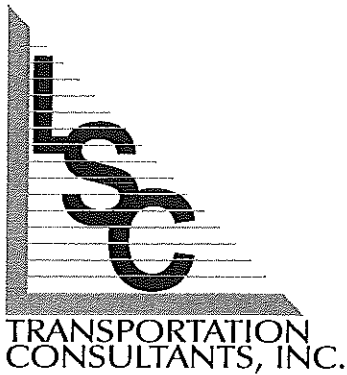


LSC TRANSPORTATION CONSULTANTS, INC.



516 North Tejon Street
Colorado Springs, CO 80903
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lscs.com
Website: <http://www.lscs.com>

February 4, 2010

Mr. Tom Daly
TKB Properties
6364 Mighty Flotilla Avenue
Las Vegas, NV 89139

RE: Mountain Edge Subdivision
Transportation Memorandum
LSC # 094810

Dear Mr. Daly:

In response to your request, LSC Transportation Consultants, Inc. has prepared this transportation memorandum for the proposed Mountain Edge Subdivision residential development located in El Paso County, Colorado. As shown on Figure 1, the site is located on the east side of McClelland Road between US Highway 24 and Scott Road. The site is planned to be developed with five single-family houses and is proposed to have one full-movement access on McClelland Road.

REPORT CONTENTS

This memorandum is being prepared as part of a submittal to El Paso County. The memorandum identifies the traffic impacts of the proposed development on the adjacent roadway. The report contains the following: existing traffic and roadway conditions in the site's vicinity; projected weekday and peak-hour site-generated traffic volumes; assignment of the projected traffic volumes to the adjacent roadway; projected background and resulting total traffic volumes on the adjacent roadway; and projected levels of service at the site access.

LAND USE AND ACCESS

Figure 2 shows the site plan. The site is currently undeveloped. It is planned to contain five single-family houses. A full-movement access is proposed on McClelland Road at the northwest corner of the site.

Sight Distance

The sight distance from the proposed access point north and south on McClelland Road is acceptable, as McClelland Road is relatively flat in the vicinity of the site.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The area roadways are shown on Figure 1 and the adjacent roadway is described below.

- **McClelland Road** is a two-lane gravel County Road extending north from Garrett Road to approximately five miles north of US 24. There is no posted speed limit on McClelland Road in the vicinity of the site. McClelland Road is not classified on either the *El Paso County Major Thoroughfare Plan* or *El Paso County Corridor Preservation Map*.

Existing Traffic Conditions

Figure 3 shows the existing daily, morning peak-hour and afternoon peak-hour traffic volumes on McClelland Road adjacent to the site. The traffic volumes are from the attached traffic counts conducted by LSC in November 2009.

TRIP GENERATION

The site-generated traffic volumes were estimated using the nationally published trip generation rates from *Trip Generation, 8th Edition, 2008* by the Institute of Transportation Engineers (ITE). Table 1 shows the trip generation estimates.

The site is projected to generate about 50 new vehicle-trips on the average weekday, with about half entering and half exiting the site. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about one vehicle would enter and three vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about three vehicles would enter and two vehicles would exit the site.

TRIP DISTRIBUTION AND ASSIGNMENT

The directional distribution of the site-generated traffic volumes on the area roadways is one of the most important factors in determining the site's traffic impacts. Figure 4 shows the directional distribution estimates for the site-generated traffic volumes. The estimates were based on the following factors: the site's location with respect to the regional employment, commercial, and activity centers and the balance of the Colorado Springs metropolitan area; the site's proposed land uses; and the roadway system serving the site.

SITE-GENERATED TRAFFIC

Figure 4 shows the average weekday and peak-hour site-generated traffic volumes, which were calculated by applying the directional distribution percentages to the trip generation estimates.

EXISTING PLUS SITE-GENERATED TRAFFIC

Figure 5 shows the existing plus site-generated traffic volumes. The existing plus site-generated traffic volumes are the sum of the site-generated traffic volumes (from Figure 4) and the existing traffic volumes (from Figure 3).

2035 TOTAL TRAFFIC

Figure 6 shows the total traffic volumes for the year 2035. The 2035 total traffic volumes are based on an annual growth rate of two percent applied to the existing traffic volumes, plus the site-generated traffic volumes.

PROJECTED LEVELS OF SERVICE

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay. LOS F is indicative of a high level of congestion or delay. Attached are specific level of service definitions for unsignalized and signalized intersections.

The site access point on McClelland Road was analyzed to determine the projected levels of service for the existing plus site-generated and 2035 total traffic volumes based on the unsignalized method of analysis procedures from the *Highway Capacity Manual, 2000 Edition* by the Transportation Research Board. Figures 5 and 6 show the level of service analysis results. All of the movements at the analyzed intersections are projected to operate at LOS A during the peak hours through the year 2035. The level of service reports are attached.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The site is projected to generate about 50 new vehicle-trips on the average weekday, with about half entering and half exiting the site. During the morning peak hour, about one vehicle would enter and three vehicles would exit the site. During the afternoon peak hour, about three vehicles would enter and two vehicles would exit the site.

Projected Levels of Service

2. All of the movements at the proposed access on McClelland Road are projected to operate at LOS A during the peak hours through the year 2035.

Sight Distance

3. The sight distance from the proposed access point north and south on McClelland Road is acceptable, as McClelland Road is relatively flat in the vicinity of the site.

Auxiliary Turn Lanes

4. The projected hourly turning volumes at the site access point on McClelland Road do not meet the thresholds requiring auxiliary turn lanes.

Paving Requirements

5. The additional site-generated traffic is not expected to increase the average daily traffic on McClelland Road to greater than 200 vehicles per day. No paving should be necessary.

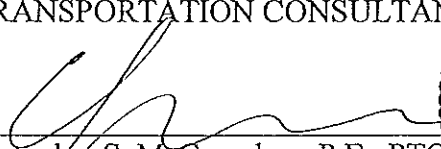
* * * * *

We trust this transportation memorandum will assist you in gaining approval of the proposed Mountain Edge Subdivision residential development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By


Christopher S. McGranahan, P.E., PTOA
Associate

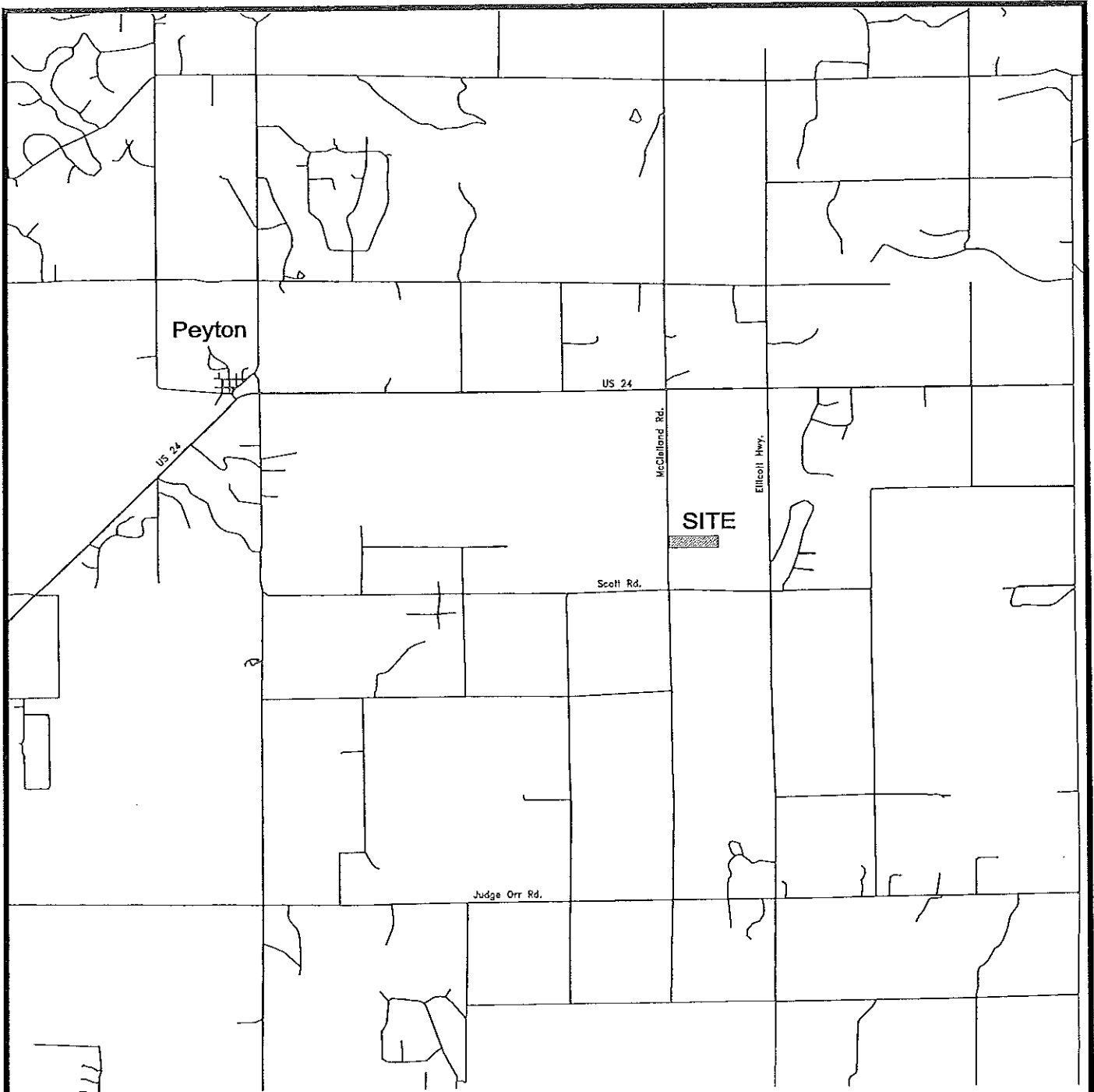


CSM:EJL:bjwb

Enclosures: Table 1
Figures 1-6
Traffic Count Reports
Level of Service Definitions
Level of Service Reports

Table 1
Mountain Edge Subdivision
Trip Generation Estimates

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates ⁽¹⁾						Total Trips Generated							
			Average Weekday Traffic			Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic			Morning Peak Hour		Afternoon Peak Hour	
			In	Out	Peak Hour	In	Out	Peak Hour	In	Out	Peak Hour	In	Out	Peak Hour	In	Out
210	Single-Family Detached Housing	5 DU ⁽²⁾	9.57	0.19	0.56	0.64	0.37	48	1	3	3	2				
Notes:																
(1) Source: "Trip Generation, 8th Edition, 2008" by the Institute of Transportation Engineers (ITE)																
(2) DU = dwelling unit																
Source: LSC Transportation Consultants, Inc.																



Not to Scale

Vicinity Map
Mountain Edge Subdivision

Figure 1
LSC # 094810

~600' to
nearest
driveway to
the north

~925' to
nearest
driveway to
the south

McCLELLAND ROAD

Proposed
full-movement access

Lot 1
7.020 Acres

Lot 2
2.532 Acres

Lot 3
7.035 Acres

Lot 5
7.651 Acres

Lot 4
6.674 Acres

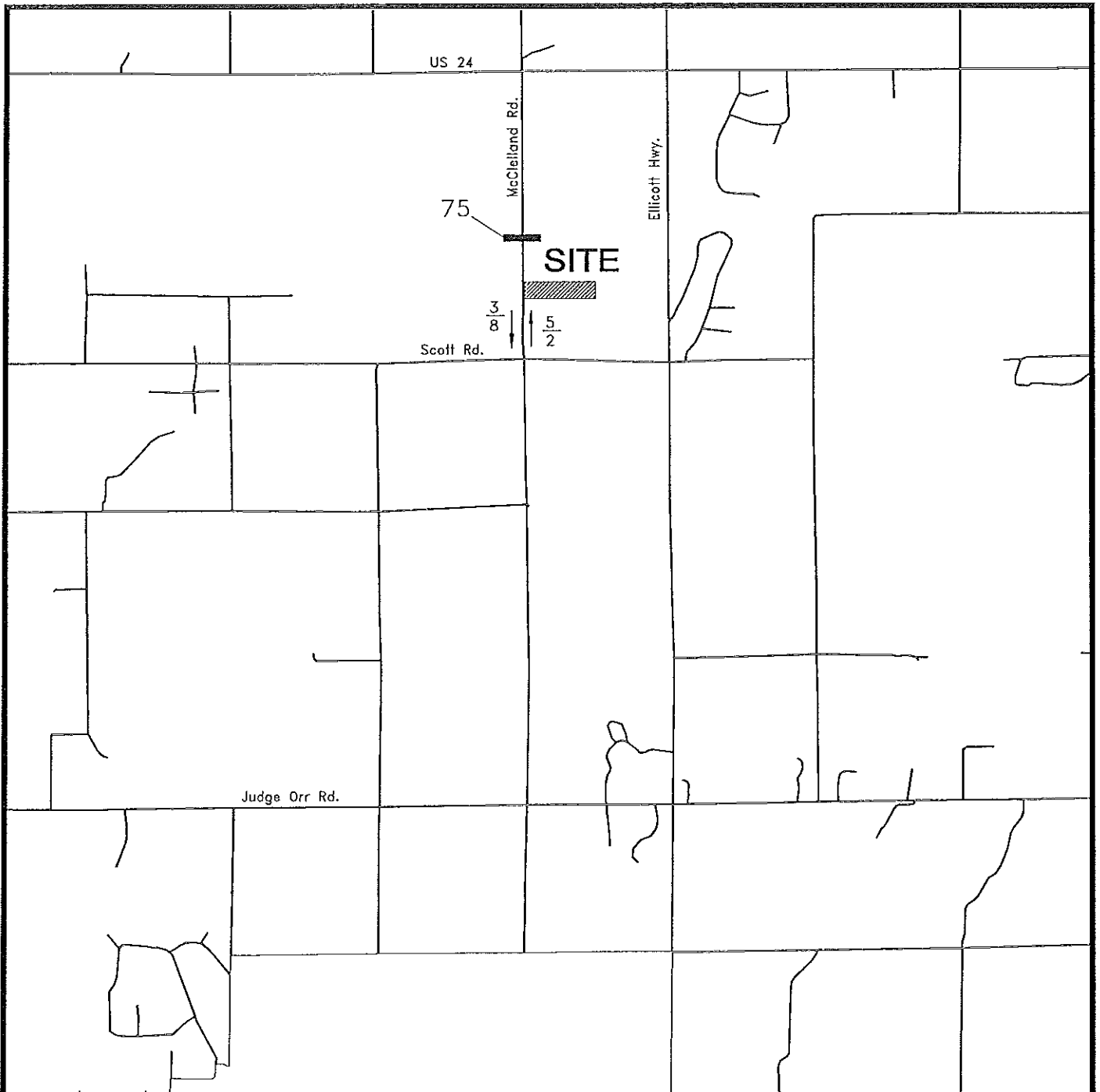
PARADISE COURT (to east)



Not to Scale

Site Plan
Mountain Edge Subdivision

Figure 2
LSC # 094810



Legend:

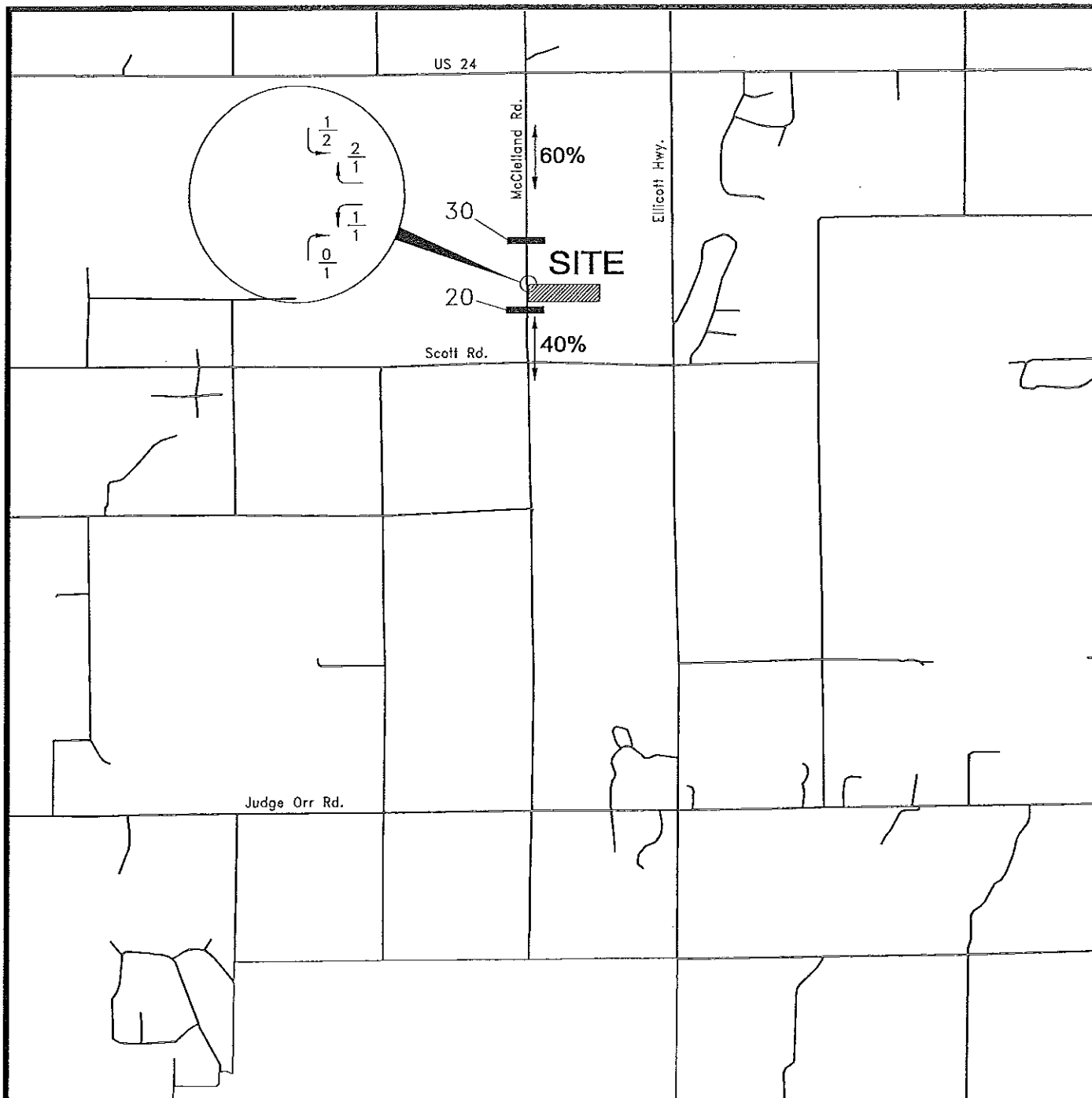
$\frac{xxx}{xxx}$ $\frac{am}{pm}$ -Weekday peak-hour traffic (vehicles per hour)

XX,XXX -Average weekday traffic (vehicles per day)

Counts by LSC 11/09



Not to Scale



Legend:

$\frac{xxx}{xxx}$ $\frac{am}{pm}$ —Weekday peak-hour traffic (vehicles per hour)

XX,XXX —Average weekday traffic (vehicles per day)

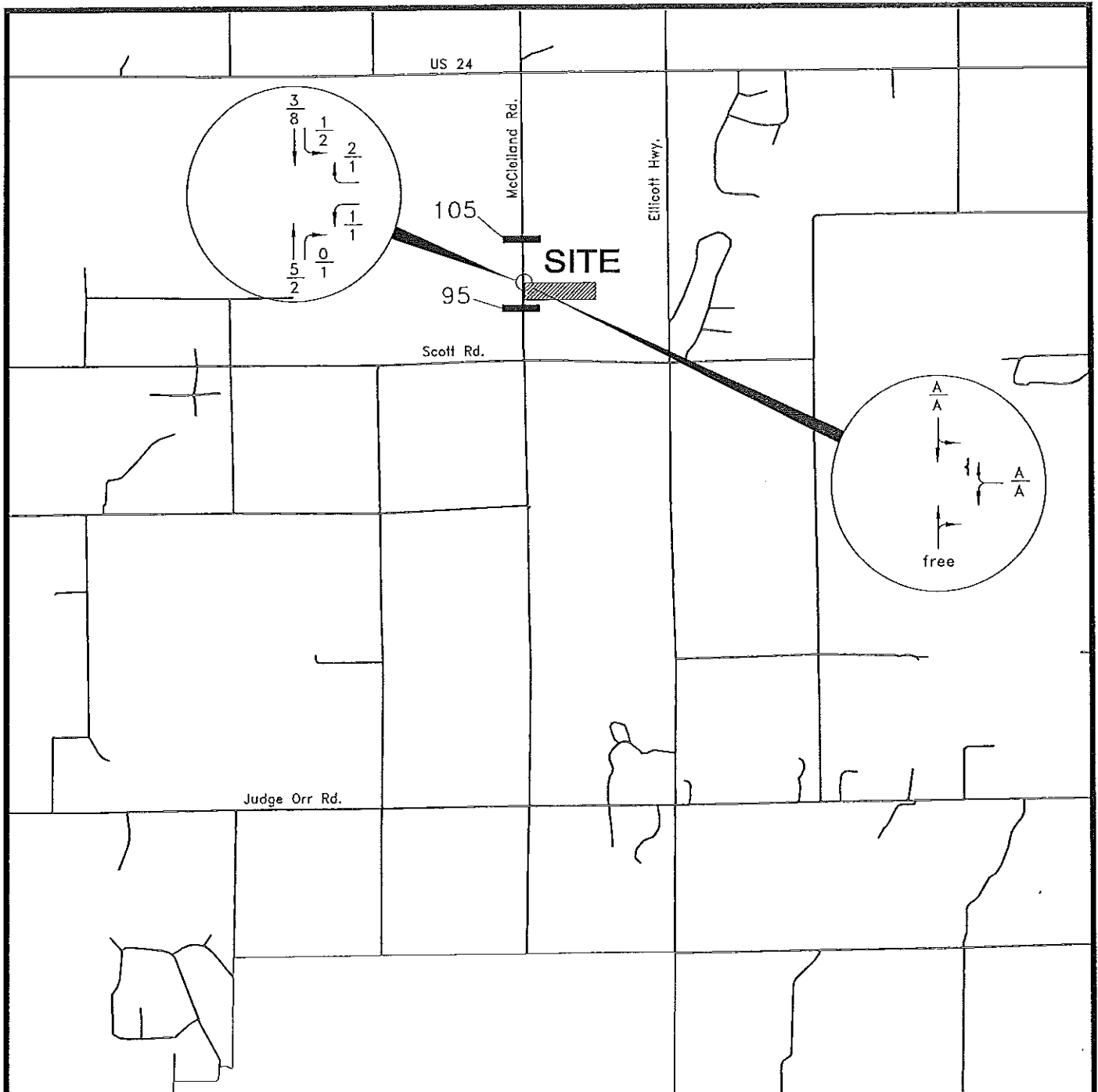
XX% —Directional distribution of site-generated traffic



Not to Scale

Directional Distribution and Assignment of Site-Generated Traffic Mountain Edge Subdivision

Figure 4
LSC # 094810



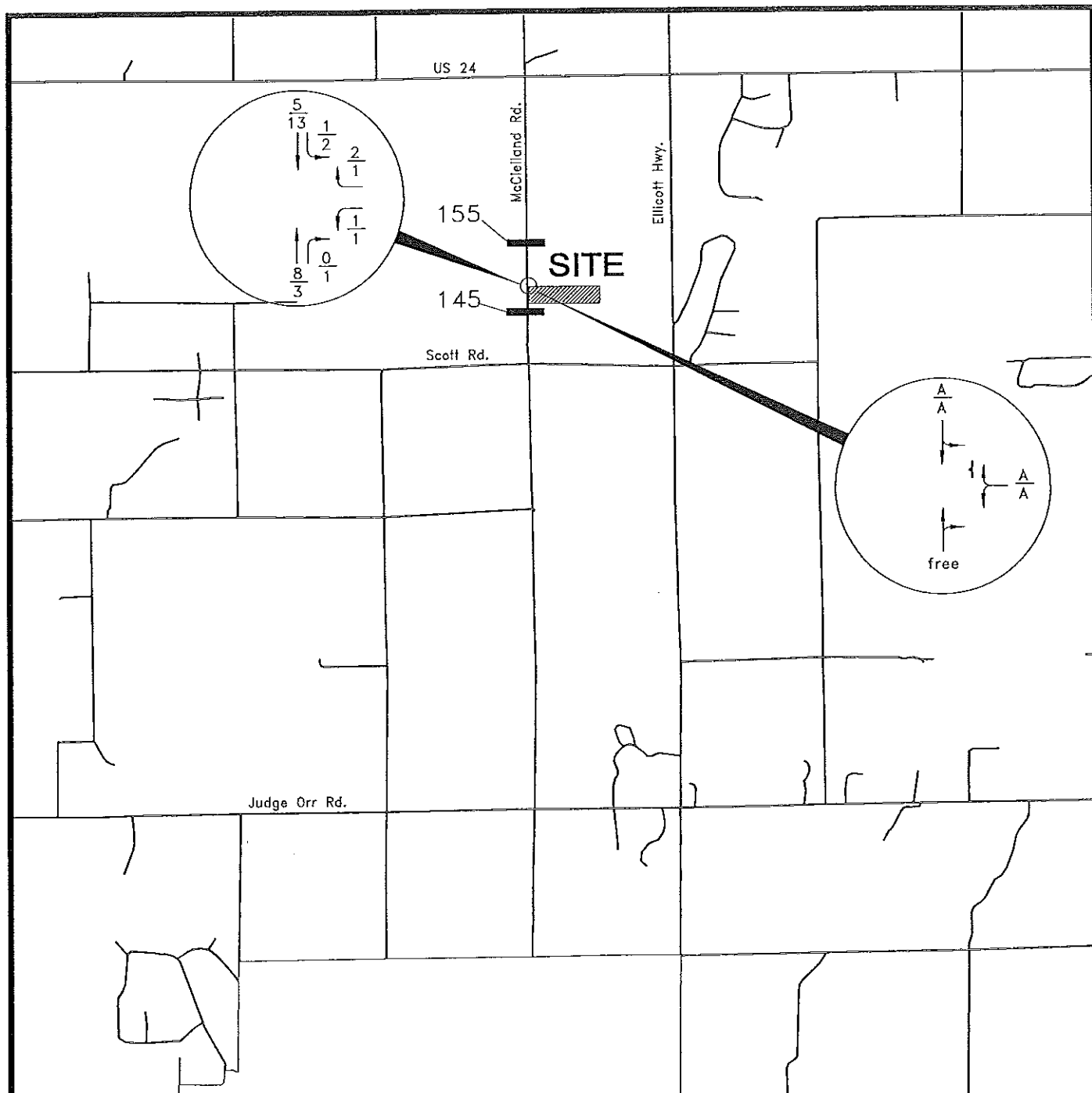
Not to Scale

Existing Plus Site-Generated Traffic, Lane Geometry, Traffic Control and Level of Service

Mountain Edge Subdivision

Figure 5

LSC # 094810



Legend:

$\frac{xxx}{xxx}$ $\frac{am}{pm}$ -Weekday peak-hour traffic (vehicles per hour)

XX,XXX -Average weekday traffic (vehicles per day)

$\frac{X}{X}$ $\frac{am}{pm}$ -Individual movement peak-hour Level of Service

{ -Stop sign



Not to Scale

**2035 Total Traffic, Lane Geometry,
Traffic Control and Level of Service**
Mountain Edge Subdivision

Figure 6
LSC # 094810

LSC Transportation Consultants

Page 1

516 N. Tejon St.
Colorado Springs, Co 80903
(719) 633-2868

MCCLELLAND N-O SCOTT-VOL

Site Code:

Station ID:

Latitude: 0' 0.000 Undefined

Start Time	18-Nov-09 Wed	Northbound		Southbound		Combined		19-Nov-Thu	Northbound		Southbound		Combined	
		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		*	*	*	*	*	*		0	1	0	1	0	2
12:15		*	*	*	*	*	*		0	0	0	0	0	0
12:30		*	*	*	*	*	*		0	1	0	0	0	1
12:45		*	*	*	*	*	*		0	0	0	0	0	0
01:00		*	*	*	*	*	*		0	1	0	0	0	1
01:15		*	*	*	*	*	*		0	0	0	1	0	1
01:30		*	*	*	*	*	*		0	1	0	0	0	1
01:45		*	*	*	*	*	*		0	0	0	0	0	0
02:00		*	*	*	*	*	*		0	0	0	0	0	0
02:15		*	*	*	*	*	*		0	0	0	0	0	0
02:30		*	*	*	*	*	*		0	0	0	1	0	1
02:45		*	*	*	*	*	*		1	2	1	1	2	3
03:00		*	2	*	4	*	6		0	1	0	0	0	1
03:15		*	2	*	1	*	3		0	0	0	1	0	1
03:30		*	1	*	2	*	3		0	2	0	1	0	3
03:45		*	0	*	0	*	0		0	0	0	0	0	0
04:00		*	0	*	3	*	3		0	0	0	3	0	3
04:15		*	0	*	0	*	0		0	1	0	3	0	4
04:30		*	0	*	2	*	2		0	1	0	1	0	2
04:45		*	1	*	1	*	2		0	1	0	2	0	3
05:00		*	0	*	1	*	1		0	0	0	0	0	0
05:15		*	0	*	2	*	2		0	0	0	0	0	0
05:30		*	1	*	2	*	3		0	0	0	1	0	1
05:45		*	1	*	2	*	3		1	1	0	2	1	3
06:00		*	1	*	0	*	1		1	1	0	0	1	1
06:15		*	0	*	0	*	0		0	1	0	0	0	1
06:30		*	0	*	1	*	1		0	1	0	1	0	2
06:45		*	0	*	0	*	0		1	2	3	1	4	3
07:00		*	0	*	1	*	1		2	0	0	0	2	0
07:15		*	0	*	1	*	1		1	0	0	0	1	0
07:30		*	2	*	0	*	2		2	0	0	0	2	0
07:45		*	0	*	1	*	1		1	0	1	0	2	0
08:00		*	0	*	0	*	0		0	0	1	0	1	0
08:15		*	0	*	0	*	0		1	0	1	1	2	1
08:30		*	0	*	1	*	1		0	0	0	0	0	0
08:45		*	0	*	0	*	0		0	0	0	2	0	2
09:00		*	0	*	0	*	0		1	0	0	0	1	0
09:15		*	1	*	0	*	1		0	0	0	0	0	0
09:30		*	0	*	0	*	0		1	0	0	0	1	0
09:45		*	0	*	0	*	0		0	0	0	0	0	0
10:00		*	0	*	0	*	0		0	0	0	0	0	0
10:15		*	0	*	0	*	0		2	0	0	0	2	0
10:30		*	0	*	0	*	0		1	0	1	1	2	1
10:45		*	0	*	0	*	0		0	0	0	0	0	0
11:00		*	0	*	0	*	0		1	0	1	0	2	0
11:15		*	0	*	0	*	0		1	0	0	0	1	0
11:30		*	0	*	0	*	0		0	0	0	0	0	0
11:45		*	0	*	0	*	0		0	0	0	0	0	0
Total		0	12	0	25	0	37		18	18	9	24	27	42
Day Total		12		25		37		36		33		69		
% Total		0.0%	32.4%	0.0%	67.6%			26.1%	26.1%	13.0%	34.8%			
Peak		03:00		03:00		03:00		06:45	02:45	06:00	04:00	06:45		04:00
Vol.		5		7		12		6	5	3	9	9		12
P.H.F.		0.625		0.438		0.500		0.750	0.625	0.250	0.750	0.563		0.750

Level of Service Definitions

The following descriptions have been adopted directly from the Transportation Research Board's *Highway Capacity Manual (HCM 2000)*, *Fourth Edition*. The methodologies used in the preceding report are consistent with the descriptions listed herein and within the original text.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service (LOS) is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions and the driver's perception of those conditions. Safety is not included in the measures that establish service levels.

SERVICE FLOW RATES

The analytical methods in the HCM 2000 attempt to establish or predict the maximum flow rate for various facilities at each level of service—except for LOS F, for which the flows are unstable or the vehicle delay is high. Thus, each facility has five service flow rates, one for each level of service (A through E). For LOS F, it is difficult to predict flow due to stop-and-start conditions.

The service flow rate is the maximum hourly rate at which persons or vehicles reasonably can be expected to traverse a point or uniform segment of a lane or roadway during a given period under prevailing roadway, traffic, and control conditions while maintaining a designated level of service. The service flow rates generally are based on a 15-minute period. Typically, the hourly service flow rate is defined as four times the peak 15-minute volume.

Level of Service Criteria for TWSC* Intersections	
Level of Service	Average Control Delay (Sec/Veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50
*TWSC - Two-Way Stop Controlled	
Source: Highway Capacity Manual 2000, Exhibit 17-2.	