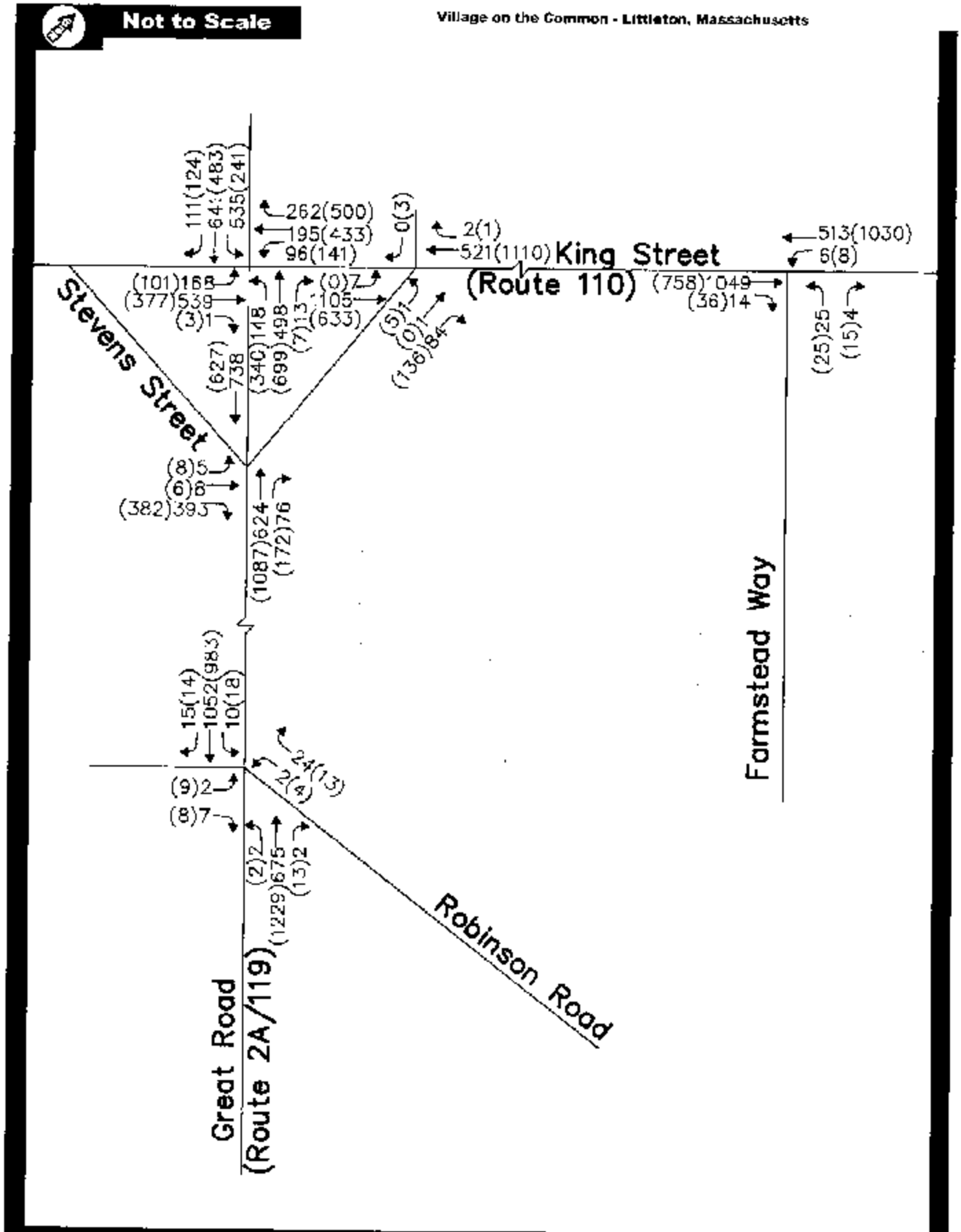

Figure 9

2010 Build
Traffic Volumes
AM(PM) Peak Hour

Not to Scale

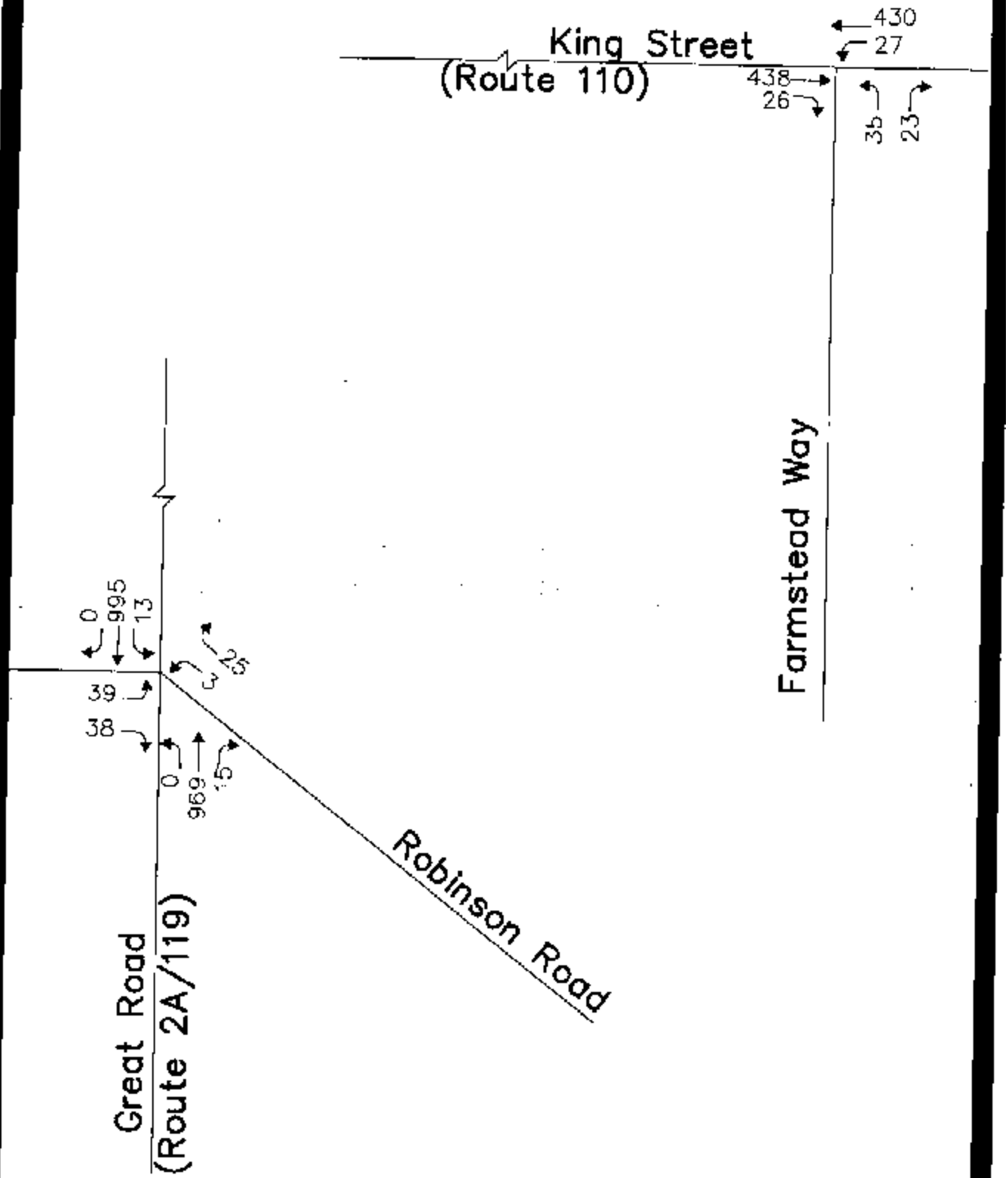

Figure 10

2010 Build
Traffic Volumes
Saturday Peak Hour

TRAFFIC OPERATIONS ANALYSIS

Measuring existing and future traffic volumes quantifies traffic flow within the study area. To assess quality of flow, roadway capacity and vehicle queue analyses were conducted under Existing, No-Build, and Build traffic-volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study.

METHODOLOGY

Levels of Service

A primary result of capacity analyses is the assignment of level of service to traffic facilities under various traffic-flow conditions.[1] The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with level-of-service (LOS) A representing the best operating conditions and LOS F representing the worst.

Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year.

Unsignalized Intersections

The six levels of service for unsignalized intersections may be described as follows:

- *LOS A* represents a condition with little or no control delay to minor street traffic.

[1] The capacity analysis methodology is based on the concepts and procedures presented in the *Highway Capacity Manual 2000*; Transportation Research Board; Washington, DC; 2000.

- *LOS B* represents a condition with short control delays to minor street traffic.
- *LOS C* represents a condition with average control delays to minor street traffic.
- *LOS D* represents a condition with long control delays to minor street traffic.
- *LOS E* represents operating conditions at or near capacity level, with very long control delays to minor street traffic.
- *LOS F* represents a condition where minor street demand volume exceeds capacity of an approach lane, with long control delays resulting. This may be a result of very high through traffic on the major street even with low volume on the side street.

The levels of service of unsignalized intersections are determined by application of a procedure described in the 2000 *Highway Capacity Manual*. Level of service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and STOP signs. Control delay includes the affects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for level of service at unsignalized intersections are also given in the 2000 *Highway Capacity Manual 2000*. Table 5 summarizes the relationship between level of service and average control delay.

Table 5
LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS [a]

Level of Service	Average Control Delay (seconds per vehicle)
A	≤ 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	>50.0

[a]Source: *Highway Capacity Manual 2000*; Transportation Research Board; Washington, DC; 2000; page 17-2.

Signalized Intersections

The six levels of service for signalized intersections may be described as follows:

- *LOS A* describes operations with very low control delay; most vehicles do not stop at all.
- *LOS B* describes operations with relatively low control delay. However, more vehicles stop than LOS A.

- *LOS C* describes operations with higher control delays. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

- *LOS D* describes operations with control delay in the range where the influence of congestion becomes more noticeable. Many vehicles stop and individual cycle failures are noticeable.

- *LOS E* describes operations with high control delay values. Individual cycle failures are frequent occurrences.

- *LOS F* describes operations with high control delay values that often occur with oversaturation. Poor vehicle progression and long cycle lengths may also be major contributing causes to such delay levels.

Levels of service for signalized intersections are calculated using the operational analysis methodology of the 2000 *Highway Capacity Manual*. This method assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on delay. Level-of-service designations are based on the criterion of control or signal delay per vehicle. Control or signal delay can be related to driver discomfort, frustration, and fuel consumption, and includes initial deceleration delay approaching the traffic signal, queue move-up time, stopped delay and final acceleration delay. Table 6 summarizes the relationship between level of service and control delay. The tabulated control delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to entire intersections.

Table 6
LEVEL-OF-SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS [a]

Level of Service	Control (Signal) Delay per Vehicle (Seconds)
A	≤10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

[a]Source: *Highway Capacity Manual 2000*; Transportation Research Board; Washington, DC; 2000, page 16-2.

ANALYSIS RESULTS

Level-of-service analyses were conducted for 2005 Existing, 2010 No-Build, and 2010 Build conditions for the intersections within the study area. The results of the unsignalized and signalized intersection capacity analysis are summarized in Tables 7 and 8, respectively. The capacity analysis worksheets are provided in Appendix E.

Table 7
UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Unsignalized Intersection/ Critical Movement/Peak Hour	2005 Existing Demand[a]	2005 Existing Delay[b]	2005 Existing LOS[c]	2010 No-Build Demand	2010 No-Build Delay	2010 No-Build LOS	2010 Build Demand	2010 Build Delay	2010 Build LOS
King Street at Farmstead Way:									
All movements from Farmstead Way:									
Weekday Morning	16	22.8	C	16	46.5	E	52	80.7	F
Weekday Evening	52	78.3	D	52	73.5	F	69	91.6	F
Saturday Midday	64	16.7	C	64	17.4	C	88	19.2	C
King Street at Meetinghouse Road:									
All movements from Meetinghouse Road.									
Weekday Morning	80	12.5	B	109	15.9	C	109	16.0	C
Weekday Evening	123	11.3	B	152	13.6	B	152	13.8	B
Saturday Midday		-	-		-	-		-	-
Great Road at Stevens Street / Meetinghouse Road:									
Right turn movements from Stevens Street:*									
Weekday Morning	406	37.9	E	475	144.5	F	478	149.7	F
Weekday Evening	392	20.1	C	501	103.1	F	508	112.1	F
Saturday Midday	-	-	-	-	-	-	-	-	-
Great Road at Robinson Road:									
All movements from Robinson Road:									
Weekday Morning	12	11.4	B	12	14.9	B	52	23.9	C
Weekday Evening	12	31.4	D	12	68.2	F	25	86.5	F
Saturday Midday	16	24.8	C	16	31.2	D	37	42.6	E
All movements from Bank Site Drive:									
Weekday Morning	12	31.0	D	12	35.7	E	12	40.1	E
Weekday Evening	24	50.8	F	24	187.9	F	24	222.8	F
Saturday Midday	84	213.6	F	84	421.3	F	84	540.8	F

[a]Demand in vehicles per hour.
[b]Delay in seconds.
[c]Level-of-service.
* The unsignalized operations do not reflect gaps created by the adjacent traffic signal; therefore, the results are slightly conservative.

Table 8
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Overall Results - Signalized Intersections Peak Hour	2005 Existing V/C[a]	2005 Existing Delay[b]	2005 Existing LOS[c]	2010 No Build V/C	2010 No Build Delay	2010 No Build LOS	2010 Build V/C	2010 Build Delay	2010 Build LOS
King Street at Great Road.									
Weekday Morning	0.81	29.7	C	1.27	100.3	F	1.27	103.5	F
Weekday Evening	0.97	40.4	D	1.10	77.8	E	1.12	83.2	F

[a]Volume-to-capacity ratio.
[b]Delay in seconds.
[c]Level of service.

Summary of Analyses

Based on the above analyses, there will be a minor increase in delay between the 2010 No-Build and Build conditions for vehicles exiting from Farmstead Way and Robinson Road. Based on Table 7, we expect an increase of approximately 34 seconds of intersection delay at the end of Farmstead Road during the morning peak hour. During other peak hours, the increase in delay on public roads is expected to be less than 18 seconds. Even if the left turning volumes are reduced by 50%, the delays for exiting left turns will still be degraded due to the high volume of traffic along each primary roadway (King Street or Great Road). The volume of traffic exiting from Farmstead Way and Robinson Road does not warrant the introduction of separated exiting

turn lanes since each movement is less than 35 vehicles per hour during each of the peak hours studied. Even if widened, the left-turn movement would continue to operate at LOS during those critical peak periods listed in Table 7.

In comparison to expected local and regional growth associated with other projects, the volume of traffic introduced by this residential development project is not large enough to make a noticeable impact on LOS at any of the other intersections included in the study area. The planned improvements at the intersection of King Street/Great Road, as proposed by GEOD Consulting, will provide additional capacity for each approach to the intersection. As mentioned previously, these improvements were assumed for King Street/Great Road under the 2010 No-Build and Build analysis scenarios. The delay incurred by drivers due to additional traffic from the Village on the Common development will be unnoticeable at this signalized intersection.

CONCLUSION

The traffic generated by the proposed residential development will likely be noticed by residents along Farmstead Way and Robinson Road since there is little traffic on these public roads today. Farmstead Way is currently designed to Town standards and Robinson Road will be reconstructed to accommodate the Town's standard roadway design, including a new sidewalk. The cul-de-sac at the end of Robinson Road will be widened to accommodate a turning school bus should the school system decide to turn onto Robinson Road in the future. There will be increases in intersection delay at the end of Farmstead Way and Robinson Road during each peak hour with negligible increases at other intersections. The volume of traffic exiting from Farmstead Way and Robinson Road will continue to be considered a low-volume side street and does not warrant widening to accommodate separated turn lanes. With the proposed upgrade to Robinson Road, the traffic from the proposed 92 residential duplex units can be safely accommodated within the surrounding roadway network.

Traffic Impact and Access Study

Appendix
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Title

Traffic Study Appendix A

Turning Movement Count (TMC) and
Automatic Traffic Recorder (ATR) Data

Traffic Study Appendix B

Nearby Projects – Traffic Information for No-Build Condition

N/S: King Street (Route 110)
E/W: Farmstead Way/VFW Driveway
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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Site Code : 0000000
Start Date : 2/15/20
Page No : 1

Groups Printed- Cars - Trucks

	King Street (Route 110) From North				Farmstead Way From East				King Street (Route 110) From South				VFW Driveway From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Tot
07:00 AM	0	57	1	0	1	0	1	0	0	99	0	0	0	0	0	0	159
07:15 AM	0	56	0	0	0	0	0	0	0	109	0	0	0	0	0	0	165
07:30 AM	0	84	0	0	0	0	2	0	0	142	0	0	0	0	0	0	228
07:45 AM	0	82	0	0	0	0	0	0	0	164	0	0	0	0	0	0	246
Total	0	279	1	0	2	0	3	0	0	514	0	0	0	0	0	0	799
08:00 AM	0	84	0	0	0	0	1	0	2	182	0	0	0	0	0	0	269
08:15 AM	0	89	1	0	0	0	7	0	1	169	1	0	0	0	0	0	268
08:30 AM	0	71	0	0	0	0	1	0	0	193	0	0	1	0	0	0	266
08:45 AM	0	54	1	0	0	0	1	0	2	160	0	0	0	0	0	0	218
Total	0	298	2	0	0	0	10	0	5	704	1	0	1	0	0	0	1021
Grand Total	0	577	3	0	2	0	13	0	5	1218	1	0	1	0	0	0	1820
Apprch %	0	99.5	0.5	0	13.3	0	86.7	0	0.4	99.5	0.1	0	100	0	0	0	
Total %	0	31.7	0.2	0	0.1	0	0.7	0	0.3	66.9	0.1	0	0.1	0	0	0	
Cars	0	566	3	0	1	0	12	0	4	1190	1	0	1	0	0	0	1778
% Cars	0	98.1	100	0	50	0	92.3	0	80	97.7	100	0	100	0	0	0	97.7
Trucks	0	11	0	0	1	0	1	0	1	28	0	0	0	0	0	0	42
% Trucks	0	1.9	0	0	50	0	7.7	0	20	2.3	0	0	0	0	0	0	2.3

	King Street (Route 110) From North					Farmstead Way From East					King Street (Route 110) From South					VFW Driveway From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	82	0	0	82	0	0	0	0	0	0	164	0	0	164	0	0	0	0	0	246
08:00 AM	0	84	0	0	84	0	0	1	0	1	2	182	0	0	184	0	0	0	0	0	269
08:15 AM	0	89	1	0	90	0	0	7	0	7	1	165	1	0	171	0	0	0	0	0	268
08:30 AM	0	71	0	0	71	0	0	1	0	1	0	193	0	0	193	1	0	0	0	1	266
Total Volume	0	326	1	0	327	0	0	9	0	9	3	708	1	0	712	1	0	0	0	1	1049
% App. Total	0	99.7	0.3	0		0	0	100	0		0.4	99.4	0.1	0		100	0	0	0		
PHF	.000	.916	.250	.000	.908	.000	.000	.321	.000	.321	.375	.917	.250	.000	.922	.250	.000	.000	.000	.250	.975

N/S: King Street (Route 110)
E/W: Farmstead Way/VFW Driveway
City, State: Littleton, MA
Client: Coniey Associates/L. Grant

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Groups Printed- Cars

	King Street (Route 110) From North				Farmstead Way From East				King Street (Route 110) From South				VFW Driveway From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	55	1	0	0	0	1	0	0	98	0	0	0	0	0	0	155
07:15 AM	0	55	0	0	1	0	0	0	0	105	0	0	0	0	0	0	161
07:30 AM	0	82	0	0	0	0	2	0	0	137	0	0	0	0	0	0	221
07:45 AM	0	81	0	0	0	0	0	0	0	159	0	0	0	0	0	0	240
Total	0	273	1	0	1	0	3	0	0	499	0	0	0	0	0	0	777
08:00 AM	0	82	0	0	0	0	1	0	2	179	0	0	0	0	0	0	264
08:15 AM	0	88	1	0	0	0	6	0	0	166	1	0	0	0	0	0	262
08:30 AM	0	71	0	0	0	0	1	0	0	190	0	0	1	0	0	0	263
08:45 AM	0	52	1	0	0	0	1	0	2	156	0	0	0	0	0	0	212
Total	0	293	2	0	0	0	9	0	4	691	1	0	1	0	0	0	1001
Grand Total	0	566	3	0	1	0	12	0	4	1190	1	0	1	0	0	0	1778
Apprch %	0	99.5	0.5	0	7.7	0	92.3	0	0.3	99.6	0.1	0	100	0	0	0	
Total %	0	31.8	0.2	0	0.1	0	0.7	0	0.2	66.9	0.1	0	0.1	0	0	0	

	King Street (Route 110) From North					Farmstead Way From East					King Street (Route 110) From South					VFW Driveway From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	81	0	0	81	0	0	0	0	0	0	159	0	0	159	0	0	0	0	0	240
08:00 AM	0	82	0	0	82	0	0	1	0	1	2	179	0	0	181	0	0	0	0	0	264
08:15 AM	0	88	1	0	89	0	0	6	0	6	0	166	1	0	167	0	0	0	0	0	262
08:30 AM	0	71	0	0	71	0	0	1	0	1	0	190	0	0	190	1	0	0	0	1	263
Total Volume	0	322	1	0	323	0	0	8	0	8	2	694	1	0	697	1	0	0	0	1	1029
% App. Total	0	99.7	0.3	0		0	0	100	0		0.3	99.6	0.1	0		100	0	0	0		
PHF	.000	.915	.250	.000	.907	.000	.000	.333	.000	.333	.250	.913	.250	.000	.917	.250	.000	.000	.000	.250	.974

N/S: King Street (Route 110)
E/W: Farmstead Way/VFW Driveway
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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Start Date : 2/15/20
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Groups Printed- Trucks

Start Time	King Street (Route 110) From North				Farmstead Way From East				King Street (Route 110) From South				VFW Driveway From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	0	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	4
07:15 AM	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	5
07:30 AM	0	2	0	0	0	0	0	0	0	5	0	0	0	0	0	0	7
07:45 AM	0	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	6
Total	0	6	0	0	1	0	0	0	0	15	0	0	0	0	0	0	22
08:00 AM	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	5
08:15 AM	0	1	0	0	0	0	1	0	1	3	0	0	0	0	0	0	6
08:30 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
08:45 AM	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	0	6
Total	0	5	0	0	0	0	1	0	1	13	0	0	0	0	0	0	20
Grand Total	0	11	0	0	1	0	1	0	1	28	0	0	0	0	0	0	42
Apprch %	0	100	0	0	50	0	50	0	3.4	96.6	0	0	0	0	0	0	
Total %	0	26.2	0	0	2.4	0	2.4	0	2.4	66.7	0	0	0	0	0	0	

Start Time	King Street (Route 110) From North					Farmstead Way From East				King Street (Route 110) From South					VFW Driveway From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	7
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	6
08:00 AM	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	5
08:15 AM	0	1	0	0	1	0	0	1	0	1	1	3	0	0	4	0	0	0	0	0	6
Total Volume	0	6	0	0	6	0	0	1	0	1	1	16	0	0	17	0	0	0	0	0	24
% App. Total	0	100	0	0		0	0	100	0		5.9	94.1	0	0		0	0	0	0		
PHF	.000	.750	.000	.000	.750	.000	.000	.250	.000	.250	.250	.800	.000	.000	.850	.000	.000	.000	.000	.000	.857

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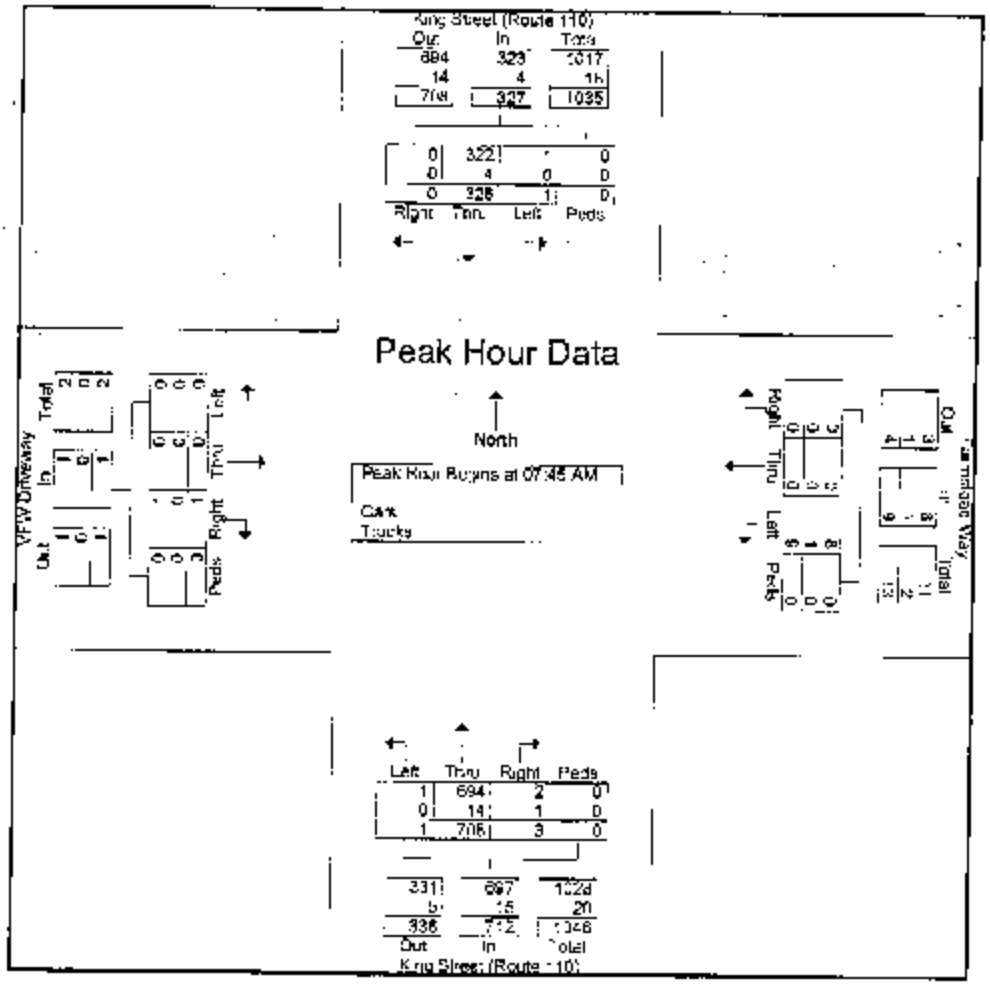
	King Street (Route 110) From North					Farmstead Way From East					King Street (Route 110) From South					VFW Driveway From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	82	0	0	82	0	0	0	0	0	0	164	0	0	164	0	0	0	0	0	246
08:00 AM	0	84	0	0	84	0	0	1	0	1	2	182	0	0	184	0	0	0	0	0	269
08:15 AM	0	89	1	0	90	0	0	7	0	7	1	169	1	0	171	0	0	0	0	0	268
08:30 AM	0	71	0	0	71	0	0	1	0	1	0	193	0	0	193	1	0	0	0	1	266
Total Volume	0	326	1	0	327	0	0	9	0	9	3	708	1	0	712	1	0	0	0	1	1048
% App. Total	0	99.7	0.3	0		0	0	100	0		0.4	99.4	0.1	0		100	0	0	0		
PHF	.000	.916	.250	.000	.908	.000	.000	.321	.000	.321	.375	.917	.250	.000	.922	.250	.000	.000	.000	.250	.975
Cars	0	322	1	0	323	0	0	8	0	8	2	694	1	0	697	1	0	0	0	1	1029
% Cars	0	98.8	100	0	98.8	0	0	88.9	0	88.9	66.7	98.0	100	0	97.9	100	0	0	0	100	98.1
Trucks	0	4	0	0	4	0	0	1	0	1	1	14	0	0	15	0	0	0	0	0	20
% Trucks	0	1.2	0	0	1.2	0	0	11.1	0	11.1	33.3	2.0	0	0	2.1	0	0	0	0	0	1.9



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S: Farmstead Way
E/W: King Street (Route 110)
City, State: Littleton, MA
Client: TEC/K. Dandrade

File Name : 033
Site Code : T01
Start Date : 5/5
Page No : 1

Groups Printed- Cars - Trucks

Start Time	King Street (Route 110) From East				Farmstead Way From South				King Street (Route 110) From West			
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int
07:00 AM	58	0	0	0	1	0	0	104	0	
07:15 AM	63	1	0	0	0	0	0	119	0	
07:30 AM	92	1	0	0	2	0	0	144	0	
07:45 AM	83	0	0	0	0	0	1	178	0	
Total	296	2	0	0	3	0	1	545	0	
08:00 AM	83	0	0	0	0	0	0	202	0	
08:15 AM	78	0	0	0	2	0	0	173	0	
08:30 AM	99	0	0	1	2	0	4	176	0	
08:45 AM	81	4	0	1	3	0	4	171	0	
Total	341	4	0	2	7	0	8	724	0	
Grand Total	637	6	0	2	10	0	9	1269	0	
Apprch %	99.1	0.9	0	16.7	83.3	0	0.7	99.3	0	
Total %	33	0.3	0	0.1	0.5	0	0.5	65.6	0	
Cars	616	6	0	2	10	0	9	1247	0	
% Cars	96.7	100	0	100	100	0	100	98.3	0	
Trucks	21	0	0	0	0	0	0	22	0	
% Trucks	3.3	0	0	0	0	0	0	1.7	0	

Start Time	King Street (Route 110) From East				Farmstead Way From South				King Street (Route 110) From West			
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int T
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:30 AM													
08:00 AM	83	0	0	83	0	0	0	0	0	202	0	202	
08:15 AM	78	0	0	78	0	2	0	2	0	173	0	173	
08:30 AM	99	0	0	99	1	2	0	3	4	176	0	180	
08:45 AM	81	4	0	85	1	3	0	4	4	171	0	175	
Total Volume	341	4	0	345	2	7	0	9	8	724	0	732	1
% App. Total	98.8	1.2	0		22.2	77.8	0		1.1	98.9	0		
PHF	.861	.250	.000	.871	.500	.583	.000	.563	.500	.896	.000	.900	

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Page No : 1

Groups Printed- Cars

	King Street (Route 110) From East			Farmstead Way From South			King Street (Route 110) From West			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int To
07:00 AM	56	0	0	0	1	0	0	101	0	1
07:15 AM	58	1	0	0	0	0	0	118	0	1
07:30 AM	91	1	0	0	2	0	0	142	0	2
07:45 AM	80	0	0	0	0	0	1	175	0	2
Total	285	2	0	0	3	0	1	536	0	82
08:00 AM	81	0	0	0	0	0	0	200	0	28
08:15 AM	78	0	0	0	2	0	0	167	0	24
08:30 AM	95	0	0	1	2	0	4	175	0	27
08:45 AM	77	4	0	1	3	0	4	169	0	25
Total	331	4	0	2	7	0	8	711	0	106
Grand Total	616	6	0	2	10	0	9	1247	0	189
Apprch %	99	1	0	16.7	83.3	0	0.7	99.3	0	
Total %	32.6	0.3	0	0.1	0.5	0	0.5	66	0	

	King Street (Route 110) From East				Farmstead Way From South				King Street (Route 110) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	81	0	0	81	0	0	0	0	0	200	0	200	281
08:15 AM	78	0	0	78	0	2	0	2	0	167	0	167	247
08:30 AM	95	0	0	95	1	2	0	3	4	175	0	179	277
08:45 AM	77	4	0	81	1	3	0	4	4	169	0	173	258
Total Volume	331	4	0	335	2	7	0	9	8	711	0	719	1063
% App. Total	98.8	1.2	0		22.2	77.8	0		1.1	98.9	0		
PHF	.871	.250	.000	.862	.500	.583	.000	.563	.500	.889	.000	.899	.846

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File Name : 033
Site Code : T01
Start Date : 5/5
Page No : 1

Groups Printed- Trucks

Start Time	King Street (Route 110) From East			Farmstead Way From South			King Street (Route 110) From West			Int.
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	
07:00 AM	2	0	0	0	0	0	0	3	0	
07:15 AM	5	0	0	0	0	0	0	1	0	
07:30 AM	1	0	0	0	0	0	0	2	0	
07:45 AM	3	0	0	0	0	0	0	3	0	
Total	11	0	0	0	0	0	0	9	0	
08:00 AM	2	0	0	0	0	0	0	2	0	
08:15 AM	0	0	0	0	0	0	0	6	0	
08:30 AM	4	0	0	0	0	0	0	3	0	
08:45 AM	4	0	0	0	0	0	0	2	0	
Total	10	0	0	0	0	0	0	13	0	
Grand Total	21	0	0	0	0	0	0	22	0	
Approch %	100	0	0	0	0	0	0	100	0	
Total %	48.8	0	0	0	0	0	0	51.2	0	

Start Time	King Street (Route 110) From East				Farmstead Way From South				King Street (Route 110) From West				Int.
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	3	0	0	3	0	0	0	0	0	3	0	3	
08:00 AM	2	0	0	2	0	0	0	0	0	2	0	2	
08:15 AM	0	0	0	0	0	0	0	0	0	6	0	6	
08:30 AM	4	0	0	4	0	0	0	0	0	3	0	3	
Total Volume	9	0	0	9	0	0	0	0	0	14	0	14	
% App. Total	100	0	0		0	0	0		0	100	0		
PHF	.563	.000	.000	.563	.000	.000	.000	.000	.000	.583	.000	.583	

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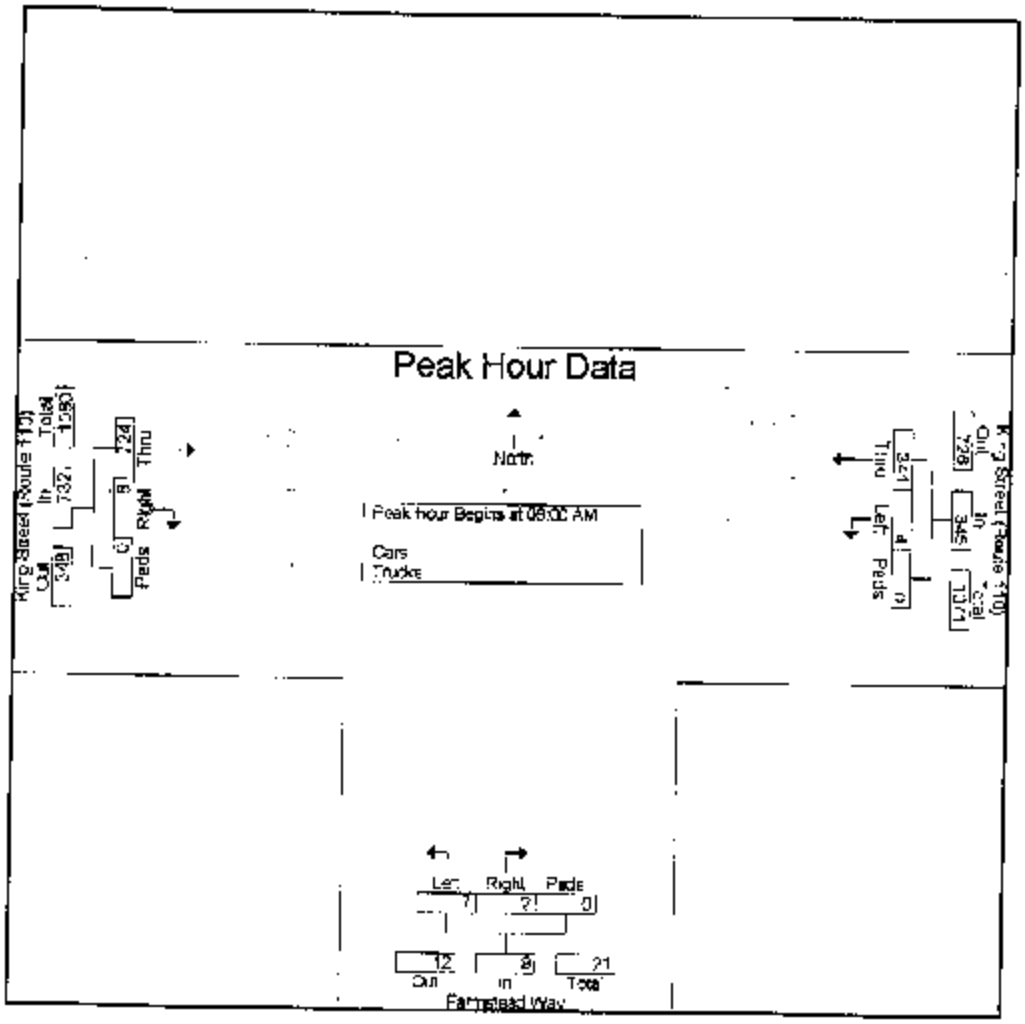
S: Farmstead Way
E/W: King Street (Route 110)
City, State: Littleton, MA
Client: TEC/K. Dandrade

File Name : 03311
Site Code : T0121
Start Date : 5/5/2
Page No : 1

	King Street (Route 110) From East				Farmstead Way From South				King Street (Route 110) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. To
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	83	0	0	83	0	0	0	0	0	202	0	202	28
08:15 AM	78	0	0	78	0	2	0	2	0	173	0	173	25
08:30 AM	99	0	0	99	1	2	0	3	4	178	0	182	28
08:45 AM	81	4	0	85	1	3	0	4	4	171	0	175	26
Total Volume	341	4	0	345	2	7	0	9	8	724	0	732	108
% App. Total	98.8	1.2	0		22.2	77.8	0		1.1	98.9	0		
PHF	.861	.250	.000	.871	.500	.583	.000	.563	.500	.896	.000	.906	.95



N/S: King Street (Route 110)
E/W: Farmstead Way/VFW Driveway
City, State: Littleton, MA
Client: Conley Associates/L. Grant

PRECISION DATA INDUSTRIES, LLC
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File Name : 50114A
Site Code : 000000
Start Date : 2/15/2
Page No : 1

Groups Printed- Cars - Trucks

Start Time	King Street (Route 110) From North			Farmstead Way From East			King Street (Route 110) From South			VFW Driveway From West			Int. To
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	117	1	0	0	3	7	75	1	0	0	0	2
04:15 PM	0	130	1	0	0	4	2	97	1	0	0	0	2
04:30 PM	0	134	0	2	0	2	5	82	3	0	0	0	2
04:45 PM	0	126	0	1	0	2	0	107	2	0	0	0	2
Total	0	507	2	3	0	11	14	361	7	0	0	0	9
05:00 PM	0	171	0	2	0	3	0	99	1	1	0	0	2
05:15 PM	0	167	0	1	0	0	0	113	0	0	0	0	2
05:30 PM	0	147	0	0	0	0	1	143	0	0	0	0	2
05:45 PM	0	140	0	0	0	1	1	89	0	0	0	0	2
Total	0	625	0	3	0	4	2	444	1	1	0	0	10
Grand Total	0	1132	2	6	0	15	16	805	8	1	0	0	19
Apprch %	0	98.8	0.2	28.6	0	71.4	1.9	97.1	1	100	0	0	
Total %	0	57	0.1	0.3	0	0.8	0.8	40.6	0.4	0.1	0	0	
Cars	0	1124	2	6	0	15	16	799	8	1	0	0	19
% Cars	0	99.3	100	100	0	100	100	99.3	100	100	0	0	99.
Trucks	0	8	0	0	0	0	0	6	0	0	0	0	1
% Trucks	0	0.7	0	0	0	0	0	0.7	0	0	0	0	0.

Start Time	King Street (Route 110) From North					Farmstead Way From East				King Street (Route 110) From South				VFW Driveway From West				Int. Total
	Right	Thru	Left	App. Total		Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:45 PM																		
04:45 PM	0	126	0	126	1	0	2	3	0	107	2	109	0	0	0	0	238	
05:00 PM	0	171	0	171	2	0	3	5	0	99	1	100	1	0	0	1	277	
05:15 PM	0	167	0	167	1	0	0	1	0	113	0	113	0	0	0	0	281	
05:30 PM	0	147	0	147	0	0	0	0	1	143	0	144	0	0	0	0	291	
Total Volume	0	611	0	611	4	0	5	9	1	462	3	466	1	0	0	1	1087	
% App. Total	0	100	0		44.4	0	55.6		0.2	99.1	0.6		100	0	0			
PHF	.000	.893	.000	.893	.500	.000	.417	.450	.250	.908	.375	.809	.250	.000	.000	.250	.934	

N/S: King Street (Route 110)
E/W: Farmstead Way/VFW Driveway
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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File Name : 50114AA
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

Groups Printed- Cars

Start Time	King Street (Route 110) From North Right	Thru	Left	Farmstead Way From East Right	Thru	Left	King Street (Route 110) From South Right	Thru	Left	VFW Driveway From West Right	Thru	Left	Int. Total
04:00 PM	0	115	1	0	0	3	7	73	1	0	0	0	200
04:15 PM	0	128	1	0	0	4	2	96	1	0	0	0	232
04:30 PM	0	131	0	2	0	2	5	82	3	0	0	0	225
04:45 PM	0	125	0	1	0	2	0	107	2	0	0	0	237
Total	0	499	2	3	0	11	14	358	7	0	0	0	894
05:00 PM	0	171	0	2	0	3	0	99	1	1	0	0	277
05:15 PM	0	167	0	1	0	0	0	112	0	0	0	0	280
05:30 PM	0	147	0	0	0	0	1	141	0	0	0	0	289
05:45 PM	0	140	0	0	0	1	1	89	0	0	0	0	231
Total	0	626	0	3	0	4	2	441	1	1	0	0	1077
Grand Total	0	1124	2	6	0	15	16	799	8	1	0	0	1971
Apprch %	0	99.8	0.2	28.6	0	71.4	1.9	97.1	1	100	0	0	
Total %	0	57	0.1	0.3	0	0.8	0.8	40.5	0.4	0.1	0	0	

Start Time	King Street (Route 110) From North Right	Thru	Left	App. Total	Farmstead Way From East Right	Thru	Left	App. Total	King Street (Route 110) From South Right	Thru	Left	App. Total	VFW Driveway From West Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	125	0	125	1	0	2	3	0	107	2	109	0	0	0	0	237
05:00 PM	0	171	0	171	2	0	3	5	0	99	1	100	1	0	0	1	277
05:15 PM	0	167	0	167	1	0	0	1	0	112	0	112	0	0	0	0	280
05:30 PM	0	147	0	147	0	0	0	0	1	141	0	142	0	0	0	0	289
Total Volume	0	610	0	610	4	0	5	9	1	459	3	463	1	0	0	1	1083
% App. Total	0	100	0		44.4	0	55.6		0.2	99.1	0.6		100	0	0		
PHF	.000	.892	.000	.892	.500	.000	.417	.450	.250	.814	.375	.815	.250	.000	.000	.250	.937

N/S: King Street (Route 110)
E/W: Farmstead Way/VFW Driveway
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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File Name : 50114A
Site Code : 000000
Start Date : 2/15/2
Page No : 1

Groups Printed- Trucks

	King Street (Route 110) From North			Farmstead Way From East		King Street (Route 110) From South			VFW Driveway From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. To
04:00 PM	0	2	0	0	0	0	0	2	0	0	0	0	
04:15 PM	0	2	0	0	0	0	0	1	0	0	0	0	
04:30 PM	0	3	0	0	0	0	0	0	0	0	0	0	
04:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	
Total	0	8	0	0	0	0	0	3	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
05:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	
05:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	3	0	0	0	0	
Grand Total	0	8	0	0	0	0	0	6	0	0	0	0	1
Apprch %	0	100	0	0	0	0	0	100	0	0	0	0	
Total %	0	57.1	0	0	0	0	0	42.9	0	0	0	0	

	King Street (Route 110) From North				Farmstead Way From East				King Street (Route 110) From South				VFW Driveway From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Tota
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0	4
04:15 PM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
04:30 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
04:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	8	0	8	0	0	0	0	0	3	0	3	0	0	0	0	11
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.667	.000	.667	.000	.000	.000	.000	.000	.375	.000	.375	.000	.000	.000	.000	.688

N/S: King Street (Route 110)
E/W: Farmstead Way/VFW Driveway
City, State: Littleton, MA
Client: Cooley Associates/L. Grant

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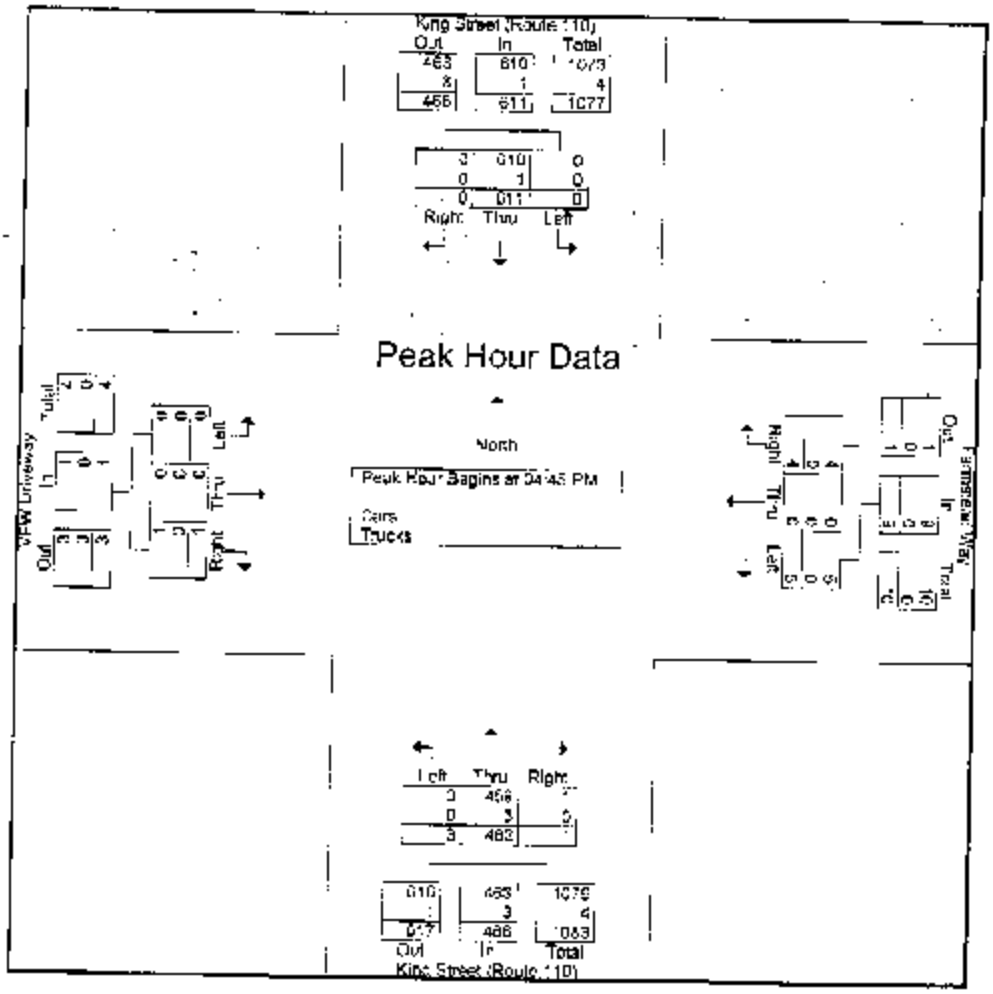
File Name : 50114AA
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

	King Street (Route 110) From North				Farmstead Way From East				King Street (Route 110) From South				VFW Driveway From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	126	0	126	1	0	2	3	0	107	2	109	0	0	0	0	238
05:00 PM	0	171	0	171	2	0	3	5	0	99	1	100	1	0	0	1	277
05:15 PM	0	167	0	167	1	0	0	1	0	113	0	113	0	0	0	0	281
05:30 PM	0	147	0	147	0	0	0	0	1	143	0	144	0	0	0	0	291
Total Volume	0	611	0	611	4	0	5	9	1	462	3	466	1	0	0	1	1087
% App. Total	0	100	0		44.4	0	55.6		0.2	99.1	0.6		100	0	0		
PHF	.000	.893	.000	.893	.500	.000	.417	.450	.250	.808	.375	.809	.250	.000	.000	.250	.934
Cars	0	610	0	610	4	0	5	9	1	458	3	463	1	0	0	1	1083
% Cars	0	99.8	0	99.8	100	0	100	100	100	99.4	100	99.4	100	0	0	100	99.6
Trucks	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
% Trucks	0	0.2	0	0.2	0	0	0	0	0	0.6	0	0.6	0	0	0	0	0.4



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S: Farmstead Way
E/W: King Street (Route 110)
City, State: Littleton, MA
Client: TEC/K. Dandrade

File Name : 0331
Site Code : T01
Start Date : 5/5/
Page No : 1

Groups Printed- Cars - Trucks

Start Time	King Street (Route 110) From East			Farmstead Way From South			King Street (Route 110) From West			
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int.
04:00 PM	161	1	0	1	6	0	4	103	0	
04:15 PM	143	6	0	3	2	0	5	100	0	
04:30 PM	121	1	0	4	5	0	2	108	0	
04:45 PM	150	1	0	3	10	0	6	129	0	
Total	575	9	0	11	24	0	17	440	0	
05:00 PM	183	0	0	1	1	0	6	137	0	
05:15 PM	185	2	0	0	4	0	3	146	0	
05:30 PM	195	3	0	6	5	0	4	151	0	
05:45 PM	131	1	0	8	2	0	1	122	0	
Total	694	6	0	15	12	0	14	558	0	
Grand Total	1269	15	0	26	36	0	31	998	0	2
Apprch %	98.8	1.2	0	41.9	58.1	0	3	97	0	
Total %	53.4	0.6	0	1.1	1.6	0	1.3	42	0	
Cars	1257	15	0	26	36	0	31	986	0	2
% Cars	99.1	100	0	100	100	0	100	98.8	0	
Trucks	12	0	0	0	0	0	0	12	0	
% Trucks	0.9	0	0	0	0	0	0	1.2	0	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM

Start Time	King Street (Route 110) From East				Farmstead Way From South				King Street (Route 110) From West				
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. T
04:45 PM	150	1	0	151	3	10	0	13	6	129	0	135	
05:00 PM	183	0	0	183	1	1	0	2	6	137	0	143	
05:15 PM	185	2	0	187	0	4	0	4	3	148	0	151	
05:30 PM	195	3	0	198	6	5	0	11	4	151	0	155	
Total Volume	713	6	0	719	10	20	0	30	19	565	0	584	1
% App. Total	99.2	0.8	0		33.3	66.7	0		3.3	96.7	0		
PHF	.914	.500	.000	.908	.417	.500	.000	.577	.792	.935	.000	.942	.9

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S: Farmstead Way
E/W: King Street (Route 110)
City, State: Littleton, MA
Client: TEC/K. Dandrade

File Name : 03311
Site Code : T0121
Start Date : 5/5/2
Page No : 1

Groups Printed- Cars

Start Time	King Street (Route 110) From East Thru	Left	Peds	Farmstead Way From South Right	Left	Peds	King Street (Route 110) From West Right	Thru	Peds	Int. To
04:00 PM	157	1	0	1	6	0	4	103	0	2
04:15 PM	141	6	0	3	2	0	5	97	0	2
04:30 PM	120	1	0	4	6	0	2	106	0	2
04:45 PM	147	1	0	3	10	0	6	127	0	2
Total	565	9	0	11	24	0	17	433	0	10
05:00 PM	183	0	0	1	1	0	8	135	0	3
05:15 PM	184	2	0	0	4	0	3	147	0	3
05:30 PM	194	3	0	6	5	0	4	150	0	3
05:45 PM	131	1	0	8	2	0	1	121	0	2
Total	692	6	0	15	12	0	14	553	0	12
Grand Total	1257	15	0	26	36	0	31	986	0	23
Apprch %	98.8	1.2	0	41.9	58.1	0	3	97	0	
Total %	53.5	0.6	0	1.1	1.5	0	1.3	41.8	0	

Start Time	King Street (Route 110) From East Thru	Left	Peds	App. Total	Farmstead Way From South Right	Left	Peds	App. Total	King Street (Route 110) From West Right	Thru	Peds	App. Total	Int. Tota
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	147	1	0	148	3	10	0	13	6	127	0	133	294
05:00 PM	183	0	0	183	1	1	0	2	6	135	0	141	326
05:15 PM	184	2	0	186	0	4	0	4	3	147	0	150	340
05:30 PM	194	3	0	197	6	5	0	11	4	150	0	154	362
Total Volume	708	6	0	714	10	20	0	30	19	559	0	578	1322
% App. Total	99.2	0.8	0		33.3	66.7	0		3.3	96.7	0		
PHF	.912	.500	.000	.906	.417	.500	.000	.577	.792	.932	.000	.938	.913

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S: Farmstead Way
E/W: King Street (Route 110)
City, State: Littleton, MA
Client: TEC/K Dandrade

File Name : 0331
Site Code : 1012
Start Date : 5/5/
Page No : 1

Groups Printed- Trucks

Start Time	King Street (Route 110) From East			Farmstead Way From South			King Street (Route 110) From West			Int.
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	
04:00 PM	4	0	0	0	0	0	0	0	0	
04:15 PM	2	0	0	0	0	0	0	3	0	
04:30 PM	1	0	0	0	0	0	0	2	0	
04:45 PM	3	0	0	0	0	0	0	2	0	
Total	10	0	0	0	0	0	0	7	0	
05:00 PM	0	0	0	0	0	0	0	2	0	
05:15 PM	1	0	0	0	0	0	0	1	0	
05:30 PM	1	0	0	0	0	0	0	1	0	
05:45 PM	0	0	0	0	0	0	0	1	0	
Total	2	0	0	0	0	0	0	5	0	
Grand Total	12	0	0	0	0	0	0	12	0	
Apprch %	100	0	0	0	0	0	0	100	0	
Total %	50	0	0	0	0	0	0	50	0	

Start Time	King Street (Route 110) From East				Farmstead Way From South				King Street (Route 110) From West				Int. T
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	4	0	0	4	0	0	0	0	0	0	0	0	
04:15 PM	2	0	0	2	0	0	0	0	0	3	0	3	
04:30 PM	1	0	0	1	0	0	0	0	0	2	0	2	
04:45 PM	3	0	0	3	0	0	0	0	0	2	0	2	
Total Volume	10	0	0	10	0	0	0	0	0	7	0	7	
% App. Total	100	0	0		0	0	0		0	100	0		
PHF	.625	.000	.000	.625	.000	.000	.000	.000	.000	.583	.000	.583	

Transportation Data Corporation
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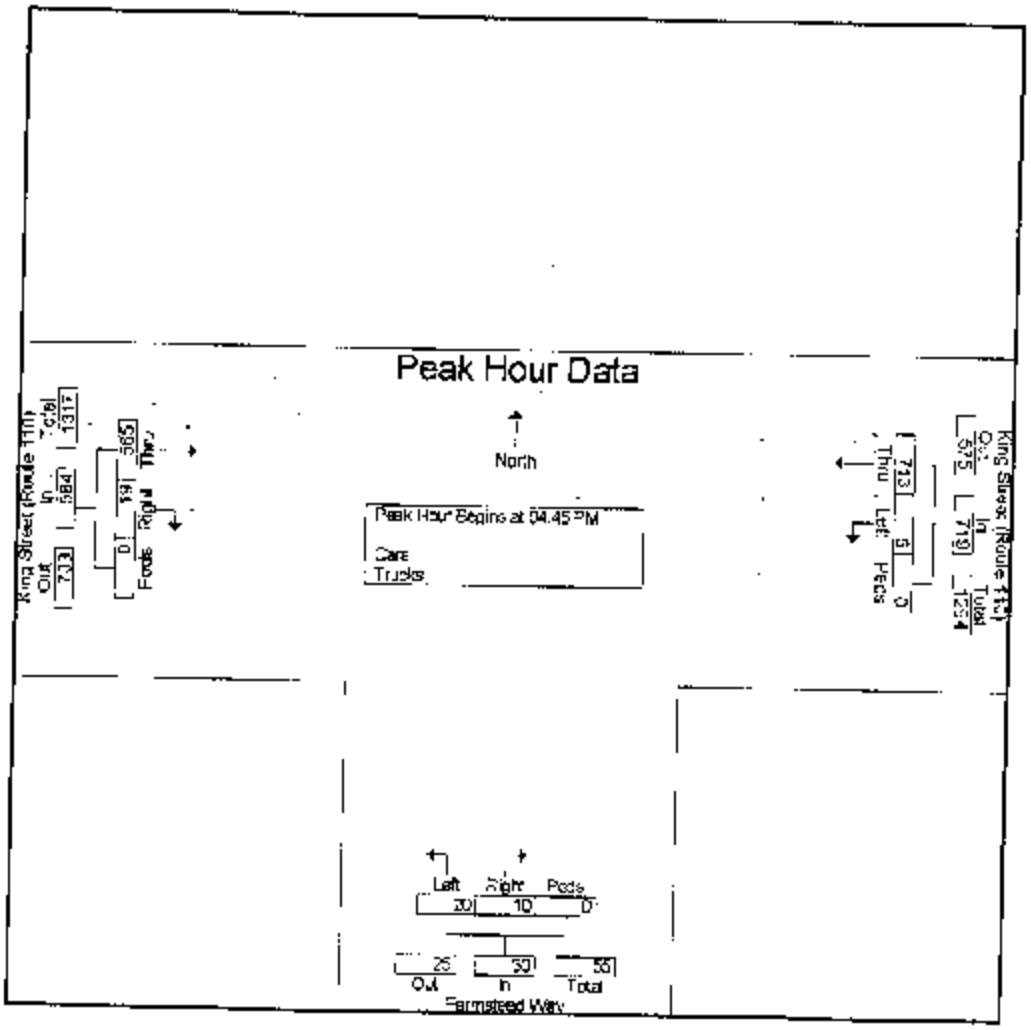
S: Farmstead Way
E/W: King Street (Route 110)
City, State: Littleton, MA
Client: TEC/K. Dandrade

FileName : 03311
SiteCode : 10122
Start Date : 5/5/2
Page No : 1

	King Street (Route 110) From East					Farmstead Way From South				King Street (Route 110) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. To
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	150	1	0	151	3	10	0	13	6	129	0	135	2
05:00 PM	183	0	0	183	1	1	0	2	6	137	0	143	3
05:15 PM	185	2	0	187	0	4	0	4	3	148	0	151	3
05:30 PM	195	3	0	198	6	5	0	11	4	151	0	155	3
Total Volume	713	6	0	719	10	20	0	30	19	565	0	584	13
% App. Total	99.2	0.8	0		33.3	66.7	0		3.3	96.7	0		
PHF	.914	.500	.000	.908	.417	.500	.000	.577	.792	.935	.000	.942	.9



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Cell: (781) 316-4663 E: mperone1@comcast.net

S: Farmstead Way
E/W: King Street (Route 110)
City, State: Littleton, MA
Client: TEC/K. Dandrade

File Name : 0331
Site Code : T012
Start Date : 4/30/
Page No : 1

Groups Printed- Cars - Trucks

Start Time	King Street (Route 110) From East			Farmstead Way From South			King Street (Route 110) From West			Int.
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	
11:00 AM	97	3	0	4	4	0	7	84	0	
11:15 AM	101	5	0	2	4	0	4	90	0	
11:30 AM	93	3	0	3	5	0	4	97	0	
11:45 AM	103	6	0	3	3	0	1	104	0	
Total	394	17	0	12	16	0	11	375	0	
12:00 PM	92	8	0	7	5	0	9	101	0	
12:15 PM	98	1	0	4	12	0	12	85	0	
12:30 PM	97	2	0	6	12	0	4	80	0	
12:45 PM	81	4	0	6	5	0	5	96	0	
Total	369	16	0	23	34	0	30	372	0	
Grand Total	763	33	0	35	50	0	41	747	0	
Apprch %	95.9	4.1	0	41.2	58.8	0	5.2	94.8	0	
Total %	46.7	2	0	2.1	3	0	2.5	44.8	0	
Cars	755	33	0	35	50	0	41	740	0	1
% Cars	99	100	0	100	100	0	100	99.1	0	
Trucks	8	0	0	0	0	0	0	7	0	
% Trucks	1	0	0	0	0	0	0	0.9	0	

Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 11:30 AM

Start Time	King Street (Route 110) From East				Farmstead Way From South				King Street (Route 110) From West				Int T
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
11:30 AM	93	3	0	96	3	5	0	8	4	97	0	101	
11:45 AM	103	6	0	109	3	3	0	6	1	104	0	105	
12:00 PM	92	9	0	101	7	5	0	12	9	101	0	110	
12:15 PM	99	1	0	100	4	12	0	16	12	95	0	107	
Total Volume	387	19	0	406	17	25	0	42	26	397	0	423	
% App. Total	95.3	4.7	0		40.5	59.5	0		6.1	93.9	0		
PHF	.939	.528	.000	.931	.607	.521	000	656	.542	.954	.000	.961	.9

Transportation Data Corporation
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S: Farmstead Way
E/W: King Street (Route 110)
City, State: Littleton, MA
Client: TEC/K. Dandrade

File Name : 03311B
Site Code : 10121
Start Date : 4/30/2
Page No : 1

Groups Printed- Cars

	King Street (Route 110) From East			Farmstead Way From South			King Street (Route 110) From West			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. To
11:00 AM	97	3	0	4	4	0	2	83	0	1
11:15 AM	100	5	0	2	4	0	4	90	0	2
11:30 AM	91	3	0	3	5	0	4	96	0	2
11:45 AM	103	6	0	3	3	0	1	104	0	2
Total	391	17	0	12	16	0	11	373	0	8
12:00 PM	89	9	0	7	5	0	9	100	0	2
12:15 PM	98	1	0	4	12	0	12	93	0	2
12:30 PM	97	2	0	6	12	0	4	78	0	1
12:45 PM	80	4	0	6	5	0	5	96	0	1
Total	364	16	0	23	34	0	30	367	0	8
Grand Total	755	33	0	35	50	0	41	740	0	16
Apprch %	95.8	4.2	0	41.2	58.8	0	5.2	94.8	0	
Total %	45.6	2	0	2.1	3	0	2.5	44.7	0	

	King Street (Route 110) From East				Farmstead Way From South				King Street (Route 110) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Tot
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:30 AM													
11:30 AM	91	3	0	94	3	5	0	8	4	96	0	100	20
11:45 AM	103	6	0	109	3	3	0	6	1	104	0	105	22
12:00 PM	89	9	0	98	7	5	0	12	8	100	0	109	21
12:15 PM	98	1	0	99	4	12	0	16	12	93	0	105	22
Total Volume	381	19	0	400	17	25	0	42	26	393	0	419	86
% App. Total	95.2	4.8	0		40.5	59.5	0		6.2	93.8	0		
PHF	.926	.528	.000	.917	.607	.521	.000	.656	.542	.945	.000	.961	.97

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S: Farmstead Way
E/W: King Street (Route 110)
City, State: Littleton, MA
Client: TEC/K. Dandrade

File Name : 0331
Site Code : T012
Start Date : 4/30/
Page No : 1

Groups Printed- Trucks

	King Street (Route 110) From East			Farmstead Way from South			King Street (Route 110) From West			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int.
11:00 AM	0	0	0	0	0	0	0	1	0	
11:15 AM	1	0	0	0	0	0	0	0	0	
11:30 AM	2	0	0	0	0	0	0	1	0	
11:45 AM	0	0	0	0	0	0	0	0	0	
Total	3	0	0	0	0	0	0	2	0	
12:00 PM	3	0	0	0	0	0	0	1	0	
12:15 PM	1	0	0	0	0	0	0	2	0	
12:30 PM	0	0	0	0	0	0	0	2	0	
12:45 PM	1	0	0	0	0	0	0	0	0	
Total	5	0	0	0	0	0	0	5	0	
Grand Total	8	0	0	0	0	0	0	7	0	
Aporch %	100	0	0	0	0	0	0	100	0	
Total %	53.3	0	0	0	0	0	0	46.7	0	

	King Street (Route 110) From East				Farmstead Way From South				King Street (Route 110) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. T
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:30 AM													
11:30 AM	2	0	0	2	0	0	0	0	0	1	0	1	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
12:00 PM	3	0	0	3	0	0	0	0	0	1	0	1	
12:15 PM	1	0	0	1	0	0	0	0	0	2	0	2	
Total Volume	6	0	0	6	0	0	0	0	0	4	0	4	
% App. Total	100	0	0		0	0	0		0	100	0		
PHF	.500	.000	.000	.500	.000	.000	.000	.000	.000	.500	.000	.500	

Transportation Data Corporation
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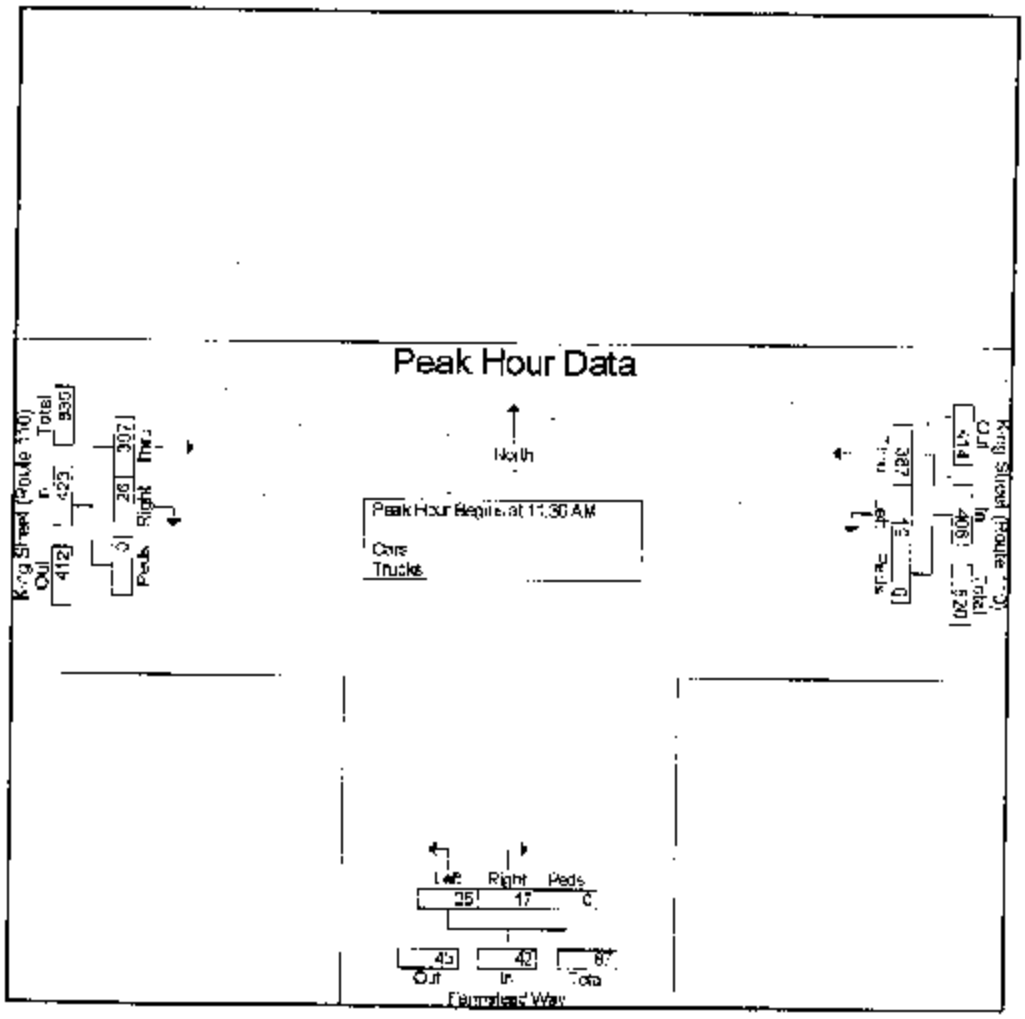
S: Farmstead Way
E/W: King Street (Route 110)
City, State: Littleton, MA
Client: TEC/K. Dandrade

File Name : 03311h
Site Code : T0121
Start Date : 4/30/2
Page No : 1

	King Street (Route 110) From East				Farmstead Way From South				King Street (Route 110) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. To
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:30 AM													
11:30 AM	93	3	0	96	3	5	0	8	4	97	0	101	2
11:45 AM	103	6	0	109	3	3	0	6	1	104	0	105	2
12:00 PM	92	9	0	101	7	5	0	12	8	101	0	110	2
12:15 PM	99	1	0	100	4	12	0	16	13	95	0	107	2
Total Volume	387	19	0	406	17	25	0	42	26	397	0	423	8
% App. Total	95.3	4.7	0		40.5	59.5	0		6.1	93.9	0		
PHF	.938	.528	.000	.931	.607	.521	.000	.656	.542	.954	.000	.961	.9



N/S: King Street (Route 110)
E/W: Meetinghouse Road/Driveway
City, State: Littleton, MA
Client: Conley Associates/L. Grant

PRECISION DATA INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office 508.481.3999 Toll Free 866.294.7344
Fax 508.481.0716 Email info@pdillc.com

File Name : 50114E
Site Code : 0000000
Start Date : 2/15/20
Page No : 1

Groups Printed- Cars - Trucks

	King Street (Route 110) From North			Meetinghouse Road From East			King Street (Route 110) From South			Driveway From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Tot
07:00 AM	0	60	0	8	0	0	0	104	0	0	0	0	17
07:15 AM	0	44	0	13	0	0	0	122	0	1	0	0	18
07:30 AM	0	75	0	13	0	0	0	146	2	0	0	0	23
07:45 AM	1	74	0	13	0	0	0	177	2	0	0	0	26
Total	1	254	0	47	0	0	0	549	4	1	0	0	85
08:00 AM	0	78	0	15	0	0	0	189	2	0	0	0	28
08:15 AM	0	90	0	18	1	0	0	180	0	0	0	0	28
08:30 AM	1	87	0	12	0	1	0	194	3	0	0	0	29
08:45 AM	0	62	0	24	0	0	0	160	0	0	0	0	24
Total	1	317	0	69	1	1	0	723	5	0	0	0	111
Grand Total	2	571	0	116	1	1	0	1272	9	1	0	0	197
Apprch %	0.3	99.7	0	98.3	0.8	0.8	0	99.3	0.7	100	0	0	
Total %	0.1	28.9	0	5.9	0.1	0.1	0	64.5	0.5	0.1	0	0	
Cars	2	564	0	114	1	1	0	1252	9	1	0	0	194
% Cars	100	98.8	0	98.3	100	100	0	98.4	100	100	0	0	98.
Trucks	0	7	0	2	0	0	0	20	0	0	0	0	2
% Trucks	0	1.2	0	1.7	0	0	0	1.6	0	0	0	0	1.

	King Street (Route 110) From North				Meetinghouse Road From East				King Street (Route 110) From South				Driveway From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	1	74	0	75	13	0	0	13	0	177	2	179	0	0	0	0	267
08:00 AM	0	78	0	78	15	0	0	15	0	189	2	191	0	0	0	0	284
08:15 AM	0	90	0	90	18	1	0	19	0	180	0	180	0	0	0	0	289
08:30 AM	1	87	0	88	12	0	1	13	0	194	3	197	0	0	0	0	298
Total Volume	2	329	0	331	58	1	1	60	0	740	7	747	0	0	0	0	1138
% App. Total	0.6	99.4	0		96.7	1.7	1.7		0	99.1	0.9		0	0	0		
PHF	.500	.914	.000	.919	.806	.250	.250	.789	.000	.954	.583	.948	.000	.000	.000	.000	.955

N/S: King Street (Route 110)
E/W: Meetinghouse Road/Driveway
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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File Name : 50114E
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

Groups Printed- Cars

	King Street (Route 110) From North			Meetinghouse Road From East			King Street (Route 110) From South			Driveway From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	0	60	0	8	0	0	0	103	0	0	0	0	171
07:15 AM	0	48	0	13	0	0	0	119	0	1	0	0	176
07:30 AM	0	74	0	12	0	0	0	143	2	0	0	0	231
07:45 AM	1	74	0	13	0	0	0	173	2	0	0	0	263
Total	1	251	0	46	0	0	0	538	4	1	0	0	841
08:00 AM	0	76	0	15	0	0	0	167	2	0	0	0	260
08:15 AM	0	89	0	18	1	0	0	177	0	0	0	0	285
08:30 AM	1	87	0	11	0	1	0	193	3	0	0	0	296
08:45 AM	0	61	0	24	0	0	0	157	0	0	0	0	242
Total	1	313	0	68	1	1	0	714	5	0	0	0	1103
Grand Total	2	564	0	114	1	1	0	1252	9	1	0	0	1944
Approh %	0.4	99.6	0	98.3	0.9	0.9	0	99.3	0.7	100	0	0	
Total %	0.1	29	0	5.9	0.1	0.1	0	64.4	0.5	0.1	0	0	

	King Street (Route 110) From North				Meetinghouse Road From East				King Street (Route 110) From South				Driveway From West				
Start Time	Right	Thru	Left	App Total	Right	Thru	Left	App Total	Right	Thru	Left	App Total	Right	Thru	Left	App Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	1	74	0	75	13	0	0	13	0	173	2	175	0	0	0	0	263
08:00 AM	0	76	0	76	15	0	0	15	0	167	2	169	0	0	0	0	260
08:15 AM	0	89	0	89	18	1	0	19	0	177	0	177	0	0	0	0	285
08:30 AM	1	87	0	88	11	0	1	12	0	193	3	196	0	0	0	0	296
Total Volume	2	326	0	328	57	1	1	59	0	730	7	737	0	0	0	0	1124
% App. Total	0.6	99.4	0		96.6	1.7	1.7		0	99.1	0.9		0	0	0		
PHF	.500	.916	.000	.921	.792	.250	.250	.776	.000	.946	.583	.940	.000	.000	.000	.000	.949

N/S: King Street (Route 110)
E/W: Meetinghouse Road/Driveway
City, State: Littleton, MA
Client: Conley Associates/L. Grant

PRECISION
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INDUSTRIES, LLC
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File Name : 5011+R
Site Code : 0000000
Start Date : 2/15/2
Page No : 1

Groups Printed- Trucks

Start Time	King Street (Route 110) From North			Meetinghouse Road From East			King Street (Route 110) From South			Driveway From West			Int. Tot
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	0	0	0	0	0	0	[illegible]	0	0	0	0	
07:15 AM	0	1	0	0	0	0	0	3	0	0	0	0	
07:30 AM	0	2	0	1	0	0	0	3	0	0	0	0	
07:45 AM	0	0	0	0	0	0	0	4	0	0	0	0	
Total	0	3	0	1	0	0	0	11	0	0	0	0	1
08:00 AM	0	2	0	0	0	0	0	2	0	0	0	0	
08:15 AM	0	1	0	0	0	0	0	3	0	0	0	0	
08:30 AM	0	0	0	1	0	0	0	1	0	0	0	0	
08:45 AM	0	1	0	0	0	0	0	3	0	0	0	0	
Total	0	4	0	1	0	0	0	9	0	0	0	0	1
Grand Total	0	7	0	2	0	0	0	20	0	0	0	0	2
Apprch %	0	100	0	100	0	0	0	100	0	0	0	0	
Total %	0	24.1	0	6.9	0	0	0	69	0	0	0	0	

Start Time	King Street (Route 110) From North				Meetinghouse Road From East				King Street (Route 110) From South				Driveway From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
07:30 AM	0	2	0	2	1	0	0	1	0	3	0	3	0	0	0	0	6
07:45 AM	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	0	4
08:00 AM	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0	4
Total Volume	0	5	0	5	1	0	0	1	0	12	0	12	0	0	0	0	18
% App. Total	0	100	0		100	0	0		0	100	0		0	0	0		
PHF	.000	.625	.000	.625	.250	.000	.000	.250	.000	.750	.000	.750	.000	.000	.000	.000	.750

N/S: King Street (Route 110)
E/W: Meetinghouse Road/Driveway
City, State: Littleton, MA
Client: Conley Associates/L. Grant

PRECISION DATA INDUSTRIES, LLC
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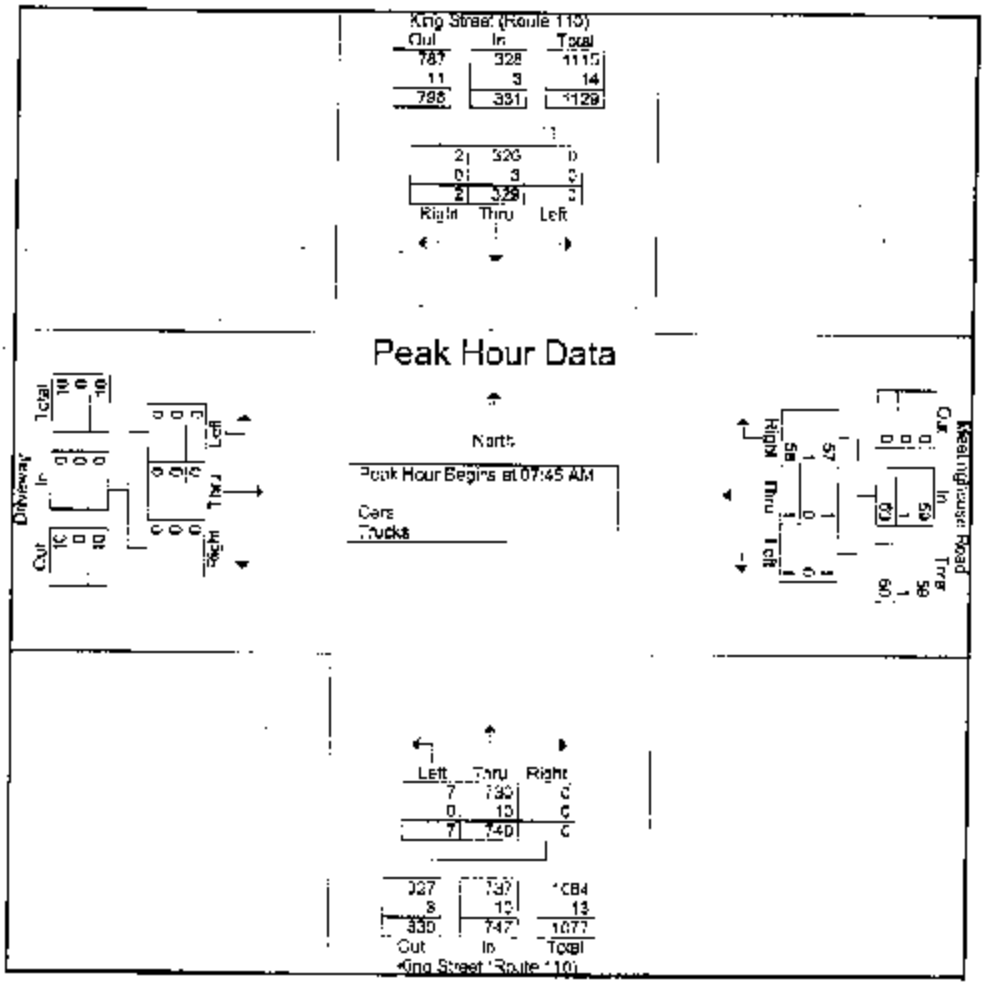
File Name : 50114E
Site Code : 00000000
Start Date : 2/15/2005
Page No : 1

	King Street (Route 110) From North				Meetinghouse Road From East				King Street (Route 110) From South				Driveway From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	1	74	0	75	13	0	0	13	0	177	2	179	0	0	0	0	267
08:00 AM	0	78	0	78	15	0	0	15	0	189	2	191	0	0	0	0	284
08:15 AM	0	**90**	0	**90**	**18**	**1**	0	19	0	183	0	180	0	0	0	0	**289**
08:30 AM	1	87	0	88	12	0	**1**	13	0	**194**	**3**	**197**	0	0	0	0	**288**
Total Volume	2	329	0	331	58	1	**1**	60	0	740	7	747	0	0	0	0	1138
% App. Total	0.6	99.4	0		96.7	1.7	1.7		0	99.1	0.9		0	0	0		
PHF	.500	.914	.000	.919	.806	.250	.250	.789	.000	.954	.583	.948	.000	.000	.000	.000	.955
Cars	2	326	0	328	57	1	1	59	0	730	7	737	0	0	0	0	1124
% Cars	100	99.1	0	99.1	98.3	100	100	98.3	0	98.6	100	98.7	0	0	0	0	98.8
Trucks	0	3	0	3	1	0	0	**1**	0	10	0	10	0	0	0	0	14
% Trucks	0	0.9	0	0.9	1.7	0	0	1.7	0	1.4	0	1.3	0	0	0	0	1.2



N/S: King Street (Route 110)
E/W: Meetinghouse Road/Driveway
City, State: Littleton, MA
Client: Conley Associates/L. Grant

PRECISION
D A T A
INDUSTRIES, LLC
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File Name : 50114EF
Site Code : 00000000
Start Date : 2/15/20
Page No : 1

Groups Printed- Cars - Trucks

	King Street (Route 110) From North			Meetinghouse Road From East			King Street (Route 110) From South			Driveway From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	0	151	0	25	0	0	0	71	0	0	0	0	247
04:15 PM	0	167	0	23	1	0	0	87	0	0	0	0	278
04:30 PM	0	156	0	23	0	1	0	76	0	2	0	0	258
04:45 PM	0	156	0	26	0	1	0	97	0	1	0	0	281
Total	0	630	0	97	1	2	0	331	0	3	0	0	1064
05:00 PM	1	212	0	26	0	3	0	100	0	2	0	0	344
05:15 PM	0	211	0	24	0	0	0	97	0	0	0	0	332
05:30 PM	0	164	0	27	0	1	0	130	0	0	0	0	322
05:45 PM	0	171	0	15	0	0	0	84	0	0	0	0	270
Total	1	758	0	92	0	4	0	411	0	2	0	0	1268
Grand Total	1	1388	0	189	1	6	0	742	0	5	0	0	2332
Apprch %	0.1	99.9	0	96.4	0.5	3.1	0	100	0	100	0	0	
Total %	0	59.5	0	8.1	0	0.3	0	31.8	0	0.2	0	0	
Cars	1	1381	0	187	1	6	0	738	0	5	0	0	2319
% Cars	100	99.5	0	98.9	100	100	0	99.5	0	100	0	0	99.4
Trucks	0	7	0	2	0	0	0	4	0	0	0	0	13
% Trucks	0	0.5	0	1.1	0	0	0	0.5	0	0	0	0	0.6

	King Street (Route 110) From North				Meetinghouse Road From East				King Street (Route 110) From South				Driveway From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	156	0	156	26	0	1	27	0	97	0	97	1	0	0	1	281
05:00 PM	1	**212**	0	**213**	26	0	3	**29**	0	100	0	100	**2**	0	0	**2**	**344**
05:15 PM	0	211	0	211	24	0	0	24	0	97	0	97	0	0	0	0	332
05:30 PM	0	164	0	164	27	0	1	28	0	**130**	0	**130**	0	0	0	0	322
Total Volume	1	743	0	744	103	0	5	108	0	424	0	424	3	0	0	3	1279
% App. Total	0.1	99.9	0		95.4	0	4.6		0	100	0		100	0	0		
PHF	.250	.876	.000	.873	.954	.000	.417	.931	.000	.815	.000	.815	.375	.000	.000	.375	.930

N/S: King Street (Route 110)
E/W: Meetinghouse Road/Driveway
City, State: Littleton, MA
Client: Conley Associates/L. Grant

PRECISION
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File Name : 50114EB
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

Groups Printed- Cars

Start Time	King Street (Route 110) From North Right	Thru	Left	Meetinghouse Road From East Right	Thru	Left	King Street (Route 110) From South Right	Thru	Left	Driveway From West Right	Thru	Left	Int. Total
04:00 PM	0	149	0	24	0	0	0	70	0	0	0	0	243
04:15 PM	0	168	0	23	1	0	0	86	0	0	0	0	278
04:30 PM	0	153	0	23	0	1	0	76	0	2	0	0	255
04:45 PM	0	155	0	26	0	1	0	97	0	1	0	0	280
Total	0	623	0	96	1	2	0	329	0	3	0	0	1054
05:00 PM	1	212	0	26	0	3	0	100	0	2	0	0	344
05:15 PM	0	211	0	24	0	0	0	96	0	0	0	0	331
05:30 PM	0	164	0	26	0	1	0	129	0	0	0	0	320
05:45 PM	0	171	0	15	0	0	0	84	0	0	0	0	270
Total	1	758	0	91	0	4	0	409	0	2	0	0	1265
Grand Total	1	1381	0	187	1	6	0	738	0	5	0	0	2319
Apprch %	0.1	99.9	0	96.4	0.5	3.1	0	100	0	100	0	0	
Total %	0	59.6	0	8.1	0	0.3	0	31.8	0	0.2	0	0	

Start Time	King Street (Route 110) From North Right	Thru	Left	App. Total	Meetinghouse Road From East Right	Thru	Left	App. Total	King Street (Route 110) From South Right	Thru	Left	App. Total	Driveway From West Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	155	0	155	26	0	1	27	0	97	0	97	1	0	0	1	280
05:00 PM	1	212	0	213	26	0	3	29	0	100	0	100	2	0	0	2	344
05:15 PM	0	211	0	211	24	0	0	24	0	96	0	96	0	0	0	0	331
05:30 PM	0	164	0	164	26	0	1	27	0	129	0	129	0	0	0	0	320
Total Volume	1	742	0	743	102	0	5	107	0	422	0	422	3	0	0	3	1275
% App. Total	0.1	99.9	0		95.3	0	4.7		0	100	0		100	0	0		
PHF	.250	.875	.000	.872	.981	.000	.417	.922	.000	.818	.000	.818	.375	.000	.000	.375	.927

N/S: King Street (Route 110)
E/W: Meetinghouse Road/Driveway
City, State: Littleton, MA
Client: Coniey Associates/L. Grant

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File Name : 50114E
Site Code : 0000000
Start Date : 2/15/20
Page No : 1

Groups Printed- Trucks

Start Time	King Street (Route 110) From North			Meetinghouse Road From East			King Street (Route 110) From South			Driveway From West			Int. Tot
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	2	0	1	0	0	0	1	0	0	0	0	
04:15 PM	0	1	0	0	0	0	0	1	0	0	0	0	
04:30 PM	0	3	0	0	0	0	0	0	0	0	0	0	
04:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	
Total	0	7	0	1	0	0	0	2	0	0	0	0	10
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
05:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	
05:30 PM	0	0	0	1	0	0	0	1	0	0	0	0	
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	1	0	0	0	2	0	0	0	0	3
Grand Total	0	7	0	2	0	0	0	4	0	0	0	0	13
Apprch %	0	100	0	100	0	0	0	100	0	0	0	0	
Total %	0	53.8	0	15.4	0	0	0	30.8	0	0	0	0	

Start Time	King Street (Route 110) From North				Meetinghouse Road From East				King Street (Route 110) From South				Driveway From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	2	0	2	1	0	0	1	0	1	0	1	0	0	0	0	4
04:15 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
04:30 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
04:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	7	0	7	1	0	0	1	0	2	0	2	0	0	0	0	10
% App. Total	0	100	0		100	0	0		0	100	0		0	0	0		
PHF	.000	.583	.000	.583	.250	.000	.000	.250	.000	.500	.000	.500	.000	.000	.000	.000	.625

N/S: King Street (Route 110)
E/W: Meetinghouse Road/Driveway
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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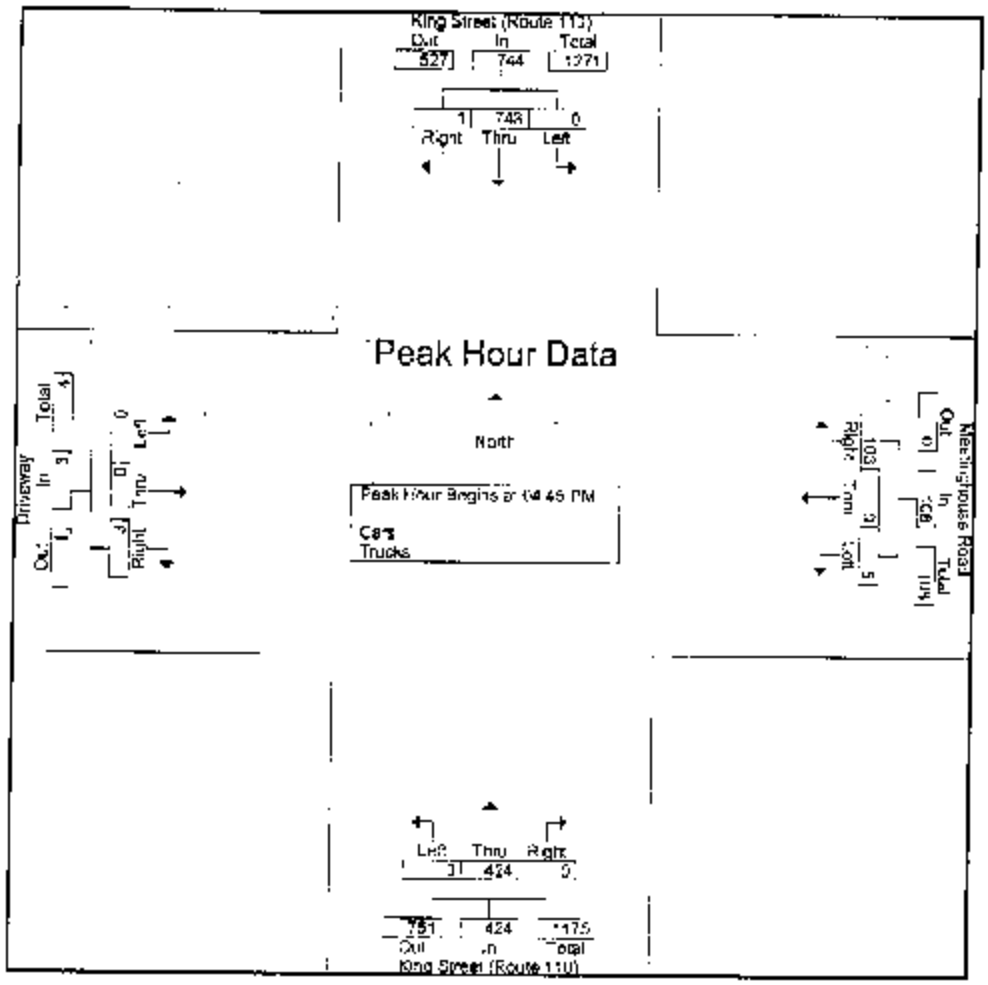
File Name : 50114EE
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

	King Street (Route 110) From North				Meetinghouse Road From East				King Street (Route 110) From South				Driveway From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:10 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	156	0	156	26	0	1	27	0	97	0	97	1	0	0	1	281
05:00 PM	1	212	0	213	25	0	3	28	0	100	0	100	2	0	0	2	344
05:15 PM	0	211	0	211	24	0	0	24	0	97	0	97	0	0	0	0	332
05:30 PM	0	164	0	164	27	0	1	28	0	130	0	130	0	0	0	0	322
Total Volume	1	743	0	744	103	0	5	108	0	424	0	424	3	0	0	3	1279
% App. Total	0.1	99.9	0		95.4	0	4.6		0	100	0		100	0	0		
PHF	.250	.876	.000	.873	.954	.000	.417	.901	.000	.815	.000	.815	.375	.000	.000	.375	.930



N/S: King Street (Route 110)
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Corley Associates/L. Grant

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File Name : 50114L
Site Code : 000000
Start Date : 2/15/2
Page No : 1

Groups Printed- Cars - Trucks

Start Time	King Street (Route 110) From North			Great Road (Route 2A/119) From East			King Street (Route 2A/110) From South			Great Road (Route 119) From West			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. To
07:00 AM	26	28	9	0	44	31	0	53	42	27	109	45	41
07:15 AM	17	28	4	1	41	28	0	76	29	22	108	44	39
07:30 AM	35	35	17	0	52	16	0	85	29	29	124	55	47
07:45 AM	98	40	8	2	53	22	0	105	51	24	129	79	54
Total	176	131	32	3	190	95	0	321	151	102	470	223	182
08:00 AM	28	32	18	3	58	25	0	95	26	15	143	90	53
08:15 AM	33	39	18	2	53	18	0	101	31	26	109	65	48
08:30 AM	29	48	21	4	76	33	1	97	27	29	116	81	56
08:45 AM	24	21	20	0	57	22	0	93	29	29	99	63	45
Total	114	140	77	9	244	98	1	386	113	99	467	299	204
Grand Total	226	271	109	12	434	193	1	707	264	201	937	522	3876
Approch %	37.2	44.6	18	1.9	67.9	30.2	0.1	72.7	27.2	12.1	56.4	31.4	
Total %	5.8	7	2.8	0.3	11.2	5	0	18.2	6.8	5.2	24.2	13.5	
Cars	222	265	109	11	419	184	1	695	258	199	925	514	3802
% Cars	98.7	98.2	100	91.7	96.5	95.3	100	98.3	97.7	98.5	98.7	98.5	98.1
Trucks	3	5	0	1	15	9	0	12	6	3	12	8	74
% Trucks	1.3	1.8	0	8.3	3.5	4.7	0	1.7	2.3	1.5	1.3	1.5	1.9

Start Time	King Street (Route 110) From North				Great Road (Route 2A/119) From East				King Street (Route 2A/110) From South				Great Road (Route 119) From West				
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	33	40	8	81	2	53	22	77	0	105	51	156	24	129	79	232	546
08:00 AM	28	32	18	78	3	58	25	86	0	95	26	121	15	143	90	248	533
08:15 AM	33	39	18	90	2	53	18	73	0	101	31	132	26	109	65	200	495
08:30 AM	29	48	21	98	4	76	33	113	1	97	27	125	29	116	81	226	562
Total Volume	123	159	65	347	11	240	98	349	1	398	135	534	94	497	315	906	2136
% App. Total	35.4	45.8	18.7		3.2	68.8	28.1		0.2	74.5	25.3		10.4	54.9	34.8		
PHF	.932	.828	.774	.885	.688	.789	.742	.772	.250	.948	.662	.856	.810	.869	.875	.913	.950

N/S: King Street (Route 110)
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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File Name : 50114D
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

Groups Printed- Cars

	King Street (Route 110) From North			Great Road (Route 2A/119) From East			King Street (Route 2A/110) From South			Great Road (Route 119) From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	26	28	9	0	43	31	0	53	40	26	109	45	410
07:15 AM	17	27	4	1	38	26	0	76	29	22	106	42	388
07:30 AM	34	34	11	0	51	15	0	83	29	29	123	54	463
07:45 AM	33	40	8	2	51	21	0	104	49	24	128	76	535
Total	110	129	32	3	183	93	0	316	147	101	466	216	1796
08:00 AM	27	31	18	3	57	23	0	94	26	14	142	69	524
08:15 AM	33	37	18	1	49	15	0	99	30	26	106	65	479
08:30 AM	29	48	21	4	74	31	1	96	26	28	114	61	553
08:45 AM	23	21	20	0	56	22	0	90	29	29	97	53	460
Total	112	137	77	8	236	91	1	379	111	97	459	298	2006
Grand Total	222	266	109	11	419	184	1	695	258	198	925	514	3802
Apprch %	37.2	44.6	18.3	1.8	68.2	30	0.1	72.9	27	12.1	56.6	31.4	
Total %	5.8	7	2.9	0.3	11	4.8	0	18.3	6.8	5.2	24.3	13.5	

	King Street (Route 110) From North				Great Road (Route 2A/119) From East				King Street (Route 2A/110) From South				Great Road (Route 119) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	33	40	8	81	2	51	21	74	0	104	49	153	24	128	75	227	535
08:00 AM	27	31	18	76	3	57	23	83	0	94	26	120	14	142	89	245	524
08:15 AM	33	37	18	88	1	49	15	65	0	99	30	129	26	106	65	197	479
08:30 AM	29	48	21	98	4	74	31	109	1	96	26	123	28	114	81	223	553
Total Volume	122	156	65	343	10	231	90	331	1	393	131	525	92	490	310	892	2091
% App. Total	35.6	45.5	19		3	69.8	27.2		0.2	74.9	25		10.3	54.5	34.8		
PHF	.924	.813	.774	.875	.625	.780	.726	.759	.250	.945	.668	.858	.821	.863	.671	.910	.945

N/S: King Street (Route 110)
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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File Name : 50114D
Site Code : 0000000
Start Date : 2/15/200
Page No : 1

Groups Printed- Trucks

Start Time	King Street (Route 110) From North			Great Road (Route 2A/119) From East			King Street (Route 2A/110) From South			Great Road (Route 119) From West			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	0	0	0	0	1	0	0	0	2	1	0	0	4
07:15 AM	0	1	0	0	3	0	0	2	0	0	2	2	10
07:30 AM	1	1	0	0	1	1	0	2	0	0	1	1	8
07:45 AM	0	0	0	0	2	1	0	1	2	0	1	4	11
Total	1	2	0	0	7	2	0	5	4	1	4	7	33
08:00 AM	1	1	0	0	1	2	0	1	0	1	1	1	9
08:15 AM	0	2	0	1	4	3	0	2	1	0	3	0	16
08:30 AM	0	0	0	0	2	2	0	1	1	1	2	0	9
08:45 AM	1	0	0	0	1	0	0	3	0	0	2	0	7
Total	2	3	0	1	8	7	0	7	2	2	8	1	41
Grand Total	3	5	0	1	15	9	0	12	6	3	12	8	74
Approch %	37.5	62.5	0	4	60	36	0	66.7	33.3	13	52.2	34.8	
Total. %	4.1	6.8	0	1.4	20.3	12.2	0	16.2	8.1	4.1	16.2	10.8	

Start Time	King Street (Route 110) From North				Great Road (Route 2A/119) From East				King Street (Route 2A/110) From South				Great Road (Route 119) From West				
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	2	1	3	0	1	2	3	0	1	4	5	11
08:00 AM	1	1	0	2	0	1	2	3	0	0	1	1	1	1	1	3	9
08:15 AM	0	2	0	2	1	4	3	8	0	2	1	3	0	3	0	3	16
08:30 AM	0	0	0	0	0	2	2	4	0	1	1	2	1	2	0	3	9
Total Volume	1	3	0	4	1	9	8	18	0	4	5	9	2	7	5	14	45
% App. Total	25	75	0		5.6	50	44.4		0	44.4	55.6		14.3	50	35.7		
PHF	.250	.375	.000	.500	.250	.563	.667	.563	.000	.500	.625	.750	.500	.583	.313	.700	.703

N/S: King Street (Route 110)
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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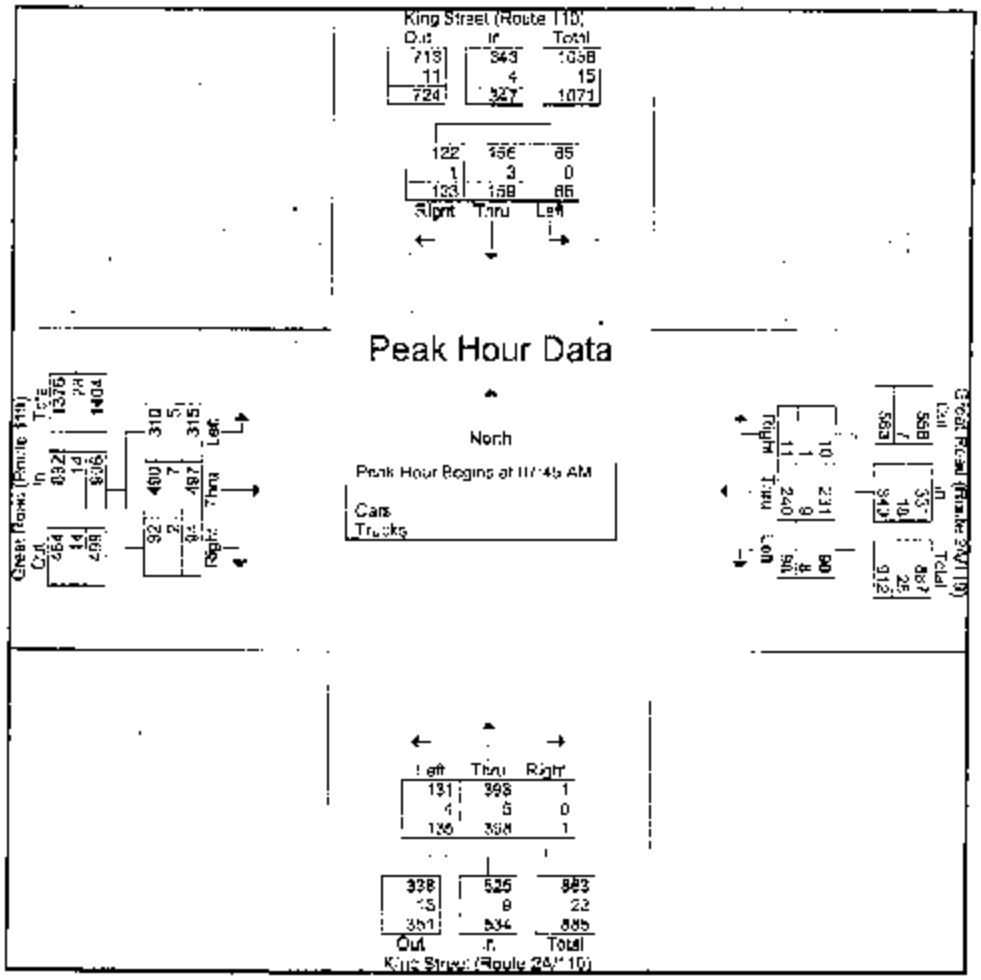
File Name : 50114D
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

	King Street (Route 110) From North				Great Road (Route 2A/119) From East				King Street (Route 2A/110) From South				Great Road (Route 119) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	33	40	8	81	2	53	22	77	0	105	51	156	24	129	79	232	546
08:00 AM	28	32	18	78	3	58	25	86	0	95	26	121	15	143	90	248	533
08:15 AM	33	39	18	90	2	53	18	73	0	101	31	132	26	109	65	200	495
08:30 AM	29	48	21	98	4	76	33	113	1	97	27	125	29	116	81	226	562
Total Volume	123	159	65	347	11	240	98	349	1	398	135	534	94	497	315	906	2136
% App. Total	35.4	45.8	18.7		3.2	68.8	28.1		0.2	74.5	25.3		10.4	54.9	34.8		
PHF	.932	.828	.774	.885	.688	.789	.742	.772	.250	.948	.662	.856	.810	.869	.875	.913	.950
Cars	122	156	65	343	10	231	90	331	1	393	131	525	92	490	310	892	2091
% Cars	99.2	98.1	100	98.8	90.9	96.3	91.8	94.8	100	98.7	97.0	98.3	97.9	98.6	98.4	99.5	97.9
Trucks	1	3	0	4	1	9	8	18	0	5	4	9	2	7	5	14	45
% Trucks	0.8	1.9	0	1.2	9.1	3.8	8.2	5.2	0	1.3	3.0	1.7	2.1	1.4	1.6	1.5	2.1



N/S: King Street (Route 110)
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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File Name : 5011-1D
Site Code : 0000000
Start Date : 2/15/20
Page No : 1

Groups Printed- Cars - Trucks

	King Street (Route 110) From North			Great Road (Route 2A/119) From East			King Street (Route 2A/110) From South			Great Road (Route 119) From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Tot
04:00 PM	38	62	28	1	140	49	0	43	14	14	47	21	45
04:15 PM	43	65	34	1	101	56	0	56	14	8	52	24	50
04:30 PM	52	61	30	0	122	59	2	52	23	21	57	18	49
04:45 PM	66	67	27	1	136	75	1	73	25	22	69	27	59
Total	199	255	119	3	561	241	3	226	76	65	225	90	205
05:00 PM	82	84	25	2	127	63	2	73	27	21	60	25	59
05:15 PM	82	88	34	2	137	61	0	74	16	30	69	25	61
05:30 PM	64	69	16	2	116	62	0	79	18	26	68	35	55
05:45 PM	58	76	19	0	135	99	1	51	9	20	68	30	49
Total	286	317	94	6	507	225	3	277	70	97	263	115	226
Grand Total	485	573	213	9	1068	466	6	503	146	162	488	205	431
Apprch %	38.2	45.1	16.8	0.6	69	30.4	0.9	76.8	22.3	18.9	57.1	24	
Total %	11.2	13.3	4.9	0.2	24.5	10.8	0.1	11.7	3.4	3.8	11.3	4.8	
Cars	480	571	213	9	1049	465	6	500	145	160	483	204	4285
% Cars	99	99.7	100	100	99.1	99.8	100	99.4	99.3	98.8	99	99.5	99.3
Trucks	5	2	0	0	9	1	0	3	1	2	5	1	29
% Trucks	1	0.3	0	0	0.9	0.2	0	0.6	0.7	1.2	1	0.5	0.7

	King Street (Route 110) From North				Great Road (Route 2A/119) From East				King Street (Route 2A/110) From South				Great Road (Route 119) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	66	67	27	160	1	136	75	214	1	73	25	99	22	69	27	118	591
05:00 PM	82	84	25	191	2	127	63	192	2	73	27	102	21	60	25	106	591
05:15 PM	82	88	34	204	2	137	61	200	0	74	16	90	30	69	25	124	618
05:30 PM	64	69	16	145	2	116	62	182	0	79	18	97	26	68	35	129	557
Total Volume	294	308	102	704	7	520	261	788	3	299	86	388	99	266	112	477	2357
% App. Total	41.8	43.8	14.5		0.9	66	33.1		0.8	77.1	22.2		20.8	55.8	23.5		
PHF	.896	.875	.750	.863	.875	.942	.870	.921	.375	.946	.796	.961	.825	.964	.800	.924	.953

PRECISION
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N/S: King Street (Route 110)
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Conley Associates/L. Grant

File Name : 50114DE
Site Code : 00000000
Start Date : 2/15/20
Page No : 1

Groups Printed- Cars

	King Street (Route 110) From North			Great Road (Route 2A/119) From East			King Street (Route 2A/110) From South			Great Road (Route 119) From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	37	61	28	1	138	49	0	42	13	14	46	21	450
04:15 PM	42	66	34	1	149	58	0	57	14	8	52	24	505
04:30 PM	51	60	30	0	121	59	2	52	23	21	57	18	494
04:45 PM	64	67	27	1	137	75	1	73	25	22	66	27	587
Total	194	254	119	3	545	241	3	224	75	65	222	90	2036
05:00 PM	82	84	25	2	127	62	2	73	27	21	59	25	589
05:15 PM	82	88	34	2	136	61	0	74	16	29	68	24	614
05:30 PM	64	69	16	2	116	62	0	78	18	26	67	35	553
05:45 PM	55	76	19	0	125	39	1	51	9	19	66	30	493
Total	286	317	94	6	504	224	3	276	70	95	260	114	2249
Grand Total	480	571	213	9	1049	465	6	500	145	160	482	204	4285
Apprch %	38	45.2	16.9	0.6	68.8	30.5	0.9	76.8	22.3	18.9	57	24.1	
Total %	11.2	13.3	5	0.2	24.5	10.9	0.1	11.7	3.4	3.7	11.3	4.8	

	King Street (Route 110) From North				Great Road (Route 2A/119) From East				King Street (Route 2A/110) From South				Great Road (Route 119) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	64	67	27	158	1	137	**75**	**213**	1	73	25	99	22	**66**	27	117	587
05:00 PM	**82**	84	25	191	**2**	127	62	191	**2**	73	**27**	**102**	21	56	25	105	589
05:15 PM	82	**88**	**34**	**204**	2	136	61	199	0	74	16	90	**29**	68	24	121	**614**
05:30 PM	64	69	16	149	2	116	62	180	0	**78**	18	96	26	67	**35**	**128**	553
Total Volume	292	308	102	702	7	516	260	783	3	298	86	387	98	262	111	471	2343
% App. Total	41.6	43.9	14.5		0.9	65.9	33.2		0.8	77	22.2		20.8	55.6	23.6		
PHF	.890	.875	.750	.860	.875	.942	.867	.919	.375	.955	.796	.949	.845	.963	.793	.920	.954

N/S: King Street (Route 110)
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Corley Associates/L. Grant

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File Name : 50114DL
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

Groups Printed- Trucks

Start Time	King Street (Route 110) From North: Right	Thru	Left	Great Road (Route 2A/119) From East: Right	Thru	Left	King Street (Route 2A/110) From South: Right	Thru	Left	Great Road (Route 110) From West: Right	Thru	Left	Int. Total
04:00 PM	1	1	0	0	2	0	0	1	1	0	1	0	7
04:15 PM	1	0	0	0	2	0	0	1	0	0	0	0	4
04:30 PM	1	1	0	0	1	0	0	0	0	0	0	0	3
04:45 PM	2	0	0	0	1	0	0	0	0	0	1	0	4
Total	5	2	0	0	6	0	0	2	1	0	2	0	18
05:00 PM	0	0	0	0	0	1	0	0	0	0	1	0	2
05:15 PM	0	0	0	0	1	0	0	0	0	1	1	1	4
05:30 PM	0	0	0	0	2	0	0	1	0	0	1	0	4
05:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
Total	0	0	0	0	3	1	0	1	0	2	3	1	11
Grand Total	5	2	0	0	9	1	0	3	1	2	5	1	29
Apprch %	71.4	28.6	0	0	90	10	0	75	25	25	62.5	12.5	
Total %	17.2	6.9	0	0	31	3.4	0	10.3	3.4	6.9	17.2	3.4	

Start Time	King Street (Route 110) From North: Right	Thru	Left	App. Total	Great Road (Route 2A/119) From East: Right	Thru	Left	App. Total	King Street (Route 2A/110) From South: Right	Thru	Left	App. Total	Great Road (Route 110) From West: Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	1	0	**2**	0	**2**	0	**2**	0	1	**1**	**2**	0	1	0	1	7
04:15 PM	1	0	0	1	0	2	0	2	0	1	0	1	0	0	0	0	4
04:30 PM	1	1	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
04:45 PM	2	0	0	2	0	1	0	1	0	0	0	0	0	1	0	1	4
Total Volume	5	2	0	7	0	5	0	5	0	2	1	3	0	2	0	2	18
% App. Total	71.4	28.6	0		0	100	0		0	66.7	33.3		0	100	0		
PHF	.625	.500	.000	.875	.000	.750	.000	.750	.000	.500	.250	.375	.000	.500	.000	.500	.643

N/S: King Street (Route 110)
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Cotley Associates/L. Grant

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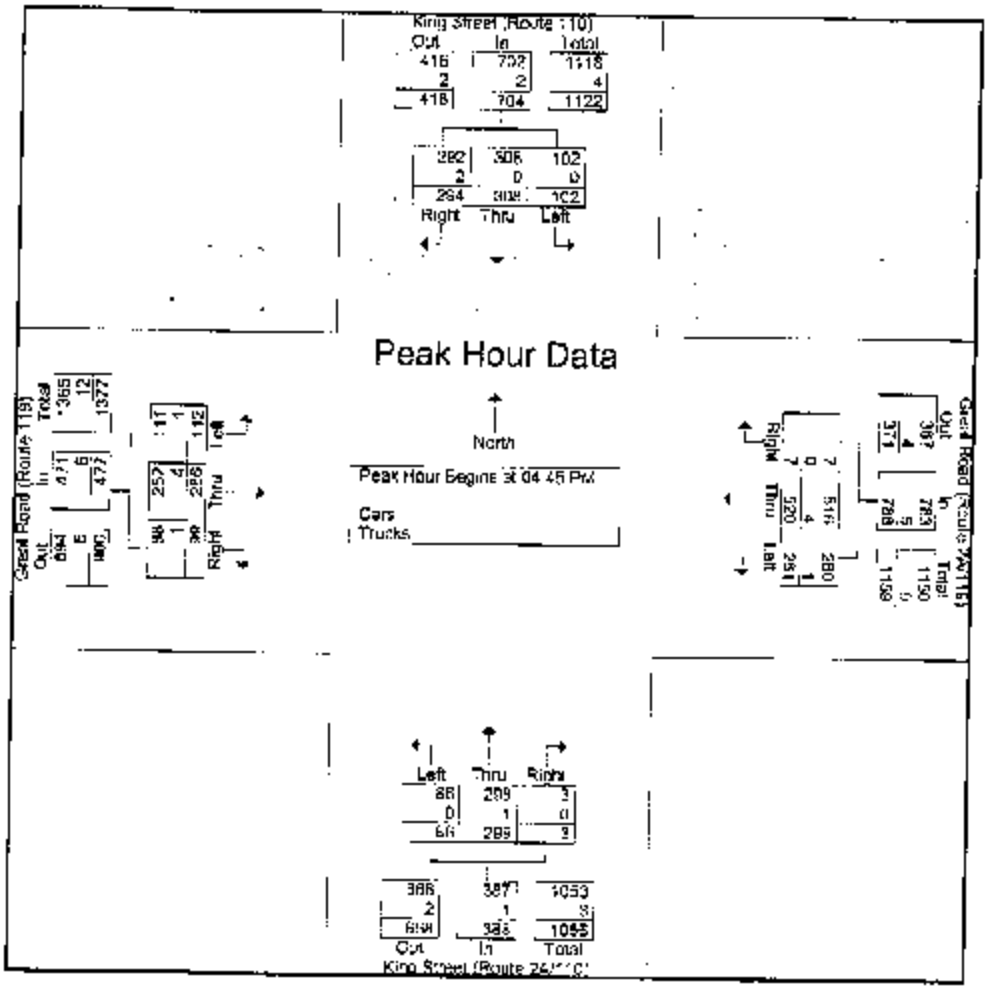
File Name : 50114DD
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

	King Street (Route 110) From North				Great Road (Route 2A/119) From East				King Street (Route 2A/119) From South				Great Road (Route119) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	Apr. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	68	67	27	160	1	138	75	214	1	73	25	99	22	69	27	118	591
05:00 PM	82	84	25	191	2	127	63	192	2	73	27	102	21	50	25	106	591
05:15 PM	82	58	34	204	2	137	61	200	0	74	16	90	30	69	25	124	618
05:30 PM	64	89	16	149	2	118	52	162	0	79	18	97	26	68	35	129	557
Total Volume	294	308	102	704	7	520	261	788	3	299	86	388	99	266	112	477	2357
% App. Total	41.8	43.8	14.5		0.9	66	33.1		0.8	77.1	22.2		20.8	55.8	23.5		
PHF	.896	.875	.750	.863	.875	.942	.870	.921	.375	.946	.796	.951	.825	.964	.800	.924	.953
Cars	292	308	102	702	7	516	260	783	3	298	86	387	98	262	111	471	2343
% Cars	99.3	100	100	99.7	100	99.2	99.6	99.4	100	99.7	100	99.7	99.0	98.5	99.1	98.7	99.4
Trucks	2	0	0	2	0	4	1	5	0	1	0	1	1	4	1	6	14
% Trucks	0.7	0	0	0.3	0	0.8	0.4	0.6	0	0.3	0	0.3	1.0	1.5	0.9	1.3	0.6



N/S: Meetinghouse Road/Stevens Way
E/W/NE: Great Road/Adams Street
City, State: Littleton, MA
Client: Conley Associates/L. Graul

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File Name : 50114C
Site Code : 0000000
Start Date : 2/15/2
Page No : 1

Groups Printed- Cars - Trucks

Start Time	Meetinghouse Road From North				Great Road (Route 2A/119) From East				Adams Street From Southeast				Stevens Way From South				Great Road (Route 2A/119) From West				
	Right	Thru	[illegible]	Left	Right	Thru	Left	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Right	Thru	Left	Right	[illegible]	Thru	Left	Int. Total
07:00 AM	0	0	0	0	7	67	0	0	1	0	0	0	0	59	1	2	0	0	114	0	251
07:15 AM	0	0	0	0	10	55	0	1	2	2	1	0	2	60	1	3	0	1	114	0	262
07:30 AM	0	0	0	0	12	70	0	0	3	1	1	0	2	65	1	0	0	0	135	0	290
07:45 AM	0	0	0	0	11	81	0	2	2	1	2	0	2	76	1	0	0	0	137	0	315
Total	0	0	0	0	40	283	0	3	8	4	4	0	6	260	4	5	0	1	500	0	1118
08:00 AM	0	0	0	0	14	80	0	1	6	2	0	0	1	71	3	1	0	1	150	0	330
08:15 AM	0	0	0	0	16	70	0	2	3	2	0	0	0	77	3	1	0	1	124	0	299
08:30 AM	0	0	0	0	12	107	0	1	5	1	2	0	5	89	1	3	0	0	136	1	363
08:45 AM	0	0	0	0	25	80	0	2	4	1	0	0	1	64	1	1	0	1	115	0	295
Total	0	0	0	0	67	337	0	6	18	6	2	0	7	301	8	6	0	3	525	1	1287
Grand Total	0	0	0	0	107	620	0	9	26	10	6	0	13	561	12	11	0	4	1025	1	2405
Apprch %	0	0	0	0	14.5	84.2	0	1.2	61.9	23.8	14.3	0	2.2	94	2	1.8	0	0.4	99.5	0.1	
Total %	0	0	0	0	4.4	25.8	0	0.4	1.1	0.4	0.2	0	0.5	23.3	0.5	0.5	0	0.2	42.6	0	
Cars	0	0	0	0	104	599	0	9	26	10	6	0	13	553	12	10	0	3	1014	1	2960
% Cars	0	0	0	0	97.2	96.6	0	100	100	100	100	0	100	98.6	100	90.9	0	75	98.9	100	98.1
Trucks	0	0	0	0	3	21	0	0	0	0	0	0	0	8	0	1	0	1	11	0	45
% Trucks	0	0	0	0	2.8	3.4	0	0	0	0	0	0	0	1.4	0	9.1	0	25	1.1	0	1.9

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45 AM

Start Time	Meetinghouse Road From North					Great Road (Route 2A/119) From East					Adams Street From Southeast					Stevens Way From South					Great Road (Route 2A/119) From West				
	Right	Thru	[illegible]	Left	[illegible]	Right	Thru	Left	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Right	Thru	Left	[illegible]	Right	[illegible]	Thru	Left	[illegible]	[illegible]
07:45 AM	0	0	0	0	0	11	81	0	2	94	2	1	2	0	5	2	76	1	0	79	0	0	137	0	137	315
08:00 AM	0	0	0	0	0	14	80	0	1	95	6	2	0	0	8	1	71	3	1	76	0	1	150	0	151	330
08:15 AM	0	0	0	0	0	16	70	0	2	88	3	2	0	0	5	0	77	3	1	81	0	1	124	0	125	299
08:30 AM	0	0	0	0	0	12	107	0	1	120	5	1	2	0	8	5	89	1	3	98	0	0	136	1	137	363
Total Volume	0	0	0	0	0	53	338	0	6	397	16	6	4	0	26	8	313	8	5	334	0	2	547	1	550	1307
% App. Total	0	0	0	0		13.4	85.1	0	1.5		61.5	23.1	15.4	0		2.4	93.7	2.4	1.5		0	0.4	99.5	0.2		
PHF	.000	.000	.000	.000	.000	.828	.790	.000	.750	.827	.667	.750	.500	.000	.813	.400	.879	.667	.417	.852	.000	.500	.912	.250	.911	.900

N/S: Meetinghouse Road/Stevens Way
E/W/NE: Great Road/Adams Street
City, State: Littleton, MA
Client: Cooley Associates/L. Grant

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File Name : 50114C
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

Groups Printed- Cars

Start Time	Meetinghouse Road From North				Great Road (Route 2A/119) From East				Adams Street From Southeast				Stevens Way From South				Great Road (Route 2A/119) From West				Int. Total
	Right	Thru		Left	Right	Thru	Left														
07:30 AM	0	0	0	0	7	66	0	0	1	0	0	0	0	58	1	2	0	0	114	0	249
07:15 AM	0	0	0	0	10	63	0	1	2	2	1	0	2	59	1	3	0	0	114	0	258
07:30 AM	0	0	0	0	11	68	0	0	3	1	1	0	2	84	1	0	0	0	134	0	285
07:45 AM	0	0	0	0	11	78	0	2	2	1	2	0	2	75	1	0	0	0	136	0	310
Total	0	0	0	0	39	275	0	3	8	4	4	0	6	256	4	5	0	0	498	0	1102
08:00 AM	0	0	0	0	13	78	0	1	6	2	0	0	1	70	3	1	0	1	149	0	325
08:15 AM	0	0	0	0	16	63	0	2	3	2	0	0	0	78	3	1	0	1	121	0	288
08:30 AM	0	0	0	0	11	104	0	1	5	1	2	0	5	87	1	2	0	0	134	1	354
08:45 AM	0	0	0	0	25	79	0	2	4	1	0	0	1	64	1	1	0	1	112	0	291
Total	0	0	0	0	65	324	0	6	18	6	2	0	7	297	8	5	0	3	516	1	1258
Grand Total	0	0	0	0	104	599	0	9	26	10	6	0	13	553	12	10	0	3	1014	1	2360
Approch %	0	0	0	0	14.6	84.1	0	1.3	61.9	23.8	14.3	0	2.2	94	2	1.7	0	0.3	99.6	0.1	
Total %	0	0	0	0	4.4	25.4	0	0.4	1.1	0.4	0.3	0	0.6	23.4	0.5	0.4	0	0.1	43	0	

Start Time	Meetinghouse Road From North					Great Road (Route 2A/119) From East					Adams Street From Southeast					Stevens Way From South					Great Road (Route 2A/119) From West					Int. Total
	Right	Thru		Left		Right	Thru	Left									Right	Thru	Left							
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:45 AM																										
07:45 AM	0	0	0	0	0	11	78	0	2	91	2	1	2	0	5	2	75	1	0	78	0	0	136	0	136	310
08:00 AM	0	0	0	0	0	13	78	0	1	92	6	2	0	0	8	1	70	3	1	75	0	1	149	0	150	325
08:15 AM	0	0	0	0	0	16	63	0	2	81	3	2	0	0	5	0	78	3	1	80	0	1	121	0	122	288
08:30 AM	0	0	0	0	0	11	104	0	1	116	5	1	2	0	8	5	87	1	2	95	0	0	134	1	135	354
Total Volume	0	0	0	0	0	51	323	0	6	380	16	6	4	0	26	8	308	8	4	328	0	2	540	1	543	1277
% App. Total	0	0	0	0		13.4	85	0	1.6		61.5	23.1	15.4	0		2.4	93.9	2.4	1.2		0	0.4	99.4	0.2		
PHF	.000	.000	.000	.000	.000	.797	.778	.000	.750	.819	.667	.750	.500	.000	.813	.400	.885	.667	.500	.863	.000	.500	.906	.250	.905	.902

N/S: Meetinghouse Road/Stevens Way
E/W/NE: Great Road/Adams Street
City, State: Littleton, MA
Client: Conley Associates/L. Grant

PRECISION DATA INDUSTRIES, LLC
PO Box 301 Berlin, MA 01503
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Fax: 508.481.0010 Email: info@pdilic.com

File Name : 50114C
Site Code : 00000000
Start Date : 2/15/20
Page No : 1

Groups Printed- Trucks

Start Time	Meetinghouse Road From North				Great Road (Route 2A/119) From East				Adams Street From Southeast				Stevens Way From South			Great Road (Route 2A/119) From West				
	Right	Thru		Left	Right	Thru	Left						Right	Thru	Left	Right		Thru	Left	
07:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	4
07:30 AM	0	0	0	0	1	2	0	0	0	0	0	0	0	1	0	0	0	0	0	5
07:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	1	5
Total	0	0	0	0	1	6	0	0	0	0	0	0	0	4	0	0	0	1	0	16
08:00 AM	0	0	0	0	1	2	0	0	0	0	0	0	0	1	0	0	0	1	0	5
08:15 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	1	0	0	0	3	0	11
08:30 AM	0	0	0	0	1	3	0	0	0	0	0	0	0	2	0	1	0	2	0	9
08:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	4
Total	0	0	0	0	2	13	0	0	0	0	0	0	0	4	0	1	0	9	0	29
Grand Total	0	0	0	0	3	21	0	0	0	0	0	0	0	8	0	1	0	11	0	45
Approch %	0	0	0	0	12.5	87.5	0	0	0	0	0	0	0	88.9	0	11.1	0	8.3	91.7	0
Total %	0	0	0	0	6.7	46.7	0	0	0	0	0	0	0	17.8	0	2.2	0	2.2	24.4	0

Start Time	Meetinghouse Road From North				Great Road (Route 2A/119) From East				Adams Street From Southeast				Stevens Way From South				Great Road (Route 2A/119) From West				
	Right	Thru		Left	Right	Thru	Left						Right	Thru	Left		Right		Thru	Left	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	3	0	0	3	0	0	0	0	0	1	0	0	1	0	0	1	5
08:00 AM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	0	1	5
08:15 AM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	1	0	0	1	0	3	11
08:30 AM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	2	0	1	3	0	2	9
Total Volume	0	0	0	0	0	2	15	0	0	17	0	0	0	0	0	0	5	0	1	6	0	7	30
% App. Total	0	0	0	0		11.8	88.2	0	0		0	0	0	0		0	83.3	0	16.7		0	100	0
PHF	.000	.000	.000	.000	.000	.500	.536	.000	.000	.607	.000	.000	.000	.000	.000	.000	.625	.000	.250	.500	.000	.583	.682

N/S: Meetinghouse Road/Stevens Way
E/W/NE: Great Road/Adams Street
City, State: Littleton, MA
Client: Conley Associates/L. Grant

PRECISION
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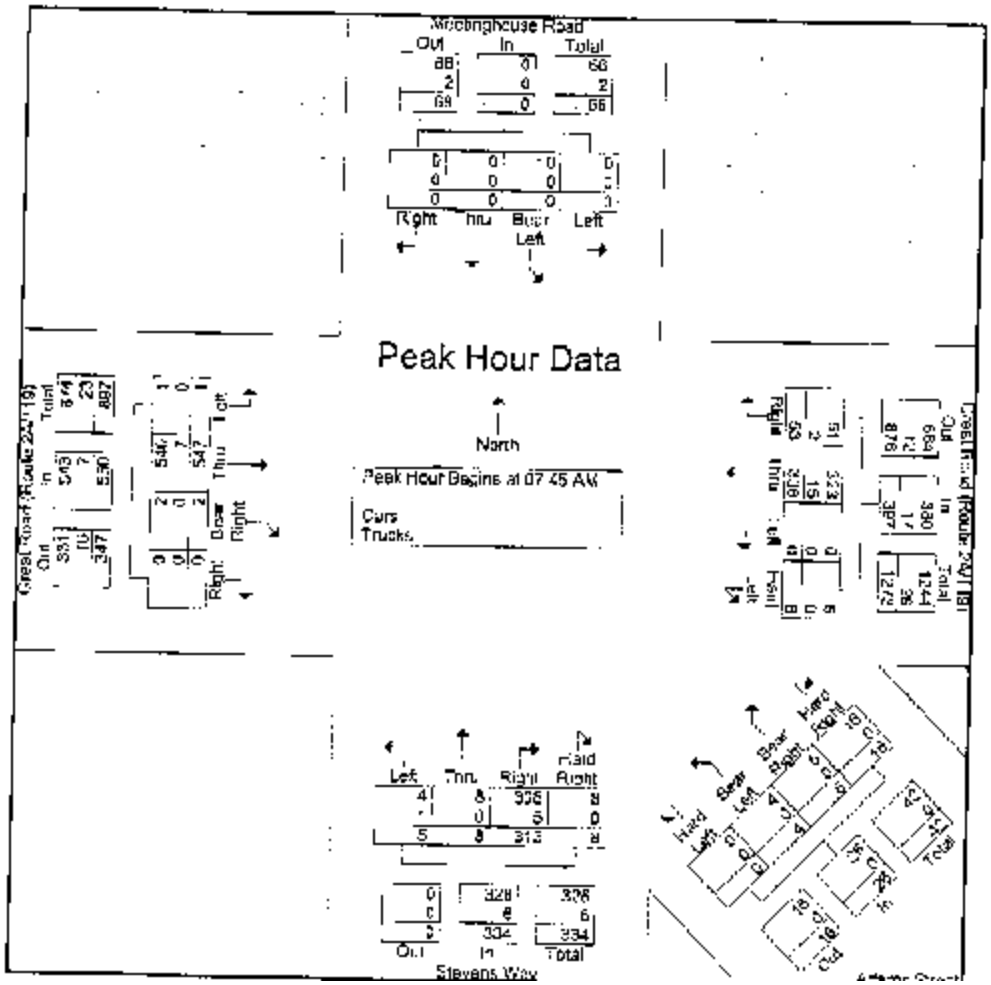
File Name : 50114C
Site Code : 00000000
Start Date : 2/15/2005
Page No : 1

Start Time	Meetinghouse Road From North					Great Road (Route 2A/119) From East					Adams Street From Southeast					Stevens Way From South					Great Road (Route 2A/119) From West					
	Right	Thru	Bear Left	Left	App. Total	Right	Thru	Left	Bear Right	App. Total	Right	Bear Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Bear Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:45 AM																										
07:45 AM	0	0	0	0	0	11	81	0	2	94	2	1	2	0	5	2	76	1	0	79	0	0	13	0	137	315
08:00 AM	0	0	0	0	0	14	80	0	1	95	6	2	0	0	8	1	71	3	1	76	0	1	16	0	151	330
08:15 AM	0	0	0	0	0	16	70	0	2	88	3	2	0	0	5	0	77	3	1	81	0	1	12	0	125	299
08:30 AM	0	0	0	0	0	12	107	0	1	120	5	1	2	0	8	5	89	1	3	98	0	0	13	1	137	363
Total Volume	0	0	0	0	0	53	338	0	6	397	16	6	4	0	26	8	313	8	5	334	0	2	54	1	550	1307
% App. Total	0	0	0	0		13.4	85.1	0	1.5		61.5	23.1	15.4	0		2.4	93.7	2.4	1.5		0	0.4	98.5	0.2		
PHF	.000	.000	.000	.000	.000	.828	.790	.000	.750	.827	.667	.750	.500	.000	.813	.400	.879	.667	.417	.852	.000	.500	.917	.250	.911	.900
Cars	0	0	0	0	0	51	322	0	6	380	16	6	4	0	26	8	309	8	4	328	0	2	540	1	543	1277
% Cars	0	0	0	0	0	96.2	95.3	0	100	95.7	100	100	100	0	100	100	98.7	100	80.0	98.2	0	100	98.1	100	98.7	97.7
Trucks	0	0	0	0	0	2	16	0	0	17	0	0	0	0	0	0	4	0	1	6	0	0	1	0	1	30
% Trucks	0	0	0	0	0	3.8	4.7	0	0	4.3	0	0	0	0	0	0	1.3	0	20.0	1.8	0	0	1.9	0	1.3	2.3



N/S: Meetinghouse Road/Stevens Street
E/W/SE: Great Road/Adams Street
City, State: Littleton, MA
Client: Conley Associates/L. Grant

PRECISION DATA INDUSTRIES, LLC

File Name : 50114C
Site Code : 000000
Start Date : 2/15/2
Page No : 1

Groups Printed- Cars - Trucks

Start Time	Meetinghouse Road From North				Great Road (Route 2A/119) From East				Adams Street From Southeast				Stevens Street From South				Great Road (Route 2A/119) From West				
	Right	Thru	[illegible]	Left	Right	Thru	Left	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Right	Thru	Left	Right	[illegible]	Thru	Left	Int. Total
04:00 PM	0	0	0	0	26	105	0	2	3	0	0	0	1	63	4	2	0	0	79	1	37
04:15 PM	0	0	0	0	32	203	0	2	5	0	0	0	0	48	0	3	0	2	84	0	37
04:30 PM	0	0	0	0	22	184	0	2	4	0	3	0	1	56	1	1	0	2	81	0	35
04:45 PM	0	0	0	0	34	212	0	4	2	1	2	0	2	57	1	0	0	1	97	0	41
Total	0	0	0	0	114	791	0	10	14	1	5	0	4	224	6	6	0	5	341	1	152.
05:00 PM	0	0	0	0	30	210	0	3	4	0	0	0	0	71	2	2	0	2	79	0	40.
05:15 PM	0	0	0	0	33	203	0	3	5	0	0	0	1	54	2	4	0	0	103	0	40
05:30 PM	0	0	0	0	36	197	0	4	4	0	0	0	1	89	1	2	0	1	81	0	41
05:45 PM	0	0	0	0	19	176	0	3	4	0	0	0	1	62	1	4	0	2	93	0	36
Total	0	0	0	0	118	786	0	13	17	0	0	0	3	276	6	12	0	5	356	0	1592
Grand Total	0	0	0	0	232	1577	0	23	31	1	5	0	7	500	12	18	0	10	697	1	3114
Apprch %	0	0	0	0	12.7	86.1	0	1.3	83.8	2.7	13.5	0	1.3	93.1	2.2	3.4	0	1.4	98.4	0.1	
Total %	0	0	0	0	7.5	50.6	0	0.7	1	0	0.2	0	0.2	16.1	0.4	0.6	0	0.3	22.4	0	
Cars	0	0	0	0	230	1570	0	23	31	1	5	0	7	499	12	17	0	10	693	1	3098
% Cars	0	0	0	0	99.1	99.6	0	100	100	100	100	0	100	99.8	100	94.4	0	100	99.4	100	99.5
Trucks	0	0	0	0	2	7	0	0	0	0	0	0	0	1	0	[illegible]	0	0	4	0	15
% Trucks	0	0	0	0	0.9	0.4	0	0	0	0	0	0	0	0.2	0	5.6	0	0	0.6	0	0.5

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

Start Time	Meetinghouse Road From North					Great Road (Route 2A/119) From East					Adams Street From Southeast					Stevens Street From South					Great Road (Route 2A/119) From West					
	Right	Thru	[illegible]	Left	App. Total	Right	Thru	Left	[illegible]	App. Total	[illegible]	[illegible]	[illegible]	[illegible]	App. Total	[illegible]	Right	Thru	Left	App. Total	Right	[illegible]	Thru	Left	App. Total	Int. Total
04:45 PM	0	0	0	0	0	34	212	0	4	250	2	1	2	0	5	2	57	1	0	60	0	1	97	0	98	413
05:00 PM	0	0	0	0	0	30	210	0	3	243	4	0	0	0	4	0	71	2	2	75	0	2	79	0	81	403
05:15 PM	0	0	0	0	0	33	203	0	3	239	5	0	0	0	5	1	54	2	4	61	0	0	103	0	103	408
05:30 PM	0	0	0	0	0	36	197	0	4	237	4	0	0	0	4	1	89	1	2	93	0	1	81	0	82	416
Total Volume	0	0	0	0	0	133	822	0	14	969	15	1	2	0	18	4	271	6	8	289	0	4	360	0	364	1640
% App. Total	0	0	0	0		13.7	84.8	0	1.4		83.3	5.6	11.1	0		1.4	93.8	2.1	2.8		0	1.1	98.9	0		
PHF	.000	.000	.000	.000	.000	.924	.969	.000	.875	.969	.750	.250	.250	.000	.900	.500	.761	.750	.500	.777	.000	.500	.874	.000	.883	.986

N/S: Meetinghouse Road/Stevens Street
E/W/SE: Great Road/Adams Street
City, State: Littleton, MA
Client: Conley Associates/L. Grant

PRECISION
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File Name : 50114CC
Site Code : 00000000
Start Date : 2/15/2005
Page No : 1

Groups Printed- Cars

Start Time	Meetinghouse Road From North				Great Road (Route 2A/119) From East				Adams Street From Southeast				Stevens Street From South				Great Road (Route 2A/119) From West				
	Right	Thru	[illegible]	Left	Right	Thru	Left	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Right	Thru	Left	Right	[illegible]	Thru	Left	Int. Total
04:00 PM	0	0	0	0	25	194	0	2	3	0	0	0	1	53	4	2	0	0	78	1	373
04:15 PM	0	0	0	0	32	198	0	2	5	0	0	0	0	48	0	3	0	2	84	0	374
04:30 PM	0	0	0	0	22	183	0	2	4	0	3	0	1	56	[illegible]	[illegible]	0	2	81	0	356
04:45 PM	0	0	0	0	34	211	0	4	2	1	2	0	2	57	[illegible]	0	0	1	96	0	411
Total	0	0	0	0	113	786	0	10	14	1	5	0	4	224	6	6	0	5	339	1	1514
05:00 PM	0	0	0	0	30	210	0	3	4	0	0	0	0	71	2	2	0	2	79	0	403
05:15 PM	0	0	0	0	33	202	0	3	5	0	0	0	[illegible]	54	2	4	0	0	102	0	406
05:30 PM	0	0	0	0	35	196	0	4	4	0	0	0	[illegible]	89	1	1	0	1	81	0	413
05:45 PM	0	0	0	0	19	176	0	3	4	0	0	0	[illegible]	61	1	4	0	2	82	0	363
Total	0	0	0	0	117	784	0	13	17	0	0	0	3	275	6	11	0	5	354	0	1585
Grand Total	0	0	0	0	230	1570	0	23	31	1	5	0	7	499	12	17	0	10	693	1	3099
Apprch %	0	0	0	0	12.8	86.1	0	1.3	69.8	2.7	13.5	0	1.3	93.3	2.2	3.2	0	1.4	98.4	0.1	
Total %	0	0	0	0	7.4	50.7	0	0.7	1	0	0.2	0	0.2	16.1	0.4	0.5	0	0.3	22.4	0	

Start Time	Meetinghouse Road From North					Great Road (Route 2A/119) From East					Adams Street From Southeast					Stevens Street From South					Great Road (Route 2A/119) From West					
	Right	Thru	[illegible]	Left	[illegible]	Right	Thru	Left	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Right	Thru	Left	[illegible]	Right	[illegible]	Thru	Left	[illegible]	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 04:45 PM																										
04:45 PM	0	0	0	0	0	34	21 1	0	4	249	2	1	2	0	5	2	57	1	0	60	0	1	96	0	97	411
05:00 PM	0	0	0	0	0	30	21 0	0	3	243	4	0	0	0	4	0	71	2	2	75	0	2	79	0	81	403
05:15 PM	0	0	0	0	0	33	20 2	0	3	238	5	0	0	0	5	1	54	2	4	61	0	0	10 2	0	102	406
05:30 PM	0	0	0	0	0	35	19 6	0	4	235	4	0	0	0	4	1	89	1	1	92	0	1	81	0	82	413
Total Volume	0	0	0	0	0	132	818	0	14	965	15	1	2	0	18	4	271	6	7	288	0	4	358	0	362	1633
% App. Total	0	0	0	0		13.7	84.9	0	1.5		83.3	5.6	11.1	0		1.4	94.1	2.1	2.4		0	1.1	98.6	0		
PHF	.000	.000	.000	.000	.000	.943	.970	.000	.875	.969	.750	.250	.250	.000	.900	.500	.761	.750	.438	.783	.000	.500	.877	.000	.887	.988

N/S: Meetinghouse Road/Stevens Street
E/W/SE: Great Road/Adams Street
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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File Name : 50114CC
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

Groups Printed- Trucks

Start Time	Meetinghouse Road From North				Great Road (Route 2A/119) From East				Adams Street From Southeast				Stevens Street From South				Great Road (Route 2A/119) From West				Int. Total
	Right	Thru		Left	Right	Thru	Left						Right	Thru	Left		Right		Thru	Left	
04:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3
04:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
Total	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	2	0	8
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
05:30 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
Total	0	0	0	0	1	2	0	0	0	0	0	0	0	1	0	1	0	0	2	0	7
Grand Total	0	0	0	0	2	7	0	0	0	0	0	0	0	1	0	1	0	0	4	0	15
Apprch %	0	0	0	0	22.2	77.8	0	0	0	0	0	0	0	50	0	50	0	0	100	0	
Total %	0	0	0	0	13.3	46.7	0	0	0	0	0	0	0	6.7	0	6.7	0	0	26.7	0	

Start Time	Meetinghouse Road From North				Great Road (Route 2A/119) From East				Adams Street From Southeast				Stevens Street From South				Great Road (Route 2A/119) From West				Int. Total
	Right	Thru		Left	Right	Thru	Left						Right	Thru	Left		Right		Thru	Left	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	1	0	3
04:15 PM	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
04:30 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2
Total Volume	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	0	0	0	2	0	8
% App Total	0	0	0	0	16.7	83.3	0	0		0	0	0	0	0	0	0	0	0	100	0	
PHF	.000	.000	.000	.000	.000	.250	.625	.000	.000	.750	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.667

N/S: Meetinghouse Road/Stevens Street
E/W/SE: Great Road/Adams Street
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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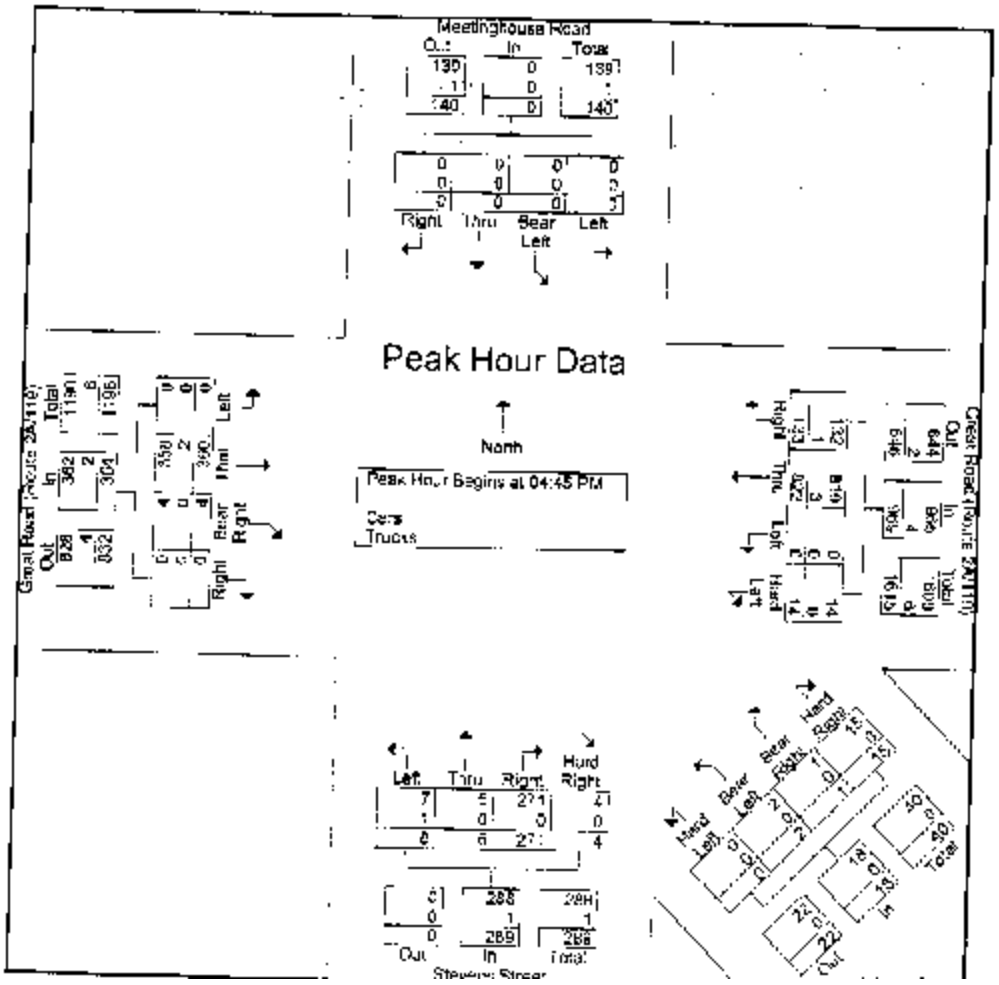
File Name : 50114CC
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

Start Time	Meetinghouse Road From North					Great Road (Route 2A/119) From East					Adams Street From Southeast					Stevens Street From South					Great Road (Route 2A/119) From West					
	Right	Thru	Left			Right	Thru	Left								Right	Thru	Left			Right	Thru	Left			
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 04:45 PM																										
04:45 PM	0	0	0	0	0	34	212	0	4	250	2	1	2	0	5	2	57	1	0	60	0	1	97	0	98	413
05:00 PM	0	0	0	0	0	30	210	0	3	243	4	0	0	0	4	0	71	2	2	75	0	2	79	0	81	403
05:15 PM	0	0	0	0	0	33	203	0	3	239	5	0	0	0	5	1	54	2	4	61	0	0	103	0	103	408
05:30 PM	0	0	0	0	0	36	197	0	4	237	4	0	0	0	4	1	89	1	2	93	0	1	81	0	82	416
Total Volume	0	0	0	0	0	133	822	0	14	969	15	1	2	0	18	4	271	6	8	289	0	4	360	0	364	1640
% App. Total	0	0	0	0		13.7	84.8	0	1.4		83.3	5.6	11.1	0		1.4	93.8	2.1	2.8		0	1.1	98.9	0		
PHF	.000	.000	.000	.000	.000	.864	.968	.000	.875	.969	.750	.250	.250	.000	.900	.500	.761	.750	.500	.777	.000	.500	.874	.000	.885	.985
Cars	0	0	0	0	0	132	819	0	14	965	15	1	2	0	18	4	271	6	7	288	0	4	359	0	363	1633
% Cars	0	0	0	0	0	99.2	99.6	0	100	99.6	100	100	100	0	100	100	100	100	87.5	99.7	0	100	99.4	0	99.5	99.6
Trucks	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	0	0	1	1	0	0	2	0	2	7
% Trucks	0	0	0	0	0	0.8	0.4	0	0	0.4	0	0	0	0	0	0	0	0	12.5	0.3	0	0	0.6	0	0.5	0.4



N/S: Robinson Road/Middlesex Savings
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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File Name : 50114B
Site Code : 0000000
Start Date : 2/15/20
Page No : 1

Groups Printed- Cars - Trucks

	Robinson Road From North				Great Road (Route 2A/119) From East				Middlesex Savings Bank From South				Great Road (Route 2A/119) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	88	0	0	1	0	2	0	3	168	0	0	262
07:15 AM	1	0	0	0	0	71	0	0	1	0	2	0	2	176	0	0	253
07:30 AM	0	0	1	0	0	82	0	0	0	0	0	0	1	198	0	0	282
07:45 AM	2	0	0	0	0	93	0	0	3	0	0	0	2	209	2	0	311
Total	3	0	1	0	0	334	0	0	5	0	4	0	8	751	2	0	1108
08:00 AM	3	0	0	0	0	89	1	0	1	0	2	0	6	213	0	0	315
08:15 AM	0	0	0	0	0	86	0	0	0	0	0	0	1	203	1	0	291
08:30 AM	1	0	0	0	0	117	1	0	3	0	0	0	4	219	1	0	346
08:45 AM	3	0	1	0	1	96	2	0	6	0	4	0	9	172	1	0	295
Total	7	0	1	0	1	388	4	0	10	0	6	0	20	807	3	0	1247
Grand Total	10	0	2	0	1	722	4	0	15	0	10	0	28	1558	5	0	2355
Apprch %	83.3	0	16.7	0	0.1	99.3	0.6	0	60	0	40	0	1.8	97.9	0.3	0	
Total %	0.4	0	0.1	0	0	30.7	0.2	0	0.6	0	0.4	0	1.2	66.2	0.2	0	
Cars	10	0	2	0	1	693	4	0	15	0	10	0	28	1542	5	0	2310
% Cars	100	0	100	0	100	96	100	0	100	0	100	0	100	99	100	0	98.1
Trucks	0	0	0	0	0	29	0	0	0	0	0	0	0	16	0	0	45
% Trucks	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0	1.9

	Robinson Road From North					Great Road (Route 2A/119) From East					Middlesex Savings Bank From South					Great Road (Route 2A/119) From West					
Start Time	Right	Thru	Left	Peds	App Total	Right	Thru	Left	Peds	App Total	Right	Thru	Left	Peds	App Total	Right	Thru	Left	Peds	App Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	2	0	0	0	2	0	93	0	0	93	3	0	0	0	3	2	209	2	0	213	311
08:00 AM	3	0	0	0	3	0	89	1	0	90	1	0	2	0	3	6	213	0	0	219	315
08:15 AM	0	0	0	0	0	0	86	0	0	86	0	0	0	0	0	1	203	1	0	205	291
08:30 AM	1	0	0	0	1	0	117	1	0	118	3	0	0	0	3	4	219	1	0	224	346
Total Volume	6	0	0	0	6	0	385	2	0	387	7	0	2	0	9	13	844	4	0	861	1263
% App. Total	100	0	0	0		0	99.5	0.5	0		77.8	0	22.2	0		1.5	98	0.5	0		
PHF	.500	.000	.000	.000	.500	.000	.823	.500	.000	.820	.583	.000	.250	.000	.750	.542	.963	.500	.000	.961	.913

N/S: Robinson Road/Middlesex Savings
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Cooley Associates/L. Grant

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File Name : 50114B
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

Groups Printed- Cars

Start Time	Robinson Road From North Right	Thru	Left	Peds	Great Road (Route 2A/119) From East Right	Thru	Left	Peds	Middlesex Savings Bank From South Right	Thru	Left	Peds	Great Road (Route 2A/119) From West Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	86	0	0	1	0	2	0	3	166	0	0	260
07:15 AM	1	0	0	0	0	70	0	0	1	0	2	0	2	174	0	0	250
07:30 AM	0	0	1	0	0	76	0	0	0	0	0	0	1	155	0	0	275
07:45 AM	2	0	0	0	0	89	0	0	3	0	0	0	2	208	2	0	306
Total	3	0	1	0	0	323	0	0	5	0	4	0	8	745	2	0	1091
08:00 AM	3	0	0	0	0	84	1	0	1	0	2	0	5	213	0	0	310
08:15 AM	0	0	0	0	0	78	0	0	0	0	0	0	1	201	1	0	281
08:30 AM	1	0	0	0	0	113	1	0	3	0	0	0	4	215	1	0	338
08:45 AM	3	0	1	0	1	95	2	0	6	0	4	0	8	168	1	0	290
Total	7	0	1	0	1	370	4	0	10	0	6	0	20	797	3	0	1219
Grand Total	10	0	2	0	1	693	4	0	15	0	10	0	28	1542	5	0	2310
Apprch %	83.3	0	16.7	0	0.1	99.3	0.6	0	60	0	40	0	1.8	97.9	0.3	0	
Total %	0.4	0	0.1	0	0	30	0.2	0	0.6	0	0.4	0	1.2	66.8	0.2	0	

Start Time	Robinson Road From North Right	Thru	Left	Peds	App. Total	Great Road (Route 2A/119) From East Right	Thru	Left	Peds	App. Total	Middlesex Savings Bank From South Right	Thru	Left	Peds	App. Total	Great Road (Route 2A/119) From West Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	2	0	0	0	2	0	89	0	0	89	3	0	0	0	3	2	208	2	0	212	306
08:00 AM	3	0	0	0	3	0	84	1	0	85	1	0	2	0	3	5	213	0	0	218	310
08:15 AM	0	0	0	0	0	0	78	0	0	78	0	0	0	0	0	1	201	1	0	203	281
08:30 AM	1	0	0	0	1	0	113	1	0	114	3	0	0	0	3	4	215	1	0	220	338
Total Volume	6	0	0	0	6	0	364	2	0	366	7	0	2	0	9	12	837	4	0	853	1235
% App. Total	100	0	0	0		0	99.5	0.5	0		77.8	0	22.2	0		1.5	98	0.5	0		
PHF	.500	.000	.000	.000	.500	.000	.805	.500	.000	.803	.583	.000	.250	.000	.750	.542	.973	.500	.000	.970	.913

N/S: Robinson Road/Middlesex Savings
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Cooley Associates/L. Gram

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File Name : 50114B
Site Code : 0000000
Start Date : 2/15/2
Page No : 1

Groups Printed- Trucks

Start Time	Robinson Road From North Right	Thru	Left	Peds	Great Road (Route 2A/119) From East Right	Thru	Left	Peds	Middlesex Savings Bank From South Right	Thru	Left	Peds	Great Road (Route 2A/119) From West Right	Thru	Left	Peds	Int. Tot
07:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	
07:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	
07:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0	
07:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0	
Total	0	0	0	0	0	11	0	0	0	0	0	0	0	6	0	0	17
08:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	
08:15 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	2	0	0	10
08:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0	8
08:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0	5
Total	0	0	0	0	0	18	0	0	0	0	0	0	0	10	0	0	28
Grand Total	0	0	0	0	0	29	0	0	0	0	0	0	0	16	0	0	45
Apprch %	0	0	0	0	0	100	0	0	0	0	0	0	0	100	0	0	
Total %	0	0	0	0	0	64.4	0	0	0	0	0	0	0	35.6	0	0	

Start Time	Robinson Road From North Right	Thru	Left	Peds	App Tot	Great Road (Route 2A/119) From East Right	Thru	Left	Peds	App Tot	Middlesex Savings Bank From South Right	Thru	Left	Peds	App Tot	Great Road (Route 2A/119) From West Right	Thru	Left	Peds	App Tot	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5
08:00 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	5
08:15 AM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	2	0	0	2	10
08:30 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	8
Total Volume	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	7	0	0	7	28
% App. Total	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.656	.000	.000	.656	.000	.000	.000	.000	.000	.000	.438	.000	.000	.438	.700

N/S: Robinson Road/Middlesex Savings
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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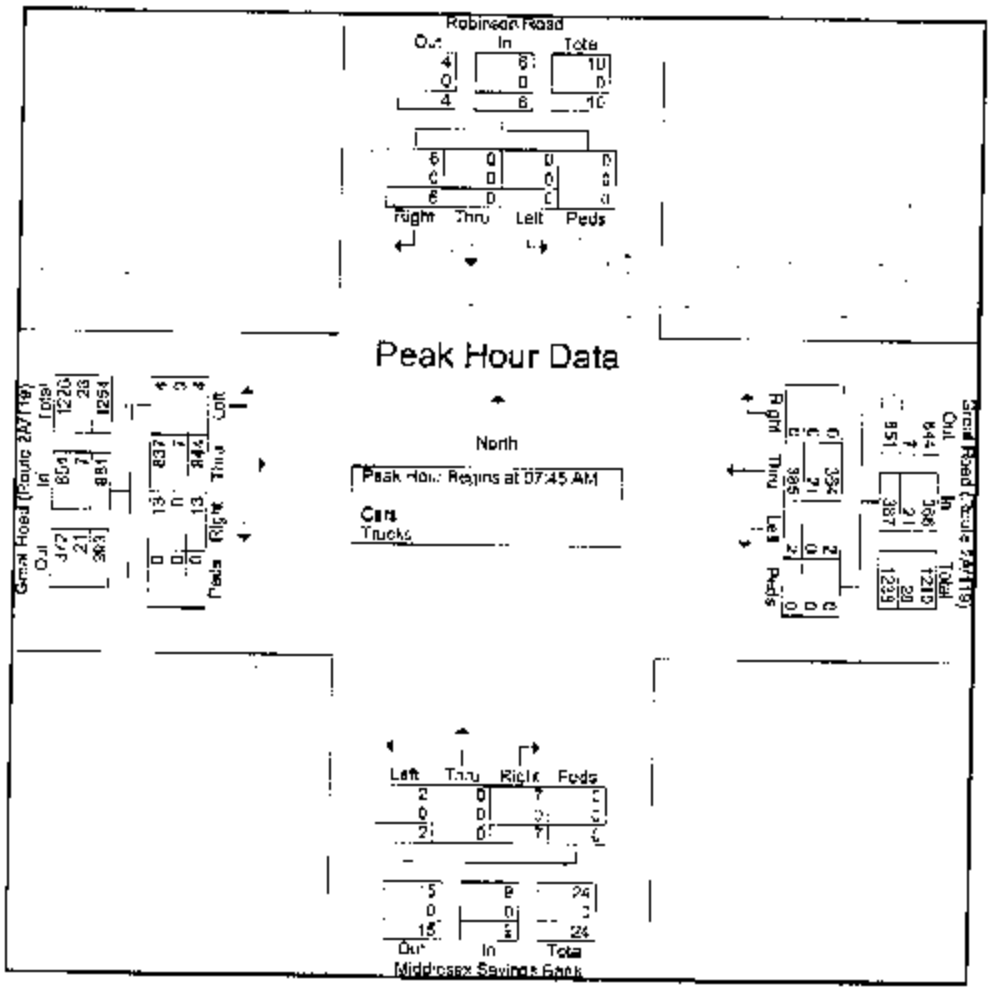
File Name : 50114B
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

	Robinson Road From: North					Great Road (Route 2A/119) From: East					Middlesex Savings Bank From: South					Great Road (Route 2A/119) From: West				
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 07:45 AM																				
07:45 AM	2	0	0	0	2	0	93	0	0	93	3	0	0	0	3	2	209	2	0	213	311
08:00 AM	3	0	0	0	3	0	89	1	0	90	1	0	2	0	3	6	213	0	0	219	315
08:15 AM	0	0	0	0	0	0	86	0	0	86	0	0	0	0	0	1	203	1	0	205	291
08:30 AM	1	0	0	0	1	0	**117**	1	0	**118**	3	0	0	0	3	4	**219**	1	0	**224**	**346**
Total Volume	6	0	0	0	6	0	385	2	0	387	7	0	2	0	9	13	844	4	0	861	1263
% App. Total	100	0	0	0		0	99.5	0.5	0		77.8	0	22.2	0		1.5	98	0.5	0		
PHF	.500	.000	.000	.000	.500	.000	.823	.500	.000	.820	.583	.000	.250	.000	.750	.542	.803	.500	.000	.961	.913
Cars	6	0	0	0	6	0	364	2	0	366	7	0	2	0	9	13	837	4	0	854	1235
% Cars	100	0	0	0	100	0	94.5	100	0	94.6	100	0	100	0	100	100	99.2	100	0	99.2	97.8
Trucks	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	7	0	0	7	28
% Trucks	0	0	0	0	0	0	5.5	0	0	5.4	0	0	0	0	0	0	0.8	0	0	0.8	2.2



N/S: Robinson Road/Middlesex Savings
E/W: Great Road (Route 2A/119)
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File Name : 50114BI
Site Code : 0000000
Start Date : 2/15/20
Page No : 1

Groups Printed- Cars - Trucks

	Robinson Road From North			Great Road (Route 2A/119) From East			Middlesex Savings Bank From South			Great Road (Route 2A/119) From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Tota
04:00 PM	0	0	0	0	219	1	1	0	2	0	143	2	36
04:15 PM	1	0	0	0	226	1	2	0	7	2	136	1	37
04:30 PM	1	0	0	2	197	1	1	0	1	3	131	1	33
04:45 PM	2	0	0	1	245	0	2	0	1	2	154	0	40
Total	4	0	0	3	887	3	6	0	11	7	566	4	149
05:00 PM	0	0	2	0	237	1	4	0	2	7	149	3	40
05:15 PM	1	0	0	1	230	0	1	0	3	1	156	4	39
05:30 PM	3	0	0	3	224	1	1	0	3	2	173	0	41
05:45 PM	1	0	0	0	198	0	2	0	1	3	153	2	38
Total	5	0	2	4	889	2	8	0	9	13	631	9	157
Grand Total	9	0	2	7	1776	5	14	0	20	20	1197	13	3063
Apprch %	81.8	0	18.2	0.4	99.3	0.3	41.2	0	58.8	1.6	97.3	1.1	
Total %	0.3	0	0.1	0.2	58	0.2	0.5	0	0.7	0.7	39.1	0.4	
Cars	9	0	2	7	1768	5	14	0	20	20	1193	13	3051
% Cars	100	0	100	100	99.5	100	100	0	100	100	99.7	100	99.6
Trucks	0	0	0	0	8	0	0	0	0	0	4	0	12
% Trucks	0	0	0	0	0.5	0	0	0	0	0	0.3	0	0.4

	Robinson Road From North				Great Road (Route 2A/119) From East				Middlesex Savings Bank From South				Great Road (Route 2A/119) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	2	0	0	2	1	245	0	246	2	0	1	3	2	154	0	156	407
05:00 PM	0	0	2	2	0	237	1	238	4	0	2	6	7	149	3	159	405
05:15 PM	1	0	0	1	1	230	0	231	1	0	3	4	1	156	4	161	397
05:30 PM	3	0	0	3	3	224	1	228	1	0	3	4	2	173	0	175	410
Total Volume	6	0	2	8	5	936	2	943	8	0	9	17	12	632	7	651	1619
% App. Total	75	0	25		0.5	99.3	0.2		47.1	0	52.9		1.8	97.1	1.1		
PHF	.500	.000	.250	.667	.417	.955	.500	.958	.500	.000	.750	.708	.429	.913	.438	.930	.987

N/S: Robinson Road/Middlesex Savings
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Cooley Associates/L. Grant

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File Name : 5011488
Site Code : 00000000
Start Date : 2/15/200
Page No : 1

Groups Printed- Cars

Start Time	Robinson Road From North			Great Road (Route 2A/119) From East			Middlesex Savings Bank From South			Great Road (Route 2A/119) From West				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	0	0	0	0	218	1	1	0	2	0	142	2	366
04:15 PM	1	0	0	0	224	1	2	0	7	2	138	1	376
04:30 PM	1	0	0	2	196	1	1	0	1	3	130	1	336
04:45 PM	2	0	0	1	243	0	2	0	1	2	153	0	404
Total	4	0	0	3	881	3	6	0	11	7	563	4	1482
05:00 PM	0	0	2	0	237	1	4	0	2	7	149	3	405
05:15 PM	1	0	0	1	229	0	1	0	3	1	155	4	395
05:30 PM	3	0	0	3	223	1	1	0	3	2	173	0	409
05:45 PM	1	0	0	0	198	0	2	0	1	3	153	2	360
Total	5	0	2	4	887	2	8	0	9	13	630	9	1569
Grand Total	9	0	2	7	1768	5	14	0	20	20	1193	13	3051
Approch %	81.8	0	18.2	0.4	99.3	0.3	41.2	0	58.8	1.6	97.3	1.1	
Total %	0.3	0	0.1	0.2	57.9	0.2	0.5	0	0.7	0.7	39.1	0.4	

Start Time	Robinson Road From North				Great Road (Route 2A/119) From East				Middlesex Savings Bank From South				Great Road (Route 2A/119) From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	2	0	0	2	1	243	0	244	2	0	1	3	2	153	0	155	404
05:00 PM	0	0	2	2	0	237	1	238	4	0	2	6	7	149	3	159	405
05:15 PM	1	0	0	1	1	229	0	230	1	0	3	4	1	155	4	160	395
05:30 PM	3	0	0	3	3	223	1	227	1	0	3	4	2	173	0	175	409
Total Volume	6	0	2	8	5	932	2	939	8	0	9	17	12	630	7	649	1613
% App. Total	75	0	25		0.5	99.3	0.2		47.1	0	52.9		1.8	97.1	1.1		
PHF	.500	.000	.250	.667	.417	.959	.500	.962	.500	.000	.750	.708	.429	.910	.438	.927	.986

N/S: Robinson Road/Middlesex Savings
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Conley Associates/L. Grant

PRECISION DATA INDUSTRIES, LLC
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File Name : 50114B
Site Code : 0000000
Start Date : 2/15/20
Page No : 1

Groups Printed- Trucks

	Robinson Road From North			Great Road (Route 2A/119) From East			Middlesex Savings Bank From South			Great Road (Route 2A/119) From West				
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Tot
04:00 PM	0	0	0	0	1	0	0	0	0	0	1	0	
04:15 PM	0	0	0	0	2	0	0	0	0	0	0	0	
04:30 PM	0	0	0	0	1	0	0	0	0	0	1	0	
04:45 PM	0	0	0	0	2	0	0	0	0	0	1	0	
Total	0	0	0	0	6	0	0	0	0	0	3	0	
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
05:15 PM	0	0	0	0	1	0	0	0	0	0	1	0	
05:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	2	0	0	0	0	0	1	0	
Grand Total	0	0	0	0	8	0	0	0	0	0	4	0	12
Apprch %	0	0	0	0	100	0	0	0	0	0	100	0	
Total %	0	0	0	0	66.7	0	0	0	0	0	33.3	0	

	Robinson Road From North				Great Road (Route 2A/119) From East				Middlesex Savings Bank From South				Great Road (Route 2A/119) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
04:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
04:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	3
Total Volume	0	0	0	0	0	6	0	6	0	0	0	0	0	3	0	3	9
% App. Tota	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.750	.000	.750	.000	.000	.000	.000	.000	.750	.000	.750	.750

N/S: Robinson Road/Middlesex Savings
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: Conley Associates/L. Grant

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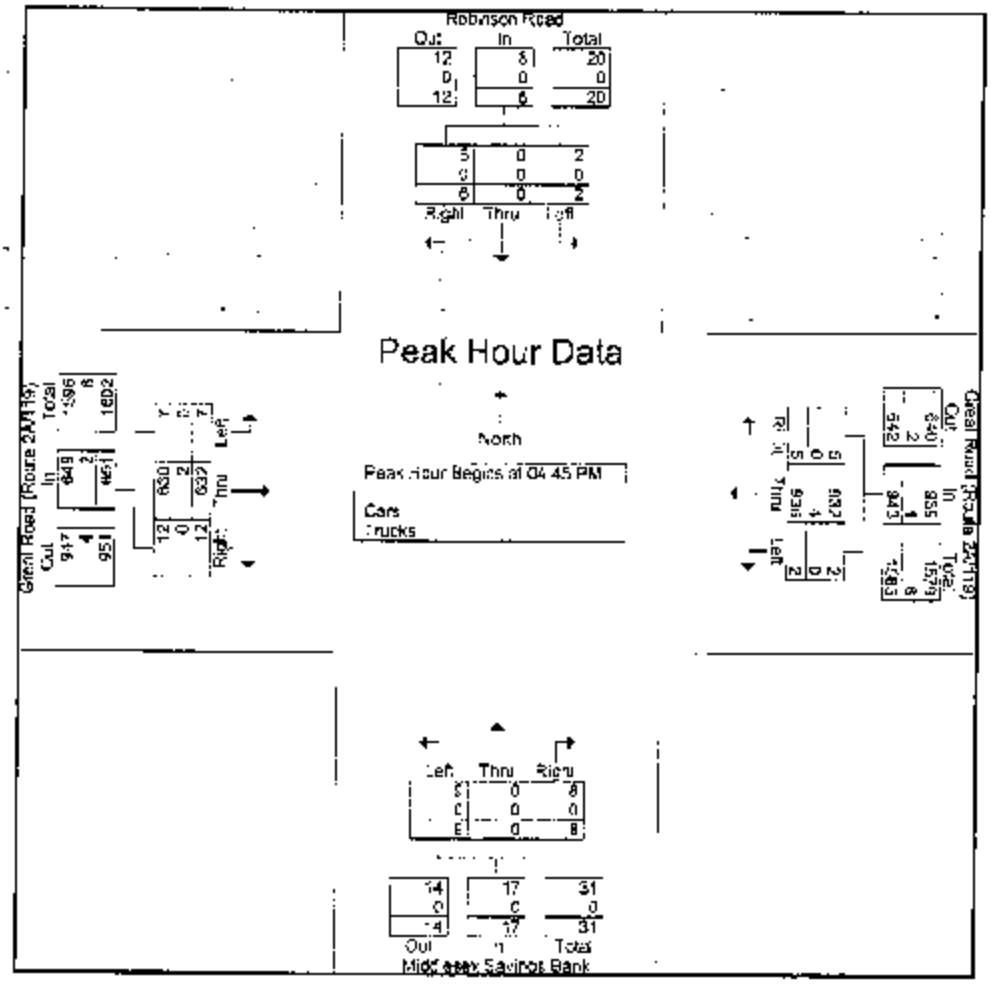
File Name : 50114BB
Site Code : 00000000
Start Date : 2/15/2005
Page No : 1

	Robinson Road From North				Great Road (Route 2A/119) From East				Middlesex Savings Bank From South				Great Road (Route 2A/119) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	2	0	0	2	1	**245**	0	**246**	2	0	1	3	2	154	0	156	**407**
05:00 PM	0	0	**2**	2	0	237	**1**	238	**4**	0	2	**6**	7	149	3	159	405
05:15 PM	1	0	0	1	1	230	0	231	1	0	3	4	1	156	4	161	397
05:30 PM	3	0	0	3	3	224	1	228	1	0	3	4	2	**173**	0	**175**	**410**
Total Volume	6	0	2	8	5	936	2	943	8	0	9	17	12	632	7	651	1619
% App. Total	75	0	25		0.5	99.3	0.2		47.1	0	52.9		1.8	97.1	1.1		
PHF	.500	.000	.250	.667	.417	.955	.500	.958	.500	.000	.750	.708	.429	.913	.438	.930	.987
Cars	6	0	2	8	5	932	2	939	8	0	9	17	12	630	7	649	1613
% Cars	100	0	100	100	100	99.6	100	99.6	100	0	100	100	100	99.7	100	99.7	99.6
Trucks	0	0	0	0	0	4	0	4	0	0	0	0	0	2	0	2	6
% Trucks	0	0	0	0	0	0.4	0	0.4	0	0	0	0	0	0.3	0	0.3	0.4



Transportation Data Corporation
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N/S: Robinson Road/Bank Exit
E/W: Great Road (Route 119)
City, State: Littleton, MA
Client: TEC/K. Dandrade

File Name : 03311A
Site Code : 10121
Start Date : 4/30/2
Page No : 1

Groups Printed- Cars - Trucks

	Robinson Road From North				Great Road (Route 119) From East				Bank Exit From South				Great Road (Route 119) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. To
11:00 AM	2	0	0	0	0	191	0	0	8	0	8	0	0	192	0	0	4
11:15 AM	3	0	0	0	0	193	0	0	13	0	8	0	0	206	1	0	4
11:30 AM	2	0	1	0	2	183	0	0	10	0	10	0	0	228	2	0	4
11:45 AM	4	0	0	0	2	218	0	0	7	0	13	0	0	209	1	0	4
Total	11	0	1	0	4	785	0	0	38	0	39	0	0	834	4	0	17
12:00 PM	2	0	0	0	1	230	0	0	8	0	8	0	0	197	0	0	4
12:15 PM	4	0	0	0	2	190	0	0	7	0	7	0	0	166	2	0	3
12:30 PM	2	0	0	0	0	172	0	0	6	0	2	0	0	190	0	0	3
12:45 PM	0	0	0	0	0	201	0	0	4	0	4	0	0	162	0	0	3
Total	8	0	0	0	3	793	0	0	25	0	21	0	0	715	2	0	15
Grand Total	19	0	1	0	7	1578	0	0	63	0	60	0	0	1549	6	0	32
Apprch %	95	0	5	0	0.4	99.6	0	0	51.2	0	48.8	0	0	99.6	0.4	0	
Total %	0.6	0	0	0	0.2	48.1	0	0	1.9	0	1.8	0	0	47.2	0.2	0	
Cars	19	0	1	0	7	1568	0	0	63	0	60	0	0	1544	6	0	32
% Cars	100	0	100	0	100	99.4	0	0	100	0	100	0	0	99.7	100	0	9
Trucks	0	0	0	0	0	10	0	0	0	0	0	0	0	5	0	0	
% Trucks	0	0	0	0	0	0.6	0	0	0	0	0	0	0	0.3	0	0	0

	Robinson Road From North					Great Road (Route 119) From East					Bank Exit From South					Great Road (Route 119) From West				
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. To
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 11:15 AM																				
11:15 AM	3	0	0	0	3	0	193	0	0	193	13	0	8	0	21	0	205	1	0	206	43
11:30 AM	2	0	1	0	3	2	183	0	0	185	10	0	10	0	20	0	228	2	0	230	43
11:45 AM	4	0	0	0	4	2	218	0	0	220	7	0	13	0	20	0	209	1	0	210	45
12:00 PM	2	0	0	0	2	1	230	0	0	231	8	0	8	0	16	0	197	0	0	197	44
Total Volume	11	0	1	0	12	5	824	0	0	829	38	0	39	0	77	0	839	4	0	843	176
% App. Total	91.7	0	8.3	0		0.6	99.4	0	0		49.4	0	50.6	0		0	99.5	0.5	0		
PHF	.688	.000	.250	.000	.750	.625	.896	.000	.000	.897	.731	.000	.750	.000	.917	.000	.920	.500	.000	.916	.97

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N/S: Robinson Road/Bank Exit
E/W: Great Road (Route 119)
City, State: Littleton, MA
Client: TEC/K. Dandrade

File Name : 03311 A
Site Code : T0121
Start Date : 4/30/20
Page No : 1

Groups Printed- Cars

Start Time	Robinson Road From North Right	Thru	Left	Peds	Great Road (Route 119) From East Right	Thru	Left	Peds	Bank Exit From South Right	Thru	Left	Peds	Great Road (Route 119) From West Right	Thru	Left	Peds	Int. Total
11:00 AM	2	0	0	0	0	190	0	0	8	0	8	0	0	191	0	0	399
11:15 AM	3	0	0	0	0	193	0	0	13	0	8	0	0	205	1	0	42
11:30 AM	2	0	1	0	2	181	0	0	10	0	10	0	0	226	2	0	43
11:45 AM	4	0	0	0	2	217	0	0	7	0	13	0	0	209	1	0	45
Total	11	0	1	0	4	781	0	0	38	0	39	0	0	831	4	0	1709
12:00 PM	2	0	0	0	1	229	0	0	8	0	8	0	0	195	0	0	443
12:15 PM	4	0	0	0	2	188	0	0	7	0	7	0	0	186	2	0	376
12:30 PM	2	0	0	0	0	169	0	0	6	0	2	0	0	190	0	0	369
12:45 PM	0	0	0	0	0	201	0	0	4	0	4	0	0	162	0	0	371
Total	8	0	0	0	3	787	0	0	25	0	21	0	0	713	2	0	1559
Grand Total	19	0	1	0	7	1568	0	0	63	0	60	0	0	1544	6	0	3268
Apprch %	95	0	5	0	0.4	99.6	0	0	51.2	0	48.8	0	0	99.6	0.4	0	
Total %	0.6	0	0	0	0.2	48	0	0	1.9	0	1.8	0	0	47.2	0.2	0	

Start Time	Robinson Road From North Right	Thru	Left	Peds	App. Total	Great Road (Route 119) From East Right	Thru	Left	Peds	App Total	Bank Exit From South Right	Thru	Left	Peds	App. Total	Great Road (Route 119) From West Right	Thru	Left	Peds	App Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:15 AM																					
11:15 AM	3	0	0	0	3	0	193	0	0	193	13	0	8	0	21	0	205	1	0	206	420
11:30 AM	2	0	1	0	3	2	181	0	0	183	10	0	10	0	20	0	226	2	0	228	434
11:45 AM	4	0	0	0	4	2	217	0	0	219	7	0	13	0	20	0	209	1	0	210	463
12:00 PM	2	0	0	0	2	1	229	0	0	230	8	0	8	0	16	0	195	0	0	195	443
Total Volume	11	0	1	0	12	5	820	0	0	825	38	0	39	0	77	0	835	4	0	839	1753
% App. Total	91.7	0	8.3	0		0.6	99.4	0	0		49.4	0	50.6	0		0	99.5	0.5	0		
PHF	.688	.000	.250	.000	.750	.625	.895	.000	.000	.897	.731	.000	.750	.000	.917	.000	.924	.500	.000	.920	.967

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N/S: Robinson Road/Bank Exit
E/W: Great Road (Route 119)
City, State: Littleton, MA
Client: TEC/K. Dandrade

File Name : 03311
Site Code : T0121
Start Date : 4/30/
Page No : 1

Groups Printed- Trucks

Start Time	Robinson Road From North				Great Road (Route 119) From East				Bank Exit From South				Great Road (Route 119) From West				Int
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
11:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	
11:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0	
12:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	
12:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	6	0	0	0	0	0	0	0	2	0	0	
Grand Total	0	0	0	0	0	10	0	0	0	0	0	0	0	5	0	0	
Approch %	0	0	0	0	0	100	0	0	0	0	0	0	0	100	0	0	
Total %	0	0	0	0	0	66.7	0	0	0	0	0	0	0	33.3	0	0	

Start Time	Robinson Road From North					Great Road (Route 119) From East				Bank Exit From South				Great Road (Route 119) From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	To
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	
11:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	
12:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	
12:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	4	0	0	4	
% App. Total	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.750	.000	.000	.750	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.6

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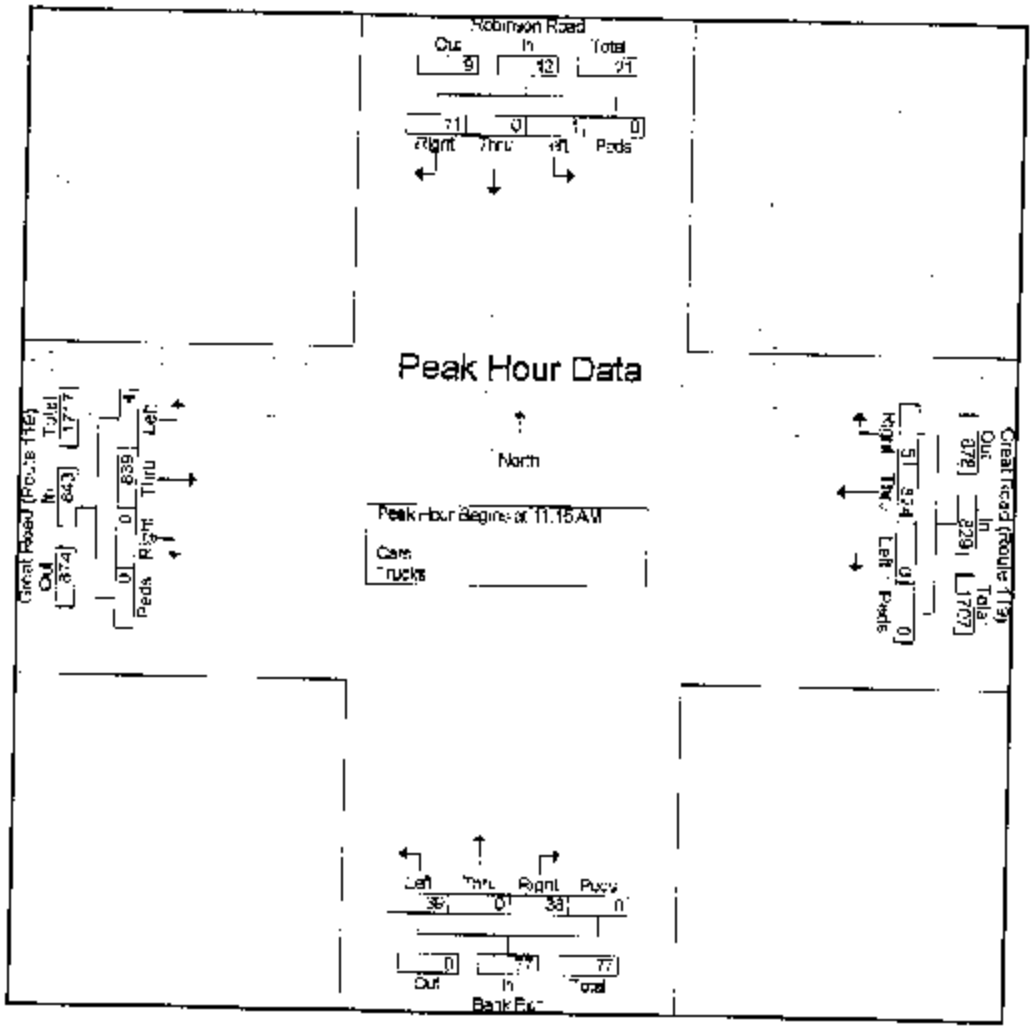
N/S: Robinson Road/Bank Exit
E/W: Great Road (Route 119)
City, State: Littleton, MA
Client: TEC/K. Dandrade

File Name : 03311A
Site Code : T0121
Start Date : 4/30/2
Page No : 1

	Robinson Road From North					Great Road (Route 119) From East					Bank Exit From South					Great Road (Route 119) From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	In Tot
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:15 AM																					
11:15 AM	3	0	0	0	3	0	193	0	0	193	13	0	8	0	21	0	235	1	0	236	42
11:30 AM	2	0	1	0	3	2	183	0	0	185	10	0	10	0	20	0	228	2	0	230	43
11:45 AM	4	0	0	0	4	2	216	0	0	220	7	0	13	0	20	0	209	1	0	210	45
12:00 PM	2	0	0	0	2	1	230	0	0	231	8	0	8	0	16	0	197	0	0	197	44
Total Volume	11	0	1	0	12	5	824	0	0	829	38	0	39	0	77	0	869	4	0	873	176
% App. Total	91.7	0	8.3	0		0.6	99.4	0	0		49.4	0	50.6	0		0	99.5	0.5	0		
PHF	.688	.000	.250	.000	.750	.625	.896	.000	.000	.897	.731	.000	.750	.000	.917	.000	.920	.500	.000	.816	.97



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Robinson Road north of
Great Road (Route 119/2A)
City, State: Littleton, MA
Client: TEC/K. Dandrade

Site Code: TO
03311Avolt

Start Time	NB A.M.		NB P.M.		SB A.M.		SB P.M.		Combined A.M.		Combined P.M.		05-May-05 Thu
12:00	0		1		0		1		0		2		
12:15	1		2		1		0		2		2		
12:30	0		0		0		0		0		0		
12:45	0	1	4	7	0	1	2	3	0	2	6	10	
01:00	0		0		0		0		0		0		
01:15	0		1		0		1		0		2		
01:30	0		4		0		3		0		7		
01:45	0	0	0	5	0	0	4	8	0	0	4	13	
02:00	0		3		0		0		0		3		
02:15	0		0		0		2		0		2		
02:30	0		1		0		2		0		3		
02:45	0	0	2	5	0	0	2	6	0	0	4	12	
03:00	0		7		0		8		0		15		
03:15	0		4		0		2		0		6		
03:30	0		4		0		3		0		7		
03:45	1	1	2	17	1	1	0	13	2	2	2	30	
04:00	0		3		0		3		0		5		
04:15	0		1		0		2		0		2		
04:30	0		1		0		0		0		1		
04:45	0	0	1	5	0	0	0	1	0	0	1	7	
05:00	0		1		0		1		0		2		
05:15	0		4		0		4		0		6		
05:30	0		3		0		0		0		3		
05:45	0	0	3	11	2	2	2	7	2	2	5	18	
06:00	0		0		3		4		0		4		
06:15	0		4		0		2		0		5		
06:30	2		4		2		2		3		6		
06:45	2	4	5	13	2	3	4	11	4	7	9	24	
07:00	0		3		1		3		1		5		
07:15	0		3		0		1		0		1		
07:30	0		2		1		1		1		3		
07:45	1	4	2	6	2	4	1	6	3	5	3	12	
08:00	2		2		3		1		5		3		
08:15	2		1		2		0		4		1		
08:30	2		3		1		1		3		1		
08:45	2	8	3	6	0	5	1	3	2	14	4	9	
09:00	1		0		1		0		2		0		
09:15	8		1		0		0		8		1		
09:30	4		0		1		0		5		0		
09:45	2	16	0	1	2	4	0	0	4	18	0	1	
10:00	2		1		2		0		4		1		
10:15	0		1		2		0		2		1		
10:30	1		0		4		0		5		1		
10:45	1	4	0	2	2	10	0	0	3	14	0	2	
11:00	2		0		2		0		4		0		
11:15	1		0		0		0		1		0		
11:30	0		0		2		0		2		0		
11:45	0	3	0	0	0	4	0	0	0	7	0	0	
Total	37		80		36		58		72		136		
Percent	51.4%		56.0%		48.3%		42.0%						
Day Total		117				93				210			
Peak	09:15		02:45		09:45		02:45		09:15		02:45		
Vol	16		17		10		15		31		32		
P.H.F.	0.500		0.607		0.625		0.469		0.656		0.533		

Transportation Data Corporation
P.O. Box 334 Wakefield, MA 01880
Tel. (781) 587-0086 Fax (781) 587-0189
Cell (781) 316-4663 E: mperonel@comcast.net

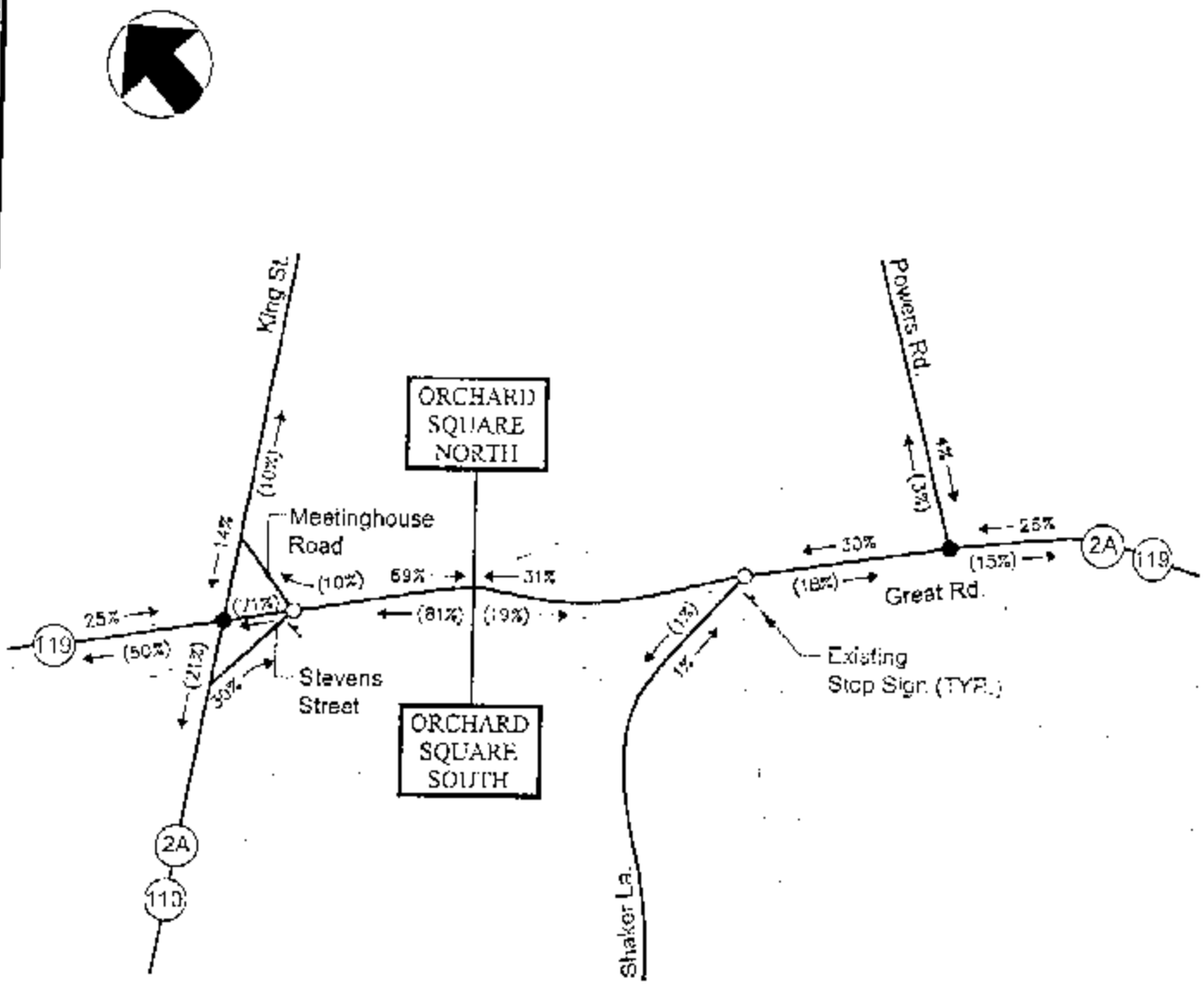
Farmstead Way south of
King Street (Route 110)
City, State: Littleton, MA
Client: TEC/K. Dandrade

Site Code: T0
03311Bvol:

Start Time	NB A.M.		NB P.M.		SB A.M.		SB P.M.		Combined A.M.		Combined P.M.		05-May-05 Thu
12:00	0		10		0		10		0		20		
12:15	0		12		0		14		0		26		
12:30	0		15		0		10		0		25		
12:45	0	0	12	49	0	0	7	41	0	0	19	90	
01:00	0		7		0		12		0		19		
01:15	0		14		0		17		0		31		
01:30	0		21		0		14		0		35		
01:45	0	0	14	56	0	0	15	58	0	0	29	114	
02:00	0		17		0		10		0		27		
02:15	0		7		0		10		0		17		
02:30	0		10		0		6		0		16		
02:45	0	0	8	40	0	0	11	37	0	0	17	77	
03:00	0		15		0		7		0		22		
03:15	0		7		0		15		0		22		
03:30	0		9		0		10		0		19		
03:45	0	0	10	41	0	0	10	42	0	0	20	83	
04:00	0		5		0		8		0		13		
04:15	0		9		0		12		0		21		
04:30	0		14		0		5		0		19		
04:45	0	0	13	41	0	0	5	30	0	0	18	71	
05:00	0		4		1		7		1		11		
05:15	1		5		0		5		1		10		
05:30	0		9		1		8		1		18		
05:45	2	3	8	26	11	13	4	25	13	16	12	51	
06:00	2		9		0		5		2		14		
06:15	1		4		1		3		2		7		
06:30	1		1		3		2		4		3		
06:45	2	6	0	14	2	6	1	11	4	12	1	25	
07:00	0		0		0		1		0		1		
07:15	1		2		1		1		2		3		
07:30	4		1		1		1		5		2		
07:45	0	5	0	3	1	3	1	4	1	8	0	7	
08:00	3		0		0		0		3		0		
08:15	2		1		0		1		2		2		
08:30	3		0		4		1		7		1		
08:45	9	17	0	1	6	10	0	2	15	27	0	3	
09:00	2		0		1		0		3		0		
09:15	4		2		10		0		14		2		
09:30	4		0		6		0		10		0		
09:45	8	18	0	2	14	31	0	0	22	49	0	2	
10:00	10		0		8		1		18				
10:15	10		0		12		0		22		0		
10:30	7		0		8		0		15		0		
10:45	7	34	0	0	9	38	0	1	16	72	0	1	
11:00	12		0		6		1		17		1		
11:15	7		0		8		0		15		0		
11:30	7		0		15		0		22		0		
11:45	6	35	0	0	12	40	0	1	21	75	0	1	
Total	118		273		141		252		259		525		
Percent	45.6%		52.0%		54.4%		48.0%						
Day Total		391				393				784			
Peak	10:15		01:15		09:45		01:00		09:45		01:15		
Vol.	36		56		43		58		76		122		
P.H.F.	0.750		0.700		0.717		0.853		0.886		0.871		

Traffic Study Appendix B

Nearby Projects – Traffic Information for No-Build Condition

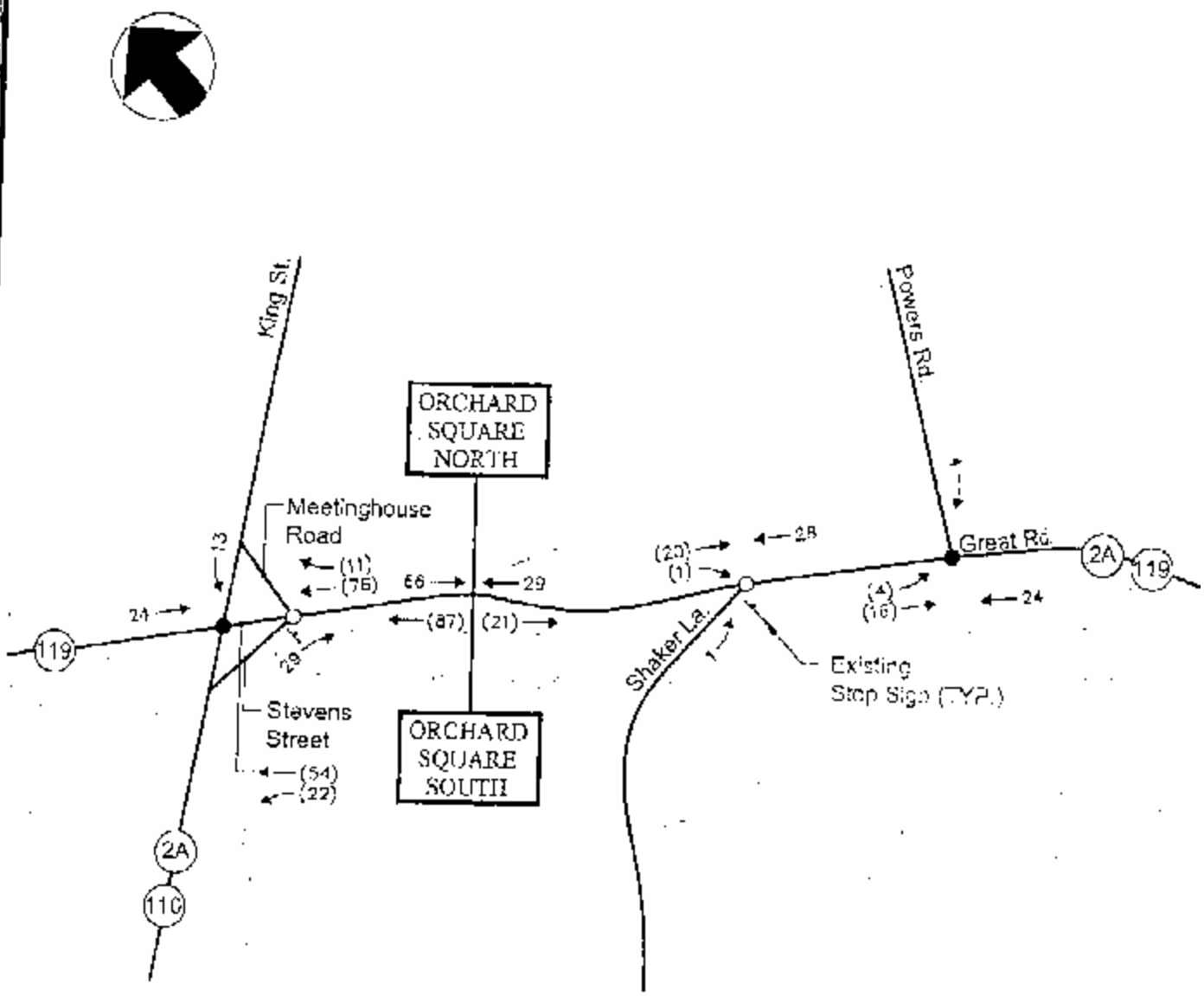


LEGEND:

PM and SAT. ENTER	xx%
PM and SAT. EXIT	(xx%)
DIRECTION OF TRAVEL	—→
SIGNALIZED INTERSECTION	●
UNSIGNALIZED INTERSECTION	○

GEOD CONSULTING
ENGINEERING SITE DEVELOPMENT TRANSPORTATION
[illegible] Roland Street, Boston, MA 02131
[illegible]

ORCHARD SQUARE DEVELOPMENT
LITTLETON, MASSACHUSETTS
TRIP DISTRIBUTION
[illegible]

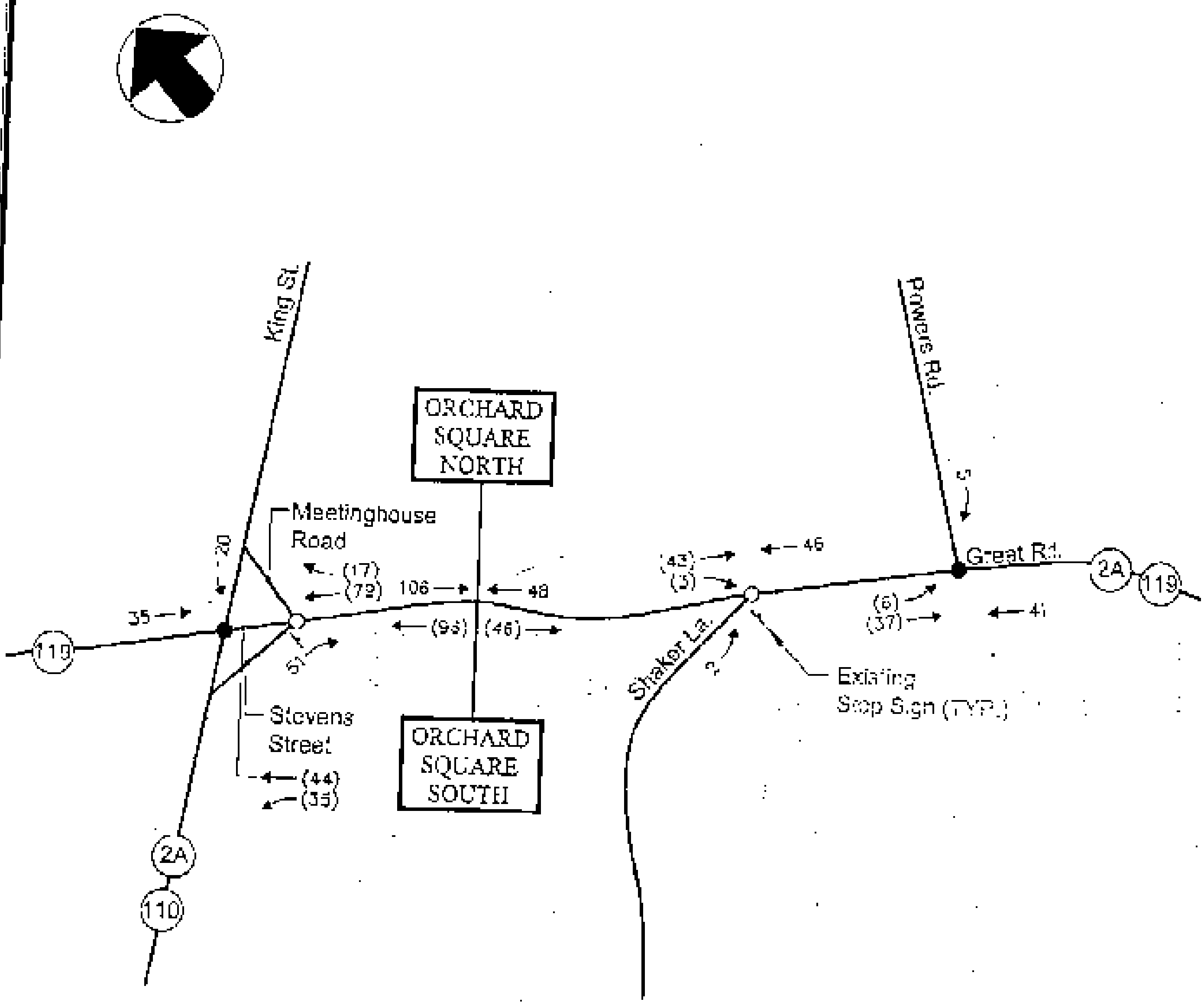


LEGEND:

PM ENTER	XX
PM EXIT	(XX)
DIRECTION OF TRAVEL	- - →
SIGNALIZED INTERSECTION	●
UNSIGNALIZED INTERSECTION	○

GEOD CONSULTING
ENGINEERING SITE DEVELOPMENT TRANSPORTATION
535 Route 108, Suite 120, Somersworth, NH 03878
Phone (603) 749-9005 Fax (603) 749-9006

ORCHARD SQUARE DEVELOPMENT
LITTLETON, MASSACHUSETTS
SITE TRIP VOLUMES



LEGEND:

SAT. ENTER	xx
SAT. EXIT	(xx)
DIRECTION OF TRAVEL	⟶
SIGNALIZED INTERSECTION	●
UNSIGNALIZED INTERSECTION	○

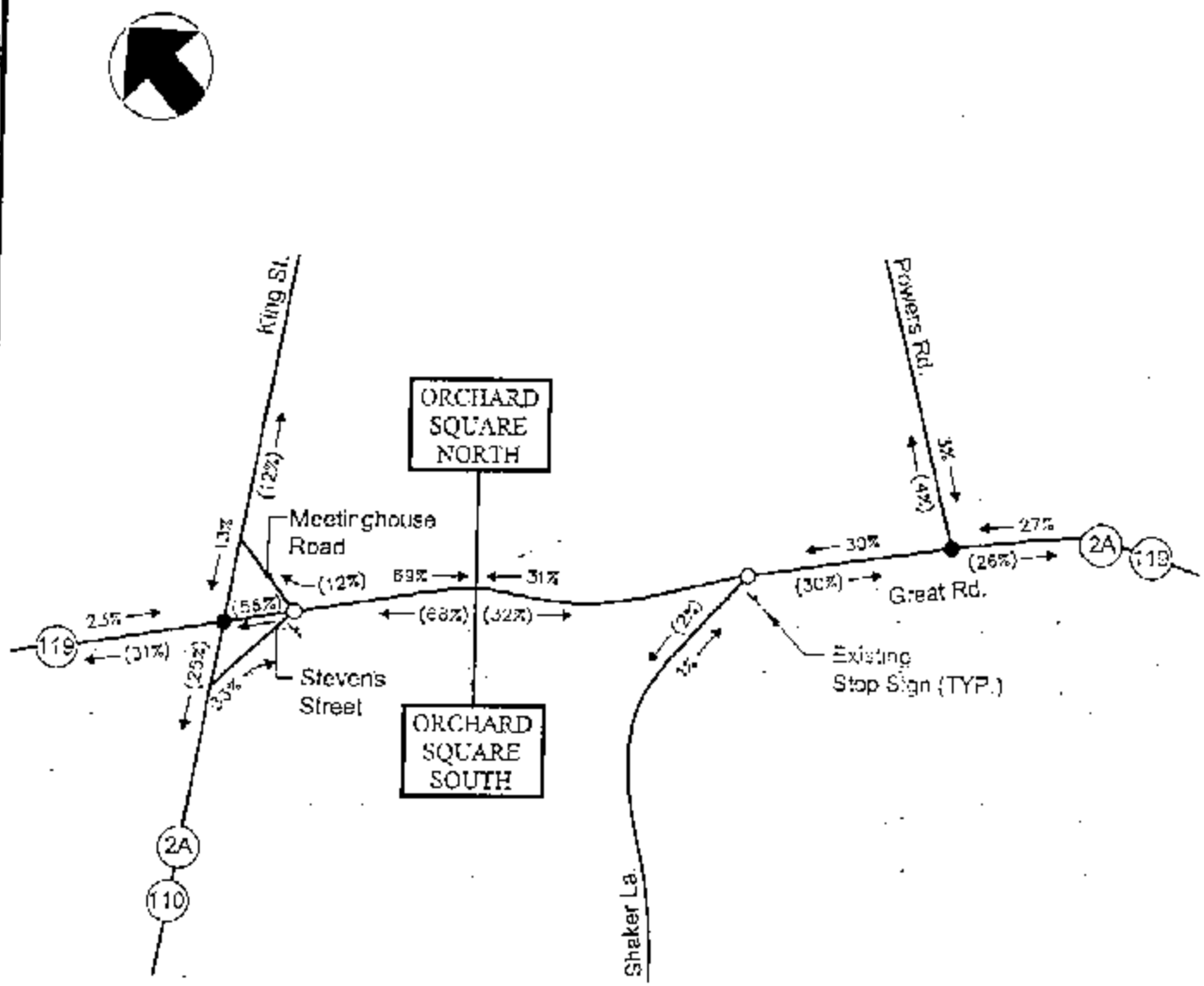
GEOD CONSULTING
ENGINEERING SITE DEVELOPMENT TRANSPORTATION

ORCHARD SQUARE DEVELOPMENT
LITTLETON, MASSACHUSETTS

SITE TRIP VOLUMES

SAT. PEAK HOUR

5



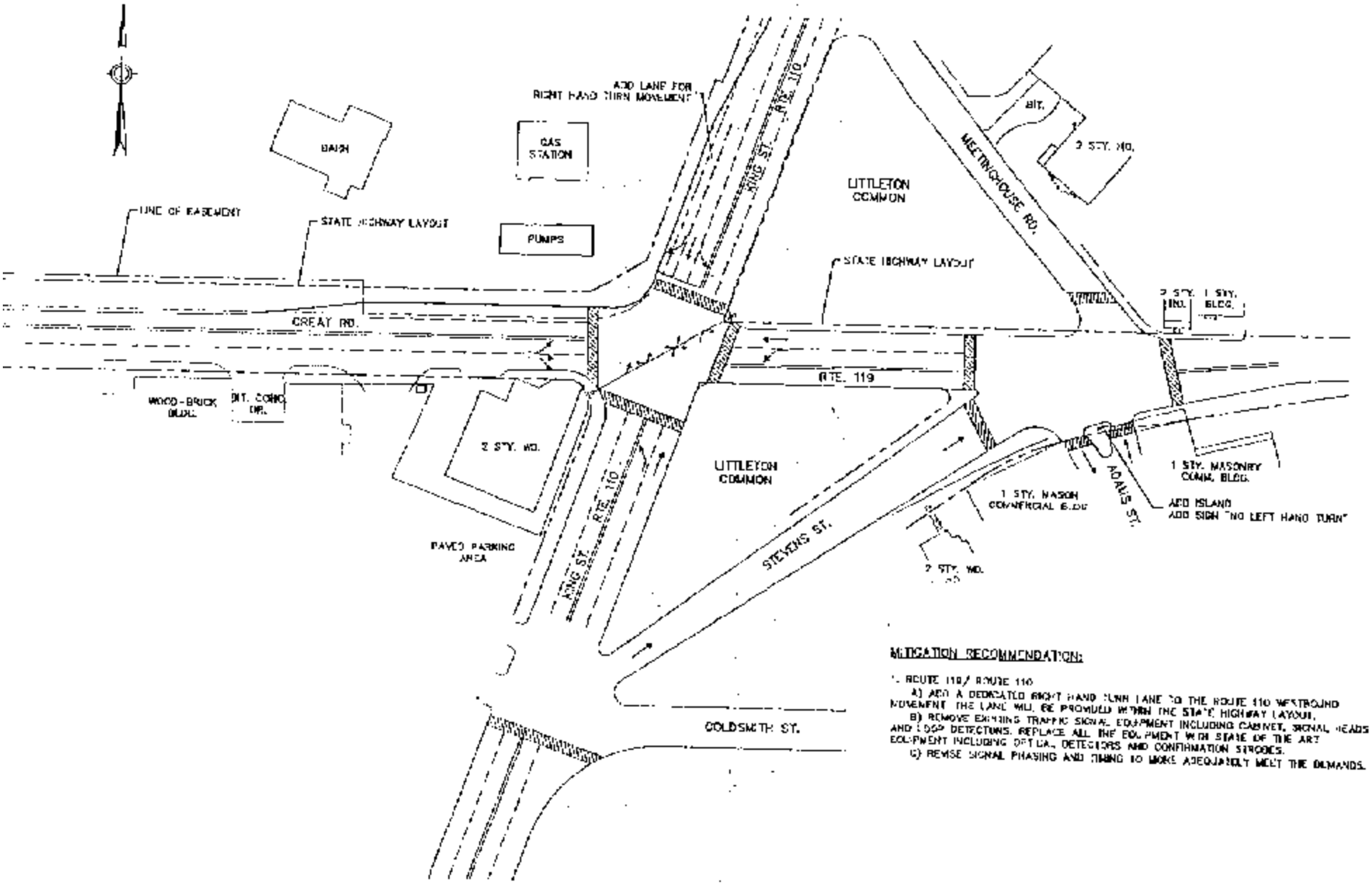
LEGEND:

PM and SAT. ENTER	xx%
PM and SAT. EXIT	(xx%)
DIRECTION OF TRAVEL	→
SIGNALIZED INTERSECTION	●
UNSIGNALIZED INTERSECTION	○

GEOD CONSULTING
ENGINEERING SITE DEVELOPMENT TRANSPORTATION
Phone (617) 778-0435 Fax (617) 778-0437

ORCHARD SQUARE DEVELOPMENT
LITTLETON, MASSACHUSETTS
TRIP DISTRIBUTION
SAT. PEAK HOUR

3



MITIGATION RECOMMENDATION:

1. ROUTE 119/ ROUTE 110

A) ADD A DEDICATED RIGHT HAND TURN LANE TO THE ROUTE 110 WESTBOUND MOVEMENT. THE LANE WILL BE PROVIDED WITHIN THE STATE HIGHWAY LAYOUT.

B) REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT INCLUDING CABINET, SIGNAL HEADS AND LOOP DETECTORS. REPLACE ALL THE EQUIPMENT WITH STATE OF THE ART EQUIPMENT INCLUDING OPTICAL DETECTORS AND CONFIRMATION STROBES.

C) REVISE SIGNAL PHASING AND TIMING TO MORE ADEQUATELY MEET THE DEMANDS.

GEOD CONSULTING

ORCHARD SQUARE DEVELOPMENT

ORCHARD SQUARE DEVELOPMENT

Trip Generation Assessment

Project: Trip Generation for Orchard Square Project - Background Traffic Growth
Date: Jul. 14, 2005
Analyst: KRD
Source: Institute of Transportation Engineers - Trip Generation - 7th Ed.

55,400 sf New Car Sales - ITE LUC 841
Units: 55.4 ksf

	Total Trips			Total	% Distribution		# New Trips	
	Avg. Rates	Fitted Curve	Pass-by 0%	New Trips	IN	OUT	IN	OUT
Weekday AM PH	114	NA	0	114	74%	26%	84	30

6,500 sf Hardware Store - ITE LUC 816
Units: 6.5 ksf

	Total Trips			Total	% Distribution		# New Trips	
	Avg. Rates	Fitted Curve	Pass-by 25%	New Trips	IN	OUT	IN	OUT
Weekday AM PH	7	NA	2	5	60%	40%	3	2

27,900 sf Special Retail - ITE LUC 814 *Assumed reversal of listed PM rates
Units: 27.9 ksf

	Total Trips			Total	% Distribution		# New Trips	
	Avg. Rates	Fitted Curve	Pass-by 25%	New Trips	IN	OUT	IN	OUT
Weekday PM PH	76	88	22	66	56%	44%	37	29

2,100 sf Drive-In Bank - ITE LUC 912
Units: 2.1 ksf

	Total Trips			Total	% Distribution		# New Trips	
	Avg. Rates	Fitted Curve	Pass by 25%	New Trips	IN	OUT	IN	OUT
Weekday AM PH	26	NA	8	19	56%	44%	11	9

Restaurant - Assumed Closed during AM Peak Hour
Units:

	Total Trips			Total	% Distribution		# New Trips	
	Avg. Rates	Fitted Curve	Pass-by 25%	New Trips	IN	OUT	IN	OUT
Weekday AM PH	0	NA	0	0	0%	0%	0	0

Total Trips - All Uses

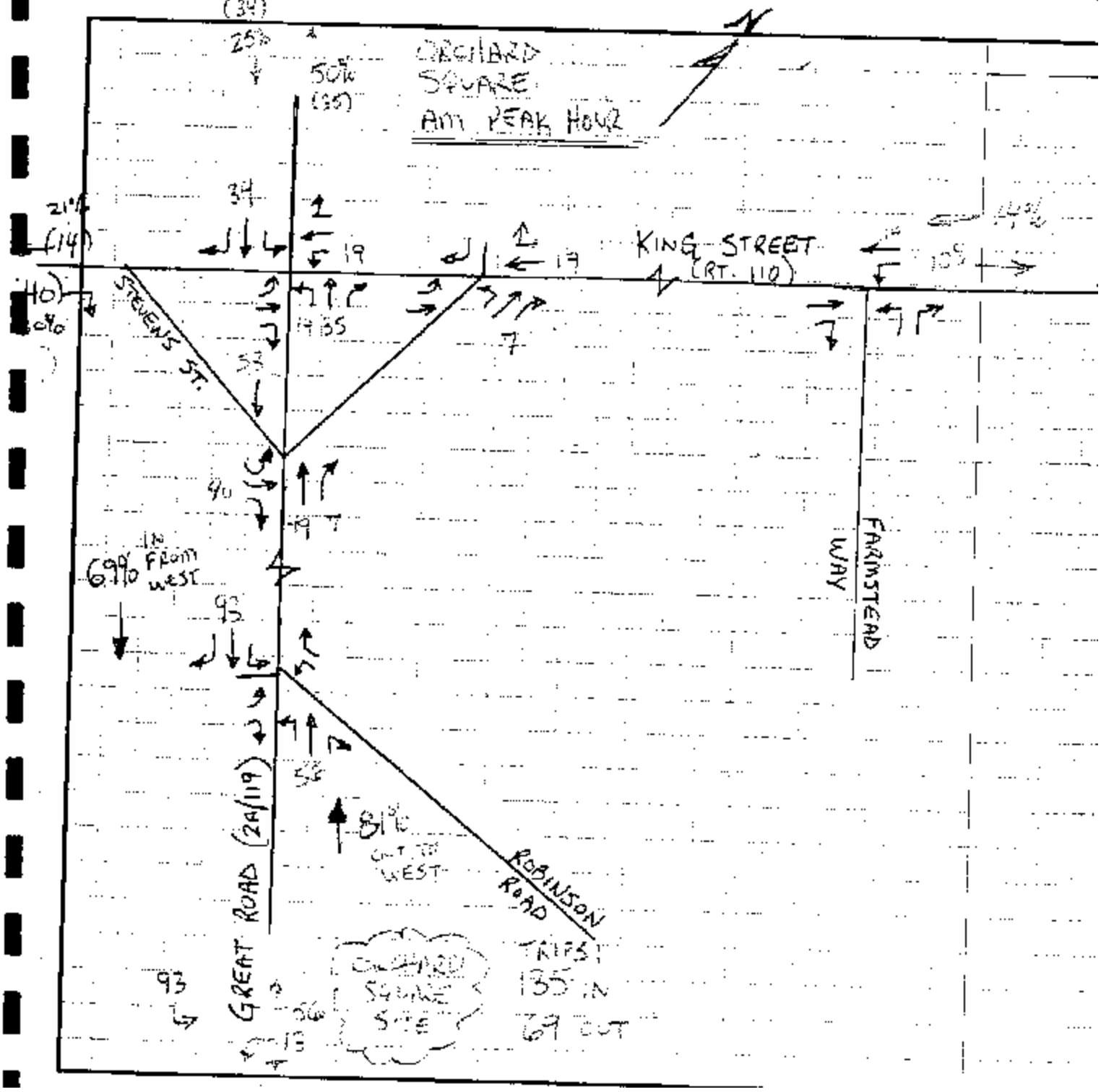
	# New Trips	
	IN	OUT
Weekday AM PH	**135**	**69**

TEC
TEN NEW ENGLAND BUSINESS CENTER DRIVE
SUITE 107 • ANDOVER, MA 01810
TEL 978.794.1792 • FAX 978.794.1793

CALCULATIONS

TRANSPORTATIC
ENGINEERING + CONSTRUCTIO

JOB: PROPOSED RESIDENTIAL DEVEL. JOB NUMBER: P0662
LOCATION: LITTLETON, MA DATE: APRIL 2005 7/18/05
TITLE: TRAFFIC VOLUMES SHEET: OF
CALCULATED BY: RAD CHECKED BY:



Vanasse Associates, Inc.
Transportation Engineers & Planners

10 New England Business Ce.
Suite 314
Andover, MA 01810-1066
Office 978-474-8800
Fax 978-688-3508

FAX TRANSMITTAL

Date: July 12, 2004

Time:

Sender: Pam Barheim

To: Chris Emilius

Company: GEOD Consulting

Telephone Number: 617-776-0432 x100

FAX Number: 617-776-0434

From: Maryanne Thurrott

Project Number: 3826

Project Name: Acton, MA

Total Number of Pages (Including Transmittal Form): 2

Original of telecopy message [X] will [ ] will not be sent, on (date) Today

Comments:

cc: RDV, File

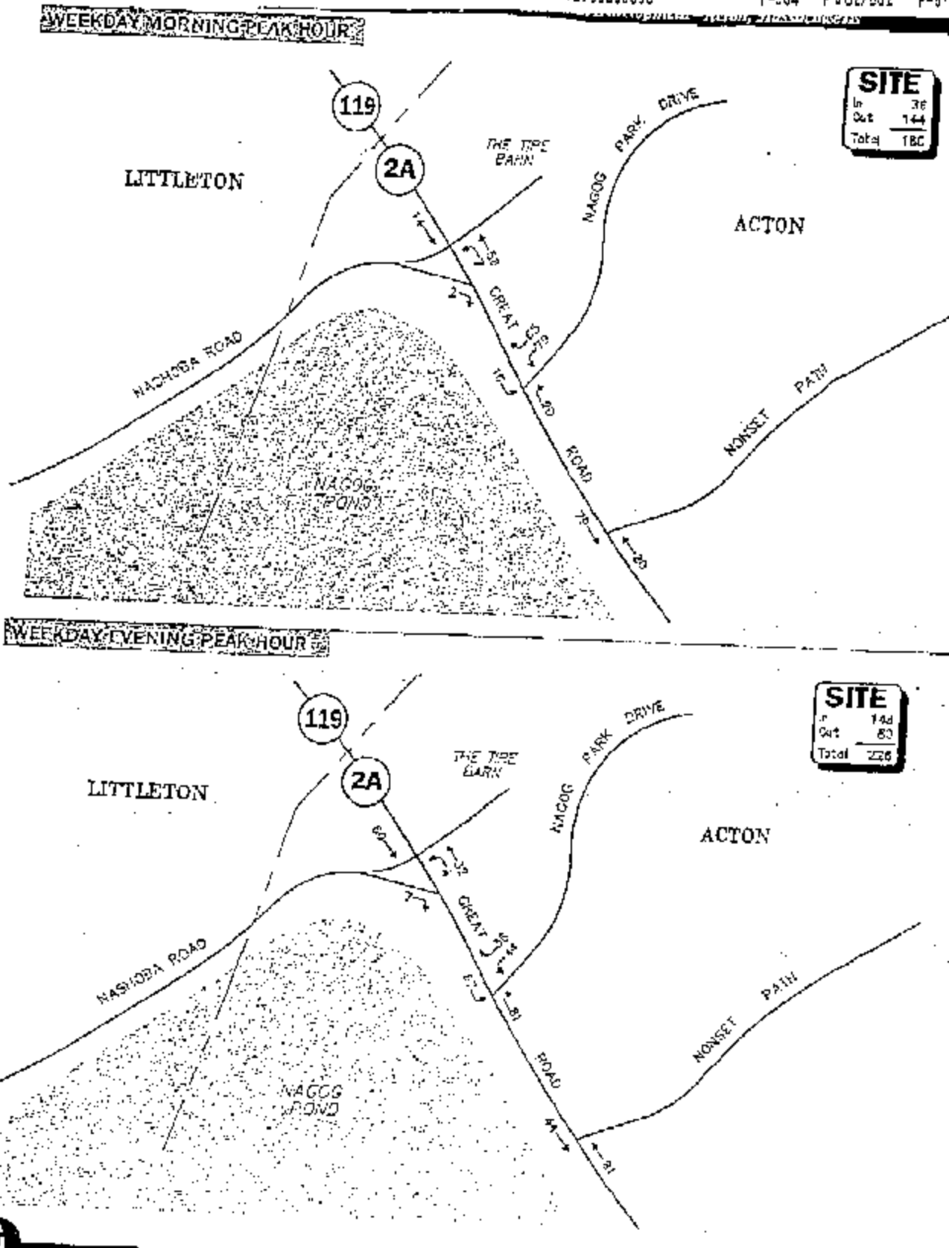


Figure 5

Site Generated
Peak Hour Traffic Volumes

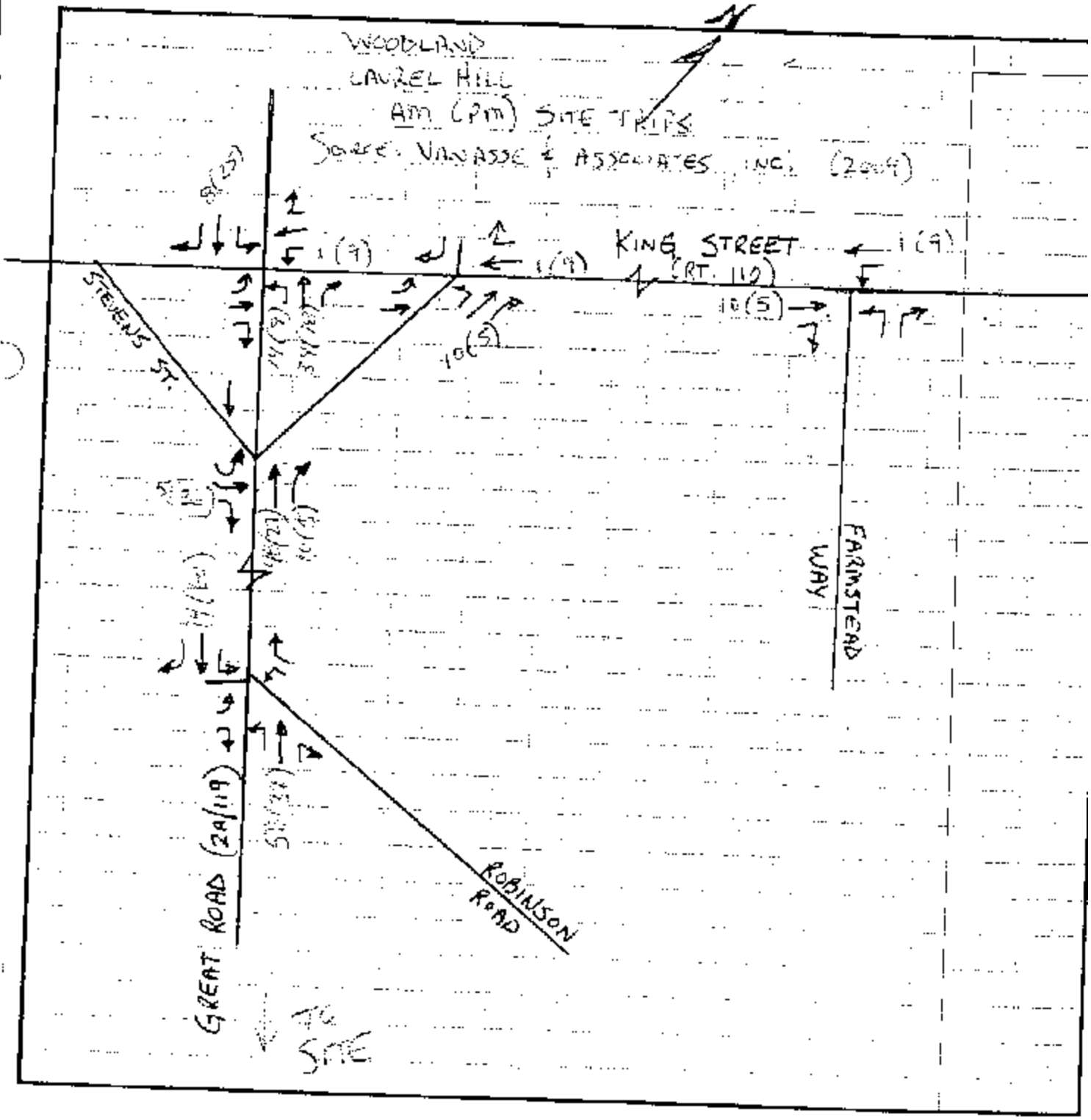
Vanasse & Associates, Inc.
Transportation Engineers & Planners

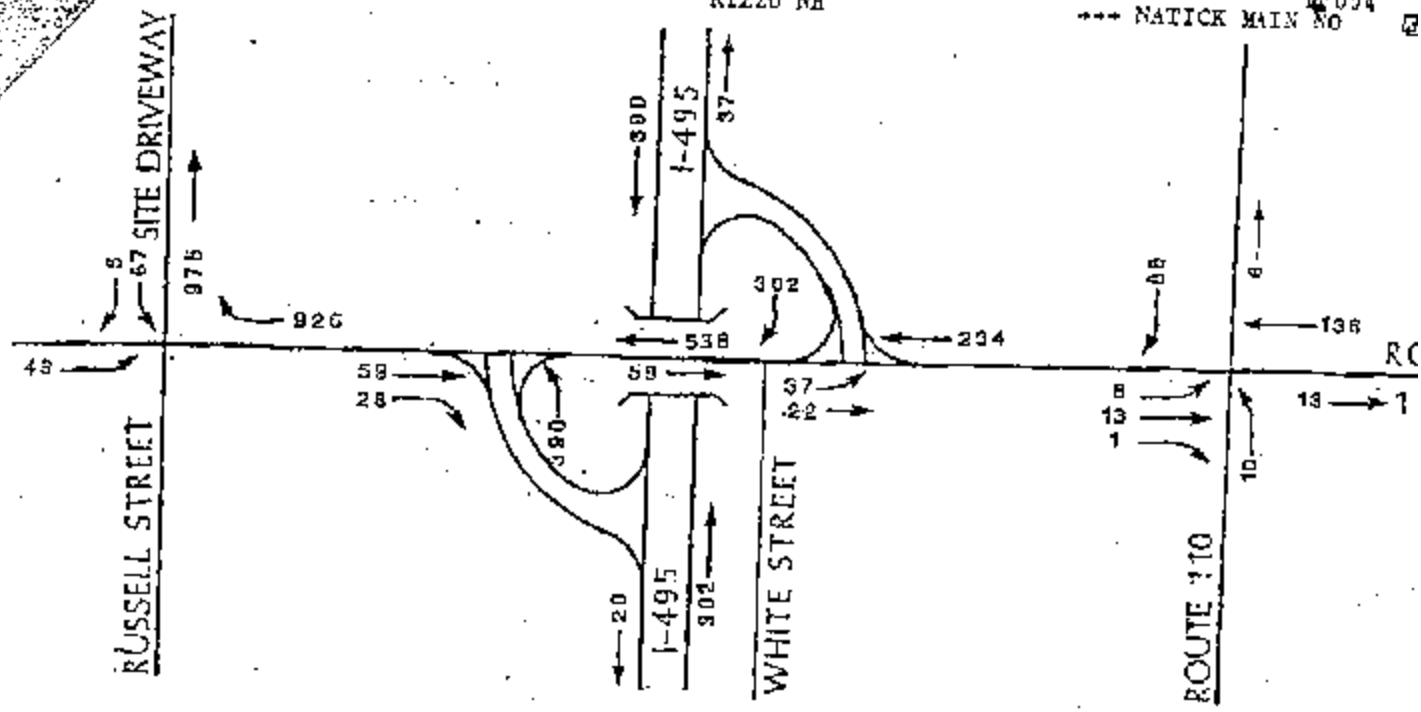
TEC
TEN NEW ENGLAND BUSINESS CENTER DRIVE
SUITE 107 • ANDOVER, MA 01810
TEL 978.794.1792 • FAX 978.794.1793

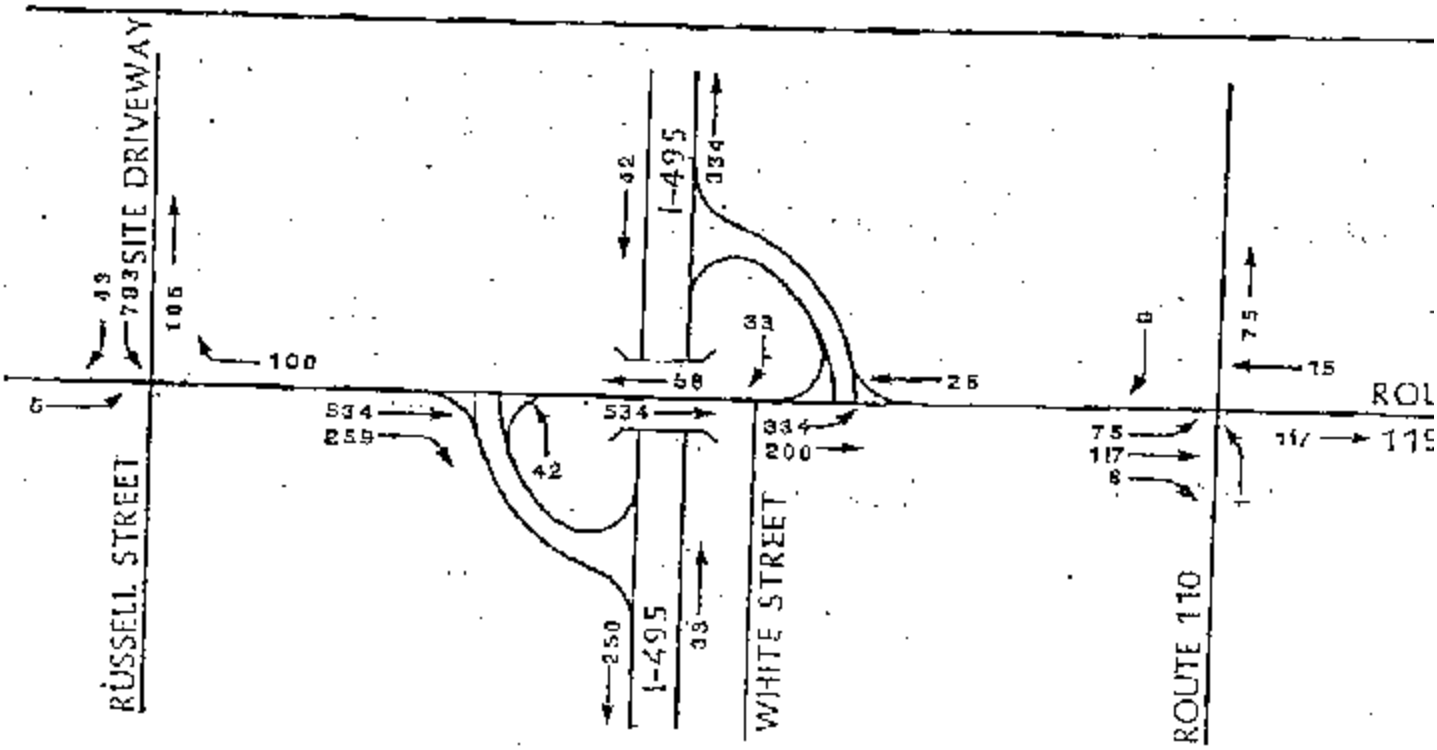
CALCULATIONS

TRANSPORTATIC
ENGINEERING/CONSTRUCTIO

JOB: PROPOSED RESIDENTIAL DEVEL. JOB NUMBER: P0062
LOCATION: LITTLETON, MA DATE: APRIL 2005
TITLE: TRAFFIC VOLUMES SHEET: OF
CALCULATED BY: CHECKED BY:





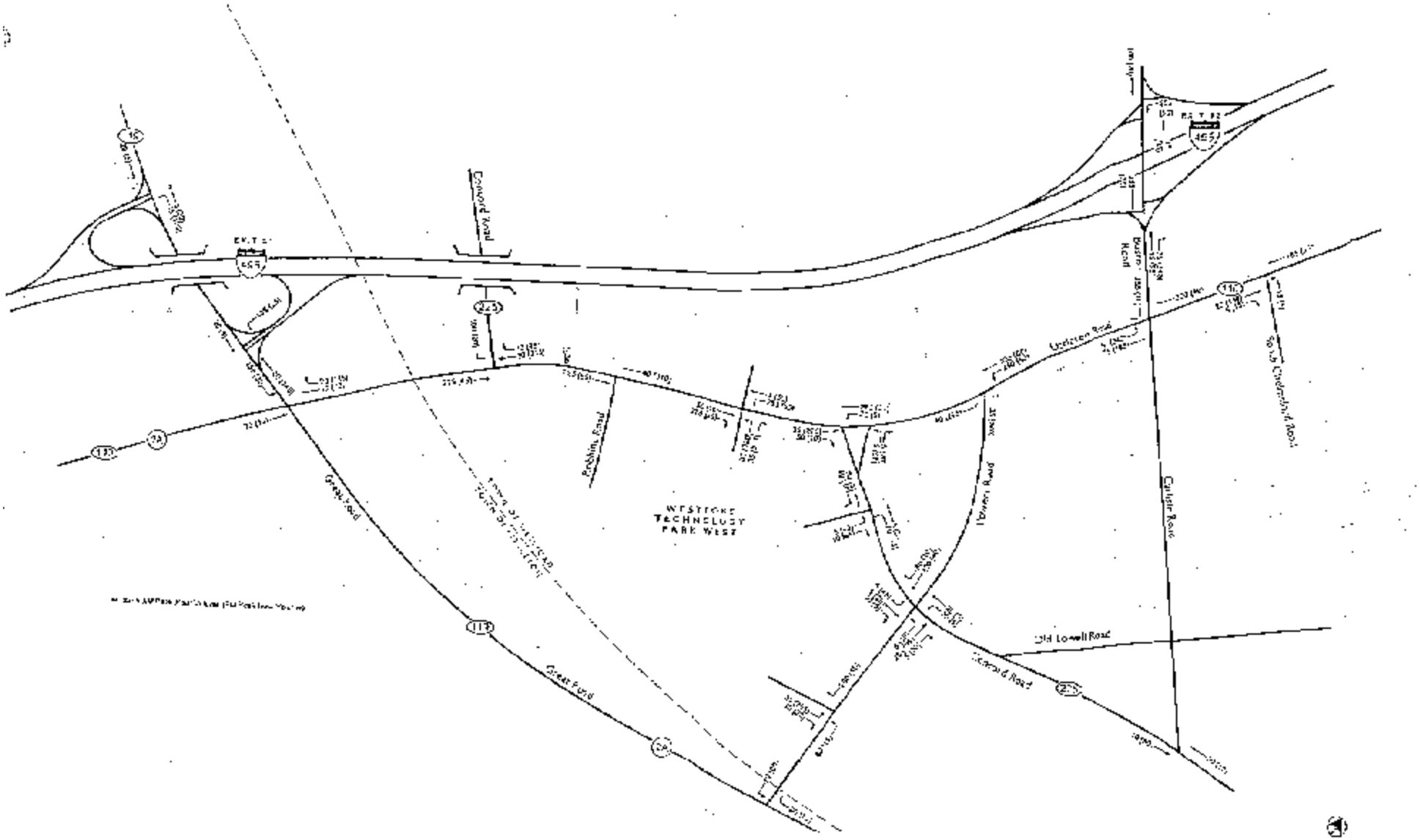


LITTLETON CORPORATE CENTER
Littleton, Massachusetts

Figure 5

PEAK HOUR TRAFFIC VOLUMES SITE (1992)

Not to Scale



SMMA

THE GUTIERREZ COMPANY
ONE MALL STREET
BURLINGTON, MA 01803

S Z P O ASSOCIATES

WESTFORD TECHNOLOGY PARK WEST PHASE II
AM (PM) Peak Hour Site Trips with Route 110 Improvements

DATE 04/09/04
SCALE
JOB NO. 01113.00

FIG 5-17

Traffic Study Appendix C

Regional Seasonal and Annual Adjustment Data

Seasonal Adjustment Data / Calculations

STATION 4172 - ACTON - RTE.2 - 1.6 km WEST OF RTE.27

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR AVG	% Change Feb-Avg
99	32,618	34,264	35,550	37,105	36,706	38,758	35,804	38,710	37,494	38,546	37,822	37,049	36,541	6.66%
	1%	4%	4%	-1%	7%	4%	1%	7%	6%	6%	1%	-1%	3%	
00	33,043	35,586	37,023	36,712	39,406	40,165	35,201	38,187	39,598	40,734	38,352	36,706	37,735	5.74%
	8%	1%	-1%	7%	2%	0%	3%	0%	-3%	0%	0%	-5%	1%	
01	35,825	35,979	36,778	39,307	40,075	40,155	37,299	39,172	38,321	40,775	38,257	34,936	38,060	6.08%
	1%	3%	4%	0%	1%	-1%	-1%	2%	-3%	0%	-3%	6%	1%	
02	36,353	37,059	36,281	39,159	40,386	39,770	36,773	39,939	37,226	40 648	37 179	37,000	38,331	3.44%
	-6%	-4%	-5%	-1%	-2%	1%	0%	-4%	7%	2%	2%	-3%	-1%	
03	34,042	35,512	36,075	38,809	39,678	40,060	36,767	38,417	38,804	41,741	38,098	35,900	38,084	7.27%

5-Year Average Adjustment	5.84%

MASSACHUSETTS HIGHWAY DEPARTMENT - STATEWIDE TRAFFIC DATA COLLECTION

2003 WEEKDAY SEASONAL FACTORS *

* Note: These are weekday factors. The average of the factors for the year will not equal 1 as weekend data are not considered.

FACTOR GROUP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
GROUP 1 - WEST INTERSTATE	1.00	1.01	0.89	0.86	0.87	0.85	0.92	0.90	0.89	0.90	0.92	0.93
GROUP 2 - RURAL MAJOR COLLECTOR (R-5)	1.16	1.12	1.08	1.02	0.93	0.88	0.87	0.88	0.93	0.93	1.02	1.05
GROUP 3A - RECREATIONAL **(1-4) See below	1.30	1.24	1.16	1.06	0.98	0.86	0.79	0.78	0.93	0.97	1.08	1.14
GROUP 3B - RECREATIONAL ***(5) See below	1.35	1.26	1.23	1.13	1.01	0.86	0.77	0.76	0.99	1.03	1.10	1.17
GROUP 4 - I-495 INTERSTATE	1.08	1.04	1.00	0.95	0.92	0.86	0.86	0.83	0.90	0.92	0.96	1.00
GROUP 5 - EAST INTERSTATE	1.07	1.03	0.97	0.95	0.94	0.89	0.92	0.90	0.92	0.93	0.94	0.97
GROUP 6 - URBAN ARTERIALS, COLLECTORS & RURAL ARTERIALS (R-2, R-3)	1.06	1.02	0.98	0.95	0.92	0.90	0.92	0.90	0.91	0.92	0.95	0.97
GROUP 7 - I-84 PROXIMITY (STA. 17)	1.31	1.28	1.16	1.10	0.97	0.87	0.90	0.89	0.99	1.08	1.11	1.26
GROUP 8 - I-295 PROXIMITY (STA. 6590)	1.07	1.05	0.98	0.93	0.92	0.88	0.9*	0.87	0.88	0.89	0.89	0.88
GROUP 9 - I-195 PROXIMITY (STA. 7)	1.19	1.12	1.07	0.99	0.93	0.85	0.82	0.80	0.91	0.94	1.00	1.05

RECREATIONAL (ALL YEARS)

**GROUP 3A:

1. CAPE COD (ALL TOWNS)
2. PLYMOUTH (SOUTH OF RTE.3A):
   7070,7080,7083,7091,7092,7095,7094,7095,7096,7097,7108,7178
3. MARTHA'S VINEYARD
4. NANTUCKET

***GROUP 3B:

5. PERMANENTS 2 & 185
   1065,1067,1093,1084,1085,1086,1087,1088,1089,1090,1091,1092,
   1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,
   1105,1106,1107,1108,1113,1114,1116,2196,2197,2198

2003 AXLE CORRECTION FACTORS

ROAD INVENTORY FUNCTIONAL CLASSIFICATION	AXLE CORRECTION FACTOR
R-1	0.93
R-2	0.97
R-3	0.98
R-5	0.98
U-1	0.96
U-2,U-3,U-4	0.97
U-5	0.90
U-6	0.93
I-84	0.73

Apply I-84 factor to stations: 3290,3921,3929

ROUND OFF

0 - 999..... ...10
> 1,000..... ...100

Annual Traffic Volume Data - MassHighway Permanent Count Stations

STA.	ROUTE/STREET	CITY/TOWN	LOCATION	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Annual Growth Rate
4002	RTE.119 & 2A	ACTON	AT LITTLETON T.L.		18,000			18,100			17,500			-0.47%
S003	RTE.119 & 2A	LITTLETON	BTWN. POWERS RD. & SHAKE	15,000										
S002	RTE.119 & 2A	LITTLETON	EAST OF POWERS RD.	22,000										
S001	RTE.119 & 2A	LITTLETON	WEST OF SHAKER LANE	13,000										
4020	RTE I-495	LITTLETON	NORTH OF RTE.119	81,000	85,000	79,300	92,300		88,500					1.79%
4091	RTE.I-495	LITTLETON	NORTH OF RTE.2		84,400	75,149	78,299	81,822	84,654					0.08%
4427	RTE.I-495	LITTLETON	SOUTH OF RTE.119		85,300			97,900						4.82%
4090	RTE.I-495	LITTLETON	SOUTH OF RTE.2		67,000	63,500		80,000	73,400					2.31%
S006	RTE. 2A & 110	LITTLETON	EAST OF KING ST.					15,200						
S002	RTE. 2A & 110	LITTLETON	EAST OF WILLOW RD.					13,600						
S001	RTE. 2A & 110	LITTLETON	SOUTH OF RTES. 2A &119								6,700			
S005	RTE. 2A & 110	LITTLETON	WEST OF KING ST.					15,600						
S001	RTE. 2A & 110	LITTLETON	WEST OF WILLOW RD.					9,900						

Permanent Count Stations with only one count on record

AVERAGE ANNUAL GROWTH RATE =	1.72%

Traffic Study Appendix D

Site Trip Generation and Distribution

Trip Generation Assessment

Project: CFI Partnership
Date: April 15, 2005
Analyst: KRD
Source: Institute of Transportation Engineers - Trip Generation - 7th Ed.

92 New Residential Condominium Units - ITE LUC 230

Units: 92 Res. Units

	Total Trips			Total	% Distribution		# New Trips	
	Avg. Rates	Fitted Curve	Pass-by 0%	New Trips	IN	OUT	IN	OUT
Weekday Daily	539	598	0	598	50%	50%	299	299
Weekday AM PH	40	48	0	48	17%	83%	8	40
Weekday PM PH	48	56	0	56	67%	33%	38	19
Saturday Daily	522	761	0	761	50%	50%	380	380
Sat Midday PH	43	69	0	69	54%	46%	37	32

PREPARED BY CONLEY ASSOCIATES, INC.
MARCH 2005

1184 Littleton
Journey To Work

Origin: Littleton, MA

Destination (Work)	# of Trips	W on Rte 110/2A	E on Rte 110	S on Rte 2A/119	N on Rte 119	Rte 119 To I-495 N	Rte 2A/110 To I-495 S
Dartmouth town Bristol Co. MA	8	0	0	0	0	0	8
Andover town Essex Co. MA	37	0	0	0	0	37	0
Beverly city Essex Co. MA	9	0	0	0	0	9	0
Haverhill city Essex Co. MA	27	0	0	0	0	27	0
Lawrence city Essex Co. MA	8	0	0	0	0	8	0
Lynnfield town Essex Co. MA	8	0	0	0	0	8	0
Methuen city Essex Co. MA	27	0	0	0	0	27	0
North Andover town Essex Co. MA	14	0	0	0	0	14	0
Peabody city Essex Co. MA	7	0	0	0	0	7	0
Salem city Essex Co. MA	9	0	0	0	0	9	0
Saugus town Essex Co. MA	10	0	0	0	0	0	10
Shelburne town Franklin Co. MA	7	0	0	0	0	0	7
Palmer town Hampden Co. MA	295	0	0	295	0	0	0
Acton town Middlesex Co. MA	24	0	0	0	0	24	0
Arlington town Middlesex Co. MA	41	41	0	0	0	0	0
Ayer town Middlesex Co. MA	41	0	41	0	0	0	0
Bedford town Middlesex Co. MA	7	0	4	0	0	4	0
Belmont town Middlesex Co. MA	43	0	0	0	0	43	0
Billerica town Middlesex Co. MA	21	0	0	0	0	0	21
Boxbor. town Middlesex Co. MA	30	0	0	0	0	30	0
Burlington town Middlesex Co. MA	103	0	0	0	0	0	103
Cambridge city Middlesex Co. MA	27	0	27	0	0	0	0
Carlisle town Middlesex Co. MA	112	0	0	0	0	112	0
Chelmsford town Middlesex Co. MA	294	0	0	294	0	0	0
Concord town Middlesex Co. MA	36	0	0	0	0	36	0
Everett city Middlesex Co. MA	65	0	0	0	0	0	65
Framingham town Middlesex Co. MA	62	0	0	0	62	0	0
Groton town Middlesex Co. MA	8	0	0	0	0	0	8
Holliston town Middlesex Co. MA	7	0	0	0	0	0	7
Hopkinton town Middlesex Co. MA							

Destination (Work)	# of Trips	W on Rte 110/2A	E on Rte 110	S on Rte 2A/119	N on Rte 119	Rte 119 To I-495 N	Rte 2A/110 To I-495 S
Hudson town Middlesex Co. MA	33	0	0	0	0	0	33
Lexington town Middlesex Co. MA	119	0	0	0	0	119	0
Lincoln town Middlesex Co. MA	31	0	0	0	0	0	31
Littleton town Middlesex Co. MA	801	481	0	160	160	0	0
Lowell city Middlesex Co. MA	139	0	0	0	0	139	0
Marlbor. city Middlesex Co. MA	94	0	0	0	0	0	94
Maynard town Middlesex Co. MA	90	0	0	90	0	0	0
Medford city Middlesex Co. MA	7	0	0	0	0	7	0
Natick town Middlesex Co. MA	20	0	0	0	0	0	20
Newton city Middlesex Co. MA	27	0	0	0	0	0	27
North Reading town Middlesex Co. Mi	34	0	0	0	0	34	0
Pepperell town Middlesex Co. MA	15	0	0	0	0	15	0
Reading town Middlesex Co. MA	7	0	0	0	0	7	0
Shirley town Middlesex Co. MA	23	23	0	0	0	0	0
Somerville city Middlesex Co. MA	21	0	0	0	0	21	0
Stow town Middlesex Co. MA	30	0	0	0	0	0	30
Sudbury town Middlesex Co. MA	40	0	0	40	0	0	0
Tewksbury town Middlesex Co. MA	31	0	0	0	0	31	0
Townsend town Middlesex Co. MA	34	0	0	0	34	0	0
Tyngsbor. town Middlesex Co. MA	13	0	0	0	0	13	0
Wakefield town Middlesex Co. MA	9	0	0	0	0	9	0
Waltham city Middlesex Co. MA	97	0	0	0	0	0	97
Watertown city Middlesex Co. MA	21	0	0	0	0	0	21
Wayland town Middlesex Co. MA	7	0	0	0	0	0	7
Westford town Middlesex Co. MA	251	0	251	0	0	0	0
Weston town Middlesex Co. MA	13	0	0	0	0	0	13
Wilmington town Middlesex Co. MA	62	0	0	0	0	62	0
Woburn city Middlesex Co. MA	27	0	0	0	0	27	0
Canton town Norfolk Co. MA	16	0	0	0	0	0	16
Cohasset town Norfolk Co. MA	8	0	0	0	0	8	0
Franklin city Norfolk Co. MA	8	0	0	0	0	0	8
Needham town Norfolk Co. MA	9	0	0	0	0	0	9
Wellesley town Norfolk Co. MA	19	0	0	0	0	0	19
Boston city Suffolk Co. MA	302	0	0	0	0	151	151
Chelsea city Suffolk Co. MA	7	0	0	0	0	7	0

Destination (Work)	# of Trips	W on Rte 110/2A	E on Rte 110	S on Rte 2A/119	N on Rte 119	Rte 119 To I-495 N	Rte 2A/110 To I-495 S
Clinton town Worcester Co. MA	13	0	0	0	0	0	13
Dudley town Worcester Co. MA	9	0	0	0	0	0	9
Fitchburg city Worcester Co. MA	16	0	0	0	0	0	16
Grafton town Worcester Co. MA	11	0	0	0	0	0	11
Harvard town Worcester Co. MA	30	21	0	0	0	0	9
Lancaster town Worcester Co. MA	8	0	0	0	0	0	8
Leominster city Worcester Co. MA	18	0	0	0	0	0	18
Millbury town Worcester Co. MA	10	0	0	0	0	0	10
Southbor. town Worcester Co. MA	9	0	0	0	0	0	9
Westbor. town Worcester Co. MA	67	0	0	0	0	0	67
Worcester city Worcester Co. MA	74	0	0	0	0	0	74
Hudson town Hillsborough Co. NH	6	0	0	0	0	6	0
Nashua city Hillsborough Co. NH	48	0	0	0	0	48	0
Pelham town Hillsborough Co. NH	9	0	0	0	0	9	0
Auburn town Rockingham Co. NH	7	0	0	0	0	7	0
Exeter town Rockingham Co. NH	6	0	0	0	0	6	0
Londonderry town Rockingham Co. N	7	0	0	0	0	7	0
Portsmouth city Rockingham Co. NH	10	0	0	0	0	10	0
Total	4,218	566	323	879	256	1,146	1,049
		West on Rte 110/2A	East on Rte 110	South on Rte 2A/119	North on Rte 119	Rte 119 To I-495 North	Rte 2A/110 To I-495 South
		13.41%	7.65%	20.84%	6.07%	27.16%	24.87%

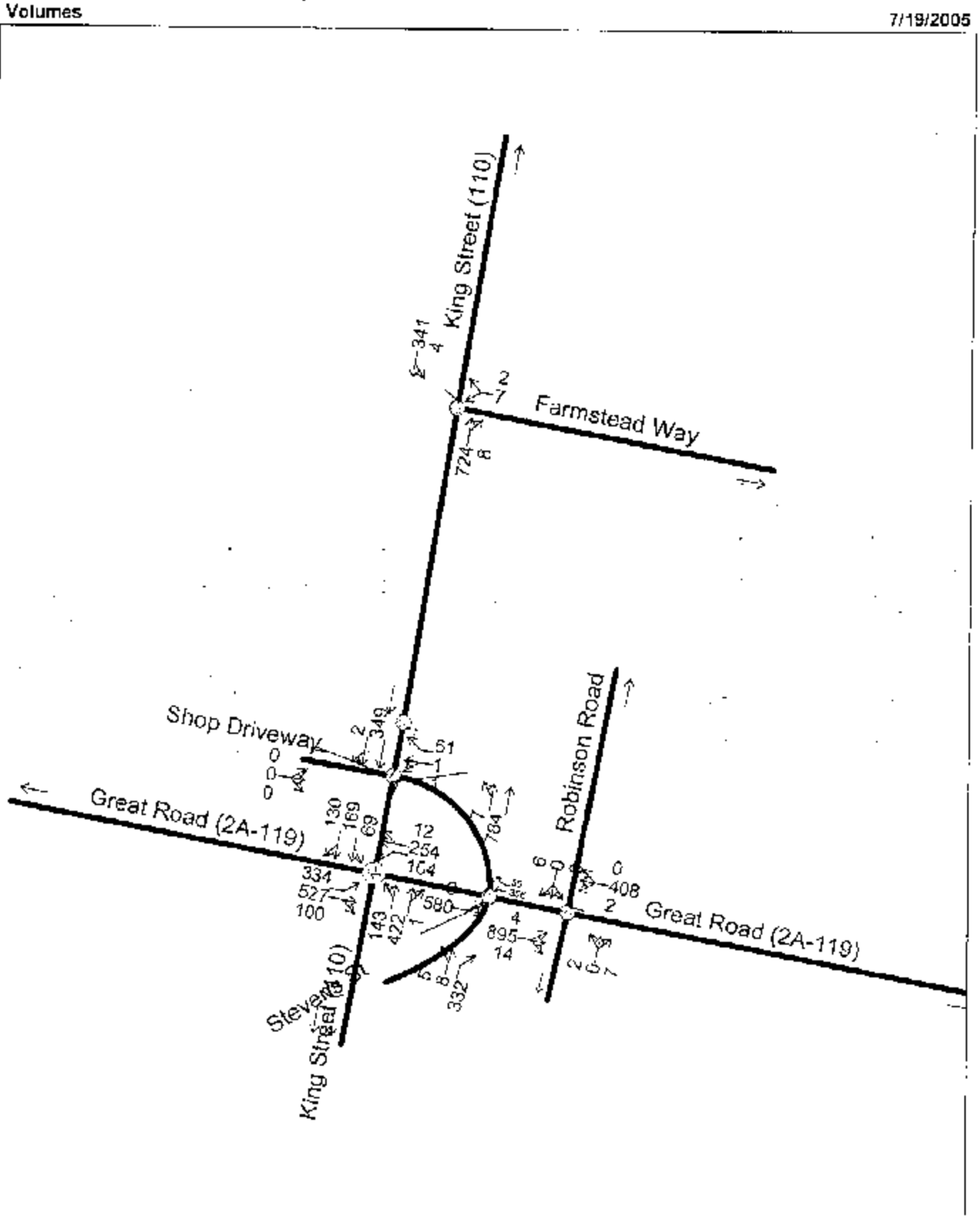
Traffic Study Appendix E

Intersection Analyses

2005 Existing Conditions (AM / PM/ SAT)

Map - GFI Partnership 40B Development
Volumes

7/19/2005



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	7	2	724	8	4	341
Peak Hour Factor	0.56	0.56	0.91	0.91	0.87	0.87
Hourly flow rate (vph)	12	4	796	9	5	392
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1201	800			804	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1201	800			804	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	94	99			99	
cM capacity (veh/h)	196	373			824	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	16	804	397
Volume Left	12	0	5
Volume Right	4	9	0
cSH	219	1700	824
Volume to Capacity	0.07	0.47	0.01
Queue Length 95th (ft)	6	0	0
Control Delay (s)	22.8	0.0	0.2
Lane LOS	C		A
Approach Delay (s)	22.8	0.0	0.2
Approach LOS	C		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	895	14	2	408	0	2	0	7	0	0	6
Peak Hour Factor	0.96	0.96	0.96	0.82	0.82	0.82	0.75	0.75	0.75	0.50	0.50	0.50
Hourly flow rate (vph)	4	932	15	2	498	0	3	0	9	0	0	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		1261										
pX, platoon unblocked				0.76			0.76	0.76	0.76	0.76	0.76	
vC, conflicting volume	498			947			1462	1450	940	1460	1458	498
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	498			930			1610	1594	920	1606	1604	498
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	96	100	100	98
cM capacity (veh/h)	1072			548			63	81	251	62	80	577

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	951	500	12	12
Volume Left	4	2	3	0
Volume Right	15	0	9	12
cSH	1072	548	151	577
Volume to Capacity	0.00	0.00	0.08	0.02
Queue Length 95th (ft)	0	0	6	2
Control Delay (s)	0.1	0.1	31.0	11.4
Lane LOS	A	A	D	B
Approach Delay (s)	0.1	0.1	31.0	11.4
Approach LOS			D	B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	0	1	1	61	7	784	0	0	349	2
Peak Hour Factor	0.92	0.92	0.92	0.79	0.79	0.79	0.95	0.95	0.95	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	1	1	77	7	825	0	0	379	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								633				
pX, platoon unblocked	0.96	0.96		0.96	0.96	0.96				0.96		
vC, conflicting volume	847	1220	191	1030	1222	413	382			825		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	799	1188	191	989	1189	346	382			776		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	99	88	99			100		
cM capacity (veh/h)	230	178	819	192	178	624	1181			809		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	80	282	550	253	129
Volume Left	0	1	7	0	0	0
Volume Right	0	77	0	0	0	2
cSH	1700	644	1181	1700	1700	1700
Volume to Capacity	0.00	0.12	0.01	0.32	0.15	0.08
Queue Length 95th (ft)	0	11	0	0	0	0
Control Delay (s)	0.0	12.0	0.3	0.0	0.0	0.0
Lane LOS	A	B	A			
Approach Delay (s)	0.0	12.0	0.1		0.0	
Approach LOS	A	B				

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↑	↱		↱	↱			
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	580	0	0	356	56	5	8	332	0	0	0
Peak Hour Factor	0.91	0.91	0.91	0.83	0.83	0.83	0.85	0.85	0.85	0.92	0.92	0.92
Hourly flow rate (vph)	0	637	0	0	431	67	6	9	391	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		749										
pX, platoon unblocked												
vC, conflicting volume	499			637			1069	1136	637	1269	1069	431
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	499			637			1069	1136	637	1269	1069	431
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			97	95	18	100	100	100
cM capacity (veh/h)	1070			937			199	202	477	25	221	624

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	637	431	67	406
Volume Left	0	0	0	6
Volume Right	0	0	67	391
cSH	1070	1700	1700	496
Volume to Capacity	0.00	0.25	0.04	0.82
Queue Length 95th (ft)	0	0	0	199
Control Delay (s)	0.0	0.0	0.0	37.9
Lane LOS				E
Approach Delay (s)	0.0	0.0		37.9
Approach LOS				E

Intersection Summary			
Average Delay	10.0		
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
Frt	1.00	0.98		1.00	0.99			1.00			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1818		1719	1797			3494			3354	
Flt Permitted	0.46	1.00		0.16	1.00			0.71			0.73	
Satd. Flow (perm)	848	1818		282	1797			2504			2459	
Volume (vph)	334	527	100	104	254	12	143	422	1	69	169	130
Peak-hour factor, PHF	0.91	0.91	0.91	0.77	0.77	0.77	0.86	0.86	0.86	0.85	0.89	0.89
Adj. Flow (vph)	367	579	110	135	330	16	166	491	1	78	190	146
RTOR Reduction (vph)	0	7	0	0	2	0	0	0	0	0	81	0
Lane Group Flow (vph)	367	682	0	135	344	0	0	656	0	0	333	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	41.0	41.0		41.0	41.0			39.0			39.0	
Effective Green, g (s)	42.0	42.0		42.0	42.0			40.0			40.0	
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.44			0.44	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	396	848		132	839			1113			1093	
v/s Ratio Prot		0.38			0.19							
v/s Ratio Perm	0.43			c0.48				c0.26			0.17	
v/c Ratio	0.93	0.80		1.02	0.41			0.59			0.30	
Uniform Delay, d1	22.6	20.5		24.0	15.8			18.8			16.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	27.4	5.6		84.5	0.3			2.3			0.7	
Delay (s)	49.9	26.0		108.5	16.2			21.1			16.8	
Level of Service	D	C		F	B			C			B	
Approach Delay (s)		34.3			42.1			21.1			16.8	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM Average Control Delay	29.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	250		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		12	15		9	15		9	15		12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.976			0.993						0.947	
Flt Protected	0.950			0.950				0.988			0.991	
Satd. Flow (prot)	1770	1818	0	1719	1797	0	0	3497	0	0	3354	0
Flt Permitted	0.455			0.156				0.708			0.726	
Satd. Flow (perm)	848	1818	0	282	1797	0	0	2506	0	0	2457	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			4						146	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		2359			749			1114			633	
Travel Time (s)		46.0			14.6			25.3			14.4	
Volume (vph)	334	527	100	104	254	12	143	422	1	69	169	130
Peak Hour Factor	0.91	0.91	0.91	0.77	0.77	0.77	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	367	579	110	135	330	16	166	491	1	78	190	146
Lane Group Flow (vph)	367	689	0	135	346	0	0	658	0	0	414	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	46.0	46.0	0.0	46.0	46.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	51.1%	51.1%	0.0%	51.1%	51.1%	0.0%	48.9%	48.9%	0.0%	48.9%	48.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
v/c Ratio	0.93	0.80		1.02	0.41			0.59			0.35	
Control Delay	55.5	29.1		114.2	17.5			21.6			11.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	55.5	29.1		114.2	17.5			21.6			11.3	
Queue Length 50th (ft)	189	316		~83	124			143			48	
Queue Length 95th (ft)	#372	#486		#157	156			187			81	
Internal Link Dist (ft)		2279			669			1034			553	
Turn Bay Length (ft)	500			250								
Base Capacity (vph)	396	856		132	841			1114			1173	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	

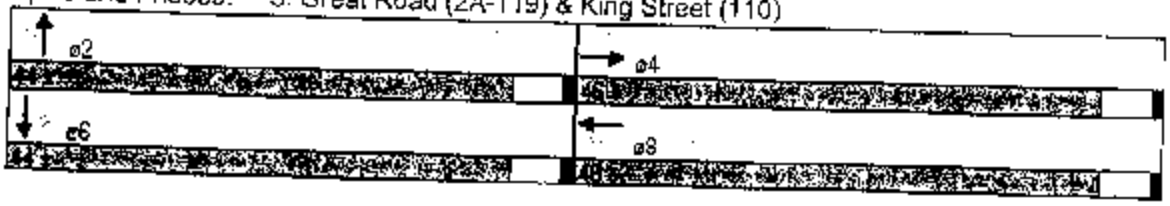
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.93	0.80		1.02	0.41			0.59			0.35	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

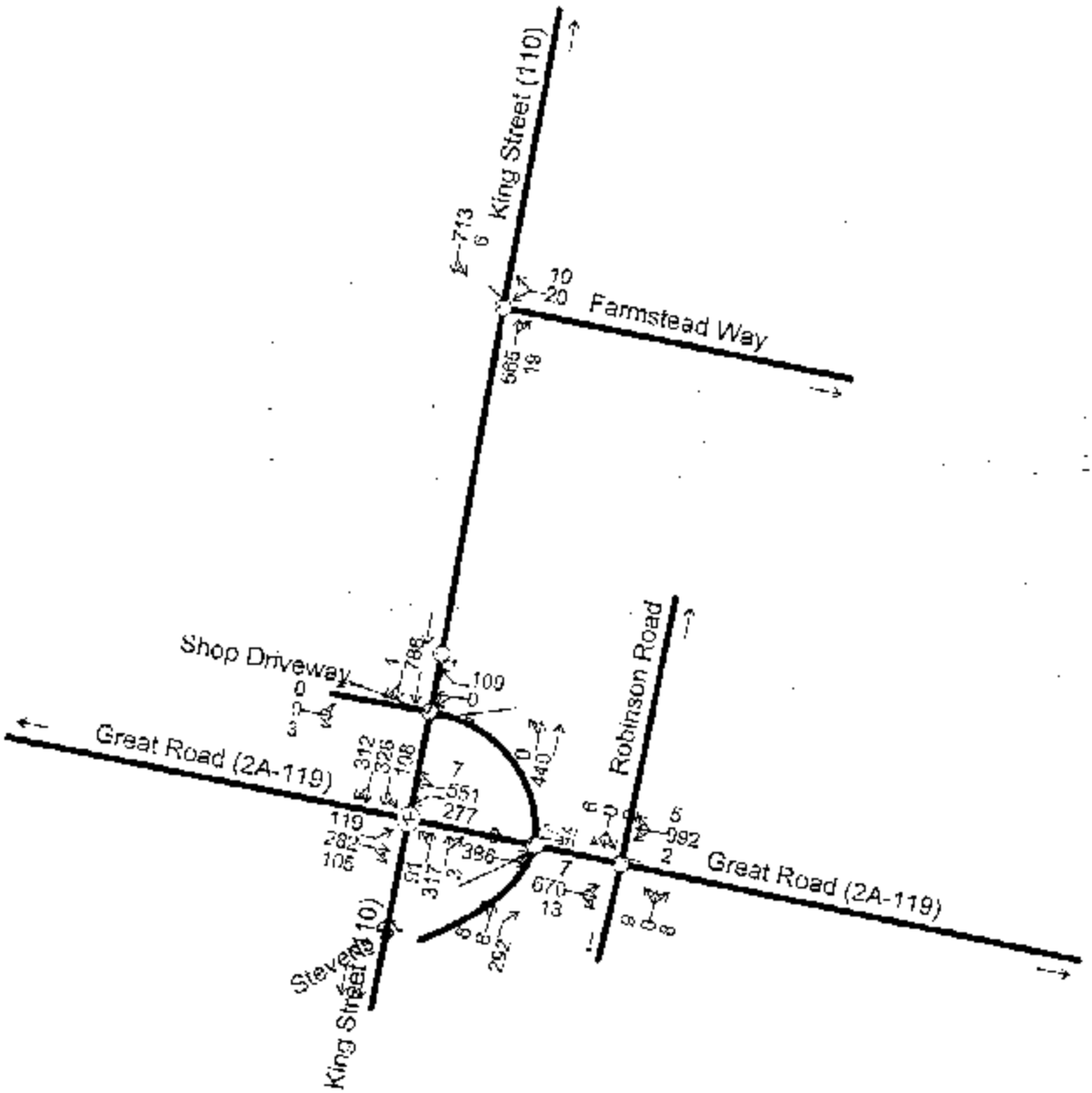
- Volume exceeds capacity, queue is theoretically infinite.
  Queue shown is maximum after two cycles.
\# 95th percentile volume exceeds capacity, queue may be longer.
  Queue shown is maximum after two cycles.

Splits and Phases: 5: Great Road (2A-119) & King Street (110)



Map - GFI Partnership 40B Development
Volumes

7/19/2005



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	20	10	565	19	6	713
Peak Hour Factor	0.58	0.58	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	34	17	601	20	6	759
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1382	611			621	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1382	611			621	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	78	97			99	
cM capacity (veh/h)	159	497			964	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	52	621	765
Volume Left	34	0	6
Volume Right	17	20	0
cSH	206	1700	964
Volume to Capacity	0.25	0.37	0.01
Queue Length 95th (ft)	24	0	0
Control Delay (s)	28.3	0.0	0.2
Lane LOS	D		A
Approach Delay (s)	28.3	0.0	0.2
Approach LOS	D		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	670	13	2	992	5	9	0	8	2	0	6
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.71	0.71	0.71	0.67	0.67	0.67
Hourly flow rate (vph)	8	720	14	2	1033	5	13	0	11	3	0	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		1261										
pX, platoon unblocked												
vC, conflicting volume	1039			734			1792	1785	727	1794	1790	1036
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1039			734			1792	1785	727	1794	1790	1036
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			79	100	97	95	100	97
cM capacity (veh/h)	673			875			61	81	427	61	81	284

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	742	1041	24	12
Volume Left	8	2	13	3
Volume Right	14	5	11	9
cSH	673	875	102	148
Volume to Capacity	0.01	0.00	0.23	0.08
Queue Length 95th (ft)	1	0	21	6
Control Delay (s)	0.3	0.1	50.8	31.4
Lane LOS	A	A	F	D
Approach Delay (s)	0.3	0.1	50.8	31.4
Approach LOS			F	D

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	3	5	0	109	0	449	0	0	788	1
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.82	0.82	0.82	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	3	5	0	117	0	548	0	0	906	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								633				
pX, platoon unblocked	0.99	0.99		0.99	0.99	0.99				0.99		
vC, conflicting volume	1239	1454	453	1004	1454	274	907			548		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1229	1447	453	992	1448	253	907			530		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	97	100	84	100			100		
cM capacity (veh/h)	111	129	554	198	130	741	752			1028		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	3	123	183	365	604	303
Volume Left	0	5	0	0	0	0
Volume Right	3	117	0	0	0	1
cSH	554	775	752	1700	1700	1700
Volume to Capacity	0.01	0.16	0.00	0.21	0.36	0.18
Queue Length 95th (ft)	0	14	0	0	0	0
Control Delay (s)	11.5	11.3	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	11.5	11.3	0.0		0.0	
Approach LOS	B	B				

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	386	0	0	871	141	8	6	292	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.97	0.97	0.97	0.78	0.78	0.78	0.92	0.92	0.92
Hourly flow rate (vph)	0	439	0	0	898	145	10	8	374	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		749										
pX, platoon unblocked												
vC, conflicting volume	1043			439			1337	1482	439	1528	1337	898
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1043			439			1337	1482	439	1528	1337	898
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			92	94	40	100	100	100
cM capacity (veh/h)	671			1127			131	126	620	36	153	338

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	439	898	145	392
Volume Left	0	0	0	10
Volume Right	0	0	145	374
cSH	671	1700	1700	650
Volume to Capacity	0.00	0.53	0.09	0.60
Queue Length 95th (ft)	0	0	0	101
Control Delay (s)	0.0	0.0	0.0	20.1
Lane LOS				C
Approach Delay (s)	0.0	0.0		20.1
Approach LOS				C

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
Frt	1.00	0.96		1.00	1.00			1.00			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1787		1719	1806			3497			3326	
Flt Permitted	0.13	1.00		0.38	1.00			0.61			0.77	
Satd. Flow (perm)	236	1787		691	1806			2151			2563	
Volume (vph)	119	282	105	277	551	7	91	317	3	108	326	312
Peak-hour factor, PHF	0.91	0.91	0.91	0.77	0.77	0.77	0.86	0.86	0.86	0.89	0.89	0.89
Adj. Flow (vph)	131	310	115	360	716	9	106	369	3	121	366	351
RTOR Reduction (vph)	0	15	0	0	1	0	0	1	0	0	81	0
Lane Group Flow (vph)	131	410	0	360	724	0	0	477	0	0	757	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	41.0	41.0		41.0	41.0			39.0			39.0	
Effective Green, g (s)	42.0	42.0		42.0	42.0			40.0			40.0	
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.44			0.44	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	110	834		322	843			956			1139	
v/s Ratio Prot		0.24			0.40							
v/s Ratio Perm	c0.56			0.52				0.22			c0.33	
v/c Ratio	1.19	0.49		1.12	0.86			0.50			0.67	
Uniform Delay, d1	24.0	16.6		24.0	21.4			17.9			19.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	146.0	0.5		85.9	8.7			1.9			3.1	
Delay (s)	170.0	17.1		109.9	30.1			19.7			22.8	
Level of Service	F	B		F	C			B			C	
Approach Delay (s)		53.1			56.6			19.7			22.8	
Approach LOS		D			E			B			C	

Intersection Summary

HCM Average Control Delay	40.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	250		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		12	15		9	15		9	15		12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.959			0.998			0.999			0.937	
Flt Protected	0.950			0.950				0.989			0.993	
Satd. Flow (prot)	1770	1786	0	1719	1806	0	0	3497	0	0	3326	0
Flt Permitted	0.126			0.382				0.808			0.765	
Satd. Flow (perm)	235	1786	0	691	1806	0	0	2150	0	0	2562	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			1			1			145	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		2359			749			1114			633	
Travel Time (s)		46.0			14.6			25.3			14.4	
Volume (vph)	119	282	105	277	551	7	91	317	3	108	326	312
Peak Hour Factor	0.91	0.91	0.91	0.77	0.77	0.77	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	131	310	115	360	716	9	106	369	3	121	366	351
Lane Group Flow (vph)	131	425	0	360	725	0	0	478	0	0	838	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	46.0	46.0	0.0	46.0	46.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	51.1%	51.1%	0.0%	51.1%	51.1%	0.0%	48.9%	48.9%	0.0%	48.9%	48.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
v/c Ratio	1.19	0.50		1.12	0.83			0.50			0.69	
Control Delay	174.4	18.0		112.4	33.8			20.1			19.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	174.4	18.0		112.4	33.8			20.1			19.8	
Queue Length 50th (ft)	~91	151		~238	353			98			161	
Queue Length 95th (ft)	#203	234		#320	395			135			226	
Internal Link Dist (ft)		2279			669			1034			553	
Turn Bay Length (ft)	500			250								
Base Capacity (vph)	110	848		322	843			956			1219	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	1.19	0.50		1.12	0.86			0.50			0.69	

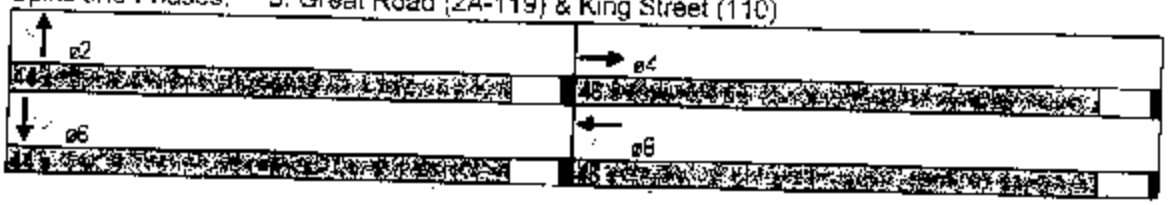
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

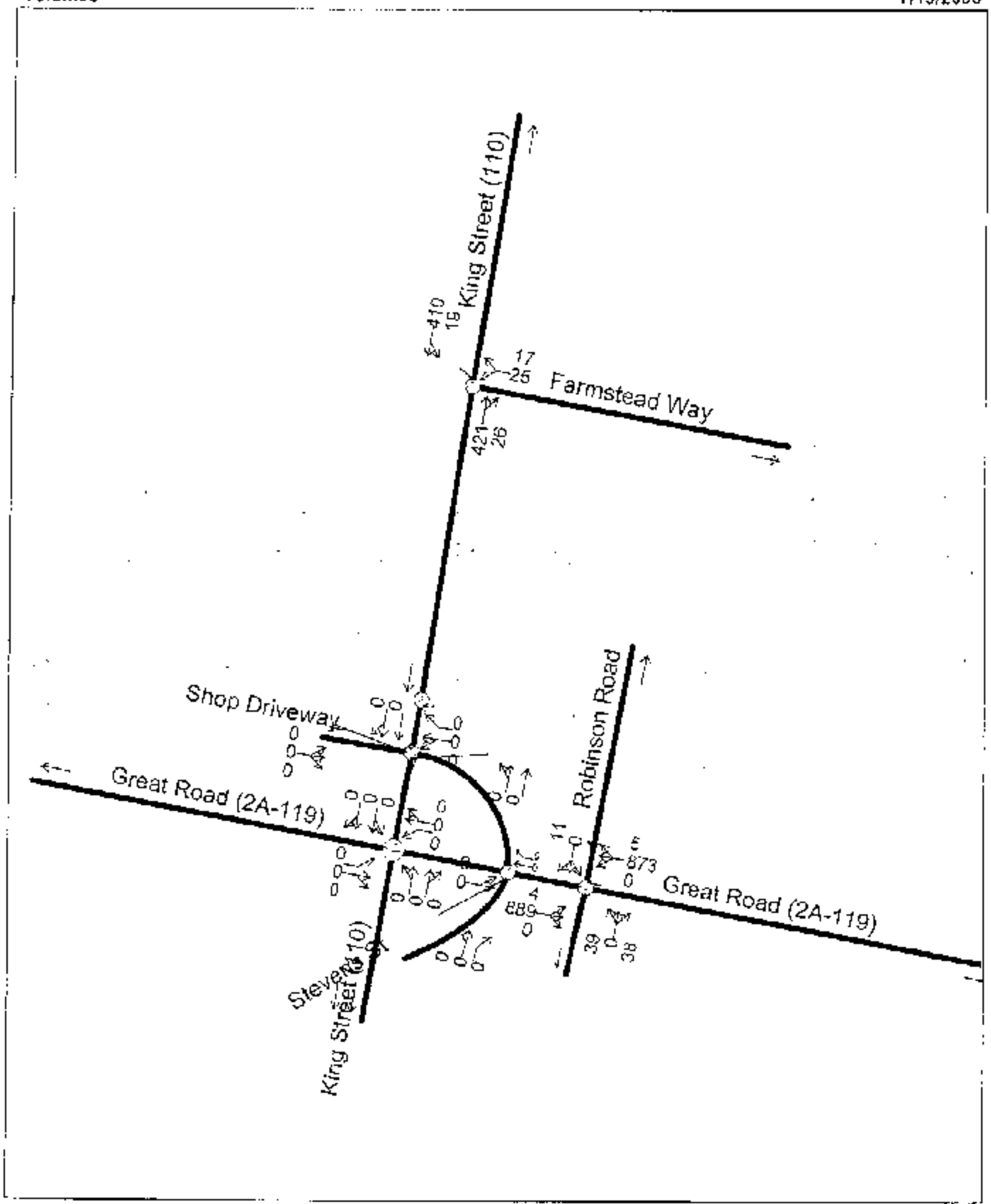
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Great Road (2A-119) & King Street (110)



Map - GFI Partnership 40B Development
Volumes

7/19/2005



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	25	17	421	26	19	410
Peak Hour Factor	0.66	0.66	0.96	0.96	0.93	0.93
Hourly flow rate (vph)	38	26	439	27	20	441
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	934	452			466	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	934	452			466	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	96			98	
cM capacity (veh/h)	292	612			1095	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	64	466	461
Volume Left	38	0	20
Volume Right	26	27	0
cSH	370	1700	1096
Volume to Capacity	0.17	0.27	0.02
Queue Length 95th (ft)	15	0	1
Control Delay (s)	16.7	0.0	0.6
Lane LOS	C		A
Approach Delay (s)	16.7	0.0	0.6
Approach LOS	C		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	889	0	0	873	5	39	0	38	1	0	11
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.92	0.92	0.92	0.75	0.75	0.75
Hourly flow rate (vph)	4	966	0	0	970	6	42	0	41	1	0	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		1261										
pX, platoon unblocked												
vC, conflicting volume	976			966			1962	1951	966	1989	1948	973
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	976			966			1962	1951	966	1989	1948	973
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			7	100	87	97	100	95
cM capacity (veh/h)	711			717			46	65	311	40	65	309

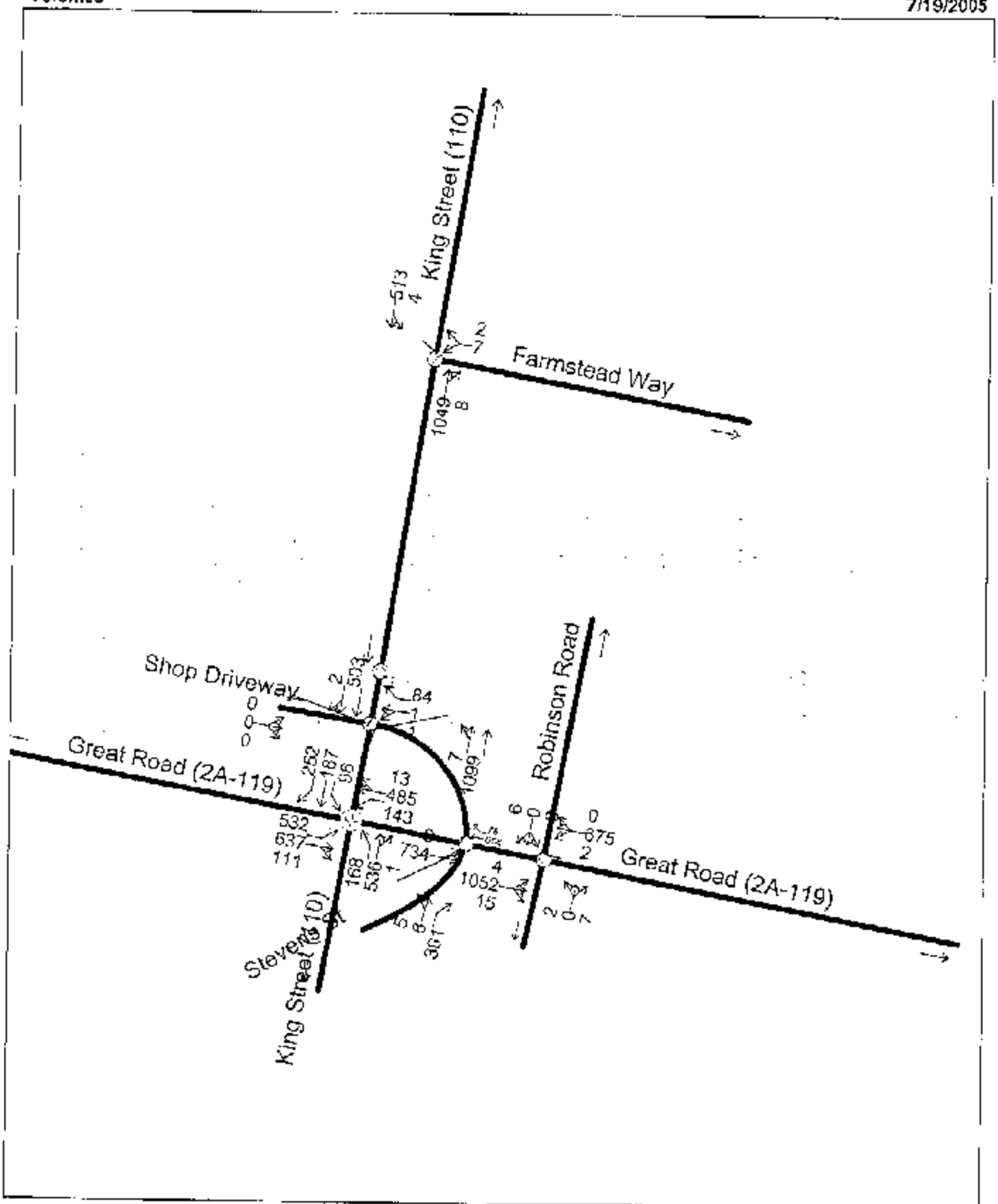
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	971	976	84	16
Volume Left	4	0	42	1
Volume Right	0	6	41	15
cSH	711	717	79	197
Volume to Capacity	0.01	0.00	1.06	0.08
Queue Length 95th (ft)	0	0	148	7
Control Delay (s)	0.2	0.0	213.6	24.8
Lane LOS	A		F	C
Approach Delay (s)	0.2	0.0	213.6	24.8
Approach LOS			F	C

Intersection Summary			
Average Delay	9.0		
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

2010 No-Build Conditions (AM / PM/ SAT)

Map - GFI Partnership 40B Development
Volumes

7/19/2005



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	7	2	1049	8	4	513
Peak Hour Factor	0.56	0.56	0.91	0.91	0.87	0.87
Hourly flow rate (vph)	12	4	1153	9	5	590
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1756	1157			1162	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1756	1157			1162	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	86	98			99	
cM capacity (veh/h)	89	230			605	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	16	1162	594
Volume Left	12	0	5
Volume Right	4	9	0
cSH	103	1700	605
Volume to Capacity	0.16	0.68	0.01
Queue Length 95th (ft)	13	0	1
Control Delay (s)	46.5	0.0	0.2
Lane LOS	E		A
Approach Delay (s)	46.5	0.0	0.2
Approach LOS	E		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	1052	15	2	675	0	2	0	7	0	0	6
Peak Hour Factor	0.96	0.96	0.96	0.82	0.82	0.82	0.75	0.75	0.75	0.50	0.50	0.50
Hourly flow rate (vph)	4	1096	16	2	823	0	3	0	9	0	0	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		1261										
pX, platoon unblocked												
vC, conflicting volume	823			1111			1952	1940	1104	1949	1948	823
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	823			1111			1952	1940	1104	1949	1948	823
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			94	100	96	100	100	97
cM capacity (veh/h)	811			617			47	65	259	47	65	376

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1116	826	12	12
Volume Left	4	2	3	0
Volume Right	16	0	9	12
cSH	811	617	129	376
Volume to Capacity	0.01	0.00	0.09	0.03
Queue Length 95th (ft)	0	0	8	2
Control Delay (s)	0.2	0.1	35.7	14.9
Lane LOS	A	A	E	B
Approach Delay (s)	0.2	0.1	35.7	14.9
Approach LOS			E	B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↰	↱		↑↑			↑↑	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	0	1	1	84	7	1099	0	0	503	2
Peak Hour Factor	0.92	0.92	0.92	0.79	0.79	0.79	0.95	0.95	0.95	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	1	1	106	7	1157	0	0	547	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								633				
pX, platoon unblocked												
vC, conflicting volume	1195	1719	274	1445	1720	578	549			1157		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1195	1719	274	1445	1720	578	549			1157		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	99	77	99			100		
cM capacity (veh/h)	107	88	723	92	88	459	1024			605		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	109	393	771	364	184
Volume Left	0	1	7	0	0	0
Volume Right	0	106	0	0	0	2
cSH	1700	470	1024	1700	1700	1700
Volume to Capacity	0.00	0.23	0.01	0.45	0.21	0.11
Queue Length 95th (ft)	0	22	1	0	0	0
Control Delay (s)	0.0	15.9	0.2	0.0	0.0	0.0
Lane LOS	A	C	A			
Approach Delay (s)	0.0	15.9	0.1		0.0	
Approach LOS	A	C				

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	734	0	0	606	76	5	8	391	0	0	0
Peak Hour Factor	0.91	0.91	0.91	0.83	0.83	0.83	0.85	0.85	0.85	0.92	0.92	0.92
Hourly flow rate (vph)	0	807	0	0	730	92	6	9	460	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		749										
pX, platoon unblocked												
vC, conflicting volume	822			807			1537	1628	807	1771	1537	730
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	822			807			1537	1628	807	1771	1537	730
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			94	91	0	0	100	100
cM capacity (veh/h)	812			810			95	102	382	0	116	422

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	807	730	92	475
Volume Left	0	0	0	6
Volume Right	0	0	92	460
cSH	812	1700	1700	394
Volume to Capacity	0.00	0.43	0.05	1.21
Queue Length 95th (ft)	0	0	0	483
Control Delay (s)	0.0	0.0	0.0	144.5
Lane LOS				F
Approach Delay (s)	0.0	0.0		144.5
Approach LOS				F

Intersection Summary			
Average Delay	32.6		
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1821		1719	1802		1770	1862		1787	1881	1599
Flt Permitted	0.14	1.00		0.16	1.00		0.56	1.00		0.12	1.00	1.00
Satd. Flow (perm)	257	1821		290	1802		1050	1862		221	1881	1599
Volume (vph)	532	637	111	143	485	13	168	536	1	96	187	252
Peak-hour factor, PHF	0.91	0.91	0.91	0.77	0.77	0.77	0.86	0.86	0.66	0.89	0.89	0.89
Adj. Flow (vph)	585	700	122	186	630	17	195	623	1	108	210	283
RTOR Reduction (vph)	0	7	0	0	1	0	0	0	0	0	0	21
Lane Group Flow (vph)	585	815	0	186	646	0	195	624	0	108	210	262
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Turn Type	pm+pt			pm+pt			Perm			Perm		pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	47.0	36.0		30.0	24.0		33.0	33.0		33.0	33.0	51.0
Effective Green, g (s)	48.0	37.0		32.0	25.0		34.0	34.0		34.0	34.0	53.0
Actuated g/C Ratio	0.53	0.41		0.36	0.28		0.38	0.38		0.38	0.38	0.59
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	456	749		214	501		397	703		83	711	1013
v/s Ratio Prot	c0.27	0.45		0.07	0.36			0.34			0.11	0.05
v/s Ratio Perm	c0.41			0.24			0.19			c0.49		0.11
v/c Ratio	1.28	1.09		0.87	1.29		0.49	0.89		1.30	0.30	0.26
Uniform Delay, d1	37.7	26.5		42.9	32.5		21.4	26.2		28.0	19.6	9.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	143.2	59.4		29.0	144.9		4.3	15.5		199.3	1.1	0.1
Delay (s)	180.9	85.9		72.0	177.4		25.7	41.7		227.3	20.7	9.1
Level of Service	F	F		E	F		C	D		F	C	A
Approach Delay (s)		125.4			153.6			37.9			52.3	
Approach LOS		F			F			D			D	

Intersection Summary

HCM Average Control Delay	100.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

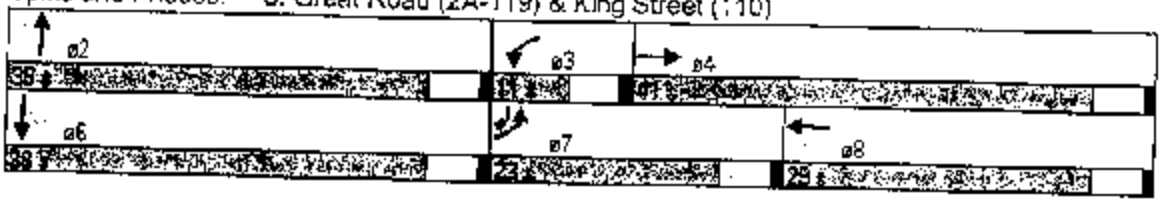
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	250		0	0		0	0		150
Storage Lanes	1		0	1		0	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		12	15		9	15		9	15		12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.978			0.996							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1822	0	1719	1802	0	1770	1863	0	1787	1881	1599
Flt Permitted	0.138			0.160			0.564			0.118		
Satd. Flow (perm)	257	1822	0	290	1802	0	1051	1863	0	222	1881	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			1							52
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		2359			749			1114			633	
Travel Time (s)		46.0			14.6			25.3			14.4	
Volume (vph)	532	637	111	143	485	13	168	536	1	96	187	252
Peak Hour Factor	0.91	0.91	0.91	0.77	0.77	0.77	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	585	700	122	186	630	17	195	623	1	108	210	283
Lane Group Flow (vph)	585	822	0	186	647	0	195	624	0	108	210	283
Turn Type	pm+pt			pm+pt			Perm			Perm		pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phases	7	4		3	8		2	2		6	6	7
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Total Split (s)	23.0	41.0	0.0	11.0	29.0	0.0	38.0	38.0	0.0	38.0	38.0	23.0
Total Split (%)	25.6%	45.6%	0.0%	12.2%	32.2%	0.0%	42.2%	42.2%	0.0%	42.2%	42.2%	25.6%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Recall Mode	None	None		None	None		Max	Max		Max	Max	None
v/c Ratio	1.28	1.09		0.87	1.29		0.49	0.89		1.29	0.30	0.27
Control Delay	168.1	86.4		56.7	175.6		26.6	42.9		222.9	21.1	6.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	168.1	86.4		56.7	175.6		26.6	42.9		222.9	21.1	6.7
Queue Length 50th (ft)	~378	~528		55	~477		83	326		~79	82	51
Queue Length 95th (ft)	#584	#755		#121	#545		140	#488		#179	135	87
Internal Link Dist (ft)		2279			669			1034			553	
Turn Bay Length (ft)	500			250								150
Base Capacity (vph)	456	756		214	501		397	704		84	711	1032
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.28	1.09		0.87	1.29		0.49	0.89		1.29	0.30	0.27

Intersection Summary

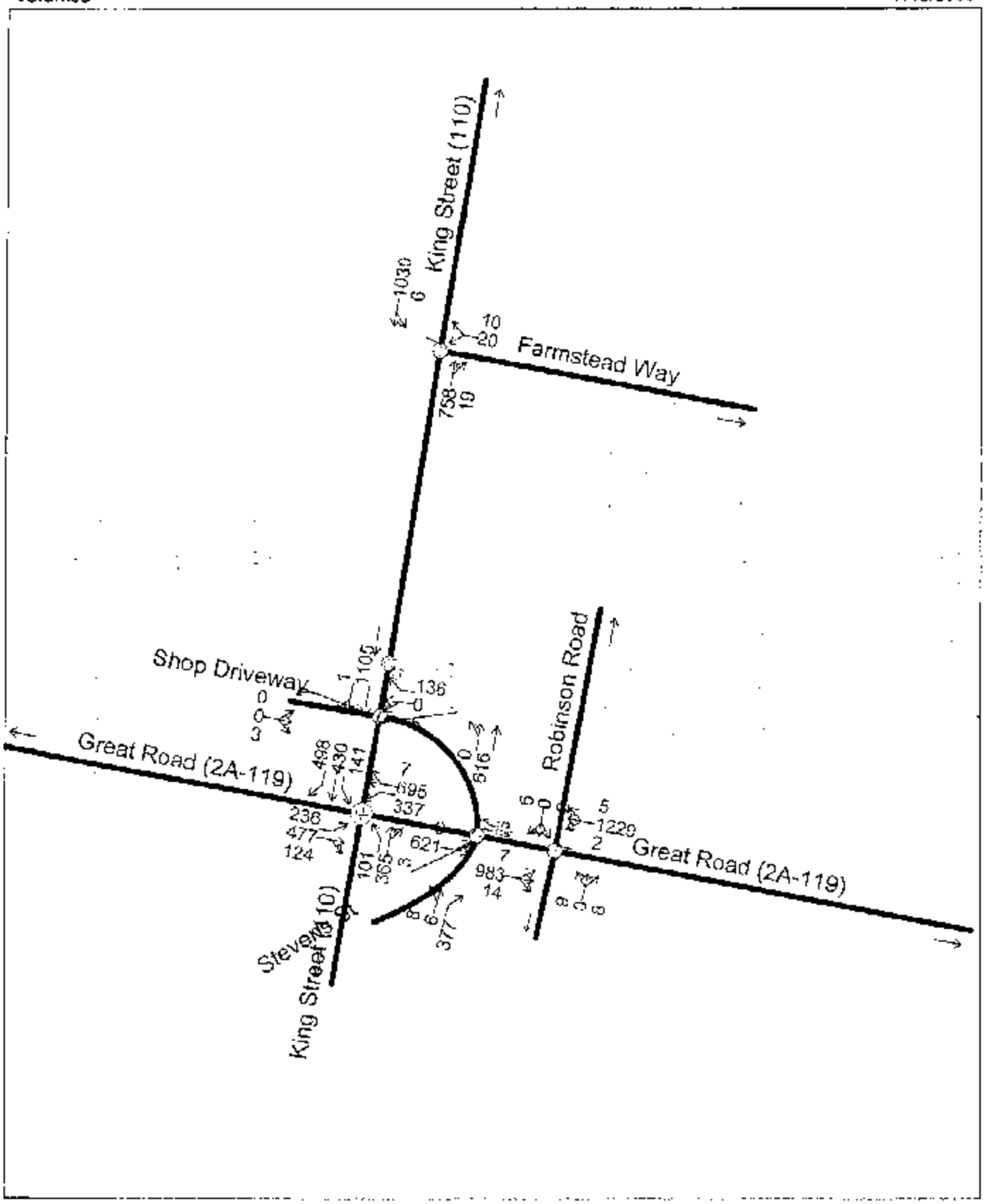
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Great Road (2A-119) & King Street (110)



Map - GFI Partnership 40B Development
Volumes

7/19/2005



GFI Partnership 40B Development 2010 No Build PM Peak Hour

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Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	20	10	758	19	6	1030
Peak Hour Factor	0.58	0.58	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	34	17	806	20	6	1096
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1925	816			827	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1925	816			827	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	53	95			99	
cM capacity (veh/h)	74	380			809	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	52	827	1102
Volume Left	34	0	6
Volume Right	17	20	0
cSH	101	1700	809
Volume to Capacity	0.51	0.49	0.01
Queue Length 95th (ft)	58	0	1
Control Delay (s)	73.5	0.0	0.3
Lane LOS	F		A
Approach Delay (s)	73.5	0.0	0.3
Approach LOS	F		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	983	14	2	1229	5	9	0	8	2	0	6
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.71	0.71	0.71	0.67	0.67	0.67
Hourly flow rate (vph)	8	1057	15	2	1280	5	13	0	11	3	0	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		1261										
pX, platoon unblocked												
vC, conflicting volume	1286			1072			2376	2369	1065	2378	2374	1283
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1285			1072			2376	2369	1065	2378	2374	1283
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			45	100	96	87	100	96
cM capacity (veh/h)	543			654			23	35	273	23	35	204

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1080	1287	24	12
Volume Left	8	2	13	3
Volume Right	15	5	11	9
cSH	543	654	40	69
Volume to Capacity	0.01	0.00	0.59	0.17
Queue Length 95th (ft)	1	0	54	15
Control Delay (s)	0.5	0.2	181.9	68.2
Lane LOS	A	A	F	F
Approach Delay (s)	0.5	0.2	181.9	68.2
Approach LOS			F	F

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↰	↱		↰↑			↑↑	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	3	5	0	136	0	616	0	0	1105	1
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.82	0.82	0.82	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	3	5	0	146	0	751	0	0	1270	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								633				
pX, platoon unblocked												
vC, conflicting volume	1719	2022	636	1390	2022	376	1271			751		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1719	2022	636	1390	2022	376	1271			751		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	95	100	77	100			100		
cM capacity (veh/h)	44	57	421	102	58	625	548			881		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	3	152	250	501	847	425
Volume Left	0	5	0	0	0	0
Volume Right	3	146	0	0	0	1
cSH	421	648	548	1700	1700	1700
Volume to Capacity	0.01	0.23	0.00	0.29	0.50	0.25
Queue Length 95th (ft)	1	23	0	0	0	0
Control Delay (s)	13.6	13.6	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	13.6	13.6	0.0		0.0	
Approach LOS	B	B				

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	621	0	0	1080	172	8	6	377	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.97	0.97	0.97	0.78	0.78	0.78	0.92	0.92	0.92
Hourly flow rate (vph)	0	706	0	0	1113	177	10	8	483	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		749										
pX, platoon unblocked												
vC, conflicting volume	1291			706			1819	1996	706	2065	1819	1113
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1291			706			1819	1996	706	2065	1819	1113
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			83	87	0	0	100	100
cM capacity (veh/h)	541			897			60	61	438	0	78	253

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	706	1113	177	501
Volume Left	0	0	0	10
Volume Right	0	0	177	483
cSH	541	1700	1700	454
Volume to Capacity	0.00	0.65	0.10	1.10
Queue Length 95th (ft)	0	0	0	425
Control Delay (s)	0.0	0.0	0.0	103.4
Lane LOS				F
Approach Delay (s)	0.0	0.0		103.4
Approach LOS				F

Intersection Summary			
Average Delay	20.7		
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1805		1719	1807		1770	1861		1787	1881	1599
Flt Permitted	0.12	1.00		0.11	1.00		0.21	1.00		0.28	1.00	1.00
Satd. Flow (perm)	226	1805		196	1807		392	1861		519	1881	1599
Volume (vph)	236	477	124	337	695	7	101	365	3	141	430	498
Peak-hour factor, PHF	0.91	0.91	0.91	0.77	0.77	0.77	0.86	0.86	0.86	0.89	0.89	0.89
Adj. Flow (vph)	259	524	136	438	903	9	117	424	3	158	483	560
RTOR Reduction (vph)	0	10	0	0	1	0	0	0	0	0	0	34
Lane Group Flow (vph)	259	650	0	438	911	0	117	427	0	158	483	526
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Turn Type	pm+pt			pm+pt			Perm			Perm		pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	40.0	32.0		50.0	37.0		30.0	30.0		30.0	30.0	38.0
Effective Green, g (s)	42.0	33.0		51.0	38.0		31.0	31.0		31.0	31.0	40.0
Actuated g/C Ratio	0.47	0.37		0.57	0.42		0.34	0.34		0.34	0.34	0.44
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	260	662		348	763		135	641		179	648	782
v/s Ratio Prot	0.10	0.36		c0.20	0.50			0.23			0.26	0.07
v/s Ratio Perm	0.37			c0.52			0.30			c0.30		0.26
v/c Ratio	1.00	0.98		1.26	1.19		0.87	0.67		0.88	0.75	0.67
Uniform Delay, d1	42.7	28.2		26.9	26.0		27.6	25.1		27.8	26.0	19.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	54.4	30.2		137.7	100.2		48.1	5.4		42.1	7.6	2.3
Delay (s)	97.1	58.4		164.6	126.2		75.7	30.5		69.9	33.6	22.1
Level of Service	F	E		F	F		E	C		E	C	C
Approach Delay (s)		69.3			138.6			40.2			33.0	
Approach LOS		E			F			D			C	

Intersection Summary			
HCM Average Control Delay	77.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	250		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		12	15		9	15		9	15		12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.999			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1805	0	1719	1808	0	1770	1861	0	1787	1881	1599
Flt Permitted	0.121			0.108			0.210			0.276		
Satd. Flow (perm)	225	1805	0	195	1808	0	391	1861	0	519	1881	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			1							62
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		2359			749			1114			633	
Travel Time (s)		46.0			14.6			25.3			14.4	
Volume (vph)	236	477	124	337	695	7	101	365	3	141	430	498
Peak Hour Factor	0.91	0.91	0.91	0.77	0.77	0.77	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	259	524	136	438	903	9	117	424	3	158	483	560
Lane Group Flow (vph)	259	660	0	438	912	0	117	427	0	158	483	560
Turn Type	pm+pt			pm+pt			Perm			Perm		pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phases	7	4		3	8		2	2		6	6	7
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Total Split (s)	13.0	37.0	0.0	18.0	42.0	0.0	35.0	35.0	0.0	35.0	35.0	13.0
Total Split (%)	14.4%	41.1%	0.0%	20.0%	46.7%	0.0%	38.9%	38.9%	0.0%	38.9%	38.9%	14.4%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Recall Mode	None	None		None	None		Max	Max		Max	Max	None
v/c Ratio	1.00	0.98		1.26	1.19		0.87	0.67		0.88	0.75	0.69
Control Delay	79.6	59.9		162.6	126.6		80.7	31.2		74.0	34.5	21.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	79.6	59.9		162.6	126.6		80.7	31.2		74.0	34.5	21.0
Queue Length 50th (ft)	98	359		~268	~637		6[illegible]	204		84	239	209
Queue Length 95th (ft)	#255	#593		#350	#676		#156	289		#200	352	326
Internal Link Dist (ft)		2279			669			1034			553	
Turn Bay Length (ft)	500			250								
Base Capacity (vph)	260	672		348	764		135	641		179	648	813
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.00	0.98		1.26	1.19		0.87	0.67		0.88	0.75	0.69

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

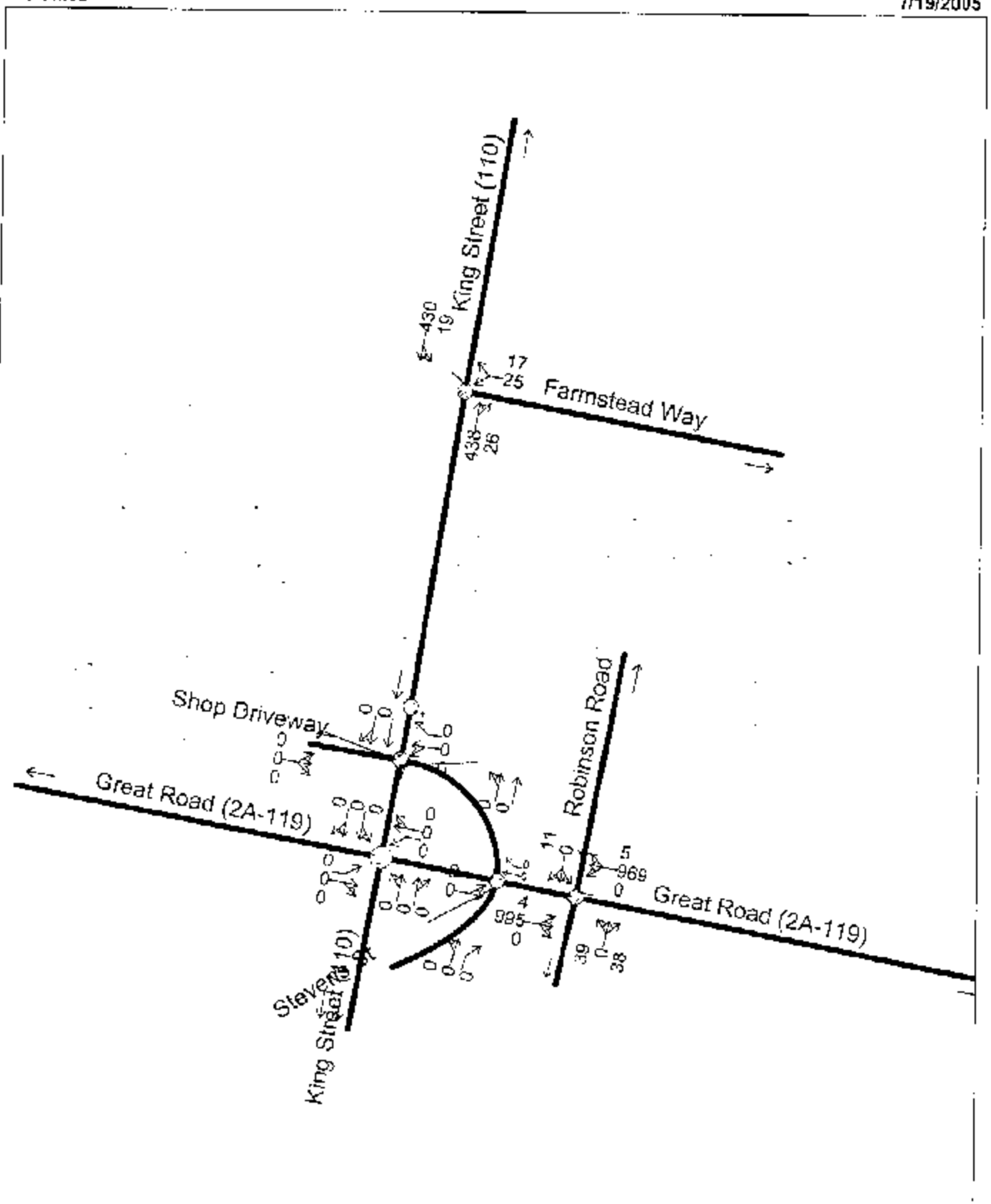
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Great Road (2A-119) & King Street (110)

Map - GFI Partnership 40B Development
Volumes

7/19/2005



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	25	17	438	26	19	430
Peak Hour Factor	0.66	0.66	0.96	0.96	0.93	0.93
Hourly flow rate (vph)	38	26	456	27	20	462
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	973	470			483	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	973	470			483	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	96			98	
cM capacity (veh/h)	277	598			1079	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	64	483	483
Volume Left	38	0	20
Volume Right	26	27	0
cSH	354	1700	1079
Volume to Capacity	0.18	0.28	0.02
Queue Length 95th (ft)	16	0	1
Control Delay (s)	17.4	0.0	0.6
Lane LOS	C		A
Approach Delay (s)	17.4	0.0	0.6
Approach LOS	C		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	995	0	0	969	5	39	0	38	1	0	11
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.92	0.92	0.92	0.75	0.75	0.75
Hourly flow rate (vph)	4	1082	0	0	1077	6	42	0	41	1	0	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		1261										
pX, platoon unblocked												
vC, conflicting volume	1082			1082			2184	2172	1082	2211	2170	1079
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1082			1082			2184	2172	1082	2211	2170	1079
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			0	100	85	95	100	95
cM capacity (veh/h)	648			649			31	47	267	27	47	268

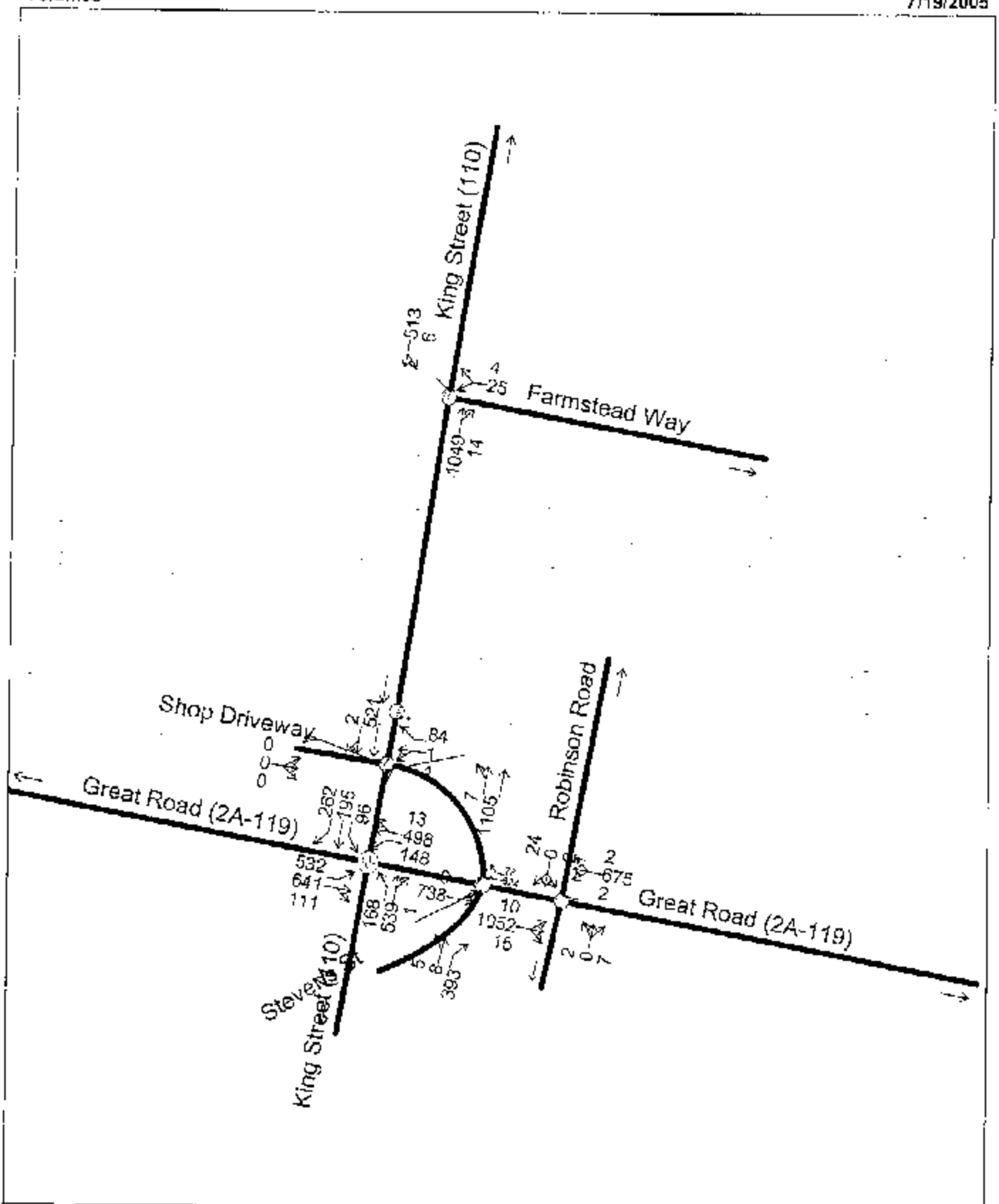
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1086	1082	84	16
Volume Left	4	0	42	1
Volume Right	0	6	41	15
cSH	648	649	56	153
Volume to Capacity	0.01	0.00	1.50	0.10
Queue Length 95th (ft)	1	0	191	9
Control Delay (s)	0.2	0.0	421.3	31.2
Lane LOS	A		F	D
Approach Delay (s)	0.2	0.0	421.3	31.2
Approach LOS			F	D

Intersection Summary			
Average Delay	15.9		
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

2010 Build Conditions (AM / PM/ SAT)

Map - GFI Partnership 40B Development
Volumes

7/19/2005



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	25	4	1049	14	6	513
Peak Hour Factor	0.56	0.56	0.91	0.91	0.87	0.87
Hourly flow rate (vph)	45	7	1153	15	7	590
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1764	1160			1168	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1764	1160			1168	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	49	97			99	
cM capacity (veh/h)	87	229			602	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	52	1168	597
Volume Left	45	0	7
Volume Right	7	15	0
cSH	95	1700	602
Volume to Capacity	0.54	0.69	0.01
Queue Length 95th (ft)	61	0	1
Control Delay (s)	80.7	0.0	0.3
Lane LOS	F		A
Approach Delay (s)	80.7	0.0	0.3
Approach LOS	F		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	10	1052	15	2	675	2	2	0	7	2	0	24
Peak Hour Factor	0.96	0.96	0.96	0.82	0.82	0.82	0.75	0.75	0.75	0.50	0.50	0.50
Hourly flow rate (vph)	10	1096	16	2	823	2	3	0	9	4	0	48
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		1261										
pX, platoon unblocked												
vC, conflicting volume	826			1111			2002	1955	1104	1963	1962	824
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	826			1111			2002	1955	1104	1963	1962	824
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			93	100	96	91	100	87
cM capacity (veh/h)	809			617			39	64	259	46	63	376

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1122	828	12	52
Volume Left	10	2	3	4
Volume Right	16	2	9	48
cSH	809	617	115	242
Volume to Capacity	0.01	0.00	0.10	0.22
Queue Length 95th (ft)	1	0	9	20
Control Delay (s)	0.4	0.1	40.1	23.9
Lane LOS	A	A	E	C
Approach Delay (s)	0.4	0.1	40.1	23.9
Approach LOS			E	C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	0	1	1	84	7	1105	0	0	521	2
Peak Hour Factor	0.92	0.92	0.92	0.79	0.79	0.79	0.95	0.95	0.95	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	1	1	106	7	1163	0	0	566	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								633				
pX, platoon unblocked												
vC, conflicting volume	1218	1745	284	1461	1746	582	568			1163		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1218	1745	284	1461	1746	582	568			1163		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	99	77	99			100		
cM capacity (veh/h)	103	85	713	90	85	457	1007			602		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	109	395	775	378	191
Volume Left	0	1	7	0	0	0
Volume Right	0	106	0	0	0	2
cSH	1700	467	1007	1700	1700	1700
Volume to Capacity	0.00	0.23	0.01	0.46	0.22	0.11
Queue Length 95th (ft)	0	22	1	0	0	0
Control Delay (s)	0.0	16.0	0.2	0.0	0.0	0.0
Lane LOS	A	C	A			
Approach Delay (s)	0.0	16.0	0.1		0.0	
Approach LOS	A	C				

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↑	↱		↰	↱			
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	738	0	0	624	76	5	8	393	0	0	0
Peak Hour Factor	0.91	0.91	0.91	0.83	0.83	0.83	0.85	0.85	0.85	0.92	0.92	0.92
Hourly flow rate (vph)	0	811	0	0	752	92	6	9	462	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									2			
Median storage veh)								None			None	
Upstream signal (ft)		749										
pX, platoon unblocked												
vC, conflicting volume	843			811			1563	1654	811	1799	1563	752
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	843			811			1563	1654	811	1799	1563	752
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			94	90	0	0	100	100
cM capacity (veh/h)	797			806			91	98	379	0	112	410

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	811	752	92	478
Volume Left	0	0	0	6
Volume Right	0	0	92	462
cSH	797	1700	1700	392
Volume to Capacity	0.00	0.44	0.05	1.22
Queue Length 95th (ft)	0	0	0	494
Control Delay (s)	0.0	0.0	0.0	149.7
Lane LOS				F
Approach Delay (s)	0.0	0.0		149.7
Approach LOS				F

Intersection Summary			
Average Delay	33.5		
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1821		1719	1803		1770	1862		1787	1881	1599
Flt Permitted	0.14	1.00		0.16	1.00		0.55	1.00		0.12	1.00	1.00
Satd. Flow (perm)	257	1821		290	1803		1029	1862		221	1881	1599
Volume (vph)	532	641	111	148	498	13	168	539	1	96	195	262
Peak-hour factor, PHF	0.91	0.91	0.91	0.77	0.77	0.77	0.86	0.86	0.86	0.89	0.89	0.89
Adj. Flow (vph)	585	704	122	192	647	17	195	627	1	108	219	294
RTOR Reduction (vph)	0	7	0	0	1	0	0	0	0	0	0	20
Lane Group Flow (vph)	585	819	0	192	663	0	195	628	0	108	219	274
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Turn Type	pm+pt			pm+pt			Perm			Perm		pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	47.0	36.0		30.0	24.0		33.0	33.0		33.0	33.0	51.0
Effective Green, g (s)	48.0	37.0		32.0	25.0		34.0	34.0		34.0	34.0	53.0
Actuated g/C Ratio	0.53	0.41		0.36	0.28		0.38	0.38		0.38	0.38	0.59
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	456	749		214	501		389	703		83	711	1013
v/s Ratio Prot	c0.27	0.45		0.07	0.37			0.34			0.12	0.06
v/s Ratio Perm	c0.41			0.25			0.19			c0.49		0.11
v/c Ratio	1.28	1.09		0.90	1.32		0.50	0.89		1.30	0.31	0.27
Uniform Delay, d1	37.7	26.5		43.1	32.5		21.5	26.3		28.0	19.7	9.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	143.2	61.3		34.6	159.2		4.6	16.1		199.3	1.1	0.1
Delay (s)	180.9	87.8		77.7	191.7		26.1	42.4		227.3	20.8	9.2
Level of Service	F	F		E	F		C	D		F	C	A
Approach Delay (s)		126.4			166.1			38.5			51.2	
Approach LOS		F			F			D			D	

Intersection Summary

HCM Average Control Delay	103.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	250		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		12	15		9	15		9	15		12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.978			0.996							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1822	0	1719	1802	0	1770	1863	0	1787	1881	1599
Flt Permitted	0.138			0.160			0.553			0.118		
Satd. Flow (perm)	257	1822	0	290	1802	0	1030	1863	0	222	1881	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			1							48
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		2359			749			1114			633	
Travel Time (s)		46.0			14.6			25.3			14.4	
Volume (vph)	532	641	111	148	498	13	168	539	1	96	195	262
Peak Hour Factor	0.91	0.91	0.91	0.77	0.77	0.77	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	585	704	122	192	647	17	195	627	1	108	219	294
Lane Group Flow (vph)	585	826	0	192	664	0	195	628	0	108	219	294
Turn Type	pm+pt			pm+pt			Perm			Perm		pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phases	7	4		3	8		2	2		6	6	7
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Total Split (s)	23.0	41.0	0.0	11.0	29.0	0.0	38.0	38.0	0.0	38.0	38.0	23.0
Total Split (%)	25.6%	45.6%	0.0%	12.2%	32.2%	0.0%	42.2%	42.2%	0.0%	42.2%	42.2%	25.6%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Recall Mode	None	None		None	None		Max	Max		Max	Max	None
v/c Ratio	1.28	1.09		0.90	1.33		0.50	0.89		1.29	0.31	0.29
Control Delay	168.1	88.2		61.9	189.5		27.0	43.6		222.9	21.2	6.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	168.1	88.2		61.9	189.5		27.0	43.6		222.9	21.2	6.9
Queue Length 50th (ft)	~378	~533		58	~498		84	329		~79	86	55
Queue Length 95th (ft)	#584	#761		#128	#564		142	#494		#179	140	92
Internal Link Dist (ft)		2279			669			1034			553	
Turn Bay Length (ft)	500			250								
Base Capacity (vph)	456	756		214	501		389	704		84	711	1030
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.28	1.09		0.90	1.33		0.50	0.89		1.29	0.31	0.29

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

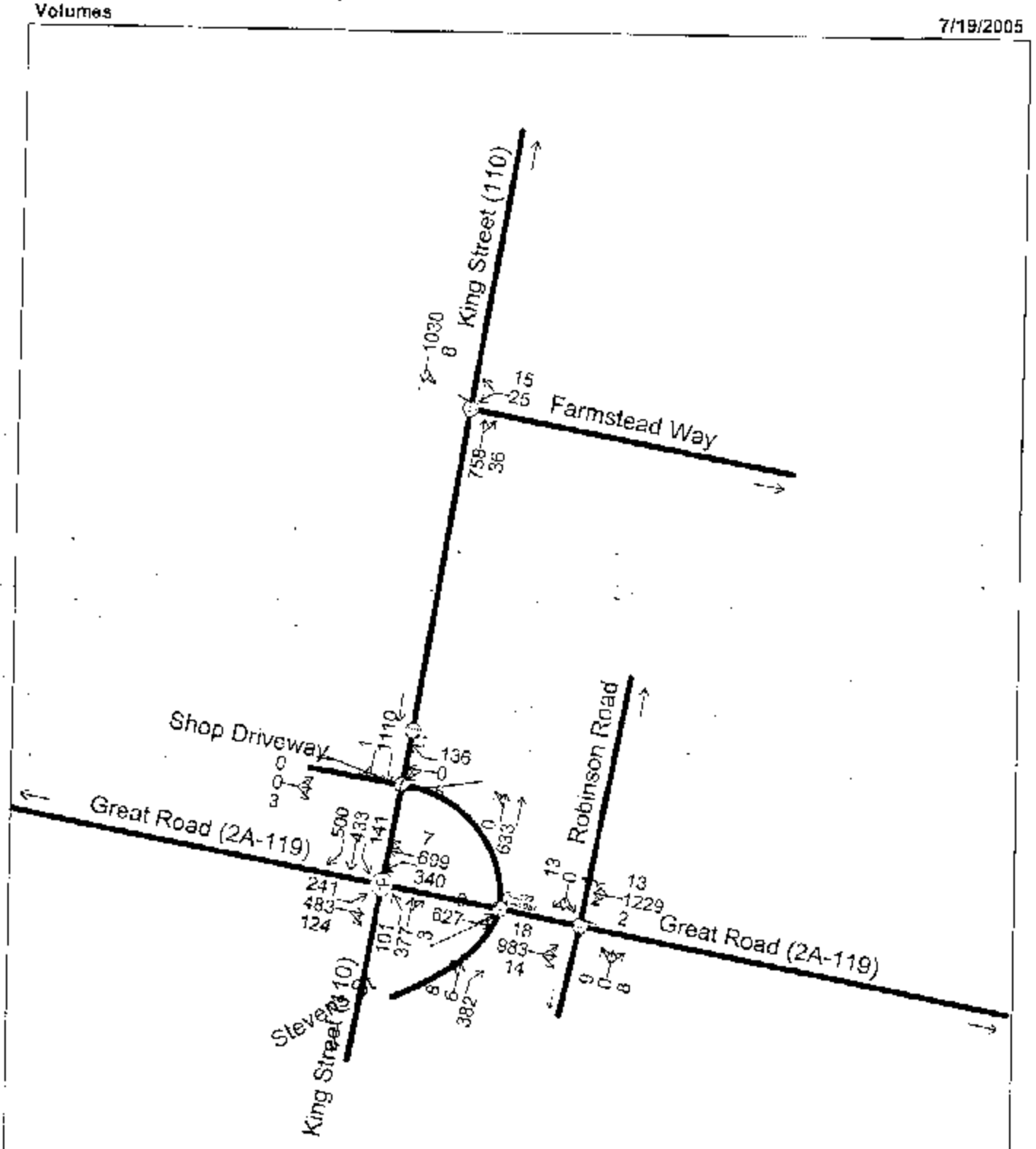
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Great Road (2A-119) & King Street (110)

Map - GFI Partnership 40B Development
Volumes

7/19/2005



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	25	15	758	36	8	1030
Peak Hour Factor	0.58	0.58	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	43	26	806	38	9	1096
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1938	826			845	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1938	826			845	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	40	93			99	
cM capacity (veh/h)	72	375			796	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	69	845	1104
Volume Left	43	0	9
Volume Right	26	38	0
cSH	103	1700	796
Volume to Capacity	0.67	0.50	0.01
Queue Length 95th (ft)	84	0	1
Control Delay (s)	91.6	0.0	0.4
Lane LOS	F		A
Approach Delay (s)	91.6	0.0	0.4
Approach LOS	F		

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	18	983	14	2	1229	13	9	0	8	4	0	13
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.71	0.71	0.71	0.67	0.67	0.67
Hourly flow rate (vph)	19	1057	15	2	1280	14	13	0	11	6	0	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		1261										
pX, platoon unblocked												
vC, conflicting volume	1294			1072			2414	2401	1065	2406	2402	1287
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1294			1072			2414	2401	1065	2406	2402	1287
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			37	100	96	72	100	90
cM capacity (veh/h)	539			654			20	32	273	22	32	203

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1091	1296	24	25
Volume Left	19	2	13	6
Volume Right	15	14	11	19
cSH	539	654	36	68
Volume to Capacity	0.04	0.00	0.67	0.37
Queue Length 95th (ft)	3	0	59	35
Control Delay (s)	1.4	0.2	222.8	86.5
Lane LOS	A	A	F	F
Approach Delay (s)	1.4	0.2	222.8	86.5
Approach LOS			F	F

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↰	↱		↑↑			↑↑	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	3	5	0	136	0	633	0	0	1110	1
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.82	0.82	0.82	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	3	5	0	146	0	772	0	0	1276	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								633				
pX, platoon unblocked												
vC, conflicting volume	1736	2048	639	1413	2049	386	1277			772		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1736	2048	639	1413	2049	386	1277			772		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	95	100	76	100			100		
cM capacity (veh/h)	43	55	419	98	56	616	545			845		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	3	152	257	515	851	426
Volume Left	0	5	0	0	0	0
Volume Right	3	146	0	0	0	1
cSH	419	638	545	1700	1700	1700
Volume to Capacity	0.01	0.24	0.00	0.30	0.50	0.25
Queue Length 95th (ft)	1	23	0	0	0	0
Control Delay (s)	13.7	13.8	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	13.7	13.8	0.0		0.0	
Approach LOS	B	B				

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	627	0	0	1087	172	8	6	382	0	0	0
Peak Hour Factor	0.88	0.88	0.88	0.97	0.97	0.97	0.78	0.78	0.78	0.92	0.92	0.92
Hourly flow rate (vph)	0	712	0	0	1121	177	10	8	490	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									2			
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		749										
pX, platoon unblocked												
vC, conflicting volume	1298			712			1833	2010	712	2082	1833	1121
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1298			712			1833	2010	712	2082	1833	1121
tC, single (s)	4.1			4.1			7.1	6.6	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			83	87	0	0	100	100
cM capacity (veh/h)	537			692			59	59	434	0	76	251

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	712	1121	177	508
Volume Left	0	0	0	10
Volume Right	0	0	177	490
cSH	537	1700	1700	450
Volume to Capacity	0.00	0.66	0.10	1.13
Queue Length 95th (ft)	0	0	0	447
Control Delay (s)	0.0	0.0	0.0	112.1
Lane LOS				F
Approach Delay (s)	0.0	0.0		112.1
Approach LOS				F

Intersection Summary			
Average Delay	22.6		
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1806		1719	1807		1770	1861		1787	1881	1599
Flt Permitted	0.12	1.00		0.11	1.00		0.21	1.00		0.26	1.00	1.00
Satd. Flow (perm)	226	1806		196	1807		383	1861		488	1881	1599
Volume (vph)	241	483	124	340	699	7	101	377	3	141	433	500
Peak-hour factor, PHF	0.91	0.91	0.91	0.77	0.77	0.77	0.86	0.86	0.86	0.89	0.89	0.89
Adj. Flow (vph)	265	531	136	442	908	9	117	438	3	158	487	562
RTOR Reduction (vph)	0	10	0	0	1	0	0	0	0	0	0	31
Lane Group Flow (vph)	265	657	0	442	916	0	117	441	0	158	487	531
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Turn Type	pm+pt			pm+pt			Perm			Perm		pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	41.0	32.0		49.0	36.0		30.0	30.0		30.0	30.0	39.0
Effective Green, g (s)	43.0	33.0		51.0	37.0		31.0	31.0		31.0	31.0	41.0
Actuated g/C Ratio	0.48	0.37		0.57	0.41		0.34	0.34		0.34	0.34	0.46
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	280	662		348	743		132	641		168	648	800
v/s Ratio Prot	0.11	0.36		c0.20	0.51			0.24			0.25	0.07
v/s Ratio Perm	0.35			c0.52			0.31			c0.32		0.26
v/c Ratio	0.95	0.99		1.27	1.23		0.89	0.69		0.94	0.75	0.66
Uniform Delay, d1	41.8	28.4		27.0	26.5		27.8	25.3		28.6	26.1	19.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	39.1	32.9		142.3	116.6		52.5	5.9		55.3	7.9	2.1
Delay (s)	81.0	61.2		169.3	143.1		80.3	31.3		83.9	33.9	21.2
Level of Service	F	E		F	F		F	C		F	C	C
Approach Delay (s)		66.8			151.6			41.6			34.5	
Approach LOS		E			F			D			C	

Intersection Summary			
HCM Average Control Delay	82.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	250		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		12	15		9	15		9	15		12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.999			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1805	0	1719	1808	0	1770	1861	0	1787	1881	1599
Flt Permitted	0.121			0.108			0.206			0.259		
Satd. Flow (perm)	225	1805	0	195	1808	0	384	1861	0	487	1881	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			1							57
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		2359			749			1114			333	
Travel Time (s)		46.0			14.6			25.3			14.4	
Volume (vph)	241	483	124	340	699	7	101	377	3	141	433	500
Peak Hour Factor	0.91	0.91	0.91	0.77	0.77	0.77	0.86	0.86	0.86	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	265	531	136	442	908	9	117	438	3	158	487	562
Lane Group Flow (vph)	265	667	0	442	917	0	117	441	0	158	487	562
Turn Type	pm+pt			pm+pt			Perm			Perm		pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phases	7	4		3	8		2	2		6	6	7
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Total Split (s)	14.0	37.0	0.0	18.0	41.0	0.0	35.0	35.0	0.0	35.0	35.0	14.0
Total Split (%)	15.6%	41.1%	0.0%	20.0%	45.6%	0.0%	38.9%	38.9%	0.0%	38.9%	38.9%	15.6%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Recall Mode	None	None		None	None		Max	Max		Max	Max	None
v/c Ratio	0.95	0.99		1.27	1.23		0.89	0.69		0.94	0.75	0.68
Control Delay	66.5	62.5		167.2	143.0		85.4	32.0		88.2	34.8	20.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	66.5	62.5		167.2	143.0		85.4	32.0		88.2	34.8	20.2
Queue Length 50th (ft)	100	365		~273	~656		62	213		86	242	208
Queue Length 95th (ft)	#252	#603		#355	#695		#158	300		#207	356	322
Internal Link Dist (ft)		2279			669			1034			553	
Turn Bay Length (ft)	500			250								
Base Capacity (vph)	279	672		348	744		132	641		188	648	828
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0

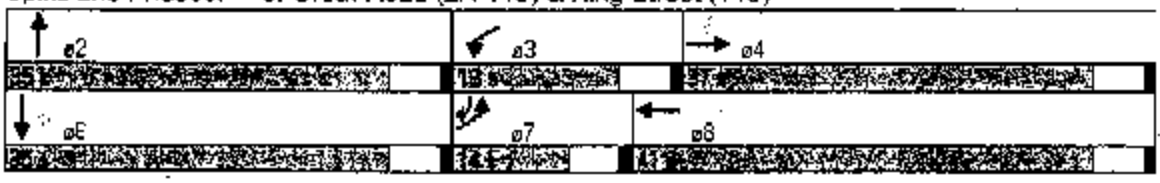
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.95	0.99		1.27	1.23		0.89	0.69		0.94	0.75	0.68

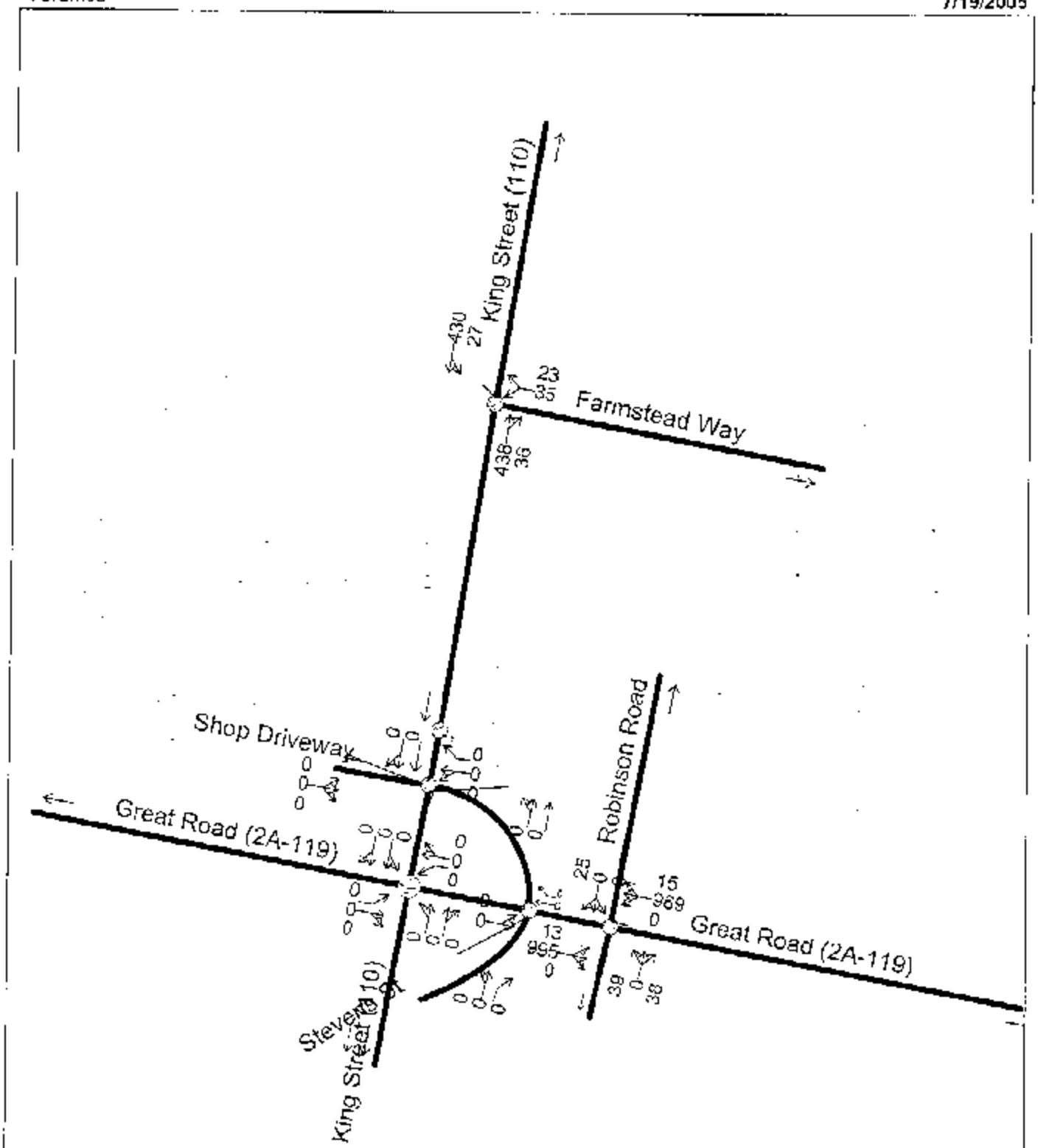
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

- : Volume exceeds capacity, queue is theoretically infinite.
  Queue shown is maximum after two cycles.
\# : 95th percentile volume exceeds capacity, queue may be longer.
  Queue shown is maximum after two cycles.

Splits and Phases: 5: Great Road (2A-119) & King Street (110)




King Street (110)
Farmstead Way
Shop Driveway
Great Road (2A-119)
Robinson Road
Great Road (2A-119)
Stevens
King Street (110)

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	35	23	438	36	27	430
Peak Hour Factor	0.66	0.66	0.96	0.96	0.93	0.93
Hourly flow rate (vph)	53	35	456	38	29	462
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	995	475			494	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	995	475			494	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	94			97	
cM capacity (veh/h)	266	594			1070	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	88	494	491
Volume Left	53	0	29
Volume Right	35	38	0
cSH	341	1700	1070
Volume to Capacity	0.26	0.29	0.03
Queue Length 95th (ft)	25	0	2
Control Delay (s)	19.2	0.0	0.8
Lane LOS	C		A
Approach Delay (s)	19.2	0.0	0.8
Approach LOS	C		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	13	995	0	0	989	15	39	0	38	3	0	25
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.92	0.92	0.92	0.75	0.75	0.75
Hourly flow rate (vph)	14	1082	0	0	1077	17	42	0	41	4	0	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		1261										
pX, platoon unblocked												
vC, conflicting volume	1093			1082			2228	2203	1082	2236	2195	1085
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1093			1082			2228	2203	1082	2236	2195	1085
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			0	100	85	84	100	87
cM capacity (veh/h)	642			649			27	44	267	25	45	266

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1096	1093	84	37
Volume Left	14	0	42	4
Volume Right	0	17	41	33
cSH	642	649	48	132
Volume to Capacity	0.02	0.00	1.74	0.28
Queue Length 95th (ft)	2	0	206	27
Control Delay (s)	0.8	0.0	540.8	42.6
Lane LOS	A		F	E
Approach Delay (s)	0.8	0.0	540.8	42.6
Approach LOS			F	E

Intersection Summary			
Average Delay	20.7		
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

Town	Crash_Date	Crash_Time	Crash_Type	Total_Vehicles	Total_Injured	Total_Fatals	Veh1_Dir	Veh2_Dir	Collision_manner	Object_hit	Citation_with	Road_Surface	Lighting	Weather	
Littleton	25-Apr-01	03PM	PROPERTY	3	0	0	W	W	REARENC	MVTRAF	OTHER	DRY	DAYLIGHT	CLEAR	277 GR
Littleton	03-Aug-01	03PM	PROPERTY	2	0	0	W	W	REARENC	MVTRAF		WET	DAYLIGHT	RAIN	287 GR
Littleton	04-Jan-01	03PM	PROPERTY	2	0	0	E	W	ANGLE	MVPRKD		DRY	DARK(ROAD LIT)	CLOUDY	272 GR
Littleton	24-Jun-01	07AM	PROPERTY	2	0	0	E	E	UNKNOWN				UNKNOWN	NOSPEC	277 GR
Littleton	16-Mar-01	02PM	PROPERTY	2	0	0	E	W	ANGLE	MVTRAF		WET	DAYLIGHT	CLOUDY	417 GR
Littleton	24-Oct-01	02PM	PROPERTY	2	0	0	E	S	ANGLE	MVTRAF		DRY	DAYLIGHT	CLEAR	529 KIN
Littleton	09-May-01	03PM	PROPERTY	2	0	0	W	N	ANGLE	MVTRAF		DRY	DAYLIGHT	CLEAR	530 KIN
Littleton	02-Apr-01	04PM	PROPERTY	2	0	0	S	E	ANGLE	MVTRAF		DRY	DAYLIGHT	CLOUDY	KING S
Littleton	16-Oct-01	05PM	INJURY	2	3	0			ANGLE	MVPRKD	OTHER	DRY	DAYLIGHT	CLEAR	KING S
Littleton	25-Jan-01	06PM	PROPERTY	2	0	0	W	W	REARENC	MVTRAF	OTHER	DRY	DARK(ROAD LIT)	CLOUDY	RTE 2A
Littleton	23-Jun-01	07AM	INJURY	2	1	0	W	N	UNKNOWN	MVTRAF		DRY	DAYLIGHT	CLEAR	171 KIN
Littleton	11-Jun-01	07AM	PROPERTY	2	0	0	W	W	ANGLE	MVTRAF		DRY	DAYLIGHT	CLEAR	500 KIN
Littleton	28-Sep-01	05AM	INJURY	2	2	0	W	E	ANGLE	MVTRAF		DRY	DAYLIGHT	CLEAR	500 KIN
Littleton	29-Oct-01	08AM	PROPERTY	2	0	0	E	E	ANGLE	MVTRAF		DRY	DAYLIGHT	CLEAR	184 RU
Littleton	13-Apr-01	02PM	INJURY	2	1	0	W	E	ANGLE	MVTRAF	UTILPOLE	DRY	DARK(ROAD LIT)	CLEAR	410 GR
Littleton	10-Sep-01	09AM	HIT AND RUN	2	0	0	E	W	ANGLE	MVTRAF		DRY	DAYLIGHT	CLEAR	500 KIN
Littleton	17-Apr-01	09AM	HIT AND RUN	1	0	0	W		UNKNOWN	OFFROFX	CURB	DRY	DAYLIGHT	CLEAR	500 KIN
Littleton	18-Oct-01	10AM	PROPERTY	2	0	0	N	N	ANGLE	MVPRKD		DRY	DAYLIGHT	CLEAR	500 KIN
Littleton	11-Jun-01	10AM	PROPERTY	2	0	0	W	W	ANGLE	MVTRAF		DRY	DAYLIGHT	CLOUDY	500 KIN
Littleton	02-Jun-01	11AM	INJURY	2	1	0	W	E	ANGLE	MVPRKD	OTHER	WET	DAYLIGHT	CLOUDY	410 GR
Littleton	09-Jul-01	11AM	INJURY	2	1	0	E		ANGLE	MVPRKD		DRY	DAYLIGHT	CLEAR	480 KIN
Littleton	18-Jul-01	11AM	INJURY	2	1	0	S	S	REAREND	MVTRAF	OTHER	DRY	DAYLIGHT	CLEAR	500 KIN
Littleton	14-Sep-01	11AM	PROPERTY	2	0	0	E	E	ANGLE	MVTRAF		WET	DAYLIGHT	RAIN	500 KIN
Littleton	06-Mar-01	11AM	PROPERTY	2	0	0	E	E	UNKNOWN			WET	DAYLIGHT	CLEAR	CREAT
Littleton	29-Jan-01	04PM	PROPERTY	2	0	0	N	W	ANGLE	MVTRAF	OTHER	DRY	DAYLIGHT	CLEAR	529 KIN
Littleton	25-Sep-01	04PM	PROPERTY	2	0	0	E		UNKNOWN			DRY	DAYLIGHT	RAIN	550 KIN
Littleton	05-Apr-01	05PM	PROPERTY	2	0	0	E	W	ANGLE	MVTRAF		DRY	DAYLIGHT	CLEAR	550 KIN

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Travel Direction	First Harmful Events	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Roa Intersection
1479542	LITTLETON	07-Jul-2003	3:48 PM	Property damage only (none injured)	2	0	0	Rear-end	V1:Eastbound/V2:Eastbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear		300 GREAT ROAD
1481078	LITTLETON	13-Aug-2003	3:06 PM	Property damage only (none injured)	2	0	0	Angle	V1:Eastbound/V2:Westbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Dry	Daylight	Other		363 GREAT ROAD
1520882	LITTLETON	25-Nov-2003	10:22 PM	Property damage only (none injured)	2	0	0	Angle	V1:Northbound/V2:Eastbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Dry	Dark - lighted roadway	Cloudy		265 GREAT ROAD
1428908	LITTLETON	21-Mar-2003	7:21 PM	Property damage only (none injured)	2	0	0	Rear-end	V1:Westbound/V2:Westbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Dry	Dark - lighted roadway	Other		223 GREAT ROAD
1510732	LITTLETON	18-Oct-2003	8:33 AM	Non-fatal injury	2	1	0	Angle	V1:Eastbound/V2:Eastbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Dry	Dawn	Clear	STEVENS ST/COTTAGE/GREAT ROAD	
1513805	LITTLETON	23-Sep-2003	9:01 AM	Property damage only (none injured)	2	0	0	Rear-end	V1:Eastbound/V2:Eastbound	V1: Not reported/V2: Not reported	Dry	Daylight	Clear	STEVENS STREET/GREAT ROAD Rte 119	
1440923	LITTLETON	07-Nov-2003	11:16 AM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1:Westbound/V2:Westbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear/Cloudy	KING STREET/GREAT ROAD Rte 119 W	
1500724	LITTLETON	15-Oct-2003	11:30 AM	Property damage only (none injured)	2	0	0	Rear-end	V1:Westbound/V2:Westbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear	KING STREET/GREAT ROAD	
1485269	LITTLETON	20-Aug-2003	3:10 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1:Northbound	V1: Collision with guardrail	Dry	Daylight	Clear		695 GREAT ROAD
1451568	LITTLETON	13-May-2003	4:10 PM	Not Reported	2	0	0	Angle	V1:Westbound/V2:Westbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Wet	Daylight	Rain/Sleet	KING STREET/GREAT ROAD	
1410484	LITTLETON	20-Aug-2003	4:55 PM	Non-fatal injury	2	2	0	Angle	V1:Westbound/V2:Southbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear		630 KING STREET
1518058	LITTLETON	01-Nov-2003	4:51 PM	Property damage only (none injured)	2	0	0	Head-on	V1:Eastbound/V2:Eastbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Dry	Dark - lighted roadway	Cloudy	GREAT ROAD/KING STREET	
1461544	LITTLETON	12-May-2003	7:10 PM	Property damage only (none injured)	2	0	0	Angle	V1:Westbound/V2:Eastbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Wet	Daylight	Cloudy/Rain	KING STREET Rte 119 W/GREAT ROAD Rte 119 W	
1466938	LITTLETON	22-Jul-2003	2:36 PM	Property damage only (none injured)	2	0	0	Angle	V1:Eastbound/V2:Westbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Dry	Dusk	Clear	KING STREET/GREAT ROAD	
1422938	LITTLETON	05-May-2003	9:00 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1:Northbound	V1: Not reported	Dry	Daylight	Cloudy		100 feet W Town C 480 KING STREET 1100 GREAT ROAD
1512958	LITTLETON	18-Nov-2003	8:07 AM	Property damage only (none injured)	2	0	0	Angle	V1:Eastbound/V2:Westbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Wet	Daylight	Clear		415 GREAT ROAD
1470113	LITTLETON	09-Jun-2003	9:07 PM	Property damage only (none injured)	2	0	0	Angle	V1:Eastbound/V2:Northbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Dry	Dark - lighted roadway	Clear	KING STREET/GREAT ROAD	
693591	LITTLETON	11-Feb-2003	7:00 AM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1:Westbound/V2:Westbound	V1: Not reported/V2: Not reported	Dry	Daylight	Clear		319 GREAT ROAD 1199/BETWEEN RO
1528461	LITTLETON	26-Nov-2003	5:05 PM	Non-fatal injury	2	1	0	Angle	V1:Not reported/V2:Westbound	V1: Not reported/V2: Not reported	Dry	Daylight	Clear		510 X NB STRPFT
1475175	LITTLETON	02-Aug-2003	5:28 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1:Eastbound/V2:Eastbound, V3:Westbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic/V3: Collision with motor vehicle in traffic	Dry	Daylight	Clear		525 GREAT ROAD
1477540	LITTLETON	15-Jul-2003	12:44 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1:Eastbound/V2:Eastbound	V1: Collision with motor vehicle in traffic/V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear		520 KING STREET
1569547	LITTLETON	31-Jan-2003	4:52 PM	Property damage only (none injured)	2	0	0	Angle	V1:Northbound/V2:Westbound	V1: Not reported/V2: Not reported	Snow	Dark - lighted roadway	Snow/Sleet/Freezing rain or drizzl		560 KING STREET

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicles Travel Directions	Most Harmful Event	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Roadway Inters
152 370	LITTLETON	14-Apr-2003	4:19 PM	Non-fatal injury	2	1	0	Rear-end	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear		286 GREAT RO
1571570	LITTLETON	14-Apr-2003	4:19 PM	Non-fatal injury	2	0	0	Rear-end	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear		286 GREAT RO
1647100	LITTLETON	26-Dec-2003	11:57 AM	Property damage only (none injured)	2	0	0	Rear-end	V1:Northbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear	STEVENS STREET / GREAT ROAD	
1648514	LITTLETON	30-Dec-2003	8:21 AM	Non-fatal injury	2	1	0	Angle	V1:Eastbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear	KING STREET Rte 110 E / GREAT ROAD Rte 119 W	
1776460	LITTLETON	16-Jun-2003	7:00 AM	Non-fatal injury	2	1	0	Head-on	V1:Westbound / V2:Not reported	V1: Not reported / V2: Not reported	Wet	Dusk	Rain	GREAT ROAD / KING STREET	
1763211	LITTLETON	23-Dec-2003	12:53 PM	Non-fatal injury	2	1	0	Head-on	V1:Eastbound / V2:Eastbound	V1: Not reported / V2: Not reported	Dry	Daylight	Clear		225 GREAT RO / KING STRE 110
1713134	LITTLETON	06-Nov-2003	8:28 AM	Non-fatal injury	2	1	0	Rear-end	V1:Eastbound / V2:Eastbound	V1: Not reported / V2: Not reported	Dry	Daylight	Clear		KING STREET
1556332	LITTLETON	05-Mar-2003	1:08 PM	Property damage only (none injured)	2	0	0	Angle	V1:Eastbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Wet	Daylight	Rain	GREAT ROAD / KING STREET	
1668519	LITTLETON	10-Dec-2003	5:03 AM	Property damage only (none injured)	2	0	0	Angle	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Dry	Dawn	Clear	GREAT ROAD / KING STREET	
565535	LITTLETON	27-May-2003	8:19 AM	Property damage only (none injured)	3	0	0	Angle	V1:Northbound / V2:Eastbound / V3:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	Wet	Daylight	Cloudy	GREAT ROAD Rte 119 E / KING STREET Rte 110	
1523655	LITTLETON	10-Mar-2003	3:31 PM	Property damage only (none injured)	2	0	0	Angle	V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear		44 KING STRE 2A
1544619	LITTLETON	13-Feb-2003	7:00 AM	Property damage only (none injured)	2	0	0	Angle	V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Dry	Daylight	Cloudy		815 GREAT RO 110
1588902	LITTLETON	27-May-2003	8:10 AM	Property damage only (none injured)	2	0	0	Rear-end	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Wet	Daylight	Rain	GREAT ROAD / KING STREET	
1787360	LITTLETON	01-Jan-2003	6:02 PM	Unknown	2	0	0	Head-on	V1:Northbound / V2:Southbound	V1: Not reported / V2: Not reported	Wet	Dark - Lighted roadway	Rain	KING STREET / Rte 110 / GREAT ROAD Rte 119	
1588626	LITTLETON	04-Apr-2003	11:05 AM	Property damage only (none injured)	2	0	0	Angle	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Wet	Daylight	Rain	KING STREET / MEETING HOUSE ROAD	

Traffic Study Appendix F

MassHighway Crash Data

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Littleton, Ma COUNT DATE : May-05

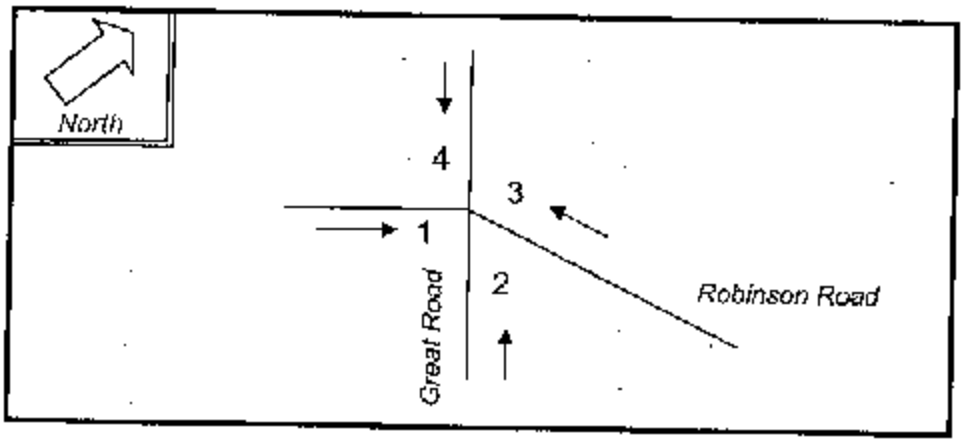
DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

– INTERSECTION DATA –

MAJOR STREET : Great Road (Route 2A/119)

MINOR STREET(S) : Robinson Road

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :						
VOLUMES (PM) :	17	999	8	690		1,714

" K " FACTOR : 0.100 APPROACH ADT : 17,140 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 10 # OF YEARS : 3 AVERAGE # OF CRASHES (A) : 3.33

CRASH RATE CALCULATION : 0.53 RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : Hourly entering volume was projected to an ADT using a K factor of 0.1

Project Title & Date: T0121 - Village on the Common - Littleton, Ma July-05

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Littleton, Ma COUNT DATE : May-05

DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

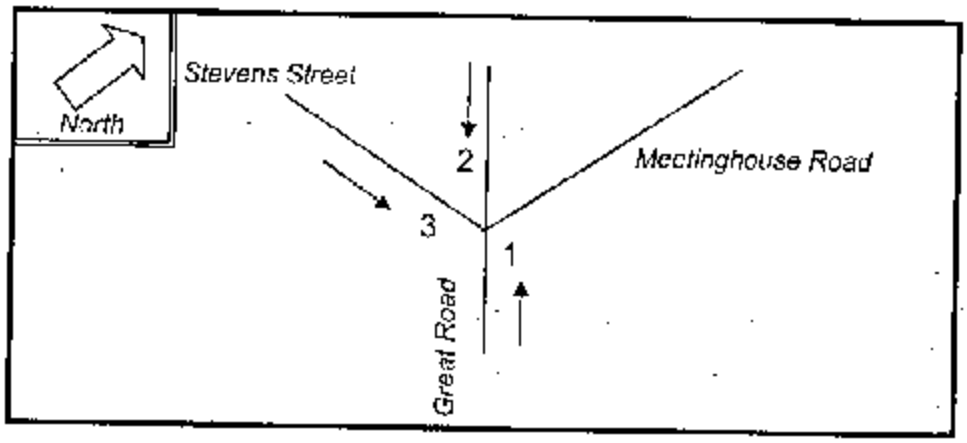
~ INTERSECTION DATA ~

MAJOR STREET : Great Road (Route 2A/119)

MINOR STREET(S) : Stevens Street

Meetinghouse Road

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :						
VOLUMES (PM) :	1,012	386	306			1,704

"K" FACTOR : 0.100 APPROACH ADT : 17,040 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 3 # OF YEARS : 3 AVERAGE # OF CRASHES (A) : 1.00

CRASH RATE CALCULATION : 0.16 RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : Hourly entering volume was projected to an ADT using a K factor of 0.1

Project Title & Date: T0121 - Village on the Common - Littleton, Ma July-05

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Littleton, Ma COUNT DATE : May-05

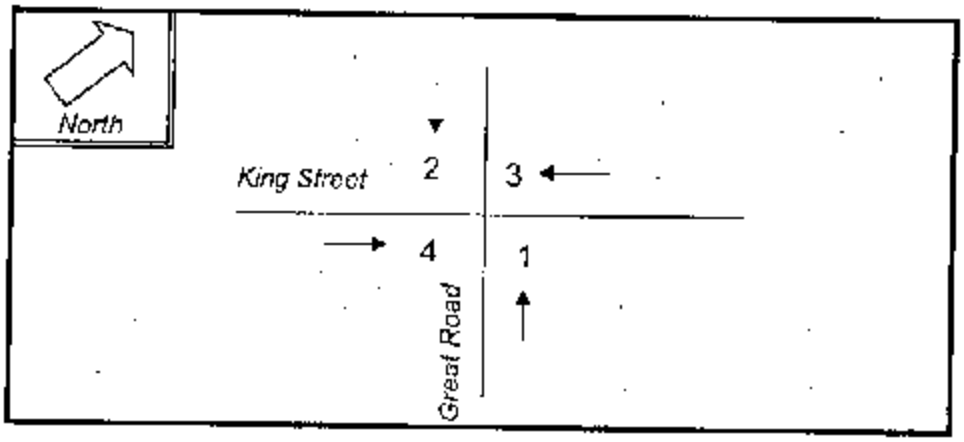
DISTRICT : 3 UNSIGNALIZED : [ ] SIGNALIZED : [X]

~ INTERSECTION DATA ~

MAJOR STREET : Great Road (Route 2A/119)

MINOR STREET(S) : King Street (Route 110)

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :						
VOLUMES (PM) :	835	506	746	411		2,498

"K" FACTOR : 0.100 APPROACH ADT : 24,980 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 42 # OF YEARS : 3 AVERAGE # OF CRASHES (A) : 14.00

CRASH RATE CALCULATION : 1.54 RATE = (A * 1,000,000) / (ADT * 365)

Comments : Hourly entering volume was projected to an ADT using a K factor of 0.1

Project Title & Date: T0121 - Village on the Common - Littleton, Ma July-05

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Littleton, Ma COUNT DATE : May-05

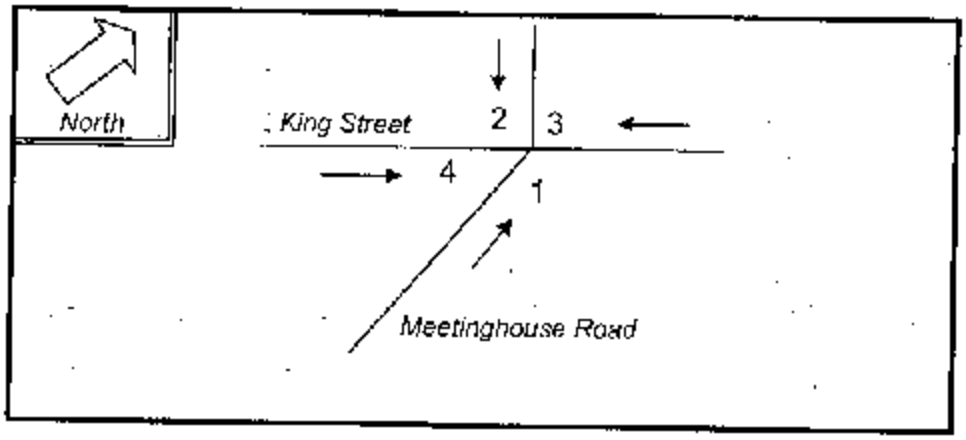
DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

– INTERSECTION DATA –

MAJOR STREET : King Street (Route 110)

MINOR STREET(S) : Meetinghouse Road

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :						
VOLUMES (PM) :	114	3	789	448		1,355

"K" FACTOR : 0.100 APPROACH ADT : 13,550 ADT = TOTAL VOL*"K" FACT.

TOTAL # OF CRASHES : 5 # OF YEARS : 3 AVERAGE # OF CRASHES (A) : 1.67

CRASH RATE CALCULATION : 0.34 RATE = (A * 1,000,000) / (ADT * 365)

Comments : Hourly entering volume was projected to an ADT using a K factor of 0.1

Project Title & Date: T0121 - Village on the Common - Littleton, Ma July-05

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Littleton, Ma COUNT DATE : May-05

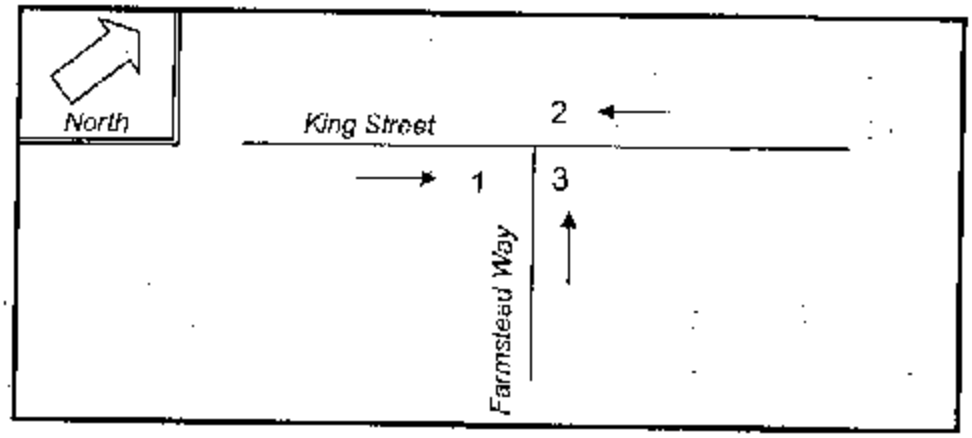
DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : King Street (Route 110)

MINOR STREET(S) : Farmstead Way

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :						
VOLUMES (PM) :	584	719	30			1,333

"K" FACTOR : 0.100 APPROACH ADT : 13,330 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 4 # OF YEARS : 3 AVERAGE # OF CRASHES (A) : 1.33

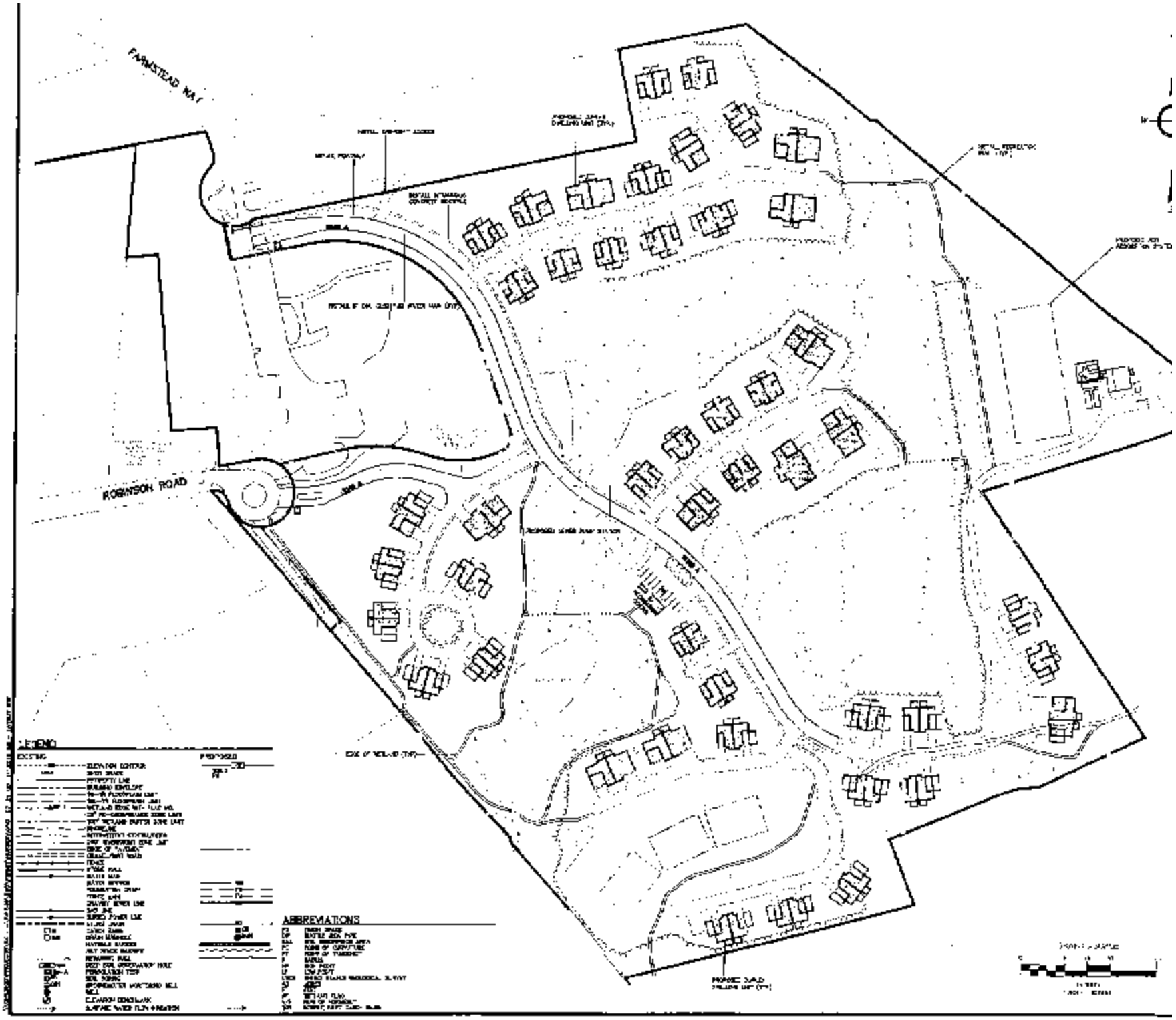
CRASH RATE CALCULATION : 0.27 RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : Hourly entering volume was projected to an ADT using a K factor of 0.1

Project Title & Date: T0121 - Village on the Common - Littleton, Ma July-05

Traffic Study Appendix G

Site Plan


FARMSTEAD WAY
ROBINSON ROAD
LEGEND
EXISTING
PROPOSED
ABBREVIATIONS