



Development Services Department  
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# DEVIATION REVIEW AND DECISION FORM

Procedure # R-FM-051-07  
 Issue Date: 12/31/07  
 Revision Issued: 00/00/00

DSD FILE NO.:

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**General Property Information:**

Address of Subject Property (Street Number/Name):

Tax Schedule ID(s) #: 4200000410

Legal Description of Property: TR OF LAND IN SEC 29-12-64 DESC AS FOLS: BEG AT NE COR MERIDIAN RANCH STONEBRIDGE FIL NO 1 POINT BEING ON SLY ROW LN LONDONDERRY DR, TH ALG ARC OF CUR TO THE R HAVING A RAD OF 4940.00FT A C/A OF 09-57-28 AND AN ARC DIST OF 858.56FT WHICH CHORD BEARS N89<15'02" E A DIST OF 857.48FT, TH S85<46'14" E 478.83FT, TH ALG CUR TO THE L HAVING A RAD OF 5060.00FT A C/A OF 02-31-14 AND AN ARC DIST OF 222.61FT WHICH CHORD BEARS S67<01'51" E A DIST 222.59FT, TH S88<17'28" E 780.51FT, TH ALG ARC OF CUR TO THE R HAVING A RAD OF 2940.00FT A C/A OF 11-52-31 AND AN ARC DIST OF 609.36FT WHICH CHORD BEARS S82<21'13" E A DIST OF 608.27FT, TH S30<42'16" E 30.84FT, S14<47'33" W 205.82FT, TH ALG ARC OF A CUR TO THE R HAVING A RAD OF 2460.00FT A C/A OF 02-17-15 AND AN ARC DIST OF 98.22FT WHICH CHORD BEARS S15<56'10" W A DIST OF 98.21FT, TH S17<04'48" W 1001.16FT, TH ALG ARC OF CUR TO THE R HAVING A RAD OF 1460.00FT A C/A OF 08-03-03 AND AN ARC DIST OF 205.15FT WHICH CHORD BEARS S21<06'20" W A DIST OF 204.98FT, TH N64<52'09" W 294.58FT, N28<43'28" W 308.38FT, N55<38'05" W 290.90FT, N09<37'54" W 190.96FT, N23<25'11" E 140.26FT, N83<50'41" W 410.00FT, N61<19'51" W 500.00FT, N85<52'49" W 400.00FT, S66<06'02" W 600.00FT TO NON-TANG CUR, TH ALG ARC OF CUR TO THE R HAVING A RAD OF 970.00FT A C/A OF 14-46-01 AND AN ARC DIST OF 250.00FT WHICH CHORD BEARS N13<42'54" W A DIST OF 30.98FT TO POB 249.31FT, TH N06<19'54" W 397.95FT, N38<54'22" E

Subdivision or Project Name:

Stonebridge Filing No. 3

Section of ECM from Which Deviation is Sought: D.3 Pavement Design Criteria

Specific Criteria from Which a Deviation is Sought: Table D-2 specifies a minimum pavement section of 3.0 inches of Asphalt and 8.0 inches of Base for an Urban Local based on an ESAL unit of 292,500

Proposed Nature and Extent of Deviation: Allow for a pavement section of 3.0 inches of Asphalt and 6.0 inches of Base for Stoney Meadows Way and Ledgestone Terrace based a design ESAL unit of 73,500 per the attached memo; ~~Allow for a pavement section of 3.0 inches of Asphalt and 6.0 inches of Base for Stoney Meadows Way and Ledgestone Terrace based a design ESAL unit of 73,500. Also, LSC requests that this deviation be applicable to similar requests within Meridian Ranch until the ECM is amended.~~ as recommended per the following: A previous version of the ECM included separate ESAL and pavement section values for lower and higher volume Urban Local streets (attached for reference). However, the ECM did not clearly explain the purpose and correct application of the two sets of values. As such, the ECM criteria were not applied correctly (our understanding) and the provision was removed from the ECM. LSC recommends the provision be reinstated in the ECM with an updated table and instructions clearly explaining how to correctly apply the criteria. The table may be similar to the one in the attached memo. LSC will draft a revision for County review. ~~Along with this, LSC requests that this deviation be applicable to similar requests within Meridian Ranch until the ECM is amended.~~

**Applicant Information:**

Applicant: Tech Contractors

Email Address: raul@techbilt.com

Applicant is:  Owner  Consultant  Contractor

Mailing Address: 3575 Kenyon St., Suite 200 San Diego

State: CA

Postal Code: 92110

Telephone Number: (619) 223-1663

Fax Number: \_\_\_\_\_



■ A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

The projected ESAL for the proposed street segments based on the street-specific projected traffic volumes in the TIS is significantly lower than the standard Urban Local street minimum ESAL in Table D-1 of the ECM. The ECM ESAL value is based on the maximum allowed average weekday traffic volume on an Urban Local while the proposed ESAL value is based on the specific projected volumes and corresponding ESAL value by specific street section.

**If at least one of the criteria listed above is not met, this application for deviation cannot be considered.**

**Criteria for Approval:**

**PLEASE EXPLAIN HOW EACH OF THE FOLLOWING CRITERIA HAVE BEEN SATISFIED BY THIS REQUEST**

The request for a deviation is not based exclusively on financial considerations.

The deviation is requested to avoid unnecessary over-building of the street.

The deviation will achieve the intended result with a comparable or superior design and quality of improvement.

The projected ESAL for the proposed street segments based on the street-specific projected traffic volumes in the TIS is significantly lower than the standard Urban Local street minimum ESAL in Table D-1 of the ECM. The ECM ESAL value is based on the maximum allowed average weekday traffic volume on an Urban Local while the proposed ESAL value is based on a narrower ADT range to account for variations in Urban Local street volumes. The Urban Local street classification has a wide ADT range of 300 to 3,000 vehicles per day. The request is to allow ESALS to be calculated based on projected buildout ADTs from the TIS and a set of more narrowly-defined ADT ranges within the Urban Local classification. Please refer to the attached memo which utilizes this approach.

The deviation will not adversely affect safety or operations.

The deviation would not affect safety or operations as design is appropriate for the street.

The deviation will not adversely affect maintenance and its associated cost.

The deviation would not affect maintenance as the design is appropriate for the street.

The deviation will not adversely affect aesthetic appearance.

The deviation would not affect aesthetic appearance as the design is appropriate for the street.

**Owner, Applicant and Engineer Declaration:**

To the best of my knowledge, the information on this application and all additional or supplemental documentation is true, factual and complete. I am fully aware that any misrepresentation of any information on this application may be

El Paso County Procedures Manual  
Procedure # R-FM-051-07  
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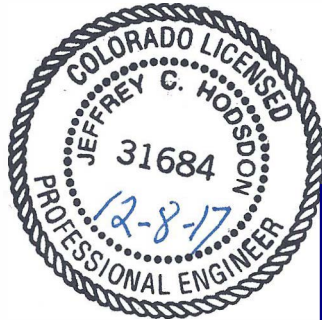
grounds for denial. I have familiarized myself with the rules, regulations and procedures with respect to preparing and filing this application. I also understand that an incorrect submittal will be cause to have the project removed from the agenda of the Planning Commission, Board of County Commissioners and/or Board of Adjustment or delay review, and that any approval of this application is based on the representations made in the application and may be revoked on any breach of representation or condition(s) of approval.

\_\_\_\_\_  
Signature of owner (or authorized representative) Date

\_\_\_\_\_  
Signature of applicant (if different from owner) Date

\_\_\_\_\_  
Signature of Engineer Date 12-8-17

Engineer's Seal



Review and Recommendation:  
**APPROVED** by the ECM Administrator

**Approved**  
By: Jennifer Irvine, County Engineer  
Date: 03/19/2018  
El Paso County Department of Public Works  
Date

This request has been determined to have met the criteria for approval. A deviation from Section D.3 of ECM is hereby granted based on the justification provided. Comments:  
The approval of this deviation request is limited to Stoney Meadows Way and Ledgestone Terrace and does not set precedence concerning approval of additional deviations with respect to this section of the ECM on any future filings or requests. This deviation will be rendered null and void if site or subdivision conditions are changed, modified, or altered prior to the construction of the improvements.

\_\_\_\_ Additional comments or information are attached.

**DENIED** by the ECM Administrator

\_\_\_\_\_  
Date

This request has been determined not to have met criteria for approval. A deviation from Section \_\_\_\_\_ of ECM is hereby denied. Comments:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_ Additional comments or information are attached.



LSC TRANSPORTATION CONSULTANTS, INC.  
545 East Pikes Peak Avenue, Suite 210  
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Website: <http://www.lsctrans.com>

November 20, 2017

Mr. Raul Guzman  
Tech Contractors  
P.O. Box 80036  
San Diego, California 92138

RE: Stonebridge at Meridian Ranch Filing 3  
El Paso County, Colorado  
Transportation Memorandum  
LSC #174070

Dear Mr. Guzman:

In response to your request, LSC Transportation Consultants, Inc. has prepared this transportation memorandum for Stonebridge at Meridian Ranch Filing 3 in El Paso County, Colorado. The site is located south of Londonderry Drive between Rainbow Bridge Drive and Lambert Road. LSC completed a traffic impact analysis for this development dated February 13, 2017. This memorandum contains the projected buildout weekday traffic volumes and segment-specific Equivalent Single Axle Load (ESAL) values for use in pavement design for the interior streets.

## TOTAL TRAFFIC

Figure 1 shows the short-term and long-term projected average weekday traffic volumes on the interior streets of Stonebridge at Meridian Ranch Filing 3. These volumes are based on the trip generation estimates and short-term directional distribution estimates shown in the February 2017 traffic impact study. The short-term total traffic volumes assume Lambert Road has not been extended south to Stapleton Drive. The long-term total traffic volumes assume buildout of the street network within the Meridian Ranch development including the extension of Lambert Road south to Stapleton Drive.

## ESAL CALCULATIONS

LSC has calculated segment-specific Equivalent Single Axle Load (ESAL) values for use in the pavement design of the planned streets within Stonebridge at Meridian Ranch Filing 3. Segments have been identified as Urban Local (Low Volume) or Urban Local (Pavement Only). For purposes of this ESAL calculation report, the Local (Pavement Only) category has been divided into ADT (average daily traffic) ranges. By determining design ESALs using this procedure, the geotechnical engineer may be able to determine a suitable pavement section requiring, in some cases, slightly less base course depth, thereby saving on material costs while at the same time providing an appropriate design. The average daily traffic volumes were broken into five ranges as shown in the attached

Table 1. As presented in the table, these ranges are from 0-300, >300-750, >750-1,050, >1,050-2,000, and 2,000-3,000. The purpose of grouping the traffic volumes in this way was to provide a means of comparing the calculated and proposed design ESAL values for each street segment to the minimum design ESAL values listed in Table D-2 of the *El Paso County Engineering Criteria Manual (ECM)* (attached for reference).

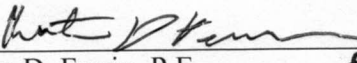
The ECM outlines procedures for calculating ESAL values and determining the corresponding depth of asphalt pavement required based on the street classification. For urban local (low volume) streets (up to 300 ADT), the ECM requires a truck percentage of three percent to be used. For urban local streets (300 to 3,000 ADT), the ECM requires a truck percentage of four percent to be used. The ECM does not specify the vehicle mix of multi-unit and single-unit trucks. The ECM only indicates the total truck percentage. On local (low volume) streets, a vehicle mix of two percent single-unit trucks, one percent multi-unit trucks, and 97 percent cars/pickups was assumed for a total truck percentage of three percent. On urban local streets, a vehicle mix of 2.33 percent single-unit trucks, 1.67 percent multi-unit trucks, and 96 percent cars/pickups was assumed for a total truck percentage of four percent.

Table 2 shows the ESAL calculations for each street segment based on both the short-term and buildout total average weekday traffic volumes. Table 2 also shows a 20-year weighted average ESAL for each segment. The weighted average ESALs assume the short-term condition occurs for four years and the buildout condition occurs for 16 years. Figure 1 shows the worst case recommended classification and design ESAL based on the higher of the short-term and buildout average weekday traffic volume for each segment.

Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.







By   
Kirstin D. Ferrin, P.E.  
Senior Transportation Engineer



Enclosures: Tables 1-2  
Figure 1  
Table D-2 of the ECM



**Table 1**  
**Stonebridge Filing No. 3**  
**Street Classifications (for pavement design) with ADT Ranges and ESAL Values**

<b>Segment Identifier (from Figure 3)</b>	<b>Urban Street Functional Classification (from ECM Table D-2)</b>	<b>ADT Volume Range</b>	<b>ECM ESAL (from ECM Table D-2) Version prior to 2011</b>	<b>LSC Proposed Design ESAL</b>
	Local (low volume)	0-300	36,500	36,500
	Local (pavement only)	>300-750 <sup>(1)</sup>	109,500	73,500
	Local (pavement only)	>750-1,120 <sup>(2)</sup>	109,500	109,500
	Local (pavement only)	>1,120-2,000 <sup>(3)</sup>	292,000	196,000
	Local	>2,000-3,000	292,000	292,000
	Non-Residential Collector	<20,000	- - -	821,000

Notes:

(1) Intermediate ESAL value calculated using 750 ADT and Local street truck percentages.

(2) 1,120 ADT not specifically quoted in ECM for Local (pavement only) streets, but resulting ESAL matches Table D-2 of the ECM when assuming 4% trucks. The 2011 ECM has been revised to remove the Local (pavement only) line in the table. This was due to confusion over its use rather than removal because of inaccuracy).

(3) Intermediate ESAL value calculated using 2,000 ADT and Local street truck percentages.

*Source: LSC Transportation Consultants, Inc.*

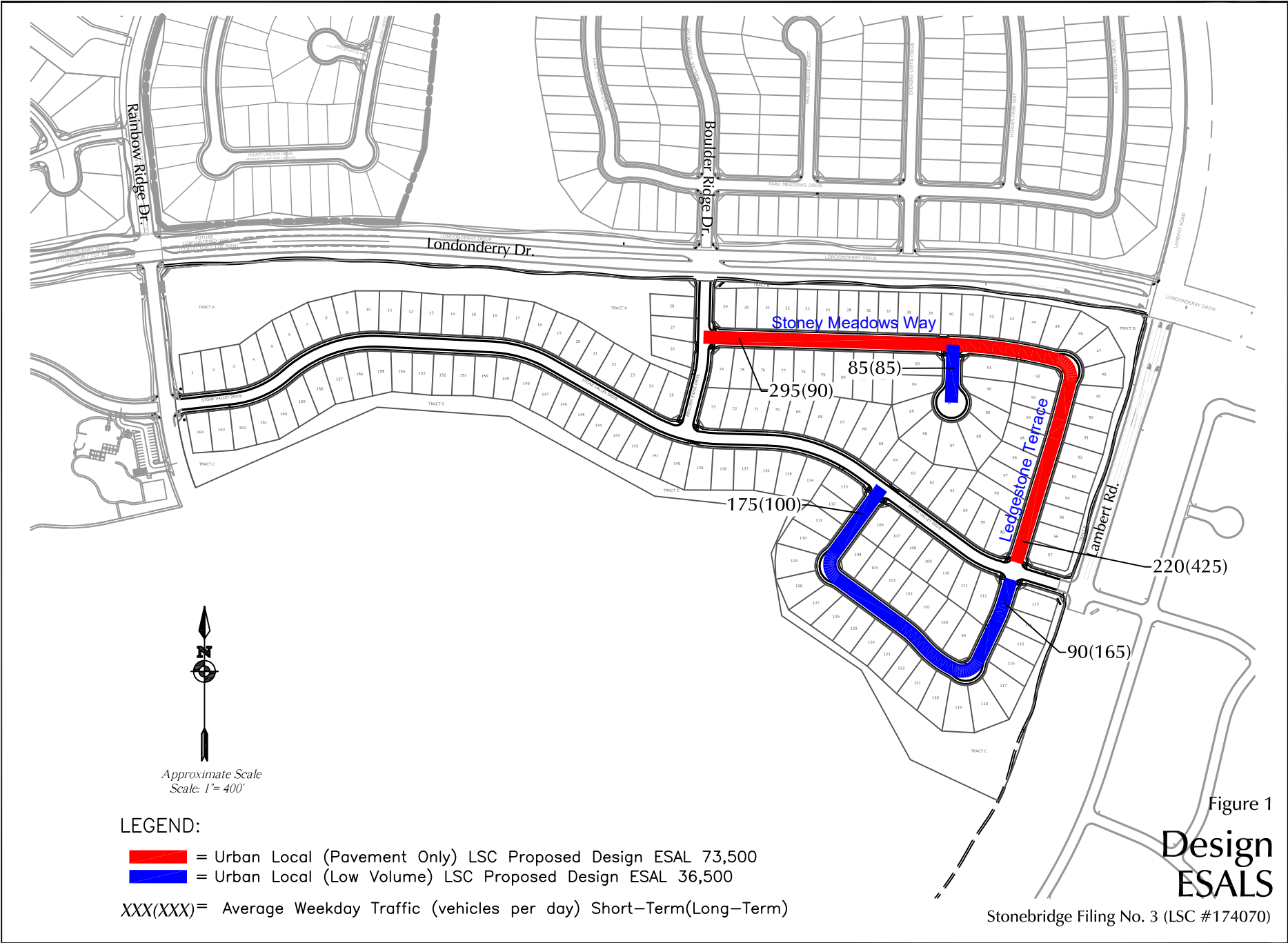
**Table 2  
Stonebridge Filing No. 3  
ESAL Calculation Table**

Segment	Classification	Vehicle Type	Short-Term								Buildout								Weighted Average <sup>(1)</sup>			
			Total Percent of One-Way ADT	Design Lane Percent of One-Way ADT	ADT (Vehicles Per Day)	Directional ADT (Vehicles Per Day)	Vehicles in Single Lane	CDOT Factor	EDLA	Calculated 20-Year 18-Kip ESAL	Recommended Design ESAL	Total Percent of One-Way ADT	Design Lane Percent of One-Way ADT	ADT (Vehicles Per Day)	Directional ADT (Vehicles Per Day)	Vehicles in Single Lane	CDOT Factor	EDLA	Calculated 20-Year 18-Kip ESAL	Recommended Design ESAL	Calculated 20-Year 18-Kip ESAL	Recommended Design ESAL
Stoney Meadows Way	Urban Local (Low Volume)	Multi-Unit Trucks	1.67%	1.67%	295	148	2	1.087	2.68	28,894	73,500	1.67%	1.67%	90	45	1	1.087	0.82	8,815	36,500	12,831	73,500
		Single-Unit Trucks	2.33%	2.33%			3	0.249	0.86			2.33%	2.33%			1	0.249	0.26				
		Passenger Cars/Pickup Trucks	96.00%	96.00%			142	0.003	0.42			96.00%	96.00%			43	0.003	0.13				
		<b>Total</b>																				
Bluffstone Court	Urban Local (Low Volume)	Multi-Unit Trucks	1.00%	1.00%	85	43	0	1.087	0.46	5,820	36,500	1.00%	1.00%	85	43	0	1.087	0.46	5,820	73,500	5,820	36,500
		Single-Unit Trucks	2.00%	2.00%			1	0.249	0.21			2.00%	2.00%			1	0.249	0.21				
		Passenger Cars/Pickup Trucks	97.00%	97.00%			41	0.003	0.12			97.00%	97.00%			41	0.003	0.12				
		<b>Total</b>																				
Ledgestone Terrace North of Stone Valley Drive	Urban Local (Pavement Only)	Multi-Unit Trucks	1.67%	1.67%	220	110	2	1.087	2.00	21,548	73,500	1.67%	1.67%	425	213	4	1.087	3.86	41,627	73,500	37,611	73,500
		Single-Unit Trucks	2.33%	2.33%			3	0.249	0.64			2.33%	2.33%			5	0.249	1.23				
		Passenger Cars/Pickup Trucks	96.00%	96.00%			106	0.003	0.32			96.00%	96.00%			204	0.003	0.61				
		<b>Total</b>																				
Ledgestone Terrace South of Stone Valley Drive	Urban Local (Low Volume)	Multi-Unit Trucks	1.00%	1.00%	90	45	0	1.087	0.49	6,163	36,500	1.00%	1.00%	165	83	1	1.087	0.90	11,298	73,500	10,271	36,500
		Single-Unit Trucks	2.00%	2.00%			1	0.249	0.22			2.00%	2.00%			2	0.249	0.41				
		Passenger Cars/Pickup Trucks	97.00%	97.00%			44	0.003	0.13			97.00%	97.00%			80	0.003	0.24				
		<b>Total</b>																				
Stone Peaks Way	Urban Local (Low Volume)	Multi-Unit Trucks	1.00%	1.00%	175	88	1	1.087	0.95	11,983	36,500	1.00%	1.00%	100	50	1	1.087	0.54	6,847	73,500	7,875	36,500
		Single-Unit Trucks	2.00%	2.00%			2	0.249	0.44			2.00%	2.00%			1	0.249	0.25				
		Passenger Cars/Pickup Trucks	97.00%	97.00%			85	0.003	0.25			97.00%	97.00%			49	0.003	0.15				
		<b>Total</b>																				

Notes:  
(1) The weighted average assumes four years under the short-term conditions and 16 years under the buildout conditions

Source: LSC Transportation Consultants, Inc.





**LEGEND:**

- █ = Urban Local (Pavement Only) LSC Proposed Design ESAL 73,500
- █ = Urban Local (Low Volume) LSC Proposed Design ESAL 36,500

XXX(XXX) = Average Weekday Traffic (vehicles per day) Short-Term(Long-Term)

Figure 1  
**Design ESALS**

Stonebridge Filing No. 3 (LSC #174070)

**Table D-2. Minimum Pavement Sections**

Roadway Functional Classification	ESAL	Composite Sections <sup>1</sup>		Portland Cement Concrete (in)
		Asphalt (in)	Base (in)	
<b>Rural</b>				
Local	36,500	3.0	4.0	5.0
Minor Collector	109,500	3.0	6.0	5.0
Major Collector	273,750	3.0	8.0	6.0
Minor Arterial	689,850	4.0	8.0	6.0
Principal Arterial, 4-lane	2,628,000	5.0	8.0	6.0
Principal Arterial, 6-lane	9,198,000	6.5	8.0	6.0
Expressway, 4-lane	3,942,000	6.5	10.0	6.0
Expressway, 6-lane	12,264,000	6.5	10.0	7.0
<b>Urban</b>				
Local (low volume)	36,500	3.0	4.0	5.0
Local	292,000	3.0	8.0	5.0
Residential Collector	821,000	4.0	8.0	6.0
Nonresidential Collector	821,000	4.0	8.0	6.0
Minor Arterial	1,971,000	5.0	8.0	6.0
Principal Arterial, 4-lane	5,256,000	5.0	8.0	6.0
Principal Arterial, 6-lane	8,176,000	6.5	8.0	6.0
Expressway, 4-lane	7,884,000	6.5	8.0	6.0
Expressway, 6-lane	9,811,000	6.5	10.0	7.0

**D.3.4 Flexible Pavement Strength Coefficients**

The standard design coefficients for pavement materials are provided in Table D-3. Design values shall be verified by predesign mix test data and supported by daily construction tests.

**D.3.5 Portland Cement Concrete Working Stress ( $f_t$ )**

The working stress ( $f_t$ ) shall be 75% of that provided by third-point beam loading which shall have minimum laboratory 28-day strength of 650 psi based on actual tests of materials to be used.

**D.3.6 Gravel Roads**

A minimum thickness of 6-inches shall be used on all newly constructed gravel roads meeting material specifications presented in Table D-7.

**D.4 PAVEMENT DESIGN PROCEDURE**

**D.4.1 Flexible Pavements**

The following procedure shall be used in determining the Structural Number (SN) and thickness of the pavement being designed.

Previous  
ECM  
Version

**Table D-2. Minimum Pavement Sections**

Roadway Functional Classification	EDLA	ESAL	Composite Sections <sup>1</sup>		Full Depth Asphalt (in)	Portland Cement Concrete (in)
			Asphalt (in)	Base (in)		
<b>Rural</b>						
Local	5.0	32,850	3.0	4.0	4.0	5.0
Minor Collector	15.0	109,500	3.0	6.0	4.5	5.0
Major Collector	38.0	273,750	3.0	8.0	5.0	6.0
Minor Arterial	95.0	689,850	4.0	8.0	6.0	6.0
Principal Arterial, 4-lane	360.0	2,628,000	5.0	8.0	7.0	6.0
Principal Arterial, 6-lane	1,260.0	9,198,000	6.5	8.0	8.5	6.0
Expressway, 4-lane	540.0	3,942,000	6.5	10.0	7.5	6.0
Expressway, 6-lane	1,680.0	12,264,000	6.5	10.0	9.0	7.0
<b>Urban</b>						
Local (low volume)	5.0	32,850	3.0	4.0	4.0	5.0
Local (pavement only) <sup>2</sup>	15.0	109,500	3.0	6.0	4.5	5.0
Local	40.0	292,000	3.0	8.0	5.0	5.0
Residential Collector	113.0	821,000	4.0	8.0	6.0	6.0
Nonresidential Collector	113.0	821,000	4.0	8.0	6.0	6.0
Minor Arterial	270.0	1,971,000	5.0	8.0	7.0	6.0
Principal Arterial, 4-lane	720.0	5,256,000	5.0	8.0	8.0	6.0
Principal Arterial, 6-lane	1,120.0	8,176,000	6.5	8.0	8.5	6.0
Expressway, 4-lane	1,080.0	7,884,000	6.5	8.0	8.5	6.0
Expressway, 6-lane	1,344.0	9,811,000	6.5	10.0	9.0	7.0
<sup>1</sup> A composite section can only be used where the R-value of the subgrade soil is 30 or lower; or the CBR value is 5 or lower <sup>2</sup> Section is for pavement design purposes only. All other design related requirements shall follow those designated under the Urban Local.						

**D.3.4 Flexible Pavement Strength Coefficients**

The standard design coefficients for pavement materials are provided in Table D-1. Design values shall be verified by predesign mix test data and supported by daily construction tests.

**D.3.5 Portland Cement Concrete Working Stress (ft)**

The working stress (ft) shall be 75% of that provided by third-point beam loading which shall have minimum laboratory 28-day strength of 600 psi based on actual tests of materials to be used.

**D.3.6 Gravel Roads**

A minimum thickness of 6-inches shall be used on all newly constructed gravel roads meeting material specifications presented in Table D-11.