4.11 TRANSPORTATION and CIRCULATION

This section presents an analysis of the potential traffic impacts that would result from development of the Town Center Specific Plan within the City of Scotts Valley. The traffic study was completed by Whitlock & Weinberger Transportation, Inc. (W-Trans) in accordance with the criteria established by the City of Scotts Valley, and is consistent with standard traffic engineering techniques.

4.11.1 Environmental Setting

a. Physical Setting

Existing Roadway Network. Regional access to the study area is provided by SR 17. Local access is available via Scotts Valley Drive, Mt. Hermon Road, Kings Village Road, and Skypark Drive. The following paragraphs describe the major roadways serving the project area. The City of Scotts Valley Circulation Element classifies its roadways according to their function, based on the *Manual of Traffic Engineering Studies (1976)*. These classifications are shown in Table 4.11-1.

Table 4.11-1. City of Scotts Valley Roadway Classifications

Category	Function	Characteristics
Type I Freeway	Serves longest trips with highest mobility.	Connects states, regions, metropolitan areas.
Principal Arterial	Greatest portion of through travel use.	Includes all higher volume streets except those serving short trips.
Minor Arterial	Serves local and minor long distance trips with moderate mobility and considerable land access.	Connects less concentrated traffic generating areas such as schools, neighborhoods, and shopping areas.
Connector (only within the County)	Provides link between adjacent incorporated and non-incorporated jurisdictions.	Collects traffic from neighborhood and rural areas.
Collector	Serves mixed trips and provides service to abutting lands.	Collects traffic from local streets.
Local	All traffic originates from, or is destined for, abutting lands.	All other rural and local access roads.

Source: City of Scotts Valley General Plan Circulation Element, Manual of Traffic Engineering Studies, 1976.

Street Network Characteristics

State Route 17 (SR 17) is located approximately one mile from the proposed Specific Plan site. It is a four-lane north-south freeway, with two travel lanes in each direction. SR 17 extends from 1-880 in San Jose in the north to its terminus at State Route 1 in Santa Cruz, south of Scotts Valley. SR 17 provides access to Scotts Valley via interchanges at Granite Creek Road and Mt. Hermon Road. The City's General Plan Circulation Element includes provisions for a mid-town interchange approximately midway between Granite Creek and Mt. Hermon Roads, although exact connection locations have not been determined.

Mt. Hermon Road is the primary access route to the Specific Plan area and is the only principal arterial road in Scotts Valley. It is a four-lane, east-west principal arterial, with two

travel lanes in each direction separated by an intermittent raised median. Mt. Hermon Road extends from SR 17 to the east to Graham Hill Road to the west. Mt. Herman Road serves as the primary commercial street through Scotts Valley and provides regional access between SR 17 and SR 9 in Felton and Ben Lomond.

Scotts Valley Drive is a four-lane, north-south arterial, with two travel lanes in each direction separated by intermittent sections of raised median. This arterial extends from Mt. Hermon Road in the south to its terminus in the north just beyond its intersection with Sawyer Circle.

Kings Village Road is a two-lane collector street that extends northward from Mt. Hermon Road to Bluebonnet Lane, and then turns westward to run along the northern boundary of the Specific Plan area to Skypark Park. The street provides primary access to the Cavallero Transit Center and Park-and-Ride Lot, which is located near Bluebonnet Lane about 1,000 feet north of Mt. Hermon Road.

Bluebonnet Lane is a one-block long, two-lane street that runs between Kings Village Road and Bean Creek Road. The 25 mile per hour street primarily serves multi-family residential uses, though in combination with Bean Creek Road, also provides a secondary route between the Specific Plan area and Scotts Valley Drive.

Skypark Drive is a two-lane local street that provides a connection between Mt. Hermon Road and a small residential subdivision located on the northern end of the former airport. The approximately one-half mile long street also provides access to Skypark Park. The portion of the street nearest Mt. Hermon Road includes on-street bicycle lanes. A sharp curve in the roadway exists approximately 600 feet north of Mt. Hermon Road just before the residential intersection of Navigator Drive.

Granite Creek Road is a two-lane, local roadway that runs generally in an east-west direction near Scotts Valley Drive and then travels in a north-south direction east of SR 17. Granite Creek Road provides a northern access to Scotts Valley Drive and an overpass spanning SR 17. This roadway extends from Scotts Valley Drive in the north to Branciforte Drive in the south.

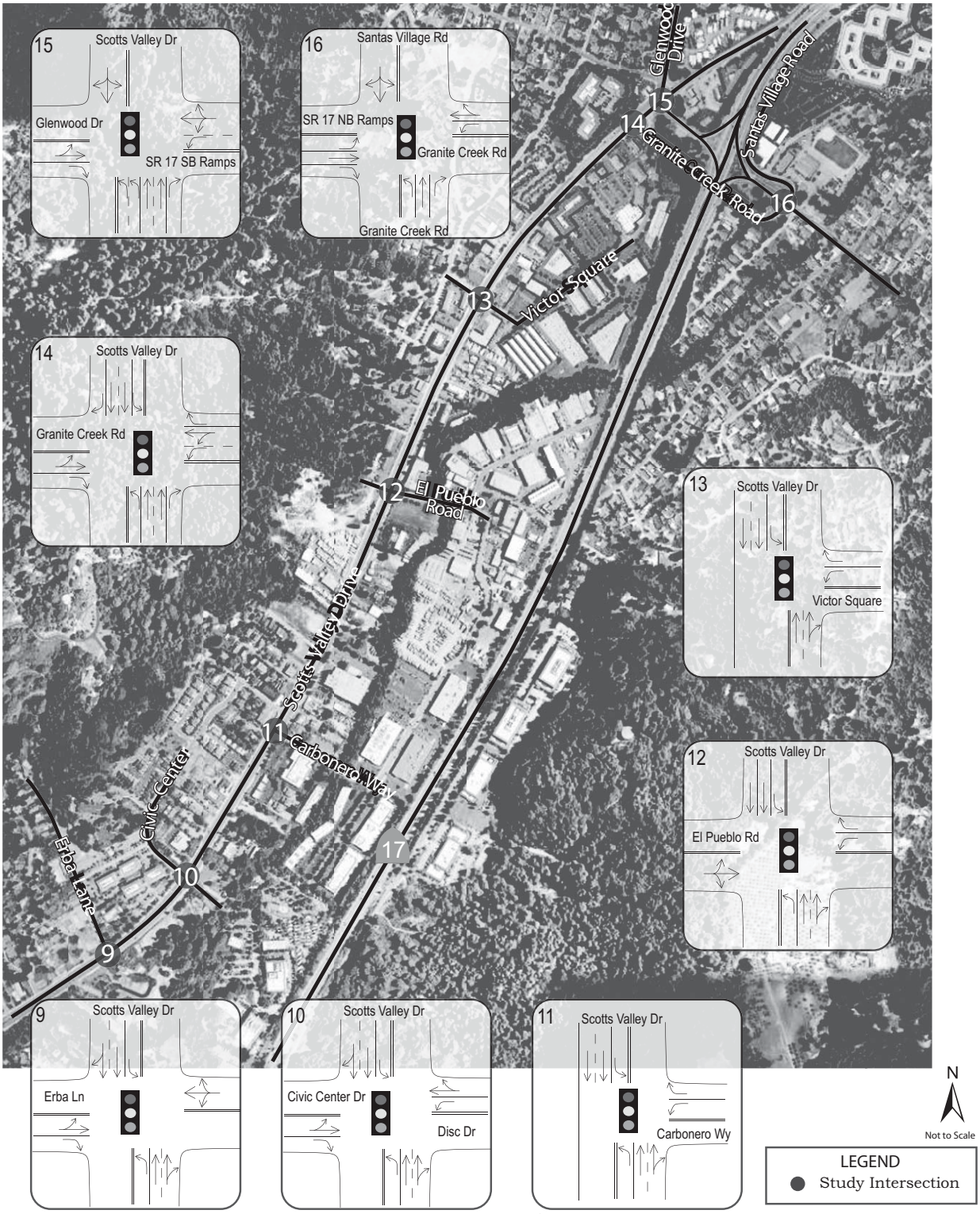
Study Area and Time of Day Analysis Periods

The study includes an analysis of 20 intersections in the City of Scotts Valley. The study intersections along with their existing lane configurations are shown in Figures 4.11-1 and 4.11-2, and are listed below. Existing traffic controls are indicated in parentheses ( ) for each intersection.

Southern Study Area and Existing Lane Configurations

Figure 4.11-1

Source: W-Trans, 2008.



Study Intersections 1 through 8 and 9 through 20 are shown in Figure 4.11-1

Northern Study Area and Existing Lane Configurations

Figure 4.11-2

Source: W-Trans, 2008.

1. Mt. Hermon Road/Lockhart Gulch Road (Signal)
2. Mt. Hermon Road/Lockwood Lane-Skypark Drive (Signal)
3. Mt. Hermon Road/Kings Village Road (Signal)
4. Mt. Hermon Road/Spring Lakes Drive (Signal)
5. Mt. Hermon Road/Scotts Valley Drive-Whispering Pines Drive (Signal)
6. Mt. Hermon Road/Glen Canyon Road (Signal)
7. Mt. Hermon Road/SR 17 SB Off Ramp-La Madrona Drive (Signal)
8. Bean Creek Road/Scotts Valley Drive (Signal)
9. Erba Lane/Scotts Valley Drive (Signal)
10. Civic Center Drive-Disc Drive/Scotts Valley Drive (Signal)
11. Carbonero Way/Scotts Valley Drive (Signal)
12. El Pueblo Road/Scotts Valley Drive (Signal)
13. Victor Square (North)/Scotts Valley Drive (Signal)
14. Granite Creek Road/Scotts Valley Drive (Signal)
15. Glenwood Drive-SR 17 SB Ramps/Scotts Valley Drive (Signal)
16. Granite Creek Road-SR 17 NB Ramps/Santas Village Road (Signal)
17. Mt. Hermon Road/K-Mart Access (Signal)
18. Mt. Hermon Road/Washington Mutual Access (Two-way Stop)
19. Blue Bonnet Lane/Kings Village Road (All-Way Stop)
20. Blue Bonnet Lane/Bean Creek Road (Two-Way Stop)

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture activity for the proposed Specific Plan during the morning and evening commutes, which typically represent the worst-case operating conditions and highest congestion of the day. It should be noted that the weekend (Saturday) midday peak period was evaluated at the two most critical intersections, Mt. Hermon Road/Scotts Valley Drive-Whispering Pines Drive and Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive.

Study Scenarios

Seven study scenarios were evaluated for this report:

1. ***Existing Conditions.*** The Existing Conditions scenario is an evaluation of current traffic operation based on counts collected by W-Trans in May 2007 as well as from the Transportation Impact Analysis for the Stonegate Mixed-Use Development, prepared by Hexagon Transportation Consultants for the City of Scotts Valley in March 2006.

2. ***Short Term Cumulative***. In the Short Term Cumulative scenario, anticipated operation under short-term growth was determined by adding to existing volumes the anticipated traffic associated with all projects which are currently under construction, have been approved but building permits have not yet been issued, or have been submitted but not yet approved.

3. ***Short Term Cumulative plus Project***. The Short Term Cumulative plus Project scenario reflects anticipated traffic operation with the addition of traffic generated by the proposed Town Center Specific Plan to Short Term Cumulative traffic.

4. ***Buildout***. In the Buildout scenario, anticipated operation under long-term growth is evaluated by adding traffic associated with all projects assumed under Short Term Cumulative conditions as well as sites with large vacant lots, sites with the potential to be redeveloped and sites listed in the City's Housing Element, to existing volumes.

5. ***Buildout plus Project.*** The Buildout plus Project scenario includes the addition of the Specific Plan generated traffic volumes to Buildout traffic.

6. ***Buildout with Mid-Town Interchange.*** Since a new "Mid-Town interchange with SR17 has been explored in the past, a Buildout scenario including a Mid-Town Interchange was evaluated. This scenario included consideration of change to circulation patterns associated with the introduction of the Mid-Town Interchange on Scotts Valley Drive near the Civic Center Drive-Disc Drive intersection.

7. ***Buildout with Mid-Town Interchange plus Project***. Finally, the Buildout with Mid-Town Interchange plus Project scenario includes the addition of the Specific Plan generated traffic volumes to the adjusted Buildout traffic.

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. The LOS designation is accompanied by a unit of measure which indicates a level of delay. The study intersections were analyzed using methodologies from the Highway Capacity Manual 2000, Transportation Research Board, 2000 (HCM2000). This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The Levels of Service for the intersections of Mt. Hermon Road/Washington Mutual Access and Blue Bonnet Lane/Bean Creek Road, which are stop controlled on the Washington Mutual Access and Blue Bonnet Lane approaches, were analyzed using the "Two-Way Stop-Controlled Intersection" capacity method from the HCM2000. This method determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. An overall weighted average for the intersection is also determined.

The study intersection of Blue Bonnet Lane/Kings Village Road was analyzed using the "All-Way Stop-Controlled Intersection" methodology from the HCM2000. This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole, and is then related to a Level of Service.

The "Signalized" methodology was used to evaluate the remaining study intersections, and is based on factors including traffic volumes, green time for each movement, phasing, whether or not the signals are coordinated, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology

The ranges of delay associated with the various levels of service for the methodologies applied are indicated in Table 4.11-2.

Table 4.11-2. Intersection Level of Service Criteria

LOS	Two-Way Stop-Controlled	All-Way Stop-Controlled	Signalized
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach, and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Source: Highway Capacity Manual, Transportation Research Board, 2000.

Existing Traffic Conditions

Currently all of the study intersections are operating acceptably under City standards during both the a.m. and the p.m. peak periods, except for the intersection of Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive which currently operates unacceptably at LOS D during the p.m. peak period. Mitigation measures to improve this intersection will be discussed under Short Term Cumulative conditions. It should be noted that the northbound approach of the Mt. Hermon Road/Washington Mutual Access intersection operates at LOS F. However, this condition was not considered significant since the deficient LOS F condition only affects 13 peak hour vehicles or less.

The Level of Service calculations for Existing Conditions are summarized in Table 4.11-3, and copies are provided in Appendix F. Existing traffic volumes are shown in Figures 4.11-3 and 4.11-4.

Table 4.11-3. Existing Intersection Levels of Service

Intersection *Approach*	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
1. Mt. Hermon Rd/Lockhart Gulch Rd	8.8	A	26.2	C
2. Mt. Hermon Rd/Skypark Dr-Lockwood Ln	16.6	B	14.0	B
3. Mt. Hermon Rd/Kings Village Rd	15.0	B	23.3	C
4. Mt. Hermon Rd/Spring Lakes Rd	10.0	A	17.6	B
5. Mt. Hermon Rd/Scotts Valley Dr-Whispering Pines Dr	38.6	D	40.3	D
6. Mt. Hermon Rd/Glen Canyon Rd	15.3	B	17.1	B
7. Mt. Hermon Rd/La Madrona Dr-SR 17 SB Off Ramp	24.7	C	**40.6**	**D**
8. Bean Creek Rd/Scotts Valley Dr	17.1	B	14.5	B
9. Erba Ln/Scotts Valley Dr	8.1	A	9.5	A
10. Civic Center Dr-Disc Dr/Scotts Valley Dr	10.0	A	10.6	B
11. Carbonero Wy/Scotts Valley Dr	4.8	A	6.9	A
12. El Pueblo Rd/Scotts Valley Dr	7.0	A	7.7	A
13. Victor Square (North)/Scotts Valley Dr	7.4	A	11.3	B
14. Granite Creek Rd/Scotts Valley Dr	18.3	B	19.2	B
15. Glenwood Dr-SR 17 SB Ramps/Scotts Valley Dr	22.3	C	19.6	B
16. Granite Creek Rd-SR 17 NB Ramps/Santas Village Rd	27.2	C	24.2	C
17. Mt. Hermon Rd/K-Mart Access	17.3	B	18.6	B
18. Mt. Hermon Rd/Washington Mutual Access	2.5	A	7.2	A
Northbound Approach	23.1	C	87.3	F
19. Blue Bonnet Ln/Kings Village Rd	8.0	A	8.1	A
20. Blue Bonnet Ln/Bean Creek Rd	6.0	A	6.8	A
Eastbound Approach	9.5	A	10.3	B
Westbound Left-Turn	12.2	B	12.9	B

Notes: Delay is measured in average seconds of delay per vehicle
*LOS = Level of Service, **Bold** = deficient operation*

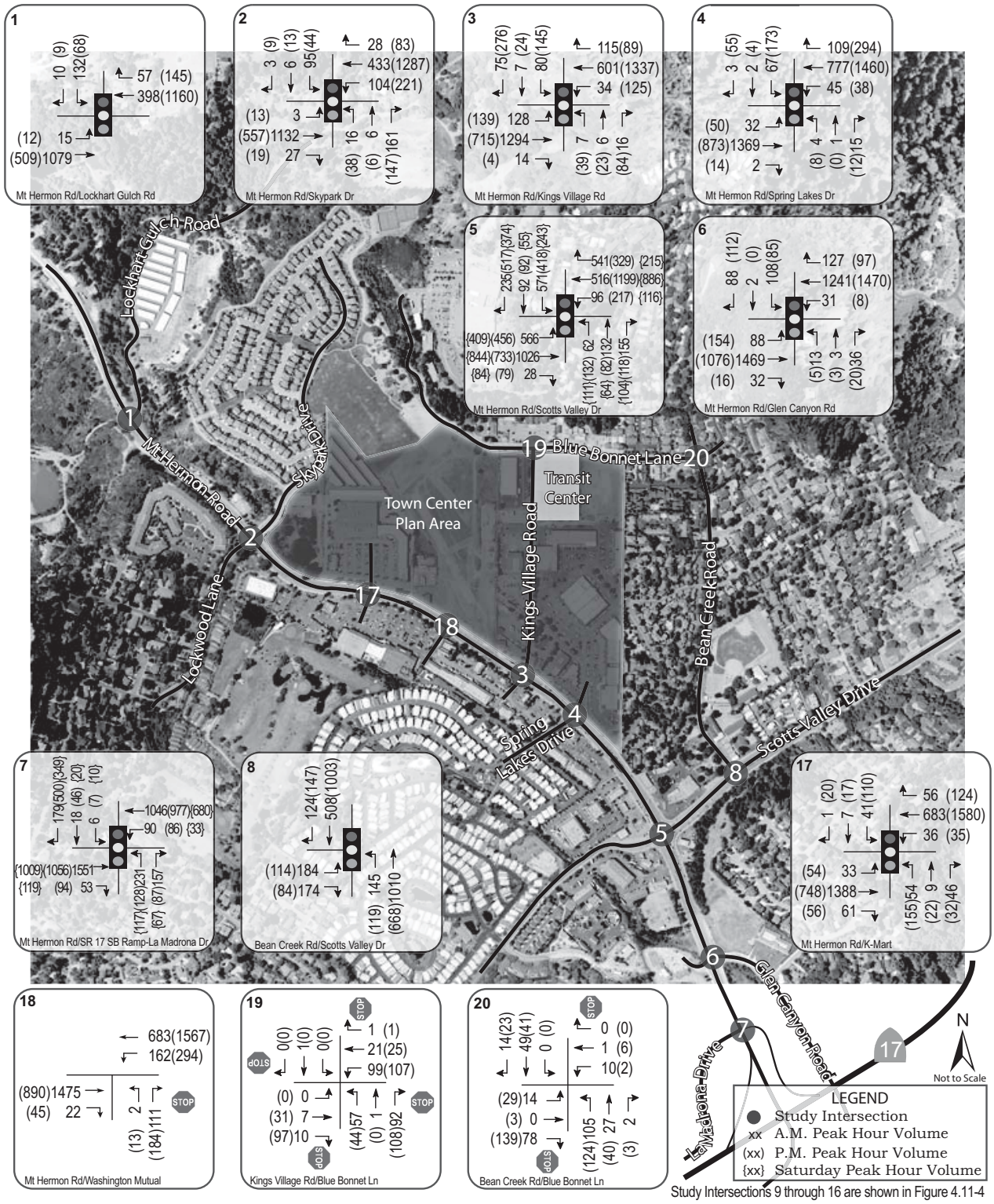
Existing Weekend Peak Hour Analysis

The intersections of Mt. Hermon Road/Scotts Valley Drive-Whispering Pines Drive and Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive are currently operating acceptably under City standards during the weekend midday peak period (Delay and LOS of 39.3/D and 17.3/B, respectively).

The Level of Service calculations for Weekend Midday Existing Conditions are provided in Appendix F. Weekend Existing traffic volumes for these two intersections are shown in Figures 4.11-3 and 4.11-4.

Freeway Segments

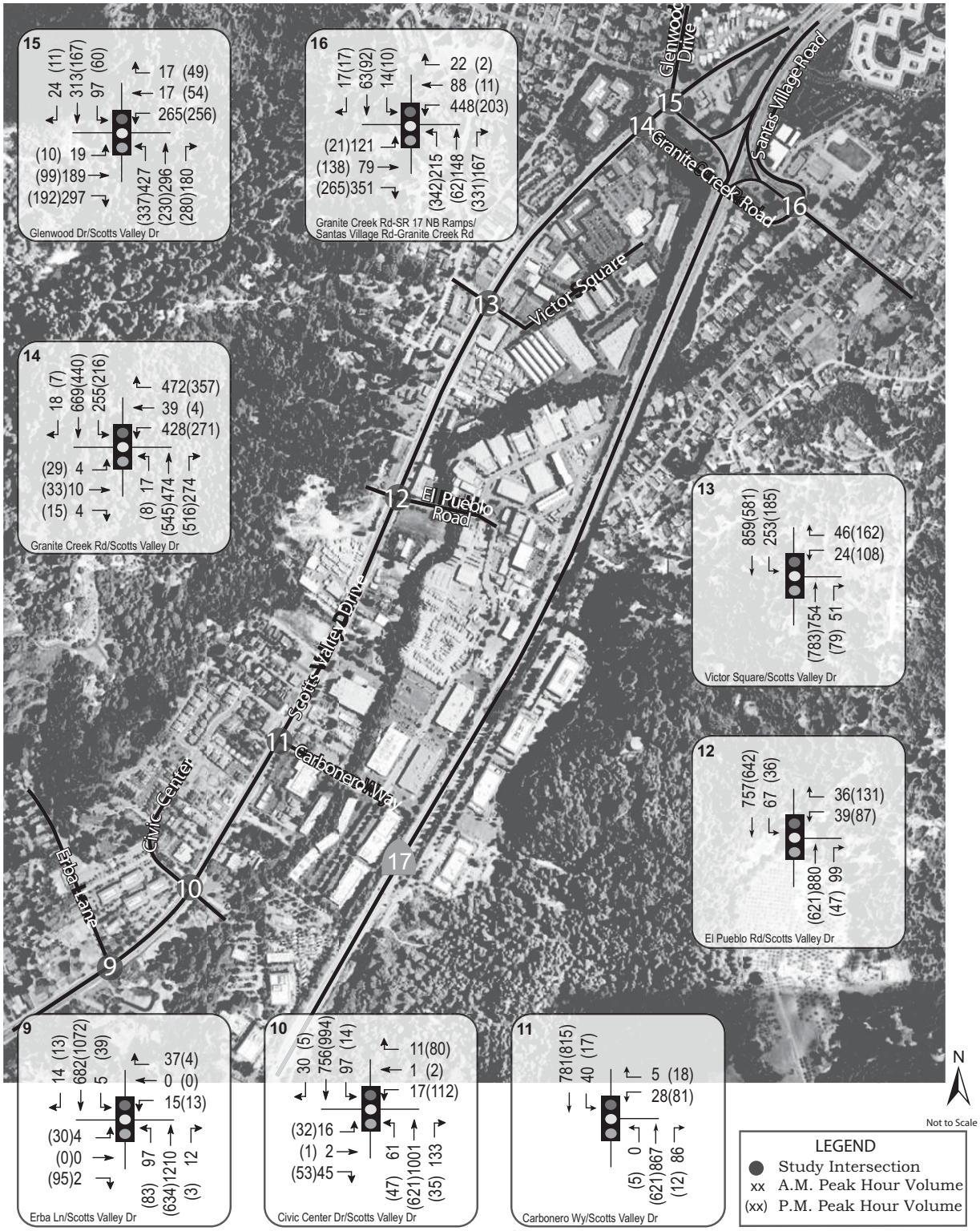
According to Caltrans' *Transportation Concept Report for State Route 17 in District 5* (January 2006), SR 17 currently operates at LOS F during the peak travel periods.



Source: W-Trans, 2008.

Southern Existing Traffic Volumes

Figure 4.11-3



Study Intersections 1 through 8 and 9 through 20 are shown in Figure 4.11-3

Source: W-Trans, 2008.

Northern Existing Traffic Volumes

Figure 4.11-4

Alternative Transportation Modes

Bicycles

There are currently Class II bike lanes along Mt. Hermon Road, Scotts Valley Drive, Blue Bonnet Lane and La Madrona Drive within the study area.

Pedestrians

Pedestrian facilities in the study area consist primarily of sidewalks along the major arterial streets. Along the Town Center Specific Plan area frontage there are enhanced crossings of Mt. Hermon Road at the signalized intersections of Kings Village Road and K-Mart Shopping Center. These protected crosswalks are approximately 1,150 feet apart. Along the site frontage, which is currently undeveloped, there are no designated pedestrian crossing areas. This section of Mt. Hermon Road consists primarily of either five lanes, including left-turn lane(s), or four lanes with a landscaped median.

Transit

Existing transit service to the study area is provided by the Santa Cruz Metropolitan Transportation District (Santa Cruz Metro), with three regular bus lines and one express bus line.

Route 31 provides service between Scotts Valley and Santa Cruz via southbound SR 17, with 30- to 60-minute commute hour headways.

Route 32 provides service between Scotts Valley and Santa Cruz via northbound SR 17, with approximately 30-minute headways only in the afternoon. This line primarily serves Scotts Valley High School, Vine Hill School, and Scotts Valley Middle School.

Route 35/35A provides service between Santa Cruz and the San Lorenzo Valley, with 60-minute headways.

The *SR 17 Express Route* provides service between Soquel and San Jose, with 30- to 60-minute headways.

All of these bus routes stop at the Scotts Valley Park and Ride/Transit Center located at the northeast corner of Kings Village Road/Blue Bonnet Lane.

Existing Parking Conditions

The most prominent public parking facility in the study area is at the Transit Center. Parking surveys were conducted to determine the extent of current park and ride activities. Data was collected around 2:00 p.m., which is the expected peak hour for occupancy at the parking lot, on two separate weekdays during April and May of 2007. The transit center lot provides 223 total parking spaces, including six handicapped spaces. The highest number of occupied parking spaces at any time was 157, which occurred on Friday May 11, 2007, between 2:30 and 2:45 p.m.

Based on this survey the parking lot experienced a maximum occupancy of 70 percent during a typical weekday peak afternoon.

Short Term Cumulative Traffic Conditions

The Short Term Cumulative condition includes traffic generated by projects identified by the City in the following categories:

A. Projects Under Construction
B. Projects Approved – No Building Permits Issued.
C. Projects Submitted – Not Approved

A list of specific projects that fit into the above mentioned categories is provided in Appendix F. Short Term Cumulative traffic volumes are shown in Figures 4.11-5 and 4.11-6.

Under Short Term Cumulative conditions, all of the study intersections are expected to continue operating acceptably during both of the peak periods evaluated, except for the intersection of Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive, which is projected to operate unacceptably at LOS E during the p.m. peak period.

The Level of Service calculations for Short Term Cumulative Conditions are summarized in Table 4.11-4, and copies are provided in Appendix F.

Table 4.11-4. Short Term Cumulative Intersection Levels of Service

Intersection *Approach*	Short Term Cumulative Conditions				Short Term Cumulative plus Project Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Mt. Hermon Rd/Lockhart Gulch Rd	8.7	A	21.3	C	8.8	A	26.8	C
2. Mt. Hermon Rd/Skypark Dr-Lockwood Ln	15.0	B	13.7	B	15.1	B	14.5	B
3. Mt. Hermon Rd/Kings Village Rd	15.2	B	23.8	C	16.7	B	34.1	C
4. Mt. Hermon Rd/Spring Lakes Rd	10.1	B	17.1	B	10.6	B	20.0	C
5. Mt. Hermon Rd/Scotts Valley Dr-Whispering Pines Dr	43.4	D	46.6	D	52.4	D	**65.6**	**E**
6. Mt. Hermon Rd/Glen Canyon Rd	16.1	B	19.1	B	16.7	B	22.3	C
7. Mt. Hermon Rd/La Madrona Dr-SR 17 SB Off Ramp	29.4	C	**60.8**	**E**	32.4	C	**82.3**	**F**
8. Bean Creek Rd/Scotts Valley Dr	17.2	B	15.3	B	17.3	B	15.5	B
9. Erba Ln/Scotts Valley Dr	8.0	A	9.8	A	8.1	A	10.2	B
10. Civic Center Dr-Disc Dr/Scotts Valley Dr	9.8	A	10.7	B	9.9	A	11.3	B
11. Carbonero Wy/Scotts Valley Dr	5.0	A	7.1	A	5.0	A	7.3	A
12. El Pueblo Rd/Scotts Valley Dr	8.2	A	9.6	A	8.2	A	9.7	A
13. Victor Square (North)/Scotts Valley Dr	7.4	A	11.5	B	8.3	A	12.0	B
14. Granite Creek Rd/Scotts Valley Dr	18.4	B	19.6	B	18.5	B	19.7	B
15. Glenwood Dr-SR 17 SB Ramps/Scotts Valley Dr	21.9	C	19.9	B	22.0	C	20.0	C
16. Granite Creek Rd-SR 17 NB Ramps/Santas Village Rd	27.5	C	24.7	C	27.6	C	25.0	C
17. Mt. Hermon Rd/K-Mart Access	17.0	B	21.8	C	17.2	B	27.5	C

Table 4.11-4. Short Term Cumulative Intersection Levels of Service

Intersection *Approach*	Short Term Cumulative Conditions				Short Term Cumulative plus Project Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
18. Mt. Hermon Rd/Washington Mutual Access	2.2	A	5.4	A	**28.6**	**D**	**	**F**
Northbound Approach	*21.5*	*C*	*62.9*	*F*	*22.4*	*C*	**	***F***
Southbound Approach	*n/a*	*n/a*	*n/a*	*n/a*	**	***F***	**	***F***
19. Blue Bonnet Ln/Kings Village Rd	8.0	A	8.2	A	8.2	A	8.8	A
20. Blue Bonnet Ln/Bean Creek Rd	6.0	A	6.8	A	6.3	A	7.6	A
Eastbound Approach	*9.5*	*A*	*10.4*	*B*	*9.6*	*A*	*11.1*	*B*
Westbound Left-Turn	*12.3*	*B*	*13.0*	*B*	*13.1*	*B*	*15.0*	*C*

Notes: Delay is measured in average seconds of delay per vehicle, LOS = Level of Service
*Delay is greater than 120 seconds, **Bold** = deficient operation*

Short Term Cumulative Weekend Peak Hour Analysis

Under Short Term Cumulative conditions, the intersection of Mt. Hermon Road/Scotts Valley Drive-Whispering Pines Drive is expected to operate acceptably at a delay and LOS of 36.8/D during the weekend midday peak period, while the intersection of Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive is projected to operate unacceptably at a delay and LOS of 45.4/D during the weekend midday peak period.

The Level of Service calculations are provided in Appendix F. Weekend Midday Short Term Cumulative traffic volumes are shown in Figures 4.11-5 and 4.11-6.

Buildout Traffic Conditions

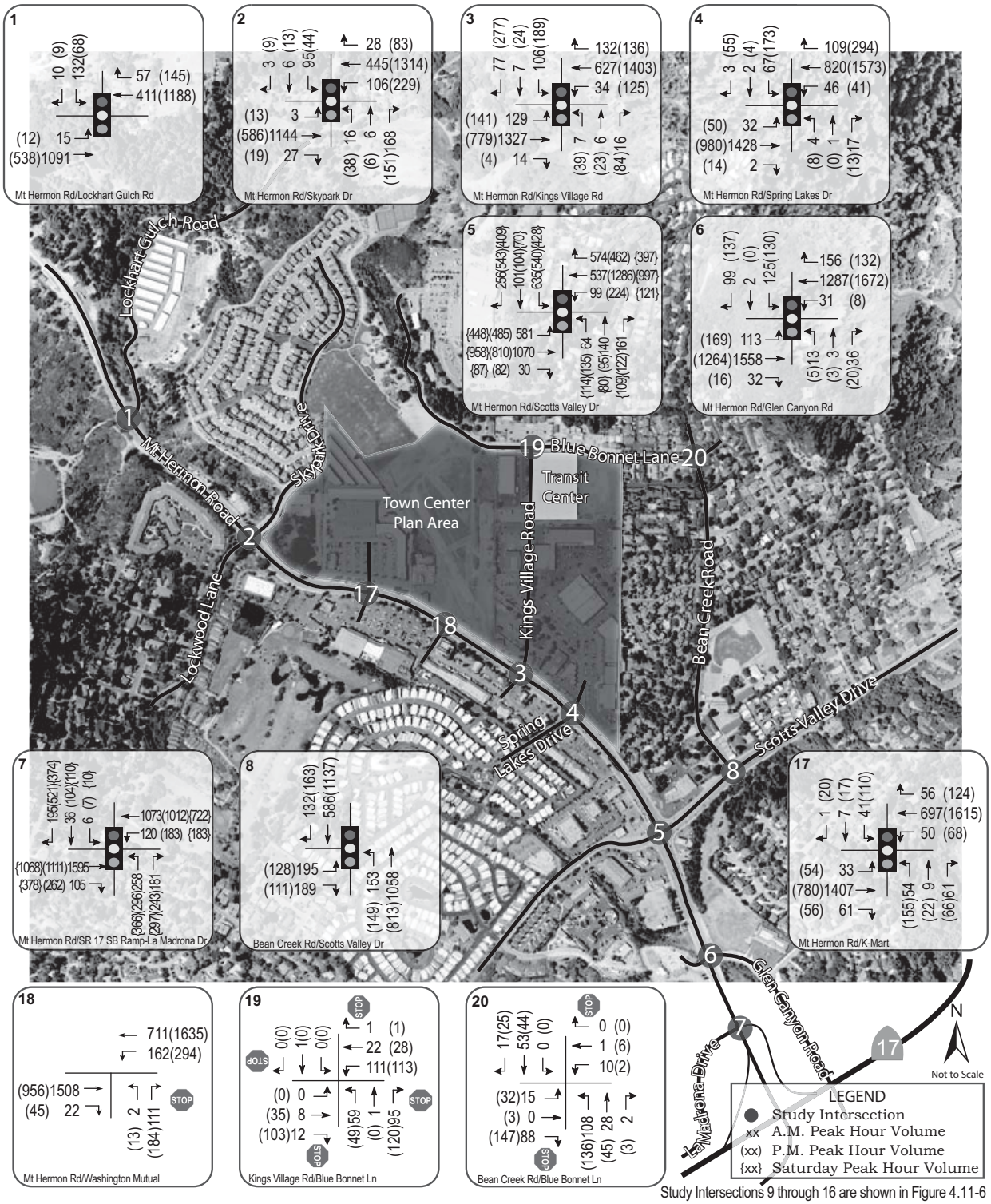
The Buildout Conditions scenario includes traffic generated by projects assumed under Short Term Cumulative Conditions plus those identified by the City in the following categories:

D. Major Vacant Lots or Potential Redevelopment Sites
E. City's Housing Element Sites

A list of specific projects that fit into the above-mentioned categories is provided in Appendix F. Buildout traffic volumes are shown in Figures 4.11-7 and 4.11-8.

Under Buildout Conditions, all of the study intersections are expected to continue operating acceptably during both of the peak periods evaluated, except for the intersection of Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive which is projected to operate unacceptably at LOS E during the p.m. peak hour.

The Level of Service calculations for Buildout Conditions are summarized in Table 4.11-5, and copies are provided in Appendix F.

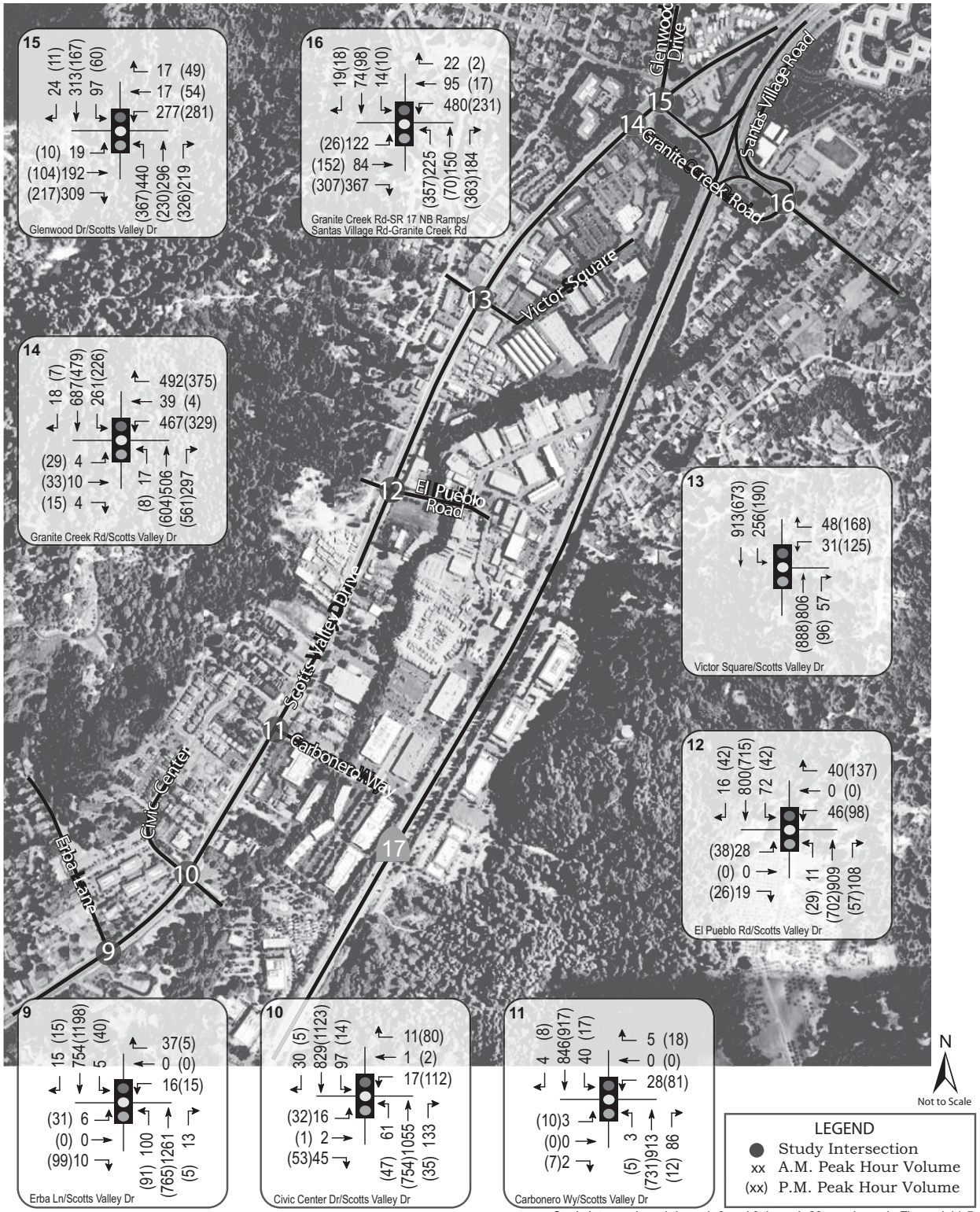


Study Intersections 9 through 16 are shown in Figure 4.11-6

Southern Short Term
Cumulative Traffic Volumes

Figure 4.11-5

Source: W-Trans, 2008.

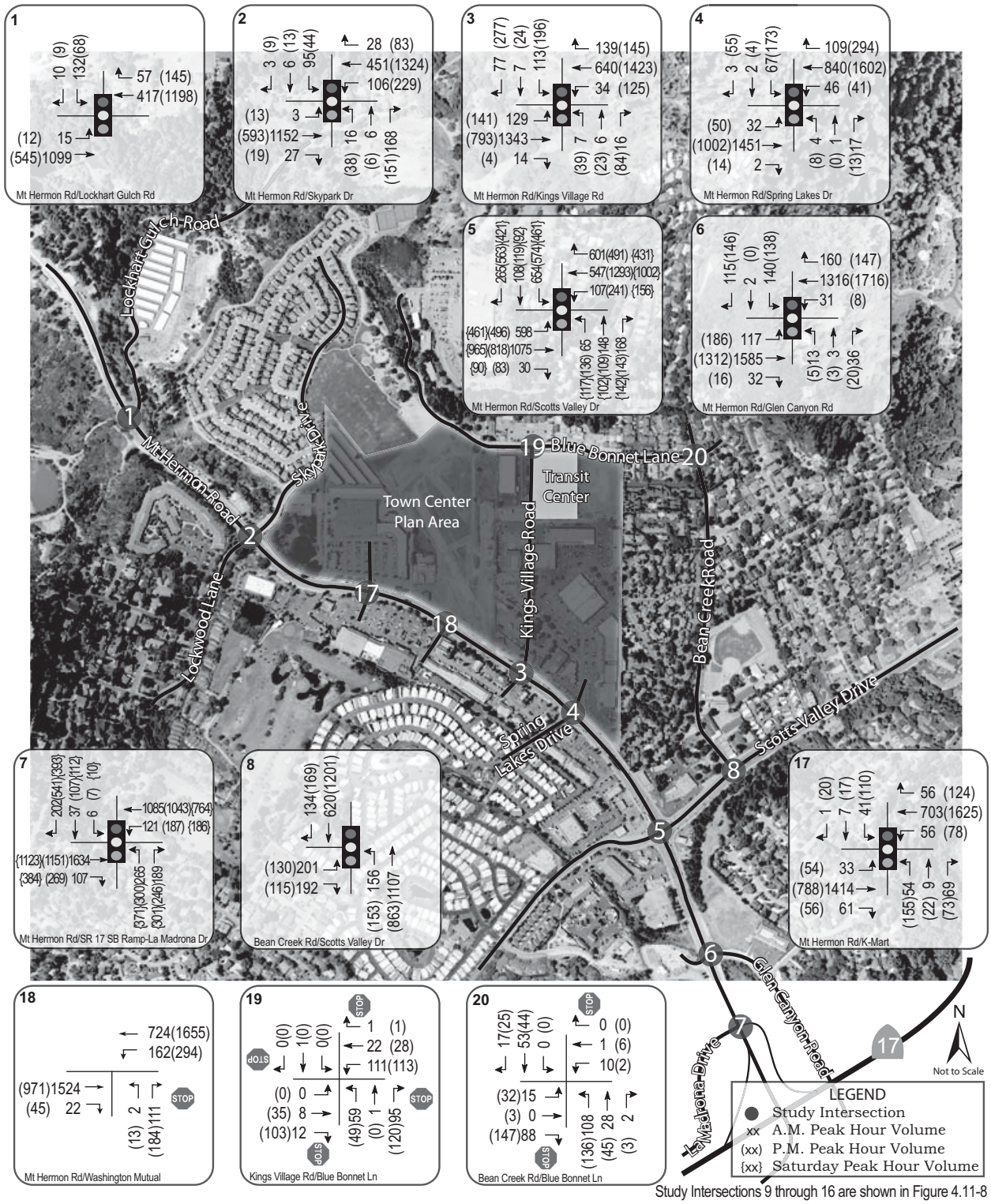


Study Intersections 1 through 8 and 9 through 20 are shown in Figure 4.11-5

Northern Short Term
Cumulative Traffic Volumes

Figure 4.11-6

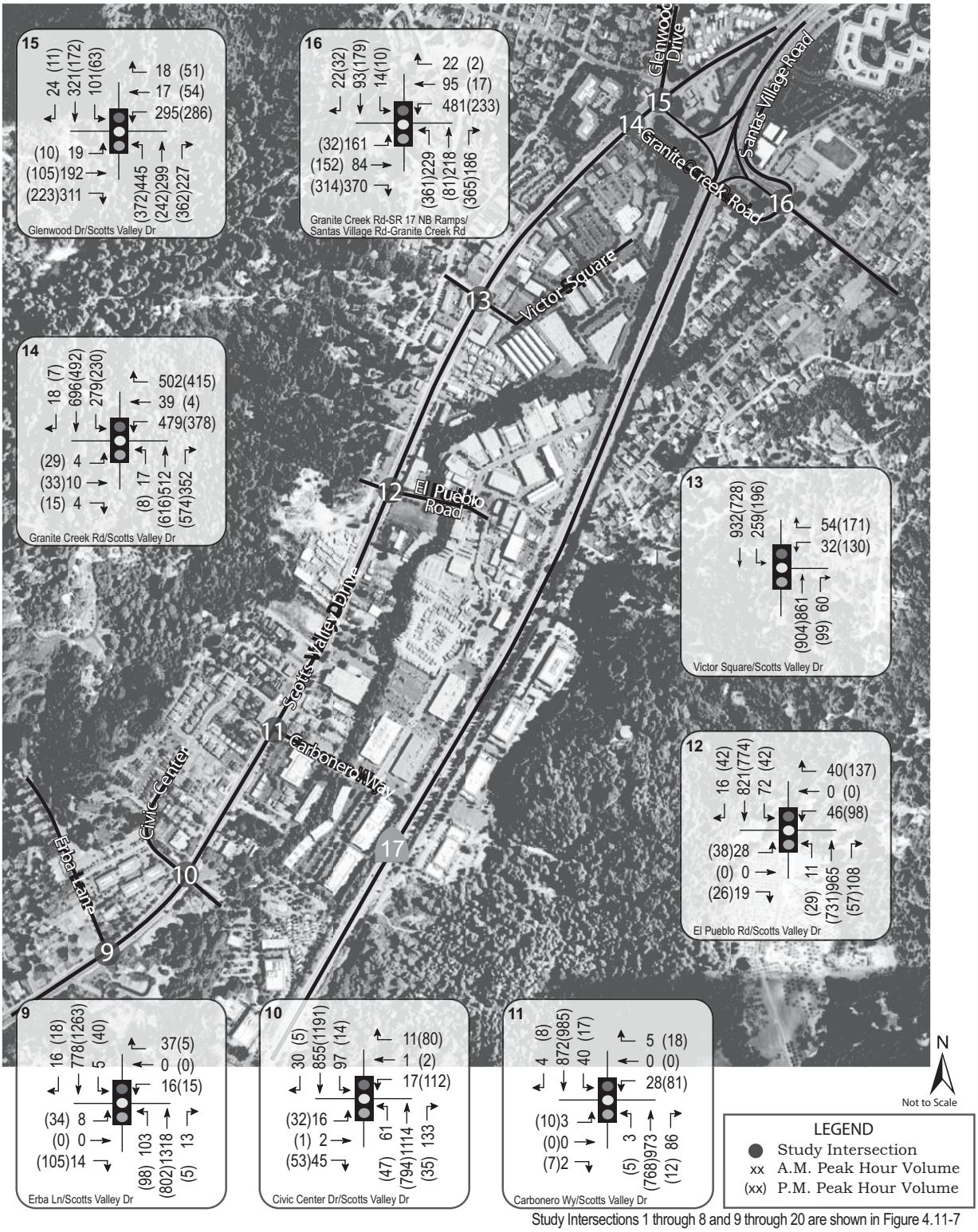
Source: W-Trans, 2008.



Source: W-Trans, 2008.

Southern Buildout Traffic Volumes

Figure 4.11-7



Study Intersections 1 through 8 and 9 through 20 are shown in Figure 4.11-7

Source: W-Trans, 2008.

Northern Buildout Traffic Volumes

Figure 4.11-8

Table 4.11-5. Buildout Intersection Levels of Service

Intersection *Approach*	Buildout Conditions				Buildout plus Project Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Mt. Hermon Rd/Lockhart Gulch Rd	8.8	A	20.0	C	8.9	A	28.0	C
2. Mt. Hermon Rd/Skypark Dr-Lockwood Ln	15.1	B	13.7	B	15.2	B	14.6	B
3. Mt. Hermon Rd/Kings Village Rd	15.4	B	24.2	C	17.1	B	**41.2**	**D**
4. Mt. Hermon Rd/Spring Lakes Rd	10.2	B	17.2	B	10.8	B	20.6	C
5. Mt. Hermon Rd/Scotts Valley Dr-Whispering Pines Dr	49.0	D	48.7	D	**60.5**	**E**	**68.6**	**E**
6. Mt. Hermon Rd/Glen Canyon Rd	16.5	B	20.0	C	17.1	B	23.7	C
7. Mt. Hermon Rd/La Madrona Dr-SR 17 SB Off Ramp	30.6	C	**65.4**	**E**	34.2	C	**88.1**	**F**
8. Bean Creek Rd/Scotts Valley Dr	17.3	B	15.4	B	17.4	B	15.7	B
9. Erba Ln/Scotts Valley Dr	8.3	A	10.1	B	8.4	A	13.2	B
10. Civic Center Dr-Disc Dr/Scotts Valley Dr	10.0	A	11.1	B	10.2	B	11.8	B
11. Carbonero Wy/Scotts Valley Dr	5.1	A	7.3	A	5.2	A	7.5	A
12. El Pueblo Rd/Scotts Valley Dr	8.3	A	9.6	A	8.4	A	9.8	A
13. Victor Square (North)/Scotts Valley Dr	7.7	A	11.9	B	8.7	A	13.0	B
14. Granite Creek Rd/Scotts Valley Dr	18.9	B	20.1	C	18.9	B	20.3	C
15. Glenwood Dr-SR 17 SB Ramps/Scotts Valley Dr	21.6	C	20.2	C	21.1	C	20.4	C
16. Granite Creek Rd-SR 17 NB Ramps/Santas Village Rd	31.5	C	33.2	C	31.6	C	33.8	C
17. Mt. Hermon Rd/K-Mart Access	17.4	B	22.8	C	17.7	B	28.7	C
18. Mt. Hermon Rd/Washington Mutual Access	2.3	A	4.9	A	**30.2**	**D**	**	**F**
Northbound Approach	*21.8*	*C*	*72.7*	*F*	*22.8*	*C*	**	***F***
Southbound Approach	*n/a*	*n/a*	*n/a*	*n/a*	**	***F***	**	***F***
19. Blue Bonnet Ln/Kings Village Rd	8.0	A	8.2	A	8.2	A	8.8	A
20. Blue Bonnet Ln/Bean Creek Rd	6.0	A	6.8	A	6.3	A	7.6	A
Eastbound Approach	*9.5*	*A*	*10.4*	*B*	*9.6*	*A*	*11.1*	*B*
Westbound Left-Turn	*12.3*	*B*	*13.0*	*B*	*13.1*	*B*	*15.0*	*B*

Notes: Delay is measured in average seconds of delay per vehicle, LOS = Level of Service
*Delay is greater than 120 seconds, **Bold** = deficient operation*

Buildout Weekend Peak Hour Analysis

Under Buildout Conditions, the intersection of Mt. Hermon Road/Scotts Valley Drive-Whispering Pines Drive is expected to operate acceptably at a delay and LOS of 38.7/D during the weekend midday peak period, while the intersection of Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive is projected to operate unacceptably at a delay and LOS of 48.7/D during the weekend midday peak period.

The Level of Service calculations for Buildout Conditions are provided in Appendix F. Weekend Midday Buildout traffic volumes are shown in Figures 4.11-7 and 4.11-8

Buildout with Mid-Town Interchange Conditions

The City of Scotts Valley's General Plan discusses the potential for a new interchange between the Granite Creek Road interchange to the north and the Mt. Hermon Road interchange to the

south. The "Mid-Town Interchange" could be an option to reduce traffic demand at the two existing interchanges and at the intersection of Mt. Hermon Road/Scotts Valley Drive. The City has explored potential locations for the Mid-Town interchange, however, there has been no official coordination with Caltrans and no plans have been adopted by the City. The purpose of this scenario with the Mid-Town interchange is to present potential traffic conditions with and without the project in the City of Scotts Valley if the interchange were in place. The Analysis in this report is not intended as a recommendation for a Mid-Town interchange.

The Buildout with Mid-Town Interchange Conditions scenario includes traffic generated by projects assumed under Short Term Cumulative and Buildout Conditions with adjusted travel patterns associated with the implementation of the proposed Mid-Town Interchange. It is assumed that a new interchange on SR 17 would be located halfway between the Mt. Herman Road and Granite Creek Road interchanges. Access to the future Mid-Town Interchange would be gained through the intersection of Scotts Valley Drive at Civic Center Drive-Disc Drive. The interchange connections would be located east of this intersection.

Buildout with Mid-Town Interchange traffic volumes are shown in Figures 4.11-9 and 4.11-10.

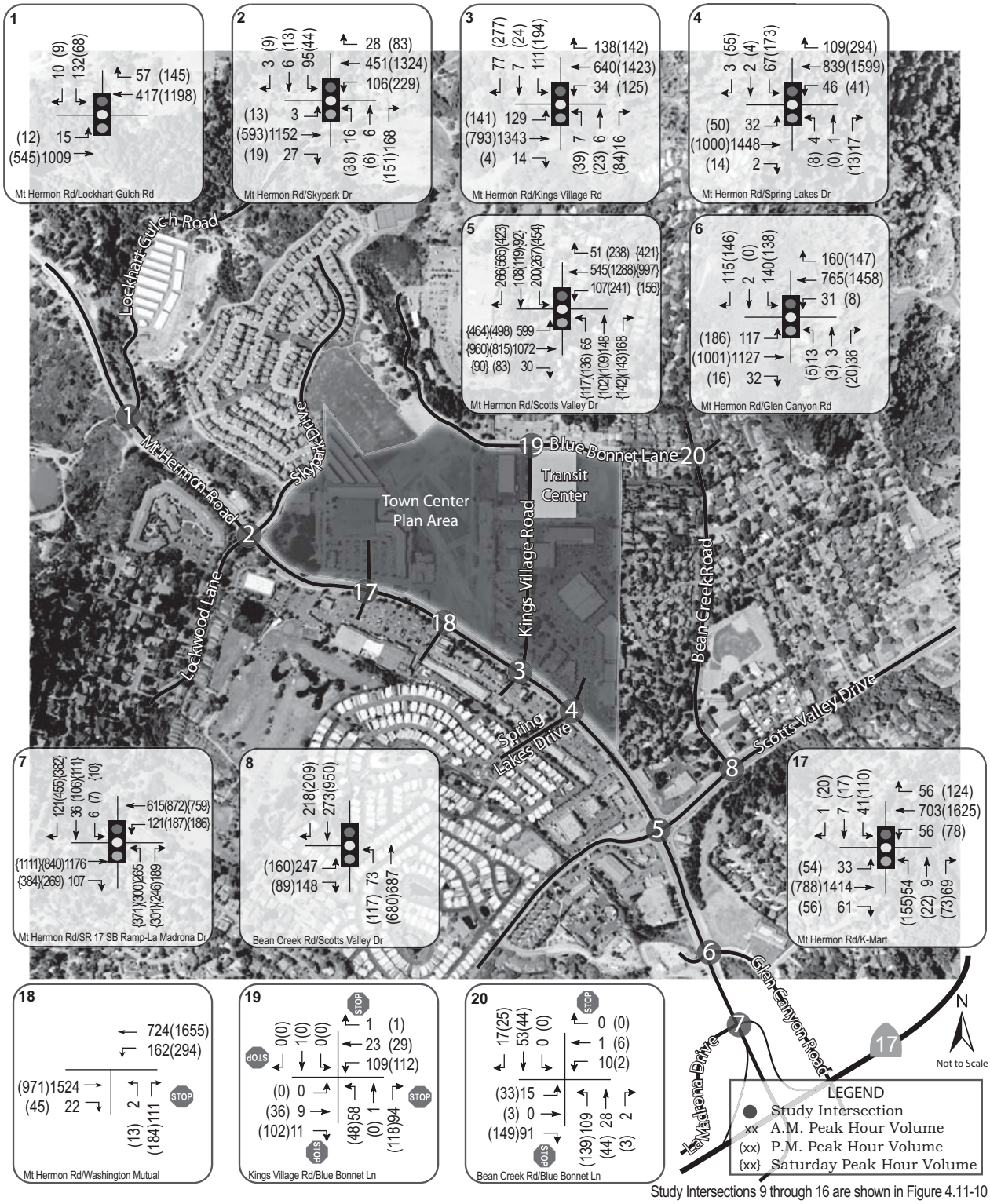
Under Buildout with Mid-Town Interchange Conditions all of the study intersections are expected to continue operating acceptably during both of the peak periods evaluated, except for the intersections of Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive and Civic Center Drive-Disc Drive/ Scotts Valley Drive, which are projected to operate unacceptably at LOS D or worse during one or both peak periods evaluated.

The Level of Service calculations for Buildout with Mid-Town Interchange Conditions are summarized in Table 4.11-6, and copies are provided in Appendix F.

Buildout with Mid-Town Interchange Weekend Peak Hour Analysis

Under Buildout with Mid-Town Interchange Conditions, the intersection of Mt. Hermon Road/Scotts Valley Drive-Whispering Pines Drive is expected to operate acceptably at LOS D (delay of 38.6 seconds) during the weekend midday peak period. The intersection of Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive is projected to operate unacceptably at LOS E (delay of 58.3 seconds) during the weekend midday peak hour.

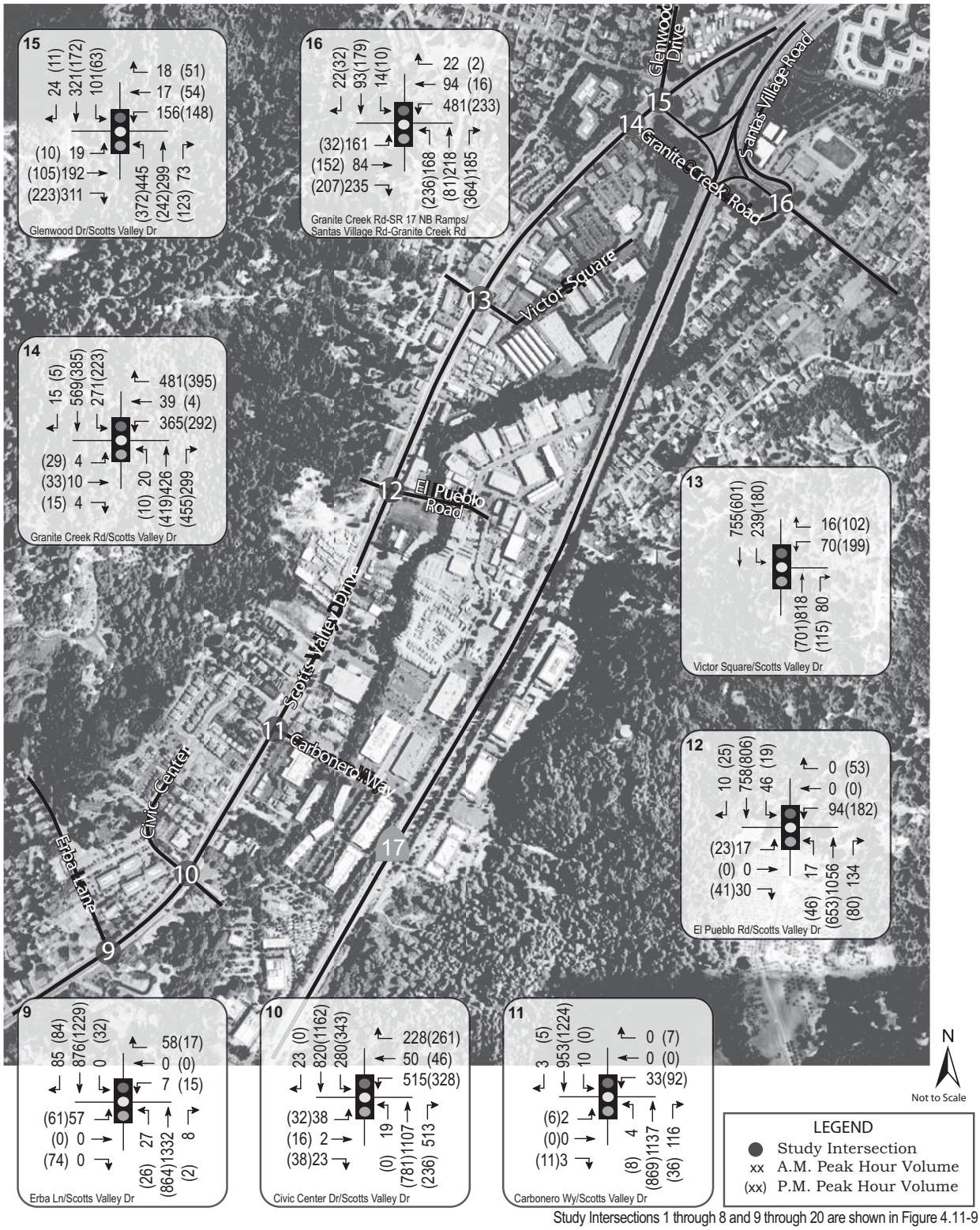
The Level of Service calculations for Buildout Conditions are provided in Appendix F. Weekend Midday Buildout with Mid-Town Interchange traffic volumes are shown in Figures 4.11-9 and 4.11-10.



Southern Buildout with Mid-Town Interchange Traffic Volumes

Figure 4.11-9

Source: W-Trans, 2008.



Study Intersections 1 through 8 and 9 through 20 are shown in Figure 4.11-9

Northern Buildout with Mid-Town Interchange Traffic Volumes

Figure 4.11-10

Source: W-Trans, 2008.

Table 4.11-6. Buildout with Mid-Town Interchange Intersection Levels of Service

Intersection *Approach*	Buildout w/Mid-Town Interchange Conditions				Buildout w/Mid-Town Interchange plus Project Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Mt. Hermon Rd/Lockhart Gulch Rd	8.8	A	22.5	C	8.9	A	28.0	C
2. Mt. Hermon Rd/Skypark Dr-Lockwood Ln	15.1	B	13.7	B	15.2	B	14.7	B
3. Mt. Hermon Rd/Kings Village Rd	15.3	B	24.1	C	17.2	B	**47.2**	**D**
4. Mt. Hermon Rd/Spring Lakes Rd	10.2	B	17.2	B	10.8	B	21.7	C
5. Mt. Hermon Rd/Scotts Valley Dr-Whispering Pines Dr	31.7	C	39.4	D	34.7	D	**65.3**	**E**
6. Mt. Hermon Rd/Glen Canyon Rd	15.9	B	18.7	B	16.2	B	20.5	C
7. Mt. Hermon Rd/La Madrona Dr-SR 17 SB Off Ramp	22.9	C	**39.4**	**D**	25.1	C	**52.2**	**D**
8. Bean Creek Rd/Scotts Valley Dr	18.8	B	15.0	B	18.7	B	15.7	B
9. Erba Ln/Scotts Valley Dr	4.8	A	8.6	A	4.9	A	9.0	A
10. Civic Center Dr-Disc Dr/Scotts Valley Dr	**115.7**	**F**	**38.5**	**D**	**120.1**	**F**	**39.4**	**D**
11. Carbonero Wy/Scotts Valley Dr	4.7	A	6.8	A	4.8	A	7.1	A
12. El Pueblo Rd/Scotts Valley Dr	7.5	A	10.6	B	7.6	A	10.8	B
13. Victor Square (North)/Scotts Valley Dr	9.9	A	11.5	B	10.1	B	12.5	B
14. Granite Creek Rd/Scotts Valley Dr	18.0	B	18.8	B	18.0	B	18.8	B
15. Glenwood Dr-SR 17 SB Ramps/Scotts Valley Dr	21.6	C	18.9	B	21.7	C	19.1	B
16. Granite Creek Rd-SR 17 NB Ramps/Santas Village Rd	31.7	C	27.9	C	31.7	C	27.9	C
17. Mt. Hermon Rd/K-Mart Access	17.4	B	22.8	C	17.7	B	29.7	C
18. Mt. Hermon Rd/Washington Mutual Access	2.3	A	5.9	A	**38.7**	**D**	**	**F**
Northbound Approach	*21.8*	*C*	*22.7*	*C*	*22.9*	*C*	**	***F***
Southbound Approach	*n/a*	*n/a*	*n/a*	*n/a*	**	***F***	**	***F***
19. Blue Bonnet Ln/Kings Village Rd	8.0	A	8.2	A	8.0	A	8.2	A
20. Blue Bonnet Ln/Bean Creek Rd	6.0	A	6.9	A	6.0	A	6.9	A
Eastbound Approach	*9.5*	*A*	*10.5*	*B*	*9.5*	*A*	*10.5*	*B*
Westbound Left-Turn	*12.3*	*B*	*13.1*	*B*	*12.3*	*B*	*13.1*	*B*

Notes: Delay is measured in average seconds of delay per vehicle, LOS = Level of Service
*Delay is greater than 120 seconds, **Bold** = deficient operation*

b. Regulatory Setting

General Plan Circulation Element. The City's General Plan guides development within the City of Scotts Valley. The General Plan creates a vision for the future and sets forth goals and objectives crafted to shape the community as development occurs. The Circulation Element of the Scotts Valley General Plan contains various traffic-related goals, policies, and actions applicable to the proposed project. These include (Policy or Action numbers are noted in parentheses):

- *The City shall collect traffic mitigation fees from developers of new projects, and use these fees to develop designated transportation facilities (CA-94);*
- *Through the environmental review process, the City shall consider mitigations for traffic impacts which encourage the use of public transit and non-motorized vehicles (CA-111);*

- *The City shall require that all intersections maintain a level of service C or better (except as noted in the 1994 General Plan) (CA-150);*
- *The City shall require new developments to provide traffic counts and LOS analysis and contribute fair share funding for improvements to roadway system problem areas (CA-152);*
- *As part of the capital improvement program and new public or private roadway improvement projects, identify the need for an require the installation of sidewalks (CA-166);*
- *The City shall encourage new developments to provide for and promote transit use, where feasible (CP-201); and*
- *The City shall require new developments located along designated bicycle routes to provide an appropriate bicycle path, including rights-of-way and construction (CP-212).*

The City of Scotts Valley has established General Street Requirements related to roadway curves, sight distances, length, grades, and widths. The minimum street width for streets in residential areas is 36 feet for a non-collector street (the right-of-way width is 50 feet). The Safety Element of the 1994 General Plan notes that the minimum road width requirements are 24 feet on streets with no parking on either side, 28 feet with parking on one side (the requirement was modified to 30 feet by the City Council in October 1999), and 36 feet with parking on both sides. The minimum cul-de-sac radius is 35 feet. The City has approved a Sidewalk Master Plan, but looks at the placement of sidewalks on a case-by-case basis.

The Circulation Element of the Scotts Valley General Plan contains various goals, policies, and actions related to public transportation applicable to the proposed project. These include (Policy or Action numbers are noted in parentheses):

- *CP-95: The City shall coordinate its transportation planning effort with appropriate agencies to promote an integrated transportation system which favors public transit and alternatives to the single occupancy vehicle;*
- *CA-103: The City Shall develop sidewalks along Scotts Valley Drive, Mt Hermon Road and all collector streets with pedestrian access connecting complimentary land uses wherever possible;*
- *CO-122: Establish a street and highway system which serves the Planning Area that gives preference to local residents' safety and comfort;*
- *CP-141: The Planning Area's street and highway system shall be coordinated with street and highway networks in adjacent areas;*
- *CO-145: Improve the performance and safety of the City's street and highway system through ongoing traffic monitoring and improvement programs for the Mt Hermon Road corridor which serves as primary access for San Lorenzo Valley;*
- *CP-151: Require new developments to identify traffic problem areas as a part of the monitoring program and condition projects to mitigate problems;*
- *CO-170: Encourage the preservation and enhancement of the scenic beauty of all roads, streets and highways within the Planning Area as part of any road improvements or construction project;*
- *CO-182: Improve the aesthetic qualities of Scotts Valley Drive and Mt Hermon Road without constricting the normal flow of traffic;*
- *CO-196: Encourage public and/or private transit services as viable transportation alternatives,*

- *CO-206: Establish a network of bicycle routes as part of the Planning Area's integrated transportation system; and*
- *CO-219: Reduce the conflict between bicycles and other modes of travel.*

Congestion Management Program. The Santa Cruz County Congestion Management Program (CMP) contains level of service standards for designated regional roadways and intersections in Scotts Valley. Under the CMP, local jurisdictions are required to monitor levels of service on a designated system of highways and roadways. The CMP outlines levels of service standards for designated roadways and intersections (LOS D or E), which include the project study intersections. However, the City (and other local jurisdictions) has chosen to apply its own traffic standards, which are more conservative than those established in the CMP. Therefore, for the purposes of this EIR, the City's *General Plan* LOS C standards for designated roadways and intersections govern (General Plan Action CA-150).

4.11.2 Impact Analysis

a. Thresholds of Significance. The Circulation Element of the City of Scotts Valley's General Plan states that the Level of Service standard for the intersections of Mt. Hermon Road/Scotts Valley Drive-Whispering Pines Drive and Granite Creek Road/Scotts Valley Drive is LOS D, while a minimum of LOS C is required for all other intersections within the City of Scotts Valley.

One of the goals of the proposed Town Center Specific Plan is to slow traffic through the project area intersections, which could conflict with the existing requirement to maintain a Level of Service C at these intersections. The City should consider modifying their LOS standard to LOS D conditions Citywide with potential exclusions where improvements are financially infeasible and/or may have impacts to environmental issues. The majority of Cities throughout California use LOS D as the maximum delay for intersections. LOS C conditions are generally not used because this standard generally results in road widening that can impact environmental features and create an streetscape that is wide and counter to pedestrian needs. There may be instances where the City may encounter an intersection that cannot be mitigated due to a lack of public right-of-way and/or impacts to the environment. City standards should allow for this condition.

b. Methodology. For purposes of estimating the number of new vehicle trips that the potential uses within the proposed Town Center Specific Plan area could be expected to generate, *Trip Generation*, 7th Edition, Institute of Transportation Engineers, 2003, was used. This standard reference is used by jurisdictions throughout the country, and is based on actual trip generation studies performed at numerous locations in areas of various populations. In order to determine trip reductions attributable to the mixed-use and transit-accessible location of the Specific Plan area, the URBEMIS 2007 software application (referred to as URBEMIS), developed by Rimpo & Associates, was also utilized.

Trip Generation Rates. Trip generation for residential uses was determined by applying the "Residential Condominium/ Townhouse" (ITE #230) and "Mid-Rise Apartment" (ITE #223) land use rates from Trip Generation. Residential units in areas outside of the mixed-use Main Street area were assumed to be developed in densities consistent with townhouse-

type uses. Residential units on the Main Street area were classified as mid-rise apartments given their anticipated configuration in multi-story mixed-use buildings.

The "Shopping Center" (ITE #820) land use was chosen to estimate trips generated by the stand alone retail uses included in the Specific Plan, as well as the 35,000 square feet designated to be either Public Facility or Retail. The choice to use shopping center rates for the 35,000 square feet instead of civic-related rates was made in order to project worst-case conditions, since retail uses typically generate substantially more trips.

The "Specialty Retail" (ITE #814) land use was utilized in the analysis to determine the trip generation potential of retail uses within mixed-use areas. These types of uses are typically comprised of smaller tenants and lower traffic-generating uses than those included in the Shopping Center category.

The applied trip generation rates are shown in Table 4.11-7.

Table 4.11-7. Applied Trip Generation Rates

Land Use	Quantity	Daily Rate	Weekday AM Peak Hour			Weekday PM Peak Hour			Weekend Midday Peak Hour		
			Rate	In	Out	Rate	In	Out	Rate	In	Out
Residential Condo/ Townhouse	100 units	5.86	0.44	0.07	0.37	0.52	0.35	0.17	0.47	0.25	0.22
Mid-Rise Apartment	200 units	4.40	0.30	0.09	0.21	0.39	0.23	0.16	0.35	0.19	0.16
Specialty Retail	175 ksf	44.32	1.03	0.63	0.40	2.71	1.19	1.52	4.97	3.03	1.94
Shopping Center	135 ksf	45.70	1.00	0.61	0.39	4.26	2.04	2.22	5.83	3.03	2.80

Notes: Shopping center rates developed from logarithmic formulas based on total retail space
Ksf = thousand square feet

Pass-by Trips

Some portion of traffic associated with commercial uses is typically drawn from existing traffic on nearby streets. These vehicle trips are not considered "new," but are instead comprised of drivers who are already driving on the adjacent street and choose to make an interim stop. Based on data contained in *Trip Generation Handbook: An ITE Recommended Practice* and *Trip Generation*, approximately 35 percent of traffic associated with the 135,000 square feet of standalone retail uses could be pass-by trips. These pass-by trips would in essence be "captured" from traffic already driving on Mt. Hermon Road. Pass-by deductions were not assumed for the specialty retail tenants within the mixed-use area.

Estimation of Non-Vehicular Trips

Because *Trip Generation* includes limited information on how to quantify automobile, versus transit and pedestrian, trips in an urban mixed-use environment, it was determined that additional trip estimation resources would be needed for analysis of Specific Plan traffic impacts. The effects of higher residential densities, diverse land uses, transit accessibility, and

an interconnected pedestrian and roadway network all result in lower per-unit trip generation in denser mixed-use areas like the Specific Plan Area compared to suburban locations.

Urbemis 2007 is used by various air districts in California to determine air emission estimates for land use development projects. The production of air emissions is largely influenced by vehicle traffic. The software includes methodologies that quantify the changes to vehicle trip generation that are attributable to the type and location of new development. All trip generation rate information originates from the published ITE rates, and is then adjusted to reflect local conditions in the immediate area (within a ¼- to ½-mile "walkable" distance). Key factors used in the adjustment process include transit service information, the presence of local-serving retail, and an evaluation of street connectivity.

Transit accessibility varies according to the number of buses that stop within ¼-mile of the Town Center area. The entire Specific Plan area is located within ¼-mile of the transit center on Kings Village Drive. Approximately 80 buses per weekday stop at the transit center, serving both local and regional origins and destinations. It was conservatively assumed that transit service levels would remain unchanged, so any future increases in transit service would be expected to result in greater reductions in vehicle traffic than applied in this analysis.

Street connectivity was calculated based on a comparison to an optimal network, in which all blocks are 300 feet long and all intersections have four legs. A pedestrian-friendly design is characterized by a highly interconnected network that minimizes the walking distances between any two points. While the longer block lengths present on the street network surrounding the Town Center area limit the ability to achieve a "perfect" walkable network, the Plan area itself would be considered very walkable and accessible.

For the Town Center site, the URBEMIS calculations project that vehicle trips will be approximately 13 percent lower than those resulting from direct application of ITE trip generation rates. This deduction accounts for the increase in pedestrian and transit trips that are likely to occur based on the mix of uses, densities, configuration, and location of the Specific Plan area within Scotts Valley. The 13 percent reduction was applied in the traffic evaluation for the Specific Plan.

c. Project Trip Generation. Buildout of the Town Center Specific Plan is projected to add an estimated average of 11,513 weekday vehicle trips to the surrounding street network, which includes 324 trips during the a.m. peak hour, 851 trips during the p.m. peak hour and 1,304 during the weekend midday peak hour. A summary of the total vehicular trip generation associated with Town Center uses is shown in Table 4.11-8. Specific Plan traffic volumes are shown in Figures 4.11-11 and 4.11-12. Traffic volume estimates for the Specific Plan were also developed assuming the inclusion of the Mid-Town Interchange. These volumes are shown in Figures 4.11-13 and 4.11-14.

Trip distribution assumptions were based upon existing traffic patterns as well as expected destinations. The applied trip distribution assumptions and associated vehicle trips for the proposed Town Center Specific Plan are listed in Table 4.11-9.

Table 4.11-8. Trip Generation Summary

Land Use	Units	Daily Total	Weekday AM Peak Hour			Weekday PM Peak Hour			Weekend Midday Peak Hour		
			Total	In	Out	Total	In	Out	Total	In	Out
Condo/Townhouse	100 units	586	44	7	37	52	35	17	47	25	22
Mid-Rise Apartment	200 units	880	60	19	41	78	45	33	70	38	32
Specialty Retail	175 ksf	7,756	180	110	70	474	208	266	870	531	339
Shopping Center	135 ksf	6,170	135	82	53	575	276	299	787	409	378
(-) Pass-by Trips	*-35%*	*-2,159*	*-47*	*-29*	*-18*	*-201*	*-97*	*-104*	*-275*	*-143*	*-132*
SUBTOTAL		13,233	372	189	183	978	468	510	1499	860	639
(-) Ped/Bike/Transit Trips	*-13%*	*-1,720*	*-48*	*-24*	*-24*	*-127*	*-61*	*-66*	*-195*	*-112*	*-83*
TOTAL		**11,513**	**324**	**165**	**159**	**851**	**407**	**444**	**1304**	**748**	**556**

Notes: ksf = thousand square feet

Table 4.11-9. Trip Distribution/Roadway Segment Vehicle Trips

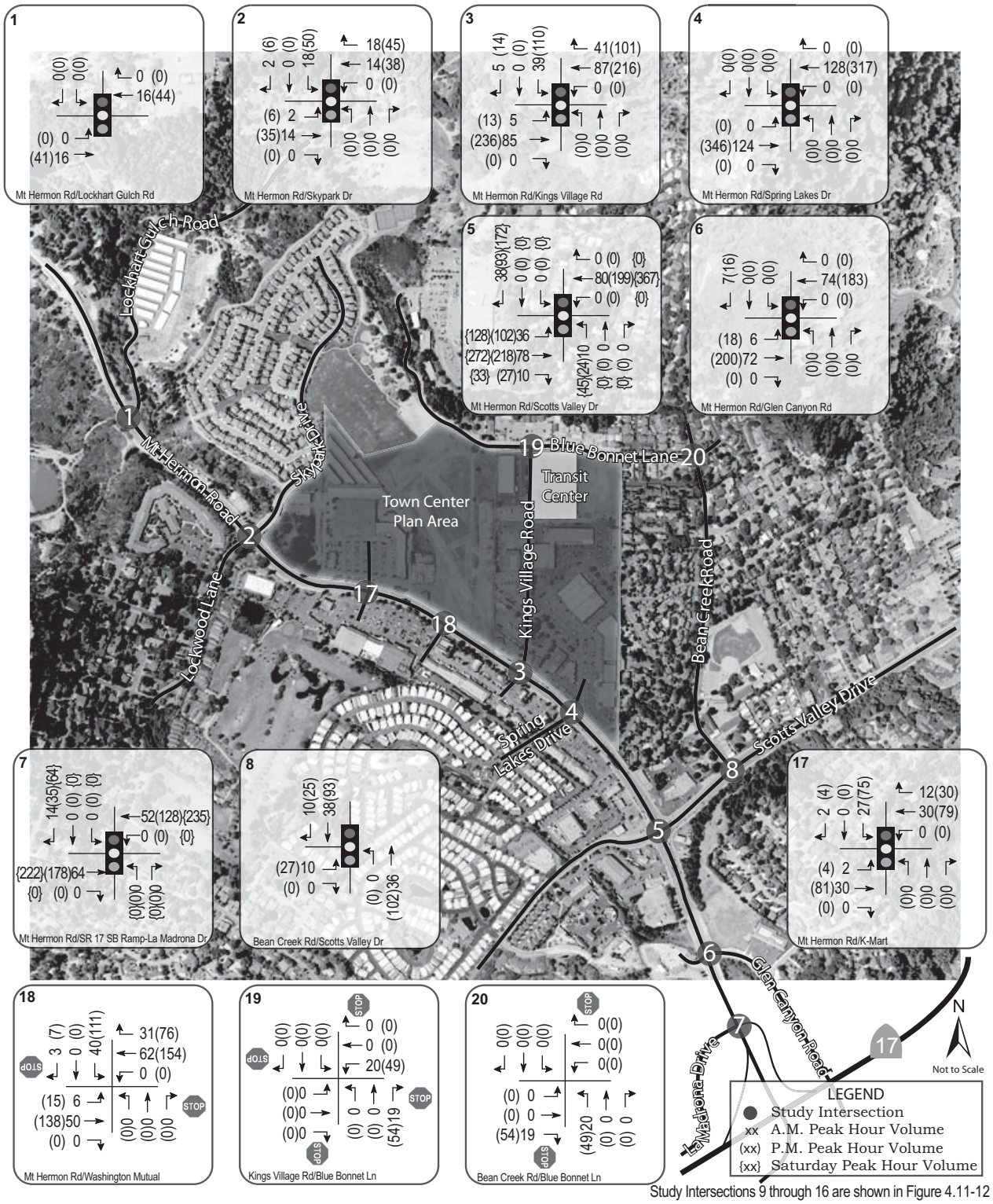
Route	Distribution (Percent)	Vehicle Trip Ends Generated		
		Weekday AM Peak	Weekday PM Peak	Weekend Midday Peak
Mt. Hermon Rd (west of City Limits)	10%	32	85	130
SR 17 (south of City Limits)	30%	97	255	392
SR 17 (north of City Limits)	10%	32	85	130
Within City Limits	50%	162	425	652
Total Trips	**100%**	**324**	**851**	**1,304**

d. Site Access and Internal Circulation. Buildout of the Town Center Specific Plan is projected to add an estimated average of 11,513 weekday vehicle trips to the surrounding street network, which includes 324 trips during the a.m. peak hour, 851 trips during the p.m. peak hour and 1,304 during the weekend

Primary access to the Specific Plan site is proposed via a new "Main Street" that would intersect Mt. Hermon Road across from the existing stop-controlled access point to Washington Mutual Bank, mid-way between adjacent signalized intersections at K-Mart and Kings Village Road. The new four-legged intersection would be signalized. Additional access points from the Plan Area onto Mt. Hermon Road other than the signalized "Main Street" intersection will be restricted to right turns in and out. Full access will be allowed at the minor access connections to Kings Village Road and adjacent parcels.

The Plan's internal street network would be a grid system that provides vehicular, pedestrian, and bicycle connectivity to areas throughout the site as well as connectivity to surrounding parcels and streets. Completion of all internal streets would make it possible for drivers to travel between Skypark Drive and Kings Village Road, though the offset block patterns and heavy pedestrian emphasis will make this a very low-speed route that will not benefit drivers attempting to "cut through" the area in order to avoid the busy Mt. Hermon Road corridor.

A new street serving the Specific Plan area would intersect Kings Village Road opposite the existing transit center bus exit. Access to a future parking structure on the east side of Kings Village Road may also occur at this location. As the area develops and activity increases, this intersection will need to accommodate passenger vehicles, buses exiting the transit station, and

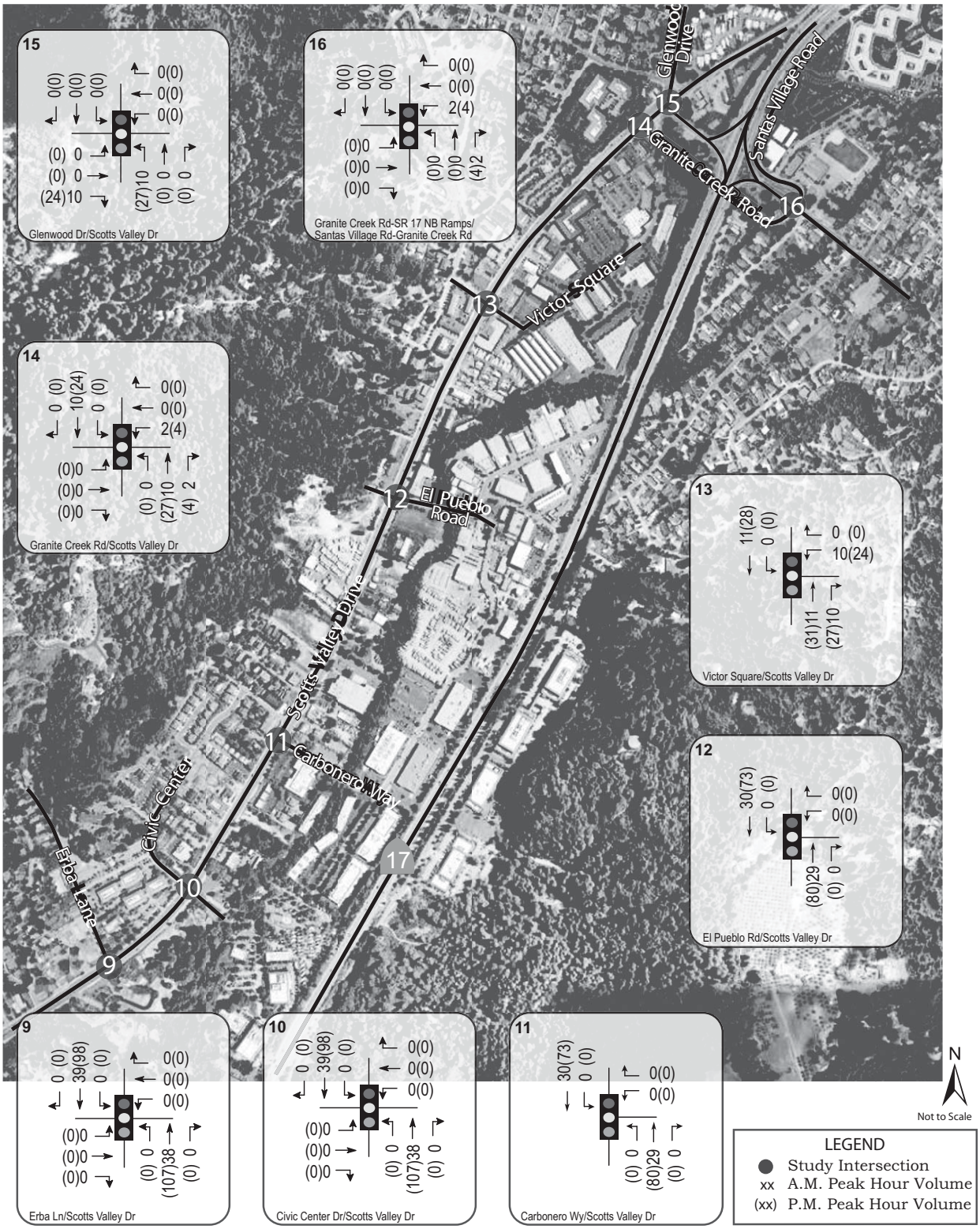


Study Intersections 9 through 16 are shown in Figure 4.11-12

Southern Project Traffic Volumes

Figure 4.11-11

Source: W-Trans, 2008.

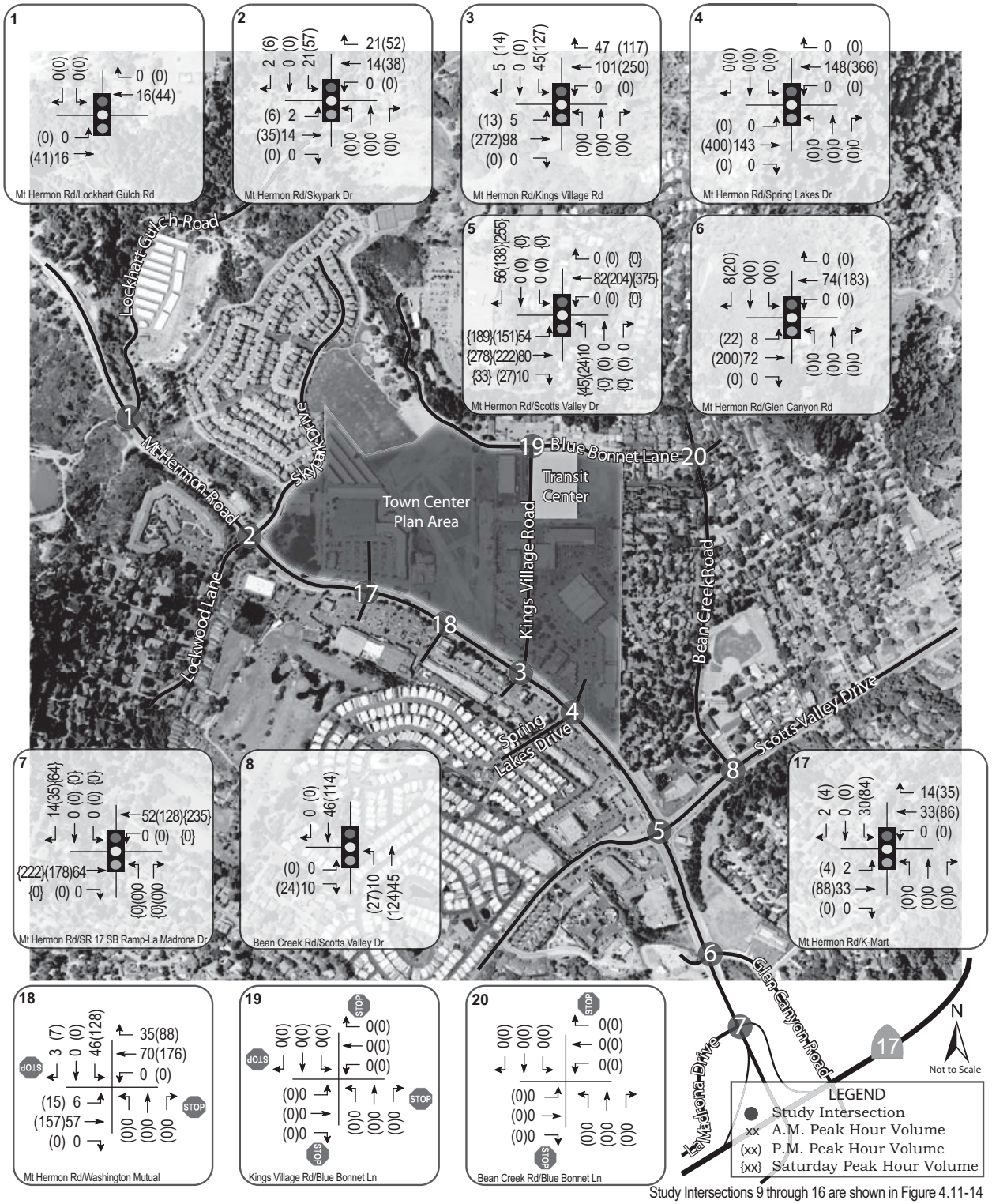


Study Intersections 1 through 8 and 9 through 20 are shown in Figure 4.11-11

Northern Project Traffic Volumes

Figure 4.11-12

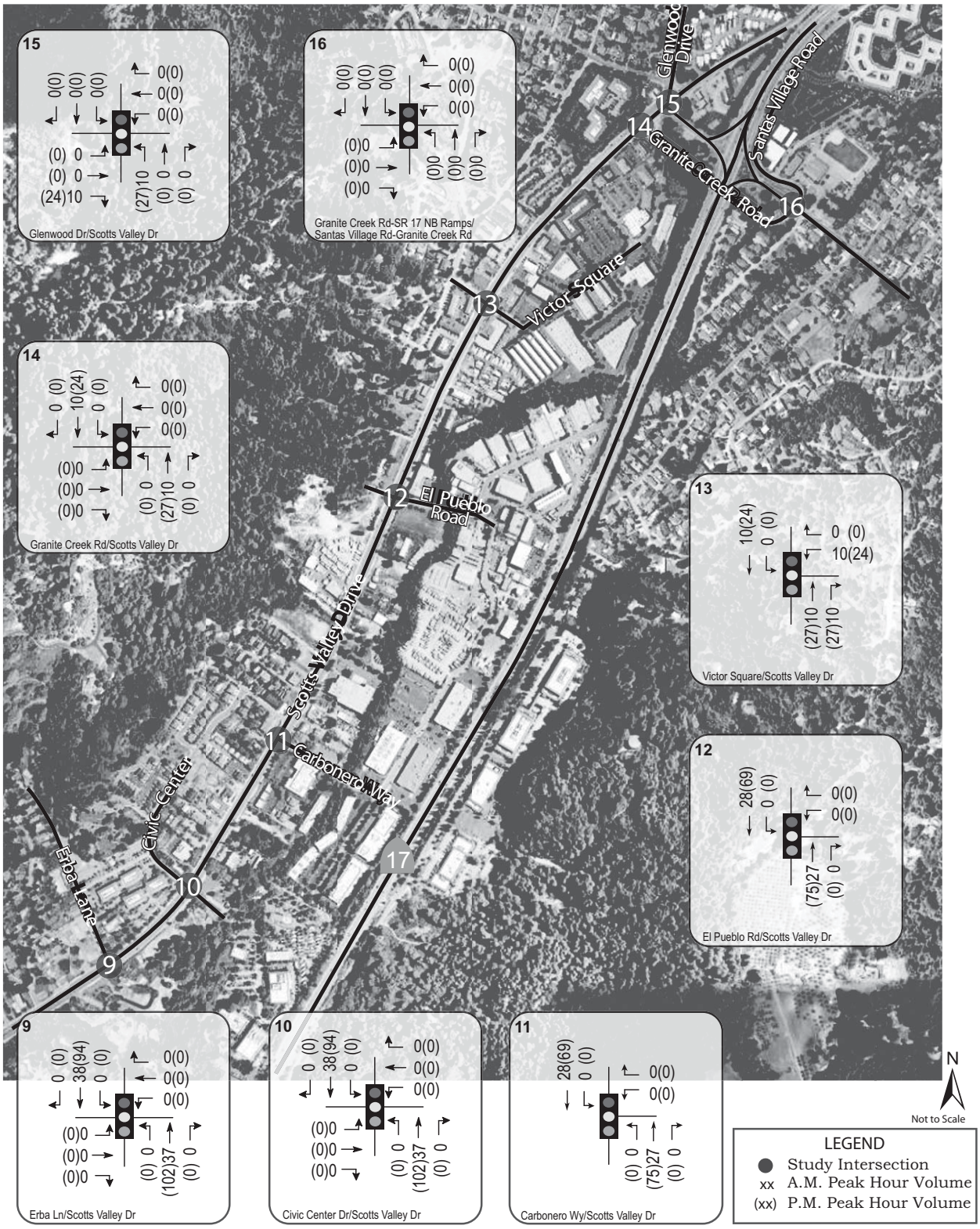
Source: W-Trans, 2008.



Southern Project with Mid-Town Interchange Traffic Volumes

Figure 4.11-13

Source: W-Trans, 2008.



Study Intersections 1 through 8 and 9 through 20 are shown in Figure 4.11-13

Northern Project with Mid-Town Interchange Traffic Volumes

Figure 4.11-14

Source: W-Trans, 2008.

a potentially large number of pedestrians. A traffic signal would be needed to ensure that buses can continue to exit the transit center without experiencing undue delays, and to provide a protected pedestrian crossing location on Kings Village Drive.

e. Roadway and Intersection Configuration. The Specific Plan includes minor changes to Mt. Hermon Road that are intended to regulate vehicle speeds and improve pedestrian crossing conditions. Vehicle travel lanes would be narrowed to 11 feet in width, which is sufficient to accommodate all vehicle types, including large trucks, on a 35 mph street. Where vehicle lanes would run alongside curbs or medians, a one-foot wide stripe offset from the curb would be provided. The narrowed travel lanes will help to reinforce the 35 mph speed limit, while also allowing wider medians to provide functional pedestrian "refuge" areas. Vehicle travel lanes will be 10 to 11 feet wide on the internal street network, which is sufficient to accommodate all vehicle types in a low-speed, pedestrian-oriented environment.

The Plan includes a new roundabout on Skypark Drive at the location of a new east-west street serving the Specific Plan area. Roundabouts have significant safety benefits over other forms of traffic control and capacities that meet or exceed those provided by signals. Properly-designed roundabouts also help to regulate vehicle speeds, causing all traffic to move at 15-20 mph without requiring most drivers to stop. The roundabout would also slow vehicle traffic near the curve in Skypark Drive to the south of Aviator Drive, creating a safer access point for the new street connection to the Specific Plan area than would be achievable with other forms of traffic control.

f. Freeway Segments. The proposed project would add traffic to mainline SR 17 as the ramps connecting this regional facility. According to Caltrans' Transportation Concept Report for State Route 17 in District 5 (January 2006), SR 17 currently operates at LOS F during the peak travel periods. The addition of project traffic to these facilities is a significant impact according to Caltrans' impact criteria. However, it should be noted that the project's intent is to create a Town Center area which would serve existing residences and to internalize trip purposes through a mix of uses. The traffic estimated to utilize SR 17 as shown in Table 4.11-9 may overstate the potential impact to the freeway if the project develops according to these goals.

g. Alternative Transportation Modes.

Bicycles. The expected bicycle traffic can be accommodated on the streets as they currently exist, so the existing facilities are expected to be adequate.

Pedestrians. Pedestrian access to the site would be provided by existing sidewalks as well as new sidewalks along the Specific Plan frontage and internal roads. Internal streets will be configured to encourage low vehicle speeds and will include numerous pedestrian amenities such as wide sidewalks, street furniture, enhanced street crossings, and bulb-outs.

The Plan's street orientation will create a major east-west pedestrian route that connects the core Plan area to a parking garage near the transit center. This may result in a substantial volume of pedestrian crossings on Kings Village Drive.

The Plan includes measures that would improve conditions for pedestrians crossing Mt. Hermon Road. In addition to using narrower vehicle travel lanes that will help to regulate vehicle speeds, pedestrian "refuge" areas of at least eight feet in width would be provided at existing and planned signalized intersections along Mt. Hermon Road. This would allow pedestrians to cross the street in two stages if desired, which would be of particular benefit to slower walkers. The Plan includes a new traffic signal at the "Main Street" access across from Washington Mutual Bank, though special consideration will need to be given to providing the necessary pedestrian signal equipment.

Transit. The existing service is expected to be adequate to meet the needs of patrons and residents of the proposed Town Center Specific Plan, and would play an important role in reducing motor vehicle trips generated by development in the Plan area. The ability for buses to exit the transit center upon completion of the new street connection to the Plan area may be reduced as vehicular and pedestrian volumes increase.

h. Short Term Cumulative Conditions Impacts and Mitigation Measures. The following impacts and mitigation measures have been identified for this scenario. Mitigated Level of Service calculations are summarized in Table 4.11-10.

Impact T-1 **Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive is projected to operate at LOS E. This would be a Class I, *significant but unavoidable* impact.**

Mitigation Measures.

T-1 Provide a second southbound right-turn lane on the SR 17 off-ramp

Significance After Mitigation. This capacity enhancement would improve operation to LOS D, but would not be sufficient to meet the City's LOS C standard. Therefore, this impact is a significant and unavoidable impact.

h. Short Term Cumulative plus Project Impacts and Mitigation Measures. Under Short Term Cumulative plus Project conditions, all of the study intersections are expected to continue operating acceptably during both of the peak periods evaluated, except for the intersections of Mt. Hermon Road/Scotts Valley Drive-Whispering Pines Drive, Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive and Mt. Hermon Road/Washington Mutual Access, which are projected to operate unacceptably at LOS D or worse during one or both peak periods evaluated. A summary of the Level of Service calculations is provided in Table 4.11-4 and copies of the calculations are provided in Appendix F. The following impacts and mitigation measures have been identified for this scenario. Mitigated Level of Service calculations are summarized in Table 4.11-10.

Table 4.11-10. Mitigated Intersection Levels of Service

Intersection *Approach*	Short Term Cumulative Conditions	Short Term Cumulative plus Project Conditions		Buildout Conditions	Buildout plus Project Conditions		Buildout w/Mid-Town Interchange Conditions		Buildout w/Mid-Town Interchange plus Project Conditions	
	PM Peak Hour	AM Peak Hour	PM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
	Delay/LOS	Delay/LOS	Delay/LOS	Delay/LOS	Delay/LOS	Delay/LOS	Delay/LOS	Delay/LOS	Delay/LOS	Delay/LOS
3. Mt. Hermon Rd/Kings Village Rd	n/a	n/a	n/a	n/a	n/a	**35.2/D**	n/a	n/a	n/a	**38.3/D**
5. Mt. Hermon Rd/Scotts Valley Dr-Whispering Pines Dr	n/a	**48.3/D**	**51.9/D**	n/a	**49.9/D**	**53.8/D**	n/a	n/a	n/a	**53.7/D**
7. Mt. Hermon Rd/La Madrona Dr-SR 17 SB Off Ramp	**37.3/D**	30.4/C	**42.1/D**	**38.5/D**	31.8/C	**45.6/D**	n/a	27.0/C	n/a	29.4/C
10. Civic Center Dr-Disc Dr/Scotts Valley Dr	n/a	n/a	n/a	n/a	n/a	n/a	34.1/C	30.1/C	34.8/C	32.5/C
18. Mt. Hermon Rd/Washington Mutual Access	n/a	25.3/C	28.0/C	n/a	26.1/C	23.8/C	n/a	n/a	26.3/C	29.7/C

*Notes: Delay is measured in average seconds of delay per vehicle, LOS = Level of Service, **Bold** = deficient operation*

Impact T-2 **Mt. Hermon Road/Scotts Valley Drive-Whispering Pines Drive is projected to operate unacceptably at LOS E. This would be a Class II, *significant but mitigable* impact.**

Mitigation Measures.

T-2 The following improvements shall be implemented:

- Add a second westbound left-turn lane. This lane is also needed to provide adequate storage for projected queues.
- Re-stripe the northbound approach to provide separate left-turn, through and right-turn lanes.
- Modify the signal to eliminate the split phasing and allow for protected left-turn phasing for the northbound and southbound approaches.
- Modify the signal to provide right-turn overlap phasing for the westbound and northbound right-turn lanes.

Significance After Mitigation. With the implementation of this measure, Short Term Cumulative volumes would be acceptable, such that impacts would be less than significant.

Impact T-3 **Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive is projected to operate at LOS F. This would be a Class I, *significant but unavoidable* impact.**

Mitigation Measures. Mitigation Measure T-1 would be required. No additional mitigation is feasible.

Significance After Mitigation. Implementation of Mitigation Measure T-1 would improve operation to LOS D, which is not sufficient to meet the City's LOS C standard. Therefore, impacts would be significant and unavoidable.

Impact T-4 **Mt. Hermon Road/Washington Mutual-Specific Plan Access is projected to operate unacceptably at LOS F during the p.m. peak period. This would be a Class II, *significant but mitigable* impact.**

Mitigation Measures.

T-4 Signalization together with adding a right-turn lane on the westbound approach is needed at the two-way stop controlled intersection of Mt. Hermon Road/Washington Mutual-Specific Plan Access to achieve acceptable operation under Short Term Cumulative plus Project conditions. The new southbound approach was assumed to consist of a right-turn lane and a shared through and left-turn lane. Permitted left-turn phasing should be used for the northbound and southbound approaches,

while protected left-turn phasing should be provided on the eastbound and westbound Mt. Hermon Road approaches.

Significance After Mitigation. With implementation of mitigation, impacts would be less than significant.

Impact T-5 **The creation of a new street connecting the Plan Area to Kings Village Road at the existing transit center exit may create adverse delays for transit operators, and the connection's orientation as a major east-west pedestrian route may necessitate the need for a protected pedestrian crossing. This would be a Class II, *significant but mitigable* impact.**

Mitigation Measures.

T-5 Signalization of the intersection on Kings Village Drive at the transit center exit and future Plan street connection would provide a location for protected pedestrian crossings, and would allow transit operators to easily exit the transit center and maintain operating schedules.

Significance After Mitigation. With implementation of mitigation, impacts would be less than significant.

Impact T-6 **A standard signalized intersection at the Plan's primary access point on Mt. Hermon Road may provide insufficient facilities to accommodate the anticipated increase in pedestrian crossings. This would be a Class II, *significant but mitigable* impact.**

Mitigation Measures.

T-6 As part of the traffic signal installation at the intersection of Mt. Hermon Road/ Washington Mutual-Specific Plan Access, provide pedestrian phasing, ADA accessible curb ramps and detectable surfaces, and pedestrian push buttons on all intersection corners as well as in the median of Mt. Hermon Road.

Significance After Mitigation. With implementation of mitigation, impacts would be less than significant.

i. Buildout Conditions Impacts and Mitigation Measures. The following impacts and mitigation measures have been identified for this scenario. Mitigated Level of Service calculations are summarized in Table 4.11-10.

Impact T-7 **Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive is projected to operate at LOS E. This would be a Class I, *significant but unavoidable* impact.**

Mitigation Measures. Mitigation Measure T-1 would be required. No additional mitigation is feasible.

Significance After Mitigation. Implementation of Mitigation Measure T-1 would improve operation to LOS D, but would not meet the City's LOS C standard. Therefore, impacts would be significant and avoidable.

j. Buildout plus Project Conditions Impacts and Mitigation Measures. Under Buildout plus Project Conditions, 16 of the study intersections are expected to continue operating acceptably during both of the peak periods evaluated. The following four intersections are projected to operate unacceptably at LOS D or worse during one or both peak periods.

3. Mt. Hermon Road/Kings Village Road
5. Mt. Hermon Road/ Scotts Valley Drive-Whispering Pines Drive
7. Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive
18. Mt. Hermon Road/Washington Mutual –Specific Plan Access

A summary of the Level of Service calculations is provided in Table 4.11-5 and copies of the calculations are provided in Appendix F. The following impacts and mitigation measures have been identified for this scenario. Mitigated Level of Service calculations are summarized in Table 4.11-10.

Impact T-8 **Mt. Hermon Road/Kings Village Road would be expected to operate unacceptably at a LOS D. This would be a Class I, *significant but unavoidable* impact.**

Mitigation Measures.

T-8 Improved operation could be achieved at the signalized study intersection of Mt. Hermon Road/Kings Village Road by re-striping the southbound approach to include a southbound left-turn lane and a shared through and right-turn lane.

Significance After Mitigation. Additional lane improvements to achieve LOS C conditions would be excessive and not practical given the existing lanes available at the intersection. Therefore, impacts would be significant and unavoidable.

Impact T-9 **Mt. Hermon Road/Scotts Valley Drive-Whispering Pines Drive is projected to operate unacceptably at LOS E. This would be a Class II, *significant but mitigable* impact.**

Mitigation Measures. Mitigation Measure T-2 would be required. No additional mitigation is necessary.

Significance After Mitigation. With implementation of mitigation, impacts would be less than significant.

Impact T-10 Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive is projected to operate at LOS F. This would be a Class I, *significant but unavoidable* impact.

Mitigation Measures. Mitigation Measure T-1 would be required. No additional mitigation is feasible.

Significance After Mitigation. Implementation of Mitigation Measure T-1 would improve operation to LOS D, but would not meet the City's LOS C standard. Therefore, impacts would be significant and avoidable.

Impact T-11 Mt. Hermon Road/Washington Mutual-Specific Plan Access is projected to operate unacceptably at LOS F. This would be a Class II, *significant but mitigable* impact.

Mitigation Measures. Mitigation Measure T-4 would be required. No additional mitigation is necessary.

Significance After Mitigation. With implementation of mitigation, impacts would be less than significant.

k. Buildout with Mid-Town Interchange Conditions Impacts and Mitigation Measures. If a Mid-Town interchange were in place under Buildout Conditions with the Town Center project, the following impacts and mitigation measures would be needed to mitigate significant impacts. Again, it is noted that the purpose of this analysis is not to recommend a Mid-Town interchange, but to document potential conditions with the Town Center project if an interchange were in place. The following impacts and mitigation measures have been identified for this scenario. Mitigated Level of Service calculations are summarized in Table 4.11-10.

Impact T-12 Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive is projected to operate at LOS E. This would be a Class I, *significant but unavoidable* impact.

Mitigation Measures. Mitigation Measure T-1 would be required. No additional mitigation is feasible.

Significance After Mitigation. Implementation of Mitigation Measure T-1 would improve operation to LOS D, but would not meet the City's LOS C standard. Therefore, impacts would be significant and avoidable.

Impact T-13 **Civic Center Drive-Disc Drive/Scotts Valley Drive is projected to operate unacceptably at LOS F under this scenario. This would be a Class II, *significant but mitigable* impact.**

Mitigation Measures.

T-13 Acceptable operation could be achieved at the signalized study intersection of Civic Center Drive-Disc Drive/Scotts Valley Drive by reconfiguring the westbound approach to provide a left-turn lane, a shared through and left-turn lane and a right-turn lane. The northbound Scotts Valley Drive approach should be widened to provide a northbound right-turn lane. The phasing for the eastbound and westbound approaches should be changed to split phasing.

Significance After Mitigation. With implementation of mitigation, impacts would be less than significant.

l. Buildout with Mid-Town Interchange plus Project Conditions Impacts and Mitigation Measures. Under Buildout with Mid-Town Interchange plus Project Conditions, 15 of the study intersections are expected to continue operating acceptably during both of the peak periods evaluated. The following five intersections are projected to operate unacceptably at LOS D or worse during one or both peak periods evaluated.

3. Mt. Hermon Road/Kings Village Road
5. Mt. Hermon Road/ Scotts Valley Drive-Whispering Pines Drive
7. Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive
10. Civic Center Drive-Disc Drive/Scotts Valley Drive
18. Mt. Hermon Road/Washington Mutual –Specific Plan Access

A summary of the Level of Service calculations is provided in Table 4.11-6 and copies of the calculations are provided in Appendix F. The following impacts and mitigation measures have been identified for this scenario. Mitigated Level of Service calculations are summarized in Table 4.11-10.

Impact T-14 **Mt. Hermon Road/Kings Village Road would be expected to operate unacceptably at LOS D. This would be a Class II, *significant but mitigable* impact.**

Mitigation Measures. Mitigation Measure T-8 would be required. No additional mitigation is necessary.

Significance After Mitigation. With implementation of mitigation, impacts would be less than significant.

Impact T-15 **Mt. Hermon Road/Scotts Valley Drive-Whispering Pines Drive is projected to operate unacceptably at LOS E. This would be a Class II, *significant but mitigable* impact.**

Mitigation Measures. Mitigation Measure T-1 would be required. No additional mitigation is feasible.

Significance After Mitigation. With implementation of mitigation, impacts would be less than significant.

Impact T-16 **Mt. Hermon Road/SR 17 Southbound Off Ramp-La Madrona Drive is projected to operate at LOS F. This would be a Class I, *significant but unavoidable* impact.**

Mitigation Measures. Mitigation Measure T-1 would be required. No additional mitigation is feasible.

Significance After Mitigation. Implementation of Mitigation Measure T-1 would improve operation to LOS D, but would not meet the City's LOS C standard. Therefore, impacts would be significant and avoidable.

Impact T-17 **Civic Center Drive-Disc Drive/Scotts Valley Drive is projected to operate unacceptably at LOS F under this scenario. This would be a Class II, *significant but mitigable* impact.**

Mitigation Measures. Mitigation Measure T-13 would be required. No additional mitigation is necessary.

Significance After Mitigation. With implementation of mitigation, impacts would be less than significant.

Impact T-18 **Mt. Hermon Road/Washington Mutual-Specific Plan Access is projected to operate unacceptably at LOS F. This would be a Class II, *significant but mitigable* impact.**

Mitigation Measures. Mitigation Measure T-4 would be required. No additional mitigation is necessary.

Significance After Mitigation. With implementation of mitigation, impacts would be less than significant.